



Award Winning Model Designs™

# Beechcraft Bonanza



Herr Engineering Corp. HRR108



## ASSEMBLY INSTRUCTIONS

Your kit contains the following parts. Please check your kit for any missing or damaged parts before starting construction.

COMPLETE KIT PARTS LIST					
1	Plan Sheet	1	Decal Sheet	2	White Tissue
1	Red Tissue	1	1/16"x12" Landing Gear Wire	1	Plastic Windshield
2	6"x3 1/4" Side Windows	1	Plastic Spinner	18	1/16" sq.x18" Balsa Strip
17	3/32" sq.x18" Balsa Strip	4	3132"x3/16"x18" Balsa Strip	1	3/16"x2" Birch Dowel
1	Instruction Manual	1	Plastic Propeller	1	Propeller Shaft
2	Brass Washer	1	Nylon Propeller Bearing	2	1.375" Plastic Wheels
1	1 1/8" Plastic Wheel	3	1/16" Plastic Wheel Retainers	1	3/16"x60" Rubber Strip
1	Laser Cut Plywood Disk (N-1)	8	Laser Cut Sheets		

### Tools and Building Supplies

You will need the following items to assemble this model. You must read and follow all of the manufactures instructions provided with these items!

**-Glue**

CA, White Glue, Siment or Ambroid all work well.

**-Cutting Tools**

A hobby knife with a #11 blade is used for general cutting. A single edge razor blade is also a useful cutting tool.

**-Clear Dope, Thinner & paint brush**

**-320 and 400 grit sandpaper**

**-Straight Pins**

**-Wax Paper**

**-Needle nose pliers**

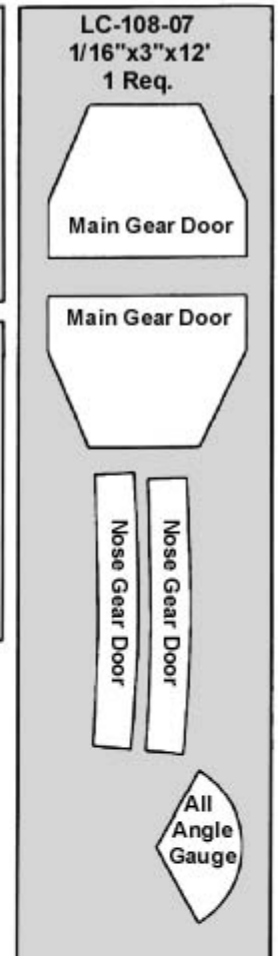
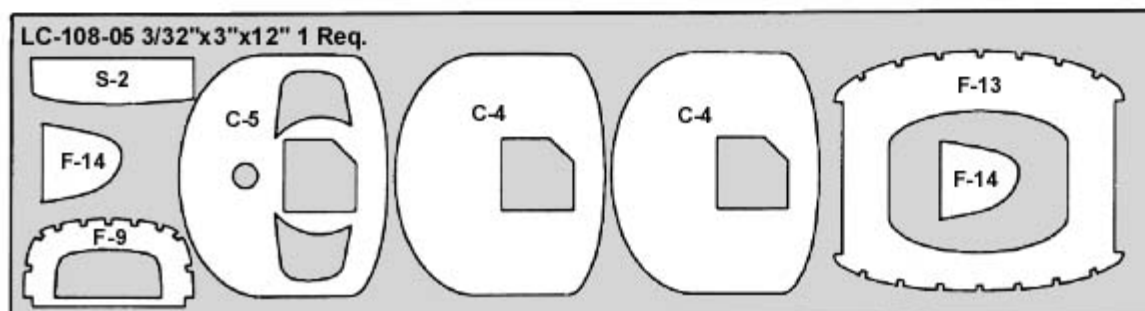
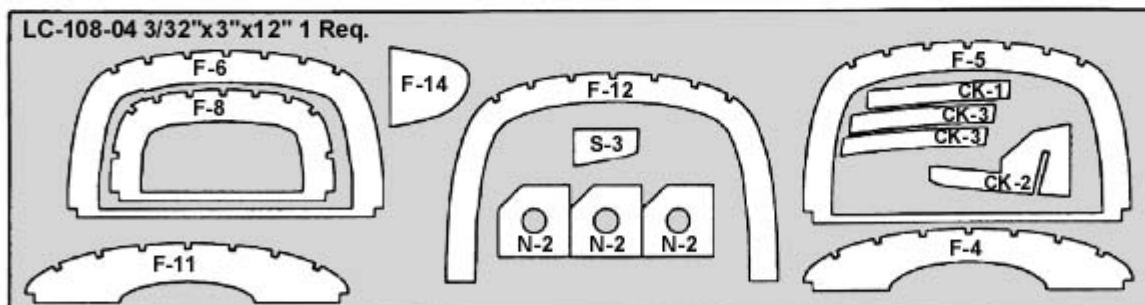
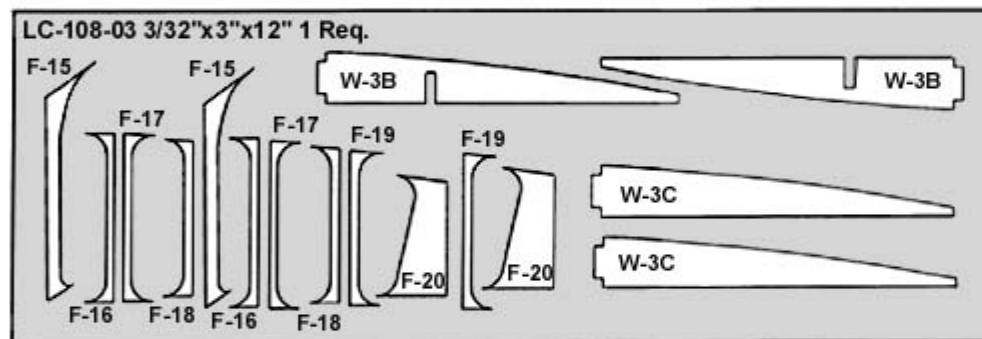
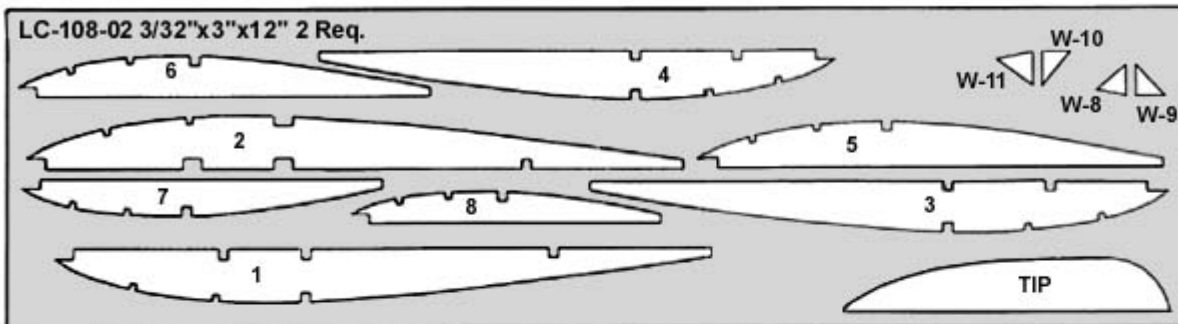
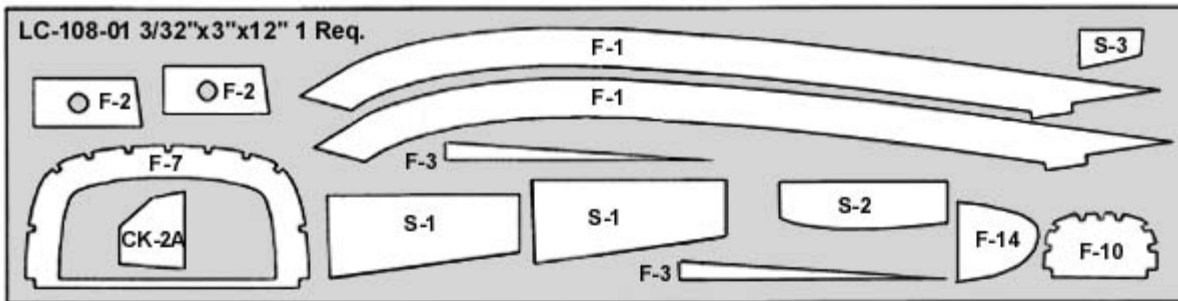
**-1/4" Drill Bit**

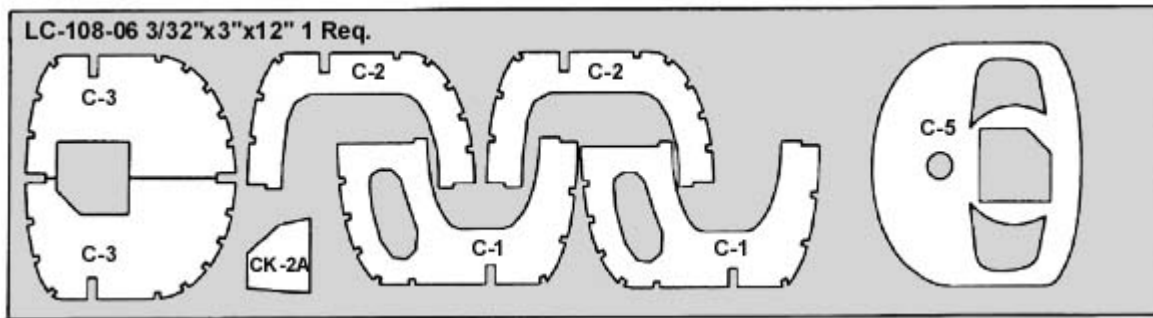
**-Building Board**

The first thing that you need to do is to identify and mark the part numbers on the laser cut parts using the drawings on the following pages as a guide.

It is possible that several of the laser cut parts may not be completely cut through. If this is the case you can free the part from the sheet quickly using an X-acto knife.

NOTE: The slight discoloration on the edges of the laser cut parts may be removed by lightly sanding the edges with 400 grit sandpaper.





### Beginners Note

These instructions were written assuming that the builder has previous building experience. If this is your first model then we recommend that you purchase a copy of the following book:

#### **Rubber Powered Model Airplanes By: Don Ross**

This excellent book covers basic building and flying procedures and provides valuable information about all aspects of building and flying rubber powered model airplanes.

### Building the Tail Surfaces

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1. Cover the plan with wax paper.
2. Build each half of the "V" Tail from laser cut parts S-1, S-2 and S-3. The remaining structure is made from 3/32"sq. balsa strip.
3. Sand the proper angle on the inboard end of each half of the tail. Pin one side to the plan and use the 1/16" balsa angle gauge to set the proper angle. When you have the proper fit between the two halves, glue them together.
4. Sand the tail surfaces smooth and round the edges. Set the tail surfaces aside until needed later.

### Building the Fuselage

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5. Build the fuselage side frames over the plan using the laser cut parts F-1, F-2 and F-3. The remaining pieces of the side frames are made from 3/32" sq. balsa strip. Splice the top longeron as shown on the plan.
6. Lay the side frames on top of each other and pin a piece of 3/32" x 3/16" balsa strip between the tail posts. Position and glue F-4 into position. Glue the 3/32" sq. cross piece at the front of the wing opening.
7. Glue pieces F-5, F-6, F-7, F-8, F-9 and F-10 into position. Cut, fit and glue the lower 3/32" sq. balsa cross pieces into position. Now glue the tail posts to the 3/32" x 3/16" strip.
8. Glue pieces F-11 and F-12 into position. Glue F-13 into position.
9. Glue the 1/16" sq. stringers into position on the top and bottom of the nose. The lower stringers are equally spaced on the front of the 3/32" sq. at the front edge of the wing saddle.
10. Glue the 1/16" sq. stringers into position on the top rear of the fuselage between F-12 and F-10.
11. Glue the four F-14's to the rear of the fuselage. Glue the window frames F-15, F-16, F-17, F-18, F-19 and F-20 into position. These pieces should be placed flush with the outer edges of the fuselage formers. You may wet these pieces to allow them to match the curve of the formers more easily.

### Building the Cowl

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12. Pin the cowl pieces CK-1 and CK-2 to the plan.
13. Glue cowl formers C-1, C-2 and C-3 into position on the cowl keel pieces. Use a small square to make sure these formers are 90 degrees to the building board.

14. Glue CK-3 into position on the cowl.
15. Remove the cowl from the plan and glue the formers into position on the opposite side. Glue the other CK-3 into position.
16. Glue one CK-2A to each side of CK-2 between C-1 and C-2.
17. Cut a paper strip from the plan 3/8" x 3/4" and roll into a tube around the landing gear wire with glue to form a paper tube. Use a glue such as Sigment for this. Glue this tube into the opening in CK-2 and then trim flush with the bottom of the cowl.
18. Glue the 1/16" sq. cowl stringers into position.
19. Glue the two C-4's and the two C-5's onto the front of the cowl.
20. Glue the cowl onto the front of the fuselage.
21. Glue N-1 and the three N-2's together to make the nose block.
22. Insert (do not glue) the nose block into the front of the fuselage. Sand the fuselage smooth and shape the front of the cowl. Trim the windshield and test fit to the fuselage.

## **Building the Wing**

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23. Build the center section first. Pin the 3/32" x 3/16" leading and trailing edge to the plan.
24. Pin the lower 3/32" sq. spars onto the plan. Glue ribs W-1 and W-2 into position. Glue the gussets W-8 and W-10 into position.
25. Glue the 3/32" sq. spar to the top of the center section. This spar should extend past W-2 by about 1/4" on each side. Remove the center section of the wing from the plan.  
NOTE: Do not put the 1/16" sq. leading edge spars in place until after joining the wing.
26. Build the left wing panel over the plan. First pin the 3/32" x 3/16" leading edge and trailing edge into position.
27. Pin the 3/32" sq. bottom spars to the plan. These spars should extent to the inside edge of W-2 on the plan. Laminate ribs W-3, W-3A and W-3B together. Cut a paper strip from the plan 3/8" x 3/4" and roll into a tube around the landing gear wire with glue to form a paper tube. Glue this tube into the opening in W-3A and then trim flush with the bottom of the rib.
28. Glue ribs W-3 through W-8 into position. Glue the top 3/32" sq. spar to the ribs. This spar should extend past W-2 at the center and past the tip at the end.
29. Glue gussets W-9 and W-11 into position.
30. Remove the wing from the plan.
31. Build the right wing as you did the left.
32. To join the wings, first pin the center section to the plan.
33. Place the left wing into position. The bottom and top spars should pass beyond W-2.
34. Raise the wing tip 2" at W-8 and glue the left wing to the center section.
35. Glue the right wing panel to the center section as you did the left.
36. Glue the 1/16" sq. leading edge spars into position, cracking them at ribs W-2 and W-3. These strips should extend past W-8 at the wing tip.
37. Test fit the tip to the wings. Bevel the bottom edge of the tip and bevel the spars to fit flush with the top of the tip. Now glue the tips into position.
38. Remove the wing from the plan and sand all of the edges round.

## Cover the Model

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39. Sand the entire model smooth with 400 grit sandpaper.
40. Coat the exposed surfaces with two coats of clear dope.
41. Attach the tissue to the model with clear dope mixed 50/50 with thinner.
42. Lightly mist the model with water to shrink the tissue.
43. Apply two coats of thinned dope to the entire model.
44. Carefully apply the waterslide decals to the model.
45. Draw additional details on the model with a waterproof marker.

## Final Assembly

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46. Glue the windshield to the fuselage.
47. Trim and fit the side windows and glue them into position.
48. Glue the wings into position on the model.
49. Test fit and glue the tail to the rear fuselage being careful to maintain proper alignment.
50. Glue the 1/16" sq. stringers above the tail (between F-10 and the tail post) into position. Now cover this area as described in the covering section above.
51. Assemble the propeller assembly using the hardware provided.
52. Glue the propeller assembly into the removable nose block. Be sure to use the correct amount of down and right thrust.
53. Trim the plastic spinner, paint and glue to the propeller.
54. Assemble the landing gear as shown on the plan. The landing gear should not be glued to the model so that it can be removed for flight. You may glue it onto the model if desired.
55. Tie and install the rubber motor using the 3/16" dowel at the rear end to retain the rubber motor.
56. Balance the model at the point shown on the plan. Add weight to the nose or tail as required to achieve the proper balance.
57. Your model is now complete. You **MUST READ AND FOLLOW** all of the safety rules. We hope that you have enjoyed assembling your model and hope that you enjoy many fine flights.

## Your First Flights

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1. Make sure that all flying surfaces are straight and warp free.
2. Wind the motor about 100 turns.
3. Point the nose of the model into any gentle breeze that may be blowing.
4. Release the propeller and after it starts turning gently toss the model aiming the nose at a point on the ground 100' in front of you. Adjust the model to circle while increasing the number of turns in the motor. Adjustments can be made by gently bending the tail surfaces and wing trailing edge.
5. A properly trimmed model will circle to the left while climbing under power, level out as the power runs down and transition into a right hand gliding circle.

## Safety Rules

1. Fly your model in a large open area that is free of obstructions, people or their property.
2. Do not fly your model in the vicinity of power lines, trees, streets or buildings.
3. Never try to retrieve any model stuck in power lines, in trees or on a roof or other high place. Never run onto the street to retrieve your model.
4. Position yourself at least 150' from spectators before launching model.
5. Never launch model directly at another person or other object.
6. Never stick your fingers into a spinning propeller. Do not try to stop a spinning propeller with your hand or fingers. Never stick any object into a spinning propeller.
7. Fly your model only on calm days. Do not fly when the wind is blowing.
8. Get proper permission before retrieving your model from private property.

## WARRANTY

Herr Engineering Corp. guarantees this kit to be free from defects in both materials and workmanship at the time of purchase. This warranty does not cover any component damaged by use or modification. In no case shall Herr Engineering Corporation's liability exceed the original cost of the purchased kit. Further Herr Engineering Corp. reserves the right to change or modify this warranty without notice.

In that Herr Engineering Corporation has no control over the assembly or use, no liability shall be assumed or accepted for any damage resulting from the use by the user during construction of the kit or the use of the final user assembled product. By the act of building this kit and/or using the final user assembled product, the user accepts all liability.

If the buyer and/or user is not prepared to accept all of the liability associated with this product, he is advised to immediately return this kit in new and unused condition to the place of purchase for a full refund.

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In use of our products, Sig Mfg. Co.'s only obligation shall be to replace such quantity of the product proven to be defective. User shall determine the suitability of the product for his or her intended use and shall assume all risk and liability in connection therewith.