



# Pitts Special



Herr Engineering Corp. HRR111



## 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	Fuselage Plan, Sheet A	1	Wing Plan, Sheet B	1	Decals
2	Red Tissue	1	1/16" x 12" Landing Gear Wire	1	1 1/2" X 4 1/2" Windshield Plastic
1	100" Thread	18	1/16" sq. x 18" Balsa Strip	21	3/32" sq. x 18" Balsa Strip
4	1/8" sq. x 18" Balsa Strip	2	1/16" X 3116" Spruce Strip	4	3/32" x 1/4" x 18" Balsa Strip
1	3/16" x 2" Birch Dowel	1	Tail Wheel Assembly	1	Instruction Manual
1	Molded Plastic Propeller	1	Propeller Shaft	2	Brass Washer
1	Nylon Propeller Bearing	1	Formed Plastic Spinner	2	Plastic Wheels
1	3/16" x 60" Rubber Strip	13	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, Sigment 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**

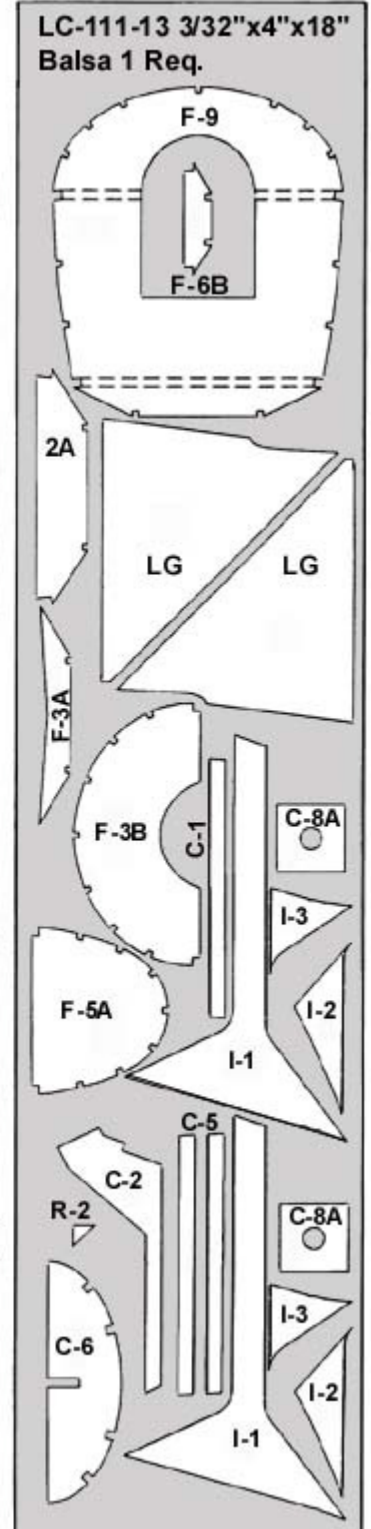
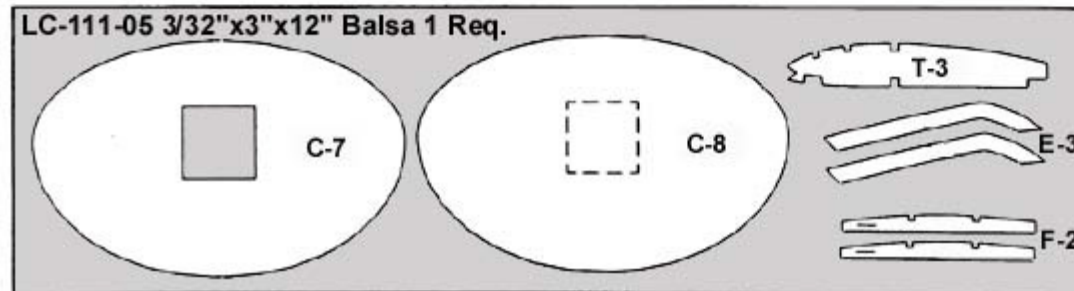
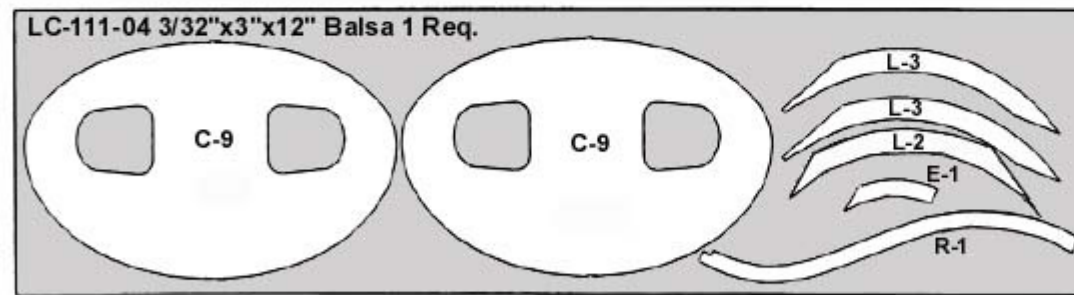
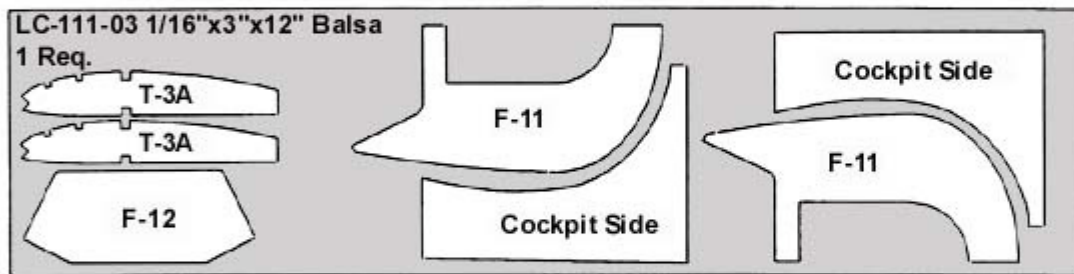
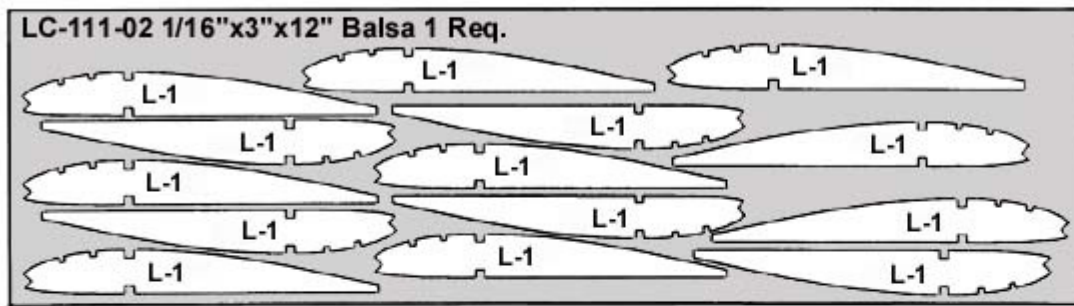
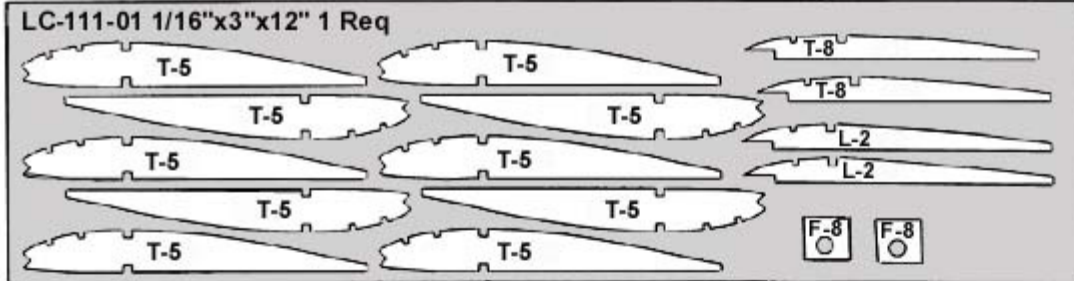
**-1/4" & 1/32" Drill Bit**

**-Building Board**

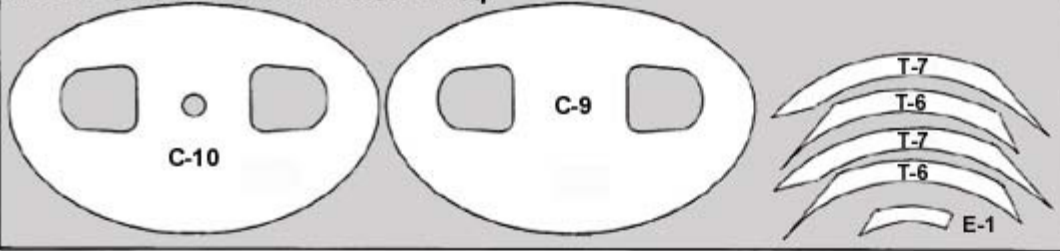
The first thing that you need to do is to identify and mark the part numbers on the laser cut parts using the drawings on the following pages as a guide.

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.

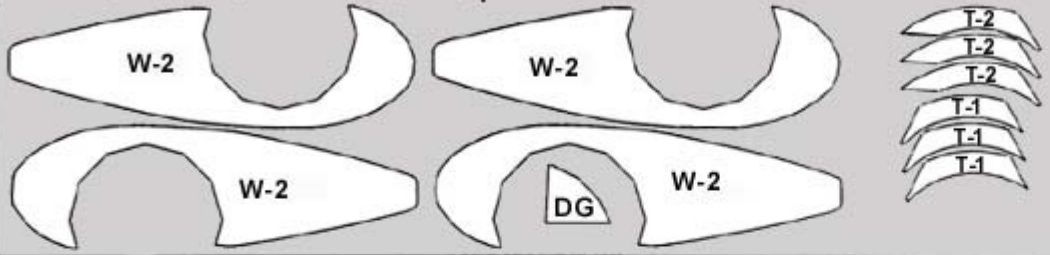
NOTE: The slight discoloration on the edges of the laser cut parts may be removed by lightly sanding the edges with 400 grit sandpaper.



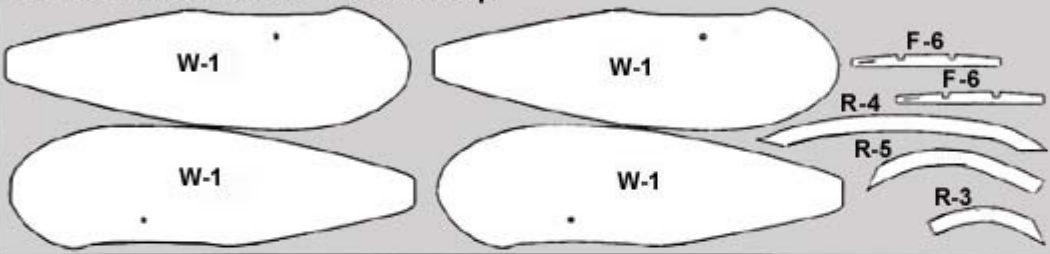
LC-111-06 3/32"x3"x12" Balsa 1 Req.



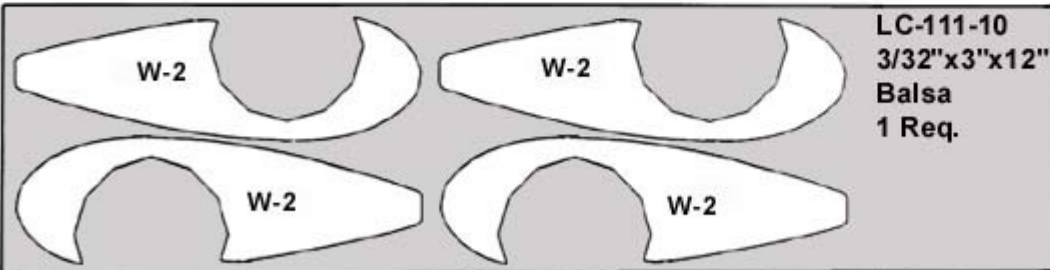
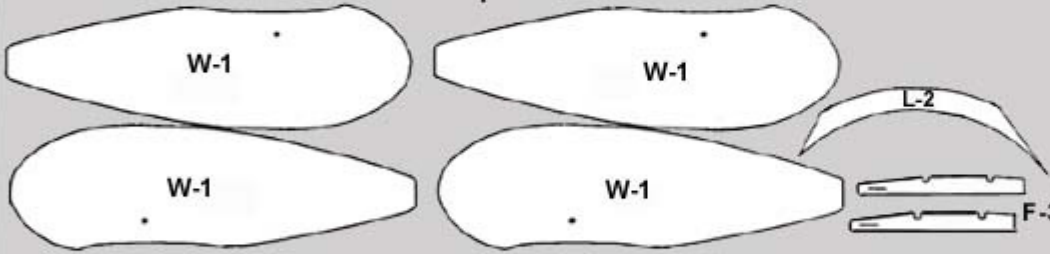
LC-111-07 3/32"x3"x12" Balsa 1 Req.



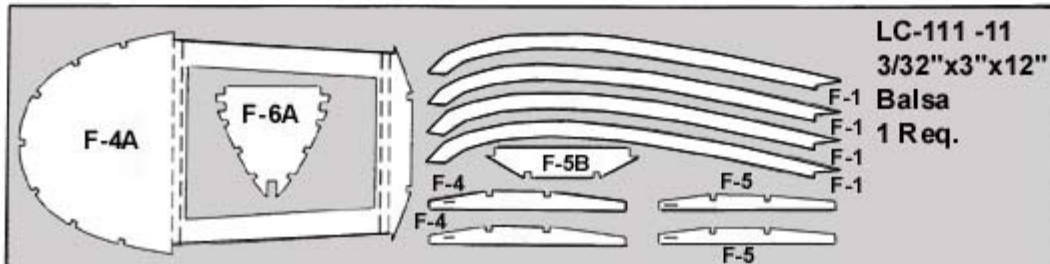
LC-111-08 3/32"x3"x12" Balsa 1 Req.



LC-111-09 3/32"x3"x12" Balsa 1 Req.

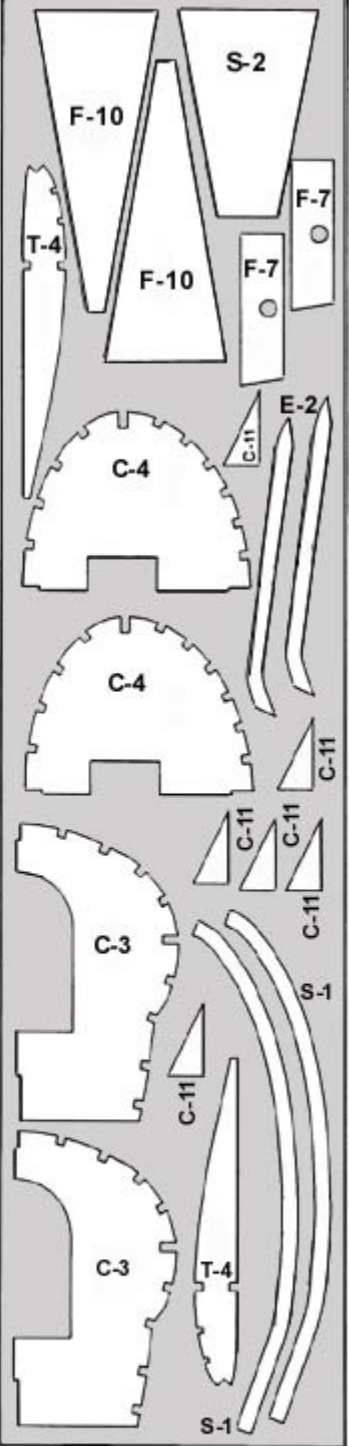


LC-111-10 3/32"x3"x12" Balsa 1 Req.



LC-111-11 3/32"x3"x12" Balsa 1 Req.

LC-111-12 3/32"x4"x18" Balsa 1 Req.



## Building the Fuselage

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1. Pin the fuselage plan to the building board and cover it with wax paper.
2. Build the right fuselage side frame over the plan using 3/32" sq. balsa and parts F-1, F-2, F-3, F-4, F-5, F-6, F-7 and F-8. There are two F-1's on each side frame. A short line indicates the top of parts F-2 through F-6.
3. Build the left fuselage side frame over the plan just as you did the right side frame.
4. Assemble two stabilizer caps over the plan using 3/32" sq. balsa strip.
5. Glue 3/32" sq. balsa cross braces to the rear faces of formers F-4 and F-9.
6. Pin the front of the fuselage side frames into position on former F-9. Pin former F-4A into position and pull the rear of the side frames together and hold with a clothes pin. Carefully align the fuselage assembly without any twists and make sure the tail post is perpendicular to the top of the fuselage sides. Now glue F-4 and F-9 into position.
7. Carefully put F-6A and F-6B into position and after checking the fuselage alignment, glue them into place. Now glue the rear ends of the fuselage side frames together and remove the clothes pin.
8. Position and glue formers F-2A, F-3B, F-5A and F-5B into position on the fuselage.
9. Glue the two stabilizer caps into position.
10. Build the fin over the plan using parts R-1, R-2 and 3/32" sq. strip.
11. Glue the fin to the fuselage.
12. Glue the two F-10's into position.
13. Glue the 1/16" sq. stringers into position on the top rear fuselage between F-4 and F-6A.
14. Glue the two 1/16" sq. stringers to each side of the fuselage.
15. Glue the 1/16" sq. stringers into position between F-9 and F-3B. Glue the 1/16" sq. stringers to the bottom of the fuselage between F-9 and F-2a and between F-4 and F-6B.  
NOTE: Leave the stringers out from between F-2A and F-4. These will be added after the wing and fuselage are covered and joined.
16. Glue the cockpit sides together over the plan. Now glue the cockpit sides into position on the fuselage between F-3A and F-4. The cockpit sides should be flush with the edges of these two formers.
17. Glue the two F-11 pieces together and then glue them to the front of F-9. Glue F-12 to the front of F-9 being careful to maintain 1/16" gap between F-12 and F-11 for the landing gear wire.
18. Bend the 1/16" Dia. landing gear wire to the shape shown on the plan and test fit in the slot on the front of the fuselage.
19. Sand the fuselage smooth and blend parts F-1 into the rest of the fuselage structure.  
NOTE: F-3A and the two 1/16" sq. bottom stringers are glued into position after the fuselage and lower wing are covered and joined.

## Building the Cowling

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20. Pin parts C-1 and C-2 to the plan. Glue formers C-2 and C-3 into position making sure that they are 90 degrees to the building board. Now glue part C-5 into position.
21. Glue eight 3/32" sq. stringers into position between C-3 and C-4.  
NOTE: The bottom two stringers immediately above C-2 are not glued into position until part C-6 is added in a later step.
22. Remove the cowling from the plan and add the opposite side C-4, C-3, C-5 and the 3/32" sq. stringers.

23. Fit and glue C-6 into position. Now add the remaining four 3/32" sq. stringers to the cowling assembly.
24. Glue C-7 to the front of C-4.
25. Make the removable nose block by laminating parts C-8, C-8a, C-9 and C-10 together.
26. Place the noseblock on the front of the cowling and sand this assembly to shape. Drill the hole in the nose block for the propeller bearing making sure to establish the proper amount of right and down thrust. Remove the noseblock from the cowling.
27. Glue the landing wire into the slot on the front of the fuselage making sure that it is straight and that the model sits level.
28. Glue the cowl to the fuselage.
29. Build the two cabane struts over the plan using 1/16" x 3/16" spruce. Sand a bevel on the top inside edges and round off the front and back edges of each strip.

### **Building the Tail Surfaces**

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30. Build the Rudder over the plan using parts R-3, R4, and R-5. The remaining structure is made from 3/32" sq. balsa.
31. Build the Stabilizer using parts S-1 and S-2. The remaining structure is made from 3/32" sq. balsa.
32. Build the two elevators using parts E-1, E-2 and E-3. The remaining structure is made from 3/32" sq. balsa.  
NOTE: The Elevators are not glued to the stabilizer until the model has been covered and the Stabilizer has been installed in the fuselage.
33. Sand the edges round and smooth. Test fit the Stabilizer into the fuselage and trim the slot if necessary to obtain a good fit.  
NOTE: The Stabilizer should fit a little loose in the fuselage because it will be slightly thicker after covering.

### **Building the Top Wing**

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34. The top wing is built in one piece over the plan and has no dihedral. Cover the wing plan with wax paper.
35. Glue the wing tip pieces T-6 and T-7 together over the plan. When the glue is dry, remove them from the plan and set aside.
36. Glue 3 sets of center trailing edge pieces T-1 and T-2 together. Now laminate these three sets of parts and pin in their proper position over the plan.
37. Pin the 3 pieces of the 3/32" sq. lower spar into position over the plan. Pin the two 3/32" x 1/4" trailing edges to the plan.
38. Bond the two T-3A ribs to rib T-3, and glue into position on the lower spars and T-1/T-2 pieces.
39. Glue the two T-4 ribs into position and then glue the ten T-5 ribs into position.
40. Trim, fit and glue the three pieces of 1/8" sq. leading edges into position.
41. Glue the wing tip assemblies into position.  
NOTE: Be sure to raise the outer edge of the wing tips 1/8" while gluing them into position.
42. Glue the two T-8 ribs into position. Glue the 3/32" sq. top spar into position. Bevel the ends to match the wing tips as shown on the plan. Glue the 1/16" sq. strips into the notches into the wing ribs. The forward strip ends against rib T-8 and the rear strip is beveled to match the wing tip like the top spar.
43. Remove the top wing from the plan and sand all of the outside edges round, taper the trailing edge and sand the assembly smooth all over.

## Building the Bottom Wing

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44. The bottom wing is built in two pieces and then joined with the proper dihedral angle. Cover the wing plans with wax paper.
45. Glue the wing tip parts L-2 and L-3 together over the plan. When the glue is dry, set them aside.
46. Build the right wing first by pinning the 3/32" sq. lower spar and the 3/32" x 1/4" trailing edge into position over the plan.
47. Glue the inboard rib L-1 into position, using the dihedral gauge to establish the proper angle. The top of this rib should lean toward the wing tip.
48. Glue the remaining six L-1 ribs into position.
49. Glue the 1/8" sq. leading edge into position.
50. Glue the wing tip assembly into position.  
NOTE: Be sure to raise the outer edge of the wing tips 1/8" while gluing them into position.
51. Glue the L-4 rib into position. Glue the 3/32" sq. top spar into position. Bevel the ends to match the wing tips as shown on the plan. Glue the 1/16" sq. strips into the notches into the wing ribs. The forward strip ends against rib L-4 and the rear strip is beveled to match the wing tip like the top spar.
52. Remove the wing from the plan and sand all of the outside edges round, taper the trailing edge and sand the assembly smooth all over.
53. Build the left bottom wing panel as you did the right hand panel.
54. Glue the two bottom wing panels together. There should be 5/8" of dihedral under rib L-4 on each side.
55. Test fit the bottom wing to the fuselage.

## Building the Wheel Pants

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56. Start assembling one wheel pant by laminating four W-2's together.
57. Laminate two W-1's and then glue them to one side of the W-2's. Now glue two W-1's to the opposite side to complete the assembly.
58. Build the second wheel pant in the same manner as you did the first.
59. Sand the wheel pants to shape.

## Covering the Model

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60. Sand the entire structure smooth with 320 grit sand paper.
61. Cover the interplane struts and then glue them into position on the fuselage.
62. Cover the rest of the fuselage except the bottom between F-2A and F-4, the wings, the wheel pants and the tail surfaces with tissue using clear dope,
63. When the dope is dry, shrink the tissue by lightly misting it with water.
64. Apply two coats of clear dope thinned 50-50 to the entire model.
65. Apply the decal's to the model in the positions shown in the illustration. Paint the inside of the cockpit and the front of F-4 black.

## Final Assembly

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66. Carefully fit and glue the bottom wing to the fuselage.
67. Glue F-3A into position on the bottom of the wing. Add the last sections of the 1/16" sq. bottom stringers.
68. Cover, shrink and dope the lower part of the fuselage under the bottom wing.
69. Cut the windshield to shape using the pattern on the plan and carefully glue into position on the model.
70. Cut the covering away from the stabilizer slot and glue the stabilizer into position.
71. Glue the elevators and rudder into position on the model.
72. Assemble the tail wheel and glue into position.
73. Test fit the landing gear fairings part #LG. Sand them smooth and round their fore and aft edges. Now cover them and then glue them into position on the model.  
NOTE: These fairings are attaches to the outside of the landing gear wire.
74. Assemble the wheels making sure that they are trimmed thin enough to fit in the slots in the wheel pants.
75. Install the wheel pants and wheels on the model.
76. Carefully test fit the top wing onto the model. The cabane struts fit in the pockets in rib T-3. Glue the top wing into position making sure that it is straight and true.
77. Test fit the interplane struts I-1 between the wings and trim to the proper length. Now glue parts I-2 and I-3 onto the bottom of each strut.
78. Cover the struts and glue them into position on the model. Be careful to keep the notches for the rigging thread free of glue.
79. Install the thread rigging on the tail in the locations shown on the plan.
80. Install the thread rigging on the wings. One set of parallel threads run from the top front of the interplane struts and runs down to the front of the landing gear fairings (LG). These are repeated on the opposite side. Another pair of threads run from the bottom front of the interplane struts going up to the rear cabane strut where it attaches to the top wing. These threads then run back down to the lower front of the interplane strut on the opposite side.
81. Assemble the propeller. Glue this assembly into the removable nose block. Trim the spinner and install it onto the propeller. The spinner may be painted with plastic model type enamel paints.
82. Tie the rubber motor and install it along with the nose block. Retain the motor at the rear of the fuselage with the 3/16" dowel provided.
83. Balance the model at the position shown on the plan.
84. Your Pitts Special is now complete.

## 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 gradually 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 transitions into a right hand circling glide.

## Beginners Note

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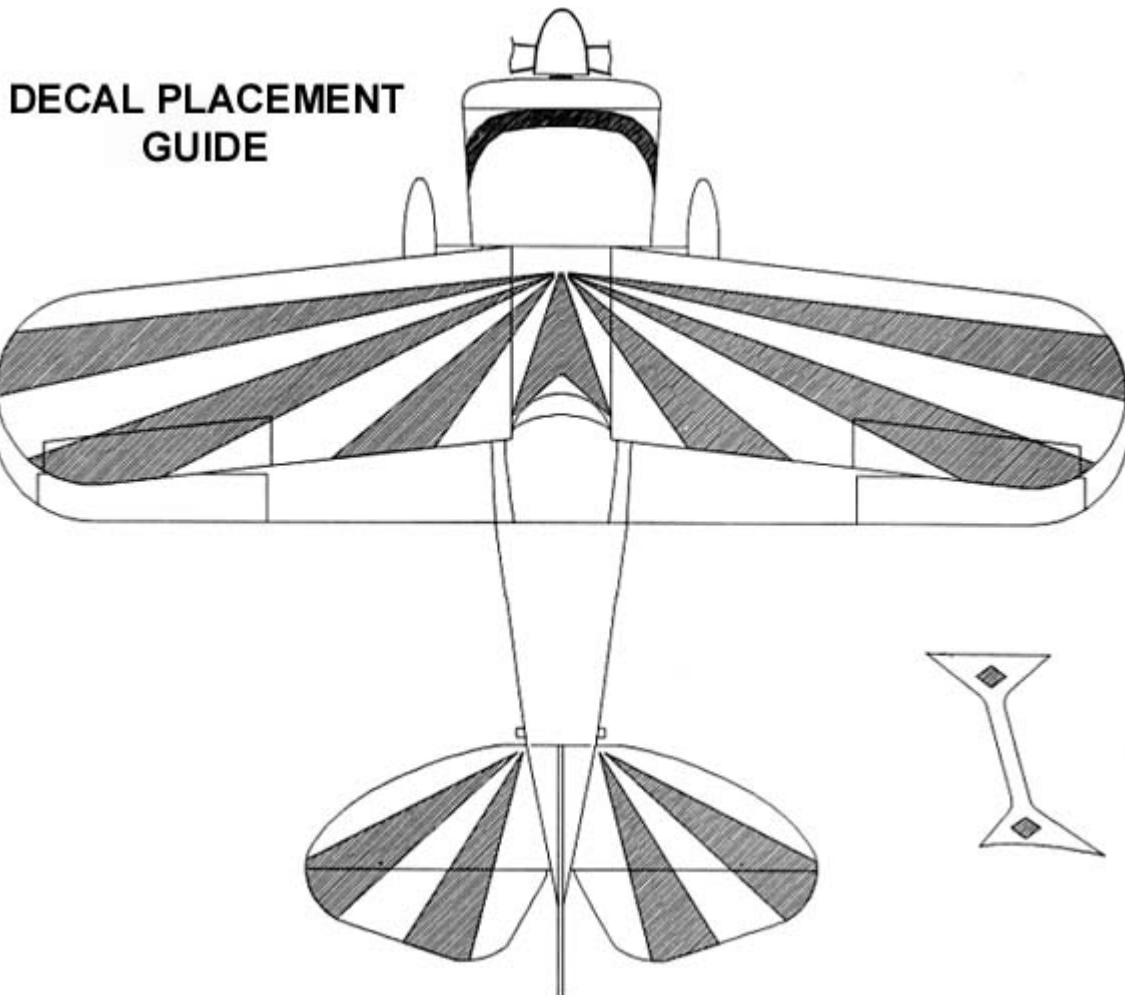
These instructions were written assuming that the builder has previous building experience. If this is your first model then we recommend that you purchase a copy of the following book:

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

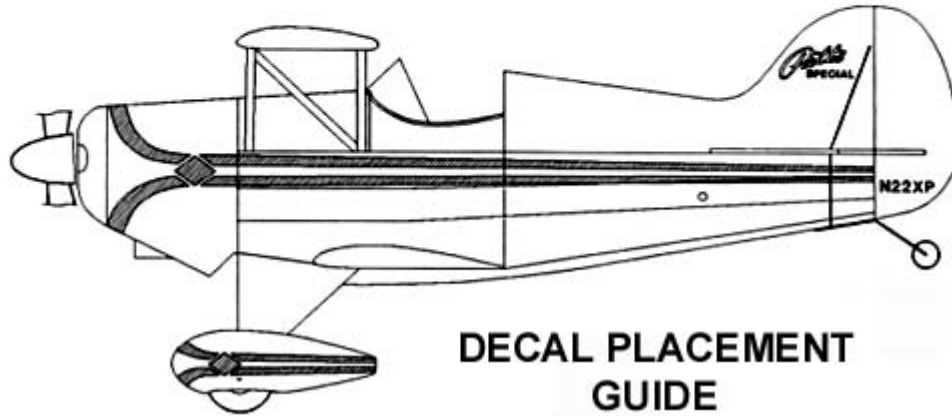
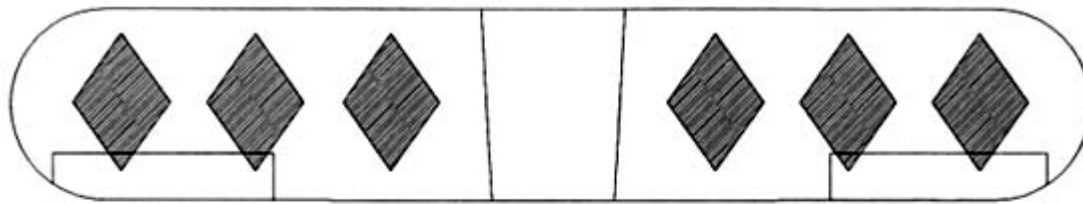
This excellent book covers basic building and flying procedures and provides valuable information about all aspects of building and flying rubber powered model airplanes.

### 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 into 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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