



Craftsman's Kit
SIGRC30

CITABRIA



Building and Flying Instructions

Sig Mfg. Co., Inc....401-7 South Front Street....Montezuma, Iowa 50171

The Citabria Story

In the early '60s the venerable Champ was fighting a losing battle in the marketplace against the new crop of nosewheel trainer aircraft. Champion Aircraft Corporation of Osceola, WI had brought the design of the popular little Champ from Aeronca several years earlier. As its popularity dwindled, Champion decided to make one last attempt to save the Champ. The structure was "beefed-up" in critical areas, the rudder and wingtips were squared off, and the aerobatic Champ was born. The final touch was to apply a marketing gimmick to its name. By spelling "Airbatic" backwards, they came up with Citabria.

Since the end of World War II, aerobatics in this country had virtually disappeared in sport flying. The introduction of the Citabria was a gamble that not only paid off, it totally revitalized the aviation community's attitude towards aerobatics. The new spring steel landing gear brought a few complaints at first, but it tended to make better pilots out of the students who flew the airplane. The Citabria quickly became popular as an aerobatic trainer. Most of today's aerobatic pilots can trace their career back to the Citabria.

Champion aircraft eventually merged with Bellanca Aircraft Corporation of Alexandria, MN. Bellanca expanded on the design with the Decathlon, Super Decathlon, and Scout. In 1974, Bellanca redesigned the cowling, the most obvious difference being a large air scoop for induction air.

Sport pilots fell in love with the Citabria because, even though it now has more horsepower and aerobatic capability, it is still a Champ at heart. Its big, flat bottomed wing makes it easy and gentle to fly. On the other hand, the Bellanca Decathlon uses a totally redesigned wing with a symmetrical airfoil for more advanced aerobatics. Although the Citabria and Decathlon appear almost identical, Decathlons generally have larger engines with inverted oil systems and a sturdier structure. Citabrias have been powered with engines from 100 to 150 h.p. and some were even built with flaps. The most numerous is the 7ECA Citabria with a 115 h.p. Lycoming built from 1966 to 1980.

The Citabria can certainly be called this generation's barnstormer. It's place in general aviation as an inexpensive, sport aerobatic trainer is equalled by no other airplane. The same qualities that have made the Citabria so popular among full-scale pilots have been duplicated in this 1/6 scale model. The Sig Citabria will bring you many enjoyable hours of flying. Even though it can be (and has been) flown successfully in sport scale competition, it has been designed especially to handle the rigors of day to day (or weekend to weekend) flying.

About The Sig Kit

The Sig Citabria, Ki No. RC-30, was originally introduced to the public in 1968. That original kit appeared with a fully-symmetrical airfoil which was great for aerobatics, but proved to be hard to handle for the average flier of the time. In 1972, the kit was introduced with several changes, including the flat bottomed airfoil which it still has today. The new airfoil made the airplane much easier to fly and still allowed it to perform scale-like maneuvers. When that kit was introduced, it still had all of the building and flying instructions printed on the plans.

Since that time, the modeling industry has changed dramatically. Kit builders wanted clearer instructions and Sig Mfg. responded by becoming the first model company to include photo-illustrated instruction booklets with their kits. These booklets have become the standard for the industry and represent the current state-of-the-art in kit instructions. Rather than discontinue the outdated kit, we decided to bring the Citabria kit up to current standard by writing a brand new instruction booklet for it. The basic, rugged structure has been retained along with its gentle flying characteristics.



During the course of writing the instruction booklet, several changes were made to the kit. Some of those changes are a new decal sheet, new style wheel pants, a new air scoop for the cowl, a formed tailwheel wire, and a new set of plans. Of course, the old instructions were removed from the plans and replaced with detail drawings and hints on how to build a better model. Unfortunately, the new plans were not completed when the photos for the instruction booklet were taken. Please keep in mind that although several pictures show the old plans being used, the main point of the photo is to show the construction of the structure. To avoid any confusion, just ignore the plan sheets in the photos and refer to your kit plans for any information you may require.

NOTES BEFORE BEGINNING CONSTRUCTION

Any references to right or left refers to your right or left as if you were seated in the cockpit.

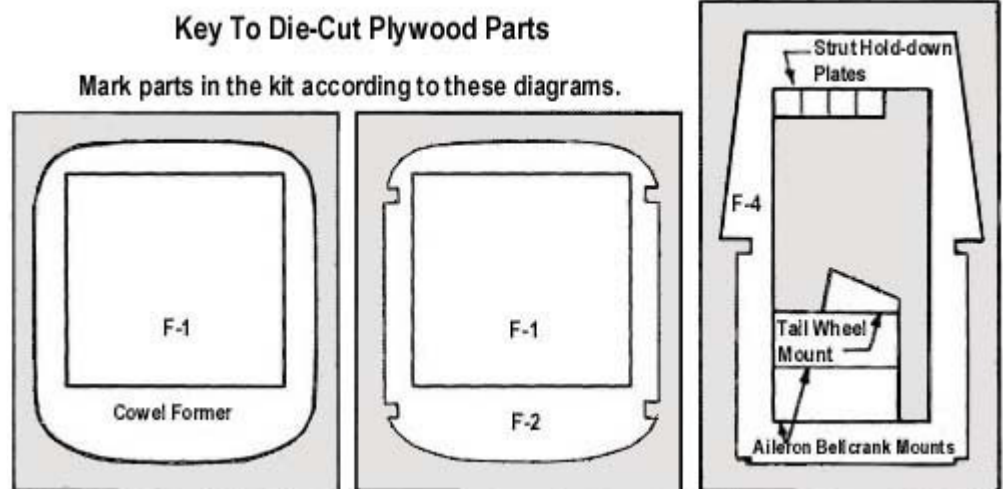
To build good flying models, you need a good straight building board. Crooked models don't fly well! The building board can be a table, a workbench, a reject "door core" from the lumber yard, or whatever- as long as it is perfectly flat and untwisted. Cover the top surface of the building board with a piece of celotex-type wall board or foam board, into which pins can be easily pushed. Don't hesitate to use plenty of pins during assembly to hold drying parts in their correct position.

When pinning or gluing parts directly over the full-size plans, cover the plan with wax paper or plastic kitchen wrap to prevent gluing the parts to the plans.

Don't use a ball point pen for making marks on the model during construction. If not sanded off these ink marks will show through the model's final finish. Use a pencil instead of a pen.

The balsa die-cut parts have identification numbers printed on them. Use the "key to Plywood Parts", included towards the end of these instructions, to mark the identification numbers on the corresponding plywood parts.

Leave all the die-cut parts in the sheets until needed for construction. Remove pieces from the sheets carefully. If difficulty is encountered, do not force the part from the sheet. Use a modeling knife to cut it free.



All of the other kit parts can be identified by the "Complete Kit Parts List". Sort the different sizes of sticks and sheets into individual piles to avoid confusion during building. Cut all long pieces of balsa first, followed by medium lengths, before cutting up any full length strips into short pieces.

COMPLETE KIT PARTS LIST

COMPLETE KIT PARTS LIST							
Die-Cut Balsa Pieces							
1	Sheet No.1 Fuselage Parts	1	Sheet No.2 Fuselage Parts	6	Sheet No.3 Wing Ribs	2	Sheet No.4 Wing Ribs
Balsa Sheets							
4	1/6"x2"x36" Leading Edge Sheeting and Bellcrank Area	1	1/6"x2"x24" Middle Sheeting	1	1/6"x3"x24" Middle Sheeting	1	1/6"x3"x36" Center Section Sheeting
1	3/32"x3"x36" Fuselage Sheeting, Wing Gussets	1	5/16"x2"x18" Stabilizer, Elevator, Fin and Rudder Parts	2	1/4"x4"x2-1/4" Side Firewall Extensions	1	3/8"x4"x2-1/4" Top Firewall Extension
Special-Cut Balsa							
2	1/8"x4-1/4"x36" Fuselage Sides	1	3/8"x1-3/16"x9" Filler and Doubler	1	3/8"x1-1/2"x6-1/2" Tail Platform	1	1/8"x1-1/2"x2" Dorsal Support
2	3/8"x3/8"x36" Tapered Trailing Edge	1	1/8"x3/8"x6" Tapered Trailing Edge (For center Section)				
Balsa Sticks							
7	1/8"x1/4"x36" Stringers	7	1/8"x5/16"x36" Stringers, Diagonal Ribs, Cabin Frame	1	1/8"x3/8"x36" Cabin Frame	2	3/16"x5/8"x36" Leading Edge
2	1/4"x5/8"x36" Leading Edge Caps	2	1/4"x3/8"x36" Rear Internal Wing Spars	1	1/4"x3/8"x15" Rear Center Section Spar and Rear Spar Splice	2	1/4"x3/4"x36" Front Internal Wing Spars
1	1/4"x3/4"x15" Front Center Section Spar and Front Spar Splice	11	1/4"x1/4"x36" Top and Bottom Wing Spars, Crossbraces, Longerons	4	5/16"x5/16"x36" Stabilizer, Elevator, Fin and Rudder Frames	1	5/16"x1/2"x8" Elevator Tips
1	3/8"x1/2"x4-3/4" Front Cabin Crossbrace	1	3/16"x3/8"x8" Cabin Window Wedges	2	3/16"x1"x14" Aileron Leading Edge	2	3/8"x7/8"x14" Aileron Spars
1	3/8"x1"x2" Trailing Edge Fill-In	10	1/16"x3/16"x36" Capstrips	4	1/16"x1"x36" Trailing Edge, Wing Panels and Center Section	1	1/2"x1/2"x15" Triangular Stock for Firewall Braces
Balsa Blocks							
2	3/4"x1-1/4"x8-1/2" Wingtip Blocks	2	3/4" 1-1/4"x1-1/2" Wing Blocks (Wing L.E. at Cabin)				
Die-Cut PlyWood							
1	3/32"x6"x7" F-2 and F1	1	3/32"x6"x7" Cowl Former and F-1	1	3/32"x5-1/2"x9" F-4 Aileron Bellcrank Mounts, Tailwheel Mount		
Sawn PlyWood							
1	1/8"x4"x2-1/4" Bottom Firewall Extension	1	1/8"x1-5/8"x5" P-1 (Fuselage)	1	1/8"x1-1/4"x5" P-2 (Wing)	2	1/8"x5-1/16"x3-3/8" Landing Gear Mounts
2	1/6"x3/4"x1-1/4" Wheel Pant Attach Plates						
Hardwoods							
1	1/8"x5/16"x14" Spruce-Stabilizer Center Brace	2	3/16"x1/2"x20" Spruce-Front Wing Struts	2	3/16"x3/8"x20-1/2" Spruce-Rear Wing Struts	2	1/4"x3/4"x1" Basswood-Wing Anchor Blocks
1	3/8"x3/8"x4-1/2" Basswood-Cowl Anchor Blocks						
Hardware							
2	Medium Aluminum Engine Mounts	4	6-32x3/4" Bolts for Engine Mounts	4	6-32 Blind Nuts for above	2	8-32x1-1/2" Bolts for Landing Gear Axles
2	#8 Flat Washers for above	6	8-32 Hex Nuts for above	8	4-40x3/8" Bolts for Attaching Wheel Pants and Landing Gear	8	4-40 Blind Nuts for above
2	1/4-20x1" Nylon Wing Attach Bolts	2	90 deg. Nylon Aileron Bellcranks	2	3/32" Brass Eyelets for above	2	3-48x3/4" Bolts for above
2	#3 Flat Washers for above	2	3-48 Hex Nuts for above	4	.032x1/4"x1-1/4" Sheet Brass for Wing Strut Upper Ends	2	.032x1/2"x1" Untempered Aluminum Strut Attach Tabs
1	3/32" O.D.x1" Brass Tubing for Pushrod Splice	13	Molded Poly Hinges	1	Small Nylon Control Horn for Rudder	3	Medium Nylon Control Horns for Ailerons and Elevator
4	#2x1/2" Sheet Metal Screws for Control Horns	1	Nylon Tailwheel Bracket	13	#2x3/8" Sheet Metal Screws for Tailwheel Bracket, Cowl, Struts	4	2-56x10" Threaded Rods for Control Surface Pushrods
4	2-56x3-1/4" Threaded Rods for Strut Ends	8	2-56 Nylon Clevises for above	1	6" Length Copper Wire for Binding Cabin Brace Wires		
Bent Wire Parts							
1	1/8"x9" Left-Hand Cabin Brace Wire	1	1/8"x9" Right-Hand Cabin Brace Wire	1	3/32"x4" Elevator Joiner	1	1/16"x3-3/4" Tailwheel Wire

Plastic Parts			
1 .090 ABS Left-Hand Cowling Side	1 .090 ABS Right-Hand Cowling Side	1 .090 ABS Cowl Nose Bowl	1 .030 ABS Airscoop
2 .070 ABS Left-Hand Wheel Pant Halves	2 .070 Right-Hand Wheel Pant Halves	1 .030 ABSx1/4"x8" Plastic Joiner Strap	1 .010 ABSx1-1/2x1-1/2" for Pushrod Exit Reinforcements
1 .015"x.8"x12" Clear Plastic for Windshield	2 .015"x4"x14" Clear Plastic for Side Windows		
Miscellaneous			
1 .093"x1-1/2"x6-7/8" Left-Hand Aluminum Landing Gear	1 .093"x1-1/2"x6=7/8" Right-Hand Aluminum Landing Gear	2 1/16"x24" Music Wire Pushrods	1 38"x50" Plan - Plate 1 of 2
1 38"x50" Plan - Plate 2 of 2	1 Photo-Illustrated Instruction Booklet	1 3"x5" Decal	
Plan Correction - Callout for Horizontal Stabilizer Braces should be 1/8"x5/16" Spruce not 1/8"x3/8" Spruce.			

About The Building Sequence

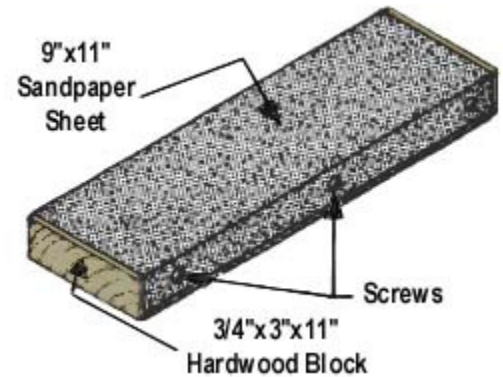
The quickest and most efficient way to complete a model is to work on several pieces at the same time. For example, you could start working on the fuselage or tail while the preliminary parts of the wing are drying. It is suggested that you read the instruction book and study the plans carefully before beginning construction.

YOU CAN'T GET ALONG WITHOUT A GOOD SANDING BLOCK

An assortment of different size sanding blocks are indispensable tools for model construction. A good general purpose block can be made by wrapping a 9"x11" sheet of sandpaper around a piece of hardwood or plywood. Use three screws along one edge to hold the overlapped ends of the sandpaper. Put 80-grit paper on the block during general construction. Switch to 220-grit paper for final finish sanding just before covering.

Another handy block can be made by gluing sandpaper onto a 24" or 36" long piece of aluminum channel stock. Most hardware stores carry a rack of aluminum in various sizes and shapes. This long block is very useful for sanding leading and trailing edges accurately.

Finally, glue sandpaper onto different sizes of scrap plywood sticks and round hardwood dowels. These are handy for working in tight places and for careful shaping where a big block is too hard to control.



Glues

There are many different glues available today for model construction that it can be confusing for the newcomer. To simplify matters, most glues can be classified as one of four basic types:

1. Easy to use water-based wood glues such as Sig-Bond (yellow) and Sig Super-Weld (white).
2. Super strong two-part epoxy glues such as Sig Kwik-Set (5 minute cure) and Sig Epoxy (3 hour cure).
3. Traditional solvent-base model cements such as Sig-Ment.
4. Fast cyanoacrylate "super" glues such as Zap, Hot Stuff, Jet etc.

Each of these types has different characteristics and advantages. Often times, the choice of which type to use is strictly a matter of personal preference based on your experience with a previous model. If you are new to the hobby and not sure what type to use, we recommend that you try Sig-Bond glue for the majority of the general Citabria framework construction. It is a great all-purpose aliphatic resin glue that is easy to use. You should also have on hand some epoxy glue, either slow dry or 5-minute, for areas subject to unusual strain or involving metal pieces. Some of the steps in this book call out the type of glue to use for that particular assembly. In other areas you can use your own judgement as to which type is best suited to the purpose and to your building schedule.

CAUTION: Some people have experienced allergic reactions when exposed to epoxy or cyanoacrylate glues. This is very rare. However, it is always important that such glues, and also paints, thinners and solvents, be used with adequate ventilation to carry fumes away.

There are also a couple of places ahead in these instructions where it calls for "model putty" or "wood filler". We recommend Sig Epoxolite Putty, regular household spackling compound (DAP, Red Devil, etc.) or automotive body putty (Bondo, etc.) for these instances.

Radio Requirements

For best results, we recommend that you install 4-channel radio equipment in your Citabria to operate the ailerons, rudder and engine throttle. The Citabria's fuselage is spacious enough that any common brand of radio equipment with standard size servos and battery pack can be used. Be certain that your radio system's frequency is approved for use in R/C model aircraft. Using a frequency assigned to R/C model cars not only endangers your model to interference from model car drivers (who may not even be in sight), it is also against the law.

Engines and Mufflers

The Citabria can be flown with a wide range of glow model engines, either the 2-stroke or 4-stroke type. Because the Citabria is a scale model designed to fly at relatively slow airspeed, a lot of high-revving power isn't necessary - or desirable.

In a 2-stroke glow engine, we recommend .35-.50 cu.in. displacement. A strong .35 or non-schneurle .40 is adequate if the model is kept light, preferably 6-3/4 pounds or less. If you fly off a grass field, live at high altitude, or just prefer a little reserve power, a good .40-.50 size engine may be a better choice. Be sure to use the propeller sizes that are recommended by the engine manufacturer.

The scale-like sound of a 4-stroke engine swinging a big propeller at lower r.p.m. is perfectly suited to the Citabria. Since 4-stroke engines don't produce quite as much power as the same size 2-stroke engine, we recommend using a .45-.65 size 4-stroke.

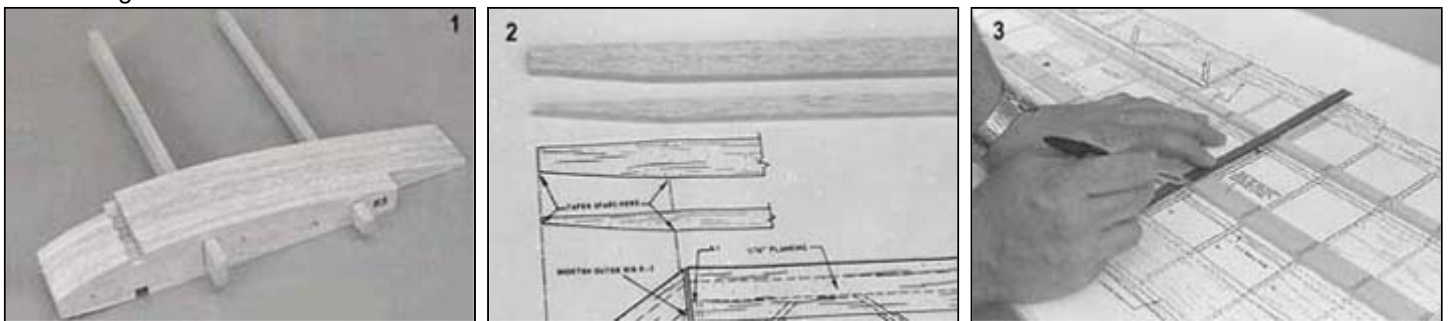
There is no one type of muffler that is best suited to the Citabria. It all depends on the particular engine that you have elected to use. Most 4-stroke engines don't even require a muffler since they are typically quieter than 2-stroke engines. It may be necessary to use a muffler extension to get the muffler supplied with most 2-stroke engines to the outside of the wide cowling.

WING CONSTRUCTION

NOTE: The basic structure of the Citabria wing consists of three separately-built components - a flat Center Section, A Right Wing Panel and a Left Wing Panel. The three components are then permanently joined to the single-piece wing.

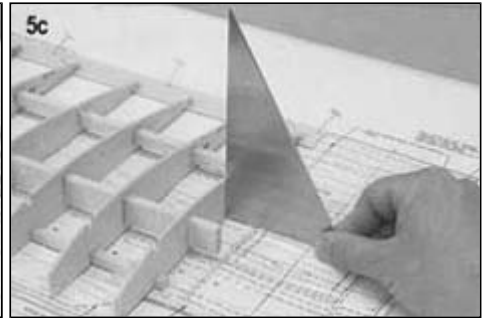
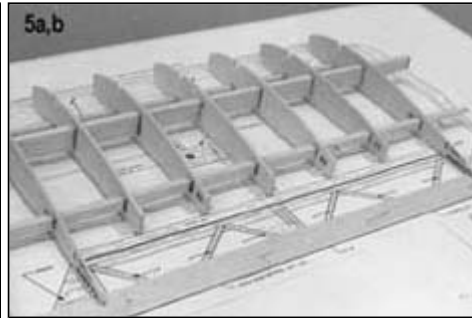
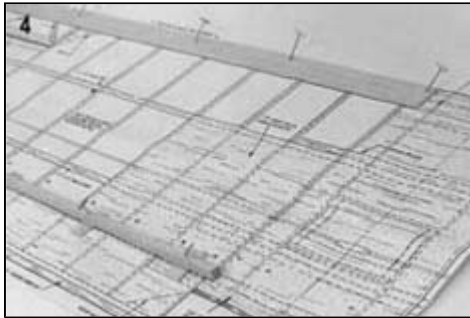
Right Wing Panel

- Locate the 1/4"x3/4"x36" balsa sticks for the front internal wing spars and the 1/4"x3/8"x36" balsa sticks for the rear internal wing spars. Cut a 4" long piece of each size stick and slide four R1, nine R2 and five R3 wing ribs onto these short pieces. Pin the stack of ribs and sand lightly with a sanding block to true up the edges.
CAUTION: It isn't necessary to sand the entire stack perfectly flush - just sand enough to take off any prominent high spots or burrs. Excessive sanding may distort the airfoil shape.
 - Check rib length against the plan and, if necessary, sand the leading and trailing edges to bring the ribs to their proper length.

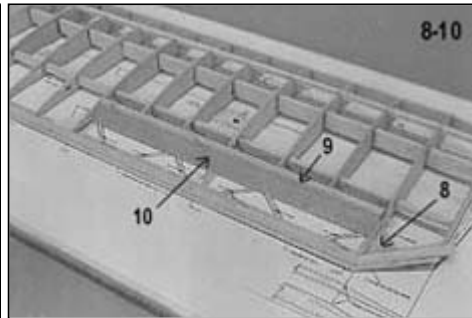
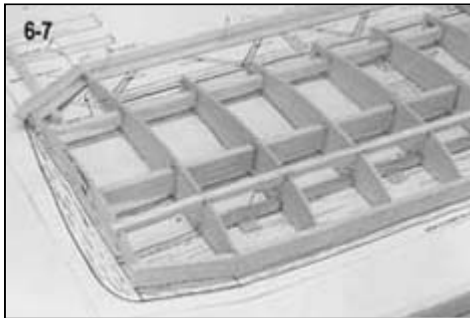


- Taper the outboard ends of the front and rear internal wing spars as shown on the plan.
- Pin the flat side of the spars to the plan and mark the rib positions using a pen and straightedge. These marks will help you keep the ribs vertical when you glue them in place later.
- Pin the 1/16"x1" balsa trailing edge sheeting to the plan. Do not cut the sheeting at the aileron break yet.
 - Pin the 1/4" sq. balsa bottom spar to the plan using scrap pieces of 1/16" balsa to raise the spar 1/16" above the plans.

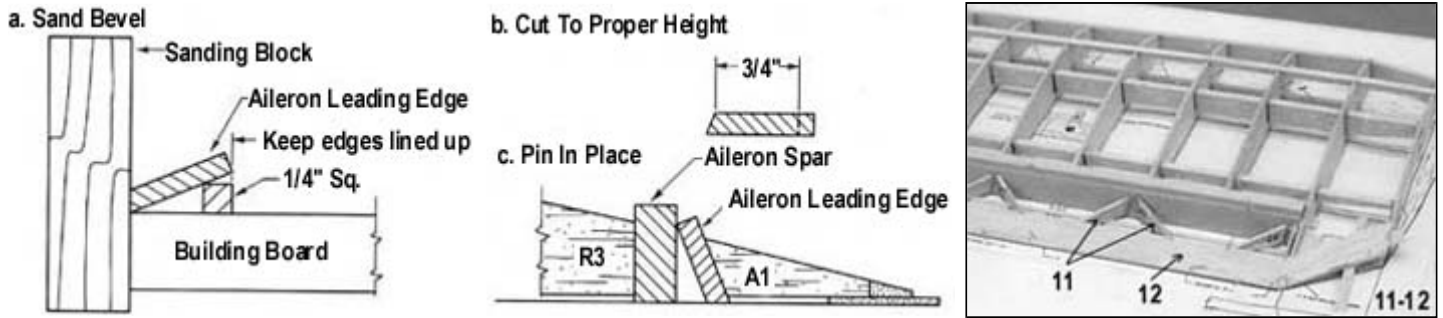
5.
 - a. Slide the nine R2 and five R3 wing ribs into place on the two internal wing spars. Be certain that the tapered ends of the spars are positioned correctly (tapered side downward).
 - b. Position the rib/spar assembly over the plan. Use scrap 1/16" balsa to block up the ends of the R3 ribs and the outboard R2 rib.
 - c. Once the ribs are all positioned correctly, glue them to the internal wing spars. Also glue the R2 ribs to the trailing edge sheeting. Use a triangle to insure that the inboard R2 rib is perfectly vertical.



6.
 - a. Glue the 1/8"x3/8"x36" shaped balsa trailing edge in place. Use a straight edge to be certain the trailing edge continues in a straight line in the aileron area.
 - b. Glue the 1/4" sq. balsa top wing spar into place on the ribs. The top wing spar will have to be sanded later, so choose a relatively light piece of wood for this use.
 - c. Glue the 3/16"x5/8" balsa leading edge to the front of the ribs.
7.
 - a. Glue the R4 tip rib in place. You may notice that the bottom edge of this rib slopes up towards the rear. This provides built-in washout to the wing which helps prevent tip stalls at low speed.
 - b. Saw off the top wing spar and leading edge flush with the outboard R2 rib. Glue small pieces of leading edge, trailing edge and top wing spar material to the wingtip. Block up the trailing edge with 1/4" sq. balsa scrap.
8. The wing uses three gussets to provide extra strength in the corners. Cut the gussets from scrap 3/32" balsa. Be sure the grain direction is oriented as shown on the plan.
9. Glue the 3/8"x7/8"x14" balsa aileron spar to the back of the R3 ribs and the two R2 ribs on each side. This spar sits flat on the plans - it is not blocked up.



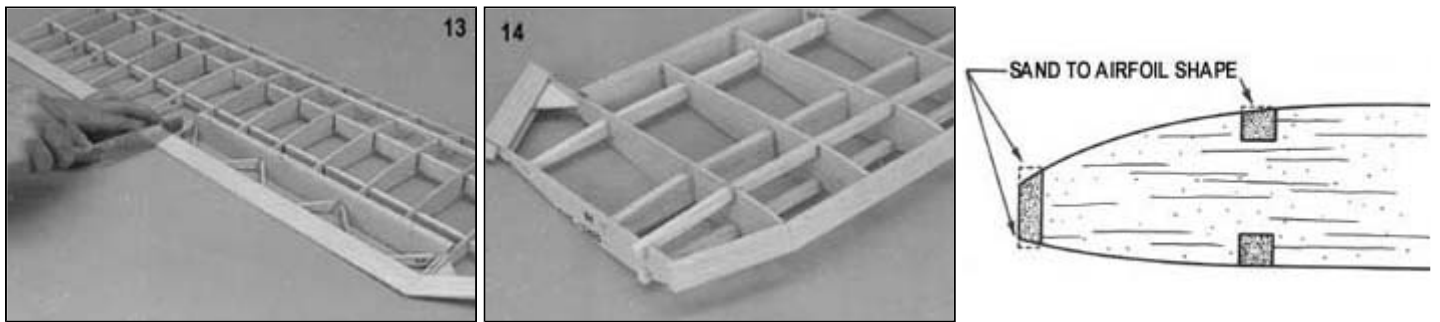
10. The 3/16"x1"x14" balsa aileron leading edge will have to be beveled before pinning it to the plan. Prop it up along a table edge as shown in this diagram and sand until you have the correct bevel. Now measure 3/4" from the cut-back corner to cut it to the correct height. The aileron leading edge can now be pinned to the plan with its beveled edge down and the top edge resting against the aileron spar.
11. Glue the A1 and A2 aileron ribs in place. They will require some trimming for a good fit. Use a strip of 1/16"x3/16" capstrip material to block up the front end of the aileron ribs.
12. Glue the 1/16"x1" balsa trailing edge sheeting to the top of the wing and pin it firmly in place until dry. Add the small trailing edge top piece to the wingtip.



13. Remove the wing from the plan. Cut loose the aileron from the rest of the wing structure and lay it aside.

14. Add the 1/4" sq. balsa bottom wing spar to the wingtip.

15. The 1/4" sq. balsa top wing spar and the leading edge can now be sanded to the contour of the ribs. Be careful to avoid sanding the ribs and changing their shape. Double check all of the wing joints to make sure they have been properly glued.

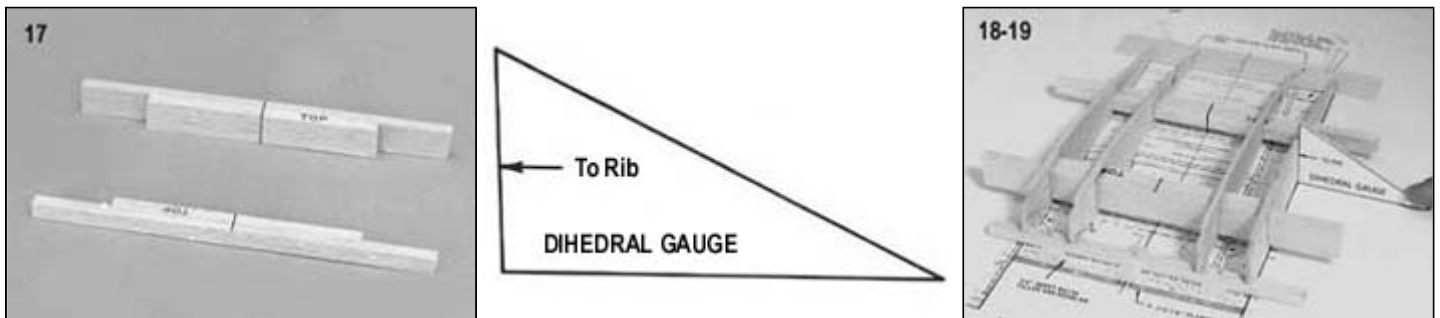


16. Set the Right Wing Panel aside and repeat steps 1 through 15 to build the Left Wing Panel.

Center Section

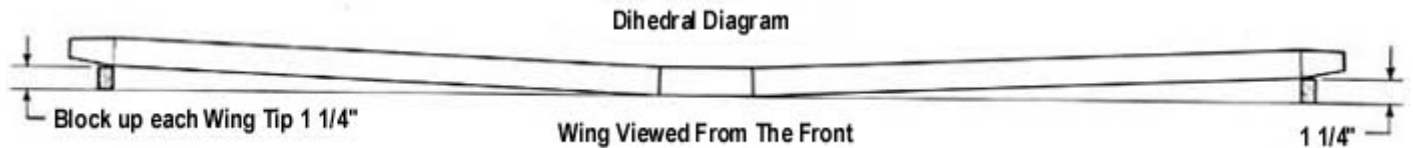
17. Start the center section by cutting a 1/4"x3/4" balsa front center section spar and a 1/4"x3/8" balsa rear section spar from the 15" long pieces provided. Cut them to the exact length and shape shown on the plan. The angle on the ends of these spars provides the proper dihedral, so they must be cut accurately. Mark the tops of these spars.

18.
 - a. Pin the 1/16"x1" balsa trailing edge to the plan.
 - b. Pin the 1/4" sq. balsa bottom spar to the plan using 1/16" scrap balsa to keep it raised.
19.
 - a. Slide the four R1 ribs over the two center section spars and set the assembly over the plans. Be certain the inner two R1 ribs are spaced wide enough to accept the aileron servo that you plan to use.
 - b. Use the Dihedral Gauge shown below (glued to scrap balsa) to position the two outboard R1 ribs at the correct angle. Glue the ribs to the spars and trailing edge.

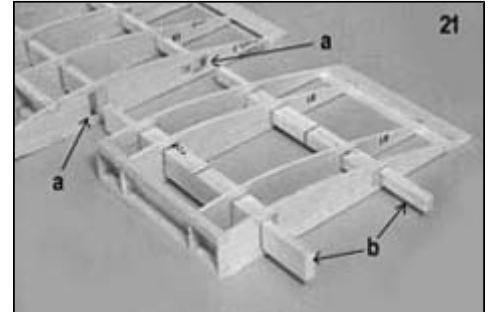


20.
 - a. Glue the 1/4" sq. balsa top spar to the center section. When dry, remove from the building board.
 - b. Glue the 1/8"x3/8" shaped balsa trailing edge in place.

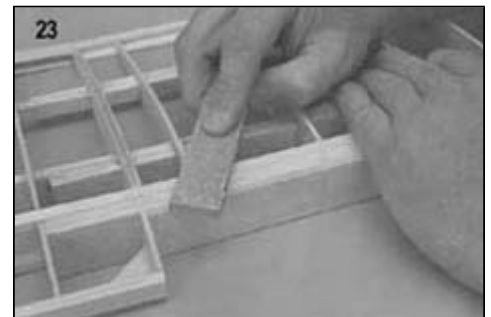
Finishing The Wing



21.
 - a. You can now prepare the center section and wing panels for joining. Sand the inboard ends of the wing panels, bringing the spars, leading edge, and trailing edge flush with the end R2 rib. Cut holes in the end R2 rib of each wing panel just large enough to accept the front and rear spar splices.
 - b. Sand the top spar of the center section to the contour of the ribs. Sand the ends of the spars and trailing edge, being careful to leave the two splices sticking out on both sides.



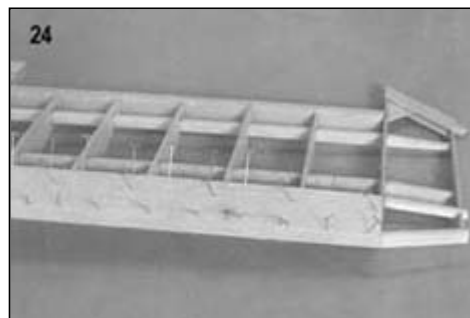
22. Pin the center section down firmly onto one end of your building board. Glue one wing panel at a time to the center section using Sig Kwik-Set Epoxy applied to the splices, spar ends and between the R1 and R2 ribs at the joint. The wingtip should be blocked up 1-1/4" under the outboard R2 rib (not the R4 wingtip rib). The solid balsa wingtip blocks supplied in the kit just happen to be 1-1/4" wide, so they can be used to support the wing during this operation. Repeat to attach the other wing panel.



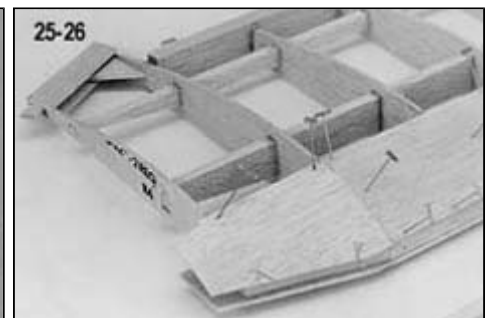
23.
 - a. Cut a slot in the inboard R2 rib of each wing to accept the 3/8"x1-3/16"x9" balsa filler and doubler.
 - b. Glue the filler and doubler in place. When dry, shape it to rib contour.
 - c. Glue the 1/8"x1-1/4"x5" plywood plate called P2 to the front of the filler and doubler. Sand the top and bottom edge to rib contour.

24. The leading edge of the wing is sheeted on the top and bottom with 1/16"x2"x36" balsa sheets. Apply the bottom sheeting first. Start gluing at the leading edge and working back to the spar, pinning or taping the sheet in place as you work. Cover only half the edge of the outboard R2 rib with the sheeting. Be careful not to build in any warps during this step. Let dry.

25. Turn the wing over and apply the top leading edge sheeting, just like the bottom sheeting. Pin the wing to the building board during this step to help avoid warps. When dry, trim the excess overhanging top and bottom sheeting flush with the front of the leading edge.



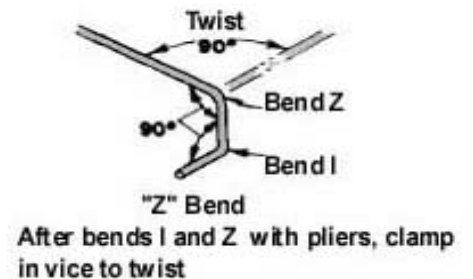
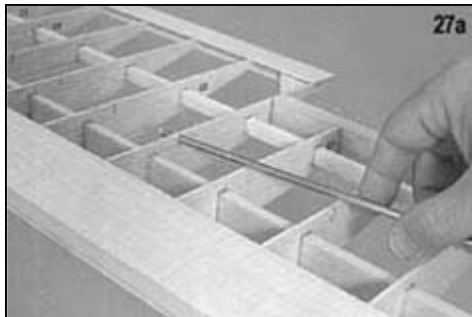
26. Glue small pieces of the leading edge sheeting to the top and bottom of the wingtip area. Let dry and then trim flush.



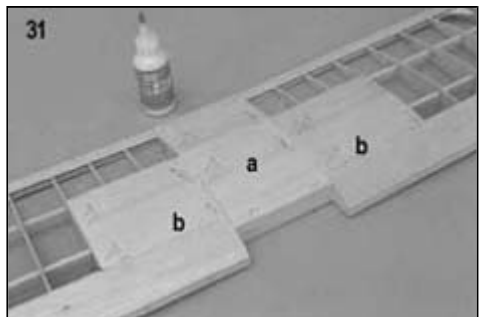
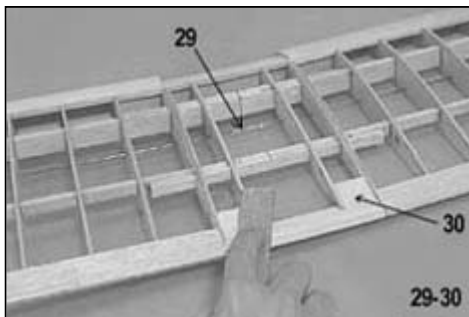
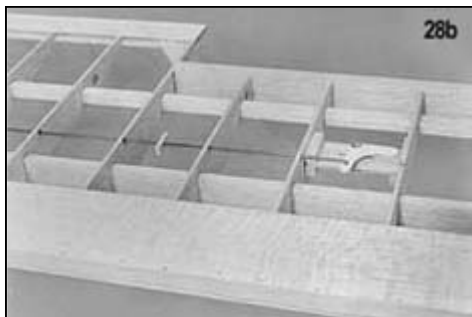
Aileron Control System

NOTE: The Citabria uses a bellcrank/pushrod system to actuate the ailerons. Steps 27-29 describe the installation of this system.

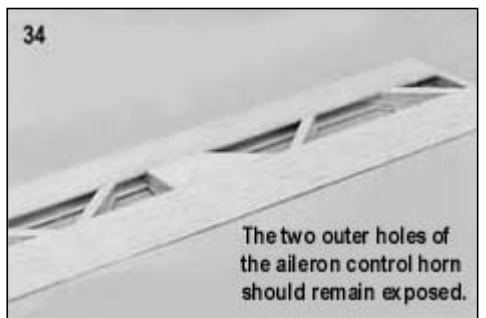
27.
 - a. Using a hand-held drill bit or piece of brass tubing with a sharpened end, drill 3/16" dia. holes just above the lower edges of the ribs, about 3/4" aft of the front internal spar, to pass the 1/16" dia. music wire pushrod.
 - b. Cut four small pieces (1/4"x1/2") of scrap 3/32" plywood to serve as pushrod guides. Drill each piece through the center with a 3/32" dia. drill bit.
 - c. Put a "Z" bend into one end of the pushrod, then thread it through the wing, installing two of the scrap plywood pushrod guides in their proper position as you go. Don't glue the pushrod guides to the ribs yet.
NOTE: At this point some modelers may prefer to use R/C solder links (not provided in kit) instead of "Z" bends on the pushrod.



28.
 - a. Remove the two aileron bellcrank mounts (1"x2-1/4") from their die-cut 3/32" plywood sheet. Drill a 3/32" dia. hole in the center of the mount, then assemble the bellcrank as shown in the diagram above. Apply a drop of epoxy to the nut to hold it permanently. The bellcrank should twirl freely when properly installed.
 - b. The bottom surface of the bellcrank mount is positioned 7/16" above the lower edge of the ribs (see cross section on the plans). Attach the bellcrank to the pushrod, then position the mount as shown on the plans and glue it in place. Brace the mount to the ribs with scrap pieces of 1/4" sq. and 1/16"x1/4" balsa.
29.
 - a. Splice the ends of the two pushrods together using a 1" piece of brass tubing soldered to both pushrods in the center. Use tape to hold the bellcranks in the neutral position (as shown on plans) during this step.
 - b. Allow the joined pushrod to seek its natural position, then epoxy the plywood pushrod guides to the ribs. When dry, the entire pushrod/bellcrank assembly should work freely, with no binding.
30. Cut two filler blocks from the 3/8"x1"x2" balsa stick provided in the kit. Glue these in place at the trailing edge of the center section and sand them to rib contour when dry. The filler blocks reinforce this area for the wing hold-down bolts.
31.
 - a. Sheet the top and bottom of the center section with 1/16"x3"x36" balsa.
 - b. Add the middle sheeting to the top and bottom of each wing panel using one piece of 1/16"x3" balsa and one piece of 1/16"x2" balsa on each section.



32. Sheet the area under the aileron bellcrank assembly with 1/16"x3" balsa. You may cut the pushrod slot as shown on the plans, but with a bit more care and patience a more attractive crescent shaped slot can be made, as shown in the photo.
33. Glue the 1/16"x3/16" balsa capstrips to the top and bottom of the ribs as indicated on the plan.
34.
 - a. Glue 1/16" balsa sheeting in the control horn area of the aileron on the bottom surface only.
 - b. Add capstrips to the top and bottom of the small ribs in the ailerons. When dry, sand the top of the aileron leading edge to shape.
 - c. Install aileron control horns as shown on plan. Use a 1/4"x3/8" balsa spacer.



35. Glue the 1/4"x5/8" balsa leading edge caps and the 3/4"x1-1/4"x8-1/2" balsa wingtip blocks in place on the wing. Let dry.

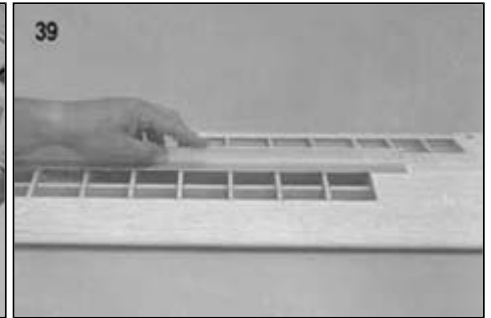
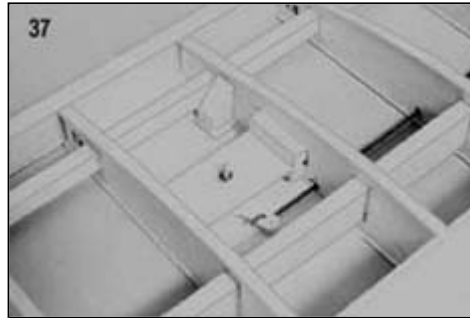
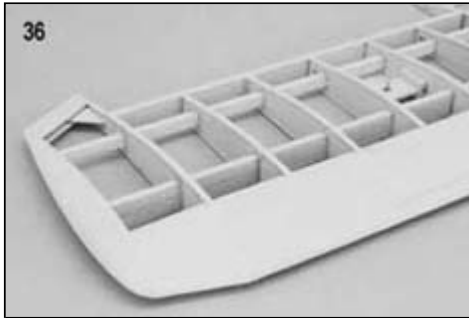
36. a. Carve and sand the wing leading edge caps to the shape shown on the plan. Take your time with this step and try to keep the shape uniform along the entire leading edge.
b. Sand the wingtips to the shape shown on the plans.
c. Sand the 3/8" aileron spar flush with the top of the wing contour.



37. Remove the four hold-down plates (1/2"x1/2") from their die-cut 3/32" plywood sheet. Install the plates as shown on the plan by cutting out the 1/16" balsa sheeting and epoxying the plates flush with the bottom surface of the wing. Secure the plates to the ribs and spars with scrap balsa.

38. If you plan to use the optional jury struts, install 1/2" lengths of brass tubing at the positions shown on the plans, with the ends flush with the bottom surface of the wing.

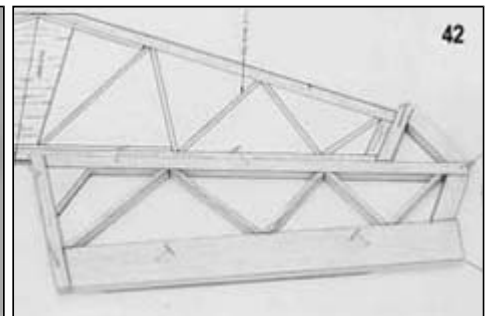
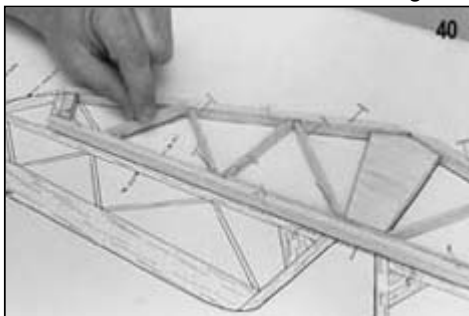
39. Carefully block sand the entire wing until all joints are smooth and even. Use a large sanding block to avoid sanding down any one area too much.



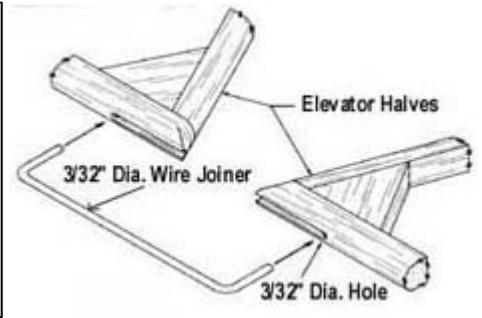
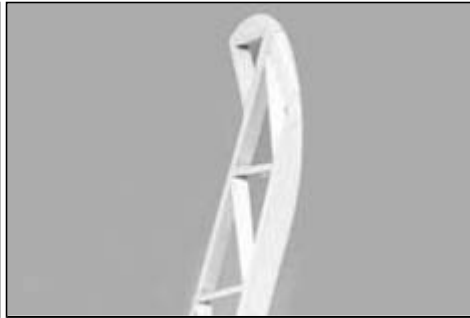
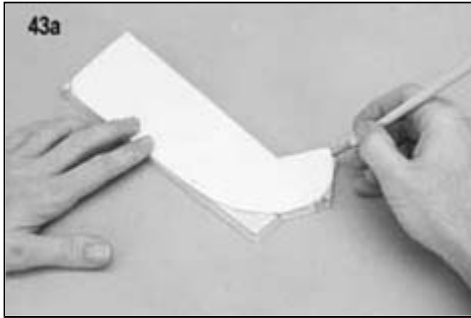
TAIL SURFACE CONSTRUCTION

Stabilizer and Elevator

40. a. Build the 5/16" sq. balsa stabilizer frame by first cutting pieces to fit the plan from the 36" long sticks provided. Glue and pin the pieces together on the plan.
b. Glue the 1/8"x5/16" spruce braces to the front and rear of the stabilizer frame.
c. Cut the 5/16" balsa center sheet to shape and glue in place.
d. Add the 1/8"x5/16" balsa diagonal ribs.
41. When dry, remove the stabilizer from the board and sand all of the edges round. You may find that a line drawn along the center of all the frame pieces can help in getting a consistently rounded edge.
42. a. Cut to length the 5/6" sq. balsa pieces for the elevator halves. Glue and pin to the plan.
b. Cut the elevator trailing edge pieces and gussets from 5/16" balsa sheet and glue in place.
c. Cut the elevator tip pieces from the 5/16"x1/2" balsa sheet and glue in place.
d. Add the 1/8"x5/16" balsa diagonal ribs and allow to dry.

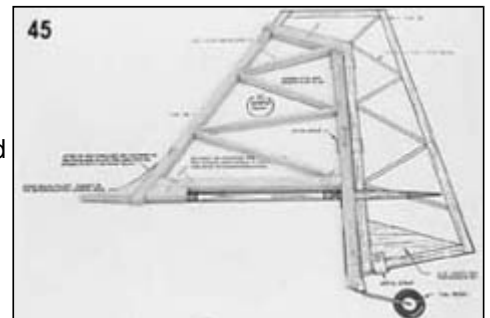


43.
 - a. Remove the elevator halves from the plan and sand them to the correct outline. An easy way to do this is to make a tracing of the elevator half and cut it out. Place the tracing over the elevator, draw around the outline, then sand down to the line.
 - b. Taper the trailing edge to the contour shown on the plans and round all the edges.
44. Temporarily pin the elevator halves to the plan. Mark the leading edges where the wire joiner will attach. Remove the elevators and drill $3/32"$ dia. holes into the leading edge, then cut a groove to accept the wire joiner. Sand the wire joiner lightly and epoxy it to the elevator halves. Place the assembly over the plans while it dries to be certain that everything is aligned properly.



Fin And Rudder

45.
 - a. Cut to length and pin the $5/16"$ sq. balsa fin frame over the plans. Notice that the rear edge of the frame extends to the bottom of the fuselage.
 - b. Add the $1/8" \times 5/16"$ balsa diagonal ribs.
 - c. Glue the $5/16"$ balsa fillet to the leading edge.
 - d. Remove the fin from the board and sand the leading edge, trailing edge and top edge round. (Don't round the bottom.)
46.
 - a. Glue and pin down the $5/16"$ sq. balsa rudder frame.
 - b. Add the $5/16"$ sheet balsa gusset.
 - c. Add the $1/8" \times 5/16"$ balsa diagonal ribs.
 - d. Remove the rudder from the board and sand the edges round.

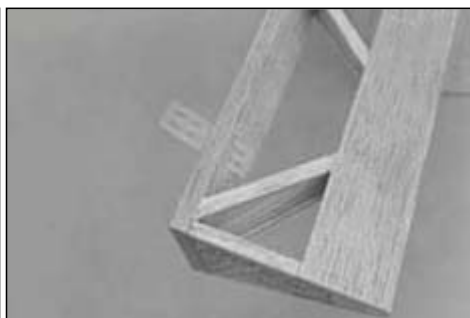
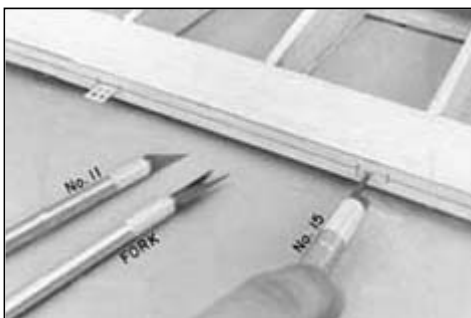


Hinging The Control Surfaces

Poly-molded hinges have been included in the kit for all of the control surfaces. They are easy to install and can't clog up with glue or paint like pinned hinges. Even though they may feel a bit stiffer than pinned hinges, the "stiffness" is nothing compared to the air load from the control surfaces that the servos have to work against. Much of the initial stiffness can be eliminated by pre-flexing the hinges to extreme angles. The Sig Factory Fliers have used these hinges for years on hundreds of models with complete success.

To avoid any binding, the hinges must be properly aligned. The best way to insure this is by drawing a line on the control surface using a straightedge and soft lead pencil along the entire hinge line. Cut the initial hinge slots using an X-Acto knife with a #11 blade or a special hinge slotting fork. Then widen the slot to fit the hinge with a #15 or #27 saw blade.

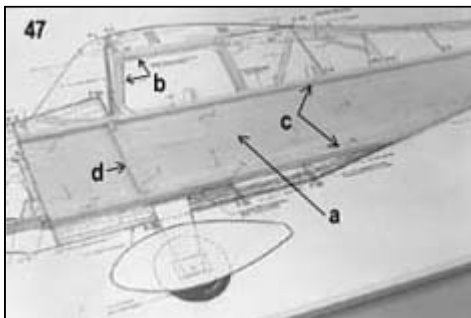
IMPORTANT NOTE: The ailerons on the Citabria are hinged about $1/16"$ below their top edge. Cut the slots so that they angle downward in both the aileron and the wing (see cross section on plan). When the ailerons are in neutral, the hinges will already be deflected, but this won't affect their smooth operation.



Notice that the hinges have a flat side and a rounded side. For best operation, the hinges on any control surface should all be installed with the same side facing downward. Install hinges using plenty of Sig Kwik-Set Epoxy in the slot and on the hinge. The thin, bendable portion of the hinge should be completely out of the slot and free of glue. Excess epoxy can be easily peeled off after it has dried for 7 to 15 minutes.

FUSELAGE CONSTRUCTION

47.
 - a. Pin the right-hand fuselage side to the plan. It may have to be trimmed slightly to match the drawing.
 - b. Cut the cabin frame pieces from 1/8"x5/16" and 1/8"x3/8" balsa as indicated, and glue in place.
 - c. Glue the 1/4" square balsa longerons to the top and bottom edges of the fuselage side.
 - d. The 1/4" sq. balsa side stiffener (located just forward of the music wire cabin brace) should be glued to the fuselage side 3-5/8" from the front edge. Let dry.
48. Repeat step 47 for the left-hand fuselage side. You can use the plans to build the cabin frame, but be sure to flip the fuselage side over before adding the longerons and side stiffener. (Otherwise you will wind up with two right sides!)
49. Use the plans to accurately mark the positions of the crossbraces on both fuselage sides (6 on top, 9 on bottom.). Also mark the position of former F-4.
50. The two fuselage sides are joined using slow-drying epoxy or Sig Bond applied to the edges of formers F-2 and F-4. Hold the structure over the top view of the plans as it dries to align it properly.

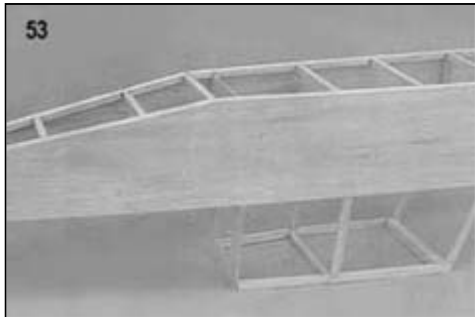
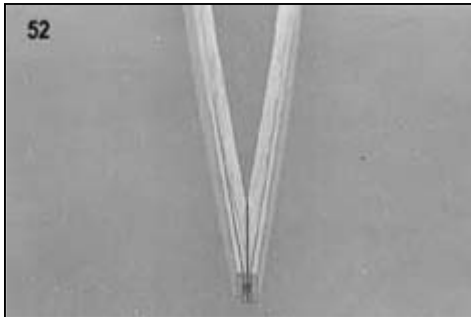


51.
 - a. Position the 3/8"x1/2"x4-3/4" balsa cabin brace 1/8" aft of the frame corner and glue in place.
 - b. Glue the 1/4" sq. balsa cabin brace to the aft end of the cabin frame.
 - c. Add 1/8"x3/8" balsa pieces between the cabin frame and F-4.
52. Taper the aft end of the longerons to allow the fuselage sides to be pulled together. Glue the ends together and allow to dry.



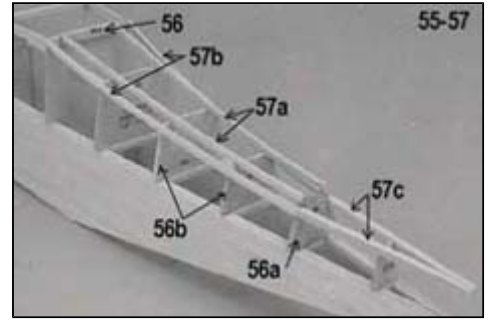
53. Cut the 1/4" sq. balsa fuselage crossbraces to length over the cross-sectional drawings on the plan and glue them in place. There are six crossbraces along the top of the fuselage and nine crossbraces along the bottom.

54.
 - a. Glue former F-3A in place
 - b. Add the 1/8"x1/4" balsa stringers between F-2 and F-3A. Notice that the stringers are glued to the back of F-2, flush with the top.

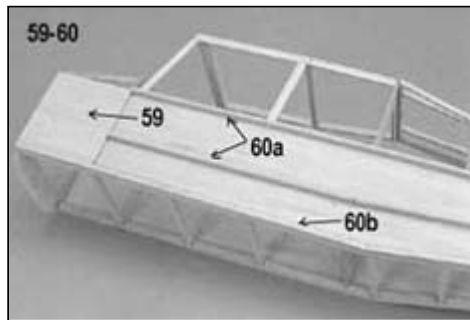
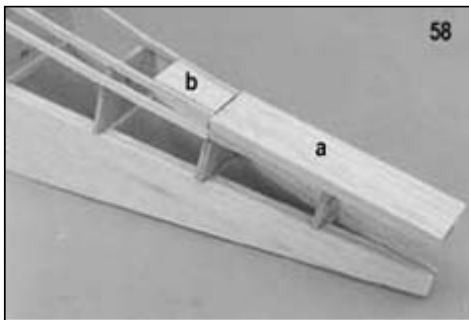


55. Glue former F-4A to the back of F-4 cross-sectional drawing on the plans for proper positioning of F-4A.

56.
 - a. Glue formers F-8 and F-9 together
 - b. Add formers F-5 through F-10 to the fuselage. They should all be flush with the front edge of the crossbraces and vertical to the fuselage. Also, be certain they are accurately centered on the fuselage.
57.
 - a. Glue the inner two 1/8"x1/4" balsa stringers to the top of the formers.
 - b. Add the outer two 1/8"x1/4" balsa stringers. Notice that the front of these stringers are glued to the sides of F-4A only, not F-4. Be certain all the stringers are glued firmly.
 - c. Glue the 1/4" sq. balsa stringers to F-9 and F-10. These stringers should meet at the tail like fuselage sides. They must be parallel to the top of the fuselage when viewed from the side. This step sets the stabilizer incidence and is critical to the good flying qualities of your Citabria.

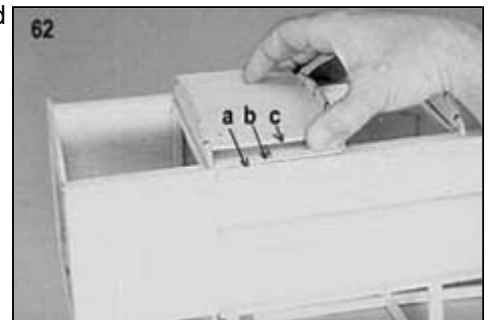


58.
 - a. Glue the 3/8"x1-1/2"x6-1/2" balsa tail platform to the top of the 1/4" sq. stringers.
 - b. Trim the 1/8"x1-1/2"x2" balsa dorsal support to fit between the two stringers just ahead of the tail platform. Glue it in place, flush with the top of the stringers.
59. Cut side doublers from 3/32" balsa sheet and glue in place on the front end of the fuselage.
60.
 - a. Add the 1/8"x5/16" balsa stringers to the fuselage sides. Use the plans to determine their exact location. A metal straightedge will help align the stringers as you glue them in place.
 - b. Glue 1/8"x1/4" balsa stringers to the bottom edge of the fuselage sides from the doublers to the tail
61. Glue formers F-3B, F-3C and F-3D to their respective crossbraces.



Landing Gear

62. The landing gear halves are sandwiched between two 1/8"x3-3/8"x5-1/16" plywood landing gear mounts. This allows you to remove the gear while shipping, sanding and painting the fuselage. This also makes it easy to replace the landing gear should it ever become necessary.



- a. Glue the first plywood mount directly to the fuselage bottom between F-3B and F-3C.
- b. The landing gear is made from 3/32" aluminum, so a gap between the landing gear mounts must be formed by gluing a scrap 3/32" balsa spacer directly behind the area occupied by the landing gear.
- c. Glue the second mount to the spacer and formers. The landing gear should now slide snugly into the slot between the mounts.

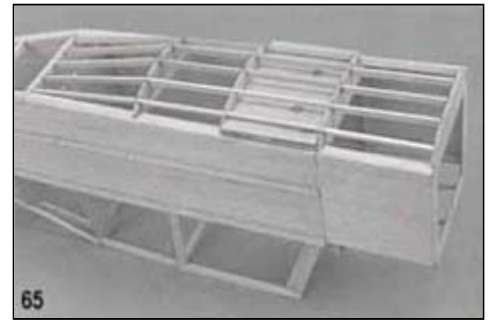
63. Position the landing gear on the second mount so that you can see the predrilled holes. Drill through these holes and the two landing gear mounts with a 1/8" drill.



64. Remove the gear and drill the LOWER landing gear mount ONLY with a 5/32" drill bit. Install the gear in the slot and pull four 4-40 blind nuts into the lower landing gear mount using 4-40x3/8" screws installed from the cabin.

Completing The Fuselage

- 65.
- Add 1/8"x1/4" balsa stringers from F-3B to F-3D. Notch the very front of these stringers to accept sheeting over F-3B.
 - Glue 1/8"x1/4" stringers between F-2 and F-3B. These should be flush with the edges of both formers.
 - Extend the stringers from F-3D to the front face of the crossbrace located just aft of F-4 using pieces of 1/8"x1/4" balsa.
- 66.
- Plank the area from F-2 to F-3B with 3/32" balsa. It may be necessary to wet the wood on the outside surface to help make it bend easier.
 - Plank the top of the fuselage from F-2 to F-3A with 3/32" balsa. Again water will help it to bend.



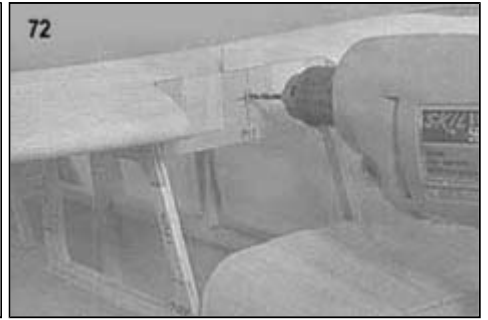
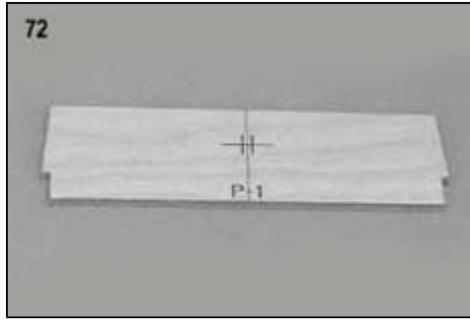
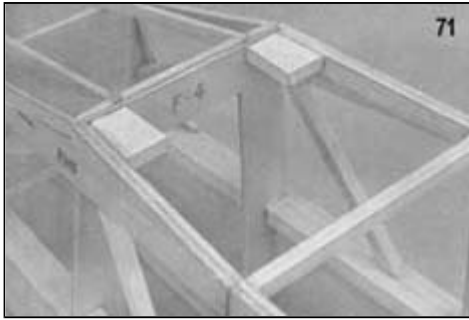
Window Frames

67. Carefully taper a piece of 3/16"x3/8" balsa to serve as a base for the window frames (see cross-section at F-3D). Glue in place on the cabin frame.
- 68.
- Assemble the window frame pieces FWF, FWW, WSF-1 and WSF-2 over the plan and allow to dry.
 - Glue the window frame to the fuselage with the front edge flush with the front of the cabin frame.
 - Glue and pin window frame pieces RWF and RWF-2 to the cabin frame.
69. Make a cabin window ledge from scrap 3/32" balsa. It should extend from FWW back to RWF-2 and should cover top of the fuselage side, the 1/4" sq. longeron, and the 1/8"x5/16" stringer.
70. Install the 1/4" sq. balsa diagonal cabin braces as shown on the plan. The bottom end of the front diagonal is glued to the cabin window ledge, about 1/8" from the outside edge.

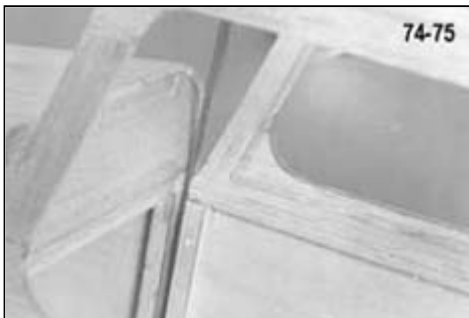


Joining The Wing To The Fuselage

71. Lightly sand the top of the cabin as necessary to make it smooth and flat so that the wing will be supported properly. Epoxy the 1/4"x3/4"x1" hardwood wing anchor blocks to the rear corners of the cabin, flush with the top. Be certain that these are glued firmly.
NOTE: The completed wing is required for the following steps.
- 72.
- Prepare P-1 (1/8"x1-5/8"x5" plywood) for installation. Trim the width, if necessary, to fit the center section of the wing.
 - Cut notches in the bottom corners to fit on the cabin frame.
 - Using the plans as a guide, mark the location of the two 1/8" dia. holes to be drilled later.
73. Tape the wing onto the fuselage, making sure it is aligned properly. Slide P-1 into position and glue to the fuselage (not the wing!).
Drill two 1/8" dia. holes, side by side, for the 1/8" wire cabin braces. Drill through P-1, P-2 and the 3/8" balsa doubler behind P-2. A thin wedge of balsa between P-1 and P-2 will help steady P-1 as you drill.

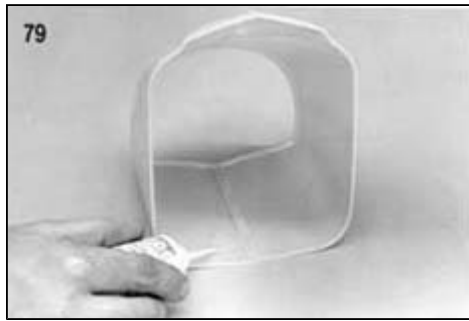
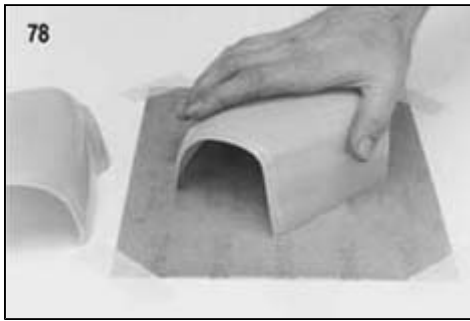


74. Cut a notch in the top fuselage longeron just forward of the cabin frame and just aft of the 1/4" sq. side stiffener. Make the notch just large enough for the cabin braces to sit flat against the fuselage side.
- Trial fit the two 1/8" dia. music wire cabin braces. If necessary, you can slightly "tweak" the bends in a vise for a perfect fit. The upper ends should fit tight in their respective holes.
 - Thoroughly clean or sand the wire cabin braces and install them in their correct position. Epoxy the wires to the fuselage sides and add 1/4" sq. balsa braces behind them at the same time. The cabin braces should be sandwiched between those 1/4" sq. braces and the front 1/4" sq. side stiffeners installed earlier.
NOTE: The wire cabin braces add strength to the cabin and hold the wing in place - they can't be omitted.
76. Bind the cabin braces at the top with fine copper wire and solder.
- 77.
- Carefully mark the positions of the wing hold-down bolts on the trailing edge of the wing.
 - Make certain that the wing is positioned properly on the fuselage then drill through the wing and the wing anchor blocks with a No.7 (or 13/64") drill bit.
 - Remove the wing and tap the wing anchor blocks with a 1/4-20 tap. You can apply a few drops of thin CA glue to the threads to strengthen them. Redrill the holes in the wing with a 1/4" drill bit to pass the nylon wing attach bolts.

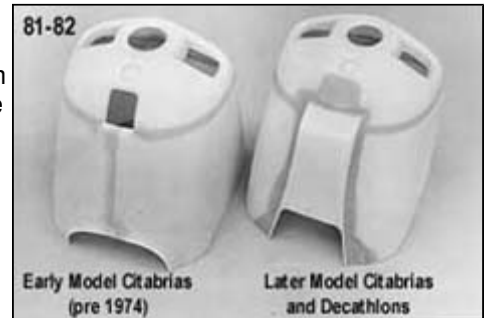


Cowling Assembly

78. The edges where the cowl halves join should be sanded perfectly straight by gently rubbing them over a piece of 150 grit sandpaper laying on a flat surface.
79. Hold a length of the joiner strip against the inside of one cowl half, leaving half of the strip extending past the cowl so that it can later be lapped onto the other cowl half. Apply butyrate dope thinner, MEK, or CA glue along the edge of the strip. It will spread along the seam and under the strip using capillary action. Be careful not to get any adhesive under your finger because it will leave a fingerprint in the plastic.
Position the other cowl half in place and apply adhesive along the seams as you did before.
80. Trial fit the nose bowl of the cowl on the joined cowl sides. Notice that a lip has been molded into the front of the cowl sides to provide an adequate gluing surface for the nose bowl. Notch out the lip at the bottom of the cowl to clear the air filter recess that is molded into the nose bowl. When the fit of the nose bowl is satisfactory, glue it in place.



81. a. Cut out the prop shaft hole and two air intake openings. Also, cut open the air exit area at the bottom rear of the cowl so that your engine will properly cool. The small round dimple molded into the nose bowl below the prop shaft opening simulates the Citabria landing light and should not be cut from the cowl. The air filter recess (located just below the landing light) should be left intact only if you plan to use the optional air scoop, as described in part "b" of this step. Otherwise the air filter recess should be cut out for best realism.
- b. If you have decided to use the optional air scoop, it should be installed now. Carefully cut out the scoop along its edges. The exhaust skirt at the bottom of the cowl will have to be trimmed away to clear the scoop. (The scoop should extend to the rear edge of the cowl.) Position the air scoop as shown on the plan and glue it in place.



82. Scrape the seams on the outside of the cowling with the edge of a razor blade to take out any rough spots or flaws. Low spots in the seam can be filled with Sig Epoxylite Putty. Work the putty into its final desired shape before it hardens using your finger or a razor blade, dipped in water, to smooth it into the low spots. Let it dry overnight, then sand the entire cowling smooth and scratch-free with fine sandpaper. Also sand the back edge of the cowl until it sits perfectly flat.
- CAUTION: Do not use coarse sandpaper which will cut deeply into the plastic parts. Deep scratches will often open up wider during painting. Use 220 grit or finer sandpaper to remove as much of the surface gloss from the plastic parts as possible.

Firewall Assembly And Engine Installation

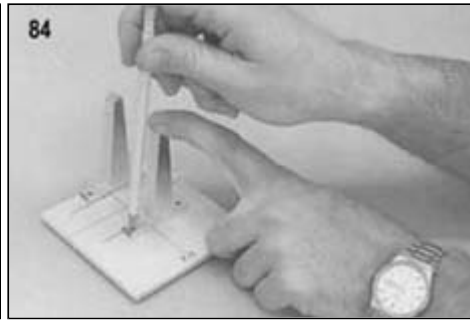
NOTE: You will need your engine and spinner for the following steps.

You should now decide how you wish to mount your engine. An upright cylinder generally makes for good starting and easy access, but tends to spoil the appearance of the model. An inverted installation will allow you to totally conceal most 2-stroke engines, giving the best appearance. However, inverted engines tend to be more difficult to start and have a less reliable idle. A good compromise is to mount the engine cylinder horizontally (side mounted). This installation avoids the problems of an inverted engine and can be seen from only one side. The engine shown in the instructions is a side mounted Saito 45 4-stroke engine.

NOTE: If you have side-mounted your engine, you will most likely have to make a cutout in the cowling to fit over the cylinder head (after your engine is installed). Take your time and make a tight-fitting, good looking cutout. You may need to expand your cutout, or make separate ones, for easy access to your engine's needle valve, carburetor, muffler, fuel lines or throttle linkage.

83. a. Using a large sanding block, sand the front end of the fuselage perfectly flat, flush with F-2.
- b. Trim the cowl former if necessary to achieve a snug fit inside the cowling.
- c. Glue the cowl former to the front of the fuselage. The cutout in the cowl former should line up with the cutout in F-2, and there should be an even "ledge" all the way around the outside of the cowl former. Notice that the cowl former "bulges" slightly at the sides - otherwise, it is the same shape as F-2 (without the longeron notches).
84. a. The cutout pieces from F-2 and the cowl former are glued together to form F-1 (firewall). Use Sig Kwik-Set Epoxy and use a heavy weight of some kind to hold the two pieces perfectly flat while drying.
- b. Mark the vertical centerline and thrust line on the firewall using the F-1 cross section on the plan as a guide.
- c. Determine the spacing that will be necessary between the two aluminum engine mounts to fit your engine, then position the mounts on F-1 accordingly. Mark the locations of the four mounting holes and drill them out with a 3/16" drill bit.

85. Tap the four 6-32 blind nuts into the back of the firewall. Bolt the engine mounts to the front of the firewall using 6-32x3/4" screws to be sure the blind nuts are aligned and that the engine still fits in the mounts. Epoxy around the edges of the blind nuts to hold them in place. Be careful not to get any glue on the threads.



86. Position your engine on the mounts and mark the engine mounting holes. Drill at the marks to suit your engine.

IMPORTANT: The aluminum engine mounts shown in these photos have been replaced by glass-filled mounts.



Glass-Filled Engine Mounts No Tapping Required

Sig's new glass-filled engine mounts have been included in this kit to replace the aluminum mounts that are shown in the instructions and the plans. The beauty of these new mounts is that they don't require tapping. Simply drill the holes to clear your engine mounting bolts, then fasten your engine to the mounts using 3/4" long bolts and aircraft lock nuts (4-40 or 6-32, depending on the engine.). If you prefer, the new mounts can be drilled and tapped just like aluminum (except you won't need lubricating oil).

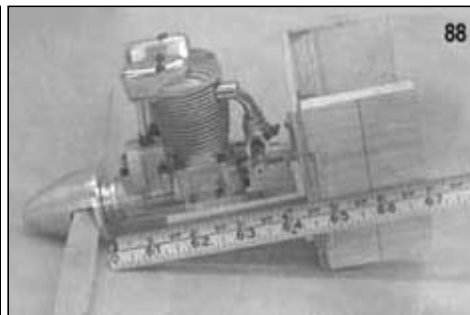
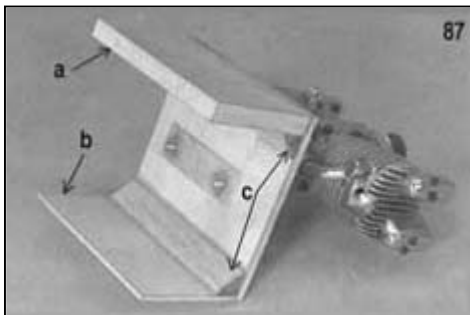


87.
 - a. Glue the 3/8"x4"x2-1/4" balsa top firewall extension to the back of the firewall, flush with the top edge. Trim as necessary to clear the blind nuts and use a triangle to check squareness as it dries.
 - b. Glue the 1/8"x4"x2-1/4" plywood bottom firewall extension to the bottom of the firewall, flush with the bottom edge.
 - c. Add 1/2" balsa triangle stock in the corners formed by the firewall (F-1) and it's top and bottom extensions.

NOTE: The firewall assembly (engine, mounts, firewall and extensions) is now ready to mount on the fuselage. The position of the extensions in F-2 will depend on your engine, and is dictated by the length of the cowling. For this reason, it is best to install the firewall assembly and cowling assembly at the same time as described in the following steps.

88. Mount your spinner (or just the backplate) to the engine and mark the firewall extensions 5-3/4" from the backside of the spinner.

89. Spot glue the firewall assembly to the fuselage with the marks at the front side of the cowl former. (This may be easier to do if you remove the engine temporarily.) The engine should have no sidethrust and no downthrust.



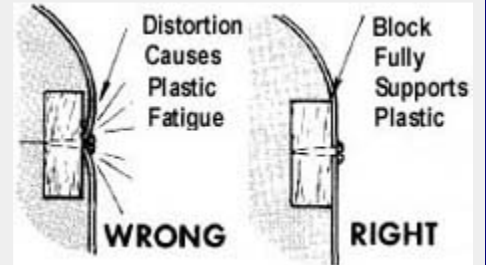
90. Fit the cowling to the fuselage. When holding the cowling in place, the engine shaft should be centered between the air intake openings. If it is off center, trim the cowl or slightly reposition the firewall assembly as necessary. Remember to maintain a true thrusting (no side or downthrust).

NOTE: You may want to prepare your fuel tank and throttle linkage installations at this point. (See further down for tips on tanks and throttle pushrod installation.) Once you have done these steps, you should remove your engine and engine mounts.

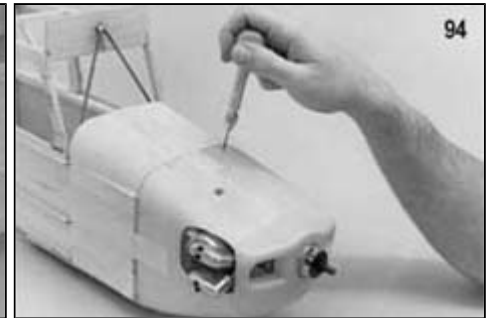


TO PREVENT COWL CRACKS

The most common cause of plastic cowls cracking is distortion of the plastic from improper installation of the mounting blocks and screws. If the plastic is fully supported by the block underneath, no strain will occur when the screws are tightened down.



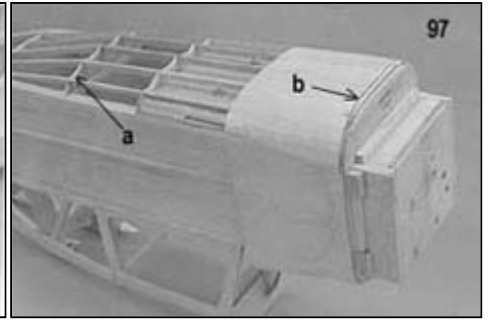
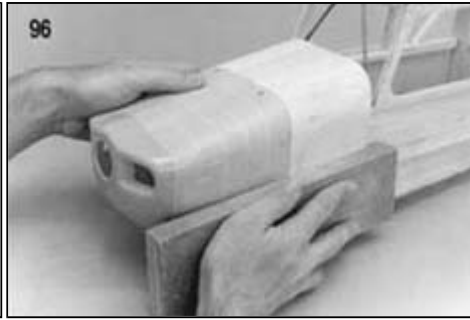
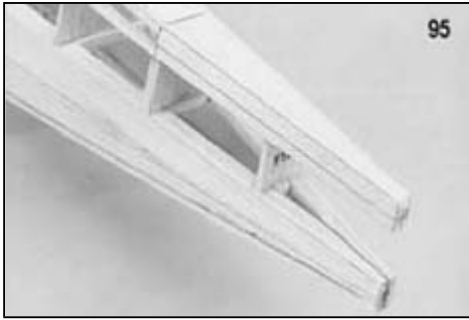
91. a. Firmly glue the firewall extension to F-2 and add 1/4"x3/8" and 1/4" sq. balsa braces as shown on the plans.
b. Glue 1/2" triangle stock to the back of the firewall along it's sides.
92. Glue the 1/4"x2-1/4"x4" balsa side extensions to the sides of the firewall assembly and F-2. Cut off the side extensions flush with the firewall and brace the back edges with 1/4" sq. balsa as shown on the plans.
93. Cut the 3/8"x3/8"x4-1/2" basswood stick provided into six pieces, each 3/4" long. Glue these six cowl mounting blocks to F-2 in the positions shown on the plan. Carefully trim these blocks as necessary to allow the cowling to slide over them snugly.



94. With the engine mounted, tape the cowling into it's final position on the fuselage. Drill six holes through the cowling and cowling mount blocks using a 1/16" dia. drill bit. Remove the engine and cowl, and redrill the holes in the cowling with a 3/32" dia. drill bit to pass the six #2x3/8" sheet metal screws used to hold the cowl in place.

Final Shaping Of Fuselage

95. a. Use a large sanding block to progressively taper the side stringers towards the rear. They should taper down to nothing right at the back end of the fuselage.
b. Shape the 3/8" balsa tail platform and 1/4" sq. balsa stringers to blend in smoothly with the fuselage lines.
96. Taper the front of the 3/32" balsa side doublers with a sanding block. The cowling should be mounted as you sand so that it can be smoothly blended with the front of the fuselage. (Protect the cowling with strips of masking tape.) Taper the front of the side stringers to blend into the 3.32" balsa side doublers.
97. a. The bottom formers should be scalloped between the stringers to improve the appearance after covering. This will keep the formers from showing, leaving only the stringers to support the fabric.
b. The area on the fuselage bottom (just aft of the cooling air exit on the cowling) should be sanded at an angle to help allow the cooling air to flow through and smoothly exit the cowling.



- 98.
- Sand the top of P-1 to match the wing center section.
 - Fasten the wing to the fuselage. Roughly shape the 3/4"x1-1/4"x1-1/2" balsa wing blocks to the shape shown on the fuselage top view and F-2 cross section. Glue the wing blocks to P-1 leaving a small gap between them and the inboard wing rib.
 - Carve and sand the wing blocks to airfoil contour. Sand the lower surface smooth.
 - Add a small scrap of 1/8"x1/4" balsa to the bottom of the wing block to act as a windshield support and sand to shape.



NOTE: Many modelers prefer to cover their tail surfaces before attaching them to the fuselage. If you choose to do this, be certain that all the hinge slots are cut and the control surfaces move freely with the hinges temporarily in place.

- 99.
- With the wing in place, position the stabilizer on the fuselage and check its alignment carefully. Be certain it is square with the fuselage by viewing it from the top and the rear. When you are satisfied with its position, make small marks on the fuselage and stabilizer so that it can be returned to the same position.
 - If you have already covered the stabilizer, the covering material will have to be cut away (use a sharp razor blade) where the stab rests on the tail platform, so that you will have a strong wood-to-wood glue joint. Epoxy the stabilizer to the fuselage, lining up the marks you made earlier. Recheck the alignment of the stabilizer as the glue dries. NOTE: The elevator must be permanently hinged to the stabilizer before the fin is attached.
- 100.
- Check the fit of the fin on the fuselage. The extended tail post on the fin should be in good contact with the fuselage sides and tail platform. If the stabilizer has been covered, cut away the covering material where the fin attaches.
 - Epoxy the fin to the fuselage and stabilizer, using a triangle to make certain it is vertical. Also, make sure that the fin is not offset to one side or the other by viewing it from above.
101. The fillet at the front of the fin is formed using Sig Epoxolite Putty. Epoxolite is light and strong, but gets very hard and is difficult to sand when dry. Smooth the putty to its final contour with a wet finger before it dries.

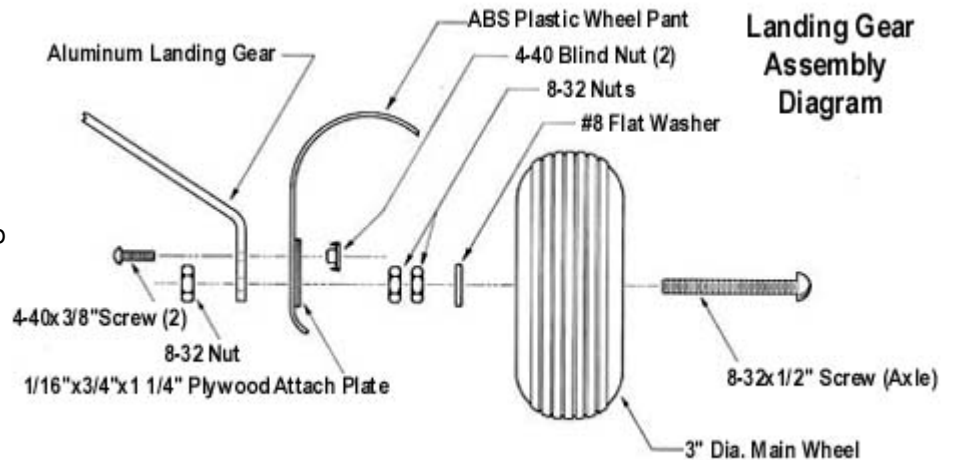


102. Remove the tailwheel mount from its die-cut 3/32" plywood sheet. Cut or sand a recessed area into the bottom of the fuselage, then epoxy the tailwheel mount in this area so it is flush with the fuselage bottom. The tailwheel and its bracket will be mounted later, after the airplane is completely finished.

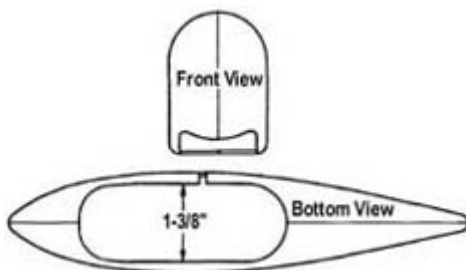
Wheel Pants

103. True up the edges of the wheel pants by gently rubbing them against sandpaper on a flat surface. Hold the two halves together, then apply butyrate dope thinner, MEK or CA glue to the seam. Apply pressure until the edges are firmly welded together.

104. Cut out the hole in the bottom of the wheel pant with a Dremel tool and drum sander, or an X-Acto knife. Notice that the scale cutout extends forward of the first bottom surface. The drawings here show two views of the wheel pant with the scale cutout. You can make this step easier by just cutting out the flat bottom surface (but you will sacrifice some scale accuracy). Now go back over the seam from the inside with CA.



105. 1. Glue the 1/16"x3/4"x1-1/4" plywood attach plates to the inside of the wheel pant in the position shown on the plan using Sig-Ment glue or CA glue.
2. Carefully locate and mark the position of the axle on the wheel pant using the plans as a guide. Drill only the inboard wheel pant half with a 5/32" drill bit. Cut a slot from the axle hole to the bottom of the wheel pant.
106. Temporarily attach the wheel pant to the landing gear (which should be bolted to the fuselage) using the 8-32x1-1/2" axle bolt and 8-32 nut. Place the fuselage upside-down on a table and prop it up so that the top of the fuselage sides are level. Position the wheel pants so that they also appear level, and mark the two mounting holes through the landing gear onto the wheel pant.
107. Remove the wheel pant and drill at the marks with a 5/32" drill. Install two 4-40 blind nut from the inside and glue into place. The figure above shows the final installation of the wheel and wheel pant, which should not be done until the airplane is completely finished.



Wing Strut Assembly

108. Cut the front and rear wing struts to the lengths shown on the plan. The front struts are made from 3/16"x1/2" spruce and the rear struts are 3/16"x3/8" spruce. They should be shaped to the proper airfoil cross section by tapering the spruce slightly, then rounding the leading and trailing edges to simulate streamlined tubing used on real aircraft.

109. a. Cut slots in the outboard (upper) ends of the struts using an X-Acto knife with a #27 saw blade. The slots should be 3/4" long.
b. Drill 3/32" dia. holes into the small pieces of brass shim stock as shown on the plans. Glue these in the slots in the outboard end of the struts using epoxy. Bend these tabs to sit flat on the wing when the struts are in position.
c. The wing struts are attached to the wing using #2x3/8" sheet metal screws. Drill 1/16" dia. holes into the strut hold-down plates to accept screws.



110.
 - a. The inboard end of the wing struts use short pieces of threaded rod cut to length shown on the plans. Carefully drill the strut ends with a 5/64" drill. Sand the threaded rod clean, file small nicks in its side, and epoxy the rod into the hole in the strut.
 - b. Drill and bend the aluminum strut attach tabs as shown on the plans. The tabs fit in slots cut into the fuselage sides, just above the landing gear mount. Cut slots now, but don't epoxy the tabs in place until the fuselage has been covered and painted.
 - c. The struts are attached to the tab on the fuselage using nylon clevises on the threaded rod. This arrangement allows you to adjust the length of the struts so that they are not stressed while sitting on the ground. The struts provide extra strength to the wing in flight, and should not be omitted.



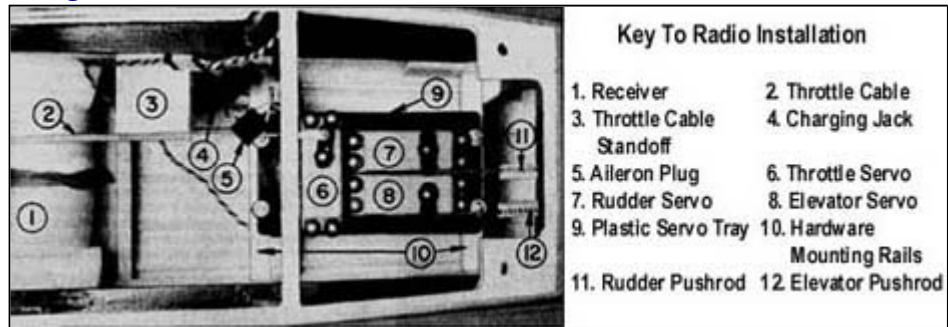
111. The 1/6" dia. music wire jury struts are optional for this aircraft. The plans show how to fabricate and attach the jury struts if you decide to use them.

RADIO INSTALLATION

It is generally easiest to mount all your radio equipment and pushrods in your Citabria before covering and painting. Once the initial installation has been made and all the bugs worked out, you can remove the radio system and then reinstall it when the airplane is finished.

Mounting Servos In The Fuselage

The most convenient method of installing the elevator, rudder and throttle servos in the fuselage is on the plastic trays supplied by the manufacturer with most radio systems. These plastic trays are screwed to hardwood mounting rails that are epoxied across the inside of the fuselage.



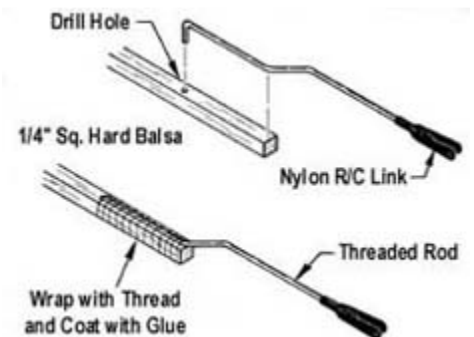
We recommend that the hardwood mounting rails be made of at least 3/8" sq. or 3/8"x1/2" basswood, pine or spruce. Do not make the rails out of balsa! Glue scrap pieces of balsa to the fuselage sides around the ends of the servo rails so that they can never come loose in flight. Further instructions on the use of servo trays can usually be found in the instructions supplied with the radio system.

The fore and aft location of the servos is generally not critical for balancing purposes. The servos in the photo model were towards the rear of the cabin for easy access even with a pilot installed. The servos were also mounted fairly low in the fuselage so that they wouldn't show through the windows.

Elevator And Rudder Hookup

Attach a small nylon control horn to the rudder and a medium nylon control horn to the elevator using #2x1/2" sheet metal screws. Mount the rudder control horn on the right side of the rudder and the elevator control horn on the bottom of the left elevator, as shown on the plans.

The type of pushrods that you use to actuate the elevator and rudder is left to your preference. Although the photo model uses balsa pushrods, it may actually be easier to install flexible nylon tubing pushrods, especially to the elevator. Sig 30" Nylon Tubing Pushrods (SH-568, see Sig Catalog) can be used. The outer tubing of the pushrods must be supported every four to six inches and permanently installed in the Citabria before it is covered.



The pushrods can also be made of balsa, as shown here. The 1/4" sq. balsa sticks are not provided in the kit, but the 2-56x10" threaded rod and nylon links are. Make the control surface ends of the pushrods first. Cut and bend the threaded rods as necessary to route them clear of the fuselage. In general, the fewer bends the better, but the elevator position requires the threaded rod to take a rather complicated route. Drill a 1/16" dia. hole 2" from one end of the 1/4" sq. balsa pushrod stick. Push the 90 deg. end of the wire into the hole, wrap the wire to the stick with the thread, and coat the winding with glue. Let dry.

Carefully try to determine the spot on the side of the fuselage where the pushrod will exit and line up with the control horn and servo. Cut a 1/8"x3/4" slot at this spot. Feed the pushrod through the fuselage, sticking the threaded rod through the slot. Screw a self-threading nylon RC link onto the end of the pushrod and hook it up to the control horn.

Hold the control surface in its natural position and cut off the servo end of the balsa pushrod stick about 2" short of reaching the servo's output arm. Attach a 6" long piece of 1/16" dia. music wire to the servo end of the balsa pushrod stick using the same method as the other end. Coat with glue and let dry.

Feed the pushrod back into the fuselage and hook it up to the control horn. Make sure the nylon link is centered on the threads at the tail end so that you will have equal adjustment range either way. Hold the control surface in its neutral position and attach the pushrod to the servo using your choice of servo connector.

It is very important that you make sure that both of your pushrods operate smoothly (without excess slop) and that they don't interfere with each other. When the fuselage is covered, the pushrod exit slots will have to be recut in the fabric. The loose covering material around the slot should be covered with reinforcements cut from the this plastic piece included in the kit. Use the pattern shown for your slot reinforcements.



Pushrod Exit Reinforcement
Make two from .010 ABS Plastic



Rudder Pushrod Installation



Elevator Pushrod Installation

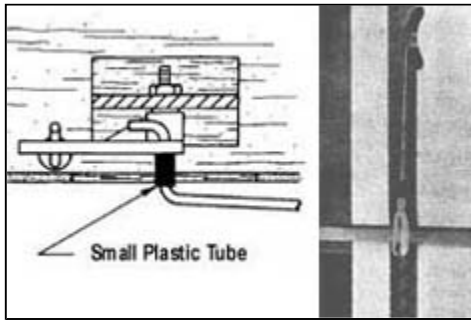
Receiver And Battery Installation

Wrap the receiver and battery pack separately in foam rubber (such as Sig RF-240), held on with rubber bands or tape, to protect them from engine vibration. The best location in the fuselage for the receiver and battery can't be determined until your model is completely finished. Shifting these components fore and aft can help get the model balanced properly. The photo model has the battery located below the fuel tank and the receiver positioned just behind former F-3B. After determining the best locations, glue temporary pieces of scrap balsa between the fuselage sides to hold the receiver and battery in place so they will not move around in flight.

The receiver antenna can be run out of the bottom of the fuselage and tapped at the aft end. This will expose the antenna without making it too conspicuous. Most servo trays make a provision for the switch to be mounted to it. Run a small piece of wire from the switch to the outside of the model so that you can turn it on and off. Also be certain the charging jack is easily accessible inside the fuselage.



Aileron Hookup



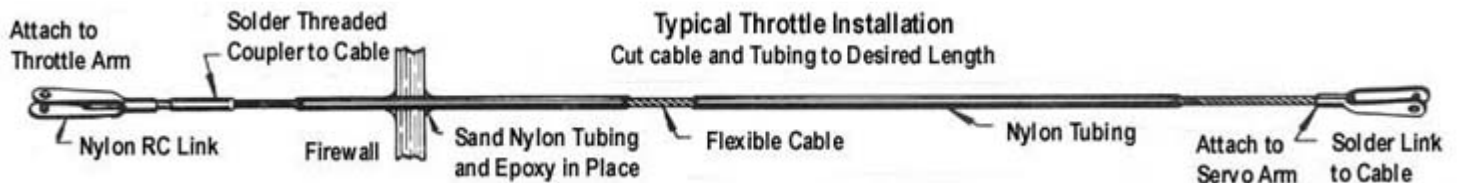
Bend two 2-56x10" threaded rods to match the aileron pushrods shown on the plans. Slip the pushrods onto the aileron bellcranks, thread two nylon RC links onto the ends of the pushrods and attach the links to the aileron control horns. Adjust the nylon links until both ailerons line up perfectly with the wing and check for smooth operation.



Cut the servo access hole in the bottom of the wing center section to expose the aileron pushrod. The aileron servo is mounted on a plastic tray designed to hold just one servo. The tray in turn is screwed to a plywood plate which is glued to the upper center section sheeting. The plywood plate, in this case 3/16" thick, also serves to raise the servo to the perfect height for the small spur wire.

Make a spur wire from 1/16" dia. music wire to connect the aileron pushrod to the aileron servo output arm. Wrap the spur wire in place on the pushrod splice with copper wire. Carefully position the spur wire so that the ailerons are in neutral when hooked up to the aileron servo. Solder the spur wire firmly.

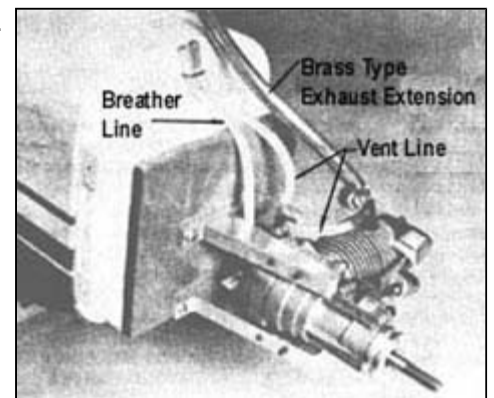
Throttle Hookup



Use a flexible cable pushrod, such as the Sig Flexible Cable Pushrod (SH-559), to connect your throttle servo to the control arm on the engine's carburetor. A typical installation is shown above.

The throttle on the 4-stroke engine used in the photo model is set-up a little differently. The carburetor is located on the rear of the engine which doesn't leave enough room for the threaded coupler and nylon link. Instead of using those parts, a Du-Bro Ball Link Socket was attached to the cable by wrapping it in place with copper wire and coating the windings with CA glue. The ball Link Socket then attaches to a Bolt-On Ball Link which is installed on the carburetor control arm.

The flexible cable pushrod should be supported at the servo end so that it is aimed directly at the output arm on the throttle servo. Cut a support block from scrap balsa and glue it firmly in place against the fuselage side. Epoxy the nylon outer tubing to the support block. When dry, cut the nylon tube and the cable to the final length needed to accommodate your choice of servo connector and install it into the end of the cable.

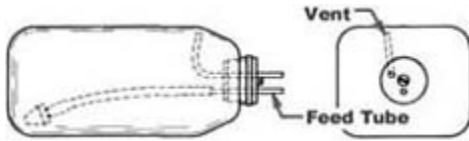


Tips On Tanks

An 8 ounce plastic clunk type tank is recommended for use in the Citabria. The plans specify a Sullivan Slant-Oval type fuel tank, but a rectangular or round tank can be substituted with good results. The slant-oval shape allows plenty of room beneath it for batteries, and helps keep the fuel level closer to the center of the carburetor.

The simplest, most trouble free tank set-up to use in the Citabria is normal suction feed with two vents. Assemble the fuel tank hardware as shown in the photo. There are three tubes installed through the rubber stopper - one for fuel feed and two for vents.





Both vent tubes should curve upwards inside the tank. The clunk line on the fuel feed tube must swing freely without hitting the back of the tank.

After the model is covered and painted, you can mount the tank permanently. For best results, the tank should be mounted high in the fuselage so that the centerline of the tank is 1/2" to 3/4" below the carburetor centerline. Make scrap balsa supports to position the tank as desired and to hold it in place. Should the need ever arise to remove the tank for servicing, simply break away the balsa supports. You can seal around the holes in the firewall where the fuel lines come through with silicone rubber sealer to prevent oil from leaking inside the fuselage.

Run Sig Heat-Proof Silicon Tubing from the fuel feed line to the carburetor. Two more lengths of tubing run from the vent tubes to the bottom opening in the cowl. To fuel the aircraft, simply pump fuel into either of the vent lines until it runs out the other. Plug one of the vents with a short 4-40 bolt to keep the fuel from siphoning out. It's not necessary to remove the feed line from the carburetor to refuel.

If your engine's muffler is equipped with a pressure tap, you can make use of it to help provide a more reliable fuel feed. To do this, connect one of the vent lines to the pressure tap. The other vent line must still be plugged with a bolt to operate properly. To refuel, remove the vent line from the pressure tap and remove the bolt from the other line, then fill the tank as you normally would. This method is used on the photo model.

COVERING AND PAINTING

You have now reached the point where your Citabria will take life and begin to look like its real counterpart. The most realistic finish for the model will require that it be covered with some type of fabric, such as Sig Koverall. An iron-on plastic covering will work, but it won't give the strength of a fabric covering and won't appear very realistic. Whatever type of covering you desire to use, it will not conceal a rough framework. Be sure all surfaces are smooth before proceeding.

The manufacturers directions for applying iron-on coverings are packed with the material. Follow these closely, for different types of material have different iron temperatures and techniques of application. The rest of these instructions describe the use of Sig Koverall.

Koverall is a polyester-base, heat-shrinkable, synthetic fabric much like the covering used on full-scale aircraft such as the Citabria. It is relatively low cost and will add a great deal of strength to the model's framework. It can be applied to the model using dope or Sig Stix-It, a heat activated adhesive.

To apply Koverall with dope, you must first prepare the framework by brushing on two coats of clear dope wherever the covering material will touch. If you plan for the entire finish, use Sig Supercoat (butyrate dope) for the first two coats. If you plan to use enamels or epoxy colors, use Sig Nitrate dope. Lightly sand after each coat to remove any raised grain or fuzz.

The bottom of the wing is a good place to start covering. Cut a piece of material about 1/2" larger all around than half of the wing, with the grain running lengthwise. (The grain of woven materials runs parallel to the finished bias edge). Lay the Koverall on the wing, pulling out any large wrinkles. Koverall shrinks up considerably under heat. (Don't worry about such things as the packaging fold wrinkles - they will come out easily with the iron.) Brush clear dope around all the edges. This will soak through the fabric and adhere it to the dope already dried into the framework. Allow the dope to dry before trimming off the excess material with a sharp razor blade. Check for any rough edges or places that are not stuck down properly and apply more dope, let dry.

After both sides of the wing are covered, shrink the Koverall evenly with an iron or hot-air gun (read the Koverall package instructions).

The Citabria fuselage is covered using four separate pieces of covering material. The first piece is applied to the bottom and attached to the stringers which run along the bottom of the fuselage sides. The next two pieces are applied to the fuselage sides. These pieces should attach to the bottom stringer (overlapping the first piece of fabric about 1/4") and the upper stringer which runs from the top rear of the cabin to the tail platform. Also attach these side pieces to the entire window frame (cut the material away from the windows later.) The front end of these two side pieces can wrap over the nose planking and join at the middle. The final piece of fabric covers the upper stringers and should overlap the side pieces about 1/4" on each side. Do not shrink the fabric on the fuselage until all of the pieces have been applied and allowed to dry completely.

Each of the tail surfaces can be covered using two pieces of Koverall, or one piece wrapped around one of the straight edges.

The directions for applying Koverall with Stix-It are on the can. The basic procedure is to apply Stix-It around the edges of the framework where you want the covering to attach. Lay the fabric in place and use an iron to activate the Stix-It. Once covered, the fabric is shrunk using the iron or a hot-air gun. Whether using dope or Stix-It to apply the Koverall, the remaining steps are identical.

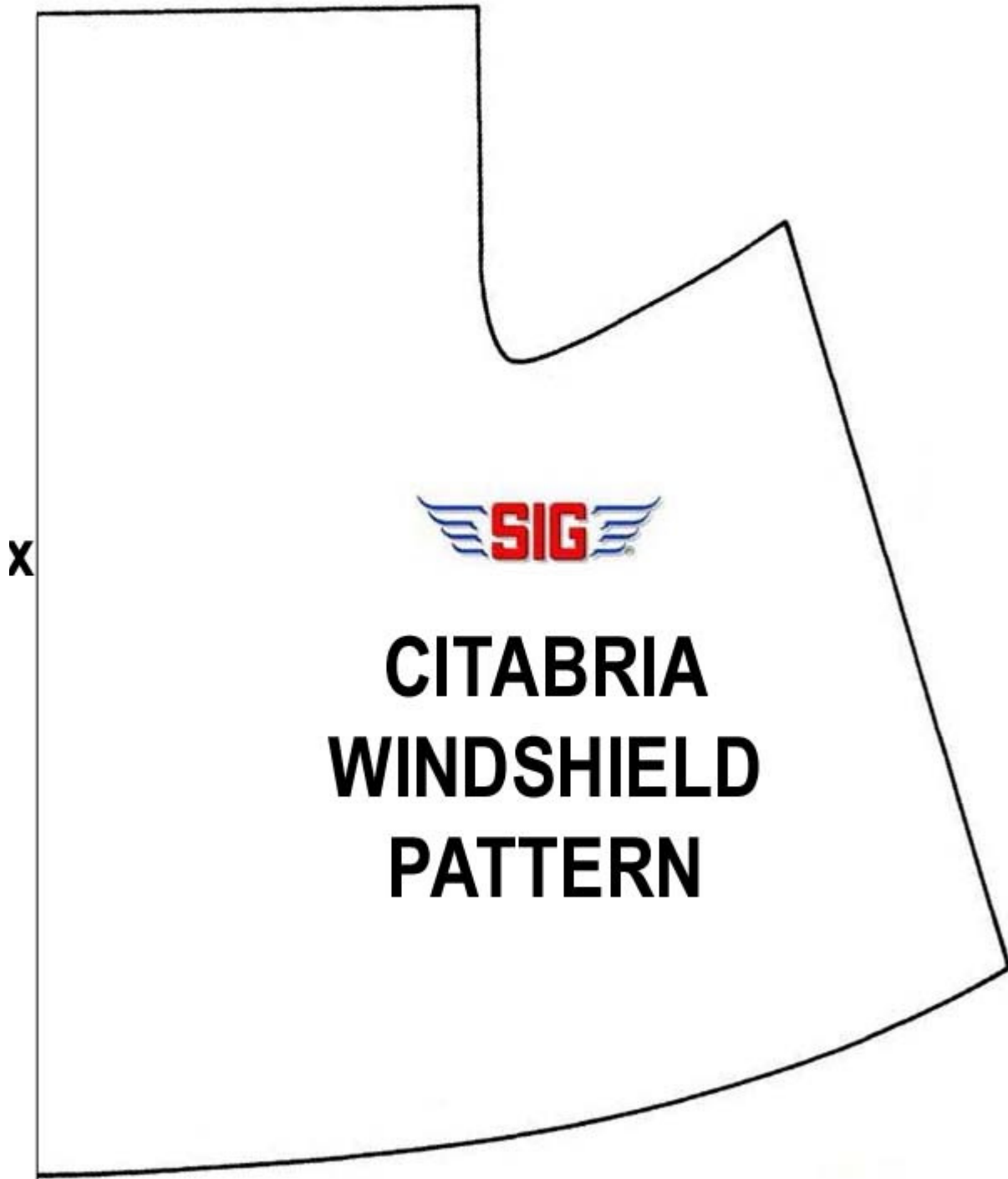
Once the model is covered give the whole airplane a coat of clear dope. Thin the dope until it brushes on easily and flows out smooth. Brush the dope on sparingly over the open framework areas. If too much is applied, the excess dope may rub off the brush, run completely through the covering and puddle against the covering surface on the other side. When these puddles dry, the large amounts of dope solids in them cause more shrinkage than in the rest of the covering and a scarred area may result. The second coat of clear dope will seal most of the pores of the Koverall and from then on running through will not be a problem. Sand the model VERY LIGHTLY with FINE sandpaper after the second coat is dry. Then give it a third coat of clear dope and when dry, sand again.

Your Citabria is now ready to be finished with its colored paint scheme. It is generally better to apply light colors first, followed by darker trim colors. Use "low-tack" drafting tape to mask off the paint scheme. If you have used Sig Supercoat dope throughout, a final coat of clear over the color paint will add a nice gloss to the finish. Do not try to mix different brands of paint. Use Sig products from the start and follow the instructions that come with them carefully for best results.

Installing The Windshield And Side Windows



Cut the windshield from the 8"x12" clear plastic sheet using the pattern (joining the two sides together). Cyanoacrylate adhesive works best for gluing the windshield to the painted fuselage. (Don't use CA "accelerator" or "sticker" - these could permanently fog your plastic windshield.) A little patience during this step will usually be rewarded with a neat-looking installation.



Tape the windshield in place as well as possible for a trial fit, then trim as necessary for a perfect fit. With the windshield taped down in its final position, tack glue it in several places along its edges. It's best to start gluing near the middle of the nose top and at the top of P-1. When satisfied with the fit, glue all of the edges permanently, removing the tape as you go.

Two 4"x14" pieces of clear plastic are provided for the side windows. One piece is to cover all the window area on one side of the airplane with no seams. Lay the plastic sheets on the fuselage and mark them about 1/8" larger than the outline of the windows. Cut them out and glue them to the outside of the model.

Painting The ABS Plastic Parts

The plastic parts should be sanded to remove the gloss before they are painted. Use only 220-grit or finer sandpaper. We recommend that the plastic parts be painted with Sig Supercoat Dope or Sig Skybrite paint for best results. Sig Plastinamel, Hobbypoxy, K&B Superpoxy, and Dulux (automotive) enamel have also been proven compatible with ABS plastic and can be used if desired.

Skybrite primer or K&B primer may also be used for a smooth undercoat. Do not use other paints, dopes or finishes without first testing to make certain it is compatible with the plastic.

CAUTION: Do not try to cover the ABS plastic parts with Monokote or other iron-on types of covering material. The heat may melt and distort the plastic.



Interior Detailing

Some modelers enjoy spending many hours providing their models with intricate detailing, while others spend no time at all. The interior of your Citabria can be given as much scale detailing as you wish, however no materials are provided in the kit for this purpose. The following ideas are suggestions only, but will give your airplane a nice appearance without expending too much time and money. Whatever you elect to do for the interior, remember to try and keep weight build-up at a minimum.

Paint the interior - When you are brushing a couple of coats of clear dope onto the fuselage frame, why not add a couple to the interior, especially around the window frames? Some flat black or grey on the inside will look better than exposed balsa and plywood.

Instrument panel - Model-sized instruments are available from several manufacturers and can add a touch of class even if you don't copy an existing panel in a real Citabria.

Pilots - Several manufacturers also produce dummy pilots in the 1/6 scale of your Citabria. You can use just a pilot or a pilot and passenger mounted on a removable base. The base will also help hide your radio equipment which can be installed lower in the fuselage.

Pre-Flight

Be certain to range check your radio equipment according to the manufacturer's instructions before attempting test flights. A lot of problems can also be avoided if your engine has been well broken in and the idle adjustment perfected on a test block or in another airplane before installation in the new model.

Various brands of servos can give different amounts of control surface travel. By moving your pushrod linkages into a different hole of the control horn and/or into different hole of the servo arm, you can change the total amount of control surface travel you'll get when the Tx stick is moved to full throw position. Adjust your pushrod linkages to produce the amounts of movement listed below.

Measurements are made at the trailing edge of the control surface.

RECOMMENDED CONTROL SURFACE MOVEMENTS	ELEVATOR	7/8" UP and 7/8" DOWN
For test flights, the following are suggested:	RUDDER	1" LEFT and 1" RIGHT
	AILERON	5/8" UP and 5/8" DOWN

The control measurements listed above should give full aerobatic capability if your Citabria is properly balanced. Test flights may indicate a need for slightly more or less movement, depending on individual model performance and personal preference.

Before flying, you should also adjust all your pushrod linkages so the control surfaces are in neutral position when the Tx sticks and trim levers are centered in neutral. After the first flight, readjust the linkages if necessary so that the trim levers can be returned to neutral position. It may take several flights before exact trim is established on all the flight controls.

Balance your model at the point indicated on the plan. If it balances further back, add weight to the nose as necessary. Trying to fly with the C.G. too far back is much more dangerous than the slight increase in wing loading caused by adding lead to the nose. Balance with an empty fuel tank.

WHY MODELS MUST BE INDIVIDUALLY BALANCED

It is impossible to produce a kit that will automatically have the correct balance point. Balsa wood varies in weight and so do model engines. The form of muffler you use, the size and placement of your radio equipment and the amount of finish you apply can also affect the balance. Don't feel that whatever C.G. the model builds out to is "good enough". Check carefully and make whatever adjustments that are required. With the C.G. properly located, the Citabria should fly with only minor trim changes required.

**A model, engine or radio that is not prepared and working properly on the ground before takeoff will not improve in the air -
IT WILL GET WORSE!**

There is no point in attempting to fly until everything is 100% correct.

FLYING

The Citabria is a fun and easy aircraft to fly, but it is not a basic trainer. If you have no previous RC flying experience we suggest that you not attempt to fly your Citabria without the assistance of an experienced pilot. Contact your local club or ask your hobby dealer for the names of good fliers in your vicinity and a suitable location for flying. Many hours of work are involved in the construction of a model and it can be lost in a moment of beginner's indecision. A skilled flier can help you get past the first critical test flights without damage to the model.

For the first flights, line the Citabria up in the middle of the runway for takeoff. You may find it more comfortable to stand directly behind the model so that you can easily see and correct any changes in heading during the takeoff roll. To avoid a nose-over, you should hold about half of your available "up" elevator while you advance the throttle. It is important to slowly return the elevator to neutral during the takeoff roll. Be ready to apply a small amount of right rudder because the Citabria will generally tend to drift to the left due to torque. When you reach flying speed, pull back slightly on the elevator stick for a gentle liftoff.

The most common mistake made during initial test flights, particularly with tail draggers, is overcontrolling with the rudder during the takeoff roll. Remember to make gentle control inputs and you will do just fine. If the model does begin going from one side of the runway to the other (as a result of overcontrolling), quickly pull the throttle to full low, and taxi back for a fresh start. Never try to hurry your Citabria off the ground by pulling full up elevator just because it isn't going straight! This could lead to a premature snap roll (due to low airspeed) which would damage your model much more severely than anything that could happen on the ground. Make several practice takeoff runs without lifting off to study the airplane's ground handling characteristics.

In the air, you will find the Citabria to be very smooth and stable. It will perform very realistic maneuvers with ease. After the model has been trimmed and you are more familiar with it's flying qualities, you may want to experiment with slight changes in control surface travel until the Citabria flies and reacts just the way you want it to.

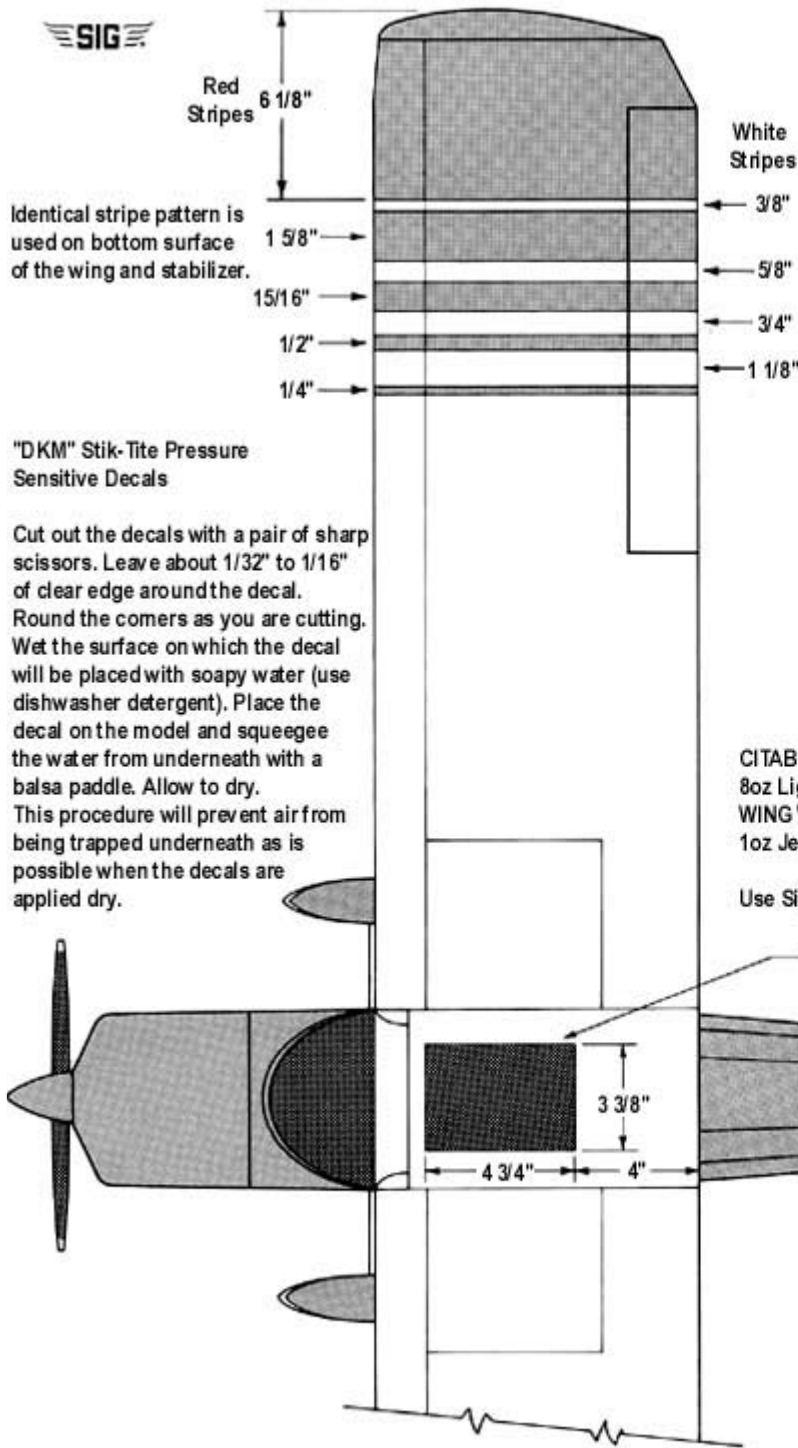
Advanced pilots who are striving for maximum realism and smoothness should "coordinate" their turns by adding a small amount of rudder at the same time and in the same direction, as the aileron. Many of the newer radio systems offer a "coupling" feature which will automatically deflect the rudder slightly when you use the aileron stick.

Shifting the balance point forward or aft will also affect the aircraft's handling characteristics both on the ground and in the air. We recommend that you shift the balance point no more than 1/8" at a time and that you don't shift the balance point more than a total of 1/2" forward or aft of the position shown on the plans. Moving the balance point forward will increase the model's stability, and slow down snap and spin maneuvers. On the ground, a forward balance point will decrease any tendency to veer left or right, but will increase the possibility of a nose-over. Shifting the balance point aft will make the model much more sensitive to control inputs, both on the ground and in the air. If carried too far, the model will become completely unstable and uncontrollable. If these ideas have made the Citabria sound as though it is difficult to fly, it really isn't. These are basic laws of aircraft design and aerodynamics that apply to ANY AIRCRAFT, model or full scale, not just the Citabria. Experimenting with different balance points should only be attempted by experienced pilots. The balance point shown on the plans gives the Citabria a nice blend of stability and maneuverability, and is the balance point we use on our prototypes.

When the time comes to land your Citabria, remember to keep your control inputs smooth and gentle to avoid overcontrolling. When you are certain that the model will make it to the runway (even if the engine quits), bring the throttle to full low and concentrate on keeping the wings level during final approach. Slow the model down during the entire approach by slowly feeding in up elevator. Just before the model touches, flare the landing by carefully feeding in more up elevator. Hold the model just inches off the ground until your elevator stick is pulled all the way back. The Citabria should settle down to a perfect "three point" landing with a short rollout. Taxi back slowly and graciously accept all the praise offered by any onlookers. The hoopla should be overwhelming!



CITABRIA PAINT SCHEME



The Citabria on the kit label was painted to match N2725Z. A 1979 Bellanca Citabria owned by Mr. Scott Wright of Mould, Minnesota. The decals supplied in the kit are for this airplane, and the dimensions to use on the model for the red and white stripes are shown here.

The prototype model was finished with Sig White Dope and a special blend of Dope for the Red. Sig Light Red can be used, but the mixture described below will be very close to the color of the real airplane.

Here's a tip for improving the appearance of the windows on your model. Use striping tape to conceal the edges and sharpen the outline of the windows. Red Sig Strip-Rite Striping Tape blends almost perfectly with the RedDope formula given below. Use 1/4" wide tape around the windows and 3/4" wide tape along the base of the windshield.

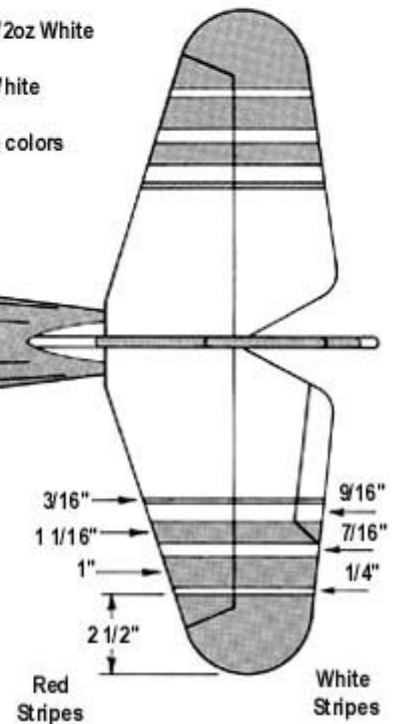
Prepare the metal parts (landing gear, spinner etc.) for Dope by first painting them with K&B Epoxy Primer. Whatever method you use to finish your Citabria, remember to try to keep it as light as possible for maximum flying enjoyment!

CITABRIA RED FORMULA:
8oz Light Red, 1 1/2oz Cub Yellow, 1 1/2oz White

WING WINDOW FORMULA:
1oz Jet Black, 1oz Miami Blue, 1/2oz White

Use Sig Supercoat Dope for the above colors

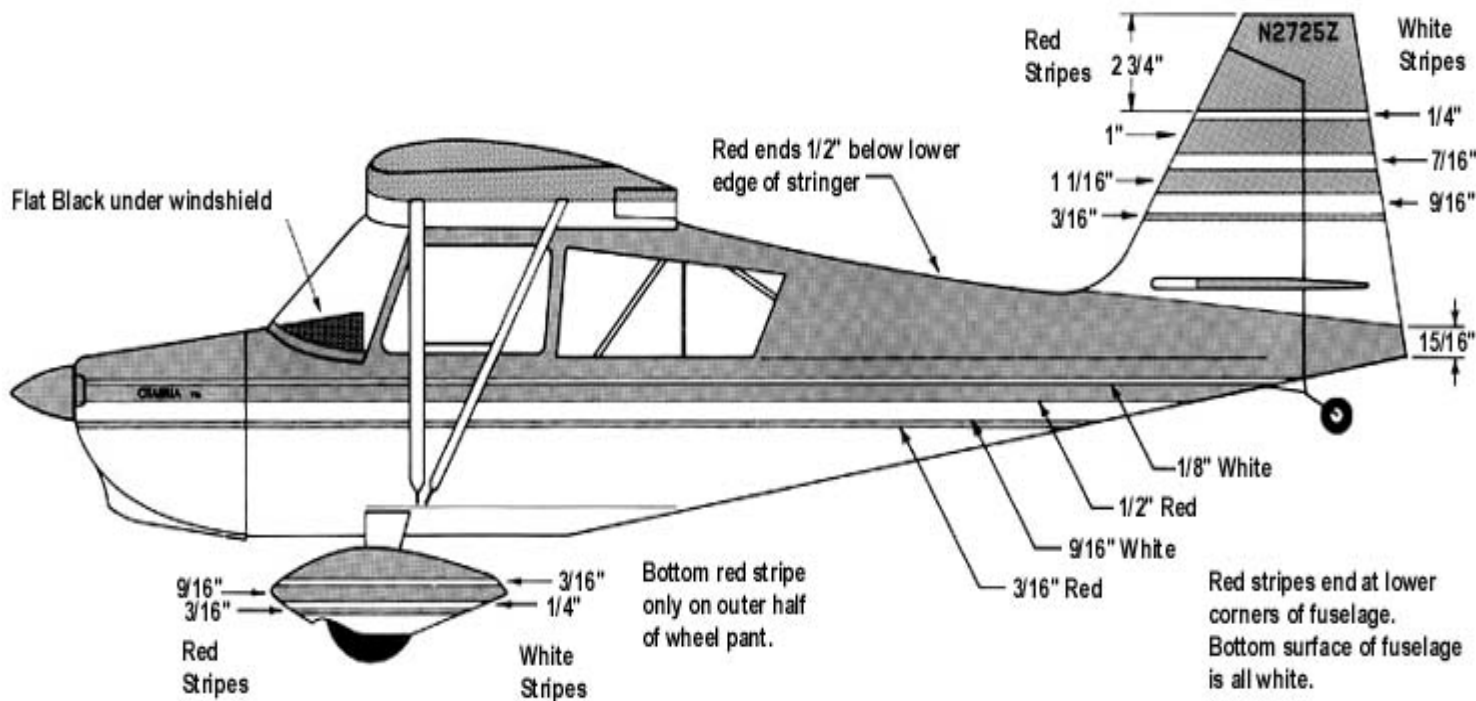
Wing Window
Dark Blue Tinted Window



Other Paint Schemes

Several different paint schemes have been used on Citabrias and Decathlons over the years. If you wish to use a paint scheme other than the one shown here, a trip to your local airport could very well turn up a Citabria that you can duplicate. Magazines are another good source for different paint schemes. Her is a list of magazines that may prove useful

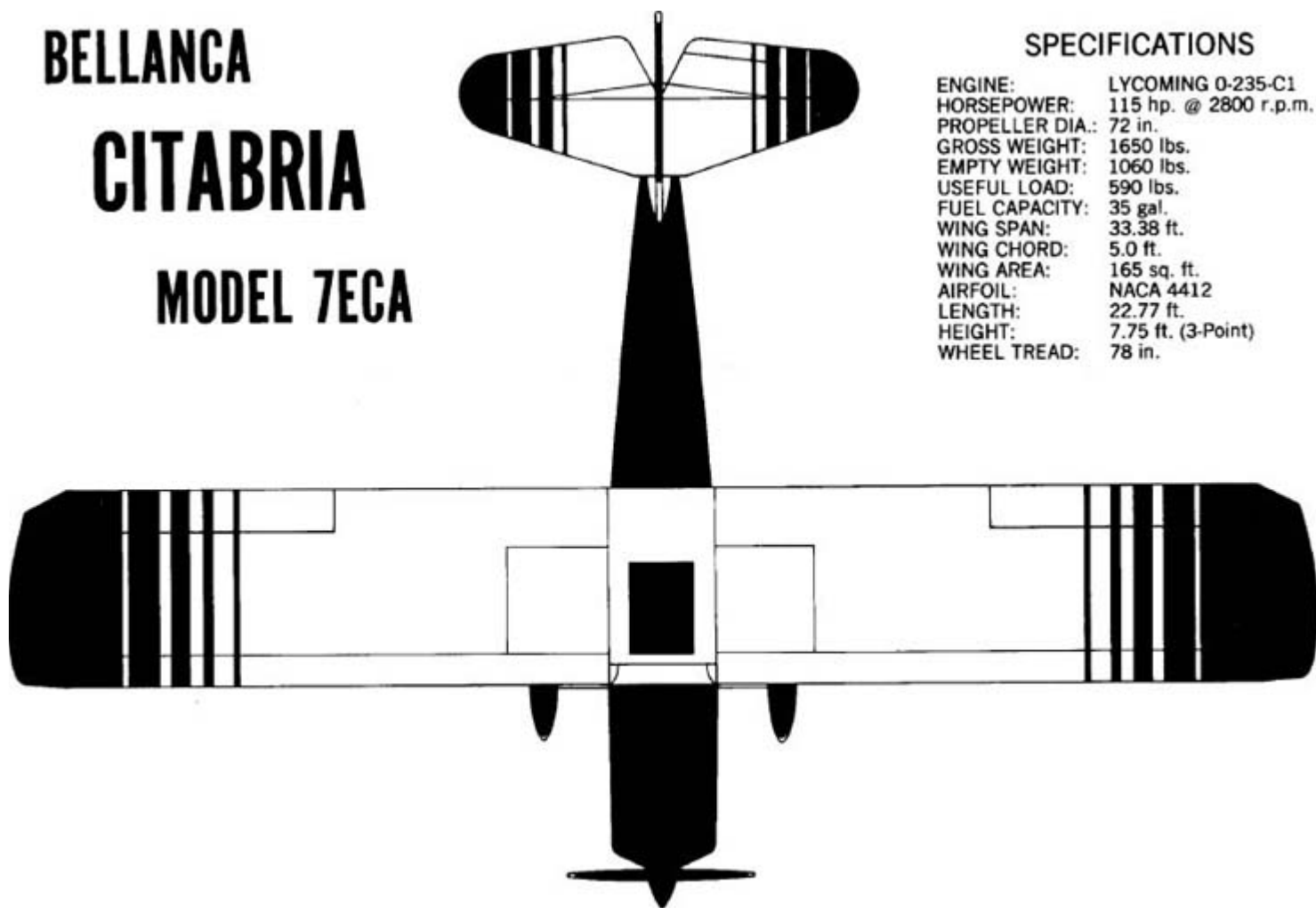
- FLYING, NOV. 1970 - Gold and White, Sunburst on wing.
- AIR PROGRESS, APR. 1971 - Red, White and Blue Decathlon, stars, stripes and sunbursts.
- AOPA PILOT, FEB. 1975 - Super Decathlon. Yellow with Blue starburst and White belly.
- PRIVATE PILOT, NOV. 1981 - Red and White, Scallops on wing and tail stripes on fuselage.

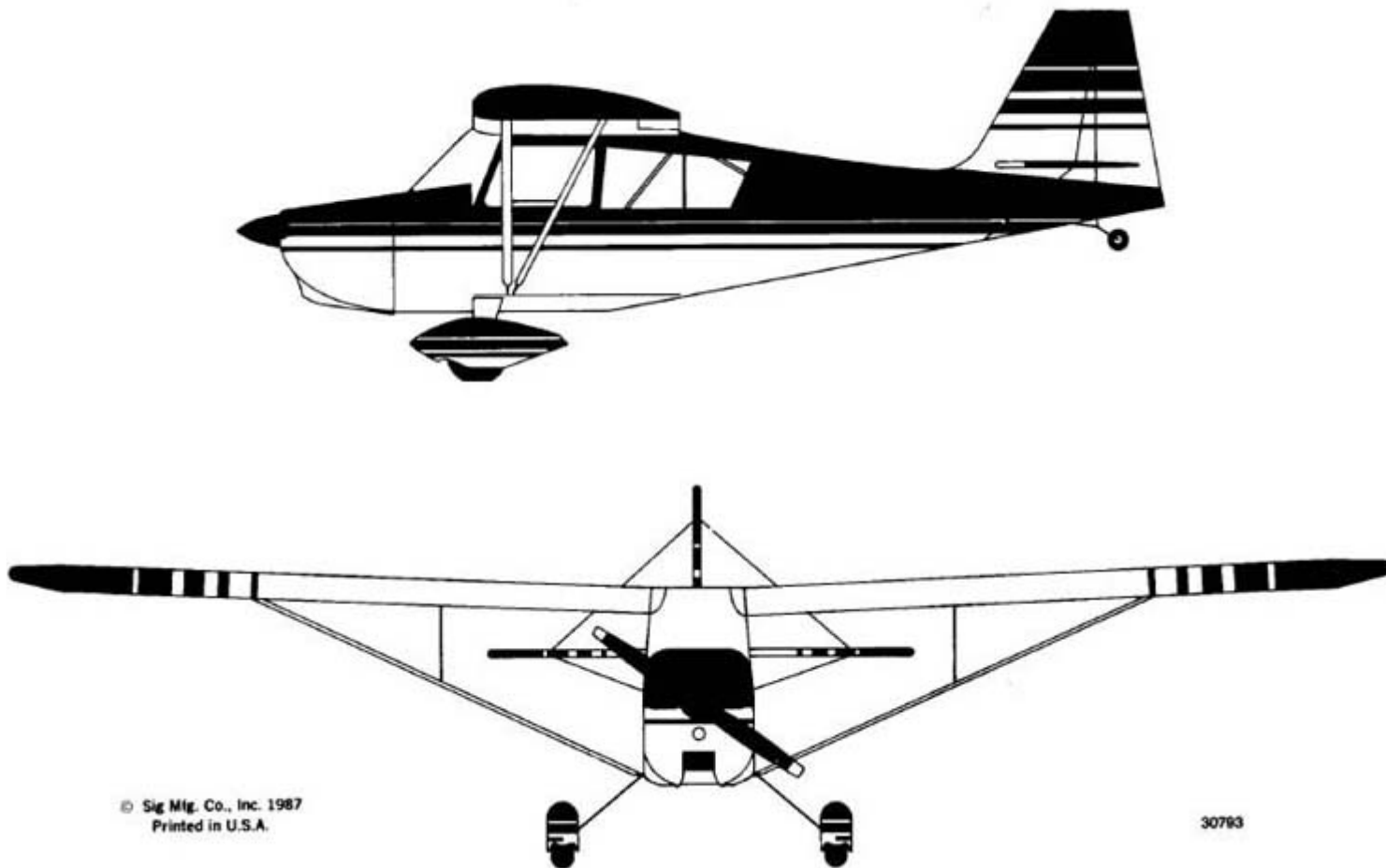


BELLANCA
CITABRIA
MODEL 7ECA

SPECIFICATIONS

ENGINE:	LYCOMING O-235-C1
HORSEPOWER:	115 hp. @ 2800 r.p.m.
PROPELLER DIA.:	72 in.
GROSS WEIGHT:	1650 lbs.
EMPTY WEIGHT:	1060 lbs.
USEFUL LOAD:	590 lbs.
FUEL CAPACITY:	35 gal.
WING SPAN:	33.38 ft.
WING CHORD:	5.0 ft.
WING AREA:	165 sq. ft.
AIRFOIL:	NACA 4412
LENGTH:	22.77 ft.
HEIGHT:	7.75 ft. (3-Point)
WHEEL TREAD:	78 in.





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WARNING - DANGER! -Important: Read These Warnings:

- Do Not fly control line or towline models within 300 feet of electric power lines. Instant death from electrocution can result from coming near them. Direct contact is not necessary.
- A model airplane motor gets very hot and can cause serious burns. Do not touch the motor during or after operation.
- Keep clear of the propeller. It can cut off a finger or put out an eye. Make sure the propeller is securely fastened in place and is not cracked.
- Model airplane fuel is flammable and poisonous. Take the same precautions while transporting and using it that you would with a can of gasoline or a bottle of poison.
- Remember that it is possible to lose control of a model airplane. Do not fly in locations where the model may hit people or damage property if loss of control occurs.
- Check your model and equipment regularly to insure it is in safe operating condition.

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