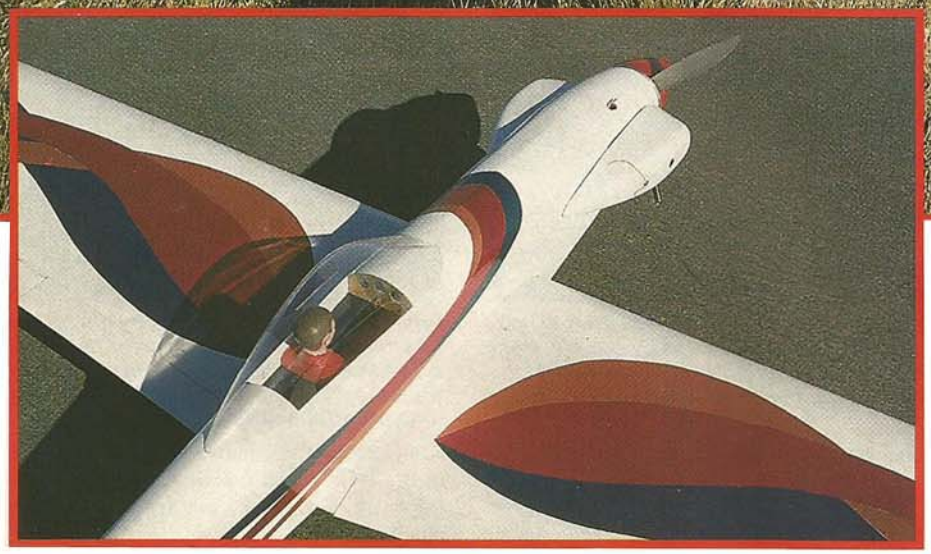
CLOUD DANCER 120

By Fred Reese

Like its smaller brothers, the Cloud Dancer 120 builds quickly and is an outstanding flying airplane.

The Cloud Dancer 120 is a scaled up version of my 74" Cloud Dancer, published in the June, '93 issue of RCM which was the best all-around flying airplane I have ever owned. The Cloud Dancer 120 is a fully aerobatic aircraft that is very light, and is powered with a 120 4-stroke engine with a wing loading of only 18.5 oz./sq. ft. It flies like a feather with a rocket engine. The Cloud Dancer 120 can hover in a stiff breeze or it can zip around like a sport racer. Those who have flown the big Cloud Dancer flew it at reduced power most of the time. I guess the charm of the model is its ability to fly slowly and gracefully while having the power to go straight up.

To give you an idea of the performance of this big model, let me review its first few flights. The first flight was in dead calm and the idle was set too high. The take-off was easy, a little rudder held it straight, followed by a brisk climb-out to a comfortable altitude. Two clicks of aileron leveled it off and no elevator trim was needed. The flight responses were comfortable from the start and I quickly relaxed. The next few minutes were spent trying loops, rolls, knife-edge, eights, hammerheads, and humpty bumps with no problems. The landing, however, used the whole runway. I was used to waiting for the smaller original Cloud Dancer to finally settle in and land, and the big one is the same. I did not fly it again that day because I wanted to get the idle slower to make the landing easier. The next two flights were flown in the wind. We had a wind meter and it was



Williams Bros. 2-5/8" pilot under Sig 15" WWII canopy. The cheek cowls change the look of the aircraft from fighter to lightplane. The Cloud Dancer 120 looks sleek and fast either way.

registering a minimum of 17 knots, gusting to 30. The first take-off used less than a fuselage length to get airborne at full throttle. Other than it being bumpy up there, the flight was fun, slow flying the big model into the wind. I got the aircraft a little slow on landing and it bounced a couple of times. On the second landing, I flew it onto the ground with more power and made a perfect landing. The following Sunday at the club Fun-Fly, the Cloud Dancer was flown by

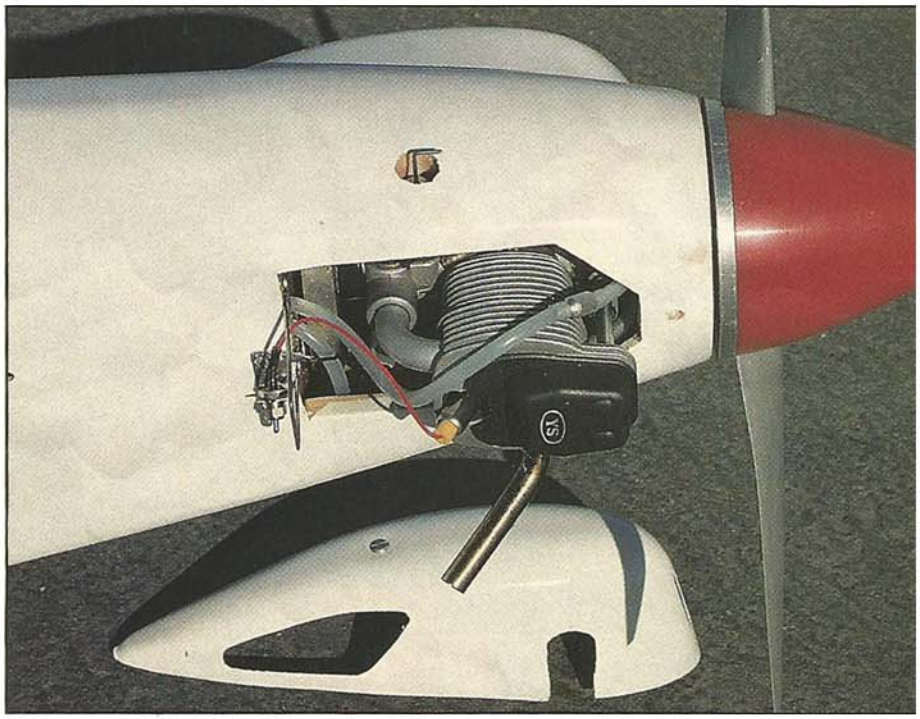
The Cloud Dancer 120 is a different type of aircraft. Think of it as a Senior Telemaster that looks and flies like a P-51. The wingspan is 98", the size of a Reno Racer or T.O.C. aerobatic model but it only weighs eleven pounds with a YS-120 4-stroke engine.

several of the other club members including T.O.C. Champion, Chip Hyde. Chip immediately began trying some of his T.O.C. maneuvers including a vertical hover. I was amazed that it could do it, but then I got really elated when he gave it power and the big model climbed up and away, still vertical. Chip then did a low, rolling circle followed by some rolling loops. I really enjoy seeing my designs flown by the exceptional pilots so I can see what the airplane is capable of doing.

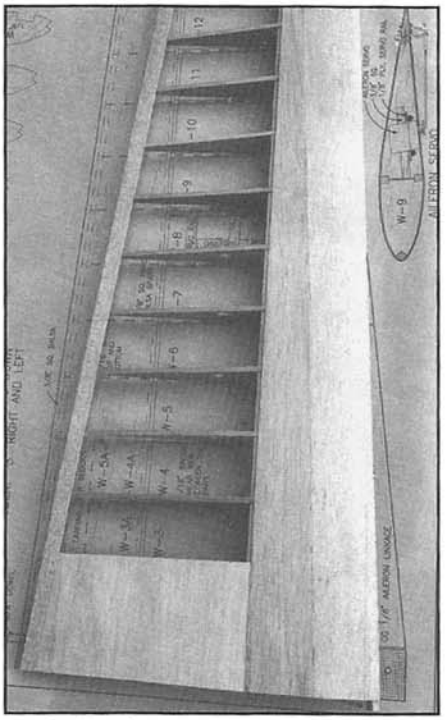
The construction of the Cloud Dancer is more traditional than typical current designs. Lite ply is used where it is advantageous, and balsa is used for the rest. The 3/8" sq. balsa truss rear fuselage is much lighter than lite ply or balsa slab sides; 1/16" balsa is utilized for all of the balsa sheet needed. As designed, it is strong enough for all flight loads, but use care in handling on the ground. Since I drive a station wagon, I built the long wing in one piece; however, the plans show an 86" clipped wing that will use 42" wood to build. The plans also show how to build a two piece wing using an aluminum tube to join the two halves of either length. The wing dowels and bolts will hold the two piece wing in place, and aligned.

The wing uses special airfoils that I developed for this design which allow the wing to be built flat on the table, assuring a straight and true wing without resorting to special jigging. The wing is flat on the bottom from the spar to the trailing edge. All of the camber on the bottom of the wing is forward of the spar. There is no washout, but it uses a changing airfoil from root to tip

NAME
CLOUD DANCER 120
Designed by:
Fred Reese
TYPE AIRCRAFT
Sport Pattern
WINGSPAN
86 Inches or 98 Inches
WING CHORD
13.75 Inches (Avg.)
TOTAL WING AREA
1230 or 1350 Sq. In.
WING LOCATION
Low Wing
AIRFOIL
Semi-Symmetrical
WING PLANFORM
Double Taper
DIHEDRAL, EACH TIP
3 Inches
OVERALL FUSELAGE LENGTH
67 Inches
RADIO COMPARTMENT SIZE
(L) 18" (W) 4" (H) 4"
STABILIZER SPAN
28 Inches
STABILIZER CHORD (inc. elev.)
9 Inches (Avg.)
STABILIZER AREA
244 Sq. In.
STAB AIRFOIL SECTION
Flat
STABILIZER LOCATION
Top Of Fuselage
VERTICAL FIN HEIGHT
10 Inches
VERTICAL FIN WIDTH (inc. rud.)
8.25 Inches (Avg.)
REC. ENGINE SIZE
.90-1.8 Cu. In. 2-Stroke or 4-Stroke
FUEL TANK SIZE
12-16 Oz.
LANDING GEAR
Conventional
REC. NO. OF CHANNELS
4 or 5
CONTROL FUNCTIONS
Rud., Elev., Throt., Ail., Flaps (Optional)
C.G. (from L.E.)
5-3/8 (At fuselage)
ELEVATOR THROWS
1-1/2" Up — 1-1/2" Down
AILERON THROWS
5/8" Up — 5/8" Down
RUDDER THROWS
3 Inches
SIDETHRUST
N/A
DOWNTHRUST/UPTHRUST
N/A
BASIC MATERIALS USED IN CONSTRUCTION
Fuselage ..... Balsa & Lite Ply
Wing ..... Balsa & Lite Ply
Empennage ..... Balsa
Wt. Ready To Fly ..... 176 Oz. (11 Lbs.)
Wing Loading ..... 18.8 Oz./Sq. Ft.



Side mounted YS-120 on Tatone Snuf-Vibe engine mount. Fiberglass cheek cowl is held in place with a Prather dzus fastener and wire loop. The cowl is located by dowels, front and back. Cooling air is exited from the cowl through a large hole in the bottom of the cowl. The glow plug is lighted via a McDaniel RC #443 remote adapter located just inside the cooling exit slot in the cowl.



Begin the wing construction by gluing the ribs onto the bottom spar over the plan. Add the leading edge, trailing edge, and top spar. Turn the wing over and glue on the bottom sheeting and capstrips.

that gives very forgiving stall characteristics. The airfoils are semi-symmetrical with 55% of the thickness above the wing centerline, and 45% of the thickness below the centerline. This gives flight performance much like a fully symmetrical wing section.

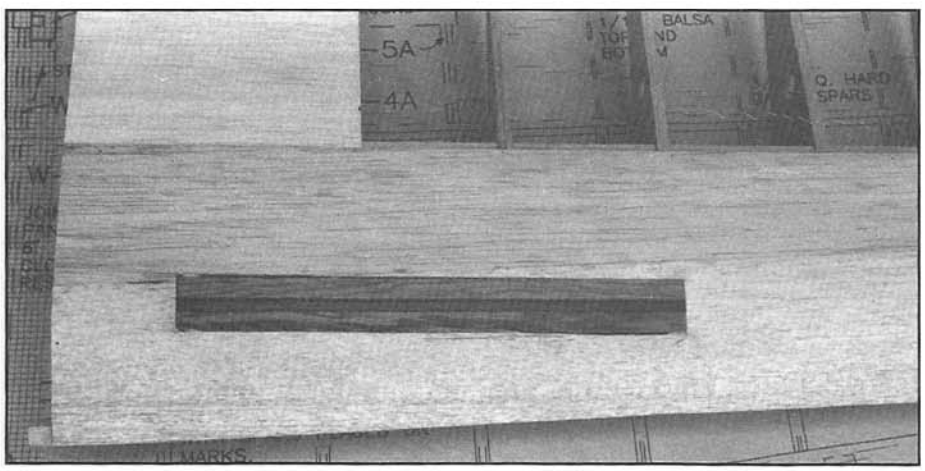
The purpose of this design was to build a very large, but very light aircraft that can take advantage of the power available from the large 4-strokes or the large 2-stroke engines. To use larger gas burning engines would defeat the purpose as it would require more reinforcement to handle the vibration, which would increase the weight and require more or larger servos and a bigger battery pack, which would increase the weight; a very vicious circle! While the design would fly very well at 20 pounds or more as shown, it is not stressed for it. Conversely, the .90 to 1.2 cu. in. 2-stroke engines would actually reduce the weight and would fly the model well. Actually a .60 would fly the model very nicely. I used a YS 120 4-stroke engine on the prototype mounted on a Tatone Snuff-Vibe engine mount. I like this mount as the engine does not move around as much as some of the other soft mounts I have seen, and it does reduce the vibration transmitted to the airframe.

Maybe you will build this model and maybe you won't. Either way, think about the weight saving features of this design and maybe you can incorporate them into your next project.

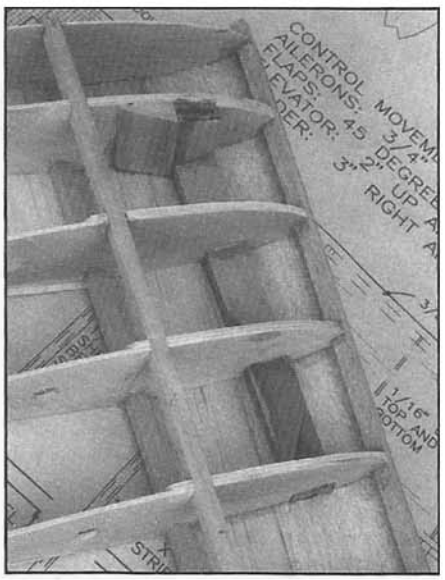
CONSTRUCTION

Choose the wood carefully for building this or any other model. Select only very hard, straight grain wood for the wing spars, top and bottom fuselage stringers, and the tail group. Lighter wood can be used for the uprights, cross bracing, and diagonals. Choose tough, medium weight wood for all of the 1/16" balsa sheeting, ribs, and fuselage top. Save the very light wood for smaller models.

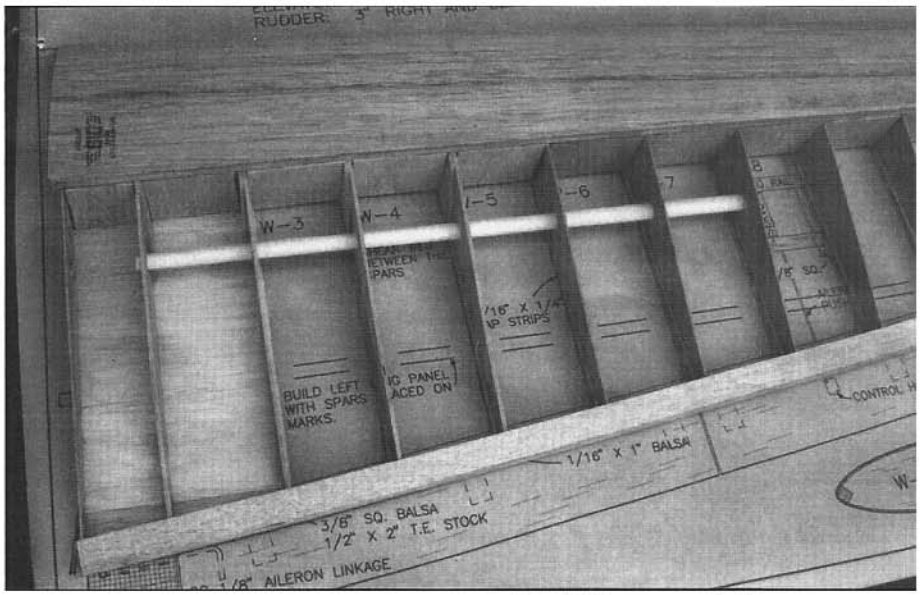
The easiest way I have found to cut parts is to make a copy or photocopy of the parts, then use spray contact cement to glue the copy to the wood. You can then cut out the parts with a Dremel jig saw. For the wing ribs, I use spray glue to stick two sheets of wood together, so that two of each of the ribs are cut at once. Use rubber cement thinner or naptha to remove any excess adhesive, or to remove the paper if needed. Usually the paper comes off easily if you don't leave it set too long. Cut out all of the parts first, and the assembly goes quickly.



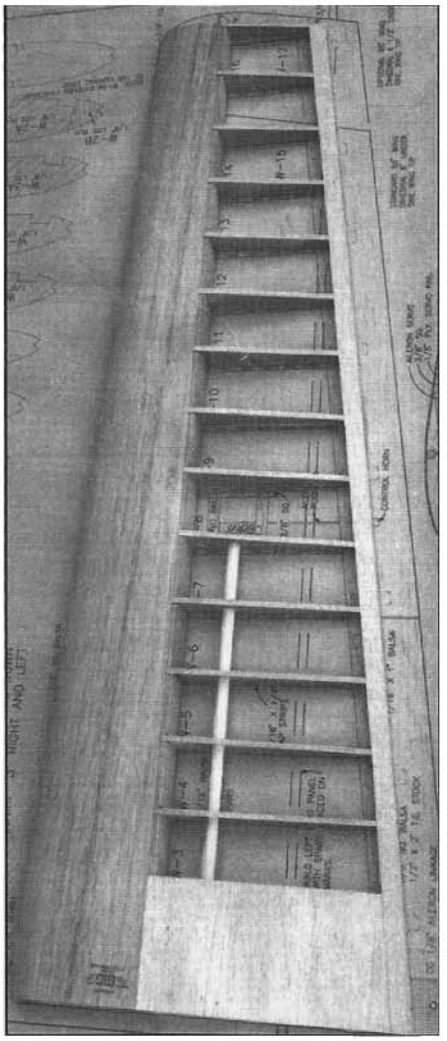
Cut out the bottom sheeting for the landing gear blocks and epoxy the landing gear blocks into the wing.



Glue in W-2B, the vertical landing gear block, and the trailing edge support.



Glue in the shear webs and the leading edge top sheeting. Add the paper tube for the servo wires.

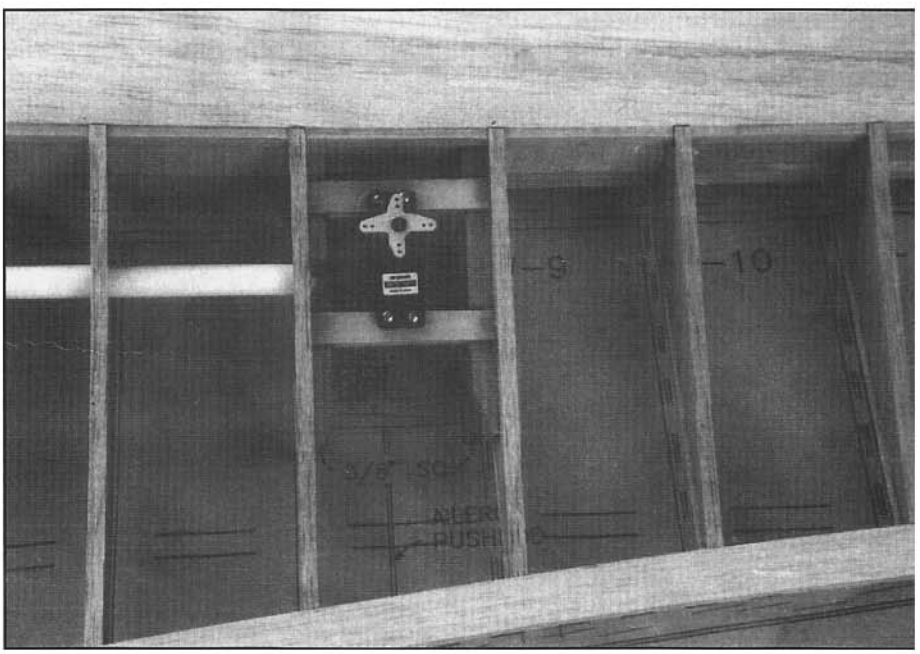


Glue on the trailing edge sheeting, center sheeting, and capstrips.

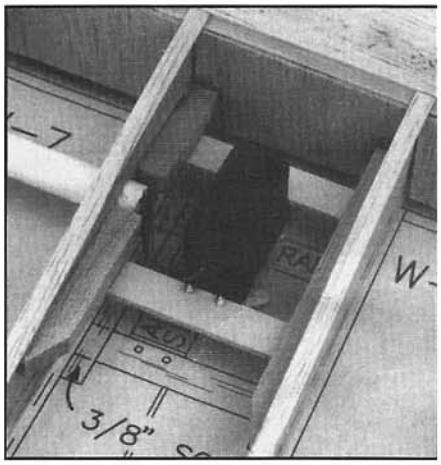
Start with the wing. Pin the bottom 3/8" sq. balsa spar to the plan over waxed paper and glue W-1 and the tip rib in place. Cut the first rib W-1 from lite ply if you build a two piece wing. Glue on the 3/8" sq. medium balsa trailing edge and pin down. Glue the lite ply doublers to ribs W-2, 3, 4 and 5. Glue the vertical L.G. block support W-2B to W-2A. Glue the remaining ribs and the rib doublers in place. Glue on the 3/8" sq. top spar and leading edge. Glue in the 1/16" balsa shear webs between the spars. Glue on the 1/16" x 1" bottom trailing edge. Make the top and bottom front sheeting by gluing together two sets of three sheets of 1/16" x 3" x 42" or 48". Cut the sheets diagonally at 5-3/4" and 3-1/4" at each end. Glue the bottom forward sheet on first with the grain running parallel to the leading edge so that it will curve around the ribs easier. Glue on the bottom capstrips and the bottom center sheeting. Cut the slots in the sheeting for the gear blocks, and glue in the landing gear blocks and trailing edge support for the vertical block. Drill down through the vertical block and L.G. block with a 1/4" drill. Pin the wing back down over the plan. If you plan to use the aluminum tube to join a two piece wing, glue the tube sheaths into the wing. Glue on all of the top wing sheeting and capstrips. Glue the center section 1/2" x 2" trailing edge and flap linkage in place. Build the other wing panel over the same plan, but pin down the bottom spar on the marks shown on the plan. Place the ribs over the marks on the plan, but facing the other way. Glue on the wingtips. Shape the leading edge. Glue in the servo mounts and rolled paper tube for the servo wires. If making a one piece wing, glue the two wing panels together while blocking up one wingtip 6". Wrap the center joint with 6" wide fiberglass cloth and secure with resin, epoxy, or CA.

Cover the plan with waxed paper. Lay one of the lite ply fuselage sides over the plan and pin in place. Mark the position of the doubler and glue the doubler and 1-1/2" trailing edge stock in place, leaving 1/4" ahead of the trailing edge stock for the fire wall. Add the lite ply tripler on the back edge of the doubler. Mark the positions of the other bulkheads on the side. Glue on the top and bottom 3/8" sq. stringers to the fuselage sides and pin down to the plan while adding the uprights and diagonals. Flip the side over and lay a piece of waxed paper over the side. Pin the second lite ply fuselage side over the first. Build the second side on the first, so that it comes out exactly the same, but reversed, one right and one left.

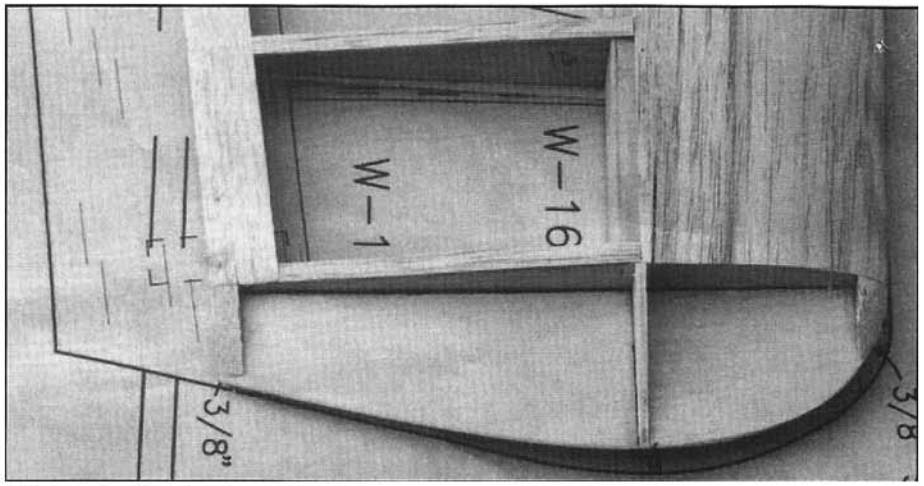
Bolt the engine mount to F-2, the fire wall, and install the blind nuts or soft mounts. Glue the bulkhead doubler F-3A to F-3 and drill the two 3/8" wing dowel holes. Epoxy F-2 and F-3 to one of the fuselage sides, using a square to keep them 90° to the side. Glue on the other fuselage side, then rubber band and pin the sides together at the tail. With the fuselage upright over the top view, glue in F-4 and F-7, the cockpit floor. The fuselage sides should be straight from F-7 to the tail, all of the curve is between



The aileron servos are mounted so that only the output shaft and arm protrude through the covering. Cover over the servo, then cut around the shaft before shrinking.



Glue in the servo rail supports and the servo rails, then mount the aileron servo.



Glue on the lite ply wingtips and braces.

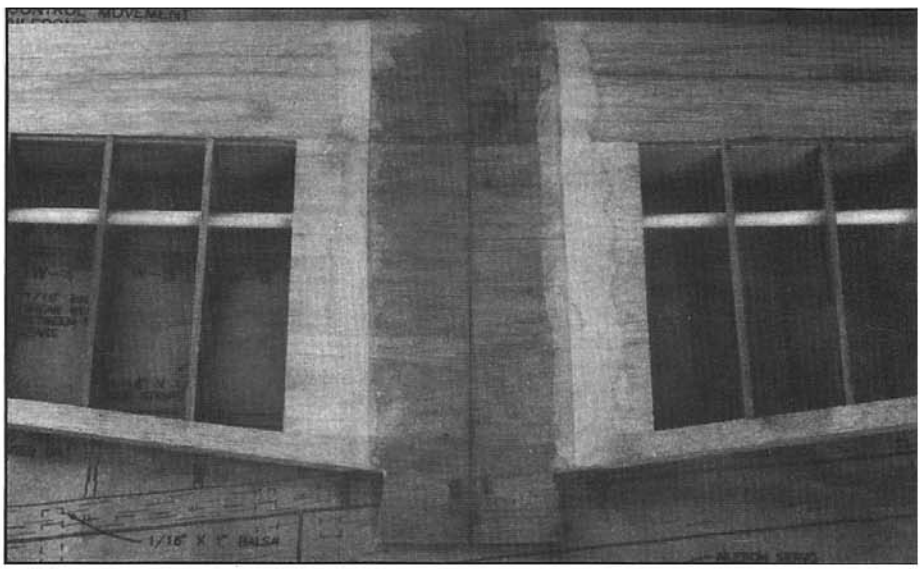
F-5 and F-7. Bevel the sides on the inside at the tail and glue together so the fuselage is 1/2" wide at the tail to match the rudder. Glue in the rear wing mount F-6. Glue on F-2 and F-4 and add the top 1/4" sq. stringers. Next, add F-8, F-9, F-10, and F-11, and the top rear 1/4" sq. stringers. Glue in the bottom 3/8" sq. crosspieces. Glue two pieces of 1/16" x 3" x 16" together to make a 6" sheet. Glue this to the top front of the fuselage with the seam centered on the top stringer. Bend and glue the sheet over the top and glue in place, then trim along the side seam. Do the same over the top rear.

Fit the wing to the saddle and drill the two 3/8" wing mount dowel holes into the wing through the holes in F-3. Epoxy the dowels into the wing back to the shear web. Drill one of the two 3/16" holes for the rear hold-down bolts through the wing and F-6 and tap for the 1/4-20 nylon bolt. With the one bolt installed, drill and tap the other hole. Remove the bolts and apply thin CA glue into the holes in F-6 to harden the wood. Allow the CA to fully cure, then re-tap to clean out the threads. Drill the holes in the wing out to 1/4" and CA these holes too.

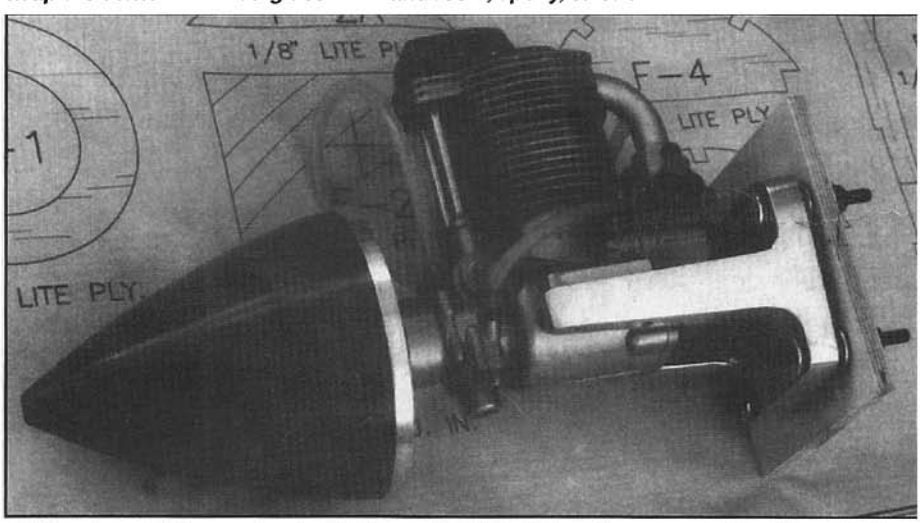
Build the tail group from very hard 1/2" sq. balsa. For the trailing edges of the rudder and elevators you could use 1/4" x 1/2" wood and shim up 1/8" during construction. This leaves a lot less wood to plane off later when shaping. Carefully fit the end joints and glue together with epoxy so the joints are filled and tight. Join the elevator halves with 1/2" dowel. Sand the leading edges of the tail parts round, and taper the rudder and elevators as shown on the plan.

Bolt the engine to the engine mount. You will have already decided whether to mount the engine upright, inverted, or sideways. Glue on the cowl sides and top. Glue in the trailing edge stock and triangle stock filler blocks. True up the bottom surface and glue on the bottom block. True the front of the cowl to the spinner, leaving a 1/4" gap behind the back of the spinner. Fit and glue in place the spinner ring F-1, centered on the spinner. There should now be a 1/8" gap behind the spinner. Carve and sand the cowl to the spinner.

This is a very big airplane and every little bump in the finish will show up so it is important to spend some time in preparing the surface for covering. First, clean off the workbench of all tools and things that will dent the surface. Lay down a large sheet of foam rubber over the bench to protect the model while you are working. Go over the entire surface and fill any dents or dings with Model Magic Filler or vinyl spackle.



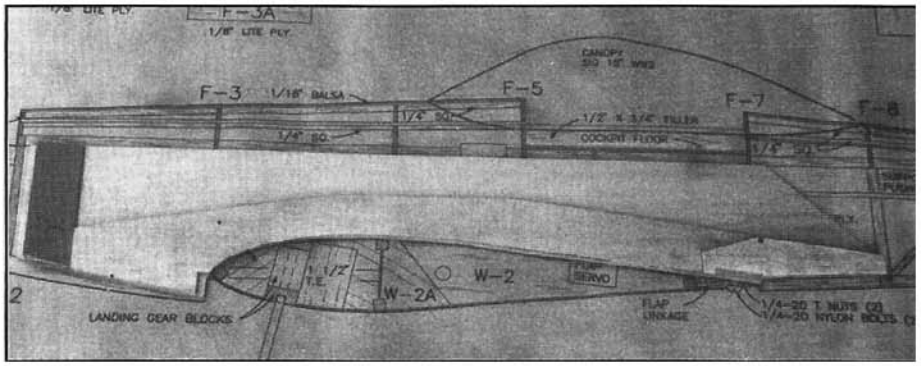
Build the other wing panel over the plan by placing the spar over the marks and build the panel like the first but with the ribs going the other way. Glue on the center section trailing edge and flap linkage. If building a one piece wing, glue the two halves together, then wrap the center with fiberglass cloth and resin, epoxy, or CA.



Drill and mount the engine to the fire wall. A YS-120 engine was used on the prototype with a Tatone Snuf-Vibe soft engine mount and a CB 4" spinner.

CLOUD DANCER 120
Bill of Materials

3 — 1/4" sq. x 36" balsa
13 — 3/8" sq. x 48" balsa
4 — 1/2" sq. x 36" balsa
1 — 1/4" x 1/2" x 36" balsa
1 — 1/8"x 1/2"x 36" balsa
2 — 1/8" x 3/8" x 36" balsa
6 — 1/ 16" x 3" x 48" balsa
12 — 1/16" x 3"x 36" balsa
4 — 1/16" x 1" x 48" balsa
10 — 1/16" x 1/4" x 36" balsa
1 — 1/2" x 3" x 48" balsa
4 — 1/2" x 2" T.E. stock
1 — 1/2" triangle x 12"
1 — 1-1/2" x 4-1/2" x 6" balsa block
1 — 1/4" x 6" x 12" aircraft plywood
2 — 1/8" x 12" x 48" lite ply
1 — 1/2" x 1" x 24" hardwood LG block, slot 1/4"
1 — 3/8" dowel x 12"
1 — 1/2" dowel x 6"
6 — 2-56 x 12" threaded pushrods and clevis
1 — set C.G. 1/8" aileron linkage
25 — Large hinges
4 — Large control horns
1 — C.G. tail wheel bracket
2 — 1/4-20 x 1" nylon bolts
1 — 3/32" x 7" wire
1 — 1/4" x 36" piano wire
1 — pr 3-1/2" wheels
1 — 1-1/2" tail wheel
1 — 4" CB spinner
1 — Sig 15" WWII canopy
1 — Engine mount to suit engine
1 — Fuel tank 12-16 oz.



Cover the plan with waxed paper, then pin one of the lite ply fuselage sides over the plan. Glue on the 1/2" x 2" trailing edge stock, leaving 1/4" for the fire wall. Glue on the wing saddle doubler and the tripler at the rear.

Block sand the entire model with 150 grit and then 220 grit sandpaper to level and smooth the surface, especially the ends of the capstrips on the wing ribs. Clean up the area and re-sand with 400 grit paper. Before covering each part, vacuum the entire part and wipe it down with a painter's tack rag. This process will take at least four hours to do, but it is the most important four hours of the entire construction since it determines how the finished model appears. I chose UltraCote for the covering because of the way it sticks down and does not bubble up over the sheeted areas. UltraCote also works well for trim as it does not bubble when ironing down over the base covering.

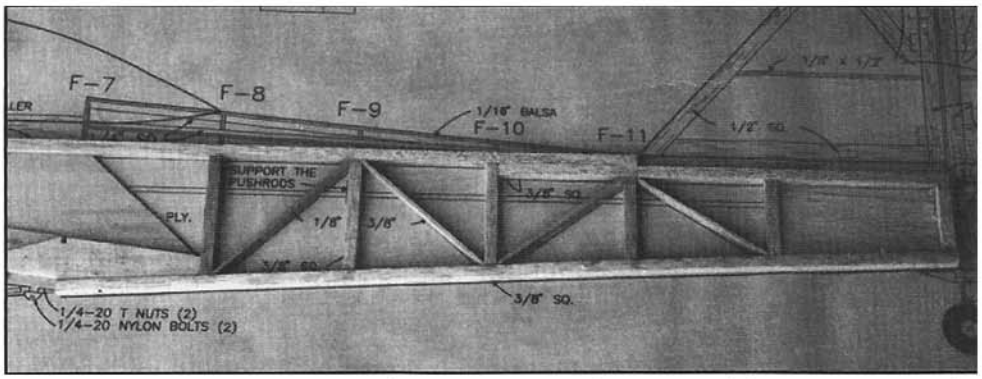
I made a simple cradle for working on large models from PVC pipe and foam pipe insulation. This is very useful when installing the radio to prevent the hangar rash from things laying on the workbench that end up under the model.

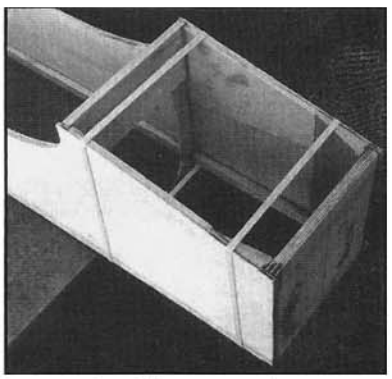
It is especially important to thoroughly fuelproof the inside of the model. I sprayed in three heavy coats of Perfect Paint clear before installing the fuel tank or servos. I used epoxy to fuelproof the engine compartment.

Before installing the radio, install the engine, fuel tank, prop, and spinner. Put the landing gear into the wing and secure the wheels. Bolt on the wing and block up the model from the wingtips, under the spar, to determine the C.G. The tail parts can be pinned or rubber banded in place for now. Lay the pushrod material along the fuselage. Lay the radio components on the wing to determine where each part will go to correctly balance the model. Do as much of the balancing with the radio components as possible and use weight in the nose or tail only as a last resort.

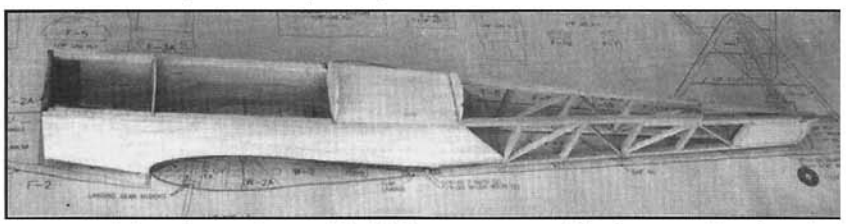
Install the servo rails and mount the servos. Make the 3/8" sq. balsa pushrods according to the plan, but leave the final bend at the servo until after the tail is glued in place. I cut partitions from scrap lite ply to position the battery pack, receiver, and foam packing so they could not shift around inside the fuselage. Foam padding was taped around the fuel tank so that it could not touch any wood to prevent foaming. If you use a YS engine with tank pressure, be sure to wrap the tank with nylon filament strapping tape to prevent the fuel tank from splitting.

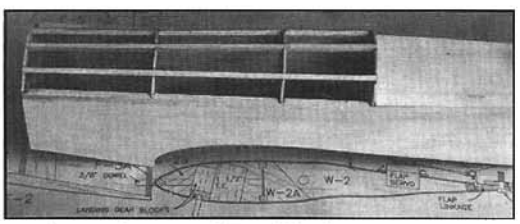
After the radio installation is complete, apply the trim colors to the parts of the model. Epoxy the aileron and elevator hinges in place. Cut away the covering on the stabilizer for the fuselage joint, and the fin joint on the top of the stabilizer. Glue



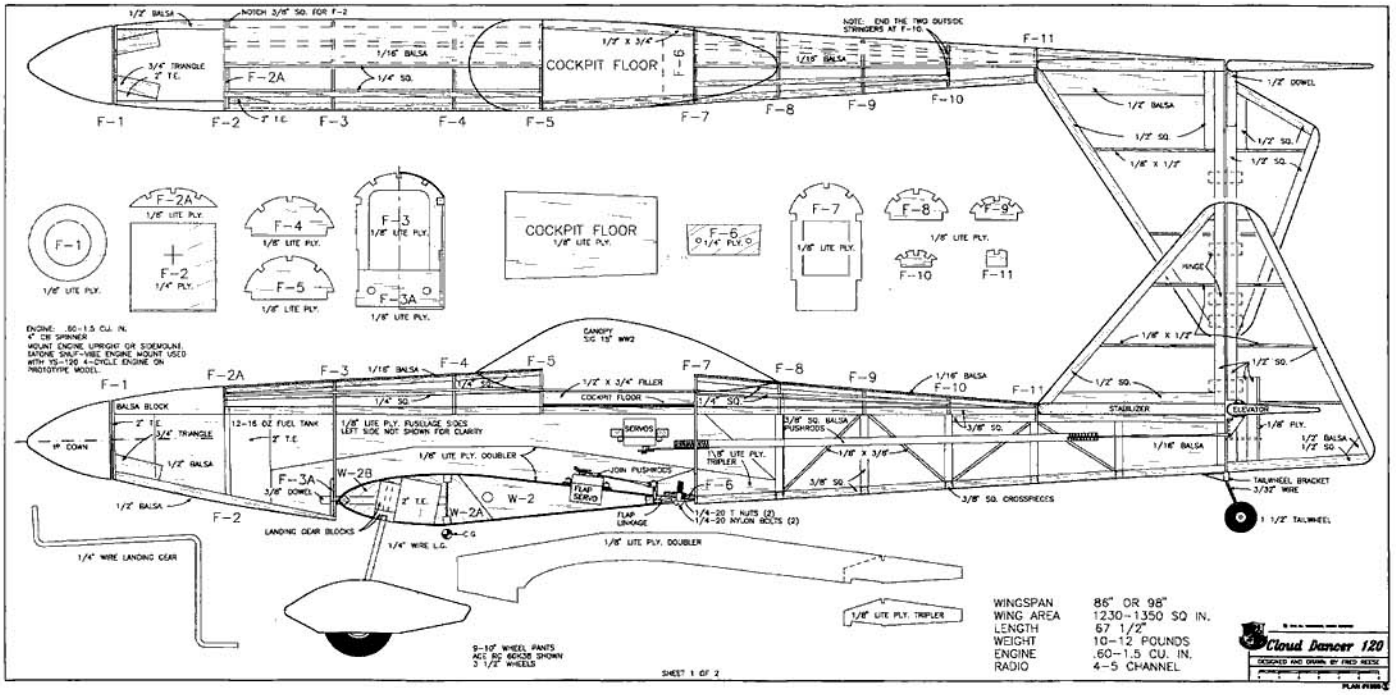


LEFT: Glue on the top and bottom, 3/8" sq. stringers, stab mount, uprights and diagonals. The stringers should be selected wood that is very hard and straight grained. Glue in the 1/16" balsa under the stabilizer for the pushrod exits. RIGHT: Epoxy the fire wall and F-3 with F-3A to one of the fuselage sides, using a square to keep them 90° to the sides. Epoxy on the other side with the nose out over the workbench to keep the two top stringers aligned.



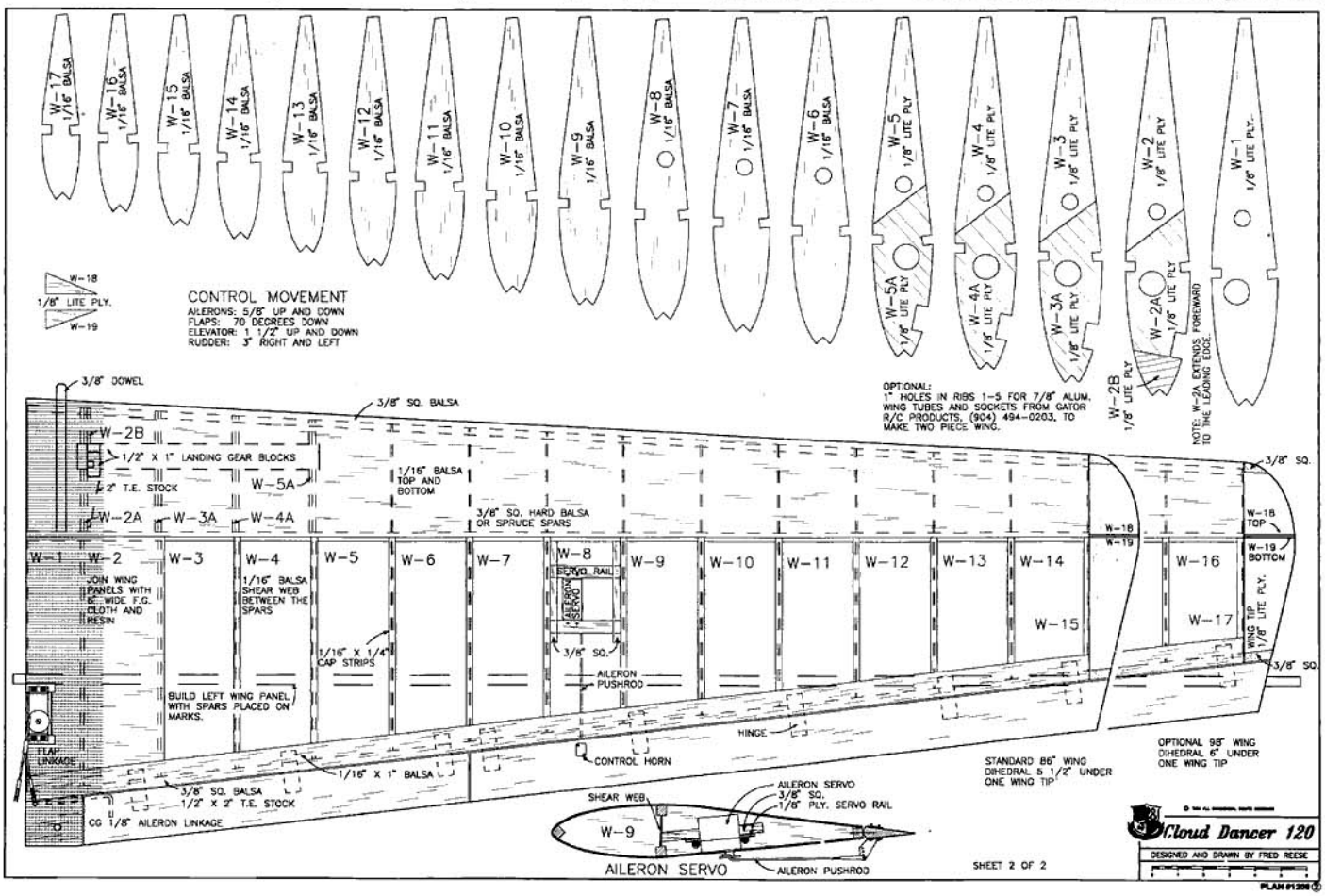


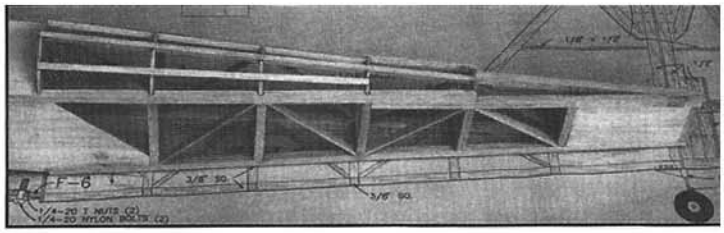
LEFT: Pull the tail together and hold them together with pins or rubber bands. Glue in the rear bulkhead F-7. All of the fuselage side curvature should be in the cockpit area. The fuselage is straight from F-7 back. Glue on the cockpit floor and F-5, the instrument panel, keeping the rear sides straight. RIGHT: Glue on F-2A over the fire wall and add F-4. Glue in the three 1/4" sq. top front stringers.

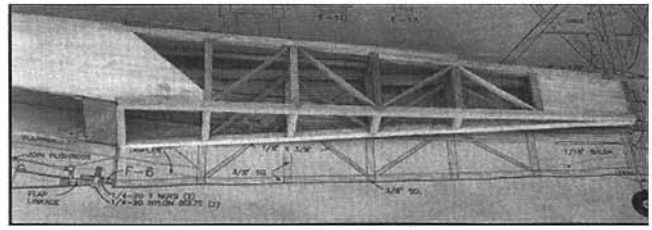


the fin to the stabilizer, then drill and install 3/16" dowels through the front and rear of the stabilizer into the fin leading and trailing edge. Epoxy the stabilizer and fin onto the fuselage. Install the tail wheel assembly and hinge the rudder. Adjust the elevator and rudder pushrods to end up as shown on the plan and attach the control horns to the pushrods. With the pushrods attached, drill and mount the control horns. Before making final attachment to the servos, make sure there is no binding or stiffness in the control linkages. They should work freely and not cause any bending of the wooden pushrod through their arc of travel. Spend as much time as is needed to get the controls working right.

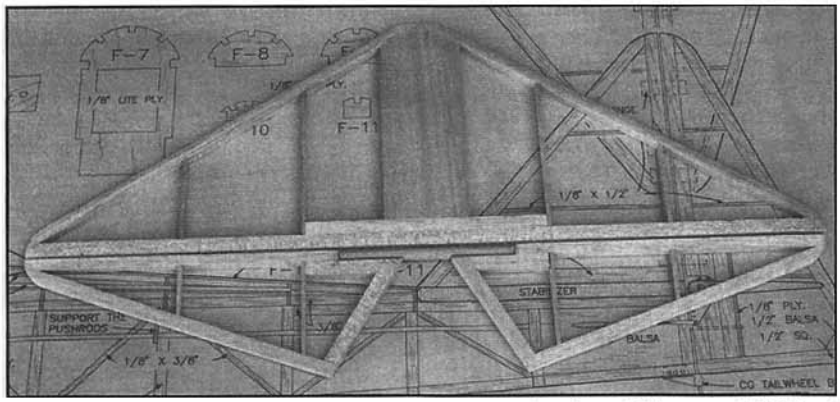
I bought the Ace R/C wheel pants for the Cloud Dancer 120. The wheel pants are white ABS plastic; they look great and could be used without painting. These wheel pants are not expensive compared to fiberglass wheel pant sets, but I prefer the fiberglass wheel pants; so, I thought, why not use the plastic wheel pant shells for fiberglass molds. Polyester resin would attack the plastic, but epoxy would work. I used two layers of heavy cloth in the outboard halves, and three layers with carbon fiber between the layers on the inside. Apply at least three coats of paste wax to the inside of the plastic shells followed by a brushed-in coat of PVA mold release. Use slow curing epoxy such as Pacer's 30-minute Z-Poxy. Mix about 1/2 oz. of epoxy and brush a coat into each shell mold. Push a layer of heavy glass cloth

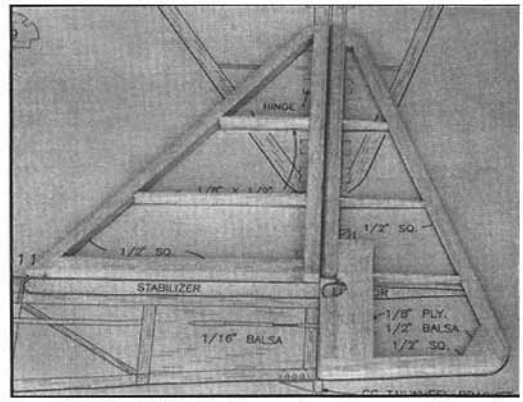






LEFT: Glue on the top rear curved bulkheads F-8, 9, 10, and 11. Glue in the top rear 1/4" sq. stringers. Note that the two middle stringers only go back to F-10. RIGHT: Glue in the bottom 3/8" sq. cross braces.

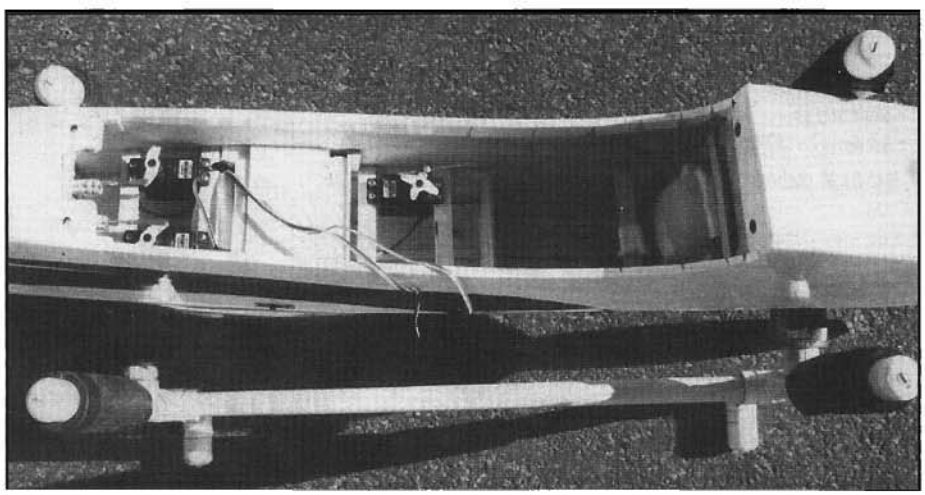




LEFT: Build the stabilizer and elevators over the plan from 1/2" sq. and 1/16" x 1/2" ribs. RIGHT: Build the fin and rudder over the plan the same as the stabilizer and elevator.

into the epoxy and brush it down smooth. Brush in the remaining resin over the axle area of the inside halves and apply a 1/2" x 6" piece of carbon fiber centered on the axle area. Mix another 1/2 oz. of epoxy and brush another coat over the cloth in the mold. Brush in the second layer of cloth. Lay in another piece of carbon fiber and a third layer of cloth on the inside halves. Use any remaining epoxy to wet any dry areas of cloth. Lightly warm each shell with a heat gun or hair dryer and brush out the resin. Allow to cure and pop the parts out of the molds. Trim off the excess cloth and cut out the wheel openings and sand the edges flat. Join the two pairs with masking tape and cover the entire seam with tape. Brush the seam on the inside with epoxy and apply a 1" strip of glass cloth over the seam on the inside. The result is a pair of strong, light wheel pants that look great and can be repaired or even replaced if needed. The original plastic wheel pants can be used over and over as molds.

From Here



There is lots of room in the fuselage for the radio. The prototype was nose heavy and required 4 oz. of lead in the tail to balance, even with the receiver and battery pack just ahead of the servos. The plan has been modified to shorten the nose to make balancing the model easier. Lite ply strips were glued across the fuselage to support and position the fuel tank. Standard size servos were used throughout.

To Here

The cheek cowls were made the same as the wheel pants in a mold. I carved a balsa plug for the cheek cowl, finished it with auto primer, wet sanded it smooth, and then polished it with white polishing compound. This plug was then waxed and coated with PVA mold release, and then layered with three layers of heavy glass cloth and epoxy to make the mold. Two parts were then laid up in the mold for the right and left cheek cowls. A much simpler mold could be a Sig 14" clear canopy, CS-014. This canopy is a little longer than the cowls that I made, but would work very well. Just be sure to use epoxy and not polyester resin to make the parts. To stiffen the removable cowl, lay in a strip of carbon fiber between the layers of glass cloth around the edge of the cowl.

Flying:

Before attempting to fly, be sure the idle is set for the lowest reliable speed and the engine should die at full low idle trim. The engine should not idle faster than 2500 rpm because the airplane will fly at 3000 rpm. I did not have the idle set low enough for the first flight and it was a real challenge getting the big Dancer back on the ground. I was lucky the runway was wide enough to make a rather fast U-turn at the end and then taxi into the grass to get it stopped. The big YS now idles under 2000 rpm and landings are really fun, but I still have to be patient as it settles down to the pavement only when it is ready, and it can't be rushed. Steer with the rudder on landings and the wings stay level. You can rush the take-off. The Cloud Dancer 120 will rip off the ground in a few feet at full throttle and continue straight up if you want, or you can use the entire runway at one-third throttle and gracefully lift off and fly out like a full-size light aircraft. The controls are crisp and the roll rate is good. It does not feel sensitive, yet it can do 20' loops. The Cloud Dancer 120 will roll like it was on a string and knife-edge from one end of the field to the other. Except for the knife-edge, the Cloud Dancer 120 will do all of these maneuvers at less than half throttle.

Many of you have had the pleasure of slow flying a Senior Telemaster — shooting lazy touch and go's, doing big loops, and slow spins. I have too, and the thought of the fun, slow flight capabilities of the Senior Telemaster combined with a sleek aerobatic airframe of the Cloud Dancer convinced me to build this model. I was rewarded by an aircraft that is easier to fly than any other low wing model I have ever flown yet has the power to give sparkling speed and unlimited verticals. The only undesirable characteristic is that it is hard to snap roll. It

will snap, it just takes more effort to do it. I will just have to practice more.

This model is not for everyone. The Cloud Dancer 120 is big and it is different from what you usually see, but sometimes different can be better.

From RCModeler Jan. 1996