



# MISS VINTAGE

**Designed around .25 to .35 size engines, George Jennings vintage type aircraft will help you capture the yesteryear of aviation . . . the romance of flying wires singing, the permeating smell of exhaust, and the sting of the wind to keep you company.**

**M**iss Vintage will help you capture yesteryear, a time when aviation was in its infancy before the airplane went to war. What romance those early machines must have wrought with flying wires singing, empennage vibrating and the smell of hot engine exhaust permeating the nostrils. Yes, that was really flying! Imagine what it must have been like to fly with no airspeed indicator, engine monitoring devices, or other modern-day instrumentation. Just a stick, rudder bar, throttle, deafening roar, and the sting of the wind in the face were all the pilot had to keep him company.

Those days are gone forever and we can only thrill to the written accounts of those aerial pioneers or reconstruct such bold and daring ventures in our own daydreams. Unless we fly R/C! Through the medium of R/C, we can re-create such an exciting era. Miss Vintage will help you capture that feeling, that romance, that return flight to nostalgia.

Miss Vintage is a thoroughly tested and practical machine. Designed around the economical .25 to .35 sized R/C engines, it duplicates the looks, slow, deliberate, flight characteristics and realism of an old-timer. It is completely reliable, easy to fly and designed to look complicated and yet be quick and economical to construct.

Wing construction is a snap with a high lift flat bottom airfoil for easy building on a flat surface. Half ribs and diagonal braces are used for strength as well as looks. They require very little time to install and, as a plus, you don't have to sheet the leading edge of the wing. Ailerons are of the simple and effective strip type, making the choice of three or four channels an easy one for the builder. Very little extra effort is required to add ailerons.

The fuselage is constructed almost entirely of hardwood. Fuselage sides are cut from 1/8" Sig Lite Ply and are almost as light as balsa with far greater strength. The open framework is built from 3/16" square spruce which is also very light and strong. The only balsa contained in the fuselage is one bulkhead and the top block. The main advantage to this type structure, in addition to its ruggedness, is economy!

The tail surfaces are primarily constructed of laminated spruce and provide protection from warping and, again, are economical to build as well as rugged and light.

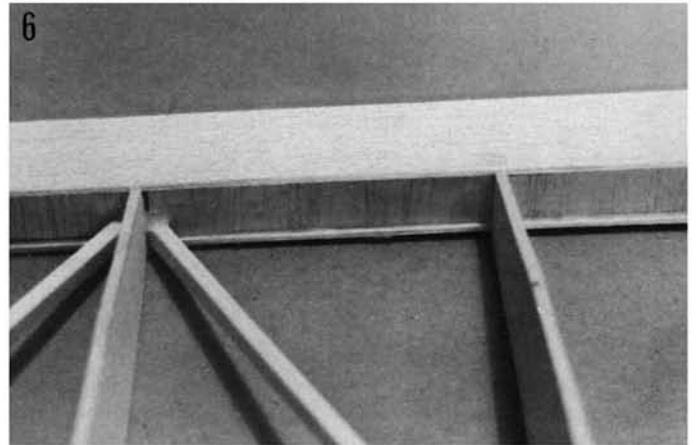
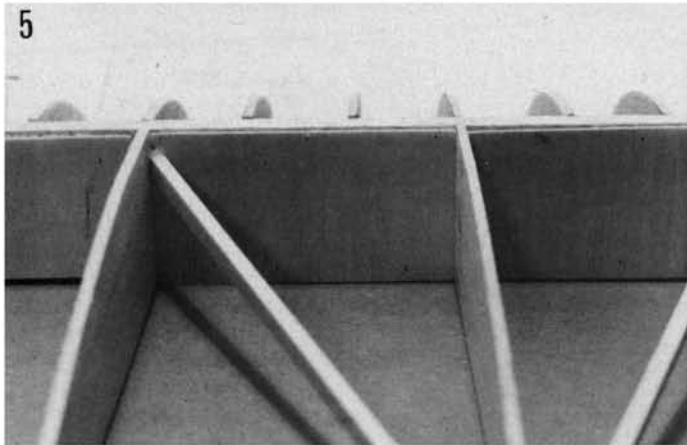
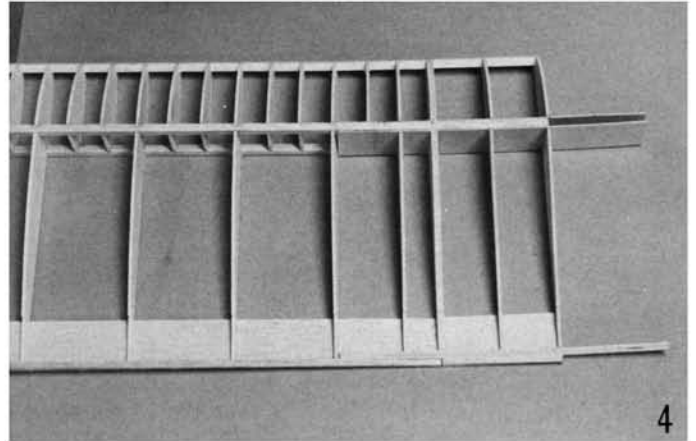
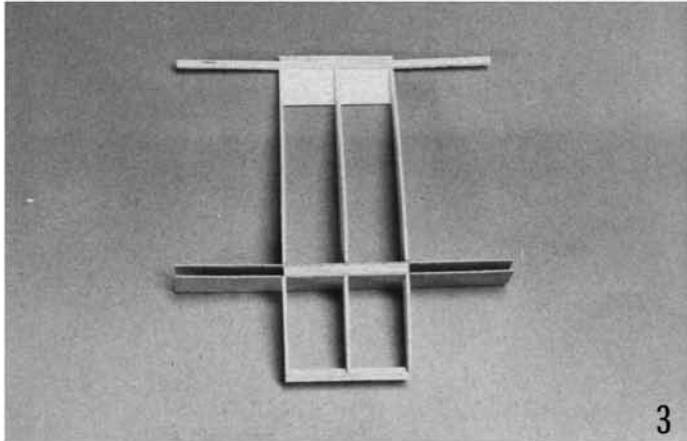
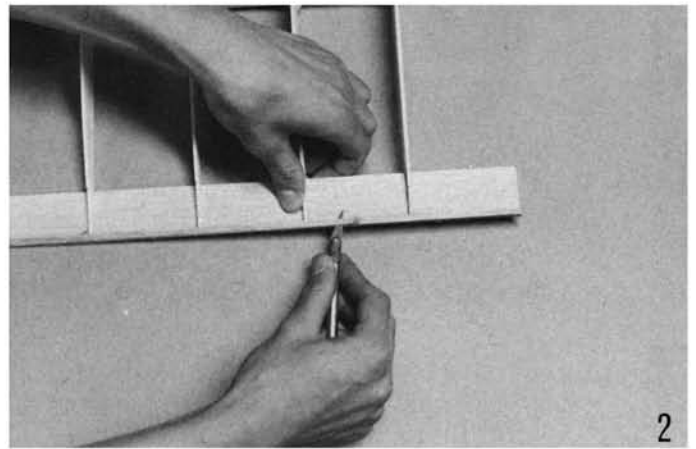
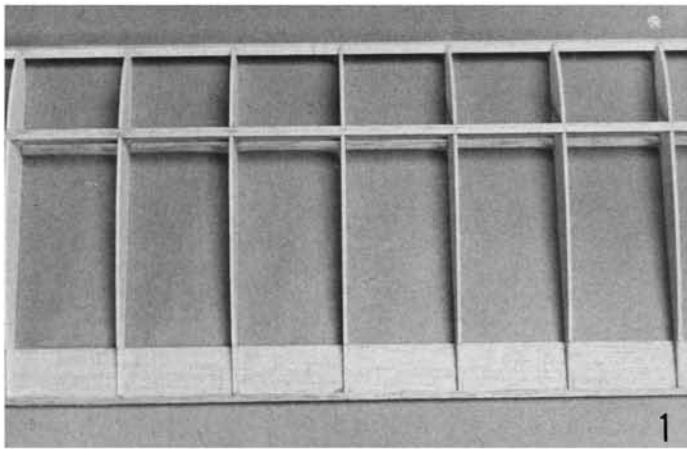
Finished with see-through covering, Miss Vintage is a real show stopper guaranteed to attract attention from fellow RC'ers and spectators alike.

Flying capabilities are extremely good. Miss Vintage is capable of many aerobatics including inverted flight and yet is very gentle and easy to fly. Because of the easy take-off and landing characteristics, Miss Vintage could be used as a trainer and first airplane. If you have built at least one R/C plane and understand basic construction techniques, you can build Miss Vintage — so let's get started!

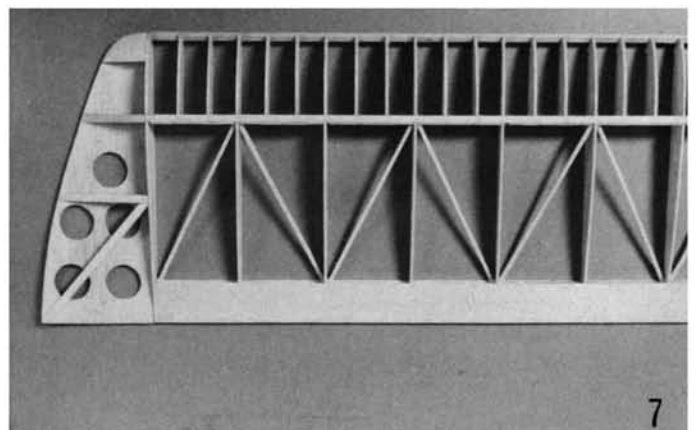
Before beginning, it is best to secure all materials needed for the job. You can probably find most materials at your local hobby shop, however some shops don't stock spruce and Lite Ply. These items can be purchased directly from Sig Manufacturing Company in Montezuma, Iowa. (See complete materials list.)

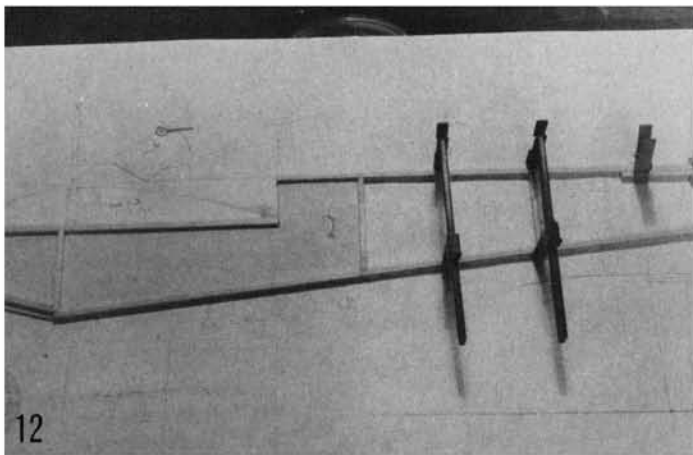
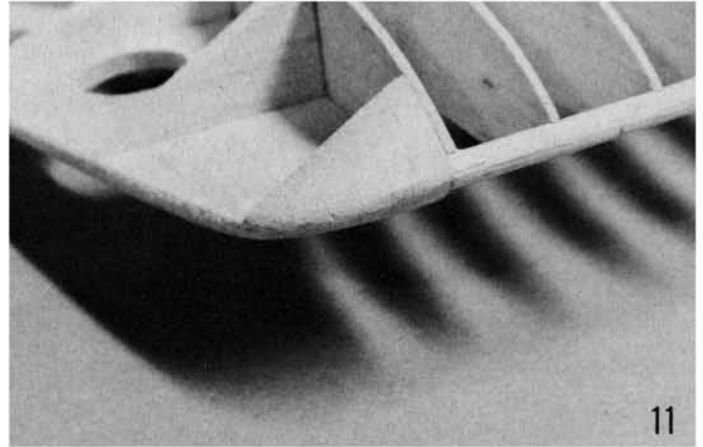
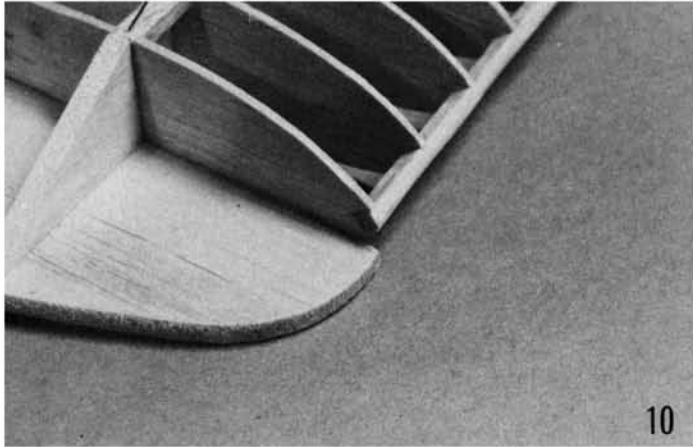
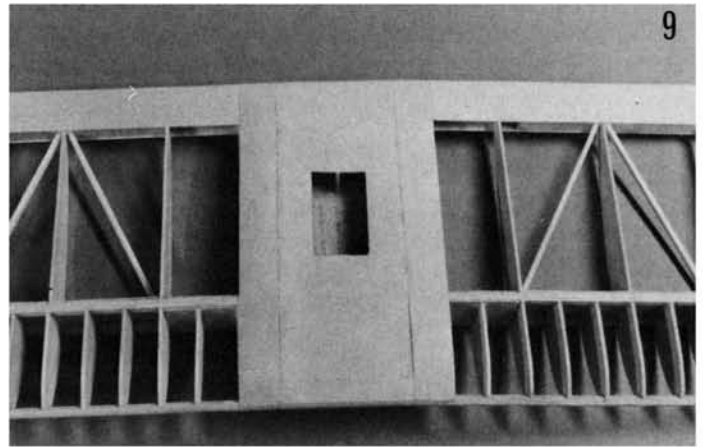
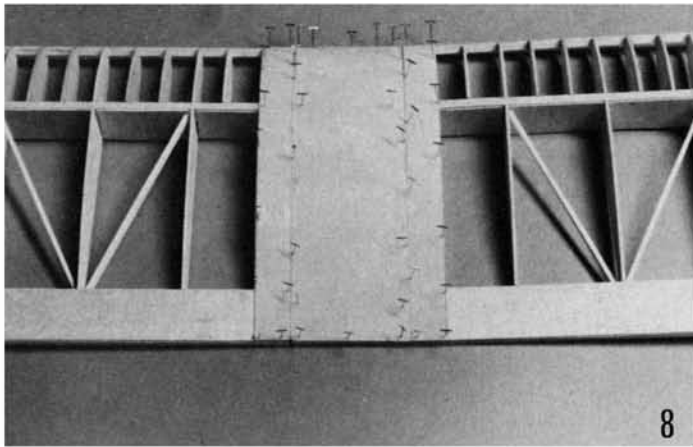
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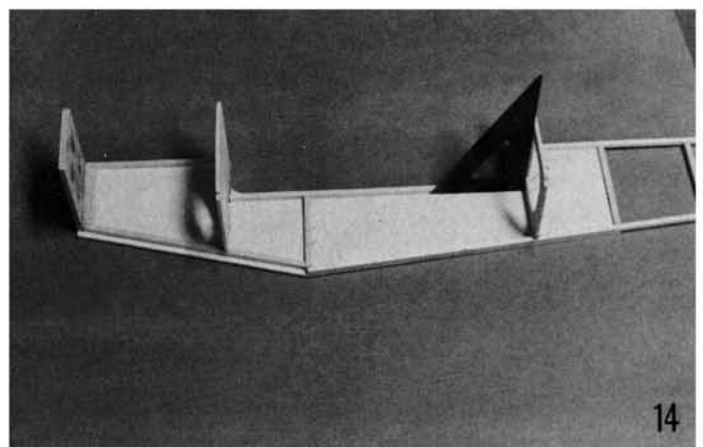
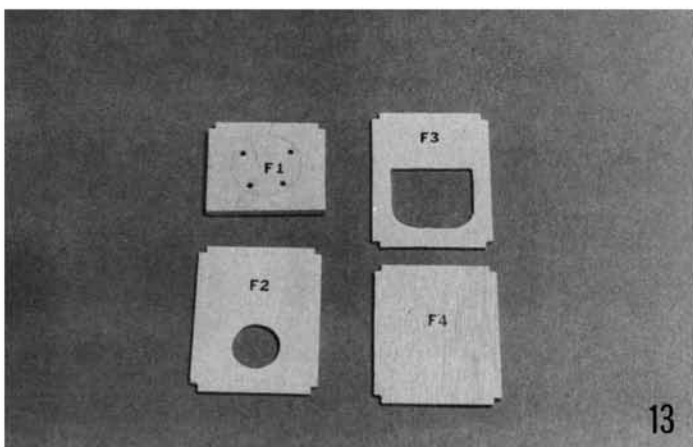


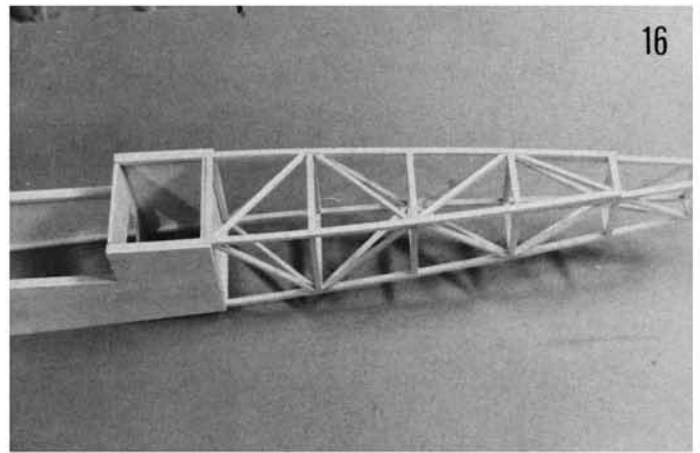
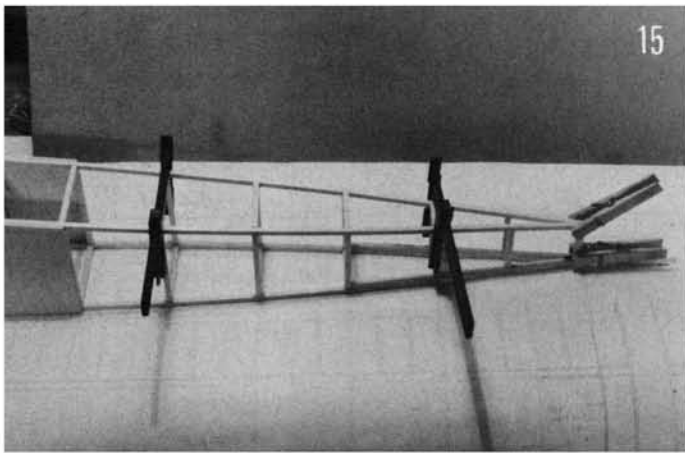
(1) Pin 1/16" trailing edge sheet and 1/4" square main spar over your plan. Add 3/16" square rear spar and then R-2 ribs. Then add top spar and 1/4" square leading edge. (2) 3/16" square rear spar is tapered to match rear of ribs. (3) Center section shown completed ready to join to wing panels. (4) Left wing panel joined to center section with extra R-1 & R-1A ribs in place. (5) Webbing for main spar is 1/16" vertical grain balsa butted against rear of main spars. (6) Webbing for trailing edge 1/16" vertical grain balsa inserted between top and bottom trailing edge sheeting. (7) Left wing panel shown completed ready to cover. Lightning holes are cut in the soft 1/4" balsa wing tip.



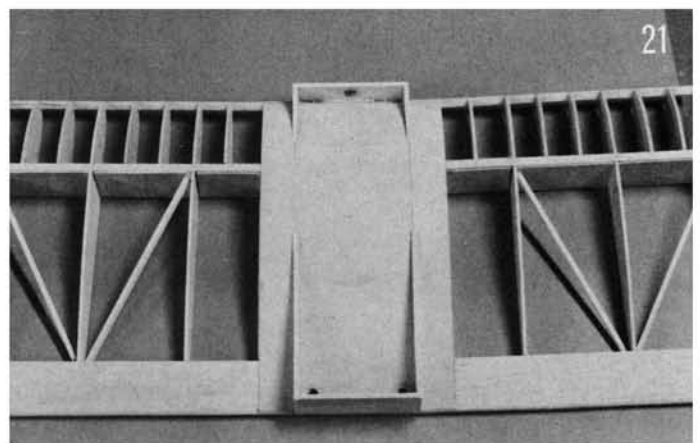
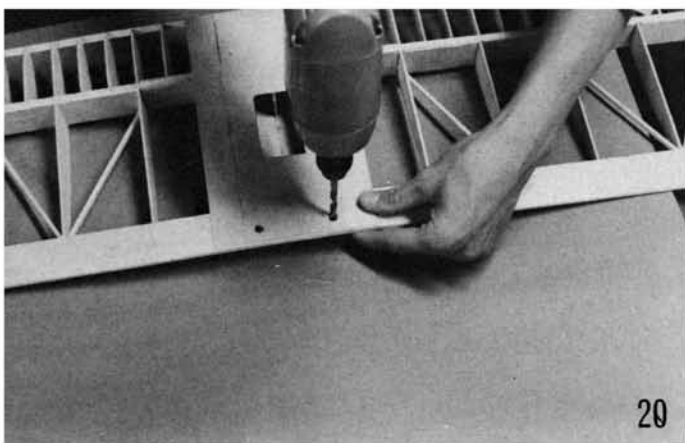
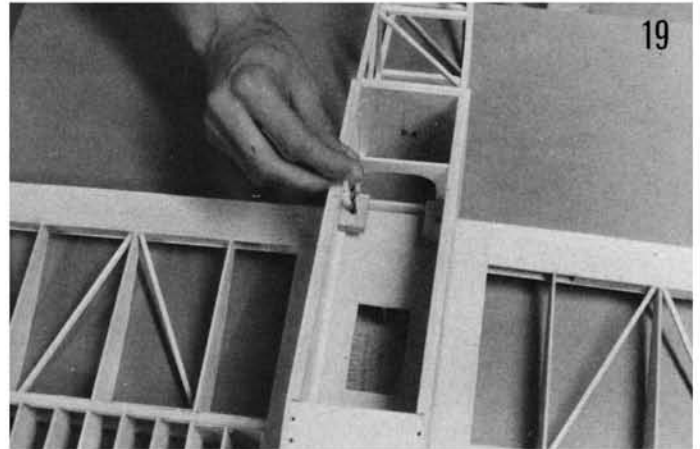
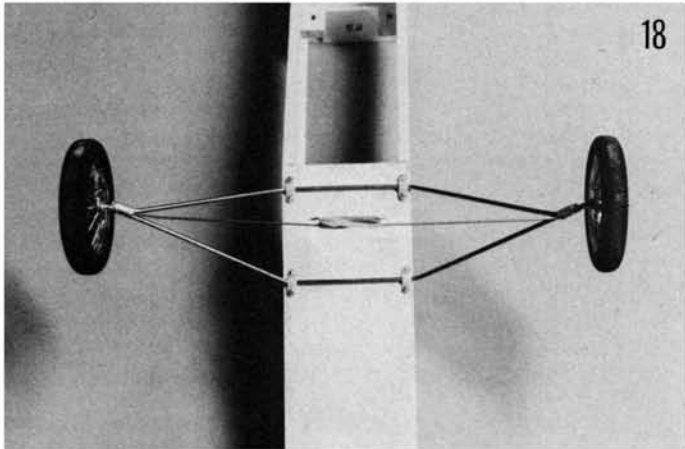
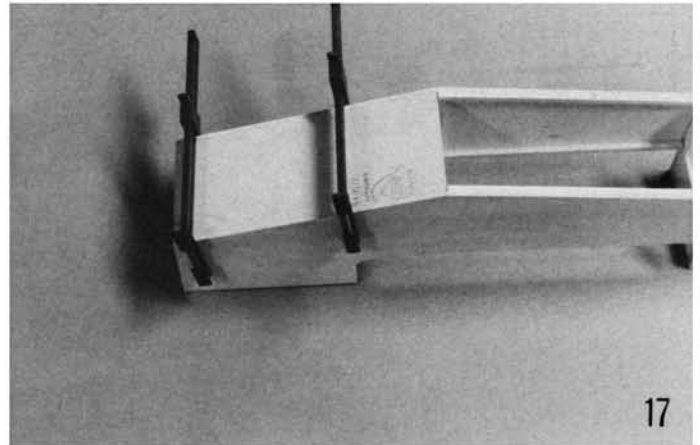


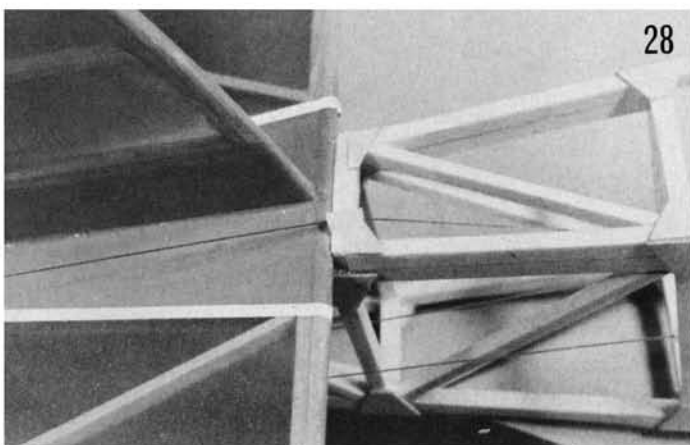
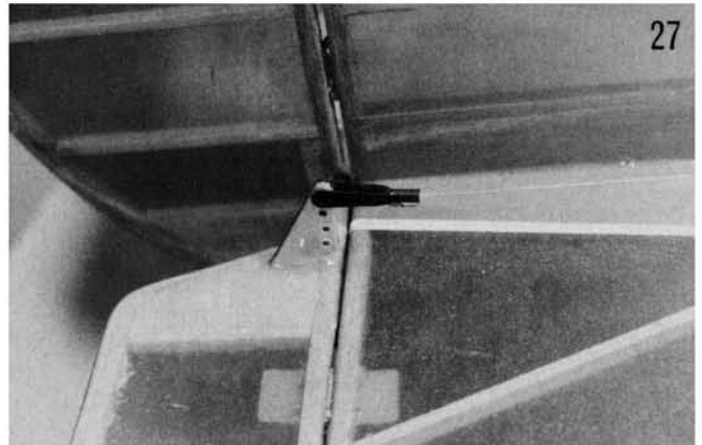
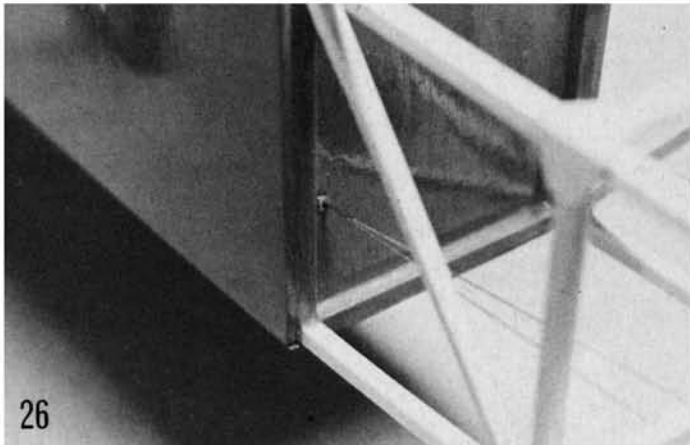
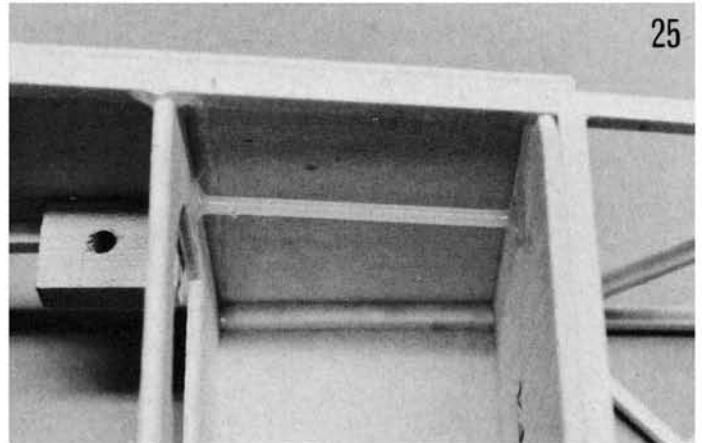
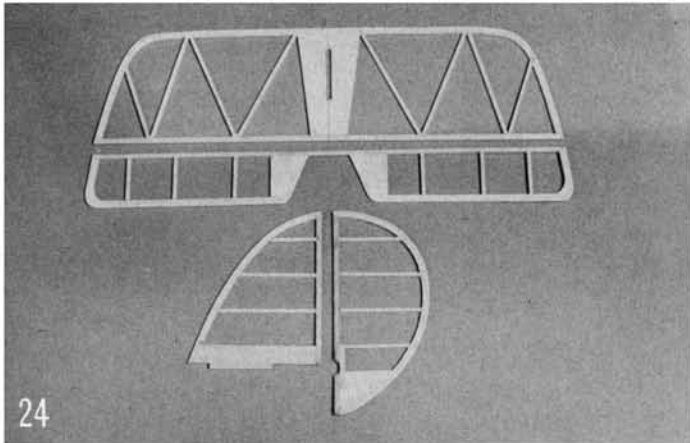
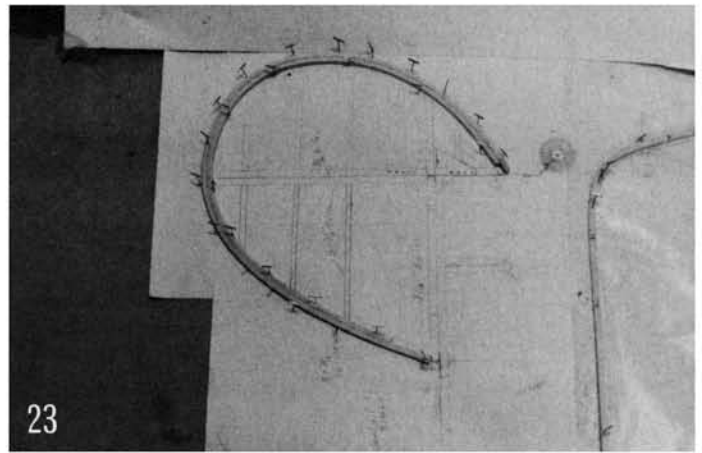
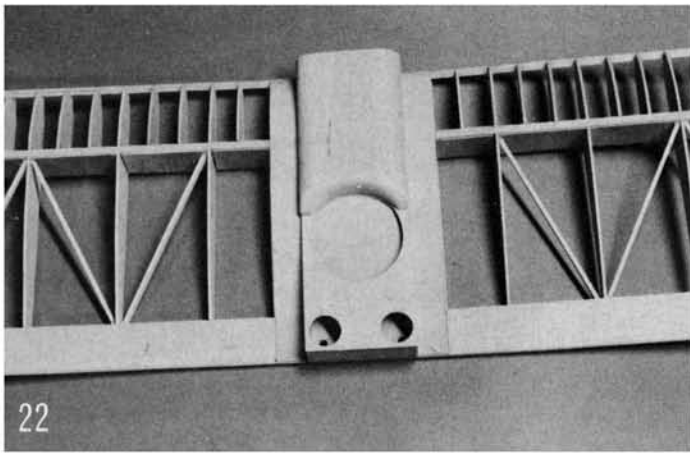
(8) Wing center section is sheeted with 1/32" plywood directly over trailing edge sheet. (9) If strip ailerons are used, a hole is cut in the bottom of the wing to accept the aileron servo. (10) Wing tip is installed flat even though it does not meet the upsweep on the bottom of the airfoil near the leading edge. (11) Soft scrapblock is glued in place, sanded and carved to blend front of wing tip and bottom of airfoil. (12) Right fuselage side is built directly over the plan. (13) F-1 firewall is cut from 3/16" plywood, F-2 & F-3 from 1/8" Lite Ply and F-4 from 1/8" balsa. Blind nuts for mounting engine mount are now added. (14) Former F-2 & F-3 as well as firewall are epoxied to right fuselage side.



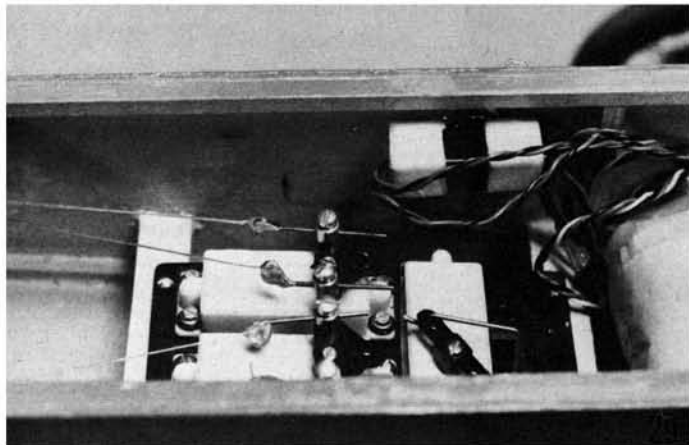


**(15) After building left fuselage side, join to formers you have added to right side. Tail post is joined and 3/16" square spruce cross members are added. (16) 1/8" x 3/16" spruce is used for diagonal bracing. (17) 3/16" plywood forward fuselage bottom is glued in place. (18) Landing gear is fabricated from 1/8" music wire with 1/16" wire shock absorber crosspieces. (19) Mark drill location for nylon wing hold-down bolts from the bottom of the fuselage. (20) Hold-down bolt holes are drilled with a 1/4" drill. (21) Cockpit section is built directly on wing center section with 1/8" Lite Ply. Note: the 4-40 blind nut installed as a hold-down for the front of wing.**

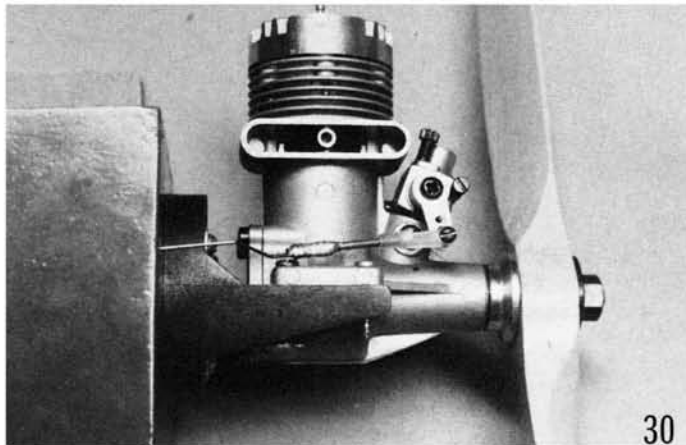




(22) Cockpit top is cut from 1/32" plywood and then soft 3/4" balsa block is added. (23) Tail surfaces are constructed from 1/8" x 3/16" spruce strips soaked in water overnight and laminated with Kwick Tak glue. Leave pinned in place until thoroughly dry. (24) Tail surfaces are completed by adding 3/16" balsa and 1/8" x 3/16" spruce cross members. (25) Sullivan Gold 'N Rod inner rods are epoxied in place as a guide for nylon covered braided wire control cables entering fuselage. (26) Both nylon covered control cables from one control enter one guide. Because of their smooth properties, there is practically no friction. (27) Control cable is tied on clevish and permanently secured with epoxy. Clevish is shown attached to 3/32" ply elevator horn. (28) Small sections of Sullivan inner rod are used as guides where cable enters the fuselage to prevent rubbing on fuselage framework.



(29) Control cables are fastened to eyelets made from solder and wire and secured with epoxy. Cables then slide in to Du-Bro connectors fitted to servo arms. Control surfaces are fully adjustable.



(30) Engine throttle wire is 1/32" music wire with a small nylon clevis silver soldered in place. Half of the clevis is cut off and drilled out large enough for a 2-56 bolt which is then tapped into throttle arm for a fully adjustable no noise installation.

**MISS VINTAGE**

Designed By: George F. Jennings

**TYPE AIRCRAFT**

Vintage Sport

**WINGSPAN**

59 Inches

**WING CHORD**

11 1/4"

**TOTAL WING AREA**

600 Square Inches

**WING LOCATION**

Shoulder Wing

**AIRFOIL**

Flat Bottom

**WING PLANFORM**

Constant Chord

**DIHEDRAL, EACH TIP**

1 1/4 Inch

**O. A. FUSELAGE LENGTH**

35" — 42"

**RADIO COMPARTMENT AREA**

(L) 10" X (W) 3 1/4" X (H) 2 3/8"

**STABILIZER SPAN**

18 Inches

**STABILIZER CHORD (incl. elev.)**

7 1/4 Inches

**STABILIZER AREA**

130 Square Inches

**STAB AIRFOIL SECTION**

Flat

**STABILIZER LOCATION**

Top of Fuselage

**VERTICAL FIN HEIGHT**

6 Inches

**VERTICAL FIN WIDTH (incl. rudder)**

7 1/2" (Avg.)

**REC. ENGINE SIZE**

.25 — .35 cu. in.

**FUEL TANK SIZE**

6 — 8 Ounce

**LANDING GEAR**

Conventional

**REC. NO. OF CHANNELS**

4

**CONTROL FUNCTIONS**

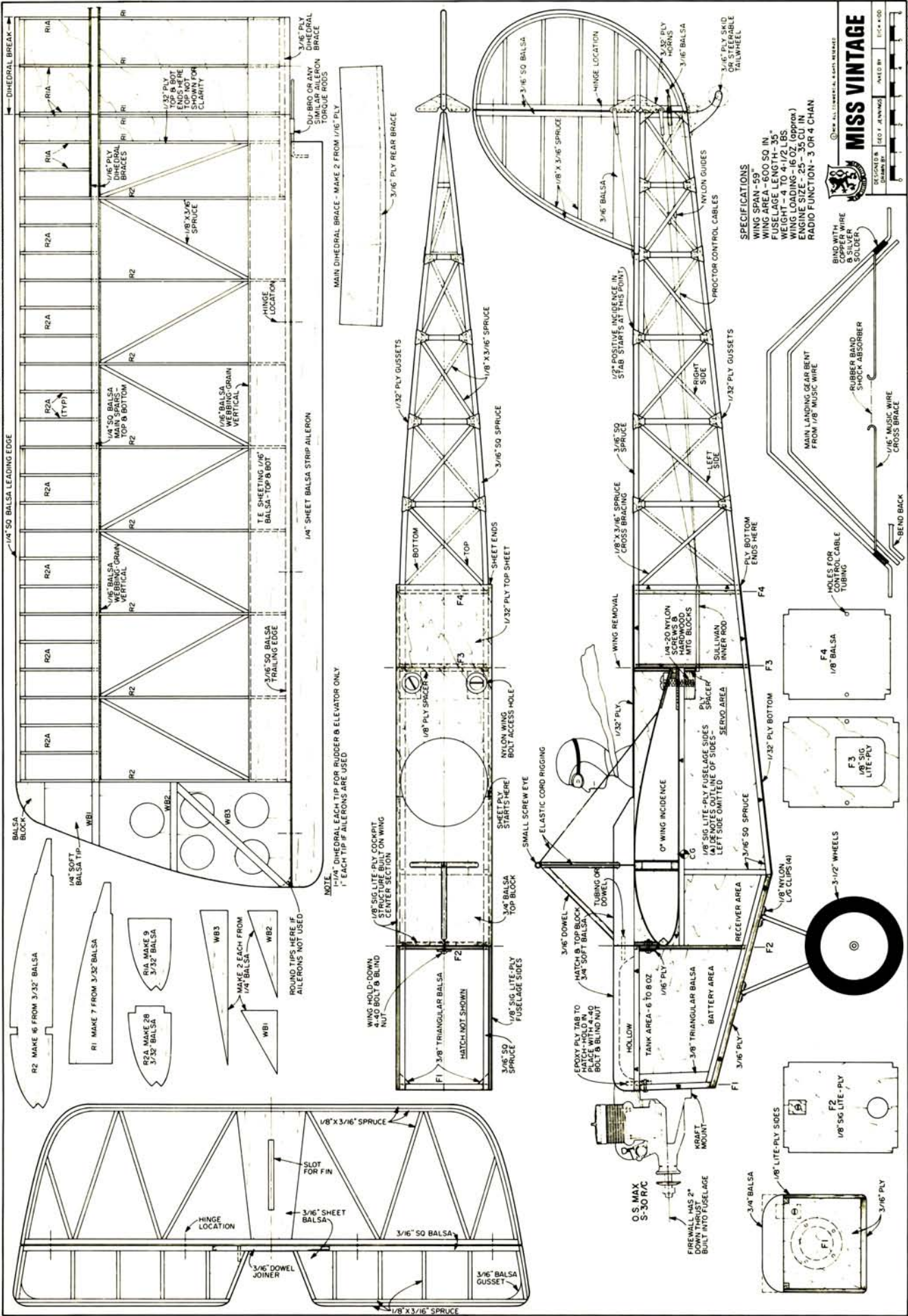
Rudder, Elevator, Ailerons & Throttle

**BASIC MATERIALS USED IN CONSTRUCTION**

Fuselage	Balsa, Ply, Sig Lite-Ply
Wing	Balsa
Empennage	Balsa & Spruce
Weight Ready-To-Fly	64 — 72 Oz.
Wing Loading	15.4 — 17.3 Oz/Sq. Ft.

**MATERIALS LIST**

Amount	Description	Use
<b>Balsa</b>		
9	3/32" x 2" x 36" med. balsa	wing ribs
1	1/4" x 4" x 36" soft balsa	wing tips, braces
1	1/4" x 3" x 36" med. balsa	ailerons
3	1/16" x 3" x 36" med. balsa	wing trailing edge sheet, vertical grain webbing
1	3/16" x 2" x 36" med. balsa	tail surfaces
1	3/4" x 4" x 12" soft balsa	fuselage top block
6	1/4" x 1/4" x 36" med. balsa	main spars, leading edge
4	3/16" x 3/16" x 36" med. balsa	rear spars, tail surfaces
1	1/8" x 4" x 4" scrap balsa	F-4
1	3/8" x 36" triangular balsa stock	firewall backup brace
<b>Spruce</b>		
8	3/16" x 3/16" x 36" spruce	fuselage longerons, and cross members
13	1/8" x 3/16" x 36" spruce	diagonal braces, tail surfaces
<b>Plywood</b>		
1	1/8" x 12" x 24" Sig Lite Ply	fuselage sides, cockpit structure, F-2, F-3
1	1/32" x 12" x 24" aircraft plywood	wing center section, fuse. sheeting gussets
1	1/16" x 6" x 12" aircraft plywood	main dihedral brace
1	3/16" x 6" x 12" aircraft plywood	fuse. firewall, bottom, rear dihedral brace
1	3/32" scrap 2" x 2" aircraft plywood	control horns
<b>Miscellaneous</b>		
1	3/16" x 36" hardwood dowel	flying wires tripod
1	1/8" x 36" music wire	landing gear
1	1/16" x 36" music wire	landing gear cross brace, tail wheel wire
1	1/32" or 3/64" x 36" music wire	throttle control
13	hinges	for hinging control surfaces
1	set of strip aileron hardware	if ailerons are used
4	control clevises	rigging elevator and rudder
1	10 ft. roll Proctor Enterprises control cable	rigging elevator and rudder
1	steerable tail wheel bracket	if used
6	4-40 blind nuts & bolts	engine mounting and wing hold-down
2	1/4" x 20" nylon wing bolts and threaded nut blocks	wing hold downs
4	1/8" nylon landing gear clips	to attach landing gear
1	scrap of Sullivan inner Gold'N-Rod	control cable guides
1	6-8 oz. Sullivan fuel tank	
1	.25 to .35 RC engine & mount	
1	set 3 1/2" to 4" main wheels	



**SPECIFICATIONS**  
 WING SPAN - 59"  
 WING AREA - 600 SQ IN.  
 FUSELAGE LENGTH - 35"  
 WING CHORD - 10"  
 WING LOADING - 16.0Z (approx)  
 ENGINE SIZE - 25 - 35 CU IN.  
 RADIO FUNCTION - 3 OR 4 CHAN

**MISS VINTAGE**  
 DESIGNED BY GUY F. JENNINGS  
 MADE BY ESC-1000  
 PLAN NO 6414



## MISS VINTAGE

- Cover the center section, both top and bottom, with 1/32" plywood which goes directly over the trailing edge sheeting. Cut the 1/32" plywood by scoring with a sharp model knife or use household scissors.
- Cut out a hole in the bottom of the center section for placement of the aileron servo if you plan to add ailerons.
- Add the wing tips and tip braces which are cut from soft 1/4" sheet balsa. Lightening holes may be cut from the tips as shown on the plan. The rear of the tip is shaped slightly differently if ailerons are to be added — see plan.
- Add soft balsa blocks at the leading edge of the tip and shape to fit the contour of the airfoil.
- Round the leading and trailing edge of the wing as well as the wing tip with a sanding block. Go over the entire wing lightly with fine sandpaper using extreme care so as not to destroy the airfoil by sanding the ribs too much.
- If you plan to use strip ailerons make them from 1/4" balsa, 1 1/8" wide, and simply round off both the front and rear edges. If you prefer, you can use tapered trailing edge stock. Hinge them temporarily and install the strip aileron horns. Do not permanently install until the wing is covered.

### Fuselage:

- Cut two fuselage sides from 1/8" Sig Lite Ply.
- Cut F-1 from 3/16" aircraft plywood and install 4-40 blind nuts for the radial engine mount. (The prototype used a Kraft-Hayes mount.)
- Cut out F-2 and F-3 from 1/8" Lite Ply.
- Cut out F-4 from 1/8" balsa.
- Place the right hand fuselage side over the plan and glue in the 3/16" square spruce braces as well as the 3/8" triangular balsa firewall brace and 3/16" square spruce longerons. Add the vertical 3/16" square spruce braces.
- Build the left hand fuselage side directly over the right hand side so that they are matched. Be sure to put wax paper between them so they don't stick together.
- Pin down the completed right side and glue F-1, F-2, F-3 in place with 5-minute epoxy. Use a 90° triangle to be sure that formers are truly 90° to the fuselage side.
- Epoxy the left side in place making sure everything is straight and true.
- Bevel the fuselage sides with a sanding block at the rear of the fuselage where they join.
- Set the fuselage upside down over the plan and weight down with a brick or other heavy weight so it won't shift. Draw the tail together so that the tail post lines up directly over the plan in perfect alignment. Glue and clamp with spring clothespins until thoroughly dry.
- While the fuselage is still weighted down, add the 3/16" square spruce cross pieces.
- Add the 1/8" x 3/16" diagonal spruce braces as shown on the plan.
- Cut gusset plates from 1/32" plywood scrap with scissors and epoxy in place on the fuselage as shown on the plan.
- Add the forward 3/16" plywood fuselage bottom. **Do not add** the 1/32" rear bottom sheeting at this time.
- The top 1/32" ply sheeting, aft of the wing, should be added now.
- Construct the landing gear from 1/8" music wire. The 1/16" music wire shock absorber crossbar is functional and makes for smoother take-offs and landings. Wrap the joints with soft copper wire and solder with low temperature silver solder. Be sure to use the flux that comes with the solder for a smooth, secure job. Use a rubber band for the shock absorber.

- Trial mount the landing gear using 1/8" nylon landing gear clips and wood screws. The placement of the main gear on a tail dragger is critical! With the fuselage in a horizontal, or flying, attitude, line up the landing gear axles so they are perpendicular, and in line, with the leading edge of the wing.
- Epoxy the wooden 1/4 x 20 nut blocks in place on the fuselage as shown on the plan.
- Set the wing in place and turn the airplane upside down. Mark the location for drilling 1/4" holes through the wing to accept 1/4 x 20 nylon hold-down bolts by inserting a drill that just fits inside the threaded block hole, twisting with your fingers to make a mark on the wing surface. Now, drill the 1/4" holes.
- With the wing installed and the nylon bolts in place, glue the 1/8" Lite-Ply side pieces of the cockpit structure on top of the wing center section. Add the front and rear 1/8" Lite-Ply bulkheads. When dry, install a 4-40 blind nut and bolt through F-2 and into the front bulkhead on the cockpit structure. This serves as the front of the wing hold-down. Reinforce F-2 by gluing on a small scrap of 1/16" plywood where the 4-40 bolt enters.
- Add the top 1/32" ply sheeting to the cockpit after cutting out the cockpit hole and access holes for the wing hold-down bolts.
- Rough carve the 3/4" soft balsa fuselage top block. When a reasonably good fit is achieved, cut in two with a razor saw on the joint between the fuselage and the front of the wing. Glue the rear portion to the cockpit area. The front portion serves as an access hatch to the fuel tank and battery compartment.
- The hatch may be attached with a 1/8" dowel, or brass tubing at the rear, and screws, or a 4-40 blind nut and bolt at the front.
- Before closing up the bottom of the fuselage with 1/32" plywood, plan your servo installation and drill appropriate holes for pushrods, or as on the prototype, nylon covered braided control cable. On the prototype, the cables are run through sections of inner Gold'n-Rod tubing which serve as guides. Install the guides on each side of the fuselage, keeping them toward the outside of the fuselage in order to provide sufficient clearance for the aileron horns.

### Tail Surfaces:

- Soak strips of 1/8" x 3/16" spruce in warm water until they become very pliable.
- Using modelers T-pins, proceed to pin down the spruce over your wax paper covered plan, following the inside contour of the fin and rudder. When in place, bend the outside piece of spruce and then laminate by gluing with Tak and clamping and pinning tightly together.
- When the lamination is dry, cut the fin and rudder apart and add 3/16" balsa and 1/8" x 3/16" spruce crosspieces as shown on the plan.
- The elevator and stab are constructed in the same manner. Pay close attention to the direction of the grain on the balsa parts — see plan.
- When everything is thoroughly dry, sand all tail surfaces and round the edges of the surfaces. Temporarily hinge the tail surfaces, however the tail surfaces should be covered and the stab and fin installed on the fuselage before permanently hinging.

### Finishing:

- When covering Miss Vintage, it would be a shame to hide all that pretty framework, so use a transparent covering material on the wing and tail surfaces. Transparent Solarfilm or MonoKote covering can be used. The prototype was covered with red silk and given 5

coats of clear dope allowing 24 hours between coats. After a 72 hour curing period, a coat of K & B Superpoxy clear was sprayed on.

- After covering and finishing the rudder and elevator, install the 3/32" plywood control horns as shown on the plans if you plan to use control cables. Make a slot in the control surface and slip the horn in place and epoxy securely. The control horns should be finished in natural wood finish using polyurethane clear or Superpoxy clear.
- Glue the stab and fin in place on the fuselage making sure they are aligned properly.
- All open framework on the tail should be finished in natural wood finish.
- The main fuselage, ailerons, and wing center section can be covered with opaque Solarfilm or finished with paint or dope. On the original, exposed surfaces were given two coats of surfacing resin, sanding between coats and then sprayed with Superpoxy colored paint.
- Add the 3/16" dowel tripod on the front of the cockpit and finish in natural wood color.
- Next, permanently hinge the control surfaces.
- Flying wires are non-functional and simply for appearance, but add to the realism. Use elastic cord or heavy elastic thread.
- Add the dummy pilot.
- Attach the tail wheel bracket, main landing gear, wheels, engine, muffler, gas tank, and hatch.

### Radio Installation:

- Mount the aileron servo in the wing — hook up the ailerons.
- Trial fit the battery under the tank and receiver and the servos in the main compartment. Install the wing and shift the servos and battery forward or back until the correct balance is achieved. The balance point should be 3/16" to 1/4" back of the main spar and **no further back!** When correctly balanced, the plane hangs slightly nose down when suspended on the tips of your index fingers placed under the wing on each side of the fuselage at the balance point.
- When the position of the radio is found for correct balance, epoxy two pieces of 1/2" square soft pine across the fuselage to support the servo tray. **Note:** Mount the servos as low as possible in the fuselage so that there will be adequate clearance for the aileron servo.
- Wrap the battery and receiver loosely in foam and place in a plastic bag for fuel proofing. String the antenna wire to the tail.
- Install nylon control horns if you have not already epoxied in 3/32" plywood horns. On the prototype, Proctor Nylon covered braid control cable was used. Any nylon covered braided wire fishing leader will work equally well as long as you can find it in long enough lengths for a continuous run. It should be at least 25 pound test for peace of mind.
- Measure and cut 4 lengths of control cable several inches longer than needed, running from the control horns to the servos. Attach a clevis to each of the four lengths by tying the cable on and double knotting. Safety in place with a small glob of epoxy.
- Attach clevises to the control horns and, by trial and error, thread the cable through the open part of the fuselage and on through the Sullivan inner rod guides that were installed earlier. On the prototype both control cables from one control surface were run through one guide. Because the guides are nylon, and the control cable is nylon covered, there is no sign of friction and wear. You will need to epoxy several small pieces of Sullivan inner rod ap-

## MISS VINTAGE

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proximately 3/16" long on to the open framework back near the tail to serve as guides and to keep the control cable from rubbing on the framework.

- Attach the control cable to the servo arms in the following manner: Take four pieces of 2" long, 1/16" diameter, or slightly smaller, music wire and bend the end of each into a tight loop. Fill the loop in with solder and then drill a small hole through the center. The control cable is double knotted on to these cable connectors and saftied with epoxy glue. Du-Bro EZ Connectors are then attached to the servo arms and the cable connectors are slid into the Du-Bro Connectors. This makes a system with easily adjustable control surfaces.
- 1/32" music wire is recommended for the throttle pushrod as it is easy to bend and yet rigid enough to actuate all but the stiffest throttles. Adjust the linkage accurately so that the servo throw matches the throttle throw.
- For your initial flights control throws should be set as follows: Rudder 3/4" each direction; Elevator 5/8" each direction; and ailerons 3/16" each direction.
- Have another competent pilot check your radio installation just to be sure. A lot of good airplanes have been lost on that first flight simply because the control surfaces have a way of getting hooked up backwards, particularly ailerons!

### **Flying:**

Miss Vintage is an easy airplane to fly in either the 3 or 4 channel configuration. The prototype was test flown extensively from snow with skis. In fact, the initial test hop was made with skis.

Wind penetration is excellent, primarily because of the built-in down thrust, and 1½° positive incidence in the stab.

An O.S. .35 R/C engine with 10/6 prop was used and constitutes the maximum power you would want to use for realistic flight. In fact, a .25 or .30 would be perfectly acceptable. My method of flying is to use maximum power for take-off and, once airborne, throttle back to about 1/3 to 1/2 throttle and putt around the sky, periodically making low fly-bys and occasionally shooting a touch-and-go! That eight ounce tank lasts forever!

Ground handling is good. I cheated and added a steerable tail wheel, however the spectators won't mind as you come chugging in for a super slow landing and then taxi back to your flight box and kill the engine with your throttle trim. Your biggest problem will be the barrage of questions you will have to answer each and every time you show up at the flying field.

Take that return flight to nostalgia!

