NORTHRUP PRIMARY
N-925W

PYLON GUSSET - MAKE 2 FROM 1/64" PLY

USE OTHER DRAWING FOR DETAILS ON THIS SIDE OF LINE

USE THIS DRAWING FOR DETAILS ON THIS SIDE OF LINE

NOTE: INSTALL ELEVATOR SERVO & RECEIVER IN WING. USE A "G.I. JOE" DOLL & PLACE BATTERY PACK IN DOLL'S TORSO. ADD BALLAST IN HIS LEGS.

C.G.

(OPTIONAL)

(OPTIONAL)

TO RUDDER

RUDDER BAR DETAIL

1/32" PLY BACK

1/8" PLY SEAT

TO AILERONS

TO RUDDER

TO ELEVATOR

1/4" X 1/2" SPRUCE

1/16" TUBING

1/4" SHT. BALSA KEEL

ADD G-PAD & TAPE SKID FULL LENGTH OF KEEL

CROSS SECTION OF RUDDER

1/4" SQ. BALSA (TYPICAL)

1/8" X 1/4" BALSA (TYPICAL)

MF-F

1/4" SQ. BALSA

MF-E

MF-G

MF-D

MF-G

SMALL GOLDBERG HORNS

MF-F

HINGE C/L

1/4" SQ. BALSA

1/4" BALSA BLOCK

1/4" BALSA

1/4" SQ BALSA

HINGE C/L

1/8" X 1/4" BALSA T E

1/64" PLY ON TOP ONLY

1/8" X 1/4" BALSA

HORN LOCATION

1/4" SQ BALSA

1/4" X 3/4" BALSA

3/32" PIANO WIRE

1/4" X 3/8" BALSA

MAKE BOTH ELEVATORS AS ONE SEPARATE AFTER SANDING TO SHAPE & INSTALLING THE JOINER WIRE WITH EPOXY. (SHAPE AS PER RUDDER DETAIL)

TO AILERONS

CONTROL STICK DETAIL (NOT TO SCALE)

TO ELEVATOR

1/64" PLY PYLON GUSSET

1/4" BALSA FILLER

1/4" BALSA RIB-R2

1/32" PLY RIB-R1

1/4" X 1/2" SPRUCE TOP LONGERON

SECTION A-A

RUDDER CONTROL ROD

ELEVATOR CONTROL ROD

SECTION B-B

MF-B

1/4" SQ BALSA

1/4" SQ. SPRUCE

A

B

CENTER SECTION RIB FACING 1/32" PLY

CUT INTO 1/4" BALSA RIB FOR CONTROL ROD

1/4" X 1/2" SPRUCE

DASH-DOT LINES SHOWS ELEVATOR CONTROL ROD. USE GOLD-N-ROD OR SIMILAR TYPE & EPOXY TO LEFT SIDE OF STRUCTURE

C.G.

1/4" X 1/2" SPRUCE

ALL PLY COVERING & GUSSETS ARE 1/64" UNLESS NOTED

3/32" SHT BALSA HATCH FLOOR, TOP & SIDES ALSO AFT OF COCKPIT

HATCH LOCK MADE FROM 1/16" M WIRE & 1/16" I D TUBING

1/8" DOWELS EPOXY

F4: 1/4" BALSA SHT EACH SIDE OF FUSELAGE STRUCTURE

DRILL HOLE & EPOXY SCREW IN PLACE

H3

H4

H2

H1

1/4" SQ BALSA RAILS

RCVR AREA

ELEV SERVO

3/32" SHT BALSA

F4

F5

1/4" SQ BALSA CROSS BRACE

BATTERY AREA EXTEND INTO HOLLOW

F8

F1

F3

F7

MF-A

MF-C

1/8" X 1/4" BALSA

F6

1/4" SQ. SPRUCE

1/4" STOCK

F9 KEEL 1/4" BALSA

F2

BALSA NOSE BLOCKS CARVED & HOLLOWED

NOTE: LEFT SIDE 1/8" & 3/32" SHEET BALSA OMITTED FOR CLARITY

TOW HOOK LOCATION

NOTE: FOR STIFFENER BULKHEAD F5, TAKE DIMENSIONS FROM ACTUAL MODEL (VARIES) F5 IS 1/8" BALSA

DASH LINE INDICATES 3/32" SHEET BALSA

H4

H3

H2

H1

F3

F2

F2

F1

1/8" SHEET BALSA

USE 1/8" SIG-LITE-PLY FOR ALL BULKHEADS UNLESS NOTED

MF-A

1/8" SHT. BALSA FROM HATCH BASE TO BOTTOM OF SKID

F8 1/8" SHT. BALSA

F1

F2

F3

F6

F7 FLOOR 1/8" SHT. BALSA

F6

1/8" X 1/4" BALSA CROSS BRACES

1/8" SHT. BALSA

TOP VIEW IS SHOWN JUST ABOVE FLOOR (F7)

FLIGHT SPECIFICATIONS

ORIGINAL DESIGN: GERMAN GLIDER SCHOOLS (1925-1940)

AMERICAN COPY: NORTHRUP PRIMARY (MODIFIED)

GLIDE RATIO: 12 TO 1 AIRSPEED: 6 M.P.H. MIN.

FLIGHT RESTRICTIONS: NONE. CAN BE TERMINAL VELOCITY DIVED INDEFINITELY. EASY HANDLING ON WINCH OR HI-START. SLOPE SOARS ON VERY LIGHT WINDS.

ZOEGLING PRIMARY '1930'

DESIGNED & DRAWN BY	DR GERRY CASEY	INKED BY	DICK KIDD

0 1 2 3 4 5 6

METAL FITTINGS

NOTE MAXIMUM SIZE OF ALL ATTACH BOLTS: 2-56

MF-A
.020 X 1/4" BRASS

ALIGN BENDS TO FLYING WIRE ATTACH POINTS ON WINGS (ROUGHEN BRASS TO EPOXY).

MF-B
(JOINS MF-H)

MF-C

MF-D

SOLDER SCREW HEAD INSIDE FITTING.

MF-E

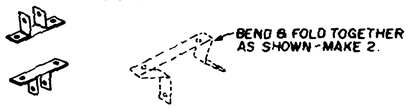
SOLDER JOINT

MF-F

TYPICAL BOTH ENDS

MAKE (4) OF 1/8" ALUM. TUBING. FLATTEN BOTH ENDS BEFORE DRILLING HOLES. (TAKE DIMENSIONS FROM FINISHED MODEL).

MF-G



BEND & FOLD TOGETHER AS SHOWN - MAKE 2.

MF-H

MAKE 2 - FITS ON TOP OF MF-B WITH SHORT SHEET METAL SCREW.

ALIGN BEND TO LANDING WIRE ATTACH POINTS ON WINGS.

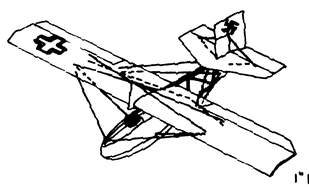
MF-I

RIGGING STRAPS - MAKE 20

RIGGING INFORMATION

USE "LOU PROCTOR'S" ITEMS LISTED BELOW:-

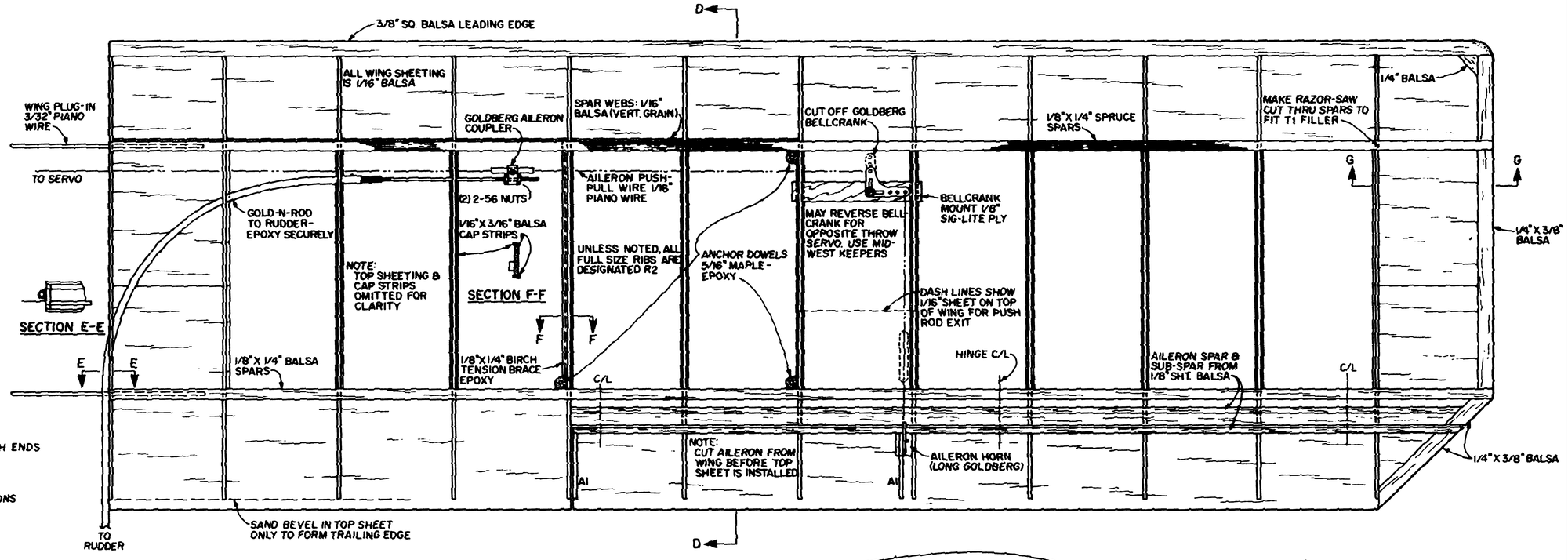
- #3 OR #5 TURNBUCKLES WITH CLEVIS ENDS;
- #312, SWAGE FITTINGS FOR WIRES;
- #202 RIGGING CABLE (25 FT.);
- #317 CLEVIS PINS;
- #316 BOLTS & NUTS.

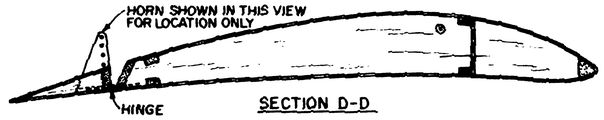


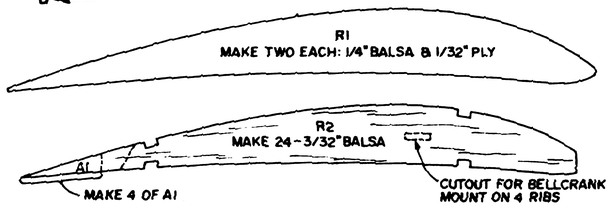
1" DIHEDRAL EACH TIP

14 RIGGING WIRES TOTAL

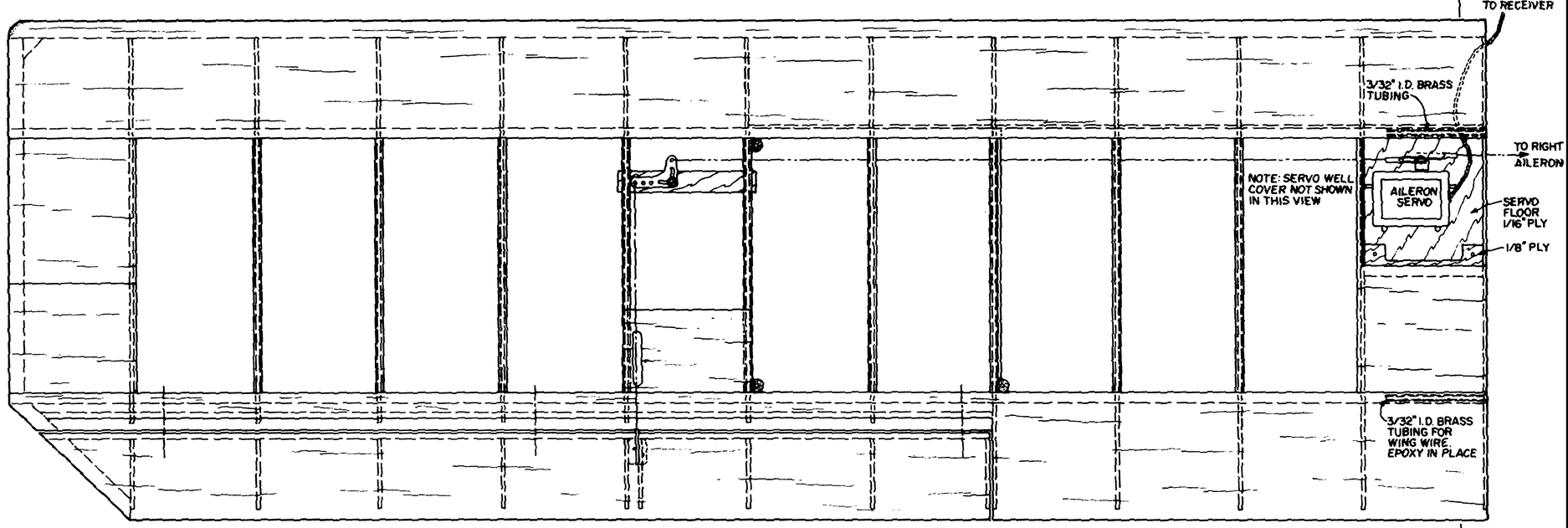
- 4 FLYING WIRES (2 EACH SIDE)
- 4 LANDING WIRES (2 EACH SIDE)
- 2 FORWARD DRIFT WIRES
- 4 AFT DRIFT WIRES

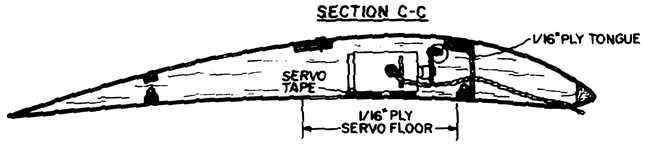






SECTION G-G





ZOEGLING PRIMARY '1930'

DESIGNED & DRAWN BY	DR GERRY CASEY	INKED BY	DICK KIDD

0 1 2 3 4 5 6

Zoegling Primary Glider

For some reason, this crate from the 1930's seems to have a nostalgic pull on people's emotions, quickly drawing a crowd wherever it is flown. With coupled rudder and ailerons, it turns in about a ten foot circle, finding even the smallest thermals after leaving the high start. On the slope, and flown at eye-level, the tail goes up and it lazily scoots along, following the cliff contour. The speed is the same flat out level or straight down . . . slow!

BY DR. GERRY CASEY

● Super-super efficiency is the keynote for the age! Sailplanes for RC'ers are ever faster, fly farther, go higher, are more graceful and ever so fantastically beautiful! . . . Ho hum.

Comes now another approach to the R/C Glider aficionado: slower, shorter, lower, dirty, cluttered and very, very ugly! Wow, man, it's so ugly it is actually beautiful. I guess it's kind of the way I feel about the Iguana Lizard: down the ugly scale you will finally arrive at beautiful again. No?

To own the Zoegling Primary Glider is to fly in a completely different ballgame. First, there is no pressure on the pilot because everything is slowed down. There's worlds of time for thinking about turns and whatever you are planning next. Slow and ugly - - great! About the only distraction you'll get with this bird is the huge flock of spectators. Sometimes we forget that to the uninitiated, the great big beautiful twelve foot span bird hundreds of feet high thermalling, or above the slope, is not enough for their interest. Not so the lowly Zoegling: for it is usually flown at eye-level on the slope and very commanding as it scoots back and forth like a pylon racer in slow motion.

From the dim past comes the semi-scale German Zoegling. Old notwithstanding, for the new or experienced flyer, this model is satisfying in our times. Nothing else quite captures the thrilling sound of wind whistling through the rigging wires. Little is so rewarding as wheeling into thermal turns a little wider than the wingspan. And how many other designs can find a thermal at ten feet of altitude and work it across the flying field? Comforting also is the fact that this weird bird is **strong.** Once I hooked a wingtip landing and merrily cartwheeled from wingtip to tail to nose and over again before stopping. Damage? None. No sireee! With all those rigging wires, everything yields just enough to absorb the goof-off.

And why did I pick the Zoegling to build? That is a story . . .

Back in the nineteen thirties, the art of gliding was new and raw and so was I. Thermalling had not yet been discovered and our soaring was a series of eights cautiously flown on strong slope winds. Most of the flying machines then were the open type primary designs modified from the original Zoegling of the German Gliding Schools. In the U.S.A., it was quickly modified and renamed the "Northup Primary." During this period, I was fortunate enough to have built and flown my own.

While gliding here was for sport, the training of pilots ten to fifteen years of age in Germany was a deadly serious pursuit. Stripped of the ability to bear arms or to have an Air Force by the Geneva Convention, Germany quietly set about building a super-supply of skilled pilots via the glider training and sailplane route. Many of the German youngsters who learned to fly in the Zoegling also had a hand in its construction. Can you imagine the wonderful stimulus to fly and build with integrity?

From the Zoegling trainer to the sleeker sailplanes soaring on the Rhon and Wasserkuppe slopes, the youth gained extreme proficiency. Thus it was that the old Zoegling was built and flown in great numbers.

So here was I one day in December with a fine, open primary glider easing my way off auto-tow towards the Palos Verdes Cliffs in Southern California. Always before my flight had been over the cliffs, one quick and careful turn and then scoot back to a landing. But on this day, when I made my turn, the updraft kicked my bottom and I felt the glider surge upwards. I was soaring!

For two and a half hours, I shuttled back and forth above the cliffs, happier than I'd ever been. I was dressed in light clothing, clutching the seat bottom for security against the primary's nakedness and, despite the bitter cold and whistling wind, reveling in my first soaring experience. When I finally landed, my crew had to pry my stiff and blue fingers off the control stick! It was hours before I could stop stammering and describe the emotional impact of soaring flight. Many years later when I had earned F.A.I. Badge Silver "C", I would recall that moment. It was the greatest!

After my soaring flight, and the fact that then I was an "expert," the next step was to hop up the Primary. This we did by adding an enclosure for the pilot. Technically, this made the Primary a "Secondary Glider." Actually, it was still the same old beast that flew the same, but was a heck of a lot warmer when soaring!

So how did the model come to be? Okay, for the past few years I'd been flying my own sleek R/C sailplanes on those same cliffs as my first soaring experience. One day I showed another RC'er an old photo and he said, "What a great model that would make!"

"Really?" Why was I surprised? You know the rest of my reactions: The gastro-intestinal feeling as you contemplate structure and design then the wild ride to the hobby shop for a supply of balsa and glue. I've built many scratch machines before, but this time the fun of building and flying was so much that after a year, I built another, improved version offered herein.

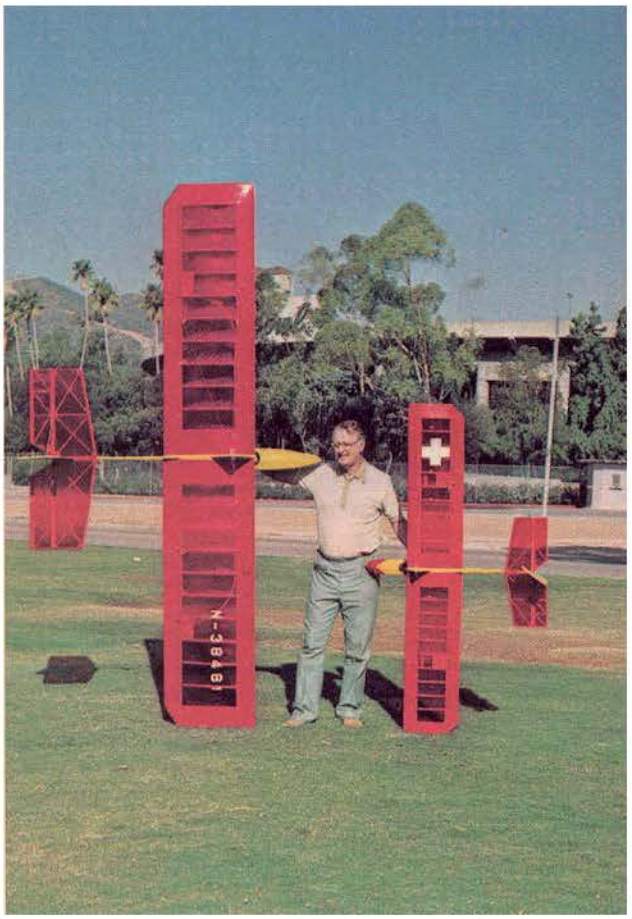
Are you sold? Can't you feel that nostalgia? Okay, let's start building!

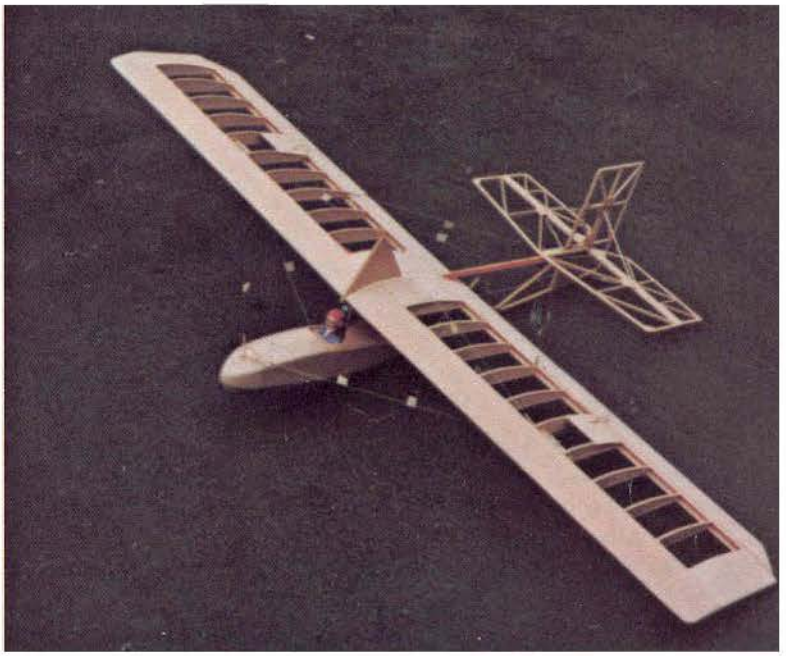
Tail Surfaces:

Notice I didn't say "empennage." Right on, we are going to do it the old way! So put your waxed paper over the drawings and build the tail surfaces just like you've always done before. The only difference is that the model construction is similar to the actual full-size bird and that makes for more fun in building.

Be careful to keep the tail surfaces flat

LEFT: Dr. Gerry Casey flies the Zoegling Primary Glider to an easy spot landing after a thermal flight. BELOW, LEFT: The author with the Primary and another, larger version, dubbed Big Mother! In the photo below, the Primary is shown ready to cover. The photo at the bottom of the page shows two of the Zoegling Primarys, waiting their turn to fly.





and I suggest epoxy for the joints. Build the elevators as one piece and cut them into individual elevators after gluing in the 3/32" wire center piece. To sand the aft sections for the proper trailing edge contours, shim under the unsanded T.E.'s then sand to shape. This way, no carving is needed and everything stays straighter. Go all the way and add the flat hinges, but do not drill the holes for the metal fittings just yet. (Wait until fitting to the fuselage for locating.)

Wings:

Wasn't that fun? See, even the building of old ugly is a gas!

Now make the rib pattern of 1/16" ply. Epoxy two pin points through the pattern and let them protrude about 1/16". Smear epoxy around the rib profile and sand super-smooth when dry. Now the X-Acto knife will not catch on your pattern. Cut all ribs and sub-ribs for the aileron ends and aileron horn ribs per the drawing and per the thickness shown. (Also make the 1/4" balsa full-dimension ribs for the mock center section and also the two full sized ribs of 1/32" ply.) Clamp in a bundle and use a razor saw to cut the slots for the spars.

The next step is to glue the ribs to the bottom front and rear spars. Locate your markings on the spars from the drawings, but do not attach to the building board as it isn't necessary. Anything bowed or wiggly will straighten out later when pinned to the board for sheeting.

Over the waxed paper and on the drawings, shim and pin the 1/16" balsa trailing edge sheet to the board. Cement to the rear bottom spars and ribs. While drying, glue the front and rear top spars in place. Now add the 1/16" spar webs to the front spars as shown. (These end one bay short of the aileron bay.) Add the aileron ply platforms and the A-1 sub ribs as shown.

Using a razor plane and sandpaper, shape the bottom of the leading edge to size. The wing can now be removed from the building board. Off the board, pin and glue the leading edge in place. Make small cuts in the spars (where shown) and crack and bend to receive T-1 and the wing tip spar fillers. Glue in place. Glue the rear spars by **bending** together; **do not cut**. Add the 1/4" x 3/8" balsa tip pieces and carve and sand to shape. Sand to receive the tip sheeting. Trim the excess sheeting from the ailerons.

With the wing off the board, carefully add the lower leading edge sheeting. Clamp to the spar with clothespins and Tee pin to the leading edge. (Yes, I know the clothespins make dents, but you will steam them out later!) The balsa sheeting may need to be wet on the top side, fastened to dry, then permanently glued later. Drying may be hastened with a heat gun. Note that the lower leading edge sheet does not extend into the tip bay.

When all is glued and dry, trim the sheeting. Now you may complete the carving and shaping of the top side of the leading edge.

Complete the sheeting for the root and tip bays on the underside only (off the board). Add the 1/16" balsa capstrips to the wing undersides.

NOTE: On the root section, underside of the **left** wing, note the substitution of 1/16" ply for balsa sheet where the servo compartment floor is located. Glue the ply with epoxy.

1930 ZOEGLING PRIMARY GLIDER

Designed By: Dr. Gerry Casey

TYPE AIRCRAFT
Stand Off Scale Prim. Glider
WINGSPAN
73 Inches
WING CHORD
12 Inches
TOTAL WING AREA
876 Square Inches
WING LOCATION
Parasol Wing
AIRFOIL
NACA 7410 (mod)
WING PLANFORM
Constant Chord
DIHEDRAL, EACH TIP
1 Inch
O.A. FUSELAGE LENGTH
40¼ Inches
RADIO COMPARTMENT AREA
(L) 9" X (W) 3" X (H) 2½"
STABILIZER SPAN
24 Inches
STABILIZER CHORD (incl. elev.)
8 Inches (Average)
STABILIZER AREA
184 Square Inches
STAB AIRFOIL SECTION
Flat
STABILIZER LOCATION
Top of Fuselage
VERTICAL FIN HEIGHT
8¼"
VERTICAL FIN WIDTH (incl. rudder)
6"
REC. ENGINE SIZE
NA
FUEL TANK SIZE
NA
LANDING GEAR
NA
REC. NO. OF CHANNELS
Two
CONTROL FUNCTIONS
Elev. & Coup. Rud. & Ail.
BASIC MATERIALS USED IN CONSTRUCTION

Fuselage	Balsa, Ply, Spruce
Wing	Balsa, Ply, Spruce
Empennage	Balsa & Ply
Weight Ready-To-Fly	44 Oz.
Wing Loading	7.2 Oz./Sq. Ft.

Make your pattern and mark the aileron ribs for cuts to receive the aileron spar and aileron sub-spar. Cut carefully with a fine-tooth razor saw. After cutting, the pieces may be neatly removed by twisting slightly with pliers at the glue joint. Chisel or sand any protrusions so the spar will lay flat to the sheeting. Cut the aileron spar to fit. (Note the beveled edges.) Now, glue in place.

Now it is time to shim and pin the aileron portion of the wing to the building board and glue the aileron spar in place. When dry, cut the ailerons free of the wing, then trim and sand to receive the top sheeting. Be careful making this cut as you have only 1/16" gap to work with.

Add the flat hinges per the drawing and glue. The hinges may need trimming at the sub spar. Epoxy the aileron horns and sub ribs in place. Add the top sheeting to the aileron — this assembly must be pinned flat to your working surface. When dry, trim and sand to shape.

Install a flexible type control rod in the right wing per drawing for the interconnected aileron/rudder (epoxy). Make it longer than shown and trim later on.

Install the aileron servo in the left wing root with servo tape. Add the aileron rods. The left wing rods may be permanently connected to the servo. (Use metal Goldberg Kwik Links.) The link that will attach the right wing controls has the pin side cut off and will connect to the servo arm with the left link. Leave the right wing push/pull rod about 3" longer than the root for later fitting. (If your aileron servo has opposite throw than the one shown on the drawings, reverse the horns at the ply platforms in the wings.) **Caution:** Do not hook up the connectors to the bottom of the servo as they are too hard to connect when assembling for flight! Add the wing connection wires and tubes at this time, using epoxy. Cut the holes in the center section for the rods and aileron controls. Cut a slot in the right side to receive the right wing rudder control. Match this cut with one of the 1/32" ply ribs and glue in place. Cut, fit and epoxy pre-drilled dowels in place where shown. Use no other wood as the holes will tear.

Add the 1/8" x 1/4" spruce tension braces to the ribs where shown (epoxy). Complete the hatch cover and attach points.

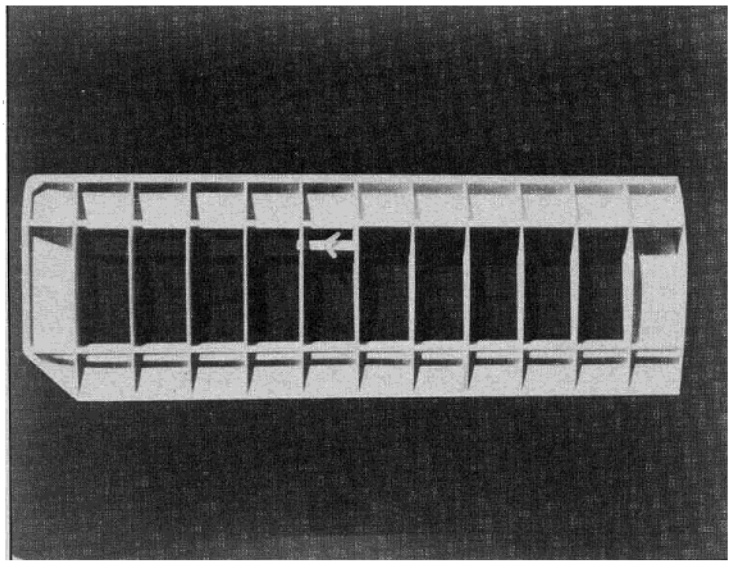
Now pin the wings securely to your building board and glue the top sheeting for the leading and trailing edges in place, as well as the tip and root sheeting. Let dry thoroughly. Lucky for you (and me!) warps are not critical for this design as the rigging wires make everything come out right. Sand to shape and final smoothness when dry.

At last! Hook up the ailerons from the platforms and horns to the aileron horns and adjust for neutral. Install and connect the rudder rod as shown (leave long). Check for complete freedom of movement. Your servo throw may now be checked for sufficient travel. Using the horn holes shown on the plan with Rocket City adjustable servo arms is recommended.

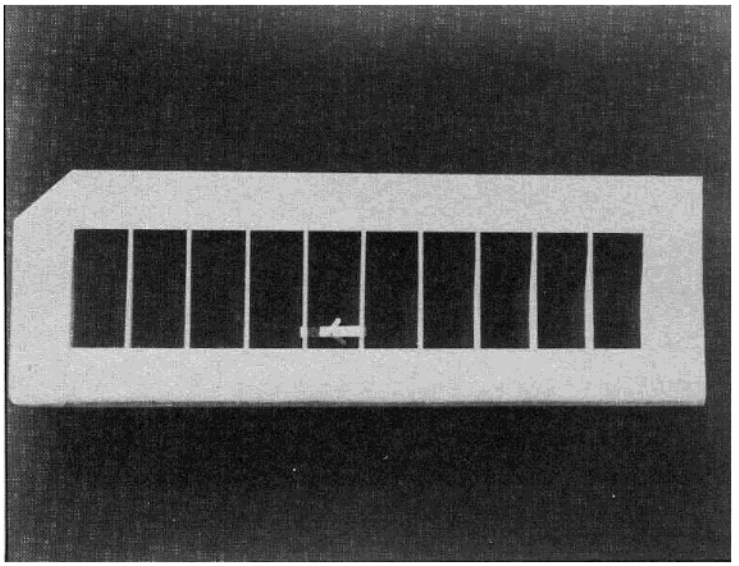
Now the delicious part — the dessert is last!

Fuselage:

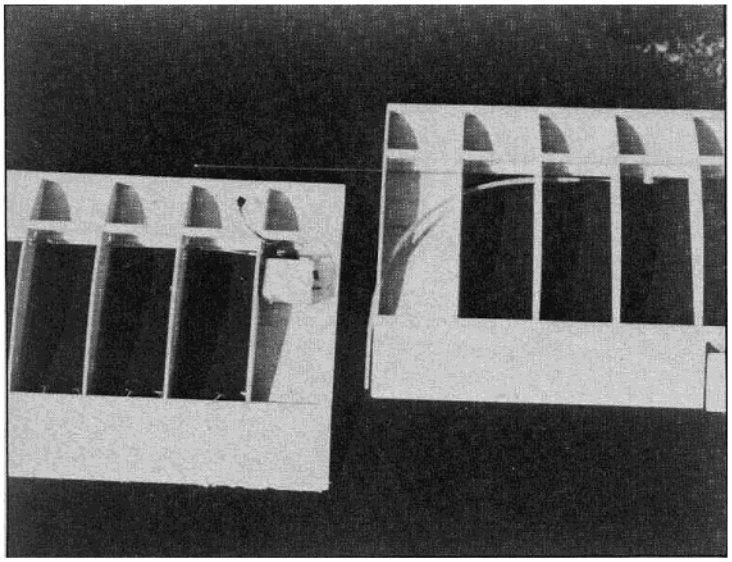
Make all the flatwork on the building board as shown in the photos. Add the gussets to the workable side. When dry,



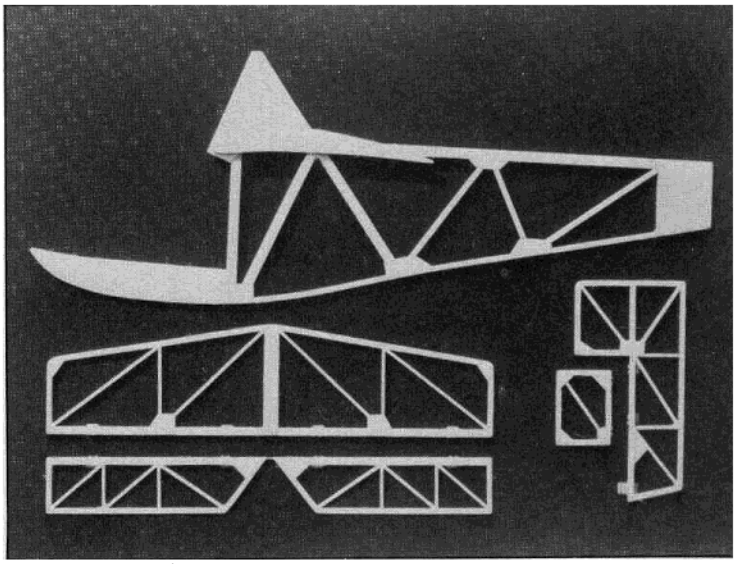
The Zoegling Primary Glider wing panel ready for aileron installation.



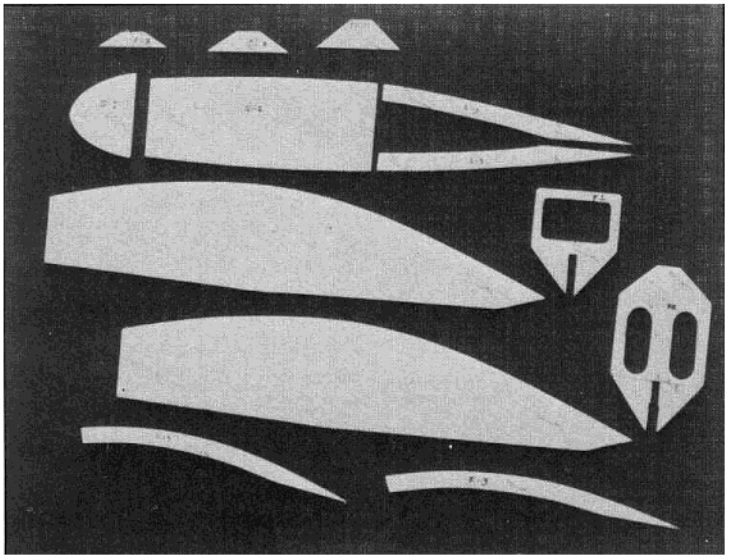
One wing panel shown with bottom sheeting completed.



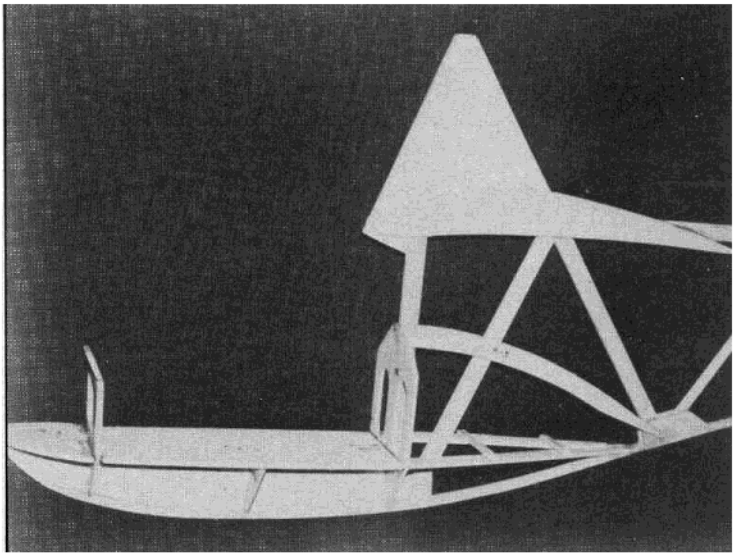
Close-up of wing root details before top sheeting is applied.



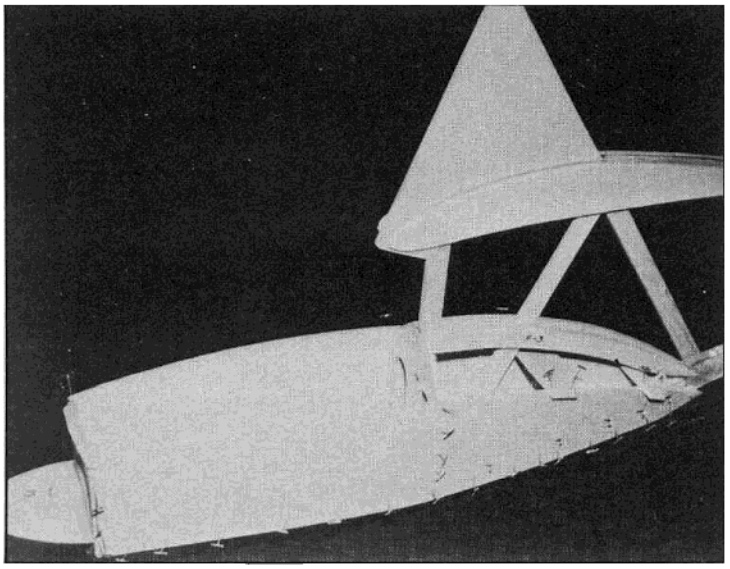
The fuselage 'flatwork' completed and ready for building pod.



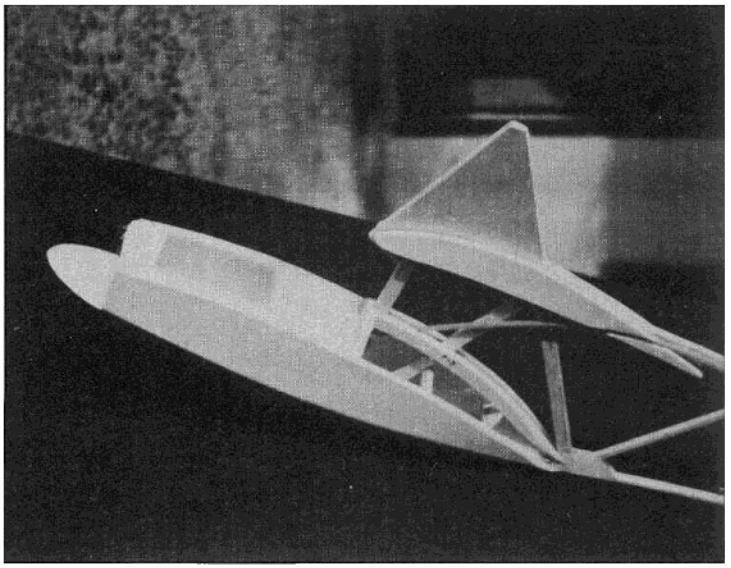
The fuselage pod formers are pre-cut and ready for assembly.



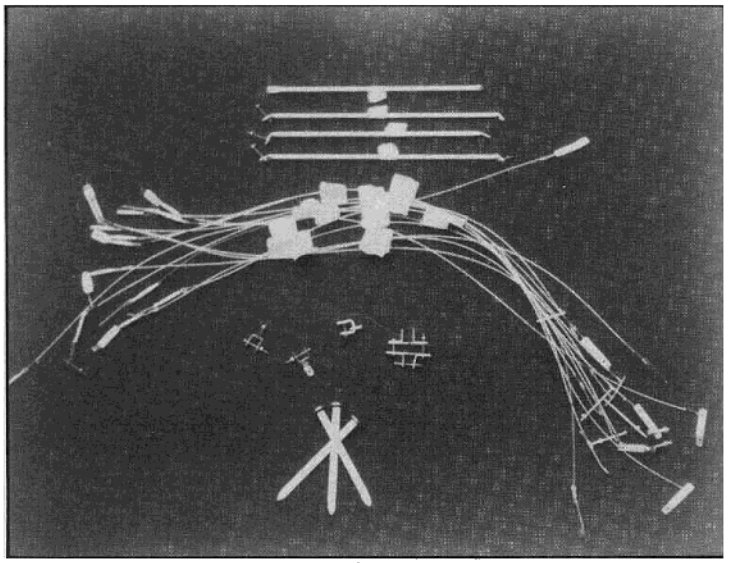
The basic pod is shown assembled, ready for skid sheeting.



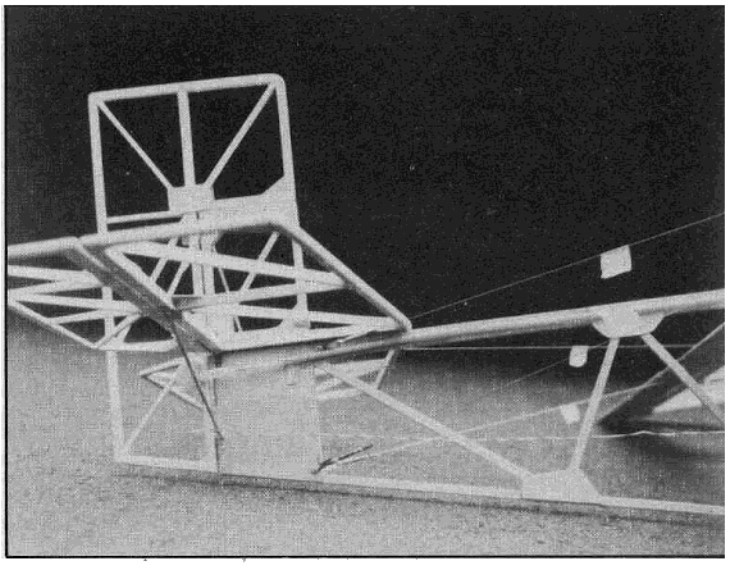
The side panels installed in this photograph. Note that they are oversize.



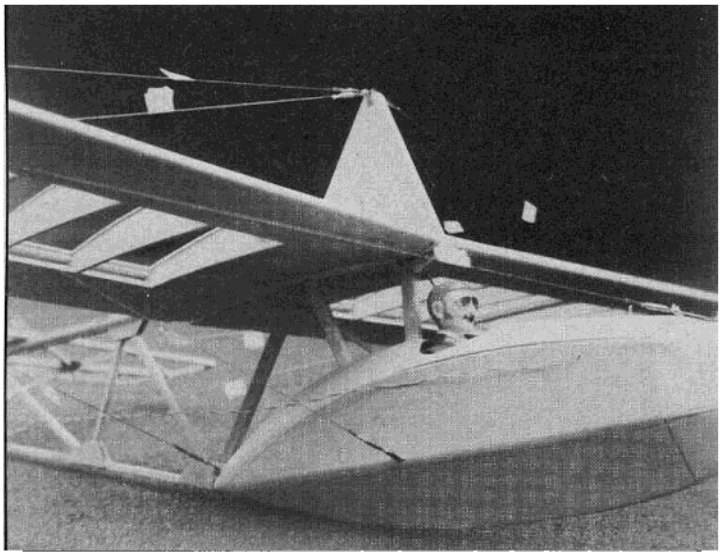
Ready for hatch sheeting. Elevator control rod cut into 1/4" balsa root rib.



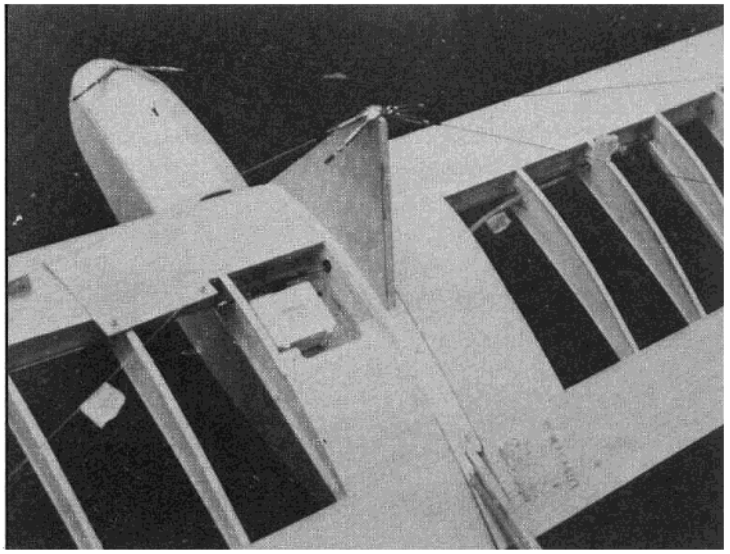
The fittings, rigging, and "stuff." Tabs of tape used for identification.



Note "straight-forward" and cluttered empennage assembly!



The final rigging. If a bird flies out, you've lost a wire, Mac!



View of aileron servo details. Note "half" Kwik-Link for right aileron.

remove and add gussets to the opposite side. Do the same with two of the full size 1/32" ply ribs. Cut these so they blend into the other ply coverings — not over!

Add formers F-1, F-3, floor F-7, then F-4 and F-6 rear formers. Add the 1/8" x 1/4" braces to F-6 where shown. Add F-2 to the skid, then bevel-sand to receive the skin sheeting. Bend and permanently glue the tow hook in place.

Fit and glue the sheeting to both sides of the skid from F-1 to the end of the pod. Cut all skins 1/4" larger than required. When dry, trim the excess to receive the side panels. Note that the dotted lines on the fuselage formers on the drawings shown where the sheeting overlaps. Glue the 1/8" side panels with white glue. Before the glue sets, pin temporary scraps of balsa to the panels to insure parallel dimensions. When dry, trim and sand, and note that all skin seams overlap. Allow for trim when rough-cutting. The technique after gluing is to trim with a razor plane, then sand. After the joints are completed, ease the corners by sanding. Note the section change aft, and ahead of, the tow hook. The front portion will receive the skid later. Glue F-5 and the 1/4" square spacer and braces to your side panels. Use masking tape to pull the side panels parallel when gluing.

In the cockpit area, add the 1/4" stiffener rails and cross-piece where shown. Now install the elevator control rod and cut the root rib to receive it. After the epoxy sets, add the 1/32" ply rib over the balsa root rib (see photo).

Place waxed paper over the cockpit area and fold to cover formers H-1 and F-3. Cut and pin the 3/32" balsa hatch base in place. Cement H-2 at the front and fasten to H-1 with pins from in front. Add H-3 and H-4. When dry, epoxy dowel pins to H-4. These should protrude through F-3 approximately 1/16". Careful, Mac, don't glue them to "F-3". When dry, remove all except the front pins.

Sand all bevels to receive the sides of the hatch sheeting to the rear of the pod. If you are wealthy, use a single sheet of balsa! (Sob, I didn't!) Cement the oversize hatch sheeting in place. When dry, sand to fit the fuselage side panels and hatch formers to receive the top hatch sheeting. Cut oversize, fit and cement the top 3/32" sheeting from the front of H-2 to the rear of the pod. Cut the holes for the posts, etc., from one side only. Cut and glue when the top sheet has been glued in place.

When dry, reach into the cockpit area with a pair of needle nose pliers (through the front former) and push the pins through the sheeting where the hatch is to be separated later. Now remove the pins and mark with a pencil where they have protruded through the outer skin. Connect the markings and carefully cut with a knife or single edge razor blade. Look inside to check the accuracy of the cut. Care here will make you proud later! Cut between the hatch front and rear formers with a razor saw. Remove the hatch and sand all joint edges smooth. Cut the cockpit hole in the hatch and add the slide lock at front. Glue, sand, hollow and form the **upper** nose blocks. Glue in the solid lower nose blocks.

Add the right side 1/32" ply root rib to match the balsa rib. Cut both the right and left side ply ribs to receive the aileron and connector rods.

Fittings and Rigging:

All the metal fittings except the main front flying wire attach fittings may be made from brass paper fasteners 3" long. For additional bearing areas of high stress, simply fold the end over before drilling to receive the turnbuckle. Build and install the fittings as you go. (I know - - - it reminds you of the old Erector Set!)

I recommend Lou Proctor's hardware, rigging wire, and turnbuckles plus his wee bolts and nuts. You will find his advertisement in this magazine.

Begin your rigging with the top landing wires and adjust for the proper dihedral. If you want your glider to be very agile, use 1" dihedral per wing as per the plans. If you'd like more "hands-off" flying, add 2" per wing. Identify all rigging as you go with small pieces of masking tape. Next, add the lower flying wires and tighten the turnbuckles to Middle "C"! Yes, Mac, we use different methods here. If you can't find a Middle "C", listen to a honey bee. Anyway, it's a low hmmmmmmm!

Okay, now install and tighten the front drift wires then add the rear drift wires. Install the tail assembly. Connect and fit the elevator, rudder and ailerons to their locations. Connect the ailerons to their servo. Install 1/2" long 2/56 threaded rod into the inside control rod of the rudder where it terminates at the right wing root. Let 1/4" protrude for joining to the rudder rod on the fuselage. When assembling and disassembling, it is a simple task to uncouple the rudder at the horn and twist a few turns to connect to the wing. Check all rigging for alignment and controls for travel and freedom of movement. Be sure you're coding all the rigging with tape or you'll never find them for final assembly!

Radio:

Install your elevator servo on a slant as shown. Install the switches, charge plug, receiver and battery. Final balancing must wait until completion. Re-check operation of all controls: the interconnected rudder and aileron should move freely and without any binding. The same is true for the elevator. Run your antenna out the side and fasten it to the aluminum tail brace rod.

Finishing:

We chose transparent Solarfilm for lightness and ease of application on the wings and tail surfaces.

As there are obstacles to film coverings on the fuselage, we used resin followed with spray lacquer. Letters and numbers were dry transfer type available from stationery stores (Letraset, etc.). MonoKote trim was used for the Nazi emblems and wing crosses. The 2" scale Williams Brothers pilot was painted to look German (! ?).

"Der Zoegling" flies easily, is quite agile, and goes exactly where you put it. Try perfecting the special Zoegling approach: Circle tightly at a forty-five degree angle downwind, then roll out about eight feet high and head towards yourself. Start slowing it up with elevator. With a bit of practice, and a 10 mph wind, you can fly it to yourself at eye level and it will float to your toes like a parachute. Now you can make those LSF spots as if you've dropped a carpenter's plumb-bob upon them!

From RCModeler Dec. 1976

Flying:

Add ballast to place the Center of Gravity where shown. It is not critical but favors forward for best handling. As I've said, "Der Zoegling" flies easily, is quite agile and goes exactly where you put it. Try perfecting the special Zoegling approach: circle tightly at a forty-five degree angle downwind then roll out about eight feet high and head it towards yourself. Start slowing it with up elevator. With a bit of practice, and a 10 mph wind, you can fly it to yourself at eye level and it will float to your toes like a parachute! Now you can make those L.S.F. spots as if you've dropped a carpenter's plumb-bob upon them!

So what are we doing talking? Go fly the thing, step back a few hundred years and be the hit of the slope. From a high-start launch, and after a thermal flight, it is a real weird sight to see it circle continuously from about fifty feet of altitude and roll out of the last turn about six feet high with a short glide right to your feet. It may be outlawed for LSF spot landings! Just remember the Doctor's prescription that "Ugly is so, so, beautiful!" □