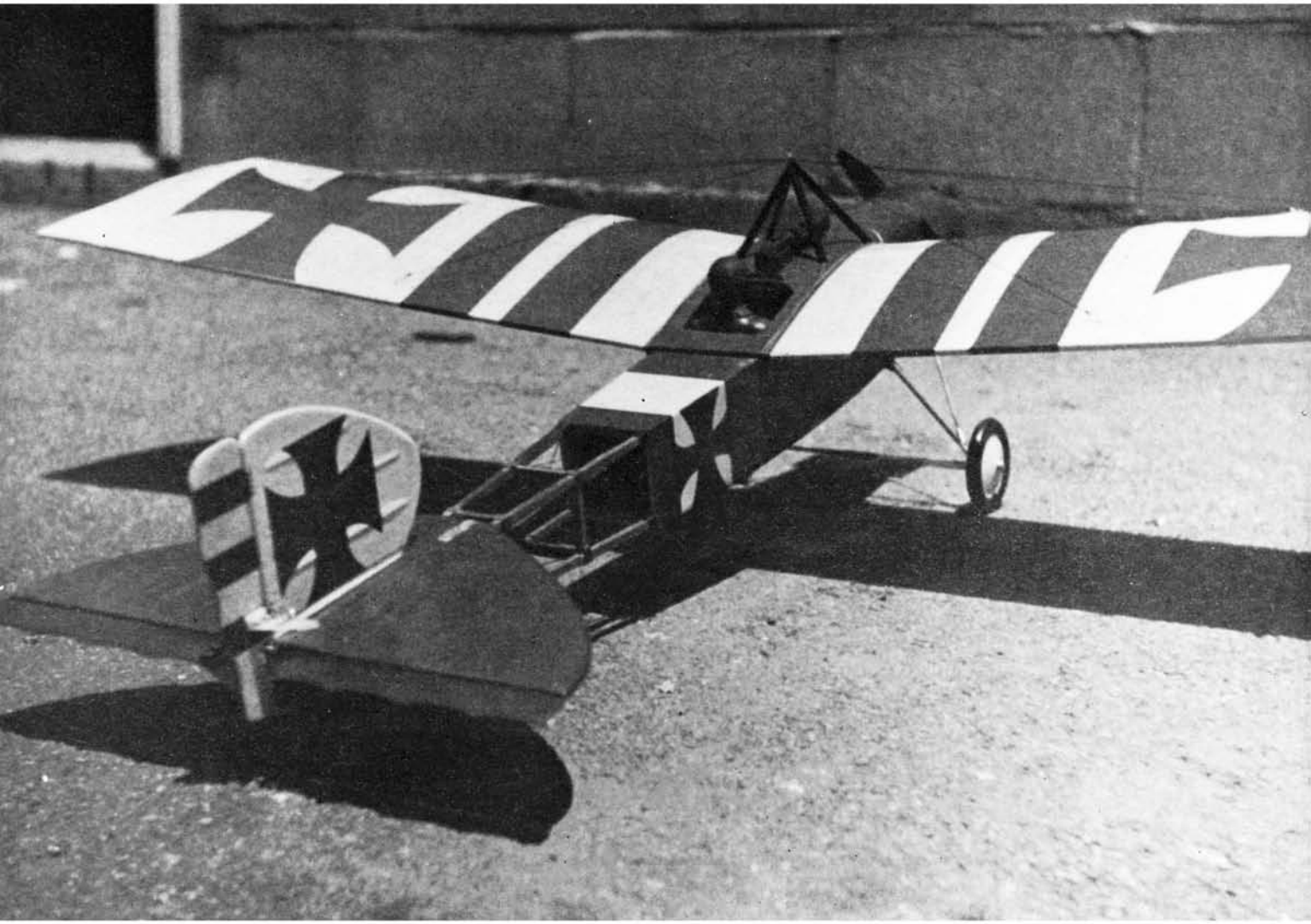
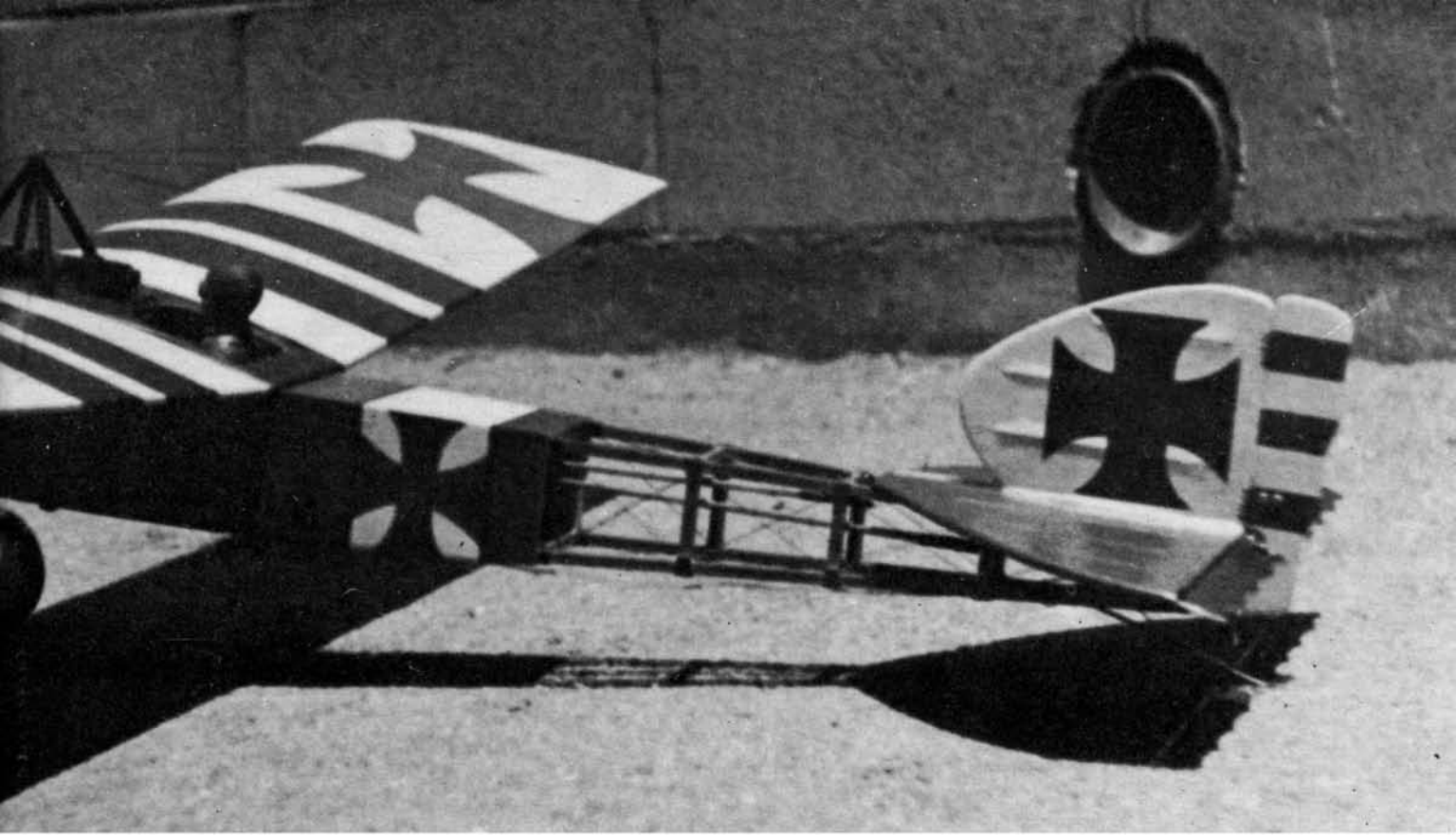




DAS FLUGENGHOSTER

The Red Baron strikes back! An excellent vintage type machine for .049 to .09.

BY SCOTT CHRISTENSEN

Every now and then I see the results of some Sunday flier's thoughts on design that are so unusual I want to share them with you. Whitey Pritchard's "Mantis" was one, for example. Of course, he's gone on to other great ideas, which you'll be seeing from time to time also.

Recently, however, in contrast to Whitey's ultra modern design, there has been a return to favor of the old time designs in the "Magnificent Men in Their Flying Machines" tempo, like Lou Proctor's "Antic" and such.

But they've all been too big — at least for my taste — until one day a few weeks ago my friend Scott Christensen called and said "Hey — you know that Rand G-G Pack we were flying in that old shoulder wing? Well, it worked so well that I thought I'd design an airplane around it. I've had an idea for a semi-scale old timer type I'd like to try."

"Go ahead," I encouraged him. "You'll never start designing any sooner. Just stick with the principles of basic layout, be sure the CG is where it should be, and with the G-G Pack you'll have plenty of control."

I'll never understand how he did it so fast, considering all the detail he cranked into it, but shortly after that first phone call Scott called again. "It's finished. I'll bring it out and we'll fly it this weekend." He did, and we did, and if you'd been there, I'm sure you would have enjoyed it as much as anything you've seen in Sunday flying activity. So, because I found it so much fun, I'm turning the Sunday Flier column over to Scott Christensen this month, and he'll tell you all about "Das FlugenGhoster, mitFloppenKontrol."

While Scott tells you about Das FlugenGhoster, I'll be trying to figure out a way to tell you, next month, how you can go about designing your own airplane by using some of the ready built accessories, components, and even major assemblies that can be purchased nowadays. Then, if you come up with something unusual, we'll share it with all the other Sunday fliers. Just one thing — it has to fly, and reasonably well.

Fair enough? Meanwhile, Achtung! Begrabben das sprucenbalsa und dopenglue geschticken und maken Das FlugenGhoster!

— Ken Willard

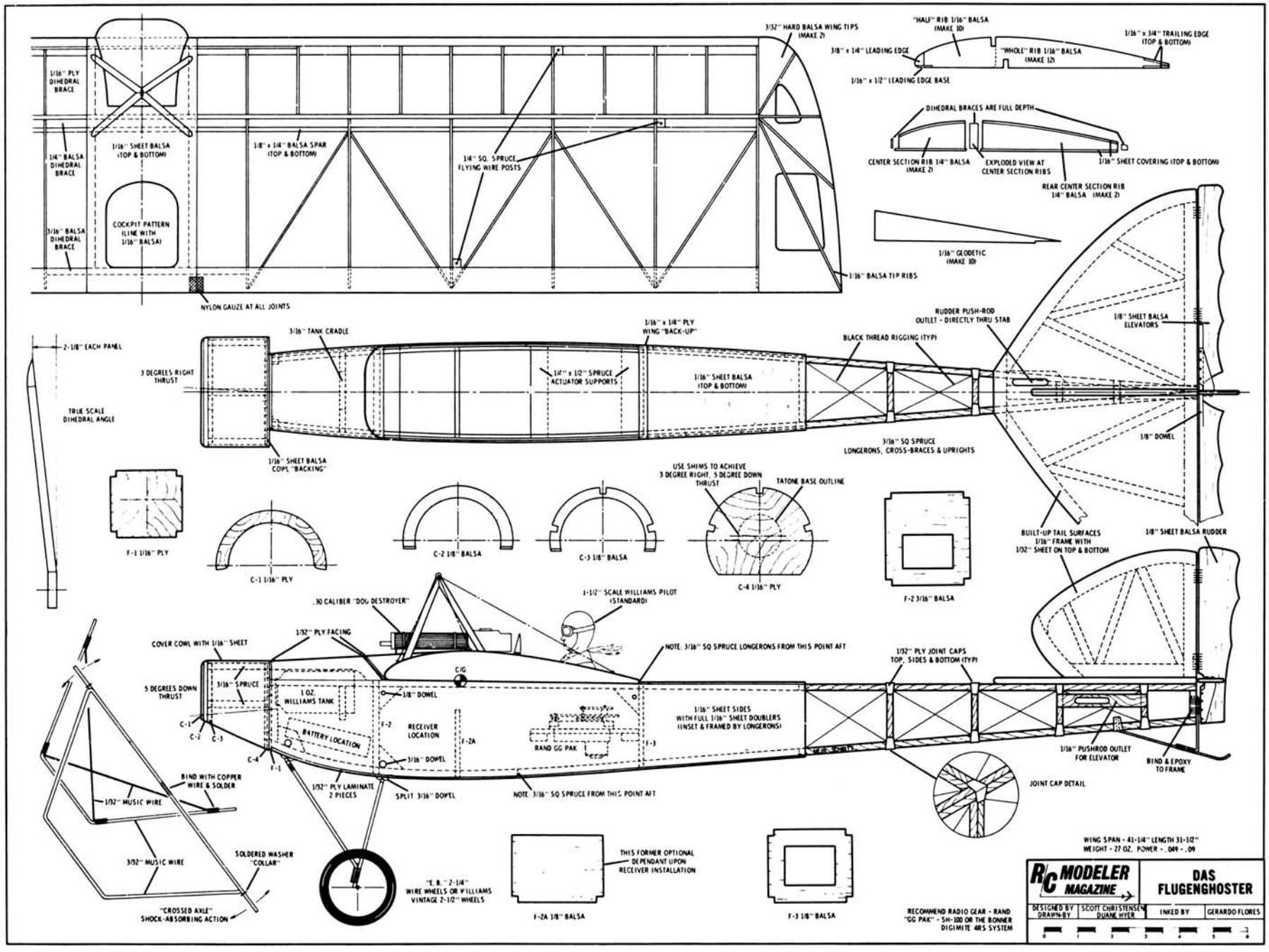
DAS Flugenghoster was not chosen as a subject, it became a subject after it was completed. By this I mean the airplane was designed as it was being built.

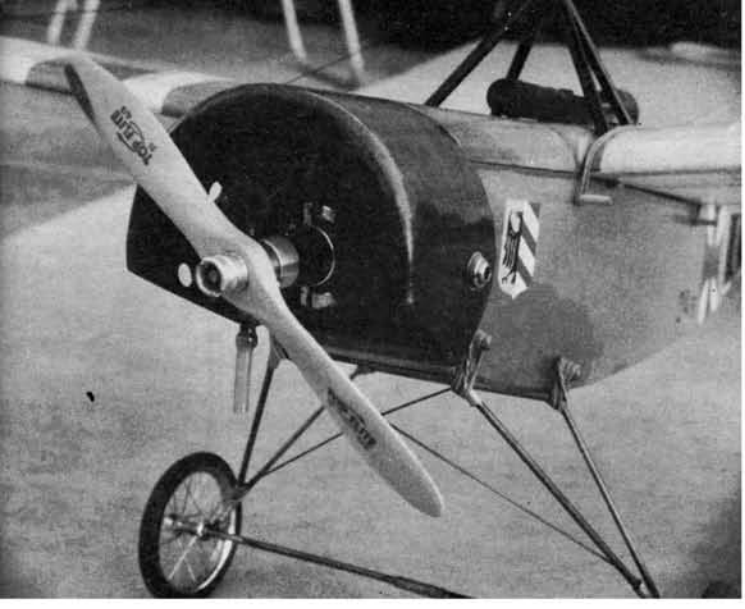
One evening, back in April, I took my wife to see "The Blue Max." This motion picture was one of the best of its type that I had ever seen, and "The Blue Max" planted the seed for Das Flugenghoster.

The following day, at work, I was on the phone and the party I was talking to put me on "HOLD." As is my custom, I started sketching an airplane on my scratch-pad. Within a few minutes, I had sketched what is now Das Flugenghoster.

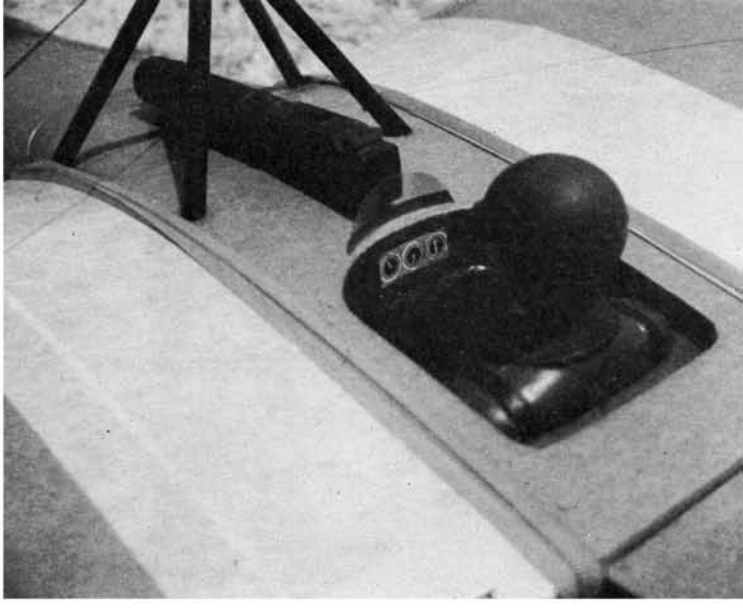
In building Das Flugenghoster, I've tried to incorporate most of the things that I find attractive in aircraft of this period. The wing, for instance, is a sort of semi-scale Eindecker type. The fuselage is somewhat Neiuportish, etc. . . . These things, separately, are what I like. But when put all together, they seem to make a very nice looking airplane that pleases just about everyone. You may also like the crossed-axle shock absorbers used in the landing gear — it really works!

Although the building of Das Flugenghoster was fast, simple, and fun, flying it soon became the highlight of this project. A new Rand G-G Pak was used for control and a Cox Medallion .049 was faking it as an Oberursel up front. The day finally arrived when it was "now or never." I made sure my radio gear was working properly, set the surfaces at neutral, and fired up my


3/32" HARD BALSA WING TIPS (MAKE 2)
"HALF" RIB 1/16" BALSA (MAKE 10)
"WHOLE" RIB 1/16" BALSA (MAKE 12)
1/16" x 3/4" TRAILING EDGE (TOP & BOTTOM)
3/8" x 1/4" LEADING EDGE
1/16" x 1/2" LEADING EDGE BASE
1/16" PLY DIHEDRAL BRACE
1/4" BALSA DIHEDRAL BRACE
3/16" BALSA DIHEDRAL BRACE
1/16" SHEET BALSA (TOP & BOTTOM)
COCKPIT PATTERN (LINE WITH 1/16" BALSA)
1/8" x 1/4" BALSA SPAR (TOP & BOTTOM)
1/4" SQ. SPRUCE FLYING WIRE POSTS
NYLON GAUZE AT ALL JOINTS
DIHEDRAL BRACES ARE FULL DEPTH
CENTER SECTION RIB 1/4" BALSA (MAKE 2)
EXPLODED VIEW AT CENTER SECTION RIBS
1/16" SHEET COVERING (TOP & BOTTOM)
REAR CENTER SECTION RIB 1/4" BALSA (MAKE 2)
1/16" GEODETIC (MAKE 10)
1/16" BALSA TIP RIBS
2-1/8" EACH PANEL
3 DEGREES RIGHT THRUST
TRUE SCALE DIHEDRAL ANGLE
3/16" TANK CRADLE
1/16" x 1/4" PLY WING "BACK-UP"
1/4" x 1/2" SPRUCE ACTUATOR SUPPORTS
1/16" SHEET BALSA (TOP & BOTTOM)
1/16" SHEET BALSA COVR. "BACKING"
RUDDER PUSH-ROD OUTLET - DIRECTLY THRU STAB
BLACK THREAD RIGGING (TYP)
1/8" SHEET BALSA ELEVATORS
1/8" DOWEL
3/16" SQ SPRUCE LONGERONS, CROSS-BRACES & UPRIGHTS
F-1 1/16" PLY
C-1 1/16" PLY
C-2 1/8" BALSA
C-3 1/8" BALSA
USE SHIMS TO ACHIEVE 3 DEGREE RIGHT, 5 DEGREE DOWN THRUST
TATONE BASE OUTLINE
C-4 1/16" PLY
F-2 3/16" BALSA
BUILT-UP TAIL SURFACES 1/16" FRAME WITH 1/32" SHEET ON TOP & BOTTOM
1/8" SHEET BALSA RUDDER
.30 CALIBER "DOG DESTROYER"
1-1/2" SCALE WILLIAMS PILOT (STANDARD)
COVER COWL WITH 1/16" SHEET
1/32" PLY FACING
NOTE: 3/16" SQ SPRUCE LONGERONS FROM THIS POINT AFT
1/32" PLY JOINT CAPS TOP, SIDES & BOTTOM (TYP)
5 DEGREES DOWN THRUST
3/16" SPRUCE
1 OZ. WILLIAMS TANK
C/G
1/8" DOWEL
C-1
C-2
C-3
C-4
F-1
F-2
F-2A
F-3
BATTERY LOCATION
RECEIVER LOCATION
3/16" DOWEL
RAND GG PAK
1/16" SHEET SIDES WITH FULL 1/16" SHEET DOUBLERS (INSET & FRAMED BY LONGERONS)
1/16" PUSHROD OUTLET FOR ELEVATOR
BIND & EPOXY TO FRAME
JOINT CAP DETAIL
BIND WITH COPPER WIRE & SOLDER
1/32" MUSIC WIRE
3/32" MUSIC WIRE
SOLDERED WASHER "COLLAR"
"CROSSED AXLE" SHOCK-ABSORBING ACTION
1/32" PLY LAMINATE 2 PIECES
SPLIT 3/16" DOWEL
NOTE: 3/16" SQ SPRUCE FROM THIS POINT AFT
"E.B." 2-1/4" WIRE WHEELS OR WILLIAMS VINTAGE 2-1/2" WHEELS
THIS FORMER OPTIONAL DEPENDANT UPON RECEIVER INSTALLATION
F-2A 1/8" BALSA
F-3 1/8" BALSA
WING SPAN - 41-1/4" LENGTH 31-1/2"
WEIGHT - 27 OZ. POWER - .049 - .09
RECOMMEND RADIO GEAR - RAND "GG PAK" - SH-100 OR THE BONNER DIGIMITE 4RS SYSTEM
R/C MODELER MAGAZINE
DAS FLUGENGHOSTER
DESIGNED BY
SCOTT CHRISTENSEN
DUANE HYER
DRAWN BY
INKED BY
GERARDO FLORES



Cowl detail — note starting Jack and plastic tube extension to needle valve.



Cockpit detail — note pilot, instruments, and "Snoopy" gun. Dirty Red Baron!

engine. Another quick check was made to see if old-man vibration disliked German airplanes — everything was flapping just fine! So with the veins on my temple pulsing at the same rate as the Rand, I gave the nod to my launcher.

Not knowing what to expect out of an airplane I designed myself (know the feeling?), you can imagine my surprise as I watched Das Flugenghoster climb out beautifully with a very slight right turn! No command was given until the plane was about 30 feet up. Testing first a right turn, and then a lift, I next tried a little "up" elevator. This produced an immediate nose-up condition which I corrected with about ¾ "down" elevator. The plane merely leveled-off momentarily and resumed its initial climb-rate — **at ¾ Down elevator!!** Full "down," with full "down" trim, did nothing, the ship was still climbing! I maintained a lower altitude by spiraling down ala' rudder only. Unfortunately, the Cox .049 swinging a 7/3 prop was running better than it ever had! Finally the engine quit and the plane immediately began a hair-raising nose dive — **I was still holding full "down" elevator!** Returning the stick to neutral produced a beautiful slow, flat glide which made for a memorable scale-like landing!

Having deduced that lack of sufficient down thrust was my "hang-up," an additional 3° was added to the original 2°. The second flight was a dream come true! Das Flugenghoster performed beyond my wildest expectations! Violent stick movements produced the desired reaction promptly, **without a trace of gallop**, even full "up" elevator at the bottom of a dive!

To date, this plane has done loops, high-speed dives, snap rolls, low-level fly-bys, and flown inverted! It is capable of most of the standard maneuvers and a few there aren't names for yet (i.e., "The inverted side-slip stall"). This plane's speed is extremely scale-like with the Medallion .049. But speed and penetration can be improved using the Cox Tee-Dee .049. I have gone to the use of a Tee-Dee myself primarily because of the local wind conditions.

As far as the detailing of this ship goes, I would prefer to leave this aspect of construction to the individual. I like an airplane to look like an airplane, so I added the small extras to achieve this end. Here are some of the things I did with regard to detail.

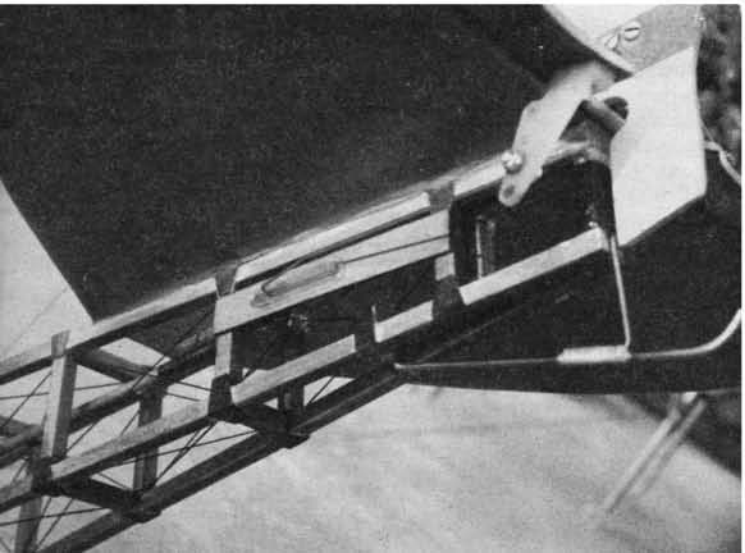
First and probably foremost, there is the "mock" wire bracing in the open part of the fuselage. This is accomplished by drilling 1/32" holes in each of the spruce uprights and cross braces. I used a 10" length of 1/32" music wire for a "drill" mounted in a Moto-tool. The button-thread "wire bracing" is merely wrapped and glued at the forward end of the spruce longeron and passed 'kitty-corner" to the next upright or cross-brace, pushed through the drilled 1/32" hole, brought around through the same hole again, drawn tight, and continued to the next hole, etc. . . . The thread used throughout is "Coats & Clarks" extra strong button & carpet thread, available at any dime store.

A realistic wood like finish can be obtained on the exposed spruce longerons by giving them a coat of maple wood stain. To protect this finish, let the stain dry for 72 hours and coat lightly with 50/50 clear dope. When this dries it should give you an antique look that is very effective.

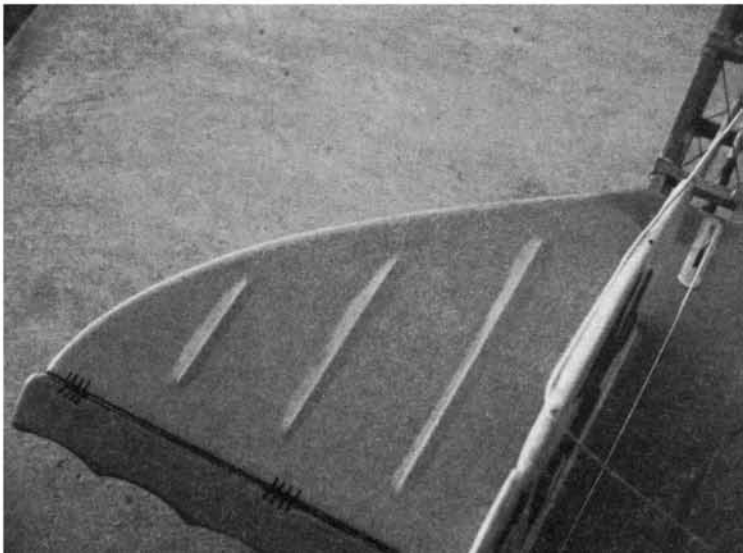
The machine gun is constructed in much the same way as Don Srull's was for his beautiful Fokker E III Eindecker (RCM Nov. 66).

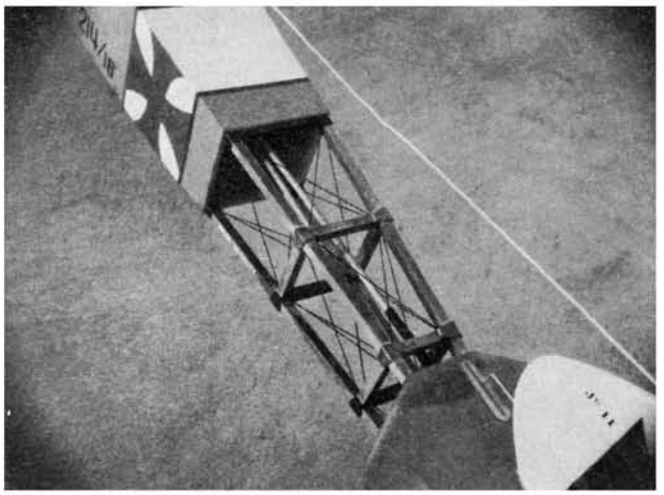
Ribs on the tail surfaces can be simulated by using 1/32" square spruce. These can be glued directly to the surfaces before cov-

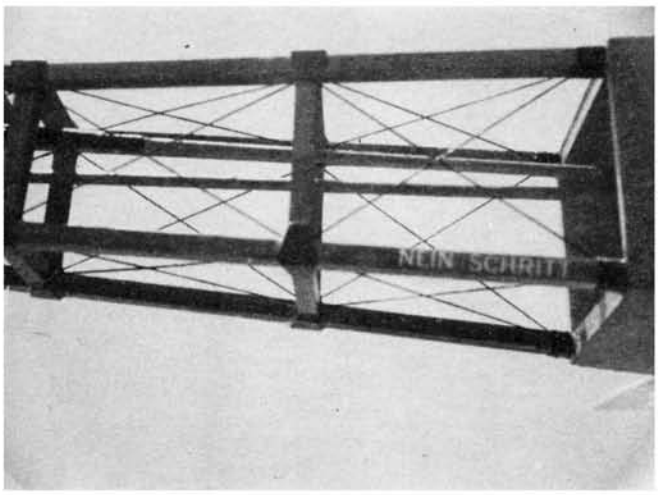
Detail of elevator pushrod exit guide. Note tail skid.



Simulated ribs on stab made from 1/32" sq. spruce and covered with tissue.







Above, left: Aft fuselage structure. Above, right: Oil well? Nope, open framework of the after fuselage section of "Das Flugenghoster."

ering.

With the aforementioned detailing, a reliable control system such as the "Rand G-G Pak," and a good Half-A engine, you should have yourself an extremely realistic, reliable airplane. Let's build it!

WING

The wing is built in 3 basic pieces, the 2 wing panels and the center section. Build directly over the plans using the leading edge, bottom spar, and the bottom trailing edge sheet for reference. Glue the "whole" ribs in place, add the top spar, and wingtips. Be sure to leave at least 2" of extra length to the "center section" end of the wing spars. Now glue the "half-ribs" and geodetics in place.

The center section is built on 1/16" sheet balsa. Glue the leading edge section in place. Locate and glue the 3 dihedral braces in place. Add the 1/4" balsa ribs which have been trimmed 1/16" overall to accommodate the top and bottom sheeting. Now glue top sheeting in place. When dry, fit the two wing panels to the center section using the protruding ends of the dihedral braces for reference. Glue panels to center section, block-up each panel to 2 1/8", and let dry overnight. When dry, add a strip of nylon gauze to each joint.

Cut out cockpit from the top sheeting and line with 1/16" balsa sheet. After sanding to shape, glue the balsa filler block in place and cap bevel with 1/32" ply. Sand entire structure lightly and set aside for covering.

FUSELAGE

Layout fuselage sides and frame with 3/16" sq. spruce and balsa longerons. Glue the spruce uprights into position shown on plans. Be sure to note the breaklines on the plans where the 3/16" sq. balsa ends and the spruce begins. Next, glue the 1/16" sheet balsa full length doublers in place, noting that they fit inside the longerons.

Join fuselage sides with formiers F-2 and F-3 using a triangle to square the structure. When dry, epoxy F-1 in place and clamp or rubberband to hold curvature. Check to make sure curvature is equal on both sides of the fuselage. If it isn't, then put in a temporary diagonal brace just long enough to force the sides to an equal curvature. Let this assembly dry thoroughly.

Pull together and epoxy the fuselage ends and add the 3/16" sq. spruce cross braces. Epoxy and bind in place the tail skid. The bottom-forward portion of the fuselage is beefed up by sheeting it with a laminate of 1/32" sheet ply, two pieces one over the other. Cover the remaining open areas on the top and bottom of the fuselage with 1/16" sheet balsa, cross-grained.

The cowl is a separate structure that is epoxied directly to F-1 when completed. A soft balsa block is used to fill the gap between the wing-filler block and the cowl. After this block is cut and sanded to shape, it should be capped fore and aft with 1/32" sheet ply and hollowed out to accommodate a 1 oz. William's tank.

The "joint-caps" on the spruce cross braces and uprights are 1/32" sheet plywood cut to shape with scissors. These are epoxied in place and sanded lightly to give a one piece "L clamp" look. Later these are to be covered with Black Japanese tissue.

TAIL SURFACES

Both the fin and the stab are built using a 1/16" sheet balsa frame covered on both sides with 1/32" sheet balsa. This seems to make an extremely strong, light, and warp free structure. The rudder and elevator are both cut from 1/8" sheet balsa. Sand these assemblies lightly and set aside for assembly.

ASSEMBLY

Checking carefully for alignment, epoxy the stab directly to the fuselage. The fin is then epoxied to the stab, again checking for alignment. The 1/4" x 1/2" spruce supports for the actuator mounting plate can now be glued in place. In fact if you wish to install the actuator at this time, be my guest!

The landing gear should be made and located as closely as possible to the position shown on the plans. This configuration gives beautiful R.O.G.'s and great landing characteristics. The strap-on landing gear may not be the prettiest, but it saves a lot rebuilding time for those of us who occasionally forget to flare! Split, 3/16" dowels, epoxied in place are used for L.G. alignment.

Add 1/16" ply dowel braces to the inside of the fuselage for the wing and landing gear dowels. These dowels are installed and doped after airplane is covered.

When finishing and covering, try to keep the weight of the airplane down. My model weighs 27 oz. and I build heavy, so you shouldn't have too much of a problem. However, in the interest of lightness, I covered my Flugenghoster with Japanese tissue on the fuselage and tail surfaces. The wing is covered with medium silkspan and trimmed with colored Japanese tissue. My color scheme was a red fuselage and stab, a black cowl, white wings with red tissue stripes and blacktissue iron crosses. My fin is white tissue with black iron crosses.

The only color paint that I used was HobbyPoxy black for the Cabane and the inside of the cowl. A William's 1 1/2" scale standard pilot fits perfectly.

Prepare entire structure for covering with 2 coats of unthinned dope, sanding lightly between coats. Cover fuselage and tail surfaces with tissue using a 50/50 dope, thinner mixture. Cover wing next using Silkspan. Cover the cowl with 2 layers of black tissue, this will give it an irridescent "metal" sheen. Next, trim model in your preference of W.W. I nationalities. Finally give model 4 more coats of 50/50 clear dope. Add the wing and L.G. dowels and if you desire, detail as mentioned earlier.

The Cox .049 was secured to a Tatone engine mount and the mount was bolted to the firewall, using blind mounting nuts to facilitate removal. To make engine starting less Tee-Dee-ious (ahem), I installed a starting jack to the side of the cowl, this is really a timesaver!

Radio installation is a breeze, as Das Flugenghoster has more than enough room for almost any type of gear. Just keep the center of gravity from moving any further aft from what is shown on the plan!!

FLYING

After checking closely for balance, surface alignment, warps, and radio operation, you should be set to fly. If your plane is without throttle, as mine is, double check the above! I would recommend a hand-launch for the initial flight. Be sure to "peak" the engine to the best of your ability before launching. I feel you will be genuinely gratified by Das Flugenghoster's performance and particularly its looks, as you make your first low level overhead pass!

Now to find that stupid dog!! Good luck.