



UDET U-12 FLAMINGO

By ROLAND BALTES . . . The sprightly U-12 Flamingo was the brainchild of Ernst Udet, legendary WW-I German ace and top aerobatic pilot of the '20s and '30s, and to this day is regarded as one of the best light aerobatic aircraft ever built. Our author's Sport Scale version has performance to match the full-size ship.

• If you are a WW-I aviation buff, the name Ernst Udet probably rings a bell, as he was one of the famous German fighter pilots of that war. That he was involved in aircraft design and building in the 1920's may not be such common knowledge. Were it not for Aircraft Profile No. 257, I seriously doubt that the Udet Flamingo would ever have made my list of models to build someday. Like many scale modelers, I have over the years collected a large library of scale information, including most of the Profile Publications. These booklets,

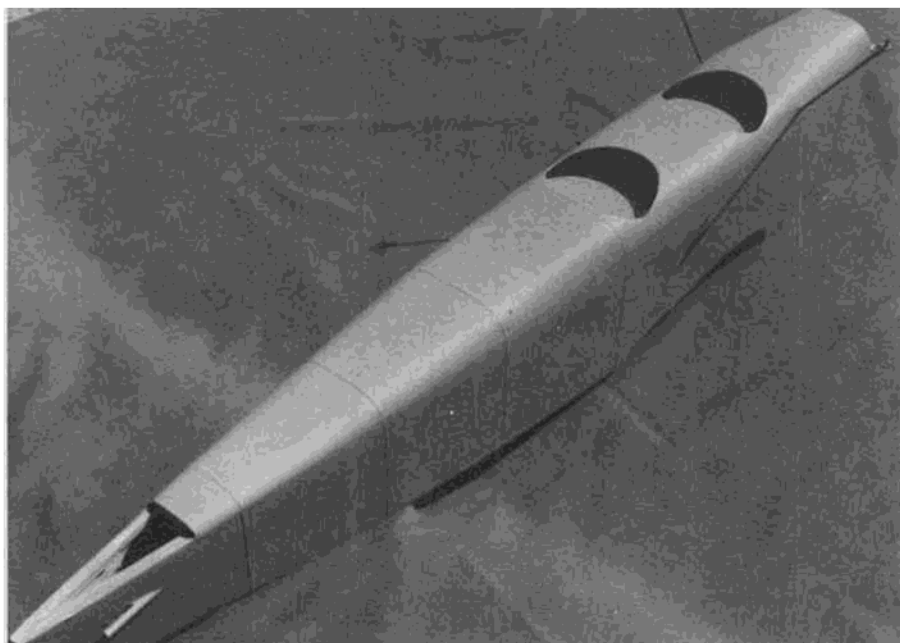
which unfortunately may be hard to find nowadays, are a real boon to scale modelers since they provide a wealth of info including a colored 3-view and lots of pictures. The impetus for actually building the model came as a result of a flying buddy having built a Concept Models "Fleet" Barnstormer, which meant that I had to have a biplane also, plus a discussion with ye ol' editor, whose eyes lit up when the word "Flamingo" was mentioned. He also happens to be a pushover for biplane articles, which in this case took longer to prepare than

actually building the model.

Getting back to the real thing, the Udet Flugzeugbau (aircraft factory) recognized the need for a training biplane in the mid '20s and produced as a result the Flamingo. More accurately known as the U-12 (Udet's 12th design), it came in a variety of versions, including a seaplane with twin floats. Over 300 were produced, apparently including some in Austria, Hungary, and Latvia. This info plus lots more can be found in the aforementioned Profile, or the book *Messerschmitt; Aircraft Designer*, by



From all angles, the Flamingo looks "right." Udet was famous for his ground-floor aerobatics in the U-12, once bet actress Mary Pickford that he could pluck her handkerchief from the ground with his wing tip. He won the bet and the handkerchief act became the highlight of his routine.



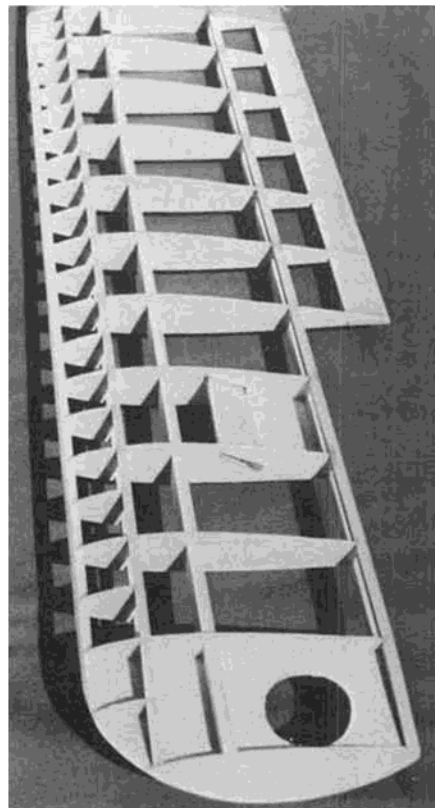
Fuselage is all balsa, covered with Super Coverite. Panel lines are simulated with narrow striping tape, applied before spraying on the paint.

Armand van Ishoven (Doubleday & Co., Inc., Garden City, NY, 1975). How Udet and Messerschmitt are related from an aircraft building/design standpoint makes for interesting reading. This book, by the way, also has a bunch of pictures of the Flamingo.

(Udet established fame as an aerobatic pilot between WW-I and II, flying at many air shows in Europe and the U.S.A. For some period of time, he was flying a Bucker Jungmeister. In fact, it was his Jungmeister that was being brought to the U.S.A. aboard the Hindenburg in 1937. Obviously, that was its last "flight." wcn)

The model was scaled up from the 3-views provided in the Profile and is from an outline standpoint as accurate as one can make it by using dividers. Without using any scientific approach, I elected to enlarge the 3-views nine times, which seemed to make the model about the right size for a .40 engine. Besides, it

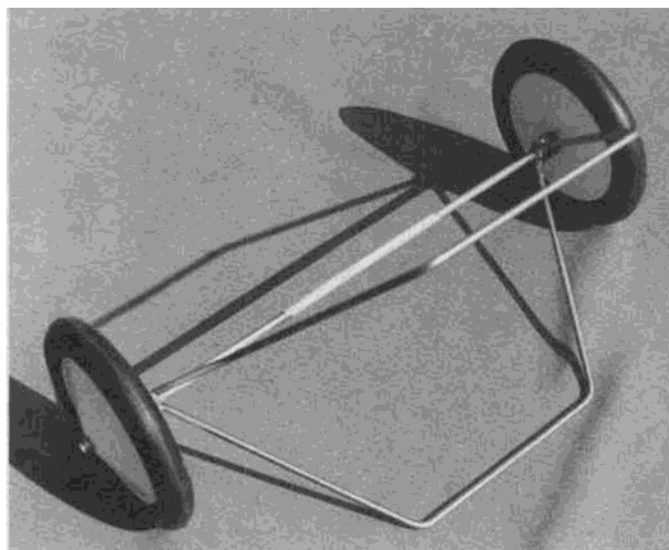
makes it about 2"=1' scale (1/6-scale), allowing the use of various commercial components such as wheels, pilot, etc. Only one concession was made. I incorporated a simplified steerable tail wheel instead of the prototype tail skid. Both are shown on the plans, so take your choice. Being my first R/C scratch-built Sport Scale ship, I was obviously anxious about how well it would fly. Some taxi tests on the driveway revealed excellent ground handling qualities, meaning no nose-over tendencies. Really had to resist the urge to pour the coals to her for an off-the-street takeoff! Sanity prevailed, however, and the maiden flight was made (with family in tow for encouragement) at the local model airdrome. Flight performance turned out to be excellent, which really isn't surprising considering it only weighs 5-1/2 lbs. with about 900 sq. in. of wing area, putting it into the trainer category. I've had lots of flights with it, including



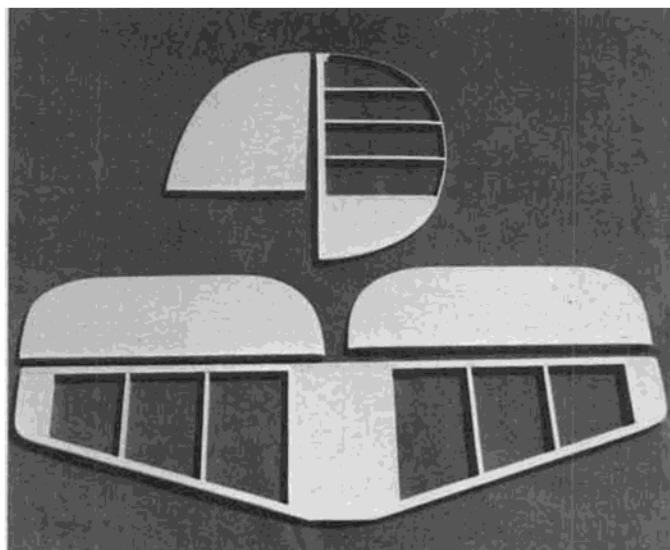
Wing construction is conventional throughout. Combination of dihedral and sweepback call for extra care when joining wing panels, to maintain proper alignment.

several contests where it gathered 92 and 90 points in static and placed 2nd overall in one. For power I use a K&B .40 with Perry carb and DuBro muffler, which is more than ample power. Neat would probably be the Saito (sold by Hobby Shack) FA-30 4-cycle glow engine, which with its unique sound would be most appropriate.

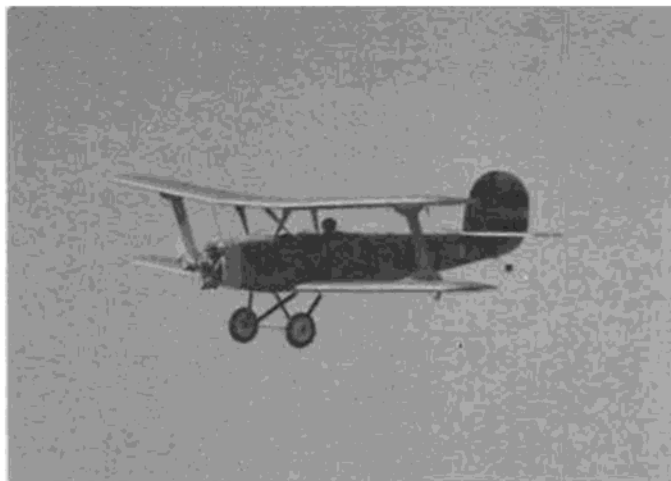
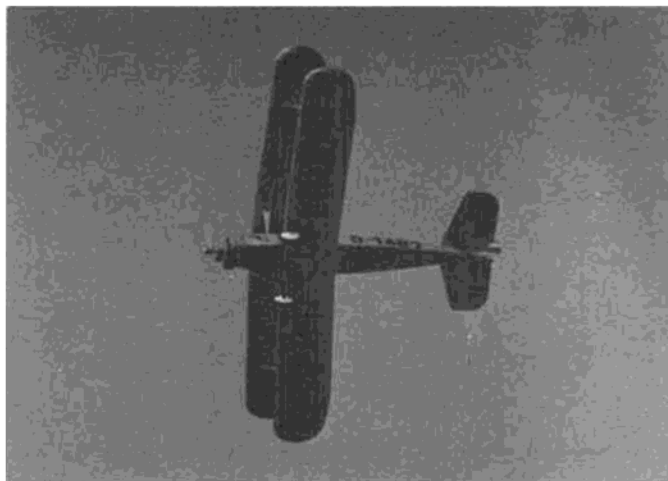
I don't think the original designers had the modeler in mind when they came up with the real one, even though the fuselage is nothing more than a box. Only real difficulty (if you want to call it that) is caused by the dihedral and sweepback of the wings, which need



The finished landing gear . . . well, almost finished. Still needs the hard balsa fairings added to the strut legs.



Tail surfaces make use of lots of 1/4-in. sheet balsa. Rudder outline is a piece of spruce, or can be laminated from balsa strips.



In flight the Flamingo handles as easy as anything. Total wing area of 900 sq. in. and 5-1/2 lb. flying weight put it almost into the trainer class. K&B .40 has more than enough power . . . proportionately more than the real ship with its 100 horsepower.

some care to insure proper alignment. Outer wing struts are extremely simple, while the cabane struts (between fuselage and wing) require some care in installation, again for alignment.

The numerous wing ribs are a nuisance but typical of a vintage biplane. I made most of mine during idle time on a camping trip, after having made a master pattern from 1/8 plywood. Since both upper and lower wing panels are about the same (except for length), one has only to be careful of making a left and right version. The sequence is similar for all wing panels, that is, pin down the bottom front and rear spars and trailing edge, slide the ribs onto the main spar, then pin down over spars. Add the top front and rear spars and then the leading edge. By the way, most strip material used is stock size and can be either hard balsa or spruce. Hot Stuff was used mostly, with Ambroid cement applied at critical joints. Add the various plywood plates for strut attachment, wing tips from sheet balsa, and all the false ribs between the leading edge and upper and lower spars. The upper wing center section can also be built similar to the main wing panels.

Two sets of ailerons are needed, the undersides of which are from 1/16 sheet balsa, then built up with leading edge and ribs. Lower ailerons require plywood plates for aileron horn installation. Tabs for connecting the upper and lower ailerons can be bent from sheet brass or aluminum. A small hole is required in each tab to later allow installation of the aileron connecting rods. These tabs need to be installed pretty solidly; use epoxy and scrap balsa. A lower wing center section is also required and incorporates the wing hold-down dowel, rear gear strut support, and provision for mounting the aileron servo. I used a Kraft style three-servo tray bolted to a plywood plate.

After all wing panels are complete, join them with the appropriate center section panels. Insure that the proper dihedral and wing sweep are maintained. Epoxy all joints and reinforce

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The author used Williams Bros. Le Rhone cylinders to duplicate the Siemens radial on the full-size aircraft. That prop is strictly for display and was put on for these photos (that's why there's no AMA safety nut). Udet's flying scarf is about due for a replacement, we think.



Large numbers on wings and fuselage were masked off and sprayed with Aerogloss dope, while smaller markings such as those on the fin are done with rub-off transfers from art supply stores.

with scrap balsa fillet pieces. Installation of the aileron control system should be next. Temporarily mount the ailerons to the lower wing and install the servo so that the proper pushrod length can be determined and installed. Set the wings aside before covering and turn your attention to the fuselage.

The fuselage sides are from sheet balsa and need to be accurately laid out first. Install the plywood firewall with triangular filler stock, then glue the rear of the fuselage together with a 1/4-in. balsa spacer. Install the remaining formers and fuselage doubler at the lower wing saddle. Cabane struts are bent from 3/32 music wire and attached to plywood plates with "J" bolts. These wing strut plates need to be firmly mounted to the top of the fuselage sides, so reinforce them with balsa triangle stock. Add the cockpit floor, then the fuselage top formers. Plank with soft 1/16 sheet balsa. The underside of the fuselage is covered with 3/32 sheet balsa applied with the grain running across the fuselage.

Nothing much needs to be said about the tail surfaces. The fin and elevators are made from 1/4-in. sheet balsa, while the stabilizer and rudder are built-up construction. The elevator joiner can either be a piece of music wire or a commercial elevator horn. Before joining any of the tail surfaces together or mounting to the fuselage, it's best to cover the parts first. However, before doing so, make sure all nicks, dents, and scratches in the balsa parts are filled in and sanded. Round off any sharp corners on the wings, fuselage and tail surfaces.

Super Coverite (antique color) was used on the fuselage and fin but also required paint subsequently to get to the right shade of tan to duplicate the aircraft that I was building. Wings and tail surfaces other than the fin were covered with silver Permagloss Coverite as is.

After covering, the stabilizer and fin can be attached to the fuselage. Now install the tail wheel bracket (if used) and hinge the elevator and rudder using any commercial hinges such as DuBro or Klett. So far I have had a lot of success with using Wilhold white glue, which seems to have tenacious sticking qualities for installing hinges. This avoids having to pin the hinges and its associated dilemma, i.e., install before covering or after.

When covering the wings, leave the top wing center section for last. This is done to allow access for drilling and installing the blind nuts for the cabane strut hold-down bolts. Being my first biplane with a removable top wing, I really struggled to come up with a scheme to attach the top wing. If you have something better or simpler, go to it. My solution was to drill holes for both front and rear struts in the plywood plates on the underside of the top wing. The struts are free to slide into these holes and are then attached by soldering electrical connectors to the struts themselves,

which are then bolted to the plywood plate. The neat part of this is that accurate top wing incidence adjustments can be made while soldering on the connectors. If this doesn't make sense write **RCMB's** editor, he knows it all.

Install the lower wing to the fuselage with nylon bolts, which pass through the gear mount and are tapped into hardwood blocks epoxied to the interior of the fuselage sides. The landing gear struts are bent from 1/8 music wire, wrapped and soldered together, then installed to the slotted landing gear blocks with metal or nylon straps. The outer wing struts are made from 1/16 plywood and installed with Goldberg 90° mounting brackets.

Final finishing consists of mixing up a mustard-tan combination from Aerogloss paints for the fuselage. Medium blue and yellow stripes are used on the rudder and elevator. Large lettering and markings were applied by cutting stencils from contact paper and spraying on flat black Aerogloss. Small lettering was done using press-on letters. The sheet metal around the cowling and over the baggage compartment door was simulated by using self-adhering aluminum foil tape (from auto supply stores). The burnished look was achieved by chucking a pencil eraser in a drill press and lightly contacting the aluminum tape with the eraser. Windshields were made from thin butyrate plastic. To get the desired curvature, heat the material until soft, then quickly drape over a cup or can. Install them with Hot Stuff or Super Jet. Cockpit coaming is made from large black rubber fuel tubing, split open and installed with white glue. The pilot is a two-in. scale bust from Williams Brothers, equipped with a scarf as per suggestion from my wife, who thought it would look neat. The dummy engine is also from Williams Bros. and consists of two-in. scale LeRhône cylinders mounted to a balsa/plywood crankcase. The whole assembly is attached with sheet metal screws to the front of the Kraft engine mount. To further enrich the Williams Bros. treasury, their wheels were also used.

Unless you just intend to admire your model, the radio gear obviously needs to be installed. As a final touch, the wing and tail wires can be added using thread, fishing line, or as I did, control line wire (.012). Unless your tail assembly came out real heavy, little nose weight should be needed. Balance as shown on the plans. Control surface movements are 3/8 in. up and down for ailerons, 1/2 in. up and down for elevator, and 3/4 in. left and right for rudder. The best technique for takeoff is to slowly apply power with the elevators at neutral until the tail lifts by itself, then add more power and up elevator. Takeoff into the wind is essential; as a matter of fact, with the large fin and rudder, it will weathervane by itself. Overall flying qualities are extremely tame, so have lots of fun. ●