"SCHLEPP"

This airplane with the long nose and the strange name is ideal for Rubber Scale. Proof? It won the 1978 Nats.

by Don Srull

photos by John Preston

SWISS C-3605 SCHLEPP
TYPE: Free Flight Rubber Scale
WINGSPAN: 36 inches
WING AREA: 214 square inches
LENGTH: 32 inches
WEIGHT: 4 ounces (less rubber)

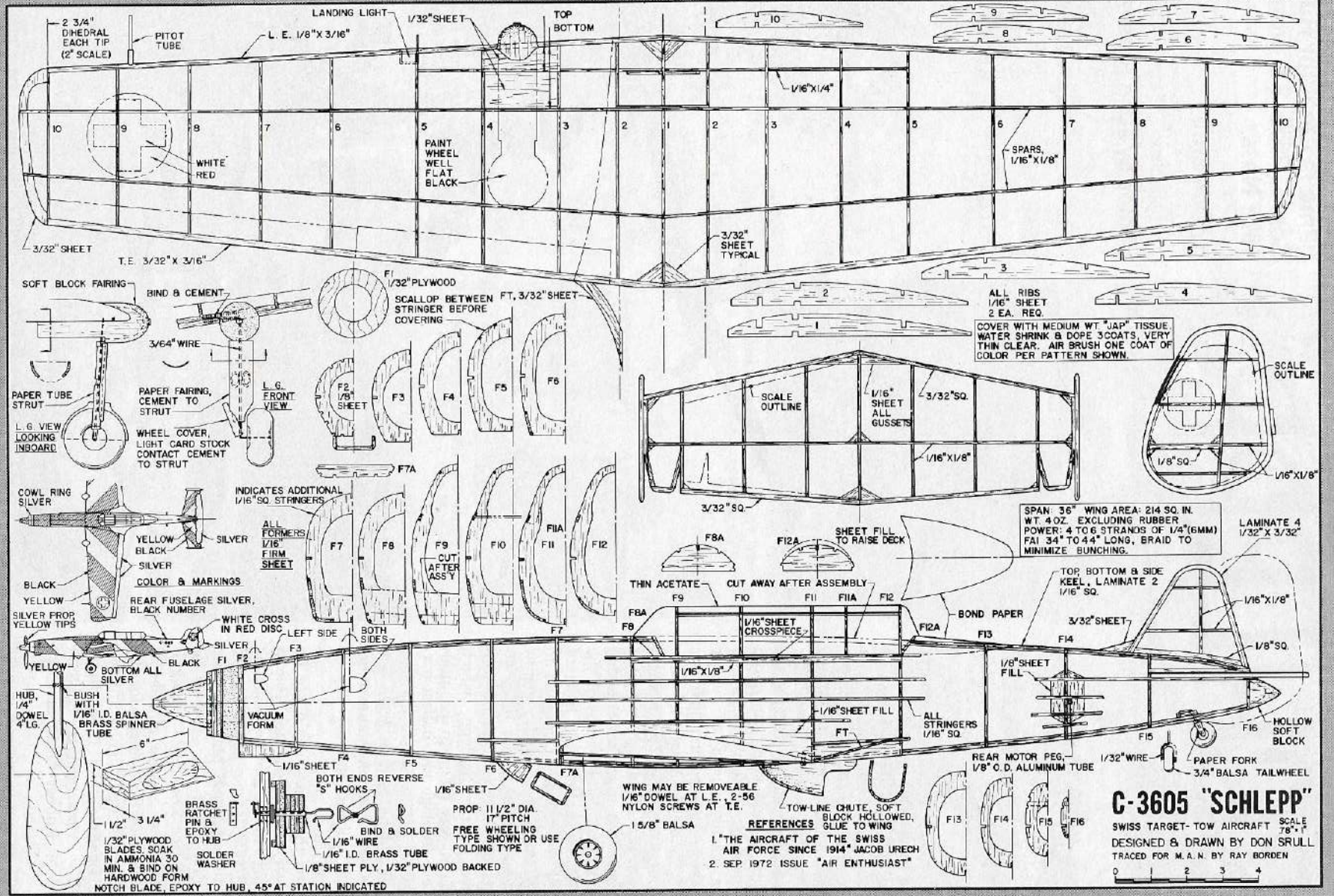
• Among the most important features one looks for in a rubber-powered scale subject are the length of the fuselage and the nose length. A long fuselage can more easily carry a longer, heavier rubber motor than a short one, and a long nose moment means you can extend the motor farther to the rear of the fuselage without having to add significant nose ballast. It would be difficult to find a subject more ideally suited to rubber scale from these standpoints than the Swiss C-3605 "Schlepp" target tow aircraft. Its layout, except for the low wing, is more like a Wakefield or Unlimited rubber ship than the usual scale model.

I first saw several color photos of the Schlepp in the September 1972 issue of *Air Enthusiast* magazine. In addition to its fine proportions, the colorful yellow and black paint scheme made it an attractive model subject. One rather astonishing feature of the Schlepp, which convinced me it was made to be modeled, is the rear fuselage tow/ballast bar. It happens to be *exactly* where the rear rubber peg should be, and its scale size matches a 3/16" diameter aluminum tube. Even the rear rubber support peg is scale!

An authentic three-view could not be found, however, so I filed the Schlepp into the bulging "future models—maybe" file. Early last year I came across a good three-view and additional photos of the 3605 in a book called *The Aircraft of the Swiss Air Force Since 1914* by Jakob Urech. I decided to build a jumbo-size (36" span) model of the Schlepp for the 1978 Nats. Even though flight trimming was not yet finalized, and flight times were well below its potential, the Schlepp won in Outdoor Rubber Scale at Lake Charles.

The C-3605 is not a *perfect* rubber scale subject by any means. Among its general configuration drawbacks are the relatively small tail surfaces and the small amount of dihedral. Some scale de-

Don Srull and his Schlepp. As you can see, this is a big model that qualifies as a "Jumbo Scale" airplane for contests, and makes a fine sport flyer as well.



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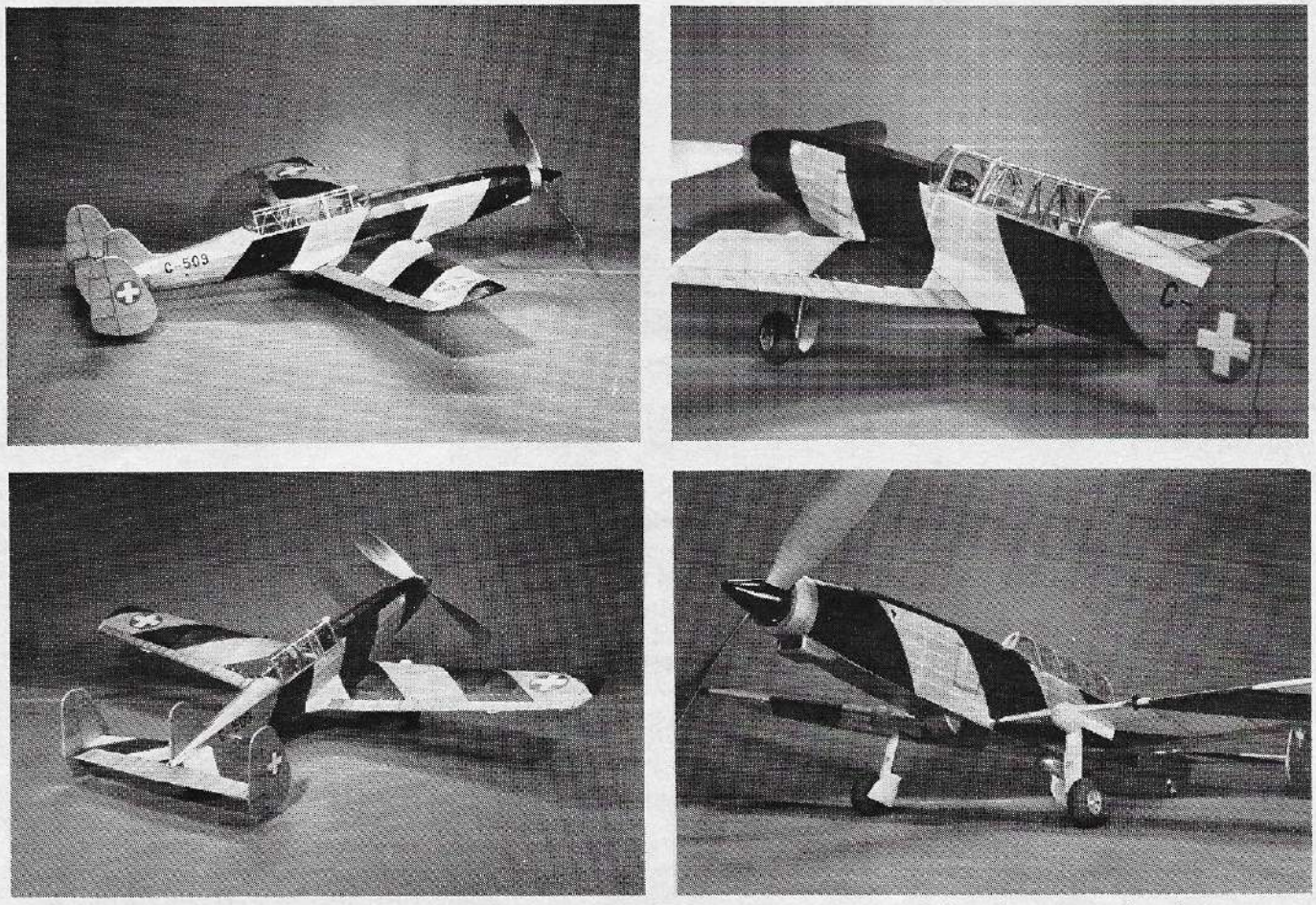
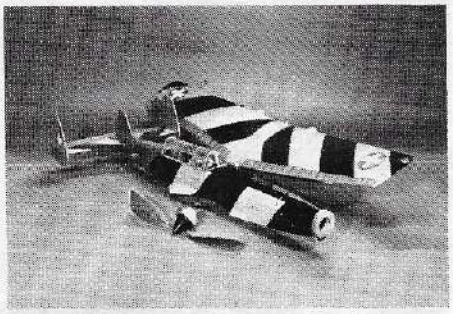


Ideal rubber scale proportions are evident in these photos. Paint scheme is black and silver dope over yellow tissue.

viations are required in these two respects to achieve good stable flight in breezy outdoor conditions. Also, for scale rubber events where takeoffs are mandatory, the landing gear legs are a little on the short side, and limit the prop to 11″ to 12″ diameter. You could increase the gear length, but I felt it would detract too much from the model's general scale appearance. For sport flying, or competitions like the Flying Aces Club rubber scale event, hand launching is O.K. In this case, consider building the gear retracted, and using a larger (13″ to 15″) prop with more rubber. Be advised though: build in a dethermalizer! In some people's view, an additional drawback of the Schlepp is its curved, rounded fuselage lines. It certainly is no simple box, and does require a somewhat heavier bulkhead and stringer construction. Since I enjoy building such structures, I view that particular feature as a plus!

FULL-SIZE SCHLEPP. The 3605 "Schlepp" (which means "dragger") target-tow aircraft evolved over a 20-year period from the WWII reconnaissance/close support C-3603 aircraft. About 150 C-3603s were built and served in front-line aviation units from 1942 until 1952. Some of these aircraft were eventually converted to target-towing aircraft. The C-3603 towing version went into service in 1953, and 40 of these models performed well until 1963, when shortages of engine parts for the well-worn Hispano-Suiza HS-51 engines led to a decision to build a brand new target-tow aircraft. The cost of a specialized new tow aircraft, however, convinced the frugal Swiss to re-engine some of the old faithful C-3603s. A Lycoming T53-L-7A turboprop of 1,115 hp replaced the old 1,000 hp Hissos, and



Wing is mounted with peg and nylon screw, similar to R/C practice. Easy to transport.

23 airframes were converted to the new C-3605 Schlepp configuration. The very light and small turbine engine required the nose to be extended substantially to achieve proper balance. The airframes that went into service were projected to eventually have a total life of over *35 years*! How's that for cost-effectiveness?

MODEL CONSTRUCTION. Flight performance will depend upon airframe weight, so use care in wood selection and do not beef up the structure shown—it's plenty strong enough.

Cut out all fuselage formers and ribs from medium-light balsa. The fuselage is built by the standard half-shell method. Note that the top and bottom keels are laminated from two pieces of 1/16″ x 1/16″ balsa. After one side is completed over the plans, the half shell can be lifted, and the other side formers and stringers added. At this stage, make sure the fuselage remains absolutely straight.

Before cutting out the wing cradle from the fuselage bottom, build the wing and tail surfaces. The wing is a simple, multi-spar design—light and strong. After sanding the wing smooth, cut out the fuselage wing cradle and carve/sand to get a good accurate fit to the wing. Next build the wing fillet of hard 1/16″ and 1/32″ sheet balsa onto the fuselage. When all this fits well, assemble the wing and fuselage, and add the lower formers and stringers to the wing bottom. Finally, add the hold-down peg and 2-56 nylon screw fittings.

Before covering, make sure the horizontal tail mates to the rear fuselage slot accurately; sand and carve as necessary. Until final flight trimming is finished, you should leave this slot a little over-

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the Israeli thermal machine being interpreted by Wakefield winner Itzhak Ben-Itzhak. Finally, with time running out, Galbreath fired up and launched. A perfect climb, a perfect transition—but he had waited too long. The air, cooler than ten minutes before when Rocca and Kibiki had flown, held up for only 258 seconds. Mario Rocca, the Italian, had won the Victor Tatin Cup for individual World Power Champion.

In development, Rocca's model wasn't the latest in F1C technology; in some ways, the design was a bit behind current trends. The wing used an NACA 4409 airfoil, an undercambered section nine percent thick, much different from the thin, flat-bottomed sections now favored for their fast climb. The model also featured an open-structure (unsheeted) wing built in the Italian's traditional geodetic "eggcrate" fashion. The other departure from today's norm was its Dall'Oglio engine, hand-built by Alberto Dall'Oglio, the 1965 Power Champ from, yes, Italy. The unconventional combination was an obvious success. Some felt Rocca's tissue-covered wing rode the final round's light lift better than Kibiki's all-sheet wing, enough for the 15-second margin of victory.

Galbreath's third-place finish was short-lived. During post-competition processing, his Rossi engine measured .016cc over maximum engine displacement of 2.5cc. He was unaware of the discrepancy, but nonetheless was disqualified and given zeros for all 10 flights. (According to Academy of Model Aeronautics sources, however, Galbreath—and a number of other U.S. fliers—found after the World Champs that a great number of the Rossis do exceed the 2.5cc limit. An appeal has been placed with the AMA on this ruling.)

An event the magnitude of the Free Flight World Championships takes the combined effort of many people dedicated to a free-soaring model airplane. Bill Hartill, competition director; Hardy Brodersen, contest administrator; and Bill Bogart, contest manager, topped the pyramid of teamwork that made the event run smoothly. Coordinating the individual events were Juan Livotto, Nordic; Irv Aker, Wakefield; and Ed Carroll, Power. Coordinating the scoring and timing of flights were chief scorekeeper Gail Gewain (who, along with her husband, Matt, programmed and operated the scoring computer) and chief timekeeper Andy Faykun.

And, finally, it was over. One-hundred and seventy-six world-class fliers flew 1,232 flights and scored 883 maxes in 30 rounds spread over three days. Countless rubber motors were over-wound and shattered; an unknown number of towlines were crossed, tangled and cut; and who knows how many patriotic supporters ran under a countryman's sinking airplane, beat the air with a towel and stirred up lift. The exact count of such heroics isn't important. What counts is that the Free Flight World Championships were decided in Taft, California, in 1979. America's famous desert flying field was now the historic equal of the storied flying sites of Europe. ■

SCHLEPP

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size to allow some stab adjustment.

Make up the nose block and propeller as shown. I have used both a 13" diameter x 16" pitch free-wheeling prop and an 11½" x 18" folding prop with good results. The 11½" prop barely allows ROGs, while the 13" diameter requires hand launching. The props can be carved from balsa, or molded on a form using two layers of ⅛₄" plywood. I prefer the formed blades, since they are easier to make, and are much stronger than the balsa blades.

COVERING. After sanding all surfaces smooth, cover the model with medium weight tissue. Water shrink, pinning down the wing and tail surfaces while they dry to minimize warps. Give the model three light coats of thinned clear dope.

Before color doping, add all the surface details, including the balsa air intake and exhaust, the balsa tow-cable winch fairing, and the two small nose air scoops. Vacuum form the small air scoops, or carve from balsa. The landing

gear enclosure fairings can be carved from soft balsa and fit to the wing leading edge. Also add the bond-paper fairing at the rear of the canopy deck. Give all these items several coats of thin balsa filler and sand smooth. You can now paint!

Since the Schlepp is a metal (aluminum color) airplane with large black and yellow stripes, I covered my model in yellow tissue and airbrushed the silver and black areas with butyrate dope. It turned out to be a fairly light finish and looks pretty good. However, you could use white tissue and color dope all the colors almost as easily. Refer to the plans, which show the Schlepp's color scheme and markings. Use low-tack masking tape and paper to mask the various color areas, and fog on one to two very light coats of color dope with an airbrush. Do the yellow first, the silver next, and the black last. Easy does it; we don't want too much weight buildup. Lastly, mask off and spray the registration numbers, and the Swiss wing and fin markings. Paint the spinner black and the prop silver—and you're done!

FLYING. Initial test flights should be started with a four-strand ¼" FAI rubber motor, 36" long. (Six strands of ¼" Sig rubber could be substituted.) Make sure the model balances as shown, and that you have no warps. You should also have a small amount (about ⅛" at the tip) of wash-in in the left wing panel, and a *small* tweak of left rudder. We will try for a wide left-left flight pattern. With about 50 winds, try to get a slow, flat, powered glide with a hint of left turn—adjust the elevator to get it. Keep adding turns 50 to 75 at a time, and keep correcting with stab and rudder for the first few tests. Above 200 to 300 turns, use thrust adjustments *only* to adjust the powered portion of the flight. When the model flies dependably and well on the test motor, you may want to put in longer and/or more-stranded motors to increase flight performance. I now use six strands of ¼" FAI rubber, 40" long.

I'm sure you will find the Schlepp to be a graceful and different-looking scale bird whose flight potential is as outstanding as its long nose. Good luck and have fun! ■

FREE FLIGHT NEWS

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"Your response to my April letter was just fantastic. I mailed 50 letters, and hoped for 10 responses. Instead, slightly more than two dozen replies came back during the next three months. There were so many, I lost accurate count.

"Some responses were short notes, others were letters two and three pages in length, but all contained very encouraging comments and suggestions. Nearly all replies also included new orders for CMP kits and accessories.

"Needless to say, your letters were a tremendous 'shot in the arm.' I answered all letters that asked questions, but to those of you who wrote notes that simply said, 'Keep up the good work . . .', let me here give you my sincerest thanks.

"I must confess that the announcement in the price list about the forthcoming Up Shot kit was an afterthought that was tacked on the end. I was really surprised by the number of advance orders. I later thought that I may have been foolish in promising July delivery when so much had yet to be done. Fortunately, the Up Shot went very smoothly, and the first kits were shipped July 10.

"In ten months last year, 55 Champion Coupe kits were sold, so in January of this year I set a 1979 target of 100 kits. I quite underestimated your fine support. As of this date, 103 kits have been sold this year including 39 Up Shots. Despite some heavy expenditures for three new power tools, it appears that CMP will be slightly in the black this year. This is really amazing.

"The big news is that Marvin Bashaw, of Bettendorf, Iowa, flew a Champion Coupe to first place at the Nationals this summer. His time of a perfect '600' was 41 seconds ahead of second place. That is an incredible margin for a Coupe to win with at a major meet. (There were 21 open entries!)

"Marv is a well-known Wakefield flier in the midwest, and recently placed 2nd