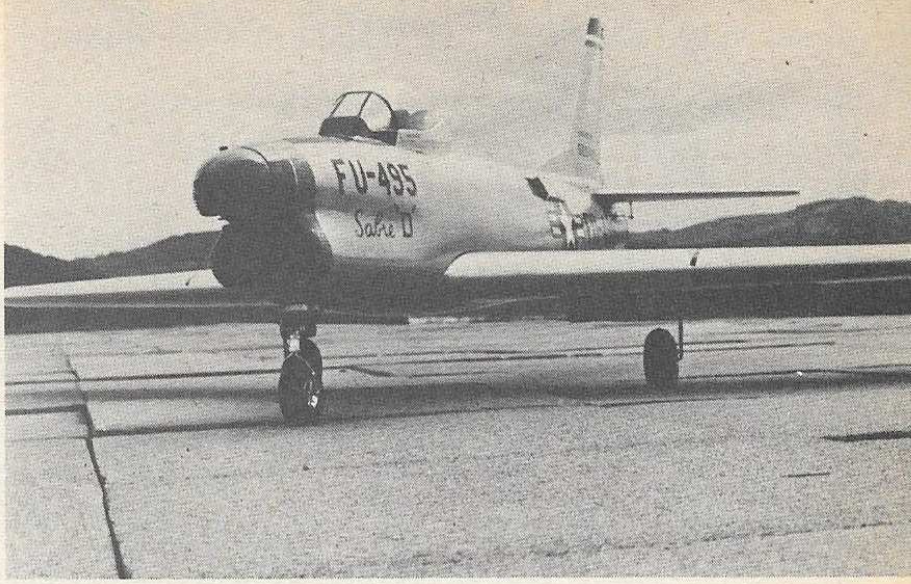
Airborne, it is inspiring to fly.



Alive! Its lines were chosen for speed and the model counterpart cuts a path across the blue.

Franz Meier's

F-86 D "SABRE"

or the U.S. NAVY's "FURY" FJ-2

as translated by Dale Willoughby

◆ Once in a while a jet aircraft lends itself to being an acceptable scale model with the use of an engine driving a propellor. And generally the prop disk is unseen while the model jet tears through the sky. Such is the model presented this month.

Mr. Franz Meier is one of Switzerland's top-notch model builders. Over the last few years he has built quite a number of models, notable among them is the F-86D "Sabre Jet" which has proven very popular in Western Europe. A number of versions have been flown in that area and now Flying Models is pleased to present this scale model to the American modeling public. Mr. Meier has also built a scale model of the Hawker "Hunter Mark 58" (the designation for the Swiss version of the F.6 Hunter). In addition he recently completed the well-known Ling-Temco-Vought" F8A-2N "Crusader" and a scale model of the Douglas AD-6 "Skyraider" used in Viet Nam by both the U.S. Air Force and U.S. Navy.

In keeping with the tradition of offering the best in R/C Scale Models, FM hopes to present more of these outstanding designs in the future.

The "Sabre-Jet" was one of the most widely seen jets in the European skies after World War II, sporting many color schemes and bearing the insignias of several NATO nations. Because of its clean lines and the shape of the radar domed nose, it is possible to install engines as large as the .61 size without disturbing the contour of the fuselage. While the plans show the engine mounted on the side, thereby assisting in the cooling of the engine, it is possible (and space permits) to mount the engine inverted and completely cowl your choice of powerplants. Further, the design lends itself to the experimenter who would enjoy the roar of a model pulse jet engine coming from the tail pipe in true jet atmosphere. Proper precautions must be taken to insulate the "hot pipe" from the radio components, but flight with a jet engine is feasible as long as the Center of Gravity location is not changed.

The model "Sabre Jet" powered with a Merco .61 engine takes off in less than two hundred twenty-five feet with the flaps set at 15°. With this engine the flying characteristics are excellent and it is possible to fly the AMA stunt pattern after it is properly trimmed out and the pilot learns the idiosyncrasies of a swept wing model. With the flaps down the trim does not change appreciably, but rather improves the flight characteristics at low speed, . . . especially during the landing approach. When the model gets tail heavy as the fuel is burnt during flight, it becomes more responsive to aileron commands,

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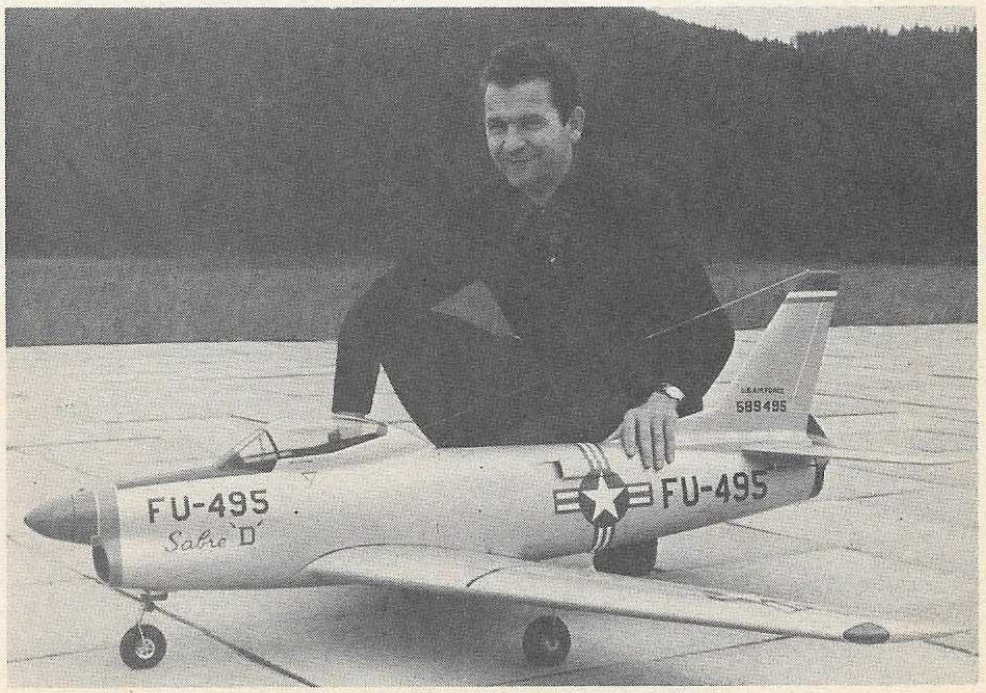


The North American "Sabre" is a classic of the '50 era, distinctive in line, an able fighter.

F-86 D "SABRE" *continued*

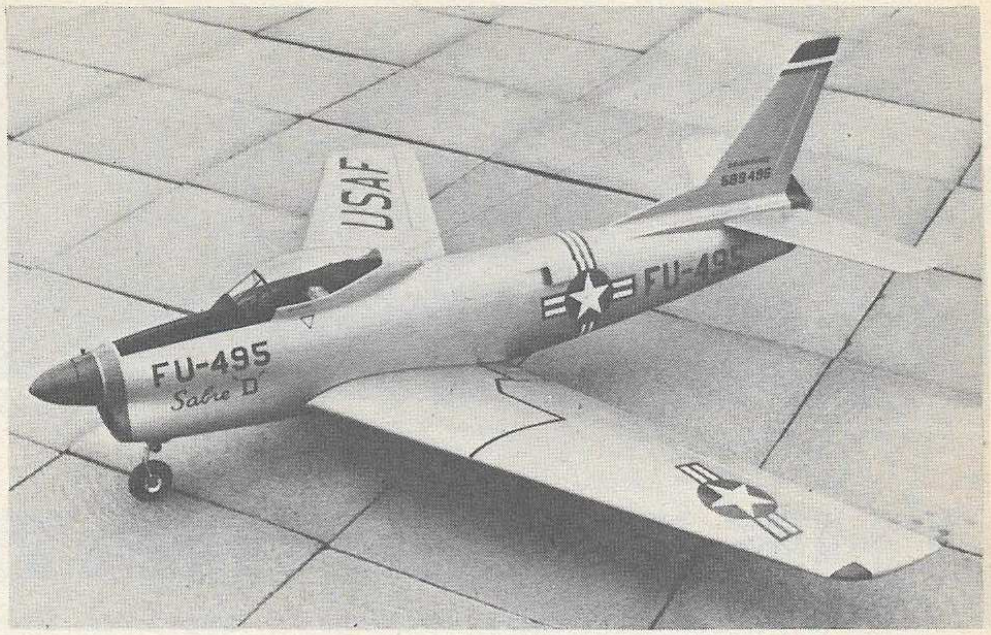
A striking jet-aircraft look . . . radar nose becomes a spinner.

and coupled with the use of the flap, it is easily controlled during the landing for this reason. Use maximum flaps (45°) during descent.

The airfoil is the well proven NACA 2415, while the horizontal tail surface has a symmetrical airfoil of 10% thickness. The steerable nose gear was specially designed due to the non-availability of a commercial nose gear that was both to scale and would withstand the landing of the 8½ lb. Sabre Jet. While not recommended for the rank beginner in modeling, this Sabre Jet can be built by modelers with normal hand tools and experience. And perhaps the use of foam wings on this model should be considered. Building the original model took a bit more than nine weeks of intensive building time, starting with factory 3-views. A second model of the "Sabre Jet" was painted to match the color scheme on the U.S. Navy's "FJ-2," which was flown from carriers at sea. The Profile Publication shows many vivid color schemes for the Sabre Jet.

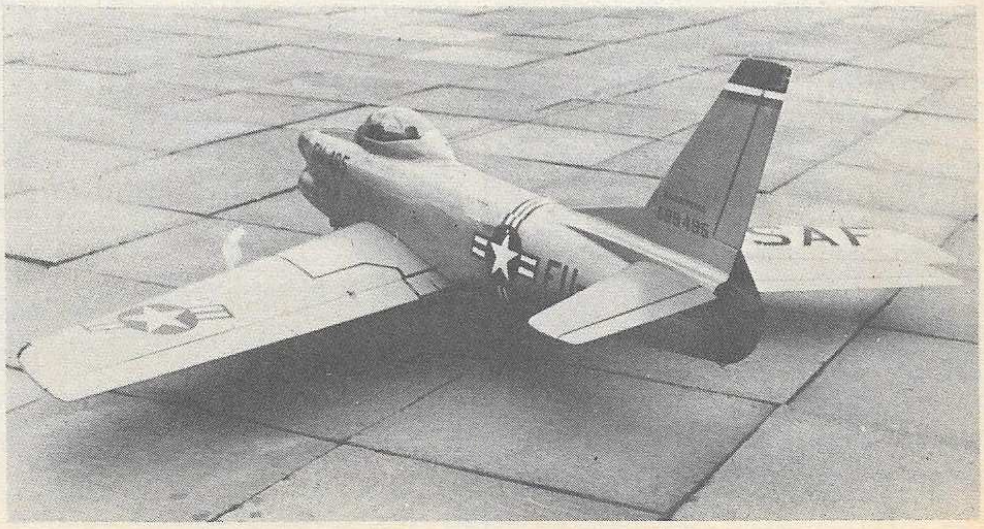
To begin construction, note the many details on the plans which are not covered in the text. And noteworthy is the wing-mounting system to eliminate unsightly rubber bands. This mounting which incorporates a spring and 1/32" balsa "shear blocks" has proven highly successful and is recommended. The use of Camloc fasteners or the Williams Bros. wing mounting brackets and nylon screws are acceptable substitutes. Begin by cutting the two fuselage sides from 1/8" hard balsa sheet. Next cut formers 1, 2 and 6B from plywood. Prefabricate and mount the nose-gear bearings (15 and 16) to former 1. When dry, glue formers 1 and 2 (with the engine mounts in place) to the fuselage sides. While drying, cut out all the rest of the formers. Note that the stringer locations are shown on the former by means of a "tick mark." These stringers are installed flush as shown on formers 1 and 10. The top portions of the formers are glued first to the fuselage sides, then when dry, the 1/4" x 1" stringers are added. Next the lower formers are installed, and the stringers carefully fitted. Next add the balsa fillets to the wing bed. Finally, add the balance of the lower formers ("B" sections) and complete the stringer installation. Check to insure fuselage alignment as you proceed. The stringers should be carefully chosen balsa of the same density which will allow equal bending all around the fuselage. When dry, sand the stringers even with the formers, but do not sand the formers. Next plank with medium hard 1/8" balsa, first the sides, then the top and

(Continued on Page 44)



A good size, takes the .60 engines. These larger aircraft fly with greater steadiness, are visible further out. An aircraft for experienced flyers.

Somehow it just feels real.



The wing is swept considerably, as visible here.

F-86-D "Sabre"

(Continued from Page 11)

lastly the bottom. Do not use too soft a grade of balsa. It will tend to sag between formers and stringers and not faithfully duplicate the metal skin of the real F-86. In forming the forward part of the fuselage, the curvature of the nose was maintained by a form, made from balsa, which forced the balsa to adhere to the formers for a correct fit. (See sketch.) If necessary the planking can be moistened with hot water, but not soaked.

Before completing the fuselage, we suggest you start building the wing so the angles of the wing and fuselage are correct. The vertical control surface is relatively simple and yet quite strong. The exact form of the fin is traced onto balsa, then cut out. Use a good firm grade of 3/32" balsa to preclude warps, add the half-ribs to each side, which are sanded to a streamline section. Then make the cut-out for the mechanical "trim-jig" and install the brass tubing (⅛" I.D.). Both elevator platforms and vertical fin is planked. The rudder is made from medium soft ⅛" sheet and mounted with Rand or Mylar hinges. The nose and air intake is rough shaped from balsa. Now mount the engine on the motor mounts with the spinner installed. Then taper the nose area to fiit the spinner. It is easier to shape the nose prior to glueing the air intake.

At this point, consider the use of Hobbypoxy and the Easy-Does-It Method of smoothing the nose section out. The balloon makes a super smooth nose section, and saves a surprising amount of sanding. The Hobbypoxy will also fuel proof the area around the nose section, but if not used, thinned white glue will serve equally as well. With the side mounted engine, the exhaust gasses are led through the air intake by a short piece of brass, shaped as shown on the plans. And because a certain amount of unburnt fuel seeps into the air intake, a short piece of brass tubing is inserted into the air intake at the lowest point of the intake to allow the residual oil to drain. Balsa blocks are carved to the shape needed for support of the deBolt canopy. Make this installation as light as possible, and hollow the blocks. The canopy itself, after a good fit is made, is cemented to the fuselage after it has been covered with silk.

For the wing, cut all ribs and planking from a good firm grade of 3/32" balsa. Note the main spar is 3/16" x 3/8", the auxiliary spar is 3/16" square hard balsa. The 1/16" plywood reinforcing gussets attached to ribs 1, 2, 3 and 4 support the wing-half joiners and the fixed landing gear. Also plywood is used to support the flap and aileron hinges. As

this is a swept wing design, a bit of "wash-out" is incorporated into the wing structure. This keeps the tips at a more negative angle than the center section and improves stability. In building, the leading edge is pinned down on the board while the "wash-out" blocks are placed under each trailing edge tip. Plank the entire surface of the wing while it is still pinned to the work table. When sufficiently dry, establish the correct sweepback and join the two wing halves together, using the maple wood joiners and white or Tite-Bond glue.

After the control surfaces are installed and work without any traces of binding, plank the rest of the wing. The flaps and ailerons are also planked. Cement Mylar or Rand hinges between the trailing edges and the plywood strip and secure with small wood screws or a wooden maple toothpick. When completed and sanded smooth, mate the wing to the fuselage, using one of the methods mentioned earlier. When a good fit is gained, the lower part of the fuselage is built up and added to the wing bottom for a smooth streamlined undersection.

The horizontal tail is much the same as the Taurus elevator in construction and needs no additional explanation. Two pieces of music wire connect the two halves of the stabilizer. They are inserted into the brass tubing which has been epoxied into each half of the stab. This is probably the most critical part of the construction, because if a sloppy job is done, the stab might flutter at high speeds. A doubled rubber band holds the stab halves together. The mechanical trim (shown three times enlarged) serves as a method of establishing zero incidence for flight testing.

The fuselage on the original "Sabre Jet" was silked, the wing covered with medium Silkspan and light Silkspan used for the fin and elevator. Apply sufficient coats of grain filler to obtain a smooth finish and then color your "Sabre Jet" according to your choice. And we suggest the Profile Publication for a good source of color schemes, in addition to many other details not shown on the plans, providing you plan to enter any scale competition. A good source of lettering is the Lettra-Set found in any good Art store. Many hours of time can be saved by use of Finishing Touch Decals. The F85 aircraft by North American Aviation is a colorful part of the American aviation scene, and a beautiful sight in the air. Finish your model as brightly as possible and the crowds will gather around when you appear with it.

As for radio installation, the original used a Kraft KP-4 proportional. However, install the radio components in such a position so as to maintain the correct C. G. position. This will require the servos and battery to be placed more to the rear than in a conventional model. For the prototype, an additional five ounces had to be mounted in the rear of the fuselage for correct trimming. Use the second hole of the elevator rudder horn for the first flight. Set the horizontal tail at zero incidence by means of adjusting the mechanical trim-jig. Insure complete radio control by long range taxiing tests, with the antenna collapsed. When satisfied that both the engine and radio are functioning perfectly, let the Sabre Jet take off without applying "UP" elevator. If it remains on the ground after a run of 300 feet, abort the flight. Crank in a little mechanical down incidence at the stab, center the elevator trim, if using proportional, and try again. Bcause it has a tendency to act nose heavy with the flaps set at 15°, especially with a full tank of fuel, make sure you have enough UP trim . . . it may be needed. All the AMA maneuvers can be flown with the "Sabre Jet" and the rolls are especially impressive.

A number of model Sabre Jets have been built in Germany and in Switzerland and flown on both reeds and proportional radio equipment. The "Sabre Jet" will spin easily but gradually builds up speed with each turn, so limit the number of turns according to the altitude. The flight speed of the original (and second FJ-2) was very similar to the Author's own Taurus but much more exotic in the air. Retractable gear is recommended for the utmost in realism. Good luck and FLY SAFELY. ●