



One of the greatest warplanes of the post World War II era was the F-86 Sabre, the first American swept-wing jet fighter. The plane that made history during the Korean War also became the most widely used jet fighter in the world. This magnificent RC version was created by Clyde Baumgardner.

F-86D SABRE



● Few war planes make history but those that do are remembered long after their deeds are forgotten. Prime examples are Great Britain's Spitfire and Hurricane; Germany's ME-109 and the FW-190; and Japan's A6M13, better known by its wartime name of Zero. All of these former fighters had one thing in common — they were designed and built for a war that had been anticipated by the world's major powers for at least three years and, when World War II finally exploded upon a waiting world in September 1939, this fighting quintet was in full production and awaiting testing in the bitter struggle that took nearly six years to decide.

One of the greatest war planes of the years of uneasy peace that followed the end of World War II in 1945 was not specifically built for the conflict in which it played such a decisive part. In fact, it was a development of a jet fighter ordered for the U.S. Navy. Even had the Korean War not been fought, the F86 would have been long remembered in history as the first American swept wing jet fighter. Not only did it serve the Air Force in a variety of forms but it became the first Air Force fighter to be successfully adapted for Navy use since the Boeing biplane of the early 30's. Twenty-five nations adopted it in one form or another for their fighting forces, making it the most widely used jet fighter in the world. Four nations outside of the United States built their own Sabres.

CONSTRUCTION

Wing:

Begin the wing construction by cutting out the foam cores and center section using the root and tip templates shown on the plans. Note: You will need two root templates to cut the center section. A solid balsa leading edge is utilized, which makes the foam cutting somewhat easier. Only a top and bottom outline cut is required without the necessity of cutting around the critical leading edge airfoil shape. The 1/64" plywood wing skins are also easier to make because the skins do not wrap completely around the leading edge.

After cutting the cores and making four separate wing skins, plus the center section skins, (slightly oversized because the excess can be sanded off), glue the 1/2" x 1" medium hard balsa leading edge and the 1/4" x 1/2" trailing edge to the cores with epoxy. Sand only the trailing edge to a flush fit with the cores. The leading edge is not sanded until the skins are installed. Attach the wing skins with any good contact cement, making sure that a warp is not induced in the wing halves. I used epoxy glue on the butt joint of the wing skins to the leading edge to insure that they would stay put. Also, the liberal use of epoxy here which can be sanded very smooth will completely hide the seam.

After carefully sanding the wing halves in the center section to shape, glue them together using Hobbypoxy Formula II. The wing is perfectly flat, so joining the sections is not difficult. Fiberglass cloth is applied to the center section as shown on the plans.

(Again, using Hobbypoxy Formula II or K & B Resin.) Lay out the flaps and the ailerons on each wing section — top and bottom. This is necessary because you will have to cut from the top and the bottom. Once the flaps and ailerons are cut from the wing panels, lightly sand the foam edges. At this point the torque tubes for the flaps and ailerons are laid out and assembled without soldering. Also, the servo cut-out in

tube which is the bearing for the 1/8" brass tube torque rod. The 3/32" piano wire is soldered directly to the 1/8" brass tubing torque rod. With the flaps and the ailerons removed from the wing panels, carefully cut a "V" into the trailing edge and fit the 3/16" brass aileron bearing into this groove. Note: This groove is only cut to the end of the flap area. A shallow "V" is cut into the aileron section of the wing and is sanded to a half round shape using the top and bottom skins as a guide. Sandpaper wrapped around a large dowel is used for this operation. Cut and fit the balsa blocks for the aileron hinges and epoxy in place. When the epoxy is dry, use a fine grade sandpaper on the sanding dowel and sand to a very smooth finish. At this point you can make the final fittings for your aileron torque tube through the flap section.

Fuselage:

Begin by cutting the two fuselage sides from 1/8" hard balsa sheet. Next, cut the Formers 1, 2, & 6B from plywood. Glue Formers 1 & 2 to the fuselage side. While drying, cut out all the rest of the formers. Note that the stringer locations are shown on the formers only by a tick mark. The stringers are installed flush as shown on Formers 1 & 10. The top portion of the formers are glued first to the fuselage side then, when dry, the 1/4" x 1" stringers are added. Next, the lower formers are added and the stringers are fitted. Next, add the balsa fillets to the wing bed. Finally add the balance of the lower Former B sections, and complete the stringer installation. Check to insure the fuselage is absolutely straight. Sand the stringers even with the formers. Be careful and do not sand the formers. Plank with 1/8" medium soft balsa, doing the sides first, then the top and, finally, the bottom. In the forward part of the fuselage a curvature of the nose is maintained by the 1/2" balsa clamp wedge so that they correctly fit the formers. If necessary the planking can be moistened with hot water. Before completing the fuselage, I suggest you finish the wing so you can make sure that all the angles are correct and the wing fits into the saddles snugly. The horizontal tail should also be finished at this time so that it can be fitted on to the fuselage. The control horn and fittings can be epoxied in place at this time.

Cowl:

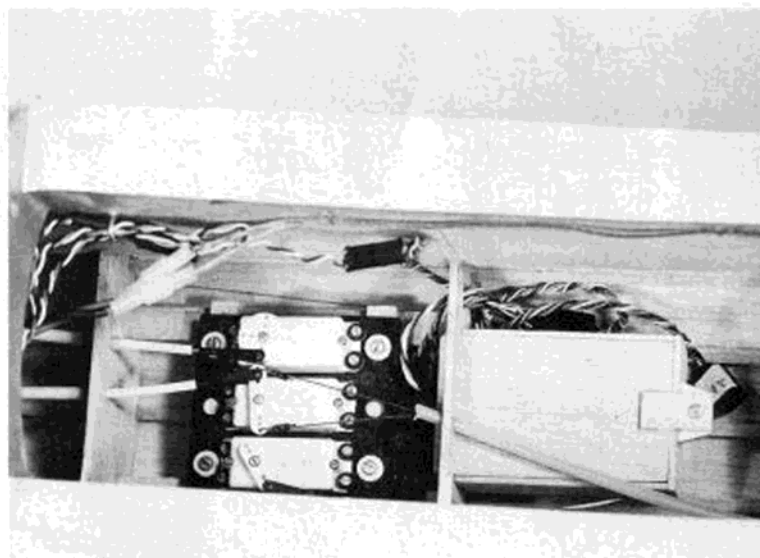
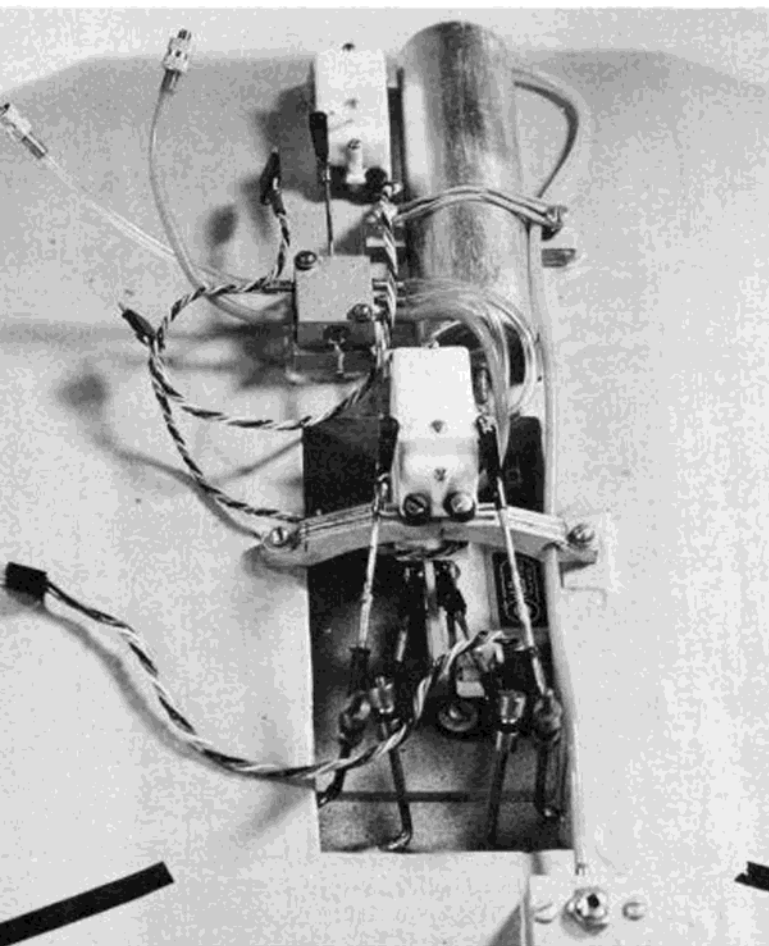
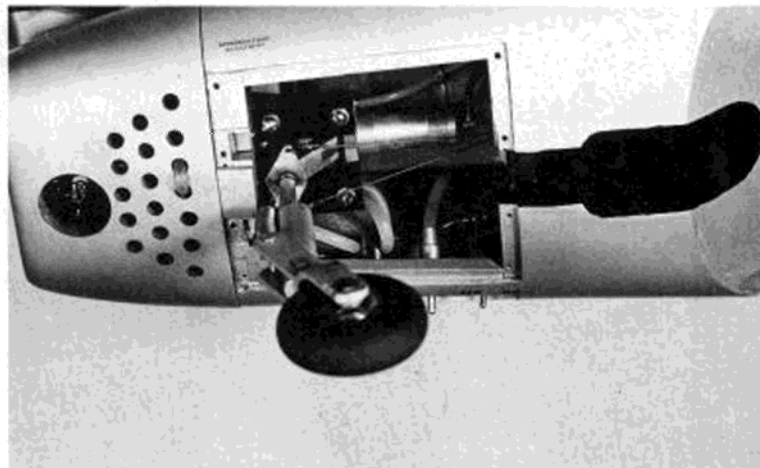
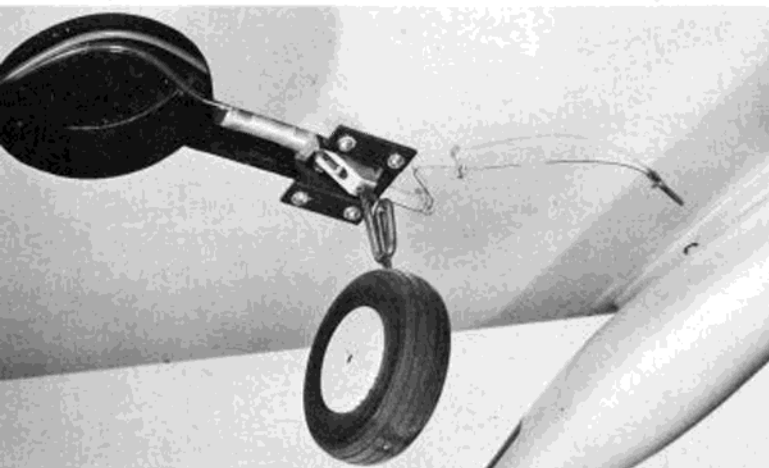
The cowl is made from solid balsa blocks which are hollowed out to fit your engine size and particular equipment. Use large blocks of balsa to eliminate as many glue seams as possible. Use epoxy glue only in this operation. Begin by tracing the outline of Former Number 1 on the end of the block and the side view of the nose section on the side of the block. Allow at least 1/4" larger outline than Former Number 1. Saw off the corners and excess balsa to the rough shape of the nose section. Spot glue the rough shaped nose section to the fuselage and begin to shape to final contour, using the fuselage and spinner as guides. At this point you will have to approximate the engine location so that the cowl and spinner will

F-86D SABRE Designed By C.A. Baumgardner

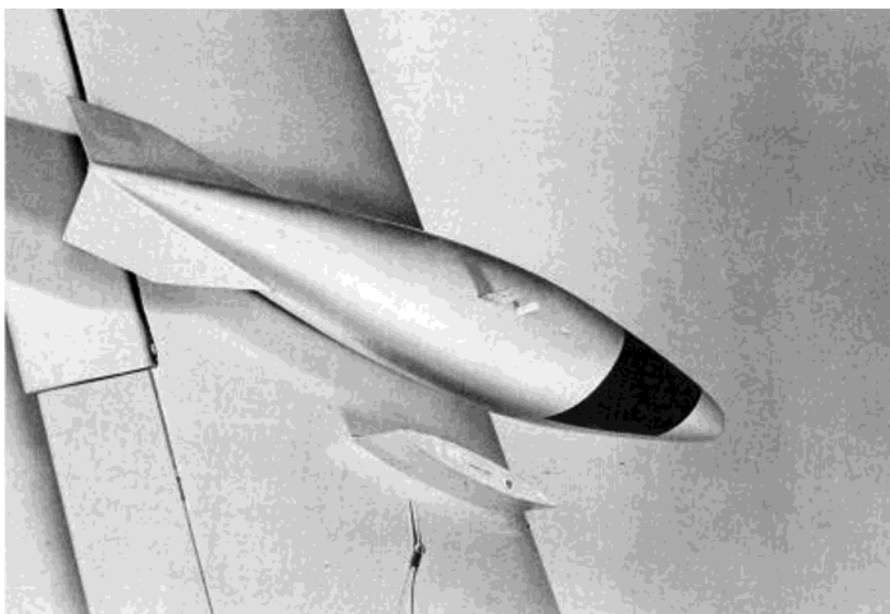
TYPE AIRCRAFT	Stand-Off Scale
WINGSPAN	67 Inches
WING CHORD	12 Inches (Avg.)
TOTAL WING AREA	800 Square Inches
WING LOCATION	Low Wing
AIRFOIL	Semi-Symmetrical
WING PLANFORM	Swept Wing with Swept L.E.
DIHEDRAL, Each Tip	None
O.A. FUSELAGE LENGTH	58 Inches
RADIO COMPARTMENT AREA	(L) 10" X (W) 3 3/4" X (H) 5"
STABILIZER SPAN	25 Inches
STABILIZER CHORD (incl. elev.)	5 3/4 Inches (Avg.)
STABILIZER AREA	144 Square Inches
STAB AIRFOIL SECTION	Symmetrical
STABILIZER LOCATION	Top of Fuselage
VERTICAL FIN HEIGHT	12 1/2 Inches
VERTICAL FIN WIDTH (incl. rudder)	6 1/2 Inches (Avg.)
REC. ENGINE SIZE	.70-80 cu. in.
FUEL TANK SIZE	12 ounce
LANDING GEAR	Tricycle
REC. NO. OF CHANNELS	Six
CONTROL FUNCTIONS	Rudder, Elevator, Ailerons, Throttle Flaps, Retracts
BASIC MATERIALS USED IN CONSTRUCTION	
Fuselage	Balsa and Ply
Wing	1/64" Ply covered foam
Empennage	Balsa and Ply
Weight Ready-To-Fly	180 Ozs. (dry)
Wing Loading	32.4 Oz./Sq. Ft.

the center section of the wing has to be determined, and cut out, so that the torque tubes for the flaps and ailerons can be lined up. The aileron control system consists of the 3/16" brass tube which is the bearing for a 5/32" brass tube torque rod. A 1" piece of 1/8" brass tube is soldered to the 5/32" tube to which the 3/32" piano wire is then soldered.

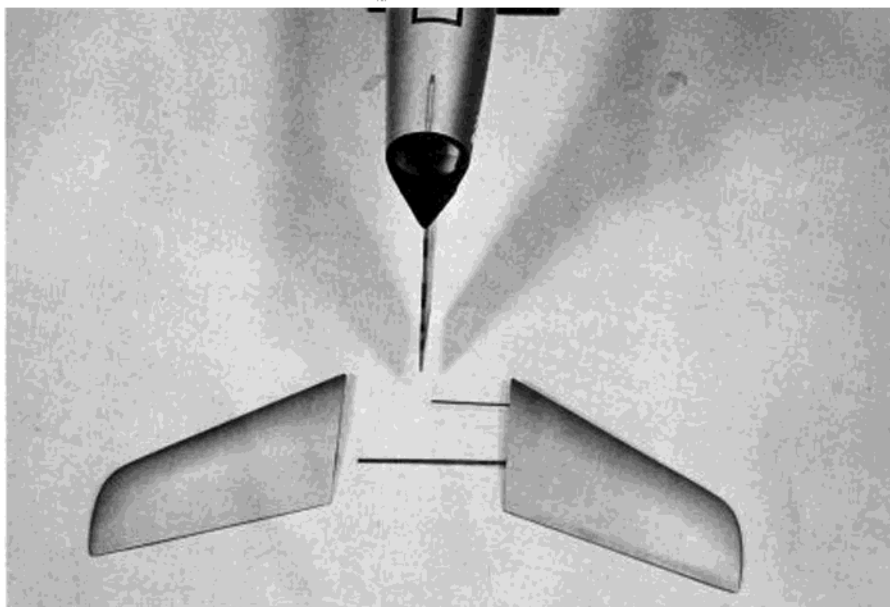
The flap system consists of a 5/32" brass



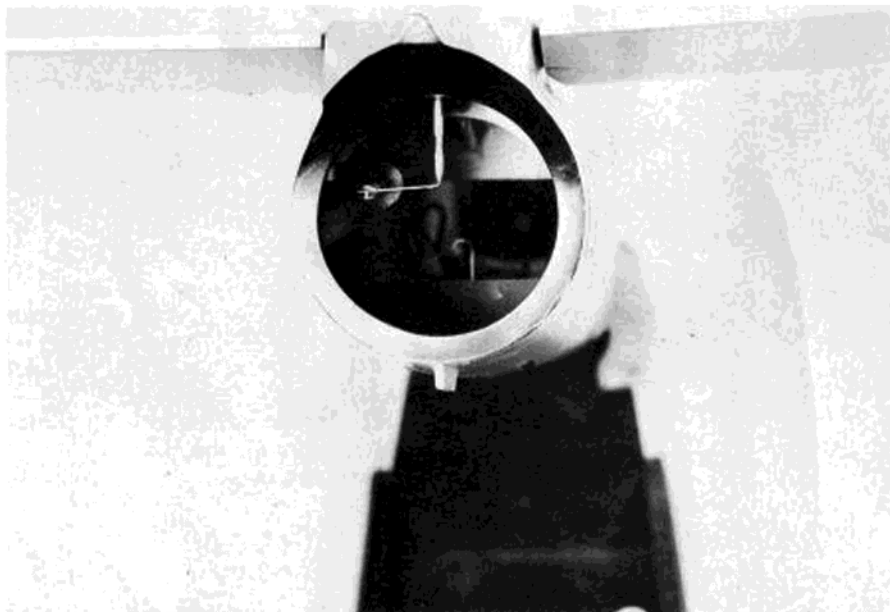
1ST ROW, LEFT: View of inverted Super Tigre .71 with Du-Bro muffler. **RIGHT:** Lower front nose section showing retract well. **2ND ROW, LEFT:** Rom-Aire retract linkages for main wheels. Note neatly made retract cut-outs. **RIGHT:** Complete view of Rom-Aire nose gear. **LEFT:** The retract mechanism in wing center section. **ABOVE:** Plenty of room for the radio equipment in the F-86 fuselage.



View of bomb release mechanism.



All-flying stab attach and linkage.



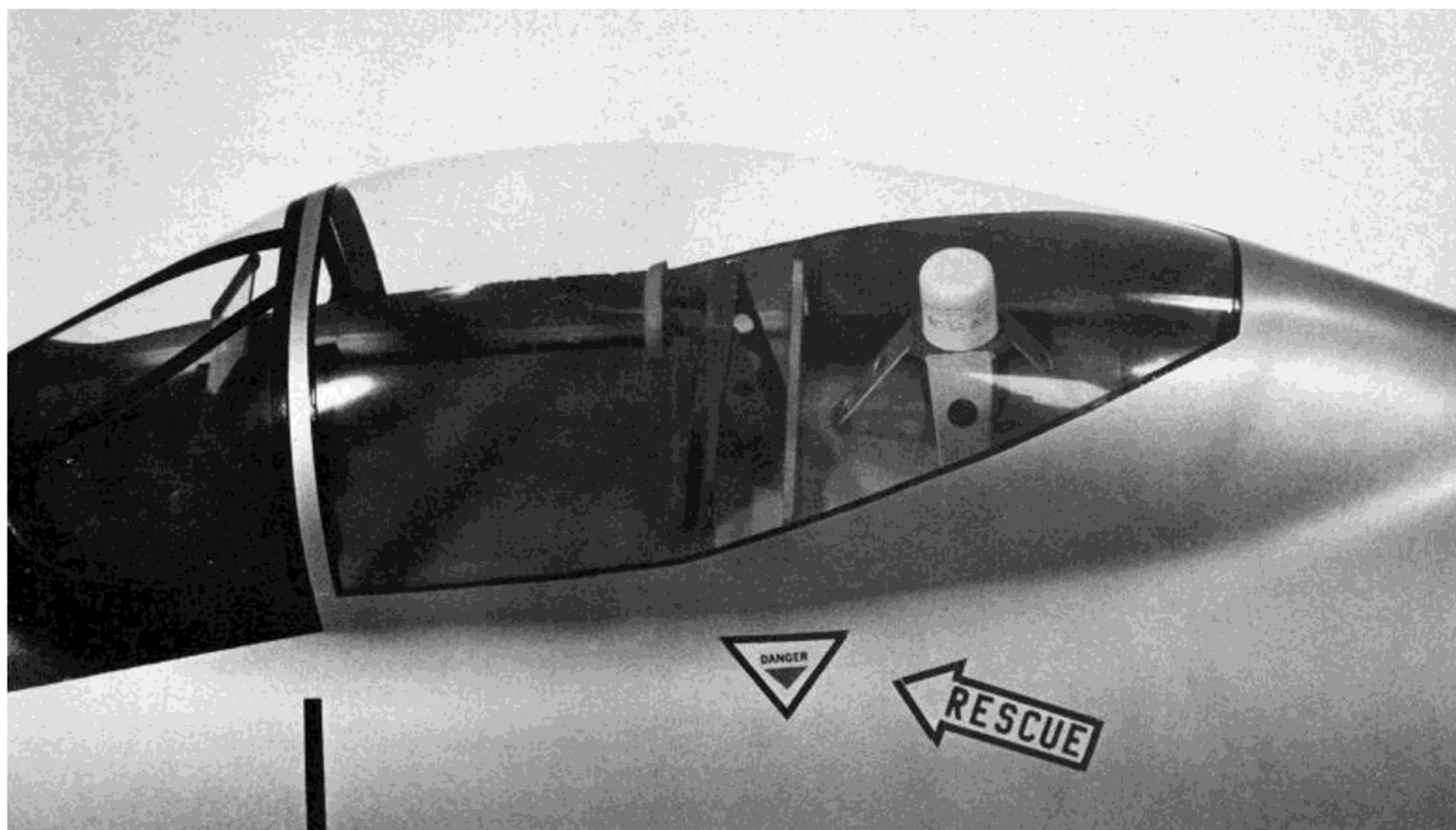
flow together in a smooth line. Allow a 1/16" oversize on all areas for final sanding and fitting. Copy the front outline from the fuselage on to 1/8" plywood and cut out the center section leaving a 1/4" outline. Remove the nose section from the fuselage and glue a 1/8" plywood outline to the nose block. Very carefully saw the nose block in half at the center line and sand lightly, fitting 1/64" x 1/4" wide plywood to the sawed edges of the top and bottom of the cowl. Be careful to retain the original size as before, cutting the cowl in half. Hollow out the top and bottom to approximately 3/16" to 1/4" wall thickness. Cut two 1/8" plywood rings, spinner size, and glue one ring to the front of the top section of the cowl. Take one-half of Ring Number 2 and glue to the lower section of the cowl. The ring from the top section must fit flush over one-half of Ring Number 2 of the lower section. At this point, end glue the 1/8" plywood tabs to the 1/8" plywood back plate of the cowl — three on the top section and two on the bottom section. Epoxy glue tabs to the plywood plate: When dry use two part Conap Epoxy glue for additional strength on the inside. The cowl is attached to the fuselage using 1/2" #7 sheet metal screws. A sheet metal screw is also counter sunk into the plywood ring at the nose to hold the cowl together at the spinner.

COVERING AND FINISHING

The final procedures consist of fine sanding everything with 6/0 Garnet paper to produce a super smooth surface for fiber glassing. The fuselage, fin and stab were glassed, using 3/4 ounce cloth and K & B resin. All fillets around the fin and the canopy are Hobbypoxy filler, which is thinned so that it can be worked with a wet finger. Fiberglass resin only was used on the wing to obtain a super smooth finish. When the complete airplane is sanded to a very fine finish, K & B Superpoxy Primer was sprayed on and lightly sanded. The silver paint used was Hobbypoxy H-93 and Hobbypoxy Quick Spray Harder H-06. This sets up quite fast and is dust-free in minutes. The black on the nose and the checkerboard on the fin is K & B Superpoxy 8104 with K & B Satin Finish catalyst 8122. The yellow is K & B 8104 and K & B Gloss catalyst 8107.

RADIO INSTALLATION AND FLYING

Install the radio with the components so placed that the Sabre Jet balances at the CG position shown. This will require that the servos and the battery be placed more to the rear than on straight winged aircraft. Follow the manufacturer's instructions and your own best experience on installing the retract gear and radio equipment. Make sure that the thrust line and all angles of incidence are zero. Check everything carefully before that first flight, especially the CG, and trim out to suit your flying style. The Sabre Jet takes off in 200 feet with the flaps set at 15°. The flying characteristics are very good. The handling characteristics during low speed flight, especially during the landing



..... approach, are excellent because the model gets tail heavy as fuel is burned during the flight. It is very sensitive to aileron commands and is easily controlled during the landing for this very reason. During the descent, set the flaps at 45°.

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MATERIALS USED

TO COMPLETE AIRPLANE

2½" spinner

Super Tiger "71" Rear Rotor RC Engine
with a Perry Carb and filter

Du-Bro Muffler

Tatone Motor Mount

12 oz. Sullivan Tank

Sonic Airborne Fuel Systems

Rom-Aire Retracts

Universal wheels

Klett hinges

Sig World War II 13" Canopy

K & B Fiberglass cloth & resin

K & B Primer

K & B Paint & Hobbyoxy Paint

