# Messerschmitt Bf 109

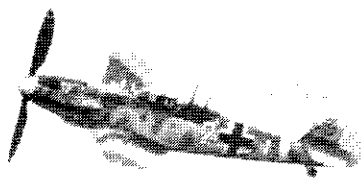
*A rubber-powered treatment of the ever-popular Me 109, a plane that has been scaled as much as the P-51. It's a small ship but with big performance.*

by Allan F. Schanzle

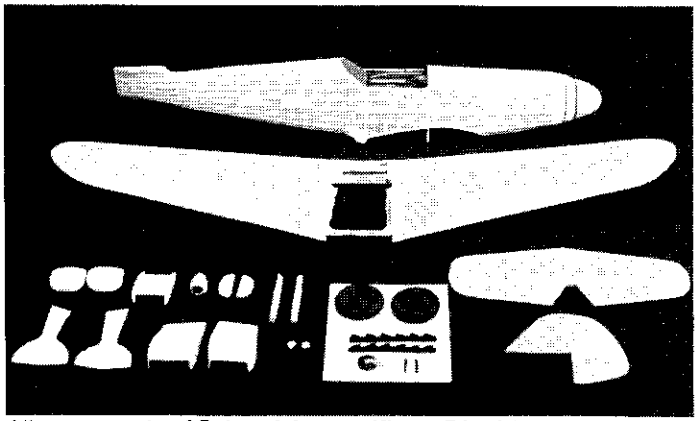
IS IT A Bf 109 or Me 109? Actually, either one is correct, as this aircraft, designed by Professor Willie Messerschmitt, was originally manufactured at the Bayerische Flugzeugwerk A.G. (Bavarian Aircraft Works, Incorporated), the forerunner of Messerschmitt A.G. So you can take your choice, Bf or Me.

The Bf 109 single-seat fighter had the distinction of being produced in larger quantities than any other WW II plane. A full account of this aircraft and all of its variations can be found in a book by Thomas Hitchcock entitled *Messerschmitt O-Nine Gallery* (by Monogram Aviation Publications). Some of the more unusual designs included a V-tail version and one with twin fuselages, much like the F82 twin Mustang. A real gold mine can be found on the last few pages—color chips of all paints used by the German Luftwaffe during WW II.

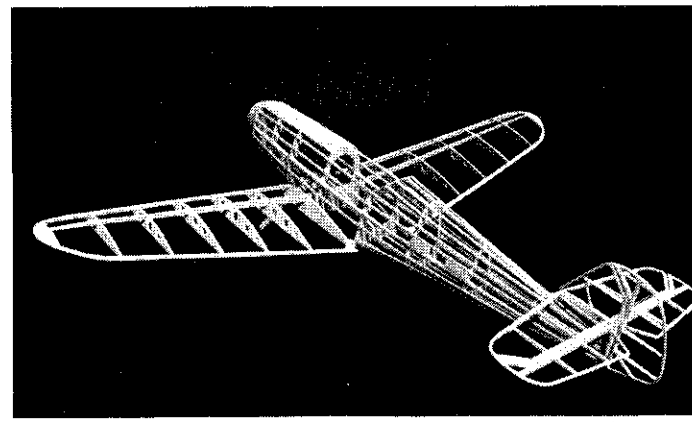
The first Bf 109 aircraft was designed to meet the requirements set down in 1933 by the German Ministry of Civil Aviation (which was equivalent to our Civil Aeronautics Administration). The first prototype, the V1, was initially flown in September 1935, and competed against the Heinkel He 112, Arado AR 80, and Focke-Wulf FW 159. The V5 and V6 aircraft were intended as production prototypes of the 109B, but were sent to Spain in December



**Only the big propeller spoils the visual impression given by the Me 109 in flight.**



**All components of Schanzle's magnificent Bf 109 have been covered and are ready for final assembly; soft balsa parts.**



**There may be nothing more beautiful in model aviation than an uncovered framework of sticks and pieces; light and strong.**

1936 to gain experience under actual combat conditions. The V7 represented the preproduction Bf 109B, while the V8 was the first prototype of the 109C. All of these aircraft used versions of the Junkers Jumo 210 engine. The V11 and V12 were adapted to the DB600Aa engine and served as a prototype for the D model. The Bf 109E, first flown in 1938, is the best known and most modeled version of this famous aircraft. It was used extensively in the Battle of Britain.

In 1940, the 109F began an era of aerodynamic refinements, the most noticeable being a redesigned cowling, new supercharger air intake, larger spinner, elimination of braces on the stabilizer, and the rounded wing tips. This was first flown in late 1940.

The model presented here is a replica of the Bf 109G-6 displayed at the Smithsonian National Air and Space Museum in Washington, D.C. Excellent color photographs and 3-views can be found in a pamphlet by Monogram Aviation Publications entitled "Close-Up 6, GUSTAV, Me 109G, Part 1," by Thomas Hitchcock. Perhaps the most obvious additions to the F model which rendered the 109G were the bulges on the wing top (to accommodate a bigger tire required by increased aircraft weight) and those on the fuselage forward of the cockpit (necessitated by the large machine gun feed chutes). By the end of 1942, the Bf 109G had replaced practically all earlier versions of the 109.

CONSTRUCTION NOTES. This is not the type of model a rank beginner should attack, so only the highlights will be covered.

The construction technique for the fuselage follows the traditional half-shell concept. Due to the long tail moment, all materials used behind the CG should be the very lightest available. The laminated tail surfaces use only two very thin pieces of railroad basswood with an outer surface of 1/16" square light balsa, sanded to shape. This, however, has been found to be exceptionally strong and warp resistant.

The construction of wing fillets is, for me, the least attractive aspect of WW II fighters. But thanks to Willie Messerschmitt, the 109 has a minimal problem in this area. Small strips of tissue soaked in water were all that were required, with the exception of small pieces of scrap balsa sanded to shape at the trailing edge.

There are few, if any, compound curves on the fuselage, so this was covered with dry tissue using only five pieces: two for the lower cowling, one for the bottom of the fuselage behind the wing, and one for each side, including the top.

The spinner is most easily made by inserting a straight piece of 1/8" hardwood dowel perpendicular to one side of a sufficiently large balsa block, holding it in place with glue. Now insert the hardwood dowel into an electric drill and use mild pressure against a sanding block. The result is a beautifully true spinner.

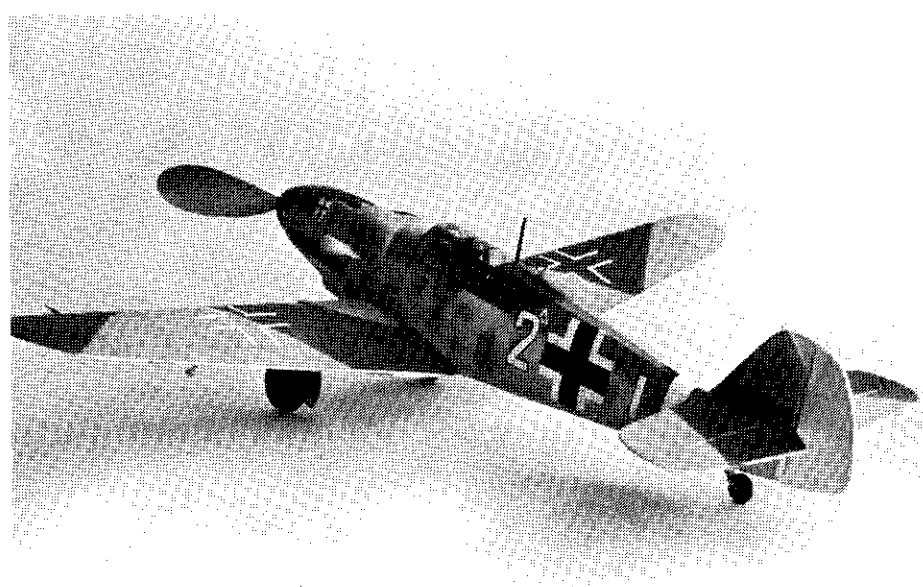
The landing gear is designed to be removable by building a slot in the bottom of the wing into which the wire landing gear is inserted. The gear is then held in place by a piece of 1/32" sheet pressed into the slot. Simply pull on the gear to remove the wedge.

Floquil's Polly-S paints were used exclusively, applied with an airbrush, except for sections of white, where brushing was found to be necessary for adequate coverage. Colors were mixed to reproduce those in the centerfold of the Monogram pamphlet. According to Smithsonian files, the bottom of the wing and fuselage was painted 76 Light Blue (Munsell Number 7.5B 7/2). Upper flying surfaces and fuselage are 74 Gray Green (5B 3/1) and 75 Gray Violet (5BP 4/1). The cockpit interior is 66 Dark Gray (N3). Wheel wells and wheel well door interiors are 02 RLM Gray (5GY 5/1). The propeller and two-thirds of the spinner are painted 70 Dark Green (10GY 2.5/1). The remaining one-third is white, as are the rudder, rear fuselage band, and under surface wing tips.

All insignias were made from black tissue or natural tissue painted white, and were applied with thinned white glue. The fighter unit insignia, 04 Yellow (2.5Y 8/12), was likewise painted on tissue, cut out, and glued in place.

My model, painted and with a 7-inch plastic propeller in place, weighed 3/4 ounce, but came out to be tail heavy. Solder was added to the rear of the nose plug to get proper balance when a 26-inch loop of 3/16-inch FAI rubber was installed. Unfortunately, this brought the total flying weight up to 1.25 ounces, but even at this weight, flights in 7:00 p.m. dead air are

*(Plans on next pg.; text continued on pg. 114)*



**Absolutely superb use of lightweight finishing techniques is seen on the Bf 109. Floquil's Polly-S paints were used exclusively and were applied with an airbrush.**

# MESSERSCHMITT 109

*(Continued from page 55)*

consistently 35 to 45 seconds with the wheels in the "retracted" position. A one-inch wing tab of masking tape bent down a few degrees on the left outer panel was found to aid significantly in keeping the left wing up under the high power burst phase. No wash-out or rudder trim was found to be necessary, and downthrust was limited to a piece of 1/64-inch plywood. Just be sure the CG is as shown. If it is too far back, you'll find longitudinal instability and some really wild maneuvers.

My only regret with the model is its small size, 1/2 inch=1 foot. A 1 inch=1 foot scale would produce a span of about 32 inches, and should produce significantly lower wing loadings. But even at this smaller scale, the model flies well, and looks great in the air. *Wo ist das Spitfire?*■