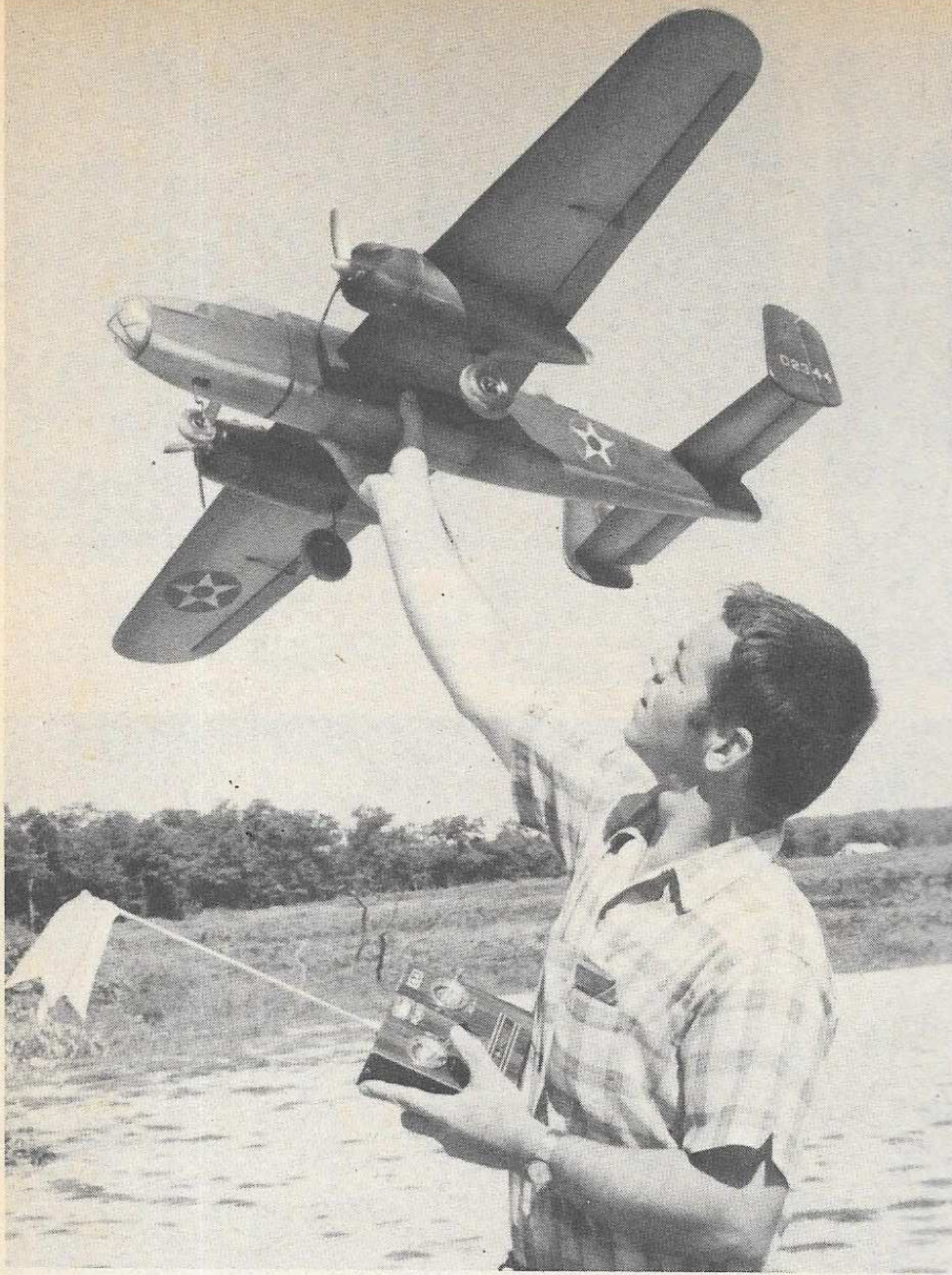


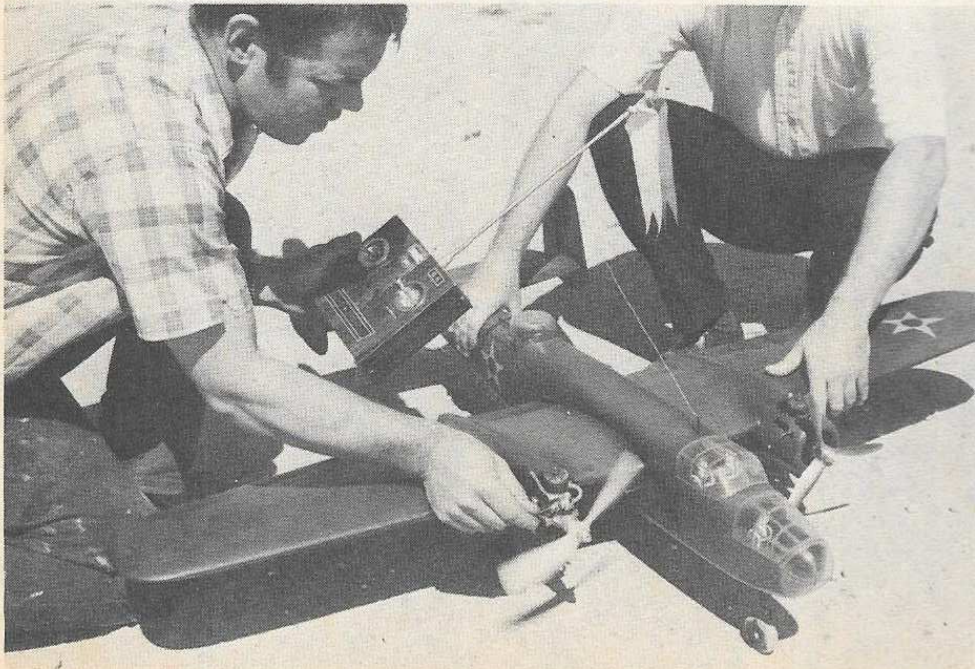
North American B-25 "Mitchell"

by Nick Zirolì



A six channel Micro Avionics XL-1C system proved fine for Nick's B-25 Mitchell. Rudder, elevator, aileron, flaps, engine and bomb bay doors.

Three-bladed Grish props add a bit more realism. Modern electric starters make twin-engined craft practical. Try for a good, smooth engine setting.

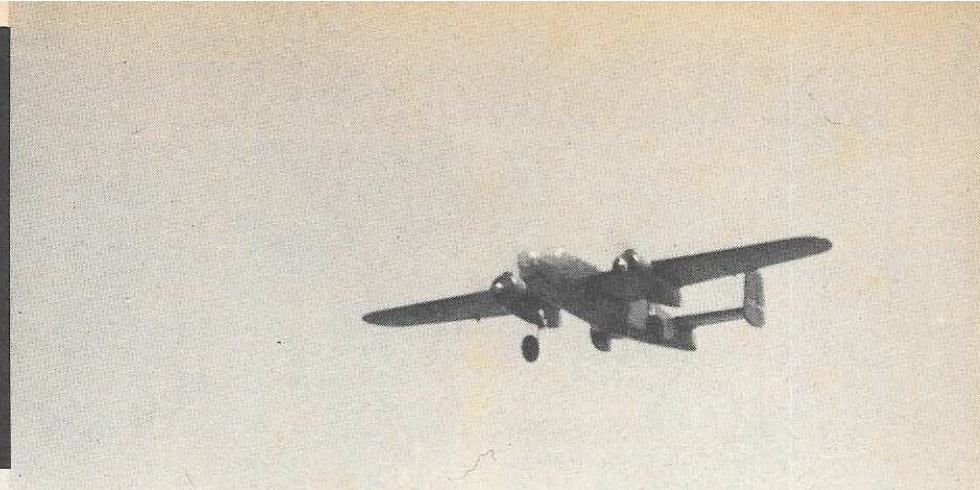
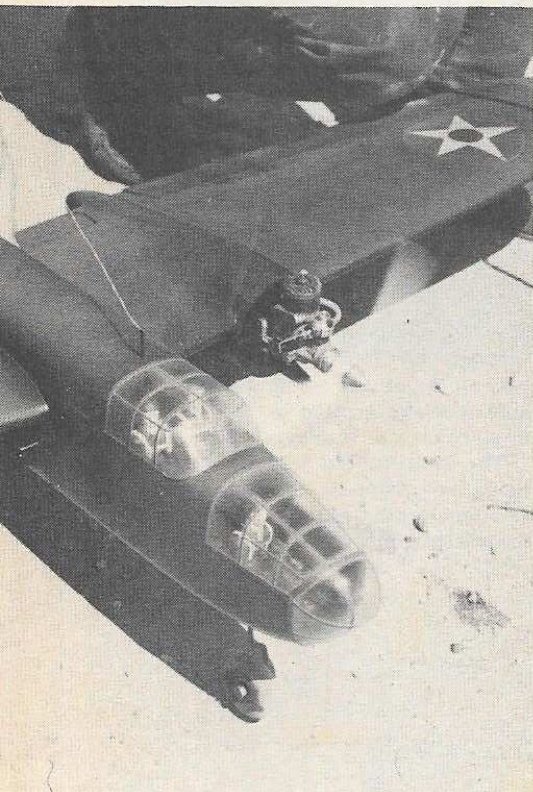


The North American *B-25 Mitchell* was one of the most appealing medium bombers of WWII. Its versatility was unmatched in its day. There was probably no greater morale booster of WWII than Jimmy Doolittle's famous Tokyo raid. Sixteen *B-25*'s took off the 467 foot deck of the carrier "Hornet" with 1,141 gallons of fuel and four 500 pound bombs apiece. This was an unbelievable feat in 1942. The attack did little damage to Tokyo and other areas that were bombed. Jimmy Doolittle's greatest victory was the fact that it could be done. There were no losses of planes over Japan; however, bad weather caused the loss of all but one plane which landed in Russia.

The first *B-25* was flown in August, 1940. Steady refinements and an increase in firepower made the *B-25* a formidable combat machine. Our model is patterned after Jimmy Doolittle's "Tokyo Raider." It is not the most colorful version as can be seen in "Profile Publications #59," but in dirtied up war colors it looks very realistic.

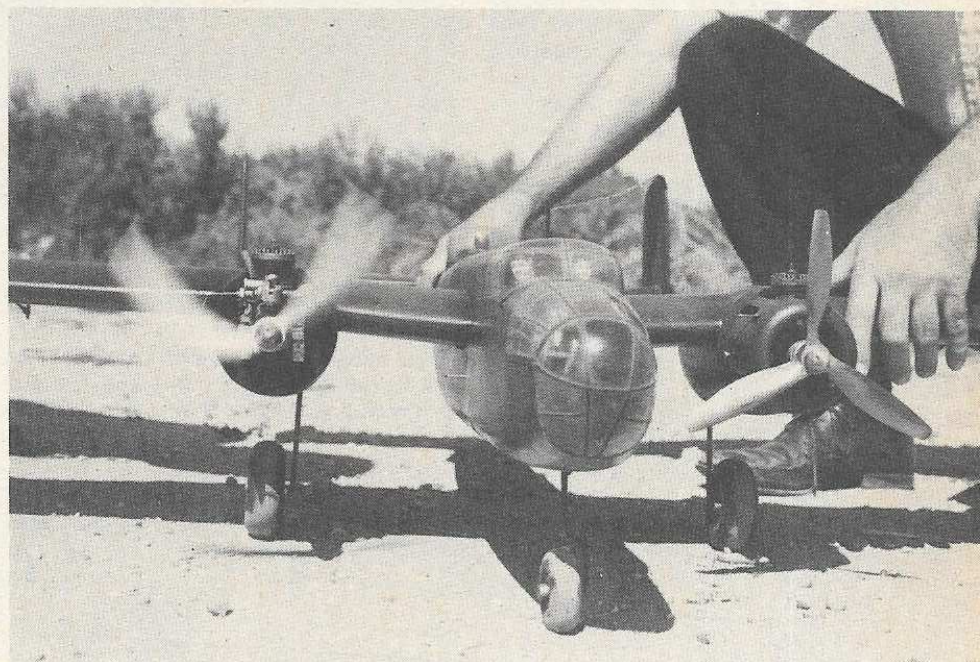
This is a small model as far as twins of this type go, but this is what I was after. The wingspan is 54", the area approximately 430 sq. inches and the weight 6 pounds, 1 ounce dry. A little quick figuring

Clean the bench and get going on this one. A Semi-Scale R/C twin-engined replica of General Jimmy Doolittle's famed "Tokyo Raider." 54" in span, .19 to .29 engines, a Micro Avionics rig controlling all, including flaps and bomb bay.



Glide slope to the runway. With engines retarded, the B-25 lets down to the runway, first-flight completed. Design is on the heavily loaded side.

Ring cowls are molded of styrene, all nose and turret sections are drawn from celluloid. A set of the molded parts may be ordered from Major Model.



The Webra .20's come to life. Nervous moment before the first test hop. Two .15's would be marginal and not recommended. Ideal for .19 to .29's.

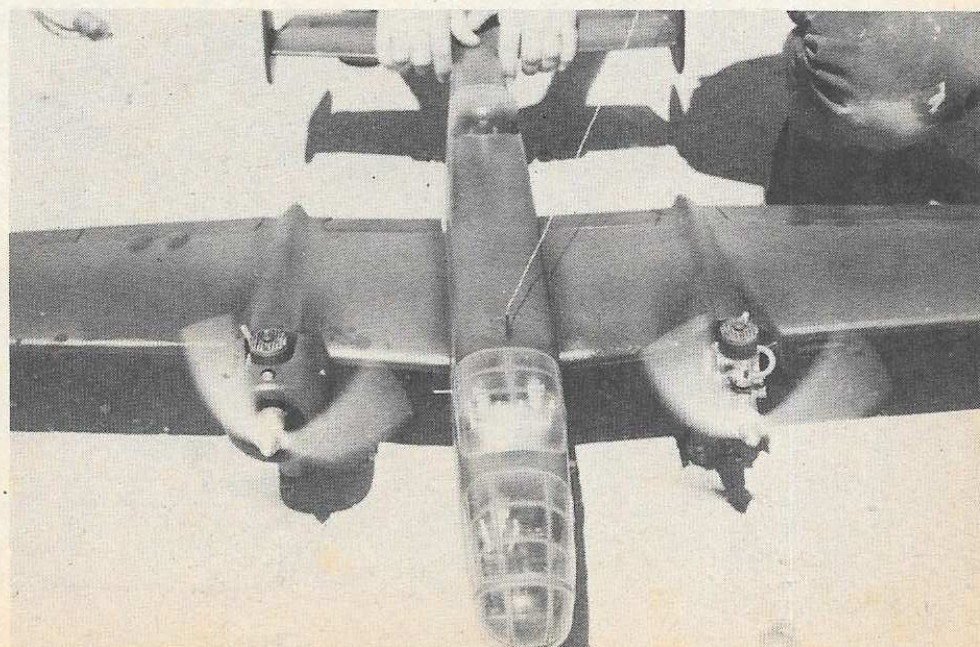
between the weight and area will show that this one is definitely in the medium bomber class.

This is not a true scale model. It was scaled 3/4"-1' to give the small size desired. However, at that scale the wing area would be about 335 sq. inches, much too small to be practical. So, the wing and stabilizer were increased proportionally in size and the fuselage left pretty much to the 3/4"-1' size. In its finished form it does not look out of proportion to all but the best trained eye.

All six channels of the Micro Avionics systems were put to use, the two auxiliaries operating flaps and a bomb drop with the bomb bay doors opening and closing. This would not be possible if it were not for the small size of the servos. Three are mounted in the wing for ailerons, throttles and flaps. The three remaining are in the fuselage operating rudder, nose wheel, elevators and bomb drop. I doubt that six larger servos would fit in the rather limited space available. However, four operating the basic functions could probably be squeezed in.

I was really a little concerned if the two Webra .20's had the power to fly the model in a reasonable fashion. Previous experience with these engines proved that

Time to go! Bob Caplan's ten fingers anchor down the stab, while Nick is making a careful pre-flight of the engines and control surface movements. A Heathkit Thumb-Tach comes in handy for synching multi engined designs.



they were quite powerful and most important, in a twin, reliable. However, in such a small heavy plane, I just wasn't sure.

Well, any doubts I had flew out the window on the first flight. The Webras swinging 9-4 Tornado props were a perfect match for the B-25. It literally flew off the board. The bomb bay worked perfectly, but the flaps tended to make the plane balloon more than I liked. There is about 40 degrees max. flap travel now. I am going to increase it to 50 degrees or more to up the drag and reduce lift. It was not tried at this time, but should help reduce or eliminate the ballooning.

The best thing about a heavily loaded model is landing it. A predictable descent can be set up that will not be altered by the slightest gust of wind. I let it settle in at a rather steep angle and added power just before touchdown to flare it out without stalling it.

Another plus for the heavy loading is that a very low engine idle is required for landing. A slightly faster, more reliable idle can be tolerated.

I don't know how the model performs on one engine and I am not going out of my way to find out. If sufficient altitude is available when one engine quits I would cut the one remaining engine running to idle and bring it in as if it were dead stick. During a takeoff or low level maneuver such as touch and go, if one engine quits things may get a little nervous, unless there is enough space to chop the throttle and land.

Rather than go into explicit construction details, the following will be more of

a what and why coverage of important details during construction. The wing on the model shown is foam covered with 1/16" sheet balsa. A built up wing is shown on the plan as well as the templates, for cutting a foam wing if desired. In either case, choose all the wood carefully. Use soft light wood for the outer wing panels and anything behind the center of gravity. Firm, but not necessarily heavy, wood should be used for the center-section and fuselage sides. The finished weight should not be allowed to go much above 6 lbs.

Washout is built or cut, in the case of the foam wing, into each of the outer wing panels. This should be 1/8" at the tip rib.

Build each wing in one piece, then cut apart and join the two inner panels at the center. The outer angle is formed by joining the wings upside down, flat on the building board. Dihedral is all in the bottom surface, the top is flat.

Ailerons and flaps are cut from soft blocks or built up of 1/16" sheet with a 1/4" leading edge. Both methods were used on the original. The inner flaps are solid. The outer and ailerons are built up. They are joined with a piece of 3/32" dia. wire fixed solidly to the inner section and riding free in a groove in the outer. The groove is made oversize and then built up with epoxy. This universal type joint is necessary, because of the gull wing configuration.

The landing gear legs must be installed before the nacelles are built. Remove the bottom sheeting between W-4 and W-5 and back to the spar. Epoxy N-1 and N-2 and the firewall in place. Note that each en-

gine has out thrust built into the firewall. This was done in an effort to improve single engine performance. Add the remaining formers and plank each nacelle. Build up the top fairings with soft balsa and filler.

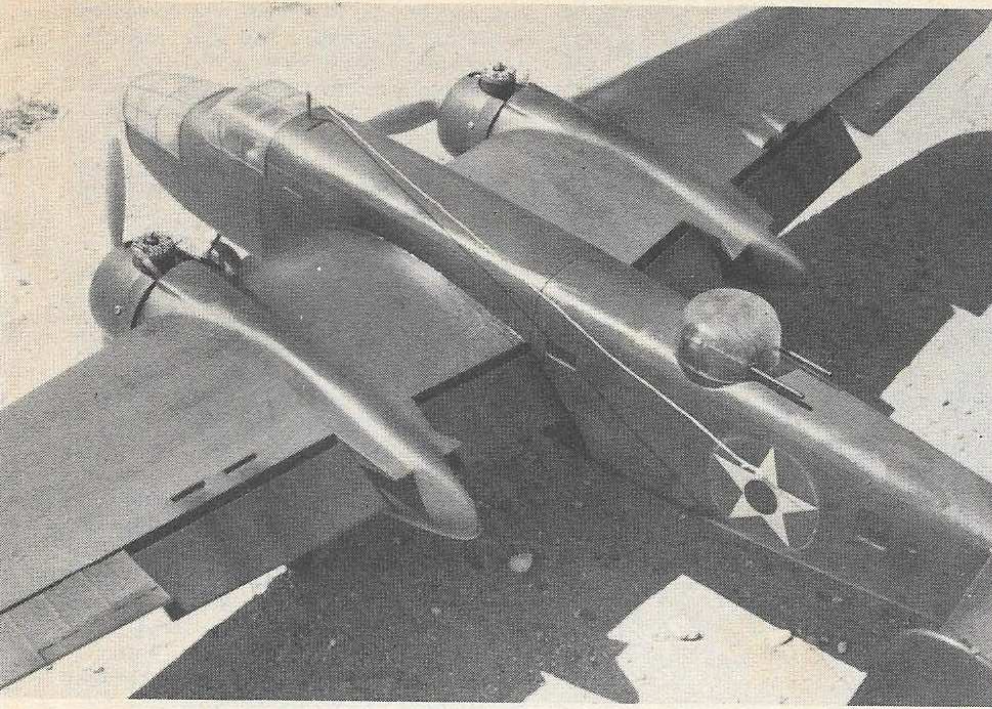
Cut the fuselage sides and doublers from firm 1/8" sheet. Join with F-3, 4 and 5 and then remaining formers. The nose gear is a single coil leg that is bent from 5/32" dia. wire. The single coil allows the use of offset at the wheel. A standard leg could also be used.

Do not plank the aft section until the stabilizer and rudder assembly is in place and pushrods installed. The rudder control is transferred through a cut down aileron bellcrank to each rudder horn by a 1/16" dia. wire pushrod. Offset horns serve two purposes. One is they do not show on the outside of the rudders. The openings can be covered over. The other is, by angling the horns, a differential motion is produced that puts more control action toward what would be the inside of a rudder turn. This again will aid single engine performance by putting a good deal more rudder throw behind and towards the engine that is running.

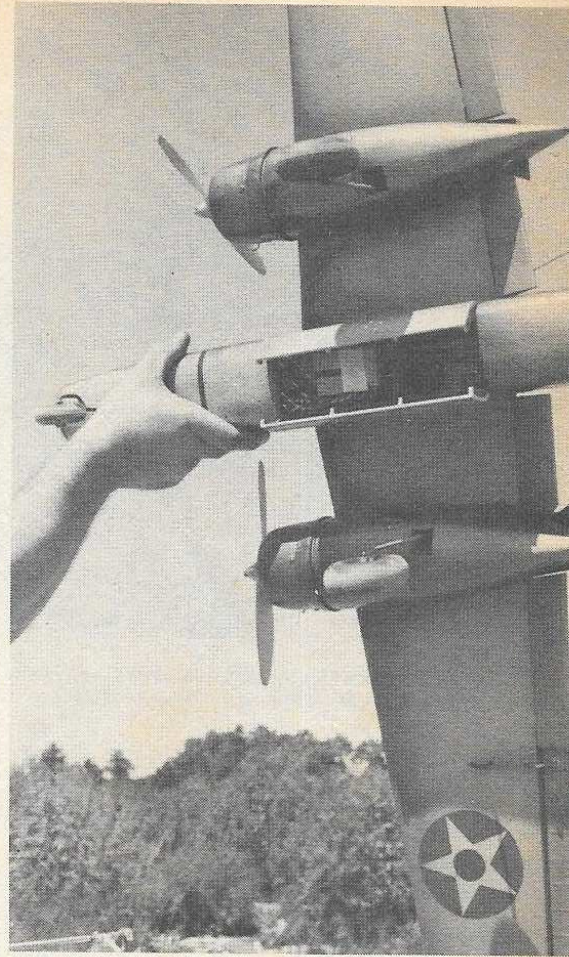
The wing is held in place by two 1/4" dia. -20 nylon screws. These are reached through the bomb bay and screw into tapped blocks in the wing. Build the removable fuselage section on the wing with it in place on the fuselage.

The multitude of bubble enclosures can be carved from balsa blocks and heat or vacuum formed of .030" clear plastic. The nose is made in two pieces. If this is too

Flaps down! Four flap sections lower on command to assist in slow flight. Finding time to lower them with a twin boring holes in the sky is your problem, but that's the name of the game. A ship for the experienced flyer.

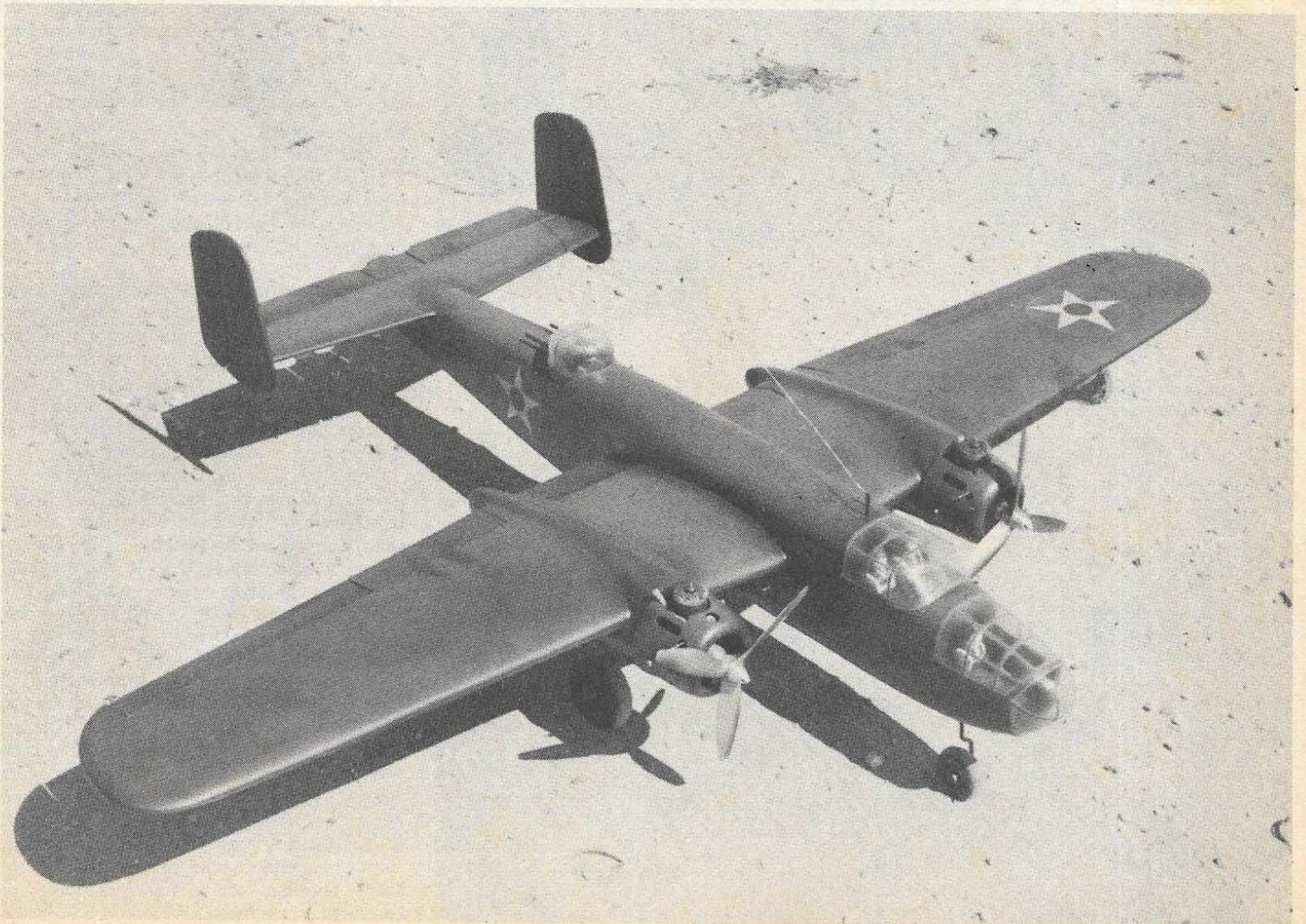


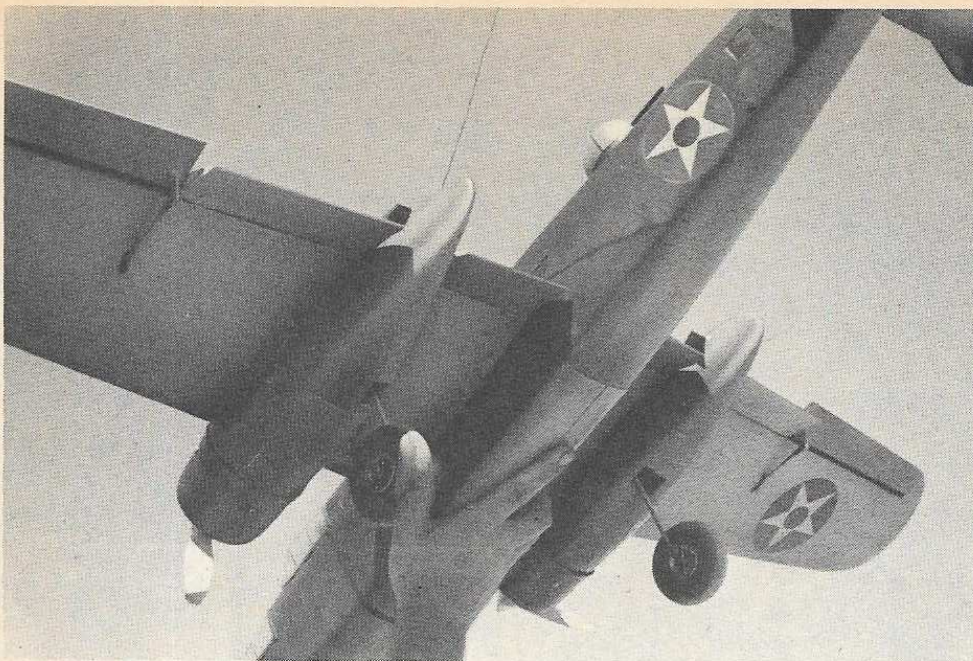
Photos by Don McGovern



An olive drab wartime finish with weathered effect. The B-25's flew in a tail-low attitude when landing and taking off. In medium bomber class.

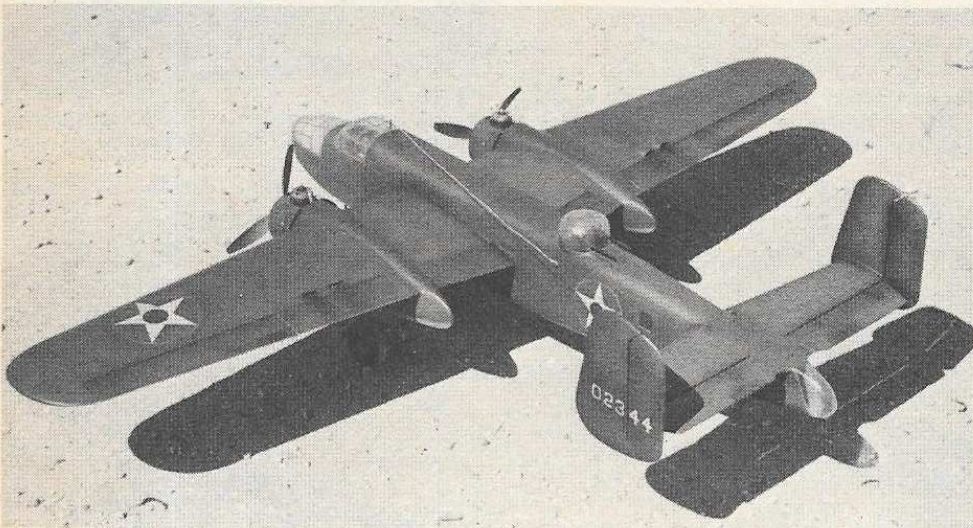
The gaping maw of the bomb bay. Doors open on a command, drop the eggs. Bombs away!



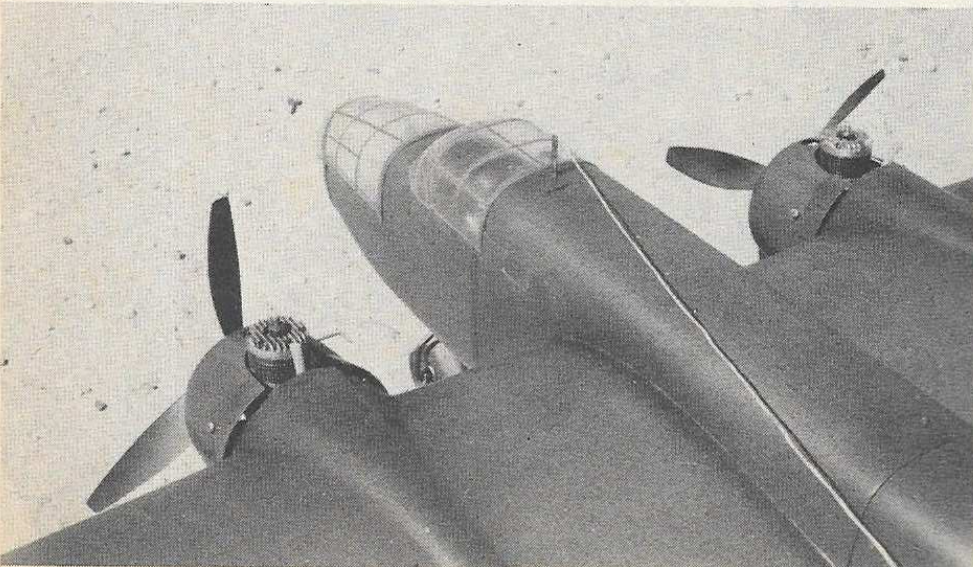


The nacelles are streamlined, realistic. Siding of the fuselage is fairly flat, easily sheeted. Wing of built-up balsa construction, or of foam.

Lift squares as speed doubles, a clue to a successful B-25. In short, it must really move to get safely airborne, so don't horse it off too quickly.



Nacelles nest in close to the fuselage which minimizes the troubles when an engine quits prematurely. Be ready to retard throttles if need arises.



much work, carved and painted blocks could be used, but would not give the appearance of transparent enclosures. The small side and top windows were also vacuum formed, so they could be cemented to the inside, yet be flush with the outside surface.

Cowls may be fabricated from wood or molded over a form in fiberglass by the Hobbypoxy "Easy Does It" method. They are held in place with three small wood or sheet metal screws into hard wood blocks epoxied to the firewalls.

For those who would like to purchase rather than make the bubbles and cowls, they are available direct from Major Model & Mfg., 29 Edgar Dr., Smithtown, N.Y. 11787. A set includes two cowls of 1/16" styrene, nose cockpit, turret and tail enclosures of .030" clear butyrate and seven side windows of .020" clear. The price for the fourteen pieces is \$7.50 postpaid. This may seem high but it must be kept in mind that it is less than the price it would cost to purchase the materials to make one set of parts.

Since there are no 3/4"-1' pilots available 1"-1' Williams Bros. pilots were used. As can be seen in the photos, they do not look too far out of place. A styrofoam body was made for the bombardier in the nose. A Williams Bros. pilot is epoxied to it. The styrofoam was covered all over with white glue, then painted with plastic model paints. The bombardier is then epoxied to a platform seat in the nose.

The model was covered with Quick-N-Easy Products' "Topcote." They are located at P.O. Box 441, Wausau, Wis. 54401. This is a clear heat shrink plastic material with an adhesive back. It is applied and shrunk with an iron and can be painted with dope. Flat olive drab "Aerogloss" was used on our model. A light dusting of grey was misted over the finished model, after the stars and other details were painted on. This included the window areas. Finally, thin black dope was airbrushed over the leading edges and vents.

Servos in the fuselage were mounted on a tray. Wood mounts were used in the wing.

The bomb bay doors are lightly spring loaded in the open position. A string connected to the doors and servo arm pull them closed. A bomb sits on the closed doors and when they are opened it falls out. Not the most ingenious mechanical device, but it works. The doors are each hinged with a strip of "Topcote."

Before any flying is attempted, the engines should be well broken in. You should be thoroughly familiar with their operation. They must be reliable. The idle can be set a little faster than it would usually be. As the sink rate is quite fast, it is actually landed with considerable power right up to touchdown.

A Heathkit "Thumb-tach" would be useful for synchronizing the engines. I don't have one, so I have had to be content to tune by ear, which can be a little misleading. One very important thing is that before settling on needle valve settings, hold the plane with the nose straight up and rev both engines wide open. This will show a lean setting very quickly.

With careful ground preparation and reliable engines, multi engine models are completely practical.