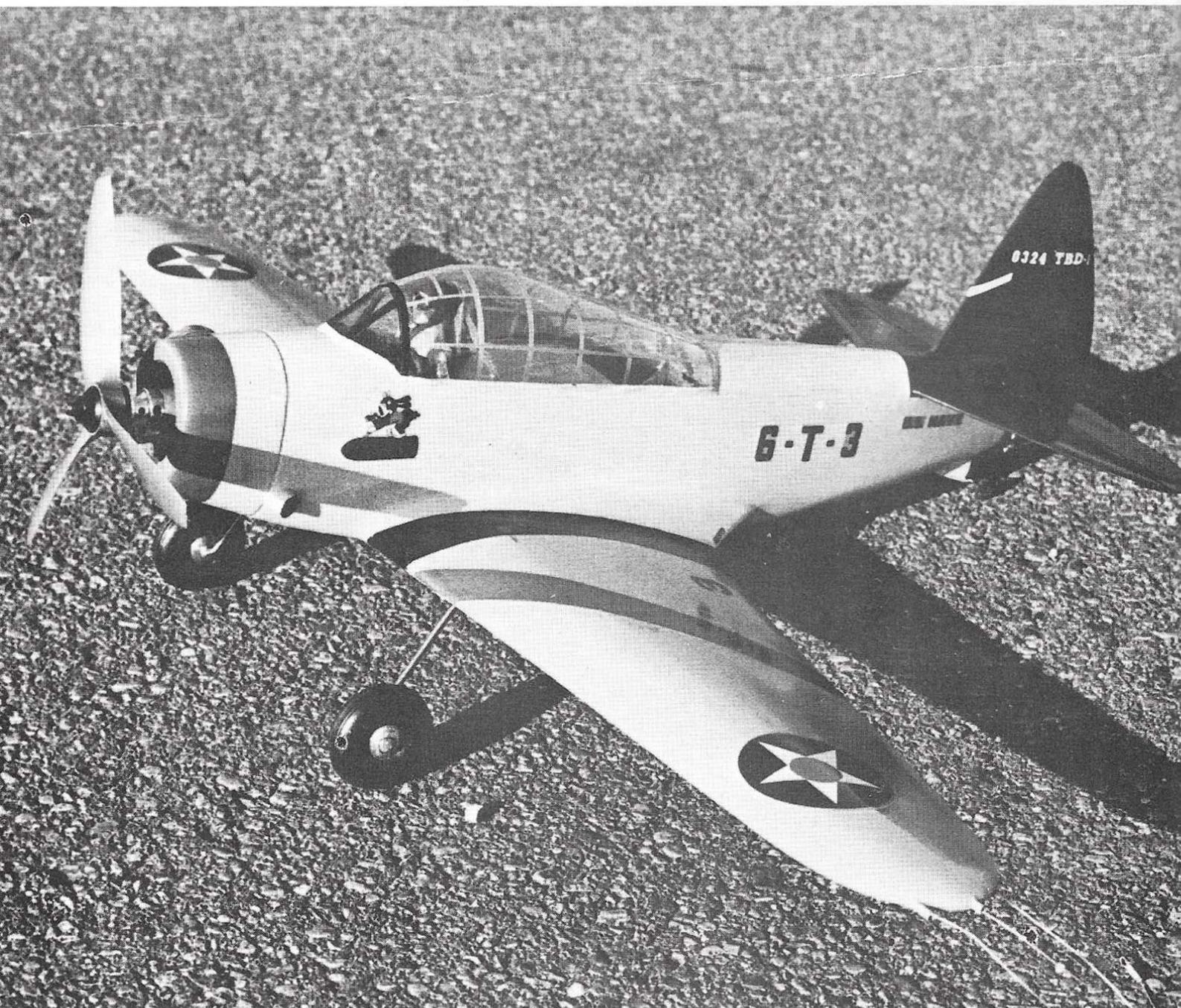


Douglas Devastator

by ROLAND BALTES



TIRED OF GUARDIANS? THIS EARLY NAVY TORPEDO BOMBER MAKES A VERY CAPABLE AND COLORFUL CLASS I CARRIER JOB.

The Torpedo Bomber Douglas (TBD) when introduced into active Navy service in 1937 was considered the world's finest torpedo bomber. Given the name "Devastator," it was revolutionary when compared to its biplane predecessors. By the time World War II broke out, however, it was hopelessly obsolete and outclassed.

Over 130 were built during the era of highly colorful Navy marking schemes. This is what attracted me to select it for my next Class I Carrier model. I just could not resist the gray fuselage, yellow wings, and various colored tail surfaces, nose and fuselage bands that would make the model extremely colorful. A refreshing change to the dark blue models you normally see at Carrier contests. In addition, the Devastator qualifies for the 100 bonus points given to a scale model of a prototype airplane without question. Having flown in Carrier events for over eight years, I knew the value of having a reliable, sturdy and simple model. It was designed to build quickly and be repairable when necessary. Most of us find out sooner or later that balsa models are not indestructible. This I proved at the 1971 NATS when I hit one of the arresting wire eye bolts during a landing attempt which broke off the wing. The rebuilding job also gave me the opportunity to try another color scheme on the Devastator—light blue/gray top surfaces and gray bottom as used during early WW II. Further information on the Devastator can be found in Profile Publication No. 171 which should be available at most well-equipped hobby shops.

The model was designed to use a 40 engine. Mine is powered by a K&B 40 rear rotary with a bolt-on exhaust slide throttle, running on pressure with a fuel metering system. Best score achieved so far was 540 points with a 105 mph high speed and 27 mph low. For those of you new to the Carrier event I suggest you stick with a stock RC 40 engine in the beginning because of the reliability this kind of engine offers. Most local contests are won by reliable engine/air-

plane combinations. Keep in mind that you need a complete flight in Carrier, consisting of seven laps high speed, seven laps low speed, and a 100 point landing to get a good score. High speed alone will not do it, although the scoring system favors it. If you think you are ready to challenge the record-holders let me just mention the type of equipment needed.

A good hot 40 is the basis to start with; if you can get it hopped up by someone that knows what he is doing it will help. Since max rpm is needed, forget about a venturi throttle unless it's especially made or bored out for unrestricted engine breathing. An exhaust throttle, whether it is a slide, wiper, rotating barrel, etc., is most commonly used. It must close sufficiently and be adjustable to allow setting the engine idle low enough for consistent slow speed flight (at least 25 to 28 mph on a calm day). A pressure fuel system is practically a must to get max power and consistent engine runs. This then dictates using a fuel metering system during idle. Unfortunately, most of these items are not readily available at the hobby shops. I have seen the old type Supertigre strap-on exhaust throttles used quite successfully, the hole in the baffle may have to be made smaller to get low idle. The Perry carburetors are also becoming popular especially since they incorporate a fuel metering system. Needless to say, a lot of experimenting will be required until the whole combination works consistently. To make your own exhaust throttle/fuel control system see Harry Higley's article in March 1972 AAM.

Construction

Before you start construction, decide on what engine to use since motor mount spacing may have to be changed and location of throttle pushrod from the bellcrank has to be accounted for early in the construction. Fuselage sides need to be cut out first from a sheet of 1/4" balsa. The sides start at former 1 and follow the shape of the wing to former 3. Next cut out the plywood

formers 1 thru 4, epoxy former 1 to the fuselage sides and epoxy the sides together at the rear. Careful attention to fuselage alignment is important at this stage. Formers 2 and 3 should be used to maintain the shape of the sides but not glued in yet. Cut hardwood motor mounts to shape required, drill necessary holes in former 1 for fuel lines from tank, then epoxy tank, motor mounts, and former 2 into the fuselage. Position of former 2 is not critical and may be located to account for the size of tank you are using. For this reason the motor mounts as shown on the plans are longer than needed. It is important, however, to keep the mounts parallel to the top of the fuselage sides. Formers 3 and 4 can also be installed at this time.

The wing should be tackled next. Cut out spar, bellcrank mount, ribs and leading edges. Epoxy the bellcrank mount to ribs 1, 2 and 3; then add the spar. Careful alignment is needed here to insure proper dihedral and preclude building in any twist. When dry, bend and install landing gear using "J" bolts. Now glue on the leading edges; when dry, position and glue the remaining ribs in place. Temporarily pin a piece of balsa along the trailing edges of the ribs to keep them aligned. While this is drying, cut down the throttle bellcrank to the shape shown on the plans, hook up leadouts to it and install on the mount. Run the leadouts through the wing ribs if you remembered to cut the holes—if not, now is the time to do it.

Next, plank the top of the wing with 1/16" balsa sheet. Before planking the bottom of the wing, trial fit it to the fuselage, temporarily install the engine, then determine location and routing of the throttle pushrod. Holes will need to be cut in former 1 and the top wing sheeting to accommodate it. Install the pushrod to the bellcrank and then plank the bottom of the wing with 1/16" balsa sheet. Next add the 1/2" balsa wing tips, and when dry, shape the tips and round off the leading edge of the wing using medium sandpaper.

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Douglas Devastator

The tail surfaces need to be made next from hard 3/16" balsa; a Veco elevator horn is used and epoxied to the elevator. Hinges can be cloth as shown on plans or commercial types sold for radio control use. Epoxy the elevator and stabilizer assembly to the rear of the fuselage. When dry, the wing should be epoxied to the fuselage. Bend and install the elevator pushrod next, making sure the system works freely since at low speed there is very little centrifugal force holding the airplane out at the end of the lines. A stiff or sticky control system will cause erratic flight. Bend tailhook to shape, then install to platform using "J" bolts. I highly recommend using nothing less than 3/32" music wire for the hook. Also form the tail-wheel strut using 1/16" music wire and attach to plat-

form (I use soft wire to sew the strut to the plywood after having drilled small holes). A spring or rubber band should be installed now to pull the hook down—not much tension is required as you don't want the force of the hook to lift up the rear end of the airplane. Now install this assembly in the rear of the fuselage using plenty of epoxy glue. The fin and the rudder can be installed next, plus the top and bottom fuselage blocks. Rough shape the blocks first, then hollow out the inside before final installation. A slot will have to be made in the bottom block for the tailhook.

We now get back to the front end to make the cowling. First make sure you have drilled holes for the engine mounting bolts and installed blind nuts. Either 1/2" sheet balsa stacked together or a balsa block can be used for the cowling. Obviously the inside will need to be hollowed out to make room for the engine—a hatch on the right-hand side was made for access.



Power is a K&B 40 rear rotor with homemade exhaust throttle system. Has scored 540 points in a meet with 105 mph and 27 mph speeds.



Pre-WW II Navy colors were yellow wings, gray fuselage, and various color tail surfaces. Being so colored, the Devastator is a welcome change from all dark blue Carrier models.

The canopy comes next—here again it can be carved out of a block of balsa and installed as is. Since I dislike solid canopies I took it a step further and molded my own. This task is really not as difficult as it may seem and is worth the effort—it certainly improves the appearance of the model. What you need is a piece of either acetate or butyrate plastic sheet around .040" thick and 4 x 10" in size. Cut out from 1/8" plywood two pieces about 6 x 12" which will be used to hold the plastic while forming. Cut the bottom outline of the canopy out of the center of the two pieces of plywood, make the cut-outs slightly larger (about 1/16") than the outline of the canopy. Now clamp the plastic between the two pieces of plywood and hold over a stove hot plate or in an oven until the plastic sags about 3/4" in the middle of the cutout. Now quickly pull it over the canopy form. You may have to try this several times before you get a good-looking canopy. Some plastic you can reheat again if you goofed. If little bubbles form in the plastic during the heating process it got too hot. A commercial canopy could also be used after some modification—check your hobby shop.

To get a good finish requires a lot of patience and work. Use plastic balsa to fill all the nicks and cracks. Sand the airplane with progressively finer sandpaper until a smooth bare wood finish is obtained. If you intend to use this airplane with high nitro fuels, plan to use Hobbyoxy paint. If not, a regular dope

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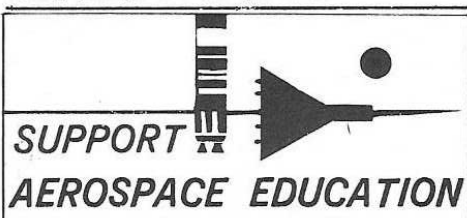


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finish can be applied. For additional strength, you may want to cover the model with either heavy silkspan or silk. My finish consisted of several coats of clear dope over the bare balsa which were sanded lightly. I then applied two coats of Hobbypoxy filler thinned down, then wet sanded with 320 paper. Next came a coat of clear Hobbypoxy also lightly wet sanded. Hobbypoxy color paint was then applied with an air brush—light gray for fuselage and wing bottom, top of the wing, yellow with a red band and black wingwalks, and a red band around the nose. Insignia decals and other markings were added before a final coat of clear Hobbypoxy was applied all over. It's also a good idea to fuel-proof the inside of the engine compartment—slop in Hobbypoxy clear especially in the corners. Now add the wheels, install the engine and you should be ready to go. Per the AMA rules for Class I Carrier, the control lines need to be .015" dia. and 60 ft. long when measured from the center of the handle to the center of the model. Until you get familiar with the model, avoid full-power takeoffs. With a hot 40 she really jumps off the ground.



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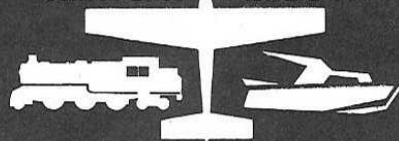
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