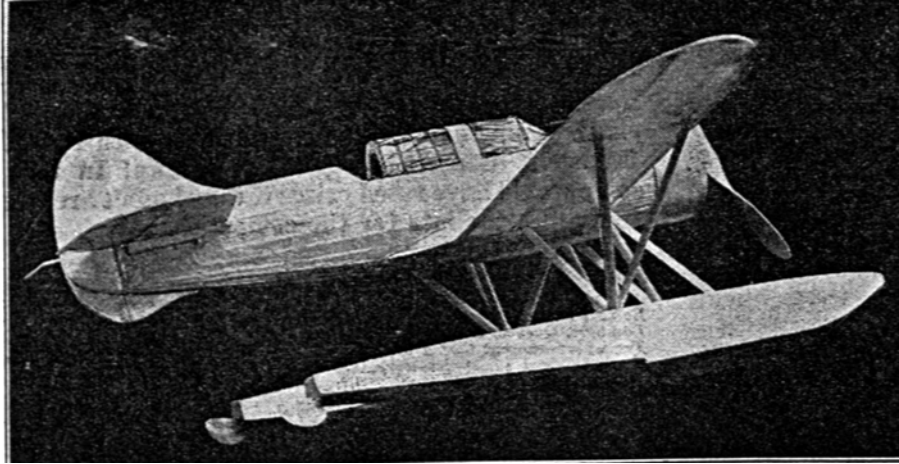


*Ba-bee, what a model! We'll bet darn few of you can look at a job like this without just squirming with the itch to build it. Yep, this sleek M.A.C. Seaplane Fighter has everything. And she'll go up on her step and lift off the water with the same "zip" as her prototype.*



**Fans, here's a hot "scoop" for you — the latest sky-battling seaplane of the Military Aircraft Corporation. It's a snappy job that's never before been published, and it conies right from the bench of Bill Winter, the man who never misses. She's a true water-hopper, too —which will give all you land lubbers a chance to get in some real sea-model soloing.**

**\* \* \***

## **Build the M.A.C. Fighter**

**\* \* \***

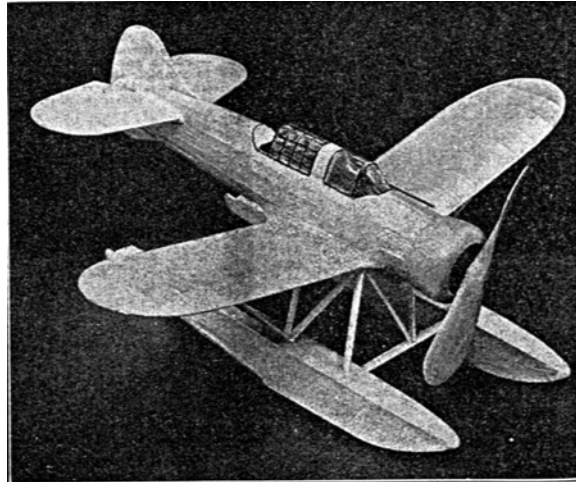
**By William Winter**

THIS trim seaplane fighter is the latest product of the Military Aircraft Corp. and it was designed by DeLackner, of Q.E.D. fame, for the American Armament Corp. Since this ship is intended for export, all-purpose qualities were sought in the ship, thus necessitating a full armament enabling it to serve in several capacities.

The plane is a two-placer, armed with two fixed guns firing through the cowling, one flexible gun for the observer, and two one-hundred pound bombs.

All the features of the large ship have been included in our model, and thorough tests have been made on the little ship in order that you may be sure it will fly well off the water. Of striking appearance, the model has proved to be a mighty slick job—one well worth striving for.

Being a seaplane, this model may prove slight difficult to fly for you fans who haven't yet got your "sea legs." So at the end of the building instructions we give full info on water model soloing.



*And now, here's a front quarter view of our speedy miniature seaplane, showing all the nose details to advantage. Note the neat structure work on the cockpits, the staunch float support members, and the gun sight mounted on the cowl.*

## FUSELAGE

THE type of construction employed calls for the use of four master stringers, each cut from 1/16" sheet balsa. The patterns are obtained by tracing the side, top, and bottom profiles of the fuselage. The bulkheads are also cut to shape from 1/16" sheet. Cut only the notches for the master stringers in starting construction. Cement two of the widest bulkheads in place on the side master stringers. When dry, locate the remaining bulkheads on the same two stringers. The top and bottom master stringers are glued in position in the usual manner.

Having marked the positions of the 1/16" sq. auxiliary stringers, cement these stringers in place, cutting the required notches with a sliver of a double-edged razor blade as the work progresses.

The bulkhead extensions that form the wing fillets support a 1/16" sheet rib (similar to the main wing rib) on

each side of the fuselage to which the wing panels are later cemented. The front portion of this wing fillet is formed by a soft block cut to the size and shape given in the plans. The rear of the fillet is a piece of 1/16" sheet, the pattern of which is also included in the drawings.

The cockpit canopy is constructed of 1/16" sheet formers. The pattern of one of these formers is given. Note that the widths of the formers for the cockpits grow less toward the rear of the fuselage. The space between the second and third cockpit formers is covered with 1/32" sheet balsa.

The stabilizer fillet blocks are shaped from soft balsa as seen on the top and side views. A typical cross section of these blocks is to be seen on Plate 2.

A circular piece of 1/4" sheet balsa, shown shaded on the pattern of bulkhead 1, is cemented to that bulkhead to hold the detachable cowling in place. The rear rubber hook is bent to shape from .028 wire and is imbedded in the 1/8" by 1/4" rudder post.

To cover the fuselage, use narrow strips of Jap tissue to prevent wrinkles. Trim all edges with a sharp razor blade and dope them down. The finished covering is sprayed and doped.

The cockpit canopy is covered with cellophane. The machine gun and its sight can be built from scraps and are cemented in place. The lower fin is cut to shape from 1/8" sheet balsa. Painting is not recommended, however silver coloring throughout the model would be correct. Trim the sight, guns, and cockpit edges with black.



*And can she fly!*

### **TAIL SURFACES**

BEING tapered, the spars of the two stabilizer halves are cut from 1/16" sheet balsa. The rudder spar is made in the same manner. The innermost piece of each stabilizer half is also 1/16" sheet. The lower piece of the rudder, which contacts the fuselage when mounted is 1/8" sheet, curved to

match the contour of the fuselage. The cross pieces of both stabilizer halves and the rudder are all cut from 1/32" sheet. The curved portions of all surfaces are 1/16" sq. bamboo bent to the required shape by candle flame. Sheet balsa may be substituted for the bamboo, if desired, by matching small pieces so that the grain varies. Shown on the rudder detail are sheet, balsa streamlined sections pointed and tapered to match the rear of the fuselage.

Cover each side of each surface with an individual piece of tissue. Attach only the edges with dope and then spray. Pin the wet units to the bench until dry. The completed surfaces are then lightly doped.

Use black tissue strips to designate the control out' lines as seen on the plans.

The stabilizer halves are cemented to the fillet blocks and checked for similar setting. Next cement rudder.

## **FLOATS**

THE top of the float is a piece of 1/16" sheet balsa cut to the shape seen on the plan. To provide a rigid bulkhead mounting and an accurate frame, a spine of 1/16" sheet balsa has been used. It is necessary to bend the back piece slightly, as shown on the side view. The backpiece and the spine are assembled with cement and are held together with pins until dry.

The pontoon bulkheads are cut to shape as given on the plan. They are cemented in place on the T-shaped back. Note that the step bulkhead is two ply. The keel piece is 1/16" by 1/8". The various stringers are next cemented in place. Soft balsa is used to shape the float nose blocks.

A small piece of 1/16" sheet balsa is inserted on the inside of each float between the third and fourth float bulkheads to support the cross strut. Cover each side of each float with one piece of tissue. The bottoms of the floats are covered with narrow strips of tissue to avoid wrinkles. Be sure that the edges are all firmly doped down. Two even coats of dope will serve the purpose.

The struts, with the exception of the cross strut, are all 1/16" by 1/4". The struts M, N, and O are assembled together. These struts run from the fuselage fillet rib down to the pontoon. The cross strut, J, is 1/8" by 3/8" and serves to space the pontoons. The strut K lends rigidity to the structure. The complete assembly is revealed by checking

the side view with the front view. The photographs will also give a general idea of the strut assembly.

The small rudders are shaped from 1/16" sheet balsa and are cemented to the floats.

The bombs are constructed from scraps and are suspended beneath the fuselage by wire, as seen on the reduced front view.

## **WINGS**

OUR wings are constructed in two panels, one left and one right. The spars are 1/16" by 1/4" hard balsa. The ribs, with the exception of the 1/16" innermost ones, are all cut from 1/32" sheet. The innermost rib of each panel is slightly slanted for dihedral. The leading edges are cut down to 3/32" by 3/16" before shaping. The trailing edge is 1/16" by 1/4" hard balsa. The tips are bent to the required shape from 1/16" sq. bamboo. Small pieces of 1/32" by 1/4" balsa are inserted between the first two ribs of each panel to prevent the tension of the covering from warping first rib.

To cover, use separate pieces of tissue for each side of each panel. Dope the edges in place and spray lightly. Pin the panels to the bench while damp. When dry give the completed wing surfaces a light coat of clear dope. If necessary use small pieces of tissue to cover the wing tips.

Cement the wings firmly in position. Check their incidence relative to each other and to the ship. The wing struts, R and S, will hold each panel at the proper dihedral angle.

Use strips of black tissue to designate control lines, noting that the flap outline is on the lower surface only.

## **COWLING, PROP, AND MOTOR**

THE cowling, as seen on both the top and side views, is built up of soft balsa discs. The portions between the heavy division lines are cemented together first. The motor assembly is not removable but is cemented firmly inside the cowling before the front sheet is attached. Once in place, the motor cannot be removed.

The cylinder assembly is accomplished by using scraps. The bearing is cut from tin, as shown by the pattern. The ends are bent over and are sunk in the wood. An extra bearing is made for the propeller.

The assembled cowling is trimmed to the proper contours with a razor blade and is then sanded smooth.

The prop blank is detailed on the plan. The carving is done in the usual manner. The tips are not rounded until the carving is finished. Devote care to the proper balancing of the propeller. After the sanding has been completed, check the balance. After it is cut, the tin bearing is embedded in the rear face of the hub. The front end of the .028 music wire shaft is bent U-shape and is forced into the wood after the shaft is inserted through the balancing hole. Slide an extra washer and the cowling onto the shaft before bending the hook for the rubber.

The motive power is eight strands of 1/8" flat rubber. Be sure that the rubber is taut so that no slack will result from winding. The rubber holds the detachable-cowl in place against the first bulkhead.

### **FLYING THE MODEL**

ALTHOUGH the ship will float and take off the water, do not leave it in the water needlessly. Wind the motor forty or fifty turns and let the model taxi of its own accord, giving it only a slight initial start. Increase the turns gradually until the flying characteristics are noticeable.

Balancing is done by the use of a small lead weight. The elevator portion may be warped up or down slightly if desired. When the proper balance is obtained, wind the model to capacity. It will help the ship to take off if the tail is slightly depressed as you start the M.A.C. on her way.

The original model was tested and flown from the water in this manner without encountering trouble. Two more strands of rubber may be added if additional power is needed to get the ship off the water.

That's the story, fellows—and after you finish your job, how about sending along a snapshot to FLYING ACES for use in the With the Model Builders page?

## **BILL OF MATERIALS**

### **STRIP BALSA**

Ten pieces 1/6" sq. by 36"  
Five pieces 1/16" by 1/4" by 36"  
One piece 1/8" by 3/8" by 6"  
One piece 1/8" by 3/16" by 24"  
One piece 1/16" by 1/8" by 36"

### **SHEET BALSA**

One piece 1/16" by 3" by 36"  
One piece 1/32" by 2" by 24"  
One piece 1/6" by 2" by 24"  
One piece 1/4" by 3" by 24"  
One piece 1/8" by 2" by 6"

**BLOCK BALSA** One piece 1" sq. by 2"  
One piece 8 1/2" by 2 1/4" by 15/16"  
One piece 1 1/4" sq. by 1 1/4"  
One piece 9/16" sq. by 8"  
One piece 3/4" by 3/8" by 9 1/8"

### **MISCELLANEOUS**

One ounce of cement  
Two ounces of clear dope  
Two sheets of white tissue  
Two pieces of flat bamboo  
One foot of .028 music wire  
Some cellophane  
Ten feet of 1/8" flat rubber

## **FLYING ACES – NOVEMBER 1936**