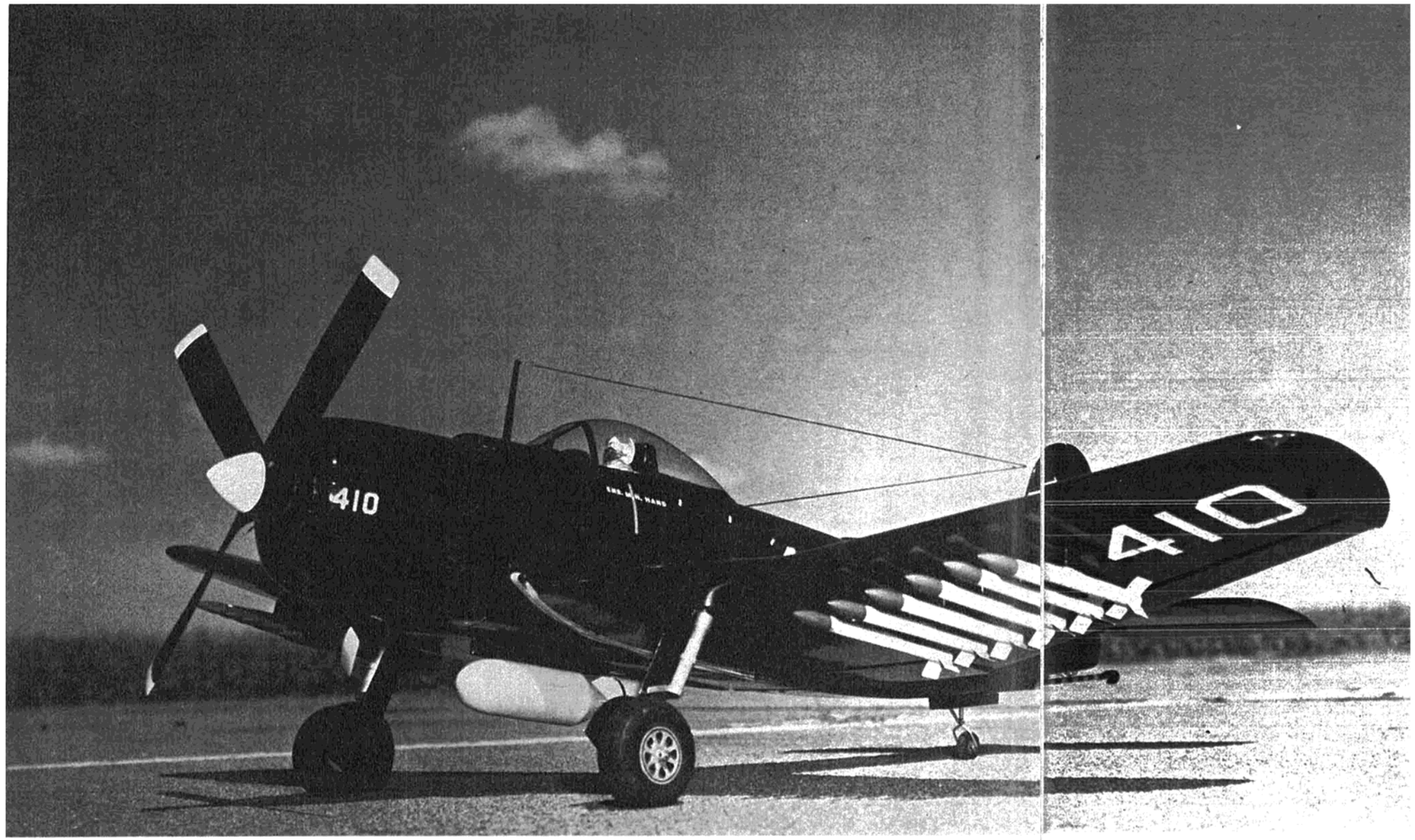

CLAUDE MC CULLOUGH'S MARTIN AM-1 "MAULER"

One of America's top R/C scale competitors presents his R/C version of the Navy's "ABLE MABEL" of WWII.

NAVY torpedo bombers are nearly always excellent scale model subjects. Necessarily big airplanes in order to lift the load, this gives a reasonable amount of wing area for any selected span without having a barrel-like fuselage to drag along, as is usually the case with a fighter type. Then, too, the handling requirements of landing on a pitching carrier deck dictates the use of large tail surfaces and thick wing sections for good low speed characteristics — all tailor made items for R/C scale work.

"Able Mabel," as the Martin AM-1 was dubbed by carrier crews, has the best of the usual torp bomber features and is attractive and colorful as well. Designed around the 4-row 3,000 h.p. Pratt and Whitney R-4360 Wasp Major in the closing days of World War II, the first production model was flown in November 1946. Built for the same sort of mission as the Douglas AD, postwar cuts in Navy budget money forced a choice between the two and the Skyraider won the toss. More than 3,000 "Super-Spads" were subsequently built and they went on to become the ageless stars of the Korean War and the Viet Nam action. The relatively few Maulers built (149) before cancellation were soon retired to reserve status and were familiar sights at various NAS's for years. But as a model the Mauler has it all over the Skyraider, with smaller frontal area and considerably more wing area when built to the same scale.

My version of Mabel was built in 1959 and has been periodically flown since at contests, R/C picnics, demonstrations and for fun. Though a real veteran model, practically an "Old-Timer" in the fairly young event, it can still hold its own in competition. Most recent win was at the 1966 McDonnell R/C Club's Annual Meet Scale Event in St. Louis, August 27-28. Like the prototype (which lifted off nearly 11,000 lbs.), the model will lug all kinds of garbage under the wings in the form of rockets, bombs, torpedoes, tanks, etc. — all good for appearance and scale operations point. There's 950 squares of good thick area there and my AM-1 has been loaded down to over 12 pounds and taken off, flown and landed easily. It can get off most any kind of runway, rough or smooth, and stability and control response are very good. Until 1966 it was flown with reeds, then Bonner propo was installed.

The first thing any good scale builder should do when beginning a model is to do a little research work and round up an assortment of photos. No plan can show the various little details and shapes as well as pictures and you just can't give your project that touch of reality without plenty for reference. They will also be handy in preparing your scale presentation for the judges and worth points in this category.

Here are some good sources on the Mauler:

1.) Air Trails, August 1949. Double page spread of photos, showing all kinds of underwing stores.

2.) U. S. Navy Photos 417044, 404910, 706607. Shows it with a variety of markings and views. Write to: U. S. Naval Photographic Center, U. S. Naval Air Station, Anacostia, Washington, D. C. 20390. Send certified check or money order, 55 cents for each 8 x 10 glossy print. They also have other shots, but you will have to take potluck on those — describe the type of picture you prefer and they'll pick accordingly.

Above, left: If you really go all out, a full load of armament can be accommodated. Caution! Don't have torpedo trigger jam. Landing with torp aboard, it will hit runway — may explode! Above, right: Flaps, arrester hook are also good for scale operation points.

3.) Air Photos, Box 1117, Jamestown, N. Y. Photos Number 1905, 2640, 2641, 2642, 3561, 3562. 15 cents each for 2¾" x 4½" prints plus 5 cents postage for orders under $1.00. The 2600 series are a choice subject for markings, plastered all over with "NAVY," "GLENVIEW," "V" on the rudder and various plane numbers plus a wide orange Naval Reserve band around the fuselage. If that won't brainwash the Nats judges, nothing will!

The markings on my version came from photos by noted aviation historian and author, William T. Larkins. (Another airplane of the same squadron appears in Navy photo 706607.) A color photo of the ship appears in the book "The Pratt and Whitney Story." The airplane is all gloss dark blue (Corsair blue), standard for naval airplanes of the period. Armament is light grey with red noses on rockets and torpedoes, yellow noses on bombs. Red stripe on the white insignia bars. Two types of props are seen on Maulers, paddle blades with square tips and rounded tip with cuff near the hub — color matt black with gloss yellow tips.

A three view appears in the August 1948 Model Airplane News and also a Flying Models of the same period. Since there were detail variations in the general arrangement drawings (a very common problem), photos were used as final authority for landing gear, arrestor hook, built-in right thrust, etc. I was able to borrow the pilot's handbook — a real rarity — (Thank you, Ron Gerdes!) and made copy photos of the cockpit detail and will be glad to provide these at cost of prints. Also I would be glad to answer any question about the model — enclose SAE and write to me at Rural Route 5, Ottumwa, Iowa 52501.

The original version was built from that well known Iowa product, Sig Balsa. Though not as hard to get balanced out (C.G. — 33 to 35% of average chord) as many scales, be careful not to pile a lot of rock hard balsa in the tail end! In fact, given the strength of the deep, full planked structure, the whole ship can be built from Contest weight wood except for wing spars and stringers. Looking critically at a 7 year old model, only two changes were necessary to bring it fully up to date. Standard setup way-back-when was dowels and rubber bands, but with our present selection of cam-locs and nylon screws you will no doubt want to dispense with that appearance spoiling feature. Likewise the part open silkwork with capstrips. Since the glue is already there the only thing saved by this expedient was the wood between the ribs — an inconsequential amount of weight when you consider how it compromises the scale effect. It also makes it hard to sand the finish with all those edges, so full planking is specified on the plans.

I am assuming that no beginners are

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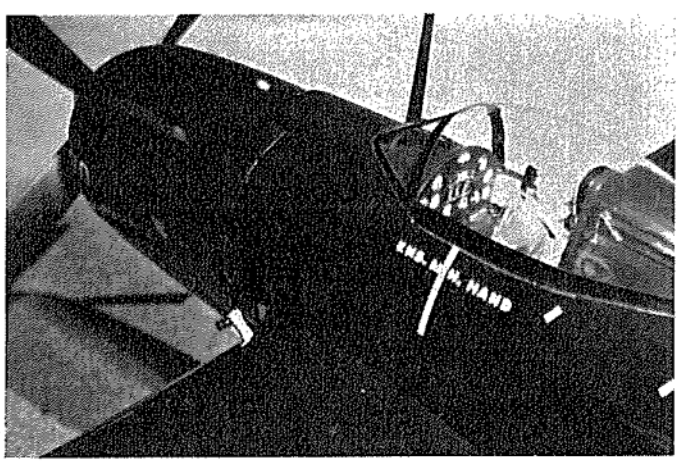
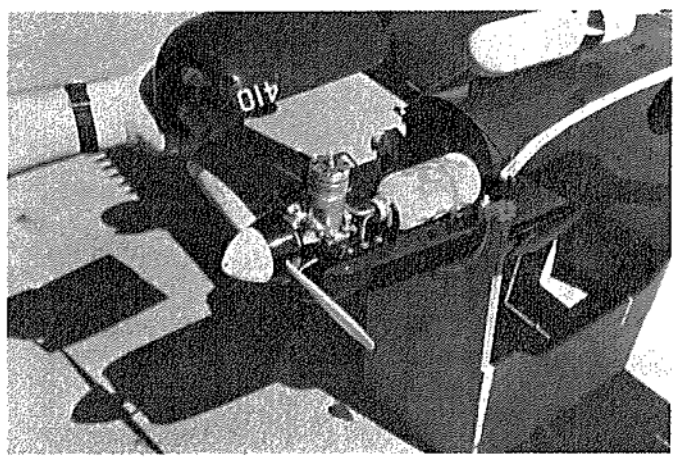
Below, left: That instrument panel was drawn in 1959 "B.T." (Before Tatone!) Now it will be much easier to duplicate. Below right: Installation of Merco .61 in the Mauler. Note "under cowl" details. Since motor is fully cowled, leadouts for glow plug must be taken to an outside socket.





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contemplating making Mabel as a start, so will confine my remarks to special features, since the basic construction is fairly standard and detailed on the plan.

The notches for the fuselage stringers are not cut out until the formers are all assembled on the ¼" sq. main frame — this way they are sure to line up. Pin the ⅛" x ¼" stringers in place and mark the proper spots for notches with a razor blade. Install the tail wheel and do other inner fuselage work while it is still unplanked for easy access. Body planking can be done in fairly large sections if the wood is well soaked and relief cuts are made in any bulges caused by compound curves. The front section between the firewall and F-2 is soft balsa block to provide for carving in the cooling exhaust depressions and the carburetor scoop.

The upper half of the cowling is an integral part of the fuse and is built up around the motor mounts from blocks. The lower half is removable for access to the engine compartment. This is carved from a block of balsa, but don't use a full block, balsa prices being what they are now, but glue up a special "U" shaped in the proper size to minimize the waste of expensive chips on the floor. Cover the outside of the cowling, top and bottom halves, with a layer of fiberglass cloth and give several coats of resin. The bottom half should also be glassed on the inside to prevent warping and give it plenty of strength. Although the cowl on my Mauler has been occasionally scratched by bad landings on concrete, it has never been broken in some hard pile-ups. So don't skimp on the fiberglass because you would only have to put the nose weight on later as lead.

However, here's a tip for those who don't like the thought of marring their handiwork when points are not at stake. I made a birdcage of wire with a nosewheel that bolts into the motor mount holes that hold the engine breakaway plate in place. This contrivance weighs about as much as the lower cowl it replaces and I used it for practice and test flights. This gives you a chance to get the feel of the ship without taking the chance of ski-snooting the cowl. This is not to imply though, that the Mauler is nose-over prone. Quite the contrary, it is as manageable a 2-wheel configuration as you have ever tweaked a thumb at.

Four Bonner servos can be mounted abreast in one row across the fuselage. To keep the C.G. in place with my customary oversupply of dope on the tail, my ship had only a half cockpit, with the servos mounted below and the receiver in the area of the fuse just ahead of the instrument panel. If you want a full cockpit you will have to be especially careful about tail weight and move the servos back to just behind the cockpit. The fourth servo is used for dropping the extra armament and lowering the tail hook.

The only unusual point to note about the tail surfaces is the block that is glued to the outside planking on both sides of the bottom part of the rudder so that a cone-like shape to the navigation light can be carved to complete the fuselage contour. Blend into the rudder lines with plastic balsa. Power lines for the tail light will have to run through the hinge sections with very flexible wire and are buried in the balsa of the rudder. I originally had metal to metal hinges with the juice fed through these, but proportional with its static bug-a-boo made it necessary to drop this method — will be OK for reed however. It should be noted that rule changes are in the works eliminating lights as a scale operation since they couldn't be seen in flight in the daytime. Turning them on and off on the runway doesn't prove much and didn't seem in harmony with the intent of scale operations. A working system of lights is still worth points in scale judging and you should have the bulbs installed anyway for full scale appearance. If night contests get popular, you'll be ready!

As a concession to practicality, the flaps were only taken to the dihedral break. I'm not sure I'd do that now and you may want to consider the scale point advantages and extend them all the way to the ailerons. Just add the stub ribs in the proper spot. Before wing is planked, provide blind nut mountings for the stores pylons so they may be removed for practice flying. The model can take up just as much armament as the prototype — if you don't try to make the bombs scale weight! But you want them off except for contests, being lightly built

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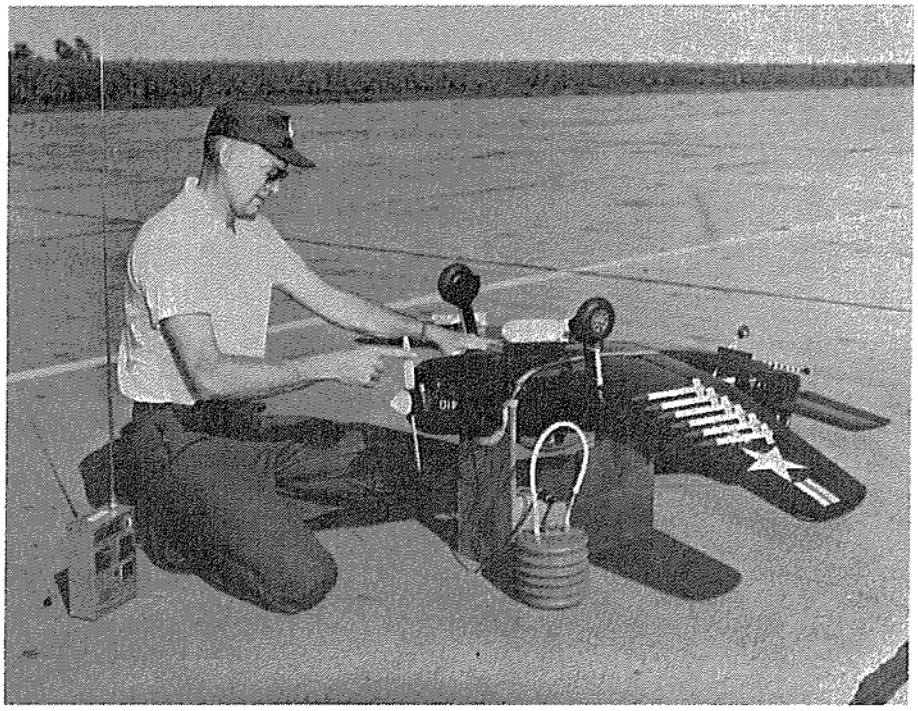

The secret of reliable starting for inverted engines. Plywood stand also serves as a stand for working in the fuselage, and as a handy box for having tools close by the runway.

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and hanging below, they are easily subject to damage. Be sure and drop them on the grass — impacting on concrete can make a mess of the finish on a bomb or drop tank. Besides you should demonstrate you **can** aim them. Don't fly out into the boondocks to jettison — it's easy to lose even a fairly big bomb in tall weeds. (Any volunteers to beat the bushes at Richards-Gebaur AFB in K.C. for my best display bomb? Seems that just past that golf-green neat ridge on the runway edge was Lower Slobbovia.)

I always carry at least the rockets for appearance sake and a bomb for scale operations points. This load makes a minimal change in flight trim. Going to more and bigger items like torpedoes, a bit of care should be taken and work up to the full load a piece at a time.

The rockets are made from paper tubes with balsa nose and tail, fins are heavy paper. To produce the tube, coat a sheet of typing paper with thin glue and roll on a dowel. Tape the end lap and pull out the dowel before the glue dries. The rocket pylons are made from ¼" sheet and glued to a strip of 1/16" plywood. Check for parallel alignment to the thrust line with the wing mounted on the fuselage. The rocket unit is retained in the opening in the bottom planking by blind nut mountings. Fill the hole with an unloaded strip when not packing rockets.

Despite the fact that they are not heavy and of fairly flimsy construction, in use the H. V. A. R.'s have proven surprisingly sturdy — or lucky! The set on the airplane is the original, and though individual rockets have been knocked off on occasion, separation is nearly always at the glue joint to the plywood mounting strip and repairs are quickly made. The wing is planked with the ailerons and flaps as integral parts. Leave a crack in the planking to provide access to saw off the control surfaces with a blade removed from an X-acto saw. Epoxy in the control horns, which are made from Williams Bros. bellcranks. Angle the face of the flaps and ailerons with a razor blade and sanding block. Face with 3/32" sheet as well as the opening in the wing left by their removal. Hinge back on to the wing with the same basic hinge used throughout the model, 1/16" wire pin on nylon strip hinge cut from a W. B. bellcrank. These are strong and static proof.

After sanding and sealing, the entire model is covered with silk. My Mauler was finished in butyrate dope but you might want to try some of the newer lacquer, Hobbypoxy or MonoKote styles. All of the insignia and markings were applied to the model with a ruling pen filled with dope. Small lettering, such as the pilot's name, was done with the help of Wrico lettering guides and white ink. The whole signboard was then well buried under a dozen coats of clear butyrate. The advantage here is that when Mabel gets to looking a little tacky from being dragged around in a

car trunk, all you need to do to make her brand new again is fine sand with 400 wet or rub down with steel wool and spray on a coat of clear. This is not so easily accomplished with all of the finishing details on top. Also little color is needed — two coats — the main finish being the clear topcoat.

I've seen far too many scale models snap rolled in on first flights because the builder, probably taken aback at his project ending up heavier than he had planned (par for the course), thought he could get by without adding nose weight to correct tail heaviness. No matter how much lead must be added to bring the C.G. to the proper location — **put it in!** You are far better off with the correct balance, even at higher wing loading, than trying to fly with an aft C.G. Shouldn't be much of a problem with the Mauler, which has a reasonable length

That's elastic cord for the scale antenna. It stretches easily out of the way for inverting the model onto the starting stand or if it is accidentally bumped.

nose, but this is the most important preflight check.

I find also many scale builders too much like myself. They spend more time building and polishing than they do practice flying. In this case, dignity be hanged. Put the arm on the local Class III expert, sign a release form, give him a banana pellet and the box. A fraction of a second's difference in reaction time on the first flight can be the difference between getting it trimmed out without a scratch and a major repair job. The only thing that went wrong with this procedure with the Mauler was that the test pilot liked to fly it so much, I had quite a time getting the transmitter out of Maxey's hands!