

RAYETTE

This fine handling stunt plane is intended for AMA Junior Control-line flyers and as a practice model for the polished competitor. Easy to build. And tough!

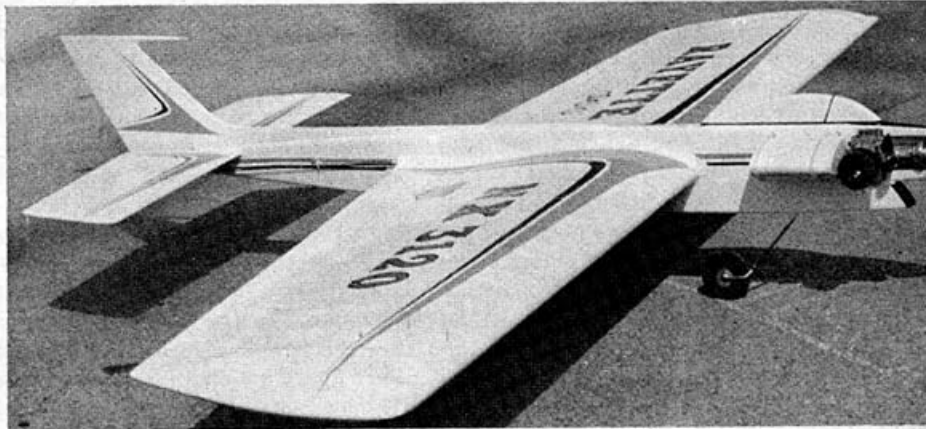
By **BOB GIALDINI**

After returning from the World Championships in Budapest in 1964, I attempted to evaluate the reasons why we are having difficulty keeping the younger modeler, as well as recruiting new Juniors to our ranks. Searching through the magazines did not fully explain the situation, but some conditions were evident. The definite lack of the in-between-type of model that would appeal to the younger modeler, without requiring the amount of time needed to produce a fully competitive stunt model. I feel that I am as guilty as anyone in not producing such an airplane. Both of the designs that I have originated have been the fully competitive type, so suited to my own needs.

Thus, began a series of sketches to produce an in-between-type of model that would have good handling characteristics, and even more importantly,

Bob, a former World Champion and FAI judge, is proud of this McCoy .35 version of his world-famous Sting Ray design.

could be easily and quickly built. The result is the Rayette, a profile stunter of average size, but fully capable of performing the entire stunt pattern we have today.



Profile models can be eye-catching. A jet-type profile and good color scheme.

Before entering into a discussion of the building method, I would like to digress, for the moment, to clarify a few points about Precision Aerobatics. Within the last few years, much has appeared in print about this event and very little of it favorable. "We're in a rut" has been the general consensus of opinion of most people. Some are not contestants in this event, or never have been. Secondly, after the 1965 Nationals, with a total of approximately 76 contestants in this event, biggest since 1958, it appears more people are enjoying being in this rut.

I can't imagine why everyone is constantly taking pot-shots at stunt. A comparison with other events only points out that stunt has been producing better looking and better performing models, and considerably better pilots. If the trend is to the Jet Type models, doesn't this appear to be quite natural, for we are no longer flying Jenny's. Granted, it doesn't take a Jet Type stunter to win and we have had quite a few fine looking and performing models of other types, but I don't feel their appearance has that much effect on today's judges. After the model is airborne, small attention is paid to the type of model being flown, as is my experience while judging. Configuration very definitely can play an (Continued on page 64)



important part in how a model appears to execute our square-corner but, after all, so can a tail-heavy model, but we don't build them that way.

We are presented with a problem, in this event, which is quite complex, we need excellent stability, and at times we don't need it. We need smoothness yet we need quickness as well. All of these conflicting things must be tied into a clean looking, well performing model, that is good looking in flight. Such things must be kept in mind when deciding on a model that you feel will take you up to the Nationals level.

In the Rayette, I have attempted to keep the construction as basic as possible so that the fledgling modeler will have little difficulty with assembly. The first model built had many things that went wrong with it even though I utilized proven dimensions, etc. After quite a bit of cutting and modifying, these problems were overcome and the performance I had in mind was realized. The configuration took shape along the lines of my Sting Ray, although dimensions and airfoil are different.

Wing construction should be begun with the assembly of the main spar glued up on a flat surface. While this is drying, make a template of the two ribs required using either bass wood or sheet metal. Trace out 22 of the larger wing ribs on 1/8" sheet and four of the smaller center ribs. After the spar is dry, locate the rib locations on the spar with ballpoint pen on both top and bottom.

I usually build the wing directly over the plans and location of the lower portion of the rib is no problem. Slip all of the ribs onto the spar making sure you have the smaller center ribs in their respective locations. Layout the lower half trailing edge and pin over the plan. Pin the ribs at the trailing edge and align the entire wing. The leading edge now can be pinned to the front part of the ribs in its proper location. As you can see, with the use of pins the wing can be assembled and aligned with the only glueing being that for the leading edge, trailing edge and the spar.

After the wing is aligned, glue the entire framework, taking care to use ample glue—a second coat if necessary to get a good bond. After the trailing edge is dry, remove the pins, securing it to your building surface and glue the upper portion of the trailing edge. Tips can be added at this time, as well as the bellcrank platform. The false ribs are not required, but the little additional effort required to install them is well worth the appearance it presents.

The fuselage is constructed of 1/2 x 3" medium grade sheet balsa. Glue the additional 1/4" piece on the bottom and rough out the shape over the plans. Cut out the two fuselage doublers and cut the engine mounts to proper length. Sandwich the complete assembly, mount, doublers and fuselage and epoxy together, then clamp with C-clamps. Remember that only one of the fuselage doublers has the cutout for the engine.

While this is curing, the stabilizer and elevator can be blanked out and shaped. Here, a good wood selection is important as the stab requires some rigidity. If you have access to R/C wood, use this because

it is strong. A soft stab will buffet in the air and break. Rudder material is not quite as important, but here the grain direction must be followed so that it does not warp excessively.

Possibly the toughest task will be bending the landing gear wire, but it is not necessary to follow the plans closely. As long as both gear wires are identical, bend them the best you are able. Landing gear mounts are 1/8" plywood and located between the ribs and tucked into the trailing edge. Use scrap balsa to shim up the trailing portion of the ply mount and also along the rib portion.

The nose gear can be mounted in a method other than shown on the plan. I utilized a hardwood block approximately 2" long by 1 1/2" deep and 1/2" wide. Remove a plug of balsa wood from between the fuselage doublers directly below the tank, the identical size of the plug. I split this plug, or cut it in half and clamped the gear wire between the halves in a vise. This will give a pattern for removal of wood to allow the piano wire to fit properly. Glue the two halves with epoxy gear in place, then insert into the fuselage. This mount is the most rigid that can be attained in a profile fuselage. Tank mounting information can be found on the plans, as well as the type of venting.

For the wing mounting, begin by pre-glueing all around the wing cutout on the fuselage, and also down the center of the wing center planking. Slide the wing carefully into place so none of the ribs are damaged. Pin and glue well. I generally

put on at least eight or ten fillets of glue. Next cut some strips of fiberglass cloth approximately 1" wide, and fillet this joint with resin and cloth, being especially careful around the leading edge, for this is where most cracks occur. Finally, if you care to make this joint more presentable, add fillets of plastic balsa. When using this paste, use ample thinner on your fingers to achieve the shape you want. Finish with three or four coats of glue rubbed into the fillet. Flaps should be cut from soft 3/16" stock shaped and installed as shown. Covering material can be silk, Silkspan, or any material you prefer; my preference is silk.

I am fond of finishing a model and trimming it in color, but since I am color-blind I come up with the most marvelous combinations! Well, I think I do! I generally rely on someone else to give me an idea of what looks best. Time spent on trying different trim combinations is well spent. Work in freehand sketches. You don't have to be a Rembrandt, but sketches will give you an idea of how the model will appear. I also use marking tape on the model to help achieve the color outlines I am looking for. The trim on the Rayette is by no means original. It is a Bob Palmer style and flows with the lines of the model.

Trimming (balancing) the model must be done. Some people build nose-heavy, or tail-heavy. If your flight corners are too quick, add some nose weight, preferably in the form of lead melted into the back of the engine plate. For first flights I recommend this anyway, because a nose-heavy trim will offer more stability and allow you to become accustomed to the model. If later on you feel the model is not squaring satisfactorily, begin removing some of the trim weight until you reach a happy medium.

As to controls, use a small handle, one with approximately 4" lead-out spacing—such as the little Hot-Rock. This will give a non-sensitive control requiring about 45-degree movement from neutral to full-up or full-down. Learn to fly your pattern with a model of this type, then built that world-beating stunt model!