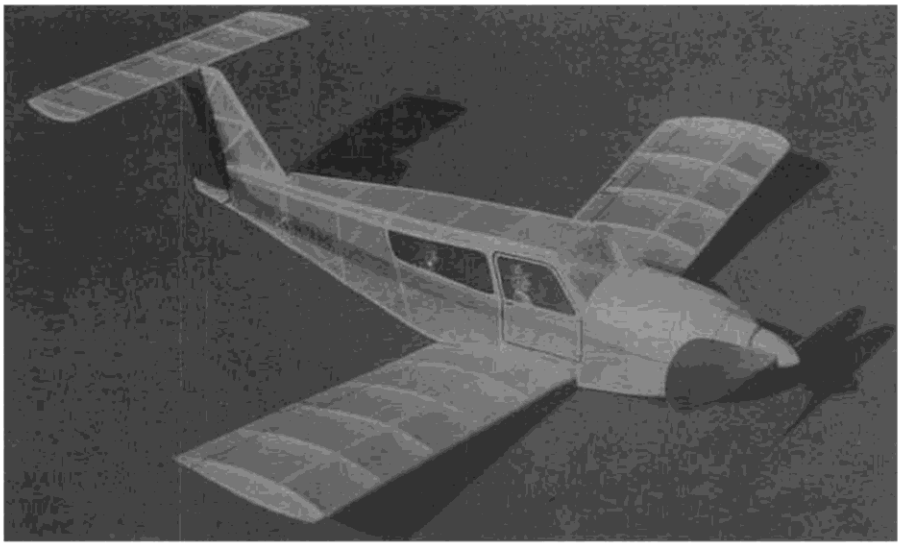

PHOTOS BY FUDO TAKAGI

Bellanca ARIES T-250

By WALT MOONEY . . . Walt's latest Peanut is a nice change of pace from the antique and WW-1 models seen recently. A good flier, too.

• Every year since the late forties, Frederick Warne (Publishers) Ltd. of Great Britain puts out an annual issue of "The Observer's Book of Aircraft." Compiled by William Green, with 3-view silhouettes by Dennis Punnett, these are a delightful source of information on the latest and most important aircraft in production. On page 27 of the 1978 issue is a three-view and data on the Bellanca Aries T-250.

Because the recent Peanut articles have been mostly on antique or WW-I aircraft, it seemed appropriate to select a modern aircraft for this month's design. The Bellanca Aries is a high-performance low-wing design with retractable tricycle landing gear and a T-tail. It is a very clean aircraft with its gear retracted and has an almost slab-sided fuselage, which lends itself to simple lightweight Peanut construction.

With the exception of the dihedral angle, which has been increased slightly, there are no intentional deviations from the scale configuration. The model shown in the photos weighs 15 grams complete with a 14-inch loop of 3/32 flat brown Pirelli rubber, and has flown 57 seconds officially at a Flightmasters West indoor Peanut contest to take first place. This was in a basketball-court-sized Junior High School gymnasium with about a 25-foot ceiling. Most flights were on the order of 48 seconds, ending with an impact against a wall or a backboard. Finally it missed everything and threaded its way through five climbing ropes tied to a wall and managed to land on the floor for its best flight of the day.

It is not a superlight model and can be safely flown outdoors, where lights of over a minute have been consistently flown. Outside, a loop of 1/8-inch flat rubber is used for power. Because the rear motor peg is relatively far back, the larger motor requires a little ballast in the nose to maintain the CG shown.

The model is relatively simple to build, with no strange or exotic methods or techniques required in its construction.

All the structure is balsa. The comments on hard and firm balsa on the plans should be followed if (like me) you want a model that can be flown indoors and outside. If you have an indoor flying site continuously available, all the balsa sizes can be reduced slightly and all the nose cowling blocks hollowed out and a balsa prop carved, which should result in a model that weighs around 9 or 10 grams ready to fly, and is capable of significantly better indoor duration.

The model was covered with Japanese tissue and finished with two thin coats of dope on the wings and tail and three coats on the fuselage. Side windows are simulated with black tissue. The passenger silhouettes were cut out of the window area prior to doping them in place on the lighter-colored fuselage covering. The passengers' facial features were drawn in with colored felt pen after the final coat of dope.

The windshield has some compound curvature. It has to be made by vacuforming over a carved balsa mold if the proper shape is to be obtained. A simple wrap-around windshield can be used if a vacu-form is not available, with no detrimental effects on the flying capability and only a slight penalty from a scale standpoint.

Color trim was contrasting colored Japanese tissue. Movable surface outlines, baggage door outlines, cabin door outlines, landing gear retracted outline, and engine cooling air inlet are depicted with India ink.

Wheel locations in the extended condition are shown so that a model can be built with the gear down, if desired. The added weight and drag coupled with the smaller propeller will result in shorter flights, but the unassisted take-offs and landings that can then be made may increase your pleasure, so take your choice.

The model shown is adjusted for flight by the following adjustments. It flies in smooth left-hand circles, which tend to be tight in the beginning and wider as the motor runs down.

ADJUSTMENTS

1) Both wings are washed out about 1/8 inch at the tips. That is, the trailing edge is higher at the tips that at the fuselage. This results in a smaller angle of attack at the tips and elminates tip stalling.

2) The propeller is adjusted to point slightly downward. This is called "down thrust" and is drawn on the plan. It keeps the model from pitching up under high power settings. The stronger the rubber motor, the more down thrust is likely to be needed.

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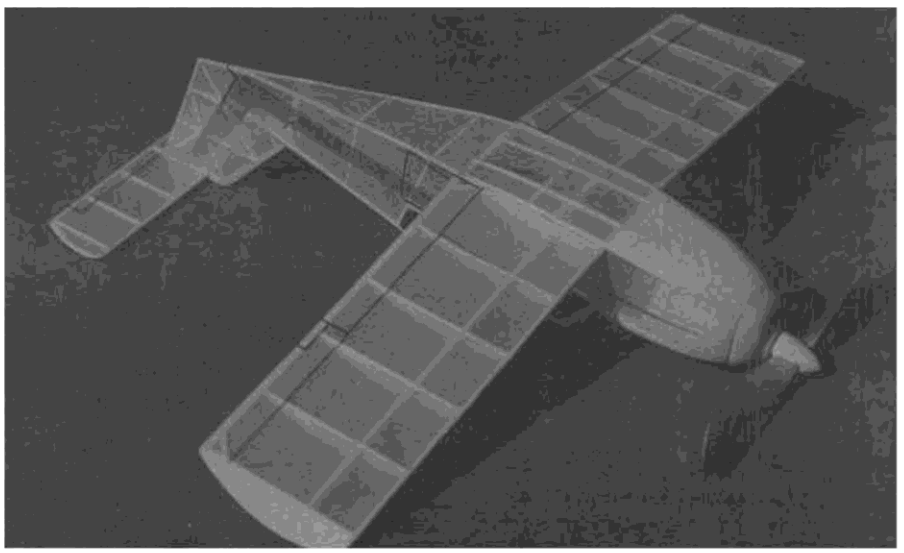

Underside shot shows the sliced ribs and relatively simple overall construction. Best flight so far has been 57 seconds at a recent Flightmasters West indoor Peanut contest.

Peanut . . . . . *Continued from page 61*

3) The horizontal tail has a 1/16-inch shim under the trailing edge to give a little more up elevator than shown on the plan. This requirement may vary from model to model and a shim at the leading edge would look funny when the horizontal tail was above the top of the fin, so the original's up elevator shim is not shown on the plan.

4) The rudder part of the vertical tail is warped to give a left turn. The trailing edge is about 1/16 of an inch left of the top centerline of the fuselage.

5) The center of gravity is as shown on the plan. Ballast the model as required with modeling clay to put its balance point at the CG shown.

If, when your model is completed, it does not have these surface adjustments automatically, which is unlikely, they should be put in by warping the wings and vertical tail. After the dope is thoroughly dry, I use the kitchen stove to provide enough heat to allow the dope to soften and allow the warps to be put in place. Open flames and doped surfaces are all too compatible, and besides, not very much heat is really needed, so I advise you to hold the model in such a way that your hands are between the stove and the model. If your hands don't get too hot, neither will the model. Of course, another heat source, such as an electric hair dryer, is an excellent method. Simply hold the surface in the desired position in the heat for a short time and then, still holding it, remove it from the heat and allow it to cool. Check it after a few minutes and make another correction if required.

I prefer a dry source of heat to using steam, as has been suggested in the past, because balsa readily absorbs water and then tends to slowly revert back to its original shape. Also, dope that is not thoroughly dry still has a small percentage of volatiles in it which will tend to make your adjustments temporary.

Having fun flying your modern Peanut. •