

SOARING MODELING

Flight Without Power With Model Aircraft.

by LLOYD M. LICHER

This is to be the first of a series of articles for the magazine SOARING on the subject of gliding and soaring as pertains to model airplanes. The purpose will be manifold for the material to be covered bridges a wide gap in the sport of soaring and will enable many who have unsuccessfully pursued the larger, more intimate phase, to find a new interest and understanding in soaring.

These articles should also attract many of the isolated model glider enthusiasts by providing a source of consistent authoritative material devoted to this one specific subject. The tie-in with regular soaring news will serve to introduce these younger people to what they can expect should they desire to advance along the path of flight.

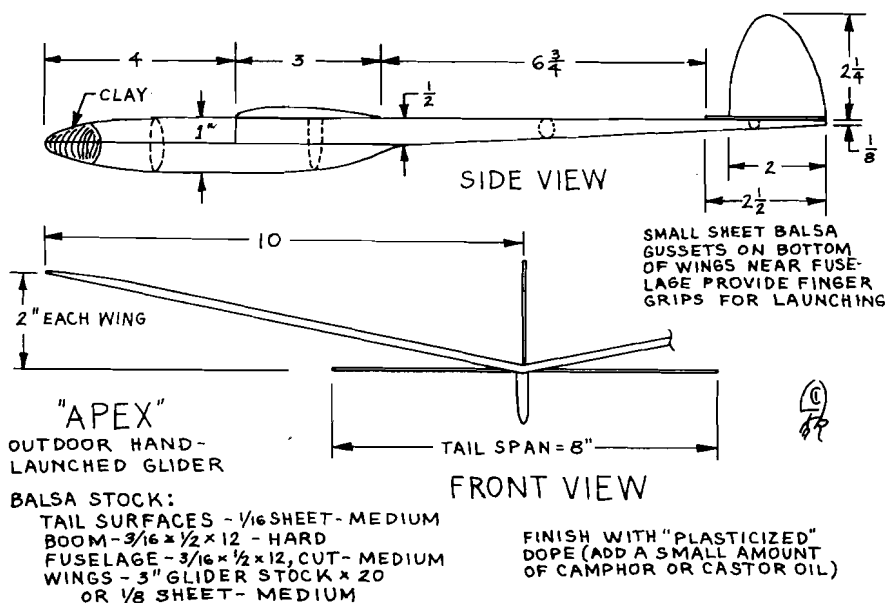
Competitive modeling in the United States is governed by the Academy of Model Aeronautics (AMA), an FAI

able send their top Nordic modelers to the country which won the previous year's meet. This year the Fourth International A/2 Glider Championships will be held at Lesce Bled in Yugoslavia between August 21st and 23rd. Perhaps next year the United States will be represented, sponsored by the SSA and AMA if sufficient backing is available. This column in SOARING could well serve as a focal point for Nordic news so all those desiring information, or wishing to submit some, please contact the author. Good reference material can be found in the June, 1953 issue of FLYING MODELS on page 8 where "The Low-down on A/2 Gliders" is given.

Timing of glider flights for record or competition is based on the total of three official flights with a maximum of five minutes on each. An unlimited fourth flight is used to break ties, and two models may be used to complete the flights.

Towline gliders perform much like winch or auto-launched sailplanes although the lack of a pilot requires inherent stability in the model. This is usually obtained through excessive dihedral and a rudder tab which allows a straight tow up, and deflects after release for the desired spiral. Dethermalizers are practically a must if one wants to keep from losing his model. Generally they consist of a timing device which will deflect the horizontal tail up 30 or 40 degrees after three to five minutes. Such a device mashes the ship down through a thermal before it can drift away out of sight (o.o.s.).

Designs for towliners vary with the individual but average plans include aspect ratios of nine to ten with stabilizer area 20 to 30% of the wing area; generally the models are balanced near the 50 to 60% chord point. The whole model design concept is different from that of larger airplanes because of the Reynolds Number effect and the lack of a pilot. Reynolds Number is an engineering term generally used to compare different airfoils and has as main considerations speed and length of surface traversed by the air molecules. Models fly at a RN around 47,000 while a sailplane is up near 3,000,000. The main effect of this is to lower the angle of attack where the stall occurs. Full scale airfoils stall between 15 and 18 degrees while a model seldom can increase its angle of attack beyond five or six degrees before its drag increases to the point where it stops flying. Consequently model airfoils vary from their full-scale coun-



Model gliding as such has received comparatively little recognition in the ever expanding field of model airplanes; except for one or two ardent enthusiasts, such as the well-known Frank Zaic who has poured endless energy into promotion and research, few have gotten behind this field to put it where it should be. It is an obvious fact that most powered models are essentially gliders during the main part of their flights for only radio-controlled types use extended power runs; thus any modeller could learn much from a study of the pure glider types.

It is hoped that this material will offer an outlet for the many hundreds of present subscribers to SOARING who, because of location or circumstance, are unable to join their brethren in the actual pilotage of motorless craft. Few SSA members actually fly gliders but we couldn't exist without the continued support of everyone.

affiliate, in Washington, D. C. There are a number of classes of gliders established by the AMA which are defined as follows: hand-launched (H.L.) gliders, indoor and outdoor; "limited" towline gliders whose total projected area of wing and tail surfaces must be less than 350 square inches and whose weight must be ten ounces or greater; international Nordic towline gliders whose specifications are: total projected area of wing and tail surfaces between 496 and 527 square inches, weight 14.46 ounces or greater, minimum fuselage cross-sectional area 5.27 square inches. Towline length is limited to 327 feet (100 meters); these latter rules were established internationally by the Nordic countries using the metric system of measurement.

The Nordic gliders, commonly referred to as "A/2's", are growing in popularity here as they have for years abroad. Each year countries that are