

MID-WINTER MARATHON

Great Western Soaring, which is based at the Crystallaire Country Club Airport in Pearblossom, California, is sponsoring a unique soaring contest the purpose of which is to provide off-season soaring enjoyment for Southern California pilots. The contest is designed to promote competition fun and awards for entrants and sailplanes on an approximately equal basis and will permit jointly owned and club gliders to fly in the same contest with more than one pilot competing.

Highlights:

1. The contest will run from October 15, 1966, to April 16, 1967, a total of 182 contest days.
2. The competition will consist of ten free-distance flights made at the pilot's option. The best six of the ten flights will be scored.
3. Competition will be made in two categories identified as *Open* and *Restricted*. Only gliders with published performance figures of 29-to-1

L/D or less will be eligible to fly in the *Restricted* category. Any glider can be flown in the *Open* category. Two-place gliders, with passenger, may be used in the competition.

4. Participation plaques will be given to all competing pilots.

5. An award will be made to the first, second and third place winners in the *Open* category and to the individual making the longest distance flight of the contest.

6. Awards in the *Restricted* category will be made for the best score achieved by pilots who started the contest as a) Gold badge holders, b) Silver badge holders, and c) C badge holders. An award will be made in this category for the highest overall score.

For further information, rules, and entry blanks, call (805) 252-0886 or (213) 346-7721 or write to Great Western, 18627 Fairweather, Saugus, Calif. 91350.

BUILDING METAL SAILPLANES

Whenever the subject of building a metal sailplane comes up, the average person says, "I could never do that. I might get by on a wooden ship but I do not know anything about metal." The purpose of this series is to remove the mystery of metal construction and convince the average craftsman that he can build his own metal sailplane. Constructing your own ship in the wintertime can be just as enjoyable as soaring is in the summertime.

Suppliers of kits for metal sailplanes normally furnish parts that are bent or formed so that the builder need only trim, drill and rivet. These are relatively simple operations and can be performed by anyone with normal mechanical ability. Aluminum is an ideal material for building aircraft for the following reasons:

1. It is a uniform engineering material with consistent and dependable physical properties.
2. It is unaffected by moisture. Skin surfaces will hold accurate contours.
3. It has an excellent strength to weight ratio.
4. It provides the maximum protection for the pilot in crash resistance.
5. It is easy to fabricate.

2024 T-3 Alclad is a strong, heat-treated aluminum alloy which is used for skins and most parts that do not require severe compound-curve forming. Alclad means that the sheet has a coating of pure aluminum on both sides for corrosion protection. 2024 O Alclad is the same alloy in its soft condition and is used for parts such as wing ribs and bulkheads. After the parts are formed they are heated to 920 degrees F for about 10 minutes and then quenched in cold water. Hardening does not occur immediately but takes place very slowly or quite rapidly depending on the subsequent air temperature. Hardening can be delayed by holding parts at deep-freeze temperatures.

The smooth exterior surfaces on sailplanes require flush riveting. All holes in skins must be dimpled or machine countersunk to accommodate AN 426-style rivets. Because of cracking problems, dimpling is not recommended for the homebuilder. Micrometer coun-

tersinks are used for machining rivets holes to fit 100 degree flat rivet heads. All interior rivets can be of the AN 430 round-head or AN 470 universal-head types.

It is important that the builder be familiar with rivet-designation nomenclature so that he can pick rivet sizes from an assembly drawing. Below is an explanation of a commonly used rivet, AN 426 AD 4-7.

AN=Army Navy Standard

426=100° Countersunk Head

AD=2117 T4 Alloy

4=4/32" or 1/8" diameter

-7=7/16" length (overall on 426 style, shank length on all others)

Rivet heads are marked for identification as follows:

Alloy	Marking
2117-T4	Dimple
2124-T4	Two raised radial dashes
5056	Raised cross

Next Month: Some useful tables of rivet, bolt, tube and sheet strengths will be featured. Readers with ideas they wish to see covered in this column are invited to submit them to Dick Schreder, Box 566, Bryan, Ohio 43506.

Historical Notes

Abroad, one of the oddity flights of 1931 was a takeoff from the ice-covered top of an Alpine mountain. On June 7, two Swiss airmen hauled their soaring plane up the icy slopes of the Jungfrau, by means of an electric windlass and a sledge, to the peak, 11,430 feet above sea level. Riding their two-passenger glider out from a snow stretch on the side of the peak, they jockeyed about on the treacherous gusts of the mountain valleys for hours, landing safely 100 miles away from their starting point. Another freak glide of the year took place near Atlantic City, N. J. William G. Swan, in a glider, propelled by a rocket rose to 100 feet altitude and flew for approximately 1,000 feet.

— THE BOOK OF GLIDERS