

the use of single slotted flap to replace the special plain flap. A slotted flap provides accelerated flow through the slot and over the flap which delays separation, with a consequent reduction in drag and at the same time produces a much greater life increment than is obtainable with a plain flap. The combination of lower drag and higher lift coefficient results in an appreciable reduction in sink and forward speed. Since the flow through the slot is always turbulent, atmospheric turbulence will have no further effect on the behavior of the flap as it does with the special plain flap.

The main body of the flap is designed to deflect 20° and the ailerons 10°. In the up position, the ailerons act as sealed differential ailerons as they were originally. As they deflect downward as flaps, a slot is formed but they continue to act independently as ailerons through the same differential motion. Since a partial span flap causes a rather sharp discontinuity in the span load distribution of a wing with a consequent increase in induced drag, the ailerons are drooped to minimize this discontinuity and drag increment, as well as contribute to a higher maximum lift coefficient.

In the final arrangement, the slotted flap extends the low speed range of the ship significantly as the performance curves for the Sisu IA in figure 2 show. Every effort was taken to insure that the calculation of the flapped performance was conservative.

Other aerodynamic changes will include increasing the elevator and rudder area and the rudder motion. Additional elevator area is required to accommodate the higher pitching moment produced by the slotted flap and additional rudder is required to correct the marginal rudder power of the original.

The dihedral angle will be increased one degree to improve stability for instrument flying. The prototype tends to enter into a spiral dive rather rapidly, indicative of marginal effective dihedral in relation to the directional stability parameters. The increase in tail area makes this change even more necessary.

The spoilers will also be increased in size to make them more effective for glide path control and to serve as terminal velocity dive brakes.

The primary structural change to be incorporated on the Sisu IA will  
(Concluded on page 17)

# NOTES ON THE 28th ANNUAL U. S. NATIONAL SOARING CHAMPIONSHIPS

by MARSHALL CLAYBOURN, *Contest Manager*

The 28th Nationals will be held from August 1-10, 1961. The site will be the Wichita Municipal Airport.

Those two statements are the main messages of this article. There are additional items of interest regarding the contest and KSA and a series of these pre-contest notes will attempt to supply operational data, background information on the contest area, and answer as many of the anticipated questions the contestants and crews might have as occur to us.

This year the Championships will be sponsored by the Wichita Chamber of Commerce and will be conducted by the Kansas Soaring Association. KSA is a young organization and not experienced at conducting contests. However, we have already received offers of support from the Tulsa Skyhawks and the Texas Soaring Association. Their offer of support is gratefully acknowledged and it will be utilized. As an additional compensation for our lack of experience we have already started weekly meetings to organize the various committees and to define the objectives of each of them. The next article will contain our organization chart and the names of those assigned to head each group.

The dates of August 1-10, inclusive, means the contest will start on a Tuesday and end on a Thursday, as has been the custom for the past several years. These dates were selected for a variety of reasons with the weather, naturally, being the prime factor. Predicting the wily course of the weather has not been developed to a higher accuracy or more refined art in Kansas than it has in other regions. However, it is likely to be less capricious that time of the year.

The Municipal Airport in Wichita is a self-supporting airport owned by the City of Wichita and operated under the auspices of the Board of Park Commissioners. This \$10 million facility was opened in 1954. It is a beautiful airport, located 6½ miles west-southwest of downtown Wichita, built from scratch after the city's original airport became an Air

Force facility as well as the home nest of Boeing B-47's and B-52's.

The aviation committee of the Wichita Chamber of Commerce, under the leadership of Mr. Al Wilson of Yingling Aircraft, has worked diligently with KSA in securing permission from the Board of Park Commissioners to conduct the contest on this facility. Complete operational details, suitable photographs and maps of the site will be prepared for publication as soon as possible. The Competition Rules should be ready for publication in March.

The contest is already destined to be a battle of the champions. KSA's own Harland Ross, holder of U.S. Diamond C No. 14, was the first to state his intention of competing. The first out-of-state competitor to announce his plan to participate was "Redoubtable Richard," Dick Johnson that is, five time winner to the U.S. Championship and famed for his 535 mile world distance record flight. The latter flight, incidentally, terminated some 80 miles north of the site of this year's contest. There is another announced competitor who would cause a big stir even if he hadn't won the Nationals on two previous occasions. He is Dick Schreder who expects to be competing with his new HP-10. The competition looks like it'll be hot and heavy.

If you're the type that likes to start looking the situation over early, consult the Wichita and Salina Sectional charts (and the Lincoln and Sioux City for the really optimistic) or WAC's No. 360 (Kansas River) and No. 307 (Platte River).

As mentioned previously, an attempt will be made to provide as much pre-contest information as is possible to facilitate planning by pilots expecting to compete. However, should anyone have an urgent problem regarding the contest with which we may be of assistance, do not hesitate to communicate. Pre-contest mail should be addressed to: 8034 Levitt, Wichita 7, Kansas. The phone number is MU 4-1585.