

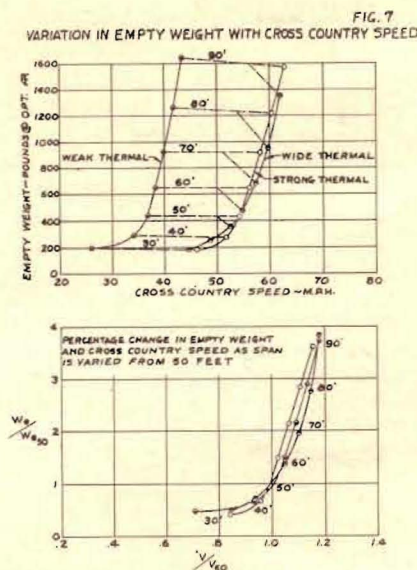
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from history that the 1-23s and Tiny Mite pushed RJ-5 awfully hard in Texas in 1952. Here were ships of lower span and slightly greater minimum drag almost equalling the cross-country performance of the RJ-5. It does not seem inconceivable that this was due to an excessive aspect ratio on RJ-5. It should be remembered that RJ-5 is the world's outstanding sailplane for reason of a generous span and very low drag and not necessarily primarily because of its high aspect ratio. Although this feature helped provide its large maximum glide ratio and good penetration, it may in the process have detracted from the cross-country capabilities under average conditions.

RJ-5, world's highest performance aircraft.



Figure 7 is presented to illustrate the title, "What Cost Performance?" Here the cross-country speeds are presented together with the empty weights where the data is taken at the optimum aspect ratio at each span. It is seen that below a span of 50 feet, the performance falls off rather rapidly and the empty weight decreases rather slowly. Above 50 foot span, however, the gains in performance come slowly while the weight increases at an alarming rate. In the lower figure this conclusion is placed in percentage form with a 50 foot span taken as the reference condition. Adding 20 feet to the span doubles the empty weight at a gain of only 10% in speed. Adding 40 feet to the span quadruples the weight while providing a 20% gain in performance. On the other hand, reducing the span only 10 feet reduces both the weight and performance to 70% of their respective values at the 50 foot span. Reducing the span by 20 feet cuts the weight in half but reduces the performance to 72 or to 85% of the value at 50 foot span depending on the thermal type. It is not recommended that one consider a 30 foot span for contest work although for a small person a 30 foot span sailplane of low aspect ratio could provide very enjoyable sport soaring. That, however, is an-



other story to be delved into at another time. It would appear that spans on the order of 50 to 60 feet might be optimum for single-plane contest work since the gains in performance at higher spans are not too large and one could probably count on revolving ground crews to tip the balance in favor of the medium span sailplane. It is hoped that this study will be of aid in the preliminary design of sailplanes to come and that a note of caution will have been directed toward the indiscriminate use of high aspect ratio particularly at the low to moderate spans.

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HARRIS HILL FATALITY

by

THE SSA SAFE PRACTICES
COMMITTEE
(Chairman, Joseph M. Robertson)

L-K sailplane, N57548, dove into the ground at Harris Hill, Elmira, N. Y., on August 29, 1953. The pilot, Charles J. Smith, was killed and his son, Charles, Jr., suffered severe injury. The glider, except for one wing and the tail, was demolished.

History of the Flight

At approximately 3:00 p.m., EDT, C. J. Smith and his son took off in the L-K by means of auto pulley tow for a local soaring flight. The tow appeared normal except that the climb was not as steep as usual and the release occurred prematurely at an altitude of approximately 200 ft. Normal L-K release altitude that day had been 300 to 400 ft. After nose down for release, the glider did not assume level flight but continued the dive until it was vertical. An attempt at recovery was made a short distance above the ground; however, due to the vertical velocity and the speed of the recovery, the aircraft contacted the ground while in a normal flight altitude, bounced almost 100 ft. and stopped. The pilot was killed and the passenger critically injured.

Investigation

The L-K, an unmodified club ship, was fully certified at the time of the accident, was equipped with shoulder harness and had been flown previously the same day. Whether or not a preflight inspection was performed is not known. There was no evidence of failure of the towhook or of any structural part. The pilot, an employee of the Schweizer Aircraft Company, had a commercial glider ticket with 300 hours in sailplanes and was experienced in L-K's and in auto pulley tow. He was under a doctor's care at the time of the accident due to having had a large portion of his stomach removed during the war, but so far is known, had not been advised not to fly. Evidence indicates that the passenger, while not a pilot, pulled the stick back against considerable pressure when he saw what was happening, in an attempt to correct the situation.

Analysis

There was no malfunction of the glider, the tow was normal until release and the pilot was not in control

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