

# ***SURVEY OF FLIGHT INSTRUMENTS AT THE 1963 NATIONALS***

by HARNER SELVIDGE

"A lot of this is pure Gamesmanship," confided one pilot at the recent U. S. National Soaring Championships at Elmira when I peered into his cockpit at his well-equipped instrument panel "Some of them aren't connected to anything!" If my experience is any indication, that was a lot of wasted effort. For years I had the most extensively equipped instrument panel in any U. S. sailplane, and I never won anything. All of mine worked, too. Obviously instruments won't make a good pilot out of a poor one.

Feeling that *Soaring* readers might be interested in the instruments used by the top competition pilots I decided to survey the panels at the Elmira contest this year, and see if anything could be learned from them. I did not arrive until the last day, but by some fast footwork managed to get the instrument complement of all 44 ships which flew that day. This article summarizes some of the results of that survey. For further details on any of the instruments mentioned, see Chapter 7, "Instruments & Oxygen" of the *American Soaring Handbook*.

## **Variometers**

Without doubt the most important instrument for soaring flight is the variometer. For many years the pellet-type was the standard, but it is now going into the discard. Only 12 were noted, and many of them were apparently just filling what would otherwise have been an empty rectangular hole in the panel. Only one of the first twelve pilots in the final placing had a pellet variometer on his panel. They are inexpensive, and simple, but can stick on account of moisture, static or dirt, so are not as reliable as the other kinds.

The most numerous kind of variometers were the Horn or vane-types. There were 58 of them

in use. Some of them were pre-war Horns, but most were modern Friebe or the Polish PZL makes. They can be obtained with a wide variety of sensitivities, with those of 0-5 or 0-10 meters per second full-scale being the most popular. Nine pilots were carrying the ultra sensitive ones with 0-1 or 0-1.5 full-scale, but only one of these pilots placed in the top twelve. Those who had the sensitive versions also carried a less sensitive one.

There were 15 Memphis variometers used. This instrument has been out of production for seven or eight years, but is still being cherished by the fortunate few who still have them. In my opinion, the modern electric variometers are superior to the Memphis in many ways, but it is an excellent instrument of highest reliability. Three pilots among the first 12 carried Memphis variometers.

Perhaps the most significant change in variometers was the large increase in the number of electric variometers in use. Eighteen Crossfells and one Cook were counted. Six of the top twelve contestants, including the winner Dick Johnson, used the electric instruments. Their high sensitivity and easy scale-changing features make them extremely valuable in all kinds of conditions.

In the short time available it was not possible to determine how many variometers were equipped with total energy compensators, but our guess would be more than half. In the past it was easy to count the total energy units by looking for the externally-mounted venturi static sources, but now almost everyone has gone to the internal diaphragm-type of total energy compensator, and it is not possible to tell at a glance if the aircraft is so equipped. Likewise, the number of audio signal devices attached to the electric variometers was not known, but the manufacturer and sales representative of the Crossfell instrument state that over 75% of their present sales include audio units.

How many variometers should

you carry? The 44 contestants had a total of 104 among them, or an average of about 2.4 per ship. A couple of confident (or optimistic) chaps had only one, while one confirmed pessimist had *four* on his panel. Twenty-five contestants carried two, and sixteen carried three.

## **Gyro Instruments**

A list of some six or eight pilots was posted by the contest directors as being accepted with the necessary licenses and equipment for instrument flight. However on the contestants' panels were found 38 electric turn-and-bank instruments and 8 artificial horizons. It was not possible to tell how many of them were operable and had fresh batteries, but it is evident that most of the contestants believed gyro instruments to be worth while. Only four ships had none.

## **Compasses**

In view of the large number of gyro instruments, it was a surprise to me to find so few good compasses. There were only two Cooks and three of the Kollsman direction indicators. Nearly everyone had the conventional magnetic compass used in light aircraft, but they are extremely difficult to use in turbulent air such as is often encountered in cloud flying. I have spent a number of hours flying inside clouds in sailplanes and when things get tough I want to get out on an exact, previously-selected heading *fast*, to the nearest open air. The well-damped Cook or Kollsman units will tell you this, especially the former when a pivoted mounting is used. Dick Schreder uses a small pocket compass he found in surplus which surprisingly also has these excellent characteristics. It is a U. S. Gauge "Pocket Card Type Magnetic Compass" BuAer Stock No. R88-C-786.

## **Miscellaneous**

Eleven of the contestants carried accelerometers, and perhaps a half dozen had a thermometer-like device on the panel which was evidently functioning as a pitch attitude indicator. The utility of this latter instrument is not obvious to me. Perhaps one of the users will come forth with a note on its particular virtues. No "thermal sniffers" were evident from my hurried inspections. Perhaps they were concealed behind some conventional meter face, or more likely, the millennium is not yet upon us.

Opposite: Photographer Alex Aldott terms this one of the most beautiful photographs he has ever taken of a sailplane in flight. The subject is again Al Parker in his Sisu IA over Odessa, Texas. Alex has certainly put the viewer in the soaring element with this one. (All rights reserved.)