

After ascertaining that the ship is well clear of external magnetic influences (beware of buried pipes and wiring) one person, holding the compass, should stand about 50-75 feet in front of the sailplane and have the ship carefully pointed to magnetic north by sighting with the small hand-held compass along the centerline of the fuselage. The N-S adjustment screw should then be carefully turned until the compass reads N. The sailplane is then rotated exactly 90 degrees to an east heading, the same pocket compass/centerline checks are made to ensure that this is correct, and the adjusting screw marked E-W is turned until the compass reads exactly E. The ship is then turned an additional 90 degrees to a S heading, and this is again carefully checked by the use of the external hand-held compass.

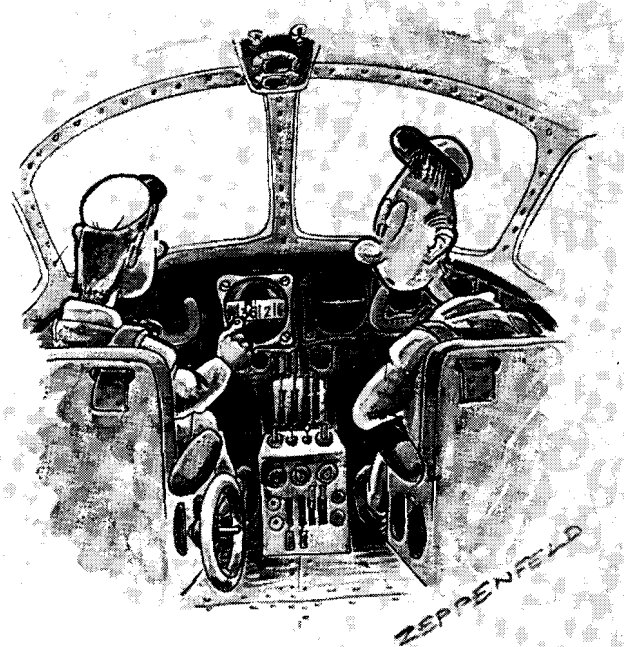
As luck will probably have it, the compass in the ship will not read S as we might expect, but will be off, one direction or another, a few degrees. If an error exists, the N-S screw is *carefully* adjusted to eliminate half of the error apparent on this S heading. (What you are trying to do is balance out the residual error so that it is relatively equal in amount and direction all the way around the dial). After the adjustment on the S heading, the ship is then swung to a W heading, and again the accuracy of this heading is checked by the external compass. The same procedure as for S is then followed, and half the error is carefully removed by use of the E-W screw. This should conclude the swinging but additional improvement may be obtained, particularly if the errors noted were large, by again running through the whole process and eliminating half the remaining error on each heading. This should then result in a maximum degree of compensation. The errors should be balanced fairly equally throughout the 360 degrees, and the compass should operate freely and smoothly on any heading.

The only thing remaining is to make up a deviation card which will show the pilot the compass errors (deviation) on selected headings. A small card is made up to show the errors at each 30 degree heading around the dial and this card is mounted in the cockpit, in easy view of the pilot.

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The Cook compass is often used by sailplane pilots and as no instructions for compensation come with the instrument, the proper use of the small compensator magnets might be confusing to some users. Proper adjustment is easy, however, if a few simple procedures are followed. The instrument should be removed from the sailplane and placed on a table. The two large screws covering the holes for the compensator magnets should be removed and set aside. The compass is then turned until the needle points exactly to N. Then one compensator magnet is slowly moved toward the hole on the side of the instrument (this hole is drilled directly under the E mark on the dial). The effect of the small compensator is carefully observed. It will either increase the reading (counterclockwise movement of the needle) or decrease the reading. The end of the small compensator magnet which increases the reading is then marked—fingernail polish is ideal—and the same procedure is followed for the remaining compensator magnets. We now have the magnets all color coded for easy use in the field where the compensating must be done. At this time it might be well to classify the compensators according to the amount

of instrument change they cause. This will generally be between 3 degrees and 8 degrees. Sticking the magnets between a couple of strips of masking tape is an easy way to keep them separated, pointing in the same direction, and classified as to strength.



How can we fly a course of 45°? This compass only goes up to 36°!

Basically the same procedure as for the standard aircraft compass is followed when swinging the Cook. The sailplane is pointed to N by means of the Boy Scout compass and external sighting, and the compensators are inserted in the side hole of the instrument under the letter E. Inserting the red end of the magnet will move the needle counterclockwise, and vice versa. The compensating hole on the front of the instrument (under the letter S) is used when working on the E-W headings, and the same procedures as for the standard compass are followed all the way around the card. As the Cook is graduated in 10-degree increments, the high level of accuracy attainable with the standard compass is generally not available with the Cook, but a little care in swinging and compensating will provide an instrument that is extremely usable in a sailplane. Of course, the Cook should be mounted vertically during the swinging operation and the mounting bracket should permit the instrument to swing freely in a fore and aft direction in order to allow it to point directly toward the center of the earth. When properly compensated and mounted the Cook compass is an excellent instrument and is particularly valuable in cloud flying as it is extremely stable, has very little error and is little affected by high rates of turn.

Quotable Quotes

I was concerned and impressed with what was going on behind the Iron Curtain relating to gliders. It came to me that we ought to look into this program to see how it is operating and whether enough emphasis is being placed on the glider aspect here in our own country.

—HUBERT H. HUMPHREY