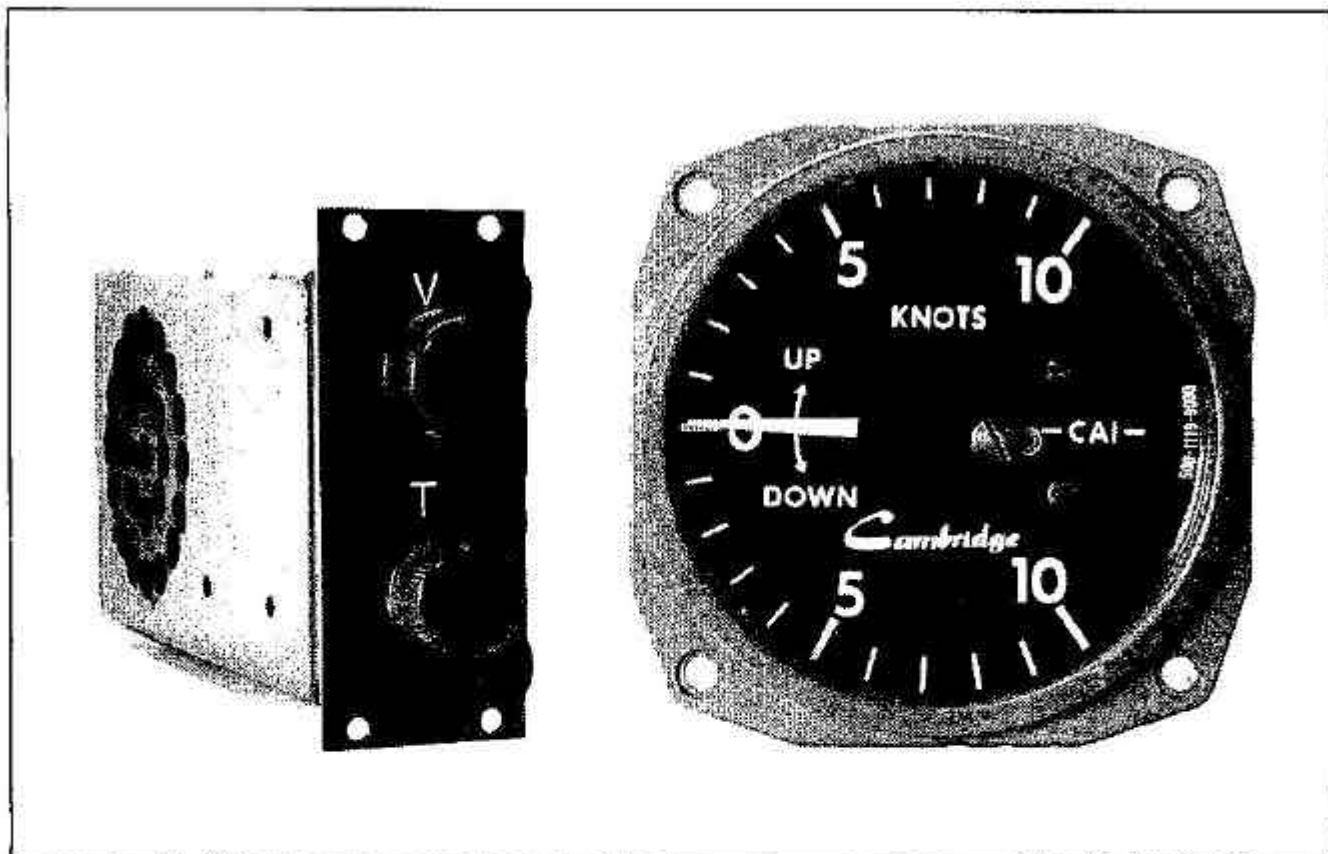


THE CAMBRIDGE VARIOMETER SYSTEM



The Cambridge Variometer System is a sensitive, electric variometer, providing both visual and audible output. Features include low power consumption from any 11-18 volt supply, a fast but well-damped response, and the optional addition of a second visual indicator for 2-seat sailplanes.

A further outstanding feature is the virtual absence of zero-drift, a continuing problem with electric, and vane, variometers. Installation is in the standard 3.125" aircraft panel opening.

The Cambridge Variometer is ideally suited for the new Venturi T.E. compensators, as well as the standard types of compensators. A speed-to-fly ring is available as a standard accessory.

The Cambridge Variometer has been extensively tested over several years in various sailplanes. Its unique and highly compact design has been proven in contests and in general flying, and will be a dependable, essential addition to your sailplane.

WARRANTY

All CAI Variometer Systems are guaranteed for a period of TWO years from date of purchase. This Warranty includes all parts and labor costs only, and is valid only if returned to CAI Inc. The Warranty is void if the instrument has been misused outside its limitations.

(Specifications on reverse)

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SPECIFICATIONS

(CVS 40, 50, 60, only)

Variometer

Sensitivity: ± 10 Kts. or ± 1000 Ft./min. or ± 5 m/s.
Zero Stability: $\pm 3\%$ of Full Scale, over 0°F to $+ 130^{\circ}\text{F}$. (at ± 10 Kts)
Operating Temperature Range: -20°F to $+ 130^{\circ}\text{F}$.
Visual Output: 250° Center Zero Scale. Case mounts in $3.125''$ hole
Damping: Standard at 1.0 second. Use of restrictors will increase this.
Controls: One Zero screw adjustment, included in package, and an on/off switch.
Power Requirements: 20m/a from 11-18 volt DC supply.
Reference Capacity: 1 pint or 0.5 liter. An insulated flask supplied.
Total Energy: Recommended for the new Venturi Compensators.
Will handle the Burton, Winter or PZL Compensators.
Dual Range: Hi (± 5 Kts.) or Lo (± 20 Kts.) sensitivity models available.

Repeater

Identical package to the variometer. Utilizes same cable connection as Audio attachment.

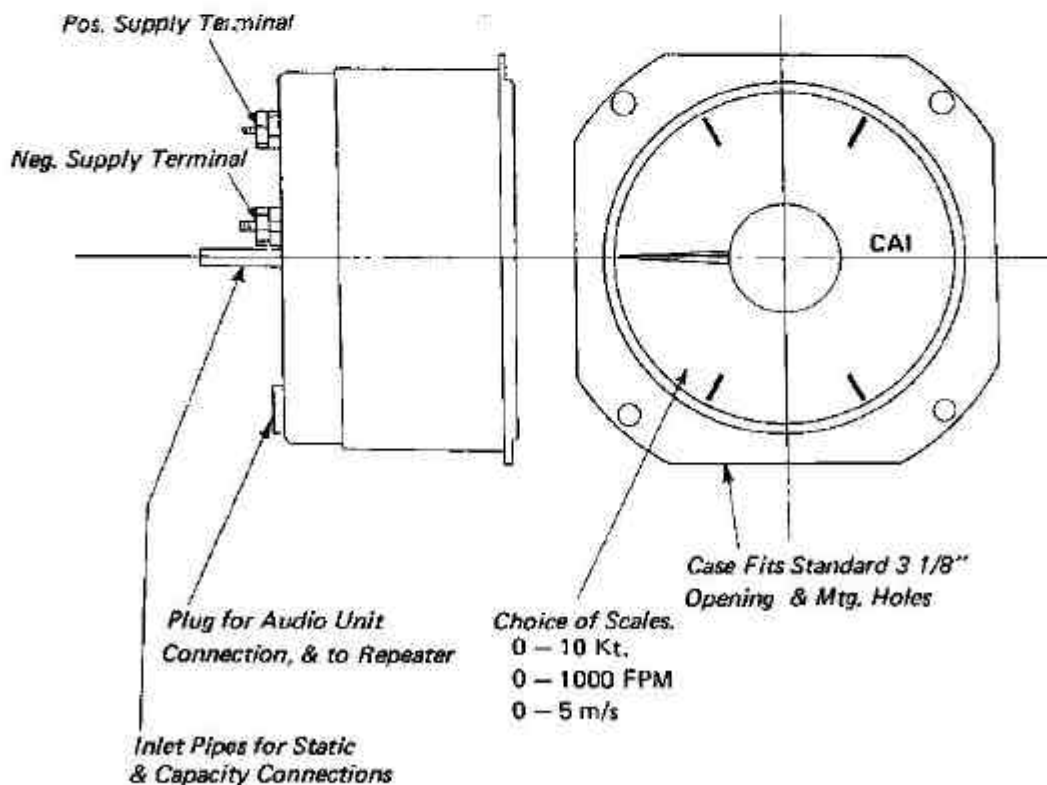
Audio AU-10

Audible Output: Tone, adjustable for volume, frequency increasing above pilot selected threshold.

Packaging: $1.25'' \times 2.375'' \times 4.25''$ case contains Volume and Threshold controls., speaker, 2 ft. of cable with plug to connect to Variometer.

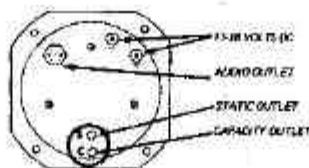
Power Requirements: 11-18 VDC @ 25 m/a at full volume. Power supplied from Variometer via cable provided.

Note: The instrument is not fused. External fuse is advised.



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VARIOMETER

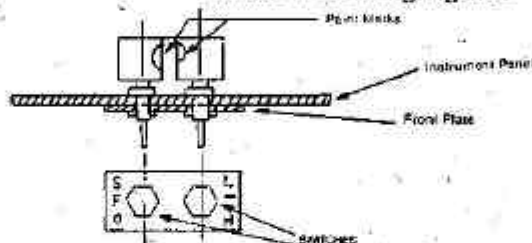


1. The Variometer installs with 4 screws (size 4-40) and nuts into a standard 3.125" panel opening. The Variometer's zero is adjusted by a screw in the front face of the instrument.

2. On Single and Dual-Range (4" models) units, a 0.25" hole is required adjacent to the instrument for the switch. On Single-Range units, this switch will have two positions, ON-OFF. On Dual-Range units, it will have three positions, OFF-HI-LO, where HI corresponds to 5 KTS or 500 FPM and LO corresponds to 10 KTS or 1000FPM.

3. On Dual-Damping (D) and 'S' models, it will be necessary to drill 2 holes of 1/4" dia, and 1/2" apart in the ship's instrument panel. The front plate provided can be used as a template for these holes.

The assembly of the switches is shown in the following figure.



4. On 'D' & 'S' models, orientation of the switches is given by the dabs of paint on the switches. The two paint marks are nearest each other, and on the upper side of the assembly. (on the side corresponding to S & L Legend)

Operation of the instrument is as follows:

- Left-hand switch. O - Instrument is Off.
 F - Instrument is on Fast response.
 S - Instrument is on Slow response, 3 secs.
- Right-hand switch. L - 'D' Models - 10kts. or 1000fpm, as applic.
 'S' Models - 10kts. or 1000fpm, as applic.
 — - 'D' Models - This is not a switch position.
 'S' Models - 20kts. or 2000fpm, as applic.
 H - 'D' & 'S' Models - 5kts. or 500fpm.

5. Power connections are made to the 2 terminals, + and - as marked. Use any source with a DC output of between 11 & 18 volts.

6. If no Total Energy Compensator is used, simply connect the outlet marked 'C' to the supplied flask with a piece of tubing, and the pipe marked 'S' to the aircraft static in the same way.

7. Any Insulated flask of 0.5 liter, or 1 pint capacity may be substituted for the supplied flask.

8. If one of the Diaphragm type T.E. Compensators (Winter, PZL, Burton) is used, the capacity side of the Compensator should be connected into the tubing between the flask and the Variometer. Damping may be required between the T.E. Compensator and the Pitot to which it is connected.

9. If a Venturi T.E. is used, simply connect the S outlet to the Venturi, and the C outlet to the flask.

10. Switch on. The unit may give an initial kick, but will settle down around zero. Adjust the screw in the center of the front face to obtain a precise zero. Squeeze the tube between the flask and the Variometer, to obtain a brief UP indication.

11. If the unit responds with a DOWN indication, suspect that 'S' and 'C' outlets have been reversed. If the unit does not respond, check for leaks or kinks in the tubing or attachments.

12. When attached to a Venturi T.E., zeroing should only be attempted with both ends of the Venturi blocked.

13. The instrument is not fused. A fuse of 1/4 Amp. is advised in the + supply line, close to the connection with the variometer.

14. It is advised, however, that the + & - leads be well twisted together, to minimize interference from the Radio. If trouble is encountered when the on-board transmitter is keyed, the + & - leads to the Radio should also be well twisted together, and kept well separated from the leads to the variometer.

AUDIO

1. The unit should be mounted with the speaker opening unobstructed to allow full volume to be heard. Plug into vario outlet. The unit panel mounts conveniently, but any other mounting may be used. Audio 5-Pin plug compatible with 7-Pin outlet on vario.

2. The knob marked 'V' controls volume of sound, increasing in a clockwise direction.

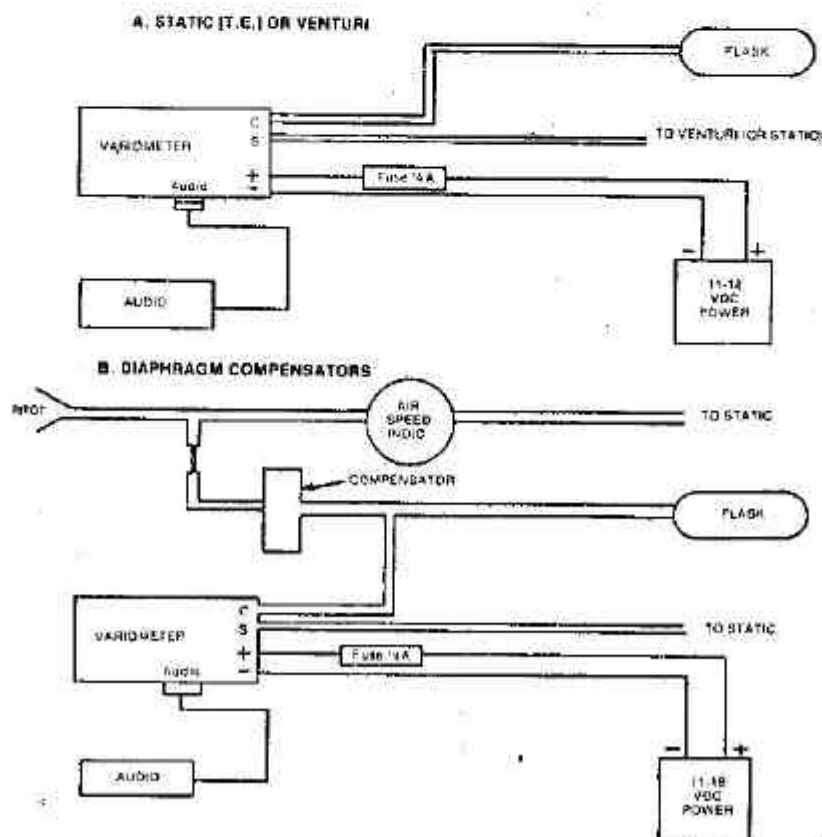
3. For the Mk. 1 (AU-10) Audio, the knob marked T determines the climb threshold above which the Audio responds, with a tone which increases in pitch with rate-of-climb. Below this threshold, the Audio is silent.

4. For the Mk. 2 (AU-20) Audio, the knob marked 'T' determines the threshold vertical speed at which the chopped tone cuts in. Clockwise rotation of this knob raises the threshold rate-of-climb at which the tone is chopped.

5. To operate, set muting switch away from the white mark. A tone will be heard. Set the 'T' knob to the threshold desired. Tone will decrease in pitch with increasing sink, increase with climb. Above the selected threshold, the tone will be chopped at a rate that increases with climb.

6. With the Muting switch set towards the white mark, all sound below the selected threshold will be cut out. In this mode, the unit is equivalent to the standard AU-10 Audio, except that climb will have a chopped tone.

SYSTEM INSTALLATION



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