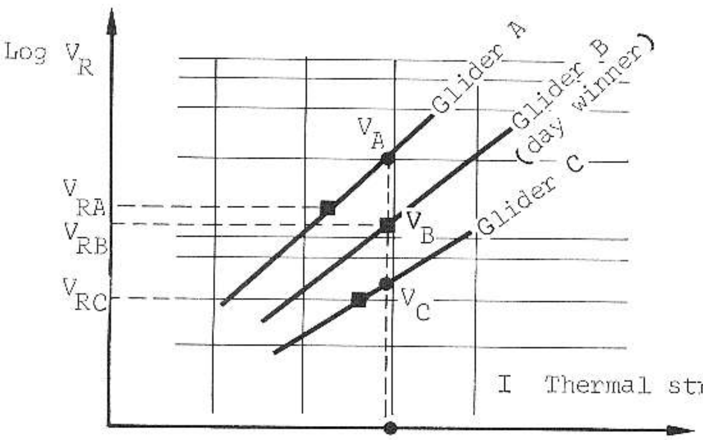
Indeed, a complete handicapping system may be obtained by plotting the resultant speed Column 7 versus thermal intensity Column 6 for the various competing gliders on semi-log paper. The handicap factors will be given by the resultant speed ratios with a chosen glider type as basis for the thermal intensity of the day. This thermal intensity value should be assumed as the higher I value obtained by plotting the day speeds over the corresponding glider curves (see Fig. 5).

FIGURE 5



I - day value

■ Day results

● Expected day results for A & C

Handicapping

$$\text{for B} = 100 = \frac{V_A}{V_B}$$

$$\text{for C} = 100 \times \frac{V_A}{V_C}$$

BASIC ASSUMPTIONS

The numbers given in the table were calculated supposing that: All gliders have quadratic drag variations and so their flight polars may be described by an expression like

$$v = \frac{A}{V} + B \cdot V^3 \text{ that becomes}$$

$$\frac{v}{v^*} = 1/2 \frac{V^*}{L/D}\left[\left(\frac{V}{V^*}\right)^3 + \frac{1}{V/V^*}\right]$$

after imposing as boundary conditions, a point and a tangent value of one (unity) at the maximum glide conditions.

To calculate the resultant speeds (V_r), it was supposed that the sinking speeds when thermaling may be estimated as 150% of the glider minimum sink, as usual for medium bank (approximately 40 deg) turns without flaps. So we have:

$$v_c = I - 1.5 \cdot 0.87742 = I - 1.31613$$

CONCLUSION

The presented table, although giving approximate results, greatly simplifies computing work for sailplane pilots. If one realizes the magnitude of the errors normally involved in flight testing, graphical determination of tangent points and in commercial published data, he will see that the table may be useful, even when "flight tested" polars are available.

EDITOR'S CORNER

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