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**A MODIFIED SCHEME OF CONTACTS  
FOR THE F-TYPE RADIOSONDE**

The F-type radiosonde of the India Meteorological Department (Venkiteshwaran *et al* 1948) is based on the Olland Principle. The rotating helix consists of a thin silver wire wound in a screw thread of pitch two inches on an insulating tufnol cylinder,  $1\frac{3}{8}$ " long and  $7/16$ " diameter. The helix is rotated by a paper fan and suitable gears, roughly at the rate of one rotation per  $1\frac{1}{4}$  minutes. The radio signals are in the form of impulses (960 for one cycle) and are caused by a contact wheel which makes and breaks the H. T. of the radio transmitter. A complete rotation of the helix is thus measured in units of 960 discrete impulses. These 960 impulses are distributed

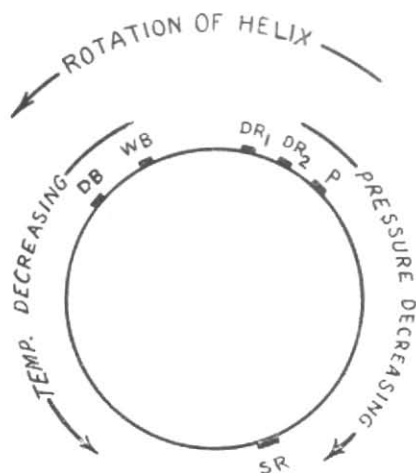


Fig. 1

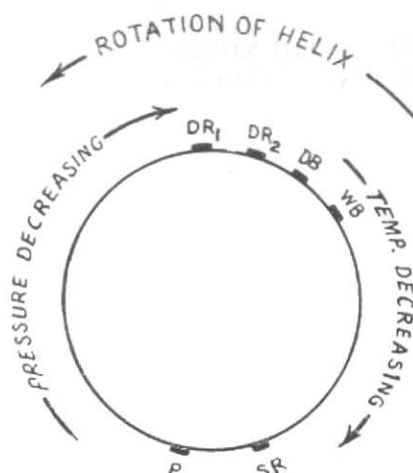


Fig. 2

among the pressure, dry and wet temperature elements as shown in Fig. 1. DR<sub>1</sub> DR<sub>2</sub> is a fixed double-reference contact which identifies the beginning of a cycle and from which the pressure and wet bulb shortings are measured. SR is another fixed contact with only one contacting prong and the number of impulses from its contact with the helix till the temperature arm touches the helix is a measure of the temperature. In the present scheme, the pressure contact moves over about 320 impulses for a range of 1000 mb. The least count of an impulse for pressure is thus 3 mb. The temperature contact similarly moves over about 280 impulses of the cycle for a range of 110°C giving the least count of one impulse for temperature as 0°·4 C.

In the modified scheme, the distribution is as shown in Fig. 2 and the impulses are distributed equally between pressure and temperature contacts, each moving over 45 per cent of the circle for the ranges of 1000 mb and 110°C respectively. The new scheme does not involve any mechanical re-arrangement of the meteorological elements, or of the reference pens.

In the revised arrangement, the pressure is measured by the number of impulses from DR<sub>1</sub> and the number of impulses go on decreasing with fall of pressure. The dry bulb

temperature is measured by the number of impulses from DR<sub>2</sub> and wet bulb temperature from SR in a direction opposite to that of pressure. As the temperature goes on falling with height, the number of impulses for D.B. increases from DR<sub>2</sub> and those for W.B. decreases from SR. Ultimately the W.B. contact may coincide with that of SR and even pass over. This will not vitiate either the measurement of temperature or pressure. By this time temperature far below freezing would have been attained and W.B. pen would have ceased to function. The revised arrangement facilitates the use also of the impulses between the D.B. and the W.B. pens. According to this arrangement for the same ranges of temperature and pressure as hitherto, the least count of an impulse is about 0°·25 C for temperature and about 2 mb for pressure. Further adjustments of the least count for temperature and pressure is possible by arranging the position of the fixed reference contact SR and the magnification of the pressure and temperature elements.

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#### REFERENCE

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