

## Chapter 2

### ELECTRO-MAGNETIC INDICATORS

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#### Introduction

1. Electro-magnetic indicators may be used in various aircraft circuits to give a visual indication of whether or not that circuit is energized. They are commonly known as "doll's-eye" indicators, and may either show black when energized and fluorescent white when not energized, or vice versa.

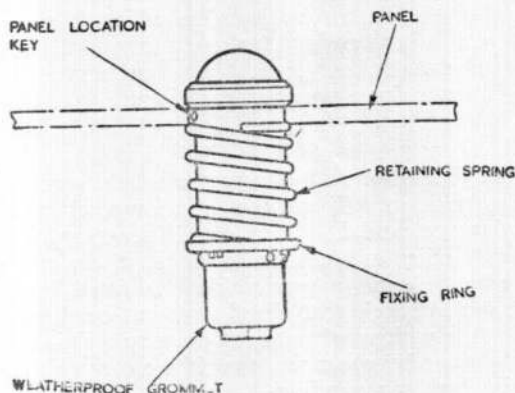


Fig. 1. Indicator mounted on a panel

2. There are several types of magnetic indicator in service, of which that described in this chapter is typical. Details of individual indicators will be published in A.P.1275A, Vol. 1, Sect. 1.

#### DESCRIPTION

3. An external view of the indicator is illustrated in fig. 1 which shows it mounted on a thin panel. A retaining spring fits over the indicator body between the panel and a bayonet-type fixing ring, and a key on the top end of the indicator body fits in a slot in the panel to prevent the indicator from rotating.

#### Magnet assembly and terminal block

4. The magnet assembly inside the body consists of a coil wound on a soft iron core (fig. 2) with a soft iron disc at each end of the coil. The coil ends are soldered to two terminals on a terminal block at the bottom end of the coil, and two 6 B.A. screws in the terminal block are used for external electrical connection to the indicator. The terminal

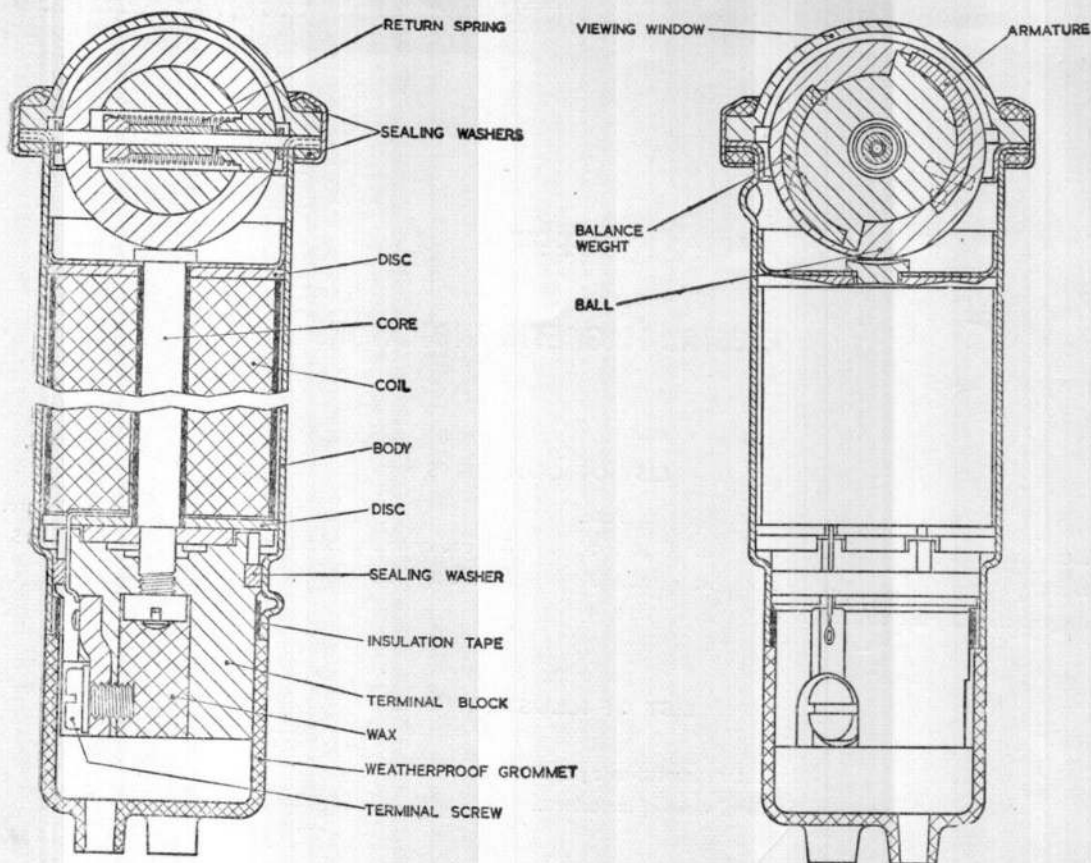


Fig. 2. Sectional views of indicator

block is held in position by a nut on the end of the core and is insulated from the body by insulating tape and a rubber sealing washer. Weatherproofing is obtained by a synthetic rubber grommet which fits over the extreme end of the terminal block. This grommet has two sleeves which are sealed at the ends when new, but during installation the ends are cut off to allow the electrical wires to pass through to the terminal block.

**Ball and armature assembly**

5. A plastic ball with an armature and a balance weight moulded in it, pivots on a spindle which has both ends welded to the indicator body. A coiled spring fits over the spindle inside the ball, one end of the spring being attached to the ball and the other to the spindle. When the coil is energized, the armature is attracted to the magnet assembly and the ball revolves, placing the spring in a state of tension. When the coil is de-energized,

the ball returns to its original position under the influence of the spring. In this manner, one portion of the ball is shown through the viewing window when the coil is de-energized, and another portion is shown when the coil is energized.

6. The viewing window is secured to the top of the indicator by a collar which is rolled over at both ends to make a permanent joint, and two rubber sealing washers inside the collar make a weatherproof joint.

**SERVICING**

7. Ensure that the indicator is held securely in position. Check the unit for mechanical damage, and fit a new one if necessary. If an indicator fails to operate, it must be removed and a serviceable one fitted in its place. Check that the fluorescent brightness of the white surface is satisfactory. This can be done by observing that it is clearly visible in dark surroundings.

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