Chapter 7

THERMAL SWITCHES, ROTAX D8500 SERIES

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LIST OF ILLUSTRATIONS

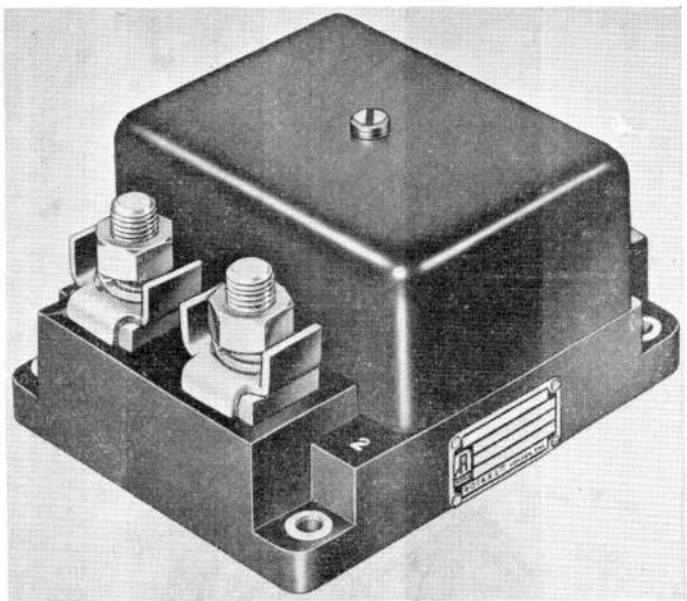

Fig. 1. Typical D8500 series switch

Introduction

1. The D 8500 series of thermal switch units has been designed to provide an aircraft circuit with a thermal overload protection device. Difference between one unit and another, within the series, depends on the rating of the bi-metal element.

DESCRIPTION

2. A thermal unit typical of the D 8500 series is illustrated in fig. 1. Additional information appertaining to a specific type within the D 8500 series will be found in A.P.4343C, Vol. 1, Sect. 4.

3. The unit consists of a moulding on which are mounted a bi-metal strip, a spring loaded trip bar and a pair of contacts. Protection for these parts is provided by enclosing them within a metal cover.

4. The spring loaded trip bar is pivoted midway along its length and carries at one end a ceramic dolly with a short thread screwed into it. The thread carries a nut for locking purposes, and by this means the setting adjustment of the trip bar is affected. Contact between the main terminals and the bi-metal strip is made by two suitably shaped, silver plated, cast brass connecting strips which are mounted in the underside cavity of the moulded base. Similarly, connections between the contacts and the contact terminals are on the underside of the moulding.

Operation

5. The bi-metal strip carries the main line current of the circuit, and under normal conditions the contacts are open. When an overload occurs, the bi-metal is deflected sufficiently to move the trip bar which closes the contacts. This applies a 28-volt tripping impulse to the associated protection apparatus forming part of the aircraft installation.

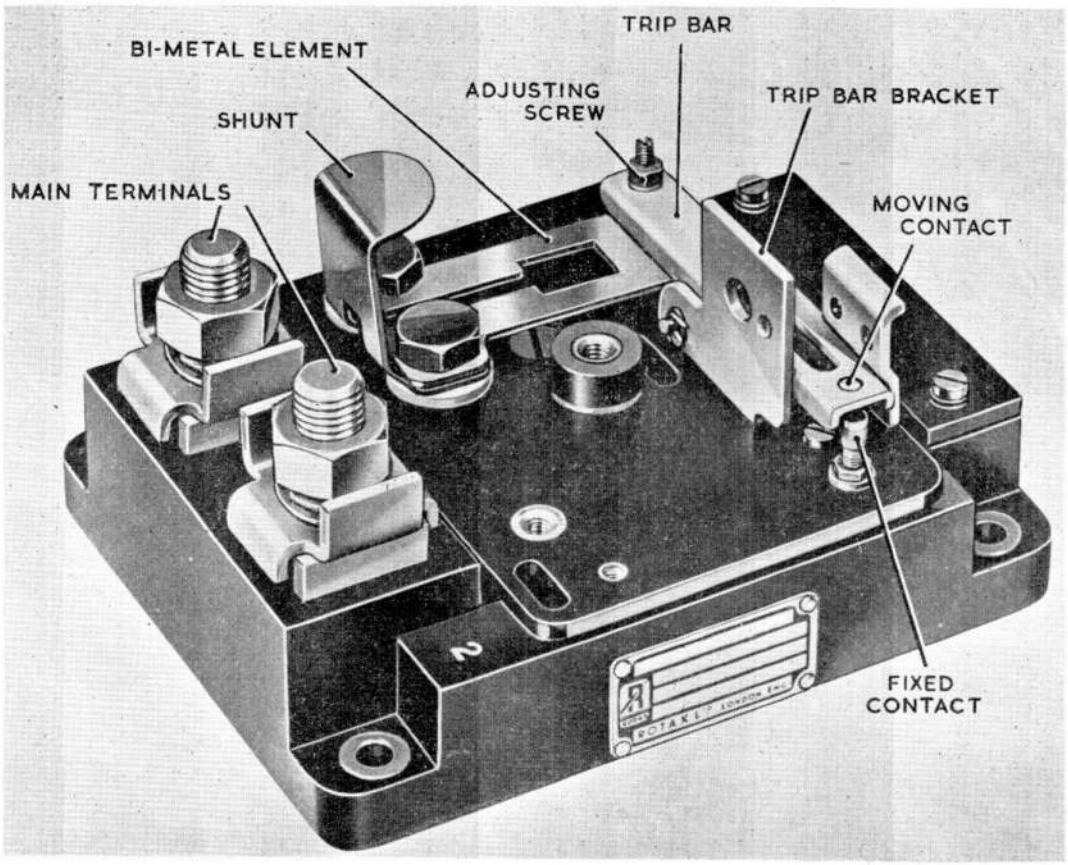

Fig. 2. Typical switch in D8500 series (cover removed)

INSTALLATION

6. The unit may be mounted in any position and secured via its four 2 B.A. clearance holes drilled at centres 3·750 in. by 3·000 in.

SERVICING

7. Assuming that the units have been correctly installed and operated, they will normally require little attention in service. Providing the unit operates satisfactorily, it should not be interfered with, but assumed to be serviceable for continued use.

Inspection

8. A general visual inspection should be made periodically to ensure that there is no apparent physical damage. Inspect the mechanism, and if signs of malfunctioning are evident remove the unit and replace it with a new one.

Insulation test

9. Where possible, an insulation test should be made on a unit, provided that it is accessible and can be isolated from its circuit. Using a 250-volt insulation resistance tester between terminals 1 and 5, and between terminal 1 and the metal cover, a value of not less than 5 megohms should be obtained. Again, using a 250-volt insulation resistance tester between terminals 4 and 5 with the trip contacts open, and between terminal 4 and the frame with the contacts closed, a value of not less than 2 megohms should be obtained.

Note . . .

The values of resistance quoted in para. 9 apply to units being tested under normal workshop conditions. Due allowance should be made for the climatic conditions of the locality and those of the aircraft servicing area or dispersal point. In particularly damp or humid climates the reading will be low enough to give apparently sufficient reason for rejection, and in these instances discretion should be exercised.

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