Chapter 7

SWITCH, MAGNETIC, TYPE 10A, No. 1 (ROTAX D8202)

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LIST OF ILLUSTRATIONS

LEADING PARTICULARS

Switch, magnetic, type 10A, No. 1	*Stores Ref. 5CW/4389*
Operating voltage of coil	
Maximum	*29 volts*
Minimum	*15 volts*
Current consumption of coil	*232 milliamp max.*
Current rating of contacts (continuous)	*2·5 amp.*
Overall dimensions	
Length	*3·450 in.*
Width	*2·000 in.*
Height	*2·560 in.*
Weight	*11 oz.*

Introduction

1. The Type 10A, No. 1 magnetic switch has been designed for use on aircraft ancillary equipment, such as a d.c. pump motor, where it is desired to make and break a 112 volt, 2·5 ampere load, the control circuit being 29 volts d.c. The unit will give satisfactory operation at altitudes up to 50,000 feet and in air temperatures of between −70 deg. C. and + 50 deg. C.

DESCRIPTION

2. The unit consists of a solenoid assembly, a moving contact assembly and two fixed contacts. The solenoid and moving contact assemblies are mounted on a metal frame and the switch is enclosed in a moulded

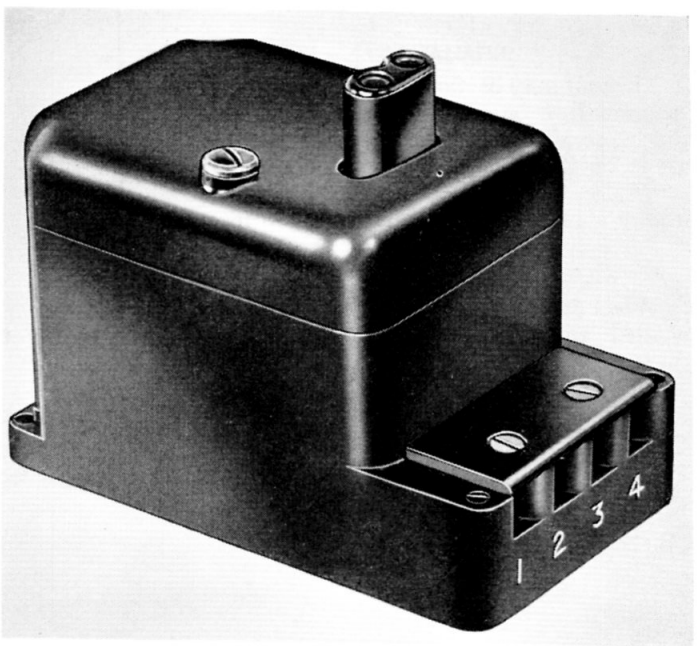

Fig. 1. General view of type 10A magnetic switch

(A.L.47, Nov., 55)

case. Four terminals for external connections are situated at one end of the moulded case. The plunger of the solenoid assembly is mechanically linked to the moving contact assembly which is pivoted on a pin attached to the frame of the unit and spring loaded to the open position. The moving contact assembly has two fine silver contacts which are rivetted to a beryllium copper bridge piece. The two fixed contacts are situated in the base of the unit with a contact barrier, which is part of the moulded case, between them. On the top of the unit, a two-pole test socket protrudes through the top cover and is wired directly to terminals 2 and 3 of the unit. This socket will accommodate a two-pole plug (Stores Ref. 5CY/455). The top cover is secured to the casing of the unit by two captive nuts. A panel on the underside of the base of the unit is secured to the casing by three 6 B.A. screws.

Electrical connections

3. The four terminals on the terminal block are 4 B.A. terminal screws with washers.

Operation

4. When the coil is energized by a 29 volt supply applied to terminals 1 and 4, the plunger is pulled into the solenoid and the moving contact assembly is pivoted to close two moving contacts into the two fixed contacts. This produces electrical continuity between terminals 2 and 3.

INSTALLATION

5. The unit may be mounted in any position. The mounting base dimensions are 3·45 in. by 2 in. and the height of the unit from the base is 2·56 in. Four 6 B.A. fixing holes are provided in the base of the unit, their centres forming a rectangle 3·200 in. by 1·750 in.

SERVICING

6. When the units have been correctly installed they require little attention in service. If a unit operates satisfactorily it may be assumed serviceable for continued use.

7. A visual inspection should be made periodically to ensure that the units are not damaged physically. Inspect the mechanism and if there is any sign of damage, remove the unit and fit a new one in its place.

Insulation resistance tests

8. Insulation resistance tests should be applied to the unit, provided that it is accessible and can be isolated from its circuit. With a 250 volt insulation resistance tester measure the resistance between the following points:—

(1) Terminal 2 and terminal 1, with the contacts closed.

(2) Terminal 2 and the frame, with the contacts closed.

(3) Terminal 2 and terminal 3, with the contacts open.

The insulation between these points should not be less than 2 megohm.

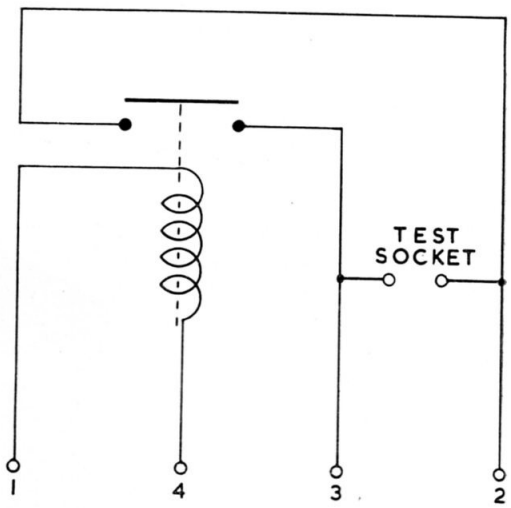

Fig. 2. Diagram of internal connections