Chapter 70

PUSH-SWITCHES, ROTAX, D0900 SERIES

LIST OF CONTENTS

LIST OF ILLUSTRATIONS

LIST OF APPENDICES

Introduction

1. The D0900 series of push button switches have two positions. In each position one of the two pairs of contacts is made and the remaining pair is broken. There is a spring return from the "depressed" position to the normal "out" position of the push button. The contact action is break before make.

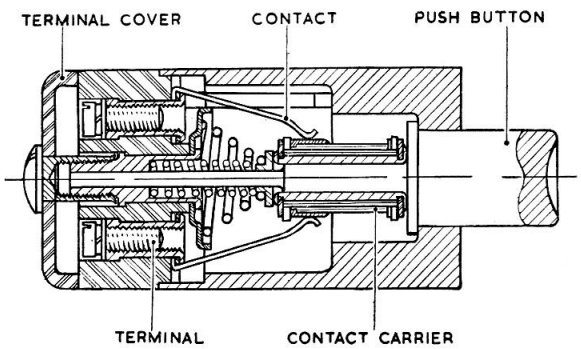

Fig. 1. Switch details

DESCRIPTION

2. The switch (*fig.* 1) is housed within a light alloy barrel. The push button projects from one end of the housing and to the other end is fitted a moulded terminal block which has four terminals each with a spring contact. The four contacts, set mutually at right angles, all bear on a contact drum which is operated by the push button. The contact drum is mounted on a plunger which has a projecting spindle sliding in a brass guide ferrule in the terminal moulding. A conical and a helical spring are both positioned concentric with the plunger spindle to provide the spring return to the normal "out" position; the conical spring, bearing on a thrust plate attached to the terminal moulding and the helical spring bearing in a recess in the brass ferrule. The terminals are enclosed by a moulded cover which is secured by a captive screw.

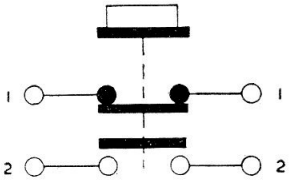

Fig. 2. Diagram of internal connections

Operation

3. The contact drum has two contact plates. When the switch is in its normal "out" position, the lower plate bridges the contact connected to the two terminals 1 while the remaining contacts rest on the insulating surface of the drum. When the button is depressed, contacts 1 leave their plate to ride on the drum surface and the contacts connected to the two terminals 2 are made by the upper contact plate. When the button is released the switch returns to normal.

INSTALLATION

4. Mounting for each switch is described in the appropriate appendix.

5. The terminals are 4 B.A. screws. Each cable has a separate entry to its terminal, the four entries being spaced at 90 deg. around the circumference of the terminal moulding.

SERVICING

6. The switch should be examined for signs of damage, and the leads for security at the terminals.

Testing

7. If the serviceability of the switch is suspect, it may be tested as laid down in Appendix A.

Appendix A

STANDARD SERVICEABILITY TEST

FOR

PUSH-SWITCHES, ROTAX, D0900 SERIES

Introduction

1. The following tests may be applied to the switch before it is put into service or at any time when its serviceability is suspect.

Test equipment

2. The following test equipment is required:—

(1) Insulation resistance tester, Type C (Ref. No. 5G/152).

(2) Ammeter 0–20 amp.

(3) Suitable low voltage lamp and battery.

(4) Millivoltmeter, 0–80 millivolts.

Testing

3. Operate the plunger a number of times to ensure that its movement is free and that it returns positively to normal ("out") at each release.

4. Apply a lamp and battery continuity test to ensure that contacts 1 break before contacts 2 make and vice-versa, and that contacts 2 do not re-open when the button is depressed to its fullest extent. The movement of the button should be between 0·281 in. and 0·375 in.

Millivolt drop test

5. Test the potential drop across terminal 1 (with the switch normal) and across terminals 2 (with the button fully depressed) with 10 amperes flowing. A reading of not more than 40 millivolts should be obtained in each test.

Insulation resistance tests

6. Test the insulation resistance between the following points, using a 250 volt insulation resistance tester; a reading of at least 0·5 megohm (for R.N.) or 5 megohms (for R.A.F.) should be obtained in each test.

(1) Switch normal—
  (a) Terminals 1 and each terminal 2
  (b) Each terminal 2
  (c) Terminals 1 and frame

(2) Button fully depressed—
  (a) Each terminal 1
  (b) Terminals 2 and frame.

Appendix 1

PUSH-SWITCH, ROTAX, TYPE D0901

LEADING PARTICULARS

Push-switch, Type D0901	**Ref. No. 5CW/1532**
Voltage	28 *V d.c.*
Current rating	10 *amp.*
Length	3·625 *in.*
Diameter	1·375 *in.*
Weight	4 *oz.*

1. The push-switch, Type D0901, is similar to that described and illustrated in the main chapter; it differs from others in the series in that the plunger spindle projects 1 in. beyond the moulding.

2. Locknuts are provided for centre fixing on a plate 0·0625 in. minimum and 0·125 in. maximum thickness. The diameter of the mounting hole in the panel should be 2·875 in.

Appendix 2

PUSH-SWITCH, ROTAX, TYPE D0903

LEADING PARTICULARS

Push-switch, Type D0903	**Ref. No. 5CW/1675**
Voltage	28 *V d.c.*
Current rating	10 *amp.*
Length	3·125 *in.*
Diameter	1·375 *in.*
Weight	4 *oz.*

1. The push-switch, Type D0903, is similar to that described and illustrated in the main chapter. It differs from others in the series in that the plunger spindle projects 0·5 in. beyond the moulding.

2. Locknuts are provided for centre fixing on a plate 0·0625 in. minimum and 0·125 in. maximum thickness. The diameter of the mounting hole in the panel should be 2·875 in.

Appendix 3

PUSH-SWITCH, ROTAX, TYPE D0909

LEADING PARTICULARS

Push-switch, Type D0909	**Ref. No. 5CW/5875**
Voltage	28 *V d.c.*
Current rating	10 *amp.*
Length	3·196 *in.*
Diameter	1·375 *in.*
Weight	4 *oz.*

1. The push-switch, Type D0909, is identical to that described and illustrated in the main chapter. It has a special plunger spindle, which differs from that in others of the series.

2. There are four holes tapped 2 B.A. to a depth of 0·500 in. provided for mounting. They are equi-spaced on a 1·125 in. P.C.D. concentric with the push button.