Chapter 108

SWITCH MASTER TYPE EAP 142

LIST OF CONTENTS

LIST OF ILLUSTRATIONS

LIST OF APPENDICES

LEADING PARTICULARS

Switch, Type EAP 142 Ref. No. 5CW/5096
Nominal voltage ... ... *28V d.c.*
Current consumption (electro-magnet)
45mA approx.

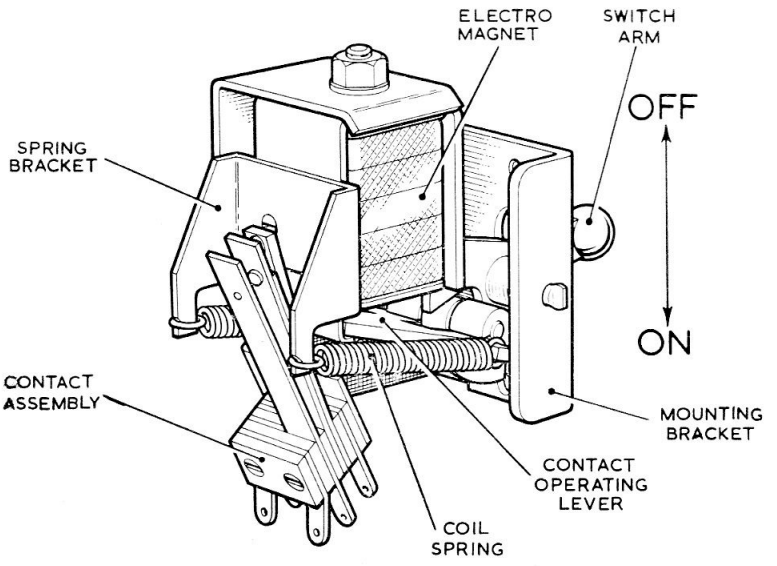

Fig. 1. General view of switch

Introduction

1. The switch Type EAP 142 (Ref. No. 5CW/5096) consists of a toggle switch incorporating an electro-magnetic hold-on feature. The switch operates with a 28V d.c. power supply.

DESCRIPTION AND OPERATION

2. A general view of the switch is given in fig. 1. The switch has a single pole spring leaf contact assembly which is open circuited when the switch arm is in the OFF position. The switch arm is pivotted in the mounting bracket and a slot in its inner end engages with a contact operating lever. The contact operating lever is biased to the OFF position by two coil springs each attached at one end to the lever and at the other end to a spring bracket.

3. When the switch arm is set manually to the ON position the contact operating lever moves to complete the magnetic circuit of an electro-magnet. If the coil of the electro-magnet is energized the contact operating lever is held in the ON position. The switch will remain in this position until either the electro-magnet is de-energized or the switch arm is manually set to OFF against the pull of the electro-magnet.

Appendix A

SWITCH TYPE EAP 142

STANDARD SERVICEABILITY TESTS

LIST OF CONTENTS

General

1. The following tests are those which are necessary to establish the serviceability of a switch. Unserviceable units are to be dealt with in accordance with current Service instructions.

TEST EQUIPMENT

2. The following items of test equipment are required:—

(1) Insulation resistance tester, 500V d.c.
(2) Ohmmeter or multi-range test meter.
(3) Spring balance, 0–1 lb.
(4) Tension gauge, 0–100 grammes.

3. A 28V ± 1V d.c. power supply is required, maximum load of 0·1A.

PROCEDURE

Insulation resistance

4. Using a 500V d.c. insulation tester measure the insulation resistance between each tag on the contact assembly and the mounting bracket. The resistance in each case must be not less than 20MΩ.

Coil resistance

5. Using an ohmmeter measure the resistance of the electro-magnet coil (outer tags on contact assembly). The resistance must be between 580Ω and 700Ω.

Contact pressure

6. Set the switch arm to the ON (contacts closed) position. Using a suitable tension gauge applied to the tip of the fixed contact leaf check that the force required to open the contacts is between 45 grammes and 55 grammes.

Functional test

7. (1) Mount the switch with the electro-magnet uppermost.

(2) Connect an ohmmeter across the switch contacts (inner tags on contact assembly).

(3) Ensure that the switch arm is in the up (OFF) position and check that the ohmmeter indicates open circuit.

(4) Set the switch arm to the down (ON) position several times and check that when released it returns to the up position. Check that the ohmmeter indicates continuity with the switch arm in the down position.

(5) Connect a 28V d.c. power supply to the electro-magnet coil (outer tags on contact assembly). Check that the switch arm remains in the up (OFF) position.

(6) Set the switch arm to the down (ON) position and check that it remains in this position.

(7) Disconnect the power supply and check that the switch arm returns to the up (OFF) position.

(8) Reconnect the power supply and set the switch arm to the down (ON) position. Using a suitable spring balance apply a force of 0·75 lb to the switch arm knob in the direction which tends to pull the switch arm to the up (OFF) position. Check that the switch arm does not move.

(9) Disconnect the power supply and ohmmeter.

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