Chapter 86

TRIM SWITCH, WESTERN, TYPE TS321, Mk. 21

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LEADING PARTICULARS

Trim switch, Type TS321, Mk. 21 ...	*Ref. No. 5CW/7252*
Operating voltage	... 28*V d.c.*
Current rating	... 2·5 *amp*
Overall dimensions (in.)	
Length	5·5
Diameter of body	2·5
Mounting centres	2·12 × 2·12

Introduction

1. The trim switch, Type TS321, Mk. 21 (*fig.* 1) is used for switching the aileron and rudder actuators on and off.

DESCRIPTION

2. A sectional view of the switch is given in fig. 2. It is operated by a hand control knob fastened to a shaft which has a universal coupling on its end. The shaft carries an operating plate, so shaped that movement of the control knob to the right or left closes the appropriate micro switch, so giving a supply to the appropriate field of the relevant aileron trimming actuator. Spring-loaded plungers automatically return the knob to the neutral position when the operating pressure is released.

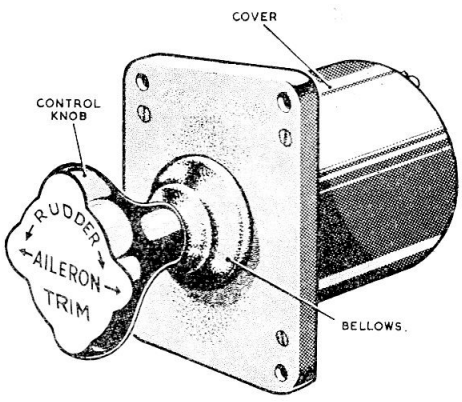

Fig. 1. Trim switch, Type TS321, Mk. 21

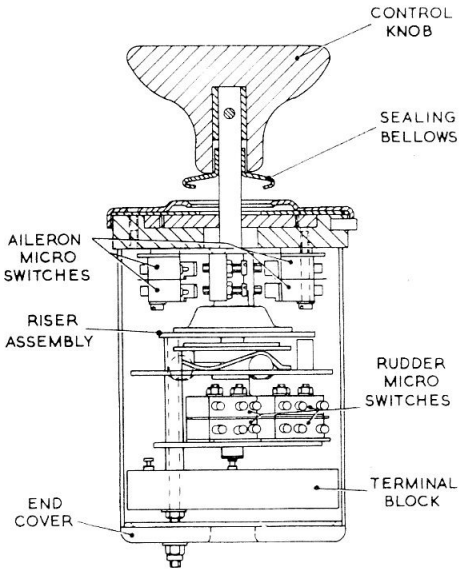

Fig. 2. Sectional view of trim switch

3. The switch also provides for rudder trimming. When the knob is rotated clockwise or anti-clockwise, operating plates fitted to the shaft close the appropriate micro switch, so giving a supply to the appropriate field of the relevant rudder trimming actuator. A riser assembly ensures the return of the knob to the neutral position as the operating pressure is released, and also prevents two switching operations being performed together, by locking the mechanism should an attempt be made to do so.

4. The internal wiring of the switch is brought out to a terminal block. A wiring diagram is given in fig. 3. To gain access to the inside of the switch, remove the end cover from the switch.

Operation

5. Operation of the switch is rotary and sideways, to suit the required trimming of the aircraft. When the control knob is turned in a clockwise direction, the rudder is trimmed to turn the nose of the aircraft to starboard, and when the knob is turned anti-clockwise the rudder is trimmed to turn the nose of the aircraft to port.

6. Trimming of the aileron is brought about by pushing the control knob over to the right or to the left, movement to the right trimming the port wing up, and movement to the left trimming the starboard wing up. When released, the control knob returns automatically to its neutral position in all instances. It is impossible to move the knob from one position directly to another trimming position; it must be brought back to the neutral position before another position is selected.

INSTALLATION

7. The switch is normally mounted with the major axis of the top plate vertical. The method of securing is by screws or studs through the four holes in the top plate.

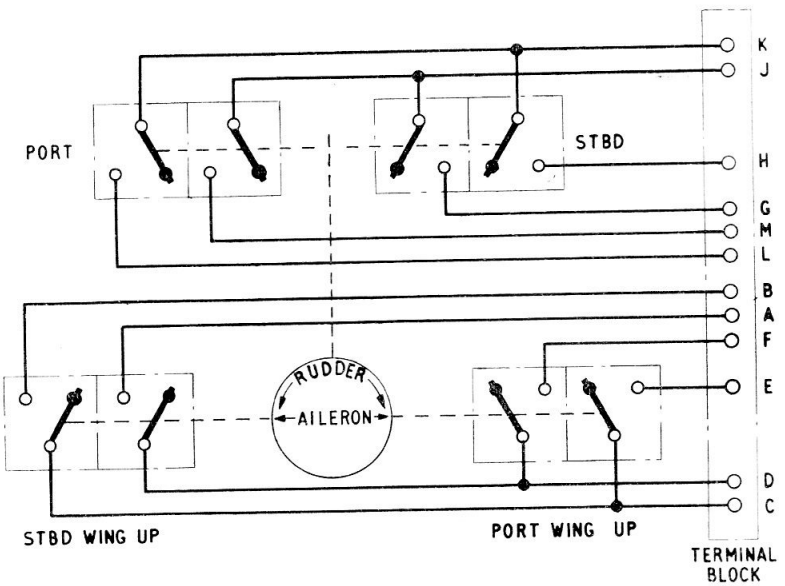

Fig. 3. Circuit diagram

SERVICING

8. When the control knob is moved to each of the four positions, the smoothness of operation and return under spring pressure with no tendency to stick should be confirmed.

9. The millivolt drop on each individual circuit when carrying 2·5 amp., should not exceed 150 millivolts.

10. Using a 250-volt insulation resistance tester, check the insulation resistance between:—

(1) circuits

(2) all terminals connected and the frame of the switch.

A reading of not less than 5 megohms (R.A.F.) and 0·5 megohms (R.N.) should be obtained for each test.

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