Chapter 45

TRIM SWITCH, WESTERN, TYPE TS151

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LIST OF ILLUSTRATIONS

LEADING PARTICULARS

Trim switch, Type TS 151, Mk. 14A ...	*Stores Ref. 5CW/5157*
Operating voltage	*24V d.c.*
Current rating	*5 amp.*
Overall dimensions—	
Length	*7·0 in.*
Width	*3·6 in.*
Depth	*2·75 in.*

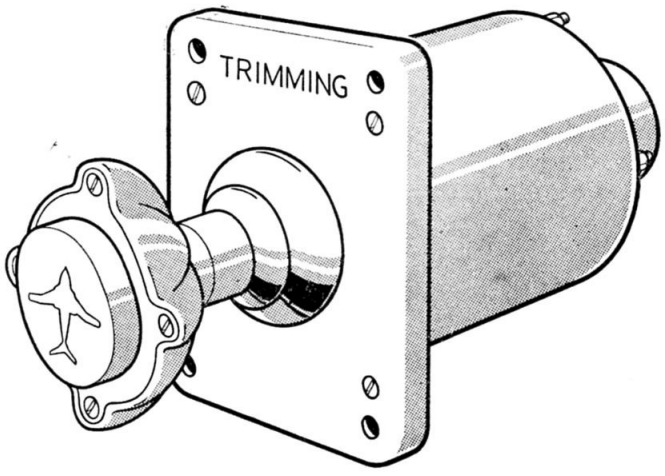

Fig. 1. Trim switch, Western, Type TS 151

Introduction

1. The trim switch, Type TS 151, Mk. 14A (*fig.* 1) is used for switching the aileron, elevator and rudder trimming actuators on and off. It has six normal operating positions, and a further six for emergency operation by depressing a push-button on the control knob.

(A.L.60, Mar. 56)

DESCRIPTION

2. The trim switch (*fig.* 2) is operated by a hand control knob fastened to a shaft which has a spherical joint on its end. The shaft carries a trip plate assembly on the inner side of the top plate, and the trip plate is so shaped that operation of the control knob to the right, left, up or down closes the appropriate micro switchette, so giving a supply to the appropriate field of the relevant trimming actuator. It will be noted from the wiring diagram in fig. 3 that this switch differs from others with the same function in the operation of the aileron and elevator switchettes, in that movement of the knob in a certain direction has the effect of operating the switchette 90 deg. anti-clockwise from that direction, and not the switchette situated physically at that position.

3. These four switchettes, and the three for rudder and normal/emergency change-over fitted at the other end of the switch, are all Burgess, Type V3, as described elsewhere in this section. Two switchettes are fitted for rudder operation. The operating shaft carries a second trip plate assembly, so shaped that it closes one or other of the rudder switchettes as the control knob is turned clockwise or anti-clockwise. For all settings of the knob, the shaft is returned to its neutral position by spring or spring-loaded plunger action when the operating pressure is released.

4. A normal/emergency switchette is fitted at the end of the switch remote from the control knob; this is a change-over switchette, and is operated by depressing a push-button in the centre of the control knob. In certain installations the switch is wired so that the supply is connected only when the push-button is depressed, i.e., the switch is inoperative in the normal position.

5. A plan view of an aircraft is reproduced on the face of the control knob, and when the knob is operated this image indicates the resulting movement that the aircraft will make; e.g., when the control knob is turned in a clockwise direction the nose of the image turns to starboard, and this is the direction in which the nose of the aircraft will turn.

6. The internal wiring of the switch is brought out to an 18-pole Mk. 4 miniature plug on the end of the switch. A wiring diagram is given in fig. 3. To gain access to the inside of the switch, remove the seal, nuts and washers from the end studs, and draw the cover away from the switch.

Operation

7. Operation of the control knob is rotary, sideways, up and down, to suit the required trimming movement 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.

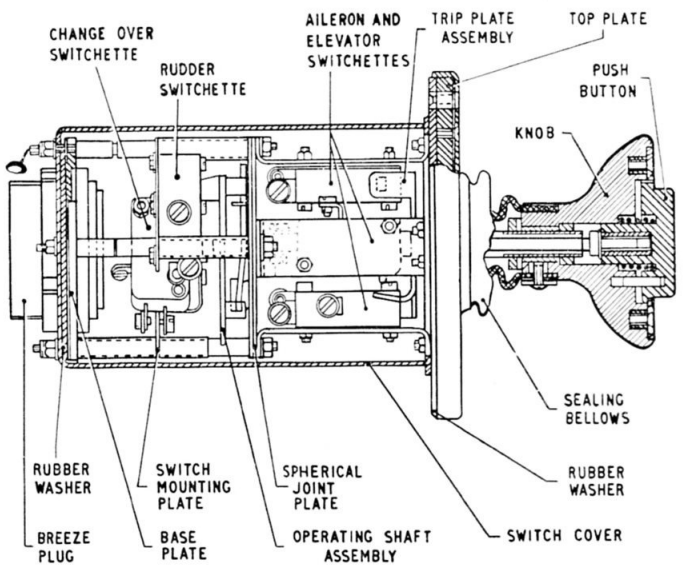

Fig. 2. Sectional view of switch

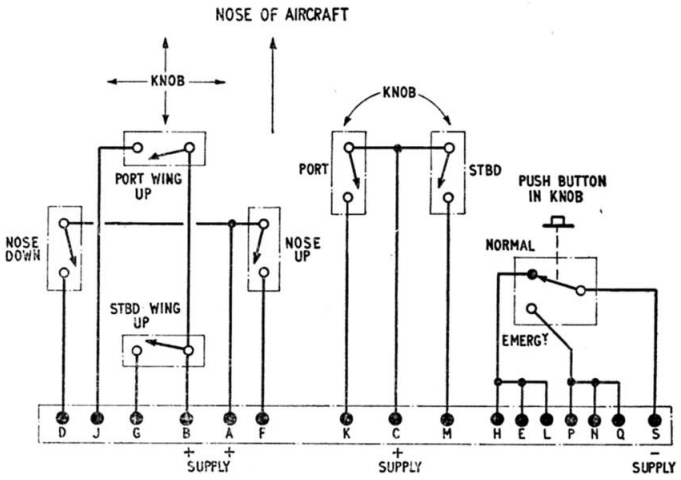

Fig. 3. Wiring diagram

8. 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. The elevators are trimmed by upward and downward movement of the control knob which causes the nose of the aircraft to be trimmed downward and upward respectively. When released, the control knob returns automatically to the neutral position in all instances.

9. Emergency operation of the switch is brought about by depressing the push-button in the centre of the control knob, then selecting the appropriate position as described in para. 7 and 8. Depressing the push-button on the control knob operates the normal/emergency switchette; in certain installations this is the only effective operating position.

INSTALLATION

10. The switch must be mounted so that the image of the aircraft has its nose pointing upwards. The method of securing is by screws or studs through the four holes in the top plate.

SERVICING

11. No servicing is permissible, apart from an inspection for freedom from damage and security of connections. The switch should operate positively for each setting of the control knob; a faulty switch must be renewed.