Chapter 93

MOTORISED SELECTOR, TEDDINGTON, TYPE FLT/A/2

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LIST OF ILLUSTRATIONS

LEADING PARTICULARS

Motorised selector, Type FLT/A/2	*Stores Ref. 5CW/*
Operating voltage	*12 to 29 volts d.c.*
Current consumption	*0·5 amp.*
Resistance variation—	
Pins A–B	*0 to 26·5 ohms*
Pins C–D	*460 to 760 ohms*
Overall dimensions	*4·6 in. × 5·1 in. × 3·7 in.*
Weight	*2 lb. 8 oz.*

Introduction

1. The motorised selector, Type FLT/A/2, is an automatically-operated variable resistance unit used in the cabin temperature control circuit.

DESCRIPTION

2. The unit (*fig.* 1) incorporates a governed electric motor which drives two ganged potentiometers through reduction gearing. One potentiometer is series coupled to a fixed resistor, giving a resistance range of between 460 and 760 ohms; the other potentiometer is variable between 0 and 26·5 ohms. When the full extent of travel in either direction has been reached, the supply to the motor field is broken by a limit switch.

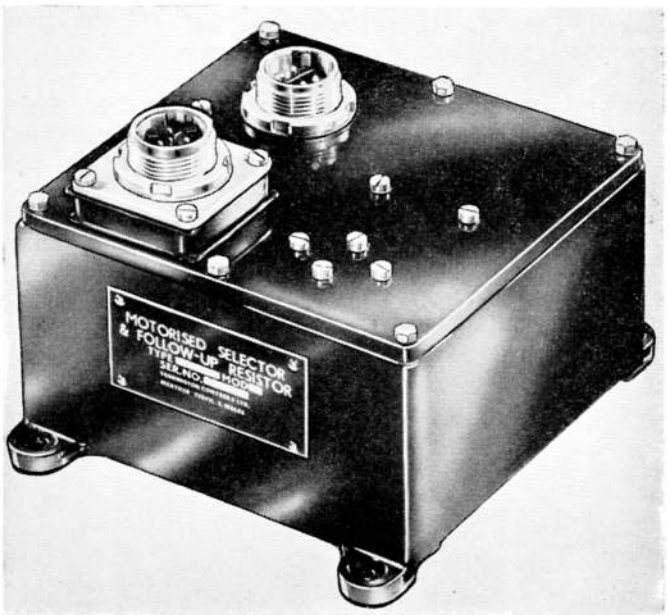

Fig. 1. Motorised selector, Type FLT/A/2

3. The selector is enclosed within a cast aluminium alloy housing, the cover plate of which forms a base for the mechanism. The cover is secured by six screws, and on the opposite side from the selector mechanism are mounted two Breeze plugs, one 3-pole plug for the motor supply and a 4-pole plug for the outgoing connections from the potentiometers. A gasket seals the joint between the housing and the cover plate; the unit is mounted by means of four lugs on the housing.

4. The reduction gearbox is mounted on an L-shaped bracket secured to the cover. The motor is attached to one face of the gearbox, and a resistor held in a clip on the top of the gearbox; this resistor is shunted across the governor contacts to prevent undue arcing and heating.

5. The output shaft of the gearbox carries a cam stop disc, with two limiting stops mounted on the periphery. A limit switch assembly is mounted on the cover alongside the motor in such a position that its two pairs of projecting contact leaves intersect the arc of movement of the stops on the cam disc. Rotation of the disc causes one or other stop finally to engage a spring contact blade and break the motor circuit for rotation in that direction.

6. The ganged potentiometer assembly is mounted on a locking plate on the mounting bracket. The end of the potentiometer shaft carries two projecting pins, which engage with two holes in the cam stop disc to form a drive coupling for the potentiometers.

OPERATION

7. A circuit diagram is given in fig. 2. When a 24-volt d.c. supply is connected across pins A and C of the 3-pole plug, the motor will run in a clockwise direction. This will drive the cam stop disc and the potentiometer gang concurrently until resistance values of

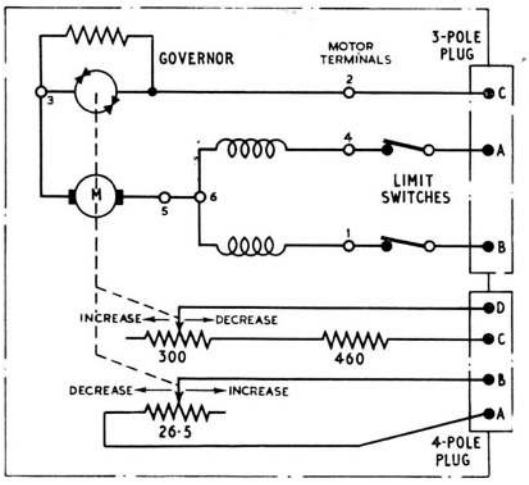

Fig. 2. Circuit diagram

26·5 ohms and 460 ohms are reached. At this point the cam stop will bear on one switch blade in the limit switch assembly, breaking the circuit to the motor and so preventing further rotation in that direction.

8. When the 24-volt supply is connected across pins B and C of the 3-pole plug, the motor will run anti-clockwise, driving the potentiometers in the opposite direction. As values of 0 and 760 ohms are reached, the other cam stop will meet and deflect the remaining limit switch blade, breaking the circuit and isolating the motor.

SERVICING

9. The unit should be inspected at regular intervals to ensure that the Breeze plugs are tight and the cable in good order. The joint between the cover plate and the housing should be examined for possible bursting or extrusion of the synthetic rubber gasket, resulting from excessive pressures within the housing or over tightening of the cover fixing bolts.