Chapter 7

ELECTRO-PNEUMATIC VALVE, TYPE FDH

LIST OF CONTENTS

LIST OF ILLUSTRATIONS

LIST OF TABLES

LEADING PARTICULARS

Type FDH/A/39	*Stores Ref. 2FV/2726*
Type FDH/A/45	*Stores Ref. 2FV/2256*
Voltage	*24 d.c.*
Rating	*Continuous*
Current consumption (max.) ...	*0·2 amp. (0·1 amp. per element)*
Working pressure (max.)	*350 lb. per sq. in.*
Weight	*2 lb. 8 oz.*

DESCRIPTION

1. The electro-pneumatic valve, Type FDH (*fig.* 1) is designed for use with double-acting pneumatic jacks installed in aircraft; it provides accurate control of the jack travel in either direction, with pneumatic locking in any intermediate position of the stroke. The main application of the valve is in conjunction with the Type FDF thermostatic inching control, to provide automatic variable positioning of radiator and oil cooler flaps; it may also be used for similar purposes under manual control in conjunction with the Type FC] inching control relay. Details of the types available are given under Leading Particulars; they differ in the size of the inlet screwed connection.

2. The valve consists of a light alloy body, housing four solenoid-operated air valves having synthetic rubber seatings. It has one high-pressure air inlet and two outlets, the connections of which are fitted with fine gauze filters. Bresse plug electrical connections are fitted, and the maximum working air pressure is 350 lb. per sq. in. The valve

Fig. 1. Electro-pneumatic valve, Type FDH

arrangement permits the flaps to trail in the event of current failure.

3. A sectional view of the valve is given in fig. 2, and a diagram showing its operation in conjunction with a double-acting jack, in fig. 3. In this diagram it is assumed that the jack extends to open a flap or shutter. The four solenoid-operated air valves (1), (2), (3), and (4) are mounted into a common body ducted internally. The breeze plug pin E is connected to negative, and pins A, B, C and D through suitable switching to the positive supply. Air inlet valves (2) and (3) are normally closed, and exhaust valves (1) and (4) are normally open.

4. The normal working operations are shown in Table 1. In an installation where it is necessary for the jack to retract to open the flap, the connections X and Y in fig. 3 should be reversed. In the event of a current failure, the two high-pressure inlet valves (2) and (3) will close and the two exhaust valves will open, thus leaving the flap free to trail. Alternative wiring will leave the jack locked, if required, on current failure.

SERVICING

5. The bracket mounting bolts should be examined for security, and the electrical plug and socket tested for continuity. No other servicing is permitted.

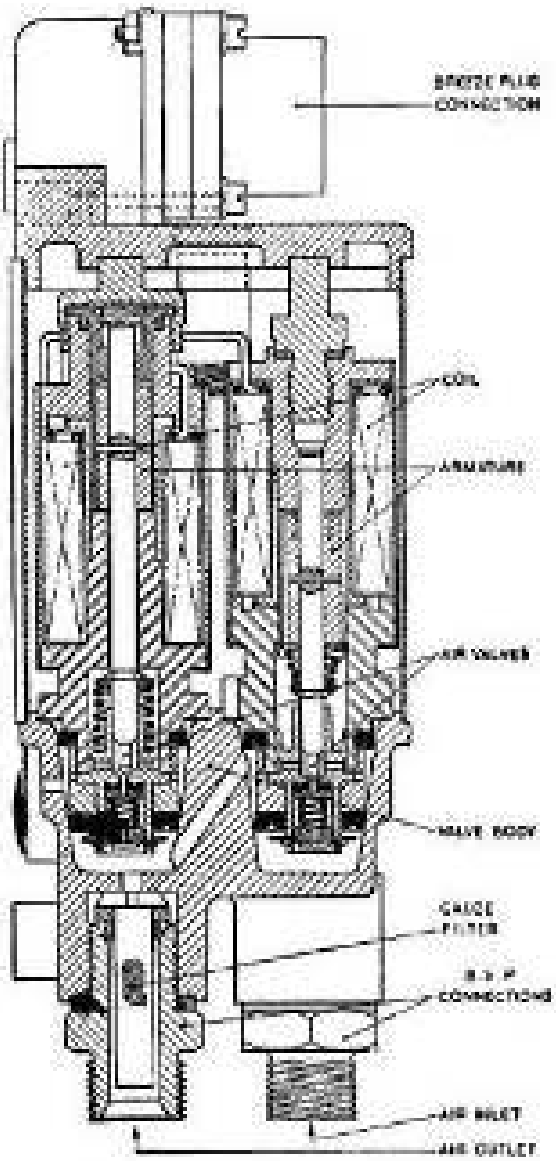

Fig. 2. Sectional view of electro-pneumatic valve, Type FDH

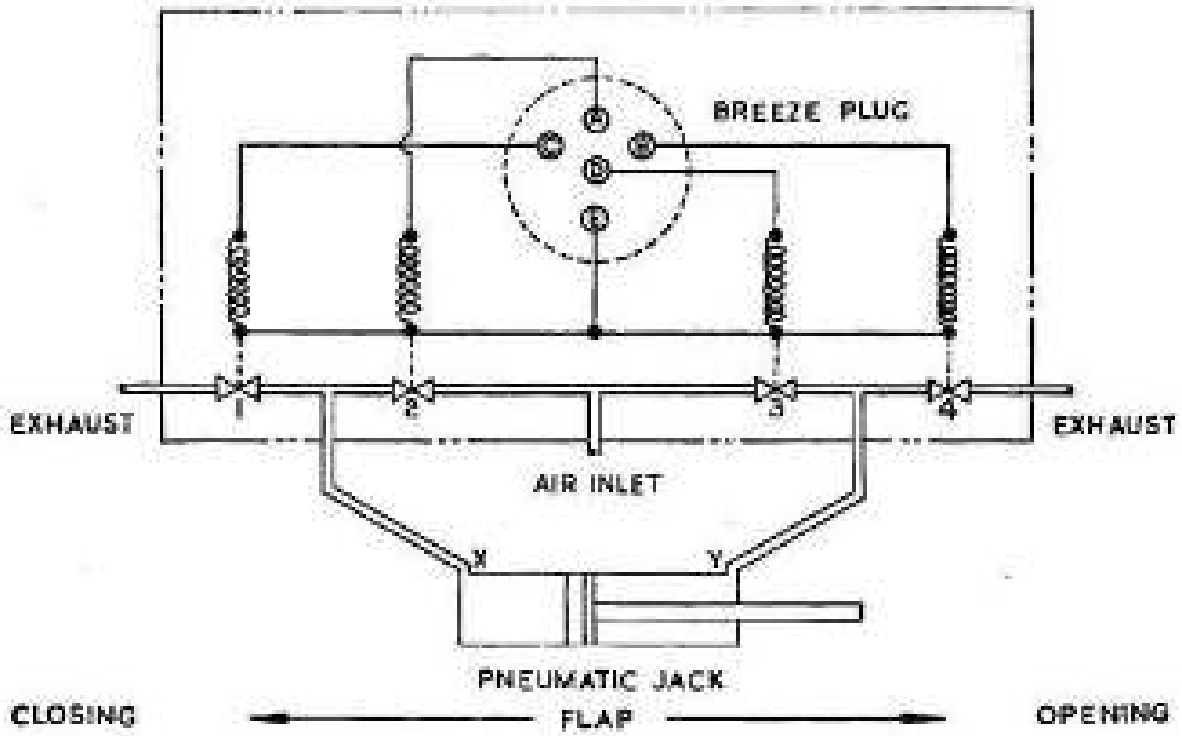

Fig. 3. Diagram of operation and wiring

TABLE 1

Valve operation

Valve numbers in fig. 3	Current				Valve positions			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Flap opening	On	On	Off	Off	Shut	Open	Shut	Open
Flap closing	Off	Off	On	On	Open	Shut	Open	Shut
Flap locked	On	Off	Off	On	Shut	Shut	Shut	Shut
Flap trailing (current failure)	Off	Off	Off	Off	Open	Shut	Shut	Open

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