Chapter 27

ACTUATOR, WESTERN, TYPE EJ275, Mk. 14

LIST OF CONTENTS

LIST OF ILLUSTRATIONS

LEADING PARTICULARS

Type EJ275, Mk. 14	Stores Ref. 5W/286
Voltage	24 d.c.
Weight	2 lb. 8½ oz.
Nominal operating load	275 lb.
Length of stroke	1·5 in.
Time of stroke at nominal load	18 sec.
Distance between extended centres	10·312 in.
Distance between retracted centres	8·812 in.
Brush grade	Type E.G.12

Introduction

1. The linear actuator, Type EJ275, Mk.14, is used for the remote control of such services as elevator trimming; various details of operation are given under Leading Particulars. The actuator is controlled by suitably positioned switches; for details of individual installations, reference should be mace to the appropriate Aircraft Handbook.

DESCRIPTION

2. This actuator follows the general design described in the Appendix to A.P.4343, Vol. 1, Sect. 17, Chap. 2 dealing with Western actuators. The rating of the actuator is 1 minute at nominal load, with a current consumption of 3·0 amp. The general internal construction can be seen in the sectional drawing in fig. 1, where the piston is shown extended.

3. The speed of the motor is 11,000 r.p.m. at 24 volts, with a torque of 164 gm. cm. The operation of the brake is controlled by two windings: a series winding with few turns of comparatively thick wire and a shunt winding with many turns of fine wire. The brake is normally on; when the actuator is switched on, the brake plate is attracted to the core against the action of the brake spring, and so releases the brake. A strong initial pull is exerted by the series winding, and the brake is maintained off by the action of the shunt winding.

4. The travel of the piston is controlled at its exteme positions by two limit switches,

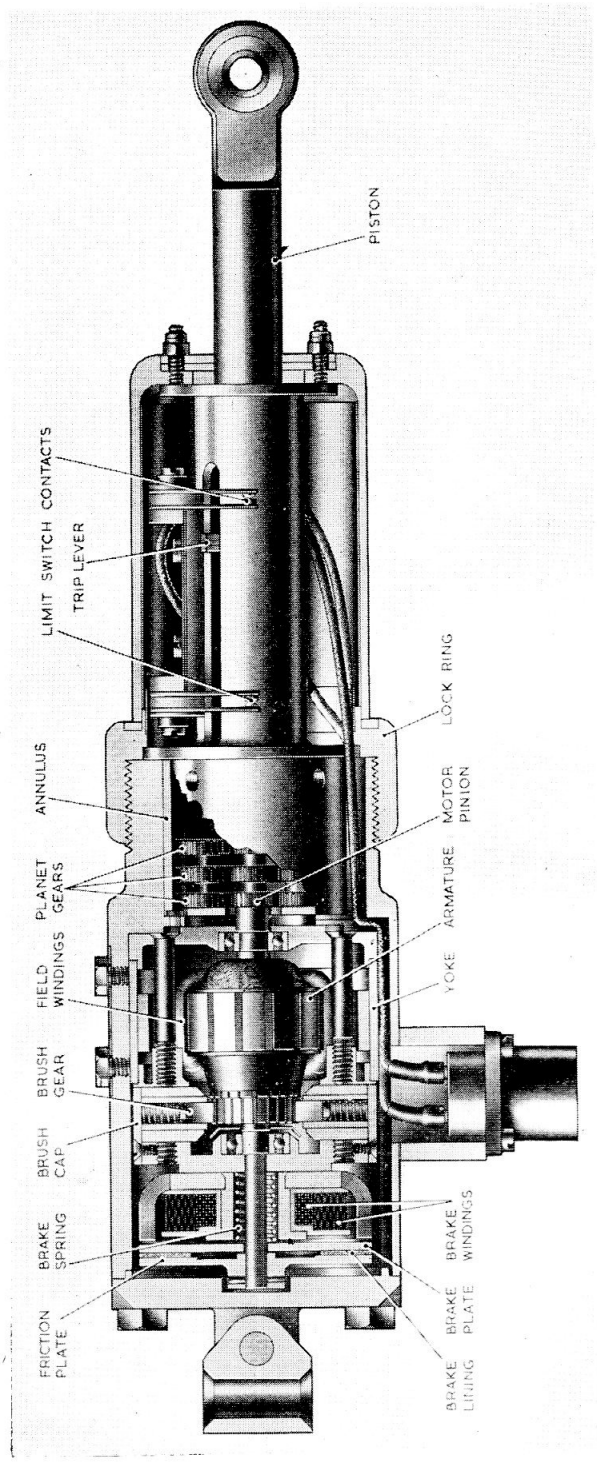

Fig. 1. Sectional view of actuator, Type EJ275, Mk. 14

operated by a trip lever and connected as shown in the circuit diagram in fig. 2. They are of the make-and-break type and are fitted with silver contacts.

5. Electrical connection is made to the actuator by a 4-pole plug (Stores Ref. 5X/6179), with pin identification as follows :—

Common negative	....	Pin A
Piston extension	....	Pin B
Piston retraction	....	Pin C

Pin D is not used

SERVICING

6. The servicing of this actuator is as given in the Appendix to A.P.4343, Vol. 1, Sect. 17, Chap. 2 on Western actuators. A functioning test may be made as follows.

7. With a supply of 24 volts d.c., and loads of 0 lb., 150 lb. and 270 lb., the time taken to complete the stroke of 1·50 in. should not exceed the values given below, the maximum current consumption being as shown.

Load (lb.)	Max. current (amp.)	Max. time (sec.)
0	2·0	11
150	2·6	15
270	3·0	18

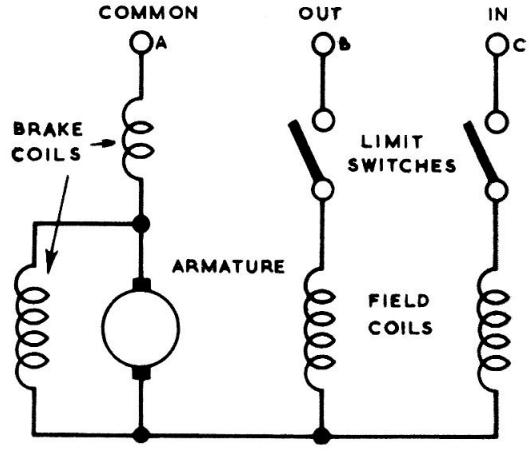

Fig. 1. Circuit diagram