

Chapter 70

ACTUATOR, WESTERN, TYPE EJ 25, Mk. 17 AND 17A

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Introduction

1. These two actuators differ from the actuator described in A.P.4343, Vol. 6, Sect. 17, Chap. 2, App. 7 on Western EJ 25 series in respect of mounting, reduction gears and length and time of stroke. They also differ from each other in respect of

electrical connection. Details of variations are given below:—

DISMANTLING, INSPECTION, REPAIR AND RE-ASSEMBLY

2. These are all described in A.P.4343, Vol. 6, Sect. 17, Chap. 2, App. 7.

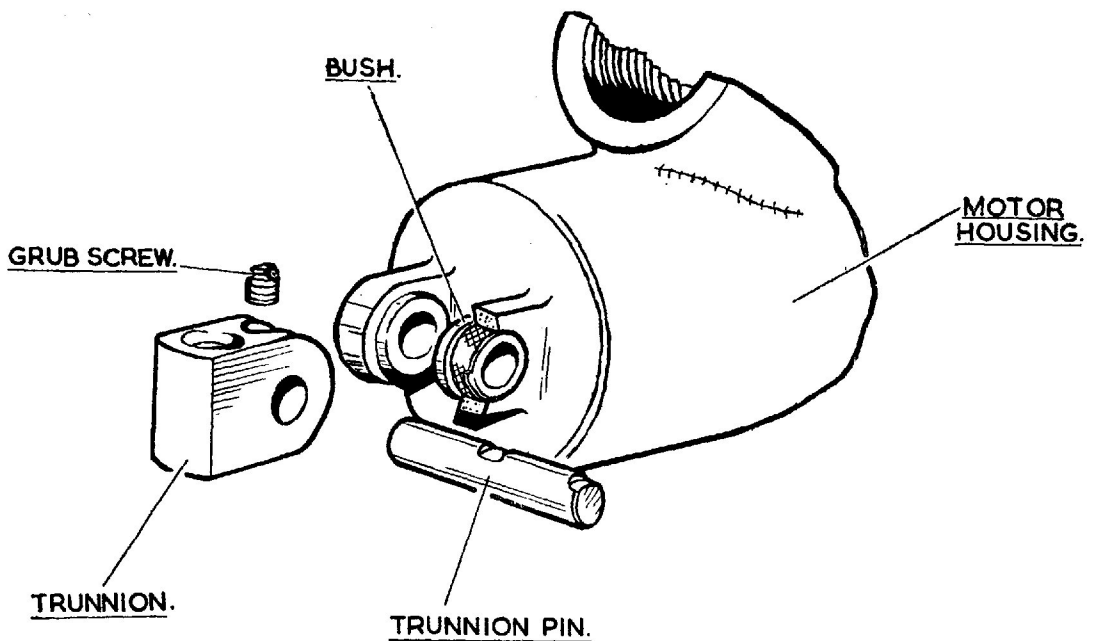


Fig. 1. Fixed end fitting

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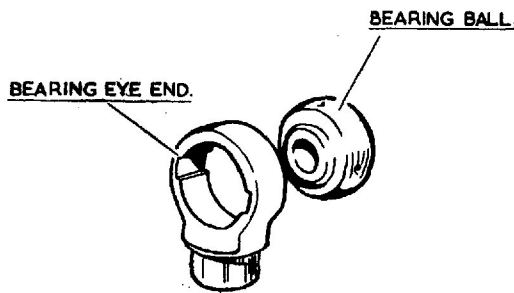


Fig. 2. Moving end fitting

End fittings

3. Each actuator is attached at the fixed end by a bolt passing through a universal trunnion, whilst the moving end is attached by a bolt passing through a self-aligning eye.

Fixing centres and stroke

4. The fixing centres, length and time of stroke are as follows:—

- (a) Extended centres 7.35 in. ± 0.02 in.
- (b) Retracted centres 6.35 in. ± 0.02 in.
- (c) Stroke length 1.00 inch
- (d) Time of stroke at 28V and 25 lb. opposing load 6 seconds

Reduction gears

5. Three-stage epicyclic reduction gears are fitted, having a total reduction ratio of 78.6 : 1.

Electrical connection

6. Actuator Mk. 17 is fitted with Breeze plug Ref. No. Z.560060 (Plessey Ref. No. CZ.48993) and Mk. 17A is fitted with Breeze plug Ref. No. Z.560565 (Plessey Ref. No. CZ.48993/5), the difference being in pin orientation.

TESTING

Actuator

7. Load tests are as follows, and are to be carried out on the actuator after repair and re-assembly:—

- (1) A running-in test of approximately 10 runs in each direction is to be made at 25 volts and 25 lb. opposing load.
- (2) A functional test should be performed at 28 volts d.c. and opposing loads of zero, 25 lb. and 37 lb. The maximum current consumption and the time the piston takes to complete its 1.00 inch travel should not exceed the following figures:—

Load (lb.)	Max. current (amp.)	Max. time (sec.)
0	0.9	5.75
25	1.0	6.00
37	1.1	6.35

Motor

8. Motor tests are described in A.P.4343, Vol. 6, Sect. 17, Chap. 2, App. 7.

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SCHEDULE OF FITS, CLEARANCES AND REPAIR TOLERANCES

APPENDIX 1

All dimensions in inches

Actuator, Western, Type EJ 25, Mk. 17 and 17A

Item No. (1)	Description (2)	Dimension New (3)	Permissible Worn Dimension (4)	Clearance New (5)	Permissible Worn Clearance (6)	Remarks (7)
	ACTUATOR					
1	Trunnion, bore	0.125	0.127	0.00125	0.003	
2	Trunnion pin, dia.	0.125	0.124	0		
3	Locating plate } bore	0.875 nominal	—	0.0004 clear to 0.0005 interf.	0.0004	Bearing selected to give the fits quoted in Col. 5
4	Piston housing }					
4	Ballrace o/d	—	—			
5	Ballrace i/d	0.375 nominal	—	0.0005 clear to 0.0004 interf.	0.0005	
6	Land on worm, dia.					
7	Piston housing bush, bore	0.4375	0.4380	0.0010 <u>0.0002</u>	0.0015	
8	Piston o/d	0.4375	0.4365			
9	Piston housing guide slots, width	0.1875	0.1905	0.004 <u>0.001</u>	0.005	
10	Piston lugs, width	0.1875	0.1855			

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SCHEDULE OF FITS, CLEARANCES AND REPAIR TOLERANCES

APPENDIX 1 (continued)

All dimensions in inches

Actuators, Western, Type EJ 25, Mk. 17 and 17A

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Item No. (1)	Description (2)	Dimension New (3)	Permissible Worn Dimension (4)	Clearance New (5)	Permissible Worn Clearance (6)	Remarks (7)
11	Self-aligning eye, spherical bore	0.495	—	—	As new	Ground to fit together with no perceptible backlash
12	Bearing ball	—	—	—	—	
13	Worm assembly	—	—	0.0015	—	Max. end float 0.001
14	Worm and piston thread	—	—	—	—	
15	End cap solenoid core, dia.	0.5175 nominal	—	0.0005 clear to 0.0005 interf.	0.0005	
16	Ballrace sealing cup, o/d	—	—	—	—	
17	Ballrace i/d	0.1875 nominal	—	0.0001 interf. to 0.0004 interf.	As new	Bearings selected to give the interference fits quoted in Col. 5
18	Armature shaft, dia.	—	—	—	—	
19	Brush length	0.30	0.20	—	—	

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