Chapter 1

(Completely revised)

BAROSTATIC TIME-RELEASE UNIT

(Mk. 2 and 3 series ejection seats)

LIST OF CONTENTS

LIST OF ILLUSTRATIONS

Removing the release unit from the seat

1. (1) Disconnect the static line by removing the quick-release pin.

(2) Test the action of the time-release mechanism by pulling out the sear with the static line. The delay should be 3 sec. $\pm$ 0·25 sec. (1·25 sec. $\pm$ 0·1 sec. after Mod. No. 491 has been incorporated).

WARNING . . .

Instances of mal-functioning and unserviceability of these units have been attributed to damage to the ball-ended locking plunger being caused by rotating the rack retaining plunger whilst the unit is in the cocked condition. The rack retaining plunger is NOT *to be turned whilst the unit is cocked, but is to be released by a straight pull on the sear.*

(3) Unscrew the four $\frac{1}{4}$ in. B.S.F. bolts which secure the unit to the starboard seat beam.

(4) Cut the locking wire, unscrew the harness release cable assembly and lift the unit from the seat.

IMPORTANT . . .

(1) *The time-release unit is designed to operate dry and must NOT be lubricated.*

(2) *No adjustment is permissible to the duration of the time-delay mechanism and, if this is incorrect, the unit must be regarded as unserviceable.*

(3) *In no circumstances is the gear train to be stripped down for servicing. If it is defective in any way, the complete time-release unit is to be renewed.*

Fitting the release unit to the seat

2. (1) Screw home the harness release cable assembly and lock with 22 S.W.G. non-corrodible steel wire.

(2) Fit the unit to the starboard side of the seat beam with the four $\frac{1}{4}$ in. B.S.F. bolts.

(3) Turn the operating plunger until the word TOP is at the bottom, insert the sear from the top, depress the plunger until it engages and then rotate it a half-turn.

(4) Connect the static rod.

Re-setting the mechanism

3. (1) Close the scissor shackle over the drogue shackle and slide the locking plunger inwards until it rests against the scissor shackle.

(2) Place the rack plunger tool over the primary plunger (top diagram, *fig.* 1) and press down until it engages.

(3) Place the harness release plunger tool over the plunger (bottom diagram, *fig.* 1), ensuring that the cut-away portion of the tool is facing forward, and press down until it engages. Whilst doing so, place the other hand on the safety harness quick-release lever and assist it round to the locked position.

(4) Remove the cocking tool.

TESTING THE BAROSTAT

4. The barostat is to be checked at the prescribed servicing periods, using the special testing instrument (*Ref. No.* 27*L*/1050). The procedure is as follows.

Checking and setting the micrometer zero

5. (1) Check the zero reading of the micrometer by placing the straightedge across the face of the screwed housing (*fig.* 2). Ensure that both the straightedge and the receiving face of the instrument are clean and free from grit. Adjust the micrometer sleeve until the signal lamp lights (this indicates the exact moment of contact between the micrometer and the straightedge). The micrometer reading should be zero $\pm$0·0005 in.

Fig. 1. Re-setting barostatic time-release mechanism

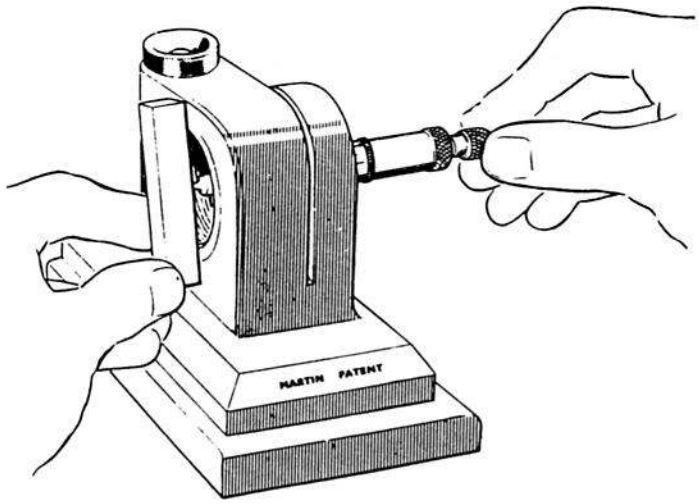

Fig. 2. Checking the zero reading

(2) If it is necessary to re-set for zero, slacken off the Allen screw with the key provided in the box (*fig.* 3) and lightly tap the micarta housing bush in or out as necessary. When the correct adjustment has been obtained, tighten the Allen screw and re-check for zero as described in sub-para. (1).

Checking the barostat

6. (1) Check that the correct indicator is fitted in the lid of the transit case.

Note . . .

Indicator, Part No. T.D.O.632 is fitted as standard and is intended for checking barostats set to 10,000 ft., and Part No. T.D.O.637 is an alternative indicator for use with barostats set to 15,000 ft.

(2) Ensure that the face of the barostat and the receiving face of the instrument are perfectly clean and free from grit.

(3) Set the micrometer to approximately 0·620 in. This will ensure that the barostat pin is not damaged when the unit is fitted. Screw the barostat into the instrument (*fig.* 4).

Note . . .

Hand tightness is sufficient.

(4) Adjust the micrometer sleeve until contact is made with the barostat pin, i.e., the signal lamp lights.

(5) Set the indicator to the ambient barometer reading in millibars Q.F.E. (left-hand window). The correct micrometer reading (in red figures) will then be visible in the right-hand window.

IMPORTANT . . .

The indicator micrometer reading is expressed as a tolerance and the instrument micrometer reading must fall within these limits. If not, the barostat is to be returned to the Depôt, or to the manufacturers, and a new one fitted.

TESTING THE G CONTROLLER SWITCH

7. The G controller switch spring-loading is to be checked at the prescribed servicing periods, using the special test instrument. The correct method of using the test instrument is as follows:—

(1) Remove the blanking plug from the top of the G controller switch body.

(2) Ensure that both the test instrument and the switch body are quite free from dirt or grease and then firmly screw the tester into the switch body hand tight.

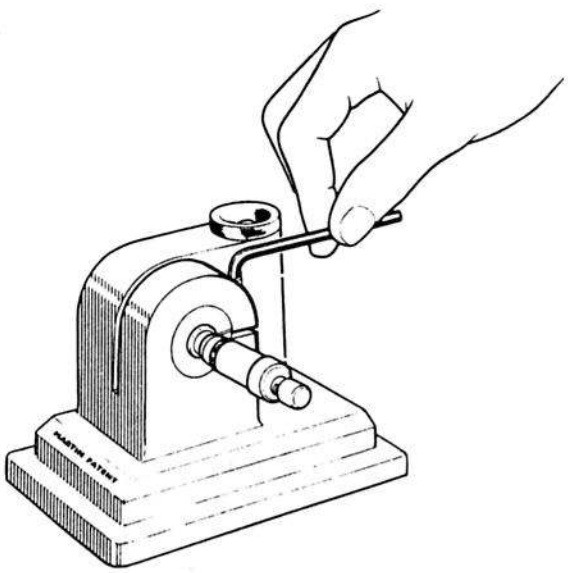

Fig. 3. Adjusting the zero reading

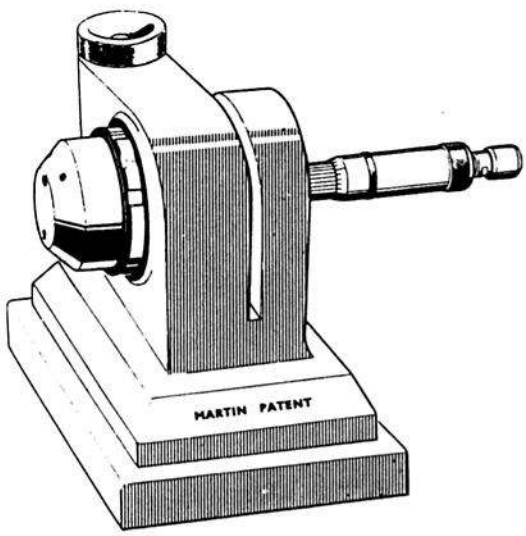

Fig. 4. Testing the barostat

(3) Cock the barostatic time-release unit *without inserting the sear* and, when movement of the gear train ceases, fully depress the instrument plunger; this prevents the gear train from functioning.

(4) Hold the time-release unit horizontal (*this is essential for the correct G loading*) then slowly release the plunger, simultaneously watching for the appearance of the G marks. The gear train should commence to function *after* the $4\frac{1}{2}$G mark has appeared above the top face of the securing nut but *before* the 3G mark becomes visible.

(5) Repeat operations (3) and (4) two or three times.

(6) After the tests remove the instrument, fit the blanking plug, wire-lock to the two adjacent 2 B.A. bolt heads and seal with a lead or soft copper seal.

(7) If any G controller switch fails this test, it is to be renewed.