

Chapter 2

(This chapter supersedes that issued with A.L.19)

EJECTION SEAT, MK. 3B (Vampire Aircraft)

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Servicing the seat structure

To remove the seat pan

1. (1) Pull out the withdrawal knobs and hinge the parachute container upwards out of the way.
- (2) Remove the manual harness release control cables from the bracket on the side member by unscrewing the two 2 B.A. bolts and detach the cross-shaft lever from the cross-shaft by undoing the nut and bolt. To facilitate removal, undo the special nut at the pivoting point of the radius arm and ease the radius arm out sufficiently to withdraw the cross-shaft lever.
- (3) Disconnect the starboard safety harness thigh strap from the pan.
- (4) Disconnect the oxygen and anti-G suit supply pipes from the clips on the side of the seat pan.
- (5) Adjust the seat to its top position whilst sitting in the seat to counteract the load of the seat balance springs.
- (6) Remove the locking wire from the two spring-loaded plungers and, while pressing the pan back against the seat to relieve the plungers of the balance spring load, slide outwards the spring-loaded plungers. Allow the pan to hinge forward under the force of the balance springs until the springs are relaxed; they may then be removed.
- (7) Remove the bolts from the ends of the seat raising levers and remove the seat pan.

To remove and dismantle the parachute container radius arms

2. (1) Withdraw the split pin and remove the special nut at the starboard upper corner of the parachute container, and withdraw the transverse tube to port from the container.
- (2) Remove the clamping bolt and the nut, and withdraw sideways the radius arm body and the lever simultaneously.
- (3) Remove the split pin and spring retaining block and withdraw the plunger.
- (4) Remove the retaining screw and withdraw the sliding member from the radius arm body.

To examine and assemble the parachute container radius arms

3. (1) Check that all components are free from corrosion and that all moving parts operate freely without excessive slackness.
- (2) Check that the radius arms are straight in both planes and that there are no signs of burring on the notch faces; remove any burrs with a slip stone.
- (3) Lightly smear all moving parts with grease XG-275.
- (4) Insert the radius arm into the radius arm body and tighten the retaining screw.
- (5) Insert the plunger and spring retaining block and split pin.
- (6) Assemble the radius arm body and lever, insert the clamping bolt and tighten the nut.
- (7) Insert the transverse tube, tighten the special nut and lock with a split pin.



Fig. 1. Testing the lifting lines

To dismantle the seat raising mechanism

4. (1) Remove the 2 B.A. lock-nut and tap out the taper pin from the port end of the countershaft. Remove the roller from the countershaft fitting. Do not remove the $\frac{1}{4}$ in. bolts from the faces of the seat raising lever bosses.
- (2) Remove the two quadrants by removing the four lock-nuts on each quadrant, and depressing the trigger control on the seat raising handle to free the plungers as the quadrant is withdrawn; the four bolts remain in place.
- (3) Remove the seat raising handle by tapping out the handle hinge pin and removing the bell crank lever by removing its hinge pin.
- (4) Push up the two plungers simultaneously and pull out the scar bar from the starboard side.
- (5) Remove both plungers and springs and withdraw the countershaft to starboard out of the port seat raising lever and countershaft bearings. Remove the spring retainer, spring and plunger from the end of the countershaft and, if necessary, the starboard seat raising lever.

To examine the seat raising mechanism

5. (1) Check that all components are free from corrosion and that all rollers rotate freely without excessive slackness on their pins.
- (2) Check that the scar bar is straight in both planes and free from wear on the ramp faces.
- (3) Check that the locking plungers and springs move freely in their housings in the seat raising levers.

To assemble the seat raising mechanism

Note . . .

Lubricate all parts during assembly with grease XG-275.

6. (1) Pass the shaft with the starboard seat raising lever attached through the bearings in the side beams, and pass the port raising lever with the countershaft end fitting attached on to the shaft. Assemble the roller and split pin.
- (2) Insert the locking plungers and springs into the raising levers and, whilst depressing each plunger in turn, insert the scar bar into the countershaft, passing it through the slots in the locking plungers.
- (3) Replace the plunger, spring and spring retainer into the end of the countershaft, and insert the taper pin and lock-nut.
- (4) Replace the quadrants and the seat raising handle.

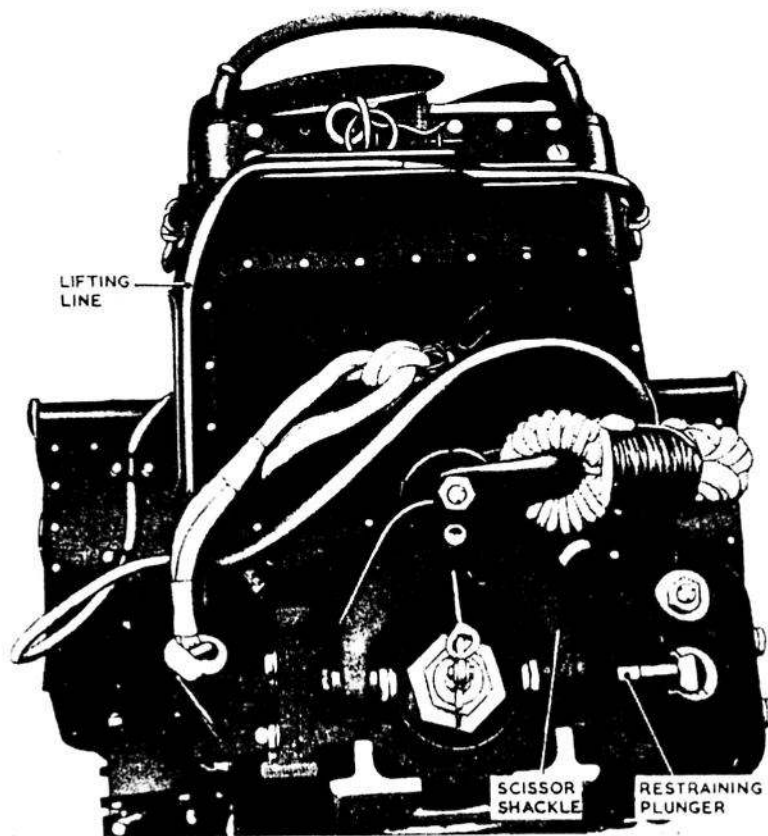


Fig. 2. Fitting the lifting lines

To fit the seat pan

7. (1) Place the pan on the seat raising levers, which must be in the top position, and insert and secure the bolts.
- (2) Fit the seat balance springs and press the pan back against the seat, so compressing the springs. Operate the spring-loaded plungers to engage with the guides in the side beams and lock with non-corrodible steel locking wire. Ensure that the spring-loaded plungers have engaged correctly.
- (3) Connect the parachute container to the lower brackets by operating the release knobs.
- (4) Connect the starboard safety harness thigh strap.
- (5) Connect the oxygen and anti-G suit supply pipes.

Testing the lifting lines

8. (1) Disconnect the drogue withdrawal line from the drogue shackle, and disconnect the drogue shackle from the scissor shackle.
- (2) Connect the spring balance to the drogue shackle and pull upwards. The lifting lines should not pull out of the first clip until the scale registers 16 lb. as indicated in fig. 1, and 12 lb. for the remaining clips. A tolerance of ± 2 lb. is permissible, and adjustments may be made by opening or closing the clips as necessary.

Fitting the lifting lines

9. Commencing at the front of the drogue container, press the lifting lines down into their clips, using thumb pressure, until the final result is similar to that shown in fig. 2.

Servicing the face screen*To test the face screen*

10. Connect a spring balance to the firing handle (fig. 3) and pull until the spring-loaded plungers disengage, watching the scale whilst doing so. The face screen should not pull out of its housing until the scale registers 25 to 45 lb. Repeat the test (if necessary re-engaging the spring-loaded plungers) and check that the tongue on the safety strap does not pull out of the restraining clip on top of the drogue container until 25 to 45 lb. is registered.

To examine the face screen

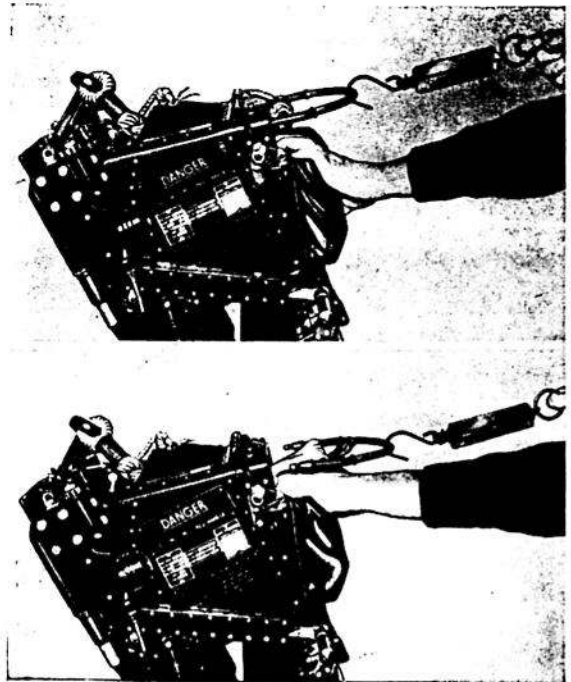
11. (1) Withdraw the face screen to its fullest extent.
- (2) Examine the fabric of the face screen and check the security of attachment of the front edge to the firing handle, and of the two rear fittings.
- (3) Examine the attachment of the firing cable to the face screen.

To pack the face screen

12. (1) Stretch the face screen to its full extent.
- (2) Push the fullness up into convex form (left-hand diagram, fig. 4).
- (3) Form a longitudinal crease just right of the centre line.
- (4) Fold the centre bulk to lie on the right edge of the screen so that the edges are roughly parallel and the cable anchorage is proud (right-hand diagram, fig. 4). The face screen is now in three thicknesses on the right and one on the left.
- (5) Carefully retaining this fold, roll the screen over the lower edge of the slot in the container and press it down into its compartment.
- (6) Insert the firing handle into its socket, but before pressing home the locking plungers, ensure that the restraining plate is located behind the firing handle cross-bar.

Examining the leg restraining device

13. (1) Check that the nylon cords can be drawn *downwards* freely through the snubbing units, but that the units restrain any *upward* movement.
- (2) Grasp each cord in turn and pull upwards; whilst doing so, depress the release button beneath the snubbing unit. Check that when the button is depressed, the cord can be pulled

**Fig. 3. Testing the face screen**

freely in either direction and, when the button is released, that the cord is again restrained from upward movement.

(3) Examine the nylon cords for damage and

deterioration; in particular check the upper loops for fraying.

(4) Examine the aircraft floor brackets for damage and security.

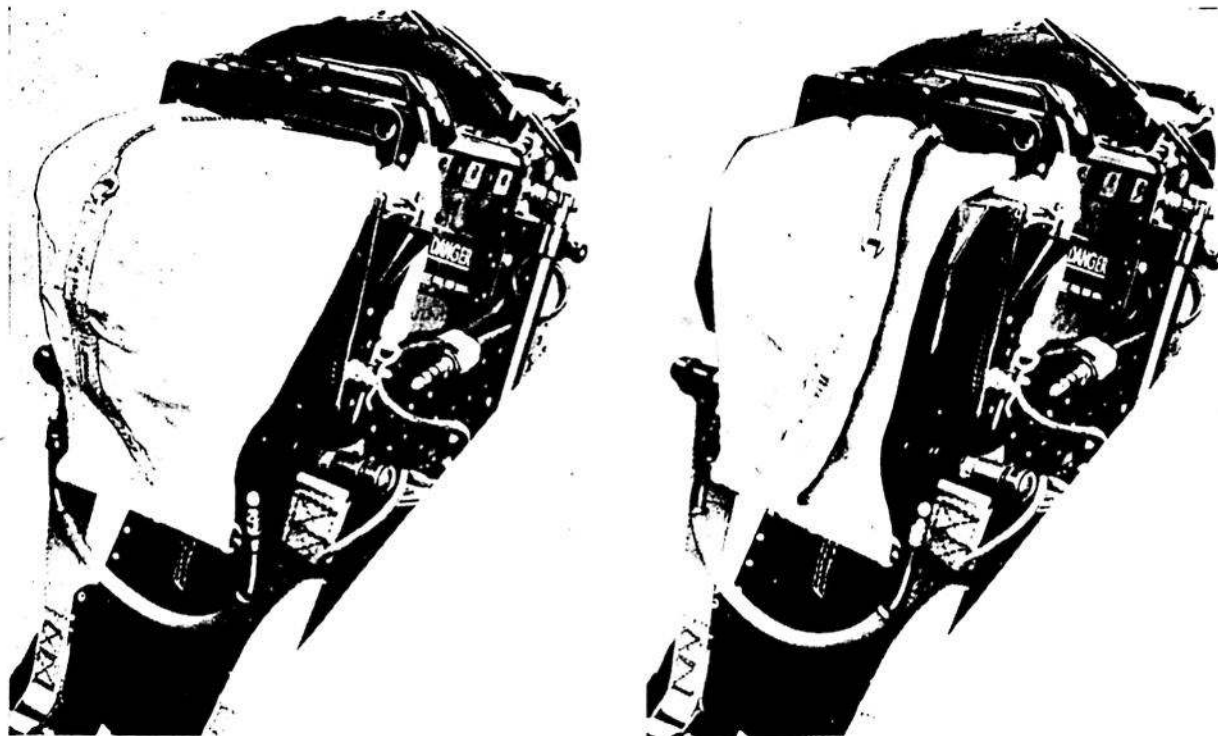


Fig. 4. Folding the face screen

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