

Chapter 1

VENOM F.B. Mk. 4

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COMPOSITION OF THE ASSEMBLY

1. The aircrew equipment assembly for this aircraft consists of the following items:—

Ejection seat	Mk. 2F
Safety harness	Type ZF
Parachute assembly	Back type, Mk. 13
Personal survival pack	Type J.J
Emergency oxygen set	Mk. 4

Note . . .

The aircraft oxygen system is suitable for use with or without pressure breathing equipment; choice of oxygen mask is therefore governed by the setting of the oxygen selector valve (A.P 1182E, Vol. 1, Sect. 4, Chap. 2 refers).

The Mk. 2F ejection seat

2. The Mk. 2F seat is ejected from the aircraft by a cartridge-operated gun and during ejection it slides on a guide rail attached to the airframe structure. It incorporates the type ZF harness, leg restraint cords, headrest cushion, parachute

pack container and a seat pan which houses the personal survival pack and emergency oxygen set.

3. The leg restraint cords (which operate through snubbing units on the front of the seat pan) ensure that the legs of the occupant are drawn back to the seat pan and restrained there during ejection, to prevent injury.

4. Adjustment of seat height is obtained by operating a lever at the right-hand side of the seat pan, the plunger in the end of the lever must be depressed before the seat can be moved. The safety harness 'go-forward' control is mounted on the right-hand thigh guard; the knob is moved to the rear to free the harness lock.

5. During ejection, all connections to the aircraft are broken and the emergency oxygen supply is turned on automatically. Fully automatic facilities are provided to separate the occupant from the seat after ejection and to open his parachute after separation. A manual override control is fitted to disconnect the parachute automatic withdrawal device from the seat should the need arise to (a) make a manual bale-out from

the aircraft or (b) make a manual separation from the seat after ejection.

6. A description of the Mk. 2F ejection seat will be found in A.P.4288, Series, detailed information concerning the Mk. 13 parachute assembly and the Type J.J personal survival pack will be found in A.P.1182A, Vol. 1 and A.P.1182C, Vol. 1, respectively.

Connections to the aircraft

7. When the seat is installed in the aircraft and is fully equipped, the following items are connected to the airframe :-

- (1) *Left-hand side of seat :-*
 - (a) Static rod from drogue gun.
 - (b) Anti-G suit air supply hose.
 - (c) Mic/Tel lead.
- (2) *Right-hand side of seat :-*
 - (a) Static line from the barostatic time-release unit.
 - (b) Static line from the emergency oxygen cylinder operating head.
 - (c) Main oxygen supply hose.
- (3) *Front of seat pan :-*
 - (a) Leg restraint cords.

EQUIPPING THE SEAT

8. Before equipping the seat make sure it has been made safe for servicing in accordance with current instructions.

9. The following procedure is to be used when installing the equipment in the seat, refer to fig. 1 to 4 for detail as necessary :-

- (1) Drape the safety harness shoulder straps over the top of the seat and ensure that the lap straps and leg restraint cords are clear of the seat pan.
- (2) Check that the bottom of the apron is securely clipped to the lower extension of the parachute container.

- (3) Tension the apron against its clips and insert the parachute pack into its container; before finally stowing the pack, connect the two halves of the parachute withdrawal line coupling.
- (4) After the parachute pack has been stowed, fit the pack restraining straps into the clips on the sides of the container.
- (5) Arrange the parachute harness to follow the inner contours of the seat pan and insert the sticker straps into the clips on the sides of the pan. Check that the operating head of the emergency oxygen cylinder is to the right and that both the operating cable and the oxygen supply tube pass through the tunnel on the right-hand side of the parachute harness.
- (6) Connect the nipple of the emergency oxygen cylinder operating cable to the anchor section of the static line and engage the ferrule of the cable housing with the anchor socket. Connect the anchor hook to the static line.
- (7) Place the personal survival pack on the parachute harness in the seat pan, pulling the harness back pad upwards as far as possible. Ensure that the front of the pack is to the front of the seat pan and drape the lanyard over the front right-hand side.

10. After the seat has been equipped, make sure that it is made safe for parking in accordance with current instructions.

STRAPPING-IN PROCEDURE

11. Before leaving the crew room, the flying clothing and associated equipment are to be tested on the universal test rig; the use of which is described in A.P.1182E, Vol. 1, Sect. 5, Chap. 1.

12. The following strapping-in procedure is to be used; refer to fig. 4 to 7 :-

- (1) Ensure that the seat has been made safe for parking in accordance with current instructions.

- (2) The ground crew member removes and retains the safety pin from the emergency oxygen cylinder operating head and checks that the 'tell-tale' wire is unbroken.
 - (3) Sit in the seat and adjust its height. Ideally, the head is to be located in the centre of the headrest cushion.
 - (4) Connect the personal survival pack lanyard to the life jacket ensuring that it passes OUTSIDE the right leg.
 - (5) Connect the personal survival pack side quick-release couplings to the life jacket.
 - (6) Connect the anti-g suit air supply hose to the suit.
 - (7) Fasten the parachute harness, ensuring that the shoulder straps pass UNDER the folds of the life jacket stole, that the right leg straps passes OVER the personal survival pack lanyard and that the quick-release fitting is positioned as high as possible on the body compatible with comfort. Fit the safety clip behind the disc-knob of the quick-release fitting.
 - (8) Fasten the lap straps of the safety harness but do not tighten them.
 - (9) Pass the right leg restraint cord through the left leg garter D-ring and under the left lap strap of the safety harness. Pass the lug of the left shoulder strap of the safety harness through the loop in the end of the leg restraint cord and insert the lug into the safety harness quick-release fitting.
 - (10) Pass the left leg restraint cord through the right leg garter D-ring and under the right lap strap of the safety harness. Pass the lug of the right shoulder strap of the safety harness through the loop in the end of the leg restraint cord and insert the lug into the safety harness quick-release fitting.
 - (11) Tighten the lap straps of the safety harness ensuring that the quick-release fitting is positioned as low as possible against the body and that the parachute harness quick-release fitting is not covered, the manual override D-ring must not be obstructed by the left lap strap of the safety harness.
 - (12) Tighten the safety harness shoulder straps.
 - (13) Put on the flying and protective helmets, fasten both chin straps and connect the Mic/Tel lead.
- Note** . . .
- If the chin straps are not fastened, the helmets and oxygen mask may be wrenched off during ejection. At high altitude this would result in the loss of vital oxygen supply.*
- (14) Connect the oxygen mask tube to the main oxygen supply hose and adjust the hose in its clip on the safety harness lap strap to achieve unrestricted head movement.
- Note**
- If the pressure breathing waistcoat is being used, connect the main oxygen supply hose to the waistcoat hose and connect the oxygen mask tube to the connecting box on the waistcoat.*
- (15) Connect the oxygen mask tube locating chain to the D-ring on the life jacket.
 - (16) Pass the emergency oxygen supply tube under the right shoulder strap of the safety harness and connect it to the oxygen mask tube.
 - (17) Adjust the leg restraint cords in the snubbing units until full movement of control column and rudder pedals is obtained.
 - (18) Check that the firing handle can be reached with both hands together; DO NOT DISPLACE THE HANDLE FROM ITS STOWAGE.

- (19) The ground crew member removes the safety pin from the firing handle, shows it to the pilot and then places it in the stowage on the left-hand side of the parachute container.

EMERGENCIES

13. Instructions for dealing with emergencies are contained in A.P.4335D-P.N

LEAVING THE AIRCRAFT AFTER LANDING

14. When leaving the aircraft after landing, the following procedure should be used:—

- (1) The ground crew member removes the safety pin from its stowage and fits it through the firing handle safety strap.

Note

If a ground crew member is not available, the pilot MUST fit the safety pin before leaving the aircraft.

- (2) Disconnect the main and emergency oxygen supply from the oxygen mask tube.

Note

If the pressure breathing waistcoat is worn, disconnect the oxygen mask tube from the connecting box and the waistcoat hose from the main oxygen supply hose.

- (3) Release the safety harness and return the quick-release fitting to the 'fasten' position, free the leg restraint cords.
- (4) Remove the safety clip from the parachute harness quick-release fitting and release the harness, return the quick-release fitting to the locked position.
- (5) Disconnect the personal survival pack lanyard and side quick-release couplings from the life jacket.
- (6) Disconnect the anti-g suit air supply hose from the suit and insert the blanking plug.
- (7) Disconnect the Mic/Tel lead.
- (8) Leave the aircraft.
- (9) The ground crew member fits the safety pin in the emergency oxygen cylinder operating head.

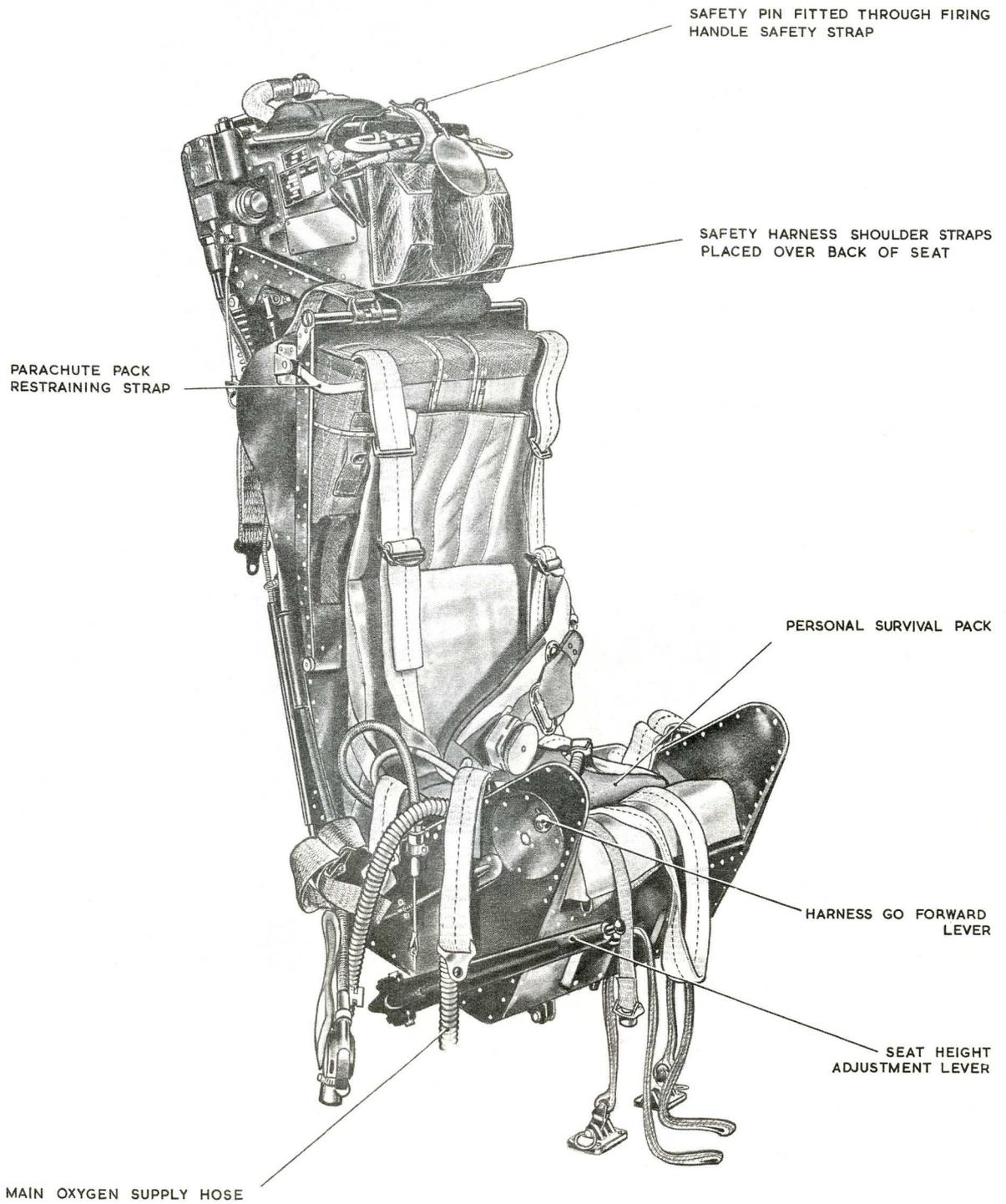


Fig. 1. The seat equipped (1)

RESTRICTED

FIRING HANDLE

APRON CLIPPED TO LOWER EXTENSION
OF PARACHUTE PACK CONTAINER

PERSONAL SURVIVAL
PACK LANYARD

LEG RESTRAINT CORDS

DROGUE GUN
SAFETY LOCK

ANTI-G SUIT AIR
SUPPLY HOSE

STICKER STRAP

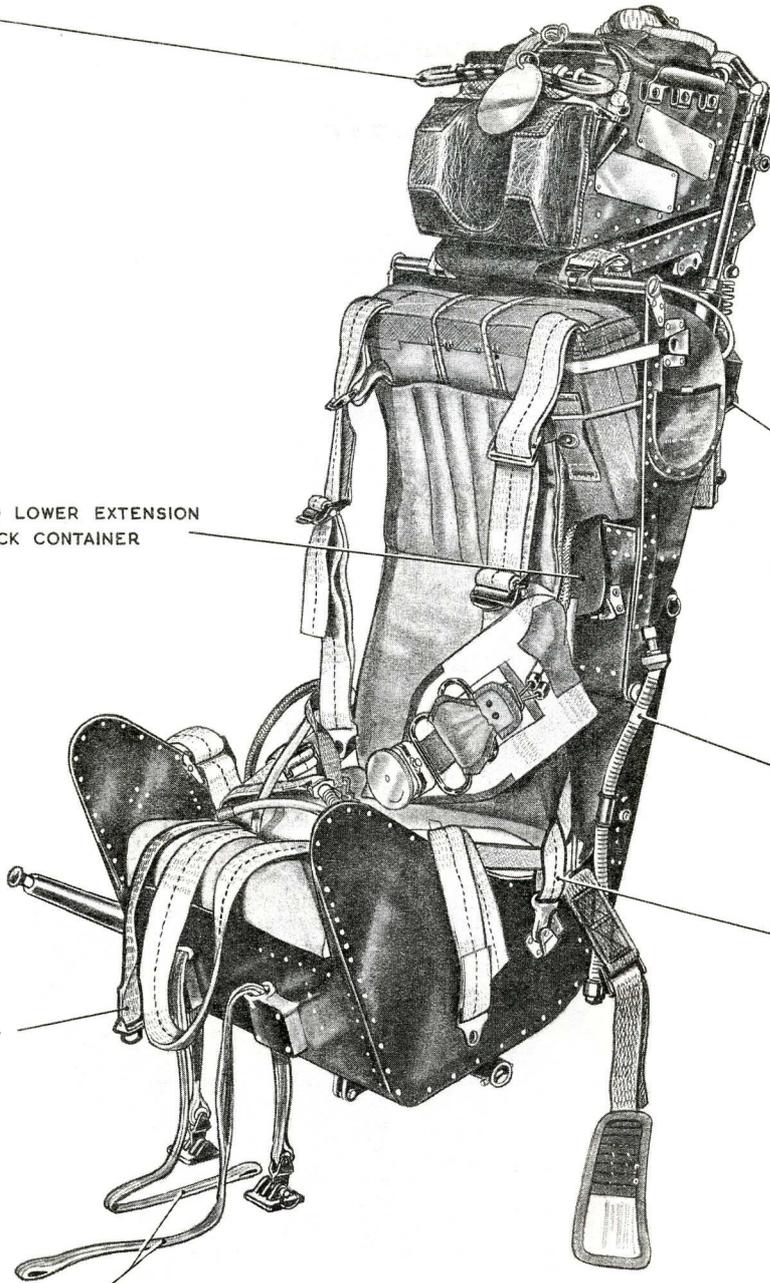


Fig. 2. The seat equipped (2)

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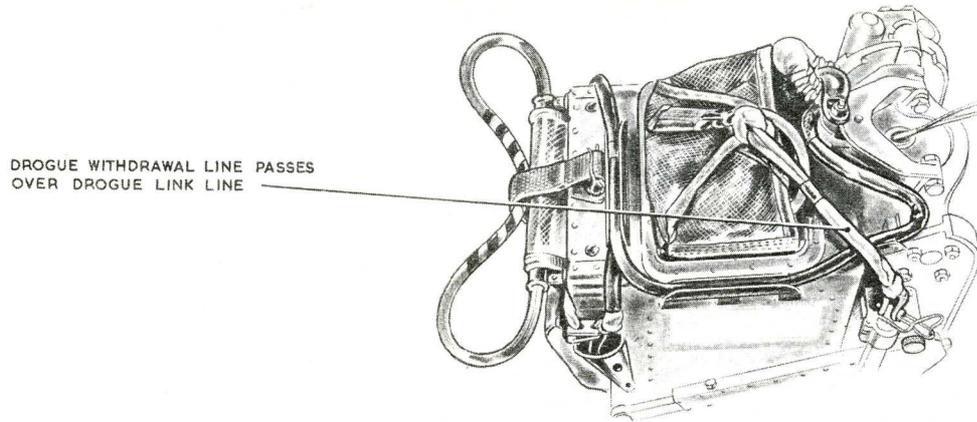


Fig. 3. Arrangement of drogue withdrawal and link lines

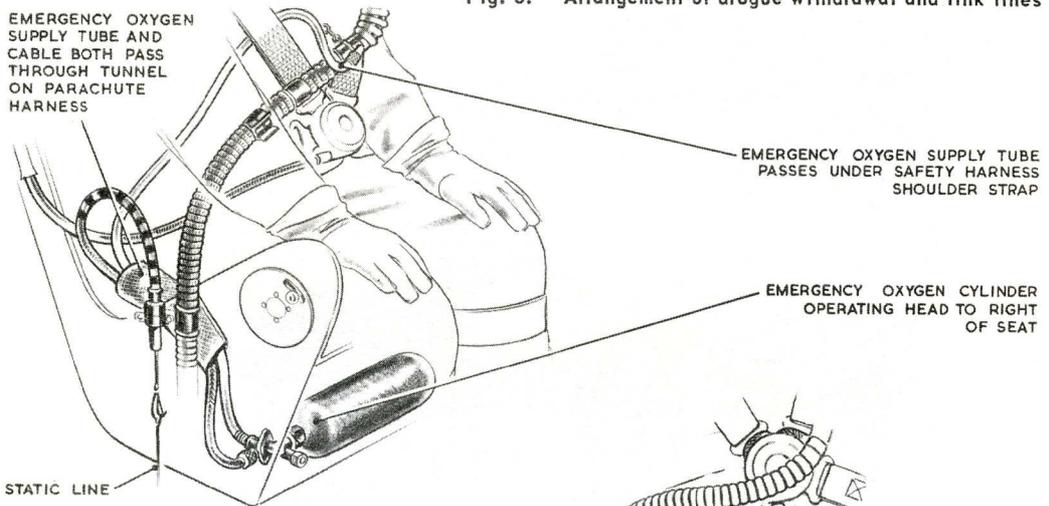


Fig. 4. Arrangement of oxygen supply on seat

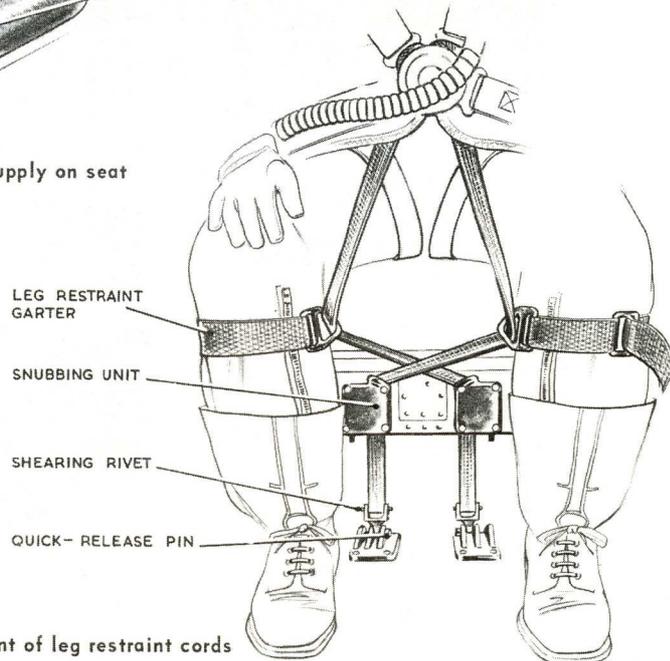
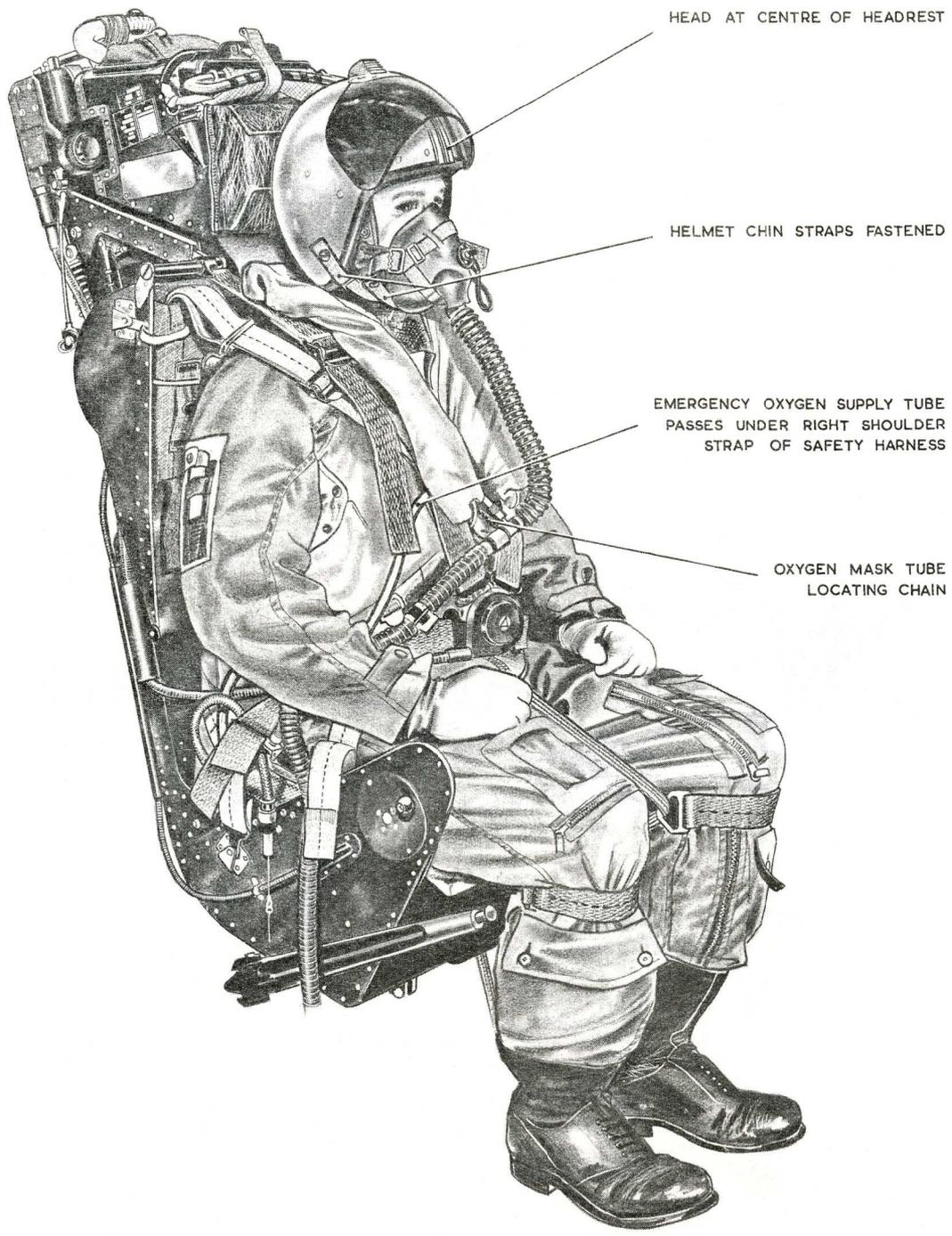


Fig. 5. Arrangement of leg restraint cords



HEAD AT CENTRE OF HEADREST

HELMET CHIN STRAPS FASTENED

EMERGENCY OXYGEN SUPPLY TUBE
PASSES UNDER RIGHT SHOULDER
STRAP OF SAFETY HARNESS

OXYGEN MASK TUBE
LOCATING CHAIN

Fig. 6. The seat occupied (1)

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Fig. 7. The seat occupied (2)

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