

Chapter 3

EMERGENCY CONTROLS, EQUIPMENT AND EXITS - METHOD OF OPERATION

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WARNING...

AIRCRAFT EJECTION SEATS ARE FITTED TO THIS AIRCRAFT. This equipment is a source of potential danger to personnel and of damage to the aircraft. If a seat mechanism is operated while the aircraft is on the ground, a seat will be ejected, damage will be caused to the aircraft and injury can be caused to any person in, or leaning into, the cabin. Before any individual is allowed to enter the cabin, it must be ascertained that the safety precautions listed on the Ejection Seat Warning card at the front of this book, have been observed.

Introduction

1. This chapter describes the location of emergency controls, equipment and exits and indicates method of operation where this is not obvious. Full descriptive and servicing information on the systems employed is given under their chapter headings in Sect.3. Reference must also be made to Sect.3, Chap.11. The location of the emergency equipment is shown in fig.1.

EMERGENCY CONTROLS**Alighting gear****Lowering**

2. A mechanical selector for lowering

the alighting gear, in an emergency, is located on the starboard side of the pilots' centre console, it consists of a spade-grip handle marked EMERGENCY AIR-U/C. The handle, retained in the off position by being locked to the stop block by locking wire, is operated by being pulled to its fullest extent. This control is used in the event of a hydraulic system failure and functions irrespective of the position of the normal selector switch. It is, however, recommended that alighting gear DOWN is selected prior to using the emergency handle to utilise any residual pressure remaining in the hydraulic system. When the handle is pulled it is locked in

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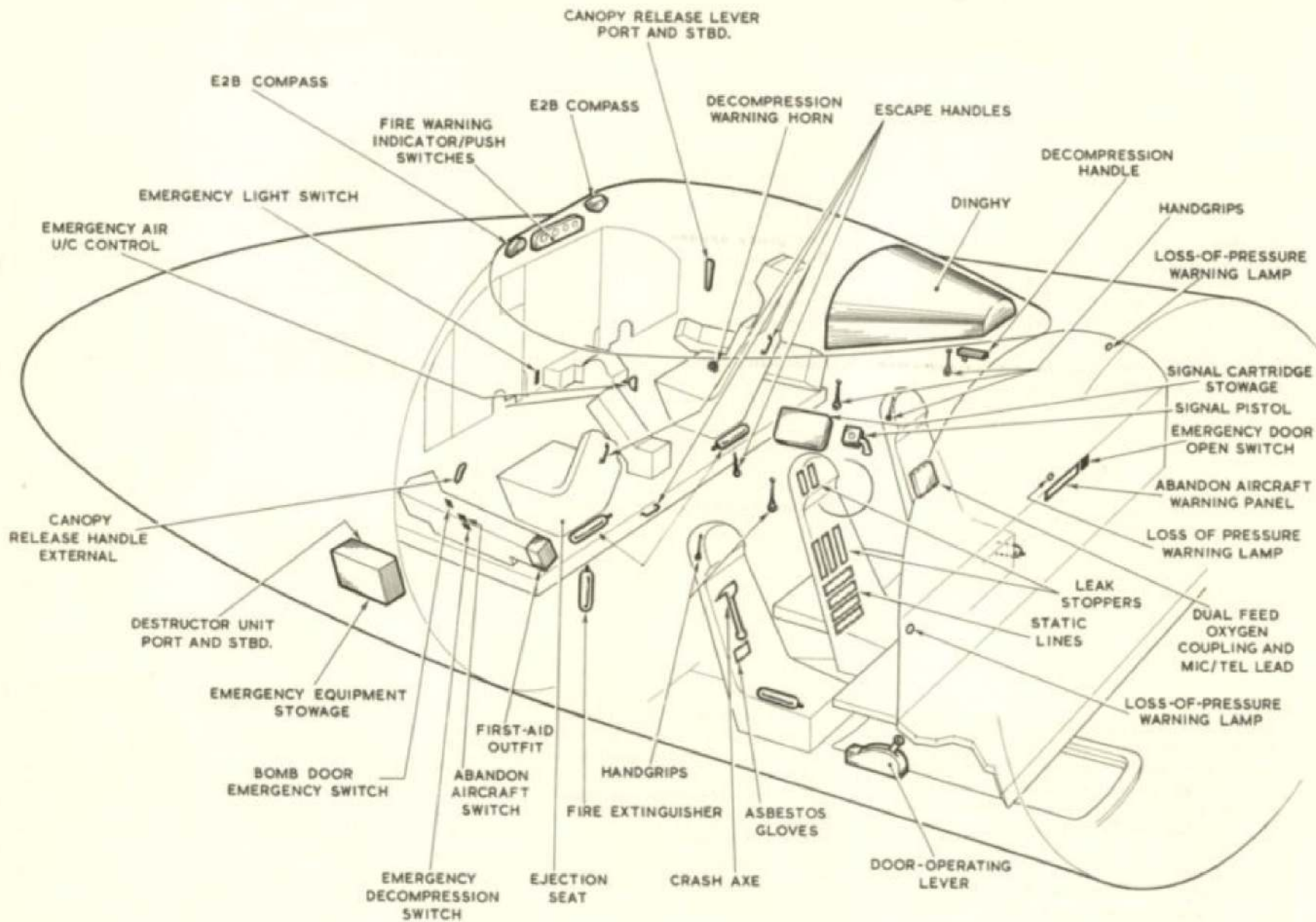


Fig. 1. Emergency controls and equipment

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the ON position by a ratchet mechanism and cannot be returned to the OFF position by the pilot. In addition to selecting the emergency air valve, operation of the handle cuts off the electrical supply to the selector switch which normally energises the electro-hydraulic control valve, but does not cut off the supply to the nose wheel steering system.

Raising

3. Incorporated in the UP button of the alighting gear selector switch is an electro-magnetic safety lock. The lock is engaged until the weight of the aircraft is removed from the alighting gear, or it can be overridden by a direct push. In the event of an engine failure before the aircraft has become airborne and the runway distance ahead being inadequate, it may be necessary to retract the alighting gear (A.P.2095, Part 4, Chap.4). Retraction can be accomplished by rotating the flange marked EMERGENCY, on the UP button, in a clockwise direction. This has the effect of overriding the safety lock and pressing the UP button. The flange remains turned, as a reminder that the override has been made. The switch is restored to its normal position by use of the special tool Ref. No.27Q/12407.

Alighting gear warning

4. Incorporated in the dial of the air-speed indicator on the pilot's panel is a warning flag labelled U/C which is visible when the aircraft forward speed is reduced below 150 knots and the alighting gear has not been lowered.

CABIN DECOMPRESSION

5. The cabin pressure can be released by any one of the following controls

- (1) EMERGENCY DECOMPRESS switch, mounted at the edge of the port

console, when it is switched rearwards.

- (2) ABANDON AIRCRAFT switch mounted on the port console adjacent to the EMERGENCY DECOMPRESS switch.

- (3) PRESSURE SELECTOR switch, on the starboard console, when moved to the NO PRESS. position.

- (4) Black-and-yellow striped handle in the roof of the crew's compartment.

PRESSURE LOSS WARNING HORN

6. A warning horn, located below the pilots' floor, sounds when the cabin air pressure is lowered excessively. The horn can be isolated for ground servicing purposes, by operating a switch mounted on the crate structure, adjacent to the pressure controllers, below the pilots' floor on the starboard side.

ABANDON AIRCRAFT SWITCH

7. A switch marked ABANDON AIRCRAFT is mounted on the cockpit port console. When moved rearward, the switch will energise the air release valves to decompress the cabin and also illuminate the ABANDON AIRCRAFT warning sign above the crew's table.

EMERGENCY TRIM SWITCH

8. Located on the centre console is an emergency trim control for use when the normal control fails. The control consists of a movable knob incorporating a push button which, when depressed, disconnects the main trim circuit and engages the emergency circuit. The knob is then used in a natural sense:-

Rudder	Rotate left or right
Ailerons	Move knob sideways
Elevators	Move knob up or down

ARTIFICIAL FEEL RELIEF

9. Should the loading of the pilots' control grips become excessive, due to a failure of the artificial feel actuator, relief for the elevators and ailerons can be obtained by pressing the guarded artificial relief switch mounted on the pilots' control grips. A separate switch for the rudder units is mounted on the fuel contents gauge panel. When a switch is pressed, the associated relief actuator of the artificial feel unit is energised to considerably reduce the loading. The artificial feel unit is reset to normal by placing the appropriate START - STOP switches to the START position.

BOMB DOOR EMERGENCY OPENING

10. Should the normal hydraulic pressure have failed, a rotary three position EMERGENCY switch, labelled OPEN - NORMAL - CLOSE, on the port console, can be selected. The switch, usually in the NORMAL position, will energise an emergency electro-hydraulic power pack to operate the bomb doors when placed to the OPEN or CLOSE position.

BOMB JETTISON SWITCH

11. This switch, labelled EMERGENCY BOMB JETTISON, is on the port console adjacent to the bomb door selector switches.

EMERGENCY EQUIPMENT

Ejection seats

12. The pilots are each provided with an ejection seat Mk.3K1 port and Mk.3K2 starboard. The controls for the seats are

normal in operation and are described in A.P.4288C.

Pressure suits

13. Pressure suits will be provided for all crew members and are for protection in the event of a failure of the cabin conditioning system, causing the cabin pressure to fall to a physically - dangerous level. At a cabin pressure equivalent of 40,000 ft. the pilots' suits will be inflated by a barometric control. Inflation of the pilots' suits will energise electrically, three warning lamps above the crew's table. The crew members will then take appropriate action with their own pressure suits.

Emergency oxygen

14. In an emergency, the oxygen supply from the set installed in each ejection seat can be fed to the face masks, when the seat is installed in the aircraft, by manual operation of the yellow knobs on the pilots' floor between the two ejection seats.

FIRE WARNING AND EXTINGUISHING

Engine bays

15. Warning of fire in the engine bays is given by four combined warning indicator/push - switches, one to each engine, on the cockpit coaming. The extinguisher system is operated by pressing the push-switches.

Fuel tanks

16. No controls or warning devices are provided for the fuel tank extinguishers, the system being operated solely by the action of the inertia switches in the event of a crash landing. In the wing system, extinguishant is supplied to the inboard group of tanks only.

Hand-operated extinguishers

17. Mountings for five hand-operated

extinguishers are provided in the cabin at the following positions:-

One behind each pilot's seat, at the aft edge of the pilots' floor

One under the pilots' floor, secured to the port support strut

One each by the port and starboard crew seats



DINGHY

18. A dinghy, Type MS.5 Mk.1, complete with survival equipment, is installed in a positively-locked stowage at the rear of the canopy. The operating handle, marked DINGHY RELEASE, is on the stowage container and is pulled to operate. Note that the handle cannot be seen until the canopy is removed. When the handle is pulled the dinghy fasteners are first released and the dinghy carbon dioxide cylinder is then operated through cable assemblies to inflate the dinghy, which will expand and force its way out of the stowage. Full descriptive and servicing details for the dinghy installation are given in A.P.1182C.

EMERGENCY EQUIPMENT STOWAGE

Internal

19. The following items are stowed in the crew's cabin:-

(1) Crash axe and asbestos gloves on the back of the crew's port seat.

(2) First aid outfit secured to the aft end of the port console.

External

20. An external emergency equipment stowage is provided on the port side of the nose section and contains a fire extinguisher, first-aid equipment, asbestos gloves and a crash axe.

EMERGENCY LIGHTING

21. A 12-volt battery on the pilots' floor supplies current for emergency white lighting should the normal supply fail. This battery also supplies current to the first pilot's turn-and-slip indicator in an emergency.

LEAK STOPPERS

22. Leak stoppers (Ref.No.27KD/375), used to prevent loss of pressure should the cabin walls be punctured, are mounted in tube clips on the rear of the centre crew member's seat. These items are made of rubberised fabric and mesh sheet suitably reinforced with light-alloy tubular rods. The leak stopper is removed from the tube clips and placed flat over the puncture, the pressure in the cabin being sufficient to hold the stopper in position.

COMPASS TYPE E2B

23. A magnetic compass Type E2B is mounted on the port and starboard side of the windscreen structure. Used as an emergency or standby compass in the event of failure of the Type G4B main compass, it also provides a rough check of the main compass, if desired. Full descriptive details of the compass are given in A.P.1275B, Vol.1, Sect.3.

CARTRIDGE STOWAGE

24. Accommodation for 12, 1½ in.dia. signal cartridges is provided in a stowage on the fuselage wall adjacent to the A.E.O's station.

STATIC LINES

25. Four parachute static lines folded in leather protected canvas covers are attached by staple clips to a mounting.

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plate fixed to the rear of the centre crew member's seat. The lines are attached at one end to a retaining bar on the rear of the seat, the other end incorporates the parachute attachment link which is folded back and attached to the canvas cover by a single strand of No.12 cord.

HANDGRIPS

26. Handgrips and handles are located at suitable positions in the cabin to enable the rear crew members to move quickly to the escape door. The pilots' ladder, when in the stowed position, provides handholds for the A.E.O. and the navigator/plotter when they are moving to the escape door.

EMERGENCY EXITS

Entrance door

27. The entrance door is used in flight as a means of escape for the rear crew members. A gated lever, on the door port frame, is used for manual operation, initial movement of the lever forward in the quadrant decompresses the door seal.

Further movement withdraws the door locking pins and final movement, to the EMERGENCY position, applies pneumatic pressure through jacks to the door which is then forced open against the airstream acting upon it. On aircraft with Mod.623 embodied, automatic opening of the entrance door is set in motion by the operation of the EMERGENCY DOOR OPEN switch mounted by the ABANDON AIRCRAFT sign on the centre of the crew member's equipment panel.

Escape and ditching exit

28. In an emergency the pilots are ejected in Martin-Baker seats through the canopy aperture. To facilitate this, the firing blind handle of each ejection

seat is connected to a time-delay mechanism and to a compressed air system, the function of which is to initiate the opening of the canopy mechanical attachments and to fire a jettison gun which blows the canopy off. Full descriptive and servicing details of the installation are in Sect.3, Chap.11.

29. The single action of pulling either the first or second pilot's seat firing blind handle will therefore start the time delay mechanism, release and jettison the canopy and, finally, cause seat ejection. The remaining seat is then ejected when the pilot occupying the seat pulls the firing blind handle.

30. Jettisoning of the canopy can however be accomplished, without seat ejection, by pulling the black-and-yellow diagonally-stripped lever, labelled CANOPY RELEASE - PULL, on each side of the cockpit below the cockpit rail. When the handle is pulled rearward the canopy attachments are opened and the canopy jettison gun is actuated.

31. The connection between the operating arms to the canopy jettison gun is made with a quick-release Pip-pin, attached to this pin is the canopy gun sear safety pin. It is of vital importance that the following warning instructions (also printed on the mechanism cover) are complied with:-

WARNING . . .

The Pip-pin is to be removed and the attached safety pin is to be placed in the jettison gun sear immediately after landing and replaced before flight.

The second Pip-pin is also to be removed during servicing operations of the mecha-

nism and placed in the hole in the channel mounting.

CRASH STATIONS

32. When an inadvertent landing is expected it is advised that the crew members remain seated. The pilots are supported by the seat harness and the remainder of the crew are protected by the rearward facing of the seats, which are sufficiently strong to withstand a deceleration load of 25g. when in the vertical position. The crew in the rearward facing seats should press their heads firmly against the seat headrests before impact. The pilots may find it advantageous to incline their heads forward.

ENTRANCE TO CRASHED AIRCRAFT

33. In the event of entry being impossible, using the entrance door, an attempt must be made to release the canopy by pulling the red painted handle on the port side of the crew's cabin. If the jettison mechanism is intact, the canopy will be forced up and rearward, pivoting on the rear attachments to the fuselage. Personnel must therefore remain well clear of the canopy when the external handle is pulled. Failing this, the canopy will have to be carefully removed by hand. Should this prove non-effective, the aircraft may be entered by cutting away with an axe, or another suitable implement, the area marked with a red segmental line below the canopy on each side of the crew's cabin.

34. A break-in point, to check the security of the armament stores in the bomb bay, is provided in the upper surface of the fuselage and is indicated by a red segmental line. It is situated on the port side, approximately two-thirds along the fuselage just below the aircraft centre line. Entry is effected using an axe or another suitable cutting implement.

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