

## Chapter 3

## EMERGENCY CONTROLS, EQUIPMENT AND EXIT

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**WARNING****AN AIRCREW EJECTION SEAT IS FITTED TO THIS AIRCRAFT.**

Before attempting to enter the cabin ensure that the instructions detailed on the LETHAL WARNING marker card at the front of this handbook have been complied with.

**THIS IS VERY IMPORTANT****Introduction**

1. This Chapter describes the controls and equipment which are provided for use in an emergency, together with the precautions necessary before and after their use. In an emergency, it is essential that the appropriate control be operated without delay. In the interest of safety, therefore, personnel concerned with the handling of this aircraft should familiarise themselves with these controls. For further information on the operation and function of these controls and the circumstances in which they are to be used reference should be made to H.A.P.52, Pilot's Notes.

**Jettisoning sliding hood**

2. The sliding hood must not be jettisoned with the cabin pressurized, as to do so will impose a great strain upon the pilot owing to the rapid change of pressure. Before jettisoning the hood, when cabin pressurization is in use, the cabin must be de-pressurized by setting the pressurization control switch to the OFF position, thus closing the pressurizing valve and opening the ventilation valve.

**Note . . .**

*The hood must be fully closed before an attempt to jettison it is made.*

3. The hood is jettisoned from inside the cabin by pulling a handle located at the forward inboard face of the cabin port shelf. Operation of this handle performs the following functions:—

- (1) Deflates the hood seal.
- (2) Retracts the gun sight.

**Note . . .**

*The gun sight is also provided with an independent retraction control knob, located on the sight mounting, for manual use, should the electrical retraction mechanism fail.*

- (3) Releases the spring-loaded servo unit which opens the locks holding the hood side channel members, thus jettisoning the hood.

4. The jettison gear is not inter-connected with the ejection seat blind and it is, therefore, necessary to jettison the hood before operating the ejection seat (*para. 6*).

**Extracting unconscious pilot**

5. In the event of the pilot or occupant being physically unable to operate the hood control while the aircraft is on the ground and the hood is closed, access to the cabin may be obtained by braking a transparent panel on the port side of the fuselage and pulling the enclosed ring, thus opening the locks securing the hood side channel members, deflating the hood seal, de-clutching the hood motor and allowing the hood to be lifted off by hand. If, however, the pilot is able to move the lever, integral with the hood control box, to the FREE position, this will release the clutch of the hood winding motor and deflate the hood seal, thus allowing the hood to be pushed open by hand.

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#### Ejection seat

6. For details of the operation of the ejection seat installed in this aircraft, reference should be made to A.P.4288, Vol. 1, and to H.A.P.52, Pilot's Notes.

### Hydraulic System

#### General

7. The hydraulic services are provided with an emergency means of operation for use in the event of hydraulic failure, loss of hydraulic pressure is indicated by a warning indicator, located on the port instrument panel in the cabin, which warns the pilot that only a few power operations of the ailerons and elevators may be made before they go into manual operation and that emergency action must be taken when lowering the alighting gear and landing flaps. An additional warning is provided which generates an aural note in the pilot's headphones. A silencing switch is provided, which, when operated, will retain the audio warning in the suppressed condition. For a detailed description of the hydraulic system, reference should be made to Sect. 3, Chap. 6.

#### Alighting gear and landing flaps

8. In the event of hydraulic failure, the alighting gear and landing flaps may be lowered by the introduction of high pressure air into the hydraulic jacks which operate them. The emergency control for the alighting gear is mounted on the cabin port shelf and that for the landing flaps projects through the port instrument panel. Gauges to indicate the pressure in the air bottles are located at the rear of the cabin port shelf.

9. To operate either control it is necessary to grasp the control between the fingers, depress the central button in the knob of the control with the thumb and then pull out the control. The control will remain in the operated position as a warning to the ground crew that the emergencies have been used and that the air release valves must be re-set, the hydraulic system bled of air and the high-pressure air bottles recharged before the next take-off. When the emergency flap control is used, there is no pre-selector control and the flaps extend the full limit of their travel.

#### Note . . .

*Once the emergencies have been operated, the positions of the controls and components cannot be changed, except by the ground crew.*

#### Wheel brakes

10. Should the hydraulic system fail, the wheel brakes may be operated by means of the energy stored in the hydraulic accumulators in the circuit. These accumulators will give approximately 40 applications of the brakes before the accumulators are exhausted, they come into operation automatically when hydraulic failure occurs. The accumulators are also used when the aircraft is being towed and hydraulic power is not available.

#### Aileron and elevator power controls

11. In an emergency, or in circumstances where it is necessary to cut off the power to the aileron and elevator controls, this may be accomplished by operating two switches located on the port side of the instrument panel. In the event of hydraulic failure, an accumulator in each circuit will come into action automatically to give approximately 2 control column reversals. When the accumulators are exhausted, the power controls are automatically disengaged and indicators, located adjacent to the switches, will show white to indicate that this has occurred.

### KEY TO FIG. 1 EMERGENCY CONTROLS

- 1 HYDRAULIC FAILURE WARNING LIGHT
- 2 EMERGENCY FLAPS CONTROL  
Grasp the control between the fingers, press the centre button with the thumb and pull the control to operate
- 3 EMERGENCY GUN SIGHT MANUAL RETRACTION CONTROLS
- 4 FIRE WARNING LIGHT AND EXTINGUISHER PUSH SWITCH  
Light indicates when temperature in engine bay and accessories bay exceeds  $300 \pm 30$  deg. C. Pushing the knob will operate the fire extinguisher. The flame switches are of the re-setting type and indicate temporary surges of excessive heat, thus flickering of the light in flight and during engine run on the ground may occur. Refer to Sect. 4, Chap. 5. Pull knob to test bulb before take-off.
- 5 RED INSTRUMENT STANDBY LIGHT—Port and Starboard
- 6 RED STANDBY LIGHT SWITCH
- 7 FUEL TANK BOOSTER PUMP SWITCH—Port  
Used for manual balancing of fuel contents
- 8 FUEL TANK BOOSTER PUMP SWITCH—Starboard
- 9 FUEL BOOSTER PUMP FAILURE WARNING LIGHT—Starboard
- 10 FUEL TRANSFER INDICATOR—Starboard
- 11 EXTERNAL HOOD RELEASE CONTROL
- 12 ACCUMULATOR—EMERGENCY LIGHTS
- 13 EMERGENCY OXYGEN RELEASE
- 14 FUEL BOOSTER PUMP FAILURE WARNING LIGHT—Port
- 15 FUEL TRANSFER INDICATOR—Port
- 16 HOOD JETTISON CONTROL
- 17 EMERGENCY UNDERCARRIAGE CONTROL  
Grasp the control between the fingers, press the centre button with the thumb and pull the control to operate
- 18 TAIL PLANE STANDBY CONTROL
- 19 ENGINE FUEL PUMP ISOLATING SWITCH
- 20 ENGINE FUEL PUMP ISOLATED INDICATOR
- 21 CROWBAR
- 22 EMERGENCY AIR GAUGE—FLAPS
- 23 EMERGENCY AIR GAUGE—UNDERCARRIAGE

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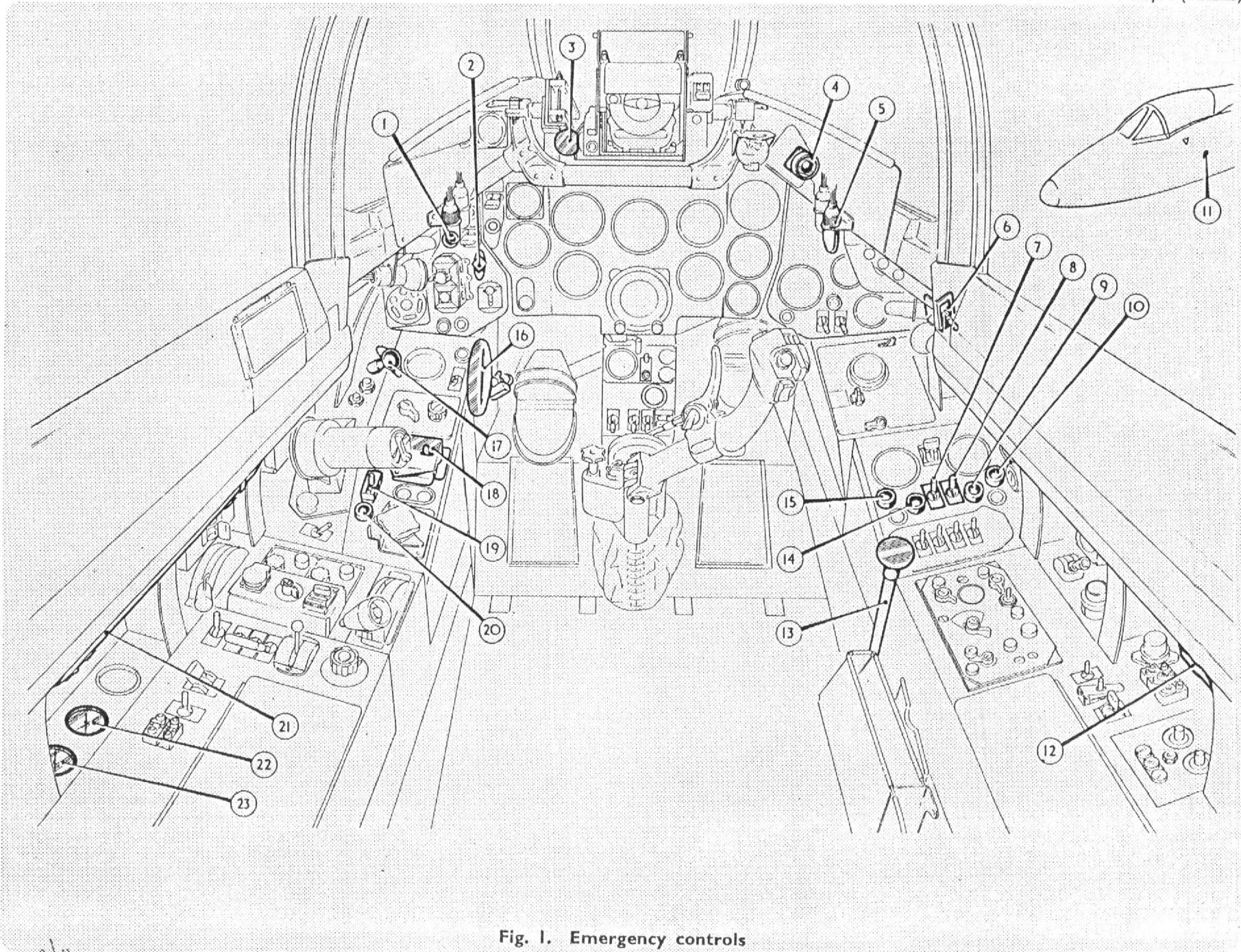


Fig. 1. Emergency controls

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#### Emergency retraction of alighting gear

12. The alighting gear cannot normally be retracted while the oleo legs are compressed, due to the "up" switch solenoid lock (*Sect. 5, Chap. 1*). In an emergency it is possible to over-ride this lock by turning the "up" button clockwise and then depressing it. This method of retraction over-rides all sequence valves and may damage the leg fairings should these not be fully extended, it should therefore *only* be used in an *absolute* emergency such as to bring about a belly-landing to avoid obstructions. The "emergency retraction" system should not be used because of a defect in the normal system, should a defect occur the aircraft must be landed in the normal way for examination and rectification of the fault.

#### Engine

##### Fuel pump isolating switch

13. As a safeguard against failure of the servo side of the engine fuel system, which, owing to the fact that the engine driven fuel pumps are connected in parallel, could result in them going into *no stroke*, a switch marked ISOLATE and NORMAL is located on the cabin port shelf. When placed in the ISOLATE position, this switch cuts out the barometric pressure control, thus isolating the pumps from each other and a warning lamp, adjacent to the switch, illuminates to give indication that this has occurred. The switch is normally locked in the NORMAL position, with one strand of (28 s.w.g. copper wire, which, if broken, serves as an indication to the ground crew that the emergency has been operated in flight.

##### Note . . .

*It is important that only one strand of copper wire is used to lock the switch dolly in the NORMAL position.*

#### Emergency balancing of fuel contents

14. The booster pumps in the front fuel tanks, which feed all the fuel to the engine-driven pumps, are controlled by the engine master switch located on the leg panel in the cabin and by individual switches mounted side by side at the forward end of the cabin starboard shelf. Normally, the pumps are running continuously throughout the flight, but individual switches are provided to enable the pilot to stop either pump in order to balance the fuel levels should this be necessary. Indicators to give warning of fuel transfer failure are located adjacent to the booster pump switches.

#### Mechanical failure of engine

15. In the event of mechanical failure of the engine, the low-pressure and high pressure fuel cocks must be turned off and the throttle closed. The fuel tank booster pumps must also be switched off and no attempt should be made to relight the engine.

#### Fire extinguisher and warning lamp

16. A combined fire extinguisher push-button switch and warning lamp is located just above the starboard instrument panel. In the event of an engine fire in flight, the low-pressure and high-pressure fuel cocks must be turned off, the throttle closed and the aircraft speed reduced as much as possible, the fire extinguisher push-button is then depressed.

##### Note . . .

*The engine must not be restarted after operating the fire extinguishing system owing to the possible risk of the fire re-commencing after the fire fighting resources are exhausted.*

The extinguisher is automatically-operated by the inertia switch if a crash landing occurs.

#### Tail plane emergency circuit

17. The incidence of the tail plane is varied by means of a two-speed electric actuator, the normal high speed movement being controlled by a switch on the control column and the emergency low-speed movement by means of a guarded switch on the cabin port shelf. In the event of a breakdown of the normal control circuit, the emergency low speed circuit can be brought into use by raising the guard and operating the shelf switch.

#### Dinghy and emergency oxygen

18. The dinghy is housed in the pilot's seat pack, together with an emergency oxygen set which may be used in flight, should an emergency arise, by pulling a knob fixed to the side of the cabin starboard shelf, or on ejection of the seat, when it is brought into operation automatically by means of a static line.

#### Crowbar

19. A 15 in. crowbar, for the pilot's use in extricating himself from the cabin in an emergency, is stowed in clips above the cabin port shelf.

#### Jettisoning external stores

20. In an emergency the drop fuel tanks or external stores carried on the universal pylons may be jettisoned by depressing a push switch located on the port shelf just aft of the V.H.F. radio controllers.

#### Cabin emergency lighting

21. Should the normal cabin lighting fail, an emergency system consisting of two red lamps mounted one on each side of the cabin adjacent to frame 9 can be brought into operation by a switch located on the starboard side of frame 9 above the cabin shelf. The emergency lighting system is supplied with current from a small battery mounted on the starboard side of frame 12, above the shelf.

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