CHAPTER 3

EMERGENCY CONTROLS, EQUIPMENT AND EXIT

LIST OF CONTENTS

ILLUSTRATION

WARNING

An aircrew ejection seat is fitted to this aircraft. Before attempting to enter the cabin, therefore, ensure that the instructions given in the Ejection Seat Warning, following the Introduction at the beginning of this volume, have been carried out. In the interests of safety, 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 A.P.4347F, Pilot's Notes.

Jettisoning sliding hood

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

NOTE...

The hood must be fully closed before an attempt to jettison the hood is made

3. The hood jettison gear is interconnected (Post Mod.281) with the seat jettison mechanism and operates as follows:-

(1) Pulling the ejection seat blind handle fires the hood jettison gun and starts the seat clock. The hood gun operates the hood cylinders which unlock the hood release units prior to jettisoning. The seat gun fires after 1 second delay and ejects the seat.

(2) Pulling the alternative firing handle, located on the seat pan (if handle is fitted) duplicates the function of the ejection seat blind handle, but the pilot is ejected without the protection of the face blind.

4. Should it be desired to jettison the hood only, this can be done by pulling a handle located at the forward inboard face of the cabin port shelf. Pulling this handle operates the hood jettison gun to unlock the hood prior to jettisoning. (It does not operate the time delay mechanism and seat gun).

Extracting unconscious pilot

5. In the event of the pilot being physically unable to operate the hood control, or becoming unconscious, while the aircraft is on the ground and the hood is closed, access to the cabin may be obtained by breaking 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 and de-clutching the hood motor, so that the hood can be lifted off by hand. Finger holes between the hood and windscreen are provided to facilitate the removal of the hood. 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.

NOTE...

Before attempting to enter or lean over the cabin, ensure that the instructions given in the ejection seat warning at the beginning of this volume have been carried out.

Ejection seat

6. For details of the operation of the Mk.2H o[illegible] ejection seat installed in this aircraft, reference should be made to A.P.4288B, Vol.1, and to A.P.4347F, 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, and loss of hydraulic pressure is indicated by a red warning lamp located on the port instrument panel in the cabin which, when illuminated, warns the pilot that only a few power operations of the ailerons and elevators may be made before they go into manual 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 push-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 Section 3, Chapter 6 of this volume

NOTE...
Should the hydraulic warning system operate when the aircraft is flying at a high Mach number, it is advisable to reduce speed immediately.

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. To operate the controls, it is first 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. It must be pointed out that when the flaps emergency control is used, there is no pre-selector control and the flaps will, therefore, extend to their full 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

9. Should the hydraulic system fail, the wheel brakes may be operated by means of energy stored in hydraulic accumulators in the circuit. These accumulators will give approximately 40 applications of the brakes before the accumulators are exhausted and 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

10. In an emergency, or in any other circumstances where it is necessary to cut off the power to the aileron and elevator controls, this may be accomplished by the operation of two switches located on the port side of the centre 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 revert to manual.

Dolls eye indicators, located on the port instrument panel, will show white to indicate that this has occurred.

Emergency retraction of alighting gear

11. The alighting gear cannot normally be retracted while the aircraft is on the ground, due to the 'up' switch solenoid lock (Sect.5, Chap.1, Group D.7). It is, however, possible to retract the alighting gear and belly-land the aircraft to avoid an obstruction, in an emergency, by turning the 'up' button in a clockwise direction and then depressing it. Should this device be used in flight when the normal control does not function correctly, there is a possibility of the legs being retracted when not fully extended, and consequently, the leg fairings may be damaged. The aircraft should, therefore, be landed and examined and the normal control only be overridden if an emergency renders it absolutely necessary.

Engine

Emergency balancing of fuel contents

12. 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 which are mounted side by side at the forward end of the cabin starboard shelf. Normally, the pumps are running continuously throughout the flight, but the individual switches are provided to enable the pilot to stop either pump to balance the fuel levels if an emergency makes this necessary. Indicators to give warning of fuel transfer failure are located adjacent to the booster pump switches

Mechanical failure of engine

13. In the event of mechanical failure of the engine, the low-pressure fuel cock must be turned off and the throttle closed. (Closing of the throttle also closes the high-pressure fuel cock). The fuel tank booster pumps must also be switched off and no attempt must be made to relight the engine.

Fire extinguisher and warning lamp

14. A combined fire extinguisher push-button switch and warning lamp is located just above the starboard instrument panel. In the event of the engine catching fire in flight, the low-pressure fuel cock must be turned off, the throttle closed, the aircraft's speed reduced to as slow as possible and then the fire extinguisher push-button depressed.

NOTE...

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

Tail plane emergency circuit

15. 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 from over the shelf switch and using this switch.

Dinghy and emergency oxygen

16. The Type K dinghy for emergency use is housed in the pilot's Type J seat pack, together with a Mk.4A emergency oxygen set which may be used, either in an emergency in flight 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. When packing the contents of the dinghy pack, in accordance with the instructions contained in A.P.1182C, Vol.1, Sect.2, Chap.8, it is important

that the compressed thickness of the pack and water cushion does not exceed 6.5in. so as to ensure satisfactory head clearance.

Crowbar

17. A 15in. 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

18. A switch located on the Bomb-R.P. selector panel on the cabin port shelf is provided for normal jettisoning of the drop fuel tanks carried on the outboard pylons. In an emergency, however, it is possible to jettison the external stores from both inboard and outboard pylons by means of a CLEAR A/C switch on the R.P. panel located above the centre instrument panel to port of the gun sight.

Cabin emergency lighting

19. 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 also above the cabin shelf.

EMERGENCY CONTROLS

1. EMERGENCY AIR GAUGE - UNDERCARRIAGE
2. EMERGENCY AIR GAUGE - FLAPS
3. CROWBAR
4. TAIL PLANE STANDBY CONTROL
5. EMERGENCY UNDERCARRIAGE CONTROL
   Grasp the control between the fingers, press the centre button with the thumb and pull the control to operate.
6. HOOD JETTISON CONTROL
7. HYDRAULIC FAILURE WARNING LIGHT
8. EMERGENCY FLAPS CONTROL
   Grasp the control between the fingers, press the centre button with the thumb and pull the control to operate.
9. CLEAR A/C PUSH SWITCH
10. EMERGENCY GYRO GUN SIGHT MANUAL DETRACTION CONTROL.
11. FIRE WARNING LIGHT AND EXTINGUISHER PUSH SWITCH
    Pull knob to test bulb before take-off. Light indicates when temperature in engine bay and accessories bay exceeds 300± 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.
12. RED INSTRUMENT STANDBY LIGHT. Port and Starboard
13. RED STANDBY LIGHT SWITCH
14. FUEL TANK BOOSTER PUMP SWITCH- Port
    Used for manual balancing of fuel contents.
15. FUEL TRANSFER INDICATOR - Port
16. FUEL TANK BOOSTER PUMP SWITCH - Starboard
17. EMERGENCY OXYGEN RELEASE
18. FUEL TRANSFER INDICATOR - Starboard
19. LOW PRESSURE WARNING LAMP
20. EMERGENCY COCKPIT LIGHTS ACCUMULATOR
21. EXTERNAL HOOD RELEASE CONTROL
22. FINGER HOLES (Emergency Hood Release).

KEY TO FIG.1

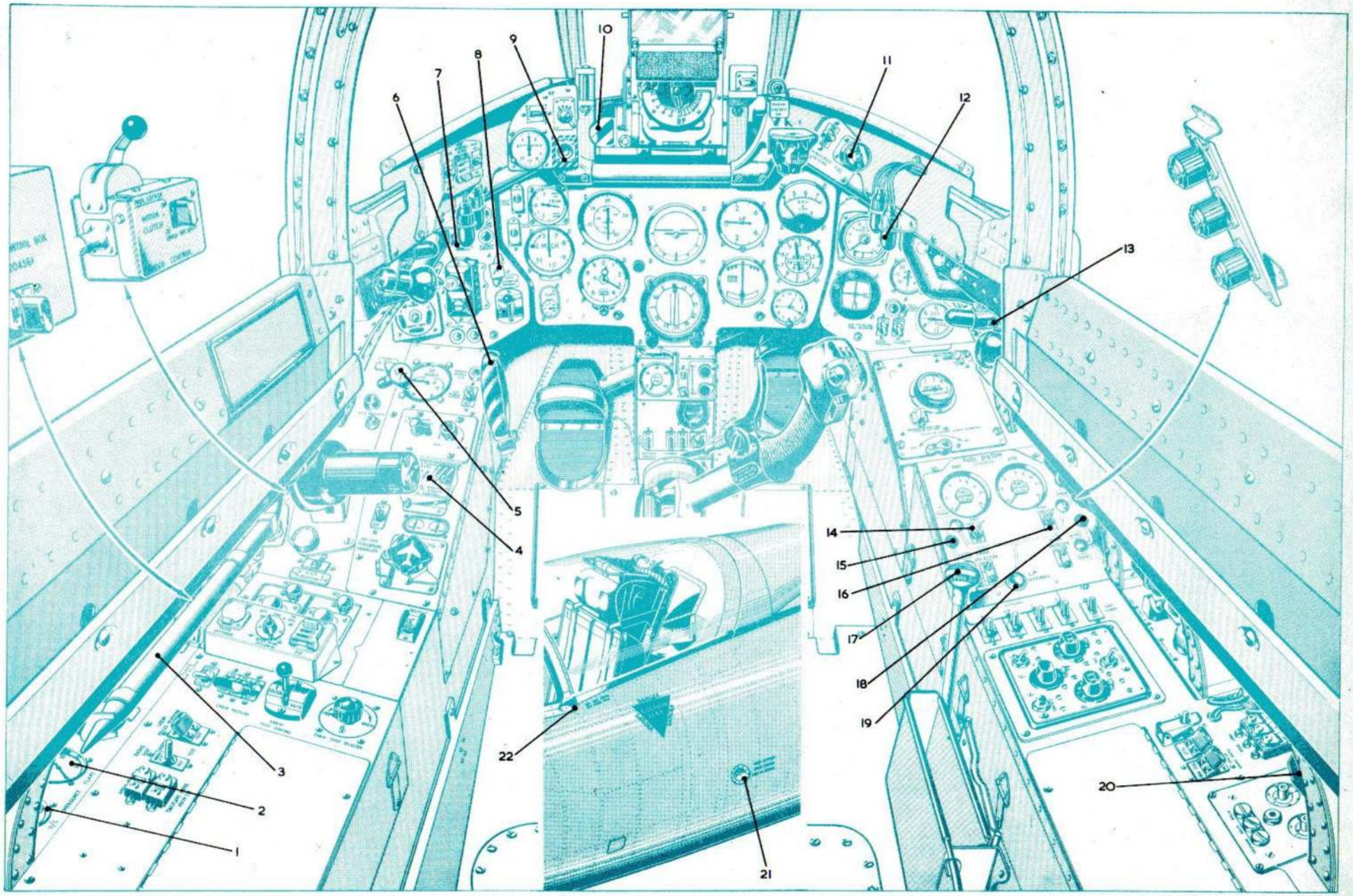

FIG. 1. EMERGENCY CONTROLS