

## PART 1

CHAPTER 7 — GENERAL EQUIPMENT  
AND CONTROLS

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## 1 Canopy Operation

(a) The canopy, which is hinged at its rear edge, is normally electro-hydraulically operated. Provision is also made for manual operation if electric or hydraulic failure occurs. An OPEN/off/CLOSED selector switch, spring-loaded to off, on the centre panel, is the normal operating control. When a selection is made there is a 3 to 5 second delay before the canopy moves and the selector must be held until the canopy completes its travel. A selection of OPEN causes the canopy to open only when the battery master switch is off. If it is necessary to open the canopy when the battery master switch is on, a spring-loaded HOOD OVERRIDE switch, on the cockpit port wall, must be held at OPEN and at the same time the normal control selected OPEN. A warning horn sounds when CLOSED is selected. When the canopy closes and the locks engage, a green indicator light adjacent to the control switch comes on. This light goes out when the landing gear is raised. Two transparent inspection panels, one on each side wall of the cockpit can be used to check the position of the canopy lock jack. When the canopy is closed and locked a bolt on each forward side lock should align with a white dot on the transparent panel.

(b) The canopy can be lifted off from inside by removing a pip-pin, attached by a chain to the first-aid kit stowage, from the operating rod to isolate the canopy jettison firing

unit and then operating a canopy release handle which is positioned centrally on the cockpit rear bulkhead (above the first-aid kit).

(c) The canopy can be opened or closed from outside by means of an OPEN/off/CLOSE switch in the nosewheel bay, provided that the battery master switch is off. A hydraulic accumulator, if fully charged, allows the canopy to be opened and closed three times. The accumulator can be charged externally by use of the handpump.

(d) A taxiing strut, on the front of the canopy, allows the canopy to be left partially open for taxiing. The strut is held in the extended position by a spring-loaded tube.

(i) To position the canopy in the partially open position, select canopy OPEN, pull backwards and down on the tube handle, then allow the spring to extend the strut and select canopy CLOSED.

(ii) To close the canopy fully, select canopy OPEN, pull the tube handle to retract the strut, then select canopy CLOSED.

Note 1: To open the canopy with the engine running, the override switch must be used.

◀ Note 2: When operating the canopy to or from the partially open position, ensure that the canopy is at least 5 to 6 inches open when the switch is released to avoid the possibility of the canopy closing inadvertently. ▶

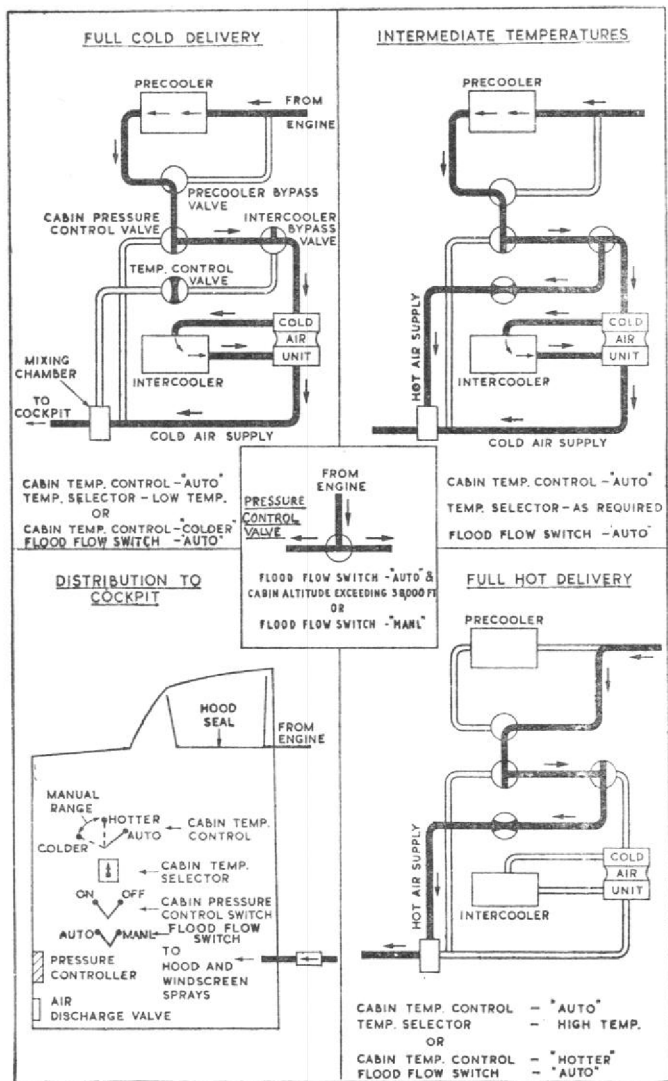
## 2 Canopy Jettisoning

(a) The canopy is jettisoned by gas pressure from a jettison firing unit acting on two pistons which eject the canopy upwards and backwards. This action can be initiated by pulling the canopy jettison handle, at the rear of the centre pedestal. The canopy jettison sear safety pin can be fitted to the canopy jettison handle to prevent inadvertent operation.

(b) The canopy is also jettisoned automatically whenever either handle of either ejection seat is pulled.

(c) An external emergency release ring is inside a break panel on the port side of the fuselage. When the release ring is pulled the canopy is ejected by the jettison firing unit.

**WARNING:** If this method is used all personnel must be clear of the vicinity of the aircraft. After pulling the ring the operator must immediately stand clear.



Cockpit pressurisation and air conditioning diagram

### 3 Cockpit pressurisation, heating and demisting

NOTE: The system is inoperative whenever the canopy is open.

- (a) Hot air under pressure is bled from the engine compressor to supply the heating, pressurisation and demisting system. The air supply to the cockpit terminates in spray pipes which provide for windscreen, side panels and hood demisting.
- (b) The controls are grouped at the aft end of the port shelf. Three ganged, COCKPIT PRESSURE — ON/OFF switches control air flow to the cockpit. When ON is selected air is supplied from the engine compressor; when they are selected OFF, ram air is supplied from an intake in the nose of the aircraft.
- (c) A four-position cockpit temperature control lever is marked AUTO / COLDER / EMERGY / HOTTER. It is normally left selected at AUTO and a cockpit temperature selector control is used to select the desired temperature, a thermostat maintaining the selected temperature. If AUTO selection should fail, the controlling valve can be stopped by selecting EMERGY. Temperature can then be varied by inching the lever from EMERGY to COLDER or HOTTER until the desired temperature is reached; the lever should then be left at EMERGY. A change from full cold to full hot cockpit temperature takes about 35 seconds.
- (d) A FLOOD AIR FLOW — AUTO/MANUAL switch is normally set at AUTO; in this position if loss of cockpit pressure causes the cockpit altitude to exceed 38000 feet, an altitude switch operates and supplies 'flood' air. If the switch is set to MANUAL, 'flood' air is supplied regardless of cockpit altitude; this is primarily intended for clearing transparency misting.
- (e) A spring-loaded COCKPIT PRESS WARNING — TEST switch, aft of the normal controls, simulates the automatic action of the altitude switch and allows the flood flow system and the cockpit pressure warning light to be tested.
- (f) The cockpit pressure altimeter, on the centre panel, should indicate in accordance with the following table. If the cockpit pressure differential drops by more than  $\frac{1}{2}$  PSI a red lamp on the centre panel lights.

<i>Actual Altitude (feet)</i>	<i>Cockpit Altitude (feet)</i>	<i>Cockpit Altitude at which Warning Light Comes On</i>
20,000	13,000	13,750
30,000	16,500	18,000
40,000	22,500	24,000

#### **4 Management of the Pressurisation and Flood Flow System**

##### *(a) Pressurisation System*

(i) Before start-up, check that the cockpit pressure warning light comes on by operating the cockpit pressure warning test switch to TEST. The switch is spring-loaded to NORMAL.

◀ (ii) The cockpit pressurisation should be selected off for take-off and should normally be selected on at 5000 feet on the climb or when safely airborne if remaining below this height.

(iii) When the pressurisation is selected on, there is a possibility of visible vapour entering the cockpit or transparency misting/icing occurring depending on the ambient temperature and humidity and the setting of the cockpit temperature selector. A warm setting reduces the possibility of visible vapour but, if the aircraft has been cold soaked, increases the possibility of transparency misting/icing. Normally, the temperature selector should be set initially to slightly cooler than NORMAL. If visible vapour enters the cockpit, select a warmer setting but if severe fogging or transparency misting/icing occurs, the FLOOD AIR FLOW switch should be selected to MANUAL and the temperature setting to WARM; when the fog or misting/icing has cleared, the FLOOD AIR FLOW switch should be reset to AUTO and the temperature setting adjusted as required. ▶

##### *(b) Flood Flow System*

For all normal conditions of flight, the FLOOD AIR FLOW switch should be at AUTO.

## **5 Internal Lighting**

### **(a) General**

The main instrument lighting is provided by pillar and bridge lamps. In addition hooded red lamps are provided for the port and starboard shelves and cockpit walls. All dimmer switches are separately fused.

### **(b) Centre and Port Instrument Panels**

Two dimmer switches on each panel control the lights for that panel; each switch controls one of the lamps in each bridge light. Exceptions are the single lamps which illuminate the standby inverter MI and oil pressure gauge on the port instrument panel and the brake parachute switch on the centre instrument panel; these are controlled by one dimmer switch from each pair.

### **(c) Starboard Instrument Panel**

A single dimmer switch controls the lamps on the instrument panel. The lamps are mounted in pairs with the exception of the lamps for the instructor's oxygen contents indicator and power control switches.

### **(d) Centre Pedestal Lamps**

Two white pillar lamps on the centre pedestal are controlled by an adjacent ON/OFF switch.

### **(e) Side Red Flood Lamps**

Five lamps on the port side and two on the starboard side are controlled by two dimmer switches one on each side of the cockpit

### **(f) E2B Compass Lamp**

The compass lamp is controlled by a NORMAL/off/EMERGENCY switch, forward of the throttle box on the centre pedestal. When set to NORMAL, power supply is from the busbar, when set to EMERGENCY, supply is from the standby batteries. With the switch at NORMAL or EMERGENCY the degree of illumination is controlled by a dimmer switch forward of the throttle box.

### **(g) Emergency Lamps**

Three red flood lamps, one below the port gunsight mounting and two below the starboard gunsight mounting, are controlled by an EMERGENCY LIGHTS—ON/OFF switch on the centre panel. The supply is from the standby batteries.

## 6 External Lighting


- (a) The navigation lights are controlled by a FLASH/off/STEADY switch on the centre panel.
- ◀ (b) Post-mod 1380, upper and lower anti-collision lights are fitted. The ANTI-COLL LIGHTS — ON/OFF switch is on the centre panel. ▶
- (c) Post-mod 1409, a forward facing Grimes light is fitted in the nose of the aircraft. The elevation of the light can be adjusted on the ground only. The 600 watt lamp is controlled by a GRIMES LIGHT — ON/OFF switch on the cockpit port wall. A white dimmable warning light adjacent to the switch comes on when the Grimes light is switched on. Operation of the Grimes light on the ground should be kept to an absolute minimum to avoid burning out the filament.

## 7 Emergency Equipment

- (a) A stowage for first-aid equipment is above the main fuse box on the bulkhead behind the ejection seats.
- (b) Two survival packs can be carried, if required, in each of two stowages accessible through external panels on the port and starboard sides of the canopy fairing. A screwdriver, for the removal of the access panels, is stowed in the cockpit below the first-aid kit, behind the ejection seats. A personal survival pack (PSP) is stowed in the seat-pan of each ejection seat.

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