

Chapter 10

OXYGEN SYSTEM

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DESCRIPTION AND OPERATION

Introduction

1. Oxygen is stored in cylinders contained in a crate which is carried in the bomb compartment. The flow of oxygen is controlled by a master regulator and is distributed to the oxygen points at the various crew stations. Components installed in this system are described in A.P.1275G, Vol.1, Sect.2.

HIGH PRESSURE SYSTEM

Storage cylinders and crate (fig.1)

2. Eight 2,250 litre cylinders, each charged to a pressure of 1,800 p.s.i., are carried in a crate slung from the centre bomb slip of the extreme front group. The cylinders may be charged while in position through a charging point on the crate, and a feed point similarly situated is connected to a high pressure feed through a spiral of high pressure pipes in the bomb compartment. A common pipe, coupling all the cylinders, is connected to the feed

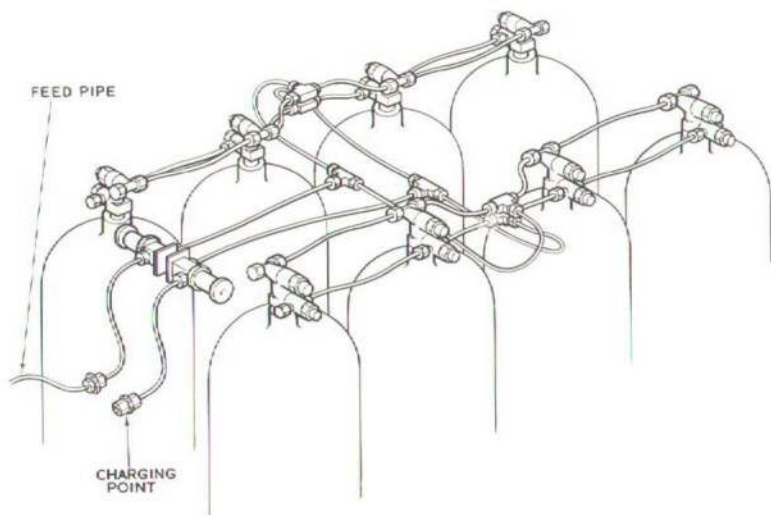


Fig.1. Storage bottle piping

and charge pipes which are fitted with stop valves as shown in fig.2. The FEED stop valve is wired in the ON position except during removal or attachment of the crate, while the CHARGE stop valve is wired in the OFF position except when the system is being charged.

Piping to regulator (fig.2)

3. From the oxygen crate, the high pressure pipe is led centrally a short distance aft, and then to starboard under the flight engineer's station, where it rises through the floor to the master stop valve mounted on the regulator panel.

Regulator (Mk.10A*)

4. The Mk.10A* regulator is mounted on a small panel immediately forward of the inboard edge of the flight engineer's bulkhead. The panel is inclined slightly inboard to facilitate reading the instruments by the first pilot and has a lamp

controlled by a switch located centrally below the panel.

MEDIUM PRESSURE SYSTEM

Manifolds (fig.2)

5. From the regulator, the oxygen is fed at medium pressure to six manifolds by two pipes, one of which supplies a manifold aft of the rear edge of the second pilot's floor, the other supplies five manifolds dispersed as follows:-

- (1) To port of the first pilot's seat.
- (2) Under the navigator's table
- (3) On the port side of the bomb compartment (formers 15 and 16).
- (4) Under the floor, on the port side of the rear of the port observer's station (former 26).
- (5) On the auxiliary oxygen unit fitted adjacent to the rest bunks (post Mod.818).

The manifolds are fitted with calibrated jets to meter the flow to each oxygen point.

LOW PRESSURE SYSTEM

Outlet points (fig.2)

6. At low pressure, the oxygen is led through a cut-off valve, a flow indicator, and then through a flow economiser to the oxygen outlet points as shown in fig.2. The first pilot's supply only is direct from the appropriate manifold. The layout of the system is shown in fig.3.

7. When Mod.818 is embodied four

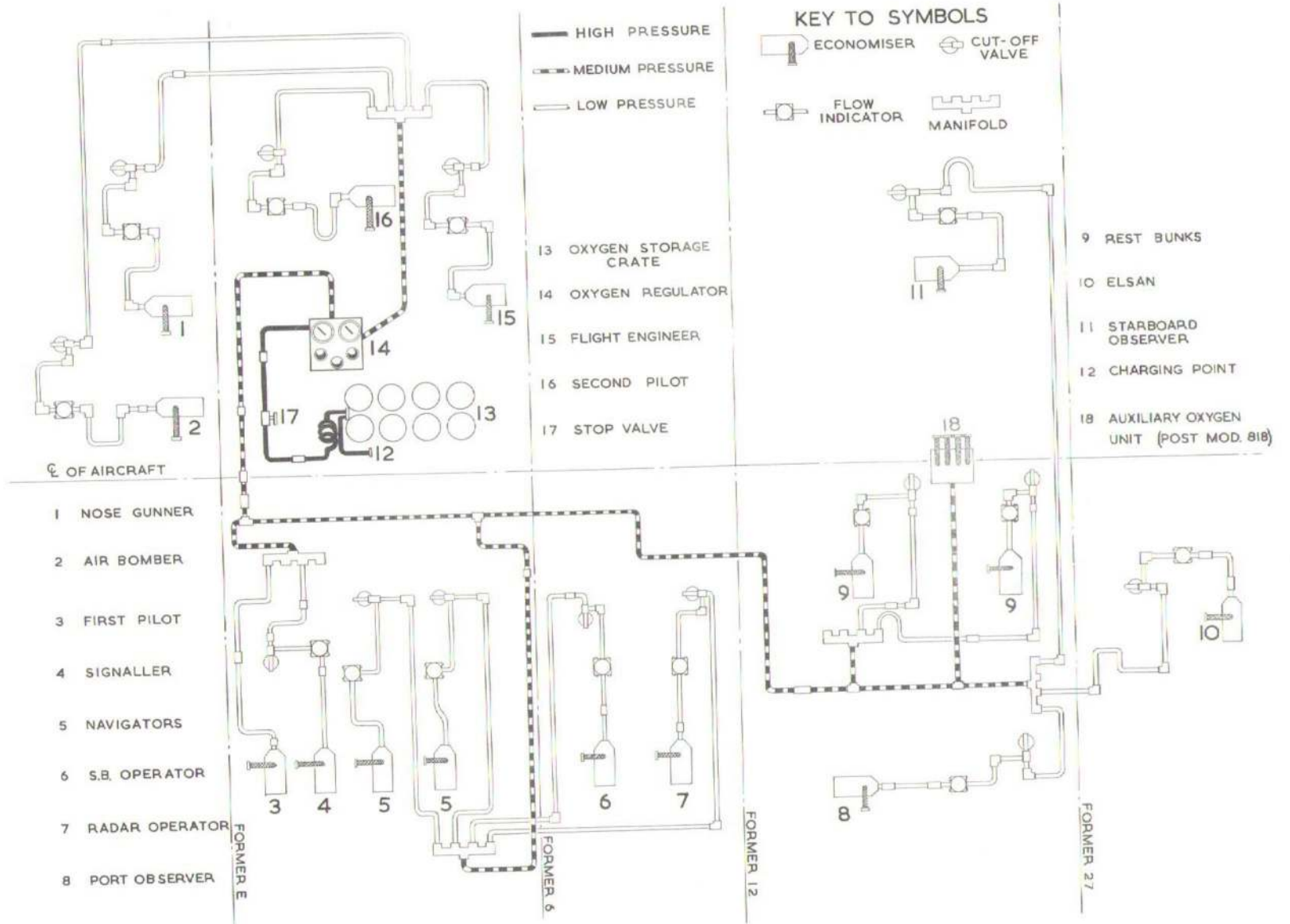
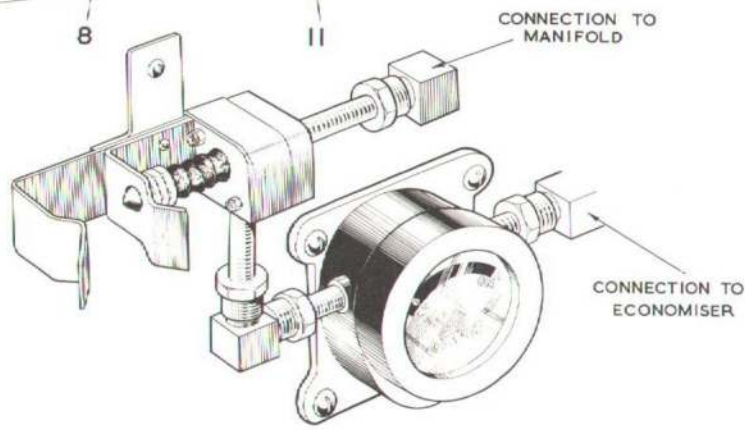
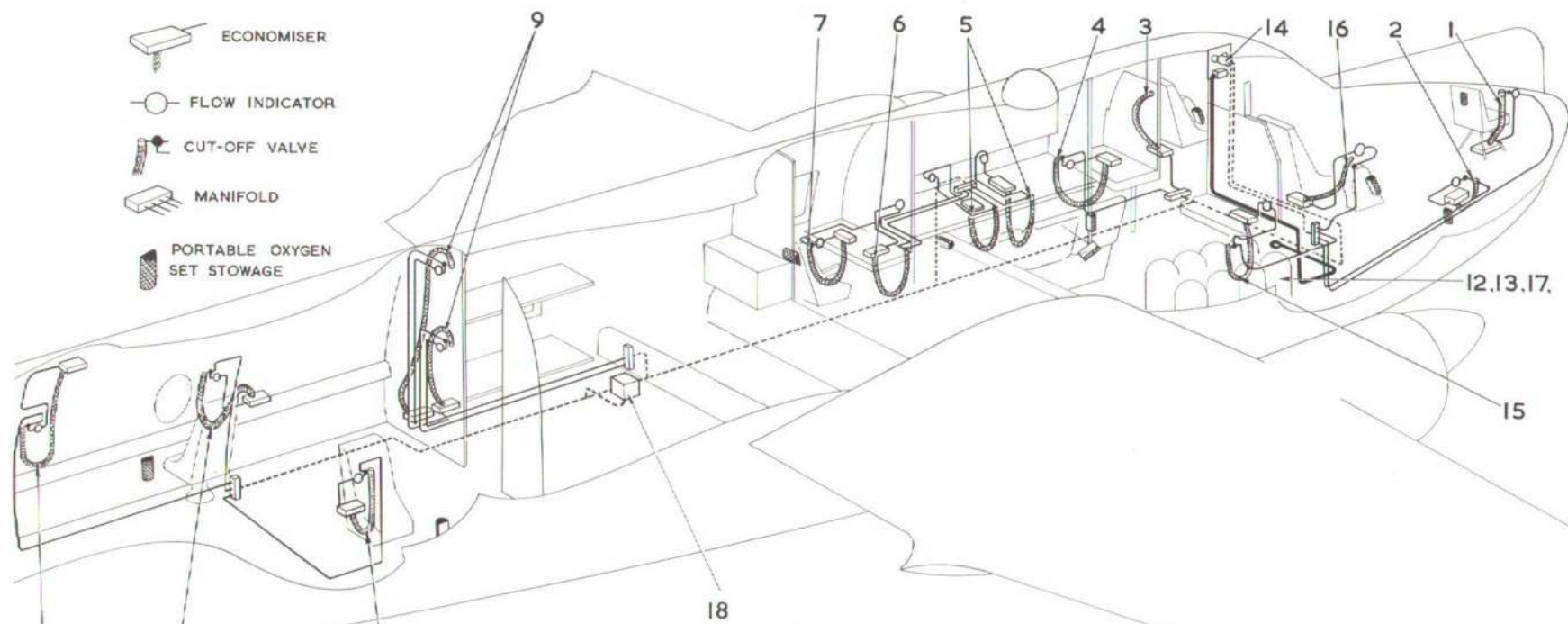


Fig. 2. Diagram of oxygen system
RESTRICTED



DETAIL OF CUT-OFF VALVE AND FLOW INDICATOR

- | | | | |
|---|----------------|----|--|
| 1 | NOSE GUNNER | 10 | ELSAN |
| 2 | AIR BOMBER | 11 | STARBOARD OBSERVER |
| 3 | FIRST PILOT | 12 | CHARGING POINT NOT SHOWN (REFER TO FIG. 1) |
| 4 | SIGNALLER | 13 | OXYGEN STORAGE CRATE |
| 5 | NAVIGATORS | 14 | OXYGEN REGULATOR |
| 6 | S. B. OPERATOR | 15 | FLIGHT ENGINEER |
| 7 | RADAR OPERATOR | 16 | SECOND PILOT |
| 8 | PORT OBSERVER | 17 | STOP VALVE NOT SHOWN (REFER TO FIG. 2) |
| 9 | REST BUNKS | 18 | AUXILIARY OXYGEN UNIT (POST MOD. 81B) |

NOTE: THESE KEY NOS. CORRESPOND WITH THOSE ON FIG. 2

Fig. 3. Oxygen system
RESTRICTED

◀ extra outlet points are provided by an auxiliary oxygen unit. This unit is fed from the medium pressure line and located adjacent to the rest bunks. ▶

Cut-off valves (Mk.1*)

8. When the bayonet sockets on the flexible delivery tubes are stowed in their respective clips, each cut-off valve shuts off the supply to that point.

Flow indicators

9. Flow indicators are fitted at each outlet point except that of the first pilot. The pilot can observe the oxygen regulator dials to check the provision of a satisfactory feed and the available quantity of supply.

Economisers (Mk.4)

10. To prevent wastage during expiration, economisers, which provide an intermittent flow, are fitted at each supply point as shown in fig.2.

General

14. No specific instructions are necessary. Precautions to be observed when

SYSTEM OPERATION

11. Ensure, before flight, that the storage cylinders are charged and that the feed stop valve on the oxygen crate is wired in the ON position. The master stop valve on the regulator panel must be turned ON, the high pressure ON/OFF valve on the regulator ON, and the flow control valve adjusted as specified in A.P.1275G, Vol.1, Sect.2. Oxygen will flow from the pilot's delivery tube immediately and from the other outlets as the bayonet sockets on their respective delivery tubes are removed from the spring-loaded stowages. ▶

WARNING...

Oil or grease must not be used on any component of this system.

PORTABLE OXYGEN SETS

12. Ten portable sets are available for use of crew members moving about the

SERVICING

General

13. Instructions concerning the replenishment of the system, clearing pipes, checking for leaks and correct operation are contained in A.P.1275G, Vol.1, Sect.1. ▶

REMOVAL AND ASSEMBLY

◀ uncoupling oxygen system pipes and dismantling systems generally, are contained in A.P.1275G, Vol.1, Sect.1. The auxiliary oxygen unit, introduced by

aircraft. They are stowed, as follows:-

- ◀ (1) Two on the starboard side of the nose. ▶
- (2) One on the forward face of each pilot's engine control pedestal.
- (3) One under the routine navigator's seat.
- (4) One on the bulkhead at the rear of the signaller's station.
- (5) One under the table at the rearmost navigator's position.
- (6) One on the back of the radar operator's seat.
- (7) One near the starboard observer's position.
- (8) One near the port observer's seat.

◀ For information on these portable sets, refer to A.P.1275G, Vol.1, Sect.3. ▶

Mod.818, may be removed by disconnecting the medium pressure pipe from it and removing the four bolts securing the crate to the floor.

TABLE I

List of principal components in the oxygen system

Component	Mk.	Ref.No.	Quantity
Oxygen crate master valve	8*	6D/223	2
Cylinder oxygen	10A	6D/9429900	8
Stop valve	10	6D/1872	1
Filter H.P.		6D/1443	1
Oxygen regulator	10A*	6D/1395	1
Cut-off valve	1*	6D/480	18
Manifold	1A	6D/515	6
Flow indicator	2(fluorescent)	6D/743	10
Flow indicator	3(fluorescent)	6D/820	5
Flow indicator	3A	6D/1598	4
Economiser	4	6D/1444	19
Flexible tube (3 ft.)	5	6D/1713	1
Flexible tube (5 ft.)	5	6D/1715	8
Flexible tube (7 ft.)	5	6D/1716	3
Flexible tube (9 ft.)	5	6D/1717	7
Bayonet socket	4	6D/527	19

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