

Chapter 6 NITROGEN SYSTEM

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ILLUSTRATION

<i>Nitrogen system</i>	Fig. 1
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DESCRIPTION AND OPERATION

INTRODUCTION

1. In this system a supply of nitrogen at high pressure is piped to reducing valves from which it is delivered to the fuel vent system at low pressure. Nitrogen, therefore, flows into the fuel tanks as fuel is consumed, and takes the place of air which would otherwise be drawn in, thus minimising the risk of fire.

STORAGE BOTTLES (fig 1)

2. Seven bottles, each of 2,250 litres capacity, are fitted in a rack in the fuselage on the starboard side aft of the cabin entrance door. They are connected together by a common pipe system.

Bottle interconnection piping (fig. 1)

3. The piping is arranged to provide separate in and out routes for the nitrogen, and each route is arranged as a branched system. The charge pipe is first led to a screw valve, Stores Ref. 6D/796, and thence to a T-union, Stores Ref. 6D/603, which incorporates a filter, Stores Ref. 6D/574. From each end of the T-union, pipes are led to two more identical unions without filters and from these unions to the bottles. A similar arrangement is employed for the feed piping back to the feed connection. In this case, however, the three T-unions of the feed piping incorporate a non-return valve, Stores Ref. 6D/427. The pipe leading from the last T-union to the feed union

incorporates a screw valve, Stores Ref. 6D/223. Charge and feed unions are mounted at the forward end of the bottle crate on a small bracket which also carries a label inscribed with the words FEED CHARGE NITROGEN. The two screw valves each have an adjacent label reading CHARGE NITROGEN and FEED NITROGEN respectively.

HIGH PRESSURE DELIVERY PIPING (fig 1)

4. From the feed union, a pipe is led downwards below the floor. A branch from this pipe divides to connect a pressure gauge mounted on the top of the bottle rack just aft of the charge and feed union bracket,

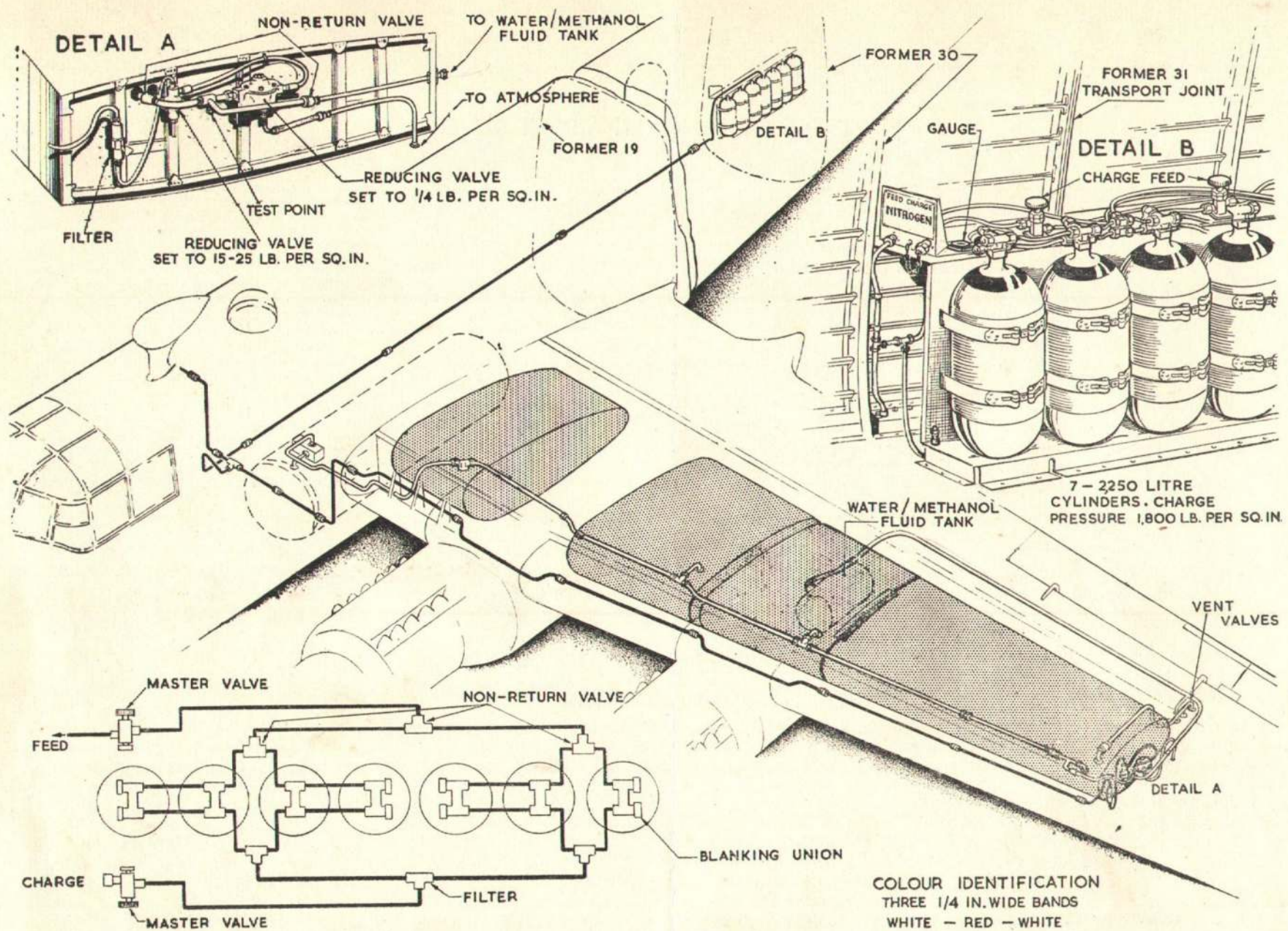


DIAGRAM OF BOTTLE CONNECTIONS

Fig. 1. Nitrogen system

RESTRICTED

and a pressure test point at the forward end of the base of the bottle rack.

5. The high pressure pipe is bent forward under the floor and is led along the starboard side of the bomb compartment to a T-union forward of the front spar, from which it is led along the spar to the outer end of each No.4 fuel tank and to the reducing valves between main plane ribs 17B and 18.

PRESSURE REDUCING SYSTEM

6. The high-pressure pipe at each side is led first to a filter, Ref. No. 6D/808, and then to a pressure reducing valve, Ref. No. 6D/787, which reduces the pressure to 15-25 p.s.i. The medium pressure pipes from this valve are each led to another reducing valve, Ref. No. 6D/788, which reduces the pressure to $\frac{1}{4}$ p.s.i. approximately. A test point for checking this pressure is fitted to a four-way piece at the outlet connection from this valve.

CHARGING THE STORAGE BOTTLES

10. Refer to A.P.1275A, Vol.1, Sect.10, Chap.4, before charging the system. In addition, the following points should be observed:-

- (1) Open the charge valve on the bottle rack (this is not in the same position as the charging

STORAGE BOTTLES

12. Ensure that the storage bottles are fully discharged before unscrewing any union, by opening the charge valve gently until the bottles are empty. When a

LOW PRESSURE PIPING

7. The four-way piece comprises a through pipe, which incorporates the previously mentioned test connection (this points downwards when installed) and a branch pipe which turns aft. The through pipe is joined by a hose clip to a pipe which is led to a T-union in the main vent pipe connecting the four tanks in each half of the main plane. The vent branch pipe is connected by a hose clip to another pipe which is led aft and then inboard along the trailing edge to the water/methanol tank filler neck on the same side.

8. Non-return valves are fitted in each low pressure feed pipe to the main vent system and the water/methanol vent system to isolate those systems from each other and from the nitrogen pressure reducing

SERVICING

union which is at the extreme forward end of the rack).

- (2) Ensure that the feed valve is closed.
- (3) Charge the bottles to 1,800 p.s.i. pressure.

GENERAL SERVICING

11. Access to the pressure reducing

REMOVAL AND ASSEMBLY

bottle is being replaced, the new bottle should be available to effect replacement within the shortest possible time.

OTHER COMPONENTS AND PIPING

13. No special precautions, other

system. On aircraft not incorporating Mod.307, only one non-return valve is fitted (in the feed to the water/methanol vent pipe).

Vent valves

9. To vent the fuel tanks in each wing, a pipe from No.4 tank is led aft over the tank and through the rear spar web, beyond which it terminates in three outlets. A pipe, terminating in an outlet close to the other three, branches from the vent pipe connected between each water/methanol tank filler neck and the adapter at the low pressure reducing valve. Eight nitrogen vent valves Mk.4A, Ref.No.6D/1600 are fitted to the four outlets at each side.

NOTE...

◀ When nitrogen is not required the vent valves are to be removed and the plain pipes, stowed adjacent to the vent valves, fitted to the vent outlets. ▶

and low pressure feed system, including the two non-return valves, is gained by removing three access panels at the outer end of the under-surface of each intermediate plane section. When full access is necessary, the outer wing joint assembly panels should be removed. (Sect.2, Chap.4.) Information regarding all testing and servicing is contained in A.P.1275A, Vol.1, Sect.10, Chap.4.

than ensuring that the high pressure feed valve is closed before disconnecting any union or connection, are necessary. Reference should, however, be made to A.P.1275A, Vol.1, for further information.



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