

## Chapter 2 PREPARATION FOR FLIGHT

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## SAFETY PRECAUTIONS

1. Before running the engine, careful positioning of the aircraft in relation to other aircraft and to neighbouring buildings must be observed, as an unobstructed clearance for 100 yards should be maintained behind the jet pipe. It is important that the ground in the vicinity of the air intakes is free from rags, paper, light pieces of wood, etc., since these may easily be sucked into the ducts, and no person should approach within a distance of 4 yards of the intake ducts.

2. ◀ The air intake guards (Ref. 26FC/9044-9045) are to be fitted whenever the engine is run for test purposes and it is not the intention to take-

off after running up. A check must be made to ensure that the gun heating pipe, between No. 14 and 15 combustion chambers, is not touching the H. T. lead securing nut on No. 14 combustion chamber igniter plug. If necessary, the pipe can be rotated so that it is well clear of the H. T. nut. When starting the engine, the electrical supply cable from the starter trolley must only be withdrawn when a pre-arranged signal is received from the cockpit. Failure to observe this last precaution will incur the risk of fire. It is advisable to run the engine with the aircraft into wind, not as a consideration for performance, but as a safeguard in the event of a wet start and subsequent fire. After any

failure to start, particularly after failure to light up, and where fuel has drained to the ground beneath the engine, it is recommended that the aircraft be moved to a new location before attempting to restart. The air intake and jet pipe blanking plates (Ref. No. 26FC/9046, 9047 and 9012) must be in position whenever the engine is stationary.

## NOTE ...

All ground equipment referred to this chapter is fully classified in the appropriate Tables in Sect. 2, Chap. 4.

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## Refuelling

3. The position of the fuel filler caps is shown in Fig. 3. The tanks should be refuelled in the following manner, using the special key spanner, Part No. Y.001227A, to unscrew the caps :-

- (1) Fill the fuselage tank.
- (2) Fuel each inner wing tank to just below its maximum level, leaving the filler cap removed.
- (3) Fuel the outer wing tanks until the fuel level in the inner wing tanks rises to the maximum level, then secure the inner wing tanks filler caps.
- (4) Top up the outer wing tanks and secure the filler caps.
- (5) Fuel the underwing tanks (if fitted).

### NOTE ...

(a) The operation, in the order outlined above, may be carried out when twin boom refuelling, on the port and starboard main planes simultaneously.

(b) The outer wing tank is shallow and care must be taken that the refuelling nozzle does not touch the bottom of the tank and thus damage the tank fabric.

(c) The wing flaps should be down during refuelling and an examination made for fuel in the flap

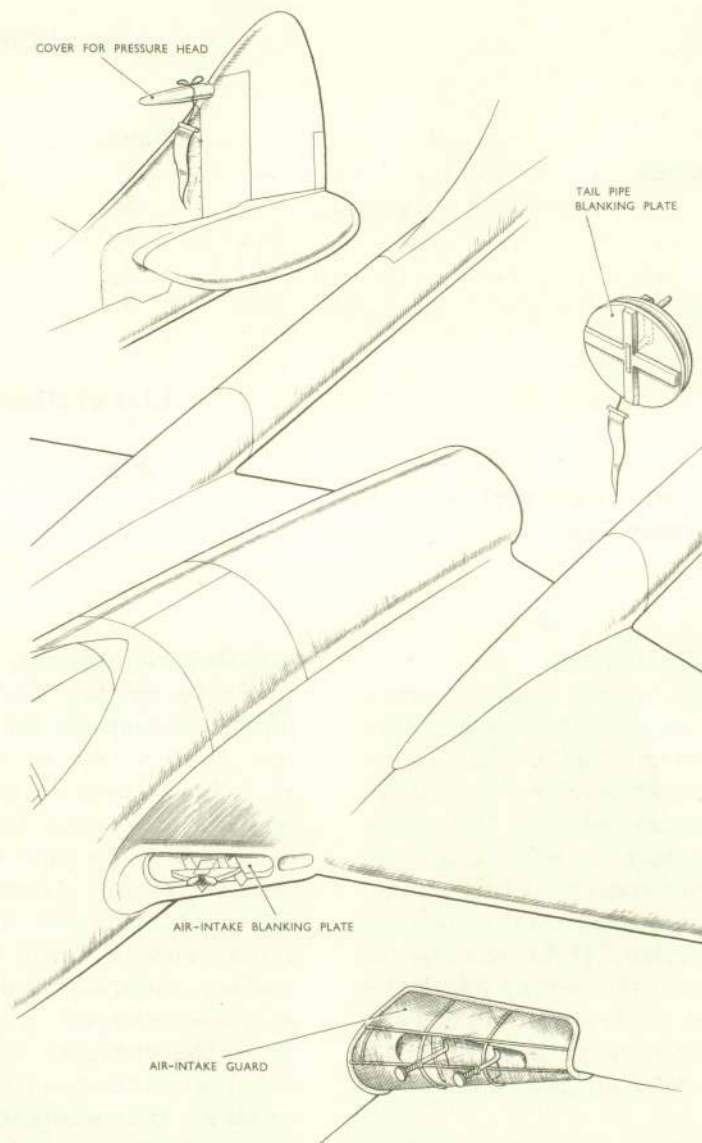


Fig. 1 Intake guards and blanking plates

compartment after each refuelling operation.

4. Although a small quantity of water will not affect the running of the engine it may, however, freeze and possibly restrict the fuel flow or even damage components, therefore the tanks should, where possible, be kept full in order to reduce the condensation of water to a minimum. Any water can be drained off by removing the small drain plugs from the elbow connections and from the immersed fuel pump at the base of the collector box. The filler cap sealing washers must be kept in good condition, especially those for the drop tanks, since these must withstand the pressure venting which transfers the fuel from the drop tanks. Further details of the fuel system are contained in Sect. 4, Chap. 2.

#### Defuelling

5. The complete fuel contents, other than that in the drop tanks, must be drained from the low-pressure fuel filter on the lower port side of the engine bay (Fig. 3). The draining is effected by removing the base cover from the filter and turning the low-pressure fuel cock ON. The fuel flow may thus be controlled by the cock. The rate of drainage may be accelerated by the use of the immersed fuel booster pump.

6. The drop tanks are drained individually by removing the drain plug from the bottom of each tank (Fig. 3).

When refitting the drain plugs, ensure that the sealing washers are in good condition as these must withstand the pressure venting of the tanks.

#### Oil system

7. The oil system is self-contained within the engine and is supplied from a small sump of  $1\frac{1}{2}$  gall. capacity at the bottom of the engine wheel case. The positions of the filler cap and the dipstick are shown in Fig. 3. The dipstick must be removed in order to vent the system when filling. The oil should be poured in slowly and a few minutes allowed to elapse to enable the oil to settle before reading the dipstick. Details of the oil system will be found in A.P.4121B and C, Vol. 1, Goblin Mk. 2 and 3 Aero-engine.

#### NOTE ...

Avoid overfilling the oil sump, as

this would result in the accessory gears running submerged, causing leakage and possible damage.

8. The oil system is drained by removing the sump drain cover from beneath the suction filter element on the starboard side of the engine (Fig. 2), and depressing the spring-loaded drain valve. After cleaning and refitting the filter element, the mating surfaces of the cover and sump must be cleaned and the joint remade with the approved jointing compound.

#### Hydraulic system

9. The position of the filler for the fluid reservoir and the air charging connection for the accumulator are shown in Fig. 3. The charging connection is accessible when the nose cap is open. The specification of the hydraulic fluid, which differs from that used in the alighting gear com-

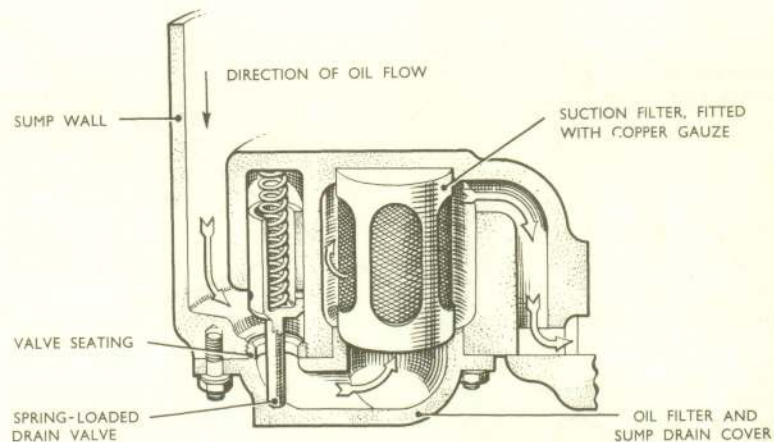
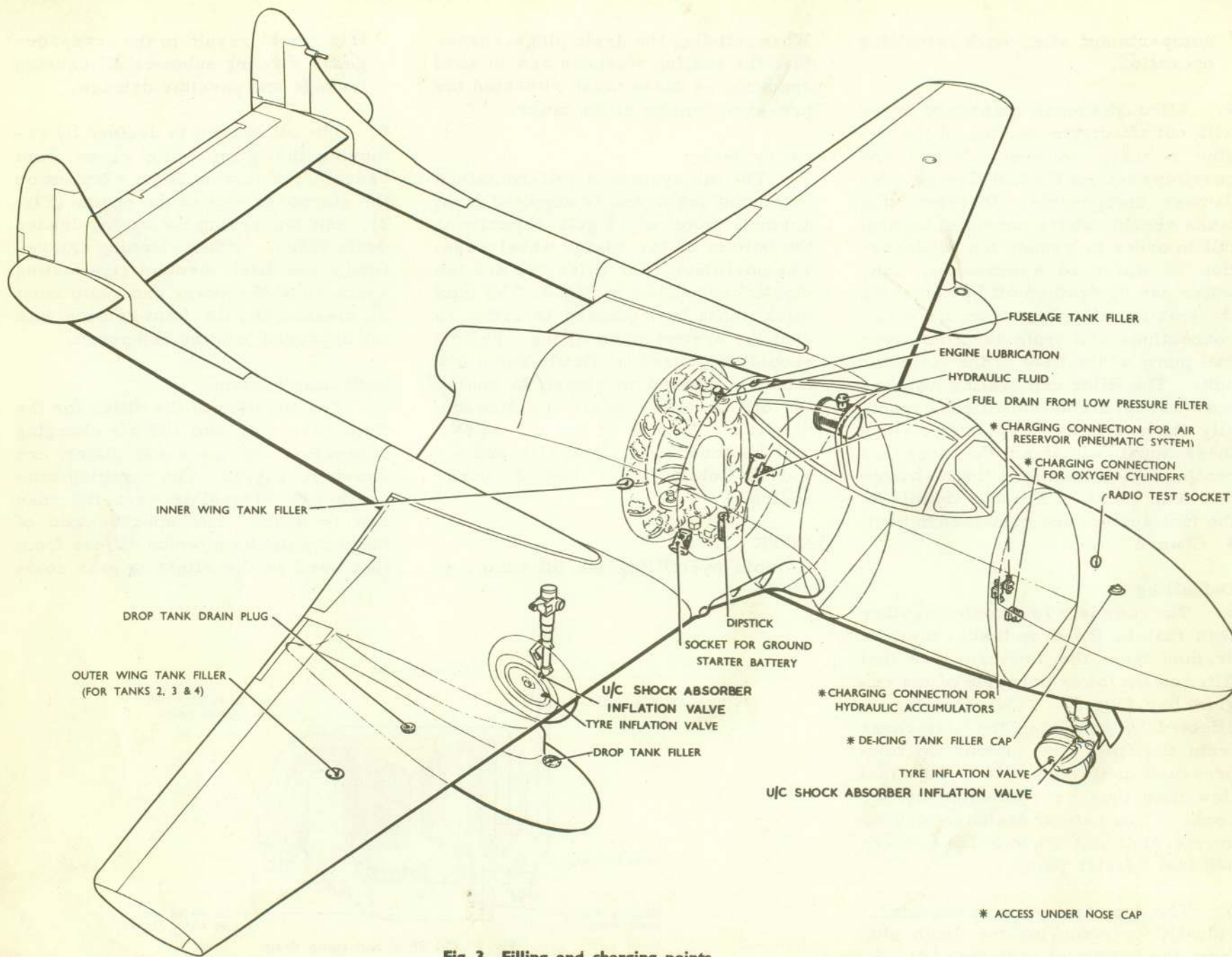


Fig. 2 Oil filter and sump drain

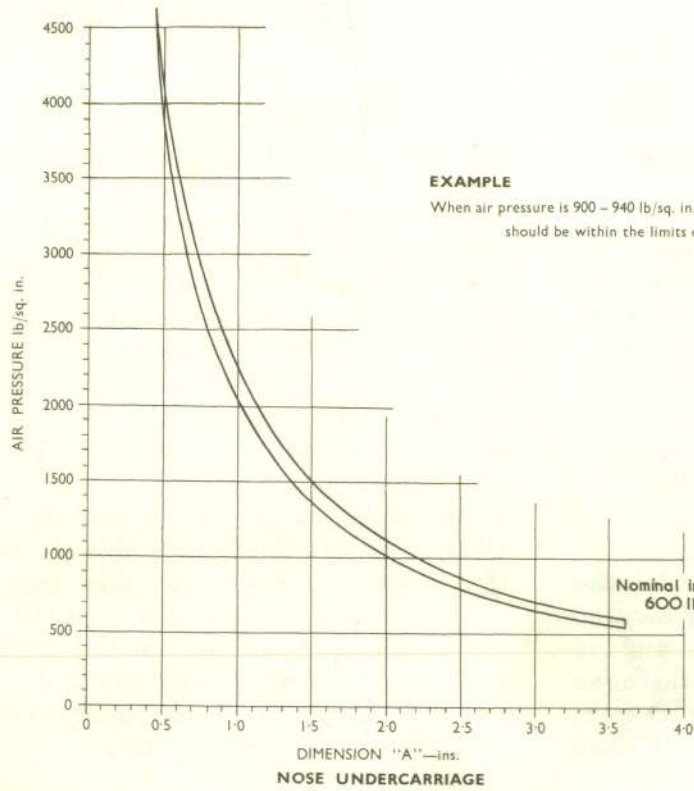


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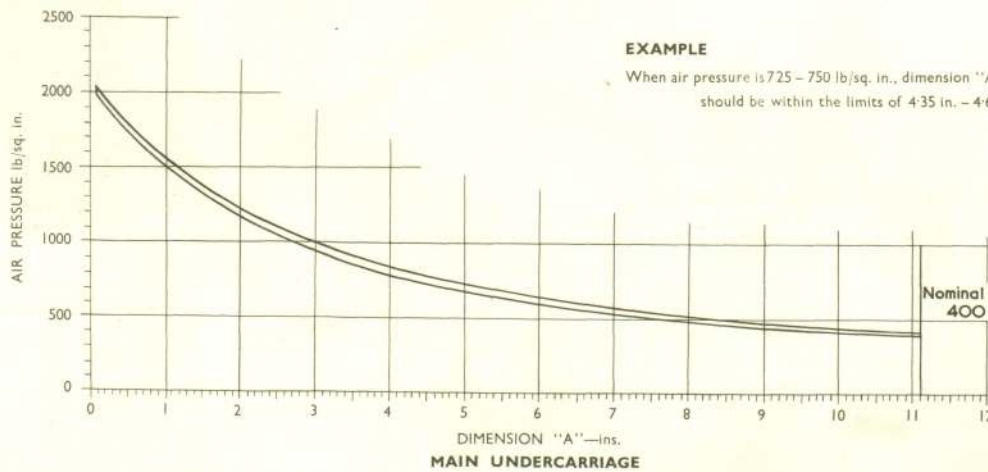
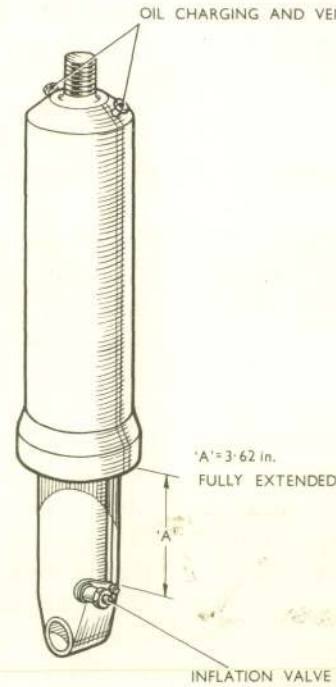
Fig. 3 Filling and charging points

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**EXAMPLE**  
When air pressure is 900 – 940 lb./sq. in., dimension "A" (from curve) should be within the limits of 2.02 in. – 2.12 in.



**EXAMPLE**  
When air pressure is 725 – 750 lb./sq. in., dimension "A" (from curve) should be within the limits of 4.35 in. – 4.6 in.

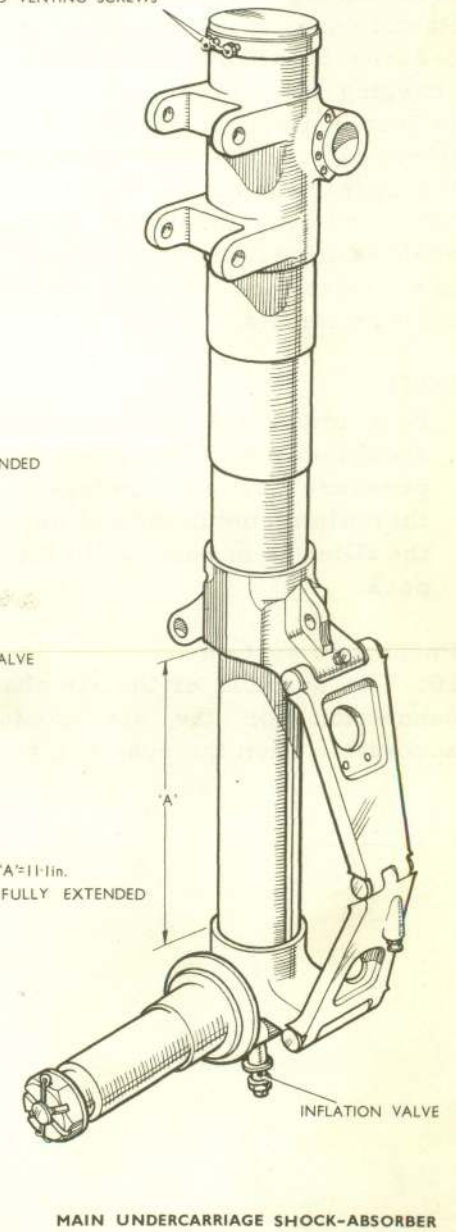


Fig. 4 Shock-absorber inflation diagrams

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pression legs, is given in the Leading Particulars. Full details of the procedures for filling the reservoir and charging the accumulator are given in Sect. 3, Chap. 6. Scrupulous cleanliness is essential during all servicing operations on the hydraulic system, and care must also be taken to avoid spilling the hydraulic fluid which has a deleterious effect on most aircraft materials.

#### NOTE ...

It is important that the reservoir should only be filled after the fluid pressure has been released from the main accumulator and only when the filter is in position in the filler neck.

#### Pneumatic system

10. The position of the air charging connection for the air container, accessible when the nose cap is open,

is shown in Fig. 3. Information on the charging procedure together with the instructions for draining the oil-and-water trap will be found in Sect. 3, Chap. 7. Access to the oil and water trap is through the gun bay doors.

#### Oxygen system

11. The oxygen cylinders may be charged in-situ through the charging connection shown in Fig. 3, access to which is gained by opening the nose cap. Care must be taken to avoid getting oil or grease in any of the components of this system. The installation is described in Sect. 3, Chap. 10.

#### Windscreen de-icing system

12. The small fluid container for the windscreen de-icing spray is located forward of bulkhead No. 1 and is accessible for refilling when the nose cap is open. Details of this system will be found in Sect. 3, Chap. 9, and

the specification of the fluid to be used is given in the Leading Particulars.

#### Alighting gear

13. The location of the inflation valves for the main and nose undercarriage shock-absorbers is shown in Fig. 3 whilst the respective inflation pressures relative to aircraft loading are shown graphically in Fig. 4; thus the need to jack up the aircraft for routine pressure checks is eliminated. Ensure that the ground locking device is removed from the radius rod of each main undercarriage leg before flight. Red indicator flags are attached to these locks which are illustrated in Chap. 1 of this Section. Ensure that the wheel doors of the main undercarriage are in the open position. These doors are spring-loaded to both the open and closed positions and it is possible that they may be inadvertently left in the closed position.

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