

PART 1

CHAPTER 4 — HYDRAULIC SYSTEM

(Completely revised by AL7)

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DESCRIPTION

1 Hydraulic System

(a) An engine-driven hydraulic pump draws fluid from a reservoir in the engine bay on the port side of the aircraft. The pump maintains a live-line pressure of 2850 ± 50 PSI for the normal operation of the aircraft systems. A schematic of the system is shown in Fig 1.

(b) The following systems are hydraulically operated:

- (i) Landing gear and doors.
- (ii) Flaps.
- (iii) Wheelbrakes.
- (iv) Aileron and elevator hydroboosters.
- (v) Airbrake.
- (vi) Canopy.
- (vii) Windscreen wipers.

2 Accumulators

Five hydraulic accumulators are provided. The details of the accumulators are given in Table 1.

Table 1 — Hydraulic Accumulators

| <i>Service</i> | <i>No of Accumulators</i> | <i>Initial Air Charge PSI</i> | <i>Pressure Gauge</i> | <i>Charge Point</i> |
|----------------|---------------------------|-------------------------------|-----------------------|---------------------|
| Wheelbrakes | 2 | 750 | Port shelf | Nosewheel bay |
| Ailerons | 1 | 900 | Starboard | wheelbay |
| Elevators | 1 | 1575 | Port | side of fin |
| Canopy | 1 | 1575 | Behind | radio bay door |

3 Hand Pump

On the ground when the engine is not running, hydraulic pressure can be supplied to the system to charge the accumulators or to operate any of the systems by means of a hand-operated hydraulic pump in the engine bay; the pump handle is stowed in clips on the inside of the engine bay access door. The hand pump is provided primarily for servicing purposes but can also be used to provide hydraulic pressure to open the canopy if the canopy accumulator is exhausted.

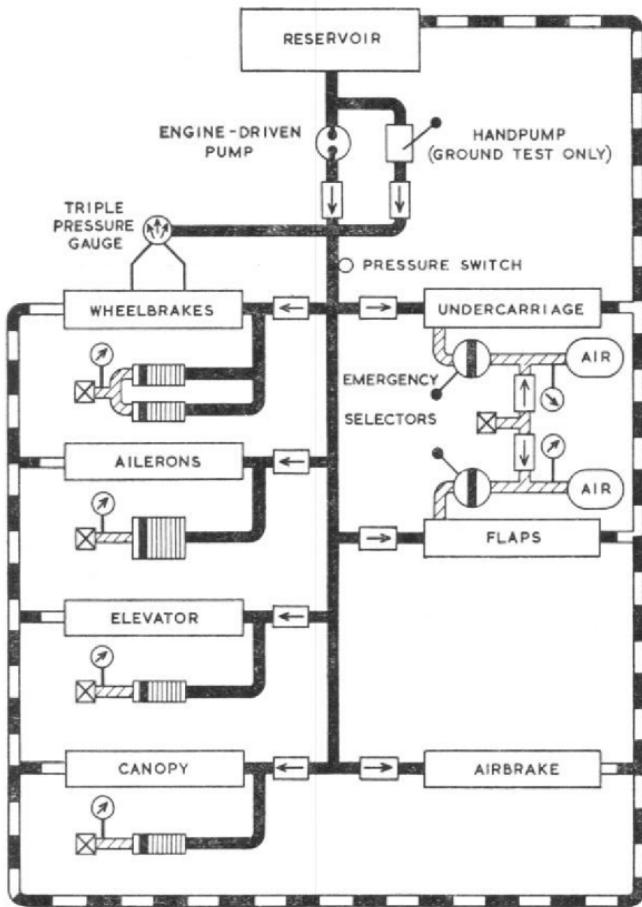
CONTROLS AND INDICATORS

4 System Pressure Gauge

The main hydraulic pressure is indicated by the main pointer of the triple pressure gauge at the forward end of the port shelf.

5 System Failure Indications

If the system pressure falls to 600 PSI, a pressure switch operates to switch on the red HYDRAULIC PRESSURE failure warning light on the port quarter panel; additionally, an audio warning is given on the intercom. Confirmation of the failure can be obtained from the reading of the main pointer of the triple pressure gauge on the port shelf. The audio warning can be silenced by selecting the AUDIO WARN CUT OUT — OUT/ON/OFF guarded switch on the centre instrument panel to OUT momentarily (the switch is spring-loaded from OUT to ON). If the pressure builds up again to above 600 PSI, the system



1-4 Fig 1 Hydraulic System Schematic

resets itself. The audio warning is automatically silenced when transmitting. The switch is normally left in the ON position but the system can be rendered inoperative by raising the guard and selecting OFF.

MALFUNCTIONING

6 Hydraulic Failure

(a) The first indication of a hydraulic system malfunction is given by the reading of the main pointer of the triple pressure gauge falling below normal when no service is being operated. If the pressure falls below 600 PSI, the failure indications are activated.

(b) If the hydraulic supply pressure fails, the accumulators provide a reserve of pressure for limited operation of the wheelbrakes (Part 1, Chapter 6), the canopy (Part 1, Chapter 7) and the powered flying controls. The capacity of the aileron and elevator accumulators (when fully charged) should provide for $1\frac{1}{2}$ to $2\frac{1}{2}$ full reversals of each control. However, even if no control movements are made, the accumulator pressure is not maintained because of normal hydraulic component seepage. When the accumulators are exhausted, the controls revert automatically to Manual.

(c) Accumulators are not provided for the landing gear, flaps, airbrake and windscreens wipers; these systems cannot be operated hydraulically if the supply pressure fails. An emergency air system is provided to lower the landing gear and flaps once only (Part 1, Chapter 6).

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