

PART 1

Chapter 4 — HYDRAULIC SYSTEM

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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 \pm $\frac{150}{50}$ PSI for the normal operation of:

- Landing gear and doors
- Landing gear recuperators
- Flaps
- Wheelbrakes
- Aileron and elevator hydroboosters
- Airbrake
- Cockpit canopy
- Windscreen wipers

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

(b) Five hydraulic accumulators are provided in the system to give a reserve of power in an emergency. The relevant details of these accumulators are given in the following table:

<i>Service</i>	<i>No of Accumulators</i>	<i>Initial Air Charge</i> PSI	<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 access door	

(c) Indication of failure of the live-line system is controlled by a pressure switch, set to close when the system pressure falls to 600 PSI. When the switch closes, a red light on the port quarter panel illuminates and a high pitched audio warning is given over the pilot's headset. Confirmation can be obtained from the reading of the main pointer of the triple pressure gauge on the port shelf. The audio warning OUT/ON/OFF switch is on the centre instrument panel to the right of the oxygen regulator. When set to OUT the warning is silenced once it has been given; the switch is spring-loaded to the ON position, but once OUT has been selected, the warning noise remains silenced through the operation of a hold-on circuit in the relay. If pressure builds up again to above 600 PSI, however, the system is reset and operates if failure again occurs. A guard must be raised before the switch can be set to the OFF position, at which the warning facility is rendered inoperative. Audio warning is silenced when the press-to-transmit switch is pressed.

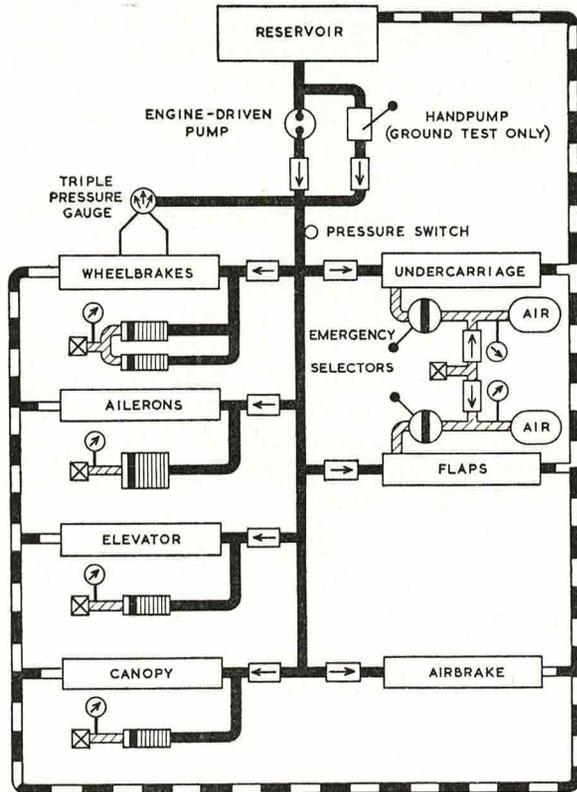
Malfunctioning of the System

2 Hydraulic failure

(a) Check the triple pressure gauge periodically in flight. The main pointer should normally read 2850 $\pm \frac{150}{50}$ PSI. If the reading drops substantially below this figure when no service is being operated, then hydraulic failure should be suspected. The red warning light, and the audio warning should come on if the pressure falls below 600 PSI.

(b) If the hydraulic supply pressure fails, there may be sufficient reserve in the power controls accumulators for $1\frac{1}{2}$ to $2\frac{1}{2}$ full reversals of aileron and elevator, the actual reserve depending on the state of charge of the respective accumulators at the time of failure. However, even if no control movement is made, accumulator pressure is not maintained for a long period, due to normal hydraulic component seepage. When the accumulators are exhausted the controls revert automatically to Manual. It is important, therefore, that any asymmetric stores should be jettisoned, before Manual reversion occurs. (See Part 3, Chapter 4, para 3 (d)).

(c) A failure in the power controls hydraulic circuit, as distinct from supply failure, may lead to immediate and automatic Manual reversion.



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|--|---------------------|--|--------------------|
| | MAIN PRESSURE | | AIR PRESSURE GAUGE |
| | RETURN TO RESERVOIR | | AIR CHARGING VALVE |
| | AIR PRESSURE | | NON RETURN VALVE |
| | ACCUMULATOR | | |

Hydraulic System





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