

Group D MISCELLANEOUS INSTRUMENTS

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INTRODUCTION

1. This group contains information relating to the miscellaneous instrument supplies. The details of individual items of equipment are given in the appropriate specialist Air Publication. The circuits covering

Outside air temperature (DA)

Flap position indicator (DF)

Fuel contents system (DR)

are described and illustrated in Chap. 2.

Equipment	Air Publication
Valve, pressure control Mk 11	A.P. 1275A, Vol. 1, Sect. 10
Micro switch Type 1a	A.P. 4343C, Vol. 1, Sect. 1
Alighting gear position indicator Type D	A.P. 4343E, Vol. 1, Sect. 18
Micro switches) Type 1A) Micro switches) Type 4A)	A.P. 4343C, Vol. 1, Sect. 1

CABIN PRESSURE WARNING (DC)

OPERATION

2. The cabin pressure control valve, positioned in the nose compartment, contains a pressure switch, the contacts of which connect a supply to a red warning lamp on the pilot's instrument panel. The pressure control valve is set by the manufacturers and should not require resetting. Connections to the pressure control valve contacts are made through a small two-way terminal block on the outer casing of the valve. If the cabin pressure drops more than $\frac{1}{2}$ lb. per

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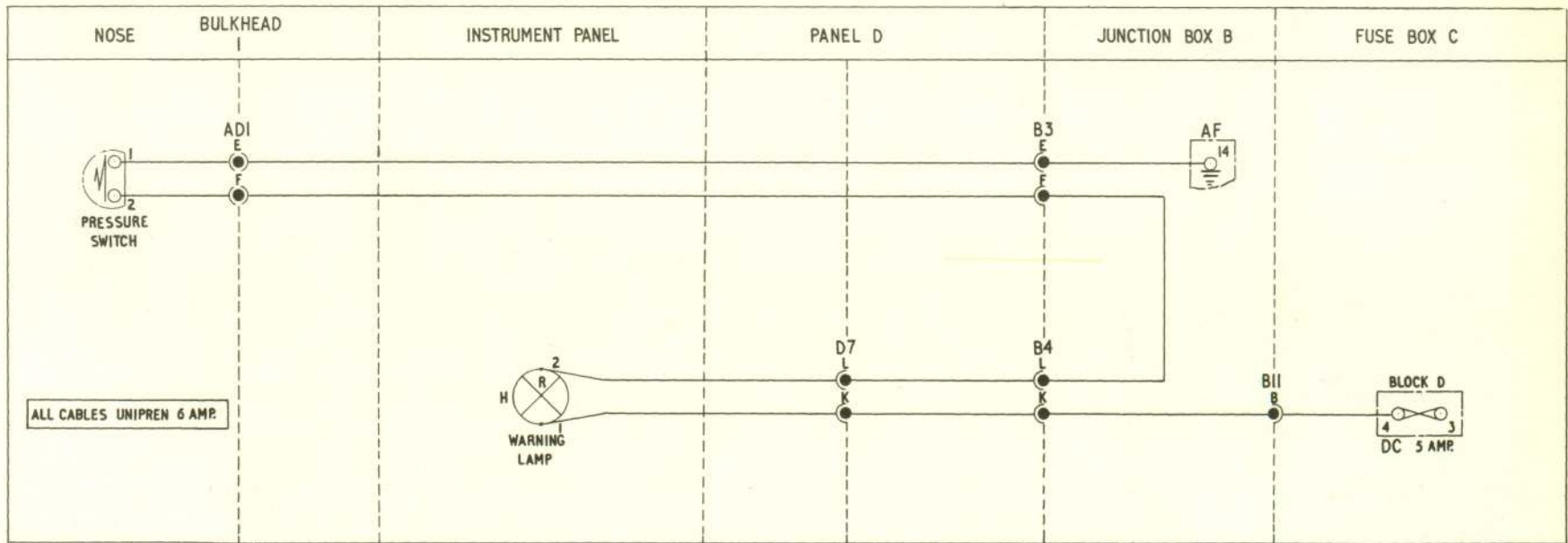


Fig.1. Cabin pressure warning-DC

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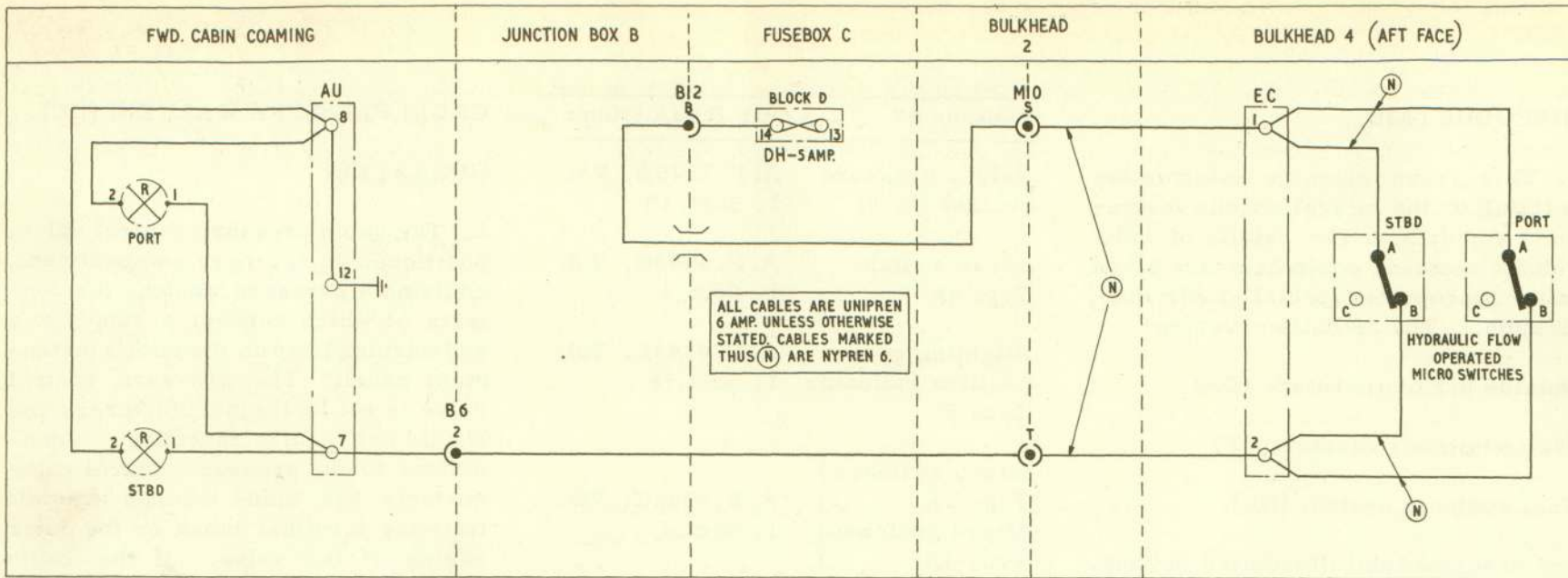


Fig.2. Hydraulic flow failure warning-DH

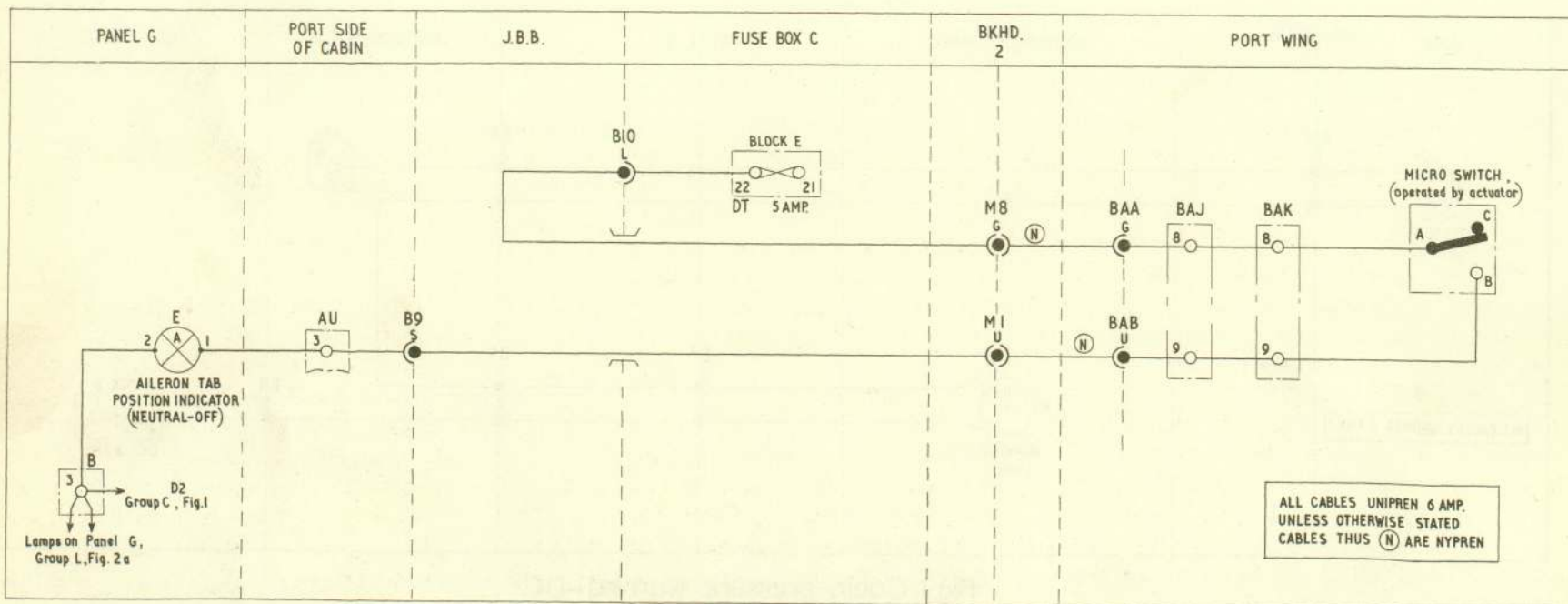


Fig.3 Aileron tab position indicator

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sq. in. below the normal for any altitude, the pressure switch contacts close, lighting the warning lamp.

SERVICING

3. To test the pressure switch, remove the ground test union cap-nut taking care not to loosen the lock-nut, and insert an insulated rod of suitable diameter into the hole in the adjusting screw. Press against the switch until the contacts close, lighting the warning lamp. An explanation of the air pressure control system is given in Sect. 3, Chap. 8.

HYDRAULIC FLOW FAILURE WARNING (DH)

4. In order to give indications of the satisfactory operation of the engine driven hydraulic pumps and hydraulic pressure, there are two red warning lamps positioned in the cabin on the forward coaming, port and starboard which operate under failure conditions of either hydraulic pump. A flow operated pressure switch operating a micro switch is fitted in the pressure line from each pump. Under operational conditions, the micro switch contacts will be open; failure of hydraulic pressure from either pump will close the contacts in the respective micro switch, lighting both red warning lamps. The flow-operated

pressure switches, located on the aft face of bulkhead 4 are described and illustrated in Sect. 3, Chap. 6.

SERVICING

Adjustment of micro switches
5. The micro switch attached to each flow operated switch is actuated by an adjustable striker arm. The adjustable setscrew should be screwed in until the micro switch contacts just make. Then unscrew the setscrew 3 turns $+ \frac{1}{2}$ turn and lock with tab washer and nut. Details of the flow operated switch are given in Sect. 3, Chap. 6.

AILERON TAB POSITION INDICATOR (DT)

OPERATION

6. To indicate any movement of the port aileron balance tab from the central neutral position, an amber warning lamp is fitted. The lamp is connected in series with a micro switch which is operated by movement of the aileron balance tab when it moves away from its neutral position.

SERVICING

Adjustment of micro switches
7. Set the trim tab to neutral and adjust the striker of the micro switch operating lever until it is clear of the switch button, then re-adjust the

striker until the switch is just depressed, i. e., when the tab neutral position indicator lamp is extinguished.

Note...

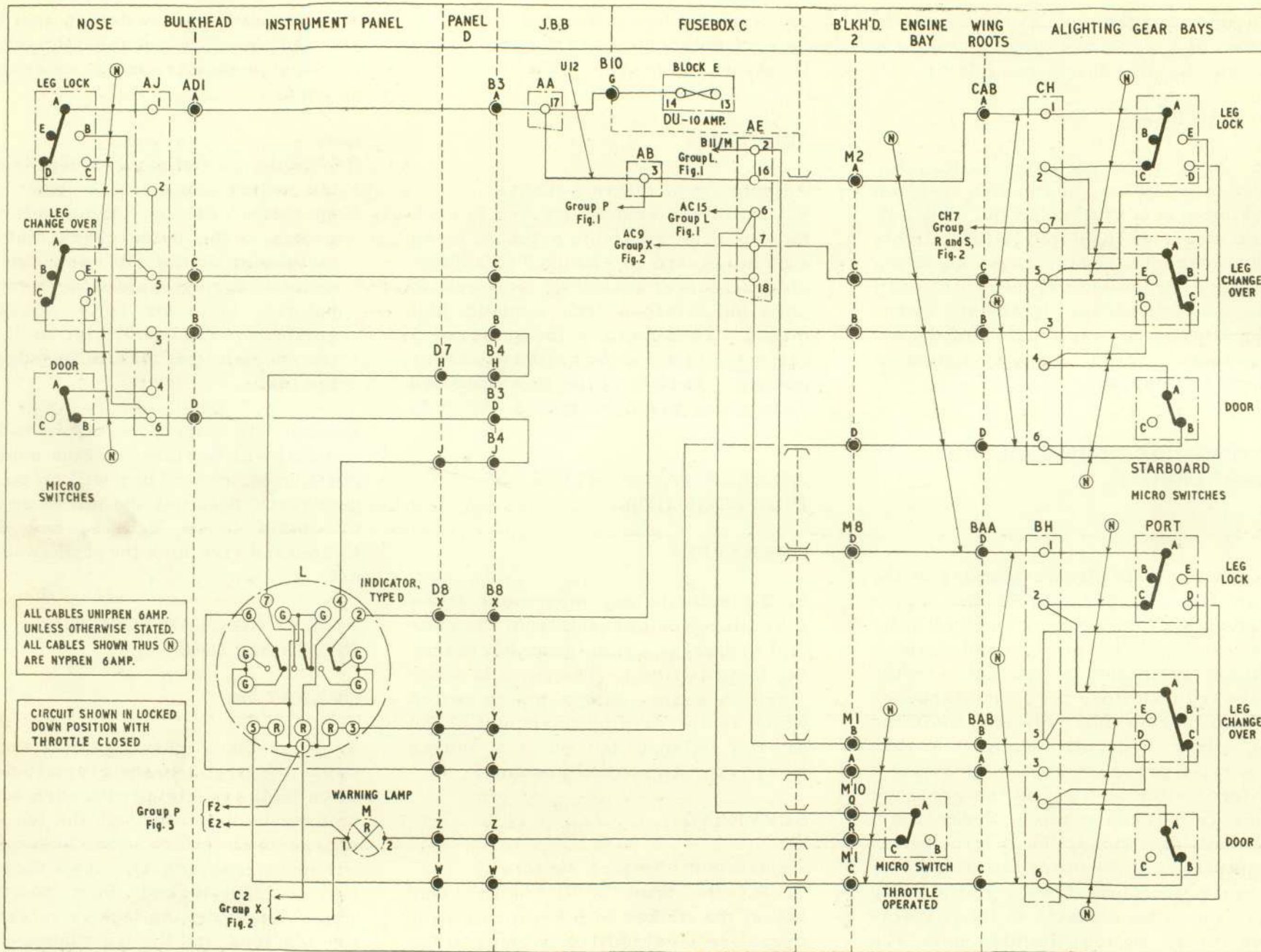
With the switch plunger depressed, the switch contacts are open. By operation of the trim selector switch in the cabin check that the movement of the tab each side of neutral during which the neutral position indicator lamp is extinguished, is from 0.075 in. to 0.125 in., measured at the trailing edge of the tab.

Beyond this travel, the micro switch contacts will be closed and the neutral position indicator lamp will be on. If necessary readjust the micro switch to obtain these figures, and then tighten and wire lock the striker locknut.

ALIGHTING GEAR POSITION INDICATOR (DU)

OPERATION

8. When the alighting gear is locked down, the circuit to the green locked-down lamp associated with each wheel unit is completed through the leg lock change-over micro switches. The wiring diagram (fig. 4), shows the system in the locked down position. Immediately the leg lock is released, the leg lock and the leg change-over micro switches operate, extinguishing



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Fig. 4. Alighting gear indicator-DU

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the green lamps, lighting the red lamps. During the period that the alighting gear is in an unlocked condition, the leg lock micro switch contacts A, E and D are in circuit. When the alighting gear reaches the locked up position the leg lock contacts change and contacts A, B, C are in circuit; the door lock micro switches move to the locked (doors closed) position, breaking the supply to the red lamps.

9. The throttle operated warning lamp, located immediately below the alighting gear selector lever will light when the pilot throttles back with the

alighting gear either locked UP or in an UNLOCKED condition. This warning circuit is completed through a micro switch located in the engine bay and operated by throttle linkage.

SERVICING

General

10. The micro switches and cable connections should be maintained in clean condition, free from mud, moisture and corrosion. Particular attention should be given to the security of filament lamps in the alighting gear position indicator. The setting

of the micro switches is important. Adjustments should be carried out in conjunction with an airframe specialist tradesman, and are as follows:-

Adjustment of micro switches

11. Preparation. With the aircraft supported on jacks, insert the ground lock pins. With the doors open, check that the door locks are at the fully released position. Adjust all striker bolts to be clear of micro switch plungers.

- (1) Alighting gear locked indicator (up and down) switch :-
Micro switch on aft side of upper

TABLE 1

Alighting gear and micro switch positions and indications

Alighting gear position	Micro switch contacts	Indications
Locked down	Door lock A to B Leg change-over A to B to C Leg lock A to B to C Throttle warning A to C	Red lamps out Green lamps on
Unlocked	Door lock A to B Leg change-over A to E to D Leg lock A to E to D Throttle warning A to B	Green lamps out Red lamps on
Locked up	Door lock A to C Leg change-over A to E to D Leg lock A to B to C Throttle warning A to B	Red lamps out Green lamps out

Note...

Interconnected with the alighting gear circuit is the d. c. cooling blower circuit of the radar equipment (Group R and S, fig. 1) the deck approach lamp circuit (Group L, fig. 1) and the a. c. power supplies circuit (Group X, fig. 2).

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lock unit. Adjust striker to clear switch plunger by 0.01 in. to 0.02 in.

Lock striker with lock-nut.

(2) Alighting gear up and down change-over switch:-

Micro switch at top of undercarriage leg attached to forging located outboard of leg and behind sidelock.

Adjust striker to clear switch plunger by 0.01 in. to 0.02 in.

Lock striker with lock-nut.

(3) Door locked indicator switch:-

Micro switch on aft face of front wheel bay wall.

Adjust striker to depress switch plunger 0.03 in. when door is closed and locked.

Then extend striker three full turns and lock with lock-nut.

(4) Alighting gear selector lever lock :-

Micro switch at top of torque links on port undercarriage leg.

Adjust striker to depress switch plunger by 0.03 in. Then extend striker a further three full turns

and lock with lock-nut.

(5) Radar cooling blowers airborne cut-out switch :-

Micro switch on top of torque links on starboard undercarriage leg.

Adjust striker to depress plunger 0.03 in.

Then extend striker a further three turns and lock with lock-nut.

The electrical engine instruments are described in Chap. 2. Supply fuses to these instruments are shown in the main distribution wiring diagram, group P, fig. 4.

TABLE 2

Location of alighting gear micro switches

Main wheels (port and starboard)	Micro switch location
Change-over micro switch	Fitted to top outboard side of each leg and operated by a cam arm inside the sidestay.
Leg lock micro switch	Fitted on the sidestay mechanism.
Door lock micro switch	Fitted on forward wall of wheelbay.
Lever lock micro switch	On port leg only. Fitted inside the top of the upper torque link on the forward side of the leg.
Radar equipment blower micro switch	On starboard leg only. Fitted inside the top of the upper torque link on the forward side of the leg

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TABLE 2 continued

Nosewheel	Micro switch location
Change-over micro switch	Fitted on starboard side of wheelbay below the bridge casting of the radius rod mechanism.
Leg lock micro switch	Fitted on radius rod mechanism.
Door lock micro switch	Fitted to the rear hinge door casting in the wheelbay.

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