

## Chapter 5 ALIGHTING GEAR

## LIST OF CONTENTS

DESCRIPTION	Para.
General ... ..	1
Alighting gear	
Control circuit ... ..	2
Emergency operation ... ..	3
Armament link-up... ..	4
Position indicator ... ..	5
Operation of microswitches ... ..	6

Braking parachutes	
Jettison circuit... ..	7
Test switch ... ..	8

## SERVICING

Alighting gear	
Functioning tests	
Preparation ... ..	9

	Para.
Test procedure... ..	10
Selector switch unit ... ..	11
Pressure switch ... ..	12
Microswitches ... ..	13
Position indicator ... ..	14

Braking parachute	
Function testing of the release unit... ..	15

## LIST OF ILLUSTRATIONS

	Fig.
Location diagram	
Alighting gear - details ... ..	1
Circuit diagram	
Alighting gear - braking parachute jettison... ..	2
Routeing diagrams	
Alighting gear - braking parachute jettison... ..	3-3A

## DESCRIPTION

## ◀ General

1. This chapter has been amended to include the following modifications:-

Mod.2416 To introduce alighting gear selector valve Ref.No. 1.00181.002 in lieu of selector valve C.1025 or C.1027.

Mod.4398 To introduce 165 knot pres-

sure switch Pt.No.30187 in lieu and by conversion of a 150 knot pressure switch Pt.No.5694.

Mod.4696 To change cable colour coding at the port and starboard alighting gear down lock microswitches.

The aircraft is equipped with retractable alighting gear and a braking parachute. The alighting gear is hydrau-

lically-operated and is controlled by a selector valve in conjunction with a selector switch in the cabin. The selector valve installed between frames 23 and 24, port, may be either a Type C1025 or C1027 motor-actuated valve (A.P. 1803T, Vol.1, Book 2), or a Type 1.00181.002 solenoid operated valve (A.P. 1803B, Vol.1, Book 3). The position of the alighting gear is shown by a Type D indicator adjacent to the selector switch. The indicator lamps are controlled by microswitches operated by

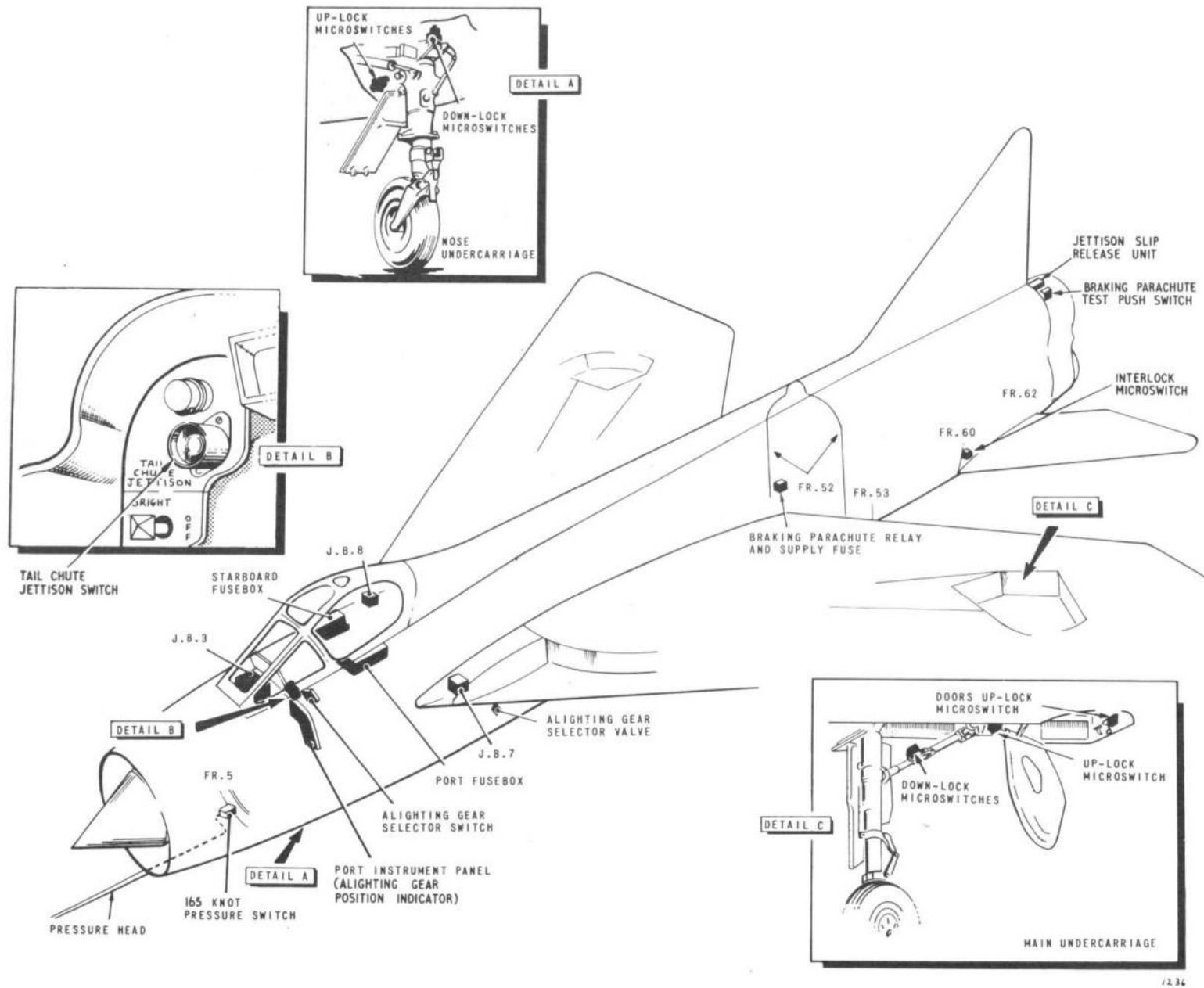


FIG. I. ALIGHTING GEAR-DETAILS

◀ MOD 4398 EMBODIED ▶

movement of the undercarriage. The braking parachute is streamed on landing to retard the aircraft, and jettisoned electrically after use. The alighting gear is described in Sect. 3, Chap. 5, and the braking parachute installation in Sect. 3, Chap. 13.

**Note...**

*The pressure indicator in the wheel brakes hydraulic system is described in Sect. 7, Chap. 6.*

### ALIGHTING GEAR

**Control circuit**

2. The Type C5182Y switch unit, controlling the selector valve, is fitted on a bracket adjacent to the port instrument panel; the switch is described in A.P. 4343C, Vol. 1, Book 1, Sect. 1, Chap. 26. The solenoid of the up-switch integral locking mechanism is in circuit with a Type S3 relay controlled by a pitot pressure switch, Type T.P. 30187, fitted at frame 5 below the air intake duct. At an air speed of 165 knots the pressure switch closes, operating the relay and energizing the solenoid; this releases the lock on the up-switch, permitting retraction of the alighting gear. The relay is also associated with the windscreen heating circuit. Inadvertent DOWN selection is prevented by a spring-loaded flap, over the appropriate push-button.

**Emergency operation**

3. In an emergency, the alighting gear may be retracted at air speeds below

165 knots by turning the up-switch push-button clockwise through 60 deg, and then depressing it in the normal manner.

**Armament link-up**

4. An armament safety device is included in the alighting gear selector circuit. Wiring to the safety relay in the weapon firing circuit (Chap. 2) is routed via the back contacts of the alighting gear UP push-button. Therefore until the alighting gear is raised, the weapon firing circuit remains inoperative. During servicing, this feature may be overridden by operation of a ground arming link (Chap. 2).

**Position indicator**

5. The Type D position indicator is mounted on the port instrument panel. Its integral red and green lamps, which indicate 'unlocked' and 'locked down' conditions respectively, are controlled by microswitches fitted to the main and nose undercarriage up- and down-lock mechanisms. The indicator is described in A.P. 113F-0607-1. ▶

**Operation of microswitches (fig. 2)**

6. When the alighting gear is locked down, the microswitch contacts are in the position shown on the circuit diagram, and the green lamps are illuminated. In the unlocked condition, contacts 3 and 4 of the down-lock microswitches open, extinguishing the green lamps, and contacts 1 and 2 close, illuminating the red lamps. When the alighting gear is fully retracted, the up-lock micro-

switches operate and the red lamps are extinguished. The nose undercarriage up- and down-lock microswitches also control the fatigue meter circuit (Chap. 4) and one of the autopilot circuits (Sect. 7, Chap. 3).

### BRAKING PARACHUTE

**Jettison circuit**

7. The braking parachute is jettisoned by a solenoid-operated release unit located aft of frame 62 in the upper fuselage. The release unit is controlled by a relay which is energized when the TAIL CHUTE JETTISON switch, mounted on the port windscreen shroud, is depressed. The relay and the supply fuse for the circuit are located behind access panel 104S. A microswitch, actuated by the parachute compartment doors and connected in series with the solenoid of the relay, prevents operation of the release unit until the parachute has been streamed.

**Test switch**

8. A test switch, fitted below the rudder on the port side of the rear fuselage, permits the functioning of the release mechanism to be checked when the parachute is stowed; the switch push-button is covered by a rubber diaphragm fitted flush with the fuselage skin. When operated, the switch overrides the microswitch, allowing the release unit to be energized by operation of the jettison push-switch.

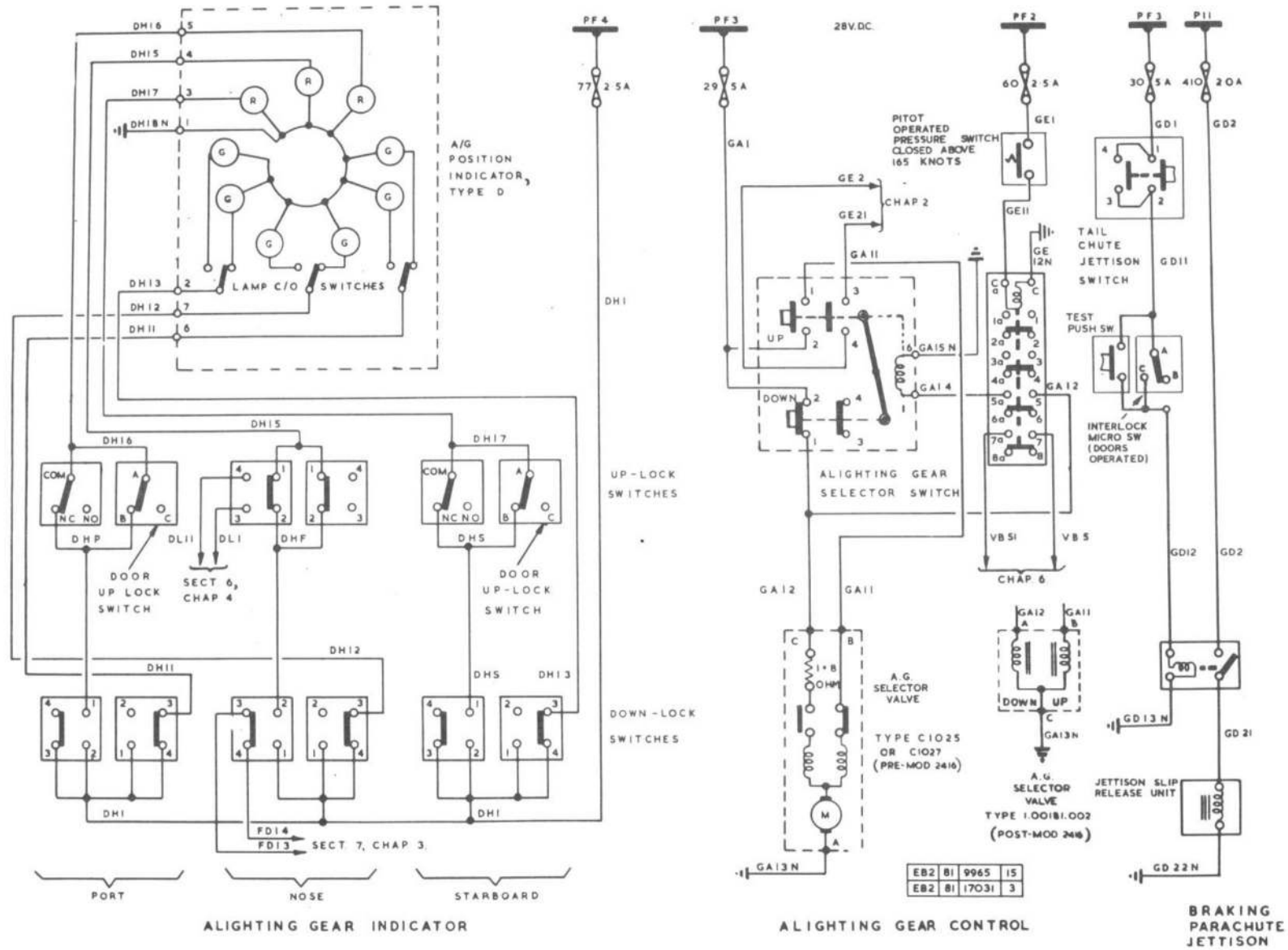


FIG.2. ALIGHTING GEAR - BRAKING PARACHUTE JETTISON

◀ MOD. 2416 AND 4398 EMBODIED ▶

## SERVICING

## WARNING

The relevant safety precautions detailed on the LETHAL WARNING marker card must always be observed before entering the cockpit or performing any operations upon the aircraft.

## ALIGHTING GEAR

## Functioning tests

## Preparation

9.

(1) To check the control and indicator circuits of the alighting gear system for correct functioning, the aircraft must be fully jacked and trestled (A.P. 101B-1001-1A, Sect.2, Chap.4) and a suitable type pressure rig (Sect.7, Chap.5) must be connected to the pitot pressure system.

(2) Disconnect the aircraft main battery and connect an external 24-volt d.c. supply using extension cable, Ref. No.26DK/37488, (Chap.1) connected to the aircraft main battery connector.

## Test procedure

10. The test procedure is as follows:-

(1) Pressurize the pitot system until the simulated air speed, registered by the test indicator and the A.S.I. in the cockpit is about 50 knots.

(2) Gradually increase the pitot pressure until the alighting gear control circuit is fully operative, i.e. the safety lock on the UP push-button is released, allowing the alighting gear to be retracted. This should occur at a

◀ simulated air speed of  $165 \pm 5$  knots, and the test indicator and the A.S.I. should register identical air speed values within this range.

(3) Gradually reduce the pitot pressure until the safety lock on the UP push-button becomes operative again. This should occur at a simulated air speed below  $165 \pm 5$  knots.

(4) With the pitot system pressurized so that the UP push-button can be depressed, carry out several complete operations of the alighting gear, checking each undercarriage unit for correct functioning, and the position indicator for accurate response.

## Selector switch unit

11. Following an emergency UP selection, the integral locking mechanism must be reset by inserting a Dowty resetting tool Part No.ST.1657/2 or a length of stiff wire, into the small hole in the UP button and pressing until the button releases.

## Note...

*On renewal of the selector switch unit it is important to note that when received from the manufacturers the switch has links fitted between the UP switch terminals 1 and 3, and 2 and 4. As the selector is also connected in the armament circuits (Chap.2) it is essential that the links are removed from the unit before it is fitted in the aircraft. Failure to remove them will result in damage to the alighting gear selector actuator when the ground arming link is*

*fitted during armament system ground checks.*

## Pressure switch

12. Servicing and adjustment of the Type T.P.30187 pressure switch are described in A.P.112G-1112-1. On completion of any servicing which necessitates disconnection of the switch from the pressure lines, the pitot and static system must be subjected to the leakage tests described in Sect.7, Chap.5. ▶

## Microswitches

13. Adjustment of the microswitches is described in A.P.101B-1001-1A, Sect.3, Chap.5.

## Position indicator

14. Apart from renewing lamps, little servicing of the indicator is necessary. Access to the lamps is gained by unscrewing the indicator face; the lamp filament rating is 28 volts, 2.5W, Ref. No.5L/9951286.

## BRAKING PARACHUTE

## Function testing of the release unit

15. To test the jettison circuit with the parachute stowed:-

(1) Connect an external d.c. supply and operate the TAIL CHUTE JETTISON switch and the test switch simultaneously.

(2) Pull the streamer cable to check that the end fitting of the cable has been released.

(3) Re-engage the cable end fitting, and reset the release mechanism (A.P. 101B-1001-1A, Sect.3, Chap.13).

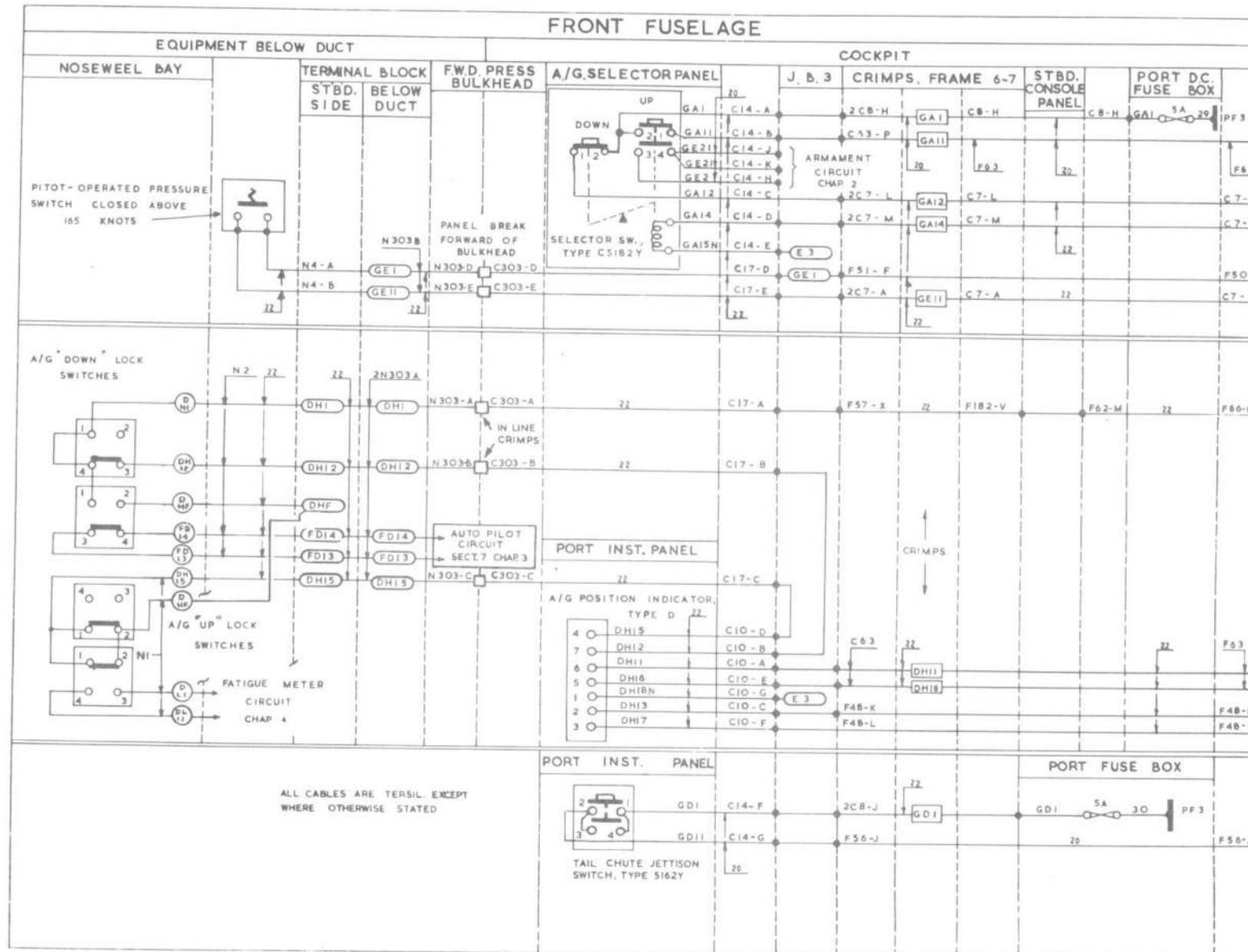


FIG.3. ALIGHTING GEAR - BRAKING PARACHUTE JETTISON  
◀MINOR AMENDMENTS▶

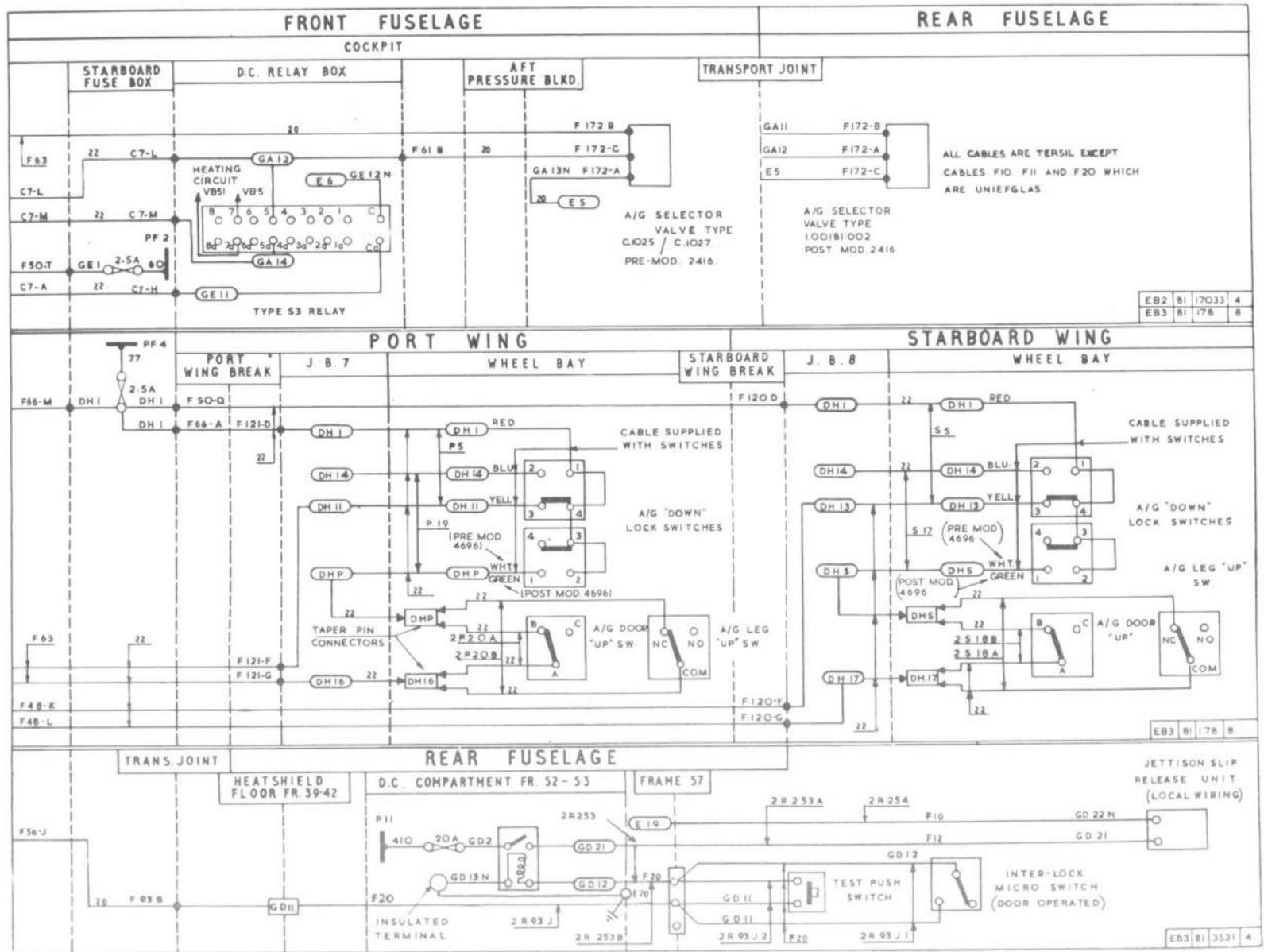


FIG.3A. ALIGHTING GEAR-BRAKING PARACHUTE JETTISON

◀MODS. 2416, 4398 AND 4696 EMBODIED▶



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