

GROUP F 2

NAVIGATION AND ANTI-COLLISION LAMPS (CODE N)

► (Completely revised to include Mod 1429 and 1443) ◄

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TABLE 1

Equipment type and Air Publication reference

Equipment	Air Publication
Flasher unit, Type A	AP113F-0618-1
Lampholders, port and starboard, Type B	AP113F-0227-1
Lampholder, tail	BAe design
Switch, double-pole, centre off, Type Honeywell 2TL1-1	AP113D-1100 Series
Power unit, Type Hella 8ES003417-00	AP113F-0284-1
Lamp unit, Type Hella 2LA003849-00	AP113F-0284-1
Switch, single pole, centre off, Type Honeywell 1TL1-1	AP113D-1100 Series

Introduction

1. This group describes and illustrates the navigation and anti-collision lamps circuits installed in this aircraft. The main components in the circuits are listed in Table 1 together with the appropriate Air Publication to which reference should be made for detailed descriptions and information of the servicing required to maintain the components in a serviceable condition. Group A1 of this chapter contains details on general servicing of the aircraft electrical system and Group A3 includes location of the components in the navigation and anti-collision lamps installations.



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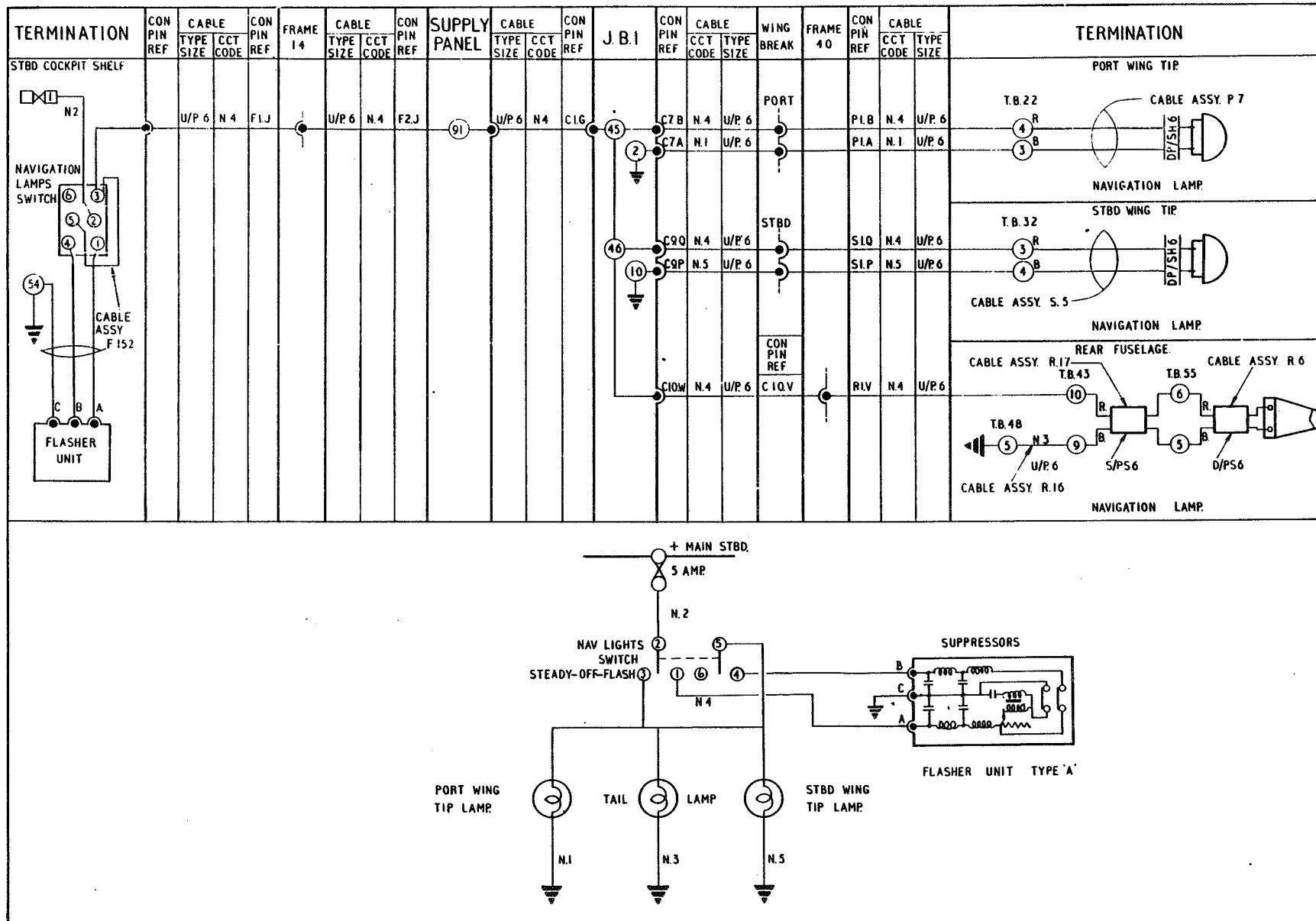


Fig.1A Navigation lamps (routeing and theoretical, pre-Mod NSM 3012) – pre-Mod 1429

DESCRIPTION**Navigation lamps***General*

2. Three navigation lamps fitted in housings covered with transparent plastic are provided; one in the tip of each outer wing and the other in the tip of the anti-buffet fairing at the tail end. The wing tip lamps are carried in standard lampholders, but the tail lamp is carried in a standard small bayonet batten type holder incorporated in a BAe designed lamp housing. A flasher unit is included in the installation; this is mounted on a bracket between frames 11 and 12 on the starboard side of the cabin. The circuit is controlled by a double-pole change-over switch, marked STEADY, OFF, and FLASH; this is situated on the cabin starboard shelf.

Operation

3. Reference to the theoretical diagram in fig.1 will make the operation of the circuit evident. When the control switch is put to FLASH, the flasher unit will be connected in series with the three lamps. These will then flash, and continue to do so until the switch is put to a new position. With the switch to STEADY, the lamps will remain lit continuously. On post-Mod NSM 3012 aircraft, facility is available for dimming of navigation lights on both FLASH and STEADY, by operation of a switch adjacent to the FLASH-OFF-STEADY switch (*Forward for bright*).

Anti-collision lamps*Safety precautions*

4. The high intensity strobe lights system presents health and safety hazards and the following warning shall be observed:

WARNING...**Aircraft High Intensity Strobe Light Systems – Safety Precautions.***General*

- (1) The health and safety hazards associated with high energy strobe light systems are:
 - (a) The brilliance of the white light and ultra violet radiation emitting from the lamp unit can cause damage to the eyes.
 - (b) Electric shock – the energy produced by the power unit is of lethal magnitude.
- (2) The following safety precautions are therefore to be observed by all ground personnel whose duties bring them within close proximity of strobe light systems and are to be adopted as a standard code of practice.

Eye protection

- (3) (a) Whenever strobe light systems are to be activated, all personnel within the immediate vicinity are to be warned and instructed not to look directly at the light.
- (b) The white flash can be an eye hazard at distances of two metres or less. Personnel shall avoid imaging the strobe.
- (c) At close range, ultra violet emissions from the flash tube can cause UV keratitis. The lamp unit glass lens will give complete protection and is always to be fitted when the strobe light is operating.

Protection from electric shock

- (4) (a) Strobe light systems are to be switched off before disconnecting or removing any part of the system.

- (b) After switching off, a minimum period of two minutes shall be allowed to elapse before any disconnection is made at the lamp unit, the power unit or the interconnecting cable. This is to allow the high energy capacitive components of the power unit to discharge.

General

5. The anti-collision lamps circuit introduced by Hunter Mod 1443, contains two strobe lamp units operated by separate power units controlled by individual 3-position switches. The switches, located on the cabin forward starboard shelf, are labelled ANTI COLL. LTS – UPPER, LOWER – RED/OFF/WHITE, and may be selected simultaneously or individually to emit a flashing red or white light as required. The circuit theoretical and routeing diagrams are shown in Figures 3 and 4 respectively.

Power units

6. The two power units are identical and contain the logic circuitry for selecting the required channel, together with power supply, pulse generation and protection circuits. Electrical connection is through three connectors mounted on each power unit. The upper power unit is mounted on the rear fuselage port side between frames 43 and 44 whilst the lower unit is mounted on the centre fuselage engine access door.

Lamp units

7. Each lamp unit will emit a flashing white or red light, depending on switch selection, at a frequency of 60 ± 5 flashes/min. The maximum respective intensities of the white and red lights are 2000 and 150 candelas between 0 and 5 degrees from the mounting plate reducing to 850 and 63 candelas at an angle of 50 degrees. Electrical connection is through a 5-pin connector mounted on each lamp unit, and the

circuit is so arranged that when both units are selected they will flash alternately. The upper lamp unit is located centrally on the fuselage spine fairing between frames 45 and 46 whilst the lower unit is located on the centre fuselage engine access door.

Operation

8. 28 V d.c. is routed from the L+ busbar through supply panel fuses 23 and 18 to the upper and lower power units respectively. The pulse generator within the upper unit controls the pulse generator within the lower unit by means of a wire link between P2 pin E on the upper unit and P2 pin F on the lower unit. A second wire link on the upper unit, between P2 pins A and D, ensures correct synchronization of the upper and lower lamps. 28 V d.c. is also routed from the L+ busbar to the wipers of the switches in the cabin through fuse number 3 on the cabin starboard rear shelf. When either switch is selected to RED or WHITE, the control logic in the associated power unit selects the appropriate flash tube within the corresponding lamp unit which then flashes at the prescribed rate.

SERVICING

General

WARNING...

Aircraft High Intensity Strobe Lights Systems – Safety Precautions. Refer to the warning detailed in Para 4.

CAUTION...

Insulation resistance tests using a standard 250 volt tester shall not be applied to the navigation lamps flasher unit as this unit contains a capacitor with a working voltage of 30 volts.

9. Apart from keeping components clean and applying the routine tests for security and serviceability, no further servicing should be necessary to either the navigation or anti-collision lamps circuits.

10. Components which become defective shall be removed from the aircraft and a replacement item fitted. Group A1 of this Chapter includes a table giving details of the filament lamps used in the navigation lamps circuit.

REMOVAL AND ASSEMBLY

General

WARNING...

Aircraft High Intensity Strobe Lights Systems – Safety Precautions. Refer to the warning detailed in Para 4.

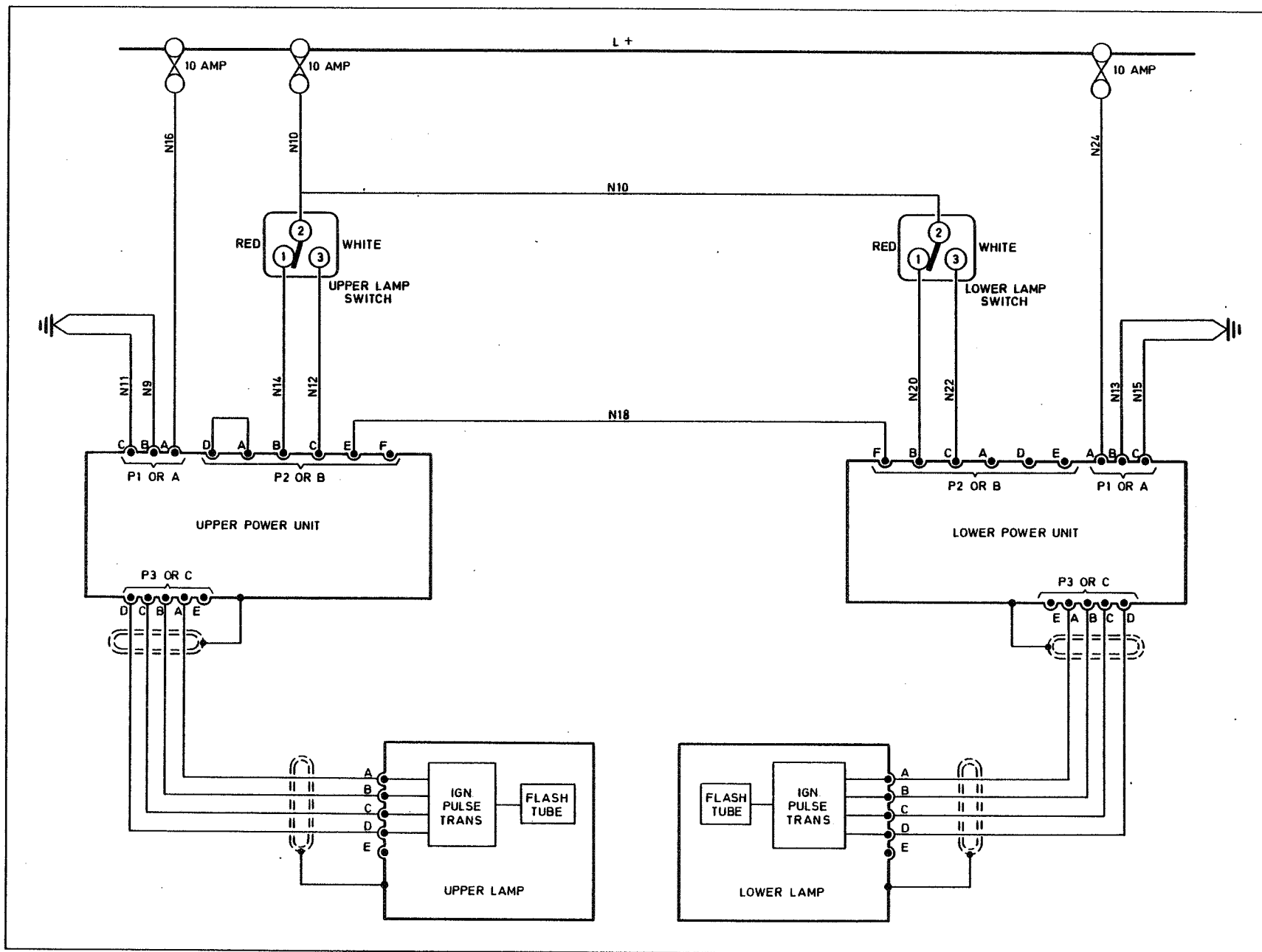
11. Once access has been gained, the removal and assembly of the components forming the navigation and anti-collision lamps circuits should present no difficulties. The location and means of access to components is indicated in Group A3 of this chapter. Before components are removed, the aircraft shall be rendered electrically safe as detailed in Group A1 of this chapter and, in the case of components forming the anti-collision lamps circuit, the WARNING detailed in Para 4 shall be observed. Approved caps and covers shall be fitted to all plugs and sockets when cable looms are disconnected.

Strobe lamp unit glass

12. When fitting a strobe lamp unit glass, the glass retaining screws are to be tightened to a maximum torque of 1.5 NM.

Note...

Due to the position of the lower strobe lamp unit it is subject to contamination by spilt fluids. To prevent accumulation of these fluids within the lamp unit glass, the bung surrounding the glass retaining screws shall be removed before fitting the glass to a lower lamp unit.



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Fig. 3 Anti-collision lamps (theoretical)
 ► (Fuse ratings changed) ◄

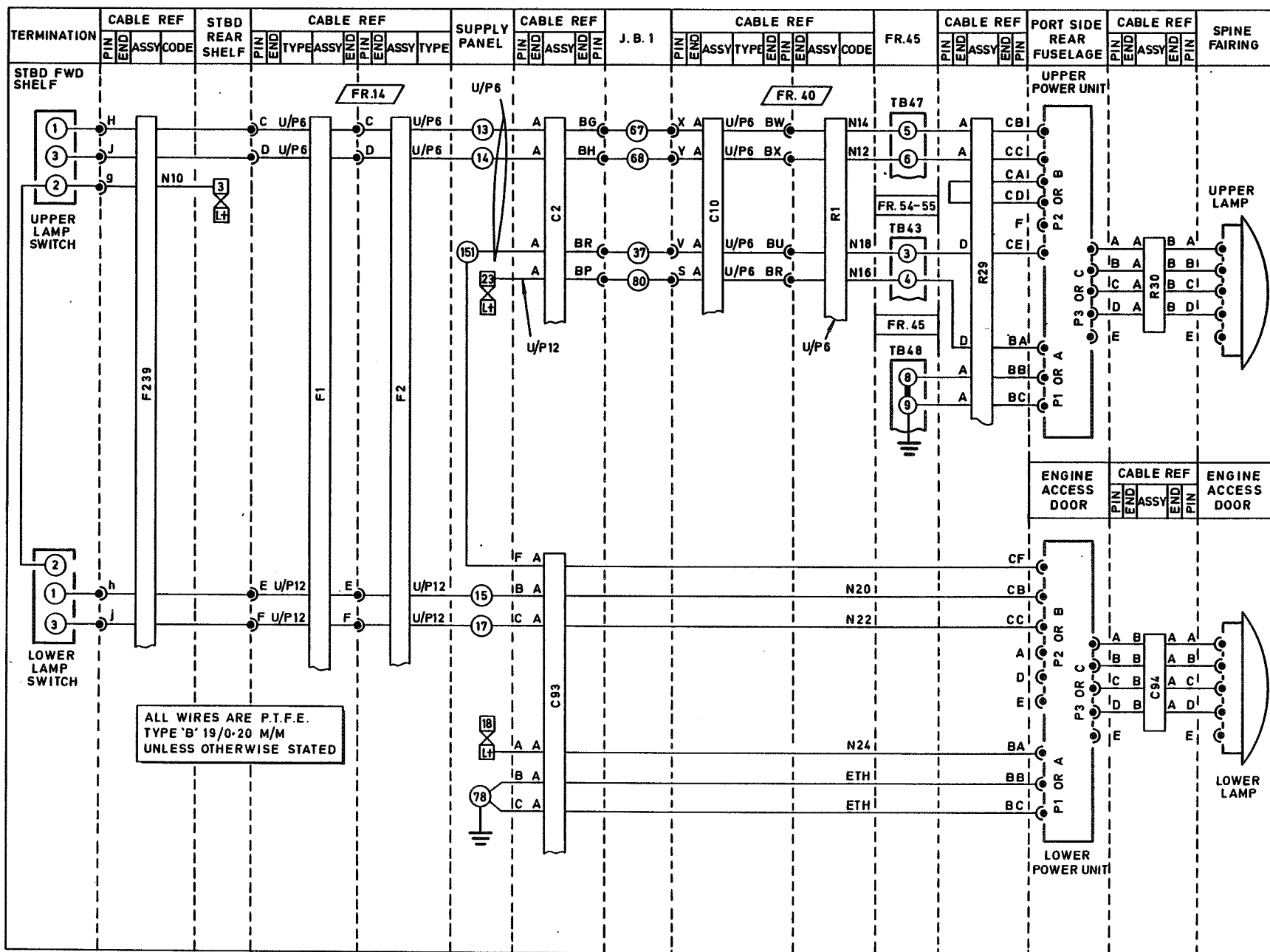


Fig. 4 Anti-collision lamps (routeing)

A close-up, low-angle shot of the underside of an aircraft's nose and cockpit. The image shows the dark, riveted metal structure of the fuselage and the canopy. Two large, rectangular, light-colored panels are visible, possibly part of the canopy or internal structure. The lighting is bright, creating strong highlights and shadows.

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