INTERFACE CONTROL DOCUMENT

SELF-CONTAINED WING STROBE LIGHT 14V P/N 6442300 AMD(0) SELF-CONTAINED WING STROBE LIGHT 28V P/N 6442400 AMD(0)

Diffusion	**Interne à JPC**			**Externe à JPC**	
	1 ex → RAQ			1 ex →	
Version	**Document**	**Issue**	**Date**	**Last evolution**	**Pages changed**
	644 23&24 00 ICD 01	1	03/03/2025		
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			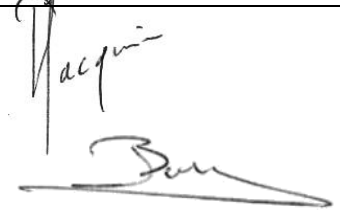		

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LIST OF EVOLUTIONS

Evolution date	Issue	Page modified	Evolution description
03/03/2025	**1**	**/**	**- Creation.**

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1 General

1.1 Generalities

This document defines the electrical, mechanical and thermal interfaces for WING STROBE LIGHT SYSTEM.

Description	Part number
SELF CONTAINED WING STROBE LIGHT 14V	6442300 AMD(0)
SELF CONTAINED WING STROBE LIGHT 28V	6442400 AMD(0)

Both equipment have the same casing, same lighting performances and same led number.
P/N 6442300 (AMD0) is dedicated for 14V voltage installation, and P/N 6442400 is dedicated for 28V voltage installation.
This file also defines the dimensions and connexion.

1.2 Destination

Fixed wing aircraft.

1.3 Related documents

See last evolution of Design & Description File 644 23&24 00 DF 01.

1.4 Description

Self-contained Wing Strobe light are aviation white color with performances according to CS-ETSO-C96b requirements (SAE AS 8017 REV C Anticollision Light Systems).

Self-contained Wing Strobe Light are purposed for 14VDC or 28VDC installation (different part numbers).

Self-contained Wing Strobe Light are a variant of our Led Anticollision Light system certifies ETSO, or qualified on helicopters for AIRBUS HELICOPTERS, with the same design rules and same **no complex electronic system** and no EMC interferences. It offers an extremely high reliability, a high resistance to shocks and vibration.

Positive points of those new equipment:

- up to 20.000 hours MTBF
- Self-contained system (electronic regulation and led light included in the same casing)
- Low weight

The lens is made in PMMA.

Self-contained Wing Strobe light is not waterproof. It must be installed in protected and waterproof area.

Mechanical parts are made in aluminum with SURTEC 650 protection

White light source: 30 x white power led assembled on 16/10 Aluminum PC board.

Electronic current driver is located on Strobe light regulation board.

Led driver: Linear current regulation. Reuse of simple architecture used in certified anticollision lights for helicopters, with no complex electronic.

Led flashing: CMOS analogic timer, analogic pulse generator.

2 Mechanical interfaces

2.1 Equipment outlines

- Aluminum 2017 + SURTEC 650 treatment
- Lens: PMMA
- Waterproofness: No Waterproof
- Dimension: (see 2D drawing in annex)

2.2 Mounting

See interface drawing in annex.

3 Optical features

SAE AS 8017C CLASS II requirement:

Minimum Effective Intensity: The system must provide effective intensity equal to or exceeding the values shown in the following table:

Angle above or below the horizontal plane	Effective Intensity (Candelas)
0° - 5°	400
5° - 10°	240
10° - 20°	80
20° - 30°	40
30° - 75°	20

Aviation white color requirement:
x is not less than 0.300 and not greater than 0.540;
y is not less than x−0.040; or y0−0.010, whichever is the smaller; and
y is not greater than x+0.020 nor 0.636−0.400x;

Flash Rate:
Each light in the system must produce an effective flash frequency of not less than 40 or more that 100 flashes per minute.

Light source description:
30 high power white Leds CREE XT-E assembled on Aluminum PC board

CREE XT-E Led main data:

Max operating current: 1.5A

Diffusion angle: 120°

Luminous flux: 156 lm at 350 mA and at 85°C (50 candelas at 85°C).

Color: Cool White 5000°K to 7000°K

Theorical analysis:

The 30 white Leds diodes are cabled in serial/parallel (see electrical drawing § 9).

They will be drived at 360 mA with a main **T**on of 250 ms. (Only first flash used for effective intensity calculation).

Horizontal distribution

Instantaneous intensity: 30 x 50cd = 1 500 cd

Effective intensity calculation

$$I_e = \frac{\int_{t_1}^{t_2} I(t).dt}{0.2 + (t_2 - t_1)}$$

Effective intensity at 0° : (1 500 x 0.25) / (0.2 + 0.25) = 833 cd

Effective intensity at +/- 60° : 415 cd

Vertical distribution

Effective intensity at +/- 5° : 98% (816 to 406 cd)
Effective intensity at +/- 10° : 96% (799 to 398 cd)
Effective intensity at +/- 20° : 90% (749 to 373 cd)
Effective intensity at +/- 30° : 83% (691 to 344 cd)
Effective intensity at +/- 75° : 30% (249 to 124 cd)

4 Electrical interfaces

4.1 Power supply interface

4.1.1 Self-contained Wing Strobe light P/N 6442300 AMD(0) - **14VDC**

- Supply Voltage : 14V (11 to 16V) Analogic linear current limitation
- Current : 3.5 A peak during T"on"
  1A average at 14VDC
- Power : 14 W average
- Leds forwarding current : 360 mA during T"on"
- Strobe Rating : 0.71 Hertz (+/- 5%)
- Strobe time ON : 1st flash : 250 ms
  2nd flash : 65 ms
- Energie : > 400 candélas
- Distribution : Horizontal : 120 °
  Vertical : +/- 75 °

4.1.2 Self-contained Wing Strobe light P/N 6442400 AMD(0) - **28VDC**

- Supply Voltage : 28 V (22 to 32V) Analogic linear current limitation
- Current : 1.8A peak during T"on"
  0.5A average at 28VDC
- Power : 14 W average
- Leds forwarding current : 360 mA during T"on"
- Strobe Rating : 0.71 Hertz (+/- 5%)
- Strobe time ON : 1st flash : 250 ms
  2nd flash : 65 ms
- Energie : > 400 candélas
- Distribution : Horizontal : 120 °
  Vertical : +/- 75 °

Performances In other situations:
Self-contained Wing Strobe light P/N 6442300 AMD(0) - 14VDC

Power supply level (in Volts)	Peak Current	Performances
11 V	3.5 A	Preserved
14 V	3.5 A	Normal
16 V	3.5 A	Preserved

Self-contained Wing Strobe light P/N 6442400 AMD(0) - 28VDC

Power supply level (in Volts)	Peak Current	Performances
24 V	1.8 A	Preserved
28 V	1.8 A	Normal
32 V	1.8 A	Preserved

4.2 Power dissipation

Same characteristic for 14V or 28V Light:

Operating Mode	Power dissipation MAX
OFF	0 W
ON	3.6 W

4.3 Operating temperature

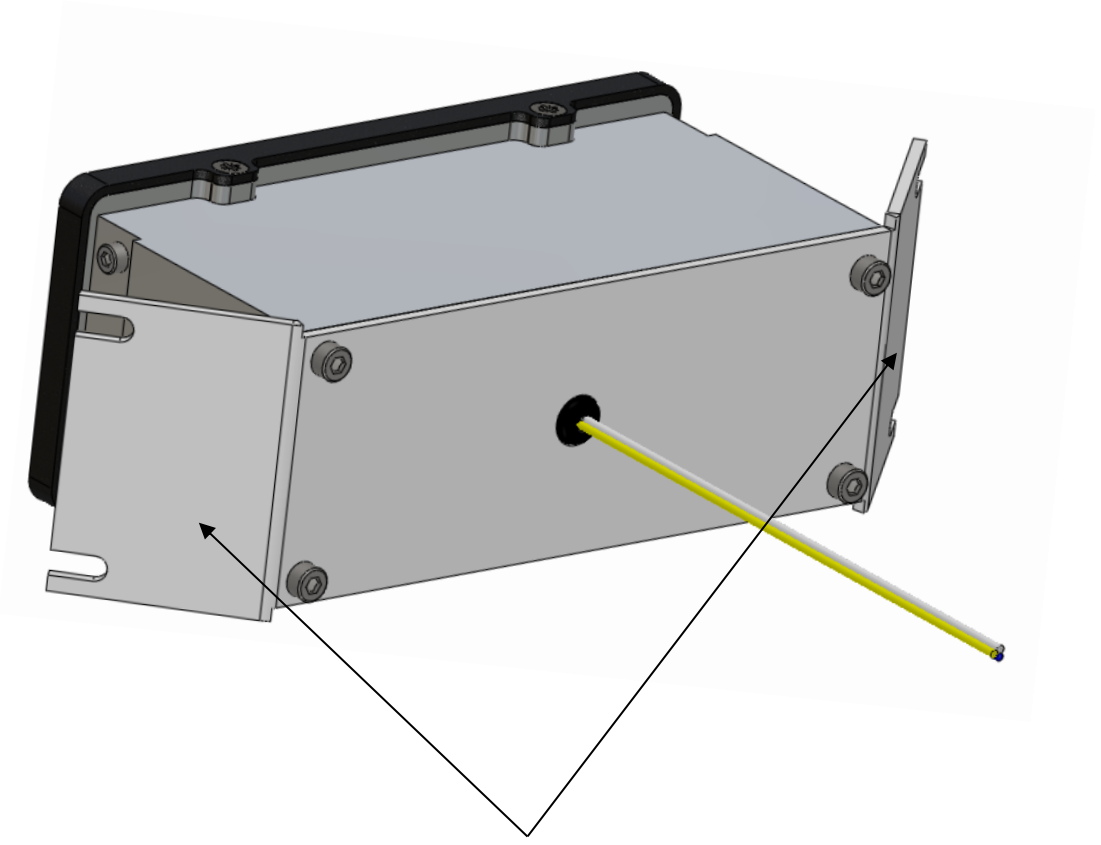
Positive temperature : +70 °C.
Negative temperature : - 45 °C.

4.4 Signals and wires definition

3 free end G22 wires	White wire	:	+Vin Strobe light
	blue wire	:	0V Strobe light
	Yellow wire	:	synchronization for 2 Strobe light

No wire size length limitations between components.

4.5 Grounding and bonding

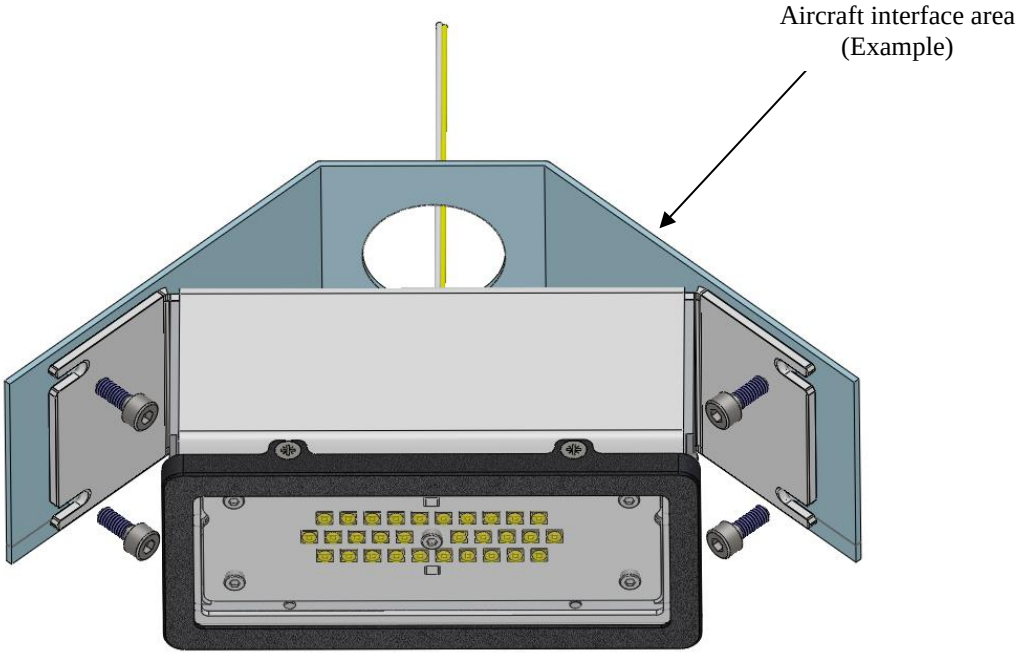


Bottom metalized area

5 Installation procedure

The following information provides guidelines for the installation of WING STROBE LIGHT.
Please refer to the OEM manual of the aircraft for specific removal and installation instructions.

- Prepare aircraft area with following interface drawing:



- Connect the supply wires (see in §4.3) of the equipment.
- Fix interface part with 4 x screws (not provided)

6 Periodic Inspections

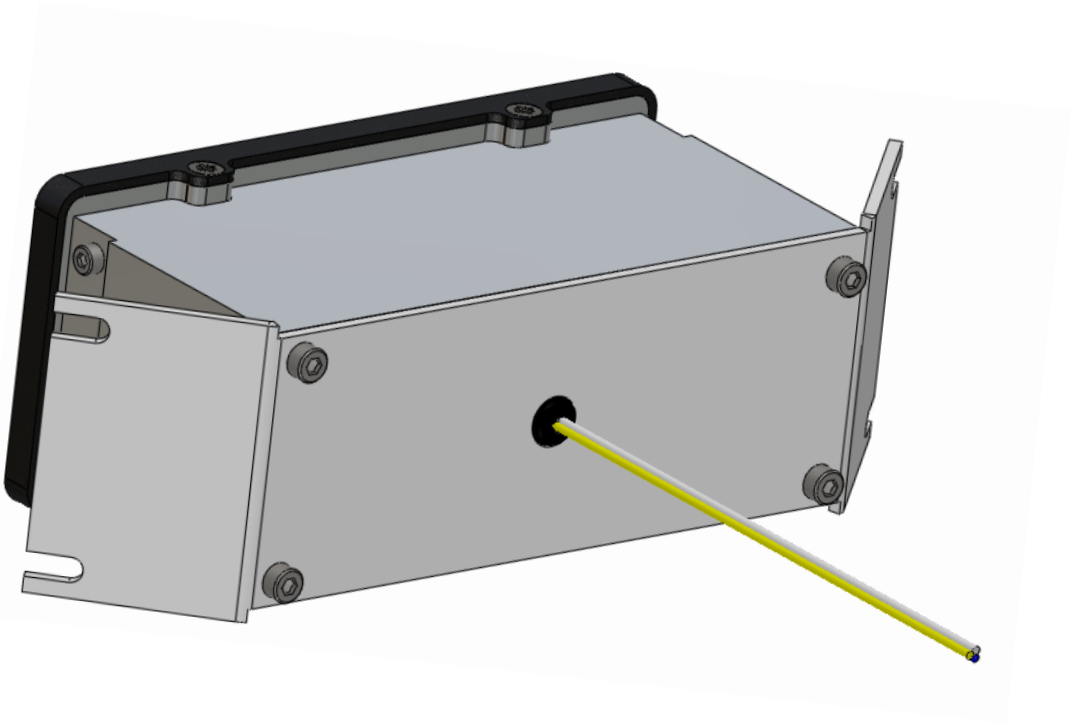
Every 100 hours or annually:

- Check that all LED are illuminated.
  WARNING: Due to the high light intensity emitted by the equipment, it is recommended to wear eyes protection.
  In case of LED failure, the equipment must be replaced or repaired.
  See documents reference:
  644 23 00 CMM 01 last issue
  644 24 00 CMM 01 last issue

- Check the lens aspect (absence of scratches or cracking). In case of presence of scratches or cracking on the glass, the equipment must be replaced or repaired.

Check the good state of the mechanical assembly and the electrical connections. In the case of a bad condition of the mechanical assembly or the electrical connection, they can be readjusted if they are not broken, otherwise the equipment must be replaced or repaired.

7 Annex 1 - 3D views



8 Annex 2 – 2D drawing