

Landing Light Replacement with XeVision HID Light and Ballast Compliance Checklist

14 CFR Par/ Paragraph	Subject	Method of Compliance	Documentation Reference
23.1357	Circuit protective devices	Design, Similarity	Dwg AA5B-0083-003
23.1365	Electric cables and equipment	Design, Similarity	Dwg AA5B-0083-003
23.1367	Switches	Design, Similarity	Dwg AA5B-0083-003
23.1383	Taxi and landing lights	Design	Dwg AA5B-0083-003

The above listed regulations were determined to be applicable to the requested field approval.

For 23.1357, 1365, and 1367, the drawing AA5B-0083-003 describes the aircraft certificated landing light electrical load, and shows the electrical load by comparison has been reduced for the new installation. The existing fuse protection, switches and cabling is maintained and is determined to be sufficient to carry the reduced electrical load by inspection. The routing for the shielded cable from the ballast to the HID lamp is routed along the left and lower cowling to provide maximum separation from all other power plant systems.

For 23.1383, the landing light location and mechanical installation is identical to the certificated design, so that (a), (b), and (d) are equivalent. For (c), the HID light is a major improvement in brightness over the certificated GE4509 bulb, with reduced electrical load, and has a much longer life in the high vibration environment of the nose cowling. The aircraft daytime visibility is also enhanced, thereby improving safety.

§ 23.1357 Circuit protective devices.

(a) Protective devices, such as fuses or circuit breakers, must be installed in all electrical circuits other than—

- (1) Main circuits of starter motors used during starting only; and
- (2) Circuits in which no hazard is presented by their omission.

(b) A protective device for a circuit essential to flight safety may not be used to protect any other circuit.

(c) Each resettable circuit protective device ("trip free" device in which the tripping mechanism cannot be overridden by the operating control) must be designed so that—

(1) A manual operation is required to restore service after tripping; and

(2) If an overload or circuit fault exists, the device will open the circuit regardless of the position of the operating control.

(d) If the ability to reset a circuit breaker or replace a fuse is essential to safety in flight, that circuit breaker or fuse must be so located and identified that it can be readily reset or replaced in flight.

(e) For fuses identified as replaceable in flight—

(1) There must be one spare of each rating or 50 percent spare fuses of each rating, whichever is greater; and

(2) The spare fuse(s) must be readily accessible to any required pilot.

[Doc. No. 4080, 29 FR 17955, Dec. 18, 1964; 30 FR 258, Jan. 9, 1965, as amended by Amdt. 23–20, 42 FR 36969, July 18, 1977]; Amdt. 23–43, 58 FR 18976, Apr. 9, 1993

§ 23.1365 Electric cables and equipment.

(a) Each electric connecting cable must be of adequate capacity.

(b) Any equipment that is associated with any electrical cable installation and that would overheat in the event of circuit overload or fault must be flame resistant. That equipment and the electrical cables must not emit dangerous quantities of toxic fumes.

(c) Main power cables (including generator cables) in the fuselage must be designed to allow a reasonable degree of deformation and stretching without failure and must—

(1) Be separated from flammable fluid lines; or

(2) Be shrouded by means of electrically insulated flexible conduit, or equivalent, which is in addition to the normal cable insulation.

(d) Means of identification must be provided for electrical cables, terminals, and connectors.

(e) Electrical cables must be installed such that the risk of mechanical damage and/or damage caused by fluids vapors, or sources of heat, is minimized.

(f) Where a cable cannot be protected by a circuit protection device or other overload protection, it must not cause a fire hazard under fault conditions.

[Doc. No. 4080, 29 FR 17955, Dec. 18, 1964, as amended by Amdt. 23–14, 38 FR 31824, Nov. 19, 1973; Amdt. 23–43, 58 FR 18977, Apr. 9, 1993; Amdt. 23–49, 61 FR 5169, Feb. 9, 1996]

§ 23.1367 Switches.

Each switch must be—

- (a) Able to carry its rated current;**
- (b) Constructed with enough distance or insulating material between current carrying parts and the housing so that vibration in flight will not cause shorting;**
- (c) Accessible to appropriate flight crewmembers; and**
- (d) Labeled as to operation and the circuit controlled.**

§ 23.1383 Taxi and landing lights.

Each taxi and landing light must be designed and installed so that:

- (a) No dangerous glare is visible to the pilots.**
- (b) The pilot is not seriously affected by halation.**
- (c) It provides enough light for night operations.**
- (d) It does not cause a fire hazard in any configuration.**

[Doc. No. 27806, 61 FR 5169, Feb. 9, 1996]