

CS 25.1707 System Separation; EWIS(See AMC 25.1707)

- (a) Each EWIS must be designed and installed with adequate physical separation from other EWIS and aeroplane systems so that an EWIS component failure will not create a hazardous condition. Unless otherwise stated, for the purposes of this paragraph, adequate physical separation must be achieved by separation distance or by a barrier that provides protection equivalent to that separation distance.
- (b) Each EWIS must be designed and installed such that any electrical interference likely to be present in the aeroplane will not result in hazardous effects upon the aeroplane or its systems except under extremely remote conditions.
- (c) Wires and cables carrying heavy current and their associated EWIS components must be designed and installed to ensure adequate physical separation and electrical isolation, so that damage to essential circuits will be minimised under fault conditions.
- (d) Each EWIS associated with independent aeroplane power sources or power sources connected in combination must be designed and installed to ensure adequate physical separation and electrical isolation so that a fault in any one aeroplane power source EWIS will not adversely affect any other independent power sources.

In addition:

- (1) Aeroplane independent electrical power sources must not share a common ground terminating location, and
 - (2) Aeroplane system's static grounds must not share a common ground terminating location with any of the aeroplane independent electrical power sources.
- (e) Except to the extent necessary to provide electrical connection to the fuel systems components the EWIS must be designed and installed with adequate physical separation from fuel lines and other fuel system components, such that
 - (1) An EWIS component failure will not create a hazardous condition, and
 - (2) Fuel leakage onto EWIS components will not create a hazardous condition.
- (f) Except to the extent necessary to provide electrical connection to the hydraulic systems components the EWIS must be designed and installed with adequate physical separation from hydraulic lines and other hydraulic system components, such that
 - (1) An EWIS component failure will not create a hazardous condition, and
 - (2) Hydraulic fluid leakage onto EWIS components will not create a hazardous condition.
- (g) Except to the extent necessary to provide electrical connection to the oxygen systems components the EWIS must be designed and installed with adequate physical separation from oxygen lines and other oxygen system components, such that an EWIS component failure will not create a hazardous condition.

(h) Except to the extent necessary to provide electrical connection to the water/waste systems components the EWIS must be designed and installed with adequate physical separation from water/waste lines and other water/waste system components, such that

(1) An EWIS component failure will not create a hazardous condition, and

(2) Water/waste leakage onto EWIS components will not create a hazardous condition.

(i) Electrical wiring interconnection systems must be designed and installed with adequate physical separation between the EWIS and flight or other mechanical control systems cables, and associated system components such that,

(1) Chafing, jamming, or other interference are prevented, and

(2) An EWIS component failure will not create a hazardous condition, and

(3) Failure of any flight or other mechanical control systems cables or systems components will not damage EWIS and create a hazardous condition.

(j) Electrical wiring interconnection systems must be designed and installed with adequate physical separation between the EWIS components and heated equipment, hot air ducts, and lines such that;

(1) An EWIS component failure will not create a hazardous condition, and

(2) Hot air leakage or generated heat onto EWIS components will not create a hazardous condition.

(k) For systems for which redundancy is required either by specific certification requirements, operating rules or by CS 25.1709, each applicable EWIS must be designed and installed with adequate physical separation.

(l) Each EWIS must be designed and installed so there is adequate physical separation between it and other aeroplane components and structure, and so that the EWIS is protected from sharp edges and corners, in order to minimise potential for abrasion/chafing, vibration damage, and other types of mechanical damage.