

Smoke and fumes

Background

In-flight fire, smoke, and noxious fumes are a significant hazard to flight safety which can lead to personnel injury, incapacitation and possible loss of the aircraft.

Definitions

For the purposes of this position paper the following definitions apply:

Smoke is a gaseous product that restricts vision which may or may not be physically harmful to persons.

Noxious fume is a gaseous product that is harmful to persons but may or may not restrict vision.

Fire exists when there is open flame due to combustion or excessive heat that could lead to open flame.

Systems

Flight crews should be provided with a system, whose elements are complementary and optimized to provide the maximum probability of detecting and extinguishing any in-flight fire, smoke, and/or noxious fumes within the aircraft.

Fire-fighting policy

The fire-fighting policy should consist of procedures, training, equipment, and design requirements in order to access and effectively fight any source of fire in any critical location, for example overhead areas, cargo holds and galleys. This will ensure that flight crews are prepared and able to respond immediately, effectively and in a coordinated manner to any in-flight fire.

In any case of possible fire, smoke, or noxious fumes in the aircraft, the applicable operating procedures should reflect the need to prepare to land the aircraft expeditiously, within a time frame that will minimize the possibility of an in-flight fire being ignited or sustained.

Flight crews should be provided with equipment, aircraft systems or procedures to ensure sufficient vision to perform their emergency and normal checklists, and be assured of sufficient vision to land the aircraft.

Flight crews should be provided with an independent clean source of breathable air (or oxygen) for the duration of the flight after a fire, smoke, or noxious fume event has been detected.

Flight crew incapacitation

Flight crews are considered incapacitated when the onset of smoke and/or noxious fumes prevents them from carrying out their normal flying duties due to reduced vision and cognitive function. Flight crews are also considered incapacitated if they do not have an independent clean source of breathable air (or oxygen) to sustain operation.

Optimum smoke/noxious fume protection

All crew stations should be equipped with a “smoke-hood”. Further, IFALPA considers that the optimum smoke/noxious fume protection design for flight crews is a full-face, quick-donning mask which should be constructed so as to enable the wearer to purge any smoke/noxious fumes which have accumulated on the inside. It should fit the wearer correctly and be able to accommodate glasses (spectacles).

During a smoke/noxious fume event in which the source cannot be isolated (continuous smoke/fume generation), means should be provided to reduce smoke/noxious fumes such that any residual smoke does not inhibit the flight crew from retaining aeroplane control to effect a safe landing.