

not only must procedures be known, but the means must be provided for their immediate and effective implementation. Successful handling of an emergency and successful evacuation depends upon many facets. Among others it depends on fire and toxic fumes being kept at a minimum, and there being sufficient lighting so that crewmembers can properly use emergency gear. Sufficient lighting is also necessary to permit the passenger to orient himself both in terms of danger and in terms of lifesaving equipment.

Historically, approximately 80 to 90 percent of all aircraft accidents occur without warning during either takeoff or landing, with no time for the crewmembers to prepare the passengers to survive impact. Yet, surprisingly, most of the passengers do survive impact, with the vast majority of loss of life occurring from other accident-associated causes.

This paper is directed toward care of passenger and crew during times of emergency and for simplification of the overall aspects of accident survival which has been divided basically into three categories:

- (1) Cabin lighting and electrical equipment;
- (2) Cabin environment as it applies to safety; and
- (3) Emergency evacuation.

Lighting during normal flight can be categorized as the general overall illumination within the confines of the cabin, including illumination of emergency equipment location areas. Light during an emergency can be categorized as the amount of light that is "necessary" to permit the flight crew to perform required functions in the implementation of egress systems, to permit the passenger to orient himself with means of egress from disabled aircraft, and that amount of light that would be required to adequately illuminate the emergency equipment, emergency equipment location, and emergency equipment instruction placarding in order that rapid and efficient passenger evacuation would be possible.

General cabin lighting needs in the primary areas of the cabin and the secondary areas of the small enclosures or semienclosures such as the galley, closet, and lavatories, should provide sufficient candlepower to permit the reading of instruction placards and to permit visual aids in the handling of unlocking devices on all emergency equipment located in these areas.

Emphasis is placed on adequate lighting of the exit areas with special attention given to increasing that light should an emergency arise. This aspect of cabin lighting will be discussed in more detail later.

Area locations for emergency equipment such as the slides, fire extinguishers, axes, toggle switches for the main oxygen supply, life-vests, liferafts, liferaft compartment lock, and first aid kits should be illuminated sufficiently to permit rapid handling and use. The surrounding area should be well lighted without the light shining directly into the eyes of the passenger attempting to use these items. Yet it should be located between the item and the person so as to avoid causing either crewmember or passenger to be working in his own shadow. There should be sufficient brightness to permit visual aid in handling as well as in reading the operational instructions.

Regular or normal lighting of the cabin during a routine flight does not provide sufficient lighting for an emergency. Because of the proba-