230. AIR CARRIER OPERATIONS BULLETIN NO. 1-94-29

TRAINING ON PROTECTIVE BREATHING EQUIPMENT, OTHER FIRE CONTROL EQUIPMENT, AND RELATED TRAINING DRILLS.

This bulletin provides information regarding training on protective breathing equipment (PBE), other fire control equipment, and related training drills.

a. Discussion. Present regulations require that air carrier training programs include:

(1) Individual instruction in the location, function, and operation of portable fire extinguishers, with emphasis on the type of extinguishers for use on different classes of fires.

(2) Instruction to crewmembers in the handling of inflight fires, fires which occur on the surface, and smoke control procedures with emphasis on electrical equipment and related circuit breakers.

(3) Two drills are associated with fire control. One drill is a fire extinguisher drill and the second drill is a PBE/firefighting drill.

(a) The first, or fire extinguisher drill, is required every 24 months. During this drill, each crewmember must operate each type of installed hand fire extinguisher.

(b) The second, or PBE/firefighting drill, is a one-time drill consisting of two exercises. Exercise one requires crewmembers to discharge a fire extinguisher and fight an actual fire. Exercise two requires crewmembers to operate the PBE. The exercises of this PBE/firefighting drill may be combined or they may be split.

(1) When the exercises of the PBE/firefighting drill are combined, the crewmember discharges a fire extinguisher while fighting an actual fire and wearing PBE.

(2) When a “split drill” is used, the PBE/firefighting drill is accomplished in two exercises.

(aa) Exercise one. The crewmember uses the PBE while fighting a simulated fire.

(bb) Exercise two. The crewmember discharges a fire extinguisher and fights an actual fire.

NOTE: Some operators have elected to use an installed fire extinguisher when accomplishing the PBE/firefighting drill. When this is done, the operator could

simultaneously meet the requirements of the fire extinguishing drill required for the 24 month period.

b. Inspectors and members of the industry have asked for clarification about the use of fire extinguishers.

(1) During the fire extinguisher drill required every 24 months, each type of fire extinguisher installed on the airplanes should be used.

(2) Principal operations inspectors (POI) may approve the use of fire extinguishers which closely simulate the ones which are installed on the airplane.

(3) Crewmembers should remove each type of fire extinguisher from brackets. The brackets should be the same as those on the airplane.

(4) Crewmembers should demonstrate the proper operation of the fire extinguisher including pulling the trigger. The fire extinguisher does not have to be charged. Nevertheless, it is desirable to have it charged with a material which simulates the actual fire extinguishing agent.

(5) Any fire extinguisher may be used when the crewmember fights an actual fire as long as the crewmember performs an additional fire extinguisher drill using a hand fire extinguisher of the type installed by the operator. The purpose of fighting an actual fire is to provide crewmembers with the opportunity to experience the effects of facing an actual fire. Of course, air carriers may elect to use an installed fire extinguisher for the actual firefighting drill.

(6) There is no requirement that a HALON fire extinguisher must be discharged during the firefighting drill required by FAR Sections 121.417 and 135.331. The discharge of HALON for training purposes is not appropriate unless a training facility is used that is specifically designed to prevent harm to the environment from the discharged HALON. When such facilities are not used, other fire extinguishing agents, which are not damaging to the environment, should be used during the drills.

c. PBE training should include:

(1) Accurate simulation of PBE installed on the aircraft. POI's should ensure that training PBE properly simulates the weight, method of donning, method of activation, and appearance of the actual PBE.

(2) Removing PBE from its stowage area and container/pouch. Flight attendants and pilots have been surprised by the forces necessary to remove the training PBE from pouches. The forces necessary to open these pouches was greater than the forces necessary to open the pouches used in training. Therefore, it is important that the pouches used to store the training PBE be accurately replicated in the training

situation. For example, if the PBE on the aircraft is kept in stapled pouches, which could require as much as 28 pounds of force to open, the forces necessary to open these pouches should be simulated when opening the "training pouch."

(3) Donning the PBE, activating it, and other actions necessary to use the installed equipment.

d. There have been many questions about the nature and value of combating an actual fire.

(1) Many people confuse meeting training objectives of fighting an actual fire with the psychological benefits which can be gained through experiencing an actual fire. While it is true that there are cases where the training objectives can be met through the use of an actual fire, the major benefit of having crewmembers fight an actual fire is psychological. The psychological effect of facing an actual fire cannot be achieved through simulation. The National Fire Protection Agency's (NFPA) Bulletin No. 406, Aircraft Hand Fire Extinguishers, states that live fire training provides crewmembers with psychological conditioning, firefighting techniques, and knowledge of extinguishing agent capabilities and limitations under actual fire situations. The bulletin also recommends firefighting training with an actual fire be reinforced by classroom instruction using manipulative skills training (simulation). Recommended fire simulation scenarios include galley, lavatory, flight deck, closed compartment, and flammable liquid fires.

(2) Some of the questions regard the composition of an actual fire. One answer to this question is contained in the preamble to the amendment. The preamble says, in part, that an actual fire means an ignited combustible material, in controlled conditions of a sufficient magnitude and duration to accomplish the training objectives set forth in the rule.

(3) Industry practice answers some more of the questions regarding firefighting training. Industry practice shows that air carriers frequently contact local or airport fire departments, and, in some cases, fire department personnel are present during training. Many local fire departments provide training course outlines on the use of small, hand-held fire extinguishers and they also typically provide training on the operation of hand-held fire extinguishers to employees of local businesses and organizations. These employees are given the opportunity to extinguish an actual fire under fire department supervision.

(4) Among the materials used by fire departments and air carriers in creating actual fires are kerosene or diesel fuel floating on water in a metal pan or drum. These types of fires are ignited outdoors in an open area. Some air carriers and fire departments have constructed indoor fire rooms or fire pits in which they ignite materials such as seat cushions and use exhaust fans to eliminate smoke following the firefighting training. One industry representative suggested that the rule would allow a person to light a match and that would satisfy the requirement. This is

obviously not the intent of the rule and could not be part of an approved training program.

e. There have also been questions about fire simulation. A simulated fire is an artificial replication of a fire used to create the various firefighting situations that could occur on an aircraft. This could be electric lights that the instructor could control by turning them on and off to show that the crewmember has extinguished the fire correctly. Smoke simulation is a component of the fire simulation described in the guidance material. Artificial smoke may be used to simulate smoke coming from a galley oven, under a lavatory door, or under a passenger seat.

f. Proper use of PBE. Crewmembers would not necessarily use PBE every time there is a fire. The PBE should be used whenever the crewmember determines circumstances in which dense smoke and/or fumes are present and do not permit effective close firefighting techniques or when the fire is of unknown origin. There is some debate about crewmembers donning PBE when there is a fire on the ground and an evacuation is immediate. The most important variable in a successful evacuation is speed. If the crewmember is at the door, the need to don the PBE may not be great unless the crewmember is going back into the cabin. Air carrier manuals and training programs should contain procedures indicating the proper use of PBE.

g. POI's and other inspectors have requested information about verification that a crewmember has accomplished the firefighting exercise in PBE drill with another airline. The regulation allows credit to be given toward the completion of the PBE drill including fighting an actual fire during an FAA-approved training program. This verification is accomplished by obtaining a written copy of official training records. The records should include the information that the crewmember accomplished the PBE/firefighting drill on a given date. This record should be accompanied by a signed copy of that portion of the FAA-approved training program which address the PBE/firefighting drill. Upon review of this information, inspectors should be able to verify that the crewmember has completed all parts of the PBE/firefighting drill including fighting an actual fire. Unless documents clearly state that an actual fire was fought, the crewmember must perform the firefighting drill again.

h. POI's should bring this bulletin to the attention of their assigned operators and ensure they have the proper procedures in their manuals and training programs and that the proper equipment is used in training.