Inflatable Emergency Equipment: Evaluation of individual inflatable life preserver donning tests

Abstract

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The certification process for aviation life preservers includes tests of donning performance to distinguish between designs that can and cannot be donned quickly and correctly. Currently, the donning test methods are prescribed in FAA Technical Standard Order (TSO) C13f, which stipulates that the only donning information that can be provided to naïve test participants is the typical preflight safety briefing and donning demonstration. The wisdom of providing such a briefing/demonstration has been questioned by safety researchers, since passengers may not receive or pay attention to this critical information before attempting to don a life preserver in an actual emergency. This study, which included 156 participants, examined different levels of donning instruction provided to test participants before such donning tests; included was a range of information, from none at all, to a standard preflight briefing/ demonstration. Life preservers used for the tests included designs currently installed on transport airplanes, as well as older types approved under earlier TSOs, and an experimental prototype developed by the FAA Protection and Survival Laboratory at CAMI. Overall, 65.4% of participants were able to don life preservers correctly, but only 8.3% were able to complete the donning within the 25-second time limit allowed by TSO-C13f. Possible modification of the current test procedure is discussed in terms of time-consuming activities related to life preserver donning; these include opening the life preserver package, distinguishing the front of the life preserver from the back, and securing/adjusting the waist strap for proper fit.