

Abstract

Rotorcraft External Airbag Protection System (REAPS) Development Program

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The FAA has made significant strides in the last 10 years in developing and implementing sound crashworthy design criteria for civil normal and transport category rotorcraft as evidenced by amendments to PART 27 & 29 of the AIRWORTHINESS STANDARDS. However rotorcraft designed, manufactured or qualified prior to this, have relatively poor crash safety, and retrofit for improvements is both cost and weight intensive. The ability to obtain sound crash resistant capabilities for non-crashworthy rotorcraft at relatively low weight and cost has not existed in the past. The current development of a Rotorcraft External Airbag Protection System (REAPS) has significant potential to provide high levels of crash safety to old and new aircraft with attendant prevention of injuries and fatalities. In addition REAPS can make what were total loss mishaps, minor damage ones, all in a cost and weight effective manner that is easily retrofitable. This presentation will describe REAPS and will include videos of full-scale aircraft crash tests at high impact velocities. This includes tests onto soil and water, both with and without external airbags so that one can visually assess the crash safety potential of REAPS. Technology developments required to make REAPS a feasible concept for rotorcraft implementation will be presented in the context of the current development effort.