THE DEVELOPMENT OF A FIRE DETECTION AND REMOTE EXTINGUSHER SYSTEM TO BE USED ON FEDEX AIRCRAFT.

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On September 5, 1996 Federal Express experienced a fire onboard one of our DC10-10 aircraft. This event resulted in the total destruction of the aircraft and a loss of the freight. The crew escaped the aircraft with only minor injuries. In April 2004, we experienced a second fire resulting in total loss of an F27 and its cargo. The crew escaped unharmed. Both fires originated on the upper deck (Class "E" compartment) in the non- hazardous freight area. This freight is generally inaccessible to the flight crews once the aircraft is airborne.

In 1998, Federal Express initiated a project to develop an extinguishing method for fires originating in the class "E" compartment. Before a solution could be developed, it was necessary to understand the basic cause of the fires. This "discovery process" required extensive testing: We determined that any such remote system would first require us to design a fire detection method that could pinpoint the fire's location. Further, we discovered that flooding a container with Halon® was ineffective when used on a deep seeded fire. Our testing showed that when Halon® was flooded into a container it has a very short life. Therefore, Halon® cannot be assumed to extinguish, or even suppress this fire. This discovery prompted us to find a new agent that would be effective when used to combat a container fire; and a method of dispersing the agent to the fire. It was also imperative that the systems developed not affect the time sensitive operations of FedEx.

During the initial development, a number of weaknesses were discovered in our freight handling systems that are common to our industry. As FedEx handles both containers and pallets, one problem in particular had to be addressed: Our systems worked well on containerized freight but was not effective when used on palletized freight. This forced us to develop a method to address both types of ULDs.

To date, we have had great success with our system and have a proof of concept certified system on a MD10-10 aircraft. The STC was granted on August 4, 2006.