

NTSB Most Wanted List

Critical changes needed to reduce transportation accidents and save lives.

Improve Fire Safety in Transportation

The National Transportation Safety Board is an independent Federal agency charged by Congress with investigating every civil aviation accident the United States and significant accidents in other modes of transportation – railroad, highway, marine and pipeline. The NTSB determines the probable cause of the accidents and issues safety recommendations aimed at preventing future accidents. In addition, the NTSB carries out special studies concerning transportation safety and coordinates the resources of the Federal Government and other organizations to provide assistance to victims and their family members impacted by major transportation disasters.



**National
Transportation
Safety Board**

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What is the issue?

Fire safety combines many elements, such as design, materials, and fire detection and suppression technologies. NTSB accident investigations have revealed deficiencies in the implementation of fire safety in many modes of transportation.

In 2005, the NTSB found deficiencies in design, materials, and fire detection capabilities that led to a tragic highway accident near Wilmer, Texas. This motorcoach fire was caused by ignition of a tire and resulted in the death of 23 passengers.

In 1996, near Juneau, Alaska, a fire in the main laundry area of a passenger ship killed 5 and injured 56. In 2000, a fire in the unmanned engine room of a commuter ferry in the Hudson River caused \$1.2 million in damages, but all people on board were rescued. In Boston Harbor in 2006, another fire in the unmanned engine room of a commuter ferry resulted in no serious injuries or fatalities, but damages were estimated at \$800,000. These accidents were exacerbated by inadequate fire detection.

Three cargo fire accidents in the past 6 years have resulted in the deaths of two flight crews and the total loss of three aircraft. Two of those accidents involved Boeing 747-400 freighters. The NTSB involvement in these accident investigations revealed deficiencies in the fire safety strategy employed both for fire detection and fire suppression. The construction material for cargo containers was also identified as being directly related to the fire protection of cargo compartments.

What can be done . . .

Recognizing that fire safety issues can be unique to certain modes, vehicle types, or operating conditions, it is necessary to address each case individually. There is, however, a common need in all modes of transportation for detecting a fire, or impending fire, as early as possible. The installation of fire detection devices in the engine rooms of marine small passenger vessels could provide an early warning to the crew. For motorcoaches, having the capability of monitoring temperatures in the wheel wells could prevent an impending tire fire. In cargo aircraft, detecting fires before they begin to burn through the cargo containers could provide the crew additional response time.

In addition to fire detection, the maintenance of fire safety also requires fire suppression. Vehicles such as cargo aircraft and marine small passenger vessels often are a long way from a suitable landing area or a dock. It is imperative that such vehicles be capable of

controlling a fire. Fire suppression systems in the cargo compartments or containers of cargo aircraft and in the engine rooms of marine small passenger vessels can lessen this threat.

Material selection and design constitute the more prescriptive layer of fire safety and must be tailored to a particular situation or fire threat. For instance, in motorcoaches, the use of fire-resistant materials for sidewalls in fire-prone areas could prevent fires from entering the passenger compartment. In aircraft cargo containers, the selection of fire-resistant materials could help limit available fuel in the event of a fire in the cargo compartment.



United Parcel Service Company Flight 1307

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