

NATIONAL TRANSPORTATION SAFETY BOARD  
WASHINGTON, D.C.

Log 1618

ISSUED: December 22, 1983

Forwarded to:

Honorable J. Lynn Helms  
Administrator  
Federal Aviation Administration  
Washington, D.C. 20591

SAFETY RECOMMENDATION(S)

A-83-84 through -87

On January 9, 1983, about 1941 central standard time, Republic Airlines Flight 927, a CV-580 with 3 crewmembers and 20 passengers on board, struck a snowbank along the right side of runway 5/23 while landing at night during a snowstorm at Brainerd, Minnesota. One passenger was killed, and a child was seriously injured when struck by a propeller blade which had separated and penetrated the passenger cabin. Brief ground fires erupted in the forward sections of both engines which had separated when the airplane struck the snowbank; one engine continued to operate until well after the occupants evacuated the airplane. Passengers and crewmembers had to walk to the airport terminal which was about one-half mile from the accident scene. The seriously injured child was carried by passengers while other passengers maintained pressure to control the bleeding of her severed leg. During the investigation of this accident, several shortcomings were discovered in the airport's emergency response to this accident and in the degree of preparedness of crash/fire/rescue (CFR) personnel and equipment. Each is discussed in detail below:

1. Notification of Equipment Status

About 1615, on January 9, 1983, the Republic Airlines agent at Brainerd Airport attempted to use the airport CFR truck to check the runway conditions before the arrival of a Republic Airlines flight. He was unable to start the truck, and he used his private vehicle to check the runway. The Safety Board's investigation found no reason for the truck's not starting and in fact the truck was used by airport employees immediately after the accident. Additionally, the agent stated that he only tried to start the truck briefly, and "...it didn't kick right in, and I took my car." As a result, the Safety Board concluded that, despite the inability of the agent to start the truck, it was operational at the time of the accident.

The Safety Board is concerned that when the agent concluded that the CFR truck was inoperable, he failed to alert the airport manager, the part-time firefighter, or Republic Airlines Flight 927, until after Flight 927 had landed and drifted off the runway. Only when the flight failed to taxi to the terminal after landing and a decision had been made by the station agent and the part-time fireman to look for the airplane, did the agent tell the fireman that he had not been able to start the CFR truck. They went to the airplane in the firefighter's truck.

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Although the airport operations manual (AOM) contained an agreement that the city fire department would furnish apparatus in the event that the airport CFR unit was out of service, the AOM contained no instructions to airport tenants to inform the airport operator or to notify the city fire department whenever the tenants learned that the CFR unit was out of service for air carrier operations. Since it is typical at smaller Index A and B airports for airport tenants to be the only persons present during evenings and weekends, these persons, although not responsible for assuring the operability and availability of CFR vehicles, are the ones likely to learn during the time when airport employees are not on duty that a CFR vehicle is out of service. It is possible, as the accident at Brainerd illustrated, that the airport operator would not be informed and would remain unaware that CFR coverage would not be available during air carrier operations. The Safety Board believes that the Federal Aviation Administration (FAA) should take steps necessary to require that airport operations manuals (AOM) contain (1) explicit instructions that backup fire departments are to be promptly notified whenever a change in status of the airport equipment could necessitate the services of the backup fire departments to respond to an air carrier emergency, and (2) procedures for making all airport and airport tenant employees who operate emergency equipment knowledgeable of the notification instructions.

## 2. CFR Truck

The CFR truck was a 1/4-ton pickup truck with a palletized "Fire Boss" <sup>1/</sup> apparatus mounted on the truck bed. Although the truck carried two proximity suits, it carried no rescue/support equipment such as forced entry tools, ladders, auxiliary breathing apparatus, spotlights, or a public address system. A portable Unicom transceiver was carried on the truck; however, equipment to communicate with off-airport police or fire units was not. It appears that the airport manager never considered equipping the CFR truck with a radio to permit communications with the city police/fire dispatchers. Thus, it proved immaterial in this instance whether the CFR truck or the part-time firefighter's personal truck was used to respond to the accident since neither truck was equipped with a radio to permit onscene communications with the city dispatcher to request assistance. As described earlier, it was necessary for the Republic agent and the firefighter first to drive to the accident scene to determine the extent of the accident and then to drive to the terminal to telephone for assistance. The Safety Board believes that CFR vehicles and especially vehicles at Index A and B airports, which in most cases have no full-time control towers, should be equipped with radios which are capable of two-way communications with off-airport police and fire departments as well as with aircraft.

Although 14 CFR Part 139 is specific as to the types and amounts of firefighting equipment and agents required to be available at Index A through E airports, Part 139 is silent on what constitutes "rescue" equipment. Thus, there is no regulatory guidance to providing equipment which will permit firefighters to perform the "rescue" part of their crash/fire/rescue duties. Advisory Circulars (AC) 150/5220-14 and 150/5220-6B list rescue/support equipment which airport operators can use to outfit their CFR vehicles. Unfortunately, the AC's are merely advisory and the equipment actually installed is subject to interpretation and negotiation between airport operators, CFR personnel, and FAA inspectors. The Safety Board believes that 14 CFR 139.49 should prescribe a minimum list of rescue/support equipment that must be carried on each CFR vehicle.

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<sup>1/</sup> A "Fire Boss" is a self-contained skid-mounted, CFR unit capable of dispensing 450 pounds of dry chemical (Purple K) and 100 gallons of water for aqueous film forming foam (AFFF) which is approved for Index A airports.

### 3. CFR Training

The Brainerd Airport employs two types of employees to staff the CFR truck: full-time maintenance and service employees who also perform CFR duties during regular business hours, and part-time city firefighters who staff, on a rotation schedule, the CFR truck at night and on weekends during Republic Airlines operations. The airport's full-time employees had received CFR training at Minneapolis-St. Paul International Airport. However, a review of their training records did not show any specific familiarization training on the CV-580, to enable them to locate and operate exits, to shut-off electrical power, or to locate fuel tanks.

The city firefighter on duty at the time of the accident had discharged the CFR apparatus only once in the 3 to 4 years that he had been working at the airport, and that was done on his own initiative, to "see how it worked." Neither he nor the two other part-time firefighters had received any CFR training, nor had they received familiarization training on the CV-580 or in the use of the portable Unicom transceiver.

The Brainerd Airport emergency plan was developed and approved based on the planned utilization of airport-employed firefighters. Although Republic Airlines station personnel are present for each airline arrival and departure, none of the Republic Airlines employees had received any training in the operation of the airport's CFR apparatus, nor did they have a role in the CFR portion of the emergency plan.

During regular business hours at Brainerd, the airport's service and maintenance personnel are expected to respond to an aircraft emergency in the CFR truck. Although the CFR apparatus can be operated by one person, a second or a third person trained in the use of the equipment could provide invaluable assistance during the evacuation of aircraft occupants, in repositioning the CFR truck, and in directing the arrival of off-airport fire apparatus. During nighttime and weekend air carrier operations, however, the part-time firefighter is the only person on the airport property who is knowledgeable in firefighting techniques (albeit not in CFR techniques) and who can respond to an airplane emergency. The Safety Board believes that this person would be much more effective in fighting a fire and in providing assistance to aircraft occupants if he was assisted by Republic Airlines agents trained in CFR techniques. Additionally, it is logical to include the agents in the emergency plan, since they would be present in the event of an accident and could provide valuable assistance.

The Safety Board has previously recommended to the FAA and to others <sup>2/</sup> that tenants at smaller airports should be provided training in the rudiments of the operation of airport CFR apparatus as well as in the basic techniques of attacking structural fires which can occur on an airport. In response to some of these recommendations, the State of Alaska provided 2 days of training for tenants and airport employees at the Ketchikan Airport. The Safety Board was pleased with the response of the State of Alaska and has encouraged other States also to provide similar training. The Safety Board believes that the role of the FAA should be to provide dynamic, positive, and innovative leadership in encouraging the training of airport tenants in the rudiments of CFR techniques.

<sup>2/</sup> Safety Recommendations A-76-142 and -143 were issued to the FAA on January 23, 1977, following the crash of an Alaskan Airlines B-727 at Ketchikan, Alaska. Safety Recommendations A-77-012 and -013 were issued to the FAA on March 14, 1977, following a review by the Safety Board of statistics of the number of noncertificated airports serving commuter aircraft. Safety Recommendations A-80-016 and -017 were issued to the Virgin Islands Port Authority on March 5, 1980, following the crash of a Prinair aircraft at the Alexander Hamilton Airport, St. Croix, Virgin Islands.

The Safety Board is aware that the FAA is conducting a comprehensive review of 14 CFR Part 139 for the certification of airports and plans to issue a Notice of Proposed Rulemaking (NPRM) in early 1984. The Safety Board looks forward to reviewing and commenting on the NPRM. As you know, the Safety Board is conducting a comprehensive examination of the certification of Index C, D, and E airports and a report of its findings will be released in late 1983. We believe that our past recommendations and our forthcoming report on airport certification, as well as the comments and proposals made by the participants at the FAA's July 14, 1983, meeting on airport certification, can provide a sound basis for improvements to 14 CFR Part 139. This fatal air carrier accident illustrates the shortcomings in the emergency response capabilities at smaller airports and further reinforces the need for improvements in the requirements of 14 CFR Part 139.

Therefore, the National Transportation Safety Board recommends that the Federal Aviation Administration:

Require that airport operations manuals (AOM) contain explicit instructions and procedures for the reporting of any known change in the operating status of the airport crash/fire/rescue (CFR) equipment to backup fire departments providing CFR services and that all airport or airport tenant employees who may be required to operate airport CFR equipment be knowledgeable of the instructions and procedures. (Class II, Priority Action) (A-83-84)

Amend 14 CFR 139.49 to prescribe a minimum list of rescue/support equipment to be carried on each crash/fire/rescue vehicle which is commensurate with the airport's index of firefighting and rescue service. (Class II, Priority Action) (A-83-85)

Develop training programs for airport tenants at Index A and B airports on the basic techniques of fighting aircraft fires for use by airport inspectors in providing guidance to airport operators. (Class II, Priority Action) (A-83-86)

Issue appropriate notices and instructions to airport inspectors to encourage the operators of Index A and B airports, as well as State airport officials, to provide hands-on firefighting training to airport tenants. (Class II, Priority Action) (A-83-87)

BURNETT, Chairman, GOLDMAN, Vice Chairman, and McADAMS, BURSLEY, and ENGEN, Members, concurred in these recommendations.

By: Jim Burnett  
Chairman

