

~~36. Evacuation time was approximately 5 minutes.~~

~~3.2 Probable Cause~~

~~The National Transportation Safety Board determined that the probable cause of the accident was the sequential failure of two tires on the left main landing gear and the resultant failure of another tire on the same landing gear at a critical time during the takeoff roll. These failures resulted in the captain's decision to reject the takeoff.~~

~~Contributing to the accident was the cumulative effect of the partial loss of aircraft braking because of the failed tires and the reduced braking friction achievable on the wet runway surface which increased the accelerate stop distance to a value greater than the available runway length. These factors prevented the captain from stopping the aircraft within the runway confines.~~

~~The failure of the left main landing gear and the consequent rupture of the left wing fuel tanks resulted in an intense fire which added to the severity of the accident.~~

4. SAFETY RECOMMENDATIONS

As a result of this accident, the Safety Board, on September 6, 1978, recommended that the Federal Aviation Administration:

"Assess current tire rating criteria, as used by the Tire & Rim Association and as interpreted by airframe designers and Federal Standards, in terms of compatibility of tire, airframe, and intended operation to assure that adequate margins are provided for all normal conditions. (Class II, Priority Action) (A-78-67)

"Upgrade Technical Standard Order C-62b to reflect current engineering practices and operational conditions in both the specifications for performance standards and certification test requirements. (Class II, Priority Action) (A-78-68)

"Insure that the tire is compatible with the airframe by considering this compatibility during the airplane certification. Tire loads which result from design peculiarities and normal variations in maintenance and operational practices must be considered. (Class II, Priority Action) (A-78-69)

"Issue a new Technical Standard Order to specify performance standards and qualification test requirements for retreaded tires. (Class II, Priority Action) (A-78-70)

"Prohibit different model tires or tires manufactured by different manufacturers from being mounted on the same axle where different characteristics between such tires can affect tire loading under normal operating conditions. (Class I, Urgent Action) (A-78-71)

"Require that operator maintenance and operational practices regarding tire usage, such as taxi speeds and distances and inflation pressures, are in accordance with the tire manufacturers' recommendations. (Class II, Priority Action) (A-78-72)

"Expedite the development of a nondestructive inspection technique which would detect flaws in tire carcasses. Require nondestructive inspection for new and retreaded tires and develop criteria based upon such inspection to withdraw a faulty tire from service. (Class II, Priority Action) (A-78-73)

"In the interim, establish a safe upper limit for the number of retread cycles allowed each model tire. (Class II, Priority Action) (A-78-74)"

On November 17, 1978; also as a result of this accident, the Safety Board recommended that the Federal Aviation Administration:

"Review and revise the accelerate-stop criteria required to be demonstrated during aircraft certification and used during operations to insure that they consider the effects of wet runway conditions and the most frequent and critical causes of rejected takeoffs. (Class II, Priority Action) (A-78-84)

"Evaluate, with industry, the British CAA wet runway normal and rejected takeoff requirements for applicability as a U.S. standard. (Class II, Priority Action) (A-78-85)

"Revise Advisory Circular 121-44 to provide guidance on (1) programming aircraft simulators to account for the degradation of aircraft deceleration performance on wet runways during landings and rejected takeoffs and (2) installing instrumentation to enable evaluation of pilot performance during RTO's on critical length runways, particularly the response times in activating stopping devices and the level of brake application to insure that such performance is compatible with a minimum-distance stop. (Class II, Priority Action) (A-78-86)

"Insure that pilot training programs include appropriate information regarding optimum rejected takeoff procedures at maximum weights, on wet and dry runways, and at speeds at or near V_1 , and for rejected takeoffs which must be initiated as a result of engine or tire failures. (Class II, Priority Action) (A-78-87)

"Encourage operators of turbine engine-powered aircraft to include in flight manuals the maximum use of aircraft deceleration devices when an RTO is initiated at or near decision speed (V₁) on wet or dry runways of critical length. (Class II, Priority Action) (A-78-88)

"Develop and publish an Advisory Circular, or include in other appropriate documents available to air carrier and other pilots, general accelerate-stop performance data for RTO's on wet runways necessitated by engine and tire failures. Emphasize the need for maximum braking procedures when an RTO is required at high gross weights and speeds. (Class II, Priority Action) (A-78-89)"

BY THE NATIONAL TRANSPORTATION SAFETY BOARD

/s/ JAMES B. KING
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/s/ ELWOOD T. DRIVER
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January 25, 1979