Boston and Maine Corp., Single Diesel-Powered Passenger Car 563 Collision with Oxbow Transport Co Tank Truck

Executive Summary
At 12:10 a.m. on December 28, 1966, eastbound first-class passenger train No. 563 consisting of a single car diesel-powered passenger unit operated by the Boston and Maine Corporation, collided with a northbound motor tank truck owned and operated by the Oxbow Transport Corporation of Lexington, Massachusetts, stopped across the Second Street railroad-highway grade crossing at Everett, Massachusetts. The collision resulted in the death of 11 of a total of 28 passengers and 2 of the 3 train crew members, and other injuries and damage to property. The semitrailer of the tank truck containing 8,300 gallons of fuel oil ruptured on impact covering the forward end of the single railroad passenger car with the flammable oil. Low-order explosions and a rapid spread of flames immediately covered the forward section of the car. The fatalities were due to thermal burns and smoke inhalation, rather than from collision injuries. The truck driver had left the vehicle prior to the collision and was not injured.

Probable Cause
The Board determines that the probable cause of this accident was the loss of air pressure in the brake systems for the tractor and trailer which resulted in an automatic application of the brakes that could not be released from the cab of the tractor, and therefore held the tractor trailer directly across the Boston and Maine track at the collision point.

The Board further determines that the cause of most of the deaths and injuries was not the impact of the collision, but the lack of emergency exits in the car, in addition to the inward-opening center rear door that became jammed in a closed position by persons attempting to escape.


Recommendation: THE NTSB RECOMMENDS THAT THE SECRETARY OF TRANSPORTATION, WITH REPRESENTATION FROM THE NATIONAL TRANSPORTATION SAFETY BOARD, CONTINUE TO STUDY AND REVIEW THE RAILROAD-HIGHWAY GRADE CROSSING PROBLEM IN ALL OF ITS ASPECTS. REFERENCE IS
Recommendation: THE NTSB RECOMMENDS THAT THE SECRETARY OF TRANSPORTATION: SEEK LEGISLATION TO AUTHORIZE THE FEDERAL RAILROAD ADMINISTRATOR TO PRESCRIBE REGULATIONS REQUIRING: (A) EMERGENCY MEANS OF ESCAPE FROM RAILROAD PASSENGER CARS. (B) EMERGENCY LIGHTING FOR RAILROAD PASSENGER CARS.

Recommendation: THE NTSB NOTES THAT ON PASSENGER-CARRYING RAILROAD CARS, THE EXIT DOORS NORMALLY OPEN INWARD. THE BOARD RECOMMENDS THAT THE FEDERAL RAILROAD ADMINISTRATOR: INITIATE STUDIES AND ACTION THAT WILL INSURE THAT, IN EMERGENCY, PASSENGERS CAN RELIABLY ESCAPE FROM REGULAR EXITS OF PASSENGER-CARRYING RAILROAD CARS.

Recommendation: THE NTSB RECOMMENDS THAT THE DEPARTMENT OF TRANSPORTATION: INCLUDE IN ITS GRADE-CROSSING PROTECTION STUDY AND ACTION PROGRAM THE PROBLEM OF MOTOR VEHICLES STALLING ON RAILROAD TRACKS AND METHODS OF WARNING APPROACHING TRAINS TO PREVENT A COLLISION. THE STUDY SHOULD INCLUDE ALL TECHNICAL METHODS WHICH COULD HAVE A BEARING ON THE PROBLEM SUCH AS MEANS OF WARNING THE CREW OF THE ONCOMING TRAIN, SPECIAL MEANS TO BE CARRIED BY VEHICLES LOADED WITH HAZARDOUS CARGO FOR ACTIVATING THE RAILROAD SIGNAL SYSTEM, AND METHODS OF REDUCING THE EMERGENCY STOPPING DISTANCE OF EXISTING AND FUTURE RAIL EQUIPMENT.

Recommendation: THE NTSB RECOMMENDS THAT THE FEDERAL HIGHWAY ADMINISTRATOR: TAKE UNDER IMMEDIATE CONSIDERATION THE REVISION OF EXISTING REGULATIONS UNDER HIS JURISDICTION IN ORDER TO: (A) REQUIRE AN EMERGENCY MEANS WITHIN THE CAB OF A MOTOR-TRUCK BY WHICH BRAKES, WHICH HAVE BEEN APPLIED AUTOMATICALLY TO THE TRACTOR AND/OR TRAILER BECAUSE OF THE LOSS OF AIR PRESSURE IN THE BRAKING SYSTEMS CAN AGAIN BE RELEASED. (B) REQUIRE MOTOR VEHICLES OF UNUSUAL SIZE AND THOSE CARRYING FLAMMABLE, TOXIC OR OTHER HAZARDOUS CARGO TO USE GRADE CROSSINGS OFFERING MINIMUM RISK OF VEHICLE STALLING OR STOPPING ON THE CROSSING. CRITERIA FOR DESIGNATION OF SUCH CROSSINGS MIGHT INCLUDE APPROACHES FREE FROM STEEP GRADES AND CURVES, FREEDOM FROM NEARBY TRAFFIC LIGHTS ON HIGHWAY AND OTHER SOURCES OF TRAFFIC CONGESTION, SMOOTHNESS OF CROSSING PAVEMENT, SIGHT DISTANCE ALONG THE RAILROAD TRACK, AND POSITIVE GRADE SEPARATIONS SUCH AS OVERPASSES. WHERE GRADE CROSSINGS ARE DESIGNATED, CONSIDERATION SHOULD BE GIVEN TO DEVELOPING MEANS OF DISPLAYING A STOP SIGNAL TO RAIL TRAFFIC DURING THE TIME TRUCK IS ACTUALLY CROSSING THE TRACKS. (C) REQUIRE EMERGENCY FLARES OF HIGH BRILLIANCE FROM A SELF-CONTAINED POWER SOURCE TO BE CARRIED ON ALL MOTORTRUCKS SUBJECT TO BUREAU OF MOTOR CARRIER SAFETY REGULATIONS, IN ORDER TO PROVIDE VISUAL WARNING IN AN EMERGENCY. EMERGENCY FLARES SHOULD NOT BE OF A TYPE THAT MIGHT REPRESENT A FIRE HAZARD. (D) REQUIRE ALL DRIVERS OF MOTOR VEHICLES SUBJECT TO BUREAU OF MOTOR CARRIER SAFETY REGULATIONS TO DEMONSTRATE KNOWLEDGE OF AND USE OF EMERGENCY SIGNALS AND EMERGENCY PROCEDURES.

Recommendation: THE NTSB RECOMMENDS THAT THE FEDERAL HIGHWAY ADMINISTRATOR: STUDY THE FEASIBILITY OF FIRE RESISTANCE REGULATIONS FOR TANK TRUCKS CARRYING FLAMMABLE FLUIDS TO PREVENT LOW-ORDER EXPLOSIONS AND RAPID PROPAGATION OF FLAME FROM SUCH TANKS.
WHEN THEY ARE RUPTURED. SUCH TECHNIQUES AS LINING TANKS WITH SOFT MATERIAL OR FILLING TANKS WITH SPECIAL RETICULATED FOAM ARE KNOWN TO BE TECHNICALLY EFFECTIVE IN PREVENTING SUCH RAPID FLAME SPREAD. THESE METHODS WOULD ALSO BE IMPORTANT IN PREVENTING FIRES FOLLOWING HIGHWAY ACCIDENTS AND THEIR FEASIBILITY AS TO FUTURE COST AND WEIGHT SHOULD BE EVALUATED.