

RECOMMENDATIONS

The National Transportation Safety Board recommends that:

1. The Federal Railroad Administration:

- (a) Conduct a systematic review of the overall operating procedures, rules, and facilities used in testing at the HSGTC in order to establish basic operating philosophies, clarify the chain of command, and strengthen risk management procedures. Rules should be developed which can be easily understood and followed by individuals of varying backgrounds who are employed by organizations which use the HSGTC. A system of ensuring effective implementation should follow. (Recommendation R-74-13)
- (b) Staff HSGTC safety positions with full-time personnel who are experienced in identifying hazards and in analyzing failure mode and effect. These employees should provide safety oversight for all HSGTC testing procedures. (Recommendation R-74-14)
- (c) Establish a systems safety capability in the Office of Research, Development and Demonstrations (the manager and operator of the HSGTC). This capability should be used to oversee and assist safety programs in all highspeed projects. (Recommendation R-74-15)

2. The Urban Mass Transportation Administration:

- (a) Establish safety goals or criteria within the detail specifications for development projects similar to the SOAC program so that attainment of crashworthiness and systems safety can be objectively determined. (Recommendation R-74-16)
- (b) Review the Detail Specification for State-of-the-Art Car and identify for all prospective users those areas of functional performance in which the specification does not actually require attainment of the full state of the art or in which the state of the art was not attained. (Recommendation R-74-17)
- (c) Conduct a systematic review to identify incompatibilities between the SOAC's and each different system upon which they are to be used, and assure compatibility before SOAC's are introduced on operating transit systems. (Recommendation R-74-18)

- (d) Review the specific operating procedures, rules, and facilities in use at the transit test track of the HSGTC. If the track is to be operated on the "secure pathway" theory, then all possible violations of security should be examined. Resultant corrections should insure that specific safety functions are assigned to a specific individual and that all safety functions assigned to each individual are listed at one place in the operating rules and identified as that individual's responsibilities. (Recommendation R-74-19)

3. The Federal Railroad Administration and the Urban Mass Transportation Administration:

- (a) Explore various technical approaches to crashworthiness of rail transit cars, such as determining means of preventing override during crashes of similar cars and investigating the use of plastic deformation as a means of absorbing crash energy. Those technical approaches which appear practicable should be crash tested to insure that override would not occur and that a stated collapse cushioning effect will result as intended. (Recommendation R-74-20)
- (b) Review past escapes of motormen and engineers from operating compartments of rail transit and commuter cars during crash situations in order to establish design requirements and definite procedures for an operator's escape during impending crashes. Take action to ensure that these requirements and procedures are put into effect by the transit and railroad industries. (Recommendation R-74-21)

BY THE NATIONAL TRANSPORTATION SAFETY BOARD

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