



NTSB National Transportation Safety Board

Office of Highway Safety

Survival Factors and Occupant Safety

Henry F. Hughes

Survival Issues

- Luggage rack failure
- Luggage rack design
- Motorcoach occupant protection



Luggage Rack Construction

- Luggage racks are secured by sidewall and ceiling brackets
- Aluminum anchorage points are ridged and secured by steel bolts
- All brackets failed on the right luggage rack



Luggage Rack Failure Summary

- Luggage rack anchorages failed
- Compromised lighting system
- Blocked egress and impeded rescue operations
- Recommending standards for luggage rack anchorages

Luggage Rack Design



Luggage Rack Design Summary

- Luggage rack was not designed to minimize injury
- Witness marks were discovered long the length of the rack
- Recommending design standards to reduce injury likelihood

Past Board Actions

- No requirements for occupant protection
- NTSB recommendations:
 - First issued in 1968
 - 1999 Bus Crashworthiness Report
 - Develop performance standards for motorcoach occupant protection
 - Most Wanted List

Motorcoach Roof Damage



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Injuries

- 56 Occupants
 - driver
 - 55 passengers
- 17 Fatalities
 - 13 on right
 - 8 of 13 in first five rows



NHTSA Motorcoach Priority Strategies

- Seat belts
- Roof strength
- Fire safety protection
- Emergency evacuation

US DOT Motorcoach Safety Action Plan

- In response to Mexican Hat, UT, crash report
- Full departmental review of motorcoach safety
- Expected by the end of 2009

Occupant Protection Summary

- NTSB has identified areas of needed occupant protection improvement
- NHTSA has delayed motorcoach safety improvements
- Reiterate 1999 recommendations
 - Develop performance standards for occupant protection
 - Develop performance standards for roof strength



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