Log R-594B

National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: February 8, 1988

In reply refer to: R-88-14

Honorable John H. Riley
Administrator
Federal Railroad Administration
400 Seventh Street, S.W.
Washington, D.C. 20590

About 1:16 p.m., eastern standard time, on January 4, 1987, northbound Conrail train ENS -121 departed Bay View Yard at Baltimore, Maryland, on track 1. The train consisted of three diesel-electric freight locomotive units, all under power and manned by an engineer and a brakeman. Almost simultaneously, northbound Amtrak train 94 departed Pennsylvania Station in Baltimore. Train 94 consisted of two electric locomotive units, nine coaches, and three food service cars. In addition to an engineer, conductor, and three assistant conductors, there were seven Amtrak service employees and about 660 passengers on the train. 1/

At this time, the Edgewood block station operator requested that switch 12 at Gunpow, a remote-controlled interlocking, be lined for straight through movement for train traffic on track 2, on which Amtrak train 94 was operating. The wayside signal aspects displayed for train 94 approaching Gunpow on track 2 were "clear" at both the distant (81-2) and home (2N) signal locations, and the wayside signal aspects displayed for train ENS-121 on track 1 was "approach" at distant signal 816-1 and "stop" at the home signal 1N. Automatic control systems in both trains should have displayed aspects corresponding to those of the wayside signals, except that the cab signals of train ENS-121 should have displayed a "restricting" aspect beginning 4,450 feet south of signal 1N.

About 1:30 p.m., Conrail train ENS-121 entered switch 12 onto track 2 causing the switch to realign for movement from track 1 to track 2. When train ENS-121 entered switch 12, the aspect of signal 2N for track 2 changed from "clear" to "stop." The engineer of train 94 apparently recognized that the aspect of signal 2N was "stop" and put his train into emergency braking. However, the train was traveling between 120 and 125 mph and could not be stopped before colliding with train ENS-121. The engineer and 15 passengers aboard train 94 were fatally injured; 174 other persons aboard the trains received minor to serious injuries. The rear Conrail locomotive unit, both Amtrak locomotive units, and the head three passenger cars were destroyed. The middle Conrail locomotive unit was heavily damaged, and the rear nine cars of the passenger train sustained varying degrees of damage.

1/ For more detailed information, read Railroad Accident Report--"Rear-End Collision of Amtrak Passenger Train 94, The Colonial, and Conrail Train ENS-121, on the Northeast Corridor, Chase, Maryland, January 4, 1987" (NTSB/RAR-88/01).

At the time of this accident, Federal regulations required all train crewmembers, dispatchers, operators, and other employees subject to the Federal Hours of Service Act to submit specimens for toxicological testing "as soon as possible" after a major accident that resulted in fatalities and in which they had direct involvement. The regulations required that the railroads make "every reasonable effort to assure that samples are provided" for testing. Amtrak and Conrail had included this testing requirement in their operating rules and had instructed supervisors and employees on its provisions and the proper use of the testing equipment. All of Amtrak and Conrail crewmembers as well as the dispatcher and block station operators were required to be tested, and they stated that they expected to be tested.

Amtrak's safety supervisor and assistant vice president of transportation arrived at the site 30 minutes and 1 hour 25 minutes after the accident, respectively. Three Amtrak superintendents were there by 3:30 p.m. and the general superintendent arrived an hour later. Conrail's superintendent at Baltimore testified at the public hearing on March 30, 1987, that he was on the scene 50 minutes after the accident. Shortly afterward, he was joined by a trainmaster and a road foreman of engines. Still later, a Conrail police captain and another trainmaster arrived. Thus, within 3 hours of the accident, at least six Amtrak and five Conrail supervisors were on the scene.

Amtrak officials testified at the public hearing that because the accident occurred on Amtrak and all involved were subject to Amtrak rules and supervision, it was Amtrak's responsibility to enforce the testing requirement. From the time the first supervisors arrived at the scene, each crewmember should have been monitored and taken promptly to provide specimens for testing.

Of the seven Amtrak employees who were subject to the testing requirements, only the Edgewood block station operator was taken to a hospital by a supervisor for testing. Amtrak officials did not accompany the other employees to hospitals to assure that specimens were furnished. One Amtrak assistant conductor did have a urine specimen taken that was forwarded to the Federal Aviation Administration's Civil Aeromedical Institute for testing, although the stipulated procedures were not followed.

Although a fire department official testified that he detected a strong odor of alcohol on the breath of the flagman of train 94 not long after the accident, he observed nothing else about the flagman that might have indicated he was intoxicated. Further, no other crewmembers or passengers corroborated the fire department official's testimony and some stated he showed no signs of being under the influence of alcohol. In the event the conductor was incapacitated, the flagman would have been in charge of the crew of train 94. In that position, he would have had the responsibility for the train's passengers. Because of the importance of the position the flagman may have held and because he was a crewmember aboard a train involved in an accident, the National Transportation Safety Board believes that testing of the flagman was particularly important. Because specimens for testing were not taken until several days after the accident, it is not possible to prove or disprove the testimony of the fire official concerning the flagman's condition.

Similarly, the Safety Board could not establish if the other crewmembers of train 94 and the dispatcher were free of alcohol and drugs because Amtrak's ranking officials at the accident site decided their performance had no bearing on the accident. The Amtrak assistant vice president of transportation circumvented his own company's rule and the Federal regulations when he decided not to have these persons submit to testing.

Following the accident, the Conrail engineer remained at the site and talked with many people including the Conrail terminal superintendent who, about an hour after the accident, ordered the engineer to be put in an ambulance to transport him to a hospital. However, since no supervisor escorted the engineer to the hospital, the engineer was able to leave the ambulance undetected. Valuable time was lost because the Conrail trainmaster at the accident site did not escort the engineer to the hospital for testing.

The Safety Board determined that neither the Conrail terminal superintendent nor the Amtrak assistant vice president of transportation attempted to learn where the engineer had been taken and to instruct a supervisor to take samples. About 2 1/2 hours after the accident, it was discovered that the engineer was still on the site and the Conrail trainmaster was told to accompany him to a hospital. Another 2 hours passed before a blood specimen was drawn for Federal Railroad Administration (FRA) testing, although the engineer had been at the hospital with the trainmaster for more than 1 1/2 hours.

The brakeman did not provide specimens until 8 hours 45 minutes after the accident. His whereabouts were unknown to Amtrak and Conrail officials for more than 6 hours.

The Safety Board is deeply concerned about the failure of Amtrak and Conrail supervisors to comply with the intent of the FRA regulations for postaccident toxicological testing and about FRA's inability to achieve timely compliance with its regulations by these two railroads in this accident. The Safety Board is pleased that both railroads have now implemented all parts of the FRA's regulations, including reasonable cause testing. However, the Safety Board is not convinced that the compliance deficiencies that occurred in this accident will not reoccur.

The failures to obtain, on a timely basis, specimens for toxicological testing from all employees who may have had a role in this and in other recent accidents such as the derailment of the Norfolk and Western Railway Company passenger excursion steam train near Suffolk, Virginia, 2/ and the collision of the two Southern Pacific Transportation Company trains near Yuma, Arizona, on June 15, 1987, suggest there may be a need for improvements in the FRA alcohol and drug rules.

As a result, the Safety Board has undertaken an assessment of the implementation of the FRA rules on alcohol and drug use in the railroad industry. The Safety Board has been reviewing the results of the FRA program and the specific components of the rules that may need to be strengthened. Postaccident testing and reasonable cause testing is being monitored and evaluated. The Safety

2/ Railroad Accident Report--"Derailment of Steam Excursion Train of the Norfolk and Western Railway Company, Train Extra 611 West, Suffolk, Virginia, May 15, 1986" (NTSB/RAR-87/05).

Board believes that the reasonable cause testing provision, for example, may provide the greatest deterrence to illegal alcohol and drug use. Therefore, the Safety Board is evaluating the extent to which railroads are voluntarily implementing this section. Additionally, the Safety Board is reviewing the reporting criteria and the number of tests actually undertaken under the FRA rules. Further, the Safety Board is reviewing the programs of several major railroads to identify those that have been successful in combatting this serious safety issue.

The promotion of compliance with its alcohol and drug regulations is another area in which the FRA has not exercised sufficient oversight of the railroads. The FRA must do more in advance of accidents to set the stage for prompt and complete compliance with the postaccident toxicological testing provisions of its regulations, and it must do considerably more at the scene of an accident to obtain compliance. Through on-scene staff and, if necessary, through senior management, the FRA should have made it very clear to both Amtrak and Conrail shortly after the accident of the need to have all Amtrak and Conrail employees involved in this accident supervised and taken promptly to appropriate facilities to provide toxicological specimens for testing. The Safety Board recognizes that the FRA cited Amtrak following the accident for its failure to comply fully with the regulations. However, the Safety Board believes that the FRA should have taken sufficient action before the accident and at the scene of the accident to have achieved full and timely compliance with the regulations, thereby avoiding the need to cite Amtrak after the accident.

The Safety Board is also concerned that the FRA did not exercise sufficient oversight over the management and supervision of the Northeast Corridor by Amtrak. As was pointed out in its 1984 safety assessment, 3/ the FRA found inadequacies in Amtrak's supervision of its engineers (insufficient operating efficiency checks), indications of operation of trains in excess of speed restrictions, and other indications that Amtrak was not exercising sufficient supervision of its employees, resulting in the operation of trains at excessive speeds. The Safety Board believes that the FRA was slow to act and this may have contributed to Amtrak's supervisory deficiencies.

The lead car of train 94 was so thoroughly crushed that had the car been occupied, almost none aboard could have survived the crash. Fortunately, the car served as a buffer much as a baggage car would. It was also fortunate that there were only 25 passengers aboard the second car, which had 84 seats. More than half the passengers in this car were fatally injured, and the emergency response personnel had great difficulty in extricating injured passengers. Had the car been filled to capacity, as were most of the cars to the rear, the toll of fatally-injured passengers would have been much higher. More than 450 people aboard train 94 were injured.

The Safety Board believes that many passengers aboard the train were injured unnecessarily because not all of the seats were adequately secured against undesired rotation, some seatbacks became detached exposing their sheetmetal frames, luggage was stowed in open luggage racks above the seats of the coaches, and unsecured equipment was thrown into the aisles in the food service cars.

3/ Federal Railroad Administration, 1984 Safety Assessment, National Railroad Passenger Corporation, Northeast Corridor, December 1984.

Most Amtrak trains on the Northeast Corridor, including the Metroliners and some of the conventional trains, such as train 94, were operated without baggage cars because this type of car was restricted to 105 mph. The Amfleet cars and rebuilt Heritage coaches had no provision for storing luggage except for the open overhead racks above the seats. There were no restraints to prevent luggage from falling onto passengers, particularly in cars that were jackknifed and/or tilted.

Even before the formation of Amtrak in 1971, the Safety Board recognized the potential for unrestrained luggage and inadequately designed and secured seats in railroad passenger cars to cause serious injuries to passengers in a high-speed derailment. In its investigation of a 1969 derailment of a conventional Penn Central passenger train on the Northeast Corridor north of Washington, 4/ the Safety Board noted that although the cars of the train had remained in line with and on the track structure, many tipped over causing seats to rotate and luggage to be launched from overhead racks. The Safety Board concluded that most of the injuries received by the 144 persons injured "resulted from persons being thrown from their seats and from flying luggage and loose objects." The Safety Board's report stated:

> Two interesting and important questions are raised by this accident... control of loose furniture and luggage on high-speed trains and...the availability of some means of restraining passengers in their seats. In the aviation field, luggage retention...[is] required by regulations.

As a result of its investigation, the Safety Board issued a recommendation to FRA:

> R-70-10
>
> Initiate studies to determine the relationship between rail passenger car design and passenger injury, and, where practical, take action for correction in the design of future high-speed and rapid transit cars.

Safety Recommendation R-70-10 was reiterated in the Safety Board's report of a 1970 Richmond, Fredericksburg and Potomac passenger train derailment in Virginia. 5/ In this report, the Safety Board concluded that "most of the passengers were injured by being thrown from their seats or by luggage dislodged from overhead baggage racks." The Safety Board also issued a recommendation to the FRA:

> R-71-6
>
> Institute immediate regulations requiring the equipment of all future, new, and rebuilt passenger cars with secured seats and luggage retention devices.

4/ Railroad Accident Report--"Penn Central Company Train Second 115 (Silver Star) Derailment at Glenn Dale, Maryland, June 28, 1969" (NTSB/RAR-70/1).
5/ Railroad Accident Report--"Richmond, Fredericksburg and Potomac Railroad Company Train No. 10/76, Derailment at Franconia, Virginia, January 27, 1970" (NTSB/RAR-71/1).

The FRA responded to Safety Recommendation R-70-10 in 1974, stating that it had a study in progress regarding passenger car crashworthiness and was planning crash testing during fiscal 1976 as part of the design and development function for new equipment. On the basis of this response, the Safety Board classified the recommendation "Closed--Acceptable Action." The Safety Board classified Safety Recommendation R-71-6 "Open" pending the results of FRA's crash testing and evaluation.

On June 10, 1971, the Safety Board investigated a major train accident in which passengers were fatally injured 6/ and subsequently issued Safety Recommendation R-72-34 recommending that Amtrak correct the injury-causing features of its passenger cars as they were rebuilt and establish specifications for the interior designs of new cars that would minimize impact-type injuries. This recommendation was subsequently classified "Closed--Acceptable Action" after Amtrak informed the Safety Board that it was requiring improved safety features for new passenger cars, including the Amfleet-type cars and was improving existing cars to reduce injury-causing interior features.

Following its investigation of a 1974 passenger train derailment in Kansas, 7/ the Safety Board issued Safety Recommendation R-75-5 recommending that Amtrak "...require the installation of the latest practical crashworthiness features when rolling stock is renovated or when new cars and locomotives are purchased." Amtrak responded on July 21, 1976, informing the Safety Board that the new cars it would be acquiring in the next several years would have the latest crashworthiness features.

Amtrak's new Amfleet-type coaches and food service cars, delivery of which began in 1977, were among those Amtrak was referring to in its 1976 response to the Safety Board. However, these new cars, which had no luggage compartments, were designed for maximum seating capacity. Despite Amtrak's assurances to the contrary, the recommendations that the Safety Board had made to FRA and Amtrak relating to unsecured luggage had not been addressed in the design of the new cars. The only provision for stowage of carry-on baggage was open racks above the seats.

After the original Amfleet cars were delivered, the 1978 FRA crashworthiness study identified seat rotation as a major cause of passenger injuries and recommended the seats be equipped with positive locks to prevent undesired rotation. In subsequent investigations of accidents involving Amfleet cars, the Safety Board found that the coach seats rotated causing passengers to be thrown from them.

Following a 1979 collision on the Northeast Corridor in New Jersey, 8/ the Safety Board found that seats in the 84-passenger Amfleet coaches were not securely locked and were rotated by the collision forces. As a result of this

6/ Railroad Accident Report--"Derailment of Amtrak Train No. 1 While Operating on the Illinois Central Railroad, near Salem, Illinois, June 10, 1971" (NTSB/RAR-72/5).
7/ Railroad Accident Report--"Derailment of an Amtrak Train on the Tracks of the Atchison, Topeka and Santa Fe Railway Company at Melvern, Kansas, July 5, 1974" (NTSB/RAR-75/1).
8/ Railroad Accident Report--"National Railroad Passenger Corporation (Amtrak) Head-end Collision of Train No. 111 and Plasser Track Machine Equipment, Edison, New Jersey, April 20, 1979" (NTSB/RAR-79/10).

investigation, the Safety Board issued Safety Recommendation R-79-22 to Amtrak "to insure that the seats are locked securely in place." Amtrak notified the Safety Board on April 15, 1980, that it had developed a device to prevent seat rotation in Amfleet cars and would shortly begin installing it. As a result, the Safety Board classified Safety Recommendation R-79-22 "Closed--Acceptable Action."

On October 10, 1980, Congress enacted Public Law 96-423, the Federal Railroad Safety Authorization Act of 1980, which mandated that the Secretary of the Department of Transportation issue initial rules, regulations, orders, and standards relating to rail passenger equipment. As amended in 1982, Title 45 United States Code 431 (h)(1)(A), reads, in part:

> The Secretary shall, within one year after January 14, 1983, issue such initial rules, regulations, orders, and standards as may be necessary to insure that the construction, maintenance, and operation of railroad passenger equipment maximize safety to rail passengers. The Secretary shall, as a part of any such rulemaking, consider comparable Federal regulations and procedures which apply to other modes of transportation, especially those administered by the Federal Aviation Administration. The Secretary shall periodically review any such rules, regulations, orders, and standards and shall, after a hearing...make such revisions...as may be necessary.

The amended subsection also required a report to Congress by January 13, 1984, covering such rules, regulations, and standards as had been issued. The FRA submitted such a report to Congress in January 1984; this report indicated that the interior of passenger cars merited additional study with regard to design and securement of seats, luggage retention, interior contouring, and other features. Nevertheless, the FRA has never issued standards or rules in these areas of concern.

Following the Congressional mandate to the DOT, there were other Amtrak accidents that continued to demonstrate car interior deficiencies. In its report of the investigation of a 1983 derailment of a train consisting of Amfleet cars in Illinois, 9/ the Safety Board observed that passengers were injured by heavy luggage falling from open overhead racks, by being ejected from seats that had rotated as much as 90^{0}, by improperly secured seat cushions, and by unsecured microwave ovens and other equipment breaking loose in a food service car. The Safety Board's report stated:

> Equipment designers and crashworthiness experts have known for years how to protect passengers from injuries attributed to all of these causes. Safety analyses by competent passenger car designers can provide cost-effective corrections to deal with inadequately secured seats, unsecured luggage in overhead racks, and inadequately secured dining car equipment.

9/ Railroad/Highway Accident Report--"Collision of Amtrak Passenger Train No. 301 on Illinois Central Gulf Railroad with Marquette Motor Service Terminals, Inc. Delivery Truck, Wilmington, Illinois, July 28, 1983" (NTSB/RHR-84/02).

In connection with this report, the Safety Board issued a recommendation to Amtrak:

R-84-40

Correct the identified design deficiencies in the interior features of existing and new passenger cars, which can cause injuries in accidents, including the baggage retention capabilities of overhead luggage racks, inadequately secured seats, and inadequately secured equipment in food service cars.

The Safety Board also issued a recommendation to the FRA:

R-84-46

Expedite the studies on the interior design of passenger cars, described in the January 1984 Report to Congress, and publish recommended guidelines for securing seats and for luggage retention devices.

With the issuance of these recommendations, Safety Recommendations R-71-6 and R-75-5 were classified "Closed--Superseded."

On June 3, 1985, the FRA responded to Safety Recommendation R-84-46 by stating:

The FRA has discussed with Amtrak and other operators of passenger equipment the subjects of passenger car seat design, existing securement devices, and luggage and equipment retention in meetings addressing passenger car interior design. Based on these discussions, the FRA does not feel Federal regulations providing recommended guidelines concerning these areas are required or justified at this time. Since we do not plan further action on Recommendation R-84-46, it should be closed.

The Safety Board wrote the FRA on August 19, 1985, expressing disappointment over the FRA's response and strongly urging the FRA to reconsider its position. At that time, the Safety Board advised the FRA it was classifying Safety Recommendation R-84-46 as "Open-Unacceptable Action." The Safety Board has received no further response to the recommendation from the FRA, even though the Board has recently reiterated this recommendation as a result of an accident investigation 10/ that again revealed similar interior design deficiencies.

Safety Recommendation R-84-40 was reiterated to Amtrak on February 4, 1985, following the Safety Board's investigation of an Amtrak passenger train derailment in Texas on November 12, 1983, 11/ and on May 14, 1985, in connection with the head-on collision of Amtrak passenger trains in New York, on July 3, 1984. As a result of its investigation of the latter accident, the Safety Board also issued a recommendation to Amtrak:

10/ Railroad Accident Report--"Rear-End Collision Between Boston and Maine Corporation Commuter Train No. 5324 and Consolidated Rail Corporation Train TV-14, Brighton, Massachusetts, May 7, 1986" (NTSB/RAR-87/02).

11/ Railroad Accident Report--"Derailment of Amtrak Train No.21 (The Eagle) on the Missouri Pacific Railroad, Woodlawn, Texas, November 12, 1983" (NTSB/RAR-85/01); Railroad Accident Report--"Head-on Collision of Amtrak Passenger Trains Nos. 151 and 168, Astoria, Queens, New York, July 23, 1984" (NTSB/RAR-85/09).

R-85-81

Modify the coach seats used in Amfleet equipment so that seatback cushions cannot become dislodged when struck and expose surfaces which can cause injuries in accidents.

Amtrak responded to Safety Recommendation R-85-81 on November 4, 1985, reporting that it was reinforcing the securement of the headrest part of Amfleet seatback cushions to prevent their being dislodged under impact. Amtrak also reported that it had completed the modification in 125 Amfleet cars as part of a 6-year overhaul program. On the basis of the response, the Safety Board classified Safety Recommendation R-85-81 "Closed--Acceptable Action."

During its investigation of an Amtrak derailment in Vermont on July 7, 1984, 12/ the Safety Board again found that coach seats had rotated, seat mounts had torn loose (in this accident Heritage class cars were involved; consequently, Safety Recommendation R-85-127 was issued to Amtrak addressing seats in this type car), and many passengers were injured when struck by articles thrown from open overhead luggage racks. Also, as in earlier derailments, unsecured microwave ovens and food containers had injured persons and blocked aisles when thrown from counter/pantry areas in Amfleet food service cars. Previously, in an Amtrak derailment in Pennsylvania on May 29, 1984, 13/ passengers told Safety Board investigators that personal belongings and baggage "were flying everywhere." One passenger reported she had been repeatedly struck by baggage and was literally buried under suitcases that fell from an overhead rack. Evacuation was difficult because aisles were full of fallen luggage.

Amtrak responded to Safety Recommendation R-84-40 on March 13, 1985, reporting that positive seat locking devices were being installed on its coaches as they were overhauled. As for unsecured food service car equipment, Amtrak advised that it was installing a steel bar across the tops of microwave and convection ovens to prevent their displacement. According to Amtrak, this modification was also being implemented when the cars underwent overhaul and 120-day maintenance work. Amtrak also reported that it had designed a web-type retention device to be applied to luggage racks on a new type of sleeping car then under order. However, Amtrak reported at that time that it had no plans to retrofit existing cars with baggage retention devices.

In view of Amtrak's position on luggage retention modifications, the Safety Board informed Amtrak on July 29, 1985, that it had classified Safety Recommendation R-84-40 "Closed--Unacceptable Action/Superseded." In connection with the previously mentioned report of the Essex Junction accident, Safety Recommendation R-85-128 was issued to address specifically luggage retention devices.

12/ Railroad Accident Report--"Derailment of Amtrak Passenger Train No. 60, The Montrealer, on the Central Vermont Railway Near Essex Junction, Vermont, July 7, 1984" (NTSB/RAR-85/14).

13/ Railroad Accident/Incident Summary Report--"Derailment of Amtrak Passenger Train, The Capital Limited, near Connellsville, Pennsylvania, May 29, 1984" (NTSB/RAR-85/01/SUM).

R-85-128

Develop and install effective retention devices on its overhead luggage racks to prevent the dislodging of luggage and other articles in a collision and/or derailment.

In response, Amtrak notified the Safety Board on June 30, 1986, that it was investigating the use of vertical dividers spaced at intervals along the overhead racks to restrain luggage from moving longitudinally during rapid deceleration. The design also included a longitudinal restraint that somewhat increased retention against lateral movement. On March 19, 1987, Amtrak advised it was testing a prototype of the new restraint system.

On September 22, 1987, Amtrak informed the Safety Board that "test luggage restraints have been installed on three car sets. Luggage restraints have been approved by Federal agencies. Material has been ordered and will be delivered by October 31, with installation to begin thereafter. We estimate installation will take 6 years to complete." In view of these responses, the Safety Board has classified the recommendation "Open--Acceptable Action," even though the Board is not convinced of the need for 6 years to make the modifications. Further, the test luggage restraints have sharp protruding edges; and the Board believes that additional testing and design changes may be necessary.

In the Chase accident, the fixtures in the food service cars had not been modified to retain them in place. An unsecured microwave oven in the Amfleet food service care was thrown to the floor blocking the aisle in the counter/pantry area. None of the coaches had the modified luggage racks. A number of seats, including those in cars near the rear of the train, were dislodged, rotated, and/or had their seatback frames exposed due to cushions being dislodged. Safety Board investigators at an Amtrak derailment near Joliet, Illinois, on June 26, 1987, 14/ found 17 rows of seats in two Amfleet cars in various angles of rotation because of seat lock failures. Two rows of seats were separated from their attachments.

During the past 18 years, neither repeated Safety Board recommendations based on overwhelming and well-documented evidence nor Congressional mandate have convinced FRA to do all it should to eliminate these injury-producing interior features of passenger cars. For nearly as long and for as long as Amtrak has existed, the Safety Board has repeatedly called on its management to improve these same areas when new cars were designed and older cars were retrofitted.

These efforts have resulted in some tangible progress. Amtrak has developed a program to correct the deficiency in the headrest portion of the Amfleet seatback cushions and has modified 125 Amfleet cars under a 6-year program. However, much remains to be done. The Safety Board has investigated accidents in which headrests that have not yet been modified have become dislodged. Amtrak needs to expedite the modification of its unmodified Amfleet cars. Further, securement of the seat locking mechanism remains a problem and seats continue to rotate in accidents. Finally, the luggage retention problem remains to be completely corrected.

14/ Field Investigation Report--"Collision Between Amtrak Passenger Train No. 311 and a Spee Dee Disposal truck, on the Chicago, Missouri and Western Railroad near Joliet, Illinois, June 26, 1987" (NTSB-CHI-87-MR-015).

The Amfleet designs that make up the bulk of Amtrak's car fleet were developed, and many hundreds of cars built with public funds, apparently without consideration of the passenger injuries that could result from the use of outmoded open overhead luggage racks, poorly assembled and secured seats, and unrestrained equipment in food service cars. The Safety Board believes that the designers of the Amfleet cars have been motivated principally by the desire to provide maximum seating capacity. They failed to heed past accidents and act on a number of outstanding Safety Board recommendations. This was an especially critical failure because it was understood that these new cars would be used in high-speed service.

Even when retrofitting older Heritage cars in the 1980s, Amtrak apparently was motivated by the desire for more seating capacity at the expense of the luggage storage compartments that were in these cars, and which had become standard in passenger coaches built in the postwar period. The luggage situation is most critical on the Northeast Corridor; in most cases the overhead racks are the only place where luggage and personal articles can be carried. Since Amtrak has no baggage cars that may be operated faster than 110 mph, the Metroliners do not include baggage cars. Amtrak has no high-speed cars with separate compartments for luggage storage, such as are used on British Railway's 125-mph HST intercity trains. The Safety Board believes that Amtrak must correct these deficiencies in its existing car fleet and must not purchase new cars that have these same deficiencies.

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

> Expand and intensify its oversight of Amtrak's operating practices supervisory efficiency checks, and compliance with Federal safety regulations (including the requirements for postaccident toxicological testing), and periodically provide the Safety Board with its assessment of Amtrak's performance in these areas. (Class II, Priority Action) (R-88-14)

Also, the National Transportation Safety Board reiterates Safety Recommendation R-84-46 to the Federal Railroad Administration:

> Expedite the studies on the interior design of passenger cars, described in the January 1984 Report to Congress, and publish recommended guidelines for securing seats and for luggage retention devices.

Also as a result of its investigation, the Safety Board issued Safety Recommendations R-88-1 through -9 to the National Railroad Passenger Corporation and R-88-10 through -13 to the Consolidated Rail Corporation.

BURNETT, Chairman, GOLDMAN, Vice Chairman, and LAUBER, NALL, and KOLSTAD, Members, concurred in these recommendations.

By: Jim Burnett
Chairman