

UNITED STATES OF AMERICA

Before the

National Highway Traffic Safety Administration of the
United States Department of Transportation

Center for Auto Safety
1223 Dupont Circle Bldg.
Washington, D.C. 20036

Docket No. _____

Petitioner

PETITION REQUESTING RULEMAKING REQUIRING THE INSTALLATION OF
SAFETY BELTS IN INTERSTATE AND INTERCITY BUSES.

I. JURISDICTION

This petition is filed pursuant to Department of Transportation regulations § 553.13 (Initiation of rulemaking) and § 553.31 (Petitions for rulemaking). 49 CFR §§ 553.13, 553.31.

II. PETITIONER

The Center for Auto Safety ("Center") is a public interest research organization that works to reduce deaths and injuries in motor vehicle crashes by encouraging improvements in the safety characteristics of vehicle design and performance. The Center has filed with the National Highway Traffic Safety Administration (NHTSA) numerous comments and petitions regarding existing and proposed safety standards.

III. BACKGROUND

The question of requiring safety belts for bus passengers arose in government circles eight years ago, on June 1, 1966, when a Notice and Order on this subject (Ex Parte No. MC-69) was issued by the Interstate Commerce Commission (ICC). The question was then assigned to the Bureau of Motor Carrier Safety (BMCS) when the safety functions of the ICC were reassigned in April, 1967. The BMCS studied responses to Ex Parte No. MC-69 and also considered similar proceedings conducted by the National Highway Safety Bureau (NHSB), predecessor to the NHTSA, concerning amendments to its safety standard on occupant restraints. (FMVSS 208). The NHSB concluded that structural limitations on buses made the standard too costly and thus not feasible; the BMCS discontinued its proceedings without proposing the installation of safety belts for bus occupants. (See Attachment B).

The Center submitted a petition on July 12, 1970, to the Bureau of Motor Carrier Safety requesting action on the installation of safety belts in all passenger positions on interstate buses (Attachment A). In addition, the Center along with two individuals filed a petition with the BMCS on August 27, 1970, in support of Amendment 12 to Motor Carrier Safety regulations which required the installation and use of driver seatbelts and truck passenger restraints (Attachment C). Both petitions were denied by the BMCS.

To our knowledge, the present petition is the first one submitted to the NHTSA on these matters. In view of the recent rulemaking proposals on Windshield Mounting Retention (Docket #69-29, Notice #4, January 14, 1974) and Bus Passenger Seating

and Crash Protection (Docket #73-3, Notice #1, February 15, 1973), it is now timely to request rulemaking requiring safety belts in all passenger positions in intercity and interstate buses for reasons which will be detailed in the body of this petition.

IV. THE NEED FOR A STANDARD

The issue of whether or not to require safety belts on intercity and interstate buses involves a substantial number of human lives. According to the BMCS, intercity buses are involved in 9.1 traffic deaths per 100,000 vehicle miles traveled.* The NHTSA reports an overall fatality rate, based on collisions involving all types of highway vehicles, of 4.9 per 100,000 vehicle miles traveled. Although these figures are somewhat inflated by the inclusion of non-occupant fatalities, they do serve to show that death and serious injuries often result from collisions in which intercity and interstate buses are involved. (The intercity traffic figures of course account for only part of the total number of interstate injuries and deaths.)

The need for safety belts has been underscored for many years by various agencies and individuals (see Attachment D for some examples). Incidents of deaths and serious injuries in bus accidents are well documented. Perhaps the strongest voice recommending that safety belts be required in buses has been the National Transportation Safety Board, an independent arm of the Department of Transportation that is charged with the

* This includes pedestrians and passengers in other vehicles that are involved in collisions with buses, in addition to the bus passengers. BMCS reports that it does not maintain separate statistics for fatalities to bus occupants.

responsibility for investigating major transportation accidents. Eight times the Board has urged that governing agencies, in the words of its most recent recommendation, "take positive action toward making available to bus passengers convenient restraints against being ejected from their seats in a crash or rollover." Emphasizing previous inaction, the Board further noted that "[t]his recommendation, with similar intent but varying language, has been made in seven prior interstate bus crash reports issued by the Safety Board." (NTSB Highway Accident Report HAR-73-5, Greyhound Bus/Malone Freight Lines Inc. Truck Collision, U.S. Route 11W, Bean Station, Tenn., May 13, 1972; report dated Oct. 25, 1973; Recommendation H-73-42, p. 22).

This petition will focus on (1) answering the remaining arguments against the installation of safety belts on buses and (2) developing previously underexplored areas in support of the argument. The Center hopes that its discussion in these two categories will provide the NHTSA with a cogent body of reasoning that will be sufficiently persuasive to prompt immediate action on this question. The present illogical situation has now existed for a considerable length of time.

V. IMPLICATIONS OF THE PROPOSED SEAT STRENGTH STANDARD

(1) An NHTSA team report on a 1971 Colorado school bus crash outlines one major objection to the installation of safety belts in buses (see Status Report, vol. 7, no. 10, May 22, 1972, pp. 5-7). The report states that safety belts "would have placed the passengers' heads and necks above the low seat backs and in direct contact with the collapsing roof. Since the bus top was deformed against the top of the seat backs, injury

severity could very likely have been greater with a higher frequency of head and neck injuries." (Status Report at 7, quoting the NHTSA team report).

The team further concluded that safety belts should only be considered as part of a "total design concept" which would include " a more rigid roof-side structure...high seat backs with energy dissipation surface characteristics ... seat anchorages sufficient to maintain seat integrity in frontal and rear collisions, as well as side collisions and rollover accidents ... and a contoured seat area design which tends to confine the passenger in his general seat area in the event of a crash." (Status Report at 7, quoting the report).

The last three of the suggestions were heeded by the NHTSA and incorporated in recent proposed rulemaking entitled Bus Passenger Seating and Crash Protection (38 FR 4776, Feb. 22, 1973), to be effective September 1, 1974. Since the proposed standard requires seatbacks on all buses to be a minimum of 28 inches high, this antiquates the argument proffered by the NHTSA team in the Colorado school bus case. Nevertheless, safety belts are omitted as a requirement in the proposed rulemaking and are suggested only under a second option in the proposal. We assume that the proposed rulemaking was structured in this way to avoid requiring safety belts on school buses. The objections to the installation of safety belts on school buses have been loudly voiced by school systems in response to the proposal. Problems such as misuse of safety belts as weapons and the necessity of extra personnel on buses to supervise use are recognized by the Center. However, such problems do

not exist on intercity and interstate bus systems, and the safety of these buses should not be compromised by categorizing them with school buses for the purpose of considering safety belt requirements.

The question that arises is why bus passengers should not be afforded the maximum protection available from the "total design concept" recommended by the NHTSA team. It seems only logical that the omission of safety belts would weaken the "concept" by leaving out an integral part of it. This watered-down version of the "total design concept", specially tailored to school buses, is illogically presented to the American public as the most feasible safety innovation possible for intercity and interstate buses as well.

(2) In a July 23, 1970 letter denying the Center's petition for rulemaking on safety belts, EMCS Director Robert A. Kaye cited as a major reason for denial the "structural limitations of existing buses and studies currently being made by the National Highway Safety Bureau relating to safety performance requirements of buses to be built in the future ..." (Attachment B). In light of the NHTSA Bus Passenger Seating and Crash Protection proposal, this argument is clearly no longer valid.

(3) Bus manufacturers have long voiced the argument that the cost of installing seat restraints is prohibitive. Now that more stringent performance standards are proposed, however, the additional difficulty and cost of installing safety belts has been lessened considerably.

Not all of the bus industry, it should be noted, is opposed to safety belts. One official of Motor Coach Industries, a

subsidiary of Greyhound, has observed that two later models of coaches, the MC-6 and MC-7 "were designed to eventually take seat belts--fully padded and fitted with the proper anchorings." (Chicago Tribune, "A New Means to Highway Safety," Sept. 5, 1972.)

VI. THE WINDSHIELD RETENTION SAFETY STANDARD AS A FACTOR

A now commonly accepted theory is that the incidence of death or serious injury is much higher for those occupants who are ejected from a vehicle than for those who remain in a vehicle. Federal Motor Vehicle Safety Standard No. 212, concerned with windshield strength, has a stated purpose that supports this view:

The purpose of this standard is to provide for retention of the vehicle windshield during a crash, in order to utilize fully the penetration-resistance and injury-avoidance properties of the windshield glazing materials, and to prevent ejection of occupants from the vehicle. (Windshield Mounting Retention Standard No. 212, Docket 69-29, Jan. 14, 1974, 49 CFR 571. 212 (52))

The Standard 212 requirements are admirable from a safety standpoint. Unfortunately, a notice of proposed rulemaking (published on August 23, 1972, 37 FR 16979), designed to extend the standard's coverage, limited the proposed applicability to multipurpose passenger vehicles (mpv's), trucks, and buses having a gross vehicle weight rating (GVWR) of 10,000 pounds or less. This exempts, for the most part, all of the intercity and interstate buses which transport 385 million passengers over 1,175,000,000 miles in the United States each year.

In NHTSA's own words, "[t]he windshield provides valuable 'passive protection' when present restraint systems are not used. Even where advanced passive restraints such as air cushions

are provided, the windshield will continue to serve as a back-up system whenever needed." (Windshield Mounting Retention, January 14, 1974, Summary Statement, p. 3.) Since intercity and interstate buses travel at high speeds, crashes cause high speed trajectories of passengers so that passenger ejection through the front windshield is highly possible.

The irony here is evident. The very vehicles which do not provide their passengers with those restraints required on private passenger cars are further exempted from providing the "valuable passive protection" of a windshield that retains passengers during a crash. Since interstate and intercity buses are not required to meet the provisions of the Windshield Mounting Retention standard, the need for safety belt restraints is especially great.

VII. EFFECT OF SAFETY BELTS ON BUS PASSENGER EJECTION, SECOND COLLISION, AND DISORIENTATION

Because buses have high centers of gravity, it is to be expected that a significant proportion of bus crashes involve rollover. The Center has been unable to locate statistics on such occurrences; however, eight out of nine of the bus crashes investigated by NTSB did involve rollover.

Other evidence suggests that a vast majority of severe injuries and fatalities are incurred by passengers in one of two ways: passengers are either ejected from the vehicle or tumbled within the bus and hurled against other passengers or the hostile interior of the bus (the second collision). Both of these injury modes are amplified in the rollover, which by its very nature causes violent gyrations of the bus.

The second collision injury mode has another dimension to it -- the disorientation of passengers. When passengers are tumbled around in the interior of a bus in the course of collisions or extreme driving maneuvers, they are likely to become disoriented even if they do not in fact sustain serious injuries. This disorientation is a prime cause of panic and confusion while exit from the vehicle is being attempted.

In all situations, but especially in the case of fire, rapid passenger evacuation is essential to minimizing injury and death. Safety belts, by restraining passengers in their seats, would lessen considerably this disorientation and thus prevent needless injury and death from occurring in the crash and post-crash situations.

VIII. CONSIDERATION OF POTENTIAL "TRAPPING" OF BUS PASSENGERS BY SAFETY BELTS

An argument often advanced by opponents of safety belts in buses is that a belted passenger in an overturned bus would be trapped in an upside-down seat, suspended from a safety belt, and unable to achieve egress.

The National Transportation Safety Board reported on a situation with such potential "trapping" which occurred south of Petersburg, Indiana on November 24, 1969 (NTSB Highway Accident Report HAR-71-41, Interstate Bus-Automobile Collision and Rollover on Indiana Route 57, Report dated February 10, 1971). In noting that all injuries "could have been avoided if the occupants had been restrained in their seats," the Board did concede that "restraints might have increased the difficulty of egress for

the left side passengers in light of the final resting position of the bus on its right side, with the bottom portion slightly elevated." (Report, p. 14) However, a factor which facilitated egress was the fact that the belted driver was able to swing down from his seat and aid passengers in exiting the vehicle. Since the driver was able to extricate himself from his seat and remain in adequate physical and mental condition to aid passengers, belted passengers would probably have fared as well in the same situation. Regardless, there is no question that the probable damage from ejections and secondary collisions is a far worse alternative than some difficulty in egress that might occur if belted passengers are suspended in their seats.

IX. THE INJURY-CAUSING EFFECTS OF SIDE WINDOW OPENINGS

Another undesirable consequence of bus rollover is the opening of side windows. As documented by the National Transportation Safety Board, these open windows allow ejections which contribute substantially to fatalities and injuries.

In a NTSB-investigated bus crash that occurred near Marshfield, Missouri on October 10, 1971, the bus overturned and most of the side windows became unlatched due to the stress exerted on them by the rollover (NTSB Highway Accident Report HAR-73-1, Bus/Station Wagon Collision followed by Bus Overturn, U.S. Route 66, Report dated January 31, 1973). Four passengers were killed and all of the remaining thirty-four were injured in this particularly serious crash. The NTSB concluded that a cause-effect relationship existed between the open windows and passenger ejection. This, in turn, led to one of its eight recommendations for safety belts in buses. The investigation of a September 3, 1972 intercity Greyhound bus

crash near Richmond, Virginia led the NTSB to make the same recommendation. In its report, the Board concluded that "the undesired opening of side windows subjected to rollover-induced stresses" was involved in passenger ejections. They added, "The absence of passenger seat restraints permitted the excessive tumbling, the large scale ejection of passengers, and the 100-percent occupant-injury rate." (NTSB Highway Accident Report HAR-73-2, Runoff and Overturn of Intercity Bus on Interstate 95, Richmond, Virginia, Report dated February 22, 1973)

The NHTSA has, of course, revised Motor Vehicle Safety Standard 217, Bus Window Retention and Release, effective September, 1973. It is too early to determine just how effective this revision will be in preventing passenger ejection during rollover. However, we note that the revision is primarily intended to reduce the likelihood that emergency escape windows will fly open simply from the impact of passengers thrown against them in a rollover; it is not addressed to the problem of bus windows broken when the roof and upper walls of the bus are distorted during the rollover. This latter problem will in all likelihood continue, and the need to provide bus passengers with restraint against ejection will also continue.

X. SOME MORAL CONSIDERATIONS

In passenger car and bus driver seating, the NHTSA requires that safety belt protection be available. It has recently escalated this effort with the amendment to Standard 208 which provides, as one option, that passenger cars not be permitted to be started or put into forward motion until all front seat passengers have

buckled up. As of August 15, 1975, multi-purpose passenger vehicles and trucks under 10,000 pounds will be required to meet one of the three options required for passenger cars - one of these is safety belt apparatus. These NHTSA actions affirm the desirability of protecting motorists by use of such restraints. Passengers riding on mass transit systems, and specifically intercity and interstate buses, should certainly not be discriminated against by being denied the potential protection that safety belts provide.

Especially in today's world where the need for economical utilization of energy resources points toward increased use of public transportation, the government and the bus industry have a moral obligation to make public transportation as safe as it can reasonably be made. In the past, NHTSA has utilized the "impracticality" argument to avoid requiring safety belts on buses. This petition has pointed to the present situation in which the Bus Passenger Seating and Windshield Retention rulemaking make safety belts practical.

When the National Highway Traffic Safety Administration first proposed passive restraint systems, its reasoning was that safety belts had proven to be an ineffective restraint system because few people, according to the agency's own statistics, used them. Nevertheless, NHTSA made clear that safety belts would still be available:

Under the standard as adopted manufacturers will be free to supply seat belts as optional or standard equipment... so that persons who wish to have seat belts installed in their vehicles for their own use or for use with child seating systems, will be able to do so. (Occupant Crash Protection, Docket 69-9, Notice 7, November 3, 1970; 35 FR 16927)

In this instance, NHTSA clearly did not wish to interfere with the individual's freedom of choice. It surely makes sense, then, in lieu of a better system (or even in the event of a better one), for NHTSA to extend this reasoning to all forms of transportation under its regulatory jurisdiction and to insist that safety belts be installed in intercity and interstate buses to be used at the discretion of the individual.

XI. CONCLUSION

The National Highway Traffic Safety Administration has long recognized the potential of safety belts in reducing deaths and injuries of motor vehicle occupants. As shown above, all of the reasons against extending safety belt protection to bus occupants are either invalid or outdated. The Center for Auto Safety cites the long delay that has characterized this matter, and petitions the National Highway Traffic Safety Administration to immediately propose rulemaking designed to make safety belts available to all passengers in intercity and interstate buses.

Respectfully submitted,
CENTER FOR AUTO SAFETY

By _____
Arthur C. Delibert
Acting Director

Date: June 19, 1974

Attachment A

CENTER FOR AUTO SAFETY

755 National Press Building

Washington, D.C. 20004

(202) 737-5272

Post Office Box 7250

Ben Franklin Station

Washington, D.C. 20044

July 12, 1970

Bureau of Motor Carrier Safety
U. S. Department of Transportation
Washington, D. C. 20591

Dear Sirs:

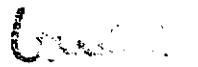
This is to register a strong note of support for the proposed rule to ban smoking on interstate busses. In June, on a bus ride from Vermont to New Haven, Conn, on what was otherwise an enjoyable trip, I found myself gagging and sputtering (I'm a non-smoker) due to smoking in nearby seats. It's about time to stop allowing others to reduce the pleasure of my trip in this way, and to traumatize my throat and lungs, in the process.

In addition, I was struck when I first got on the bus and sat down by the absence of seat belts, which I am used to wearing when I drive. Of course, along the way, we passed a very serious accident and I was thankful it wasn't us. It's absurd not to have some sort of restraint in busses, at least for those who might wish to use them. By recessing the reels inside the seats (which would probably require firmer seat anchorages) the belts could be made unobtrusive for those not interested in their own safety.

Please keep me informed of your decisions on these matters. If there is no pending rule on belts in busses (for passengers), please regard this letter as a petition for such a rule.

Thank you for your attention.

Sincerely,


Lowell Deane
Director

Attachment B (without enclosures)



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
BUREAU OF MOTOR CARRIER SAFETY
WASHINGTON, D.C. 20591

July 23, 1970

RE: 51-10

Mr. Lowell Dodge, Director
Center for Auto Safety
759 National Press Building
Washington, D.C. 20004

Dear Mr. Dodge:

Thank you for your letter of July 12, expressing your concern with the safety of operation of commercial motor vehicles.

On February 26, 1970, in response to a petition from Mr. Ralph Nader, asking the Federal Highway Administration to amend the Motor Carrier Safety Regulations to prohibit smoking by occupants of buses subject to the jurisdiction of this Administration, a Notice of Proposed Rule Making was issued in the Federal Register. One thousand five hundred and five responses have been received to that Notice. In response to a request for an oral hearing on this subject by the petitioner, a hearing has been set for July 29, 1970, at 9:30 a.m. Copies of the Notice of Proposed Rule Making and the announcement of the hearing are enclosed for your information. We are also taking the liberty of including a copy of your letter in Docket No. MC-19, Smoking on Buses.

On June 1, 1966, a Notice and Order (Ex Parte No. MC-69), concerning seat belts in buses, was issued by the Interstate Commerce Commission. On April 1, 1967, the safety functions of the Commission were transferred to the newly formed Department of Transportation. The motor carrier safety responsibilities, including Ex Parte No. MC-69, were assigned to this Bureau.

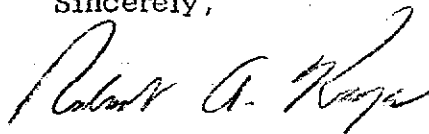
The twenty-seven responses to Ex Parte No. MC-69, as well as other available data in this area, were studied in detail. Because of certain operational problems, structural limitations of existing buses and studies currently being made by the National Highway Safety Bureau relating to the safety performance requirements of buses to be built in the future, it was determined not to propose to require installation of seat belt assemblies and anchorages for passenger seats in intercity buses.

Responses to Ex Parte No. MC-69 and accident studies indicated that the public interest would be served by the installation and mandatory use of seat belts for drivers of commercial vehicles. These studies indicate that ejection from the cabs of commercial vehicles is an important cause of fatality and injury to the drivers of those vehicles when they are involved in accidents. We feel that insuring that the driver will remain in his seat during evasive maneuvers and crash situations should decrease the possibility of injury to passengers in commercial vehicles and to other users of the highway. The enclosed amendment to the Motor Carrier Safety Regulations, published in the Federal Register on July 3, requires that seat belts be installed for and utilized by, drivers of commercial motor vehicles. This amendment also officially discontinues the proceedings under Ex Parte No. MC-69.

The National Highway Safety Bureau, of this Department, has issued an Advance Notice of Proposed Rule Making, requesting comments from interested persons regarding seating and restraint systems for bus passengers. This Bureau is working closely with the National Highway Safety Bureau to insure that adequate and safe interior configurations are provided for occupants and drivers of all commercial vehicles. For further information on the rule making activity of the National Highway Safety Bureau, we suggest you contact Mr. Douglas Toms, Director, National Highway Safety Bureau, Washington, D.C., 20591.

In view of this Bureau's past studies and the recently terminated rule making proceeding on this subject, and the present studies and rule making proceeding of the National Highway Safety Bureau of this Department, there would seem to be no need for this Bureau to reopen the proceedings concerned with seat belts for the use of bus occupants. Therefore, the petition included in your letter is denied.

Sincerely,



Robert A. Kaye
Director

Enclosures