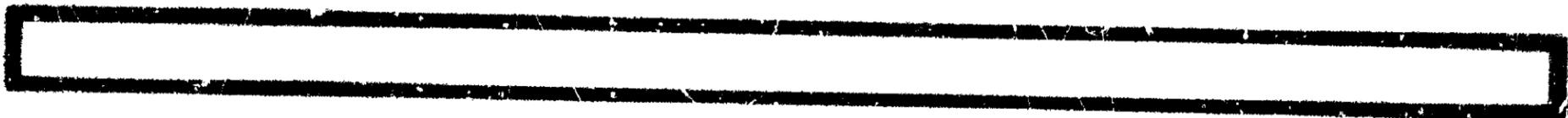
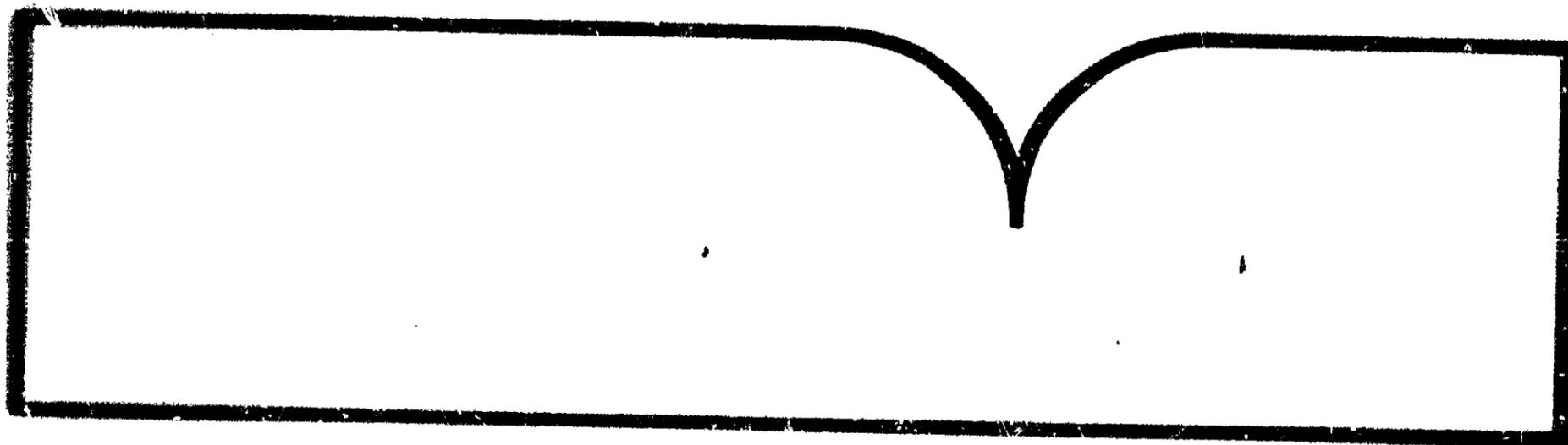


PB87-916207

Highway Accident Report - Trailways Lines, Inc.
Intercity Bus Collision with Rising Fast
Trucking Company, Inc., Interstate Highway 40
near Brinkley, Arkansas, July 14, 1986

(U.S.) National Transportation Safety Board
Washington, DC

21 Jul 87



U.S. Department of Commerce
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16. Abstract On July 14, 1986, a tractor-semitrailer combination operated by Rising Fast Trucking Company, Inc. was making a U-turn at a highway crossover on I-40 near Brinkley, Arkansas, when the semitrailer was struck by an eastbound intercity bus operated by Trailways Lines, Inc. The RFT truckdriver and his codriver were not injured. The busdriver and 27 passengers sustained injuries ranging from minor to serious. One passenger was not injured. The National Transportation Safety Board determines that the probable cause of this accident was the attempt by the driver of the Rising Fast Trucking Company, Inc., vehicle to execute an illegal U-turn at a highway crossover. Contributing to the severity of the accident was the operation of the Trailways Lines, Inc., intercity bus at a speed which did not permit adequate time and distance to slow or stop the bus to avoid the collision.					
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EXECUTIVE SUMMARY

On July 14, 1986, at about 4:15 a.m. a tractor-semitrailer combination operated by Rising Fast Trucking Company, Inc., was making a U-turn at a highway crossover on I-40 near Brinkley, Arkansas, when the semitrailer was struck by an eastbound intercity bus operated by Trailways Lines, Inc. The truckdriver and his codriver were not injured. The busdriver and 27 passengers sustained injuries ranging from minor to serious. One passenger was not injured.

The National Transportation Safety Board determines that the probable cause of this accident was the attempt by the driver of the Rising Fast Trucking Company, Inc., vehicle to execute an illegal U-turn at a highway crossover. Contributing to the severity of the accident was the operation of the Trailways Lines, Inc., intercity bus at a speed which did not permit adequate time and distance to slow or stop the bus to avoid the collision.

This report discusses several safety issues including the lack of a Federal rule which requires the employer of a commercial motor vehicle driver to periodically obtain the driving violation conviction record of the driver from the State which issued the driver his license, and a provision of the Arkansas Motor Vehicle and Traffic Laws which, under certain circumstances, prevents a commercial vehicle driver's employer from obtaining a complete driving violation conviction record from that State.

The report concludes that the Federal Highway Administration should promulgate a rule which requires the employer of a commercial vehicle driver to annually obtain the driver's driving violation conviction record from the State which issued the driver's license; that the Arkansas General Assembly should revoke the provision of the Arkansas Motor Vehicle and Traffic Laws which restricts under certain circumstances the information that an employer may obtain concerning a commercial motor vehicle driver's driving violation conviction record; and that the American Trucking Associations, Inc. (ATA) should report restrictions limiting the availability of complete driving violation conviction records of commercial vehicle drivers in a booklet periodically published by the ATA. The report contains safety improvement recommendations which address these issues.

**NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C. 20594**

HIGHWAY ACCIDENT REPORT

**TRAILWAYS LINES, INC., INTERCITY BUS COLLISION
WITH RISING FAST TRUCKING COMPANY, INC., TRUCK
INTERSTATE HIGHWAY 40 NEAR BRINKLEY, ARKANSAS
JULY 14, 1986**

Adopted: July 21, 1987

INVESTIGATION

The Accident

About 4:15 a.m. on Monday, July 14, 1986, an intercity bus operated by Trailways Lines, Inc. was traveling eastbound on I-40 near Brinkley, Arkansas, when it collided with the left rear of a tractor-semitrailer combination operated by Rising Fast Trucking Company, Inc. (RFT). At the time of the collision the RFT vehicle was making a U-turn which resulted in the RFT semitrailer's blocking both eastbound traffic lanes at a highway crossover from the eastbound to the westbound lanes of I-40 at milepost 210.4 near Brinkley, Arkansas. At the time of the collision the bus was transporting 28 passengers from Little Rock, Arkansas, to Memphis, Tennessee, on a leg of a regularly-scheduled run. One passenger reported that the busdriver screamed, "Hang on!" just before the collision.

The force of the collision caused the RFT semitrailer to rotate in a counterclockwise direction, and it came to rest in the highway median. The RFT semitrailer did not separate from its truck-tractor and came to rest in the highway crossover facing northwest with the front of the tractor partially blocking the inside lane of westbound I-40. (See figures 1 and 2.)

After the collision the bus continued in a southeasterly direction, left the pavement of the eastbound roadway, overturned 90° to the left, and came to rest on its left side on a grassy slope facing south with the rear of the bus about 17 feet south of the edge of the eastbound shoulder of the roadway. (See figure 3.) The weather was clear, it was dark with no artificial highway lighting at the site, and the pavement was dry. The vehicles did not catch fire.

Before the collision a truckdriver who was driving eastbound on I-40 near milepost 208 reported that he heard talk on his citizen's band (CB) radio about a little sports car and a Trailways bus racing and "acting crazy." At that time a Trailways bus passed his truck traveling in the left lane of eastbound I-40. A small automobile also passed him and almost cut him off when the auto changed lanes in front of him.

The truckdriver reported that he looked at his speedometer at the time the bus passed him and the truck's speed was 65 mph. He estimated that the bus was traveling at least 80 mph when it passed, and that the bus continued to pull away from him as both vehicles continued eastbound. When the bus was about 1/2 to 3/4 of a mile ahead of him and still appeared to be traveling in the left eastbound lane, the truckdriver saw a cloud of dirt and the bus tipping over onto its left side. He then saw the lights of a tractor-semitrailer in the highway median.

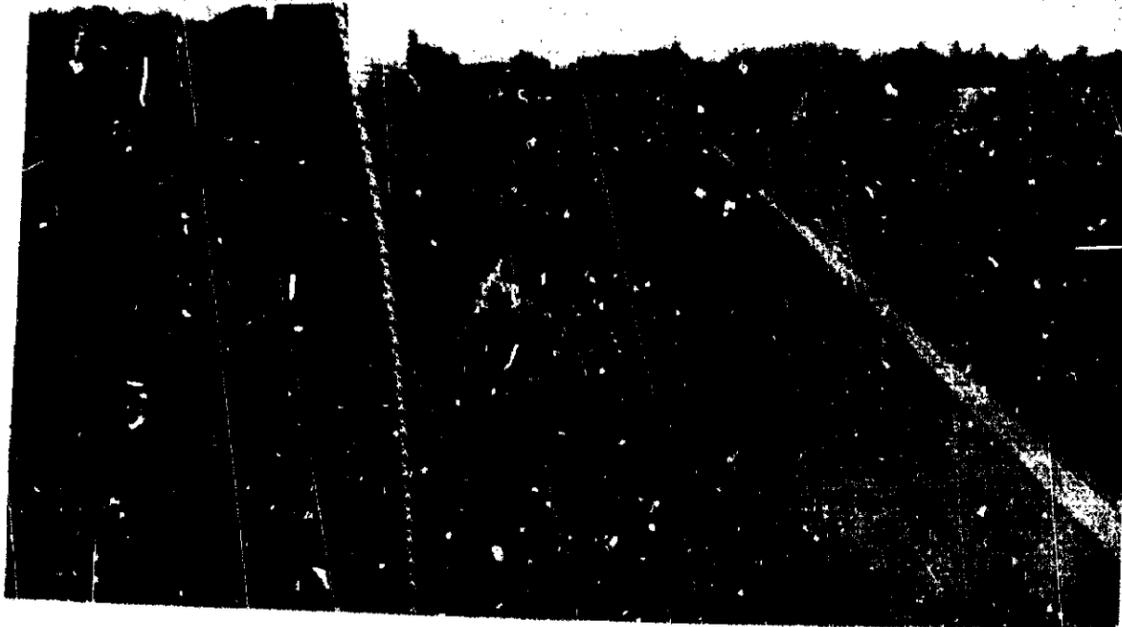


Figure 1.--View of accident site looking east.
RFT vehicle is in median at left.
(Photo courtesy of the Brinkley Argus.)



Figure 2.--Final rest position of RFT vehicle.
(Photo courtesy of the Brinkley Argus.)



Figure 3.--Final rest position of the Trailways bus.
(Photo courtesy of the Brinkley Argus.)

Another truckdriver who was traveling westbound reported that when he was about 1/4 of a mile east of the crossover he saw headlights of a vehicle turning into the crossover. At first he thought it was a police car turning around, but as he got closer he saw that it was a truck with its trailer lights turned off. He saw the truck stop in the median and then lurch forward.

The RFT truckdriver and his codriver, who was in the RFT tractor's sleeper berth at the time of the collision, were not injured. The busdriver and 3 passengers were hospitalized with serious injuries, 9 of the passengers were hospitalized with minor to moderate injuries, and 15 passengers were treated for minor to moderate injuries and released. One passenger was not injured.

The following table summarizes the injuries sustained by the vehicle occupants in accordance with the American Association of Automotive Medicine's Abbreviated Injury Scale (AIS).

	<u>Drivers</u>	<u>Passengers</u>	<u>Total</u>
AIS-3 (Serious)	1	3	4
AIS-2 (Moderate)	0	3	3
AIS-1 (Minor)	0	21	21
AIS-0 (Not injured)	1	2*	3
Total	2	29	31

*Includes one bus passenger and codriver of RFT vehicle.

Emergency Response

The truckdriver who was westbound before the collision reported that he stopped his truck just west of the crossover and ran across the highway toward the bus. As he approached the bus he saw one woman who he thought was dead lying on the ground near the rear of the bus. He stated that he believed that this occupant was ejected in the collision. He removed the emergency hatch located on the vehicle's roof at the front and helped one woman out through the hatch, then entered the bus through the opening at the front caused by the collision and began helping the bus occupants out of the wreckage through the opening. The RFT truckdriver also reported that he assisted occupants out of the bus.

The Brinkley Police Department (BPD) dispatcher was initially notified of the accident at 4:28 a.m. by a call over the CB radio. A second CB call at 4:32 a.m. advised the BPD dispatcher that ambulances were needed at the accident site.

The first BPD police officer arrived at the scene at 4:33 a.m. and performed first aid to stop the bleeding of the busdriver and two other passengers who were seriously injured. Another BPD police unit arrived shortly thereafter. The BPD dispatcher notified the Monroe County Sheriff's Office and the Arkansas State Police at 4:36 a.m. A sheriff's deputy arrived at the scene at 4:45 a.m., and two or three additional deputies also arrived later. The first State Police officer to arrive on the scene was on call and was notified at home about 17 miles away from the accident site at 4:39 a.m. He arrived on the scene at 5:02 a.m. Two additional State Police officers subsequently responded.

Emergency response personnel noticed that the bus had spilled fuel at the accident site, and at 4:50 a.m. one of the BPD units on the scene requested that his dispatcher notify the fire department, page the firefighters, and send more ambulances. The Brinkley Volunteer Fire Department, which was staffed by paid part-time and volunteer firefighters, was notified at 4:50 a.m. and the firefighters' personal pagers were activated. A pumper and rescue truck were dispatched and a total of 11 firefighters responded.

All occupants were outside the bus when the firefighters arrived and it was not necessary to use any extrication tools to free the victims. Although there was no fire, several firefighters stood by with a charged hand line in case a fire broke out. Firefighters who had Emergency Medical Technician (EMT) training assisted in aiding the injured. The fire department vehicles returned to the station at 5:50 a.m.

Delta Medical Center at Brinkley was notified of the accident by the BPD dispatcher at about 4:33 a.m. and ambulances were dispatched. The hospital's disaster plan was implemented and within 15 minutes of notification about eight nurses and physicians had responded; however, hospital personnel did not go to the scene.

Subsequent calls were made for additional ambulances--the last call being made at 5:10 a.m.--and five ambulances from the Brinkley, Hazen, Carlisle, and Clarendon ambulance services responded. All of the injured arrived at the Brinkley hospital between 5:30 and 6:00 a.m. Six persons including the busdriver were subsequently transferred to other hospitals in Little Rock, Arkansas, and Memphis, Tennessee, due to the severity of their injuries.

On the evening of July 13 and during the morning of July 14, the State Police radio network experienced problems because the transmitter was not producing full power. During this time, the BPD dispatcher relayed State Police radio broadcasts between the accident scene and the Forest City, Arkansas, State Police barracks. According to the BPD dispatcher, the problem with the transmitter did not cause any difficulties with police, fire department, or ambulance radio communications.

Busdriver Information

Employment History.—The 38-year-old busdriver had been employed by Trailways since July 1977. According to his employment application prepared in September 1976 he had previously been employed as a truckdriver, a painter, and as a member of a survey team. According to his personnel file, the only record of any disciplinary action taken against the driver was a 10-day suspension without pay in 1983 for operating a bus off its assigned route.

In the space provided on his Trailways employment application for listing all unexpired driver licenses and permits, the driver reported that he had a Missouri chauffeur's license which was due to expire in October 1977. He did not report holding any other licenses. The employment application also asked if he had ever been denied a license to operate a vehicle and if his license to operate a vehicle had ever been suspended or revoked. The driver answered "no" to both these questions.

The driver reported on his employment application that he had driven in Missouri and Kansas during the 5 years before the application date, and in response to a request on the application that he report all traffic citations and forfeitures of bond or collateral in the past 5 years, he reported that he had been convicted of speeding once in Missouri in 1974 and once again in 1975.

Licensing Information.—At the time of the accident the busdriver held a valid Arkansas for-hire chauffeur's license which authorized him to drive intercity buses. In November 1974, before the driver was employed by Trailways, his Arkansas license had been suspended for 1 year for being a habitual violator.

On November 5, 1974, 3 days before his Arkansas license was suspended, the busdriver was issued a chauffeur's license by the State of Missouri. According to the records of the State of Arkansas, when his Arkansas license was reinstated a year later in 1975, he surrendered his Missouri license to the Arkansas licensing authorities, although he later claimed he still had the Missouri license when he applied for employment at Trailways in September 1976.

On May 30, 1978, and May 5, 1980, the State of Arkansas issued the busdriver warning letters for accumulating excessive driving points, and on October 27, 1981, Arkansas notified the driver that effective November 6, 1981, his Arkansas license was to be suspended or revoked. The busdriver was given an administrative hearing on December 7, 1981, which resulted in the driver being placed on probation until March 7, 1982. A condition of that probation required that the driver take a driver improvement course, and the hearing officer noted on the hearing record that "he understands if any moving violations are received during this period, he will be suspended." The busdriver successfully completed the driver improvement course on January 6, 1982.

On February 12, 1982, the busdriver was charged with speeding 67 mph in a 55 mph zone while operating a Trailways bus. On February 23, 1982, the driver was found guilty and was fined \$38.50 plus \$9.50 in costs for the violation.

The busdriver's probation ended on March 7, 1982. When questioned as to why the busdriver's license was not suspended or revoked because of the February speeding violation, a representative of the Arkansas Department of Finance and Administration, the agency responsible for the issuance, suspension, and revocation of driving licenses in the State, testified during a deposition taken by Safety Board investigators that "he didn't get caught in time," and that the notification of the conviction was probably not received from the convicting court until after the term of the probation had expired.

A search of the records of the remaining 48 States indicated that the busdriver had not been issued any other driver licenses.

Driving Record.—From June 20, 1973, to the date of the accident, the busdriver had a total of 23 convictions for moving violations. In 1973 he had one conviction for improper backing and one for operating a vehicle too fast for conditions; in 1980 he had one for improper passing or lane usage while driving a Trailways bus. The remaining 20 convictions were for speeding, 6 of which occurred before the driver was employed by Trailways. Of the 14 speeding violation convictions which occurred after the driver was employed by Trailways, 11 occurred while the driver was operating a Trailways bus. (See appendix B.)

Training.—The busdriver successfully completed a bus operator training program conducted during June and July of 1977, consisting primarily of instruction by an experienced busdriver. This on-the-road training included pretrip vehicle checks, bus handling, report preparation, ticket handling, mechanical reports, and other routine driver duties. The busdriver was certified as being qualified for regular route service on July 12, 1977.

Activities Before the Accident.—The busdriver could not be interviewed immediately after the accident due to the severity of his injuries. When he was interviewed on April 29, 1987, he reported that he had no recollection of the night of the accident after taking tickets from passengers before departure from the Little Rock Trailways terminal.

According to the busdriver's daily logs and an interview with his wife a week after the accident, he was off duty at home from about 10:15 a.m. on July 11 to 3:30 a.m. on July 12, at which time he reported for work at the Trailways Little Rock terminal and drove to Memphis, arriving there about 6:30 a.m. After a 30-minute wait at the Memphis terminal, he returned to Little Rock driving another bus, arriving in Little Rock at 10:00 a.m.

He was off duty at home from about 11:00 a.m. until 10:30 p.m. on July 12. He ran family errands and slept about 5 3/4 hours and reported for work at the Trailways terminal in Little Rock at 10:30 p.m. He left Little Rock en route for Texarkana, Arkansas, at 11:00 p.m. and arrived there at 3:00 a.m. He was off duty for 4 3/4 hours and his wife reported that she believed he slept for 4 hours in Texarkana. At 8:00 a.m. he reported back for work and left Texarkana en route for Little Rock with a different bus at 8:15 a.m. and arrived in Little Rock at 12:15 p.m. His wife reported he was off duty the rest of the day before the accident, that he possibly slept the afternoon before the accident, and slept at least 4 1/2 hours until 2:00 a.m. the morning of the accident, when he got up and prepared to report for work.

He reported for work at about 3:00 a.m., and left the Little Rock terminal on the morning of the accident "on time," which according to Trailways officials means that he left within 10 minutes of 3:15 a.m. which was the scheduled departure time.

Truckdriver Information

Employment History.--The 29-year-old truckdriver had been employed by RFT for 14 days, since July 1, 1986, at the time of the accident. According to his employment application completed on June 16, 1986, he had been employed as a truckdriver for three different companies since 1973. During the month before he applied to RFT, he had worked as a yard man moving vehicles for an employer in Texas.

The employment application asked the driver if he had ever been convicted of any crime or felony, if he had ever been denied a license, permit, or privilege to operate a motor vehicle, or if any license, permit, or privilege had ever been suspended or revoked. The driver answered "no" to all these questions.

Licensing Information.--The truckdriver was originally issued a Michigan driver's license while he was a resident of that State. This license expired in 1983. At the time of the accident the truckdriver held a valid Texas Class A license issued in 1982 which authorized him to operate tractor-trailer combination vehicles.

Driving Record.--The truckdriver's Texas driving record showed three moving violations between 1982 and 1985, two for speeding and one for failure to observe a stop sign. The truckdriver's Michigan driving record for 1979 and 1980 showed two violations of driving while his license was either expired or suspended, one speeding violation, and one violation of driving without a valid license in his possession. The driver's Michigan license had been suspended three times, twice for an unsatisfactory driving record and once for failure to file satisfactory proof of financial responsibility.

No accident involvement was recorded on the driver's history from either State, and the driver reported that he had not been involved in any accident before his employment with RFT. A search of the records of the remaining 48 States indicated that the truckdriver had not been issued any other driver's licenses.

Training.--The truckdriver was given a road test by RFT, which he successfully completed, at the time he made application for employment.

The driver attended a 3-day orientation immediately before his employment. This orientation included defensive driving and safety procedures, accident reporting, equipment operation, U.S. Department of Transportation (DOT) safety regulations, paperwork, marketing, and RFT policies and procedures. The driver successfully completed written tests on DOT safety regulations and RFT policies and procedures at the conclusion of the orientation.

The driver was initially assigned as a codriver on a trip from Arkansas to North Carolina and return as a continuation of his orientation and training. During this trip he was involved in an accident on July 9, 1986, when the RFT truck he was driving struck a motel sign in a parking lot and caused an estimated \$450 damage. RFT officials deemed the driver at fault in this accident. On completion of this trip, he was considered to have completed the orientation and was assigned as lead driver on RFT units having two drivers.

Activities Before the Accident.--According to RFT officials and the truckdriver, he was off duty from 2:30 a.m. on July 11 until 9:00 p.m. on July 13. On July 11 he slept in the RFT truck driver's lounge in Batesville, Arkansas, from 2:30 a.m. until 8:30 a.m. About 10:00 a.m. he left Batesville and spent the rest of the weekend at home in Perigo, Arkansas, working on his father's farm. He reported he slept about 10 hours the night of July 11-12, about 9 1/2 hours the night of July 12-13, and about 2 hours between 2:00 and 6:00 p.m. on July 13.

On the evening of July 13 he returned to RFT's terminal in Batesville and arrived there about 9:00 p.m. He reported he spent about 1 hour preparing the truck for the trip and then left Batesville at 10:00 p.m. with his codriver en route to his first stop in the Little Rock area scheduled for the morning of July 14.

The truckdriver reported he arrived at a truck stop at the junction of I-40 and Arkansas Highway 161, at milepost 156 of eastbound I-40, about 1:45 a.m. on July 14, where he spent about 1 1/2 hours. During this time he called in his mileage to RFT's dispatcher in Batesville, drank coffee, and ate a piece of pie. He did not report making any other stops.

His codriver reported that when the RFT vehicle arrived in the Little Rock area the lead driver first turned from southbound State Routes 67/167 onto westbound I-40 and drove to a truck stop located at about milepost 142 near Morgan, Arkansas. When he arrived at the truck stop he used the CB radio in what the codriver said was an apparently unsuccessful attempt to buy some "tooth ache medicine," which the codriver stated was a slang term the lead driver used for marijuana. After stopping at the truck stop at milepost 142, the codriver reported that the lead driver then drove east to the truck stop located at milepost 156 of I-40.

Both drivers stated that the RFT vehicle, with the lead driver driving and the codriver in the sleeper berth, left the truck stop at milepost 156 at about 3:15 a.m. The lead driver, instead of entering the westbound lanes of I-40 which would have enabled him to take the most direct route to his first scheduled unloading point in the Little Rock area, entered the eastbound lanes of the highway and began to drive east.

The lead driver reported that for about the next 54 miles he drove eastbound on I-40 without incident, and that when he noticed a sign advising of the Brinkley exit ahead he suddenly realized that he was traveling in the wrong direction, and he used the CB radio to contact the driver of a flatbed truck traveling ahead of him and asked that driver to advise him when the other truckdriver saw a crossover in the median where the RFT vehicle could turn around. The driver of the flatbed truck flashed his brake lights and advised the RFT driver on the CB radio of an upcoming crossover in the median.

The RFT truckdriver reported that he approached the crossover with all his lights on, drove onto the right shoulder, turned on his left turn signal, and checked his left-hand mirror for vehicles approaching from the rear. He reported that he saw lights approaching from the rear, but that these lights were "no bigger than a cigarette butt," and that he estimated that these lights were about 1 to 1 1/4 miles behind him. In one statement he reported that he was traveling about 30 mph, that when he made the turn he did it in one continuous movement without stopping, and that after he began the left turn he could no longer use his left-hand mirror to see vehicles approaching from the rear. In another statement he reported that he really didn't know how fast he was going when he made the turn, but that he was going slow enough not to tip over. When his tractor was in the crossover he felt the collision.

Activities After the Accident.—The RFT driver reported that after his vehicle came to rest he left the cab, saw that it was a bus that had hit his semitrailer, and then re-entered the cab and used the CB radio to call for assistance. He then approached the bus and assisted passengers who were beginning to exit from the front of the bus. The codriver of the RFT truck reported that the force of the collision propelled him out of the sleeper berth onto the engine cover between the driver and passenger's seat in the RFT tractor, and that after he had put on his shoes and socks and as he was exiting the cab to assist the injured bus passengers he looked at his watch and noted that it was 4:20 a.m. He reported that his watch was set about 1 minute slow, so that the time was really about 4:21 a.m.

After the accident a search of the RFT tractor performed by the Arkansas authorities disclosed drug paraphernalia and a small quantity of seeds which the RFT lead driver admitted were his. Laboratory analysis determined that the seeds were marijuana. The RFT truckdriver was subsequently convicted of reckless driving, illegally crossing the highway median, and possession of a controlled substance.

Vehicle Description and Damage

Bus.—The bus was manufactured in 1981 by Eagle International, Inc., and was sold that year to Continental Panhandle Lines, Inc., the owner of the bus at the time of the accident. The bus, which bore National Trailways Bus System number 42520, was being operated at the time of the accident by Trailways Lines, Inc., under an interchange agreement between Trailways Lines and Continental Panhandle Lines. The three-axle bus had a rear-mounted diesel engine and a four-speed automatic transmission.

The bus was equipped with 12 rows of two-passenger seats on the left (driver's) side, and 11 rows of two-passenger seats on the right side of the center aisle, totaling 46 passenger seats.

The collision crushed the left front corner of the bus at bumper level aft about 1 foot; at a height of about 4 feet above ground level the left front of the bus was crushed through the driver's compartment and into the first row of passenger seats. The driver's seat and the first row of passenger seats were torn loose from their attachments to the floor, and the floor was buckled at the first seat row.

The bus was equipped with air-mechanical drum brakes on all wheels. After the accident all of the brake linings were a minimum of 5/8 inch thick, were evenly worn, and were firmly attached to the backing pads. The inside contact surfaces of all the brake drums were clean, smooth, and free of rust, grease, or other foreign materials. The measured and recommended brake push rod travel readjustment length and the type of service brake chamber installed on each wheel as well as tire tread depth and inflation data are shown in appendix C. The bus was equipped with a lap belt for the driver's seat. No lap belts or other restraining devices were installed for the passenger seats. Based on examination of a similar bus, Safety Board investigators determined that before the accident the part of the busdriver's lap belt assembly containing the retractor was attached to the riser between the driver's floor level and the passengers' floor level to the immediate right of the driver's seat. During the postcrash examination, a similar assembly was found in the rear of the bus among other loose wreckage. The retractor portion of the belt assembly was jammed which prevented any further extension or retraction of the belt. About 4 1/2 inches of the belt extended past the plastic retractor guide. No other lap belt parts were found in the wreckage.

Both the left and the right sidewalls of the bus were equipped with seven large windows, as well as a window to the driver's left on the left sidewall, and one smaller trapezoid-shaped window at the rear of both the left and right sidewalls. Each large window, with the exception of the first window on each side, was 27 inches high and 50 inches wide. The first large window on each side measured 27 inches high and was 50 inches wide at the top and 44 inches wide at the bottom. All of the large windows on the left sidewall were broken out. The second large window on the right side was partially broken out; the remainder of the windows on the right side aft of the entrance/exit door at the right front were intact.

The first, third, fifth, and seventh large windows on each side were hinged at the top, latched at the bottom, and were marked "Emergency Exit—Lift Release Bar and Push Out Bottom of Window." The second, fourth, and sixth windows on each sidewall were not

hinged or latched and were marked "For emergency exit-use next window." All of the four large windows on the right side of the bus which were marked as emergency exits were easily pushed out during the postcrash examination.

The bus was equipped with two emergency escape hatches on the longitudinal centerline of the roof located at front over the second row of passenger seats and at the rear over the 10th row of passenger seats. These hatches measured approximately 23 inches long along the longitudinal axis and 20 inches wide along the lateral axis. The front hatch was removed. The rear hatch was jammed so that it could only be opened about 2 inches before it began to bind; however, this hatch could probably have been forced fully open with a minimum of additional pressure.

The bus was equipped with a four-lamp headlamp system; only the outboard lamps were illuminated in the "low beam" mode, and both lamps on either side of the vehicle centerline were illuminated in the "high-beam" mode. The lamps from the left side of the bus were not recovered. Parts of the lamps from the right side with their lenses broken away were found and were removed from the wreckage. The right inboard lamp which was a single-filament type had no filament remaining. The right outboard lamp had two filaments; both filaments were broken away from their outboard support posts, and the coils of both filaments were stretched and elongated near their points of attachment to their inboard support posts.

The filament from the right outboard headlamp which was smallest both in thickness and coil diameter was stretched and was tinged blue-black over most of its length. The filament which was thickest and had the largest coil diameter was also stretched. It was colored silver over its entire length except for a very short portion of the filament adjacent to where it was broken away from its outboard support post; this portion had a very slight blue-black tinge. No shards of broken or melted glass were observed adhering to the smallest filament; shards of glass were found partially melted and adhering to the coil of the largest filament at several locations.

According to data supplied by Trailways, the gross empty weight of the bus, including fuel, was 28,500 pounds. The bus was on a through run and the accident driver took the bus over from another driver who had just previously driven the bus to Little Rock from Fort Smith, Arkansas. The driver who drove the bus on the Fort Smith-to-Little Rock leg of the run reported that when he drove the bus it "appeared to be in good mechanical shape" and that he did not note any mechanical defects on the vehicle condition report (VCR) he prepared at the end of his trip with the bus. The VCR form normally remains with the bus and is normally stowed at the front. This VCR was not recovered after the accident.

Truck.—The RFT power unit was a 1984 three-axle cab-over-engine Peterbilt truck-tractor with a nine-speed manual transmission and a diesel engine. The tractor was equipped with a sleeper berth. RFT officials reported that the tractor weighed 17,380 pounds. Although examination of the tractor failed to disclose any contact damage attributable to a collision with the bus, the steering gear, the rear decking behind the tractor cab, and the right rear brake chamber were damaged in the accident.

The RFT truck-tractor was operated in combination with a 1984 two-axle Utility van semitrailer. The semitrailer was 48 feet long and 102 inches wide. RFT officials reported that the empty weight of the semitrailer was 15,900 pounds.

Each side of the semitrailer, which was painted white with the RFT logo in black, was equipped with three sidemarker lamps on the top side rail - one amber lamp each at the front and the center and one red lamp at the rear. (See figure 2.) Each side of the

semitrailer was also equipped with two sidemarker lamps along the bottom - one amber lamp at the front and one red lamp at the rear. In addition to the two sidemarker lamps at the bottom, each side of the semitrailer was also equipped with three reflectors-one amber reflector each at the front and the center and one red reflector at the rear. The sidemarker lamp and the reflector at the bottom of the left side at the rear were destroyed in the collision.

The top of the semitrailer on the rear was equipped with two red clearance lamps at the upper left and right corners of the vehicle and three red identification lamps. The bottom of the semitrailer on the rear was equipped with four steady-burning tail lamps, two on either side of the vertical centerline of the vehicle, as well as two red reflectors. Each of the four tail lamps was equipped with dual-filament bulbs; the outboard lamp on each side also functioned as a turn signal. Each inboard lamp also functioned as a stop lamp.

On the day of the accident representatives of the DOT, the Arkansas State Police, and the Safety Board examined the lamps on the semitrailer and reported that, with the exception of the sidemarker lamp on the bottom left side at the rear which was destroyed in the collision, the lamps on the semitrailer all could be illuminated. The safety director of RFT testified in a deposition taken by Safety Board investigators that one of the two tail/turn/stop lamps at the left rear did not work after the accident and he replaced the inoperative lamp before he moved the semitrailer from Brinkley to a repair shop in Little Rock on July 15. He was not sure which lamp he replaced.

The lamps on the top of the semitrailer on the rear and on both sides could be turned off or on independently of the other lamps on the vehicle. The safety director also testified that it was not possible to turn off the two sidemarker lamps installed along the bottom on each side, as well as the four tail lamps installed on the rear of the semitrailer at the bottom, without also turning off the head lamps (or driving lamps mounted on the front of the tractor) at the same time.

The lamps of the RFT vehicle were controlled by three toggle switches mounted on a console to the right of the driver's position. The RFT general manager reported that during the collision the driver's arm struck one or more of the toggle switches and broke them off. The total length of the RFT vehicle was 59 feet 8 inches. Contact damage on the left side of the semitrailer began at a point 7 feet from the rear and continued upward and rearward to the rear of the left side. (See figure 2.)

According to a bill of lading provided by RFT, the semitrailer was loaded on July 10, 1986, with a shipment of boxed frozen meat from Kansas City, Kansas, which was consigned to seven destinations in Fayetteville, Fort Smith, Van Buren, Little Rock, and Sherwood, Arkansas. According to the RFT general manager, the cargo consigned to the first four scheduled stops had been delivered, and the remaining cargo, 1,032 boxes of frozen meat, was loaded to a height of about 4 1/2 feet in the front 15 feet of the semitrailer. The net weight of the cargo was 11,748 pounds, and the gross weight of the vehicle was about 45,028 pounds.

Highway Information

The accident occurred 58.4 miles from Trailways' Little Rock terminal and about 6 miles west of the Brinkley exit on I-40. I-40 at the accident site is an east-west four-lane divided highway with the two eastbound lanes separated from the two westbound lanes by a 28-foot-wide grass median. The concrete travel lanes are 12 feet wide, the left shoulders are 4 feet wide, and the right shoulders are 10 feet wide.

The highway at the accident site is on a 11,459-foot radius curve to the left for eastbound vehicles and is level with no visibility obstructions. The highway is marked with a yellow edgeline on the left side and with a white edgeline on the right side of the travel way. A dashed white line delineates the two eastbound traffic lanes, and reflective traffic buttons are located between the dashes.

The crossover through the median, which was not part of the original construction, is 30 feet wide and paved with gravel. An Arkansas State highway official reported that the median crossover was added in 1981 primarily for use by highway maintenance personnel. The crossover is posted with a double-faced 24- by 30-inch reflectorized sign with black letters on a white background stating "Authorized Vehicles Only." The sign was in good condition and was located in the center of the grass median about 6 feet west of the west edge of the crossover.

There was no artificial lighting at the site. According to the State of Arkansas, the wet friction coefficient of the highway surface at milepost 210 was 0.57 and was 0.54 at milepost 210.5. The speed limit for all vehicles at the time of the accident was 55 mph.

The first highway evidence attributed to the accident were straight tire marks, the longest of which was about 82 feet long and began about 103 feet west of the west edge of the crossover and about 3 1/2 feet south of the dashed center line. These straight tire marks continued diagonally from left to right across the right travel lane toward the eastbound shoulder to a point about 30 feet west of the west edge of the crossover. At that point the straight tire marks changed direction from east to southeast at about a 13°-angle and which continued across the right shoulder for about 15 feet and ended at the shoulder's south edge.

Another set of tire marks began at the highway centerline about 35 feet west of the west edge of the crossover, curved to the right, and ended at the shoulder's south edge about 9 feet east of the east edge of the crossover. After a horizontal gap of about 33 feet, marks were found beginning on the grassy slope south of the eastbound roadway leading toward the final rest position of the bus. The vertical distance between the point at the edge of the eastbound shoulder where the curved tire marks ended and the point on the grassy slope where the marks resumed was 3.1 feet.

A third set of tire marks began about 3 feet north of the right eastbound edgeline due south of the center of the crossover. These marks were 68 and 70 feet long, respectively, curved northeastward, and ended in the grass median about 3 feet south of the westbound inboard shoulder edge and about 30 feet east of the east edge of the crossover. A photograph taken at the accident site before the vehicles were moved shows the wheels of the RFT semitrailer resting on these marks. Using photographs and the measurements of the highway and other marks, a plan view of the accident site showing the highway marks and the final rest positions of the vehicles was constructed. (See figure 4.)

Medical, Pathological, and Survival Information

Busdriver.—According to his wife, the busdriver was in good general health with no chronic or acute ailments or illnesses. He reportedly did not use alcohol, tobacco products, or any illicit drugs. The driver drank coffee occasionally. In compliance with DOT regulations, the driver was medically examined on July 24, 1985, and was found to be physically qualified to operate commercial motor vehicles in interstate commerce.

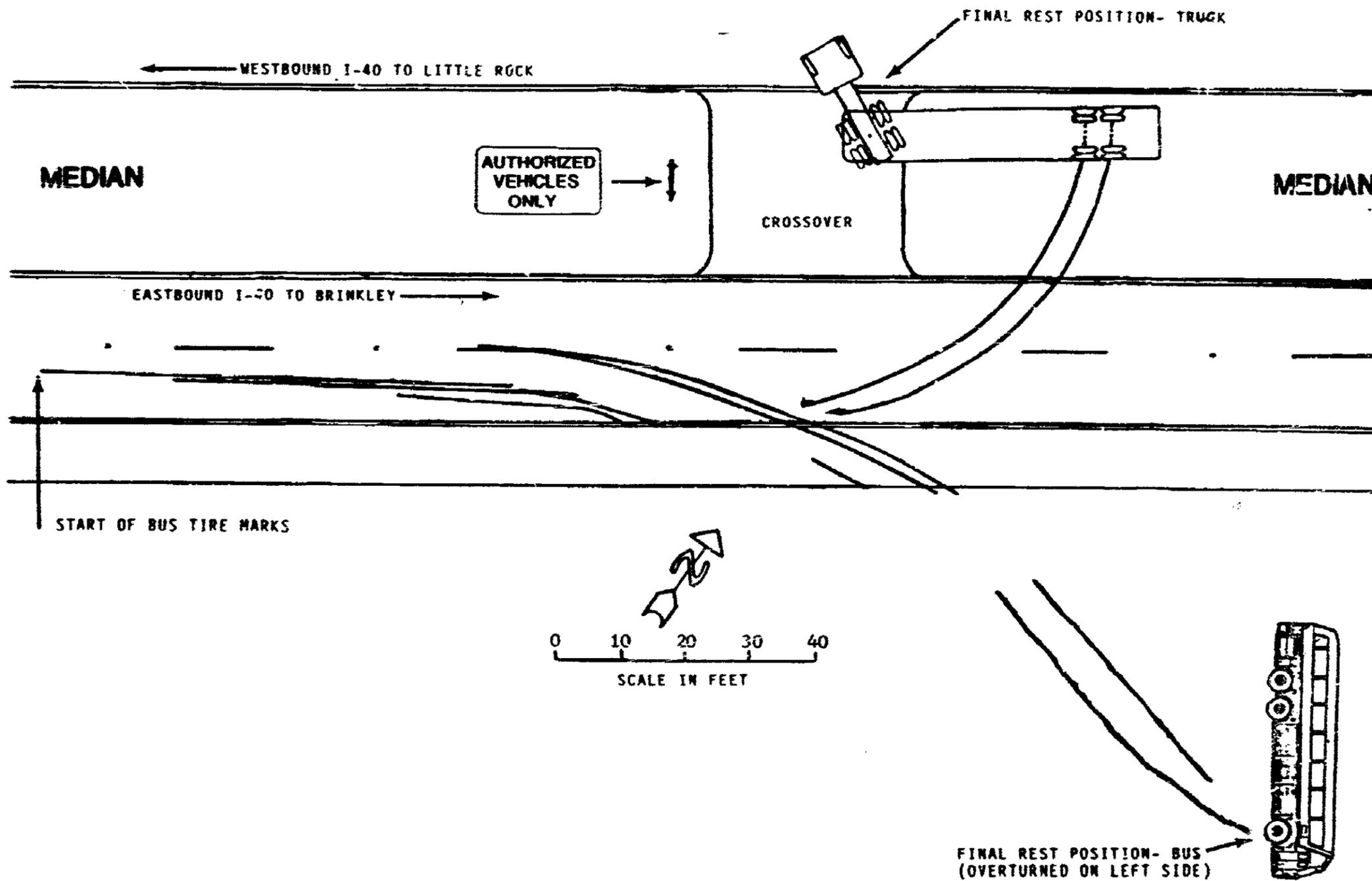


Figure 4.—Plan view of accident site.

According to the Maximum Abbreviated Injury Scale (MAIS), the busdriver sustained MAIS-3 injuries, which are classified as "serious." These injuries included open fractures of the left radius and ulna and the right tibia and fibula; a compound fracture of the left femur; traumatic amputation of the left leg below the knee; and multiple lacerations and contusions over his entire body.

Toxicological analysis of the busdriver's blood and urine were not feasible due to the nature of the treatment administered by medical personnel following the accident. The busdriver was subsequently evacuated to Elvis Presley Hospital in Memphis, Tennessee.

Truckdriver.--The RFT driver reported that he was in good general health with no chronic or acute illnesses or ailments. He reported that he drank several cups of coffee a day, smoked two or more packs of cigarettes a day, and drank alcoholic beverages and smoked marijuana occasionally. He reported that before the accident his last ingestion of alcohol and use of marijuana occurred on July 12 at about 11:00 a.m. when he drank one 12-ounce beer and smoked one marijuana cigarette. He reported that he did not use any other illicit drugs. The RFT driver was not injured in the accident.

Toxicological analyses of samples of the RFT truckdriver's blood and urine which were obtained by the Arkansas State Police about 9:20 a.m. the day of the accident were performed by the Arkansas State Crime Laboratory. Blood test results were negative for alcohol and cannabinoids.

An initial enzyme multiplied immuno-assay test (EMIT) of the urine was positive for cannabinoids. However, when a subsequent and more sophisticated thin layer chromatography (TLC) confirmatory test was performed, cannabinoids were not detected in the urine specimen. A toxicologist for the Arkansas State Crime Laboratory explained that a small concentration of cannabinoids may have present in the specimen which caused a positive result for the EMIT test, but would not have been in a concentration sufficiently high to detect or to quantify when the TLC test was used.

Safety Board investigators obtained some of the blood and urine specimens and forwarded these to an independent laboratory for analyses. The urine specimen leaked out of its container into the surrounding packing material in transit and could not be analyzed. The blood specimen was negative for alcohol and cannabinoids.

Bus Passengers.--The bus was occupied by 28 passengers, including 10 adult males, 12 adult females, 3 male children, 3 female children, and no infants. The ages of the adults ranged from 18 to 84 years and the ages of the children ranged from 6 to 16 years. There were no handicapped passengers reported on the bus.

After the accident Safety Board investigators sent questionnaires to all of the bus passengers to gather information concerning where each passenger was seated, what objects the passenger may have struck during the collision, the nature of injuries sustained, and how each passenger escaped from the bus after the crash. Seven of the 28 passengers responded.

An attorney for a married couple reported that the wife was occupying the left front passenger seat behind the driver and the husband was in the second seat on the same side behind his wife at the time of the crash. Neither the husband nor his wife could recall how they exited the bus after the crash. The wife was the person who the westbound witness reported he observed lying on the ground near the rear of the bus when he approached it.

A 57-year-old female reported that a "young man" broke out a window on the right side of the bus and lifted her granddaughter through the opening. The woman herself escaped through the opening in the front of the bus. An 84-year-old female reported that her right leg was pinned and that two men helped her out the side of the bus (presumably through a window). A 15-year-old male seated in the fifth row on the right side of the bus reported that his head struck the overhead luggage rack during the collision and that he escaped through a window on the right side of the bus toward the rear.

A 16-year-old male reported that he was sitting in the aisle seat of the sixth row on the right side of the bus, that he was thrown forward to the third seat row during the collision, and that he escaped through the opening created by the collision at the front of the bus. This passenger reported that he cut his arm when he punched out a window. A 45-year-old female reported that she could not open a window herself and that she was assisted out of a window by a passing truckdriver. Several of the occupants of the bus reported that the darkness hampered the evacuation of the bus.

According to hospital records, 12 passengers were hospitalized. Three passengers sustained serious (MAIS-3) injuries including multiple fractures, lacerations, and one disattachment of the right foot. These passengers were seated in the first four rows of seats and were subsequently evacuated to Children's Hospital, Baptist Hospital, and University Hospital in Little Rock. The remaining passengers who were hospitalized had moderate (MAIS-2) and minor (MAIS-1) injuries including multiple contusions, lacerations, and one fractured humerus.

Fifteen of the passengers were treated at Delta Medical Center in Brinkley for minor (MAIS-1) injuries, including minor lacerations, abrasions, and contusions and were then released. One passenger was not injured. (See figure 5.)

Bus Route Scheduling

In a deposition taken by Safety Board investigators, a Trailways official testified that the bus' scheduled departure time from Little Rock was 3:15 a.m., that the scheduled arrival time in Memphis was 5:50 a.m., and that the distance between the two terminals was 133 miles. A bus that left Little Rock at exactly 3:15 a.m. would have to average 51.4 mph on highways with a maximum speed limit of 55 mph in order to arrive in Memphis at 5:50 a.m.

The Trailways official characterized this schedule, an express run, as not being unusually fast considering the time of day, traffic density, and the fact that both the origin and destination terminals were only a few blocks from the freeway. He also testified that Trailways tested the schedule during daylight and with more traffic after the accident and that the schedule was met without exceeding any posted speed limits along the route.

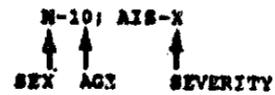
The Trailways Driver Rule Book, effective May 1, 1980, states in Rule S-12, Schedule Time, "It is expected that drivers will operate late under adverse conditions. When departure and/or en route delays develop, such delay time need not be made up on a regular schedule operations. WHEN LATE, STAY LATE."

The busdriver reported that he occasionally had been encouraged by the dispatcher at Little Rock to exceed speed limits to maintain schedules, but that Trailways exerted no pressure on its drivers to do so.

LEGEND

AIS SEVERITY CODE

- AIS-0 NO INJURY
- AIS-1 MINOR
- AIS-2 MODERATE
- AIS-3 SERIOUS
- AIS-4 SEVERE
- AIS-5 CRITICAL
- AIS-6 MAXIMUM INJURY;
VIRTUALLY UNSURVIVABLE



*AMERICAN ASSOCIATION FOR
AUTOMOTIVE MEDICINE:
ABBREVIATED INJURY SCALE

(AIS CODE DETERMINED BY MAXIMUM INJURY)

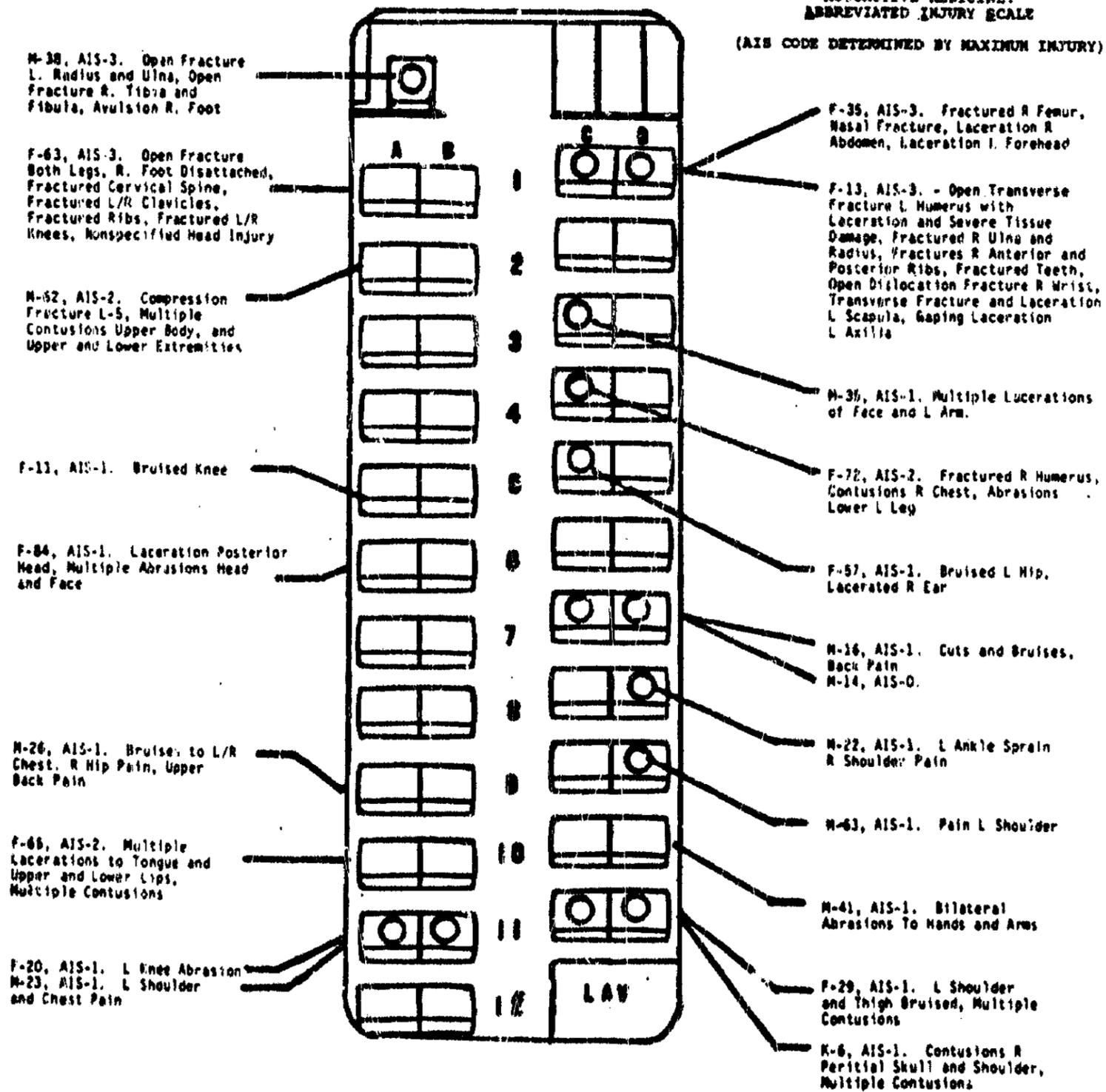


Figure 5.--Partial bus occupant seating and injury chart.

Federal Motor Carrier Safety Regulations

Both RFT and Trailways are motor carriers operating in interstate or foreign commerce, and are, therefore, subject to the requirements of the Federal Motor Carrier Safety Regulations (FMCSR) administered by DOT. These regulations are contained in Title 49, Code of Federal Regulations, Parts 390 to 397.

Section 391.15 of the FMCSR, Disqualification of Drivers, provides that drivers are disqualified from operating a commercial vehicle for the duration of the revocation, suspension, withdrawal, or denial of the privilege to operate a commercial vehicle and until that privilege is restored by the licensing authority that withdrew it.

Drivers are also disqualified from operating a commercial motor vehicle while under the influence of alcohol or an illicit drug, transportation, possession, or unlawful use of certain drugs while on duty, leaving the scene of an accident which resulted in personal injury or death, or the commission of a felony involving the use of a motor vehicle. First offenders are disqualified in most circumstances for a period of one year from the date of conviction. Subsequent offenders are disqualified for three years.

The FMCSR do not specify that a driver must be disqualified for other type(s) of moving violation convictions, such as speeding or reckless driving, or for the accumulation of any number of such violations within any specified period of time.

Section 391.21(9) of the FMCSR requires that a driver applicant list on his employment application the facts and circumstances of any denial, revocation, or suspension of any license, permit, or privilege to operate a motor vehicle that has been issued to the applicant or a statement that no such denial, revocation, or suspension has occurred.

Section 391.23 of the FMCSR requires each motor carrier to determine a driver applicant's driving record during the preceding 3 years by making inquiry of the appropriate agency of every State in which the applicant has held a motor vehicle operator's license or permit during those 3 years. This inquiry must be made within 30 days of the date the driver's employment begins, and a copy of the response by each State showing the driver's driving record or certifying that no driving record exists for that driver must be retained in the carrier's files as part of the driver's qualification file.

Section 391.25 of the FMCSR requires each motor carrier annually to review the driving record of each driver it employs to determine whether drivers meet minimum requirements for safe driving or are disqualified to drive a motor vehicle. The motor carrier must consider any evidence that the driver has violated provisions of the FMCSR or the hazardous materials regulations.

In addition, the motor carrier must consider the driver's accident record, any evidence that the driver has violated laws governing the operation of motor vehicles such as "speeding, reckless driving, and operating while under the influence of alcohol or drugs, that indicate that the driver has exhibited a disregard for the safety of the public."

The FMCSR, however, do not require that an employing motor carrier periodically make inquiry of State licensing agencies to determine a driver's record after the required initial inquiry when a driver is first employed. Section 391.27 of the FMCSR requires each driver to annually furnish to his employer a list of all violations of motor vehicle traffic laws and ordinances (other than violations involving only parking) of which the driver has been convicted or on account of which he has forfeited bond or collateral during the preceding 12 months. If the driver has not been convicted of or forfeited bond or collateral on account of any violation which must be listed, he shall so certify.

Section 392.42 requires that any driver who receives a notice that his license, permit, or privilege to operate a motor vehicle has been revoked, suspended, or withdrawn shall notify the motor carrier that employs him of the contents of the notice before the end of the business day following the day he received it. All of these provisions of the FMCSR have been in effect since at least 1971.

Section 393.14 requires that all semitrailers more than 30 feet long and over 80 inches wide must be equipped with 3 sidemarker lamps—1 amber lamp each near the front and near the center and 1 red lamp near the rear, and a total of 7 steady-burning lamps on the rear—2 clearance lamps, 3 identification lamps, and 2 tail lamps. Section 393.25 requires that these lamps must be visible at all distances between 500 and 50 feet under clear atmospheric conditions at night.

Driver Supervision and Control

Trailways Lines, Inc.—The busdriver's employment application prepared in 1976 reported that he only had a Missouri license, and when Trailways made inquiry of Missouri, that State reported two speeding violations— one in 1975 and one in 1976. The driver did not report that he held an Arkansas license and did not report any driving in Arkansas, and Trailways did not direct any inquiry to Arkansas at the time the driver was employed.

All annual certifications required by section 391.27 of the FMCSR could not be located in the driver's qualification file. It could not be determined if these certifications were not prepared or if they were misplaced. The district manager for Trailways at Little Rock reported that when he assumed his duties at the Little Rock terminal in 1980 he was informed by his predecessor and by the drivers' union representative that the annual certifications required by the FMCSR could not be obtained from drivers at Little Rock because the drivers objected to this procedure. The Little Rock drivers were subsequently required to submit the certifications.

The first annual certification located for the accident driver was dated July 23, 1981, more than 4 years after the driver was first employed, and listed two speeding convictions in Arkansas which occurred in December 1980 and in February 1981. According to available records from the State of Arkansas, neither violation appeared on the busdriver's traffic violation conviction record.

The next available annual certification was dated July 20, 1982, and listed no traffic violation convictions for the previous 12 months. According to Arkansas records, during the 12-month period before the certification date the driver had two speeding convictions, had been required to complete a driver improvement course, and had been on probation as an habitual violator from December 1981 to March 1982.

Additional certifications dated July 18, 1983, July 31, 1984, and July 31, 1985, were located in the driver's qualification file. The 1983 and 1985 certifications both accurately listed one speeding violation during the prior 12 months. The 1984 certification omitted a speeding violation which occurred in May 1984. (See appendix B.) Safety Board investigators obtained the complete driving violation conviction records for the remaining 36 drivers domiciled at the Trailways Little Rock terminal. Eleven of the drivers had clear records with no moving violations. Of the remaining 25 drivers, 9 omitted one or more moving violation convictions from the certifications filed with Trailways during the 3-year period ending July 30, 1986.

In addition to obtaining the annual drivers' certification required by the FMCSR, in 1981 Trailways management instituted a procedure to verify the accuracy of drivers' annual reports of driving violations. Managers were given a directive to make "spot

checks" of their drivers' motor vehicle records by requesting a copy of the driving conviction record from the appropriate State agency for comparison with the annual certification submitted by the driver.

The directive did not require that Trailways managers get State driving violation records for all drivers, but instead suggested that a sample be taken. The size of the sample was to be determined by the number of drivers domiciled at a particular terminal. The accident driver was not included in any sampling of drivers' traffic violation conviction records taken at the Trailways Little Rock terminal after this policy was implemented in 1981.

The Trailways policy concerning sampling of drivers' driving violation conviction records was revised in 1985. Although the policy still provided for spot checks of drivers' traffic violation records, it directed that, "When selecting drivers for the sample check of motor vehicle records drivers will be selected so all drivers at that location will have a motor vehicle records check at least once every three years."

The vice president for safety and security for Trailways testified in a deposition taken by Safety Board investigators that he instituted the 1985 revision because under the old policy, "We could be randomly checking and unless I was systematic we could be getting the same people twice and three times and other people would be going by and never getting checked." The accident driver had not as yet been selected under the revised sampling procedure when the accident occurred.

If a Trailways driver receives a moving traffic citation, Trailways policy requires that the driver notify the company of the citation by the next business day. There was no record in the accident driver's file showing that he had ever complied with this policy.

Trailways uses a progressive discipline policy to bring drivers into compliance with company requirements, starting with counseling to bring about voluntary compliance and ending with termination if less stringent attempts at discipline are not successful. The accident driver's file did not show that there had been any attempts to counsel or otherwise discipline him because of his driving record.

The Trailways official also testified that, even though Trailways had tried in the past to terminate drivers for an excessive number of moving violations, to his knowledge Trailways had never been successful in sustaining a termination when the matter went to arbitration. In one instance, a Trailways driver accumulated 11 speeding tickets in 34 months and Trailways fired him. The matter went to arbitration 24 months later and the arbitrator reinstated the driver with full back pay for the 24 months, stating that in his opinion termination was too severe a penalty for accumulating speeding tickets.

In another instance, a driver's Colorado license was suspended and Trailways fired the driver. The arbitrator reinstated the driver with full back pay, except for the period the driver's license was suspended. In a case in Texas, which has a mandatory 30-day license suspension law for drivers found to be habitual offenders, in a maneuver which the Trailways official characterized as "rather innovative," a Texas justice of the peace suspended a Trailways driver's license for 30 days in compliance with the law and then probated the suspension.

The official further testified that, "It's not easy to convince arbitrators that the industrial equivalent of the electric chair, termination from employment, is something that should be imposed upon a driver for accumulating speeding tickets because 99.9 percent of all the tickets our drivers get are for . . . speeding . . . particularly since the advent" of the 55 mph speed limit.

RFT Company, Inc.—According to an audit performed by the DOT on June 20, 1986, RFT had failed to obtain the annual certification of driving violations required by section 391.27 of the FMCSR for 9 out of 25 drivers checked. RFT officials reported that the required certificates were obtained from all drivers who had been employed by RFT for 1 or more years immediately after the audit was completed. On July 22, 1986, RFT received an unsatisfactory safety rating.

In addition, after the audit RFT began to use the services of a private firm specializing in investigative consumer reports to obtain the State driving records for each driver to verify the accuracy of the driving violation certificates submitted by RFT's drivers.

In order to control where the drivers operate RFT's vehicles, each driver is required to call in to the company at least once a day and to report the mileage displayed on the hubometer which is installed on each of RFT's power units. When drivers receive their training and orientation, they are informed that they will be charged 80 cents for each out-of-route unauthorized mile they operate. The RFT driver involved in the accident signed an agreement indicating his understanding of the unauthorized mileage charge when he received his training and orientation 2 weeks before the accident.

The general manager of RFT testified in a deposition taken by Safety Board investigators that although prospective drivers are routinely informed about the unauthorized mileage charge, no RFT driver had ever been charged for out-of-route miles if he was lost or took a wrong turn. The unauthorized mileage policy was in effect to prevent drivers from intentionally violating dispatch instructions.

He testified that RFT requires its drivers to turn in all citations they receive for moving violations while operating RFT equipment. RFT then pays the fine and deducts the amount from the driver's wages; the citation becomes part of the driver's personnel file. He testified that he had never caught a driver failing to turn in a traffic citation, and that disciplinary action would be taken against any driver who received three moving traffic citations within a 12-month period.

The facts and circumstances of all accidents are reviewed by RFT's safety director, and if it is determined that the driver was involved in three preventable accidents within a 12-month period, the driver is subject to disciplinary action.

Availability of Driving Violation Conviction Records in Arkansas

Driving violation conviction records for Arkansas-licensed drivers are maintained by the Office of Driver Services Section of the Arkansas Department of Finance and Administration (DFA). A driving conviction record for any Arkansas-licensed driver can be obtained by securing a written release from the license holder and the submission of a \$5.00 fee to the DFA. The information routinely supplied does not include violations of which the license holder was convicted or suspensions or revocations which occurred more than 3 years before the driving violation conviction record request was made.

A routine request also may not include all speeding violations. Section 75-1013.1 of the Arkansas Motor Vehicle and Traffic Laws, which was enacted on February 28, 1975, is titled:

An act to prohibit the courts of this State from reporting convictions for speeding under certain circumstances to the Office of Driver Services of the Department of Finance and Administration; and for other purposes.

The wording of the Act itself was revised during consideration by the legislature, and instead of prohibiting the Arkansas courts from reporting certain speeding violations, the act prohibited the DFA from including in a report of convictions of traffic violations those convictions for the offense of speeding if the conviction was based upon speeding in excess of 55 mph but less than the speed limit established for that highway before the enactment of Public Law (PL) 93-239. PL 93-239, which was enacted on January 2, 1974, required the States to establish a maximum 55 mph speed limit on all highways.

When Section 75-1013.1 was enacted, the Arkansas General Assembly stated:

It is hereby found and determined by the General Assembly that the reporting of convictions for the offense of speeding when the speed was in excess of fifty-five miles per hour (55 mph) but less than the speed limit established prior to Public Law 93-239 is working an undue hardship upon the citizens of this State; that said conviction records are used by insurance companies to adjust premiums for motor vehicle coverage; and that under the circumstances as mentioned herein a speeding conviction should not adversely affect insurance premiums since such conviction is not related to safety, but is the result of legislation designed primarily for the purpose of conserving energy. Therefore, an emergency is hereby declared to exist and this Act being necessary for the immediate preservation of the public peace, health and safety shall be in full force and effect from and after its passage and approval.

A representative of the DFA testified in a deposition taken by Safety Board investigators that before passage of Section 75-1013.1, the speed limit on all Arkansas interstate highways was 75 mph, and 60 mph was the speed limit on all other highways. She testified that passage of this law prevented the reporting of all convictions for the violation of speeding from 56 to 75 mph on all interstate highways, and from 56 to 60 mph on all other Arkansas highways.

The DFA representative testified that the speeding violations which fell within the purview of Section 75-1013.1 were "flagged" on the DFA files so that they were not reported. Section 75-1013.1 was amended in 1983 to permit the DFA to report the complete driving violation conviction record of any person holding a chauffeur's license to the prospective employer of such person.

After the accident Trailways officials submitted requests for and obtained from the DFA the driving violation conviction records of all the other 36 drivers domiciled at the carrier's Little Rock, Arkansas, terminal. The DFA response covered driving violation convictions for the 3-year period which ended July 30, 1986. However, Trailways did not specify in its request for driving records that it was inquiring as a prospective employer. Therefore, flagged speeding violations were not included in the drivers' records the DFA supplied.

In response to a Safety Board request the DFA supplied the complete driving conviction records for the same 36 drivers for the same 3-year period ending on July 30, 1986. Comparison of the DFA records supplied to Trailways with the complete driving conviction records furnished to the Safety Board disclosed that 17 of the 36 records supplied to Trailways were incomplete; 10 drivers had one flagged speeding violation, 5 drivers had two flagged speeding violations, 1 driver had three flagged speeding violations, and 1 driver had four flagged speeding violations.

The DFA response also reported to Trailways that for 19 of the 36 drivers "no traffic violation record exists" In 8 of the 19 instances this statement was inaccurate because each of the eight drivers had one or more flagged speeding violations, including the driver who had four flagged speeding violations.

The DFA official further testified that when Section 75-1013.1 was passed, notification of the law was sent to certain volume users of the record service, mostly service bureaus used by trucking and insurance companies, but there was no possible way the DFA could notify every potential user of the record service, and to the best of her knowledge no such notification was sent out by the State.

Arkansas uses a point system to evaluate drivers to determine if their licenses should be suspended or revoked, and points are assessed on a driver's record for speeding violations even if the violation is flagged under the provisions of Section 75-1013.1. Another DFA official testified that under the driving conviction reporting system in effect since the passage of Section 75-1013.1, it was possible for an Arkansas-licensed driver to be suspended or revoked for a number of flagged speeding violations and, if his present employer were to make inquiry of the DFA as to the driver's record, the employer would get a "no violation" report.

A member of the staff of the Arkansas Legislative Counsel advised a Safety Board investigator that in February 1987, House Bill 1174 was introduced for consideration by the General Assembly. The bill proposed to amend Section 75-1013.1 to prohibit the DFA from reporting any speeding violation less than 75 mph regardless of the type of highway on which the violation was committed. According to the legislative counsel staff member, the bill was defeated.

The Commercial Motor Vehicle Safety Act of 1986

On October 27, 1986, Congress enacted PL 99-570, the Commercial Motor Vehicle Safety Act of 1986. Effective July 1, 1987, this Act:

- prohibits, with limited exceptions, commercial vehicle drivers from holding more than one driver's license;
- requires the driver of any commercial vehicle to notify the agency in his State of domicile which issued his driver's license of any conviction for a moving traffic violation in another jurisdiction within 30 days after the conviction;
- requires the driver of any commercial vehicle to notify his employer of any suspension or revocation of his driving privilege within 30 days;
- requires applicant drivers to notify prospective employers of previous employment as a commercial vehicle driver for a period of not less than the previous 10 years; and
- prohibits any employer from using a driver whose driving privilege had been suspended or revoked, or who has more than one driver's license.

If all States participate in implementing provisions of the Act, nationwide uniform standards for testing drivers will be developed; licenses will be issued according to the class of vehicles (heavy trucks, buses, etc.) to be driven; and a central clearinghouse will be established which will identify commercial motor vehicle drivers whose license has

been suspended, revoked, or cancelled, and other information the Secretary of the DOT deems appropriate. The DOT, the States, employees, and employers of commercial vehicle drivers will have access to the system. Implementation of all the provisions of the Act will take more than 6 years to complete.

On June 1, 1987, the Federal Highway Administration (FHWA) published a request for comments to a final rule to be promulgated under the provisions of the Act. The rule implements the mandatory penalties for "serious" traffic violations (including "excessive speeding" which at the present time is not further defined) and felony convictions which are specified in the Act. The FHWA has requested comments from interested parties to further define what the term "excessive speeding" shall mean in the rule. Enforcement will be carried out by the FHWA until such time that individual States adopt their own enforcement statutes or regulations.

The Act provides for grants to States which implement its provisions, and provides for the withholding of highway funds from States which do not substantially comply after September 30, 1993.

Drivers will be disqualified from operating commercial vehicles for a minimum of 1 year for driving under the influence of alcohol or drugs, for leaving the scene of an accident while operating a commercial vehicle, or for using a commercial vehicle in the commission of a felony. A first-time conviction of one of these offenses for a driver transporting a placardable amount of hazardous materials would bring a minimum of 3 years disqualification. A second offense would result in a disqualification for life; the Secretary, by regulation, may reduce the lifetime disqualification to a period of not less than 10 years.

A commercial vehicle driver who has been found to have used a commercial vehicle in the commission of a felony involving the manufacture, distribution, or dispensing of a controlled substance or possession with the intent to distribute will also be disqualified for life.

Two "serious" traffic violations such as "excessive speeding," reckless driving, a violation of law relating to traffic control arising in connection with a fatal traffic accident, or any other violation determined by the Secretary to be serious committed within a period of 3 years will subject the commercial driver to a minimum 60-day disqualification from driving; three such violations will bring a 120-day disqualification. In addition to the disqualifications, drivers may be fined up to \$2,500 for each offense, and employers a similar amount if they "knowingly" allow their drivers to operate with multiple licenses or use a driver who is disqualified.

ANALYSIS

The Accident

The weather and the condition of the highway did not cause or contribute to the collision. No preexisting mechanical defects were found during the postcrash examination of the bus, and the driver who drove the bus on the Ft. Smith-to-Little Rock leg of the schedule reported that the bus appeared to be in good mechanical shape and noted no defects on the vehicle condition report he stated he prepared.

The RPT driver reported there were no defects on his vehicle and no defects which may have caused or contributed to the accident were discovered. The Safety Board concludes that there was no mechanical conditions on either vehicle which may have caused or contributed to the accident.

Safety Board investigators determined that the straight tire marks which began 103 feet west of the crossover and were 82 feet long were marks made by the tires on the right side of the bus, and that the body of the bus was, therefore, over the centerline separating the two eastbound lanes at the time the marks were made. Since the type of marks observed were made with locked tires sliding over the highway surface, these tire marks were skidmarks. Thus, the busdriver applied his vehicle's brakes at the time the marks were made.

Since postaccident inspection of the bus brakes indicated that all the brakes were operable and were properly adjusted, brakes were applied on all the vehicle's wheels even though no brake marks attributable to the tires on the left side of the bus could be seen at the accident site.

Since these tire marks continued diagonally across the right lane toward the eastbound outboard shoulder, the busdriver evidently had initiated a relatively gradual steering maneuver to the right just before the brakes were applied and, as one witness reported, was probably traveling in the left eastbound lane before the steering maneuver was initiated.

The tire marks which began at the highway centerline 35 feet west of the crossover were made by the tires on the left side of the bus. Because these marks are curved rather than straight, they are not skidmarks, but rather are believed to be scuff marks left on the highway by the steering axle and one or more of the bogie or drive axle tires on the left side of the bus. The Safety Board believes that these scuff marks were made when the busdriver made a violent steering maneuver to the right in a last-second attempt to avoid the collision. Because of the violence of the maneuver, the bus may have started its 90°-overturn to the left when this maneuver was made.

All the tire marks attributable to the bus ended at the eastbound shoulder's south edge and began again after a gap of 33 horizontal feet. This gap indicates that the bus was airborne for this distance, and the location of the gap in relation to the third set of tire marks indicates that the bus became airborne after it collided with the RFT semitrailer. Measurements taken at the scene indicated that the difference in elevation between the beginning and the end of the gap was 3.1 feet. By using these data, Safety Board investigators calculated that the bus was traveling 51 mph when it became airborne.

The third set of tire marks averaged 69 feet in length and began about 3 feet north of the right eastbound edgeline. These tire marks are attributed to the tires on the RFT semitrailer. (See figure 4.)

Tests by the State of Arkansas determined that the wet friction coefficient of the roadway was between 0.54 and 0.57 near the accident site. Safety Board investigators expanded the range of possible frictional coefficients from a low of 0.50 to a high of 0.65 to account for possible differences in the frictional characteristics of the testing machine versus the truck and bus tires. This expanded range also considers the fact that the truck's tires slid over two surfaces with possible varying frictional characteristics--the highway and the grass median. These coefficients were used to calculate the speed of the semitrailer when the rear was accelerated northeast by collision forces. By using this expanded range of frictional coefficients, it was calculated that the RFT semitrailer was accelerated northeast by the collision to a speed of between 32 to 36 mph.

The empty weight of the semitrailer was reported to be 15,900 pounds and since the 11,748 pounds of cargo was loaded in the front of the semitrailer, a high proportion of the cargo's weight was on the tractor's drive axle tires. Therefore, 8,000 pounds is a conservative estimate of the weight on the semitrailer's wheels. The empty weight of the

bus was reported to be 28,500 pounds. Using 150 pounds as an average weight for the driver and each of the 28 passengers together with their baggage, and estimating that there was 200 pounds of express freight loaded on the bus, the gross weight of the bus is estimated to be 33,050 pounds.

In one statement the RFT driver stated that he made the turn in one continuous movement into the crossover while traveling at 30 mph. In another statement he reported that he did not know how fast he was going when he made the turn. Analysis of the location of the contact damage, which was confined to the rear 7 feet of the RFT semitrailer, the precollision configuration of the vehicles relative to each other, and the tire marks left on the roadway surface indicates that the RFT driver executed a near right-angle turn from the shoulder to the crossover. (See figure 6.)

Such a right-angle turn could not have been executed at a speed much higher than 15 mph without causing the vehicle to lean to the right. The instability induced by such a maneuver probably would have caused the semitrailer to roll over when it was struck on the left side by the bus. However, the RFT trailer did not roll over after it was struck by the bus.

Other data indicate that the speed of the RFT vehicle was less than 30 mph when the turn into the median was made. Safety Board investigators calculated that it took about 2.5 to 2.9 seconds for the RFT semitrailer to be accelerated an average of 69 feet northeast by the collision and come to its final rest position. Analysis of the position of the RFT tractor at the time of the collision indicates that the RFT tractor traveled only about 7 feet north during the 2.5 to 2.9 seconds. Therefore, the RFT vehicle was traveling at a speed of slightly less than 2 mph after the collision.

The Safety Board believes that had the RFT vehicle been traveling at 30 mph while making the turn into the median, the vehicle would have had to decelerate about 28 mph to its postcollision speed of 2 mph almost instantly. The damage sustained as a result of such a deceleration would have been considerably more severe than the damage actually sustained. Additionally, the RFT semitrailer probably would have separated from the tractor due to the impact.

The Safety Board believes that the RFT driver's initial estimate of his speed was considerably higher than the speed he was actually traveling and that the turn the RFT driver negotiated was probably done at a speed less than 15 mph.

By using pre- and postcollision weights of 8,000 pounds for the RFT semitrailer and 33,050 pounds for the bus, a postcollision airborne speed of 51 mph for the bus, a 32 to 36 mph postcollision speed to which the semitrailer was accelerated as it rotated around the fifth wheel connection to the tractor, and a precollision speed of between 0 and 15 mph for the RFT semitrailer, it is possible to calculate the speed of the bus at the time it struck the RFT semitrailer by using the equation for the conservation of momentum.^{1/} Based on these data, it was calculated that the bus was traveling between 55 and 60 mph at the time it struck the RFT semitrailer.

The straight 82-foot-long skidmarks leading to the point of the collision indicate that the bus driver applied the brakes and, therefore, decelerated the bus before the collision occurred. Safety Board investigators calculated that the speed of the bus when the driver first applied the brakes was between 65 and 72 mph.

^{1/} Conservation of momentum is the principal that in a collision of two solid bodies no momentum (mass times velocity) is lost, which means that the sum of the momentums of the two bodies is the same before and after the collision.

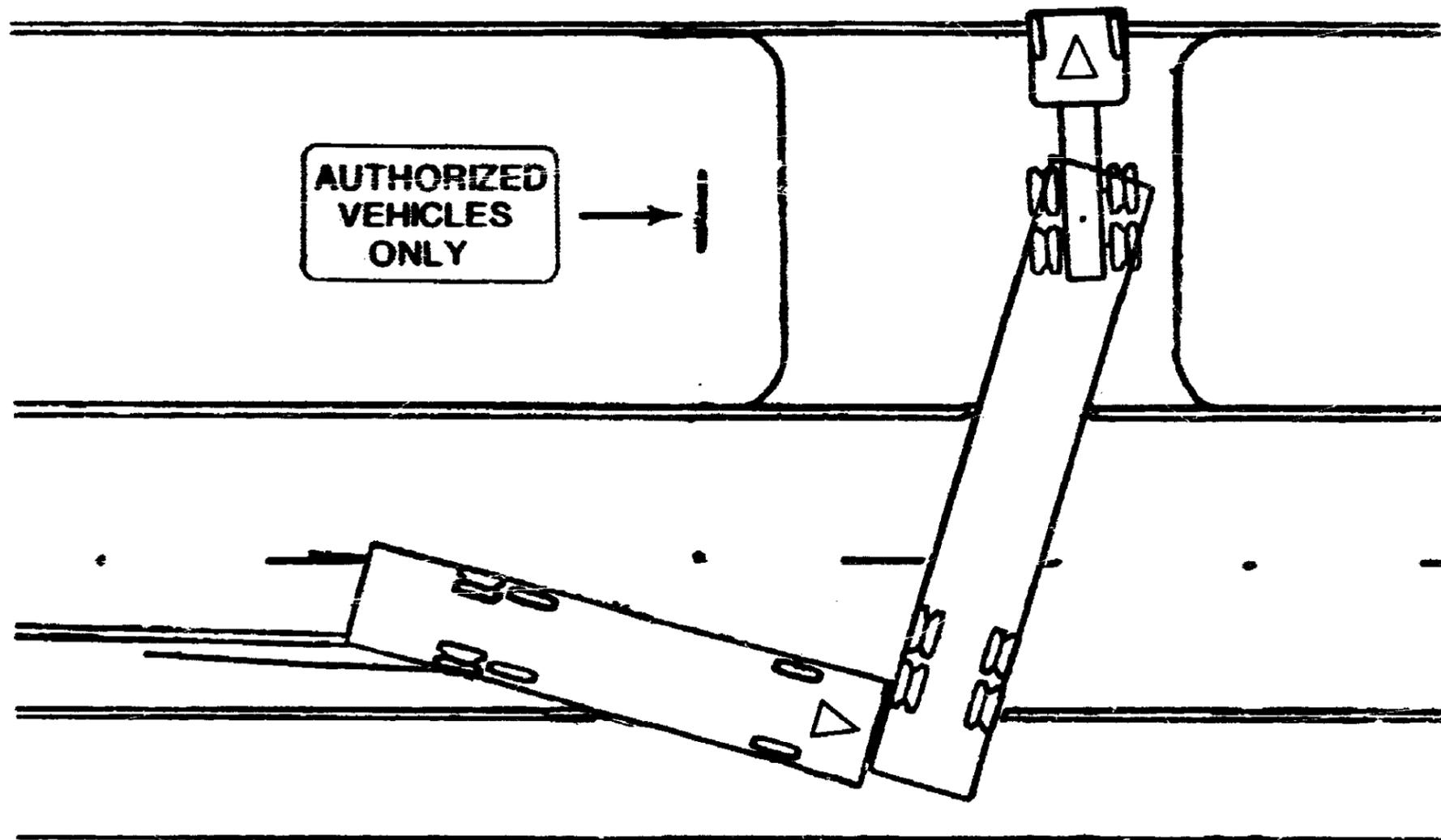


Figure 6—Estimated positions of Trailways and RFT vehicles at point of impact.

Although analysis (see the section on vehicle conspicuity) indicates that the busdriver probably could not have seen the RFT semitrailer blocking the roadway ahead in time to avoid the collision, if the bus was traveling at the 55 mph speed limit rather than at a speed estimated to be between 65 and 72 mph, Safety Board investigators calculated that the speed of the bus at the collision point would have been reduced from about 55 to 60 mph to between 25 and 44 mph. The damage caused by the collision would, therefore, have been considerably less severe.

Lamp Analysis

The stretching and the slight blue-black color and the melted shards of glass adhering to the large filament of the dual-filament headlamp recovered from the bus after the accident indicates that this filament was at an incandescent temperature, and was, therefore, illuminated when the glass lens was broken. This breakage most probably occurred in the collision. Since the large filament was illuminated, the Safety Board concludes that the right outboard headlamp was probably on "high beam" at the time of the accident.

Filaments from the other three headlamps on the bus could not be recovered and analyzed. Although the Safety Board cannot rule out the possibility that one or more of the other three headlamps burned out or were otherwise rendered inoperable before the accident, the available evidence indicates that all the bus headlamps probably were operating properly.

The RFT truckdriver stated that all his lights were illuminated and that he activated his left turn signal before he started the turn into the median. The fact that several investigators examined the lamps of the RFT vehicle the day of the accident and reported that all the lamps could be illuminated does not address the possibility that the RFT driver turned some or all of his lamps off to conceal his illegal U-turn.

The sidemarker lamp which was in the direct impact area and which, therefore, was most likely to display certain "on or off" characteristics was destroyed. Some of the toggles in the RFT tractor's cap which controlled the vehicle's lights were reported to have been broken off by the driver's arm during the collision sequence. (They also may have been broken off by the codriver when he was propelled out of the sleeper berth onto the engine cover.) The position of these switches may have been changed when the toggles were broken. The postaccident position of the toggle switches which activated the lights of the RFT vehicle could not, therefore, be used to help to determine which lights, if any, were illuminated before the collision.

The two dual-filament lamps located at the bottom left of the rear of the RFT semitrailer were closest to the impact area and the filaments of these lamps would probably have displayed characteristics which would indicate whether they were illuminated at the time of impact. It is less likely that other lamps located farther away from the point of impact would have been affected by collision forces whether illuminated or not. In the case of lamps located farther away, the lack of physical evidence that a particular lamp was illuminated is not necessarily proof that it was not.

The RFT safety director testified that he could not remember which one of the two lamps on the left rear of the semitrailer he replaced after the collision and before he moved the semitrailer from Brinkley to Little Rock for repairs. All information available to the Safety Board indicates that the condition of these lamps was not documented before at least one of them was removed and replaced, and which one was replaced is also unknown.

The truckdriver, who was passed by the bus just before the collision, reported that he did not see the RFT vehicle before the collision. The truckdriver who was westbound before the collision reported that he saw headlights turning into the median before the collision occurred and that when he got closer he saw that the RFT trailer's lights were off. Although he reported that the semitrailer's lights were off, it is possible that the truckdriver just did not see them. It is also possible that the collision had already occurred and the lights were turned off when the driver's arm struck the controls when the witness got close enough to see that it was a tractor-semitrailer in the median.

The RFT safety director testified that it was not possible to turn off the sidemarker and tail lamps mounted on the sides and rear of the semitrailer at the bottom without also turning off either the headlamps or the driving lamps on the front of the RFT tractor.

The rear of the RFT semitrailer was equipped with nine steady-burning lamps, two more than is required by Federal regulation. The sides of the RFT semitrailer were equipped with the three sidemarker lamps required by Federal regulation, and in addition, there were two additional side marker lamps— one each at the front and at the rear. There is no evidence that these lamps, if illuminated, did not meet the minimum Federal visibility requirement that they could be seen at all distances between 50 and 500 feet. There is no available physical evidence which enables the Safety Board to determine whether the sidemarker, clearance, and identification lamps mounted at the top sides and rear of the RFT semitrailer were illuminated when the collision occurred. Based on the report by the westbound witness that he saw headlamps on the RFT vehicle when it was entering the median and the testimony by the RFT safety director that it was not possible to have the headlamps or driving lamps on and all lamps on the semitrailer off at the same time, the Safety Board concludes that the two sidemarker lamps on the left bottom side of the semitrailer were probably illuminated at the time of the collision.

Vehicle Conspicuity and Perception/Reaction Time

Safety Board investigators calculated that the distance in which the bus could have been stopped after the brakes were fully applied ranged between 217 and 346 feet at an initial speed ranging from 65 to 72 mph and a frictional coefficient between the roadway and the bus tires ranging from 0.50 to 0.65. This range of stopping distances is supported by a 1984 study performed by the National Highway Traffic Safety Administration ^{2/} which reported that the stable stopping distances for buses were between 200 and 300 feet from an initial speed of 60 mph.

Some of the literature concerning perception time suggests that it may take between 4 and 9 seconds for an unimpaired individual to perceive a danger and determine what action to take to avoid an impending collision. ^{3/} Other data suggests that it takes a minimum of 12.5 seconds to perceive a danger and make a determination of what evasive action to take. ^{4/}

The highway evidence showed an 82-foot-long skidmark before impact. Assuming that it took, as a minimum, about 5 seconds for the busdriver to recognize that the RFT semitrailer was blocking both eastbound lanes and begin to react to the perceived danger,

^{2/} For more detailed information, read—"Heavy Truck Safety Study Prepared in Response to: Section 216: P.L. 98-554, October 30, 1984, Motor Carrier Safety Act of 1984," National Highway Traffic Safety Administration Report No. DOT HS 807 109.

^{3/} Zeller, A. F., "Human Reaction Time," U.S.A.F. Safety Journal, May 1983, pp. 8 & 9.

^{4/} Federal Aviation Administration Advisory Circular No. 90-48C, "Pilot's Role in Collision Avoidance," March 18, 1983.

at a speed of 65 mph his perception distance would have been about $(5 \times 95 \text{ feet/second} + 82)$ 557 feet, and his perception distance at a speed of 72 mph would have been about $(5 \times 105 \text{ feet/second} + 82)$ 607 feet. The Safety Board believes that the busdriver perceived that something was ahead in the roadway at a minimum of about 557 to 607 feet before the collision point.

The estimated minimum perception distances of 557 to 607 feet are consistent with the FMCSR requirement that the lamps on vehicles must be capable of being seen at all distances between 50 and 500 feet. However, because the total estimated minimum perception/stopping distances of the bus ranged from 774 feet $(557 + 217)$ at 65 mph to 953 feet $(607 + 346)$ at 72 mph, the busdriver could not have avoided the collision because the speed at which the bus was being operated and the resultant minimum perception/stopping distance required to avoid the collision exceeded the estimated minimum distance (557 to 607 feet) at which the busdriver could have probably perceived the danger.

Given a reaction time of about $1/2$ to $3/4$ of a second after the busdriver perceived the danger, the 82 feet of skidmarks attributable to a hard brake application indicates that the busdriver probably did not make a decision that a panic stop was the desired avoidance action to take until he was about from 129 feet $(1/2 \times 95 + 82)$ to 160 feet $(3/4 \times 105 + 82)$ from the collision point.

Driver Alertness and Fatigue

Truckdriver.—Variations in working hours that disturb the normal sleep-work pattern can result in circadian disharmony. Additionally, the truckdriver was probably experiencing the adverse effects of fatigue due to sleep deprivation at the time of the accident, attributed to the fact that, except for a 2-hour nap the afternoon of July 13, he had no other rest or sleep for 21 hours before the accident. Furthermore, the accident occurred at a time of day when the driver would have been most vulnerable to lowered alertness. Studies have established that lapses in attentive alertness occur during relatively monotonous work and at predictable times of vulnerability, such as driving between 2:00 and 7:00 a.m. ^{5/}

It is evident that several actions taken by the truckdriver contributed to this accident: he failed to select the correct entrance to the highway to drive to his scheduled destination and consequently was unaware that he was traveling in the wrong direction until about 54 miles had elapsed; he exhibited poor judgement in selecting a potentially hazardous location to turn the vehicle around rather than traveling the additional 6 miles east to use the Brinkley exit; and he failed to make a proper scan of the highway behind him to assure that the way was clear to make the U-turn.

The Safety Board concludes that the combined effects of fatigue due to sleep deprivation, monotony, and vulnerability to attention lapses at that hour of the day combined to decrease the truckdriver's vigilance and also adversely affected his judgement and contributed to his commission of several errors before the collision.

Busdriver.—Although the busdriver was subject to the same factors relating to circadian disharmony, time of day, and driving monotony as the truckdriver, the facts of the accident establish that the busdriver was not sleep-deprived. Therefore, there is no evidence to indicate that fatigue was a factor in the busdriver's performance.

^{5/} Association of Professional Sleep Societies, Committee of Catastrophes. "Catastrophes, Sleep, and Public Policy: Consensus Report," June 1986.

Given a pre-accident speed of 65 to 72 mph and a reaction time of 1/2 to 3/4 of a second, the busdriver perceived the imminent danger and began a full application of the vehicle's brakes when he was about 129 to 160 feet away from the RFT semitrailer. The failure of the busdriver to perceive the danger and take action in time to avoid the collision is probably more attributable to the darkness and the unexpected confrontation with the semitrailer across the roadway than inattention or fatigue.

Medical and Pathological Factors

The available evidence indicates that on the day of the accident both drivers were in good general health with no chronic or acute illnesses. The Safety Board concludes that the drivers' general medical condition and health were not factors in the accident.

The RFT driver admitted smoking a marijuana cigarette and drinking a beer about 36 hours before the accident. The lack of any alcohol or cannabinoids in the blood and the possible presence of only a very minute amount of cannabinoids which caused a positive result in initial screening tests of the urine is consistent with the truckdriver's statement concerning his ingestion of alcohol and marijuana.

The Safety Board concludes that no performance failures can be attributed to the ingestion of marijuana or alcoholic beverages by the RFT truckdriver.

Survival Factors

The Safety Board believes that the retractor half of the lap belt assembly which was found in the rear of the bus during the postcrash examination was part of the lap belt assembly for the driver's position on the bus, and the fact that the belt was jammed in an almost completely retracted position indicates that the lap belt was probably not in use at the time of the crash.

The busdriver and three passengers seated in the first row of seats sustained serious (MAIS-3) injuries. The busdriver and a woman in the seat behind him each sustained a traumatic amputation of a lower limb and foot, respectively, in addition to multiple fractures to upper and lower extremities, a cervical fracture, and multiple lacerations, abrasions, and contusions.

A woman and her 13-year-old daughter occupied the first seat row on the right side. The daughter sustained multiple fractures to upper extremities, teeth, and ribs, and severe lacerations to the upper limbs and torso. The woman sustained a fractured femur and nose and lacerations on the abdomen and forehead.

During the collision sequence the RFT semitrailer penetrated the left front of the bus and continued through the busdriver's compartment into the first row of passenger seats, which separated from the floor when it buckled. Because the structure of the bus was crushed back into the first seat row and these seats were torn loose, lap belts would not have afforded crash protection to the busdriver or the occupants of the first seat row and probably would not have mitigated the seriousness of their injuries.

A male passenger seated in the second row on the left side sustained moderate (MAIS-2) injuries which included a lumbar fracture and multiple contusions. The remaining passengers, except for a woman seated in the 10th row on the left side who sustained moderate (MAIS-2) multiple lacerations to the tongue and lips, sustained minor (MAIS-1) or no (MAIS-0) injuries.

These passengers, who were further away from the impact area of the bus, probably struck environmental surfaces such as seatbacks, armrests, side walls, and overhead luggage racks at the initial impact and again as the bus rolled over and came to rest on its left side. Although use of lap belts may have altered the nature of these occupants' injuries, the injuries would probably not have been any less severe.

Because of the failure of most of the bus passengers to respond to Safety Board inquiries, the Safety Board has no direct knowledge of where most of the passengers were seated, what interior fixtures may have caused passenger injuries, or all of the problems that passengers may have experienced during evacuation of the bus. No estimate can be made as to how long it took for all of the ambulatory passengers to escape or for the extrication of the busdriver and the passengers who were not ambulatory.

It is evident that the large opening at the front of the bus created by the collision was used as an emergency exit by some, if not the majority, of the ambulatory passengers. However, forward progress to this opening would have been initially hampered by broken or separated seats until the path was cleared.

Two passengers reported not being able to open a side window. Since postaccident inspection of the side windows on the right side of the bus disclosed that all windows which were designed as emergency exits opened easily, it is believed that these passengers either did not attempt to open the window(s) by properly using the latch at the bottom or attempted to open a window which was not designed as an emergency exit.

The young man who was reported to have punched out a window and who then lifted a child through the opening probably punched out the second window on the right side of the bus. Postcrash examination showed that the second window was the only one on the right side which was damaged. This window was not designed or marked as an emergency exit, but the passenger probably was unable to make that determination in the darkness. One passenger reported that he cut his arm when he attempted to punch out a window.

Several of the passengers who did respond to Safety Board inquiries reported that darkness inside and outside the bus after the crash greatly hampered the evacuation. As a result of its investigation of a 1973 bus accident in Sacramento, California ^{6/} the Safety Board recommended that the FHWA:

H-74-37

Establish regulations to facilitate evacuation of buses in an emergency. The incorporation of emergency lighting systems actuated through impact, and entry for rescuers should be included in the regulation.

A 1978 study by the FHWA concluded that not enough detailed information was collected on 14 intercity bus accidents studied to assess the extent to which escape was impeded by a dark environment. This recommendation was classified as "Closed - Unacceptable Action" due to the lack of a more positive action by the FHWA.

^{6/} For more detailed information, read Highway Accident Report--"Greyhound Bus Collision with Concrete Overpass Support Column on I-80, San Juan Overpass, Sacramento, California, November 3, 1973," (NTSB-HAR-74-5).

In another accident which occurred about 5:10 a.m. on October 20, 1984, a 1982 Eagle intercity bus operated by Transportation Enterprises, Inc. collided headon with a pickup truck on U.S. 59 about 40 miles east of Laredo, Texas. ^{7/} After impact the bus continued about 140 feet before stopping, and the pickup truck caught fire. The busdriver, the pickup truckdriver, and a passenger in the truck were killed.

The impact with the pickup truck destroyed the electrical circuits of the bus. As a result, the only light source for interior illumination for the bus passengers was burning fuel from the truck located to the left rear of the bus. Initially, some bus passengers escaped through a fixed panel window that had been kicked out. The main loading door was inoperative, and escape through the available side window emergency exits was delayed because the darkness made it difficult for passengers to locate the windows and to read the nearby emergency exit instructions. Several minutes after the collision, headlights from approaching vehicles provided intermittent illumination so passengers could identify and operate side window emergency exits.

As a result of its investigation of the Laredo, Texas, accident, the Safety Board on September 2, 1986, recommended that the National Highway Traffic Safety Administration (NHTSA):

H-86-59

In conjunction with the Federal Highway Administration, adopt standards to require emergency interior lighting for intercity-type buses that is of sufficient intensity and duration to aid occupants in identifying available exit routes and to aid rescuers in assisting injured occupants.

On January 7, 1987, the NHTSA responded by concurring with an FHWA finding that there was no data indicating that any fatalities or injuries have resulted due to insufficient lighting during an accident. The NHTSA recommended, as an alternative, that the private sector be given an opportunity to act on the safety issues identified by the Safety Board. As a result of the NHTSA's inaction, the Safety Board classified Safety Recommendation H-86-59 as "Closed--Unacceptable Action" on March 12, 1987.

As a result of the Laredo, Texas, accident investigation, the Safety Board recommended that the FHWA:

H-86-63

In conjunction with the National Highway Traffic Safety Administration, adopt standards to require emergency interior lighting for intercity-type buses that is of sufficient intensity and duration to aid occupants in identifying available exit routes and to aid rescuers in assisting injured occupants.

The FHWA responded to this recommendation on November 20, 1986, stating that the FHWA did not feel that there was sufficient justification to issue standards for emergency interior lighting for intercity buses. The FHWA provided statistics stating that while an average of 74 deaths and 1,095 injuries per year occurred in all bus accidents between 1979 and 1983, no data exists to indicate the relative contribution of insufficient interior lighting to these deaths and injuries. The Safety Board classified Safety Recommendation H-86-63 as "Closed--Unacceptable Action" on March 5, 1987.

^{7/} NTSB accident No. FTW-85-H-FR02.

The Safety Board is concerned that the DOT does not believe that there is a need for emergency interior lighting on intercity buses. The Safety Board will continue to monitor the hazards posed by the evacuation of crash-damaged intercity buses in darkness and will issue new recommendations concerning this issue if investigation of future accidents indicate that such recommendations are warranted.

One passenger was assisted in using the forward escape hatch in the bus roof as an emergency exit. Postcrash examination of the aft hatch disclosed that it was jammed in such a manner that any light pressure would have completely separated the hatch from its attachments to the roof, and a photograph (see figure 3) of the bus at the accident site shows this hatch in a closed position. The opening at the front of the bus created by the collision was probably used as an emergency exit by most, if not all, of the remaining passengers.

The response to the accident by passing drivers, one or more of whom probably made the first notification of the accident via CB radio to the BPD, and by the first arriving BPD police officer, no doubt contributed to the well being of the injured. The first arriving police officer, by his prompt action to stop the bleeding of the bus driver and two other seriously injured passengers, probably saved their lives. He subsequently received a commendation from his department for his actions.

One aspect of the emergency response had the potential for a far more serious outcome. The Brinkley Fire Department was not notified until 4:50 a.m., which was 35 minutes after the accident (assuming the accident occurred at 4:15 a.m.) and 17 minutes after the arrival of the first BPD unit. There was no fire and this fact probably contributed to the fire department not immediately being notified. When the fire department did arrive, all of the bus occupants had already been removed from the bus and several responding firemen stood by with a charged hand line in case a fire in accordance with established procedures. Several firefighters with EMT training then assisted the injured into ambulances.

The Safety Board believes the potential for fire in vehicular accidents, particularly in those accidents where it is initially unknown whether or not all occupants of a vehicle have been evacuated from the wreckage, merits immediate notification of firefighting units whether or not emergency response units at the scene believe the potential for fire exists.

Self-Certification

The available evidence indicates that both drivers possessed valid licenses and were qualified by reason of their previous experience and/or training to operate the type of vehicles they were driving. However, both drivers concealed information about their driving records from their respective employers.

The RFT driver failed to report that his Michigan license had been suspended. The Trailways driver failed to report that he had several previous moving traffic violation convictions in Arkansas before he applied for employment as a busdriver. He failed to report that he held an Arkansas license and did not report that he had done any driving in Arkansas. He also failed to report that his Arkansas license had been suspended for 1 year because he was an habitual violator. After the driver was employed, he omitted several convictions of moving traffic violations from the annual certifications he furnished to Trailways which were required by Federal regulation.

Examination of the driving violation conviction records of the remaining Trailways drivers at the Little Rock terminal and comparison of these records with the certifications filed in compliance with the DOT regulation requiring them disclosed that 9 of 25 drivers omitted one or more moving traffic violation convictions from the certifications filed with Trailways.

Although the FMCSR require that a prospective employer determine a driver applicant's driving violation conviction record by contacting the licensing agency within 30 days after when the driver is first employed, there is no requirement to periodically obtain a driver's driving violation conviction record from the licensing agency after he is first employed.

At the present time the FMCSR require that a motor carrier annually evaluate a driver's driving violation conviction record, but the evaluation may be based only upon the information the driver voluntarily supplies and any information the carrier can obtain from its own files. A driver, therefore, can easily conceal an extensive driving violation conviction record including violations which should disqualify the driver from further commercial vehicle operation.

The Safety Board believes that it is unreasonable to expect that a driver with an extensive driving violation conviction record would voluntarily report such violations to his employer against his own self-interest. The existing DOT regulation which requires only that a driver file an annual certificate of violations with his employer is, therefore, inadequate to identify commercial drivers with extensive and possibly even disqualifying driving violations.

In apparent recognition of this inadequacy, both motor carriers involved in this accident had instituted procedures to periodically obtain driving violation conviction records from the licensing agency to verify the accuracy of certifications filed annually by their drivers in compliance with Federal regulation.

On the other hand, the lack of a requirement that a motor carrier must periodically obtain and retain on file a driver's driving violation conviction record from the State which issued the driver's license may defeat any requirement that a motor carrier must not "knowingly" use a disqualified driver. To avoid "knowing" a driver is disqualified, a motor carrier need simply not inquire.

The FHWA should without delay modify its rules to require a motor carrier to annually obtain and retain on file as part of the driver's qualification file the driving violation conviction record from the driver's licensing State for each driver it employs.

Availability of Complete Driving Violation Conviction Records

In Arkansas, under certain circumstances a complete driving violation conviction record for a commercial vehicle driver cannot lawfully be obtained by the driver's employer after the driver is employed. The Safety Board believes that this statutory limitation on the availability of information can seriously hamper an motor carrier's efforts to identify potential problem drivers in its work force, and in an extreme case may even result in a motor carrier's continuing to use a driver who has a suspended or revoked Arkansas license.

Furthermore, the practice of withholding information concerning certain speeding violation convictions may mislead a motor carrier into believing that a driver has a clear driving record when he does not. One of the Trailways drivers who was reported to have a clear record by the Arkansas DFA in fact had four "flagged" speeding convictions in the 3-year period covered by the report the DFA sent to Trailways in July 1986.

Although inquiry as to the Trailways accident driver's record was not made in 1986, examination of the speeding violations for the 3-year period before the accident indicate that most of the accident driver's violations probably would not have been reported because they were for less than 75 mph in 55 mph zones. (See appendix B.)

The Safety Board believes that the Arkansas General Assembly should revoke Section 75-1013.1 of the Arkansas Motor Vehicle and Traffic Laws without delay and impose no other limitations on the availability of complete driving violation conviction records to employers of commercial vehicle drivers.

The Commercial Motor Vehicle Safety Act of 1986 does not prohibit the licensing jurisdictions from placing informational barriers in the traffic violation conviction reporting process. Courts may not be required to report or may even be prohibited from reporting certain types of moving violations to a central State driver violation information system. As is the case in Arkansas, other central State licensing agencies may in the future be prohibited by State law from releasing complete driving violation conviction records under certain circumstances.

The Safety Board encourages the FHWA to monitor the actions of the several licensing jurisdictions and to oppose any attempts by the States to impose constraints on the availability of complete driving violation conviction records for commercial motor vehicle drivers.

The American Trucking Associations, Inc., periodically publishes a booklet entitled "How and Where to Check Driving Records and Report Accidents." This booklet contains a State-by-State listing of each State agency where driving records may be obtained, the cost per inquiry, and any special requirements, such as a signed release from the driver, which each State licensing agency has in effect.

According to the March 1987 revision of the booklet, North Dakota will not release driving violation records that have two points or less. Utah will not supply records of any interstate speeding violations of less than 71 mph unless accompanied by a written release from the licensee. The information supplied for Arkansas in the March 1987 revision of the booklet does not include information that all speeding violations on a driver's Arkansas record may not be reported on other than pre-employment inquiries.

The Safety Board believes that the American Trucking Associations Inc., should poll the several States each time before the booklet "How and Where to Check Driving Records and Report Accidents" is revised to determine if any licensing jurisdiction has any laws, regulations, or policies in effect at the time inquiry is made similar to those in North Dakota, Utah, and Arkansas which limit access by employers to complete driving violation conviction records, and publish such information in the booklet.

The Commercial Motor Vehicle Safety Act of 1986

In a 1980 Safety Effectiveness Evaluation Report 8/ the Safety Board discussed the extensive number of violations accumulated by some commercial vehicle drivers without their being disqualified under Federal regulations. On March 5, 1980, the Safety Board recommended the FHWA:

8/ For more detailed information, read "Safety Effectiveness Evaluation of Detection and Control of Unsafe Interstate Commercial Drivers through the National Driver Register, State Driver Licensing Policies, and the Federal Motor Carrier Safety Regulations," February 15, 1980 (NTSB-SEE-80-1).

H-80-17

Evaluate the need for, and feasibility of, specifying in the Federal Motor Carrier Safety Regulations a level of traffic violations, based upon the total number and relative seriousness of the violations, above which a driver is disqualified to operate a commercial vehicle, and within one year publish the findings of the evaluation in the Federal Register for public comment or initiate appropriate rulemaking.

In an April 1986 safety study ^{9/} the Safety Board supported the single license concept for commercial drivers. The Safety Board also stated:

. . .a formula can and should be developed with which a driver would be disqualified for committing a specified number of violations within a specified period of time. The total should include all moving violations, but the system should be able to differentiate between offenses of greater and lesser gravity.

The Commercial Motor Vehicle Safety Act of 1986 provides that commercial vehicle drivers may have only one license to operate a commercial vehicle. The Act also provides that a driver of a commercial motor vehicle who has been found to have committed two "serious" traffic violations in a 3-year period will be disqualified for a period of not less than 60 days, and that a driver with three "serious" traffic violations will be disqualified for not less than 120 days.

As a result of passage of the Commercial Motor Vehicle Safety Act of 1986, the publication of rules implementing certain provisions of the Act in the Federal Register on June 1, 1987, and the FHWA's request for public comment to further define the terms "serious traffic violations," and "excessive speeding," the Safety Board believes that the FHWA has initiated action to implement Safety Recommendation H-80-17. Safety Recommendation H-80-17 was classified as "Closed--Acceptable Action/Superseded" as part of the highway accident report entitled, "Intercity Bus Loss of Control and Rollover Near Walker, California," May 30, 1986. This recommendation was superseded by the following:

H-87-17

Amend 49 CFR 391.11 and 391.15 to specify the number and type of violations of motor vehicle laws and the time interval in which they are committed that would result in qualification for or disqualification from driving a motor vehicle in interstate commerce.

Also issued as a result of the Board's Safety Effectiveness Evaluation, "Detection and Control of Unsafe Interstate Commercial Drivers Through the National Driver Register, State Driver Licensing Policies, and the Federal Motor Carrier Safety Regulations," were Safety Recommendations H-80-18 and -19 which asked the FHWA to:

^{9/} For more detailed information, read—"Training, Licensing, and Qualification Standards for Drivers of Heavy Trucks," April 7, 1986 (NTSB/SS-86/02).

H-80-18

Evaluate the compliance of motor carriers with the Federal Motor Carrier Safety Regulations requirements pertaining to driver disqualification, driver screening, annual review of driving records, and maintenance of driver qualification files, and within 1 year publish the findings of the evaluation in the Federal Register for public comment or initiate appropriate rulemaking.

H-80-19

Evaluate the compliance of motor carriers who are owner-operators with the driver record review and driver disqualification provisions of the Federal Motor Carrier Safety Regulations, and within 1 year publish the findings of the evaluation in the Federal Register for public comment or initiate appropriate rulemaking.

Safety Recommendation H-80-19 was classified as "Closed--Unacceptable Action" on September 23, 1982, based on FHWA response dated August 21, 1980, and June 28, 1982, which held that an evaluation of compliance for owner-operators would be too demanding an undertaking because there is no system even to identify owner-operators as carriers.

Safety Recommendation H-80-18 has been held as "Open--Acceptable Action" since January 26, 1986, based on FHWA promises to provide a summary of Safety Management Audits for 1983, 1984, and 1985. The summary was forwarded to the Safety Board on April 24, 1987. During the time between these two submittals, the Commercial Motor Vehicle Act of 1986 was developed and enacted with a section which effectively covers the intent of this recommendation. Based on the work by the Congress in providing for this issue in the 1986 act, and based on the lack of action by FHWA between 1980 and 1986, the Safety Board now classifies H-80-18 as "Closed--Unacceptable Action."

Any attempt at this time to analyze the effectiveness of the provisions of the Act before it is fully implemented would be premature. The Safety Board will monitor the progress and content of FHWA rulemaking as the provisions of the Act are further implemented and will make additional safety recommendations as it deems necessary.

CONCLUSIONS

Findings

1. The weather and the condition of the highway did not contribute to the accident.
2. There was no mechanical defect on either vehicle which may have caused or contributed to the accident.
3. The busdriver made a violent steering maneuver to the right in a last-second attempt to avoid the collision.
4. The Rising Fast Trucking Company vehicle was not traveling more than 15 mph when it turned left into the median.

5. The Trailways Lines, Inc., bus was traveling between 65 and 72 mph when the busdriver applied the brakes immediately before the collision.
6. The headlamps on the bus probably were operating properly and probably were set on "high beam" at the time of the collision.
7. It could not be determined from analysis of available physical evidence if the sidemarker, clearance, and identification lamps at the top of the Rising Fast Trucking Company semitrailer were illuminated at the time of the collision. The sidemarker and tail lamps on the bottom of the semitrailer probably were illuminated at the time of the collision.
8. The Rising Fast Trucking Company driver was probably experiencing the adverse effects of fatigue due to sleep deprivation at the time of the accident.
9. Sleep deprivation, monotony, and vulnerability to attention lapses at the time of day the accident occurred combined to decrease the truckdriver's vigilance and also adversely affected his judgement and contributed to his commission of several errors before the collision.
10. The failure of the busdriver to perceive the danger and take action in time to avoid the collision is attributed to the speed of the bus in the darkness and the unexpected confrontation with the semitrailer across the roadway.
11. At the time of the accident both drivers were in good general health with no chronic or acute illnesses.
12. No performance failures can be attributed to the ingestion of alcohol or marijuana by the Rising Fast Trucking Company driver.
13. The Trailways Lines, Inc., driver was probably not using the available lap belt installed on the bus. However, use of the lap belt would not have mitigated the busdriver's injuries.
14. The installation and use of lap belts by the bus passengers seated in the first seat row would not have mitigated their serious injuries.
15. The installation and use of lap belts may have altered the nature of the injuries sustained by the rest of the bus passengers, but the injuries would probably not have been any less severe.
16. Darkness inside and outside the bus greatly hampered the evacuation after the crash.
17. Two of the bus passengers probably either attempted to open a side window which was not designed as an emergency exit or were unfamiliar with the proper operation of the latch used to open a window designed as an emergency exit.
18. Both drivers involved in the accident possessed valid licenses and were appropriately skilled by reason of their training and/or experience to operate the type of vehicles they were driving. However, due to his extensive driving violation conviction record, the Safety Board believes that the busdriver should not have been permitted to operate a bus.

Probable Cause

The National Transportation Safety Board determines that the probable cause of this accident was the attempt by the driver of the Rising Fast Trucking Company, Inc., vehicle to execute an illegal U-turn at a highway crossover. Contributing to the severity of the accident was the operation of the Trailways Lines, Inc., intercity bus at a speed which did not permit adequate time and distance to slow or stop the bus to avoid the collision.

RECOMMENDATIONS

As a result of its investigation of this accident, the National Transportation Safety Board made the following recommendations:

-to the Federal Highway Administration:

Revise the Federal Motor Carrier Safety Regulations without delay to require operators of commercial motor vehicles to annually obtain and retain on file the driving violation conviction record for each driver employed from the State which issued the driver's license to operate a commercial motor vehicle. (Class II, Priority Action) (H-87-45)

-to the Governor and the Legislative Leaders of the Arkansas General Assembly:

Revoke Section 75-1013.1 of the Arkansas Motor Vehicle and Traffic Laws without delay and impose no other limitations on the availability of complete driving violation conviction records to employers of drivers of commercial motor vehicles. (Class II, Priority Action) (H-87-46)

-to the American Trucking Associations, Inc.:

Poll all licensing jurisdictions in the United States each time the booklet "How and Where to Check Driving Records and Report Accidents" is revised to determine if any jurisdiction has imposed limitations on the availability of complete driving violation conviction records of commercial vehicle drivers, and include this information in the booklet. (Class II, Priority Action) (H-87-47)

BY THE NATIONAL TRANSPORTATION SAFETY BOARD

/s/ JIM BURNETT
Chairman

/s/ PATRICIA A. GOLDMAN
Vice Chairman

/s/ JOHN K. LAUBER
Member

/s/ JOSEPH T. NALL
Member

/s/ JAMES L. KOLSTAD
Member

July 21, 1987

APPENDIXES
APPENDIX A
INVESTIGATION

Investigation

The National Transportation Safety Board was notified of this accident at 9 a.m. on July 14, 1986, by the news media.

A highway accident investigator was dispatched from the Safety Board's Kansas City, Missouri, field office and arrived on scene the afternoon of July 14, 1986. Highway accident investigators were dispatched from the National Transportation Safety Board headquarters in Washington, D.C. on July 20, 1986. Participating in the investigation were the Federal Highway Administration, the Arkansas State Police, the Arkansas Transportation Commission, Trailways Lines, Inc., Rising Fast Trucking Company, Inc., and the Traffic Violation Report and Driver Control Sections of the Arkansas Department of Finance and Administration.

Depositions and Hearing

On April 29, 1987, Safety Board investigators took depositions from representatives of Trailways Lines, Inc., Rising Fast Trucking Company, Inc., and the Traffic Violation Report and Driver Control Sections of the Arkansas Department of Finance and Administration.

APPENDIX B

BUSDRIVER'S LICENSE, DRIVING VIOLATION, EMPLOYMENT ACCIDENT,
AND DEPARTMENT OF TRANSPORTATION CERTIFICATION HISTORY

<u>Date</u>		<u>Activity</u>
*6/20/73	-	Speeding, 20 or more mph over speed limit, vehicle type unknown, Arkansas.
*7/17/73	-	Accident, improper backing, vehicle type unknown, Arkansas.
*9/5/73	-	Too fast for conditions, vehicle type unknown, Arkansas.
*9/6/73	-	Accident, vehicle type unknown, Arkansas (may be associated with violation on 9/5/73).
10/20/73	-	Issued for-hire Arkansas chauffeur's license.
*10/25/73	-	Speeding, 11 to 20 mph over speed limit, vehicle type unknown, Arkansas.
*12/18/73	-	Speeding, 11 to 20 mph over speed limit, vehicle type unknown, Arkansas.
*3/5/74	-	Speeding, 11 to 20 mph over speed limit, vehicle type unknown, Arkansas.
10/18/74	-	Applied for a Missouri chauffeur's license.
11/5/74	-	Issued Missouri chauffeur's license.
*11/8/74	-	Arkansas license suspended, habitual violator.
*2/18/75	-	Speeding, vehicle type unknown, Missouri license.
11/7/75	-	Arkansas license reinstated. Surrendered Missouri license.
9/3/76	-	Completed Trailways employment application-listed two Missouri speeding citations (in February 1974 and July 1975) on application. Did not report any driving in Arkansas; did not report 1 year (1974-1975) Arkansas license suspension.
9/21/76	-	Speeding, vehicle type unknown, Missouri.
7/14/77	-	Employed by Trailways Lines, Inc.

* Omitted from employment application or moving violation conviction certification filed with Trailways.

- 11/13/77 - Accident, Trailways bus.
- 1/17/78 - Accident, Trailways bus.
- 3/11/78 - Speeding, 11 to 20 mph over speed limit, vehicle type unknown, Arkansas.
- 5/30/78 - Warning letter, point accumulation, Arkansas.
- 7/12/78 - Accident, Trailways bus.
- 8/2/79 - Speeding, 70 mph in a 55 mph zone, Trailways bus, Arkansas.
- 8/6/79 - Speeding, 1 to 10 mph over speed limit, private vehicle, Arkansas.
- 1/28/80 - Speeding, 71 mph in a 55 mph zone, Trailways bus, Missouri.
- 3/12/80 - Improper passing or lane usage, Trailways bus, Arkansas.
- 4/2/80 - Speeding, 60 mph in a 35 mph zone, personal vehicle, Arkansas.
- 5/11/80 - Warning letter, point accumulation, Arkansas.
- 10/5/80 - Accident, Trailways bus.
- 11/4/80 - Accident, Trailways bus.
- 1/3/81 - Speeding, 70 mph in a 55 mph zone, Trailways bus, Arkansas.
- 7/23/81 - Certification filed with Trailways listed two speeding convictions (December 1980 and February 1981) in the previous 12 months.
- *8/8/81 - Speeding, 69 mph in a 55 mph zone, Trailways bus, Illinois.
- 10/27/81 - Notified that effective on 11/6/81 Arkansas license was to be suspended or revoked.
- 11/2/81 - Requested hearing concerning revocation/suspension of Arkansas license.
- 11/16/81 - Notified hearing on revocation/suspension set for 12/4/81.
- 12/4/81 - Arkansas file shows "no show or call susp (suspended) 12/4/81 to 3/4/82 excessive points."
- 12/7/81 - Appeared for administrative hearing, 12/4/81 Arkansas suspension changed to probation as a habitual violator until 3/7/82.
- 1/6/82 - Completed driver improvement course, Arkansas.

APPENDIX B

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- *2/12/82 - Speeding, 67 mph in a 55 mph zone, Trailways bus, Arkansas.
- 3/7/82 - Arkansas habitual violator probation ended.
- 7/20/82 - Certification filed with Trailways listed no traffic convictions in the previous 12 months.
- 10/1/82 - Accident, Trailways bus.
- 1/11/83 - Speeding, 52 mph in a 35 mph zone, Trailways bus, Arkansas.
- 7/18/83 - Certification filed with Trailways listed one traffic conviction (January 1983) in the previous 12 months.
- 2/15/84 - Speeding, 48 mph in a 35 mph zone, Trailways bus, Arkansas.
- *5/26/84 - Speeding, 66 mph in a 55 mph zone, Trailways bus, Missouri.
- 7/31/84 - Certification filed with Trailways listed one speeding conviction (on 2/24/84) in the previous 12 months.
- 12/8/84 - Speeding, 74 mph in a 55 mph zone, Trailways bus, Arkansas.
- 2/24/85 - Warning letter, point accumulation, Arkansas.
- 5/9/85 - Accident, Trailways bus.
- 7/31/85 - Certification filed with Trailways listed one speeding conviction (on 12/18/84) in the previous 12 months.
- 8/30/85 - Speeding, 71 mph in a 55 mph zone, Trailways bus, Arkansas.
- 9/1/85 - Certification filed with Trailways listed no traffic convictions in the previous 12 months (was tried and found guilty in absentia of 8/30/85 speeding violation on 9/27/85).
- 12/4/85 - Speeding, 70 mph in a 55 mph zone, Trailways bus, Arkansas.

APPENDIX C

INFORMATION ON BUS TIRE TREAD DEPTH
AND INFLATION AND BRAKE ADJUSTMENT

Tread Depth and Inflation Information

<u>Location</u>	<u>Tread Depth (inches)</u>	<u>Inflation Pressure (cold) (psig)</u>
Left No. 1 axle	18/32	
Left No. 2 axle	14/32	98
Left No. 3 axle (outside)	13/32	100
Left No. 3 axle (inside)	6/32	101
Right No. 1 axle	17/32	96
Right No. 2 axle	6/32	104
Right No. 3 axle (outside)	13/32	80
Right No. 3 axle (inside)	10/32	101
		103

Brake Adjustment

<u>Location</u>	<u>Measured Push Rod and Travel</u>		<u>Recommended Readjustment Brake Chamber</u>	
	<u>Left (inches)</u>	<u>Right (inches)</u>	<u>Length (inches)</u>	<u>Type</u>
Steering axle	1/2	1/2	1 3/4	16
Bogie axle	1	1	1 3/4	16
Drive axle	1 1/4	1 1/4	2	30