



## National Transportation Safety Board

Washington, DC 20594

### Highway Accident Brief

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**Accident No.:** HWY-01-FH-033  
**Accident Type:** Single-vehicle motorcoach rollover  
**Location:** Interstate Highway 24 near Pleasant View, Tennessee  
**Date and Time:** August 19, 2001, about 7:20 a.m.  
**Vehicle:** 1992 MCI, 47-passenger motorcoach  
**Operator:** Greyhound Lines, Inc.  
**Fatalities/Injuries:** 1 fatality, 38 minor-to-serious injuries

### Accident Description

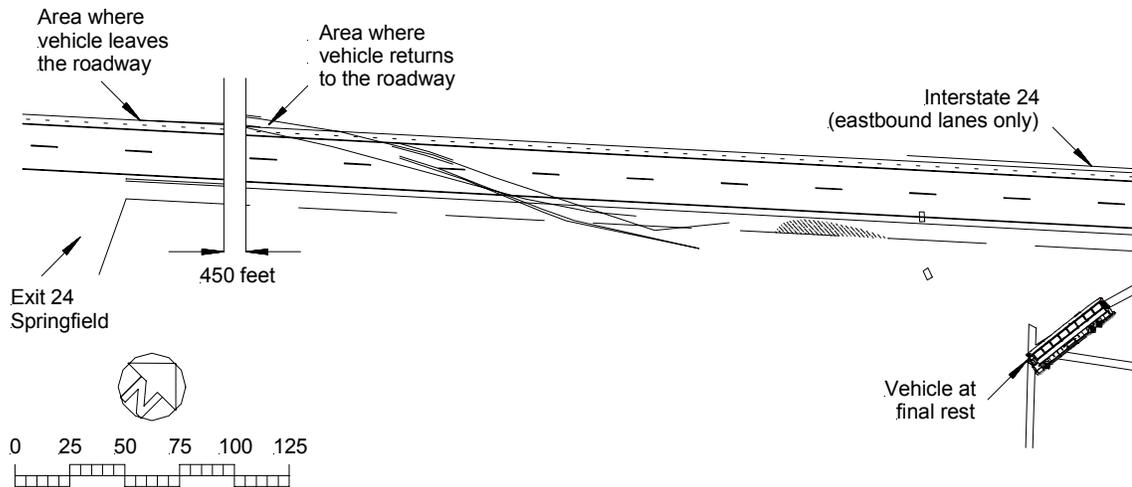
On August 19, 2001, a Greyhound motorcoach departed St. Louis, Missouri, at 12:45 a.m.<sup>1</sup> for Nashville, Tennessee. About 7:20 a.m., the bus was traveling eastbound on Interstate Highway 24 near Springfield (Tennessee) exit 24 and the town of Pleasant View, Tennessee (about 25 miles from its final destination of Nashville, Tennessee). The bus was traveling at or near the 70-mph speed limit in the right-hand lane when it slowly drifted across the left-hand lane, over rumble strips,<sup>2</sup> off the roadway, and into the grassy median. The bus continued forward for approximately 600 feet, then came back onto the pavement at a sharp angle, and began yawing<sup>3</sup> to the left. Next, the bus began turning to the left and yawing to the right and departed the pavement on the right-hand side of the road, continuing into a broadside skid. The bus overturned onto its right side, slid 198 feet on the grassy roadside, and came to rest. (See figure 1.)

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<sup>1</sup> The bus was originally scheduled to depart at 12:15 a.m.

<sup>2</sup> Rumble strips are bands of raised materials or indentations formed or grooved in roadway shoulders that alert drivers starting to drift off the road by transmitting sound and vibration through the vehicle.

<sup>3</sup> To *yaw* is to turn by angular motion about the vertical axis.



**Figure 1.** Accident diagram.

During the overturn, an occupant in the aisle seat of row three on the right-hand side was partially ejected and fatally injured. The driver and the remaining 43 passengers received minor-to-serious injuries. The bus received extensive crush damage on the right-hand (nondriver) side. The driver reported no mechanical problems with the bus, and a postcrash inspection indicated no defects in the brakes, steering, tires, or suspension. According to the police report, no adverse weather conditions existed at the time of the accident.

## Driver Information

The 52-year-old driver was a full-time, extra-board<sup>4</sup> driver for Greyhound. He possessed a valid Missouri commercial driver's license (CDL), had successfully completed Greyhound driver training, and had accumulated 9 months of professional experience as a Greyhound driver at the time of the accident. The driver also possessed a valid Medical Examiner's Certificate scheduled to expire on August 14, 2002. The driver stated that he was wearing prescription lenses at the time of the accident as required by the medical certificate and the driver's CDL. Toxicology tests conducted by the Tennessee Highway Patrol and the Federal Aviation Administration's Civil Aeromedical Institute showed no evidence that drugs, including alcohol, were present in the driver's blood specimen.

Table 1 shows the driver's preaccident schedule. It is based on driver logbook entries and on a driver interview 2 days after the accident.

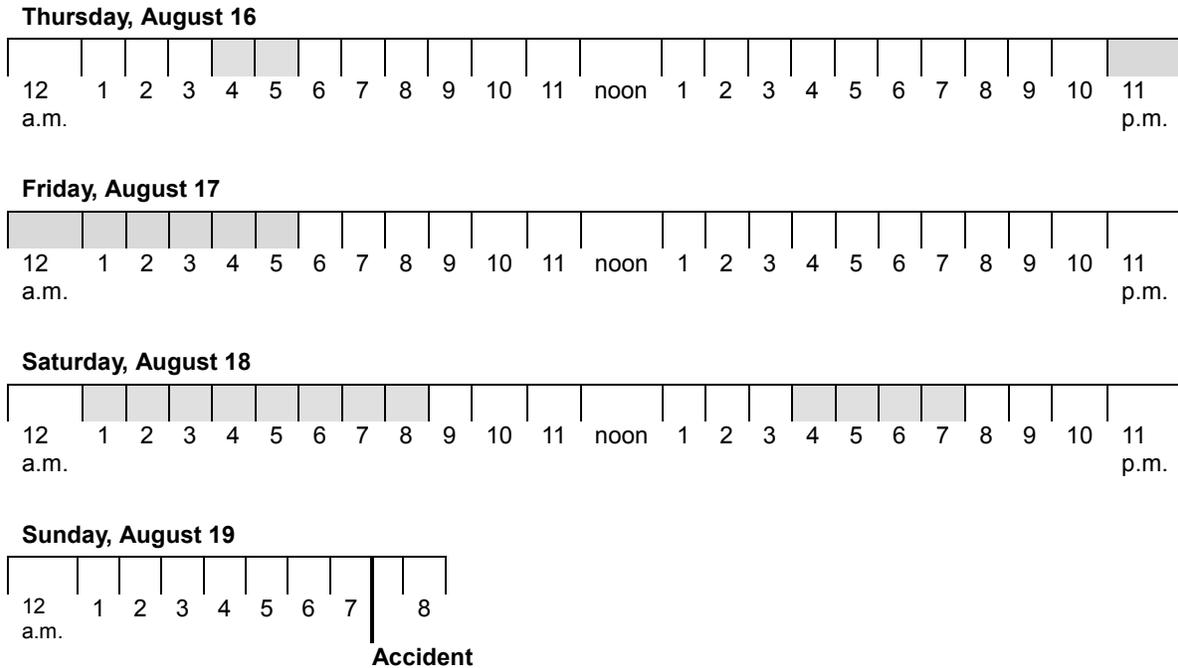
<sup>4</sup> On-call drivers used as needed to provide extra capacity or substitute for regular drivers. According to Greyhound's Director of Driver Operations, extra-board drivers constitute 35 to 45 percent of the carrier's workforce, depending upon the season.

**Table 1.** Driver's preaccident schedule based on logbook entries and driver interviews.

Date	Time	On duty	Off duty	Event
<b>Tuesday, August 14</b>	2:45 a.m.	✓		On duty, not driving, St. Louis
	5:00 a.m. - 10:15 a.m.	✓		Drove from St. Louis to Chicago
	10:30 a.m. - 2:00 p.m.		✓	Off duty, Chicago (activity unspecified)
	2:00 p.m.	✓		Dead-headed on cushion (rode on a bus operated by another driver) to St. Louis
	9:45 p.m.		✓	Arrived in St. Louis, logged off duty
<b>Wednesday, August 15</b>	10:30 p.m. - 11:00 p.m.	✓		On duty, not driving, St. Louis
	11:00 p.m. - 3:45 a.m. (Thursday)	✓		Drove from St. Louis to Springfield
<b>Thursday, August 16</b>	3:45 a.m. - 4:45 a.m.		✓	Break*
	4:45 a.m. - 6:30 a.m.	✓		On duty, not driving
	6:30 a.m. - 10:45 a.m.	✓		Drove from Springfield to St. Louis
	10:45 a.m. - 11:00 p.m.		✓	Off duty, awake
	11:00 p.m. - 6:00 a.m. (Friday)		✓	Sleep
<b>Friday, August 17</b>	6:00 a.m. - 1:00 a.m. (Saturday)		✓	Off duty, awake
<b>Saturday, August 18</b>	1:00 a.m. - 9:00 a.m.		✓	Sleep
	9:00 a.m. - 3:30 p.m.		✓	Off duty, awake
	3:30 p.m. - 7:30 p.m.		✓	Nap
	7:30 p.m. - 11:00 p.m.		✓	Off duty, awake; driver notified by Greyhound of trip at 9:00 p.m.
	11:00 p.m. - 12:45 a.m. (Sunday)	✓		On duty, not driving
<b>Sunday, August 19</b>	12:45 a.m.	✓		Departed St. Louis (late departure, trip originally scheduled to depart at 12:15 a.m.)
	7:20 a.m.	✓		Accident occurred
*When interviewed, the driver stated that he slept for 2 hours on a couch in the Greyhound terminal before reporting on duty; logbook entries indicate that he was off duty for 1 hour.				

On Tuesday, August 14, 4 days before the accident, the driver worked an early morning trip (5:00 a.m. to 10:15 a.m.) from St. Louis to Chicago, Illinois. He dead-headed back to St. Louis and logged off duty at 9:45 p.m. The next day, Wednesday, August 15, the driver worked a nighttime round trip (11:00 p.m. to 10:45 a.m.) between St. Louis and Springfield, Missouri. He arrived home about noon on Thursday, August 16. That night, he went to sleep at 11:00 p.m. and awoke at 6:00 a.m. On Friday, August 17, he attended a funeral. He did not go to sleep until 1:00 a.m. Saturday, August 18, and slept until 9:00 a.m. He stayed at home on Saturday and took a 4-hour nap in the afternoon. At 9:00 p.m. Saturday evening, the driver was notified of his next trip. He departed the house at 10:30 p.m. for the St. Louis Greyhound terminal and departed the terminal for Nashville, Tennessee at 12:45 a.m., Sunday, August 19.

During his off-duty time (10:45 a.m. on Thursday through 11:00 p.m. on Saturday), the driver reverted to a daytime schedule and slept at night, as indicated by the shaded portions of figure 2.



**Figure 2.** Driver's preaccident sleep schedule (shading indicates sleep times).

## Greyhound Extraboard Scheduling Practices

Extra-board drivers are on call and are used, as needed, for extra runs, as replacements for sick or vacationing regular drivers, for charters, or to shuttle an empty bus to another terminal. Greyhound employs about 4,500 drivers, of whom 35 to 45 percent are classified as extra board.

Extra-board drivers are on call continuously, except for an 11-hour period following the completion of an assigned trip (9 hours off duty, plus 2 hours to report to work) or for a minimum of 12 hours after "booking off,"<sup>5</sup> or declining a trip assignment. Once a driver completes or declines an assignment, he or she rotates to the bottom of the assignment list or "board," as required by the labor contract. Extra-board drivers are responsible for keeping themselves advised of their status on the extra board. To be considered ready for service, drivers must have sufficient rest and must be able to reach the home garage or terminal within 2 hours and away locations within 1 hour.

<sup>5</sup> Requesting extra time off when notified to report to work. Time off can be requested in 12-hour increments.

According to the labor contract, extra-board operators may book off sick or fatigued for a minimum of 24 hours and are placed on the bottom of the board when they are physically able to call in and perform work. If the extra board is depleted, operators may be placed on the extra board before the end of the 24-hour period.

Although Greyhound's scheduling practices meet, even exceed, the requirements of Federal hours-of-service regulations<sup>6</sup> by permitting an 11-hour off-duty period (9 hours off duty plus 2 hours to report to work) following 10 hours of driving or 15 hours of on-duty time, these practices do not necessarily provide a consistent, regular schedule. The hours-of-service regulations do not control variations in scheduling a driver's work-rest time.<sup>7</sup>

The National Transportation Safety Board previously addressed the dangers of Greyhound's scheduling variability in its investigation of a fatal accident in which a fatigued Greyhound driver fell asleep while operating on the Pennsylvania Turnpike at Burnt Cabins, Pennsylvania.<sup>8</sup> The driver had been working an irregular schedule, with his on-duty time commencing anywhere between 9:00 p.m. and 12:30 p.m. In addition, the driver worked a 4-days-on, 2-days-off schedule, reverting to nighttime sleeping hours on his days off. The Safety Board consequently recommended that Greyhound Bus Lines, Inc.:

H-00-06

Revise your driver scheduling practices to reduce scheduling variability that results in irregular work-rest cycles.

Greyhound responded that it did not believe that the driver's work schedule had a causal relationship to the accident. Therefore, on April 11, 2000, the Safety Board classified this recommendation "Open—Unacceptable Action."

The driver in this accident had been awake for nearly 20 hours of the 24-hour period immediately preceding the accident and had reverted to an inverted work-rest cycle on his days off before the accident. However, in this instance, Greyhound's scheduling practices did not prevent the driver from receiving rest, as evidenced by his reported 4-hour nap that ended 12 hours before the accident. Passengers on the bus stated they observed the driver having difficulty staying awake during the trip. One passenger stated that just before the accident, he yelled at the driver to alert him and then the driver

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<sup>6</sup> See 49 *Code of Federal Regulations* Part 395, "Hours of Service of Drivers."

<sup>7</sup> The Safety Board has previously addressed needed revisions to the *Federal Motor Carrier Safety Regulations*. See National Transportation Safety Board, *Factors That Affect Fatigue in Heavy Truck Accidents*, Safety Study NTSB/SS-95/01 (Washington, DC: NTSB, 1995) and *Evaluation of U.S. Department of Transportation Efforts in the 1990s to Address Operator Fatigue*, Safety Report NTSB/SR-99/01 (Washington, DC: NTSB, 1999).

<sup>8</sup> National Transportation Safety Board, *Greyhound Motorcoach Run-off-the-Road Accident, Burnt Cabins, Pennsylvania, June 20, 1998*, Highway Accident Report NTSB/HAR-00/01 (Washington, DC: NTSB, 2000).

oversteered the vehicle. The driver could not recall any events that occurred within approximately 50 miles of the accident site.

### **Probable Cause**

The National Transportation Safety Board determines that the probable cause of this accident was driver fatigue due to inadequate sleep in the 24-hour period preceding the accident.

**Adopted:** December 11, 2002