

## THE CROSSING Chapter 10

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Interstate Commerce Commission report  
on the accident

**RAILROAD ACCIDENT INVESTIGATION**

**Ex Parte No. 226**

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**UNION PACIFIC RAILROAD COMPANY**

**LaSALLE, COLO.**

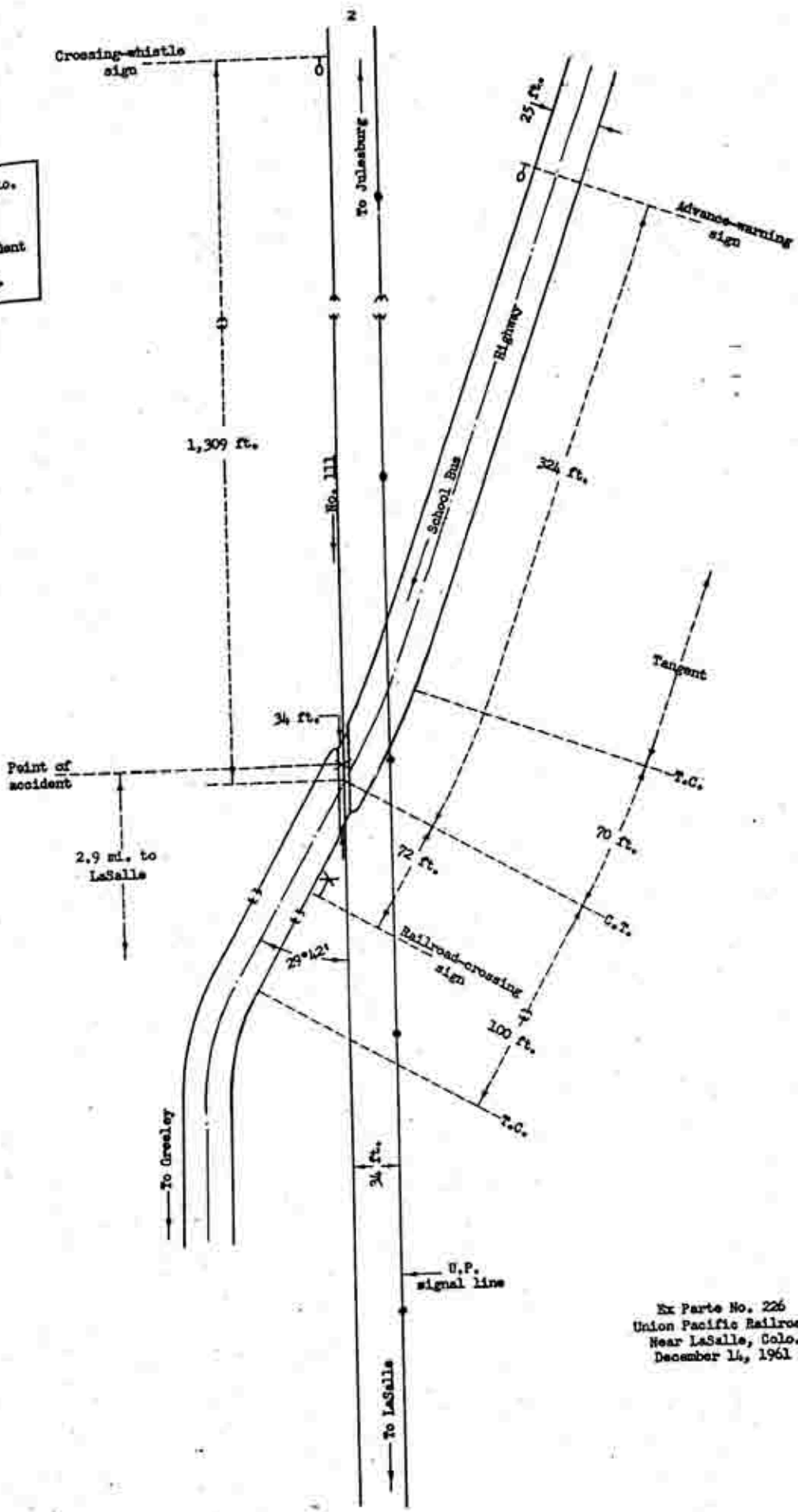
**DECEMBER 14, 1961**

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**INTERSTATE COMMERCE COMMISSION**

**Washington**

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Ex Parte No. 226  
 Union Pacific Railroad  
 Near LaSalle, Colo.  
 December 14, 1961

## INTERSTATE COMMERCE COMMISSION

Ex Parte No. 226

ACCIDENT NEAR LaSALLE, COLO.

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Decided March 22, 1962

Accident near LaSalle, Colo., on December 14, 1961, caused by a school bus being driven onto a rail-highway grade crossing immediately in front of an approaching train.

**James H. Anderson** and **E. G. Knowles** for the Union Pacific Railroad Company.

**James H. Shelton** for Duane Harnes, school-bus driver.

**Richard R. Sigmon** for American Trucking Associations, Inc.

**A. F. Brantner** for International Association of Machinists.

## REPORT OF THE COMMISSION

DIVISION 3, COMMISSIONERS TUGGLE, HUTCHINSON AND GOFF

*TUGGLE, Commissioner:*

This is an investigation by the Commission on its own motion into the facts, conditions and circumstances connected with an accident near LaSalle, Colo., on December 14, 1961, involving a collision between a school bus and a Union Pacific Railroad passenger train at a rail-highway grade crossing. The accident resulted in the death of 20 school children, and in the injury of 16 children and the driver of the school bus. Hearing, with a representative of the Public Utilities Commission of Colorado participating, was held at Greeley, Colo., on February 8, 1962.

## Location of Accident

This accident occurred on that part of the Nebraska Division of the Union Pacific Railroad extending between Julesburg and LaSalle, Colo., 151.1 miles, a single-track line over which trains are operated by timetable, train orders, and an automatic block-signal system. It occurred 2.9 miles east of LaSalle, where the main track is crossed at grade by a county highway. The main track is tangent throughout distances of 4 miles east and  $2\frac{1}{2}$  miles west of the crossing, and in this vicinity the railroad grade is practically level.

The county highway crosses the railroad from the southeast to the northwest at an angle of  $29^{\circ}42'$ . For detailed descriptions of this highway and the crossing, see Appendix I.

A circular railroad-crossing advance-warning sign is adjacent to the north side of the county highway 324 feet southeast of the crossing. A standard crossbuck railroad-crossing warning sign is adjacent to the south side of the highway at a point 72 feet northwest of the crossing. Detailed descriptions of these signs are provided in Appendix II.

A crossing-whistle sign for westbound trains is located on the north side of the main track 1,309 feet east of the crossing.

The maximum authorized speed for passenger trains in the vicinity of the accident is 79 miles per hour. For pertinent provisions of the operating rules of the Union Pacific Railroad Company, see Appendix III.

The area surrounding the crossing is sparsely settled, and in this area the terrain is flat. As a vehicle moving northwestward on the county highway approaches the crossing within a distance of about one-fourth mile, there is nothing in the surrounding area that materially restricts the driver's view of any westbound train approaching the crossing throughout a distance of about 4 miles immediately east thereof.

The accident occurred about 7:59 a. m., in daylight. At this time the weather was clear, and the temperature was about 6 degrees above zero.

## Description and Discussion of Accident

No. 111, a westbound first-class passenger train, designated as the City of Denver, consisted of car-body type diesel-electric units 955, 30B, and 954B, coupled in multiple-unit control, 3 baggage cars, 1 baggage-dormitory car, 1 dome coach, 4 coaches, 1 cafe-lounge car, 1 coach, 1 dome dining car, 1 dome lounge car and 3 sleeping cars, in that order. The cars were of aluminum and steel construction. This train departed from Julesburg at 5:46 a. m., 1 hour 35 minutes late, and departed from Sterling, 90.7 miles east of the point of accident, at 6:41 a. m., 1 hour 41 minutes late. About 1 hour 18 minutes later, while moving westward on the main track at a speed of 79 miles per hour, as indicated by the tape of the speed-recording device, it struck a school bus at a point 2.9 miles east of LaSalle, where the main track is crossed at grade by the county highway.

As the train was approaching the point where the accident occurred the enginemen and an assistant supervisor of mobile power were in the control compartment at the front of the locomotive, and the other members of the crew were at various locations in the cars. The brakes had been tested and had functioned properly when used at station stops en route. The headlight was lighted brightly, and the automatic bell of the locomotive was in operation. Testimony of both enginemen indicates that the prescribed signal was sounded on the locomotive horn as the train approached and moved onto a rail-highway grade crossing located four-fifths of a mile east of the crossing involved, and that as the train approached the crossing-whistle sign located one-fourth of a mile east of the crossing where the accident occurred the engineer began sounding the prescribed whistle signal again. Soon after the locomotive passed the crossing-whistle sign, and as the horn of the locomotive was being sounded, both enginemen observed the school bus moving northwestward on the county highway in approach to the crossing. They estimated that the bus was between 200 and 300 feet from the crossing when they first observed it, and the engineer thought that it was moving at a speed of about 15 miles per hour at this time. The fireman stated that it was moving quite slowly in approach to the crossing. As the train continued westward toward the crossing both enginemen kept the school bus under observation and thought that it would stop short of the track. However, according to the engineer, the school bus reduced speed to about 5 miles per hour in close approach to the crossing and after reaching a point about 3 feet from the track, it increased speed to approximately 10 miles per hour and entered the crossing immediately in front of the train. The engineer initiated an emergency application of the brakes when he observed the bus enter the crossing, but the speed was not reduced before the locomotive also entered the crossing and struck the rear end of the school bus. Both enginemen were certain that the bus had not stopped as required before entering the crossing and were also certain that the driver had not opened the front door of the bus to look or listen for an approaching train. After the accident occurred the train stopped on the main track about one mile west of the crossing. None of its equipment was derailed, and there were no separations. The front end of the locomotive was slightly damaged. The members of the crew in the cars, and the assistant supervisor of mobile power, who was riding in the control compartment with the enginemen, were unaware of anything being wrong prior to the collision. None of the passengers or members of the crew was injured.

The school bus was owned and operated by School District No. 6, Weld County, Colorado. Its operation was not within the jurisdiction of this Commission. For pertinent provisions of Colorado State laws and regulations governing the operation of this vehicle, see Appendix IV. For descriptions of the school bus and the driver's qualifications, refer to Appendix V.

On the morning of the day of the accident the driver left his residence and proceeded outside to where the school bus had been parked overnight. He then started the bus motor and actuated the interior heating devices. Approximately 30 minutes later, after the interior of the bus was heated the driver actuated the windshield defrosting device and proceeded on his regular morning route to schools in and about Greeley, Colo. The school bus had traversed about one-half this route, when it stopped on the county highway at a point approximately one-fourth mile from the crossing involved and picked up the 36th school child. The bus then proceeded northwestward on the highway toward the crossing, in 4th gear and at a speed of about 35 miles per hour, according to the driver. Because of the difference between atmospheric conditions inside and outside of the bus at this time the side windows were fogged, except for narrow areas extending along the tops, as a result of condensation forming on the inner surfaces. The fogged condition of these windows was sufficient to restrict materially the view from inside the bus.

Testimony of the bus driver, concerning the movement of the bus in the immediate vicinity of the crossing, differs considerably with respect to the testimony taken from the engineer and the fireman of the train. Although the driver admitted under cross-examination that he could not recall whether the bus had been stopped before entering the crossing, he provided testimony in detail concerning his actions and the movement of the bus in approach to, and at, the crossing. According to this testimony the driver stopped the bus on the county highway at a point 32 feet short of the track, between the track and a signal pole line of the railroad, and then opened the front door to listen for the approach of a train. He said that he did not hear any indication of an approaching train before driving the bus onto the crossing. Because of the angle at which the bus was standing with respect to the track (see Plate 2), the open doorway would not provide the driver with a view of the track east of the crossing unless he arose from his seat and looked eastward from the doorway. The testimony of the driver is that he did not arise from his seat while the bus was standing short of the crossing, and that to obtain a view of the track eastward he utilized the rear-vision mirror attached to the interior of the bus above the windshield to look through the unfogged areas along the tops of the 4th and 5th side windows to the rear of the front door. Although he stated that this use of the rear vision mirror and the clear areas of the side windows provided him with a good view along the track east of the crossing, he did not observe the westbound train involved approaching. According to this testimony, after the driver neither saw nor heard a train approaching, he placed the transmission in 2nd gear and drove the bus onto the crossing at a speed of about 15 miles per hour. He did not see or hear the train approaching at any time before the collision occurred.

The school bus was struck on its right side about  $1\frac{1}{2}$  feet from the rear end and was broken into two. The front portion was heavily damaged, and it stopped on its left side at right angles to the track at a point 183 feet west of the crossing and about 20 feet north of the track. The rear portion was destroyed and it stopped at a point 436 feet west of the crossing and about 25 feet south of the track. The transmission was found to be in 3rd gear. Twenty children were killed, and 16 children and the driver of the school bus were injured.

An examination made soon after the accident occurred disclosed that the crossing was in good condition, and that its surface, as well as the surface of the county highway, was dry. No skid marks were found on the highway at the approaches to the crossing.

A calibration of the speed-recording device on the locomotive of No. 111 disclosed that this device functioned accurately. Analysis of the tape removed from the speed-recording device revealed that the speed of the train varied between 79 and 82 miles per hour in approach to the point of accident, and that the speed was 79 miles per hour at the time of the accident.

During the 24-hour period beginning 4:00 p. m., February 5, 1962, a total of 80 highway motor vehicles moved over the crossing.

Evidence introduced during the hearing clearly established that as No. 111 approached the crossing throughout a distance of about 4 miles, it was visible from any point on the county highway throughout a considerable distance on each side of the crossing. It also established that the horn of the locomotive was being sounded as required while the train approached the crossing within a distance of about  $\frac{1}{4}$  mile, and that the sound of the horn should have been audible to any person on the county highway at the approaches to the crossing. It is evident that the train was in close approach to the crossing at the same time the school bus was also in close approach thereto. Under these circumstances, it is apparent that had the driver of the school bus taken adequate precautions before driving onto the crossing he would have seen the train approaching and heard the

sound of the locomotive horn, and thereby be warned that it was unsafe to proceed over the track, and the accident would have been averted.

Both enginemen testified that the school bus entered the crossing without stopping and without its door having been opened as required. In consideration of this testimony, and the fact that the bus driver testified under cross-examination that he could not recall having stopped the school bus before driving it onto the track, considerable doubt arises as to the accuracy of his other testimony, wherein he claimed the bus had been stopped as required and provided considerable details of his actions immediately before driving this vehicle onto the crossing. According to this testimony, the school bus stopped about 32 feet from the track, after which the driver opened the front door to listen for an approaching train and used the rear-vision mirror above the windshield to look through the narrow clear areas of the side windows to the rear of the door and observe whether a westbound train was approaching. Considering the angle at which the bus would have been standing with respect to the track, and the fogged condition of the side windows, it is apparent that this method of determining whether the track was occupied by an on-coming train east of the crossing would be imprudent, evidenced by the fact that the driver failed to hear or see No. 111, which was closely approaching at this time. In either event, whether the school bus was driven onto the crossing without stopping or was stopped and then driven onto the crossing after the driver took action as claimed to determine whether the track was clear, it is evident that the driver did not take adequate measures to ensure safety before the school bus proceeded onto the track.

This accident resulted in tragic consequences and illustrates the need for caution in the operation of motor vehicles at rail-highway grade crossings, particularly such vehicles as buses transporting school children or other passengers and vehicles transporting explosive substances or flammable liquid as cargo or part of cargo. In reference to the accident involved in this case, motor vehicle laws and school bus regulations of the State of Colorado are comprehensive, and apparently are adequate to promote safety if they are enforced and obeyed. It is probable that if the bus driver involved in this case had taken adequate precautions in conformity with Colorado State motor vehicle laws and school bus regulations before driving onto the crossing, the accident would not have occurred.

The reduction of hazards in the operation of motor vehicles at rail-highway grade crossings is a matter of great importance, which the Commission has recognized. By its order of February 6, 1961, Docket No. 33440, the Commission instituted an investigation to determine the adequacy of present safety laws and regulations governing the operation of highway vehicles at rail-highway grade crossings, and to ascertain what additional measures might be taken to ensure the safety of such vehicles. This investigation is still in progress, and specific recommendations will be made after its conclusion.

We find that:

1. The train involved was being operated properly in approach to the point of accident.
2. The horn and the bell of the locomotive were being sounded, and the headlight was lighted, as the train approached the crossing.
3. As the train approached the crossing it was clearly visible from points on the highway in the vicinity of the crossing.
4. The driver of the school bus failed to see or hear the train approaching as a result of taking insufficient precautions before driving onto the crossing.



5. The driver may not have stopped the school bus short of the crossing as required by Colorado State law and regulations before driving it onto the crossing.

6. The accident was caused by a school bus being driven onto a rail-highway grade crossing immediately in front of an approaching train.

By the Commission, Division 3.

(SEAL)

HAROLD D. McCOY,

**Secretary.**

## APPENDIX I

**Description of Highway and Rail-Highway Crossing**

The county highway is surfaced with gravel to a width of about 25 feet. However, within a distance of a few feet on either side of the crossing it is surfaced with bituminous material. From the southeast on the highway there are, in succession, a tangent of considerable length, a slight curve to the right 70 feet to the crossing, and a tangent 100 feet northwestward. The grade for vehicles moving northwestward on the highway in approach to the crossing is, successively, 0.66 percent ascending 600 feet, 1.75 percent ascending 100 feet to the crossing, level over the crossing, and 1.00 percent descending 100 feet beyond.

The county highway intersects the railroad at angle of  $29^{\circ}42'$ . The crossing is about 34 feet in width, and is surfaced with bituminous material throughout its width to approximately the level of the tops of the rails. A signal line of the Union Pacific Railroad Company extends east and west of the crossing. The poles of this line are located about 34 feet south of the centerline of the main track, and they do not materially obstruct the view from vehicles moving northwestward on the highway in approach to the crossing. If such vehicles, however, stop on the highway at a point about 34 feet southeast of the track the drivers' view of the track east of the crossing would be somewhat obstructed by poles of the signal line. Other than this, the drivers' view of the track east of the crossing is unobstructed.

## APPENDIX II

**Description of Railroad Crossing Warning Signs**

The circular railroad-crossing advance-warning sign located 324 feet southeast of the crossing is 30 inches in diameter. It is mounted on a mast 4 feet 6 inches above the surface of the highway, and bears two intersecting diagonal stripes and the letters "RR" in black on a yellow background.

The standard crossbuck railroad-crossing warning sign located 72 feet northwest of the crossing is mounted on a mast 10 feet 6 inches above the surface of the highway, and bears the words "RAILROAD CROSSING" in 6-inch reflectorized black letters on a white background. No other such sign is provided at the crossing.

## APPENDIX III

Operating rules of the Union Pacific Railroad Company read in part as follows:

## ENGINE WHISTLE SIGNALS

14. The whistle must be sounded where required by rule or law. \* \* \*

Note.-The signals prescribed are illustrated by "o" for short sounds; "--" for longer sounds.  
\* \* \*

In sounding Signal 14(1) for public crossings, the first of the long sounds must be started at such a point that the signal will be completed by ending the last sound on the crossing, prolonging it if necessary.

## SOUND

## INDICATION

(1) -- -- o --

Approaching public crossings at grade. \* \* \*

17. Headlight must be displayed, burning bright to the front of every train by day and night.  
\* \* \*

30. Engine bell must be rung when an engine is about to move and while approaching and passing public crossings \* \* \*

## APPENDIX IV

Motor Vehicle Laws of the State of Colorado read in part as follows:

Chapter 13; Article 3; Section 4 \* \* \*

(1) No person \* \* \* shall drive \* \* \* a school bus for the transportation of pupils to and from school \* \* \* until he has had experience in operating motor vehicles and has been examined on his qualifications in operating such vehicles. \* \* \* The driver shall be licensed as a chauffeur and shall receive a special chauffeur's license.

(2) No person shall be granted a special chauffeur's license unless he has had at least one year of driving experience prior to the issuance thereof nor until he demonstrates a satisfactory knowledge of those rules and regulations governing the safe transportation of his cargo or passengers \* \* \*

(3) No such license shall be granted until the department is fully satisfied as to the applicant's competency and fitness \* \* \*

Chapter 13; Article 4; Section 88 \* \* \*

(1) The driver \* \* \* of any school bus carrying any school child, \* \* \* before crossing at grade any track or tracks of a railroad, shall stop such vehicle within fifty feet but not less than ten feet from the nearest rail of such railroad and while so stopped shall listen and look in both directions along such track for any approaching train, and for signals indicating the approach of a train, \* \* \* and shall not proceed until he can do so safely.

School bus regulations of the State of Colorado read in part as follows:

#### IV. Operation

\* \* \*

4 - The driver of a school bus shall make a complete stop at all railroad grade crossings. When the driver has ascertained that the track is clear in both directions after making such stop, the bus shall proceed in low gear until the tracks are crossed. The door and the left window shall be opened in order that the driver might listen and look more effectively for on-coming trains.

## APPENDIX V

**Description of School Bus and Driver's Qualifications**

The bus involved was a 1960 GMC model having a Wayne school bus body. It was powered by a 6-cylinder gasoline engine, and was provided with a transmission having 4 forward speeds, a single rear axle with dual wheels, and hydraulic brakes. The over-all length of the vehicle was about 32 feet. The body was painted school bus chrome (yellow) and the words "SCHOOL BUS" were painted in 8-inch black letters on the front and the rear. It contained seats for 60 passengers. The combined weight of the body and the chassis was 11,520 pounds. The vehicle carried license No. JA 6172. An emergency door was located at the rear end of the bus, and this door was so constructed that it could be opened from either the inside or the outside. A fold-away door, operated by levers located near the driver's seat, was located at the front of the bus body on the right side, opposite the driver's seat. Rear-vision mirrors were attached to the outside of the body on the left and right sides of the windshield. Another rear-vision mirror was attached to the inside of the body, above the windshield and in front of the driver's seat. This mirror provided the driver with a view of the interior of the bus to the rear of his seat.

The driver of the school bus was 23 years of age. He possessed valid Colorado State Chauffeur's license No. CJ 30781, and also possessed valid Colorado State School Bus Driver's license No. 8447. He had been continually employed as a school bus driver since the beginning of the fall school term and was on his regular morning route when the accident occurred.