

RAILROAD ACCIDENT INVESTIGATION

Report No. 4008

THE PENNSYLVANIA RAILROAD COMPANY

HARTFORD CITY, IND.

MARCH 1, 1964

INTERSTATE COMMERCE COMMISSION

Washington

S U M M A R Y

DATE	March 1, 1964	
RAILROAD	Pennsylvania	
LOCATION	Hartford City, Ind	
KIND OF ACCIDENT	Collision	
TRAINS INVOLVED	Freight	Freight
TRAIN NUMBERS	Extra 7190 East	Extra 7138 West
LOCOMOTIVE NUMBERS	Diesel-electric units 7190, 7178, 7233B	Diesel-electric units 7138, 7194, 7174
CONSISTS	73 cars, caboose	96 cars, caboose
SPEEDS	45 m.p.h	44 m.p.h
OPERATION	Signal indications	
TRACKS	Double, 1°00' curve, level	
WEATHER	Clear	
TIME	7 11 p.m.	
CASUALTIES	1 killed, 3 injured	
CAUSE	Shifted lading on the westbound train fouling the adjacent main track as a result of being improperly secured in a car	
RECOMMENDATION:	That the Pennsylvania Railroad Company take such action as may be necessary to insure adequate inspection and proper enforcement of the rules governing the loading of open-top cars prior to acceptance for transit,	

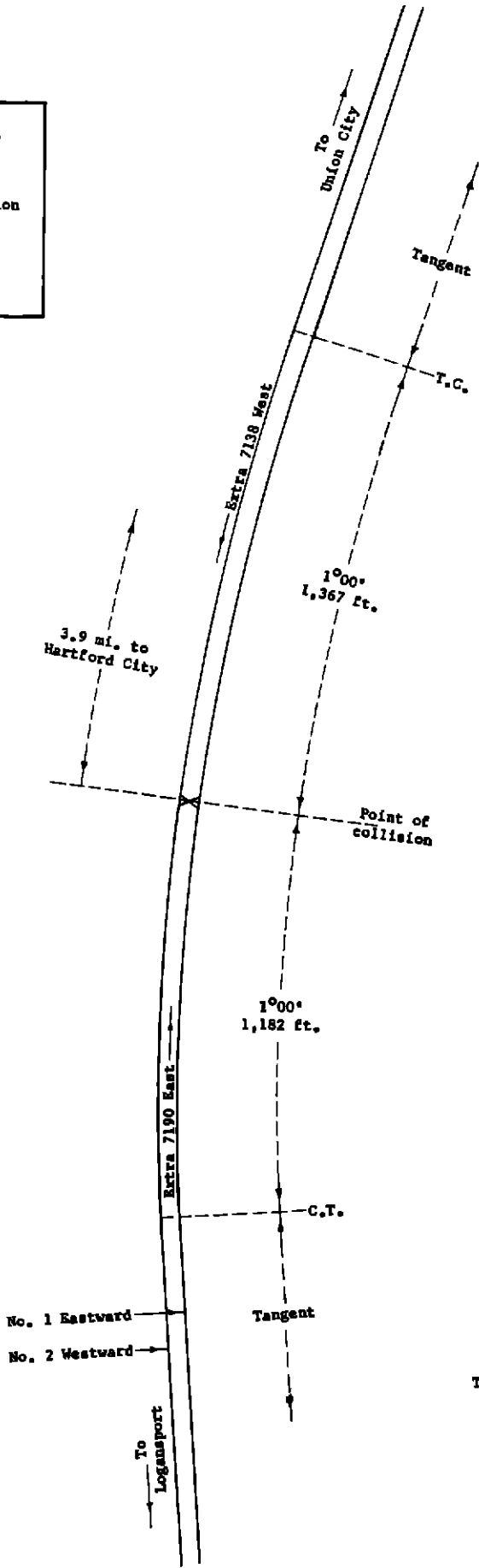


First two diesel-electric units of Extra 7190 East Leading unit 7190 at left



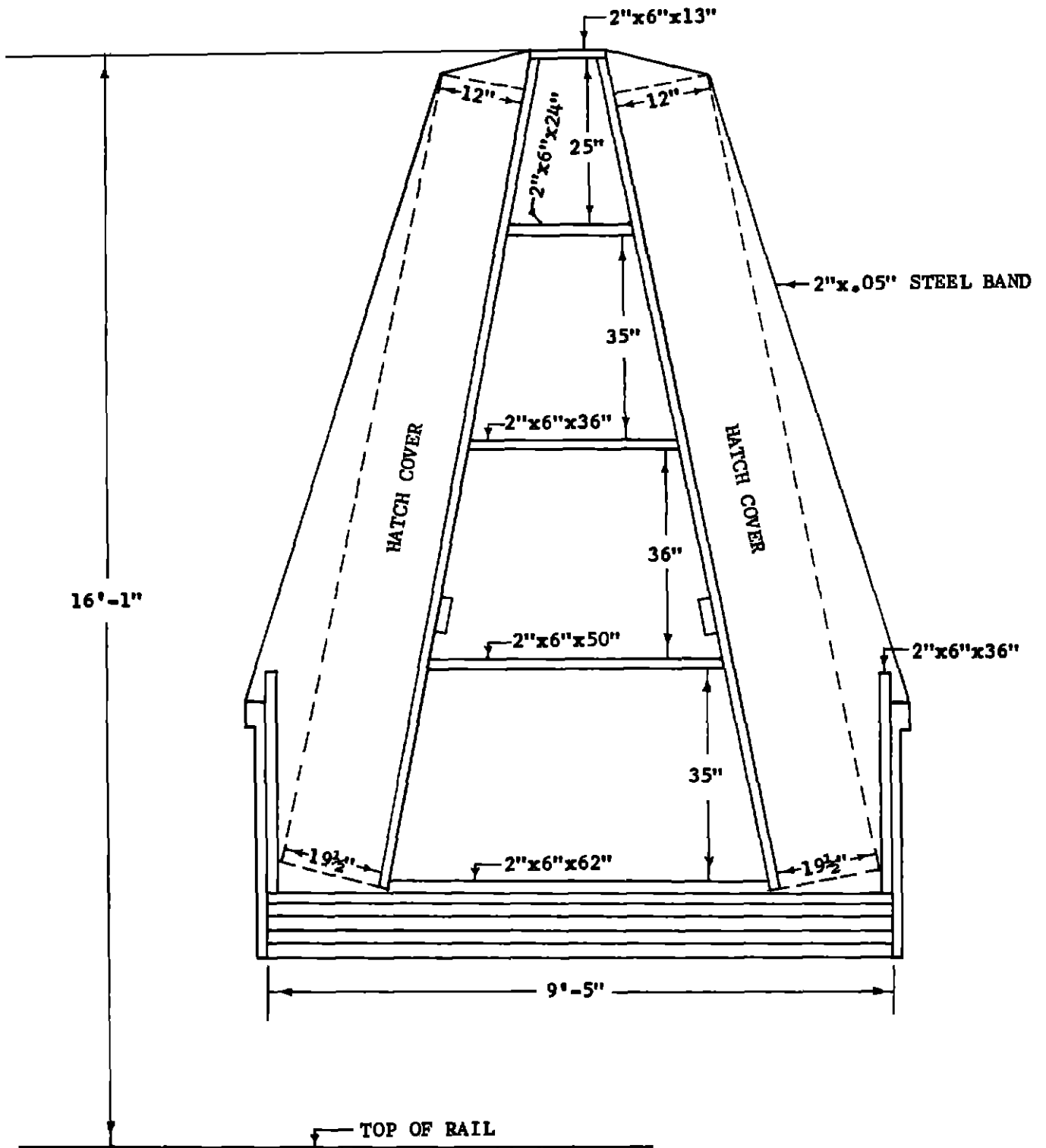
PRR 377892 Load of collapsible hatch covers shown at left The one-piece hatch cover remaining in car is shown at right over collapsed A frames The two flat cars that were loaded with farm implements are to the rear

- Union City, Ind.
34.3 mi.
- Hartford City
3.9 mi.
- X Point of collision
14.9 mi.
- Kent
40.4 mi.
- Logansport, Ind.



The Pennsylvania Railroad
Hartford City, Ind.
March 1, 1964

END VIEW



Details of A frame and blocking used to secure the two one-piece hatch covers in PRR 377892

INTERSTATE COMMERCE COMMISSION**Safety and Service Board No 1**

RAILROAD ACCIDENT INVESTIGATION**Report No. 4008**

THE PENNSYLVANIA RAILROAD COMPANY**March 1, 1964*****SYNOPSIS***

About 7 11 p m , March 1, 1964, lading protruding from a car of a westbound freight train struck the locomotive units and first 16 cars of an eastbound freight train as the trains passed on the main tracks of the Pennsylvania Railroad near Hartford City, Ind

The swing brakeman of the eastbound train was killed and the engineer, fireman and front brakeman were injured

The accident was caused by shifted lading on the westbound train fouling the adjacent main track as a result of being improperly secured in a car

Location and Method of Operation

This accident occurred on that part of the Chicago Division of the Pennsylvania Railroad extending between Union City and Logansport, Ind , 93 5 miles In the vicinity of the accident this is a double-track line The main tracks are designated as No 2 westward, and No 1 eastward Trains moving with the current of traffic are operated by signal indications of an automatic block-signal system

The collision occurred 55.3 miles east of Logansport and 3.9 miles west of Hartford City, Ind.

Details of the track structure, rules governing the loading of commodities in open top cars, operating rules, train equipment, resultant damages, and the car with the inadequately secured lading are contained in the appendix.

Description and Discussion

Extra 7190 East, an eastbound freight train, consisted of three diesel-electric units, 73 cars and a caboose. This train departed from Logansport at 4:21 p.m., and passed Kent, 40.4 miles east of Logansport, at 6:52 p.m. About 19 minutes later, while moving eastward on track No. 1 at 45 miles per hour, as indicated by the speed-recording tape, it entered a curve to the right and the engineer saw Extra 7138 West closely approaching on track No. 2. He noticed sparks flying from under Extra 7138 West and thought one of its cars might have derailed to the south and foul of track No. 1. He immediately moved the handle of the automatic brake valve to emergency position and called a warning to the fireman. As the trains were passing, lading protruding from the south side of the 11th car of the westbound train struck the north side of the superstructure of the three diesel-electric units and the first 16 cars of Extra 7190 East.

The latter train stopped with the front end about 1,035 feet east of the collision point. The swing brakeman in the control compartment of the second diesel-electric unit was killed. The other crew members on the locomotive were injured.

Extra 7138 West, a westbound freight train, consisting of three diesel-electric units, 96 cars and a caboose, departed from Bradford, Ohio, 20.6 miles east of Union City, at 5:23 p.m., departed from Union City at 6:24 p.m., and passed Hartford City about 7:05 p.m. The crew members had been informed by message that the 11th car was loaded with cargo having excessive dimensions. While en route from Bradford, Extra 7138 West passed three eastbound trains and signals were exchanged between members of the crews. None of the signals indicated that a crew member on an eastbound train observed any unusual condition of Extra 7138 West. Crew members of this train said they made frequent observations of the cars while en route between Bradford and the collision point and observed nothing unusual.

About six minutes after passing Hartford City, Extra 7138 West closely approached the curve involved at 44 miles per hour, as indicated by the speed-recording tape. Crew members on the locomotive observed Extra 7190 East approaching on the adjacent main track. Their train then entered the curve and the locomotive passed the locomotive of Extra 7190 East. Immediately afterward, the lading protruding from the 11th car of Extra 7138 West struck the locomotive units and first 16 cars of the eastbound train. A few moments later, the brakes of Extra 7138 West applied at an emergency rate as a result of a separation between the air hose of the 17th and 18th cars, caused by dislodged lading from the 12th and 13th cars, and the train stopped with the front end 3,914 feet west of the collision point. Neither the engineer nor any other crew member of this train was aware of anything wrong until the emergency brake application occurred.

PRR 377892, a gondola car, was the 11th car of Extra 7138 West. Its cargo consisted of two 3-piece collapsible ship hatch covers at the west end of the car, and two one-piece hatch covers at the east end as described in the appendix and illustrated in a sketch at the front of this report. The 12th and 13th cars of Extra 7138 West were flat cars. The cargo of these two cars consisted of farm implements.

After the accident, the cargo of the two flat cars to the rear of PRR 377892 was found strewn along the track structure west of the collision point. The east end-gate of PRR 377892 and one of the one-piece hatch covers were lying on the ground to the north of the track structure near the collision point. The other one-piece hatch cover had fallen from its original upright position in the gondola car and was found in a horizontal position in this car. One of its sides protruded about 36 inches over the top of the south side of the gondola car as shown in a photograph at the front of this report. The four A frames provided for securing the two one-piece hatch covers in their original upright positions had collapsed. Broken pieces of these frames were under the one-piece hatch cover remaining in the car. One of the three steel bands used to secure the one-piece hatch covers to the A frames was pulled out of the locking clip. The other two bands were broken.

The load of two collapsible ship covers at the west end of the car remained secured.

Inspection of the method used to secure the lading of PRR 377892 revealed that although long free spans existed between points where the three steel bands contacted the car and the one-piece hatch covers, no dampening arrangement had been provided to prevent excessive vibrations of the bands as prescribed by Association of American Railroads general loading rules. The material used for bearing pieces, blocking, and construction of the A frames consisted of soft and hard wood pieces of inferior quality and did not conform to A A R General Rules. Vacant spaces between the load of three-piece hatch covers and the load of two-piece hatch covers, and between ends of these loads and the ends of the car, exceeded 18 inches. However, nothing was found to indicate blocking had been provided to prevent longitudinal movement of either load of hatch covers.

PRR 377892 was loaded at the plant of the Crane Company, Middletown, Pa., and the hatch covers were consigned to the National Steel and Shipbuilding Company, San Diego, Calif., via the Pennsylvania and the Atchison, Topeka and Santa Fe Railroads. Records of the Pennsylvania Railroad indicate the car was loaded by personnel of the Crane Company and was inspected by a PRR car inspector on February 24, 1964. This car inspector refused to accept the load due to excessive height of the A frames supporting the one-piece hatch covers. The height of the A frames was reduced and on the following day, a relief gang foreman inspected the car in company with a car inspector. According to the foreman, there were no specific rules to cover the type of loading involved. He thought the car was loaded fairly well and after ascertaining from a loading supervisor of the Crane Company that three previous loads of this type had reached San Diego in good condition, he accepted the load of hatch covers for shipment. The car arrived in the carrier's yard at Conway, Pa., on February 29, 1964, and was inspected that day by members of the carrier's car department. No exceptions were taken. The car was also inspected by members of the carrier's car department on other occasions prior to the accident, and no exceptions were taken.

Findings

The investigation disclosed the lading of PRR 377892 was accepted for shipment by a Pennsylvania Railroad Company representative, who apparently was not familiar with the A A R rules governing the loading of commodities in open top cars as applied to types of loads not specifically covered by the rules. As a result, he accepted the load involved for shipment, although it was not adequately secured as prescribed by A A R rules. It is evident that as Extra 7138 West approached the accident point, two of the steel bands used to secure the one-piece hatch covers to the A frames on the 11th car were broken and the third band had loosened. The absence of blocking for prevention of longitudinal movement of the lading in the car permitted the two one-piece hatch covers to move on the A frames. This weakened the A frames and they collapsed. The one-piece hatch covers fell in the car, one on top of the other, with a portion of each hatch cover extending over the top of the south side of the car. One of the hatch covers protruded a sufficient distance to foul track No. 1. This hatch cover struck the north sides of the locomotive units and cars of Extra 7190 East and was knocked rearward, or eastward, by these impacts. It struck and dislodged the end gate at the east end of the 11th car, struck and dislodged the farm implements on the 12th and 13th cars, and fell onto the north side of the track structure near the collision point. Had the hatch covers been secured in the 11th car as prescribed by A A R general rules, the accident probably would not have occurred.

Cause

This accident was caused by shifted lading on the westbound train fouling the adjacent main track as a result of being improperly secured in a car.

Recommendation

It is recommended that the Pennsylvania Railroad Company take such action as may be necessary to insure adequate inspection and proper enforcement of the rules governing the loading of open-top cars prior to acceptance for transit.

Dated at Washington, D. C., this first
day of October, 1964

By the Commission, Safety and Service Board No. 1

(SEAL)

HAROLD D. McCOY,
Secretary

Appendix

Track Structure

From the east on the main tracks there are, in succession, a tangent of considerable length, a 1°00' curve to the left 1,367 feet to the collision point and 1,182 feet beyond, and a tangent throughout a considerable distance westward. In this vicinity, the grade is practically level.

Association of American Railroad Rules Governing the Loading of Commodities on Open Top Cars

Preface

When the dimensions and kind of materials to be used for securing the load are not specified under the figures, the General Rules, Section No. 1, which are to be carefully observed in connection with all loading, will govern.

General Rules

Rule 1 Inspection and Compliance

* * *

(a) Shippers must observe * * * all applicable rules regulating the safe loading of freight as published herein, and must inspect shipments to see that they are properly and safely secured * * *

Special Authority

(b) * * *

Originating carrier and shipper must confer as to appropriate blocking and bracing methods for loads not covered by a specific figure * * *

* * *

Rule 5 Location of Load - All Cars

* * *

All Cars-- Regardless of the vacant space across car, the load must be secured so as to prevent it from falling off car.

* * *

Rule 9 Braces, Cleats, Wedges, Blocks, Quality of

Such items must be of hardwood * * * free from decay and strength impairing knots * * * for loads not covered in these detailed rules for figures, they must be of hardwood, fir, spruce or hemlock.

* * *

Rule 15 Bands

* * *

When a long free span exists between points of attachment of high tension bands, a dampening arrangement to prevent excessive vibration of bands must be applied midway between points of contact, by tying bands to sides of box, crate, lading, etc., with common annealed wire.

* * *

Pertinent Operating Rules

76 * * *

Members of crew, as frequently as opportunity permits, must observe engines and cars in their train, moving and standing, to detect any conditions that might interfere with safe movement of trains

77 * * *

A train must be stopped when it is observed with any of the following defects or other indications of conditions endangering the train

* * *

Lading shifted over Side or End of car

* * *

The maximum authorized speed for freight trains near Hartford City is 45 miles per hour on track No 2 and 50 miles per hour on track No 1

Train Equipment Involved and Resultant Damages

Extra 7190 East consisted of road-switcher type diesel-electric units 7190, 7178 and 7233B, coupled in multiple-unit control, 73 cars and a caboose. Its brakes had been tested and had functioned properly when used en route. As this train approached the accident point, the engineer and fireman were in the control compartment at the rear of the first diesel-electric unit. The front brakeman and swing brakeman were in the control compartment at the front of the second unit. The conductor and flagman were in the caboose.

None of the equipment of Extra 7190 East was derailed. The protruding hatch cover struck the diesel-electric units of this train on the north side at a height of 10 to 12 feet above the rails as shown in a photograph at the front of this report. It then struck the north sides of the first 16 cars. The north side of the superstructures of the first and second diesel-electric units was heavily damaged, and the control compartment of the second unit was destroyed. The third unit, which was not equipped with a control compartment was slightly damaged. The first 16 cars were also slightly damaged.

Extra 7138 West consisted of road-switcher type diesel-electric units 7138, 7194 and 7174, coupled in multiple-unit control, 96 cars and a caboose. As this train approached the accident point, the engineer, fireman, and front brakeman were in the control compartment of the first diesel-electric unit. The swing brakeman was in the control compartment of the third unit, and the conductor and flagman were in the caboose. The brakes of the train had been tested and had functioned properly when used en route.

None of the equipment of Extra 7138 West was derailed. Thirteen cars at various locations in the train between the 11th and 77th cars were slightly damaged.

Details of Car With Insecure Lading

PRR 377892, the eleventh car of Extra 7138 West, is a gondola car of all-steel construction equipped with drop-end gates and wooden flooring. Its lightweight, nominal capacity and load limits are, respectively, 52,400, 140,000, and 167,600 pounds. Its height above the tops of the rails is 7 feet 2 inches, the outside width is 10 feet 7¼ inches, and the length over strikers is 54 feet 8 inches. The inside length, width and height are, respectively, 52 feet 6 inches, 9 feet 6 inches, and 3 feet 6 inches. The trucks are of the 4-wheel type having 33-inch multiple-wear wrought steel wheels and 6-inch by 11-inch friction journals. The truck centers are spaced 43 feet 8 inches apart.

Lading of PRR 377892 and Method of Loading

This lading consisted of four steel hatch covers for a ship. Two of the covers were of the 3-piece folding type and weighed 23,000 pounds each. They were folded and loaded horizontally, one on top of the other, at the west end of the gondola car with 4-inch by 4-inch wooden separators between each hatch cover. The hatch cover on top was entirely above the level of the top of the car sides and ends. It was secured by three 2-inch high tension steel bands across the top. Inspection revealed nothing to indicate blocking had been provided to prevent lateral or longitudinal movement of either 3-piece hatch cover. This portion of the load, however, was not disturbed prior to or at the time of the accident.

Two one-piece hatch covers comprised the other portion of the car lading. Each weighed 10,850 pounds, was 21 feet 6 inches in length, 11 feet 2 inches in width, and tapered from 19 to 12 inches in thickness. They were loaded longitudinally at the east end of the car, in vertical position on four A frames.

Four bearing pieces were constructed and attached crosswise on the floor of the gondola car. Each consisted of five pieces of 2-inch by 6-inch by 113-inch lumber lying flat, one on top of the other, and secured together by nails. An A frame of 2-inch by 6-inch lumber was built on each bearing piece. The four A frames extended to a height of 12 feet 4 inches above the car floor. Five spreaders separated the two legs of each A frame at various heights above the car floor and varied in length from 13 to 62 inches as indicated in a sketch at the front of this report. The four A frames were connected by two pieces of 2-inch by 6-inch lumber nailed to the inside surface of the legs of each frame about 50 inches above the car floor. At each end of the four bearing pieces, a 2-inch by 6-inch by 36-inch piece of lumber was nailed vertically against the side of the car to block the bottom of the hatch cover against lateral movement.

Three 2-inch high tension bands crossed the top of the one-piece hatch covers at equally spaced intervals and were secured to the car sides by the use of 2-inch locking clips. These bands were machine tightened and were double-crimped. No dampeners were provided to prevent vibration of the bands.

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Washington, D. C. 20423

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