COLORADO HISTORICAL SOCIETY

COLORADO STATE REGISTER OF HISTORIC PROPERTIES NOMINATION FORM

SECTION I

Name of Property

Historic Name Denver & Rio Grande Western Railroad Boxcar No. 64084

Other Names

Address of Property ☐ address not for publication

Street Address 2333 Steel Street [home of the Colorado Springs Trolley Group]

City Colorado Springs County El Paso Zip 80907

Present Owner of Property
(for multiple ownership, list the names and addresses of each owner on one or more continuation sheets)

Name Museum of Railway Workers

Address P. O. Box 3498 Phone 303-579-1506

City Boulder State Colorado Zip 80307-3498

Owner Consent for Nomination
(attach signed consent from each owner of property - see attached form)

Preparer of Nomination

Name Daniel Quiat, President Date August 2008

Organization Museum of Railway Workers

Address 825 Meadow Glen Drive Phone 303-579-1506

City Boulder State Colorado Zip 80303

FOR OFFICIAL USE:

Site Number 5EP.6156

12/5/2008 Nomination Received

Senate # House #

2/20/2009 Review Board Recommendation
☒ Approval ☐ Denial

2/26/2009 CHS Board State Register Listing
☒ Approved ☐ Denied

Listing Criteria ☐ A ☐ B ☒ C ☐ D ☐ E

Certification of Listing: President, Colorado Historical Society Date

COLORADO STATE REGISTER OF HISTORIC PROPERTIES

Property Name Denver & Rio Grande Western Railroad Boxcar No. 64084

SECTION II

Local Historic Designation

Has the property received local historic designation?

☒ no

☐ yes --- ☐ individually designated ☐ designated as part of a historic district

Date designated _____

Designated by _____ (Name of municipality or county)

Use of Property

Historic Transportation: Railroad Boxcar (general purpose); Railroad Auto Parts Boxcar

Current Not In Use

Original Owner Denver & Rio Grande Western Railroad

Source of Information D&RGW equipment card; Folio Sheet

Year of Construction 1956

Source of Information D&RGW equipment card

Architect, Builder, Engineer, Artist or Designer American Car & Foundry Industries

Source of Information Folio sheet

Locational Status

☐ Original location of structure(s)

☒ Structure(s) moved to current location

Date of move moved throughout its operational life

SECTION III

Description and Alterations

(describe the current and original appearance of the property and any alterations on one or more continuation sheets)

COLORADO STATE REGISTER OF HISTORIC PROPERTIES

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SECTION IV

Significance of Property

Nomination Criteria

- ☐ **A** - property is associated with events that have made a significant contribution to history
- ☐ **B** - property is connected with persons significant in history
- ☒ **C** - property has distinctive characteristics of a type, period, method of construction or artisan
- ☐ **D** - property is of geographic importance
- ☐ **E** - property contains the possibility of important discoveries related to prehistory or history

Areas of Significance

☐ Agriculture	☐ Economics	☐ Landscape Architecture
☐ Architecture	☐ Education	☐ Law
☐ Archaeology – prehistoric	☒ Engineering	☐ Literature
☐ Archaeology – historic	☐ Entertainment/ Recreation	☐ Military
☐ Art	☐ Ethnic Heritage	☐ Performing Arts
☐ Commerce	☐ Exploration/ Settlement	☐ Politics/ Government
☐ Communications	☐ Geography/ Community Identity	☐ Religion
☐ Community Planning and Development	☐ Health/Medicine	☐ Science
☐ Conservation	☐ Industry	☐ Social History
	☐ Invention	☐ Transportation

Significance Statement
(explain the significance of the property on one or more continuation sheets)

Bibliography
(cite the books, articles, and other sources used in preparing this form on one or more continuation sheets)

SECTION V

Locational Information

Lot(s) N/A Block N/A Addition N/A

USGS Topographic Quad Map Colorado Springs

Verbal Boundary Description of Nominated Property
(describe the boundaries of the nominated property on a continuation sheet)

COLORADO STATE REGISTER OF HISTORIC PROPERTIES

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SECTION VI

Photograph Log for Black and White Photographs
(prepare a photograph log on one or more continuation sheets)

SECTION VII

ADDITIONAL MATERIALS TO ACCOMPANY NOMINATION

Owner Consent Form

Black and White Photographs

Color Prints or Digital Images

Sketch Map(s)

Photocopy of USGS Map Section

Optional Materials

Use of Nomination Materials
Upon submission to the Office of Archaeology and Historic Preservation, all nomination forms and supporting materials become public records pursuant to CRS Title 24, and may be accessed, copied, and used for personal or commercial purposes in accordance with state law unless otherwise specifically exempted. The Colorado Historical Society may reproduce, publish, display, perform, prepare derivative works or otherwise use the nomination materials for Society and/or State Register purposes.

For Office Use Only

Property Type: [ ] building(s) [ ] district [ ] site [X] structure [ ] object [ ] area

Architectural Style/Engineering Type: Other: standard gauge railroad boxcar

Period of Significance: 1963

Level of Significance: [X] Local [ ] State [ ] National

Multiple Property Submission: N/A

Acreage less than one

P.M. 6th Township 14S Range 66W Section 6 Quarter Sections SW NW NW NW

UTM Reference: Zone 13 Easting 514702 Northing 4301810 NAD27

Site Elevation: 6092 feet

The UTMS were derived by OAHP from heads up digitization on Digital Raster Graphic (DRG) maps provided to OAHP by the U.S. Bureau of Land Management.

Property Name Denver & Rio Grande Western Railroad Boxcar No. 64084

DESCRIPTION and ALTERATIONS

American Car and Foundry (A.C.F.) Industries built Denver and Rio Grande Western Boxcar No. 64084 in August 1956 as part of a series of 100 cars. The cars were painted in the Rio Grande gold, silver and black stripe colors found on its passenger cars, locomotives and caboose (Eager 1996: 39). Designed to haul a maximum capacity of 50 tons, friction bearing trucks (wheel assemblies) held the weight of the car. Each truck had two axles connected to the sides using a brass bearing (much like an automobile engine). The utilization of brass bearings required constant attention to avoid a derailment; they had to be oiled to operate correctly. Without freight, the car weight is approximately 57,300 pounds or about 28-29 tons.

These cars were part of a new generation taking advantage of newer technology. Previous cars were built with a wood floor and often with wood walls. In the 64000 series cars that was not the case. In addition, the new cars took advantage of welding techniques which were proven by this time. Hence the cars, including No. 64084, consisted of a steel floor, welded steel sides and a welded interior skeleton. The roof and ends were also single pieces made of steel. The two-axle trucks (wheel assemblies) were made of steel as well.

Constructed completely of steel, Boxcar No. 64084 exhibits steel sides, roof, roof walkway, end walls and a single door on either side. The interior of the car, unlike previous freight cars consisted of metal as well: steel panels with horizontal steel posts, to which the damage free (DF) bars attached, made up the side walls. When the car was constructed, the damage prevention system was a nailable steel floor, which is still extant in No. 64084. While nails could not be placed anywhere, they could be “nailed” into a steel channel designed for such a purpose (See photos H3 and H4). This was a vast improvement, allowing more use without having to replace the floor, like those made of wood. Originally displaying friction-bearing two-axle trucks (wheel assemblies), these were at some point replaced with roller bearing wheels. (Often the replacement wheels came from the trucks of a car involved in a derailment.) Boxcar No. 64084 visited the Burnham Car Shops in Denver in December 1979. According to car stencils, this was most likely when the replacement took place. No records regarding this specific alteration could be found.

Originally used for general work service, a receipt shows that Boxcar No. 64084 was modified for auto part service in 1963 and 1965 with the addition of damage prevention equipment. The car remained in dedicated service until at least the late 1970s. At that time, the car was illegally taken by D&RGW workers, repainted silver and placed into work service. Since it was taken illegally (a common railroad practice described in more detail in Section IV), no information exists on the history of how the car was placed in work service, although a stencil on the car showed it belonging to “Tie Gang 3” as their supply car. With the car in work service, the Damage Free (DF) posts were left in the car, but the DF bars removed. The car remained in general work service as the Southern Pacific merged with the Rio Grande in 1988 and was retained after the merger of the Southern Pacific with Union Pacific in 1996.

By 2000, the car was stenciled “MW” for maintenance of way or non-revenue service and sat in the Pueblo railyards, seeing little to no activity. The Union Pacific finally retired it in 2008, selling it to Progress Rail Services, which then in turn sold it to the Museum of Railway Workers in June 2008. The museum moved the car from Pueblo to Colorado Springs. The car received a new paint job in August 2008 in its original Rio Grande gold, silver and black stripe colors.

The car is in excellent overall condition having undergone few alterations. Interior modifications involved the removal of the car’s damage prevention bars (not the posts to which the bars attached) and the inclusion of homemade metal shelving and containers. Inspection of the car did not indicate any other modifications.

SIGNIFICANCE STATEMENT

Built in 1956, the 50-foot Denver and Rio Grande Western Boxcar No. 64084 is eligible for the State Register under Criterion C for its Engineering significance. The boxcar is a rare remaining local example of a representative type of rolling stock that illustrated the railroad's experimentation in damage prevention equipment, exhibiting then-innovative nailable steel flooring. The nailable steel floor represents the effort of the railroads to outfit boxcars with new technology capable of reducing damage to goods being transported across the country.

The 64000 series cars reflected several improvements from previous boxcars. It was a longer 50-foot length that allowed for a greater variety of cargo and was constructed completely of steel that significantly reduced maintenance. (Previous cars were 40' with wood walkways, interiors and siding.) In 1963, the railroad modified the car for auto parts service with the installation of Sparton Quick Loaders damage prevention equipment—an early method of creating compartments inside the car to prevent damage to cargo due to shifting. The car remained in special service into the late 1970s, general work service into the early 1990s, and was eventually retired in 2008.

HISTORICAL BACKGROUND

> *Romance and beauty are almost never associated with freight cars. Plain, ponderous, and work-a-day, these faithful servants, which function so efficiently as breadwinners for the railroad industry, receive little attention and less compassion. Their cheerless and dowdy appearance—for most look old long before their time—have won them few admirers.* (White 1993:4)[1]

Boxcar Design

Railroad companies generate their revenues by transporting passengers and freight. Passenger and freight cars, which are designed for this purpose, are often referred to as revenue cars. Cheap transportation is the essence of railroad freight service. However the ability to move large quantities of goods long distances is not enough. Capacity has to be coupled with the ability to economically transport those goods. Many considered freight cars as money boxes, but only if they were carefully managed and driven hard.

The provisioning of America was a major task that involved transporting, on a continental scale, the products of farms, forests, factories and mines. This was not a "Mom-and-Pop" operation but a big business that employed hundreds of thousands of workers, millions of dollars in tracks and equipment, and a bureaucracy comparable to that of the federal government. Railroads and the nation grew and prospered together. When the railway age opened in 1830, the United States was largely an unexplored and undeveloped land with agriculture as its basic industry. As the pace of industrialization quickened, the national wealth soared. By 1865 railroads began to dominate the nation's freight

[1] John H. White's monumental book, *The American Railroad Freight Car: From the Wood-Car Era to the Coming of Steel*, provided much of the general discussion about boxcar design that follows.

business. By 1890 the United States was a formidable economic power, out-producing the other great industrial nations of the world. This rapid economic growth was the prime mover in creating the vast network of American railroads. The dramatic changes in the national economy were directly reflected in railroads, their operating procedures and their equipment.

American freight car design was a conservative, craft-dominated trade. The majority of freight car designers/ builders were practical individuals, faithful to traditional methods and steeped in utilitarian values. New designs were based on old designs. Car builders' conservatism can be explained by several factors. First was the obvious fact that the main business of the railroad was transportation and not technical innovation. Its fundamental goal was the dependable and economical movement of goods and people. Reliable equipment was essential to fulfill this mission and consequently experimentation was discouraged (White 1993:134).

Cost was another constraint to innovative design. Because so many cars were needed, by necessity they had to be cheap. Cheap cars tended to be those produced on conventional plans, again discouraging innovation. Railroad cars were seen as short-term vehicles. Why build a heavy, expensive car when it would be in the scrap heap after 16 years of service? Lightness and short service life seemed to go together. "In their effort to balance strength against carrying capacity, car builders adopted the doctrine of just good enough. The vehicle should be made no more durable than was necessary for it to do its job in the short run. This philosophy was indigenous to the American railway as a whole" (White 1993:135).

Despite these constraints, American car builders managed to produce a very practical vehicle that performed with great dependability. Low-cost cars were built from simple native materials. They were cheap rather than durable, had a short service life, and were a credit to the journeymen who created them. "In terms of their dead-weight ratio—that is, the weight of the car compared with the load it could safely carry—the American boxcar had no rival. It was strong, yet light. If a part failed because it was too light, it was made heavier in the next lot of cars" (White 1993:135).

The basic boxcar design that evolved was little more than a box on a bridge carried by sets of wheels (called trucks) that were clustered together at each end of the car. The trucks' frames were fabricated from a large number of small iron straps, bolts and castings. The floor frame was made from 4" x 8" timbers (called sills) bolted on top of heavy cross-timbers (called bolsters). The frame did not just support the cargo; it was also responsible for sustaining the pulling stresses of the train.

The open, four-wheel gondola was the standard freight car during the first years of American railroading. It was capable of transporting just about every class of goods. Bulk materials were simply dumped in. Those materials packaged in barrels (like flour, whiskey and oil) were easily loaded. More fragile goods were transported utilizing a canvas cover or tarpaulin because wood-burning locomotives threw out showers of glowing embers and sparks. Although an open (uncovered) car of merchandise provided nooks and crannies for sparks to lodge and burn, tarpaulins were equally susceptible to incineration.

In its 1832 published report, the Baltimore & Ohio Railroad concluded that valuable merchandise, even when protected by canvas, suffered in open cars. The report noted that 70 "house" or enclosed cars, had been placed in service. Other railroads were quick to adopt the covered freight car. Early cars from this period were four-wheeled with highly pitched roofs and outside body framing.

During this same time that the shift from open to closed bodies was under way, another fundamental

transformation in American railroad freight cars occurred. The double-axle truck or eight-wheel car displaced the single-truck four-wheel car. By 1840 most U.S. lines had come to adopt the double-truck car because it was much better suited to our special operating problems. American rail lines were built cheap and fast with meager capital and low earnings that forced the construction of inferior track and bridges. Grading was minimal, ballast was sparse, rails were light and ties were widely spaced. Four-wheel cars tended to be short and rigid with its weight concentrated on a shorter length of track which could crush and break down. Only a flexible vehicle, with its load spread over as long a distance as was practical, could run on such flimsy uneven track. Double-axle truck cars could be long, spreading the load over a longer distance. Yet they could still navigate short curves because the individual wheel sets of each truck could be placed close together. Because the trucks were connected to the car frame by center pins, they were free to turn or swing, creating a vehicle with remarkable flexibility. The eight-wheel car also offered more opportunities for carrying larger individual items and larger overall loads (e.g., pieces of machinery or long beams). “All these advantages made the eight-wheel car attractive for both passenger and freight vehicles. However, it was found especially advantageous for freight service” (White 1993:165).

The basic, general-service car to emerge from the pioneer period of American railroading was the familiar boxcar. This standard workhorse of the fleet changed little from the late 1830s, when the first eight-wheel boxcars were introduced, to the end of the Civil War. The essential characteristics—a rectangular body with sliding doors above an eight-wheel undercarriage—were well formed before 1870. During this time most boxcars looked the same. Typically they had a body length of 24 to 28 feet, an arched roof, wood-beam trucks with no truss rods and an eight to ten ton capacity (White 1993:176).[2]

The single most obvious change in freight car design over the years was size. White notes that until about 1870 car size seemed frozen at a 10 ton capacity. Tonnage increased during the post-Civil War period and bigger cars were seen as a quick solution to the traffic problem. “In rapid succession 15-ton cars were replaced by 20-tonners, and so on until the 40-ton car came into being in the early years of the twentieth century” (White 1993:137).

The wooden boxcar evolved from a small carriage for modest local traffic into large, rugged vehicles moving vast interstate tonnage. Critics of the wooden freight car cited its obvious defects—flammability, subject to rot, and structurally weak. Proponents for wooden cars cited the obvious advantages: the relative ease and speed of building with wood; the fairly simple and inexpensive carpentry tools needed to do the job; the largely unskilled labor pool which was better adapted to carpentry; and the abundant supply of prime timber. While America’s virgin forests offered an abundance of superb building material, the typical boxcar used approximately 3300 to 4300 board feet. Imagining entire forests vanishing, some car builders became nervous about available supplies.

By 1890 American car builders must have sensed that the wooden age was coming to an end. Although wood remained the predominant material, more and more metal was being worked into the structure. Freight cars were roughly 60 percent wood and 40 percent iron; most of the metal was in the trucks, notably the wheels, but the body was nearly 25 percent metal (White 1993:230).

The metal freight car would prove to be an impressive vehicle for commerce, but only after a lengthy

[2] Although the arched roof prevailed during the early years, the simpler and more effective slightly peaked roof would become the standard.

development period. By the 1880s iron came to play an increasing role in wood car design. “Tie and truss rods were by then well accepted. Iron-reinforced body and truck bolsters did much to increase the durability of boxcars that had floor sills the same size as those used in an earlier time for cars of half the capacity” (White 1993:135).

Economic changes probably had more impact on this shift to metal construction than the engineering details. Bigger cars were seen as a solution to the enormous growth in railroad traffic, but wooden cars were reaching a practical size limit. Cheaper steel coupled with the scarcity of framing timber effected the decision to go with the metal car. Metalworking tools improved with pneumatic tools, particularly hand-held riveting guns, accelerating car fabrication.

White claims that there is no clear division separating the history of the wood/ metal (composite) car from the steel car; the iron car drifted into the age of steel. Although he cites a convenient but not precise date of 1890 as the beginning of the steel-car era, wooden freight cars “remained firmly on the throne.” Falling costs due to better production methods and availability of more varied stock shapes and sizes enhanced the increasing popularity of steel. White notes that rolled beams once selling for $70 per ton were $40 per ton by 1891. More common by 1890, steel working tools and their operation became more familiar to a larger number of workers. “The advent of air-powered tools is one of several developments outside the railroad industry that had a direct effect on the decision to adopt steel freight cars” (White, 1993:580).

The railroad industry was gaining experience with metal cars even while still maintaining that they were unacceptable. By 1890, iron body bolsters and all-iron trucks were common, and half of all locomotives were pulling steel-framed tenders. Introduced in the late 1880s, huge steel-framed flatcars, special-service cars meant to carry naval guns or huge rolls of wire, were the biggest freight cars in service.

The burgeoning steel industry, pneumatic tools, a new generation of master car builders and greater experience with metal framing were all factors in the successful transition from wood to steel construction. “But there was an even more powerful argument for this radical change in car building…. It was the economics of scale” (White 1993:581). That fundamental element was key in American freight car development—big cars versus small cars.

American freight cars grew steadily larger from 1830. Larger cars were more productive in moving a given quantity of goods, particularly bulk materials (such as coal, sand and grain). Because fewer big cars were needed in trains of equal capacity, it reduced the number of wearing parts and the time spent oiling and inspecting those parts. Big cars resulted in shorter trains. Fewer cars per train meant fewer locomotives, smaller operating crews and lower labor costs. The big car trend dominated because it increased the railroad’s capacity and efficiency with a relatively modest investment. In addition, the repair costs for wooden cars became a burden. Frames required the best grade of timber for maximum strength and durability and, by the late 1890s, the virgin forests were almost gone.

At the beginning of the twentieth century the railroad industry had come to accept metal freight cars. “In 1901, 15 percent of new cars built were of steel. Four years later the figure jumped to 45 percent, and there were now [1908] about 150,000 of them in service. This represented 12 percent of the entire fleet—a major achievement for just seven years” (White 1993:598).

Composite boxcars, made of both wood and steel, were built principally during the 1920s to the 1940s. While all-steel cars were already being manufactured by the late 1930s, the lower cost of the composite cars no doubt led to their continued popularity. During World War II, the diversion of steel to war

material production left little for civilian use. Composite boxcars required less of the valuable war material than the all-steel version.

The adoption of the steel car was not as revolutionary as it appeared. Most so-called steel cars were actually composite construction. While the framing for the floor and body was all metal, the floor and body were still wood. Up until relatively modern times, boxcars had wooden interiors as they protected cargo and allowed for easy fastening. The composite construction was a very rational decision as wood made a perfect secondary material—it was cheap and easily replaceable. White noted that "the short life of freight equipment made expendable wood components ideal" (1993:598). Gradually less and less wood was employed in car construction. The better class of boxcars was constructed with steel ends and roofs. By 1940, most major railroads had universally given up on exterior wood siding. However, interiors tended to remain wooden (White, 1993:598).

Damage Prevention in Boxcars

The boxcar became the catchall freight car for goods requiring protection from the elements. Items from grains to wood would be loaded into the car and moved by rail. For bulk goods moving in a boxcar, any excessive jolts did little harm to the product, provided it didn't destroy the car. However, transporting fragile items in the large open space of a boxcar was a different matter, as former Rio Grande employee Marv McCall recalled. When McCall's father, who worked for the Moffat Road, received a new assignment, it often required the family to move. To assist with the move, the railroad provided a boxcar for the family's belongings. When the family and the boxcar arrived at their new location, they searched in the car through the rubble and debris for what wasn't destroyed by the move. McCall also noted that anything not destroyed by the move was covered in coal dust since the boxcars were often used to move coal on the Moffat (Marv McCall Interview, 8/7/2008).

While some of the movement a car might encounter is due to the unevenness of the rail, another more jolting movement is from "slack action." The sudden starts and stops of a train can cause each car to lose about four to six inches in the space between couplers. Another way to get slack action is by going over a hill and having the last cars push into the train. The accumulation of slack action over an entire train would leave the last cars to be affected receiving a sudden and strong jolt. This became a greater problem as trains got longer and was one of the reasons that the caboose was eliminated from the rear of trains as the slack action caused injuries and even death to personnel (Marv McCall Interview, 8/7/2008).

Several methods have been employed to attempt to reduce the damage problem on railroads. The simplest method which was quickly utilized involved placing a draft gear behind the coupler and in front of the frame. This draft gear acted as a cushion to eliminate some of the motion and is now found in every type of car.

The second method which helped improve the ride was the creation of a cushioned frame on the car. A rigid center-sill car experienced a jarring ride from the smallest and simplest movements of the train. A car with a cushioned center-sill was able to take the motion of the train and release some of the pressure acting on the car, even if the rest of the car had a solid frame. One of the earliest cushioning frames was the Duryea Cushioned Underframe (Wright, 1940:382). The Duryea Corporation touted the cushioning frame as a way to reduce damage claims, increase the life of the equipment and reduce the cost of equipment maintenance (Wright, 1940:382). The Duryea frame utilized a series of springs to absorb the shock. Although the concept appeared sound, in practice repairs to the cars were dangerous and the frame was eventually outlawed for interchange, although some railroads like the Rio

Grande still used cars with the Duryea frame for non-revenue service (John Tudek Interview, 8/6/2008).

Devising ways to control the movement of freight inside the car was the final method employed. In early cars, loads were strapped and tied to nailed points on the wood floor and wood sides of the car. This simple method initially helped restrict the movement of the load within the boxcar, but as freight train speeds increased and more fragile goods were carried, invention of other devices to better secure cargo came along. One such device was the Evans automobile loader, utilized in boxcars that carried automobiles. Although today it seems odd that railroad boxcars would move automobiles across the country, it was the most effective method of transportation at the time. By the 1930s most railroads had an automobile boxcar.

These automobile boxcars utilized an Evans automobile loader attached to the ceiling; when not in use it would fold up almost completely flat. After driving in the first car, the loader would drop and the car would maneuver onto the loader. The device was lifted up and secured. Another car would then be driven underneath it. By using two loaders, the 40 foot boxcars of the earlier 65100 series could carry four cars (Wright, 1940; Marv McCall Interview, 8/7/2008). The Rio Grande installed an early design, Type “D,” and then began replacing it with the Type “F” loader a little at a time. The Rio Grande continued to use the auto loaders in the series until 1954 when the devices were retired (D&RGW Accounting book). The auto loaders turned out to be quite dangerous as the cables used to support the car swung back and forth during travel. This motion weakened the cables which could snap at inopportune times (Marv McCall Interview, 8/7/2008). In addition, by this time newer and more economical methods of moving automobiles arrived.

In addition to transporting automobiles around the country, railroads shipped parts for automobiles, which also needed to be contained within the boxcar. Seizing the opportunity, manufacturers introduced various kinds of securing devices for boxcars. The first securing devices were quite simple and included the use of stanchions, poles thrust into place vertically to prevent movement. Another simple method was the use of steel bands. Each of these methods had major limitations in terms of how much weight it could control from moving.

Two companies, Sparton and Evans, came out with new devices that utilized horizontal bars connected to belt rails. The belt rails were secured to the sides of the car and the bars were locked in. The system was strong enough that the bars served as a floor to create a second level of storage space. The Rio Grande utilized the devices of both companies. The Sparton Easy Loader (SEL) was one of three damage prevention systems used in Boxcar No. 64084 over the years of its use as a special service car (See photo H5).

By the 1960s car builders started including damage protection in specific cars and typically these cars had moveable bulkheads. These bulkheads could be adjusted in whatever location the shipper wanted. While this essentially ended the experiment into damage prevention products, the Rio Grande continued to keep its older modified cars in service until the 1970s, and in some cases the 1980s. The continued use of these cars was no doubt due to the fact the railroad could not afford to be wasteful and had to stretch its use of equipment as long as possible.

The 64000 Series Boxcars and Car No. 64084

Purchased by the Rio Grande in order to allow the retirement of older equipment, the 64000 series cars had a design indicative of the 1950s: a steel floor with a “nailable” design. This was a new and remarkable change from prior decades. The steel floor had a pattern that required it be nailed in certain

locations in order to work properly (See photos H3 and H4). The design allowed a much better grip by a typical nail as compared to a wood floor and yet it was relatively easy to remove once in place. The car was also 10 feet longer, allowing a greater variety of items to fit in the car. A metal roof walkway, rather than wood, also required less maintenance on the car. More subtle changes discovered by the manufacturers to increase the life expectancy were unquestionably added as well given its good condition 50+ years later (Folio Sheet; Combs, 1957).

The series was built specifically for the needs and budget of the railroad. The car, besides allowing the retirement of older cars, was purchased to fill a gap in the need for equipment. While the railroad always needed more equipment, they also had to recognize their budget. During a period of time when 70 ton cars were coming off the car assembly lines, the railroad purchased 50 ton cars, arguably already obsolete.

Perhaps part of the plan was to wait until the newer 70 ton trucks were better tested and less expensive. In addition, with the creation of the higher capacity cars, lower capacity cars were cheaper and still capable of shipping most goods. Finally, the railroad liked to let other railroads test the equipment first before jumping in on a particular product (John Tudek Interview, 6/23/2008; Sam Shuman Interview, 6/2008).

The result, however, was that the cars became obsolete rather quickly, even those with special modifications. The typical lifespan for a railroad freight car in revenue service is 40 years. In the case of this series, however, by 1986 only 12 of the 30 year old cars remained in revenue or non-revenue service. By 1996, when the cars turned 40 years old, hardly any railroad in the country had 50 ton cars. Now, in 2009, the 53 year old D&RGW Boxcar No. 64084 is so obsolete that finding parts for it is nearly impossible (John Tudek Interview, 8/6/2008).

The 64000 series of boxcars built in 1956 for the Rio Grande were mostly 50-ton cars used in general service; some, however, were converted to transport automobile parts. Cars intended for that purpose had damage protection equipment added. Of the 100 64000 series cars, eight had stanchions added in 1957 and 1959. Stanchions were poles placed vertically along the interior of the car to help hold a load in place (Phil Johnson, interview 6/24/2008). In 1960, ten additional cars received Sparton “Quick Loaders,” also called “QL” equipment (Folio Sheets, John Tudek Interview, 6/23/2008). Quick loaders were a trademarked name for a protection device that went horizontally and clicked into side rails, called “belt rails,” that ran horizontally along the interior sides of the car (Marv McCall Interview, 6/24/2008).Two cars got stanchions in 1963 with two more cars receiving Quick Loaders in 1965, the result being 10 cars with stanchions and 12 cars with Quick loaders. In 1966, eight cars had their stanchions removed as they were returned to normal service. Since stanchions were the most simple and rudimentary type of load protection, they were the first items removed from modified cars during 1966 (D&RGW Accounting). While the cars were probably not always moving auto parts, the remaining cars kept the damage protection equipment until their retirement in the 1970s and 1980s.

Another type of trademarked device was the “Spartan Easy Load” or “SEL.” While it had a snappy name, the device was in essence a more modern version of the Quick Loader. The SEL equipment created compartments inside the car to prevent damage to goods inside the car due to shifting. The items once again utilized horizontal bars that went across the car and snapped into the belt rails along the interior length of the car (Marv McCall Interview, 6/24/2008; Phil Johnson Interview, 6/24/2008). In 1963, two cars from the 64000 series were modified with the SEL devices—the nominated No. 64084 (evident by its folio sheet) and No. 64061.

After the modifications there were a total of 20 converted cars in the series for a period of three years (D&RGW Accounting Book). While Boxcar No. 64084 continued in service, at one point moving auto lamps, other cars in the series were quickly being retired (Summary of Equipment, 1969). According to the 1969 Rio Grande summary of equipment, only 12 cars were still in auto parts service. The removal of the series from service continued in the 1970s (Summary of Equipment, 1969; D&RGW Accounting Book). New technology placed in the latest equipment resulted in the quick retirement of cars. During the late 1960s and early 1970s, the railroad purchased cars using more modern and integrated load protection. Additionally, the new cars could hold heavier loads. While almost all of the cars were gone by 1980, seven cars, including No. 64084, remained in revenue service (*Official Railway Equipment Register*, 1980:329). For a short time No. 64084 might have been used to move copper bullion from Utah based on a sign stating: "When empty return to Clearfield, Utah" (information on car; Eager, 1996:41). The remaining cars got a reprieve for a time with the transport of wallboard from Kremmling, Colorado, but the plant closed, ironically, as the railroad put money into upgrading the doors (Marv McCall Interview, 8/23/2008).

As of the Southern Pacific-Union Pacific (SP-UP) merger in 1996, the UMLER system indicated there were a total of seven cars from the series to survive in work service. (The UMLER system is a catalog of all railroad cars running in the United States and where they are.) Given the vast number of cars that the UP inherited, it was easy to scrap cars that were physically tired or technically obsolete, such as the 64000 series Rio Grande cars.

In 2009, about 53 years after the car's creation, only one other car is known to exist: D&RGW Boxcar No. 64073. This car was always a simple boxcar, lacking any kind of loading devices/ damage prevention systems during revenue service. In fact, the only unusual thing about it was its color. All of the cars needing to be painted in the series were generally redone in the same colors as built. Boxcar No. 64073, on the other hand, was repainted with an orange paint around early March 1976 (John Tudek Interview, 6/23/2008). The paint job was short-lived, however, as the car was retired from revenue service and placed into work service, receiving a coat of silver paint.

Boxcar No. 64073 survived by holding supplies for a side boom caterpillar bulldozer maintained in Denver for train wrecks. Recently, the caterpillar bulldozers in Denver were sold or transferred to Hultcher Services and sent to St. Louis, Missouri, for rebuilding. They will return to service in Casa Grande, Arizona (Adam Hinkle Interview, 6/2008; Mike Gannon Interview, 8/14/2008). Without a job, the boxcar will be sent to Phippsburg, Colorado, to replace an older car (Sam Shuman Interview, 6/2008).

Besides its use in revenue service, Boxcar No. 64084 tells another important story of the Denver & Rio Grande as well. The railroad was rarely able to purchase non-revenue maintenance-of-way cars. Typically much older cars were provided to crews for work service. To alleviate the lack of needed railroad cars, work crews would "abscond" with revenue cars for their use. It was not uncommon for a revenue car to be repainted silver, and an "AX" painted in front the car's number to indicate maintenance-of-way use. Occasionally an "MW" may be added to further the deception (Marv McCall Interview, 6/22/2008).

The railroad's accounting department, however, was rarely aware of the car's new use and still showed the cars as being in revenue service. The problem was sufficient enough in one case that former D&RGW employee Marv McCall and his co-worker Tom Rutman traveled around the entire system in the early 1970s to create a list of cars that had been converted to work use. At that time there were about 100 cars that unofficially found their way into maintenance-of-way use (Marv McCall Interview, 6/22/2008). The irony of this "theft" is the fact that the railroad lacked enough cars of its own for revenue service it ended up "borrowing" other railroads' cars. The Rio Grande was fined for keeping

other railroad's cars on its system in "dedicated" service when there were strict accounting rules against it (Life Magazine, 1963). Boxcar No. 64084 is a fine example of the impressment practice carried out by maintenance crews. While Accounting showed the car still in revenue service, it really was not. In fact, the car spent about half of its life in non-revenue service.

In summary, this boxcar represents not only improvements made in the 1950s and 1960s, but the early use of damage prevention devices. Such items became an integral part of future cars produced, but while companies fought to find the standard, cars such as D&RGW No. 64084 were the testing ground.

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Tudek, John [Carmen D&RGW, currently Union Pacific]. Interviewed by Daniel Quiat on 23 June, 6 August and other occasions in 2008.

Property Name Denver & Rio Grande Western Railroad Boxcar No. 64084

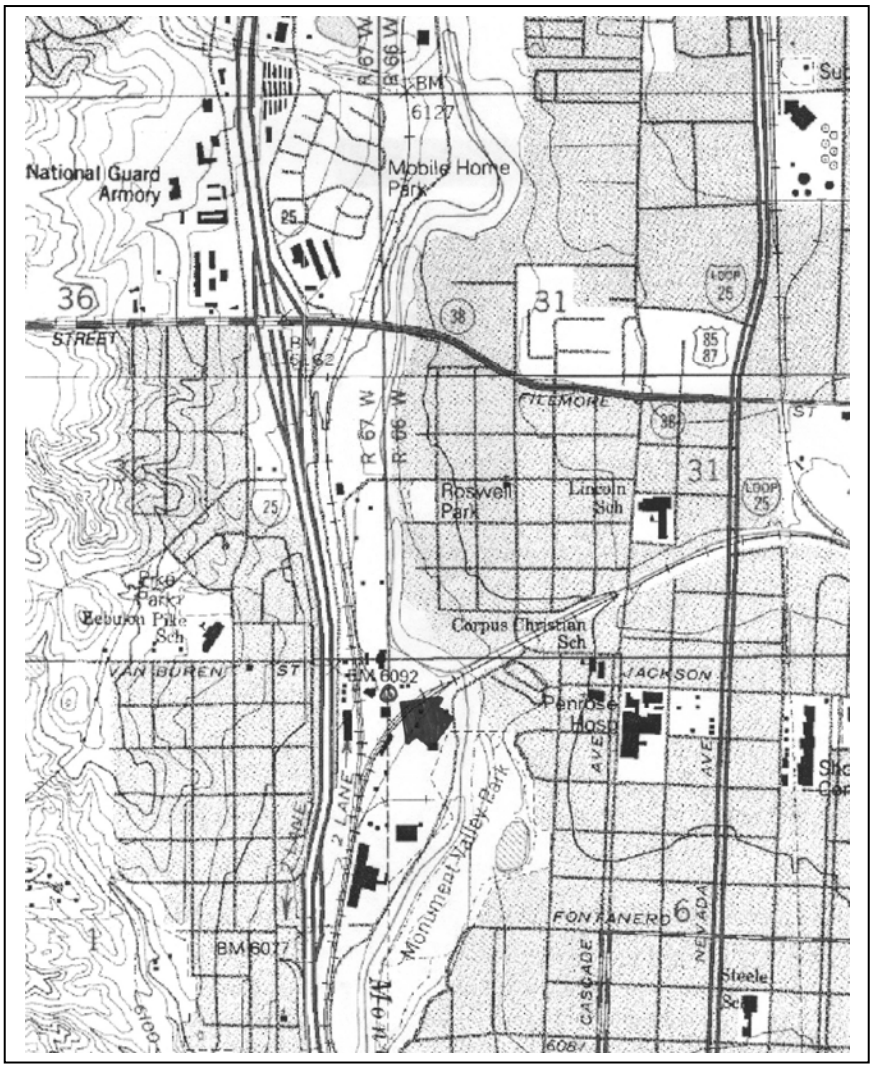
GEOGRAPHICAL DATA

VERBAL BOUNDARY DESCRIPTION

The State Register nomination includes only the structure of the rail car as it sits within the boundaries of the home of the Colorado Springs Trolley Group at 2333 Steel Street in Colorado Springs. No land is included with this nomination.

USGS TOPOGRAPHIC MAP

Colorado Springs Quadrangle, Colorado
7.5 Minute Series



Property Name Denver & Rio Grande Western Railroad Boxcar No. 64084

PHOTOGRAPH LOG

The following information pertains to photograph numbers 1- 3 except as noted:

Name of Property: Denver & Rio Grande Western Boxcar No. 64084
Location: El Paso County/Colorado
Photographer: Daniel Quiat
Date of Photographs: September/October 2008
Negatives: tif images on cd

Photo No.	Photographic Information
1	Oblique view of Boxcar No. 64084
2	Interior view of nailable steel flooring
3	Interior view of steel posts to which DF bars attached

PHOTOGRAPH LOG - HISTORIC

These photographs may not be included in Internet posted documents and other publishing venues due to copyright restrictions.

Photo No.	Photographic Information
H1	Folio Sheet. On file at the Colorado Railroad Museum, Golden, Colorado.
H2	Picture of 64000 series Boxcar, taken from the *1957 Car Builders' Cyclopedia*, page 92.
H3	Diagram showing Nailable Steel Flooring, taken from *1997 Car and Locomotive Cyclopedia*, page 33.
H4	Diagram showing Nailable Steel Flooring, taken from StanRail Company Publication, unknown source, courtesy of Daniel Quiat.
H5	Advertisement for Sparton Tri-Belt, Damage Prevention System, taken from *1957 Car Builders' Cyclopedia*, page 433.


D & R G W
Rio Grande