

150 Years of Railroad Snow Removal

By Jerry Blackwill, Truckee Donner Railroad Society

Sierra snows are a continuing challenge to railroad transportation through our high mountains. This is a story of these efforts and the machines used.

The first surveyors of the transcontinental railroad thought the snows could be handled with the equipment of the day. They planned to use "Bucker" snowplows almost 20 feet tall pushed by six to nine wood burning locomotives. This worked fine with fresh powder snow, but once the snow thickened to "Sierra Cement" the operation literally derailed. Still, the railroad used the Buckers as much as they could.

Even before the completion of the Central Pacific Railroad (now the Union Pacific), a program of building snow sheds was started to protect the railroad over the top 30 miles of the Sierras. These sheds and the Bucker snowplows kept the line open during most of the winter, but the snow sheds were beset with problems of fire and avalanches. And, while useful, the big snow plows were operational headaches.

In 1880 Charles McGlashan the editor of the Truckee Republican reported a harrowing adventure. The locomotive he was riding struck a Bucker snow plow. The editor was thrown onto the snow next to the tracks and only inches from the engine's wheels. He survived and published his story in his newspaper. Even then, the railroads were looking for equipment superior to these large and unwieldy plows.

By the 1880s, manufacturers were developing more efficient methods of removing snow from the tracks. In 1887 Orange Jule and two Leslie brothers delivered a "rotary" snow plow with fan-type blades to cut through the snow and clear the tracks. The revolving fans of the Leslie rotaries proved themselves much better at removing Sierra snow than the competitive Cyclone and Excavator augur snowplows.

These Leslie type rotary snow plows worked well until the 1952 when over 20 feet of snow buried Donner Pass. The Southern Pacific's Chicago to San Francisco passenger train – the City of San Francisco was hit by a small avalanche that immobilized it just east of Yuba Gap.

A Leslie rotary from Norden cleared the track to the rear of the train, but the passenger train could not be pulled back away from the snow. Another rotary from the west was hit by an avalanche, killing a rotary trainman. After three days, the passengers were forced to walk a short distance through the snow to old highway forty. There, they were transported to warm accommodations and then to San Francisco. It still took another three days to free the empty passenger train and reopen the track.

Today the railroad uses a combination of the modernized Leslie rotaries, spreaders, and flangers. The youngest rotaries are over eighty years old. Their old steam boilers have been replaced with diesel generators and they have modern electronic controls. These rotaries are stored in Roseville and only used in snow years when the snow is particularly deep. The rotary's problem is they cut deep trenches and sometimes the sides of the trenches collapse requiring another snow plowing operation.

Spreaders solve the problem by being able to push the snow further from the tracks than the rotary can. But, they are used in only shallower snow. The spreader is pushed by a locomotive. They are called spreaders because they have movable wings that can extend twenty feet on either side. The spreaders are stationed in Truckee throughout the winter and are the workhorses of the snow removal equipment.

Flangers supplement the work of the spreaders. They are also stationed in Truckee during the winter months. These cabooses-like cars have a flanged plow that drops down to clear the snow from between the rails.

The Union Pacific continues to wage war with the Sierra snowstorms. Most years they have been successful with the last 5 day delay occurring in 2011.

If you'd like to see a rotary, there is a static display of a retired rotary in a pocket park east of downtown Truckee.

Sidebars:

- For more information and a list of summer activities going on in Truckee to celebrate the sesquicentennial of the Transcontinental Railroad go to <https://goldspike.org> or the Facebook page: Donner Summit-Truckee Golden Spike Celebration.

About the author:

Jerry Blackwill is President of the Truckee Donner Railroad Society and board member of the Truckee History – Railroad Museum.

References:

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- Snowbound Streamliner: Rescuing the 1952 City of San Francisco, Robert J Church, Signature Press, Wilton, CA