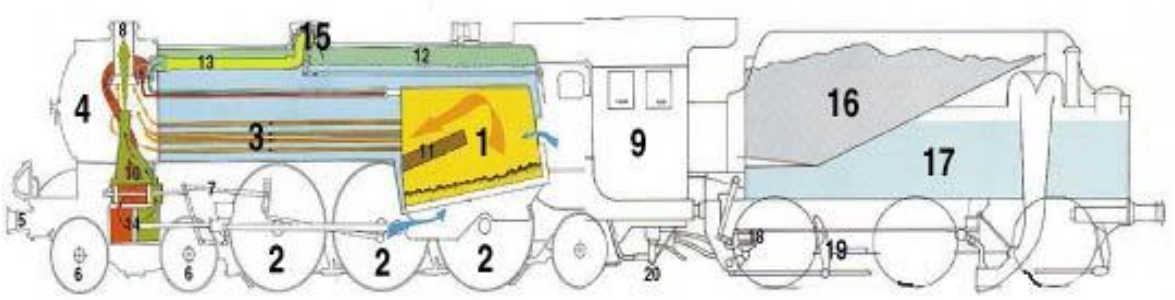
The Great Northern passenger train, No. 2523, was built in 1916 to speed up the passenger main line service through the mountains. Train 2523 was once of the 28 locomotives built by Baldwin Locomotive Works. This train was painted green because all passenger trains were, although this train was occasionally used to carry freight. The train was usually driven at 79 mph because 80 was the maximum speed without cab control. Three men operated inside the train, a brakeman, a fireman, and an engineer. There were also two men on the caboose. In 1946 the train was converted to oil. Its last run was in 1958, and was placed on permanent display at the Kandiyohi County Historical Society on October 17th, 1967.

Big thanks to Elmond Ekblad (pictured below) for his contributions of time and knowledge, which was vital to the making of this brochure.



Operation:

The water is put in the boiler. The firebox heats the water that runs the piston and makes the wheels run. There is always steam going back and forth in the cylinder, which keeps the train running on a steam locomotive. It took about 15 minutes in the summer and 30-60 minutes in the winter to start the engine. In the winter it took longer because it was harder to get air to all the cars in the train. The air was needed to run the car's brakes.

The train had to get water at least once on the way from Minneapolis to Willmar. They tried to make it to Dassel, because then they would only have to stop once. If they couldn't make it to Dassel they would have to stop in Delano and then in Litchefield too. Stopping took at least 45 minutes because the train had to be inspected. Refilling the water tank took about 12-15 minutes. The tank could hold 15,000 gallon of water. The train would use between 4,000-5,000 gallons of water an hour.

1. Firebox-Burns fuel to produce heat
2. Driving Wheels-Connected to each other by connecting rods, this engine has six and with four bogie and two trailing wheels giving the engine a configuration of 4-6-2
3. Fire Tubes-Carry the heat of the firebox into the boiler and so raising the temperature of the water
4. Smoke box door-Gives access to the smokebox for the removal of char
5. Front Frame and Buffers
6. Trailer Wheels-Support the weight of the rear of the locomotive
7. Valve Gear-Linkage that times the intake and extraction of steam from the cylinder
8. Chimney-Removes the smoke and cooled steam away from the boiler
9. Driving Cab
10. Blastpipe-Removes the cooled steam away from the cylinder
11. Brick Arch-Encourages combustion of gas distilled from the firebed
12. Saturated steam area inside the boiler
13. Main Steam Pipe-Transfers steam from the regulator valve to the superheater header
14. Cylinder and Piston-Where the superheated steam is converted into mechanical energy
15. Steam Dome-Highest point of the boiler and also usually contains the regulator valve
16. Coal Space-Has a capacity of ten tons
17. Water Space-Has a capacity of up to 6,000 gallons
18. Brake Cylinder
19. Brake Gear
20. Injector-Supplies water to the boiler

Wheels

-The wheels are 73” or 6’ high.
-Wheels are made from cast iron steel to minimize wear.
-The little wheels on the back of the train are called “trailer wheels”. The trailer wheels give added support.
-The front small wheels that guide the train are called pony trucks.
-Each of the eight big, middle wheels have their own brakes.
-The big wheels are very heavy. It takes four men to left them.
-Most wheels last ten years. Sometimes wheels have to be changed more frequently because if the train is stopped suddenly, the wheels stop slide the train continues to move. This creates flat spots and the wheel must be replaced.
-The flange is the lip on the inside of the wheel. It holds the wheel on the track. In order for the wheels to turn the flange must be on the inside.
-The weight on the top of the wheel lets the train coast easier because the weight helps keep the momentum going on the wheel.

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Miscellaneous Facts

-The firebox had to be cleaned after every trip.
-The number on the side of the train (2523) identifies the type of engine.
-The small colored lights on the front of the train are called classification lights. They were used to see the condition of the tracks at night.
-The train ran from 1916-1958.
-Inspectors checked engines every month. Federal inspectors came every six months.
-There was a cowcatcher on the front of the train to move anything that would be on the track.
-The Dynamo Generator was a generator used to produce electricity, which ran things such as the lights.
-The train’s top speed was over 100 miles per hour.
-There is a sandbox on the top of the train. It holds between 100-125 Gallons. The sand was used in rain or snow to create traction between the wheels and the tracks.

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Steam Engine 2523

P25 - 265 - 73