



# Prototypes to models using 3D printing

One of a kind models for your layout

Steam excursions

# TENDERS



## MILW 261

Duluth, MN



## **SOU 630**

Tennessee Valley tender



## **NKP 765 with N&W tender**

Lafayette, IN



## UP 844 with two tenders

Nebraska



**SP 4449**

Spokane, WA



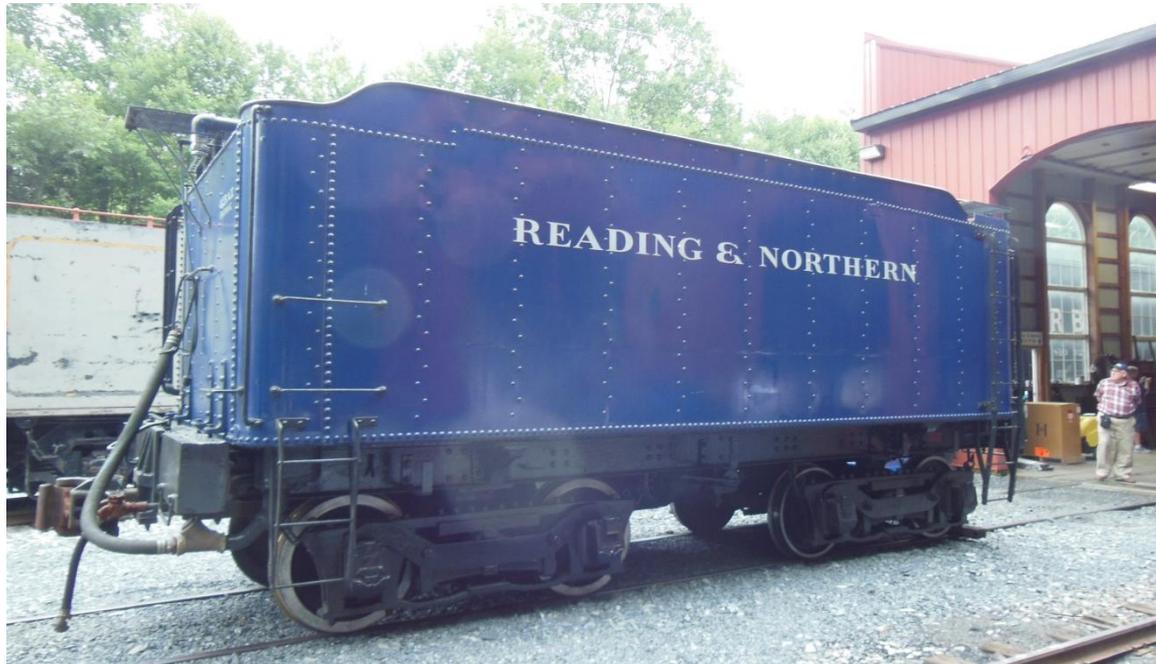
## CP 2816

Minneapolis, MN



## PM 1225 Steam Railroading Institute

Owosso, MI



## Reading & Northern

Pennsylvania - the engine house to the right was built from a Walthers model.



## **Propane tender on 1:8 scale**

Thomas in Bloomington, Indiana



## **My water tender model for steam excursions**

Purchased ready to run

Fuel

# **OTHER TENDERS**



**CSX**

Fuel Tender



## UP Gas Turbines

Heavy oil



## UP Gas Turbine model

Scale Trains



## **Compressed Air locomotive**

Age of Steam Roundhouse, Sugar Creek, Ohio



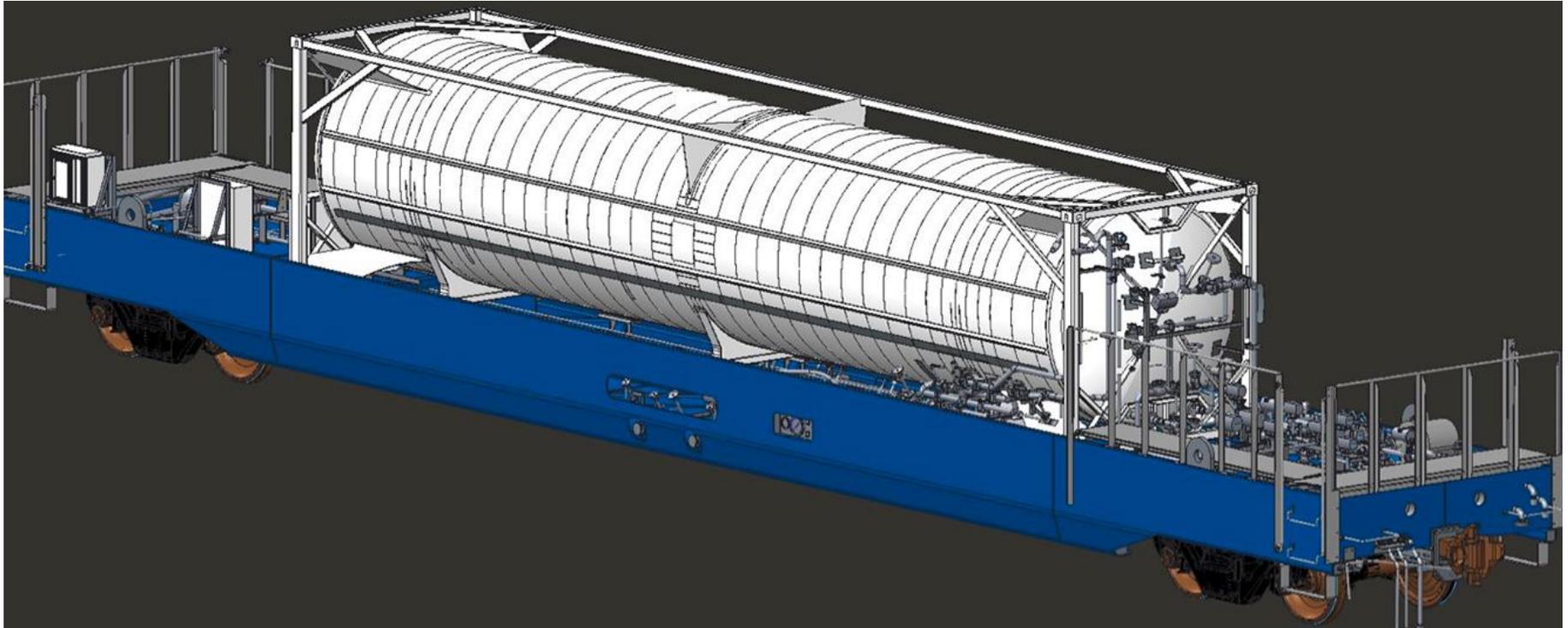
## **Compressed Air Locomotive**

Built by Porter in 1915. Used in the sugar cane fields in Cuba and by the Navy to move ammunition to Naval ships. There no possibility of this locomotive to cause a fire in a sugar cane field.



PictureArchives.NET Image Contributed by Bruce Gage

**UP fuel tender**



## **Chart Industries, New Prague, MN**

Buils LNG tenders. For modeling purposes I emailed Chart to get specifications. I received a reply that since the tenders were custom built no specs would be provided.



**BNSF LNG tender**



**3D printed N scale BNSF LNG tender**



## **BNSF LNG tender model**

Running on Bruce's layout



## FEC LNG tender 302

Jacksonville, FL



## My N scale FEC LNG tender

Bruce's layout



## **MY HO scale LNG tender under construction**

Well car is a modified InterMountain car. The LNG tank is 3D printed from [shapeways.com](http://shapeways.com) .



**My N scale LNG tank also 3D printed**



## My HO FEC LNG tender

On Larry's HO layout



## My HO LNG tender

Notice the pipes



**Paint color (scarlet) and Circus City decals**

<https://circusdecals.ecwid.com/>

<http://www.milwaukeeeroadtrainshop.com/>



## More 3D printed models

HO LNG tender, Seaboard Sun Lounge, tank and generator for HEP, container, N scale LNG tank, truck tractor, another tank



es.Net - Image Copyright Albert (Rudy) Rodriguez

**FEC Santa train with 2015 head end power (HEP)**



**2016 FEC HEP car**



## My updated FEC HEP using 3D printed parts

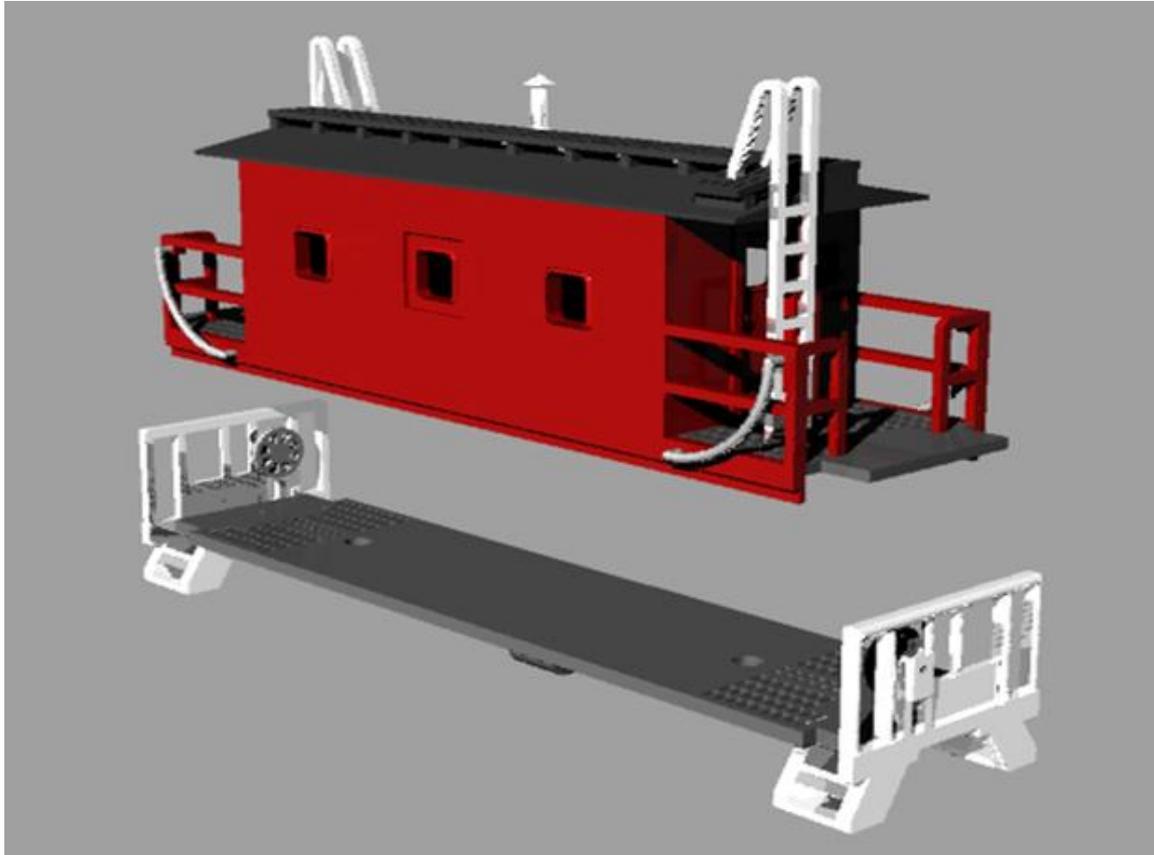
Generator and tank are 3D printed



**3D printed Z scale Cessna flying over my limestone quarry diorama now in a museum in Salem, Indiana.**



**Z scale 3D printed caboose**



**3D printed Monon transfer caboose**



**Seaboard Sun Lounge prototype**

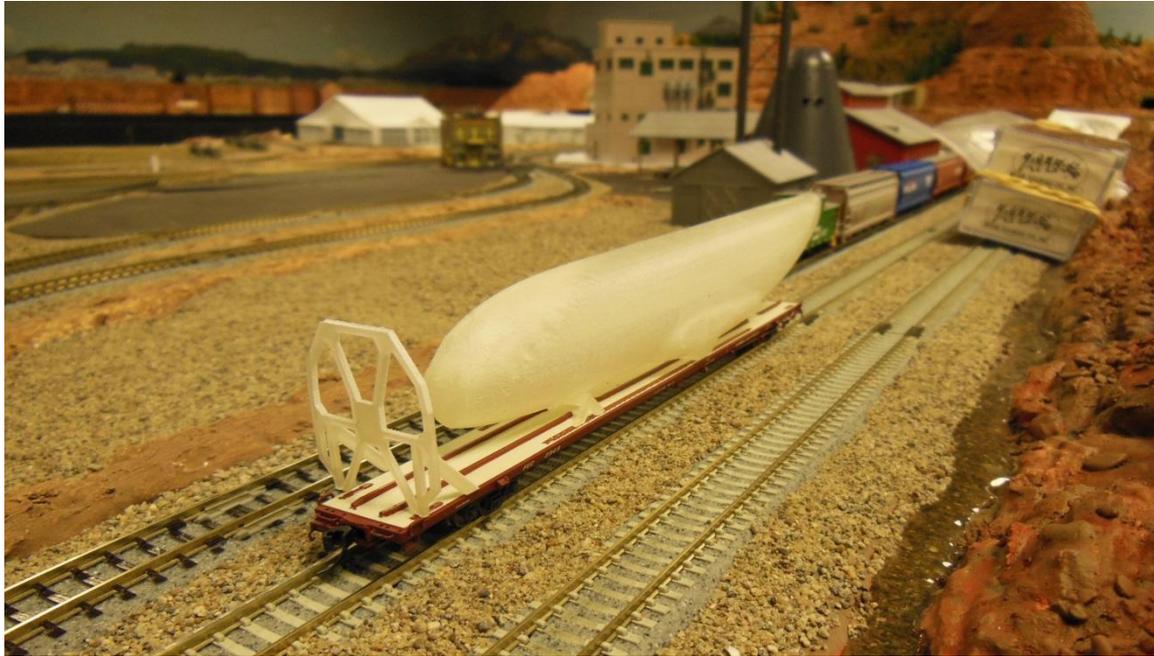


**3D printed Sun Lounge N scale model**



## Prototype Boeing 737 fuselage

Montana Rail Link



**3D printed model of fuselage**

NSE Presents

# BNSF RAILWAY BNSF's Fire Fighting Train



The BNSF's firefighting train came to be in 2007. The project began with an old log car.

"We took a log car and removed the brackets to create a blank canvas," says Ryan Risdon, Mechanical Foreman, Pasco. "Work equipment built upper platforms on both sides of the car and water services outfitted all of the plumbing and fixtures."

Based out of Spokane, Wash. the firefighting train is made up of two tender cars, a fire car and a caboose that serves as a command center. The tender cars contain thousands of gallons of water and the fire car is equipped with aqueous fire-

fighting foam (AFFF). An on board generator in the caboose provides power for the cars and can also be used to power work lights, radios and other emergency equipment.

The fire car has approximately 30,000 gallons of water on board. Tank cars can be connected to the firefighting train for increased water capacity.

The fire car carries a reserve of aqueous fire-fighting foam. BNSF has also placed several water-filled tank cars in strategic positions along the Northwest Division according to a fire protection plan. Each car is equipped with the proper connections so that

local fire fighters can refill their equipment or rig hoses directly to the cars to spray water. "[The firefighting train] and our tender cars allow BNSF to get water into spots where fire departments traditionally cannot".

The firefighting train has been dispatched to help

fight fires in Washington, Idaho, Oregon and Colorado.

"Anytime there is a fire within five hours of Spokane we'll usually send [it] out to help," says Ahif. "Hopefully the fire is out before we get there, but if not our equipment can help."



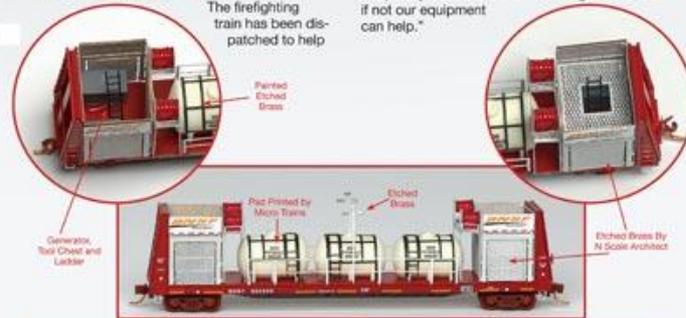
3 Car Set  
**\$264.50**  
plus \$9.50 S&H USA



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www.NScaleEnthusiast.com



Photos by Dean Daughenbaugh

## BNSF fire train

Available from Nscale for \$264.50



## 3D printed BNSF fire car

Water tanks are a separate order.



## **BNSF fire train, 3D printed water tanks and the fire car**

Bruce's layout



**3D printed rotary snow plow**



## 3D printed models must be scrubbed and primed

Oil based paint does not dry on a shapeways.com model. All primer and most top coats are acrylic.

All of our 3D models are from [shapeways.com](https://shapeways.com)

Additive technologies like 3D printing are revolutionizing manufacturing in much the same way the internet transformed information and shopping. Instead of removing material, these techniques grow parts from the ground up by either depositing or fusing layers of material. Engineers can design parts on their computers and then send their drawings directly to a 3D printer. The machines break down the design files to individual layers and join them together in the right pattern. “There are no limits to complexity,” “You can create hollow structures if you want, or something like a bone.”