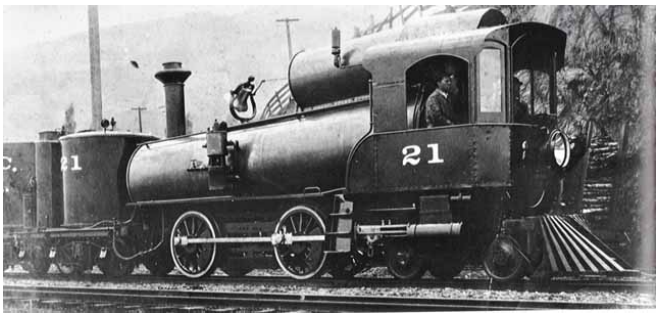
General Project 23—Cab Forward Live Steam Locomotive/Dwight Ennis

Dwight Ennis purchased a new CNC mill and lathe and went to work on a live steam locomotive. While running on G-gage or 45 mm track, it is technically what they call Fn3, or 1:20.3 scale. (G is defined as 1:22.5 scale.) Dwight's web site chronicles in detail the construction of many of the parts. Links to video of it running and his continually updated site are provided in the text from Dwight below. Scales up to and including those that run on 45 mm track are appropriate for tabletop machine tools.



Dwight's unusual cab forward steam loco is seen in progress. The prototype is shown on the right. Dwight used his Sherline 2000-CNC mill and lathe to make many of the components.

Here's the live steam locomotive I'm building. It's a model of North Pacific Coast #21, the world's first cab forward type locomotive, built in 1901 in the NPC's Sausalito, CA shops. (Yes, this ugly duckling actually had a prototype - hehehe.) I ran her for the first time last weekend at The Big Train Show in Ontario, CA. (June, 2007) She ran great!!

A photo from the Big Train Show in Ontario, CA gives you an idea of the locomotive's size. Note that the cab hinges forward to provide access to the interior for filling the boiler and getting to the steam oil lubricator. (Click on photo to view a larger image.)

I used a 2000 mill to cut out everything—cab walls, main cab deck/running boards, parts to make the steps, pilot deck—the works. I even used it to locate and drill the holes for the bell, handrail stanchions, and smokestack in the boiler wrapper before rolling it up. The smokestack was a commercial casting, but was modified on my Sherline lathe to more closely match the prototype. I have yet to make the spark arrestor on top, but that will also be shaped on the lathe. I have just started on the tender making the tender tank wrappers.

Best Regards,
Dwight Ennis

Project Update—2009

Dwight recently sent photos of the finished locomotive along with some additional construction details. He notes, "The vast majority of it was done on my Sherline CNC machines. All

sheet metal was cut to outline and window openings cut out on the CNC milling machine, then bent or slip rolled as required. Rivets were located and “center punched” on the milling machine, though they were actually embossed manually using a miniature arbor press with specialized punch and die. Turned parts were done on my Sherline CNC lathe. Everything is low temp silver soldered together (pressurized steam and water lines are high temp silver solder for additional strength.”

Photos show the completed, painted locomotive.

RETURN TO THE WORKSHOP PAGE