Don't scare the horses — go with this 1:22.5-scale steam tram

Regner's 'Otto'

Text and photos by Shawn Viggiano

I have to admit I was never really a fan of tram engines until I was forced — wink, wink — into playing with my four-year-old son's "Toby the Tram Engine" (a friend of "Thomas the Tank Engine," the anthropomorphic steam locomotive of literary and television fame) on a loop of wooden track.

After hours of rolling "Toby" with him on the wooden track, tram engines started to grow on me (not so much the ones with a face on them). Then I started thinking about how a tram engine would look on my logging layout. At that time the only live steam trams I have seen were scratch-built ones. I figured I might have to build something.

'Otto' mobile: *Steaming on the author's Sussex, N.J., layout.*

I have been thinking about building a backwoods logging style tram engine for a while. My plan was to use a single cylinder with a chain drive; something on along the lines of my backwoods engine (a BAGRS Project engine).

Then Regner Steam & Railway Technology of Germany came out with the "Otto" and I immediately fell in love with it. It was the style tram engine I was looking for to add to my Kittatinny Mountain Railroad roster for hauling logs. It was a simple live-steam engine. As soon as I heard that The Train Department of Hazlet, N.J., had received an order of "Ottos," I immediately ordered one. Two days later it arrived at my doorstep.

Inspection

The "Otto" was packaged well and came in the typical plain box with a picture of the "Otto" on top. My first step after taking the "Otto" out of the box was to inspect everything. I made sure all nuts and bolts were tight and that there was no cosmetic damage. For such a long trip I found everything in perfect shape.

The "Otto" is part of Regner's "Easy Line" and includes a pressure gauge, sight glass, throttle, reversing lever, a lubricator and link-and-pin style couplers. It has a few nice detailed parts to add to the look, such as a bell on top and a nice headlight up front, as well as a wooden beam.

'Otto's' origins

With limited access to German rail history material in the United States (not to mention the language differences), it's difficult to create a full profile of the "Plettenberg," the tram locomotive Regner Steam and Rail Technology used as a prototype for "Otto."

Tram engines were used throughout the world; in the United States they were known as "steam dummies" and ran mostly along or through streets and roads where horses and pedestrians were present.

Tram engines were used for a variety of services from passenger to light industrial use and had to comply with municipal regulations, including limiting steam and smoke emissions. To get around the smoke issue, tram engines burned coke, a fuel with few impurities and a high carbon content.

Regulations also required tram machinery to be concealed from view, with some rules being so specific as to say skirts had to be "above four inches from rail level" and they had to be free from noise. The enclosure and noise regulations were to prevent scaring the horses.

Steam tram engines began being replaced with electric and gas engines in the 1890s. One of the more well known tram engines, especially among the youngsters, is "Toby" from the "Thomas the Tank Engine" books and TV series; another notable tram is the Geldersche Tramwegen of The Netherlands.

'Otto's' ancestor: *'Plettenberg' steams at the Sauerland Small Railway in 2012. Photo by Georg Peter Landsiedel.*

What we specifically know about "Plettenberg" is that it was built in 1927 by Henschel & Son in Kassel, Germany, for the what is now known as the Plettenberger Kleinbahn in the industrial region of North Rhine-Westphalia, Germany.

This was a meter-gauge (39⅜-inches) light railroad developed in 1900 that primarily served as an industrial feeder line to the area's long-haul standard-gauge railroad. According to an anonymous history of German light railways, Plettenberger had "no fewer than 23 industrial sidings" over its short 1.8-mile length.

According to a history by the Deutscher Eisenbhan Verein (German Railway Club), today the owner of "Plettenberg," the locomotive was used through 1967, when it needed new boiler certification, which was deemed too expensive to perform. The club purchased "Plettenberg" in 1968 and moved it to its shops in Bruchhausen-Vilsen, Lower Saxony, in 1971. It apparently took 20 years to refurbish the boiler but starting in the early 1990s, "Plettenberg" was used on the club's railroad.

"Plettenberg" was loaned out to the Sauerland Small Railway in Schmallenberg — only 30 miles (46.6km) from Plettenberg — in 2012 for a weekend tourist event that produced many photos and videos.

— S.V. & dmc

After inspecting the "Otto," I then took the directions out and started to read them, but soon discovered that they were written for "Konrad," "Willi" and "Vincent." No mention of the "Otto." Either way, I continued to read it and substituted the "Willi" directions for the "Otto." I had also ordered the Ronson-style filler valve from The Train Department to replace the Regner stock valve. It was a simple task removing the Regner stock valve and replacing with the more common Ronson valve.

Firing up

Before firing "Otto," I oiled all the moving parts. The roof comes off very easy and is held in place by the side beams. I lifted the roof off and filled the oiler up with steam oil. (The oiler is disguised as a steam pump.) Then I continued filling the boiler by removing the safety valve. (This was the way I filled up my "Lumberjack" and "Konrad.")

As I was filling the boiler I noticed half the water

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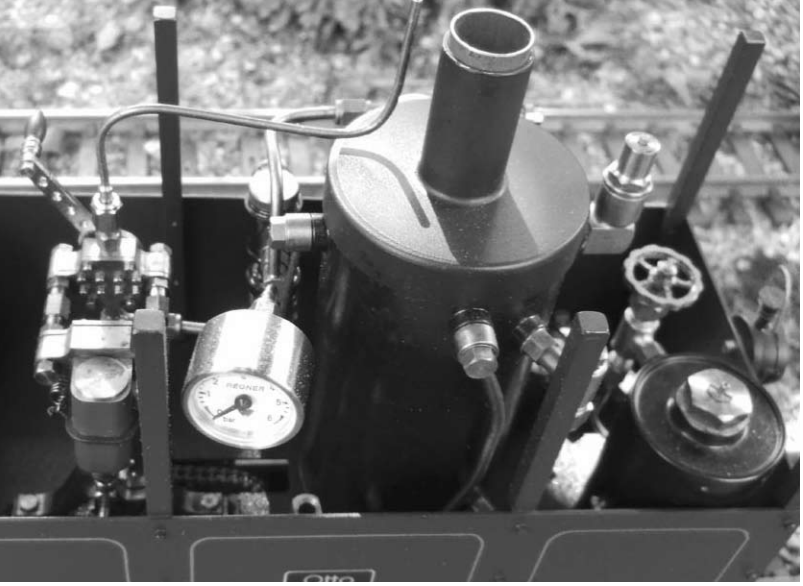

Insight: *Left, 'Otto's' controls viewed with the roof off. Right, 'Otto' last winter pulling logs.*

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would spit back out. The reason why the water squirted out is due to the fact that the fill/safety valve comes off the side of the boiler utilizing an L-shaped fitting. I contacted Jason Kovac of the Train Department concerning the issue. Jason contacted Regner and they said that the fill plug was located on the side of the boiler next to the sight glass. After further inspection, I found the hex nut plug that Regner had mentioned.

The disadvantage to using the plug is that you need a wrench to remove it. The easy solution would be to install a Regner top-up system and as it was only a minor inconvenience, I ended up installing Regner's system. It was an easy install because Regner engineers had thought ahead and had pre-drilled a hole in the bottom of the cab to secure the top-up system.

Normally I like to fill the boiler all the way and then take about an ounce (30ml) out. Since there is no way to do this with the current set up, I just filled the boiler up until the water reached the top nut on the sight glass, as per the instructions for the "Willi." I then proceeded with filling the gas tank up with butane until the tank was full.

The moment had come to light the burner. The gas was slowly turned up as I held a flame to the top of the stack and the burner immediately lit. My first official run was done outside when the temperature was a balmy 17 degrees Fahrenheit, so getting the pressure up took longer than normal. Once the pressure hit 60psi the safety went off and it was time to flip the fly wheel.

The "Otto" will start moving at 20psi. Because it is a single cylinder, it is not self-starting. You have to flip the fly wheel for the engine to move. After a few flips of the flywheel the cold water in the cylinder was replaced with steam and the "Otto" started to come to life.

It ran on my layout with ease, pulling two log cars on slight grades. It never hesitated when going up the grades because of its 3:1 gearing. The "Otto" ran at a perfect speed and even when the throttle was opened all the way the speed went from very slow to slow.

The exhaust runs out a thin copper tube next to the stack. This gives it a nice steam plume appearing to come from the smokestack. There is also a forward/reverse lever located on the cylinder. Run time varies depending on weather, but with one boiler of water you will get about 15 minutes.

Be careful because "Otto's" boiler will run out of water before it runs out of gas — further indicating why it's a good idea to install the Regner top-up system. With the system you will get around 35 minutes of run time. I found it's best to top off the water every eight minutes or so.

"Otto" has a short wheel base that will allow it to easily negotiate around a 31-inch diameter curve; Regner says it will work on LGB R1 curves, which are 24 inches.

Conclusion

Overall, I am very happy with the Regner "Otto." It's perfect for a beginner; it is an easy engine to get started and has all the features that the more expensive steamers have.

It's what I like to call my pack-and-play engine — it is smooth running, has great pulling power and runs at a nice slow speed. Further, it has a lot of potential for those who like to kit bash. The body is easily removed and could be replaced with someone's own creation.

My one piece of negative feedback is the way the "Otto" boiler has to be filled. It would be easier to fill the boiler if it had something on top of the boiler rather than on the side using the L-shaped fitting. The top up system solves the problem.

But if you are in the market for a small steam tram, this is the one.