

**Atlantic Shore Line Locomotive 100**  
**Curatorial Report No. 6**  
19-31 March 2007  
by Donald G. Curry, Interim Shop Manager

Spring is here officially and the journal boxes and wheel sets, stored back of the Shop, are appearing again now that the snow is melting. **Chuck Griffith** was seen this afternoon using the New Holland tractor to smooth out the impassable road between the Library and the Bunkhouse. The rest of the road is also a challenge to a car's springs but somehow we manage to make it back to the Shop in one somewhat mud-splashed piece. Such is spring in Maine. But we did open the Shop doors to circulate some warming air into the 'refrigerator' as Chuck terms it.

**Traction motors** – Good news - We received good news on the questionable armature from A.C. Electric's **Roger Paradie**. The insulation resistance has risen from a questionable ½ 'meg' to a satisfactory (for Seashore's purposes, anyway) 10 'megs'. We had received some suggestions about replacing the original fiber type insulation around the weak spot which was likely causing the low resistance reading with mica. However Roger said that it would be very difficult to do that and the movement of the armature coil(s) to do this would very likely cause more harm than good. He said they have thoroughly soaked the armature in insulating varnish and sealer and baked it so things aren't going to more.

Armature bearings – **Norman Down** transported the 8 armature bearing shells to American Power Service in Georgetown, MA where they will be relined with babbitt metal. A.C. trued up the armature shafts which will run in them to two diameters. One armature apparently had been turned before and either had worn crooked or it was not turned correctly in the first place. From Roger Paradie:

Donald, good morning, Following are the journal diameters for the four (4) traction motors that we have:

Motor #1:	Pinion end	3.050
	Comm end	2.625
Motor #2	Pinion end	3.050
	Comm end	2.625
Motor #3	Pinion end	3.020
	Comm end	2.550
Motor #4	Pinion end	3.050
	Comm end	2.625

As you can see motor #3 is the odd ball size, and we were able to make 1, 2, and 4 all the same.

You can use these as journal diameters for the bearing co. and they can allow for the clearance in the bearings and let you know what they will bore the bearings to.

The bearings will be babbitted to a size so Seashore can final-bore them to the proper size including recommended clearance.

Bearing caps – These have 5/8 in. steel dowel pins to keep the bearing shells from rotating within the bearing cap. Over time they have worked back and forth causing the pins to wear from round to oval, thus allowing the shells to rotate even more. **Chuck** drilled and milled the old pins out; then **Dean Look** installed new ones.<sup>1</sup> Because the holes in the bearing caps were of various depths, Dean had to grind some that stuck in more than the 5/16 in. called for in the bearing blueprints. The bearing caps will go back to A.C. for the assembly and final testing of the motors.

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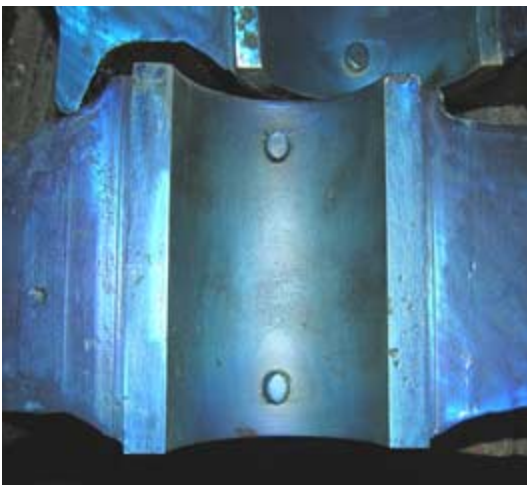
<sup>1</sup> G.E.'s. old catalogue for parts for the GE-80 motors listed the pins at \$.03 each. The price from McMaster-Carr was about \$0.87!



Chuck milling out dowel pins



Dean driving in new dowel pins



Beat-up dowel pins



New dowel pins

**Trucks** – The second truck component to be reassembled was a truck bolster. This was completely sand blasted (actually glass blasted by A.C.) then painted black by STM. All new bolts were used. It is now in the ‘box’ on top of the rebuilt spring plank assembly, awaiting installation.

Transoms – The first pair of transoms (the large 10 in. channels) has been prepared for installation. It came back from Novel Iron Works, drilled. We had to countersink a pair of holes in each to accommodate the flat-head bolts on one of the flanges. Because the countersink was on the inside of the flange, it would be impossible to countersink them by ordinary means. So Dean fabricated an extension for the countersink that could be inserted from a hole in the other flange and be reasonably straight. Because of the size of the countersink it was impossible to get it to the full 1 ¼ in. we desired so Dean turned down the heads of the bolts slightly so they now fit perfectly and still have enough ‘meat’ to hold. The first set of channels is now painted black. We then test-fitted the two brake hanger brackets that fit between the flanges and found three of the four fitted perfectly and the fourth require a small amount of grinding. (**Bill Pollman** had previously cut out the deteriorated steel and welded in new.) These are now ready for assembly.

Equalizing bars – The rough parts in these had been smoothed by welding which included filling some of the holes. Drilling these out required a combination of a 13/16 in. ‘Rotabroach’ driven by the Jancy magnetic-base drill and the cutting torch. Welding produced some hard spots which the drill would not cut so the torch opened

the hole partially and then the drill finished them. The bars were then re-primed as necessary and given a final coat of black. **Randy Bogucki** the writer carried them into the 'truck box' where they await re-assembly.

**Bill Pollman** sand blasted the abrasion-resistant transom wear plates and spring seat discs.

**Body bolsters** – The first job on these was to set up the 1 x 8 in. (read very heavy!) bottom plates for drilling. A previously drilled top plate was clamped top of each one and the 13/16 in. *Rotabroach* was run down through into the lower plate. This worked well most of the time but on one hole, despite the strength of the magnetic base of the drill,<sup>2</sup> it broke loose at a hard spot in the steel. Because the drill was already in more than 1 in., it had no lateral 'give' and snapped. So we quickly ordered another, this time carbide-tipped to cut through the hard spots and just started the hole in the 1 in. plate to mark it; then slid the upper plate to the side and successfully completed the drilling.



**Drilling body bolster with *Rotabroach***

The lower plate is angled but the bolts come straight down from the upper plate. We drilled them perpendicular to the angle, thinking the angle was not enough to prevent the bolt from going through at that slight angle. However we found it would not. With **Dan Cohen's** help on a large half-in. capacity drill motor holding a regular 7/8 in. drill bit, we managed to straighten the holes out—just barely. On the second bolster, the drill was put on a 'shelf' of 1 in. steel plate propped up so the hole would be at the proper angle to allow the bolt to drop down straight—which it did.

**Dean cutting off end of lower plate.**

The next problem, in trying to 'create' as little history as possible, was to form the hooked ends of the upper plate. The ends in the original were bent back down on themselves, something that Novel said they could not do. So Dean suggested we weld a block on to the bottom side of the top piece which, when properly rounded, would give the same appearance and function.

Although the top and bottom piece are bolted together, it might be necessary to take them apart so the bottom piece just butted against the 'hooked-over' upper piece. When the entire assembly was bolted together, it was forced against this hook and the whole thing was very tight.

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<sup>2</sup> 650 lbs. drill-point breakaway on 1 in. steel. This diminishes on thinner plates. We were able to clamp a thicker piece of steel on top to get the necessary holding power. One of the reasons for purchasing this drill was to be able to drill holes in the side of a car as in re-sheeting it. However that didn't work because the sheet metal was too thin. We're now wondering what would have happened is a heavy piece was placed inside?

First we had to cut off excess length from the bottom (bent) plate. We rapidly discovered the capacity of our tools was not up to that. The small horizontal band saw would take forever and wouldn't cut straight anyway. It would be difficult to hold a piece in the vertical band saw, which also wouldn't cut very straight. The abrasive cut-off saw would go through a stack of blades before all four cuts could be made. However we still had the old fashioned Toledo reciprocating hack saw.<sup>3</sup> It looked large enough and was certainly heavy. We were disappointed to discover it wouldn't cut anything over 6 in. wide—but **Dean** came to the rescue saying that we could do it half-way through on edge; then turn it over and do it the rest of the way—which he did. The surplus blocks were then cut into the pieces to form the hooks, one of which Dean welded into place. It will then be ground to a half-round cross-section, duplicating the appearance of the original.

**Welcome finds** – This afternoon we received a very welcome donation, prompted by **Peter Folger's** e-mailing of previous reports. (We're glad somebody reads them this carefully.) **Win Nowell** brought in an original Laconia Car Company bronze builders plate, exactly like the one that was taken from 100's cab years ago. We will have this duplicated as a bronze casting and put the original in secure storage. Within an hour, **Dan Cohen** said he and **Tom Santarelli** had been cleaning out Baltimore Semi-convertible car 5748 to make temporary storage room for Graham-Dodge bus parts. They found a 12-in. GE air whistle, exactly of the type needed to replace one taken from 100 at some time in the past.<sup>4</sup>



Now if somebody can come up with a second GE whistle. . . . .<sup>5</sup>

**Sills and wood** –received on 29 March:

Hi Donald ,  
I was the guy that put the side beam on #100 in one weekend in 1965.  
I got the 30' spruce beam for \$15 from Duane's.  
A full 10 feet was gone from the original beam right in the middle.  
It was roughed it out with a chain saw and I had 16 grebes<sup>6</sup> place it  
in one shot.  
Tom Ford

We called Barnstormers! again with no response. We're not ready for the wood but. . . . .

**Colors for 100** – We received the initial report from Brian Powell, the color analyst at Building Conservation Associates. To say the least, it raised more questions than it answered. The sample of the exterior paint was the door left-hand door sill, which has fallen off and was convenient. The analysis showed the 'recent treatment' (meaning the last coat) was a thin layer of green over a cream. With the exception of a brief period of time, we have all assumed 100's color was some sort of green. It certainly was dark in its early days and was still dark when it came to Seashore in 1949 as well as in shots of it in Sanford during its last year. However there is a big question raised by the photo of 102, 100 and 108 in the yard at the YUCo's River Street carhouse. In *A Rainbow*

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<sup>3</sup> Kindly donated by Peter Wilson

<sup>4</sup> The GE whistles are 12 in. while the Westinghouse 'trombone' whistles are 10 in. long. The GE's have an ornate end compared to the flat cap on the Westinghouse.

<sup>5</sup> The photo just disappeared into the depths of my hard drive but you'll have to take my word—the 'hard copy' of the whistle is still safe!

<sup>6</sup> A Seashore term for 'peon' or esne at the time.

*of Traction*<sup>7</sup>, page 14, 100 is shown with maroon wainscot and cream window posts and window frames. This shot was taken by STM member Richard L. Day and dated 17 September 1949.

We disagree with this date as 100 is shown with only one trolley pole. It ran during its last few years and came to Seashore with two! So, we sent a very detailed letter to Dr. Day, who now lives in Moscow, Idaho, asking him if he can clarify this.

In the meanwhile, we also sent a piece of the actual wainscot to BCA. It has a good heavy coat of paint, some of which is the maroon, showing through the final green coat. See attachment.

Brian Powell did say the two early coats, which may show up as very dark, possibly even black, had ‘gone to hell’. They were covered with a clear coat, which was the practice of the early 1900s before enamels were perfected. Although we don’t intend to replicate the early era it is important to have that history documented.

We intend to visit BCA in Dedham, MA as soon as he has completed this analysis. In the meantime, we will be interested in what the second analysis shows.

The other two colors are from the cab interior: one from the wainscot near the floor and the other a post cap between windows. In both the reddish color seems the one we will use.

Brian’s explanations were very detailed but still left many open ends. Basically he is saying, “What color do you want me to analyze” so we can then match it.

**The Atlantic Shore Lives On** – Yesterday (30 March) **Bob Reich, Randy Bogucki** and I went on a field trip, arranged through the courtesy of **Roger Paradie**, to two Atlantic Shore Line power stations, located just west of Kennebunk on the Mousam River—Old Falls and New Dam, still producing electricity, now fed into the grid. Who knows, maybe some of the electrons used to create this report came from there?! If time permits, details of this wonderful trip back into history, still alive, will be in a separate report.

We did take an imaginary ride on the Sanford and Cape Porpoise and ASL during a slide show given to the Woman’s Circle of Christ Church in Kennebunk, two of whose members are **Helen Newton** and **Judy Kline**.

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<sup>7</sup> CERA 1988

Seashore Trolley  
Museum  
Locomotive 100

①



wood

②



wood

③



wood

MEMORANDUM

To: Donald Curry, Seashore Trolley Museum  
From: Brian Powell, BCA  
Re: Target paint layers for Locomotive 100  
Date: March 21,2006

Donald -

I have cross sectioned samples from the boards you delivered from Locomotive 100. I understand that you are not interested in the original treatments, but rather a mid-sequence one. I include Xeroxes of three cross sections to illustrate their layering sequences.

Sample #1. Only bits of the original dark treatment survive. This was followed by a medium gray which appears to be a base layer. There follows two treatments which appear as very dark browns in cross section and may appear black when isolated and matched. Both were given clear finishes. They were followed by a red brown, then recent treatments.

Sample #2. This sample starts with (what would probably be if isolated and matched) a rosy tan, followed by two red browns, a greenish brown or brownish olive, then recent treatments.

Sample #3. This sample begins with a rosy tan which is probably a match to the first treatment of sample #2. It is followed by a yellow, a light tan, a mustardy yellow, then recent treatments. (Again, these are the colors as they appear in cross section.)

Which paint should I isolate and match on each? Let me know.

Thanks, Brian