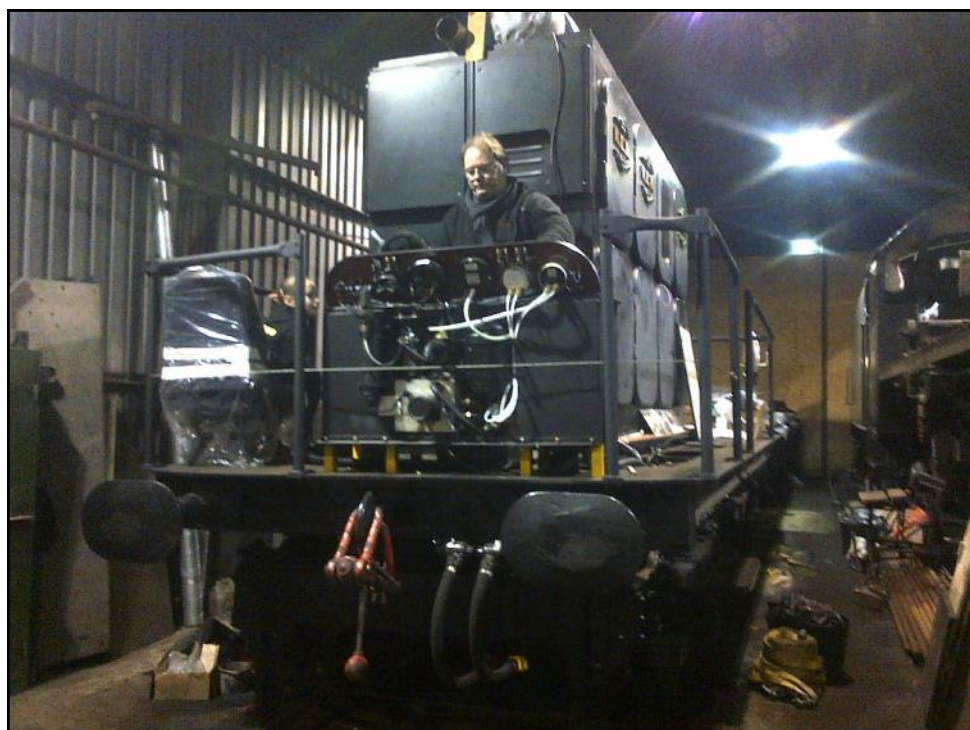


# AUTOCAR

1903 North Eastern Railway Electric Autocar Trust

Newsletter No.28 — Spring 2016



# The North Eastern Railway 1903 Electric Autocar Trust

**Registered Charity No: 1105829**  
**Company Registration No: 05171008**  
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- Front Cover:** *Test running on the 22nd January in the GCR's  
Loughborough shed. (Peter Van Houten)*

## February 2016

Welcome to the 28th issue of our newsletter. Last month we had the excellent news that the autocar chassis had moved under its own power. And any day now I expect to hear news of testing out on the Great Central Railway. This is a real boost for our engineering team and the project as a whole. The day when we have a working Edwardian DEMU is getting closer.

### Contents

|                                 |    |
|---------------------------------|----|
| Chairman's notes .....          | 4  |
| Project Engineer's report ..... | 6  |
| Autocar bodywork .....          | 10 |
| AGM report .....                | 12 |
| Letters .....                   | 13 |
| Autocar Cousins .....           | 14 |



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Available from the editor. Embsay station bookshop also has *some* newsletters.

# Chairman's notes

*Stephen Middleton*

It works.....thanks to you!

A far more upbeat report from me than the last one, as the autocar under frame has taken its first steps! As engineer David Moore said, 'The traction motors remembered what they had to do'. The film of the short test is on our website, Facebook page and You Tube and links are given elsewhere. I lost count of how many times I watched. Such an achievement, the only standard gauge loco of its' type in this country since the class 60s of 1989. Both had the same engineer, David Moore. He reported that the power bogie appears to have been fully overhauled then withdrawn so we should get many years use from it. Testing on the GCR's line will take place before the underframe arrives at Embsay for the body to be placed carefully on top and bolted into position.

Last issue we made a plea for donations and so many members responded magnificently! I apologise that I have not written to thank you all. The trustees, volunteers and I are humbled by your generosity. Many donations including two major ones, have bought the total raised over the past six weeks to over £5000. This is YOUR project. YOU are making it work. We calculate that we need around £20,000 to complete as the HLF is asking a little more from us as a percentage to their increased contribution. I know we can do it, and what a wonderful day it will be when we put names to faces, meeting many of you for the first time, and enjoying a ride on this 112 year old pioneer.



.....but not forgotten.

Recently an old railway colleague of my fathers and a well known individual in the Heritage Railway movement died. A sad loss of a man who had given so much. Months later the Transport Trust heard that they were beneficiaries in his will. I thought that this was so appropriate as the Transport Trust will put the money to excellent use, encouraging the preservation of Britain's transport heritage through serious practical means. It really carries on the life's work of the deceased. What a fine memorial.

Please forgive me for broaching quite a sensitive subject, but could you consider doing the same in your will? While there is a need for immediate funding to complete, there will still be areas of improvement that will benefit the autocar and its' visitors immensely. Improved training and educational facilities, a secure weather proof home and a high standard of maintenance are three areas that spring to mind.



**Above:** *Test running on the 22nd January. (Courtesy Peter van Houten)*

**Opposite:** *The chassis outside at Loughborough. (Peter van Houten)*

# **Engineering Progress Report**

*Steve Hoather*

Great progress has been made over the last few months, and in the middle of January the underframe was driven under its own power for the first time – a significant milestone even though it was only a few yards.

Much of Peter's time in October and November was taken up with completing the brake rigging. Particularly difficult was the rigging to the handbrakes in each cab, since these have a bevel gearbox under the floor, and a worm leadscrew arrangement to change the rotational movement of the vertical brake shaft into a horizontal pull to apply the brake. The column for the trailing cab was particularly difficult due to limited clearance between the bogie headstock and underframe, and we will need to make some special packing pieces to ensure the mechanism does not get crushed when the underframe is loaded onto the lorry (when the end of the bogie will tip up). This particular package of work was left until after test running, as the trailing end is not used for testing.

Peter also finished off the battery box in readiness for fitting the 96 volt batteries – these have been donated by the Project Miller team (Prototype HST power car) to whom we are immensely grateful. Because the battery box contains the 415 volt charging transformer, it will be necessary to fit safety covers and warning notices inside to prevent anyone touching this part of the equipment whilst it is live. On the outside, it looks just like an (unusually large) coach battery box.

Having finished the rigging in the centre portion of the underframe, Peter refitted the reservoirs and fuel tanks which had been removed to give access. Once these and the fuel pipes had been refitted, the engine could be run from its own fuel tanks for the first time, and Peter fitted the copper brake pipework on top of the underframe – this was certainly less of a back breaking job than the rigging, most of which had to be fitted from below.

Meanwhile, Dave finished off the first cab desk, fitted it temporarily to the underframe, and wired it up to the engine housing. I say "temporarily" because the plan is to move it back towards the engine after testing, but without disconnecting the wiring, to enable the cab floor to be fitted and avoid damage whilst the body is lifted on, as it is a very close fit to the end of the coach.





In readiness for testing on the GCR, Dave and Peter designed and fitted some temporary handrails to enclose the cab and engine housing area – this was made out of some scrap boiler tubes from one of the many steam locos being worked on at Loughborough. They also made some wooden boards to cover the apertures in the underframe and prevent anyone falling through, and fitted a second seat facing backwards along the outside of the underframe for use when running backwards.

Testing was always planned to be done in stages, but we have had to be flexible. Initial operation of the brakes revealed a blocked filter, and when this was cleared, it was found (as expected) that the two cylinder pressures rise at different rates as they are different sizes and hence volumes. The answer to this is to fit choke plates with different sized holes in the two distributors, but this needs the attention of Keith Nicholson of RBS, who was busy with “Flying Scotsman”. As this is not a problem for test running, we checked that the brakes worked OK, including the Drivers Safety device and Low Air pressure detection systems, and will leave the detailed brake testing until the vehicle is complete at Embsay.

Finally, on Monday 18 January, Dave and Peter were ready to drive the underframe under its own power within the shed – only about 15ft, but a big step forward for the project. Two days later, the two steam locos in front of it at the open end of the shed were pulled out for the evening, which gave a testing length of about 200'. This revealed that the speed probe on one of the motors was not working – these drive the speedometer and also the Wheel-slip Detection system (the equivalent of ABS on a car). On the Friday I went down with my camcorder and took some video to show members at the AGM the following day – an edited version is now on You Tube.

By the following weekend the vehicle could be shunted out of the shed to enable the traction motors and their bearings to be lubricated (they hadn't turned at all for about six years!). Dave found that the packing in the suspension tubes had been pushed in far too tightly, so that the oil was not "wicking" – probably another example of old skills being lost, in this case at the works which overhauled the motors about 10 years ago.

To rectify the speed probe problem, (and provide more space in the yard for locos visiting for a Gala) the underframe had to be shunted back into the shed. We think the problem is now solved, but at present (February half term week) we are "boxed in" in the shed and there is no space to move to test it – interestingly Brush have had the same problem with the probes on the class 73 locos they are rebuilding for GB Railfreight (some of which are to be used on sleeping car trains in Scotland!).

We hope to be able to test on the GCR main line within the next two weeks, and in the meantime, Dave and Peter are working their way through a list of jobs (mainly minor) which need to be done before the underframe returns to Embsay after testing.

Steve Hoather, 19 February 2016

#### **You Tube clips:**

Controls - <https://youtu.be/-DLkktgvLAs>

Moving - <https://youtu.be/tOEQ1684mtM>

And on instruments - <https://youtu.be/yqTDq5gZugU>



### **‘Situations Vacant’:**

Practical, skilled people to work on restoring the autocar at Embsay.

A fundraiser, both to solicit donations and to generate finance through sales.

A researcher, to seek out historical information about the autocars.

If you can help with any of these roles, do please contact us.



**Above:** *An example of the etching on the clerestory roof windows, surrounded by painstakingly cleaned woodwork. (Simon Gott)*

### **York Easter Model Railway Show**

We will be at this event over the Easter weekend, with all the latest news and photos. If you can come, do drop by our stand on the second mezzanine and make yourself known.

## Autocar bodywork

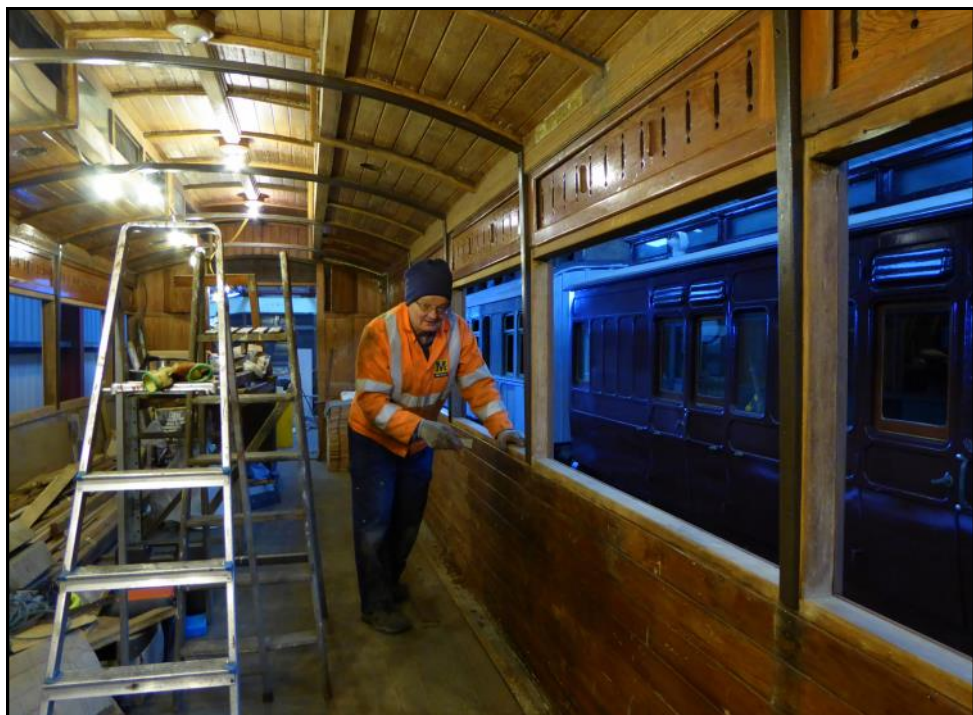
*Alan Chandler*



**Above:** *Geoff working on some of the panelling in the passenger saloon.*

**Opposite:** *Dave Sunderland working on the autocar's sides and ceiling. Dave commutes from Tyneside every fortnight to work on the autocar and his help and support are much valued.*

Work at Embsay continues with a lot of time being spent on restoring the timberwork of the autocar. Many tiny paint flecks in crevices have had to be removed carefully by hand. February's cold weather has limited what we can do in the way of varnishing and painting but a sudden thaw to 12 degrees the other Wednesday provided perfect conditions for a day of varnishing.



## Summary of Annual General Meeting on Saturday 23<sup>rd</sup> January

*D. Cullingworth*

There were eleven members present for the eleventh annual meeting. Stephen Middleton welcomed everyone with the exciting news that the Autocar chassis had moved under its own power for the first time in the confines of Loughborough loco shed. Steve Hoather showed videos of this momentous event. Stephen Middleton expressed appreciation for the highly skilled engineering team down at Loughborough who had made this possible.

The other great news was the additional HLF funding which will allow fitting of air brakes to the Autocoach and allow it to be fully functional with the Autocar from project completion. Most of the volunteer effort has focused on fitting out the interior and adding compartment details.

Financially, the Transport Trust loan will be paid off and the membership will be approached to see if they can provide short term loans to see the project through to completion. Stuart Hiscock reported that membership had remained static.

Qiuying Middleton and Ian Douglas were both due for re-election as Trustees. Ian advised that he wished to stand down and the meeting expressed their gratitude for his contribution as one of the founder members and former E&BASR representative. In recognition Ian had been given honorary life membership.

Qiuying was duly re-elected and active volunteer Geoff Wilson was nominated and elected as a Trustee to replace Ian.

Members were then invited to go and view progress on both 3170 and 3453 in the shed.

### **Opposite:**

We received a letter from Rob Murray suggesting that the LNER proposed to convert one of the autocars to diesel-electric propulsion, pre-empting our decision by around 80 years! The autocar used three engines in its history and this information does show a historical precedent for the use of a diesel engine.



## Letters

16 December 2015

Dear Stephen

NER petrol electric railcar

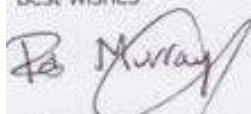
From time to time I will pick up a railway magazine because of an item of interest. I am sure you do the same. The other day I picked up the February 1981 edition of Railway World because of an article on snow clearing on the Settle and Carlisle in 1947. As a matter of course I read the rest of the magazine. The letters page included one from Ken Hoole and it included a reference that you may not have come across before. The letter was headed "Gresley's main line diesels". The letter is quite long. The first two sentences of the fourth paragraph are reproduced below. The section in bold italics may be of interest to you.

"The LNER dabbled in diesel traction throughout its existence but never got very far. There was the diesel hydraulic locomotive of foreign manufacture tried on the Great Eastern section in 1924; the diesel/steam Kitson-Still locomotive tried extensively in the North Eastern Area; **a proposal to convert one of the North Eastern petrol-electric railcars to diesel power in 1930**; and the 1946/47 scheme to purchase a fleet of 80 AEC diesel mechanical railcars of four different types based on the GWR cars, to be used with five types of trailer."

You may of course be aware of this proposal. If not it adds a delightful twist to the restoration of the railcar as a diesel electric rather than a petrol electric. Of course we cannot go to Ken for further information, but his letter does beg the question about information that might be in the Ken Hoole archive in Darlington.

I hope the foregoing is of interest. Small donation enclosed.

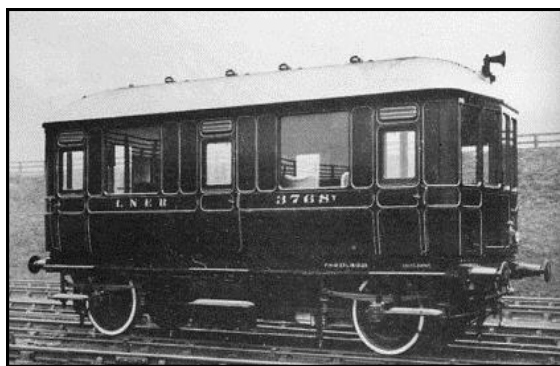
Best wishes



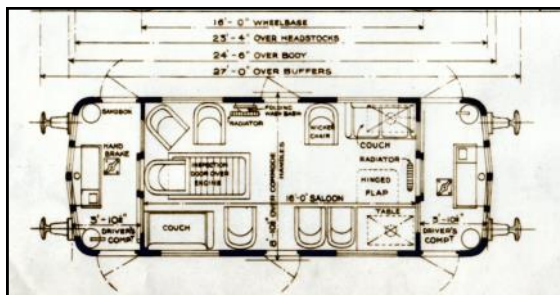
## Autocar cousins — petrol & diesel railcars (1)

*photos courtesy the LNER Encyclopedia & plans courtesy Stephen Middleton*

Despite the popularity of steam autotrains, in the 1920s & 30s, railway companies continued experimenting with internal combustion engine railcars, often for cost-saving reasons. The most famous of these were the GWR diesel railcars of the 1930s. All were related to the autocar, all were part of the drive to find an alternative to steam trains, a 'better' train type, whether a cheap vehicle for lightly used lines or a cost-effective competitor for commuter and longer distance journeys.



The first of the NER examples is the petrol inspection car, built for engineering or management inspections. The first was built at York Carriage Works in 1908 and followed by two more in 1911 and another in 1923. These cars were 27' long and powered by White & Poppe six cylinder 75hp engines. All of these inspection cars were withdrawn in 1939. They were cheaper to operate than an engine and coach, but could not be used for other services and were therefore expensive oddities which saw little use.



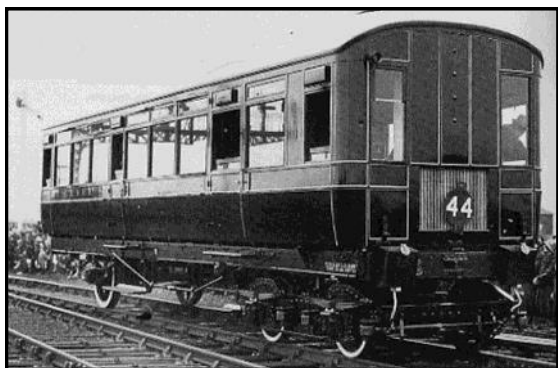
The Great Central Railway also experimented with a petrol-electric railcar, similar to the autocar in concept, but was 10' shorter, lighter and faster. It operated from 1912 to 1935, seeing service round Manchester and London. Like the autocars, it was used as a shuttle service (between Macclesfield & Bollington) in an attempt to compete with road traffic.



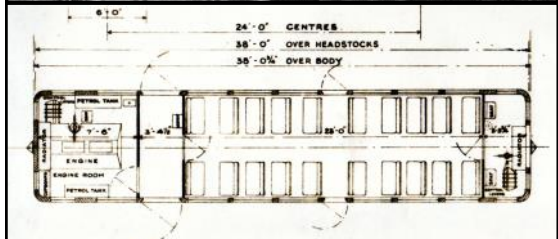


In 1922, the NER converted a Leyland bus to rail operation. An extra driving position and radiator were added to the 'back' end. Central doors and folding steps were fitted. 27' long, this vehicle had 26 seats and was rated at 35hp. It worked round York and Selby, including the Cawood

branch which 'our' autocar worked. It caught fire whilst being refuelled at Selby on 11th November 1926 and was destroyed.



This vehicle was also an autocar, but a petrol rather than a petrol-electric. Built in 1922 by the NER, It also worked in the York and Selby areas. Reports suggest that when some local stations closed in 1930, there was little work for it and it was transferred to Hull in May 1932. Unreliability led to it being frequently replaced in service and it was officially withdrawn in May 1934. Members may see plan similarities with our autocar, though this model was around two-thirds of the length, seating 40 passengers.



This is a model of a Drewry railcar built for the Southern Railway in 1927. Like the NER railcars, it was used on lightly used lines as an experiment to test cost and reliability. It was scrapped in 1940. This model was constructed by a member of the Bradford Model Railway Club.



*The autocar's saloon and engine room, showing the progress made. (23-01-16)*

