



## **Railcar W20W Restoration Project: The story so far Progress Report**

The protracted restoration of the 1940 Railcar W20W on the Kent & East Sussex Railway received an important boost in 2022, with the award of a £20K grant from the A.I.A. With this grant, the resulting launch of the “20 for 20” public appeal and the matched funding by the railway itself, the long hoped for return to traffic of this precious and historically significant vehicle became a real possibility.

### **Initial plans and early progress**

The immediate priority was to attempt to make the vehicle as weather-proof as possible. However, it would not be feasible to achieve an absolutely water-tight shell at that time due to the need to ensure any work undertaken at that early stage did not compromise any future restoration effort.

To achieve this initial objective, the main areas to be progressed were the roof and the saloon glazing. The roof sheets had been fabricated many years ago and were only lightly affixed onto the internal roof trusses. These were permanently fitted with the vent holes cut out during the Autumn of 2022 and then the roof was painted.



*Above: Early roof sheet replacement in progress*

*Below: the finished look*





The full set of glazing was also installed in the two saloons and the luggage compartment. However, the cab glazing had to be put on hold until later in the programme, due to the cab sheet metalwork needing to be prepared and fitted first.



*Large saloon glazing. Note the countersink holes, all of which needed to be filled and sanded*

## **Interior Progress**

With as much exterior work accomplished as was practical, the restoration effort moved to the inside of the vehicle. Up to this point, the interior was practically an empty shell with much to be done including installing a new floor to replace a temporary one made from old plywood off cuts.

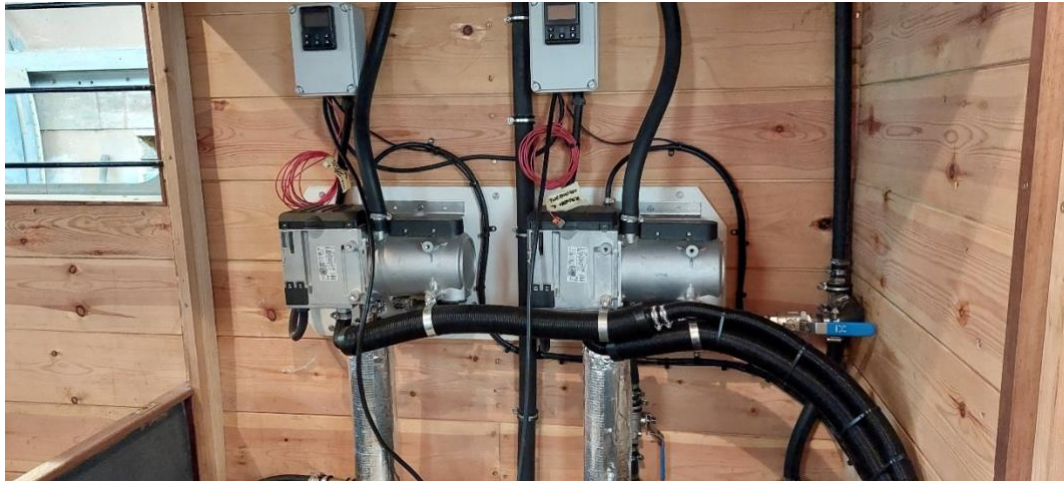
However, before this could be done, it was necessary to install a replacement vehicle heating system, as the original Diesel-fired steam heat boiler was unsafe and beyond economic repair.

A new diesel-fired hot water system was developed, commissioned and installed. The installation was designed to replicate as near as possible the original arrangement with the existing heater cabinet being used to house the new units and the pipework following the original steam-heat pipe runs. With the heating installation completed, attention could move on to the flooring.



*New pipework installed within the large saloon, replicating the old heat pipe layout*





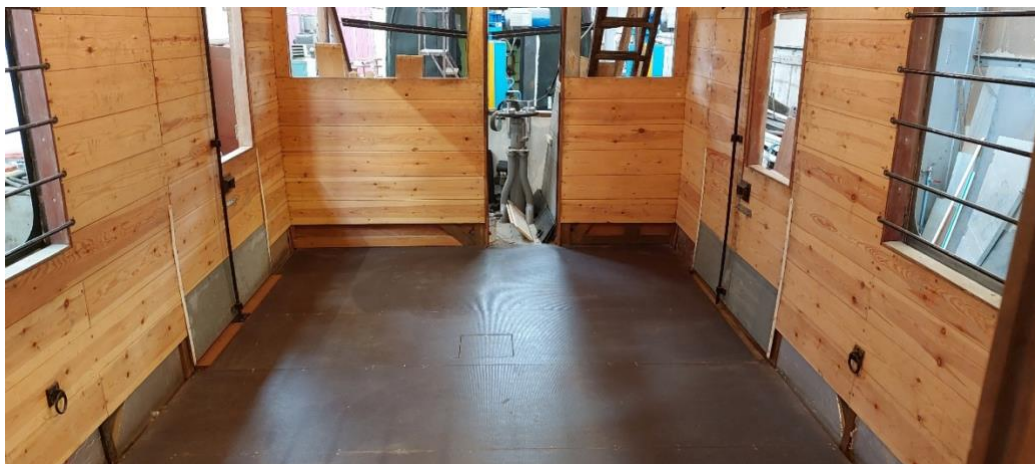
*New diesel-fuelled heaters mounted within the original heater cabinet*

The Independent Competent Person (I.C.P.), appointed to oversee the restoration of the vehicle approved the various flooring layers to ensure full fire and safety compliance. Initially just the load-bearing layer was fitted, utilising 18mm buffalo board. This left the fire/soundproof layer and top decorative finishes for later installation.



*Above: the temporary floor awaiting replacement*

*Below: The replacement structural floor installed within the Luggage compartment*







The rest of the interior could now be progressed including: the roof insulation; ceiling panels; light fittings with their associated wiring; the saloon side panels with the leathercloth covering, and the luggage racks.



*Main section of ceiling panels installed with the original vents and lighting clusters fitted*



*Leathercloth applied to side panel ready for fitting*



*The cream upper and green lower leathercloth panels fitted within the large saloon*



## Seating

The next major task was the restoration of the seating. These had been covered in an inappropriate leatherette material many years previously. It was important to re-cover these with an appropriate moquette. Fortunately, a manufacturer was identified who could supply the genuine, original material. The moquette was obtained and both it and the seat frames were sent away to a specialist contractor for full renovation and re-upholstering to modern safety standards.



*The existing seats, with the incorrect leatherette covering and non-compliant horsehair filling*



*The renovated and re-upholstered seating being trial fitted on their return from the contractor*

## Flooring

Before the seating could be permanently installed, the flooring needed to be completed. This entailed laying the fire/soundproof layer followed by the final top finishing. The finish would be brown Marmoleum (lino) in the luggage compartment with green in the large saloon and a contemporary style carpet in the small saloon.





*The fire/sound proof layer being laid over the structural floor within the large saloon*



*Green Marmoleum laid in the large saloon, just awaiting the seating*



*Seating installation progressing in the small saloon with the green carpet in place (Also visible are the fitted restored luggage racks)*





## Exterior cab sheet metalwork renewal

The next task was to address one of the last major issues of the restoration: the cab sheet metalwork. For many years various attempts had been made to reconstruct the very badly deteriorated existing cab metalwork. Unfortunately, due to the complex nature of the cab construction, these attempts had proved unsuccessful.

With the aid of the A.I.A. grant it was decided to commission an experienced vehicle restoration sheet metalworker, welder and fabricator. Over a period of a few months both cabs were fully re-built, enabling the project to take a big step forward.



*Badly corroded state of the cab metalwork before reconstruction*



*Robertsbridge cab reconstruction in progress*



*Completed dome (Robertsbridge end)*

### **Where we are now**

The restoration is now very well advanced. The vehicle interior is basically complete within the saloons and the luggage compartment. Internally, the only areas to be finished are the two cabs. Both these require the completion of the wiring, driver's controls and, importantly, the windscreen glazing. The glazing cannot be installed until suitable windscreen wipers have been identified and fitted. The wiper motors are mounted on a transom between the upper and lower glazing and this needs to be drilled before the glass is sealed in place.

Both engines have been overhauled and the rest of the mechanicals and electrical systems are being tested in isolation. Once confidence in the individual components is achieved the fully overhauled drive train and the electro-pneumatic (E.P.) systems will be coupled together for final testing.



*The completed small saloon*





*The large saloon is also looking resplendent*



*The luggage compartment is nearly completed, but wheelchair anchor points still to be fitted*

### **The final stretch**

With the interior nearing completion, the project's attention will re-focus on finishing the mechanical and control elements of the vehicle. The complete drive train needs to be connected, linking the engines, via the gearboxes and final drive units, to the wheelsets. At the same time the electrical, pneumatic, vacuum and air controls also require final installation and fettling to ensure their correct operation.

Assuming all of the basic testing is successful it is hoped that the vehicle would then be in a position where it can transfer from "Practical Completion" to the initial formal "Test and Assurance" and finally onto the "Formal Acceptance" phases of the project.



It has not yet been fully determined when the exterior painting of the vehicle will be undertaken. It may be that this is deferred until after the test and assurance phase or even the acceptance phase of the project. The final decision will be based on whether it is deemed likely that the testing would reveal issues that would necessitate any re-working which could damage the decorative finish.

At some point it is planned to undertake a gauging and clearance trial, to ensure the vehicle is fully compliant with the existing railway infrastructure. This will be scheduled to suit the operations management.

If everything proceeds as planned and all resources are available when required, including volunteers, staff, funds and workshop space, then it may be possible to be in a position to hand the vehicle to the Operations element of the railway for commissioning, formal acceptance and training in or soon after Spring 2026.

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