



Laboratory 11 - RDB975046

Built	1952
Built At	Eastleigh Works
Type	BSK
First Number carried	S34249
Last Number carried	RDB975046
Length	64 feet 6 inches
Width	9 feet 3 inches

Lab 11 began life in 1952 as a BR Mk1 Brake Second Corridor (BSK) at Eastleigh, built to diagram 181, on lot number 30021. Initially it worked as part of set no. 874 operating between London and Ramsgate then from 1963 the 7 car set formed a boat train from Waterloo to Southampton Docks connecting with the ferry to St Malo. It was withdrawn from revenue earning service in February 1970, and converted in June 1970 to QXX RDB 975046 'Laboratory 11' to form part of the Tribology Test Train, with which it entered service in 1972.



Lab 11 prior to restoration in 2011 (Photographer: Dave Clegg).



Restoration underway in 2013 (Photographer: Jon Kelsey).

The interior was rebuilt to provide a control bay in the former seating compartments which contained computerised data collection and recording equipment, as well as many different control modules for the Trib brake slip/slide units. The guard's office was retained, but the luggage compartment was fitted with a generator providing power for onboard electrical equipment. Lab 11 initially carried the blue/orange research livery, and later carried the Railway Technical Centre 'Reverse Executive' livery.

Lab 11 arrived at the Dartmoor Railway in September 2011 and under the care and ownership of the Dartmoor Railway Supporters' Association has been restored to its original Research Division livery, re-entering service in 2015.



The Tribology Train

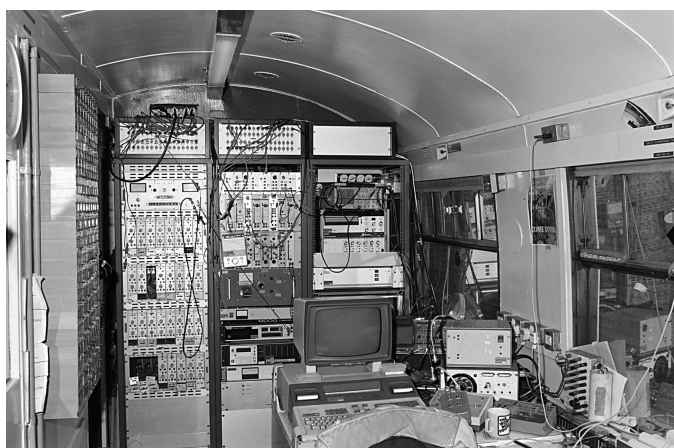
Tribology is the study of interacting surfaces in relative motion. This includes lubrication, lubricating oils and greases, contact mechanics, friction, wear, surface damage, surface modifications and coatings.

The 'Trib Train' was used to investigate the issue of low friction between wheel and rail. It entered service in 1972 and was used to verify laboratory tests on surface contaminants on the railhead. It was also used to assess the effectiveness of rail head treatment of the time such as water cannons. In the early years of wheel/rail interaction research, the Trib Train travelled 14,000 miles in one 12-month programme alone.

It was a three vehicle formation consisting of Laboratory 11 (RDB975046), a monitoring van COV-AB (RDB999900) and an auto-trailer (RDB975076). It usually had motive power from the Research Division's own pool of locos including the Baby Deltic 5901, Class 24 24061 'Experiment' (later renumbered 97201 and withdrawn at the end of 1987), and the original Class 31 which was unfortunately destroyed by fire.



Tribology train with Class 24 97201 © Colin Marsden.



Interior of Lab 11 © Colin Marsden.

The COV-AB was one of a batch of ten fitted with experimental 'Taperlite' suspension and housed the instrumentation and hydraulic packs, with special brake actuator units above each axle as well as tanks for laying fluid during the experiments. It had no conventional brakes and was fitted with end gangways for access.

The last extensive use of the Trib Train to measure naturally occurring adhesion was in the early 1990s when a significant amount of measurements were taken to survey typical adhesion profiles on a number of routes. The final use of the Trib Train was in 1996 to compare the performance of portable tribometers with a full-scale tribometer to calibrate the former. The Trib Train was not used after this and was eventually disposed of by AEA Technology Rail in 2004 to the Great Central Railway (Northern).