# BR ELECTRO-DIESEL CLASS JB E6048
# 73141 "SPA VALLEY RAILWAY 25 Year Anniversary"

The Southern Railway's expanding third rail electric passenger network (which was started by the London & South Western Railway in 1915) was purely a passenger electric multiple unit (EMU) system until 1941. This was because it was necessary to have gaps in the third rail for level crossings, etc., which effectively prevented the use of electric locomotives on either passenger or freight.

In 1937, Oliver Bulleid, Southern Railway's Chief Mechanical Engineer of the Southern Railway, teamed up with Alfred Raworth, the company's Chief Electrical Engineer. To overcome the problem of gaps in the third rail, three experimental locomotives were built (later becoming British Rail Class 70) which had large flywheels to maintain momentum long enough to avoid stalling in gaps.

Another problem, for freight train operation by electric locomotives, were risks arising from 750 V DC third rail being laid in goods yards. This would be a danger to personnel on the ground and also present some complex issues loading and unloading wagons. The initial solution was installation of simple tramway-type overhead wires carrying 750 V supply in certain yards across Kent and adding a pantograph on locos. This occurred between 1959 and 1961.

British Railways (BR) continued electrification schemes starting with the main lines to the Kent Coast as part of the 1955 Modernisation Plan. In addition to the fleets of new EMUs required, a small fleet of twenty five electric locomotives of 2,552 hp classed type "HA" (BR later named them Class 71). They were built to haul freight, parcels, and the few remaining locomotive-hauled passenger trains in Kent, such as the "Night Ferry" and "Golden Arrow".

Although successful, this system did require considerable extra cost and maintenance. It also limited freight operations with the Class 71 locos to those facilities fitted with the catenary. Something more versatile was needed. Development and advances in both electric locomotive and diesel engine design began in earnest during the early 1960s. This resulted in Southern Region engineers beginning to consider the possibility of a combined electric and diesel locomotive.

Their requirement was an electric loco with a similar power when using the electrified third rail to the already successful Type 3 Birmingham Railway Carriage and Wagon (BRCW) built diesel locos (later Class 33) beginning to enter service on the Southern. This would be supported by adding a diesel engine powerful enough to move reasonable freight loads at slow speed within yards.

The new locomotive design needed retractable third rail pick up shoes. First related to track relaying jobs. Retraction avoided the problem of bridging a gap thus energising a dead section of third rail, and possibly electrocuting track workers who might be in contact with the dead third rail section. Secondly allowing locos under diesel power to move off or on third rail without risking damage to "fixed" third rail pick up shoes.

SR engineers built a prototype batch of six new "electro-diesel" locomotives at Eastleigh Carriage and Wagon Works during 1961–1962. The new locos had 1,600 hp on electric

power plus an English Electric 600 hp diesel engine. These latter engines were similar to those used in the SR's existing diesel electric multiple Unit (DEMU) fleet.

To improve versatility, the locos were designed to work in multiple with most of SR's electric and diesel multiple unit fleets as well as normal carriages and wagons. This meant they were also fitted with buckeye drop-head couplings, Pullman gangway rubbing bars and retractable buffers. The success of these prototype locomotives resulted in British Railways ordering a production batch of 30 locos which was later extended by a further 13.

The contract was awarded to English Electric and they were constructed at their Vulcan Foundry in Newton-le-Willows. This was part of the Bournemouth Line electrification Scheme. The locos were outshopped between 1965 and 1967 and had been designed to the Hastings Line loading gauge. This meant they could be used across the SR network.

Minor technical differences prevented the prototypes (classified type "JA" – later Class 73/0) working in multiple with the production examples (classified type "JB" – later Class 73/1). In all other respects, the new "electro-diesels" proved extremely versatile, to the point where many are still in service after a life of almost 65 years.

73 141 began life at English Electric's Vulcan Foundry being outshopped from the Newton-Le-Willows plant. It entered BR Service on 1st january 1967 as E6048 in BR (then) standard BR two-tone green livery. It was renumbered to 73141 in 1st January 1973.

It spent many years undertaking diverse duties across the Southern Region and was withdrawn. In due course it became owned by Network Rail (NR) and was painted in their bright all-over yellow livery. Unusually, on 20th February 2009, loco 73141 was named with a different nameplate on each side. One was *Ron Westwood* and the other side showed *David Gay* . This lasted only a few months however.

By July 2009, loco 73141 had been purchased by First GB Railfreight (GBRf) and repainted into their dark blue livery. The NR nameplates had been removed to be replaced by "Charlotte" nameplates on each side. These remained until they were replaced by the current "Spa Valley Railway 25 Year Anniversary".

The unveiling was undertaken by by Tim Hartley, the GBRf business development director in a special ceremony at SVR's Eridge station on 26th August 2022. The nameplates differed markedly, to the usual standard lettering, in that they incorporated the Spa Valley's specially designed logo to commemorate this milestone in their operations.

After the event it was in use on the heritage railway and, on occasions, double headed with the SVR's own 73140 on services between Tunbridge Wells West and Eridge.

In GBRf main line service, 73141 has been used mainly on the former Southern Region network so that the 3rd rail electrical supply can be utilised. Those duties included helping to power the many Rail Head Treatment Trains (RHTT) that travel around hauling water tanks and (very) high pressure jets to clean rails of crushed leaves during the Autumn leaf fall season.

| LEADING DIMENSIONS | | | |
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| Wheel arrangement | Bo-Bo | Weight in working order | 75 tons |
| Maximum service speed | 90 mph | Length over buffers | 53 ft 8 ins |
| Power Rating: Electric | 1,600 hp | Width over footsteps | 8 ft 8 ins |
| Power Rating: Diesel | 600 hp | Overall Height | 12 ft 5 7/16 ins |
| Tractive effort (nominal max.) | 42,000 lb | Bogie pivot centres | 32 ft 0 ins |
| Tractive effort (1 hr Full Field) | 18,600 lb | Bogie wheelbase | 8 ft 9 ins |


## ACKNOWLEDGEMENTS

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