GBRf CLASS 69 69007 "*RICHARD TREVITHICK*"

Class 69 diesels are converted from BR Class 56 locomotives with work undertaken by Progress Rail at the Electro-Motive Diesel Ltd workshops in Longport, South Yorkshire. They were developed to fulfil the needs of rail freight operator GB Railfreight (GBRf), which was unable to purchase additional Class 66 diesel locomotives to service it's growing business.

The conversion of surplus Class 56 locos, which were available in sufficient quantity and in restorable condition made them a good candidate for the project. In fact they proved to be more affordable, than new build locomotives, while achieving similar performance to the Class 66 after conversion. Many of the new systems installed were similar, or even identical, to those present on the Class 66 including the 12 cylinder EMD 12N-710G3B-T2 power plant and control systems. This was a deliberate choice in order to maximise similar performances to the standard 66. The engine was rated as producing just under 2,400 kilowatts (3,200 hp) and is compliant with EU Stage IIIa off-road emissions standards.

As long ago as 2000, GBRf obtained its first Class 66 diesel locomotive followed by many others. During the 2010s, it had been noted that there were no in-production diesel locomotives available that could deliver the desired performance while also fitting within the UK's restrictive loading gauge. Instead, GBRf investigated the conversion of existing rolling stock with BR Classes 56, 58 and 60 being considered. Class 56 thus became the preferred option.

It was necessary to maintain the gauge, braking characteristics, and dynamics of the original locomotive in order to avoid invoking onerous technical and certification requirements involved in the production of a new-build locomotive. As a result, only limited certification was required, which was provided by TÜV Rheinland.

GBRf sought available Class 56s that were in good enough condition to still be moved by rail, necessitating the bogies, suspension, wheelsets, and brake equipment being functional. However, the condition of diesel engines and most of the control systems were considered unimportant as they were to be replaced with systems similar, or identical, to those installed on the Class 66. During June 2018, GBRf purchased sixteen Class 56 locos from UK Rail Leasing, many of which had been out of use for a number of years. Additionally, incomplete 56106 was acquired as a source of spares and 56128 came from metal recycler CF Booth.

In April 2019, GBRf announced that Class 56s would be rebuilt as Class 69s by Progress Rail at its Longport facility. The rebuild scheme involved replacement of the original Ruston-Paxman RK3 engine with an EMD 710 power plant. Initial work involved stripping all removable parts and overhauling those to be retained to as-new condition. Body repairs, such as corrosion, was needed on most locos along with replacement of all pipework.

The body needed various alterations to accommodate revised air intakes, exhaust (of both the engine and the cooler group). External lighting had to be updated to conform to current standards. Various elements of the donor locomotives, such as wheelsets, bogie

frames and suspension, traction motors and fuel tanks were found to be in good condition already or were easy to restore.

During February 2021, 69001 underwent trials on the Severn Valley Railway prior to arrival at Eastleigh for painting four months later. On 26th May 2021, authorisation was received from the Office of Rail and Road, enabling the first locomotive to go into service two months later. The initial contract was for ten units, with an option for six more.

The fleet of seven locomotives was withdrawn temporarily from service in late January 2023 in order to "investigate faults being reported by drivers". GBRf stated that they had "become aware of issues" with the locomotives, and that the period of withdrawal would be used to implement improvements.

The driver's cabs were heavily modernised to reduce both noise and vibration. Insulation has been fitted along with additional heater and fan units to provide greater comfort. Safety equipment includes the latest Mark IV version of the Train Protection & Warning System (TPWS) and the Automatic Warning System (AWS), while space was created for the potential future installation of ETCS equipment.

69007 was converted from 56037 "*Richard Trevithick*" built originally by British Rail Engineering Ltd (BREL) at Doncaster Works. It was outshopped on 20th January 1978 being allocated to Toton Shed. Class 56 locos were designed to haul the heaviest freight services then operated by BR to save the need for double heading by lower powered locos.

BREL's Doncaster Works were in heavy demand around this time, however, and its resources were stretched to meet output targets. This was due, in the main, to a lack of skilled personnel to manufacture mechanical components. Instead BR's Ashford, Eastleigh and Swindon Works were contracted to produce various sub-assemblies. Roofs, fuel tanks and cab frames were produced at Ashford while cab desks were built at Eastleigh. Radiator housings were supplied from Swindon. Final assembly was later transferred from Doncaster Works to Crewe Works, allowing Doncaster to commence work on the even newer Class 58 heavy freight loco.

The original engine was a single Ruston-Paxman built power unit being the final development of the English Electric CSVT engine. It followed on from the 16CSVT used in Class 50 locos. Changes included significantly uprated turbochargers, gear-driven camshafts (in place of timing chains) plus uprated cylinder heads, fuel pumps and injectors. The engine was rated nominally rated at 3,520 hp but was 'downrated' to 3,250 hp for rail use.

One key advance in the Class 56 was the use of self-exciting alternators rather than direct current (DC) generators for the generation of both traction current and auxiliary supply. This change reportedly resulted in the power unit being considerably more robust, as well as greatly reducing the risk of flash-overs and other earth-related faults.

Traction supply was rectified since the Class 56 employed DC traction motors. Much of the auxiliary apparatus, such as the compressors and traction motor blowers, were powered via the unrectified 3-phase AC output of the auxiliary alternator, and therefore ran at a speed proportional to engine rpm.

Another key design change was started on the Class 56. They were the first diesel loco, operated by British Rail, to be built only with air train brakes - specifically the Davies and

Metcalfe E70 system. The Class 56 proved to be a strong and capable loco being noticeably less prone to wheelslip than the newer Class 58s. But Class 56 maintenance needs proved to be relatively high and this led to their comparatively early withdrawal from front line services.

During it's heavy freight career, 56037 "*Richard Trevithick*" was one of a number of exhibits at Old Oak Common (OOC) depot open day on 20th September 1981. This event commemorated the 75th anniversary of OOC Motive Power Depot.

Coming much more up to date, 56037 was noted in the EMR Scrapyard at Kingsbury on 21st January 2013 having been taken there by road, after final withdrawal in September 2003, from DB Schenker Crewe Diesel Depot. Four days later, it was noted travelling by road again to the Battlefield Line at Shackerstone.

Eventually, 56037 was transferred to UK Rail Leasing's (UKRL) site at Leicester TMD where it was stored for some time. In 2018, UKRL sold sixteen Class 56 locos to GBRf most of which were to be converted to Class 69. By 5th January 2020, 56037 was noted at Longport EMD site for conversion. Towards the end of the year it had been taken to Marcroft Wagon Repair Depot near Stoke for bodywork repairs and general preparation work.

In November 2022, 69007 was running light engine trials painted in grey undercoat. After this it entered the Arlington Fleet Services paint shop in Eastleigh on 30th November 2022. On 10th January 2023 it was outshopped in BR Rail Blue complete with "*Richard Trevithick*" nameplates affixed to the bodysides and it's original number 56037. It ran light engine that same day as the 0Z07 14:24 Eastleigh Works to Tonbridge West Yard and entered GBRf service directly.

A Class 69 has visited the Swanage Railway already. During the 2022 Diesel Gala, GBRf brought in 69004 for static display at Swanage. This was to raise money for GBRf's chosen charity, Prostate Cancer UK.

For the 2024 Swanage Railway Diesel Gala, GBRf proposed using 69007 "*Richard Trevithick*", in it's first passenger haulage, on the Branch Line Society's (BLS) *Jurassic Crompton* rail tour on Thursday 9th May. It should have been attached to the front of London Transport's 4TC unit with the Swanage Railway's D6515 "*Lt Jenny Lewis RN*" at the rear providing power for the unit's lighting, battery charging, central door locking, etc. After arrival at Waterloo, D6515 was to lead on the way to Swanage. BLS had arranged *The Return of the Jurassic Crompton* railtour, on Sunday 12th May, had scheduled D6515 leading the consist back to Waterloo with 69007 hauling the return to Eastleigh.

However, 69002 "*Bob Tiller CM&EE*" stood in for 69007 at the Gala. 69007 had failed on Wednesday 8th May, on a working to Eastleigh, which was intended to allow the loco to work towards the BLS railtours and Swanage Diesel Gala. 69007 was towed to Doncaster on 16th May to receive necessary attention. Additionally, D6515 was discovered to have problems with it's Electric Train Supply equipment and so GBRf added 73109 to provide the necessary electrical power whilst the train was on the third rail system.

D6515 travelled light engine from Eastleigh to Woking's Number 5 (Bay) platform. When the train arrived from Waterloo, D6515 coupled onto the front of 69002 to haul the train to Swanage with 73109 providing ETS system from the rear. The move was accomplished within the 12 minute scheduled stop.

Later that year, 69007 was photographed stabled in March Up Yard on 12th August 2024 during the running of it's train of sand hopper wagons. On 5th April 2025, 69007 was photographed on a similar train - 4L66, the 05:45 from Goole Glassworks sand empties - being shunted once again into March Up Yard past March South Junction. These journeys were destined for the Middleton Towers aggregates site near King's Lynn. There they would be loaded with consignments of silica sand for use in making bottles, jars, etc.

Let's hope 69007 makes it this time to the 2025 Swanage Railway Diesel Gala!

ACKNOWLEDGEMENTS

https://en.wikipedia.org/wiki/British_Rail_Class_69
https://www.railwayherald.com/imagingcentre/loco/69007/LC/
https://www.branchline.uk/fixture-report.php?id=1507

Information compiled by Peter Sykes 7th April 2024