

# LONDON & SOUTH WESTERN RAILWAY

## ADAMS CLASS T3 4-4-0 No. 563

The London & South Western Railway (LSWR) Class T3 was a classic example of express passenger 4-4-0 steam locomotives designed by their Chief Mechanical Engineer William Adams. Two batches, each of 10 engines, were constructed at Nine Elms Works under Order T3 covering locos numbered 557 to 566. The second batch, under Order S5, were numbered 567 to 576.

The class had been intended as a variant of the X2 class with slightly smaller driving wheels (6 ft 7 in compared with 7 ft 1 in of the X2). The X2 was somewhat underwhelming in steaming capabilities, so the T3's design of coupled wheelbase was lengthened by 6 ins and its boiler was fitted with a firebox 6 feet 10 ins deep – the largest firebox in any of Adams' locomotives. Despite the smaller driving wheels, William Adams had designed the T3 locos to run at up to 80 mph.

When new, Class T3 locos were allocated to Nine Elms, Northam (Southampton), Fratton, Salisbury and Exmouth Junction. 563 was outshopped in March 1893 and allocated to Nine Elms shed. Although records are a little unclear, about 1905 it was re-allocated to Guildford shed although, around a year later, it underwent a heavy overhaul which included the removal of piston tail rods and suspension equalising beams plus the fitting of a Drummond-style chimney.

Class T3's proved quickly to be an excellent engine, with only relatively minor changes needing to take place in LSWR days. At the Grouping, in 1923, everything passed to the newly created Southern Railway (SR). Between 1923 and 1926 all locos were painted Maunsell green and their numbers amended with an 'E' prefix.

Loco E563 then spent much of the following 20 years alternating between Eastleigh and Guildford sheds. It received a general overhaul in August 1935, at Eastleigh works, despite most of the rest of the class being withdrawn by this time. After this overhaul E563 was transferred to Salisbury, working mainly as station pilot or on 'slow' workings to Bournemouth via Downton and West Moors. It was generally well looked after by Salisbury shed staff until its transfer to Eastleigh in February 1938.

Class T3 withdrawals started with E561 in October 1930 and, by the end of 1933, only three remained. E557 was withdrawn in April 1936, with cracked frames, and E571 saw service during most of World War 2 but was withdrawn in 1943. E563 worked infrequently during this time still based at Eastleigh.

563 had been based at Eastleigh Shed since around June 1937 but was then stored inside from October 1938. It was then 're-activated' for the increased Christmas van traffic before returning to 'store' in January 1939. It was noted in steam again on Thursday 2<sup>nd</sup> March.

It failed, on Thursday 9<sup>th</sup> March 1939, whilst working an evening Fawley goods train resulting in immediate official withdrawal. The locomotive again displayed its knack for survival though as, with the ongoing political situation in Europe, it was not cut up and moved from store the following month but it remained on Eastleigh shed until Monday 9<sup>th</sup>

October.

It was shunted to Eastleigh Works to receive a general overhaul. It left on Saturday 2<sup>nd</sup> December repainted in unlined Maunsell Green with Bulleid 'Sunshine' lettering and numerals. In this guise it was noted, on various occasions, undertaking the humble (but vital) duty of coal stage wagon shunter. Later in December it was transferred to Basingstoke shed.

Whilst at Basingstoke 563's main duties seemed to have consisted of local goods and van trains although it was also rostered as station pilot from time to time. On Tuesday 4<sup>th</sup> June 1940 it was noted hauling a troop train between Woking and Basingstoke. The 12 LNER carriages were used to transport servicemen as part of the Dunkirk evacuation effort. This involved the Southern Railway operating many hundreds of trains away from South Coast ports. It has not yet proved possible to establish if 563 came off the train at Basingstoke or continued further. Currently it is presumed the former scenario occurred.

563 made a brief visit to Eastleigh Works in June 1942 and, thereafter, remained at Eastleigh working as station shunter or out of use inside the shed. The last sighting of 563 at Basingstoke shed was on Friday 8<sup>th</sup> June 1945 although duties during the three years up to then have been hard to track down. It seems to have returned to Eastleigh from where it was withdrawn in August 1945 for what looked like the final time following the cessation of hostilities. By this time, 563 had been in service for 52 years, and run a total of 1,571,150 miles.

No.563 was in store from withdrawal in August 1945 through to January 1948, when it was towed to Kimbridge Junction to await scrapping at the former USAF base at Dinton nearby. At this time though, planning was taking place for the centenary exhibition at London Waterloo, and it was realised that all of the Adams tender engines would soon be scrapped. A visit was arranged to Kimbridge Junction, and No.563 again escaped scrapping by being selected to take part in these festivities. After some shunting 563 was moved to Eastleigh Works on Tuesday 4<sup>th</sup> May 1948 to be returned to LSWR condition. Mr A B MacLeod, with a small team, had inspected remaining LSWR engines for display at Waterloo and selected 563 out of the six extant Adams locos.

MacLeod created a specification of works required to the loco including new pipework and whistles (presumably these had been removed), and a new Adams stovepipe chimney to replace the Drummond cast iron type. There is a well known photograph, taken by MacLeod, of 563 being worked on at Eastleigh on 28<sup>th</sup> May 1948 with new tubes being fitted, and the loco in undercoat. His original specification for restoration still survives... "*Engine need only be complete externally*". It seems Eastleigh did a little more than that.

On Monday 7<sup>th</sup> June 1948 it worked with LSWR tri-composite brake coach No. 6474 (now on display at the National Railway Museum in York) to Micheldever and back for publicity photographs, then on Friday 11<sup>th</sup> June it journeyed to London Waterloo for display on Platform 15 between Monday 14<sup>th</sup> and Saturday 19<sup>th</sup> June. Along with LSWR coach 6474, visitors could see LBSCR 'Terrier' No.82 *Boxhill* and 'West Country' No.34017 *Ilfracombe*.

The Southern Railway organised the exhibition of these three locos and the carriage plus a range of historical prints, photographs and other original records. It was opened formally, on the 14<sup>th</sup>, by Sir Herbert Walker who was General Manager for 26 years based at Waterloo offices. An Act of 1845 had provided for the "Metropolitan Extension" of the LSWR from it's original terminal at Nine Elms to Waterloo. Construction started in July

1846 on land purchased in 1844. The line was built on a long series of arches on a sinuous route to avoid (then) famous landmarks such as Vauxhall Gardens. Waterloo Station was opened formally on Tuesday 11<sup>th</sup> July 1848 with the first passengers services entering two days later.

Following this exhibition No.563 was placed in store, in the Farnham Electric Carriage Shed, making rare public appearances. One such was at Eastleigh Works which held a Public Open Day on Wednesday 3<sup>rd</sup> August 1955. Various locos could be seen stabled in the adjoining running shed, between duties, as well as many locos inside the Works undergoing scheduled maintenance or repairs.

Some special exhibits were also lined up outside the Works, for photography purposes, including ex-LSWR Class T3 4-4-0 No. 563. This had been moved from Farnham, shortly beforehand, especially for this event which allowed time for the loco to be cleaned before display. It was posed outside close to the Eastleigh Works management and general offices building.

Also on display were 'Britannia' 4-6-2 70014 "Iron Duke" which had been steamed from Stewart's Lane depot; 'Merchant Navy' 35024 "East Asiatic Line" had come from it's base at Exmouth Junction; and BR Class 5MT 4-6-0 No. 73050 had steamed up from Weymouth depot [now preserved on the Nene Valley Railway and named "City of Peterborough"]. BR Class 2MT 2-6-2T No. 82014, which had then been in service for only around 3 years, was also stabled nearby.

Locos 563 and 73050 were very fortunate to survive withdrawal and remain preserved to this day. Virtually every other locomotive at Eastleigh on 3<sup>rd</sup> August 1955 was cut up by scrap merchants up to the mid-1960's.

During February 1958, it was moved to Guildford Loco Depot to be readied for public display, along with AIX 'Terrier' No. 82 "Boxhill", in the Down Yard. Specially built wooden steps were placed against cab doors for easy access to the locos' footplates.

Also, in the Down Yard were a couple of coaches. One was fitted with a film projector and the other contained various interesting railway paraphernalia for enthusiasts to view. At some stage, a BBC Television outside broadcast crew for the 'Railway Roundabout' series arrived to film the exhibition. However, the transmitted clip was only about five seconds long! 'Railway Roundabout' episodes have made it onto DVD but, thus far, no sign of this event has been noted.

Despite the above cleaning work, 563's condition was deteriorating quite quickly back at Farnham to the extent that, later in 1958, it was moved to Tweedmouth Shed in Berwick-upon-Tweed, Northumberland for further storage. Once conversion of the Clapham Transport Museum was finished, No.563 returned from Tweedmouth to Eastleigh for further restoration work in August 1959 although it has not been discovered exactly what was done.

It emerged in January 1961 and had to be towed to Southampton Town Quay for loading onto road transporters as access at Eastleigh was (and remains) impossible for very large lorries. 563 was transferred to the Museum of British Transport in Clapham by Pickfords Heavy Haulage where its LSWR top coat livery was applied by painters who travelled up from Eastleigh. No. 563's display at Clapham, for around 12 years, was relatively unremarkable. The Museum closed after normal opening hours on Easter Monday 23<sup>rd</sup>

April 1973. 563 was then transferred to the newly-opened National Railway Museum at the converted York North (Clifton) shed during 1975 for further display, however this history was only a taste of things to come.

A stage show was created by Mike Kenny, the writer who adapted E Nesbit's classic novel "The Railway Children" for the National Railway Museum in York in 2008 - a co-production with the York Theatre Royal. It then had sell-out runs at Waterloo station in 2010 and 2011, where the show won an Olivier award, and these were repeatedly extended.

Around 4<sup>th</sup> March 2011, the team at NRM's site in Shildon were engaged in preparing 563 for a sojourn in the New World. It was moved up and down the yard by a Class 03 diesel shunter to check lubrication was working properly. It is reckoned that she had been covered in more than 20 kilos of Vaseline, to protect against the elements (i.e. salt water spray and bitter weather across the Atlantic).

563 arrived in Halifax Docks on 28<sup>th</sup> March and then, over a number of days, she took the rails being hauled carefully to Toronto. The journey continued before arrival at the CN (Canadian National) yards in Concord, Ontario. From there she was transported to the John Street Roundhouse and prepared overnight for a press launch on Thursday 7<sup>th</sup> April.

563 stabled in 'Stall' 15 of the Roundhouse and was in the care of Toronto Railway Historical Association volunteers under the direction of Charlie Bird of the NRM. Initial movements of 563 were undertaken by resident shunter TRHC No.1 with its standard coupler dropped out, being replaced by buffers built out of some very large timbers. The loco was attached to the hook on 563's tender with a very large lifting strap.

For the show itself, a set of buffers and draw hook for a flat car (acting as a barrier vehicle to get the required distance for the staging) were acquired and installed, much like how Class 66 diesel locos, built in London Ontario at EMD, are shipped to port using barrier flats with buckeyes at one end and hook/loop at the other.

563 had been shipped across the Atlantic, with ex-GER coach No.3, to arrive in Toronto, Ontario, for use in a Canadian theatrical production of Edith A. Nesbit's *The Railway Children*, at the 'Roundhouse Theatre' built at 255 Bremner Boulevard in Roundhouse Park, between May and October 2011.

GER Coach No. 3 had been built in 1911 in Lot No. R29 to Diagram 29 for the use of the Company's Directors. From GE it became based in the NE area during January 1927 for Chief Civil Engineers use as inspection saloon by the LNER. It was withdrawn at Newcastle in 1972 and was sold to (Sir) William H McAlpine the following year. It was moved to a base at Market Overton and then to Carnforth in October 1974. It was then sold to Resco around 1980 but not moved until 1989: when it went to the Kent & East Sussex Railway. From there it was acquired by Stephen Middleton who began restoration from semi-derelict condition in Autumn 2000.

Local press and other media nicknamed 563 *Victoria (Vicky, for short)* due to it's construction in Victorian times. This was somewhat confusing as, in the production, 563 undertook the role of "The Green Dragon" !

On 1<sup>st</sup> and 2<sup>nd</sup> May, Steve Davies (Director of the NRM) visited the people entrusted to look after 563 during it's stay in Toronto. The TRHA were then a small but hard working group, and had come a long way in only a couple of years considering they had not then

quite reached their first anniversary of being open to the public. Opening night for the production occurred on 3<sup>rd</sup> May.

After returning from Canada ex-GER Coach No. 3 moved, around April 2012 to the Pontypool & Blaenavon Railway for a period of three years. It is believed to be still there.

On 563's return to the UK, it was re-instated in the display at NRM's Shildon Locomotion Museum for less than two years. 563 reprised it's 'role' from December 2014 to January 2017 in "The Railway Children – Live on Stage". This production was staged in a purpose-built auditorium adjacent to Kings Cross station, London. It was paired with Coach No 34, one of only two complete surviving passenger carriages from the Great Northern Railway Line of Scotland.

The show opened to the public at King's Cross Theatre on 14th January 2015, following previews from 16<sup>th</sup> December 2014. The show celebrated its 2nd Anniversary on 16th December 2016 and had a further extension to its run until 8th January 2017. 563 was then stored under a tarpaulin for some time afterwards.

On Thursday 30<sup>th</sup> March 2017, LSWR T3 No.563 was de-accessioned by the NRM and ownership transferred to the Swanage Railway Trust. The locomotive was transported by road from Kings Cross to the Norden Road/Rail terminal on Wednesday, 12<sup>th</sup> April, 2017.

It then resided alongside the cattle dock at Corfe Castle Station for some months. On Saturday 27<sup>th</sup> May, NRM head curator Andrew McLean unveiled No. 563 during a welcoming ceremony at the station in front of descendants of its designer, William Adams. They were Dr Robert Adams – whose great-great grandparents were the parents of William Adams – as well as Alex Campbell, the great-great grandson of William Adams' brother John.

Later, on Monday 13th November 2017, 563 departed the Swanage Railway and headed to the Flour Mill workshop in the Forest of Dean.

This workshop has a proven track record of restoring Victorian and Edwardian steam locomotives and the Swanage Railway is delighted to be working with them to develop a sustainable plan that will ensure No. 563 steams again. After being stored over the winter, an overhaul assessment was undertaken in 2018, thanks to a successful Crowdfunding campaign.

After an extensive strip down and investigation at the Flour Mill, the engine was found to be in a surprisingly good condition, after it's mechanical overhaul in 1948, by Eastleigh Works. The firebox was found to be life expired, as expected, but the boiler barrel itself was in excellent condition with little corrosion inside or out.

The initial anticipated cost of returning No.563 to steam was £350,000 and to help kick start the project, the Swanage Railway Trust committed £30,000 to purchase all the copper sheeting required to construct a new inner firebox.

As a consequence of COVID-19, the overhaul was delayed and additional components had to be renewed which were outside the original scope. As at 2021, over £240,000 had been raised - so just under half way to the revised £500,000 target to complete the engine and tender.

563 proved to be one of the most exciting locomotive restorations that has taken place during the last 25 years at least. A locomotive, which many thought would never steam

again has been brought back to life on the railway it was built for!

The restoration of LSWR T3 No 563 moved forward as rapidly as possible [and subject to fund raising of course] at the Flour Mill. Here it was hoped that the boiler might possibly be in steam later in 2023 - the first time in over 70 years – although, in the early days of the project, it had been hoped the loco might have been complete by early/mid 2023. This target proved to be too ambitious by a few months.

By late 2021/early 2022 the 563 Group were at the point at which attention on the tender could be focussed. This was to ensure it would be ready when 563 returned to the Swanage Railway. The plan was to restore the tender in Herston workshops, using a team of enthusiastic expert volunteers. The work required was not extensive nor too complicated, considering the age of the tender, but included:

- Strip to bare frames for inspection and protection
- Replacement of the tank floor
- Replacement of wrought iron brake components
- Assessment of existing springs
- Minor frame repairs around front drag-box
- Re-metalling & machining of axle-box crown bearings and horn way faces
- Non-Destructive Testing of wheel sets, spring hangers etc.

The tender's water and coal capacity was to be slightly adjusted, during restoration, to better meet the requirements of heritage railway operations, but without altering external appearance. The reinforcing plate on the loco end of the tender had been putting up 'a good fight' but, after much work by volunteers, lots of flush rivets were removed. This plate was then removed as it was also holding the tender tank to the frames.

The Railway's Cranes Department was called in on Thursday 3<sup>rd</sup> March 2022 and, with the aid of diesel electric crane FBC1, the tank was duly lifted onto Southern Railway Well B wagon S 61155. The tank was moved later to the Road/Rail Interchange sidings at Arne Road from where it was transferred, by road, to the Herston Works maintenance facility for overhaul/refurbishment. Separation of the tender tank from it's frames may have been the first occasion this had happened since it's original construction in 1893.

Reverting to restoration at the Flour Mill. Work then focussed on the installation of the newly constructed inner firebox in the boiler. Expansion brackets were riveted on the sides of the outer firebox to support the boiler in the frames. The aim had been to have the boiler finished before the end of 2022. However, well over 800 copper stays needed to be manufactured and installed to fix the inner firebox in place before the assembly could be finished.

On a visit to the Flour Mill in April 2022 the splashers were seen to have received their first top coats and the large area in BS225 Light Brunswick Green was a welcome relief for everyone to see this progress. Once completely lined-out, the engine looked eye-catchingly resplendent in its Drummond Green livery.

Preparations were made for re-wheeling as the painted wheels had been ready. So, attention then turned to the overhaul of axle boxes and the front bogie. New springs were fitted, against the centre casting, which helps control the side play of the bogie on tighter curves and when negotiating point work.

Other features, like the piston rods, were re-fitted and it's going to be really unusual, and impressive, to see these extending from the front of the cylinder covers with each stroke! The reverser has a newly machined nut with additional oil ways, to provide better lubrication for the screw and between the sliding faces, to reduce wear.

The finished boiler was given its hydraulic test in early July 2023 and, as this was successful, the first test steaming of the loco outside the Flour Mill premises occurred on 12<sup>th</sup> July. The boiler inspector did not rush his deliberations but passed the loco's pressure vessel for use at the original pressure of 175 psi. Shortly afterwards, the loco moved a few yards under its own steam for the first time since 1948 [75 years].

The engine was transported by S A Smith Haulage of Biggleswade from the Flour Mill, to the Arne Road siding, on Tuesday 29<sup>th</sup> August 2023. Here the driver, and the precious load, stayed overnight before unloading on the morning of 30<sup>th</sup> August. After this, the lorry was driven to Herston Works to collect the completed tender and transport it to Norden, so that it could be coupled to the engine. The coupled engine and tender were then towed to Swanage, after normal services had finished, where a small number of parts [such as the flexible water hoses between tender and injectors] remained to be made and fitted.

During the slow-speed (maximum 15 mph) haulage to Swanage both coupling rods started to run a little warm. Before testing could resume, precautionary checks were needed before the coupling rods bushes could be re-machined. Other areas were commissioned satisfactorily at Herston Works while machining was being done.

It's important to stress this was not as bad as, initially, it might have sounded. The railway is limited simply by the fact it does not have direct rail access to its workshops for this particular job. This was also no way a reflection on the workmanship or staff at the Flour Mill. They don't have the length of line, within their site, to undertake a rotation test and get the wheels moving for long enough.

This is just part of the all-important testing process and considering the locomotive has now moved further than it ever has in the last 75 years, the 563 Group were prepared to expect the unexpected but they had already discussed and agreed a practical way forward.

On 21<sup>st</sup> September, 563 had been returned to Arne Road siding at Norden to be re-united with its tender. Thanks to the amazing efforts by the staff and volunteers at Herston Works, machining of coupling rods and other fettling jobs were completed!

A small warming fire was lit to warm the boiler slowly overnight. This allowed the first proper fire to be built up the following morning [22<sup>nd</sup>]. The tender was topped up from the water tank wagon stabled at Norden's Lakeside Siding. A gentle test run, in steam, was undertaken to Swanage with no ill-effects.

On 27<sup>th</sup> September, the engine completed its first proper light engine test runs between Swanage and Norden covering 56 trouble-free miles successfully. 563 continued mileage accumulation test runs the following day before scheduled further testing on Tuesday 3<sup>rd</sup> and Wednesday 4<sup>th</sup> October.

Footplate crew familiarisation was needed to be undertaken at the same time as it is most unlikely that anyone is still alive who had direct operating experience of an Adams Class T3 loco. So the Swanage Railway had to prepare its own Driver's/Fireman's/Fitter's Manuals to ensure the engine was operated properly and safely as well as maintained correctly.

It hauled two special trains on Saturday 7<sup>th</sup> October with the first being reserved for

sponsors, stakeholders and invited guests. The afternoon round trip was reserved especially for Swanage Railway volunteers. Four public runs followed during Sunday 8th. 563 then operated three 4-carriage trains a day for nine days during October's Half Term School Holidays – 21<sup>st</sup> to 29<sup>th</sup> October inclusive.

At some stage, in the not too distant future, it is intended that an internal lining of fibreglass, or some such covering, will be applied to the inside of the tender tank. This has been done on other locos and is a way of protecting the steel plate work, from the effects of hard water and other impurities, thus giving it a longer working life before it needs replacement.

During the running-in period, and subsequently in service, it was felt that 563 was not steaming correctly. After consulting other railways, and comparing blast pipe diameters notably with the LSWR Adams 'Radial' tank loco number 488, a new smaller diameter blast pipe was installed in 563.

It gave a much sharper blast up the chimney and improved steaming to such an extent that the loco could then haul 5 coach trains with ease. Other works have been done and additional days in traffic have seen 563 settle down to be a useful asset of the Swanage Railway.

<b>ORIGINAL LOCOMOTIVE SPECIFICATIONS</b>			
Wheel Configuration	4 – 4 - 0	Working Boiler Pressure	175 psi
Leading Bogie Wheel dia.	3 ft 7 ins	Driving Wheel dia.	6 ft 7 ins
Overall Length	54 ft 2 3/8 ins	Height above rails	13 ft 2¾ ins
Locomotive Weight	48½ tons	Axle Load	15 ¾ tons
Tender Weight	36¼ tons	Tractive Effort	17,673 lbs ft
Cylinders (2)	Outside	Cylinder size	19 ins x 26 ins
Coal Capacity (approx)	3 tons	Water Capacity (approx)	3,300 gallons