Section 2: British Railways

A selection of British locomotive and rolling stock illustrations

CONTENTS

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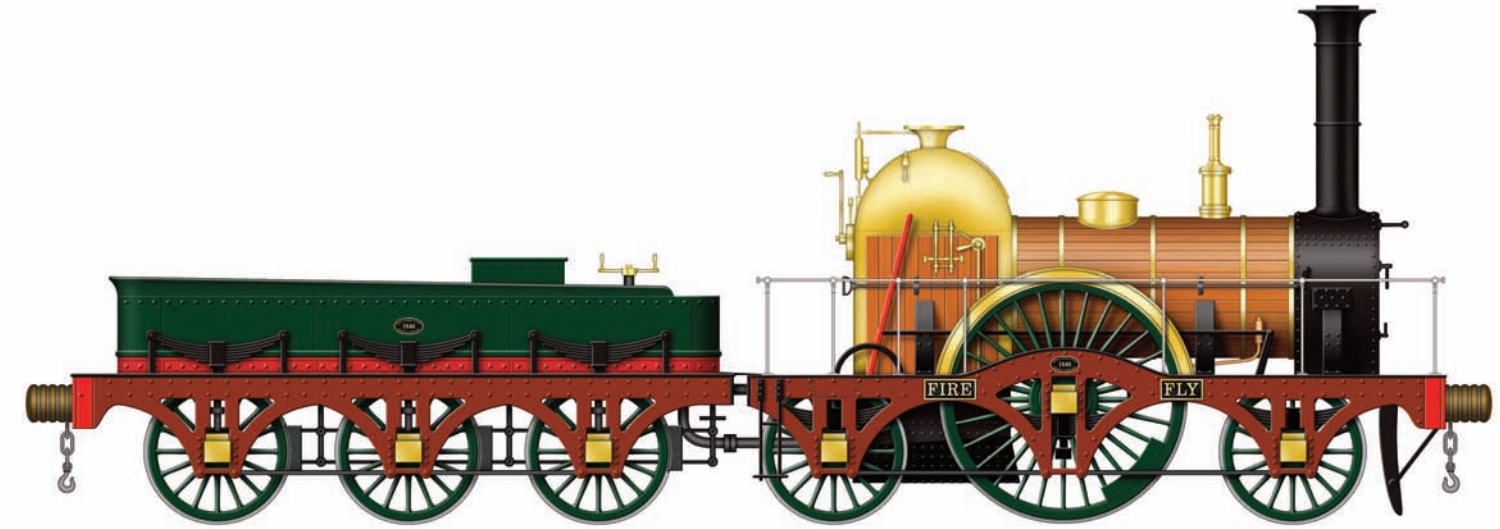


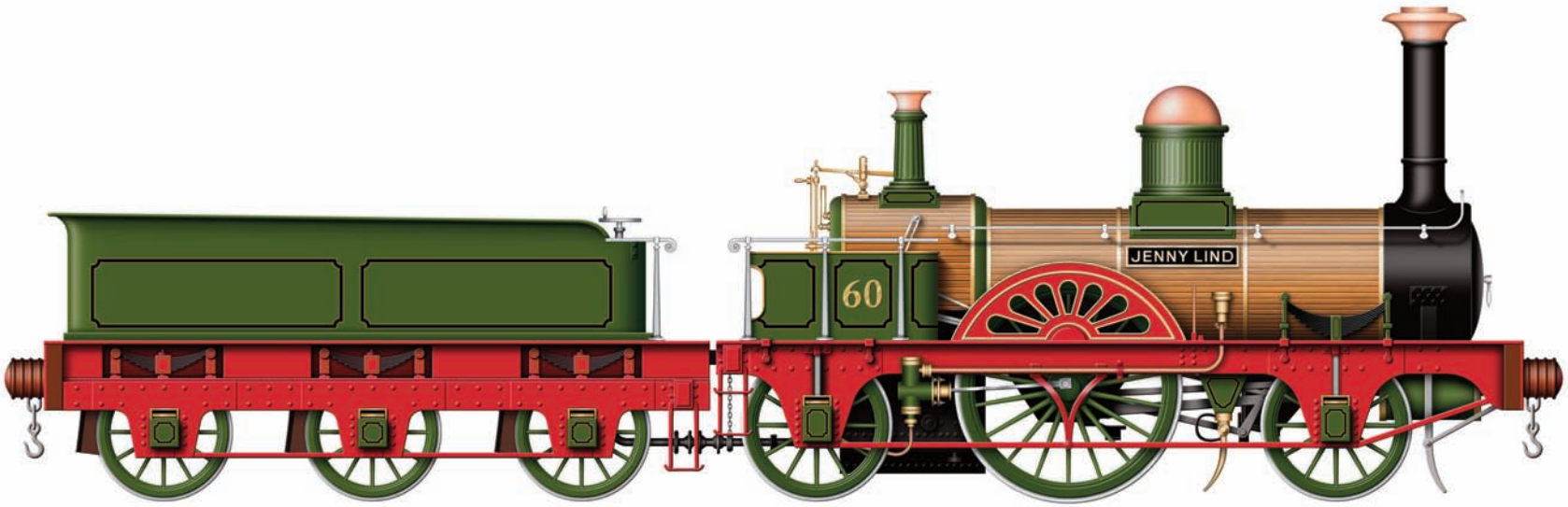
Gooch 'Firefly' Class

The Great Western Railway

Following the success of the 'Star' class locomotives, Daniel Gooch set to work to develop a new class with larger boilers. The result was the Fire Fly which was introduced in March 1840 with a further sixty one engines being built over the next three years. They hauled the major expresses of the day, and it is claimed that the original Firefly covered the 31 miles from Twyford to Paddington in 37 minutes, an average speed of 50 mph which was unprecedented in 1840.

SPECIFICATION:

WHEEL ARRANGEMENT:	2-2-2	CYLINDER DIAMETER:	15 inches
ENGINE WEIGHT:	24 tons 4 cwt	CYLINDER STROKE:	18 inches
DRIVE WHEELS:	7 ft diameter	TRACTIVE EFFORT:	2,049 lbf
BOILER PRESSURE:	120 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	829 sq ft	NUMBER IN CLASS:	62
FIREGRATE AREA:	12.4 Sq ft	ENTERED SERVICE:	1840
CYLINDERS:	Two (inside)	WITHDRAWN BY:	1879



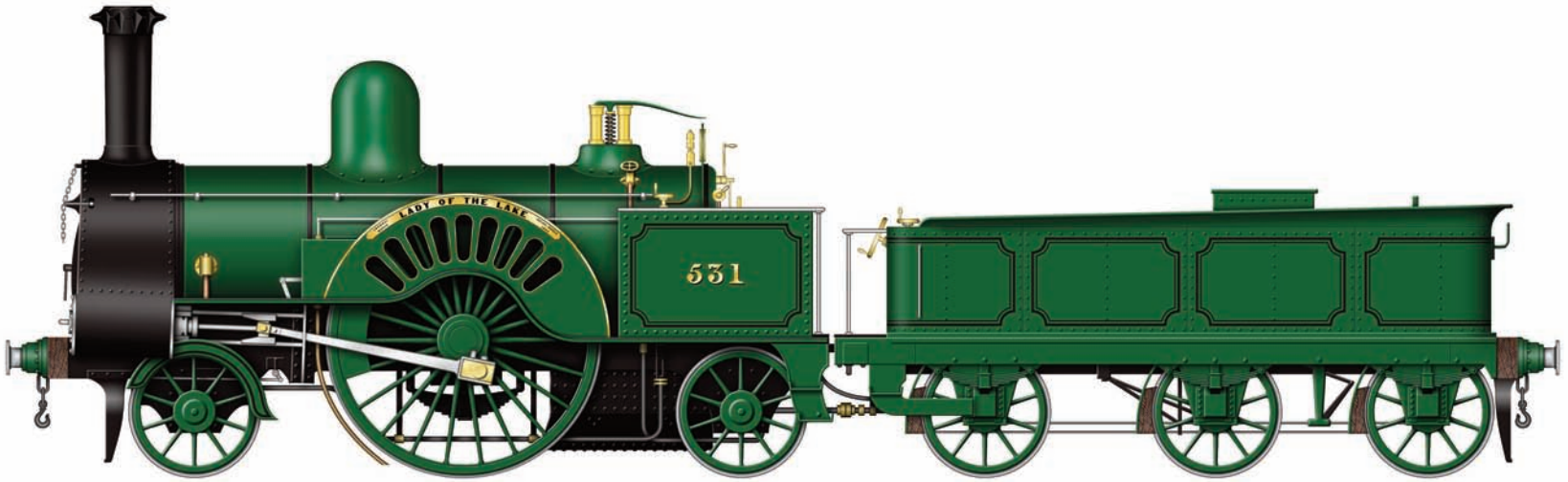
'Jenny Lind' Class

The London, Brighton & Southcoast Railway

The Jenny Lind locomotive was the first of a class of ten steam locomotives built in 1847 for the London Brighton and South Coast Railway by E. B. Wilson and Company of Leeds, and was named after a famous opera singer of the time. The general design proved to be so successful that it was adopted for use by several other railways companies, the type becoming the first mass produced locomotive type, while type was also widely copied during from the late 1840s into the early 1860s.

SPECIFICATION:

WHEEL ARRANGEMENT:	2-2-2	CYLINDER DIAMETER:	15 inches
ENGINE WEIGHT:	23 tons 11 cwt	CYLINDER STROKE:	20 inches
DRIVE WHEELS:	6 ft dia	TRACTIVE EFFORT:	6,375 lbf
BOILER PRESSURE:	120 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	800 sq ft	NUMBER IN CLASS:	74
FIREGRATE AREA:	17 sq ft	ENTERED SERVICE:	1847
CYLINDERS:	Two (inside)	WITHDRAWN BY:	1885



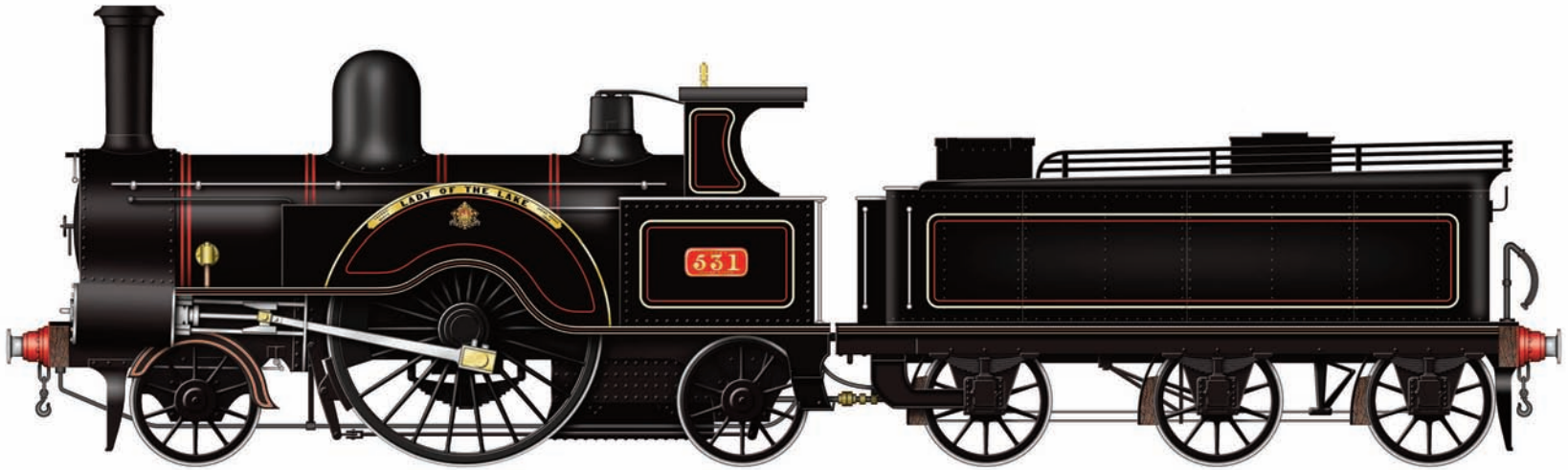
Ramsbottom 'Problem' Class

The London & North Western Railway

The 'Problem' Class of 2-2-2 express locomotives were designed by John Ramsbottom and first entered service in 1859. In their heydey they were primarily used on the Irish Mail train route from London to Holyhead, but were also used on local expresses around the Liverpool and Manchester area. When Francis Webb became the C.M.E. of the L.N.W.R. in 1871, he modified the class by adding his style of chimneys and a cab for the crew, while blackberry black was introduced for all locomotives.

SPECIFICATION:

WHEEL ARRANGEMENT:	2-2-2	CYLINDER DIAMETER:	16 inches
ENGINE WEIGHT:	27 tons	CYLINDER STROKE:	24 inches
DRIVE WHEELS:	7 ft 6 ins dia	TRACTIVE EFFORT:	5,170 lbf
BOILER PRESSURE:	120 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	1,098 sq ft	NUMBER IN CLASS:	60
FIREGRATE AREA:	14.9 sq ft	ENTERED SERVICE:	1859
CYLINDERS:	Two (inside)	WITHDRAWN BY:	1907



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The London & North Western Railway

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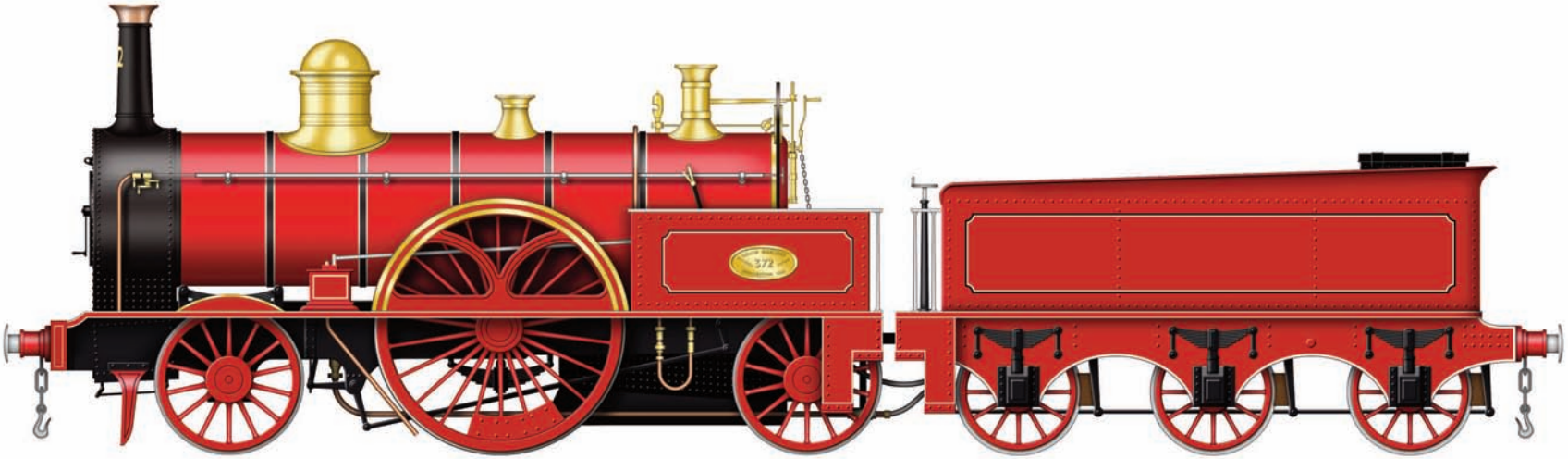
SPECIFICATION:

WHEEL ARRANGEMENT:	2-2-2	CYLINDER DIAMETER:	16 inches
ENGINE WEIGHT:	27 tons	CYLINDER STROKE:	24 inches
DRIVE WHEELS:	7 ft 6 ins dia	TRACTIVE EFFORT:	5,170 lbf
BOILER PRESSURE:	120 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	1,098 sq ft	NUMBER IN CLASS:	60
FIREGRATE AREA:	14.9 sq ft	ENTERED SERVICE:	1859
CYLINDERS:	Two (inside)	WITHDRAWN BY:	1907



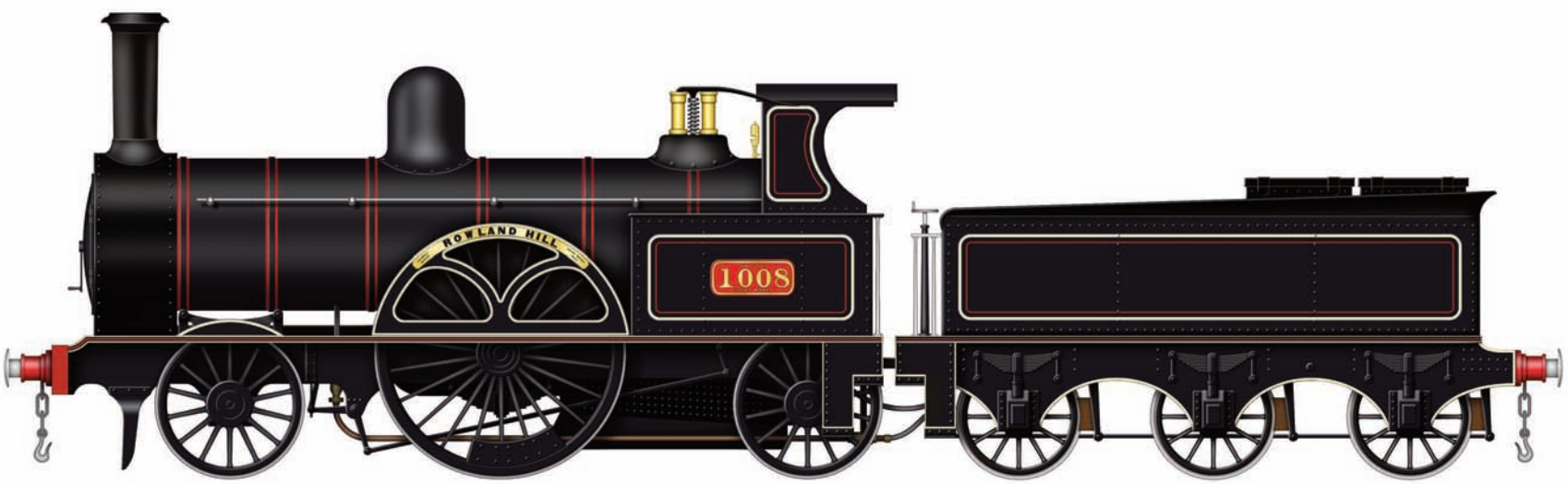
McConnell 'Bloomer' Class

The London & North Western Railway

The 'Bloomer' class express locomotives were designed by James McConnell for the Southern Division of the London and North Western Railway and first appeared in 1851. They were nicknamed 'Bloomers' when they first appeared due to the public excitement after it became fashionable for women to wear trousers, as advocated by Mrs Amelia Bloomer. The name was soon adopted for the class and seventy-four engines were built in three sub classes which differed only in dimensions.

SPECIFICATION (*LARGE BLOOMER*):

WHEEL ARRANGEMENT:	2-2-2	CYLINDER DIAMETER:	16 inches
ENGINE WEIGHT:	30 tons	CYLINDER STROKE:	22 inches
DRIVE WHEELS:	7 ft dia	TRACTIVE EFFORT:	11,000 lbf
BOILER PRESSURE:	100 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	1,449 sq ft	NUMBER IN CLASS:	40
FIREGRATE AREA:	18 sq ft	ENTERED SERVICE:	1851
CYLINDERS:	Two (inside)	WITHDRAWN BY:	1888



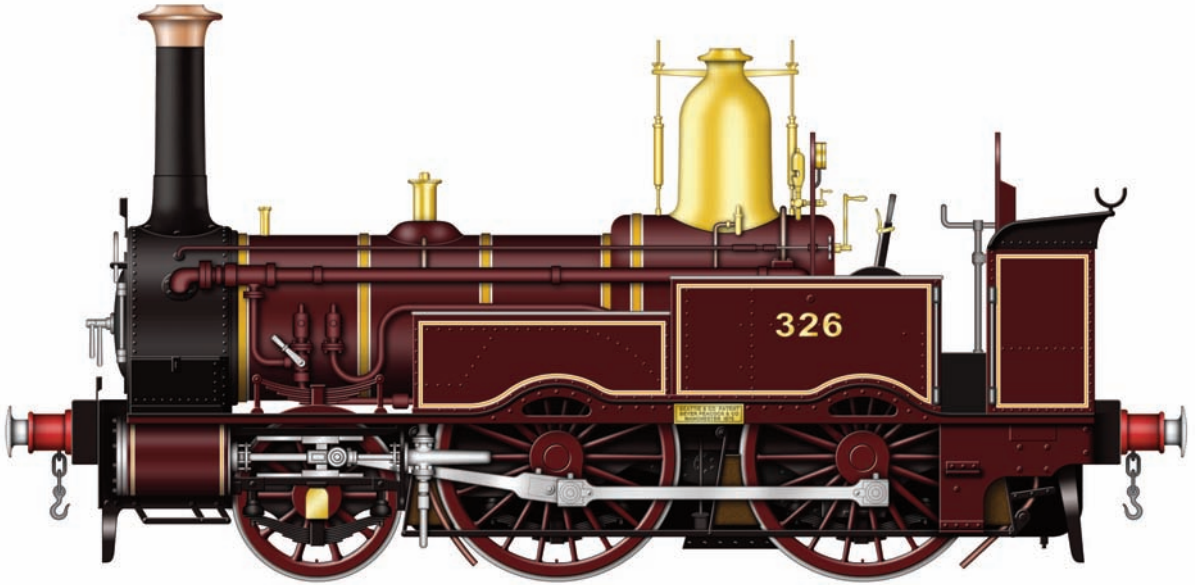
McConnell 'Bloomer' Class

The London & North Western Railway

The 'Bloomer' class express locomotives were designed by James McConnell for the Southern Division of the London and North Western Railway and first appeared in 1851. During the 1860s and 1870s most of the class were rebuilt with new boilers, Ramsbottom safety gear and a cab for the crew. The water capacity of the tenders was also reduced from 2,000 gallons to 1,700 gallons because of the introduction of water troughs on the main line. The last member of the class was withdrawn in 1888.

SPECIFICATION (*LARGE BLOOMER*):

WHEEL ARRANGEMENT:	2-2-2	CYLINDER DIAMETER:	16 inches
ENGINE WEIGHT:	30 tons	CYLINDER STROKE:	22 inches
DRIVE WHEELS:	7 ft dia	TRACTIVE EFFORT:	11,000 lbf
BOILER PRESSURE:	100 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	1,449 sq ft	NUMBER IN CLASS:	40
FIREGRATE AREA:	18 sq ft	ENTERED SERVICE:	1851
CYLINDERS:	Two (inside)	WITHDRAWN BY:	1888



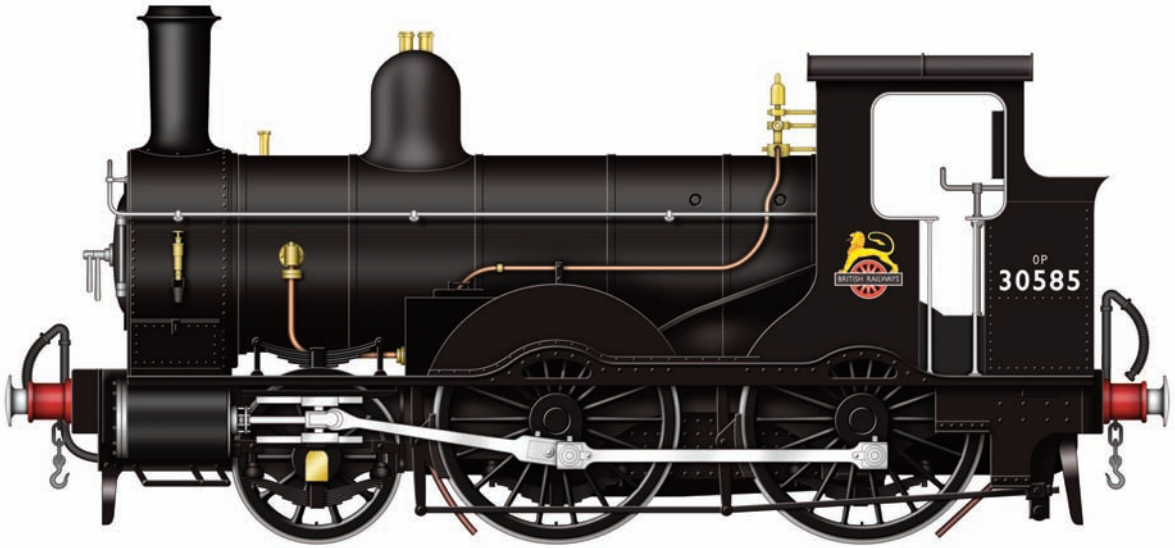
Beattie 0298 Class Well Tank

The London & South Western Railway

The 0298 class was designed by Joseph Beattie for the London and South Western Railway for the suburban services in and out of Waterloo station. After William Adams became the C.M.E in 1877, he introduced larger 4-4-2 tanks in the late 1880s to take over this work, with the Beattie well tanks being moved away for use on branch lines. During the 1890s the majority of the class were withdrawn, but three of the reboilered engines would go on and have a long career.

SPECIFICATION:

WHEEL ARRANGEMENT:	2-4-0	CYLINDER DIAMETER:	16½ inches
ENGINE WEIGHT:	37.8 tons	CYLINDER STROKE:	20 inches
DRIVE WHEELS:	5 ft 7 ins dia	TRACTIVE EFFORT:	11,050 lbf
BOILER PRESSURE:	160 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	980 sq ft	NUMBER IN CLASS:	85
FIREGRATE AREA:	14.8 sq ft	ENTERED SERVICE:	1863
CYLINDERS:	Two (intside)	WITHDRAWN:	1886–1899



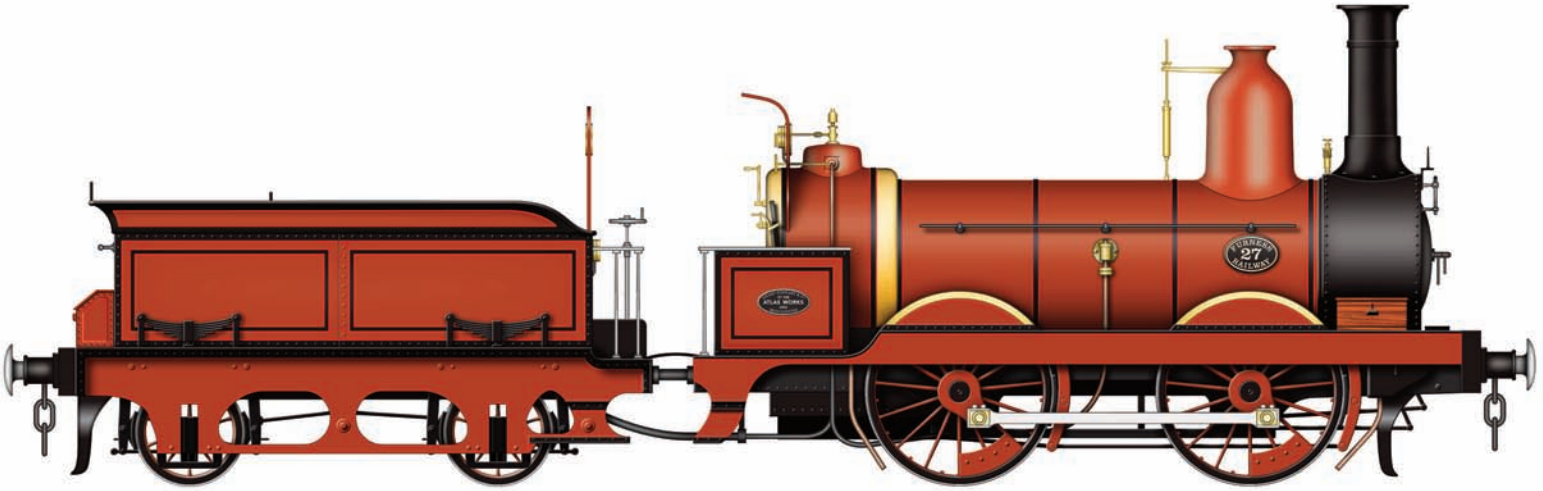
Beattie 0298 Class Well Tank

British Railways

The 0298 class was designed by Joseph Beattie for the London and South Western Railway for the suburban services in and out of Waterloo station. and first entered service in 1863. In 1895 numbers 298, 314 and 329 were transferred to the Wenford Bridge china clay branch in Cornwall, which was a lightly laid mineral line with tortuous curves. They were based at Wadebridge depot for this duty, where they remained for a further sixty-seven years until being withdrawn in 1962.

SPECIFICATION:

WHEEL ARRANGEMENT:	2-4-0	TRACTIVE EFFORT:	11,050 lbf
ENGINE WEIGHT:	27.8 tons	VALVE GEAR TYPE:	Stephenson
DRIVE WHEELS:	5 ft 7 ins dia	NUMBER IN CLASS:	85
BOILER PRESSURE:	160 psi	ENTERED SERVICE:	1863
CYLINDERS:	Two (inside)	WITHDRAWN:	1886–1899 (82)
CYLINDER DIAMETER:	16½ inches		1962 (3)
CYLINDER STROKE:	20 inches		



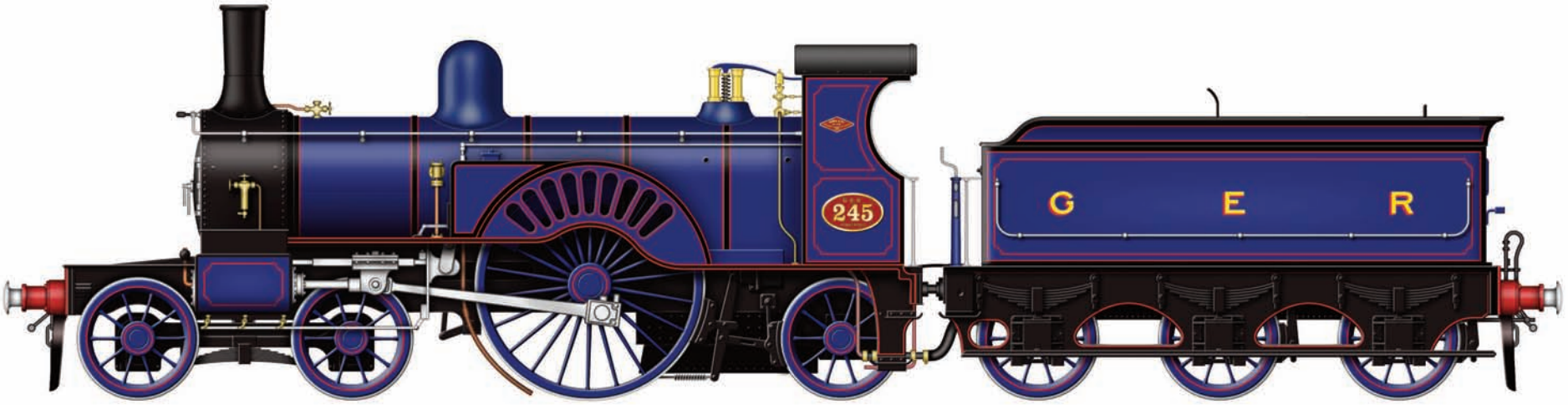
Furness Railway A5 Class

The Furness Railway

The Furness Railway purchased eight 0-4-0 tender locomotives between 1863-66 which they classified as class A5, but by then Furness trains were becoming to heavy for these small engines, so it was decided to sell six of the class while they were relatively new. Six were sold to the Barrow Haematite Steel company who had them converted into saddle tanks, one of which survived until 1960 and has now been restored to near original condition, and is the oldest locomotive to run in the U.K.

SPECIFICATION:

WHEEL ARRANGEMENT:	0-4-0	CYLINDER DIAMETER:	15½ inches
ENGINE WEIGHT:	Unknown	CYLINDER STROKE:	24 inches
DRIVE WHEELS:	4 ft 9 ins dia	TRACTIVE EFFORT:	7,716 lbf
BOILER PRESSURE:	140 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	940 sq ft	NUMBER IN CLASS:	8
FIREGRATE AREA:	Unknown	ENTERED SERVICE:	1863
CYLINDERS:	Two (inside)	WITHDRAWN:	1870-73



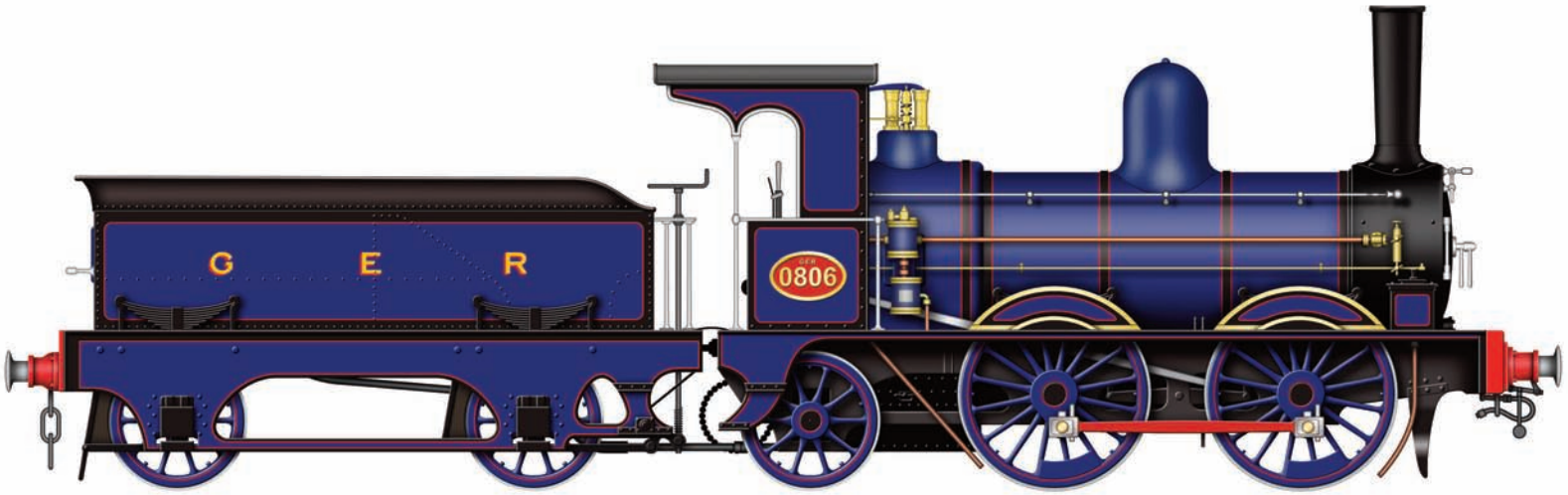
Massey Bromley 245 Class

The Great Eastern Railway

Massey Bromley's short term of office with the Great Eastern Railway is best remembered for his 245 class of 4-2-2 express locomotives. They strongly resembled Patrick Stirling's famous eight-footers but with 7 ft 6 ins diametre driving wheels, the largest to be used on the G.E.R. The first ten were built by Dübs & Co in1879, with a further ten being supplied by Kitson & Co in 1881. By the early 1890s they were no longer capable of hauling the heavier express trains and were withdrawn.

SPECIFICATION:

WHEEL ARRANGEMENT:	4-2-2	CYLINDER DIAMETER:	18 inches
ENGINE & TENDER WEIGHT:	77½ tons	CYLINDER STROKE:	24 inches
DRIVE WHEELS:	7 ft 6 in dia	TRACTIVE EFFORT:	10,649 lbf
BOILER PRESSURE:	145 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	1,205 sq ft	NUMBER IN CLASS:	20
FIREGRATE AREA:	17.1 sq ft	ENTERED SERVICE:	1879
CYLINDERS:	Two (outside)	WITHDRAWN:	1890-93



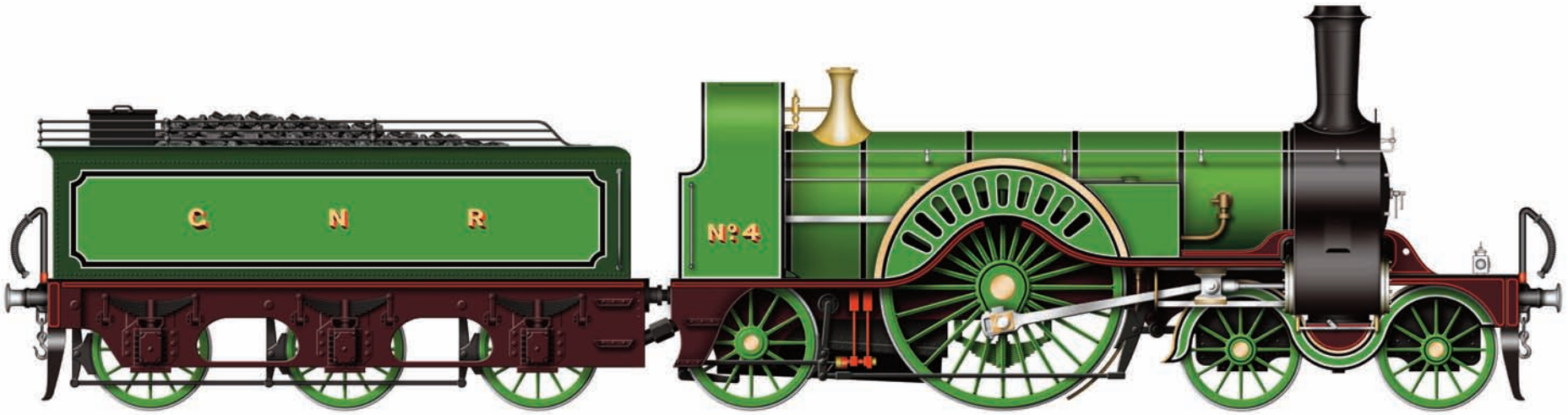
Ex-Thetford & Watton 0-4-2

The Great Eastern Railway

The Thetford and Watton Railway purchased two 0-4-2 tender locomotives from Sharp Stewart and Company in 1876 which were acquired by the Great Eastern Railway in 1880 when they took over the running of the line. The pair were renumbered 806 and 807 and overhauled at Stratford Works, being fitted with Westinghouse brake and Ramsbottom safety valves. The pair then worked the Saffron Walden branch until being No 807 was withdrawn for scrapping in 1990, while No 806 lasted another year.

SPECIFICATION:

WHEEL ARRANGEMENT:	0-4-2	CYLINDER DIAMETER:	Unknown
ENGINE WEIGHT:	Unknown	CYLINDER STROKE:	Unknown
DRIVE WHEELS:	Unknown	TRACTIVE EFFORT:	Unknown
BOILER PRESSURE:	Unknown	VALVE GEAR TYPE:	Unknown
HEATING SURFACE:	Unknown	NUMBER BUILT:	2
FIREGRATE AREA:	Unknown	ENTERED SERVICE:	1879
CYLINDERS:	Two (outside)	WITHDRAWN:	1890-91



Stirling No.1 Class

The Great Northern Railway

When Patrick Stirling became the C.M.E. of the G.N.R. he designed his engines for speed and power, and in 1870 the first of his famous single wheelers appeared. The class were elegant locomotives with 8 ft 1 inch driving wheels, and capable of hauling trains of 275 tons at an average speed of 50 mph, and 85 mph with lighter trains. During the second 'Races to the North' in 1895, Stirling Single No. 775 made a record run between Grantham and York in 76 minutes, at an average speed of 64.7 mph.

SPECIFICATION: (1870 Series)

WHEEL ARRANGEMENT:	4-2-2	CYLINDER DIAMETER:	18 inches
ENGINE WEIGHT:	39½ tons	CYLINDER STROKE:	22 inches
DRIVE WHEELS:	8 ft 1 in dia	TRACTIVE EFFORT:	11,129 lbf
BOILER PRESSURE:	140 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	1,165 sq ft	NUMBER IN CLASS:	53
FIREGRATE AREA:	17.6 sq ft	ENTERED SERVICE:	1870
CYLINDERS:	Two (outside)	WITHDRAWN BY:	1916

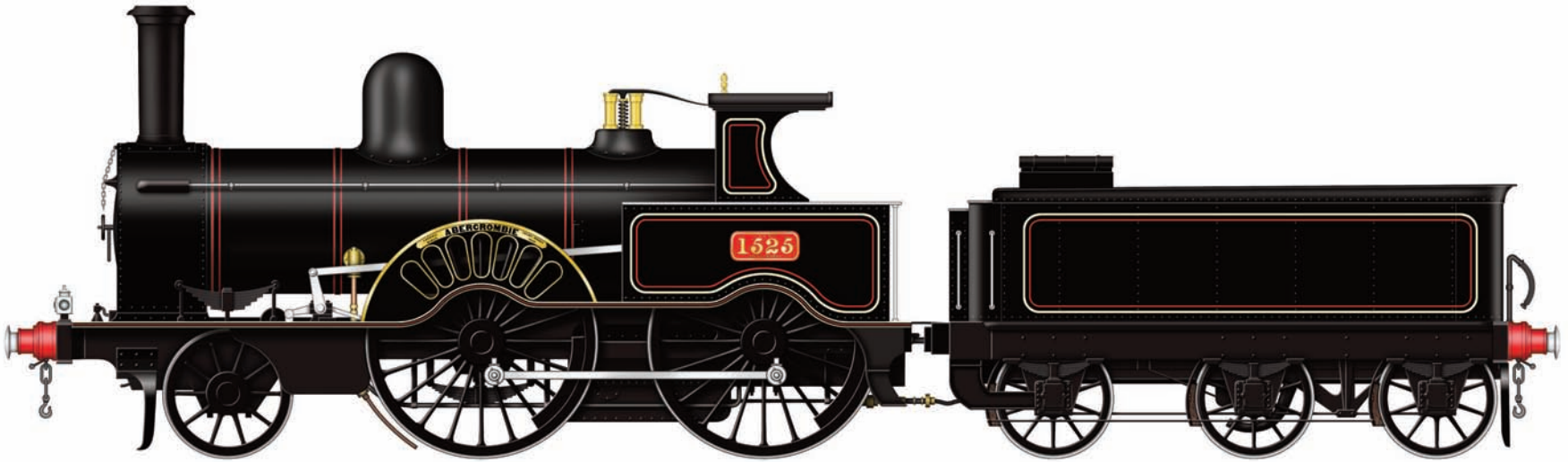
Sacre 12AM Class

The Great Central Railway

The 12AT class was designed for local services between Altrincham and Manchester for the Manchester, Sheffield and Lincolnshire Railway, and first appeared in 1880. After the M.S.L.R. was renamed the Great Central in 1897, six were converted for push-pull work between 1914-21, the open cabs being given a back at the same time, and in this form became Class 12AM. On the grouping in 1923 the Great Cental became part of the L.N.E.R. and they then became Class E8, but were withdrawn in early 1925.

SPECIFICATION:

WHEEL ARRANGEMENT:	2-4-0	CYLINDER DIAMETER:	16 inches
ENGINE WEIGHT:	43¾ tons	CYLINDER STROKE:	24 inches
DRIVE WHEELS:	5 ft 6½ in dia	TRACTIVE EFFORT:	10,832 lbf
BOILER PRESSURE:	140 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	1,040 sq ft	NUMBER IN CLASS:	18
FIREGRATE AREA:	15.3 sq ft	ENTERED SERVICE:	1880
CYLINDERS:	Two (inside)	WITHDRAWN:	1925



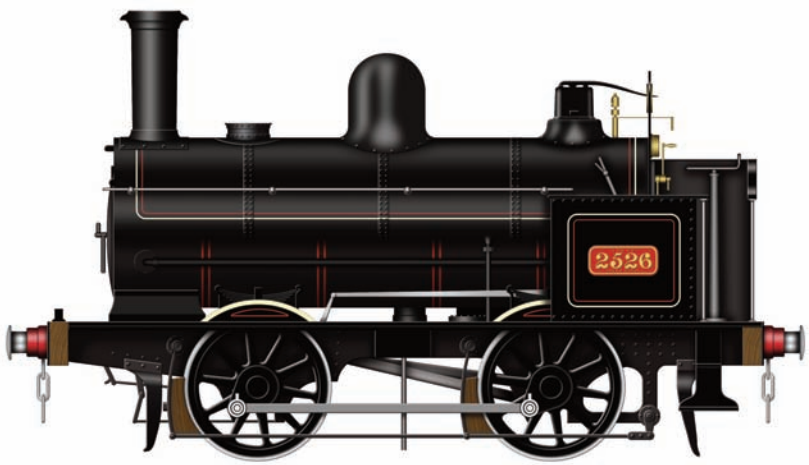
Ramsbottom 'Newton' Class

The London & North Western Railway

the Newton Class was designed by John Ramsbottom and introduced in 1866. They were developed from his DX class 0-6-0 goods engine, and were intended for passenger working on the Lancaster & Carlisle section of the main line, where during adverse weather the problem class 2-2-2s were having difficulty. When Francis Webb became the C.M.E. in 1873, he continued to build the Newton class to the basic design but introduced cabs for the crew and his style of chimney.

SPECIFICATION:

WHEEL ARRANGEMENT:	2-4-0	CYLINDER DIAMETER:	17 inches
ENGINE WEIGHT:	28¾ tons	CYLINDER STROKE:	24 inches
DRIVE WHEELS:	6 ft 7½ ins dia	TRACTIVE EFFORT:	10,190 lbf
BOILER PRESSURE:	140 psi	VALVE GEAR TYPE:	Joy
HEATING SURFACE:	1,008 sq ft	NUMBER IN CLASS:	96
FIREGRATE AREA:	15 sq ft	ENTERED SERVICE:	1866
CYLINDERS:	Two (inside)	WITHDRAWN BY:	1894



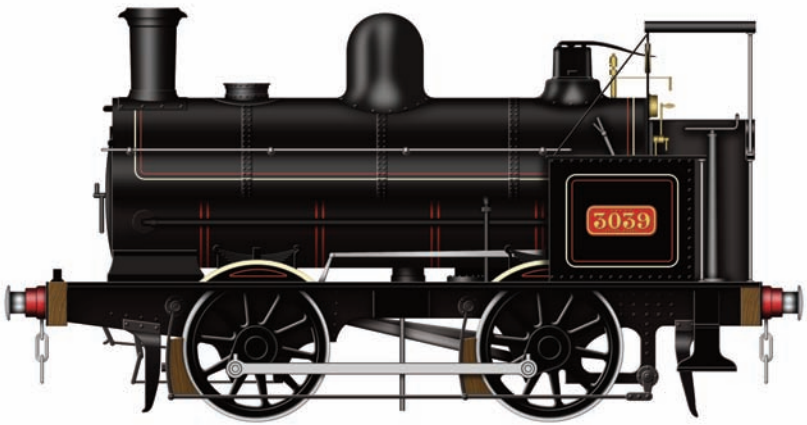
Ramsbottom 4 ft Shunter

The London & North Western Railway

In 1863 John Ramsbottom introduced a class of 0-4-0 saddle tank locomotives which became known as the 4 ft Shunters. They were the first engines to have cast iron H-section driving wheels which would become standard on the London and North Western Railway for most goods engines under the leadership of Francis Webb. When introduced they had all the usual Ramsbottom features, such as an ornamental chimney top, safety valves, wooden buffer beams and wooden brake blocks.

SPECIFICATION:

WHEEL ARRANGEMENT:	0-4-0	CYLINDER DIAMETER:	14 inches
ENGINE WEIGHT:	24.6 tons	CYLINDER STROKE:	20 inches
DRIVE WHEELS:	4 ft 3 ins dia	TRACTIVE EFFORT:	8,075 lbf
BOILER PRESSURE:	120 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	415 sq ft	NUMBER IN CLASS:	56
FIREGRATE AREA:	11 sq ft	ENTERED SERVICE:	1863
CYLINDERS:	Two (inside)	WITHDRAWN BY:	1933



Ramsbottom 4 ft Shunter

The London & North Western Railway

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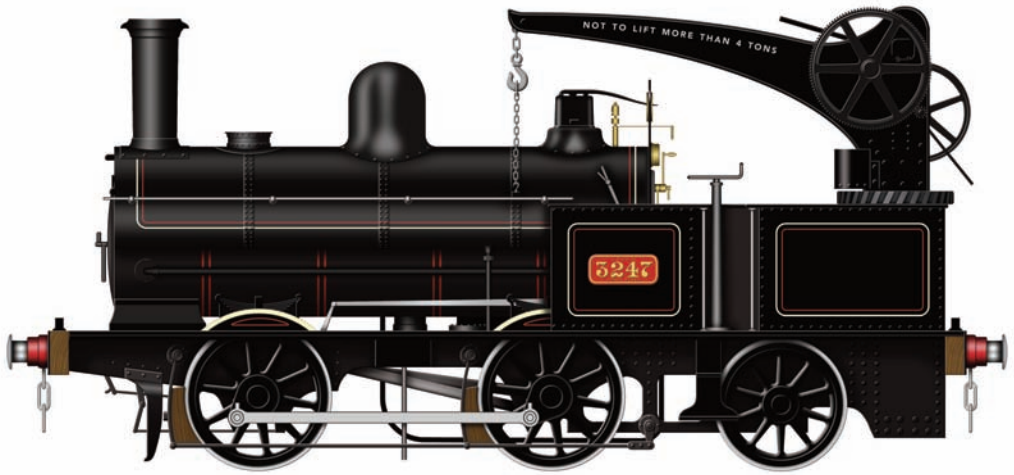
SPECIFICATION:

WHEEL ARRANGEMENT:	0-4-0	CYLINDER DIAMETER:	14 inches
ENGINE WEIGHT:	24.6 tons	CYLINDER STROKE:	20 inches
DRIVE WHEELS:	4 ft 3 ins dia	TRACTIVE EFFORT:	8,075 lbf
BOILER PRESSURE:	120 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	415 sq ft	NUMBER IN CLASS:	56
FIREGRATE AREA:	11 sq ft	ENTERED SERVICE:	1863
CYLINDERS:	Two (inside)	WITHDRAWN BY:	1933



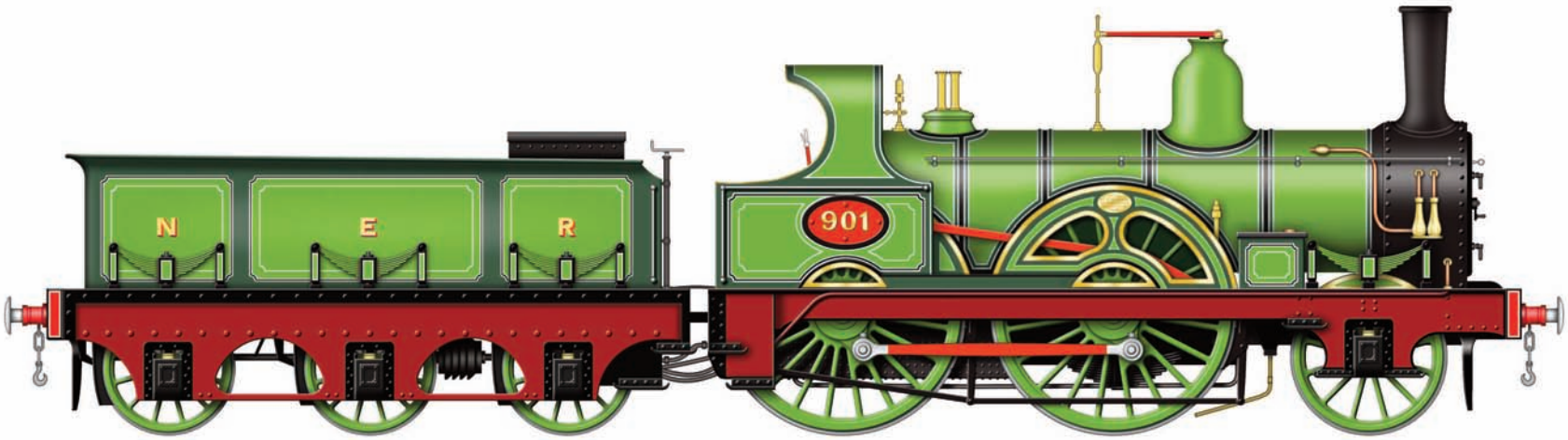
Ramsbottom 4 ft Crane Locomotive

The London & North Western Railway

The last three 4 ft shunters were completed as 0-4-2 crane locomotives, and apart from the modifications needed for the crane were identical to the 0-4-0 saddle tanks. The crane was designed to lift a maximum of four tons, but later a longer jib was fitted to at least one engine which then had a maximum lift of three tons. The engines were to be seen throughout the L.N.W.R. railway network when needed, with all three crane engines surviving into L.M.S. ownership on the grouping in 1923.

SPECIFICATION:

WHEEL ARRANGEMENT:	0-4-2	CYLINDER DIAMETER:	14 inches
ENGINE WEIGHT:	32 tons 7 cwt	CYLINDER STROKE:	20 inches
DRIVE WHEELS:	4 ft 3 ins dia	TRACTIVE EFFORT:	8,075 lbf
BOILER PRESSURE:	120 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	415 sq ft	NUMBER BUILT:	3
FIREGRATE AREA:	11 sq ft	ENTERED SERVICE:	1892
CYLINDERS:	Two (inside)	WITHDRAWN BY:	1933



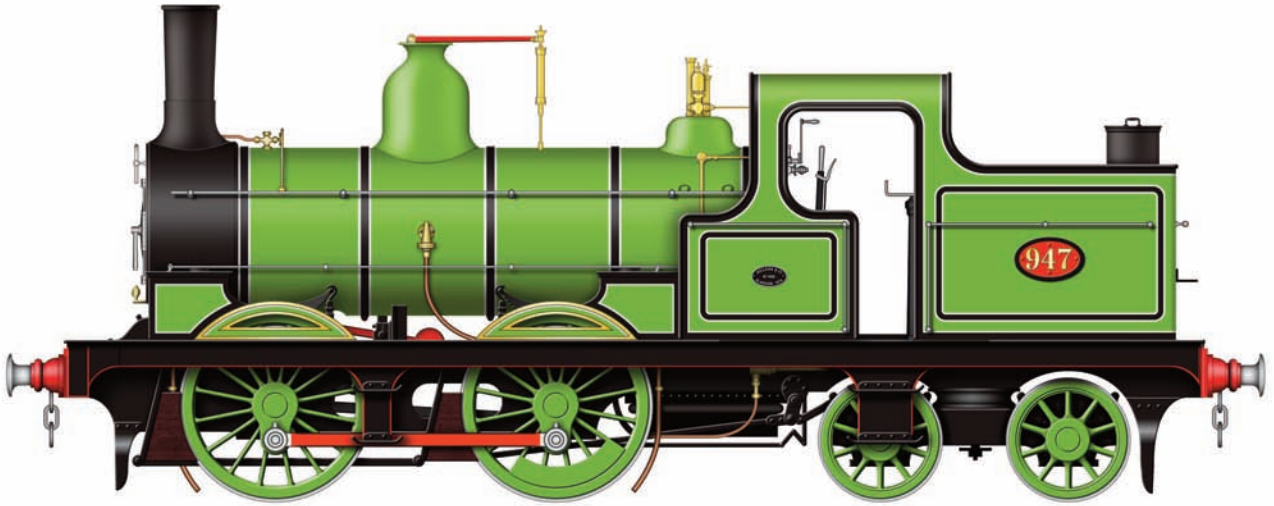
Fletcher 901 Class

The North Eastern Railway

The 901 class was Fletcher's final express passenger engine design for the North Eastern Railway. and were designed to haul the express trains over their portion of the East Coast main line. 55 locomotives were built and allocated to the N.E.R. motive depots at Gateshead, York, and later Leeds. By the mid 1880s they often had to be used in pairs to haul the heavier trains of the day, and after the introduction of more powerful locomotives they were relegated to secondary duties.

SPECIFICATION:

WHEEL ARRANGEMENT:	2-4-0	CYLINDER DIAMETER:	17 inches
ENGINE/TENDER WEIGHT:	69 tons	CYLINDER STROKE:	24 inches
DRIVE WHEELS:	7 ft dia	TRACTIVE EFFORT:	12,590 lbf
BOILER PRESSURE:	160 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	1,093 sq ft	NUMBER IN CLASS:	55
FIREGRATE AREA:	15.6 sq ft	ENTERED SERVICE:	1872
CYLINDERS:	Two (inside)	WITHDRAWN:	1912-25



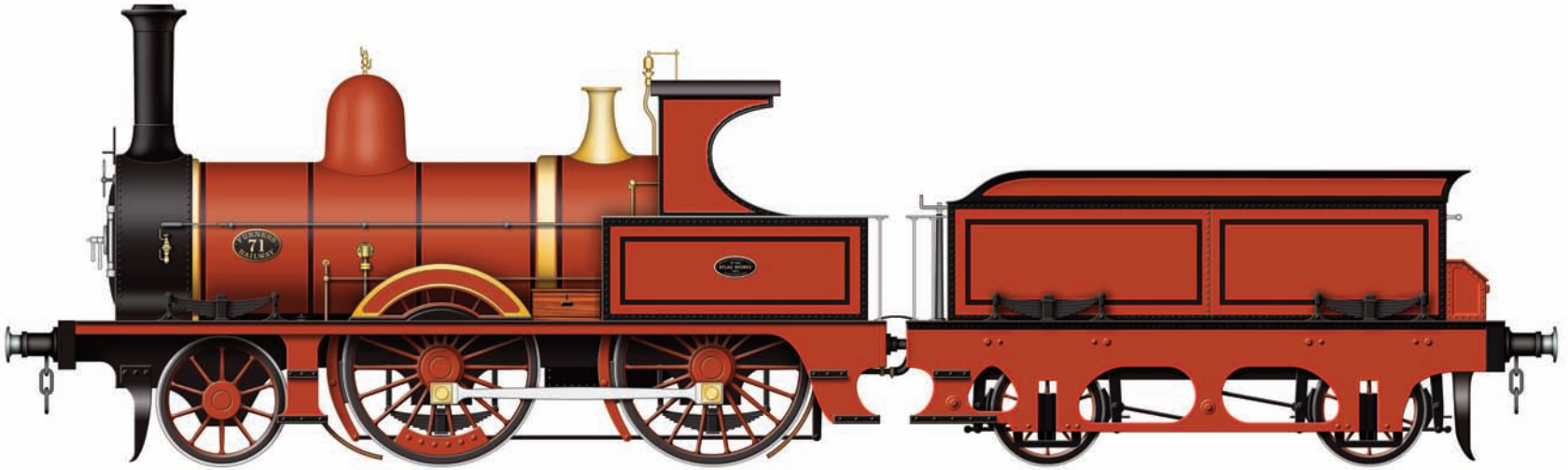
Fletcher Bogie Tank Passenger (BTP)

The North Eastern Railway

For branchline passenger services on the North Eastern Railway Edward Fletcher designed a 0-4-4 Bogie Tank locomotive in 1873. 124 were built between 1884-94, but with the introduction of Worsdells' O Class 0-4-4s in 1894 the BTP soon became redundant. Fifty were rebuilt between 1899 and 1908 which became Class 290, while others were converted to work push–pull trains. As part of the L.N.E.R. they were classified class G6, with the last member of the class being withdrawn in 1929.

SPECIFICATION:

WHEEL ARRANGEMENT:	0-4-4	CYLINDER DIAMETER:	17 inches
ENGINE WEIGHT:	45 tons	CYLINDER STROKE:	24 inches
DRIVE WHEELS:	5 ft 6 ins dia	TRACTIVE EFFORT:	13,101 lbf
BOILER PRESSURE:	160 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	1,190 sq ft	NUMBER IN CLASS:	124
FIREGRATE AREA:	12.8 sq ft	ENTERED SERVICE:	1874
CYLINDERS:	Two (inside)	WITHDRAWN:	1920-29



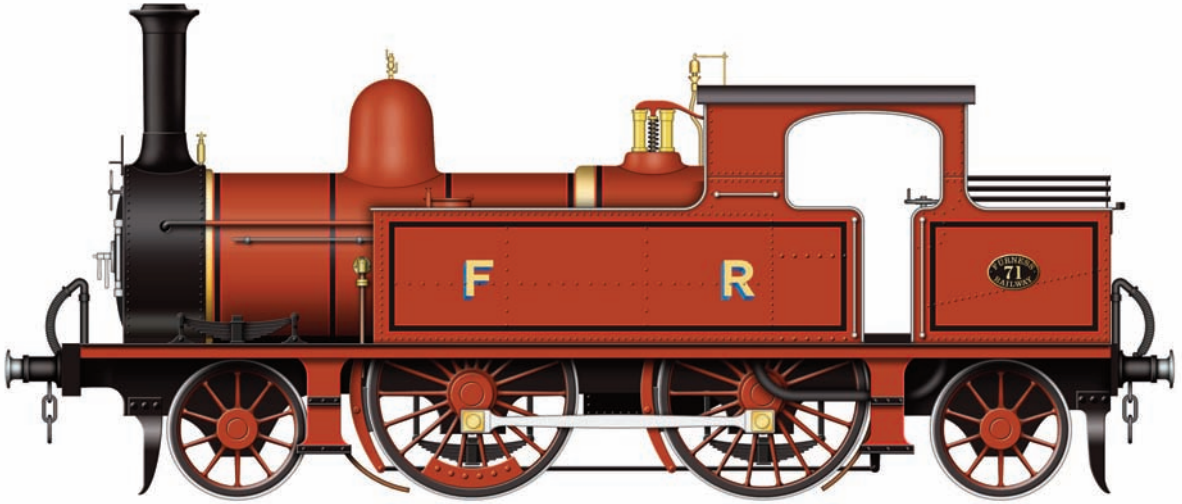
Furness Railway E1 Class

The Furness Railway

With the increase in weight of main line passenger trains, the Furness Railway purchased a class of 2-4-0 tender locomotives from Sharp, Stewart & Company. The first two were delivered in 1870, with a further 15 by 1873. Two more were purchased in 1882 and they remained the principal express locomotives of the line until the turn of the century. In 1891 seven members of the class were rebuilt as 2-4-2 tank engines and were then used for local and branchline services.

SPECIFICATION:

WHEEL ARRANGEMENT:	2-4-0	CYLINDER DIAMETER:	16 inches
ENGINE & TENDER WEIGHT:	47½ tons	CYLINDER STROKE:	20 inches
DRIVE WHEELS:	5 ft 7½ ins dia	TRACTIVE EFFORT:	7,737 lbf
BOILER PRESSURE:	120 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	915 sq ft	NUMBER IN CLASS:	19
FIREGRATE AREA:	11½ sq ft	ENTERED SERVICE:	1870
CYLINDERS:	Two (inside)	WITHDRAWN:	1916-24



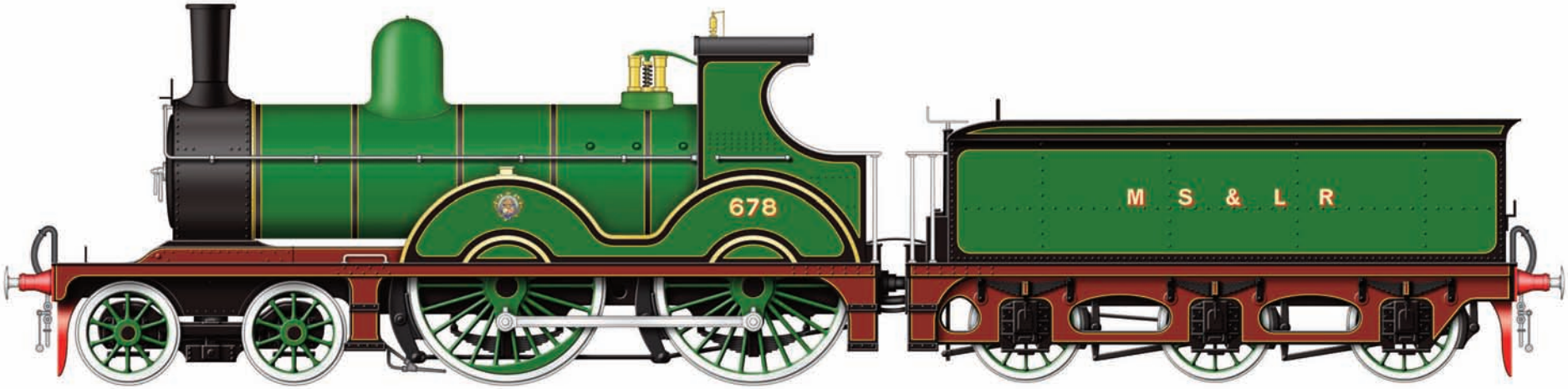
Furness Railway E1 Class 2-4-2 Tank Engine

The Furness Railway

With the increase in weight of main line passenger trains, the Furness Railway purchased a class of 2-4-0 tender locomotives from Sharp, Stewart & Company. The first two were delivered in 1870, with a further 15 by 1873. Two more were purchased in 1882 and they remained the principal express locomotives of the line until the turn of the century. In 1891 seven members of the class were rebuilt as 2-4-2 tank engines and were then used for local and branchline services.

SPECIFICATION:

WHEEL ARRANGEMENT:	2-4-2	CYLINDER DIAMETER:	16 inches
ENGINE WEIGHT:	37 tons	CYLINDER STROKE:	20 inches
DRIVE WHEELS:	5 ft 7½ ins dia	TRACTIVE EFFORT:	7,737 lbf
BOILER PRESSURE:	120 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	915 sq ft	NUMBER CONVERTED:	7
FIREGRATE AREA:	11½ sq ft	ENTERED SERVICE:	1870
CYLINDERS:	Two (inside)	WITHDRAWN:	1916-24



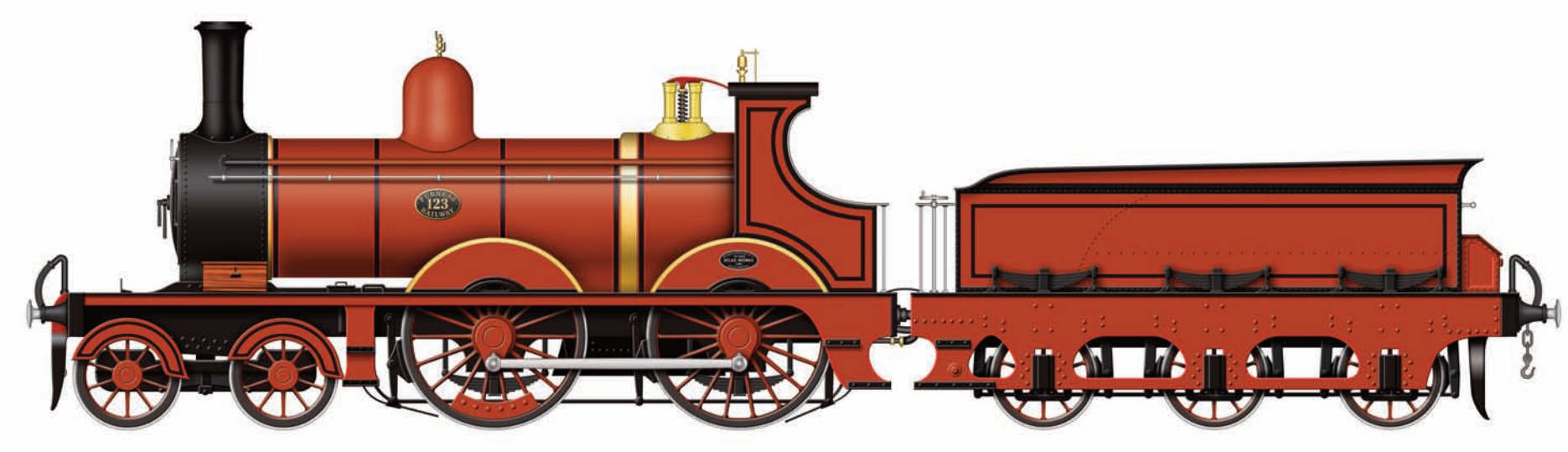
Thomas Parker Class 2

The Manchester, Sheffield, & Lincolnshire Railway

Thomas Parker produced his Class 2 4-4-0 locomotives for express passenger work on the Machester, Sheffield & Lincolshire railway, which became the Great Central Railway in 1897. 25 were built between 1887-1892, with a further 6 to a modified design in 1894 which became Class 2A. Class 2s regularly hauled the Manchester to King's Cross expresses to and from Grantham, but by the early 1900s had been replaced by more powerful engine types and were then used on secondary services.

SPECIFICATION:

WHEEL ARRANGEMENT:	4-4-0	CYLINDER DIAMETER:	18 inches
ENGINE WEIGHT:	46 tons	CYLINDER STROKE:	26 inches
DRIVE WHEELS:	6 ft 9 in dia	TRACTIVE EFFORT:	14,144 lbf
BOILER PRESSURE:	160 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	1,278 sq ft	NUMBER IN CLASS:	25
FIREGRATE AREA:	18.85 sq ft	ENTERED SERVICE:	1887
CYLINDERS:	Two (inside)	WITHDRAWN BY:	1939



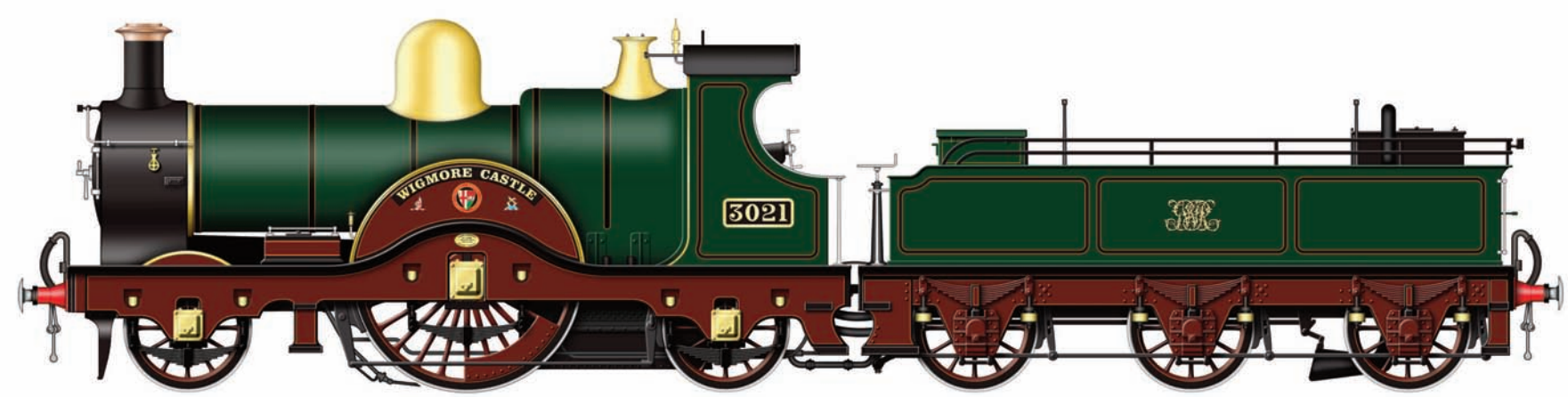
Furness Railway K1 Class ('Seagulls')

The Furness Railway

To operate the Midland Irish boat train service to and from Barrow over their rails, the Furness Railway needed to obtain more powerful engines than their existing E1 class 2-4-0s. In 1890, Sharp, Stewart & Co were asked to supply four such engines, who submitted a 4-4-0 design that was accepted by the Furness company. The engines were delivered in 1891, where they were nicknamed 'Seagulls', but were soon found to be underpowered and quickly relegated to secondary duties.

SPECIFICATION:

WHEEL ARRANGEMENT:	4-4-0	CYLINDER DIAMETER:	17 inches
ENGINE WEIGHT:	43 tons	CYLINDER STROKE:	24 inches
DRIVE WHEELS:	5 ft 6 ins dia	TRACTIVE EFFORT:	12,228 lbf
BOILER PRESSURE:	140 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	1,040 sq ft	NUMBER BUILT:	4
FIREGRATE AREA:	17 sq ft	ENTERED SERVICE:	1891
CYLINDERS:	Two (inside)	WITHDRAWN:	1925-28



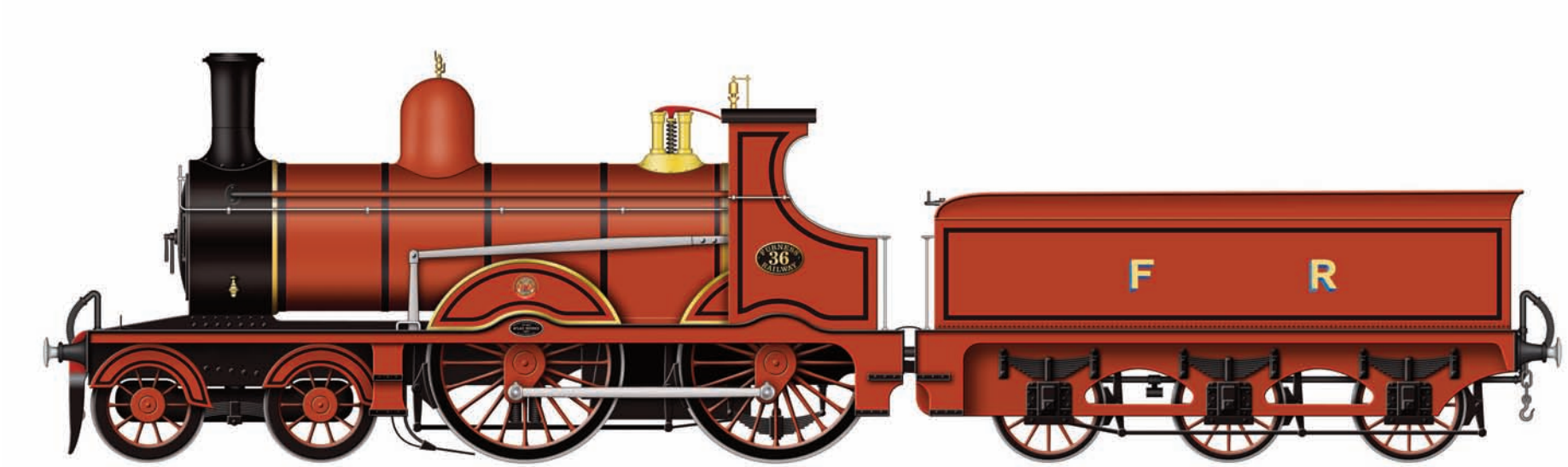
Dean 3001 Class

The Great Western Railway

The 3001 Class was designed as an express passenger engine and entered service between 1891-92, and the culmination of the G.W.R. 2-2-2 locomotive type that had begun with Gooch's North Star 50 years earlier. In service they were too heavy at the front end, and after Wigmore Castle was derailed in Box tunnel in 1893 it was decided to give the class front bogies. In this form they became members of the 3031 Class, which was one of the most elegant locomotive designs of the late Victorian era.

SPECIFICATION:

WHEEL ARRANGEMENT:	2-2-2	CYLINDER DIAMETER:	19 inches
ENGINE WEIGHT:	49 tons 17 cwt	CYLINDER STROKE:	24 inches
DRIVE WHEELS:	7 ft 9 ins dia	TRACTIVE EFFORT:	14,253 lbf
BOILER PRESSURE:	180 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	1,467 sq ft	NUMBER IN CLASS:	30
FIREGRATE AREA:	18.12 sq ft	ENTERED SERVICE:	1892
CYLINDERS:	Two (inside)	CONVERTED TO 4-2-2:	1893-94



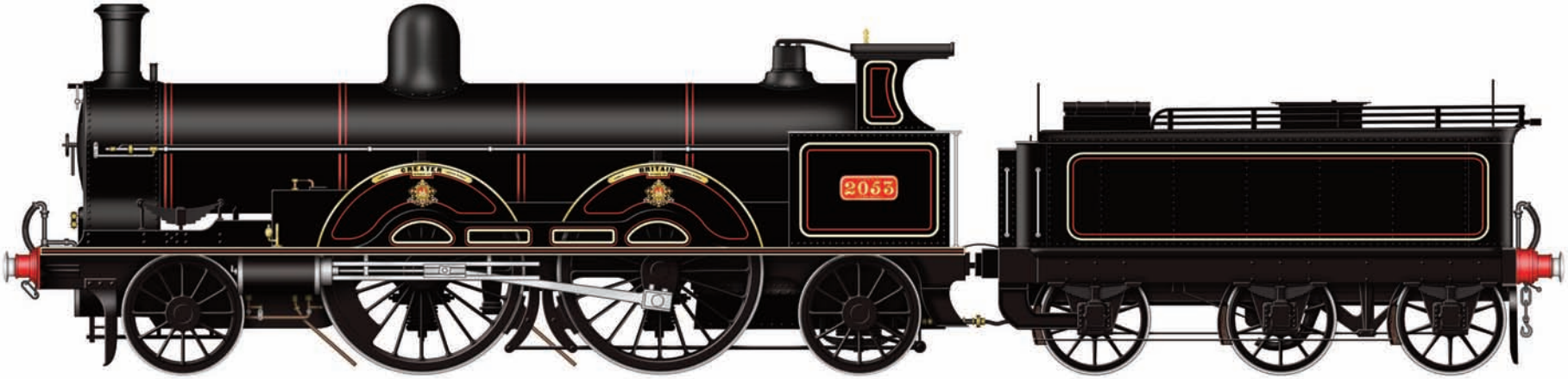
Furness Railway K2 Class

The Furness Railway

To replace the 'Seagulls' on the heavier and more important passenger trains, Sharp, Stewart & Co were again approached to supply replacement locomotives. They proposed a more powerful 4-4-0 engine from an anonymous design by James Manson, of the Great North of Scotland Railway. These were considerably larger than the previous K1 Class, with six being built in 1896 and a further two engines added in 1900, and remained in service until the early 1930s on secondary duties.

SPECIFICATION:

WHEEL ARRANGEMENT:	4-4-0	CYLINDER DIAMETER:	18 inches
ENGINE WEIGHT:	41 tons	CYLINDER STROKE:	24 inches
DRIVE WHEELS:	6 ft ins dia	TRACTIVE EFFORT:	13,770 lbf
BOILER PRESSURE:	150 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	1,208 sq ft	NUMBER BUILT:	8
FIREGRATE AREA:	17 sq ft	ENTERED SERVICE:	1896
CYLINDERS:	Two (inside)	WITHDRAWN:	1927-31



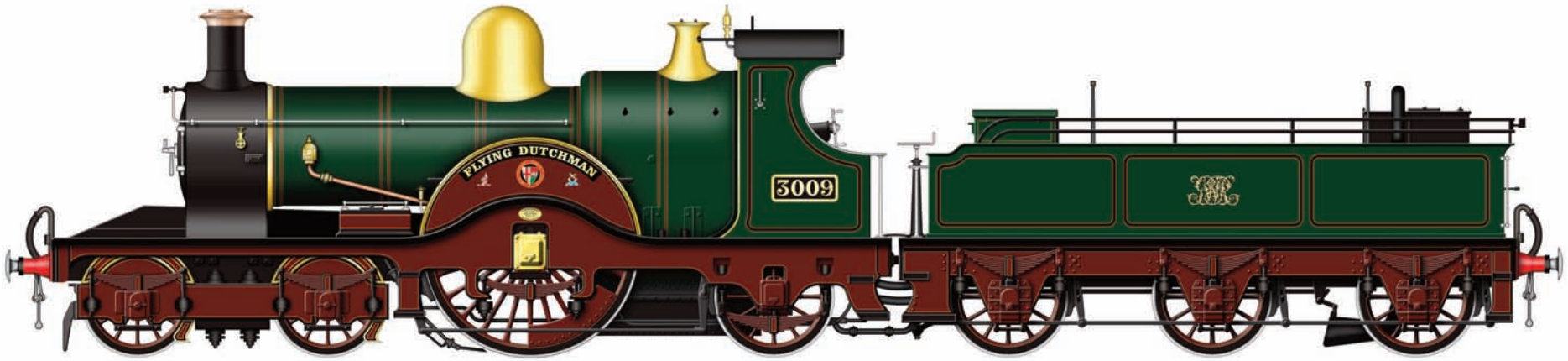
Webb 'Greater Britain' Class

The London & North Western Railway

The Greater Britains were three cylinder compound locomotives based on his Teutonic class, but with a longer boiler and an extra pair of trailing wheels. Two outside high pressure cylinders powered the rear driving wheels, the steam then being used for a large inside low pressure cylinder that drove the leading driving wheels, there being no connection between the two sets of wheels. They were considered unsuccessful in service and soon scrapped by Webb's successor George Whale.

SPECIFICATION:

WHEEL ARRANGEMENT:	2-2-2-2	H.P. CYLINDERS:	Two outside
ENGINE WEIGHT:	53 tons	CYLINDER SIZE/STROKE:	(15 × 24 inches)
DRIVE WHEELS:	7 ft 1 inch dia	L.P. CYLINDERS:	One inside
BOILER PRESSURE:	175 psi	CYLINDER SIZE/STROKE:	(30 × 24 inches)
HEATING SURFACE:	1,506 sq ft	NUMBER IN CLASS:	10
FIREGRATE AREA:	20½ sq ft	ENTERED SERVICE:	1891
VALVE GEAR TYPE:	Stephenson	WITHDRAWN:	1906-07



Dean 3031 Class

The Great Western Railway

The 3031 Class were designed by William Dean for passenger work. The first 30 members of the class were built as 2-2-2s of the 3001 Class, but after Wigmore Castle was derailed in Box tunnel in September 1893, they were all rebuilt as 4-2-2s. A further 50 engines were built to this standard which all became the 3031 Class. They hauled the principal expresses from Paddington to the west country during the 1890s, but by 1900 heavier train loads saw them moved to secondary duties.

SPECIFICATION:

WHEEL ARRANGEMENT:	4-2-2	CYLINDER DIAMETER:	19 inches
ENGINE/TENDER WEIGHT:	76 tons 4 cwt	CYLINDER STROKE:	24 inches
DRIVE WHEELS:	7 ft 9 ins dia	TRACTIVE EFFORT:	14.253 lbs
BOILER PRESSURE:	180 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	1,467 sq ft	NUMBER BUILT:	80
FIREGRATE AREA:	18.12 sq ft	ENTERED SERVICE:	1892
CYLINDERS:	Two (inside)	WITHDRAWN:	1908 -1915

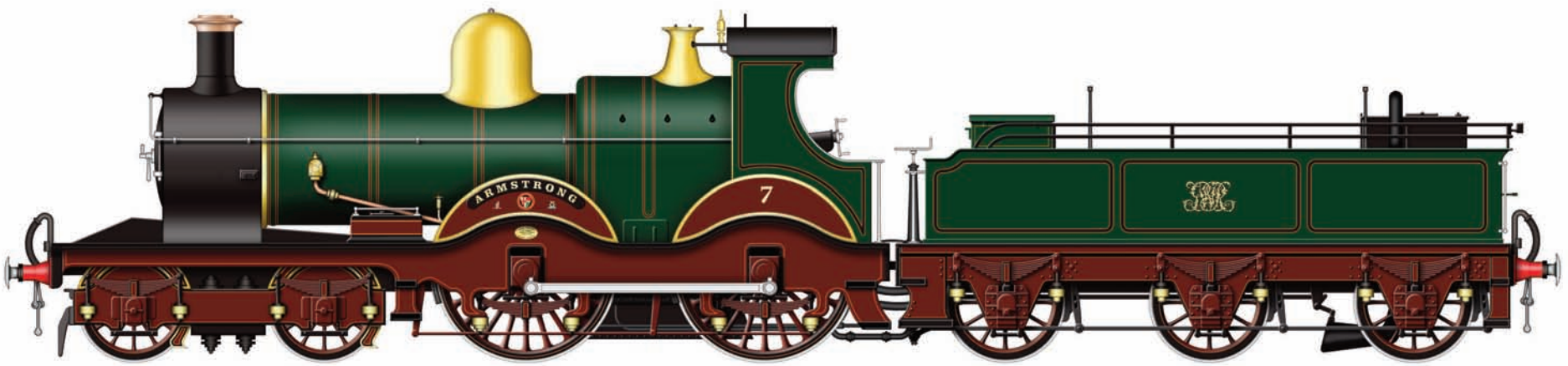
Dean 3031 Class

The Great Western Railway

The 3031 Class were designed by William Dean for passenger work. The first 30 members of the class were built as 2-2-2s of the 3001 Class, but after Wigmore Castle was derailed in Box tunnel in September 1893, they were all rebuilt as 4-2-2s. A further 50 engines were built to this standard which all became the 3031 Class. They hauled the principal expresses from Paddington to the west country during the 1890s, but by 1900 heavier trainloads saw them moved to secondary duties.

SPECIFICATION:

WHEEL ARRANGEMENT:	4-2-2	CYLINDER DIAMETER:	19 inches
ENGINE WEIGHT:	49 tons 17 cwt	CYLINDER STROKE:	24 inches
DRIVE WHEELS:	7 ft 9 ins dia	TRACTIVE EFFORT:	14.253 lbs
BOILER PRESSURE:	180 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	1,467 sq ft	NUMBER IN CLASS:	80
FIREGRATE AREA:	18.12 sq ft	ENTERED SERVICE:	1891
CYLINDERS:	Two (inside)	WITHDRAWN:	1908 -1915



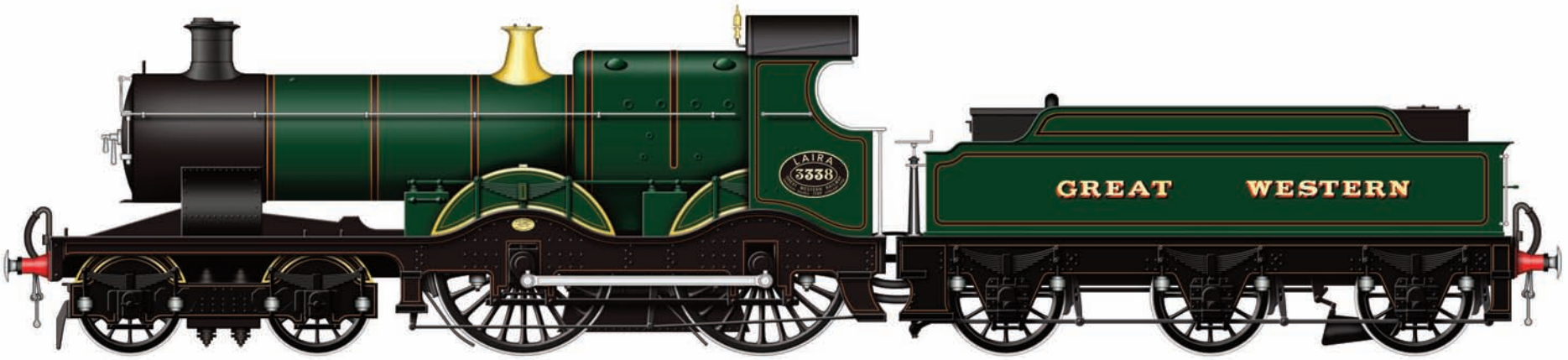
Dean Armstrong Class

The Great Western Railway

The Dean Armstrong Class were four prototype 4-4-0 double framed locomotives built at the Swindon Works in 1894. The locomotives were initially used to haul express trains between London and Bristol, but from 1910 they were moved to Wolverhampton where they worked the lines north from there. Between 1915 and 1923 the locomotives were rebuilt with 6 ft 8½ inch driving wheels and a Standard No. 2 boiler, becoming part of the Flower class, and were withdrawn in 1928-30.

SPECIFICATION:

WHEEL ARRANGEMENT:	4-4-0	CYLINDER DIAMETER:	20 inches
ENGINE WEIGHT:	40 tons	CYLINDER STROKE:	26 inches
DRIVE WHEELS:	7 ft 0½ inch dia	TRACTIVE EFFORT:	16,838 lbf
BOILER PRESSURE:	140 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	1,561 sq ft	NUMBER IN CLASS:	4
FIREGRATE AREA:	20.8 sq ft	ENTERED SERVICE:	1894
CYLINDERS:	Two (outside)	WITHDRAWN:	1928-30



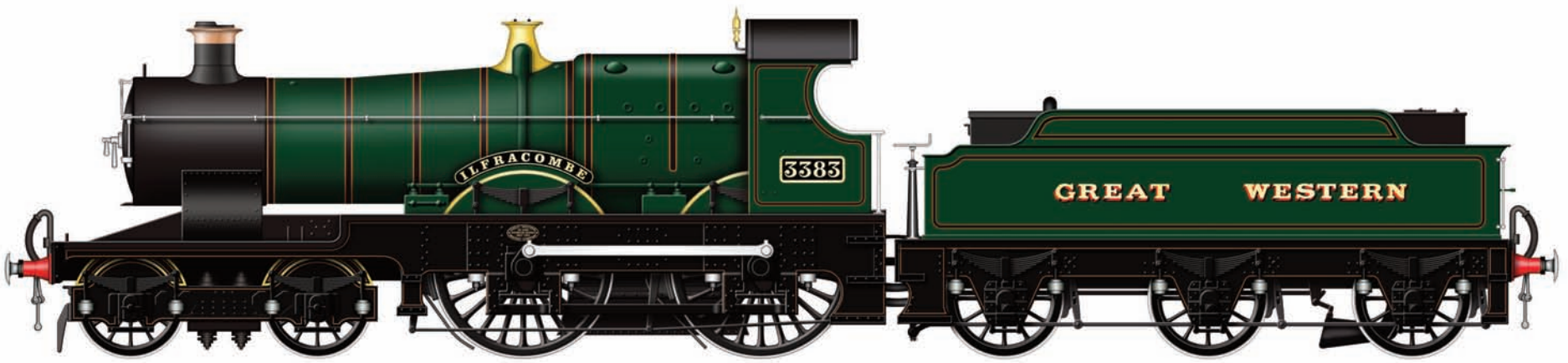
Dean Bulldog Class

The Great Western Railway

The Bulldog class were designed for passenger services on the Great Western Railway main line, with a total of 106 being built over a ten year period, and a further 20 rebuilt from the Duke Class. The class was progressively modernised, in particular by George Jackson Churchward and his development of boiler technology. In the late 1930s thirty engines were rebuilt as the Earl Class and mainly used on the Cambrian section of the G.W.R., the last locomotive being retired by British Rail in 1960.

SPECIFICATION:

WHEEL ARRANGEMENT:	4-4-0	CYLINDER DIAMETER:	18 inches
ENGINE WEIGHT:	51 tons 16 cwt	CYLINDER STROKE:	26 inches
DRIVE WHEELS:	5 ft 8 ins dia	TRACTIVE EFFORT:	21,060 lbf
BOILER PRESSURE:	200 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	1,145 sq ft	NUMBER IN CLASS:	126
FIREGRATE AREA:	20¼ sq ft	ENTERED SERVICE:	1899
CYLINDERS:	Two (inside)	WITHDRAWN:	1929-51



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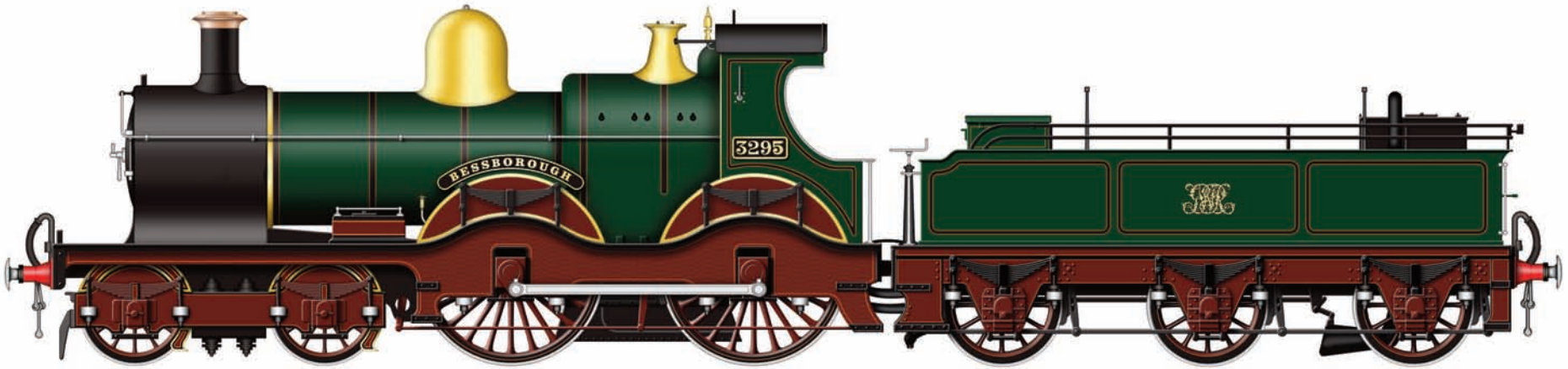
SPECIFICATION:

WHEEL ARRANGEMENT:	4-4-0	CYLINDER DIAMETER:	18 inches
ENGINE WEIGHT:	51 tons 16 cwt	CYLINDER STROKE:	26 inches
DRIVE WHEELS:	5 ft 8 ins dia	TRACTIVE EFFORT:	21,060 lbf
BOILER PRESSURE:	200 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	1,145 sq ft	NUMBER IN CLASS:	126
FIREGRATE AREA:	20¼ sq ft	ENTERED SERVICE:	1899
CYLINDERS:	Two (inside)	WITHDRAWN:	1929-51



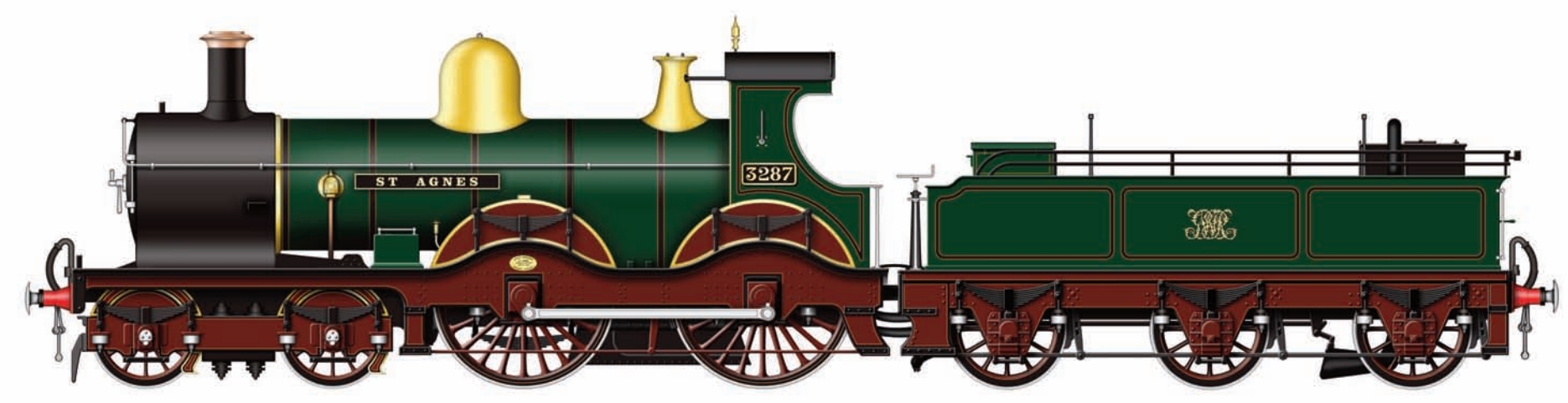
Dean Badminton Class

The Great Western Railway

The Badminton class express passenger locomotives were introduced in 1897 and were a development of the earlier Duke class. Twenty locomotives were built, but modifications to the design resulted in the Atbara Class which had straight topped frames instead of the curved type which then became the standard pattern for all subsequent outside framed 4-4-0 designs. Twenty nine were built which began to enter service in 1900, the last member of the class being withdrawn in 1931.

SPECIFICATION:

WHEEL ARRANGEMENT:	4-4-0	CYLINDER DIAMETER:	18 inches
ENGINE WEIGHT:	40½ tons	CYLINDER STROKE:	24 inches
DRIVE WHEELS:	6 ft 8½ ins dia	TRACTIVE EFFORT:	17,790 lbf
BOILER PRESSURE:	200 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	1,145 sq ft	NUMBER IN CLASS:	20
FIREGRATE AREA:	20.35 sq ft	ENTERED SERVICE:	1897
CYLINDERS:	Two (inside)	WITHDRAWN:	1927-31



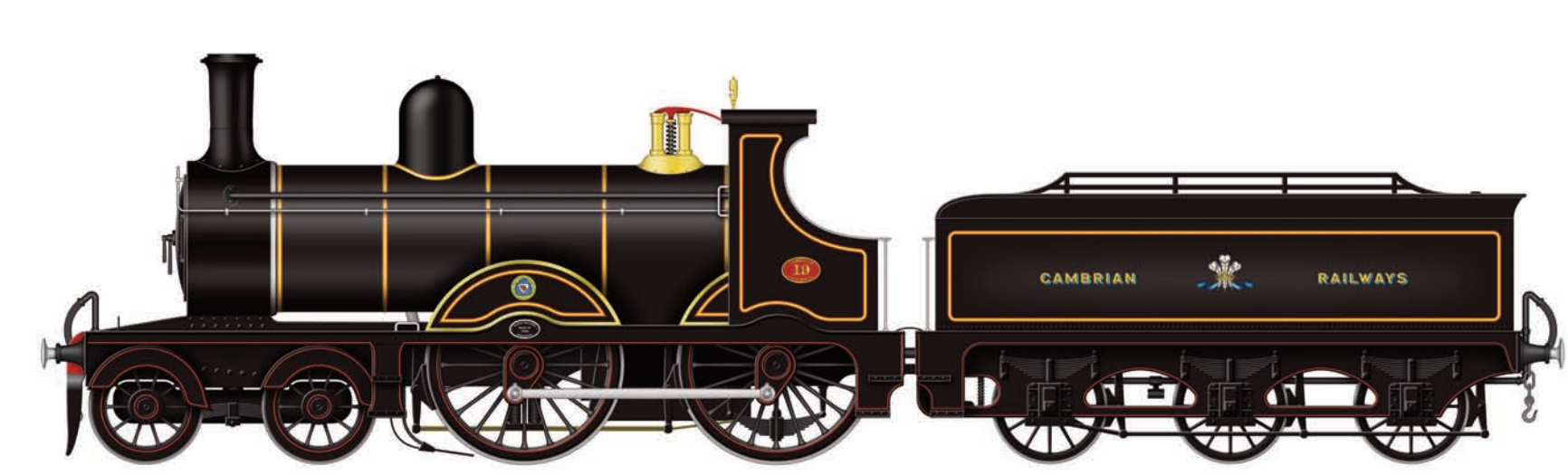
Dean Duke Class

The Great Western Railway

The Duke Class 4-4-0 locomotives were built between 1895 and 1899 for express passenger train work in Devon and Cornwall, and were based on the four experimental locomotives of the Armstrong Class. The class eventually numbered sixty engines, with the first of the class being withdrawn in 1929, but in the 1930s thirty had a second lease of life when their boilers and motion were married to Bulldog frames and cabs to create the Earl Class, which were used for the Cambrian section of the G.W.R.

SPECIFICATION:

WHEEL ARRANGEMENT:	4-4-0	CYLINDER DIAMETER:	18 inches
ENGINE WEIGHT:	46 tons	CYLINDER STROKE:	26 inches
DRIVE WHEELS:	5 ft 8 ins dia	TRACTIVE EFFORT:	18,950 lnf
BOILER PRESSURE:	160 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	1,401 sq ft	NUMBER IN CLASS:	60
FIREGRATE AREA:	19.1 sq ft	ENTERED SERVICE:	1899
CYLINDERS:	Two (inside)	WITHDRAWN:	1929-59



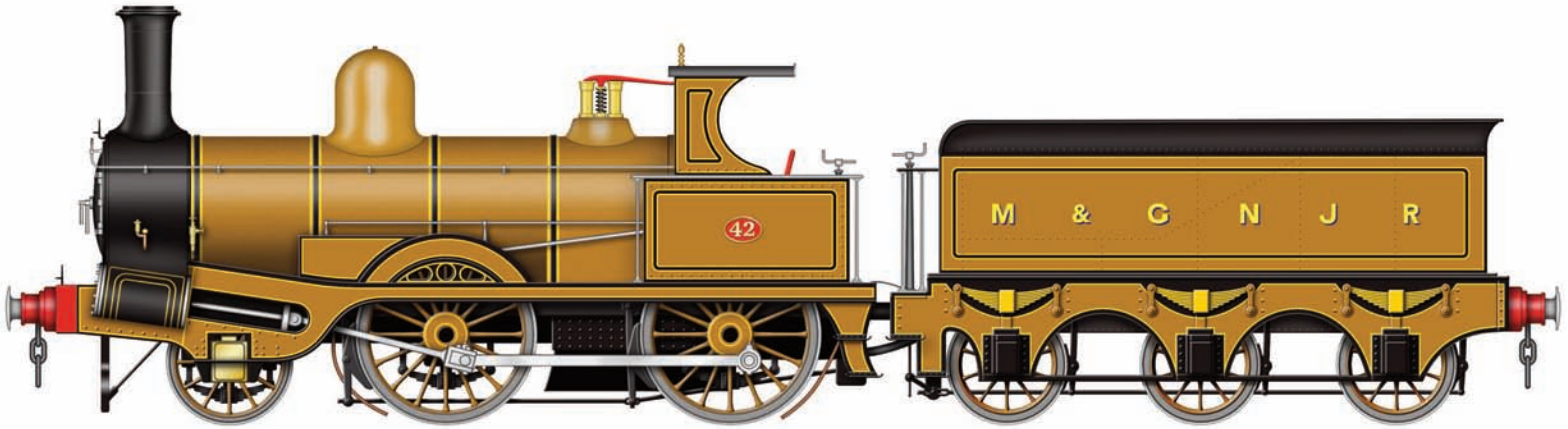
Cambrian 4-4-0 Passenger Engine

The Cambrian Railway

The Cambrian Railway only constructed two locomotives at its works at Oswestry, although they did extensively rebuilt many of their fleet. Instead they purchased their engines from the catalogues of outside suppliers such as Sharp Stewart, Beyer Peacock, The Vulcan Foundry and R. Stephensons. The two locomotives constructed from new at Oswestry were 4-4-0 tender locomotives, No.19 in 1901 and No.11 in 1904, their numbers being taken from withdrawn locomotives, No.19 surviving until 1930.

SPECIFICATION:

WHEEL ARRANGEMENT:	4-4-0	CYLINDER DIAMETER:	18 inches
ENGINE/TENDER WEIGHT:	69½ tons	CYLINDER STROKE:	24 inches
DRIVE WHEELS:	6 ft dia	TRACTIVE EFFORT:	12,852 lbf
BOILER PRESSURE:	140 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	1,208 sq ft	NUMBER IN CLASS:	36
FIREGRATE AREA:	17 sq ft	ENTERED SERVICE:	1901
CYLINDERS:	Two (inside)	WITHDRAWN:	1930



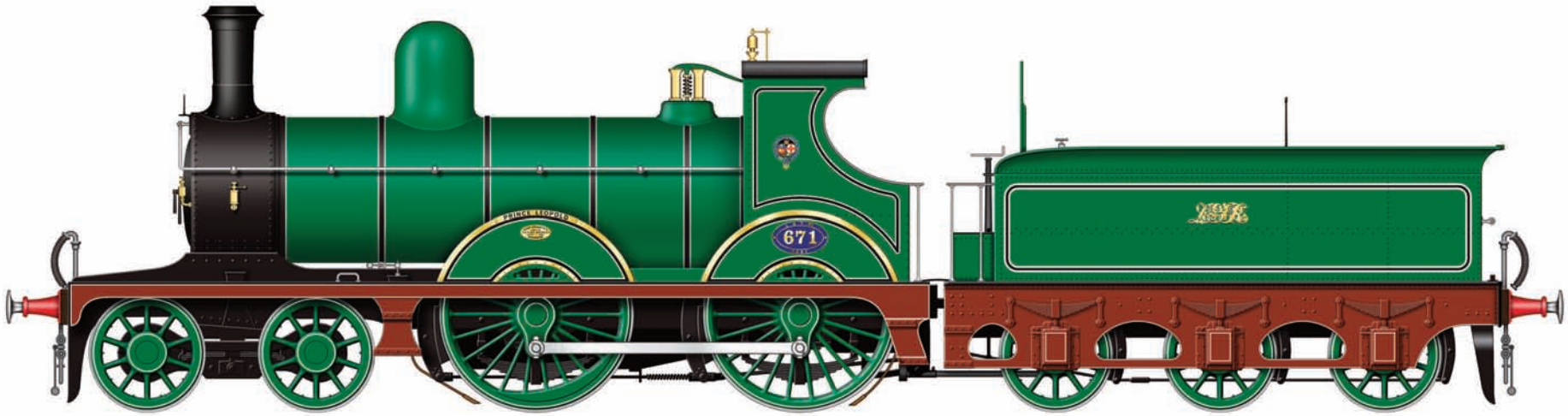
Class 'C' Mixed Traffic Engine

The Midland & Great Northern Joint Railway

In 1883 the Eastern & Midland Railway purchased two ex Lancaster and Carlisle Railway 2-4-0 tender engines from the L.N.W.R. Extensive modifications were made between 1891-93, and in their new form the two engines were classified as class 'C'. In 1893 the E. & M. R. became part of the Midland and Great Northern Joint Railway, but they did not last long with the M. & G. N. J. R., with both locomotives being scrapped in 1895, after thirty-eight years service with their various owners.

SPECIFICATION:

WHEEL ARRANGEMENT:	2-4-0	CYLINDER DIAMETER:	17 inches
ENGINE WEIGHT:	22½ tons	CYLINDER STROKE:	20 inches
DRIVE WHEELS:	5 ft 1 inch dia	TRACTIVE EFFORT:	Unknown
BOILER PRESSURE:	140 psi	VALVE GEAR TYPE:	Allan
HEATING SURFACE:	988 sq ft	NUMBER IN CLASS:	2
FIREGRATE AREA:	15½ sq ft	ENTERED SERVICE:	1857
CYLINDERS:	Two (outside)	WITHDRAWN:	1895



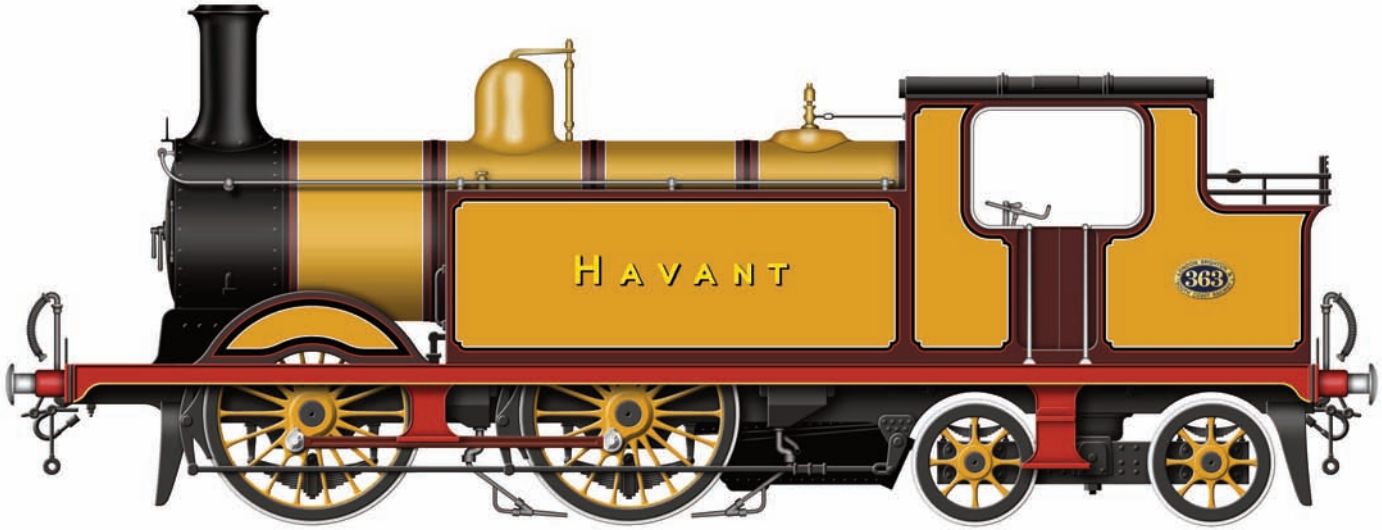
Barton Wright 629 Class

The Lancashire & Yorkshire Railway

William Barton Wright was appointed the Locomotive Superintendent of the Lancashire & Yorkshire Railway in 1875, and immediately set about on producing a standardised fleet of locomotives. The 629 class were designed as passenger express locomotives, with most of class being built by outside contractors such as Sharp, Stewart and Co, the Vulcan Foundry and Kitson & Co. In total 110 were built between 1880-87, with the last member of the class being withdrawn in 1930.

SPECIFICATION:

WHEEL ARRANGEMENT:	4-4-0	CYLINDER DIAMETER:	17½ inches
ENGINE WEIGHT:	41¾ tons	CYLINDER STROKE:	26 inches
DRIVE WHEELS:	6 ft dia	TRACTIVE EFFORT:	12,385 lbf
BOILER PRESSURE:	140 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	1,034 sq ft	NUMBER IN CLASS:	110
FIREGRATE AREA:	19¼ sq ft	ENTERED SERVICE:	1880
CYLINDERS:	Two (inside)	WITHDRAWN:	1930



Billinton D3 Class

The London, Brighton & Southcoast Railway

In 1890 Robert Billinton took over the post of Locomotive Superintendent of the London, Brighton and South Coast Railway, and his first design for the company was the 0-4-4 tank engine which emerged in May 1892. They were intended to work country and semi-fast trains and became the D3 class, and in total thirty-six were built at company's Brighton Works. All of the class passed into Southern Railway ownership on the grouping in 1923, with the last engine being withdrawn in 1955.

SPECIFICATION:

WHEEL ARRANGEMENT:	0-4-4	CYLINDER DIAMETER:	17½ inches
ENGINE WEIGHT:	52 tons	CYLINDER STROKE:	26 inches
DRIVE WHEELS:	5 ft 6 in dia	TRACTIVE EFFORT:	17,435 lbf
BOILER PRESSURE:	170 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	1,106 sq ft	NUMBER IN CLASS:	36
FIREGRATE AREA:	17.1 sq ft	ENTERED SERVICE:	1892
CYLINDERS:	Two (inside)	WITHDRAWN:	1955

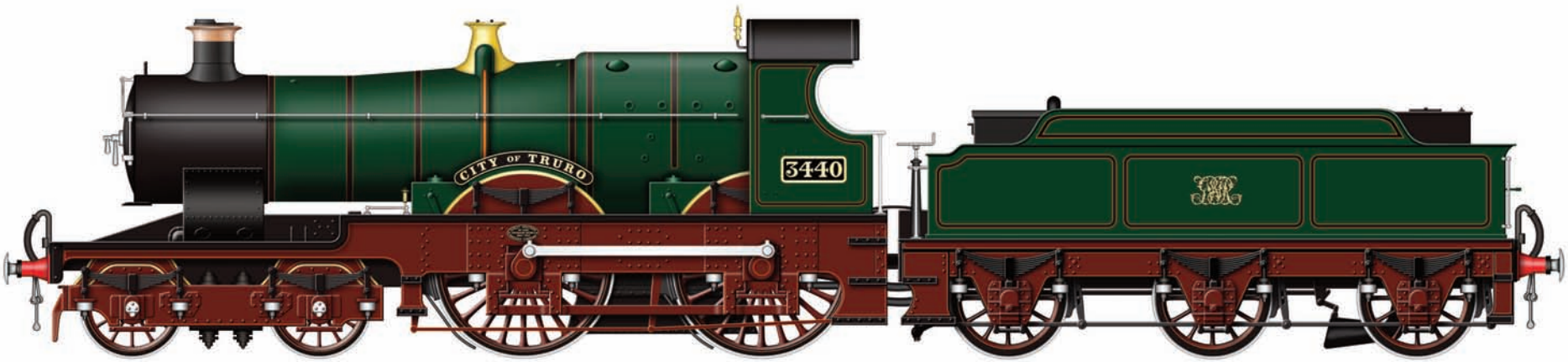
Billinton D3 Class

Southern Railways

In 1890 Robert Billinton took over the post of Locomotive Superintendent of the London, Brighton and South Coast Railway, and his first design for the company was the 0-4-4 tank engine which emerged in May 1892. They were intended to work country and semi-fast trains and became the D3 class, and in total thirty-six were built at company's Brighton Works. All of the class passed into Southern Railway ownership on the grouping in 1923, with the last engine being withdrawn in 1955.

SPECIFICATION:

WHEEL ARRANGEMENT:	0-4-4	CYLINDER DIAMETER:	17½ inches
ENGINE WEIGHT:	52 tons	CYLINDER STROKE:	26 inches
DRIVE WHEELS:	5 ft 6 in dia	TRACTIVE EFFORT:	17,435 lbf
BOILER PRESSURE:	170 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	1,106 sq ft	NUMBER IN CLASS:	36
FIREGRATE AREA:	17.1 sq ft	ENTERED SERVICE:	1892
CYLINDERS:	Two (inside)	WITHDRAWN:	1955



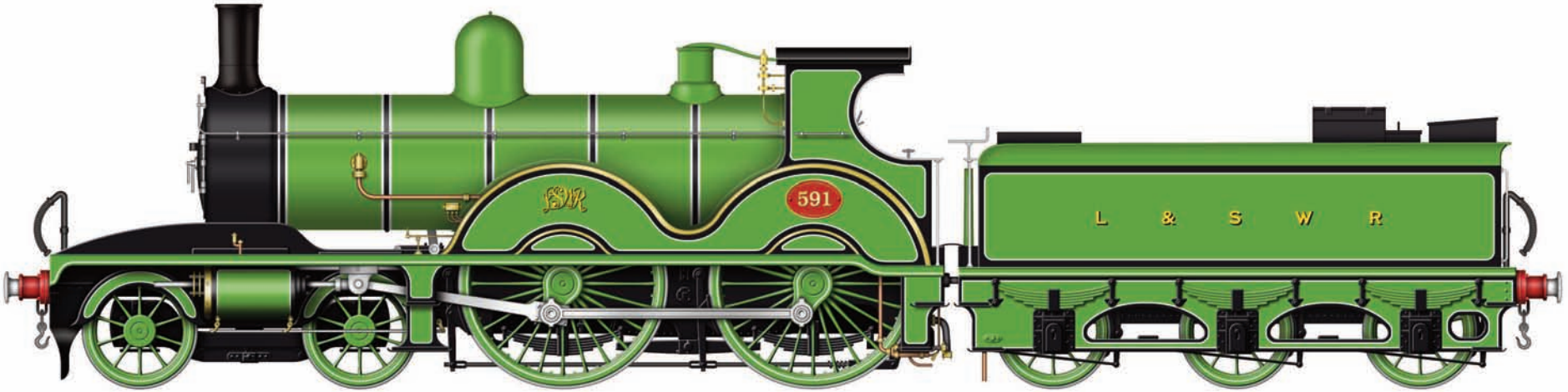
Dean City Class

The Great Western Railway

In March 1903 the first of the City Class was completed, having the final form of Churchward's Standard No.4 tapered boiler and a belpaire firebox. The class was designed as an express passenger engine, and totalled twenty engines, the most famous being the 'City of Truro', the 2,000th locomotive to be built at Swindon. The 'City of Truro' is credited as being the first steam locomotive to have travelled in excess of 100 mph, which it reputedly achieved on the 9th May 1904.

SPECIFICATION:

WHEEL ARRANGEMENT:	4-4-0	CYLINDER DIAMETER:	18 inches
ENGINE WEIGHT:	55 tons 6 cwt	CYLINDER STROKE:	26 inches
DRIVE WHEELS:	6 ft 8½ ins dia	TRACTIVE EFFORT:	17,800 lbf
BOILER PRESSURE:	200 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	1350 sq ft	NUMBER IN CLASS:	20
FIREGRATE AREA:	20½ sq ft	ENTERED SERVICE:	1903
CYLINDERS:	Two (inside)	WITHDRAWN:	1927-31



Adams X2 Class

The London & South Western Railway

The X2 class were designed by William Adams as an express passenger engine for the London-Bournemouth route. The design was an enlarged version of the 460 class with 7 ft 1 inch driving wheels, with the first order for ten engines (X2) being placed in 1890, with a further ten being placed the following year (F3), both batches however being designated the X2 class. They began to enter service in June 1890 and proved very successful and survived into southern Railway days.

SPECIFICATION:

WHEEL ARRANGEMENT:	4-4-0	CYLINDER DIAMETER:	19 inches
ENGINE & TENDER WEIGHT:	80¾ tons	CYLINDER STROKE:	26 inches
DRIVE WHEELS:	7 ft 1 in dia	TRACTIVE EFFORT:	22,150 lbf
BOILER PRESSURE:	175 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	1,368 sq ft	NUMBER IN CLASS:	20
FIREGRATE AREA:	19½ sq ft	ENTERED SERVICE:	1890
CYLINDERS:	Two (outside)	WITHDRAWN:	1942

Whitelegg No. 1 Class

The London, Tilbury & Southend Railway

Thomas Whitelegg is generally attributed the design of the No. 1 Class, but documentation exists that suggest the design to be that of William Adams of the G.E.R. The No. 1 class were straightforward engines, and proved well suited to the requirements of the line. In 1912 the company was taken over by the Midland Railway, which iiself became part of the L.M.S. on the grouping in 1923. Withdrawal of the first member of the class began in 1930, with the remainder all going by the end of 1935.

SPECIFICATION:

WHEEL ARRANGEMENT:	4-4-2	CYLINDER DIAMETER:	17 inches
ENGINE WEIGHT:	56.1 tons	CYLINDER STROKE:	26 inches
DRIVE WHEELS:	6 ft 1 in dia	TRACTIVE EFFORT:	13,998 lbf
BOILER PRESSURE:	160 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	1,290 sq ft	NUMBER IN CLASS:	36
FIREGRATE AREA:	17½ sq ft	ENTERED SERVICE:	1880
CYLINDERS:	Two (outside)	WITHDRAWN:	1930-35

Whitelegg No. 1 Class

The London, Midland & Scottish Railway

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BOILER PRESSURE:	160 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	1,290 sq ft	NUMBER IN CLASS:	36
FIREGRATE AREA:	17½ sq ft	ENTERED SERVICE:	1880
CYLINDERS:	Two (outside)	WITHDRAWN:	1930-35

Aspinall 1351 Class

The Lancashire & Yorkshire Railway

The Aspinal 1351 Class first entered service on the Lancashire and Yorkshire Railway in 1897. They were designed to be used in goods yards where sharp curves abounded, and at the time the only convenient motive power were the small four wheeled 'Pug' saddle tanks. They were commonly referred to as Klondykes or Rapid Shunters by the railwaymen, but after George Hughes became the Chief Mechanical Engineer of the railway company in 1904 they were redesignated Class 24.

SPECIFICATION:

WHEEL ARRANGEMENT:	0-6-0	CYLINDER DIAMETER:	17 inches
ENGINE WEIGHT:	50 tons	CYLINDER STROKE:	24 inches
DRIVE WHEELS:	4 ft dia	TRACTIVE EFFORT:	17,470 lbf
BOILER PRESSURE:	160 psi	VALVE GEAR TYPE:	Allen
HEATING SURFACE:	1,082 sq ft	NUMBER IN CLASS:	20
FIREGRATE AREA:	17 sq ft	ENTERED SERVICE:	1897
CYLINDERS:	Two (outside)	WITHDRAWN:	1914-61

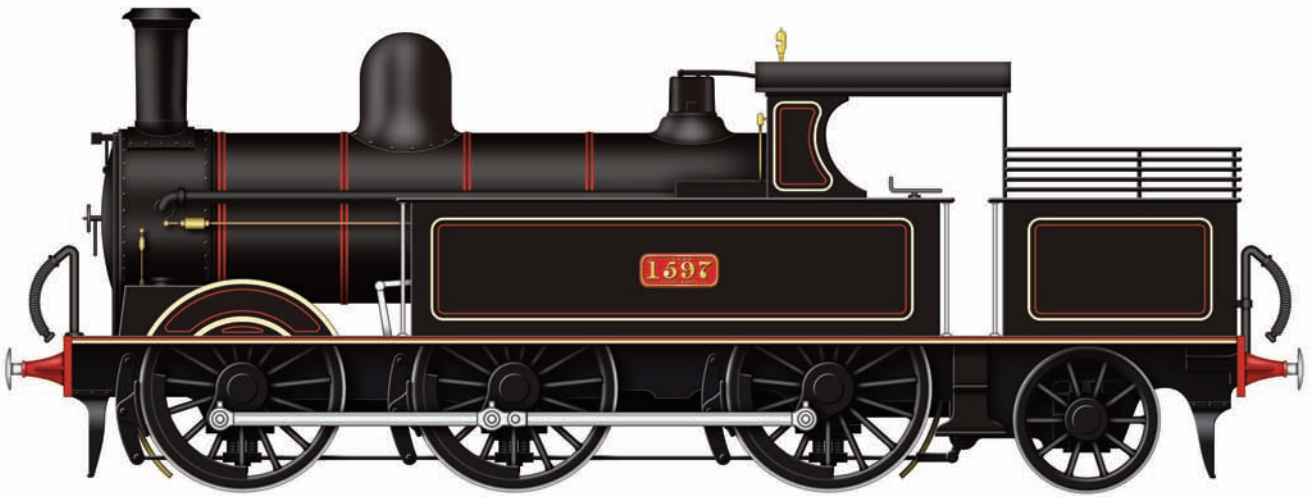
Hughes Rail Motor

The Lancashire & Yorkshire Railway

With branchline traffic dwindling in many areas during the early twentieth century, most railway companies began to introduce railmotors to reduce costs. The Lancashire & Yorkshire Railway produced a railmotor designed around standard parts, with the semi-trailer forming the rear of the drivers cab and connected to the engine by an articulated joint. They proved capable of hauling a bogie trailer up gradients as steep as 1 in 50, eighteen being built between 1906-1911.

SPECIFICATION:

WHEEL ARRANGEMENT:	0-4-0	CYLINDER DIAMETER:	12 inches
ENGINE WEIGHT:	32 tons	CYLINDER STROKE:	16 inches
DRIVE WHEELS:	3 ft 8 ins dia	TRACTIVE EFFORT:	Unknown
BOILER PRESSURE:	180 psi	VALVE GEAR TYPE:	Walschaert
HEATING SURFACE:	509 sq ft	NUMBER BUILT:	18
FIREGRATE AREA:	9.4 sq ft	ENTERED SERVICE:	1906
CYLINDERS:	Two (outside)	WITHDRAWN:	1927-48



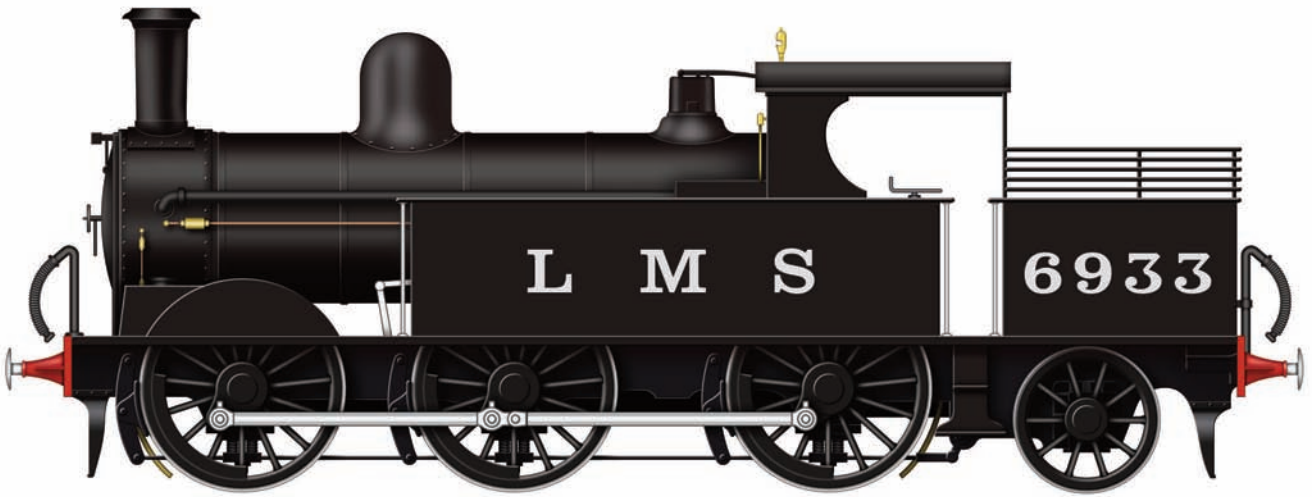
Webb 'Watford Tank'

The London & North Western Railway

Francis Webb, the C.M.E. of the London, North Western Railway, designed these tank engines for the suburban traffic around London, Birmingham, Manchester and Liverpool. They were based on the 'Cauliflower' 0-6-0 express goods engines which had first appeared in 1880, and entered service in 1898. They were an instant success, with most of the class becoming part of the L.M.S. on the grouping in 1923. Sixteen surviving into Nationalisation in 1947, the last being withdrawn in the early 1950s.

SPECIFICATION:

WHEEL ARRANGEMENT:	0-6-2	CYLINDER DIAMETER:	18 inches
ENGINE WEIGHT:	52¼ tons	CYLINDER STROKE:	24 inches
DRIVE WHEELS:	5 ft 2½ ins dia	TRACTIVE EFFORT:	16,530 lbf
BOILER PRESSURE:	150 psi	VALVE GEAR TYPE:	Joy
HEATING SURFACE:	1,036 sq ft	NUMBER IN CLASS:	80
FIREGRATE AREA:	17.1 sq ft	ENTERED SERVICE:	1898
CYLINDERS:	Two (inside)	WITHDRAWN:	1953



Webb 'Watford Tank'

The London Midland & Scottish Railway

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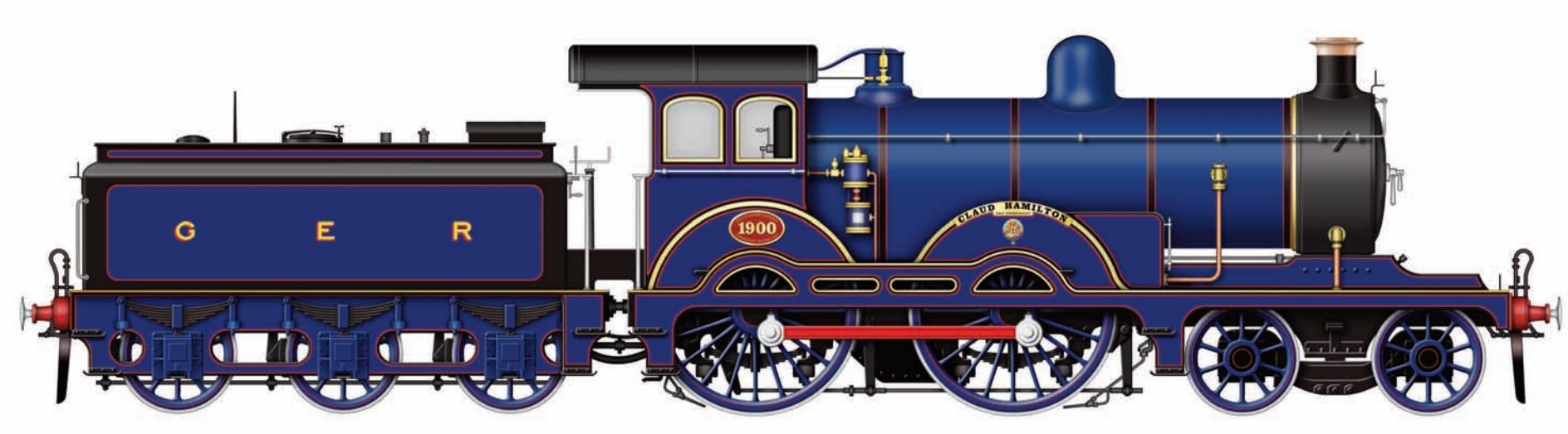


Holden S46 Class

The Great Eastern Railway

The S46 class was designed by James Holden (along with the similar D56 class) for the G.E.R., and were known as 'Claud Hamiltons' after the first member of the class, and the only locomotive to be named. In the 1900s they were the principal express locomotive on the Great Eastern before being displaced on the heaviest express trains by the S69 class from 1911. Most of the class were rebuilt during their lifetime and used on passenger and goods services throughout the Eastern Region until 1960.

SPECIFICATION:

WHEEL ARRANGEMENT:	4-4-0	CYLINDER DIAMETER:	19 inches
ENGINE WEIGHT:	42.2 tons	CYLINDER STROKE:	26 inches
DRIVE WHEELS:	7 ft dia	TRACTIVE EFFORT:	17,095 lbf
BOILER PRESSURE:	180 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	1,624 sq ft	NUMBER IN CLASS:	121
FIREGRATE AREA:	21.6 sq ft	ENTERED SERVICE:	1900
CYLINDERS:	Two (inside)	WITHDRAWN:	1960

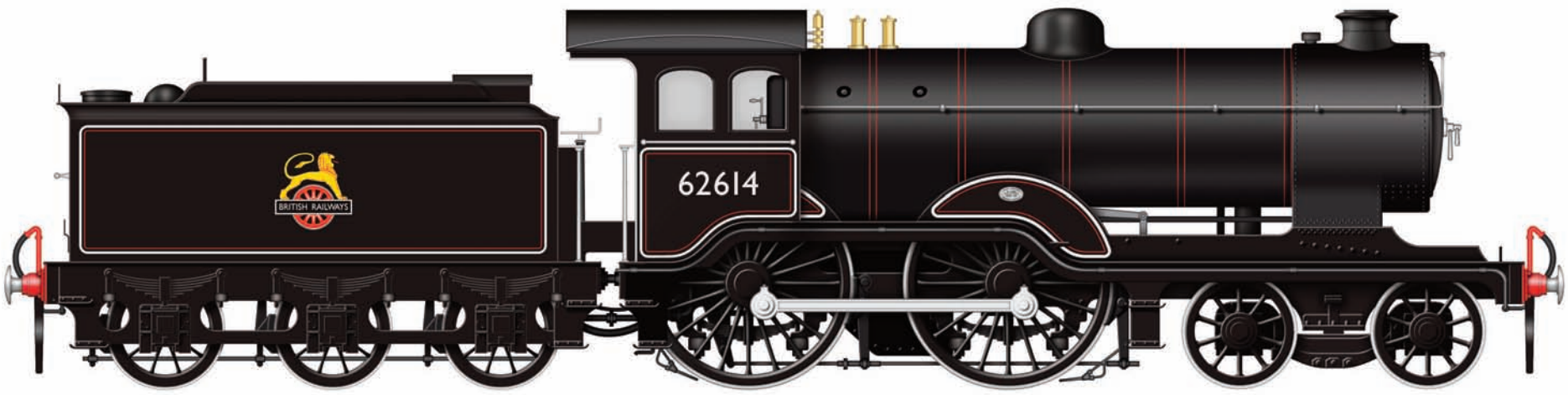
D15 Class

The London North Eastern Railway

After the grouping in 1923 the G.E.R. S46 Class 'Claud Hamiltons' were rebuilt by the LNER with Belpaire boilers which become Class D15. A later batch of ten engines was also built in 1923 with 5' 1" diameter superheated Belpaire boilers which became Class D16 and known as 'Super Clauds'. Under the LNER and British Rail the D15 and D16 classes were used extensively on the Eastern Region on passenger and goods services until 1960 when the last member of the class was withdrawn.

SPECIFICATION:

WHEEL ARRANGEMENT:	4-4-0	CYLINDER DIAMETER:	19 inches
ENGINE WEIGHT:	42.2 tons	CYLINDER STROKE:	26 inches
DRIVE WHEELS:	7 ft dia	TRACTIVE EFFORT:	17,095 lbf
BOILER PRESSURE:	180 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	1,624 sq ft	NUMBER IN CLASS:	121
FIREGRATE AREA:	21.6 sq ft	ENTERED SERVICE:	1900
CYLINDERS:	Two (inside)	WITHDRAWN:	1960



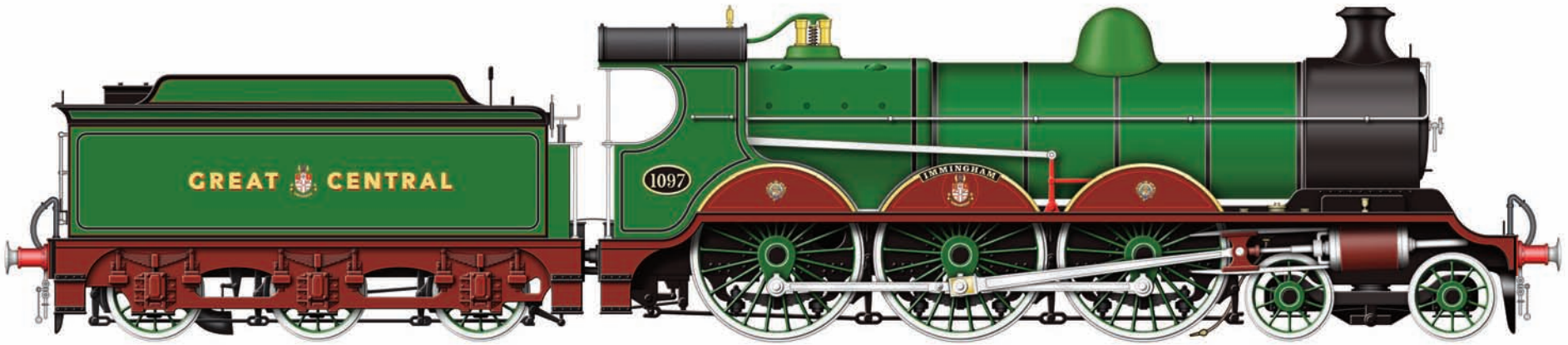
D16/3 Class

British Railways

Many of the Claud Hamilton class locomotives were rebuilt by Gresley from 1933 onwards with round topped boilers, modified splashers, framing and footplating in which guise they became L.N.E.R. Class D16/3. In this form they proved to be very good and efficient engines, but bore little resemblance to the original design. Most of the D16/3 class survived into Nationalisation and were the last of of the 'Clauds' to be retired from British Railways service in 1960

SPECIFICATION:

WHEEL ARRANGEMENT:	4-4-0	CYLINDER DIAMETER:	19 inches
ENGINE WEIGHT:	42.2 tons	CYLINDER STROKE:	26 inches
DRIVE WHEELS:	7 ft dia	TRACTIVE EFFORT:	17,095 lbf
BOILER PRESSURE:	180 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	1,624 sq ft	NUMBER IN CLASS:	121
FIREGRATE AREA:	21.6 sq ft	ENTERED SERVICE:	1900
CYLINDERS:	Two (inside)	WITHDRAWN:	1960



Robinson Immingham Class

The Great Central Railway

The Robinson 8F or Immingham class 4-6-0 locomotives were designed for hauling fast goods and fish trains between London, Manchester, and Grimsby for the Great Central Railway. They entered service in 1906, and the only member of the class to carry a name was No. 1097 which was named Immingham when it was used to haul management and guests to the construction ceremony of a new dock at Immingham. They all survived into L.N.E.R. ownership when they were reclassified Class B4.

SPECIFICATION:

WHEEL ARRANGEMENT:	4-6-0	CYLINDER DIAMETER:	19 inches
ENGINE WEIGHT:	70 tons 14 cwt	CYLINDER STROKE:	26 inches
DRIVE WHEELS:	6 ft 7 ins dia	TRACTIVE EFFORT:	18,176 lbf
BOILER PRESSURE:	180 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	1,911 sq ft	NUMBER IN CLASS:	10
FIREGRATE AREA:	26¼ sq ft	ENTERED SERVICE:	1906
CYLINDERS:	Two (outside)	WITHDRAWN:	1944-50

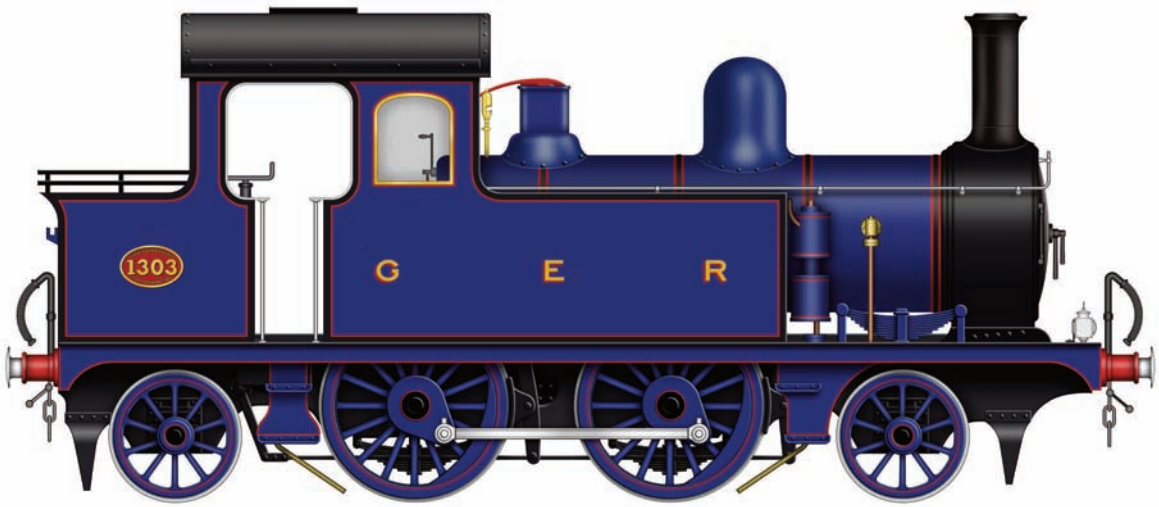
Churchward 2221 Class 'County Tank'

The Great Western Railway

The 2221 Class or 'County Tank' was designed by George Jackson Churchward as a 4-4-2 tank version of the 3800 County Class 4-4-0 tender locomotives. The two classes had different boilers, standard No. 4 for the tender locomotive, and the smaller standard no 2 for the tank. Thirty were built between 1905 and 1912 for the London suburban services, but they had a reputation for rough riding and they were replaced by the 6100 Class from 1931 onwards, the last County Tank going in 1934.

SPECIFICATION:

WHEEL ARRANGEMENT:	4-4-2	CYLINDER DIAMETER:	18 inches
ENGINE WEIGHT:	58 tons 6 cwt	CYLINDER STROKE:	30 inches
DRIVE WHEELS:	6 ft 8½ ins dia	TRACTIVE EFFORT:	20,530 lbf
BOILER PRESSURE:	200 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	1,518 sq ft	NUMBER IN CLASS:	30
FIREGRATE AREA:	20½ sq ft	ENTERED SERVICE:	1905
CYLINDERS:	Two (outside)	WITHDRAWN:	1931-34



Holden Y65 Class

The Great Eastern Railway

The Y65 Class was James Holden's final design of 2-4-2 tank engine for the Great Eastern Railway. They entered service in June 1909, eighteen months after he retired, and were expected to replace ageing locomotives on branchline duties. 12 were built at Stratford in 1909-10, and they soon became known as the 'Crystal Palaces' due to the cab's large expanse of glass. They were deployed throughout East Anglia, but were the least successful of his 2-4-2 tank engine designs.

SPECIFICATION:

WHEEL ARRANGEMENT:	2-4-2	CYLINDER DIAMETER:	15 inches
ENGINE WEIGHT:	45¾ tons	CYLINDER STROKE:	22 inches
DRIVE WHEELS:	4 ft 10 ins dia	TRACTIVE EFFORT:	11,607 lbf
BOILER PRESSURE:	160 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	872 sq ft	NUMBER IN CLASS:	12
FIREGRATE AREA:	12.2 sq ft	ENTERED SERVICE:	1909
CYLINDERS:	Two (inside)	WITHDRAWN:	1948

ES1 Class Electric Locomotive

The North Eastern Railway

The North Eastern Railway was an early enthusiast of electric traction, and as part of a 1902 scheme to electrify the suburban railways in the Tyneside area, a short three-quarter mile freight line from Trafalgar Yard to Newcastle Quayside was included. This was a difficult line for steam traction to operate, having sharp bends, low tunnels and steep gradients, but after electrification the two members of the ES1 class operated the short freight line successfully from 1906 until 1964 when they were finally withdrawn.

SPECIFICATION:

WHEEL ARRANGEMENT:	Bo-Bo	POWER OUTPUT:	640 bhp
ENGINE WEIGHT:	56 tons	TRACTIVE EFFORT:	25,000 lbf
WHEELBASE:	27 ft	MAXIMUM SPEED:	27 mph
WHEELS:	3 ft dia	NUMBER IN CLASS:	2
ELECTRIC SYSTEM:	600-630V DC	ENTERED SERVICE:	1906
PICK UP:	Third rail and cantenary	WITHDRAWN:	1964

EB1 Class Electric Locomotive

The North Eastern Railway

In 1913 Sir Vincent Raven was given permission for the electrification of the 18 mile route from Shildon to Newport so he could demonstrate his belief in the advantages of electric traction. The line became fully operational in January 1916, and ten EB1 locomotives were built to convey the mineral traffic. They proved to be reliable in service, but after the decline in coal traffic in the late 1920s it was decided to abandon electrification of the line and the locomotives were placed in storage in 1935.

SPECIFICATION:

WHEEL ARRANGEMENT:	Bo-Bo	TRACTION MOTORS:	Four 275 hp
ENGINE WEIGHT:	75 tons	TRACTIVE EFFORT:	28,000 lbf
WHEELBASE:	27 ft	NUMBER IN CLASS:	10
WHEELS:	4 ft dia	ENTERED SERVICE:	1915
ELECTRIC SYSTEM:	1,500V DC	WITHDRAWN & STORED:	1935
PICK UP:	Catenary	BROKEN UP:	1951 (9)
POWER OUTPUT:	1,100 bhp		1964 (1)

Rebuilt EB1 Class Electric Locomotive

British Railways

In 1942 one of the ex North Eastern EB1 class elctric locomotives was rebuilt by the LNER as an experimental locomotive for the proposed electrification of the Manchester - Sheffield - Wath route. With British Rail the locomotive was renumbered 26510 and later transferred to the Ilford Depot on the Eastern Region and used as a shunter. In 1959 it was transferred to departmental stock and renumbered No. 100, but in the early 1960s was withdrawn on the introduction of the 25,000V AC system.

SPECIFICATION:

WHEEL ARRANGEMENT:	Bo-Bo	TRACTION MOTORS:	4 x 314 hp
ENGINE WEIGHT:	75 tons	TRACTIVE EFFORT:	37,600 lbf
WHEELBASE:	27 ft	ENTERED SERVICE:	1915
WHEELS:	4 ft dia	WITHDRAWN & STORED:	1935
ELECTRIC SYSTEM:	1,500V DC	REBUILT:	1942
PICK UP:	Catenary	NUMBER REBUILT:	1
POWER OUTPUT:	1,256 bhp	BROKEN UP:	1964

Collett 1400 Class

The Great Western Railway

The Great Western Railway 1400 Class locomotives were designed for branch line passenger work, and originally classified as the 4800 Class when introduced in 1932, but were renumbered in 1946. Although credited to Collett, the design was basically a modernised version of George Armstrong's 517 class of 1868. The 4800/1400 class are best remembered for operating autocoaches, a specialist coach designed for push-pull passenger working on branchlines. The last engine was withdrawn in 1965.

SPECIFICATION:

WHEEL ARRANGEMENT:	0-4-2	CYLINDER DIAMETER:	16 inches
ENGINE WEIGHT:	41 tons 6 cwt	CYLINDER STROKE:	24 inches
DRIVE WHEELS:	5 ft 2 ins dia	TRACTIVE EFFORT:	13,900 lbf
BOILER PRESSURE:	165 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	870 sq ft	NUMBER IN CLASS:	75
FIREGRATE AREA:	12.8 sq ft	ENTERED SERVICE:	1932
CYLINDERS:	Two (inside)	WITHDRAWN:	1956-65

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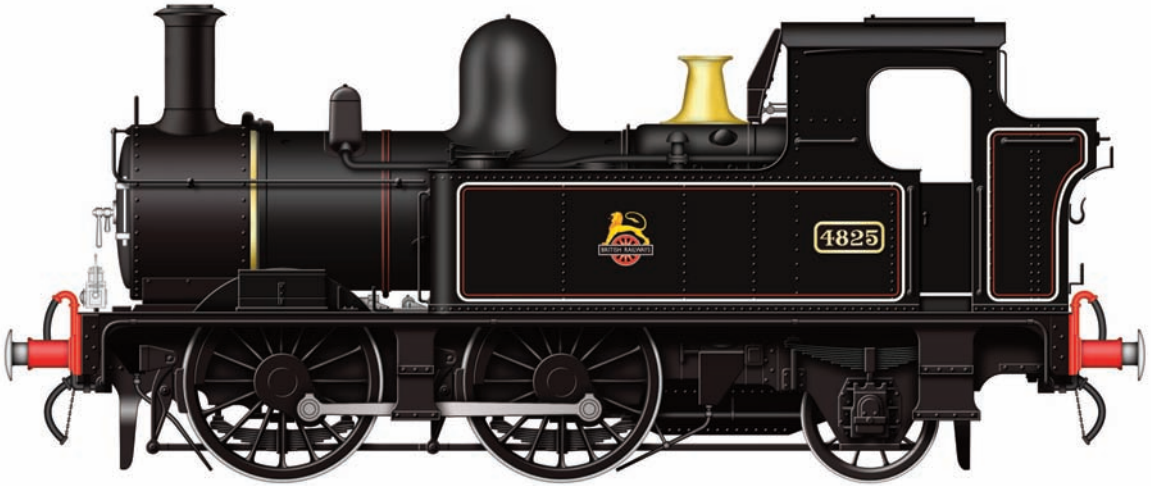
FIREGRATE AREA:	12.8 sq ft	ENTERED SERVICE:	1932
CYLINDERS:	Two (inside)	WITHDRAWN:	1956-65



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BOILER PRESSURE:	165 psi	VALVE GEAR TYPE:	Stephenson
HEATING SURFACE:	870 sq ft	NUMBER IN CLASS:	75
FIREGRATE AREA:	12.8 sq ft	ENTERED SERVICE:	1932
CYLINDERS:	Two (inside)	WITHDRAWN:	1956-65

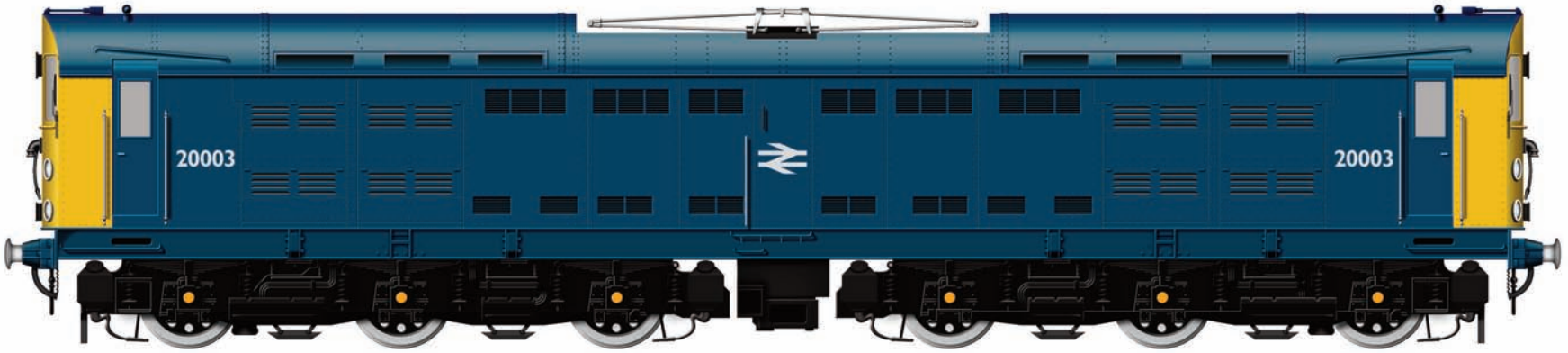
Class 70 Electric Locomotive

British Railways

In the mid 1930s, the Southern Railway prepared plans for three prototype electric locomotives for use on their third rail passenger network. The first locomotive, CC1, emerged in July 1941 and commenced trials primarily on wartime freight duties. CC2 emerged in 1945 after the war, while CC3 appeared in 1948 in a modified form after Nationalisation. With British Rail they became Class 70 and were used on both freight and passenger workings and lasted until 1968 when they were withdrawn.

SPECIFICATION:

WHEEL ARRANGEMENT:	Co-Co	POWER OUTPUT:	1,470 bhp
WHEELBASE:	44 ft 6 ins	TRACTIVE EFFORT:	45,000 lbf
WHEELS:	3ft 7 ins dia	MAXIMUM SPEED:	75 mph
ENGINE WEIGHT:	105 tons	NUMBER IN CLASS:	3
ELECTRICAL SYSTEM:	660-750v DC	ENTERED SERVICE:	1941
PICK UP:	Third rail or catenary	WITHDRAWN:	1968



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WHEELS:	3ft 7 ins dia	MAXIMUM SPEED:	75 mph
ENGINE WEIGHT:	105 tons	NUMBER IN CLASS:	3
ELECTRICAL SYSTEM:	660-750v DC	ENTERED SERVICE:	1941
PICK UP:	Third rail or catenary	WITHDRAWN:	1968

English Electric DP1 'Deltic'

British Railways

The English Electric DP1, commonly known as Deltic, was a prototype 3,300 hp demonstration locomotive that was powered by two Napier Deltic engines, that appeared in 1955. The locomotive was first trialled by British Railways on the London Midland Region, and following further trials, the design was accepted by British Railways for use on the East Coast Main Line express passenger services. The Deltic was retired in 1961, the same year the first of the Class 55 diesels entered service.

SPECIFICATION:

WHEEL ARRANGEMENT:	Co-Co	POWER OUTPUT:	3,300 bhp
ENGINE WEIGHT:	99 tons	TRANSMISSION:	Diesel Electric
WHEELBASE:	58 ft 6 ins	TRACTIVE EFFORT:	60,000 lbf
WHEELS:	3 ft 9 ins dia	MAXIMUM SPEED:	106 mph
DIESEL POWERPLANT:	Two Napier Deltic D18-25	NUMBER BUILT:	1
		ENTERED SERVICE:	1955
TRACTION MOTORS:	Six EE 526/A	WITHDRAWN:	1961

Class 03 Diesel Shunter

British Railways

The Class 03 locomotive, along with the similar 04 Class, were one of British Rail's most successful 0-6-0 diesel-mechanical shunters. In total the class consisted of 230 machines which were built at Swindon and Doncaster works between 1957-1962. Like other shunters of their size they were built for light branchline duties, while their short wheelbase and light weight enabled them to operate on lines where weight restrictions prevented the ubiquitous Class 08s from operating.

SPECIFICATION:

WHEEL ARRANGEMENT:	0-6-0	MAXIMUM SPEED:	28 mph
WEIGHT:	30¼ tons	DIMENSIONS:	Length 26 ft,
WHEELS:	3 ft 7 ins dia		Width 8 ft 6 ins
POWERPLANT:	One 204 hp		Height 12 ft 2½ ins
	diesel engine	NUMBER IN CLASS:	230
TRACTIVE EFFORT:	15,650 lbf	ENTERED SERVICE:	1957
TRANSMISSION:	5 speed gearbox	WITHDRAWN:	1993

Clayton Type 1 Locomotive

British Railways

The Clayton Type 1, later British Railways Class 17, was a class of 117 Bo-Bo diesel-electric locomotives built between 1962-65 by Clayton Equipment Company and Beyer, Peacock & Co. The twin Paxman engines proved to be unreliable, being prone to camshaft and cylinder head problems amongst others, and at any one time only 60% of the fleet were available. Their career with British Rail was short lived because of this, the first being withdrawn in July 1968 and the last in late 1971.

SPECIFICATION:

WHEEL ARRANGEMENT:	Bo-Bo	MAXIMUM SPEED:	60 mph
WEIGHT:	68 tons	DIMENSIONS:	Length 50 ft 7½ ins,
WHEELS:	3 ft 3½ ins dia		Width 8 ft 9½ ins
POWERPLANT:	Two 450 hp		Height 12 ft 8 ins
	diesel engines	NUMBER IN CLASS:	117
TRACTIVE EFFORT:	40,000 lbf	ENTERED SERVICE:	1962
TRANSMISSION:	Diesel electric	WITHDRAWN:	1971

D1/3 Class Diesel Shunter

British Railways

The D1/3 Class diesel shunters were built by Ruston and Hornsby Company and were specifically designed to work dockside tramways for the Eastern Region of British Railways. With only a 5 ft 6 inch wheelbase they could work the tight curves and awkward areas of the East Anglian dock systems. They were withdrawn in 1967 as part of a purge of non standard shunters, One being cut up in 1968 while the other was sold for industrial use before being scrapped in 1983.

SPECIFICATION:

WHEEL ARRANGEMENT:	0-4-0	MAXIMUM SPEED:	14 mph
WEIGHT:	28 tons	DIMENSIONS:	Length 20 ft 10 ins,
WHEELS:	3 ft 4 ins dia		Width 8 ft
POWERPLANT:	One 165 hp		Height 12 ft 2 ins
	diesel engine	NUMBER IN CLASS:	2
TRACTIVE EFFORT:	14,350 lbf	ENTERED SERVICE:	1956
TRANSMISSION:	4 speed gearbox	WITHDRAWN:	1968

Class 16 Diesel Locomotive

British Railways

The North British Type 1 (later known as Class 16) were ordered under British Railways' 1955 Modernisation Plan. They were intended primarily for local freight traffic. Ten were built but were not a success, problems with their Paxmen engines causing them to have a high failure rate. Being a non-standard design and unreliable, they were an obvious candidate for early withdrawal which was carried out between February and September 1968, all ten being cut up for scrap by the end of 1969.

SPECIFICATION:

WHEEL ARRANGEMENT:	Bo-Bo	MAXIMUM SPEED:	60 mph
WEIGHT:	68 tons	DIMENSIONS:	Length 42 ft 6 ins,
WHEELS:	3 ft 7 ins dia		Width 8 ft 8½ ins
POWERPLANT:	One 800 hp		Height 12 ft 8 ins
	diesel engine	NUMBER IN CLASS:	10
TRACTIVE EFFORT:	42,000 lbf	ENTERED SERVICE:	1958
TRANSMISSION:	Diesel electric	WITHDRAWN:	1968

Waggon und Maschinenbau Railbus

British Railways

In 1957 British Railways began a series of trials with lightweight railbuses on selected rural branchlines and small orders were placed with five manufacturers, one of them being Waggon und Maschinenbau GmbH in Germany, who supplied five 150 hp four wheel diesel railbuses for use in the Eastern Region. After initial trials on the Witham branch in Essex, these railbuses were sent to the Saffron Walden, Mildenhall and Haverhill lines in 1958, where they completely replaced steam traction.

SPECIFICATION:

WHEEL ARRANGEMENT:	2-2 (1-A)	DIMENSIONS:	Length 41 ft 10 ins
WEIGHT:	18 tons		Width 8 ft 8½ ins
WHEELS:	3 ft 3½ ins dia		Height 11 ft 9 ins
POWERPLANT:	One 150 hp diesel engine	SEATING CAPACITY:	56 passengers
		NUMBER IN CLASS:	5
TRACTION:	Electro mechanical	ENTERED SERVICE:	1958
MAXIMUM SPEED:	55 mph	WITHDRAWN:	1967

Class 55 Diesel Electric Locomotive

British Railways

The Class 55 diesel locomotives entered service in 1961 and were designed for the express passenger services on the East Coast Main Line between Edinburgh and London King's Cross. The design was based on the prototype English Electric DP1 Deltic, with twenty-two locomotives being built which dominated express passenger services on the E.C.M.L., particularly from London to Leeds and Edinburgh, until 1978 when the Class 43 High Speed Trains (HSTs) took over their role.

SPECIFICATION:

WHEEL ARRANGEMENT:	Co-Co	POWER OUTPUT:	3,300 bhp
ENGINE WEIGHT:	99 tons	TRANSMISSION:	Diesel Electric
WHEELBASE:	58 ft 6 ins	TRACTIVE EFFORT:	50,000 lbf
WHEELS:	3 ft 9 ins dia	MAXIMUM SPEED:	100 mph
DIESEL POWERPLANT:	Two Napier Deltic D18-25	NUMBER IN CLASS:	22
		ENTERED SERVICE:	1961
TRACTION MOTORS:	DC traction	WITHDRAWN:	1980-82

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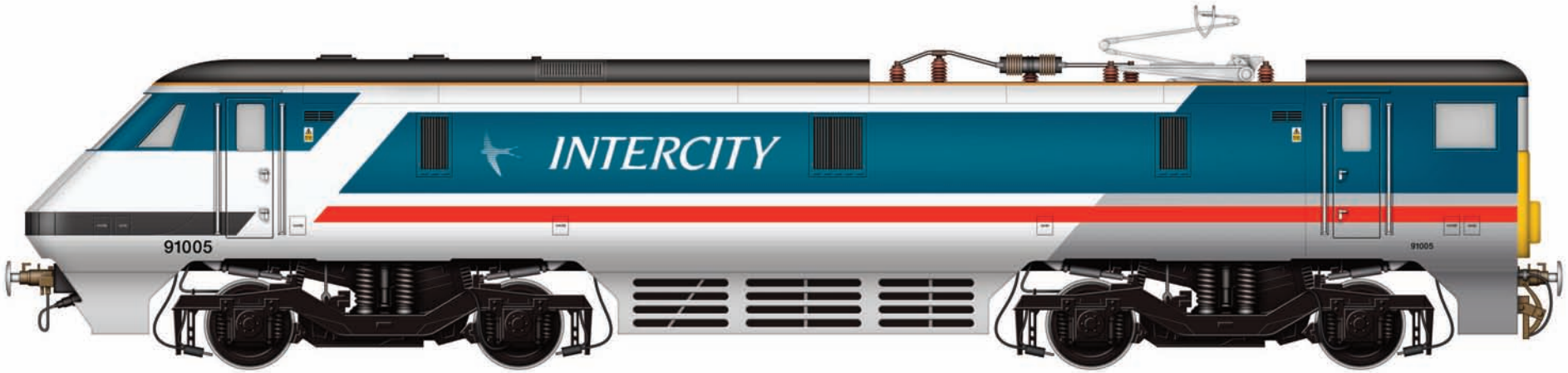

Class 91 Electric Locomotive

British Railways

The Class 91 locomotives were ordered as part of the East Coast Main Line modernisation and electrification programme of the late 1980s. The streamlined design of the locomotive allowed high-speed operation of up to 140 mph with a fixed sets of coaches, while a second cab at the blunt end allows them to operate as normal locomotives subject to a speed restriction of 110 mph. When British Rail was privatised in the mid 1990s the Class 91 fleet has had various liveries after franchise changes.

SPECIFICATION:

WHEEL ARRANGEMENT:	Bo-Bo	TRACTION MOTORS:	GEC G426
ENGINE WEIGHT:	80 tons	TRACTIVE EFFORT:	43,000 lbf
WHEELBASE:	45 ft 4½ ins	MAXIMUM SPEED:	140 mph
WHEELS:	3 ft 3½ ins dia	SERVICE SPEED:	125 mph
ELECTRIC SYSTEM:	25 kV AC	NUMBER IN CLASS:	31
PICK UP:	Catenary	ENTERED SERVICE:	1989
POWER OUTPUT:	6,300 bhp	WITHDRAWN:	Still operational

Class 91 Electric Locomotive

GNER

Great North Eastern Railways

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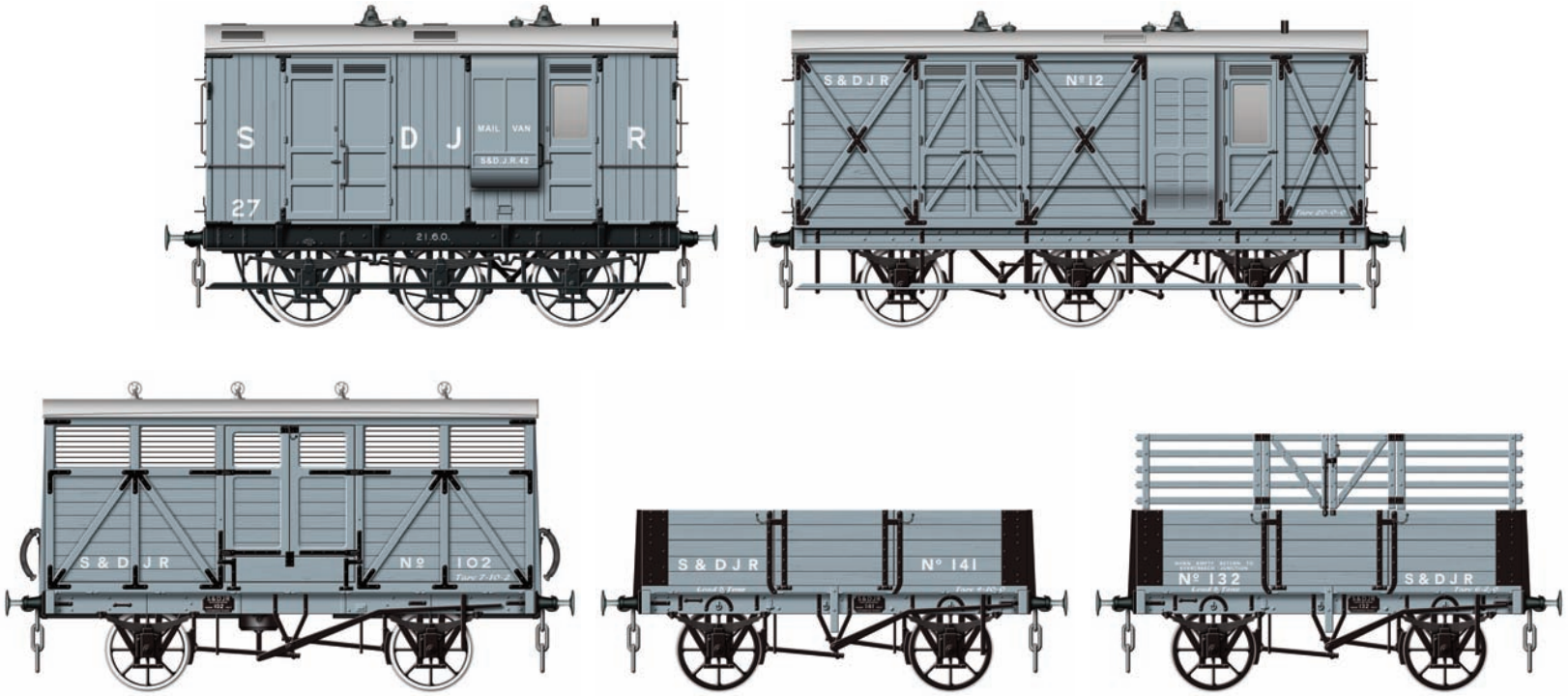


Rolling Stock of the Somerset & Dorset Joint Railway

The Somerset & Dorset Joint Railway

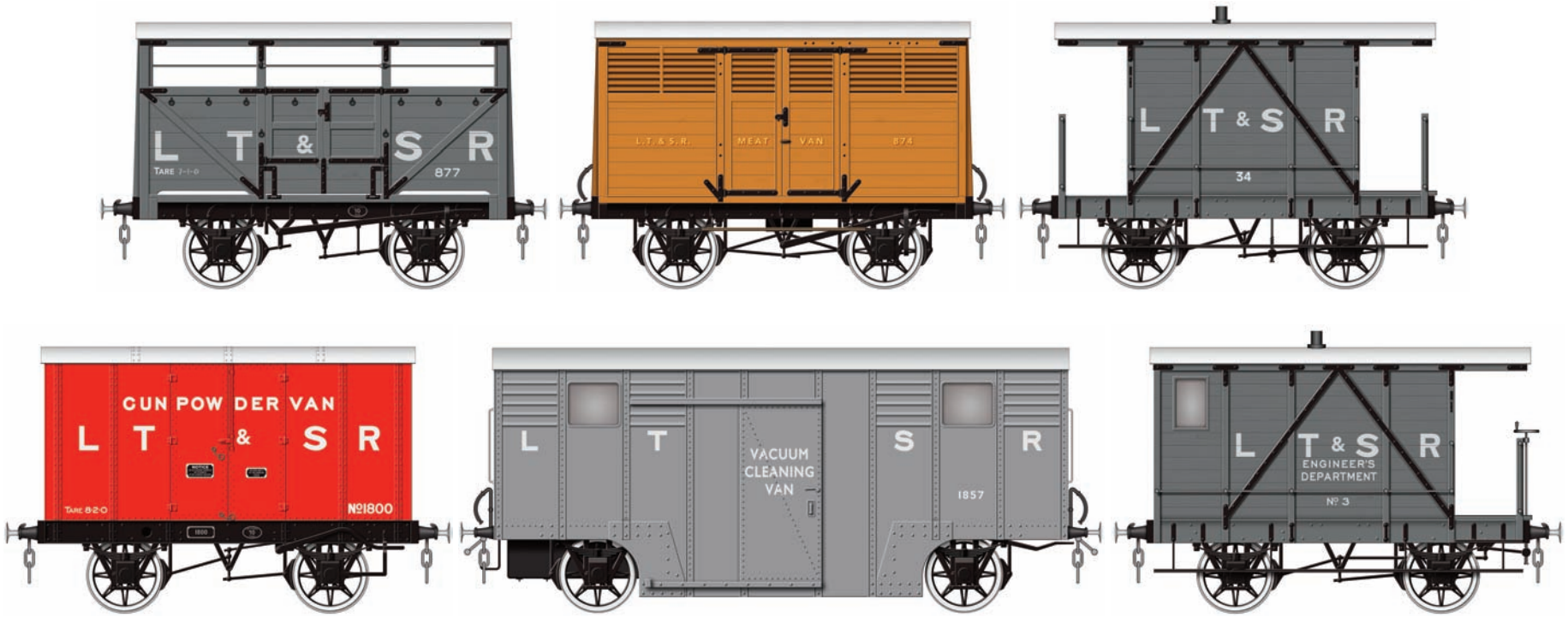
Top Left: Somerset & Dorset Joint Railway Goods Brake & Mail Van. In October 1887 two six wheeled 20 ton brake vans were ordered for a proposed goods train mail service between Bath and Bournemouth. They were constructed at Derby in 1888 and had a specially designed body that was divided into two compartments, one for the guard and the other for the mail. Both vans survived to pass into L.M.S. ownership in 1930.

Top Right: Somerset & Dorset Joint Railway 20 ton goods brake van. These vehicles were built to cope with the heavier goods trains over the Mendip Hills, where in many cases two of these vehicles replaced three 10 ton brake vans.

Above left: Somerset & Dorset Joint Railway 10 ton special cattle van. Two were built at Highbridge in 1910 and fitted with vacuum brakes.

Above Middle: Somerset & Dorset Joint Railway standard 8 ton 5 plank open goods wagon, this particular wagon being built at Highbridge in 1886. Many of these vehicles were later fitted with sheet rails when they came in for overhaul.

Above Middle: Somerset & Dorset Joint Railway peat wagon. Fourteen 8 ton open wagons were fitted with extension rails in 1911/12 for this trade.



Rolling Stock of the London Tilbury & Southend Railway

The London, Tilbury & Southend Railway

Top Left: Standard London Tilbury & Southend Railway cattle truck, 195 of these wagons being built between 1880-96, a number of them later being converted for other uses.

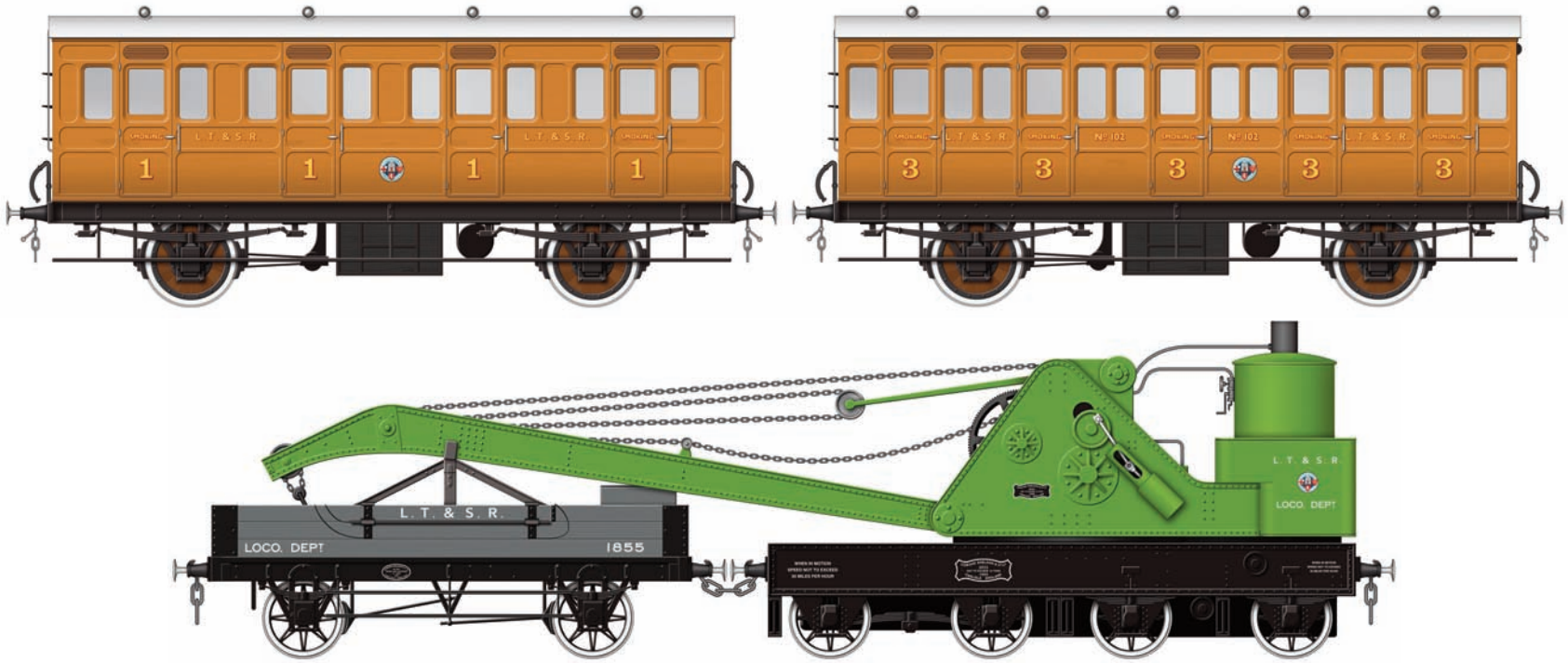
Top Middle: Standard London Tilbury & Southend Railway meat van. These would have iced packed walls and were used to convey meat from Thames Haven and Tilbury docks to Whitechapel in London.

Top Right: London Tilbury & Southend Railway standard brake van, forty-six being built at Plaistow between 1879-85.

Above Left: The London Tilbury & Southend Railway had a large number of Gunpowder Vans, 25 in total, which was far more than many larger companies, these being used mainly to serve the needs of the Shoeburyness garrison and firing range.

Above Middle: London, Tilbury & Southend Railway Vacuum Cleaner Van. A number of these wagons were built and were used for extensive cleaning jobs such as coaches, stations and sheds, one at least surviving until 1966 as a mobile charging plant.

Above Left: In 1898 four standard brake vans were converted at Plaistow into Ballast Brake Vans for engineers trains.

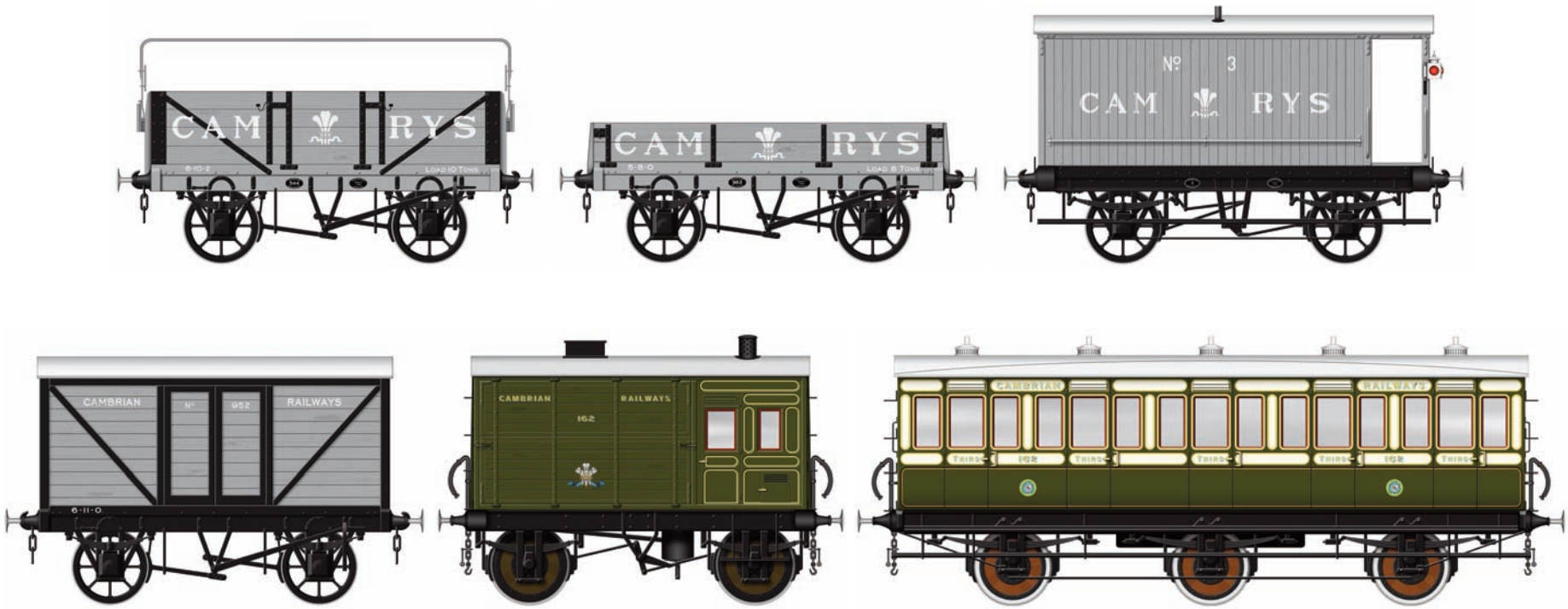


Rolling Stock of the London Tilbury & Southend Railway

The London, Tilbury & Southend Railway

Top Left & Right: Shortly after the London Tilbury & Southend Railway company regained control of their line in 1876, their first coaching stock was delivered. They were standard four wheel vehicles and either had spoked or Mansell wheels. First class carriages consisted of four compartments with seating for six passengers in each, while both second and third class had five compartments with seating for ten. Most carriages survived to become Midland Railway stock in 1912 when they took over the L.T.S.R., and then the London, Midland and Scottish Railway in 1923 on the grouping. Three second class carriages were sold to the Corringham Light Railway in 1915 where they managed to survive until the late 1950s.

Above: By far the most numerous steam breakdown crane used by British railway companies at the turn of the twentieth century were of 15 tons capacity and built by Cowens, Sheldon & Co. of Carlisle. In 1905, the London, Tilbury & Southend Railway purchased one such example which was based at the engineers department at Plaistow in London. After the company had become part of the London, Midland & Scottish Railway, the crane was moved to Bescot in the Midlands in 1933 where it remained until 1963 when it was broken up.



Rolling Stock of the Cambrian Railway

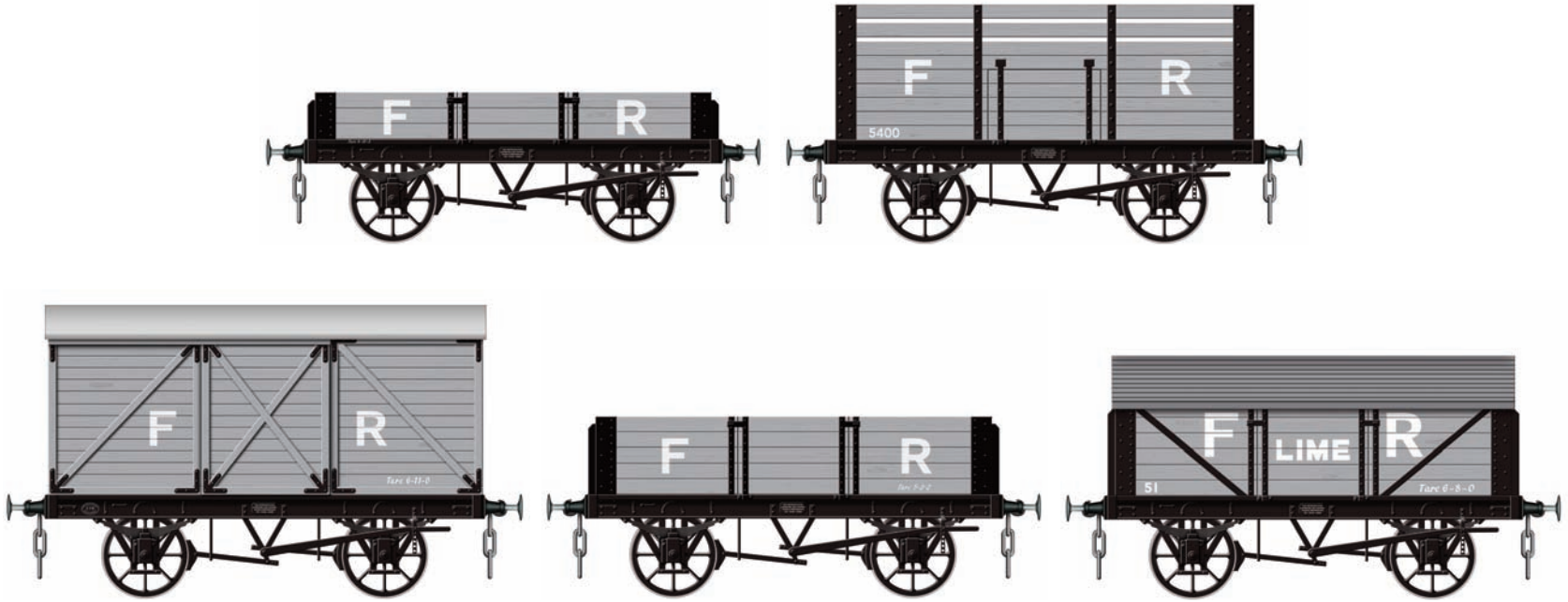
The Cambrian Railway

Top Row: The standard goods wagon of all the railway companies was the open wagon, which was used for the transportation of bulk goods. A variety of designs allowed for the transportation of various materials from coal to perishable goods. Illustrated are a Cambrian Railways five plank tilt wagon and a three plank open. On the far right is a Cambrian Railways standard brake van which was built in the mid 1890s and survived until the early 1930s.

Above Right: Typical Standard Covered Goods Van, this example being built during the 1890s for the Cambrian Railways.

Above Middle: The conveyance of horses was always an important part of railways operations, particularly before the rise of the motor car. These were similar in specification to the Special Cattle Vans, this time having a grooms compartment at one end. They were usually attached to passenger trains and fitted with continuous brakes, while their livery was the same as the carriages. Some of the major railways had hundreds of these wagons, but from the mid 1920s their use declined.

Above right: Typical six wheel carriage for the Cambrian Railway, this example being a third class composite with seating for fifty passengers.



Rolling Stock of the Furness Railway

The Furness Railway

The Furness Railway was built as a mineral line which connected the iron ore mines at Dalton-in-Furness and the slate mines at Kirkby-in-Furness with the developing port of Barrow. The company had a monopoly on the iron and steel traffic in the Furness area, the main freight revenues coming from the transportation of slate, iron ore and pig iron to other parts of the United Kingdom, and from minerals, coal and coke to the Furness area.

Top Left: Standard three plank open wagon. Along with two plank wagons these were used to transport slate which was typically carried stacked on end.

Top Middle: Seven plank coke hopper wagon.

Above Left: Standard goods box van built for the Furness between 1903 and 1906. These wagons would have been a familiar sight all over Scotland and the north of England, with some venturing even further afield, several surviving until the 1950s.

Above Middle: Standard five plank open wagon.

Above Right: Furness covered lime wagon. These had a distinctive ridged roof fitted to a standard open wagon design which provided weather protection for the load.

Rolling Stock of the Furness Railway

The Furness Railway

On its inception the Furness Railway was mainly concerned with mineral traffic, with little regard being made for the movement of people. Passenger trains were few and far between, and consisted of rudimentary four wheeled carriages for the first forty years of its existence. The first 6 wheeled railway carriages appeared on the Furness Railway in 1875, but were a rarity until the mid 1880s when the company purchased a number of composite vehicles. During the 1890s the company recognised the value of tourism and began to replace its old and decrepit carriages. The carriages illustrated are typical of those supplied by the Metropolitan Carriage and wagon and the Ashbury Railway Carriage and Iron Companies, with at least 140 being in stock in 1923 when the Furness became part of the L.M.S. The last recorded place for one of these carriages was at Cleator Moor in 1955.

Top: Six wheeled brake third class carriage with one smoking compartment.

Above Left: Six wheeled composite first/third carriage, with one first and one third class smoking compartment.

Above Right: Six wheeled full third class carriage, with two smoking compartments.

Rolling Stock of the Furness Railway

The Furness Railway

The first bogie carriages appeared on the Furness Railway in 1897, and consisted of twelve semi corridor composite lavatory vehicles similar design, although six were fitted with a Guard's brake compartment which was replaced with a luggage compartment in the remainder. The layout inside the brake bogie composites consisted of two first class and three third class compartments, with two lavatories situated in the middle of the vehicle which Manchester. Only fourteen such vehicles were built, and consisted of full thirds with seven compartments and composite stock with three first and four third, both types having side corridors and end vestibules and lavatories at each end. separated the first and third class accommodation. The luggage composite vehicles were similarly fitted but with an extra third class compartment. In 1903 a further six semi corridor composite coaches were built for the company, but had lavatories for first class passengers only. Bogie corridor stock with end connections first appeared in 1903. These were used for the through coaches from Barrow to major destinations in the U.K. such as London and

Top: Full third bogie brake carriage.

Above: Bogie composite luggage carriage.