



Chatham Main Line & Medway Valley Line



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1 Route Information

1.1 History Chatham Main Line

The Chatham Main Line is one of the main arterial routes from central London through the heart of Kent via the Medway towns and heads towards the Kent Coast. The London terminus for the Chatham Main Line is London Victoria. Being the second busiest terminus in the capital, London Victoria originally opened in October of 1860 as the eventual terminus for London, Brighton and the South Coast Railway's, however two years later, an expansion to the station was built for the London, Chatham and Dover Railway lines. Services can also access other termini such as Charing Cross or Cannon Street via connections to the North Kent Line and the South Eastern Main Line respectively.

For a period between 1994 and 2007, part of the Chatham Main Line was home to the Eurostar Class 373s which travelled from Waterloo International to Folkestone via Tonbridge, furthermore diversions through Maidstone where also an occurrence. There is an emergency connection between the Chatham Main Line and the newly built High Speed One at Fawkham Junction which can be used by the London-bound Class 395 in emergencies. The Class 373 can no longer use this diversion as their third rail shoes have been removed.

The line has passed between several operators, following sectorisation the line was ran by Network SouthEast and after privatisation it was transferred to Connex South Eastern. Today the line is operated by South Eastern, part of the Govia Group, who operate Class 375s and Class 465s from the capital to the Medway Towns and the Kent Coast. South Eastern operate via two different routes, services from the Kent Coast travel to Bromley South via the original route through Kent House and West Dulwich into Victoria, while services originating in the Medway towns frequent the Catford Loop via Denmark Hill into the terminus.

To cope with modern demand and longer train services, a new station was to be built at Rochester to replace the original building which had stood since the early 1890's. Construction started in early 2014 and officially opened on the 13th of December 2015. The new Rochester station can cope with twelve car trains opposed to the original ten car capacity and now serves as a new transport hub with links via buses into the Medway towns, providing an excellent connection to a new housing development in the area.

1.2 History Medway Valley Line

The line was built in two stages by the South Eastern Railway (SER). The first stage opened on 24 September 1844 and was a branch off the SER's first main line that crossed Kent between the coast ports of Dover and Folkestone and the LBSCR's main line at Redhill. According to a contemporary report in The Times newspaper, the opening of the branch line was an attempt to convey hops and fruit traffic back to Maidstone, which was losing trade to various points along the Dover line. The junction was at Paddock Wood and followed the Medway Valley down to the county town of Maidstone that had been by-passed by the new main line. Twelve years later, on 18 June 1856 the extension of the line further down the Medway Valley was opened, to join the North Kent Line at Strood (which had opened in 1847). The extension was built by the railway contractor Edward Betts, who lived locally at Preston Hall and through whose estate the line partially passed. Betts arranged for his local station at Aylesford to be built in a much grander style than the other country stations along the line.

The SER merged with local rival London, Chatham and Dover Railway (LCDR) on 1 January 1899 to form the South Eastern and Chatham Railway (SECR). Post World War One, the railways were "grouped" and the SECR became part of Southern Railway. For a brief period in the 1990s some services were extended to Gillingham (Kent) via Rochester and Chatham. This involved reversing trains and switching tracks at Strood.

2 Class 465 'Networker' Electric Multiple Unit

2.1 Class 465

The British Rail Class 465 Networker electric multiple units were built by GEC Alstom (Metro-Cammell) and BREL between 1991 and 1993, and by ABB Rail between 1993 and 1994. They were brought into service in 1992 and were operated by British Rail until 1997. Post British Rail, Connex operated the 465 until 2003 followed by South Eastern Trains up to 2006 and finally by South Eastern to the present day.

Both manufacturers' units look exceptionally similar in design; the major noticeable differences for passengers are the lack of aircraft-style overhead air vents on those produced by GEC Alstom, and the BREL and ABB units (465/0 and 465/1). These models also feature slightly different dot matrix displays on the front and rear of the train, showing the route number and destination to the GEC Alstom units. There are other visible but minor differences in door switches and audible chimes, window shapes and exterior panelling amongst the fleet.

In addition, the two units employ different traction motors, which sound different. Despite the differences though, the units can be used interchangeably. Particularly during peak times when longer trains are used, it is quite common to see a train comprising two four car units, one from each batch. Both classes share many similarities with the later dual-voltage Class 365, and are also similar in design to the diesel Class 165. When first introduced, all seating was standard class only. Although the units are interoperable, the spare parts for the different units are different.

Class 465's are mostly used on suburban routes serving the South East of England, although they have also been occasionally spotted elsewhere throughout Kent including the Kent Coast Line which is normally operated by Class 375 Electrostar trains.

2.2 Design & Specification

TOPS Number	Class 465
Formation	4-car: DMSO+TSO+TSOL+DMSO
Constructed	1991-1994
Vehicle Width	9ft 3in (2.82m)
Vehicle Height	12ft 4.5in (3.77m)
Electric System(s)	750V DC third rail
Power Output	3,004hp (2,240kW)
Maximum Speed	75mph (121km/h)
Number Built	147x 4car sets (97 Brel / ABB sets)

2.3 Rolling Stock

Class 465-0 DMOC A / B (Yellow Doors)



Class 465-0 TSO (Yellow Doors)



Class 465-0 TSOL (Yellow Doors)



Class 465-1 DMOC A / B (Blue Doors)



Class 465-1 TSO (Blue Doors)



Class 465-1 TSOL (Blue Doors)



2.4 Class 465/0 and 465/1 – BREL (Later ABB)

Both manufacturers' units look exceptionally similar in design; the major noticeable differences for passengers are the lack of aircraft-style overhead air vents on those produced by GEC Alstom (465/2), and the BREL (465/0) and ABB (465/1) units also feature slightly different dot matrix displays on the front and rear of the train to show the route number and destination, compared to the GEC Alstom units. There are other visible but minor differences in door switches and audible chimes, window shapes and exterior panelling amongst the fleet.

In addition, the two units employ different traction motors, which sound different. Despite the differences though, the units can be used interchangeably. Particularly during peak times when longer trains are used, it is quite common to see a train comprising two four car units, one from each batch. Both classes share many similarities with the later dual-voltage Class 365, and are also similar in design to the diesel Class 165. When first introduced, all seating was standard class only.

2.5 Assigning Destinations and Numbers

For developers wishing to make use of the units in their own scenarios and routes, it is possible to customise the Destination Display during creation of a scenario. This allows the train to correctly display an appropriate destination.

In order to display a specific destination, the correct value must be entered into the vehicle properties window. This number consists of a 12 digit value containing both a letter and numbers.

The 12 digit value is arranged like so: **dVVVVVUUUUUU**

d = the Destination code (See the Destination List below)
VVVVV = the Vehicle number displayed on the side of the coach
UUUUUU = the Unit number displayed on the front of the driving vehicle

Example: d78580465240

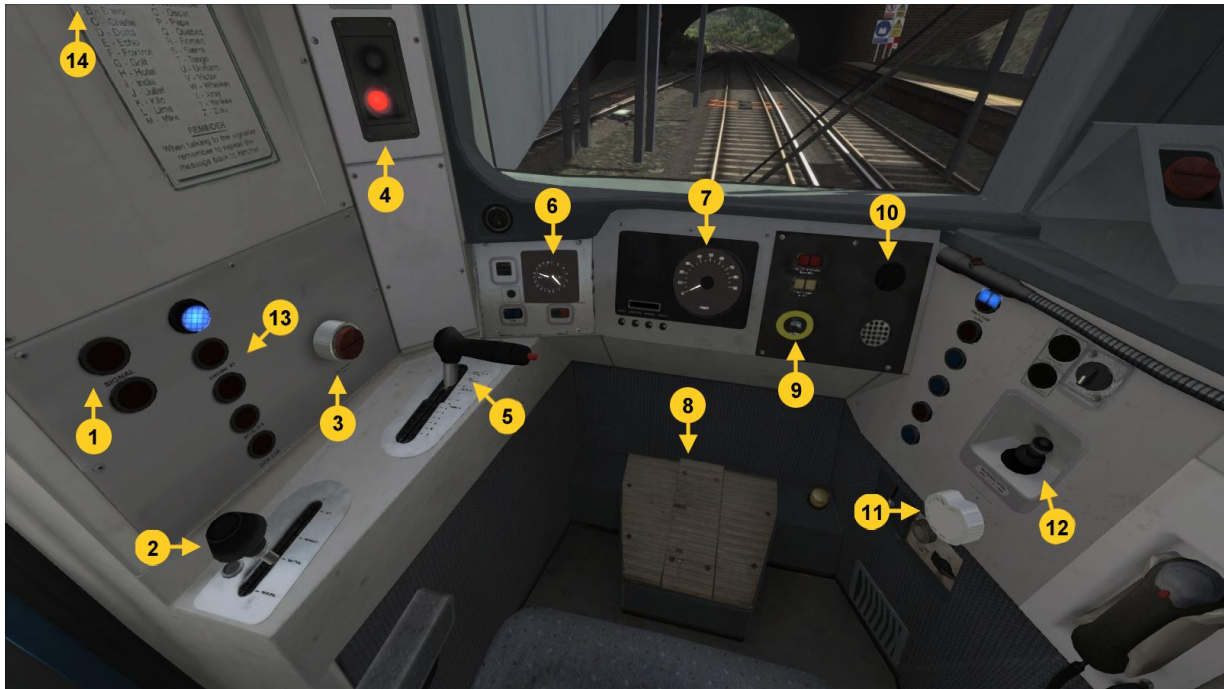
So the above value results in unit 465240, with vehicle number 78580, displaying “Dartford” as the destination

2.6 Destination List

a	Ashford Int. via Maidstone	A	Beckenham Junction
b	Blackfriars	B	Cannon St Via Bexley Heath
c	Cannon St	C	Cannon St Via Woolwich Arsenal
d	Dartford	D	Canterbury West
e	Sittingbourne	E	Dartford Via Bexleyheath
f	Faversham	F	Dartford Via Woolwich Arsenal
g	Gillingham	G	Dover Priory
h	Canterbury East	H	Folkestone Central
i	Ashford Int. via Tonbridge	I	Folkestone West
j	Gravesend	J	Hastings
k	London Bridge via Dartford	K	Hayes Via Lewisham
l	London Bridge via Orpington	L	Maidstone West
m	Maidstone East	M	Margate
n	Slade Green	N	Rainham
o	Orpington	O	Ramsgate
p	Paddock Wood		
q	Strood		
r	Rochester		
s	Sheerness		
t	Tonbridge		
u	Bromley North		
v	Victoria		
w	Tunbridge Wells		
x	Charing X		
y	Out of Service		
z	Depot		
#	Blank		

3 Driving the Class 465

3.1 Cab Controls



1 - Guards Buzzer	8 - Driver Vigilance Device (<i>NumPad Enter</i>)
2 - Reverser (<i>W/S</i>)	9 - AWS Acknowledge Button (<i>Q</i>)
3 - Emergency Brake (<i>Backspace</i>)	10 - AWS Sunflower Display
4 - Driver Reminder Appliance (<i>Y</i>)	11 - Windscreen Wiper Control (<i>V</i>)
5 - Combined Throttle/Brake Handle (<i>A/D</i>)	12 - Horn Paddle (<i>Spacebar / B</i>)
6 - Brake Pressure Gauges	13 - Train Start/Shutdown (<i>Z</i>)
7 - Speedometer	14 - Headlight Switches (<i>H</i>)

4 Class 375 'Electrostar' Electric Multiple Unit

4.1 Class 375

The Class 375 third-rail DC 4 car electric multiple units began service during 2001. Built by Bombardier in Derby, England, they are a member of the 'Electrostar' train family, the most numerous EMU built in post-privatisation Britain. Due to their high power consumption major upgrades were carried out to the 750V DC third-rail power system used on the Southern region. The trains are used extensively on services in South London and on rural commuter services throughout Sussex and Kent where they replaced the ageing 4CIG and 4VEP slam-door stock. The Class 375 trains feature external CCTV, a disabled seating area, and toilets in both intermediate coaches. Dual voltage units are fitted with a high-speed pantograph to allow operation under 25kV lines as well as the native third rail shoes.

South Eastern have started to refurbish their roster of 4 car Class 375s that operate on the Chatham Main Line to the Kent Coast into their new Dark Blue livery. While at the same time some of the Class 465/9's that operate out of Gillingham/Rochester are receiving an interior refresh, all as part of their three-year #SERefurb programme.

Design & Specification

TOPS Number	Class 375
Formation	4-car: DMOC+MSOL+PTSOL+DMOC
Unit Weight	173.6 tonnes (35-48 tonnes per vehicle)
Vehicle Length	66ft 11in (20.4m)
Vehicle Width	9ft 2in (2.8m)
Body Construction	Aluminium body with steel ends
Power Collection	750v DC 3rd Rail
Vehicle Power	2,000HP (1,500kW)
Design Speed	100 MPH (161km/h)
Coupling Type	Dellner
Brake Types	Air
Seating	242 Standard

Class 375 Consist Formations

Class	Consist	Number Range
375/3	DMOC - TOSL - DMOS	375301 - 375310
375/6	DMOS - MOCL - PTOSL (Low) - DMOS	375601 - 375630
375/7	DMOS - TOSL - MOCL - DMOS	375701 - 375715

The pantograph well should be at the centre of the formation.

3 and 4 car formations are often used on local and branch stopping services.

4, 8 and 10 car formations are used on off-peak fast services.

8 and 12 car formations are commonly seen on peak time fast and express service.

4.3 Rolling Stock

Class 375/3, Class 375/6 & Class 375/7 DMOS SE Dark Blue



Class 375/3 DMOC SE Dark Blue



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Class 375/6 PTOSL SE Dark Blue



Class 375/3 & Class 375/7 TOSL SE Dark Blue



Class 375/6 & Class 375/7 MOSL SE Dark Blue



4.4 Destination List

a	London Victoria via Maidstone East	A	Ramsgate/Dover P via Ashford
b	London Victoria via Bromley South	B	Ashford International via Maidstone East
c	Cannon Street	C	Barnehurst
d	Charing Cross	D	Beckenham Junction
e	Ashford International	E	Bromley South
f	Canterbury East	F	Dover Priory via Tonbridge
g	Canterbury West	G	Gravesend
h	Dartford	H	Hayes
i	Dover Priory via Chatham	I	Hither Green
j	Faversham	J	Lewisham
k	Folkestone Central	K	London Blackfriars
l	Gillingham	L	Maidstone East
m	Hastings	M	Meopham
n	London Bridge	N	Ore
o	Margate	O	Ramsgate via Tonbridge
p	Orpington	P	Rainham
q	Paddock Wood	Q	Shepherdswell
r	Ramsgate via Chatham	R	Slade Green
s	Rochester	S	Tunbridge Wells
t	Sevenoaks	W	Maidstone West
u	Sheerness on Sea	X	Depot
v	Sittingbourne	Y	Special
w	Strood	Z	Blank
x	Tonbridge		
y	Ramsgate/Dover P		
z	Sorry, Not in Use		

5 Class 377 'Electrostar' Electric Multiple Unit

5.1 Class 377

The Class 377 third-rail DC 4 car electric multiple units began service during 2002. Built by Bombardier in Derby, England, they are a member of the 'Electrostar' train family, the most numerous EMU built in post-privatisation Britain. Due to their high power consumption major upgrades were carried out to the 750V DC third-rail power system used on the Southern region. The trains are used extensively on services in south London and on rural commuter services throughout Sussex and Kent where they replaced the aging 4CIG and 4VEP slamdoor stock. The Class 377 trains feature external CCTV, a disabled seating area, and toilets in both intermediate coaches.

Since December 2016, Southeastern have had 8 units (377501–377508) transferred from Govia Thameslink Railway. In September 2017, these were joined by an additional 17 units (377509–523 & **377163/164**).

Southeastern operate Class 377s on the following routes:

- **Maidstone East Line:** London Victoria/Blackfriars to Ashford International/Canterbury West via Maidstone East
- **Chatham Main Line:** London Victoria/Cannon Street to Ramsgate (selected workings)

Design & Specification

TOPS Number	Class 377
Formation	4-car: DMOC+MOSL+TSOL+DMOC
Unit Weight	173.6 tonnes (35-48 tonnes per vehicle)
Vehicle Length	66ft 11in (20.4m)
Vehicle Width	9ft 2in (2.8m)
Body Construction	Aluminium body with steel ends
Power Collection	750v DC 3rd Rail
Vehicle Power	2,000HP (1,500kW)
Design Speed	100 MPH (161km/h)
Coupling Type	Dellner
Brake Types	Air
Seating	242 Standard

Class 377 Consist Formations

Class	Consist	Number Range
377/1	DMOC - TOSL – MOSL - DMOC	377101 - 377139
377/1	DMOC - TOSL – MOSL – DMOC (Variant)	377140 - 377164
377/3	DMOC - TOSL - DMOS	375601 - 375630

The pantograph well should be at the centre of the formation.

3 and 4 car formations are often used on local and branch stopping services.

4, 7, 8 and 10 car formations are used on off-peak fast services.

8 and 12 car formations are commonly seen on peak time fast and express service.

5.3 Rolling Stock

Class 377/1 & Class 377/3 DMOC Southern



Class 377/1 (V) DMOC Southern



Class 377/3 DMOS Southern



Class 377/1 & Class 377/1 (V) MOSL Southern



Class 377/1, Class 377/1 (V) & Class 377/3 TOSL Southern



5.4 Destination List

a	Brighton	A	Barnham
b	Bognor Regis	B	Caterham Via Norbury
c	Caterham Via Forest Hill	C	Dorking
d	Clapham Junction	D	East Grinstead
e	Coulsdon Town	E	Eastbourne & Littlehampton
f	Eastbourne	F	Epsom
g	East Croydon	G	Lewes
h	Gatwick Airport	H	Littlehampton & Ore
i	Guildford	I	Milton Keynes Central
j	Hastings	J	Ore
k	Haywards Heath	K	Portsmouth & Bognor Regis (Divides at Barnham)
l	Horsham	L	Portsmouth & Bognor Regis (Divides at Horsham)
m	Hove	M	Portsmouth Harbour
n	Littlehampton	N	Seaford
o	London Victoria	O	Southampton & Bognor Regis (Divides at Barnham)
p	London Bridge	P	Southampton & Bognor Regis (Divides at Horsham)
q	Portsmouth & Southsea	Q	Sutton Via Crystal Palace
r	Redhill	R	Sutton Via Norbury
s	Reigate	S	Tattenham Corner Via Norbury
t	Southampton	T	West Worthing
u	South Croydon	U	Ashford International Via Maidstone East
v	Tattenham Corner Via Forest Hill	V	Canterbury West
w	Tonbridge	W	Maidstone East
x	West Croydon	X	Depot
y	Not in Service	Y	London Blackfriars
z	Special	Z	Rainham

6 Driving the Class 375 / 377

6.1 Cab Controls



Main console					
1	Master key	8	Cruise Control	16	Guard communication
2	Reverser	9	AWS flower	17	Notice board light
3	Combined throttle and brake	10	AWS Reset	Side Panel	
4	Emergency brake	11	Windscreen wipers	18	3 rd Rail Shoe controls
5	Brake pressure gauges	12	Horn	19	Pantograph controls
6	Speedometer	13	Depot whistle	20	Headlights
7	Cruise control speed	14	Sander	21	Taillights
		15	Cab light	22	Blinds

6.2 Additional Controls

The following additional keys can be used with the Class 375 / 377 units.

Keystroke		Feature	
Shift	+	D	Brake Hold. This can also be activated by pressing the button on the end of the brake/throttle control (3)
Shift	+	P	Raise the 3 rd rail shoes. Also activated by pressing the blue button on the upper left panel (18)
Ctrl	+	P	Lower the 3 rd rail shoes. Also activated by pressing the yellow button on the upper left panel (18)
		L	Cab Light
		B	Depot Whistle
		C	Guard communication (16)
Shift	+	Numpad Enter	Toggle the Driver Vigilance Device. This is an audio only device so has no visual prompt. By default this feature is turned off.
		Numpad Enter	Acknowledge a Driver Vigilance alert
Ctrl + Shift	+	5 or 6	Change Main Destination on Train Front / Sides

7 Class 59

7.1 Class 59/0

As a result of poor reliability and low availability of the various locomotives used by British Rail to haul stone trains from the West Country, Foster Yeoman negotiated with British Rail to improve service. Foster Yeoman had already supplied their own wagons with a reliability level of 96% and proposed they operate their own locomotives. British Rail's problem was the hard tie-in and control of the rail unions, but accepted the proposal in principle.

Foster Yeoman invited tenders for the supply of six locomotives from a manufacturer with a proven availability record of 95%. It is untrue that British Rail refused to tender, but withdrew having conceded that they had nothing which was of the required combination of power and reliability. Foster Yeoman had already operated an EMD SW1001 shunter in the Merehead Quarry with good results, so approached General Motors, who were able to demonstrate the required long-term 95% availability. Derived from the EMD SD40-2, the cab layout was based on the British Rail Class 58 for easier driver assimilation. To meet the British loading gauge, an estimated 40,000 to 80,000 man-hours of design work was carried out by EMD. Some compromises were required; the large exhaust silencer required to meet BR noise levels left no room for Dynamic Braking equipment. However, it was possible to retain the all-important Super Series wheel creep control which, because of its superior traction, can eliminate the need for double heading. Foster Yeoman therefore reduced their original requirement from six to four locomotives, ordering four in November 1984, and a fifth in 1988. All five locomotives were custom built by General Motors Diesel Division at its La Grange, Illinois plant.

In their first ten years of operation, the five locomotives between them hauled over 50 million tonnes of aggregates away from Merehead.

7.2 Class 59/2

The Class 59/2 was commissioned by National Power with the aim of operating their own trains. Built between 1994 and 1995, the Class 59/2 had a number of differences from its earlier counter parts. They were fitted with a new carbon dioxide fire control system, used NiCd batteries and drop-head knuckle couplers. They also utilised more advanced speed controls which suited the transportation of coal at lower speeds. Along with those systems yaw dampers were fitted to allow for a higher top speed. National Power felt the trail of the Class 59/2 was successful enough to order an additional five locomotives to freight coal and limestone. The Class 59/2 is now operated by DB Schenker after being acquired from EWS.

7.3 Design & Specification

Power Type	Diesel-Electric
Locomotive Weight	121t
Vehicle Length	70ft 01/2in (21.34m)
Build Date	1994-1995
Vehicle Power	3,000hp (2,237kW)
Top Speed	75mph (121km/h)
Brake Types	Air Brakes

7.4 Class 59/0 – Blue & Grey



7.5 DB Class 59/2



7.6 JHA Wagon



7.7 MEA Wagon (Red and Grey)



7.8 MFA Wagon (Red and Grey)



7.9 MXA Wagon

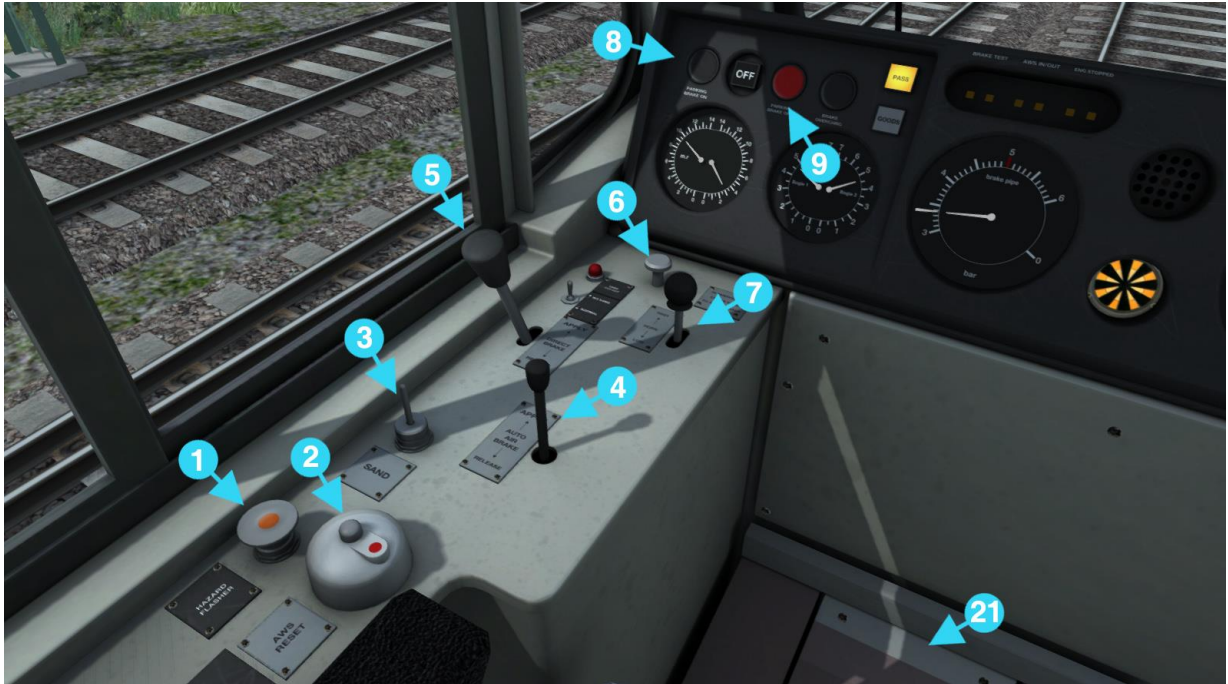


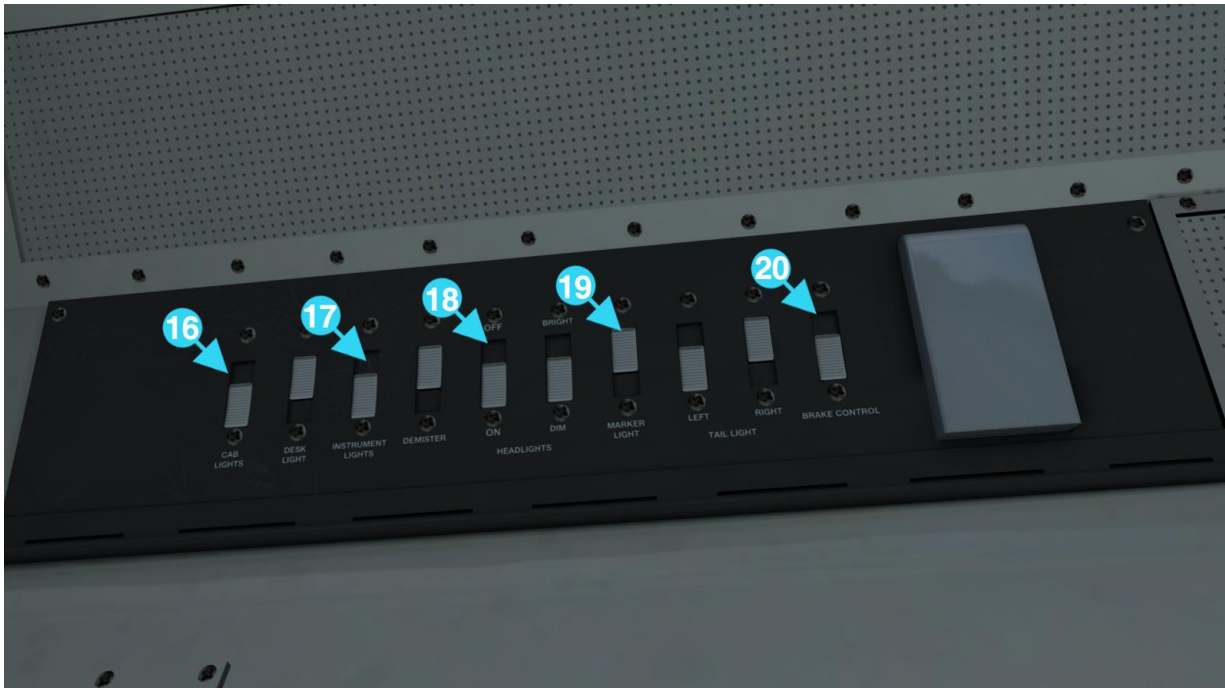
7.10 JNA Wagon



8 Driving the Class 59/0 & 59/2

8.1 Cab Controls





- | | | | |
|----|-------------------|----|-------------------|
| 1 | Hazard Lights | 12 | Engine Stop |
| 2 | AWS Reset | 13 | Engine Start |
| 3 | Sander | 14 | Power Handle |
| 4 | Train Brake | 15 | Reverser |
| 5 | Locomotive Brake | 16 | Cabin Lights |
| 6 | Emergency Brake | 17 | Instrument Lights |
| 7 | Horn | 18 | Headlight Switch |
| 8 | Apply Handbrake | 19 | Marker Light |
| 9 | Release Handbrake | 20 | Brake Control |
| 10 | Left Wiper | 21 | DSD Pedal |
| 11 | Dimmer Switch | | |

9 DSD Driver Safety Device

The Driver Safety Device is a vigilance system that monitors the driver. It can be activated or deactivated by using the Ctrl-D hotkey.

Once activated the system monitors the locomotives speed and starts a timer once the vehicle reaches over 5mph. The timer then waits for one minute before playing an alert sound that must be acknowledged by pressing the DSD pedal (Numpad Enter).

If the alert is not acknowledged after five seconds it will trigger an emergency brake application, bringing the train to a stop. The brakes will only release if the acknowledge is pressed by the driver, after which they can continue their journey.

10 Slow Speed Control & PBL Braking

The Class 59/2 is fitted with a Slow Speed Control that can be used to maintain the locomotives speed. This is useful when pulling large consists of freight that can be loaded in a Merry-go-round fashion. Meaning as the train is still moving the freight wagons can be loaded overhead due to the almost crawling speed the train is travelling at.

Slow Speed Control can be cycled up by pressing Ctrl+1 or down by pressing Ctrl+2. The speed settings are as follows;

- Setting 1 – 0.8Mph
- Setting 2 – 1.8 Mph
- Setting 3 – 2.8 Mph

Once the desired setting has been selected the brakes must be released and the reverser set to allow the engine to maintain the set speed. If the locomotive is travelling faster than the speed setting before selecting it the locomotive will have its engine power cut off until the speed is achieved.

The Class 59/2 is also fitted with a PBL braking system that moderates the speed in which the brakes apply force. When carrying long and heavy freight wagons it is advantageous to have a slower applying/releasing brake to give the engine time to gain traction without the immense weight behind the locomotive negating the applied power.

PBL Braking comes in two modes, Passenger and Goods. Goods is the preferred mode for freight operations as it is the slowest applied brake and is the default setting for the Class 59/2. If the driver wishes to switch to the more responsive Passenger mode they must toggle the Brake Mode switch found above and to the left of the drivers seated position.

11 Scenarios

****For driving tutorials, please visit the Academy from the main TS2016 menu screen****

11.1 [375] 01. 2T19 0904 Tonbridge to Strood

Welcome to the Medway Valley Line! First off, you will be in charge of a passenger service from Tonbridge to Strood at the controls of a Class 375, covering the full length Northbound run of the route.

Duration: 55 Minutes
Difficulty: Easy

11.2 [375] 02. 2T24 1004 Strood to Tonbridge

Take to the driver's seat of this Class 375, as it is now ready to embark on this passenger service from Strood to Tonbridge, covering the full length Southbound run of the route.

Duration: 55 Minutes
Difficulty: Easy

11.3 [465] 03. 1B89 0638 Gillingham (Kent) to London Cannon Street

Your Class 465 has been prepared and is now ready for service! Now that you're at the controls of this Class 465, you will be in charge of a passenger service from Gillingham (Kent) to London Cannon Street, only as far as Gravesend.

Duration: 25 Minutes
Difficulty: Medium

11.4 [465] 04. 1E95 1830 London Cannon Street to Strood / Maidstone

Starting from Gravesend, you will be taking this Class 465 on a passenger service from London Cannon Street to Strood, before taking the unit to Maidstone West where another driver will relieve you.

Duration: 30 Minutes
Difficulty: Medium

11.5 [59] 05. 6Y93 0935 Purley Foster Yeoman to Hoo Junction Up Yard

The weather isn't looking great but that won't stop this Class 59! You will be in the driver's seat of a Class 59 on a freight service taking empty aggregates from Purley Foster Yeoman to Hoo Junction Up Yard, starting from Tonbridge West Yard.

Duration: 65 Minutes
Difficulty: Hard

11.6 [59] 06. 6V18 1120 Allington A.R.C. Sdg. to Whatley Quarry: Part 1

Welcome to Part 1 of this Class 59 freight service, taking empty aggregates from Allington A.R.C. Sdg. to Whatley Quarry, going as far as Hoo Junction where Part 1 will conclude.

Duration: 30 Minutes
Difficulty: Easy

11.7 [59] 07. 6V18 1120 Allington A.R.C. Sdg. to Whatley Quarry: Part 2

Continuing from Part 1. You have just come to a stop at Hoo Junction, from here you will continue the second part of this freight service. You will be taking this Class 59 from Hoo Junction to Tonbridge due to a diversion, where another driver will relieve you.

Duration: 50 Minutes

Difficulty: Easy

12 Railfan Mode Scenarios

Railfan Mode provides a unique chance to observe and enjoy the operations of trains without the pressure and involvement of driving them. Railfan Mode scenarios are positioned at various key points along the route and provide camera functionality to sit back and watch the action unfold.

These scenarios are located on the Drive screen under the Career tab.

12.1 [RailfanMode] Tonbridge

Duration: 10 Minutes

12.2 [RailfanMode] Maidstone Barracks

Duration: 10 Minutes

12.3 [RailfanMode] Strood

Duration: 10 Minutes

12.4 [RailfanMode] Hoo Junction

Duration: 10 Minutes

13 Signals

13.1 Main Signal Head Aspects



Colour light signals are used for controlling running movements. They display aspects by means of red, yellow and green coloured lights.

Signal Aspect	Description	Instruction to Driver
Red light	Danger	Stop.
Single yellow light	Caution	Proceed: be prepared to stop at the next signal.
Double yellow lights	Preliminary caution	Proceed: be prepared to find the next signal displaying one yellow light.
One flashing yellow light	Preliminary caution for a diverging route	Proceed: Be prepared to find the next signal displaying one yellow light with feather junction indicator for diverging route(s).
Double flashing yellow lights	Indication of diverging route ahead of the next but one signal	Proceed: Be prepared to find the next signal displaying one flashing yellow light.
Green light	Clear	Proceed: The next signal is displaying a proceed aspect.

13.2 Theatre Type Signals

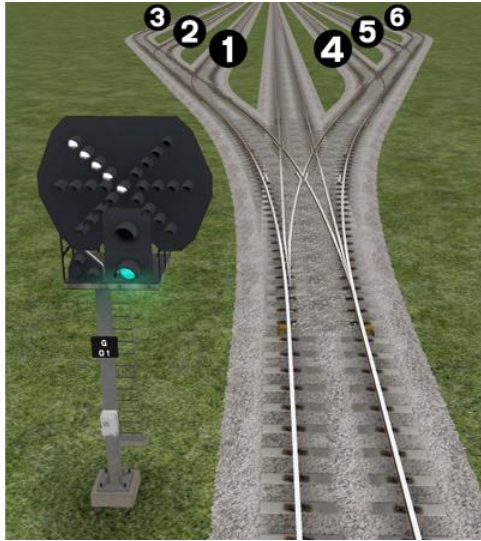
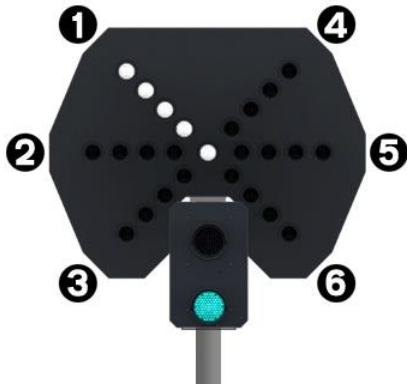


A Theatre alphanumeric route indicator indicates the route to be taken using numbers or letters (or a combination of numbers and letters).

A Theatre indicator is often used to show the arrival platform number.

13.3 Feather Type Signals

A Feather junction indicator indicates a diverging route to be taken by the angle at which a line of five white lights is displayed. (Position 1 shown)



Feather Indication	Instruction to Driver
No Feather Indication	Obey main aspect, straight-ahead route is set
Position 1 indication	Obey main aspect, expect divergence to left
Position 2 indication	Obey main aspect, expect divergence to left more extreme than that for position 1
Position 3 indication	Obey main aspect, expect divergence to left more extreme than that for position 2
Position 4 indication	Obey main aspect, expect divergence to right
Position 5 indication	Obey main aspect, expect divergence to right more extreme than that for position 4
Position 6 indication	Obey main aspect, expect divergence to right more extreme than that for position 5

13.4 Ground Signals and Position Light Signals



Ground Signals and Position Light Signals (PLS) display their aspects by means of the position and colour of lights. Ground Signals are always illuminated and can have miniature theatre indicators attached whereas PLS only illuminate to allow a train to pass in to an occupied section of line and are mounted as an addition to a main signal head.

Signal Aspect	Description	Instruction to Driver
Two red lights	Danger	Stop.
No aspect (located on a main aspect)		Obey main aspect.
Two white lights	Caution	The line ahead may be occupied. Proceed cautiously towards the next stop signal, stop board or buffer stops. Be prepared to stop short of any obstruction. The associated main aspect (where provided) may be passed at danger

13.5 Entering an Occupied Section of Track

During a scenario your train may be scheduled to enter a platform or section of track that is already occupied by another train or rolling stock. In this situation you should stop at the red signal protecting this section of track as normal. Once your train has stopped press the TAB key on your keyboard to request permission from the signalling centre to enter the occupied section of track. When your train movement is approved the signal will illuminate the two white lights on the position light signal if it has one.

13.6 Repeater Signals



A banner repeater signal indicates whether the signal ahead is displaying a proceed aspect or is at danger. Modern fibre optic banner repeating signals, as shown opposite, consist of a rectangular unlit black background displaying a white circle with a black bar.

Signal Display	Instruction to Driver
Horizontal arm	Be prepared to find the related signal at danger
Arm at an upper quadrant angle of 45°	Related signal is exhibiting a proceed aspect



The recent signal updates between Longfield and Rainham have an additional green aspect display as shown opposite.

Signal Display	Instruction to Driver
Horizontal arm	Be prepared to find the related signal at danger
Arm at an upper quadrant angle of 45° with white background	Related signal is exhibiting a warning aspect
Arm at an upper quadrant angle of 45° with green background	Related signal is exhibiting a proceed aspect

Repeater signals are intended to provide a driver with advance information of a signal that may be obscured on approach. A train does not need to stop at a repeater signal, only at the related signal if it is at danger.

Splitting banner signals provide two banner signal heads combined to form a splitting banner repeating signal. These are used to indicate the aspect of a signal with a feather junction indicator. If the related junction signal is displaying an illuminated feather then the lower banner head displays an arm at an upper quadrant angle of 45°. Alternatively, if the related junction signal is not displaying an illuminated feather and is indicating a straight ahead route then the higher “main” banner head displays an arm at an upper quadrant angle of 45°.

14 Speed Signs

14.1 Permissible Speed Indicators



These signs display the permissible speed in M.P.H. applicable to the section of line beyond the sign up to the commencement of any subsequent permissible speed section.

Remember to wait for the complete length of your train to pass these signs before accelerating if the permissible line speed is increasing. If the permissible line speed is decreasing then you must reduce your speed before passing these signs.

14.2 Permissible Speed Warning Indicators



These signs provide advance warning of a reduction in permissible speed ahead. Permanent AWS Ramps (Automatic Warning System) are often installed in conjunction with these signs. In these cases the driver must cancel the AWS warning when triggered on approach to these signs.

15 Safety Systems

15.1 AWS (Automatic Warning System)



AWS is provided to give train drivers in-cab warnings of the approach to signals, reductions in permissible speed and temporary/emergency speed restrictions, and to apply the brakes in the event that a driver does not acknowledge cautionary warnings given by the system.

As a train approaches a signal, it passes over AWS track equipment (magnets) which are fixed to the sleepers between the running rails. The

magnets are sensed by a receiver mounted under the leading end of the train.

If the signal ahead is displaying a clear aspect (green), a bell (or an electronic ping) sounds in the driver's cab, and the AWS Sunflower indicator displays "all black". No action in respect of the AWS is required of the driver.

If the signal is displaying a caution or danger aspect (yellow, double yellow or red), a horn sounds in the driver's cab and the display shows "all black". The driver has to acknowledge the warning by pressing the "AWS Acknowledgement" push button. When the driver operates the push button, the horn is silenced and the AWS Sunflower changes to a segmented yellow and black circular display. If the driver fails to acknowledge the warning horn within a set time period, the brakes are applied automatically.

Where AWS equipment is provided on the approach to reductions in permissible speed and temporary/emergency speed restrictions, the cab equipment always operates in a manner equivalent to the approach to a signal displaying a caution or stop aspect. The driver receives a warning and has to respond to it accordingly; otherwise the brakes are applied automatically.

15.2 OSS (Over Speed Sensor)



At a terminus platform where a line ends a train should be approaching the buffers at a speed of no more than 10mph. To ensure this is adhered to an over speed sensor grid may be installed 65m from the buffer. Continuing over one of these grids at a speed higher than 10mph will cause an emergency brake application to bring the train to a halt.

15.3 Whistle Signs



These are used at footpath crossings where it is not possible for pedestrians to see approaching trains. When the train passes a board, the driver must sound the horn so that pedestrians know a train is coming. Apart from emergencies, drivers cannot use horns at whistleboards between 11pm and 7am.

11 Credits

As usual with all projects there is a long list of people to thank. So in no particular order here are the stars of the show.

Testing:

QA Department

Beta Testers

Special Thanks:

Chris Luck

Richard Mills

Adam Lucas

Thanks for all the feedback, comments and suggestions throughout the creation, testing and completion of this project.

