

Class 205 Diesel

Electric Multiple Unit



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How to install

- 1) Locate where you have downloaded this pack and unzip it. Information on how to do this can be found [here](#).
- 2) Go to the location where you have extracted the files from the .zip file.
- 3) Now find the .exe file called 'Class 205 DEMU Pack'. Double-click this file.
- 4) Follow the steps and by the end of the process, the main part of this pack will have installed.
- 5) If you intend to use any of the included scenarios, make sure you have the freely available extra stock pack and relevant payware add-on packs listed on the product page installed so the scenarios function as intended.

Technical information

| | |
|----------------------|----------------------------------|
| Manufacturer | British Rail - Eastleigh |
| Years built | 1957 - 1962 |
| Number built | 33 (1101-1133) (205001-205033) |
| Engine | English Electric 4SRKT MkII |
| Maximum speed | 75mph (121km/h) |
| Coupling type | Buckeye |
| Length | 19.51m (DMBSO/DTC), 19.34m (TS) |
| Height | 3.86m |
| Width | 2.82m |
| Weight | 56t (DMBSO), 30t (TS), 32t (DTC) |

Liveries

BR Blue



BR Blue (205001 - East Kent Railway) - *BR Blue (EKR)*



BR Blue (Small Yellow Front) - *BR Blue (SYF)*



BR Blue/Grey



BR Blue/Grey (Pre-TOPS)



BR Green



BR Green (Full Yellow Front) - *BR Green (FYF)*



BR Green (Small Yellow Front) - *BR Green (SYF)*



Connex



Connex (Weathered)



Network SouthEast - *NSE*

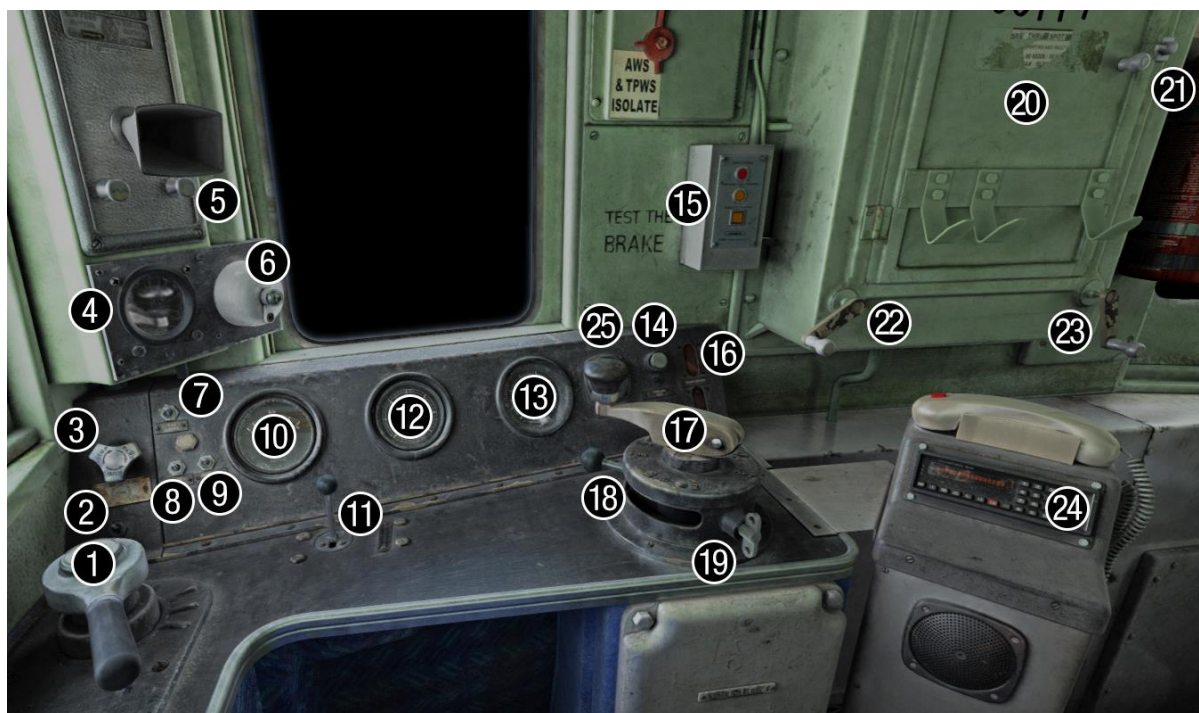


Railtrack

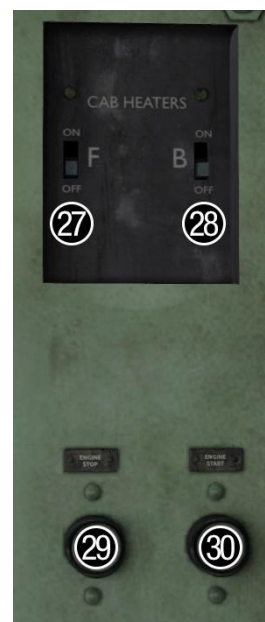


Cab guide

Desk



- 1 - Brake handle (EP & auto)
- 2 - Headlight switch (off/on)
- 3 - Windscreen wiper switch (stop/park/run)
- 4 - AWS sunflower
- 5 - Driver to guard buzzer
- 6 - AWS reset button
- 7 - Cab lights switch (off/on)
- 8 - Instrument lights switch (off/on)
- 9 - Headcode lights switch (off/on)
- 10 - Brake pipe/main reservoir pressure gauge
- 11 - Horn (high/low)
- 12 - Brake cylinder pressure gauge
- 13 - Speedometer
- 14 - Overload reset button
- 15 - Train Protection Warning System (TPWS) unit
- 16 - Engine running light
- 17 - Power handle (off/1/2/3/4/5/6/7)
- 18 - Reverser (off/forward/engine only/reverse)
- 19 - Master key (in/out)
- 20 - Headcode box door
- 21 - Headcode box door lock
- 22 - Headcode blind (left) crank
- 23 - Headcode blind (right) crank
- 24 - Cab Secure Radio (CSR)
- 25 - Ammeter (DMBSO only)



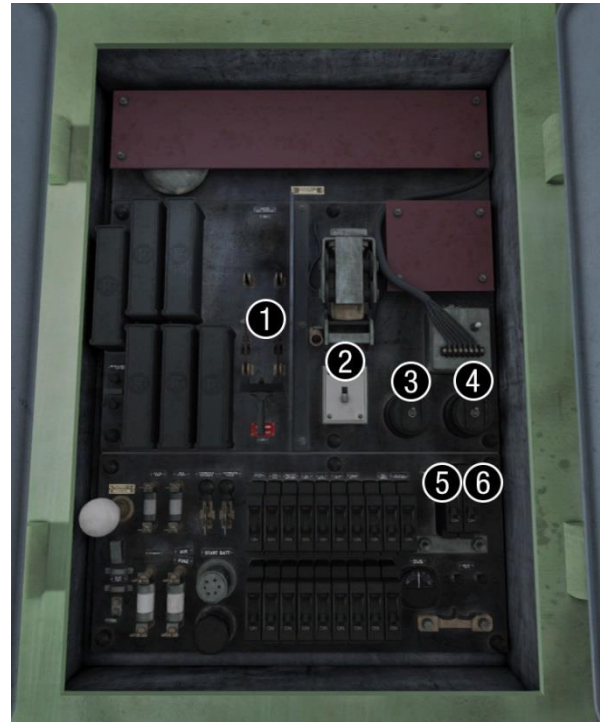
- 26 - Handbrake
- 27 - Heater (F) switch (off/on)
- 28 - Heater (B) switch (off/on)
- 29 - Engine stop button
- 30 - Engine start button

Auxiliary cupboard

On the back wall of the non-driver's side of the cab. Opened and closed by clicking it. Accessible by pressing the right arrow key three times, from the main 'desk' view.



Closed

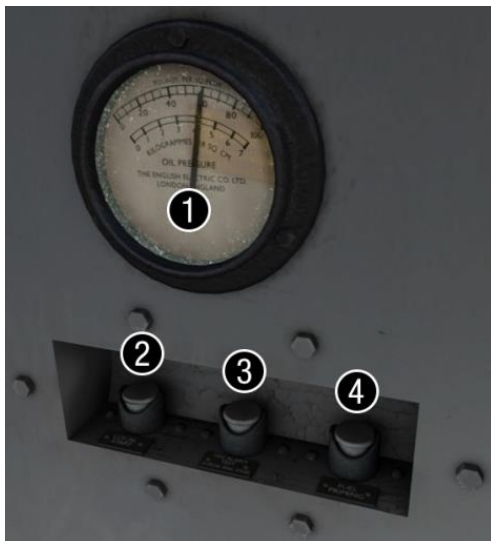


Open

- 1 - Electric Train Heating (ETH) isolating switch (DMBSO only)
- 2 - Passenger saloon lighting switch
- 3 - Electric Train Heating (ETH) control switch (DMBSO only)
- 4 - Engine room lighting switch (DMBSO only)
- 5 - AWS isolation switch
- 6 - EP brake isolation switch

Engine room

Accessible by pressing the left arrow key three times, from the main 'desk' view.



- 1 - Engine oil pressure gauge
- 2 - Engine start button
- 3 - Fire alarm test button
- 4 - Fuel priming pump button

Battery isolation switch

This is an external view but only viewable via the cab. Accessible by pressing the left arrow key twice, from the main 'desk' view.



1 - Battery isolation switch (in/out)

Keyboard controls

Non-standard keyboard controls are listed below:

| | |
|-------------|----------------------------------|
| Ctrl+A - | AWS isolation switch ON/OFF |
| Backspace - | Brake handle (EMERGENCY) |
| Ctrl+' - | Brake handle (LAP/60%) |
| L - | Cab light ON/OFF |
| C - | Driver to guard buzzer |
| Shift+E - | Engine room light switch ON/OFF |
| Z - | Engine start button |
| Ctrl+Z - | Engine stop button |
| Ctrl+P - | EP brake isolation switch ON/OFF |
| F - | Fire alarm test button |
| Ctrl+F3 - | Headcode blind (left) DOWN |
| Ctrl+F4 - | Headcode blind (left) UP |
| Ctrl+F5 - | Headcode blind (right) DOWN |
| Ctrl+F6 - | Headcode blind (right) UP |
| J - | Headcode lights switch ON/OFF |
| Space - | Horn (low tone) |
| B - | Horn (high tone) |
| I - | Instrument lights switch ON/OFF |
| Shift+W - | Master key IN/OUT |
| Shift+S - | Passenger saloon lighting ON/OFF |
| U - | Sun visor DOWN/UP |
| V - | Wiper switch LEFT |
| Shift+V - | Wiper switch RIGHT |

Features

- High definition textures
- Detailed internal & external audio
- [Accurate engine physics](#)
- [Advanced tread brake simulation](#)
- [Authentic EP/auto brake](#)
- [User-changeable headcode blinds](#)
- [Cab Secure Radio \(CSR\)](#)
- [Advanced slam-door functionality](#)
- [Body sway](#)
- [Window condensation](#)
- [Windscreen fly splatters](#)
- [Cold start option](#)
- Passenger view
- Fully functioning AWS with accurate delay between passing over the magnet and hearing the warning sound
- AWS & TPWS self-test
- Speedometer instability. Fluctuates slightly as per reality.
- Dynamic exhaust
- Opening cab windows and door
- Cab instrument lighting
- User-operable passenger saloon lights

Engine physics

Power handle

Off - Engine RPM = 450.

Notch 1 - Engine RPM = 450

Notch 2 - Engine RPM = 450

Notch 3 - Engine RPM = 450

Notch 4 - Engine RPM = 620

Notch 5 - Engine RPM = 620

Notch 6 - Engine RPM = 750

Notch 7 - Engine RPM = 850

All notches between 1 & 7 progressively increase power and acceleration.

Electric Train Heating (ETH)

In ETH mode, the engine idles at a higher RPM of 620. When applying power from 'off', RPM dies back to 450 over 3.5 seconds before power is actually applied.

ETH can be turned on by doing the following:

- 1)** In the cab of the DMBSO, open the auxiliary cupboard doors
- 2)** Move the ETH isolating switch to the 'on' position
- 3)** Click the ETH control switch so it is facing downwards

ETH can be turned off by doing the following:

- 1)** In the cab of the DMBSO, open the auxiliary cupboard doors
- 2)** Click the ETH control switch so it is facing upwards
- 3)** Move the ETH isolating switch to the 'off' position

ETH can be turned on upon a scenario loading, or on AI trains, by changing the number of the driven vehicle. More information on this can be found in the [Numbering](#) section of this manual.

Overload reset

If the unit is driven above 850 amps for more than 30 seconds, you will run the risk of overloading the traction motors. If this happens, power will be cut and the engine will rev down to idle. To regain power, you must return the power handle to 'off' and press the 'overload reset' button.

Tread brake simulation

By default in Train Simulator, braking performance is constant throughout the speed range so a full brake application at 70mph will have the same level of retardation than at 10mph. This is a fairly good representation of how disc brakes work but for stock with tread brakes, like the class 205, this is not so realistic.

As a result, this pack has scripted brake force to simulate the relatively poor performance at high speed, and the 'bite' at lower speeds where performance increases quite significantly.

EP/auto brake

This pack implements an accurate representation of the combined EP (electro-pneumatic) and auto brake. Please see below for an explanation on how to use each brake:

EP (electro-pneumatic)

This proportional self-lapping brake operates between 0 and 44% on the train brake handle and provides graduated release, which means you can release the brake without having to move back to release, but by simply selecting the position on the train brake handle proportional to your desired brake force. Listen out for the relays which make a clicking sound when an EP brake application/release starts and ends.

Auto

This is a fail-safe brake if the EP brake is not operational for any reason, but you may still use it in normal circumstances if you wish. This brake operates between 60% (lap) and 100% on the train brake handle so if you wish to use it, you must move the handle in one movement from 0% to 60% (lap), to avoid an EP application. Also, a keyboard shortcut is available, Ctrl+', which will automatically place the brake handle in the 60% (lap) position without causing an EP application. The main difference with this brake is that if you wish to partially release it, you must move the train brake handle to 0%, and then back to 60% (lap) as soon as you wish to hold the application.

Headcode blinds



Closed



Open

The headcode blinds can be manually changed within the cab. To do this, please follow the instructions below:

- 1) Unlock the headcode box door lock by clicking it.
- 2) Open the headcode box door by clicking it.
- 3) Place the mouse over the crank you wish to move and then click and drag in the direction you wish to move it. The further you drag, the faster the blind will wind.
- 4) Turn the lights on by either clicking the 'Indicator Lights' switch or pressing 'J'.
- 5) Close the headcode box door by clicking it.
- 6) Lock the headcode box door lock by clicking it.

Alternatively, you can move the cranks by pressing 'F3'/'F4' for the left-hand and 'F5'/'F6' for the right-hand.

The headcode can be set upon a scenario loading, or on AI trains, by changing the number of the relevant vehicle. More information on this can be found in the [Numbering](#) section of this manual.

Cab Secure Radio (CSR)



Bar actually being able to speak to the signalman, a fully functioning CSR unit is included in this pack. Introduced in the 1980s/1990s, this radio allows direct communication between the driver and signalman. Please see below on how to use it.

Turning on and setting up

- 1) Press the 'ON' button and wait for 'AREA NOT SET' or 'RADIO LOST' to appear.
- 2) Press the 'AR' button.
- 3) Using the number keys, enter a 2-digit CSR area. If you make a typo, you can use '#' to erase the last digit. If using one of the included scenarios with this pack, the area number is given in the F1 briefing of the scenario.
- 4) Press the '*' button to validate the CSR area.
- 5) Wait for the area to register. It will appear on the left-hand side of the screen.
- 6) Press the 'T' button to test the connection. If all is well, 'TEST OK' will display for 5 seconds.

Registering your train

- 1) Press the 'SU' button.
- 2) Using the number keys, enter the number of the signal in front of you. This must be 4-digits so if the number is 55, this is input as 0055. If you make a typo, you can use '#' to erase the last digit.
- 3) Press the '*' button to validate the signal number.
- 4) Once the signal number is validated, the headcode of your train will appear on the right-hand side of the screen.

Contacting signalman at red signal

- 1) When standing at a red signal, press the 'SG' button.
- 2) 'AT SIG SENT' will appear when the message has been sent.
- 3) Soon after, the signalman will reply with 'WAIT'. This will always be the reply regardless of whether you can pass the signal or not so do still press 'Tab' if required.
- 4) To return to the previous screen, press the '#' button.

Emergency message

- 1) In case of an emergency, press the 'EM' button.
- 2) 'EMG SENT' will appear when the message has been sent.
- 3) To return to the previous screen, press the '#' button.

Lamp test

- 1) Hold the 'LT' button.
- 2) All display pixels and status lights will illuminate.
- 3) Release the 'LT' button.

Unit number display

- 1) Press the blank button between 'EM' and '*' buttons.
- 2) The unit number will be shown on the screen for a short time.

CSR area placement in scenarios



CSR works by allocating an area number to each signal box (or panel in larger signal boxes) so the driver is always in contact with the signalman signalling his train. As the train moves from one area to another, the CSR unit will automatically change area. Also accompanying these changes in area, are lineside signs which state the number of the new area. This sign is included in this pack and must be placed by the scenario author if the CSR areas are to function.

This sign can be found by selecting 'AP/Common' in the 'Object Set Filter' and browsing for 'AP CSR Sign' in the left-hand 'Track Infrastructure' fly-out. To place it simply, simply place the marker on the track your train will be passing through, double click the sign, and input the area number in the right-hand fly-out. The area change will take place anywhere within 500m of this sign.

Advanced slam-door functionality



Each door is individually scripted and opens/closes at random. This means that very rarely will all doors be open at once, just like reality. On top of this, the degree to which the door opens varies. Finally, whether the droplight windows are raised or not, is controlled by season so in the winter, they are much more likely to be raised than in the summer.

Body sway

Compared to the default cab sway when on the move in Train Simulator, we have devised a more advanced version. The main feature being that instead of the player's point of view moving, the train itself moves, which can be seen from both inside and outside the cab (only DMBSO when outside). This makes for a more realistic sensation and has also allowed us to introduce vertical movement which wasn't previously present. Finally, sway also occurs when starting up and shutting down the engine, just like reality!

Window condensation



When the heaters are on and the windows closed, condensation will gradually appear on the windows. To clear this, you will need to either open a window or turn off the heaters.

Windscreen fly splatters



When driving in the summer, flies will periodically hit the windscreen and leave a splatter mark. To clean it away, you can use the wipers.

Cold start

'Cold start' means the unit is in the following state when it loads:

- Main reservoir, brake pipe and brake cylinder pressures are 0
- Battery isolation switch is out
- The engine is shut down
- The handbrake is applied and the paddle is positioned on the right-hand side window

To prepare a unit from cold, please follow the instructions below:

- 1)** Enter the cab and press the left arrow key twice which will show you the battery box.
- 2)** Click the door to the left of the battery box and click the battery isolation switch to move it up.
- 3)** Now move back to the cab and move the brake handle to the full EP brake position (44% on the HUD). This will ensure that the brake applies in sync with the brake pipe/main reservoir once the engine is started and the compressor is running.
- 4)** Insert the master key by pressing 'Shift+W'.
- 5)** Move the reverser to the 'engine only' position by pressing 'S'. This will activate the oil priming pump, which must be run for at least 30 seconds before trying to start the engine. This is to allow the oil pressure to build up to 20psi. You can check its progress by moving to the 'engine room' view and observing the gauge.
- 6)** As soon as the gauge reaches 20psi, you may start the engine by holding the 'Z' key until the 'engine running' light in the cab extinguishes.
- 7)** Reset the AWS self-test by pressing 'Q'.
- 8)** You will now need to wait for the compressor to build the air up in the brake pipe and main reservoir. You can check its progress by looking at the yellow needle on the far left-hand gauge in the cab. When this reaches 70psi, you may move onto the next step.
- 9)** Release the handbrake on the right-hand side of the cab and then remove the paddle in the right-hand window by clicking it.

After carrying out this procedure, your unit will be successfully prepared from cold. To get on the move, please follow the instructions on the next page.

Setting up the driver's cab

Please follow the steps below to set up the cab of the class 205 so you are ready to move:

- 1) Move the brake handle to the emergency position by pressing 'Backspace'.
- 2) Ensure the master key is inserted in the horizontal position. If not, press 'Shift+W'.
- 3) Ensure the reverser is in the 'engine only' position. If not, press 'S'.
- 4) Move the brake handle to the EP area (0% to 44%) to ensure the brake is applied.
- 5) Switch the headcode box lights on by pressing 'J'. Also, where applicable, turn on the headlight by pressing 'H'.
- 6) Set up the headcode of your train.
- 7) Set up the Cab Secure Radio, if required.

You should now be ready to move off. For information on this, please see below.

Driving guide

The following steps should allow you to drive the class 205 in a realistic and safe manner:

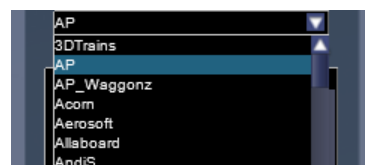
- 1) Move the reverser to your desired direction of travel by pressing either 'W' for forward or 'S' for reverse.
- 2) Release the brake to a low brake cylinder pressure by pressing the ';' key.
- 3) Move the power handle to notch 1 by pressing 'A'. At the same time, move the brake handle to the 'release' position which will ensure you depart without rolling back.
- 4) From then on, apply further power as you see fit. Making sure not to overload the engine by drawing 850 amps+ for more than 30 seconds.
- 5) When returning the power handle to off, make sure to hold it in notch 1 for a few seconds beforehand. This is to let the power die off before removing it.
- 6) To brake the train, see the [EP/auto brake](#) section of the manual.
- 7) Just before coming to a stop, aim to only be lightly applying the brake so as to provide a smooth stop.

How to use in the scenario editor

How to place

To place a class 205 in the scenario editor, please follow the instructions below:

- 1) In the left-hand rolling stock fly-out, click the object set filter which looks like a blue box with an orange arrow to the right of it.
- 2) Go to the right-hand fly-out which should have appeared. Select 'AP' from the drop-down menu.
- 3) Tick the second & third box beside 'Class205Pack01'.
- 4) The class 205 liveries should now be visible in the left hand rolling stock fly-out.



Formation

DMBSO + DTC (2 car) **OR** DMBSO + TS + DTC (3 car)

Numbering

When placing a class 205 in the scenario editor, you are able to control a number of features via the number of the unit. Please note that for the unit number itself, the only number you need to change is the DMBSO's, as other vehicles in the consist will automatically be numbered correctly in relation to the DMBSO.

Headcode

To apply a preset headcode to a driving vehicle (DMBSO or DTC), you must add ';HC=xy' to the number of the relevant vehicle. 'xy' is the headcode you require. This can be made up of digits or for white blinds, 'W', red blinds, 'R' and black blinds 'B'.

Logos

On a number of liveries, you can control the logos shown on the whole unit by adding ';Logo=x' to the DMBSO number. Please see below for the liveries you can use this on and what to put as 'x' to receive your desired result:

- BR Blue/Grey & Network SouthEast: 'NSE' = Network SouthEast. 'NO' = No Network SouthEast logos.

- Connex & Connex (Weathered): 'CXSC' = Connex South Central. 'CX' = Connex. 'SC' = South Central. 'NO' = No logos.

Window bars

In the 1990s, window bars were fitted to most units due to restricted clearance in Oxted tunnel. To apply these bars to the whole unit, you must add ';B=1' to the DMBSO number.

Cab Secure Radio (CSR)

To allow realistic configuration of the CSR unit in scenarios, ';CSR=DAASSSSTTTT' can be added to the driven vehicle (DMBSO or DTC). Please see below for what each sequence of letters represents:

- 'D' controls whether the CSR is already configured upon starting the scenario. Replace 'D' with '0' for no or '1' for yes.
- 'AA' is the 2-digit CSR area number required to set up the CSR at the start of the scenario. (eg. 75)
- 'SSSS' is the 4-digit signal number required to set up the CSR as the start of the scenario. (eg. 0439)
- 'TTTT' is the 4-character train reporting number of the train (eg. 1W40).

Electric Train Heating (ETH)

To have ETH turned on upon loading a scenario, or on AI trains, add ';ETH=1' to the driven vehicle (DMBSO or DTC).

Cold start

To activate cold start mode on a player train, add ';Cold=1' to the DMBSO number.

Example number

205001;HC=88;Logo=CXSC;B=1;CSR=07500321A45;ETH=1

Key:

205001 - Unit number

;HC=88 - Headcode '88'

;Logo=CXSC - Connex South Central logo

;B=1 - Window bars applied

;CSR=07500321A45 = CSR not automatically configured. CSR area '75'. Signal number '32'. Train reporting number '1A45'.

;ETH=1 - ETH turned on

Scenarios

APC205: 1Z66 09:21 London Victoria - London Victoria

Route = London to Brighton
Track covered = Brighton - London Victoria
Traction = Ex-Connex 205009, 205001 & 205033
Year = 2004
Duration = 50 minutes



APC205: 5F52 19:37 Eastbourne - Selhurst Depot

Route = London to Brighton
Track covered = Keymer Junction - Selhurst Depot
Traction = Ex-Connex 205025
Year = 2003
Duration = 55 minutes



APC205: 1L07 07:27 Uckfield - London Victoria

Route = South London Network
Track covered = East Croydon - London Victoria
Traction = Ex-NSE 205032 & Connex 205033
Year = 1999
Duration = 20 minutes



APC205: 1L81 17:10 London Bridge - Uckfield

Route = South London Network
Track covered = London Bridge - East Croydon
Traction = Ex-Connex 205033 & 205018
Year = 2004
Duration = 20 minutes



APC205: 5J69 08:26 London Bridge - Selhurst Depot

Route = South London Network
Track covered = London Bridge - Selhurst Depot
Traction = Ex-Connex 205018 & 205009
Year = 2004
Duration = 30 minutes



APC205: 5L89 05:52 Selhurst Depot - Norwood Junction /1L89 06:06 Norwood Junction - Uckfield

Route = South London Network
Track covered = Selhurst Depot - Norwood Junction - East Croydon
Traction = Ex-Connex 205001 & 205033
Year = 2003
Duration = 30 minutes



Credits

Jordi Blumberg - Modelling & texturing

Nicolas Schichan - Scripting

Spa Valley Railway, East Kent Railway & Epping Ongar Railway - Hosting of sound recording and research sessions