

# Class 168/170/171 Enhancement Pack



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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 168-170-171 Enhancement 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 requirements installed, as listed on the product page.
- 6) To ensure the cab environment sounds as intended in this pack, please make sure that 'EFX' is ticked within your in-game Audio settings.

# Liveries

## Class 168

Chiltern Railways - *CR AP*



Chiltern Railways (Mainline) - *CR (M) AP*



## Class 170

Anglia Railways - AR AP



Anglia Railways (Revised) - AR Rev AP



ONE - ONE AP



ONE Dark - ONE Dark AP



Ex-Anglia Railways (Revised) (NXEA/AGA/GA/GA2) -  
Ex-AR Rev (NXEA/AGA/GA/GA2) AP



Ex-ONE (NXEA/AGA/GA/GA2) - Ex-ONE (NXEA/AGA/GA/GA2) AP



Ex-ONE Dark (NXEA/AGA/GA) - *Ex-ONE Dark (NXEA/AGA/GA) AP*



Greater Anglia - *GA AP*



Midland Mainline - *MML AP*



Ex-Midland Mainline (Central Trains/CrossCountry) -  
*Ex-MML (CT/XC) AP*



Central Trains - CT AP



CrossCountry - XC AP



London Midland - *LM AP*



South West Trains - *SWT AP*



Hull Trains - *HT AP*



First Transpennine Express - *FTPE AP*



ScotRail - SR AP



First ScotRail - FSR AP



SPT Rail - *SPT Rail AP*



ScotRail Saltire - *SR Salt AP*



## Class 171

Southern - *SN AP*



## Keyboard Controls

Non-standard keyboard controls are listed below:

L -	Cab light ON/OFF
E -	Deadman's pedal (DVD reset)
F7 -	Destination blind UP
F8 -	Destination blind DOWN
Y -	Driver reminder appliance (DRA) ON/OFF
C -	Driver to guard buzzer
Ctrl+D -	Driver vigilance device (DVD) ON/OFF
Z -	Engine start button
Ctrl+Z -	Engine stop button
+ -	Hill start button
Shift+W -	Master key IN/OUT
K -	Tail lights switch ON/OFF
V -	Wiper switch CLOCKWISE
Shift+V -	Wiper switch ANTI-CLOCKWISE

## Features

- 23 liveries
- Higher resolution cab visuals
- Detailed internal & external audio
- Accurate acceleration & braking physics
- Voith T211rzze hydraulic transmission
- Adhesion
- Cooling fan simulation
- Automatic unit numbering
- Dynamic exhaust effects
- Player changeable destination display
- Driver vigilance device (DVD)
- Bits and Bobs

## **Voith T211rzze Hydraulic Transmission**

Great care has been taken in recreating the characteristics of the 2-stage hydraulic transmission used in this unit.

### ***1<sup>st</sup> Stage - Torque Converter***

When accelerating from a standing start, oil fills the torque converter and the engine revs up, which allows acceleration to take place. Unlike the Class 15x family of units, the engine does not rev up until the oil has filled the converter, hence the lack of an initial surge of rpm before settling and a smooth increase in rpm instead. As a result, there is a 3 second delay between applying power and the engine responding.

During this 1<sup>st</sup> stage, engine rpm is directly controlled via the notch selected on the power handle.

### ***2<sup>nd</sup> Stage - Fluid Coupling***

At 70mph, the oil transfers from the torque converter to the fluid coupling which results in a reduction of engine rpm. During this stage, engine rpm is directly proportional to the speed of the train which means rpm will be the same regardless of which notch is selected on the power handle. All that varies is the load being placed on the engine. As speed increases then, you will gradually hear engine rpm rise in sync.

The unit will stay in this second stage until speed drops below 66mph. At this point, the transmission reverts to the first stage.

## **Adhesion**

Adhesion between a train's wheels and the rails plays a big part in allowing a train to accelerate or brake. Too little of it and the train will slip or slide. There are a myriad of factors that control the level of adhesion and we have attempted to simulate the most important of these to give a varied and realistic driving experience:

### ***Season***

Adhesion is generally good in dry conditions during summer and spring. Slightly decreased adhesion during winter to take account of the increased amount of moisture and possible ice on the rails due to cooler temperatures. Much decreased adhesion during autumn due to leaf mulch.

### ***Weather***

Adhesion decreases in wet weather, especially so when rain first starts falling before it has had a chance to clean the railhead. If rain is light, it will take longer for the railhead to be cleaned whereas heavy rain will clean it quicker, resulting in adhesion recovering sooner.

When using the drizzle weather pattern in our Sky & Weather Enhancement Pack, adhesion is particularly poor as the rain hasn't enough force to clean the railhead but still makes it sufficiently wet to worsen adhesion.

### ***Time of Day***

Adhesion will decrease somewhat after dusk as the air cools and dew is more likely to form on the railhead. This persists throughout the night until around an hour after sunrise when higher temperatures or the sun dry it out. In our simulation, this factor is reduced during summer to account for warmer temperatures, which on average result in less dew.

### ***Tunnels***

When adhesion is poor due to external factors such as weather or season, adhesion will generally improve upon entering a tunnel, which is not as susceptible to these factors. When adhesion is good during dry weather and outside of autumn, adhesion may decrease a little upon entering a tunnel due to their damp nature.

## ***Wheelslip***

Wheelslip protection aids the driver when powering or braking during times of poor adhesion.

When wheelslip is encountered during acceleration, a two stage process takes place:

- 1) Power is automatically reduced and the 'WSP Activity' light flashes in the cab.
- 2) Once wheelslip stops, power is reapplied to the notch selected on the combined power handle and the 'WSP Activity' light extinguishes. If wheelslip reoccurs, the process starts again.

As a driver, you must assess which power notch is most suitable for the conditions and balance the occurrence of wheelslip with the maximum possible rate of acceleration.

## ***Wheelslide***

When wheelslide is encountered during braking, a two stage process takes place:

- 1) Brake pressure is automatically reduced and the 'WSP Activity' light flashes in the cab.
- 2) Once the wheelslide stops, brake pressure is returned to the notch selected on the combined power handle and the 'WSP Activity' light extinguishes. If wheelslide reoccurs, the process starts again.

As a driver, you must resist the temptation to reduce the brake yourself as the wheelslip protection will offer the best braking performance.

## **Cooling Fan Simulation**

The distinctive cooling fan on these units has been simulated and is audible on the outside on the train. How quickly the engine's temperature rises and how efficient the fan is at cooling it, primarily depends on the season but also on how hard the engine is being driven. For example, in the summer and with a lot of high speed running, you can expect it to be active a lot of the time. In contrast, during cooler months and with low speed running, it won't be active as much, especially in winter. On top of this, to reflect the variable nature of each engine and its efficiency at cooling, each engine is given a random efficiency rating at the start of a scenario, just to provide even more variation.

## **Gradients**

By default in Train Simulator Classic, only gradients of 1 in 185 or steeper have a gravitational effect on a train and this is only suitably realistic on gradients of approximately 1 in 125 or steeper. This means on gradients shallower than 1 in 125, the train does not experience the gravitational forces upon it than it should.

With this information in hand, we have managed to get rid of this limitation by making the train invisibly power or brake itself to simulate the effect that gravity has where Train Simulator Classic by default doesn't do so. This is all invisible to you as the player so you won't suddenly find the power or brake handles moving without your say so, but it does mean you have to drive to the gradients of the route a lot more than before, just like a real driver, especially on mainline routes where gradients rarely reach the severity where Train Simulator Classic has them behave realistically. You will also now find that if trying to recreate real timetabled runs, your timings will much more closely match reality.

## **Automatic Unit Numbering**

When placing a unit in the scenario editor or using one in Quick Drive, all vehicles will automatically be given correct unit and coach numbers instead of you having to select each vehicle and changing their number manually so they match. The unit number is usually controlled via the DMSL coach (this can vary depending on the particular formation of your chosen livery) if you wish to change it. Please note that the destination display on both driving coaches is also controlled via this coach.

## Dynamic Exhaust Effects

Dynamic exhaust effects mean that the exhaust reacts to what the engine is doing. For example, when in notch 7, the engine will produce more exhaust than it would when idling. Also, when revving up, exhaust thickens before thinning out when rpm settles. Equally, when revving down, exhaust thins. On top of that, when starting up, exhaust rises in sync with the sound of the engine revving up. Finally, in reality, the smokiness of each vehicle varies depending on how well maintained it is, so to represent this in the simulator, a random 'clag' factor is allocated to each vehicle which ranges from 1 to 10; 1 being the cleanest and 10 being the dirtiest.



## Player Changeable Destination Display

The destination display can be changed during a scenario by pressing either the F7 or F8 keys. For each livery, a set of relevant destinations are provided. Please see below for a list of the available destinations on each livery and their relevant code if you wish to use them via the unit's number on an AI service:

### ***Anglia Railways / Anglia Railways (Revised) / ONE / ONE Dark / Greater Anglia / Hull Trains***

a - Blank	n - Harwich International	A - Stowmarket
b - Beccles	o - Harwich Town	B - Stratford
c - Braintree	p - Ipswich	C - Sudbury
d - Bury St Edmunds	q - London Liverpool Street	D - Witham
e - Cambridge	r - Lowestoft	E - Beverley
f - Chelmsford	s - Marks Tey	F - Doncaster
g - Colchester	t - Norwich	G - Hull
h - Cromer	u - Norwich via Acle	H - London Kings Cross
i - Ely	v - Norwich via Reedham	I - Basingstoke
j - Felixstowe	w - Peterborough	J - Empty to Depot
k - Great Yarmouth	x - Saxmundham	K - Not in Service
l - Great Yarmouth Via Acle	y - Sheringham	L - Special
m - Great Yarmouth Via Reedham	z - Stansted Airport	M - Turbostar Class 170

### ***Midland Mainline***

a - Blank	k - Kettering	u - Matlock
b - Alfreton	l - Langley Mill	v - Nottingham
c - Barnsley	m - Leeds	w - Scarborough
d - Bedford	n - Leicester	x - Sheffield
e - Beeston	o - London St Pancras	y - Wellingborough
f - Belper	p - Long Eaton	z - York
g - Burton-on-Trent	q - Loughborough	A - Empty to Depot
h - Chesterfield	r - Luton	B - Not in Service
i - Derby	s - Manchester Piccadilly	C - Special
j - Duffield	t - Market Harborough	D - Turbostar Class 170

### ***Southern***

a - Blank	h - Edenbridge Town	o - Oxted
b - Appledore	i - Eridge	p - Rye
c - Ashford International	j - Hastings	q - Uckfield
d - Brighton	k - Hever	r - Empty to Depot
e - Crowborough	l - Hurst Green	s - Not in Service
f - East Croydon	m - London Bridge	t - Special
g - Eastbourne	n - Ore	u - Turbostar Class 171

## Central Trains / CrossCountry

a - Blank	s - Great Yarmouth Via Reedham	K - Peterborough
b - Birmingham International	t - Hereford	L - Sheffield
c - Birmingham Moor Street	u - Kidderminster	M - Shrewsbury
d - Birmingham New Street	v - Leamington Spa	N - Skegness
e - Birmingham Snow Hill	w - Leicester	O - Stafford
f - Cambridge	x - Lincoln	P - Stansted Airport
g - Cardiff Central	y - Liverpool Lime Street	Q - Stoke-on-Trent
h - Cheltenham Spa	z - Lowestoft	R - Stratford-upon-Avon
i - Cleethorpes	A - Manchester Oxford	S - Walsall
j - Crewe	B - Manchester Piccadilly	T - Wolverhampton
k - Derby	C - Mansfield Woodhouse	U - Worcester Foregate Street
l - Doncaster	D - Matlock	V - Worcester Shrub Hill
m - Ely	E - Newark Castle	W - Empty to Depot
n - Gloucester	F - Newark North Gate	X - Not in Service
o - Grantham	G - Norwich	Y - Special
p - Great Malvern	H - Norwich Via Acle	Z - Turbostar Class 170
q - Grimsby Town	I - Norwich Via Reedham	
r - Great Yarmouth Via Acle	J - Nottingham	

## ScotRail / First ScotRail / SPT Rail / ScotRail Saltire

a - Blank	p - Dyce	E - Kirkcaldy
b - Aberdeen	q - Ed Wav Via Falkirk Grahamston	F - Lenzie
c - Aberdeen Via Dyce	r - Ed Wav Via Falkirk High	G - Markinch
d - Aberdeen Via Stonehaven	s - Edinburgh Waverley	H - Newcraighall
e - Alloa	t - Falkirk Grahamston	I - North Berwick
f - Anniesland	u - Glasgow Central	J - Perth
g - Arbroath	v - Glenrothes	K - Perth Via Dunblane
h - Cardenden	w - Glenrothes Via Kirkcaldy	L - Perth Via Kirkcaldy
i - Carnoustie	x - Glasgow Queen Street	M - Stirling
j - Cowdenbeath	y - Glasgow Queen St Via Falkirk Graham	N - Stirling Via Falkirk Graham
k - Cumbernauld	z - Glasgow Queen St Via Falkirk High	O - Tweedbank
l - Dunbar	A - Inverkeithing	P - Empty to Depot
m - Dunblane	B - Inverness	Q - Not in Service
n - Dundee	C - Inverness Via Perth	R - Special
o - Dundee Via Perth	D - Inverurie	S - Turbostar Class 170

## South West Trains

a - Blank	j - Exeter St Davids	s - Weymouth
b - Andover	k - London Waterloo	t - Woking
c - Basingstoke	l - Paignton	u - Yeovil Junction
d - Bournemouth	m - Penzance	v - Yeovil Pen Mill
e - Brighton	n - Plymouth	w - Empty to Depot
f - Bristol Temple Meads	o - Reading	x - Not in Service
g - Clapham Junction	p - Romsey	y - Special
h - Eastleigh	q - Salisbury	z - Turbostar Class 170
i - Exeter Central	r - Southampton	

## ***Chiltern Railways / Chiltern Railways (Mainline)***

<b>a - Blank</b>	<b>k - Dorridge</b>	<b>u - Stourbridge Junction</b>
<b>b - Amersham</b>	<b>l - Gerrards Cross</b>	<b>v - Stratford-upon-Avon</b>
<b>c - Aylesbury</b>	<b>m - High Wycombe</b>	<b>w - Wembley Stadium</b>
<b>d - Aylesbury Vale Parkway</b>	<b>n - Kidderminster</b>	<b>x - West Ruislip</b>
<b>e - Banbury</b>	<b>o - London Marylebone</b>	<b>y - Empty to Depot</b>
<b>f - Beaconsfield</b>	<b>p - London Paddington</b>	<b>z - Not in Service</b>
<b>g - Bicester North</b>	<b>q - Oxford</b>	<b>A - Special</b>
<b>h - Bicester Village</b>	<b>r - Oxford Parkway</b>	<b>B - Turbostar Class 168</b>
<b>i - Birmingham Moor Street</b>	<b>s - Princes Risborough</b>	
<b>j - Birmingham Snow Hill</b>	<b>t - Solihull</b>	

## ***First Transpennine Express***

<b>a - Blank</b>	<b>n - Leeds</b>	<b>A - Scunthorpe</b>
<b>b - Barnetby</b>	<b>o - Liverpool Lime Street</b>	<b>B - Selby</b>
<b>c - Barrow-in-Furness</b>	<b>p - Liverpool South Parkway</b>	<b>C - Sheffield</b>
<b>d - Birchwood</b>	<b>q - Malton</b>	<b>D - Stalybridge</b>
<b>e - Blackpool North</b>	<b>r - Manchester Airport</b>	<b>E - Stockport</b>
<b>f - Cleethorpes</b>	<b>s - Manchester Oxford Road</b>	<b>F - Warrington Central</b>
<b>g - Dewsbury</b>	<b>t - Manchester Piccadilly</b>	<b>G - Windermere</b>
<b>h - Doncaster</b>	<b>u - Manchester Victoria</b>	<b>H - York</b>
<b>i - Edinburgh Waverley</b>	<b>v - Middlesbrough</b>	<b>I - Empty to Depot</b>
<b>j - Grimsby Town</b>	<b>w - Newcastle</b>	<b>J - Not in Service</b>
<b>k - Huddersfield</b>	<b>x - Oxenholme Lake District</b>	<b>K - Special</b>
<b>l - Hull</b>	<b>y - Preston</b>	<b>L - Turbostar Class 170</b>
<b>m - Lancaster</b>	<b>z - Scarborough</b>	

## ***London Midland***

<b>a - Blank</b>	<b>m - Kidderminster</b>	<b>y - Stourbridge Junction</b>
<b>b - Birmingham International</b>	<b>n - Leamington Spa</b>	<b>z - Stourbridge Town</b>
<b>c - Birmingham Moor Street</b>	<b>o - Lichfield Trent Valley</b>	<b>A - Stratford-upon-Avon</b>
<b>d - Birmingham New Street</b>	<b>p - Liverpool Lime Street</b>	<b>B - Telford Central</b>
<b>e - Birmingham Snow Hill</b>	<b>q - Longbridge</b>	<b>C - Walsall</b>
<b>f - Bromsgrove</b>	<b>r - Northampton</b>	<b>D - Wolverhampton</b>
<b>g - Coventry</b>	<b>s - Nuneaton</b>	<b>E - Worcester Foregate Street</b>
<b>h - Dorridge</b>	<b>t - Rugby</b>	<b>F - Worcester Shrub Hill</b>
<b>i - Droitwich Spa</b>	<b>u - Rugeley Trent Valley</b>	<b>G - Empty to Depot</b>
<b>j - Gloucester</b>	<b>v - Shrewsbury</b>	<b>H - Not in Service</b>
<b>k - Great Malvern</b>	<b>w - Stafford</b>	<b>I - Special</b>
<b>l - Hereford</b>	<b>x - Stoke-on-Trent</b>	<b>J - Turbostar Class 170</b>

## AI Horns

To blow an AI train's horn in a scenario, you must edit the speed limit properties of the section of the track at which you would like the AI train to sound its horn. Please see below for instructions:

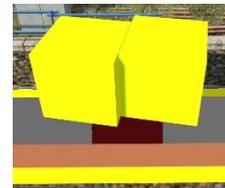
- 1) In the scenario editor, go to the location at which you would like the AI train's horn to sound, and press **Spacebar** 3 times. The track will now display a certain colour which represent its speed limit.

- 2) Go to the top-left-hand fly-out and click the 'Select' icon.



- 3) Hover your mouse over the piece of track where you like the AI horn to sound. A yellow border will appear around the track when it is selected.

- 4) Click and drag the yellow box in either direction until the measurement reading at the bottom of the screen says at least '1.0 metres'.



- 5) Go to the right-hand fly-out and change the two 'Speed Limit' values to '900'.



- 6) Click outside of any menus and the section of track you selected will now say 'Unspecified'. Any AI train which passes over this section of track will now blow its horn.

The manner in which the AI train blows its horn is randomly calculated each time, meaning no horn is ever the same. You may hear a single tone (any post-2007 liveries only), a two tone, a three tone, or now and then, even the infamous 'Ilkley Moor' sequence.

If you wish to be more specific in how and when the horn is sounded, please see the table below for values other than '900' which can be inputted in the speed limit field for different behaviour:

Speed Limit Value	Notes
900	Random number of tones
901	1 tone (low)
902	1 tone (high)
903	2 tone (low/high)
904	2 tone (high/low)
905	3 tone (low/high/low)
906	3 tone (high/low/high)
907	'Ilkley Moor' sequence
921	Same as 900 but 1 in 20 (5%) chance of horn sounding
922	Same as 900 but 1 in 16 (6.3%) chance of horn sounding
923	Same as 900 but 1 in 12 (8.3%) chance of horn sounding
924	Same as 900 but 1 in 8 (12.5%) chance of horn sounding
925	Same as 900 but 1 in 6 (16.6%) chance of horn sounding
926	Same as 900 but 1 in 4 (25%) chance of horn sounding
927	Same as 900 but 1 in 3 (33.3%) chance of horn sounding
928	Same as 900 but 1 in 2 (50%) chance of horn sounding
929	Same as 900 but 1 in 1.33 (75%) chance of horn sounding
930	Same as 900 but intended for use at platform ends*
931	Same as 921 but intended for use at platform ends*
932	Same as 922 but intended for use at platform ends*
933	Same as 923 but intended for use at platform ends*
934	Same as 924 but intended for use at platform ends*
935	Same as 925 but intended for use at platform ends*
936	Same as 926 but intended for use at platform ends*
937	Same as 927 but intended for use at platform ends*
938	Same as 928 but intended for use at platform ends*
939	Same as 929 but intended for use at platform ends*
940	Whistle boards**
950	Tunnels***

\* **Platform ends** - Horn will sound only if train is travelling over 50mph, which at platforms of 12 car length or less, ensures that stopping trains do not sound their horn. Also, the point at which the train sounds its horn randomly varies from 1m to however fast the train is travelling. For example, if a train is passing at 125mph, the maximum possible distance it will sound its horn away from the trigger point is 125m. This simulates the propensity for drivers to sound their horn earlier if they are travelling at speed.

**\*\* Whistle boards** - Intended for use at whistle boards. Pre-2007, trains sounded at least two tones at all times of day. From April 2007, following increasing concerns about noise, drivers were instructed to use only a single low tone and only between the hours of 07:00 & 23:00. This was later changed to between 06:00 & 23:59 in 2016.

To simulate this, any pre-2007 liveries will exhibit pre-2007 behaviour (at least two tones/no time restriction) and any post-2007 liveries will exhibit a hybrid of post-2007 & 2016 behaviour (single low tone/between 06:00 & 23:59 only). The point at which the horn sounds varies randomly from 1m to 40m away from the trigger point.

**\*\*\* Tunnels** - Historically, trains always blew their horn when entering & exiting tunnels to warn potential track workers of their presence. With increased health & safety regulations reducing the presence of track workers in 'live' tunnels, and to allay complaints of increasing noise pollution due to louder modern horns, this requirement was removed on Saturday 6<sup>th</sup> November 2004.

To simulate this, any pre-2004 liveries will sound at least two tones. The point at which the horn sounds varies randomly from 1m to 40m away from the trigger point.

Whilst these tools are primarily intended for use by scenario creators, they can also be used by route editors to 'bake' these features into a route. The platform end, whistle board & tunnel values being of particular use in this respect.

Finally, due to the custom speed limits being of such a short distance, they do not affect AI train performance or appear as the current speed limit on the F3/F4 HUD. Also, assuming the route you are using is configured to only show signed speed limits (the majority do this), custom speed limits will not appear in the part of the F3/F4 HUD which shows forthcoming speed limit changes.

## Bits and Bobs

This section is dedicated to aspects of this pack that don't warrant a dedicated section but are still of note:

- The reverser must be placed in 'Neutral' to start the engine.
- If the emergency brake applies, power can only be regained if the power handle is returned to 'Off'.
- 1 second delay between train passing over AWS magnet and AWS warning sound occurring. The F3/F4 HUD will show the warning immediately so you must wait 1 second before trying to cancel it.
- The headlights only provide illumination before sunrise and after sunset. This is to avoid the unrealistic appearance of projected light in broad daylight.
- If speed rises above 103mph, power will be cut until speed falls below 97mph and the combined power handle is placed in the 'Off/Release' position.
- When the doors are open, full brake pressure is applied and the 'Door Interlock Lost' indicator light illuminates.
- Notched combined power handle; 7 power notches & 4 brake notches.
- Intermittent, slow and fast setting added to windscreen wiper.
- Separate engine start & stop buttons now operational. Engine stop button illuminates when engine is stopped.
- Master key & 4-step reverser (Off/Reverse/Neutral/Forward).
- Cab light.
- 'Hill start' button which applies step 1 brake pressure below 3mph.
- Functioning 'Train Fault' & 'No Train Fault' indicator lights when changing reverser position.
- 'Door power' indicator light which illuminates when speed falls below 3mph and extinguishes when speed rises above 10mph.
- Digital clock below speedometer.
- Individually controlled headlights & tail lights with proving lights in the cab.
- Detailed headlight, marker light & tail light textures for both new and old styles.
- Improved appearance of Driver Reminder Appliance (DRA).
- Cab camera angle amended so more of the desk is visible.
- 'Max Speed 100mph' label added to driver's side of cab.

# Setting Up the Driver's Cab

Please follow these steps to set up the cab so you are ready to move:

- 1) Turn the master key in by pressing **Shift+W**.
- 2) Move the reverser to the 'neutral' position by pressing **S**.
- 3) Cancel the AWS self-test alarm by pressing **Q**.
- 4) Turn off the tail lights by pressing **K**.
- 5) Turn the headlights on by pressing **H**.
- 6) Turn the Driver Reminder Appliance (DRA) off by pressing **Y**.

## Scenarios

### **APC170EP: 06:45 Lowestoft - London Liverpool Street**

Route = GEML London - Ipswich

Track covered = Ipswich - London Liverpool Street

Traction = ONE 170205 & 170207

Year = 2005

Duration = 1 hour 15 minutes



### **APC170EP: 08:26 Basingstoke - Colchester**

Route = GEML London - Ipswich

Track covered = Stratford - Colchester

Traction = Anglia Railways 170206

Year = 2000

Duration = 55 minutes



### **APC170EP: Felixstowe Shuttle**

Route = GEML London - Ipswich

Track covered = Ipswich - Felixstowe - Ipswich

Traction = Greater Anglia 170270

Year = 2017

Duration = 55 minutes



## Credits

**Nicolas Schichan** - Advanced scripting

**Duncan Sealey & London Midland** - Assistance in recording sounds

**Matt Valentine** - Assistance in providing photos of the cab