# Class 50 Locomotive

## Contents

# 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 50 Locomotive 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.
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.

# Technical Information

| | |
|---|---|
| **Manufacturer** | English Electric at Vulcan Foundry |
| **Years built** | 1967 - 1968 |
| **Number built** | 50 |
| **Engine** | English Electric 16CSVT |
| **Maximum speed** | 100 mph (161 km/h) |
| **Length** | 68 ft 6 in (18.75 m) |
| **Height** | 12 ft 9 in (3.89 m) |
| **Width** | 8 ft 10 in (2.69 m) |
| **Weight** | 115 t |

# Liveries

BR Blue (Unrefurbished/Pre-TOPS) - *BR Blue (UR/Pre-TOPS)*



BR Blue (Unrefurbished) - *BR Blue (UR)*

BR Blue:

      with NRN - *BR Blue*

      with GSM-R and orange cant rail - *BR Blue (GSMR)*



BR Large Logo (Grey Roof):

      without orange cant rail - *BR LL (Grey)*

      with orange cant rail - *BR LL 2 (Grey)*

BR Large Logo (Black Roof):

      without orange cant rail - *BR LL (Black)*

      with orange cant rail - *BR LL 2 (Black)*



BR Large Logo (Blue Roof) - *BR LL (Blue)*

Network SouthEast - *NSE*



Network SouthEast Revised - *NSE Rev*

## Network SouthEast Revised 2 - *NSE Rev 2*



## BR Trainload

BR Civil Engineers - *BR Civil Eng*



BR Blue (Laira):

 with NRN - *BR Blue (Laira)*

 with GSM-R - *BR Blue (Laira) (GSMR)*

Great Western Railway - *GWR*



London, Midland and Scottish Railway - *LMS*

## Loadhaul



## InterCity Swallow - *ICS*

GB Railfreight - *GBRf*

# FVX Motorail Wagon

As well as the locomotive, the 'FVX' Motorail wagon is also featured. Both in unloaded and loaded form with vintage vehicles from the early 1980s.

# Cab Guide

## Driver's Side



1 - Loco brake handle
2 - Train brake handle
3 - AWS reset button
4 - AWS sunflower
5 - Wheelslip indicator light
6 - Engine stop button
7 - Engine start button
8 - Engine stopped indicator light
9 - Fire alarm test button
10 - ETH status indicator light
11 - Brake cylinder pressure gauge
12 - Brake pipe pressure gauge
13 - Vacuum brake pressure gauge
14 - Speedometer
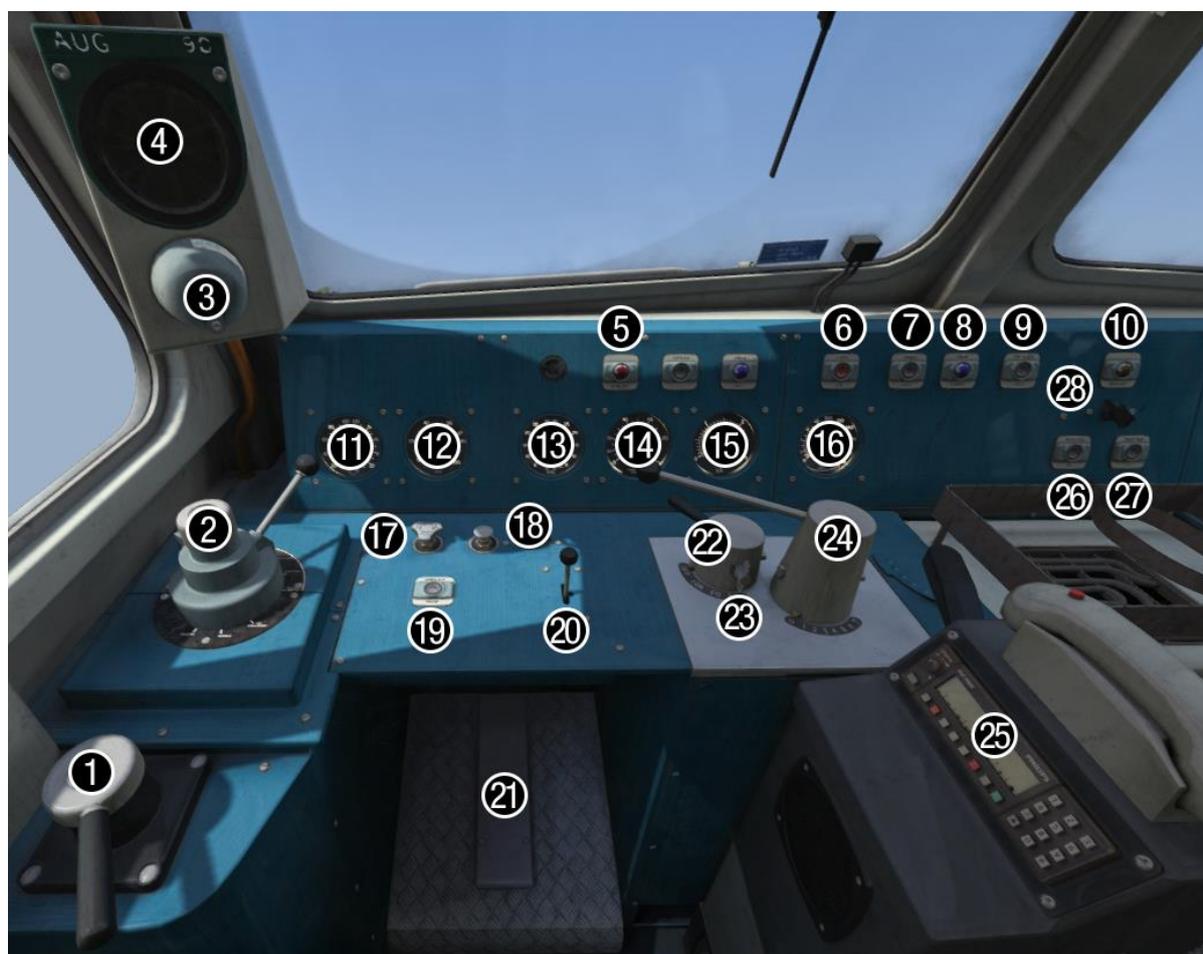
15 - Ammeter
16 - Main reservoir gauge
17 - Windscreen wiper switch (left)
18 - Instrument light switch
19 - Wheelslip brake button
20 - Horn
21 - Deadman's pedal
22 - Reverser
23 - Master key
24 - Power handle
25 - NRN radio or GSM-R (refurb only)
26 - Electric Train Heating (ETH) on button
27 - Electric Train Heating (ETH) off button
28 - Headlight switch

# Driver's Side Ceiling



29 - Route indicator lights switch

30 - Tail lights switch

31 - Cab light (driver's side) switch

# Below Driver's Seat



32 - AWS isolation switch

33 - Change end switch

# Engine Room



34 - Battery ammeter

35 - Brake selector

36 - Compressor emergency switch

37 - Engine start button

38 - Traction motor cut-out switch

# Keyboard Controls

Non-standard keyboard controls are listed below:

| | |
|---|---|
| Ctrl+N - | AWS change end switch ON/OFF |
| Ctrl+A - | AWS isolation switch |
| Shift+Ctrl+B - | Brake type TREAD/DISC |
| L - | Cab light switch ON/OFF |
| Shift+C - | Clag Factor INCREASE |
| Ctrl+C - | Clag Factor DECREASE |
| E - | Deadman's pedal (DVD reset) |
| Ctrl+D - | Driver vigilance device (DVD) ON/OFF |
| Z - | Engine start button |
| Ctrl+Z - | Engine stop button |
| F - | Fire alarm test button |
| H - | Headlight switch ON/OFF |
| Space - | Horn (low tone) |
| B - | Horn (high tone) |
| I - | Instrument lights switch |
| Shift+W - | Master key IN/OUT |
| Shift+M - | Motor Factor INCREASE |
| Ctrl+M - | Motor Factor DECREASE |
| J - | Route indicator lights switch |
| K - | Tail lights switch ON/OFF |
| R - | Train brake handle shutdown pin IN/OUT |
| Ctrl+Numpad Enter - | Visual aids ON/OFF |
| V - | Windscreen wiper switch LEFT |
| Shift+V - | Windscreen wiper switch RIGHT |

# Features

## Cab Variants

**without NRN radio** - BR Blue (Unrefurbished) & BR Blue (Unrefurbished/Pre-TOPS)



**with NRN radio (optional TPWS)**

**with TPWS & GSM-R** - BR Blue (GSMR), BR Blue Laira (GSMR) & GB Railfreight (50007)



**with TPWS & GSM-R (Black)** - GB Railfreight (50049)

# Traction Physics

Great care has been taken to simulate the traction physics of this locomotive. When recording the sounds used in this pack, we also recorded the speedometer and ammeter and this information has been translated accordingly into Train Simulator. In the past, locomotives of this type have been plagued by a limitation where at speed, the amount of power being applied was not proportional to the power handle and as a result, you could happily maintain a high speed with not much power applied. Using our custom scripting, we bypass this limitation and ensure performance matches the real thing as closely as possible.

On top of this, field diverts have been implemented at the correct speeds of 28 mph (35 mph), 44 mph (51 mph) & 58 mph (65 mph). The speeds in brackets are if Electric Train Heating (ETH) is on. Field diverts allow the locomotive to maximise its acceleration as it gains speed. When these take place, the turbocharger briefly rises before falling back to normal. This is in response to the load being increased on the engine.

In addition, we have implemented the performance decrease when supplying Electric Train Heating (ETH). This is calculated by taking the length of the train and estimating its ETH load accordingly. For example, the locomotive will have less power available for traction with an 8 coach rake compared to a 4 coach rake. At its maximum load, equivalent to 14 20 m coaches, ETH will use 15% of available power. ETH can be turned on and off by pressing the relevant buttons in the cab.

Finally, realistic delay times between the power handle being moved and power being applied/removed are implemented. This locomotive is relatively quick to respond so the normal delay is only half a second. When moving to 'Off' however, power is removed instantly.

# Brakes

## *Westinghouse Brake Handle*

This locomotive is fitted with a dual-brake Westinghouse brake handle which has the following positions:

**Release** (0%) - This is a sprung load position and when using vacuum brakes, speeds up the exhausters to provide a quicker brake release.

**Running** (16%) - Brakes are fully released and the brake pipe pressure will read 5 bar.

**1st Application** (32%) - Minimum possible brake force. This equates to around 25% brake force. The brake pipe pressure will read 66.5 psi.

**Service** (32% to 64%) - Brake pipe pressure can be changed as desired between 48.5 & 66.5 psi.

**Full Service** (64%) - Maximum possible brake force. The brake pipe pressure will read 48.5.

**Emergency** (80%) - Maximum possible brake force applied quicker compared to 'Full Service'. The brake pipe pressure will read 0 psi.

**Shutdown** (100%) - Only accessible by raising the pin (**R** key), the brake handle must be placed in this position when shutting down the cab.

## *Brake Selector Switch*

The brake selector switch in the engine room (accessible by scrolling through the different cab view angles) allows you to choose either air or vacuum brake mode. On top of that, either passenger or goods timings can be selected. Goods timings are slower than passenger and are used when hauling certain wagons to avoid too much pressure on the couplings.

## *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, 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. These tread brake physics are turned on by default as most rolling stock these locomotives have hauled is fitted with this type of brake. If you are hauling disc braked stock such as Mk3 coaches, you can change the brake type by pressing **Shift+Ctrl+B**.

Also, please note that the rolling stock you are hauling must be especially adapted to work properly with our tread brake simulation. If it is not, the correct physics will still occur on the locomotive, and to some degree on the stock behind, except for the extra 'bite' at low speed.

# 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 Protection (WSP)*

Wheelslip protection aids the driver during times of poor adhesion.

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

1) Power is automatically reduced and the wheelslip indicator light illuminates in the cab.
2) Once the wheelslip stops, power is reapplied to the selected power handle setting and the wheelslip indication light extinguishes. If wheelslip reoccurs, the process starts again.

As a driver, you must assess which power setting is most suitable for the conditions and balance the occurrence of wheelslip with the maximum possible rate of acceleration. To attempt to improve adhesion, you may use the 'Wheelslip brake', which applies 20 psi to the locomotive's brakes to scrub the wheel tread.

## Cooling Fan Simulation

The sound and function of the cooling fan has been implemented. It is thermostat operated and activates when the engine reaches a certain temperature or power is selected. Please see below for an explanation of each fan stage and when it activates:

- **Idle** - Coolant temperature up to 160°F/71°C.
- **Idle/shutters open** - Coolant temperature between 160°F/71°C & 170°F/77°C.
- **Intermediate** - Coolant temperature between 170°F/77°C & 180°F/82°C. and/or when power is applied.
- **High** - Coolant temperature above 180°F/82°C. Tends to only occur during summer and when the locomotive is under power for a prolonged time.

To reflect the variable nature of each locomotive and its efficiency at cooling, each locomotive is given a random efficiency rating at the start of a scenario, just to provide even more variation.

On unrefurbished variants, there is an additional fan at the no.2 end for the rheostatic brake, which runs at a continuous speed regardless of temperature. This separate brake is not simulated but the distinctive 'hoover' like sound is.

## 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 of 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.

## Dynamic Exhaust Effects

Dynamic exhaust effects mean that the exhaust reacts to what the engine is doing. For example, when on full power, 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 locomotive varies depending on how well maintained it is, so to represent this in the simulator, a random 'clag' factor is allocated to each locomotive which ranges from 1 to 10; 1 being the cleanest and 10 being the dirtiest. This can also be controlled on the player locomotive by using **Shift+C** & **Ctrl+C**.

## Variable Power & Brake Performance

Any train driver will tell you that especially on older locomotives, braking and power performance can vary quite noticeably from locomotive to locomotive, despite being within the same class. We have simulated this variance by randomly allocating a 'Brake Factor' & 'Power Factor' every time you drive a locomotive in the simulator. This factor can reduce or increase performance by a maximum of 10% either way. There is no way of finding out what factor your locomotive has been allocated except for assessing its 'feel' when powering or braking; just like a real driver!

## Variable Traction Motor Volume

Much like described above in relation to exhaust, locomotives tend to vary in how loud their traction motors are. To simulate this, we have implemented a random 'motor' factor to each locomotive which ranges from 1 to 6; 1 being barely audible and 6 being very prominent. This can also be controlled on the player locomotive by using **Shift+M** and **Ctrl+M**.

# National Radio Network (NRN)



A simple representation of the NRN radio is simulated and is operational refurbished pre-GSM-R liveries. To set the NRN zone, please follow the instructions below:

1) Turn the radio on by pressing the button below the volume control on the left-hand side of the console.
2) Enter the three-digit zone number by using the numpad.
3) To confirm this, press the green button below the British Rail arrows symbol. The NRN is now successfully set up.
4) If you see an NRN zone change sign (pictured below), you must change the zone number manually. Do this by simply entering the new three-digit zone number on top of the old one.

## *NRN zone placement in scenarios*



NRN zones cover very large areas so it is entirely possible you will not change areas during a scenario but should you wish to do so, a sign is included in this pack and must be placed by the scenario author.

This sign can be found by selecting 'AP/Common' in the 'Object Set Filter' and browsing for 'AP NRN Sign' in the left-hand 'Track Infrastructure' fly-out. To place it, simply place the marker on the track your train will be passing through, double click the sign, and input the three-digit area number in the right-hand fly-out. Please note that this must be three-digits so zone 65 would be '065'.

# Global System for Mobile Communication-Railway (GSM-R)



Beginning in 2013 and completed by 2016, Global System for Mobile Communication - Railway, more commonly known as GSM-R, replaced the existing National Radio Network (NRN) & Cab Secure Radio (CSR) systems. This communication system and its accompanying unit has been simulated to the best of our ability within the simulator. Please see below for how to register & deregister your train:

## *Registering*

1) Move the reverser away from 'Off' or hold down either the 'Registration' or 'Accept' button for 5 seconds. The GSM-R unit will begin a boot up sequence.
2) When 'GSM-R GB' appears, the unit has successfully booted.
3) Press the 'Registration' button in the top right-hand corner.
4) Using the numerical keys, insert your 4-character train reporting number (headcode), followed by the signal number you are standing at in a 3-digit format. For example, signal WH84 would require you to enter '084'. If you wish to delete a character, press the 'x' button.
5) Press the '✓' button.
6) Registration will take a moment. Once it has completed, you will hear a double beep and the train reporting number will appear in the top right-hand corner of the display.

### *Deregistering - Method 1*

If you are closing down the driving desk, use this method.

1) Move the reverser to 'Off'.
2) Deregistration will automatically begin and you will be given the opportunity for a short moment to retain the registration by pressing the '✓' button. Simply do nothing if you would like to continue with the deregistration.
3) Deregistration will take a moment. Once it has completed, the train reporting number will no longer be displayed.

### *Deregistering - Method 2*

If you wish to keep the driving desk active after deregistering, use this method.

1) Press the 'Registration' button in the top right-hand corner.
2) A prompt will appear on the unit saying 'Confirm deregister?'.
3) Press the '✓' button.
4) Deregistration will take a moment. Once it has completed, the train reporting number will no longer be displayed.

# Cold Start

'Cold Start' means the locomotive is in the following state when it loads:

- Main reservoir, brake cylinder pressures are 0.
- Engine is stopped
- Handbrake is applied

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

**1)** Turn the master key in by pressing **Shift+W**.

**2)** Move the reverser to 'Engine Only' by pressing **S**.

**3)** Press and hold the engine start button until the engine fires and the engine stopped indicator light extinguishes.

**4)** Look at the battery ammeter in the engine room (cycle through cab view options by using arrow keys) and check there is a positive charge.

**5)** Test the fire alarm by pressing the fire alarm test button.

**6)** Lift the train brake handle brake pin by pressing **R** and at the same time, move the train brake handle to 'Full Service' (64%) by pressing **semi-colon**.

**7)** Now wait for the main reservoir to build to 80 psi.

**8)** Move the train brake handle to 'Running' (16%) and confirm the brakes are fully released.

**9)** Move the train brake handle to 'Full Service' (64%) and confirm the brakes are fully applied.

**10)** Release the handbrake by turning it in an anti-clockwise direction until it will turn no more. This is located on the back wall on the opposite side to the driver's seat.

After carrying out this procedure, your locomotive will be successfully prepared from cold.

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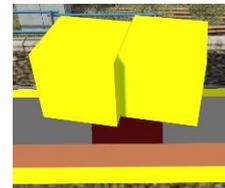
5) Go to the right-hand fly-out and change the two 'Speed Limit' values to '900'.

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.

# Bits and Bobs

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

- Weathered variants of each livery are provided and listed accordingly as 'W1', 'W2' and 'W3' in the scenario editor. Some liveries do not have 'W2' or 'W3' variants, as in reality, they have never become sufficiently dirty to warrant them.

- All 50 original nameplates are represented in 3D, along with variations depending on livery.

- Motor cut-out switch in the engine room allows one of the three pairs of traction motors to be isolated, or, one of the three pairs to be active. These all result in reduced performance.

- The back walls of the no.1 & no.2 cabs are modelled to represent their differences.

- 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 headlight only provides illumination before sunrise and after sunset. This is to avoid the unrealistic appearance of projected light in broad daylight.

- The cooling fan is audible from the no.1 cab.

- Variable speed windscreen wipers.

- Fire bell ringer moves when fire alarm test is carried out.

- As per reality, the speedometer needle wobbles when providing a reading.

- Opening cab doors and windows which are also visible from the outside.

- The visible driver automatically moves to whichever cab you are in, or is leading on an AI train.

- Distinctive 'hoover' rheostatic brake cooling fan sound on unrefurbished variants. Taken from a vintage 1980 recording.

- Headcode box light and 'domino' marker lights only illuminate on AI before sunrise and after sunset, to reflect the fact these lights are not obviously visible in daylight.

# Setting up the Driver's Cab

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

1) Ensure the master key is turned in. If not, press **Shift+W**.

2) Ensure the reverser is in 'Engine Only'. If not, press **S** to do so.

3) Move the AWS change end switch to 'ON' by pressing **Ctrl+N**. You must ensure the AWS change end switch in the other cab is set to 'OFF'. If it's not, you will receive a warning message.

4) Lift the train brake handle brake pin by pressing **R** and at the same time, move the train brake handle to 'Full Service' (64%) by pressing **semi-colon**.

5) Turn off the tail lights by pressing **K**.

6) Turn on the route indicator lights by pressing **J**.

7) On refurbished locomotives, turn on the headlight by pressing **H**.

8) If applicable, register the NRN or GSM-R.

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 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) Move the brake handle to 'Running' by pressing **semi-colon**.

3) As soon as possible, move the power handle to 'On' (14%) by pressing **A**.

4) As soon as you observe a reading on the ammeter, you may increase power as you see fit.

5) When powering down to 'Off' (0%), it is good practice to pause for a few seconds in 'On' (14%) notch to allow the ammeter to drop.

6) To brake the train, use any 'Service' setting on the train brake handle between '1st Application' (32%) & 'Full Service' (64%). To provide a smooth stop, it is recommended to be in '1st Application' as you come to a stop.

# How to Use in the Scenario Editor

## How to place

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

7) 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.
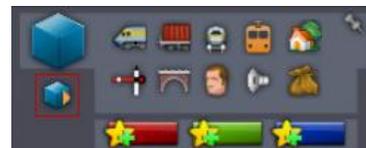
8) Go to the right-hand fly-out which should have appeared. Select 'AP' from the drop-down menu.
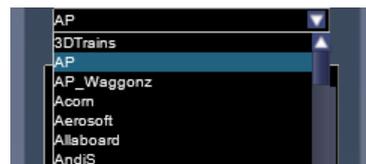
9) Tick the second & third box beside 'Class50Pack01'.

10) The liveries should now be visible in the left hand rolling stock fly-out.
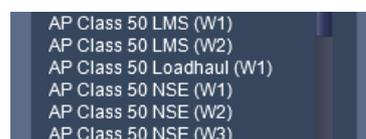
## Numbering

When placing in the scenario editor, you are able to control a number of features via the number of the locomotive.

## Logos

You can add/remove logos by adding **;L=x** to the locomotive number. Please see what to put as 'x' to receive your desired result on each livery:

- BR Blue (Unrefubished): **1** = 4 cab-side BR logos. **2** = Centre BR logo. **3** = 2 cab-side BR logos.
- BR Blue (Laira) (GSMR): **0** = Remove 'Hanson & Hall' logo
- Network SouthEast: **0** = Remove Network SouthEast logo on headcode box
- BR Large Logo (Grey): **1** = Add Network SouthEast logo on headcode box

## Snowploughs

To add a 3-piece snowplough, add **;SP=1** to the locomotive number.

## Headboard

Add **;HB=1** to the locomotive number to add a headboard to the locomotive. For GB Railfreight livery, it adds the '50 Terminator' headboard and for BR Blue (GSM-R), adds the 'Pathfinder' headboard.

### Cold start

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

### Brake type physics

To apply disc brake physics, add **;BT=D** to the locomotive number.

### NRN

To have the NRN radio already active when a scenario starts, add **;NRN=x** to the locomotive number. x = 3-digit NRN zone number.

### Train Protection & Warning System (TPWS)

To add a TPWS unit to the cab, add **;TPWS=1** to the locomotive number.

### Multiple working jumpers

To remove the multiple working jumpers on unrefurbished variants, add **;J=0** to the locomotive number.

### Headcode

To add a headcode on unrefurbished variants, add **;HC1=xyxx;HC2=xyxx** to the locomotive number. 'x' must be a number and 'y' a letter. HC1 applies to the number 1 end of the locomotive and HC2 applies to the number 2 end.

### 'D' number prefix

To remove the 'D' prefix to the locomotive number on the unrefurbished/pre-TOPS variant, replace 'D' with '#'.

### Example locomotive number

**50049;TPWS=1;HB=1;SP=1**

Key:
**50049** - Locomotive number
**;TPWS=1** - TPWS unit in the cab
**;HB=1** = '50 Terminator' headboard
**;SP=1** - 3-piece snowplough

# Scenarios

### APC50: 1A45 15:55 Paignton - Paddington
Route = Riviera Line
Track covered = Paignton - Exeter St. David's
Traction = BR Blue 50047
Year = 1983
Duration = 1 hour



### APC50: 1A47 14:55 St. Austell - Paddington
Route = Riviera Line
Track covered = Newton Abbot - Exeter St. David's
Traction = BR Large Logo 50038
Year = 1983
Duration = 30 minutes



### APC50: 1C09 06:25 Paddington - Paignton
Route = Riviera Line
Track covered = Exeter St. David's - Paignton
Traction = BR Large Logo 50036
Year = 1989
Duration = 50 minutes



### APC50: 2C35 07:12 Newton Abbot - Exeter St. David's
Route = Riviera Line
Track covered = Newton Abbot - Exeter St. David's
Traction = Network SouthEast 50002 & 50049
Year = 1989
Duration = 35 minutes



### APC50: 17:30 Norwich - Great Yarmouth
Route = Wherry Lines
Track covered = Norwich - Great Yarmouth via Acle
Traction = BR Large Logo 50050
Year = 1999
Duration = 50 minutes



### APC50: 18:24 Great Yarmouth - Norwich
Route = Wherry Lines
Track covered = Great Yarmouth - Norwich via Acle
Traction = BR Large Logo 50050

Year = 1999
Duration = 35 minutes

# Credits

**Nicolas Schichan** - Scripting

**Bodmin & Wenford Railway** - Assistance in recording sounds

**Class 50 Alliance** - Reference material

**Robert Tarling** - Sound recording of the distinctive 'hoover' cooling fan sound on unrefurbished variants