Class 92

Enhancement Pack

AP

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 92 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 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.

Liveries

BR Railfreight:

- BR logo – *BR RF*
- BR & SNCF logos – *BR RF (SNCF)*
- BR, SNCF & RfD logos – *BR RF (SNCF/RfD)*
- BR, SNCF, RfD & EPS logos – *BR RF (SNCF/RfD/EPS)*
- BR & EPS logos – *BR RF (EPS)*
- BR & RfD logos – *BR RF (RfD)*
- BR & EWS logos – *BR RF (EWS)*
- Europorte 2 logo – *BR RF (EP2)*
- GB Railfreight logo – *BR RF (GBRf)*
- Unbranded – *BR RF (UB)*

EWS

DB:

DB Schenker logo – *DBS*

DB logo (small) – *DBC1*

DB logo (large) – *DBC2*

GB Railfreight 1 – *GBRF1*

GB Railfreight 2:

Screw coupling – *GBRf2*

Dellner coupling – *GBRf2 (Dellner)*

GB Railfreight 3:

Screw coupling – *GBRf3*

Dellner coupling – *GBRf3 (Dellner)*

GB Railfreight 4:

Screw coupling – *GBRf4*

Dellner coupling – *GBRf4 (Dellner)*

Caledonian Sleeper:

EPS ‘polos’ & Caledonian Sleeper logo – *CS1*

EPS ‘polos’ – *CS1 (UB)*

Caledonian Sleeper logo – *CS2*

Caledonian Sleeper logo & Dellner coupling– *CS2 (Dellner)*

Unbranded – *CS2 (UB)*

Keyboard Controls

Non-standard keyboard controls are listed below:

Page Up -	Annunciator NEXT SCREEN
Page Down -	Annunciator PREVIOUS SCREEN
Shift+Ctrl+B -	Brake type TREAD/DISC
L -	Cab light switch ON/OFF
C -	Driver to guard buzzer
E -	Deadman's pedal (Driver Vigilance Device reset)
Ctrl+D -	Driver vigilance device (DVD) ON/OFF
End -	Electric Train Supply (ETS) OFF
Home -	Electric Train Supply (ETS) ON
F -	Fault Acknowledge Pushbutton (FAP)
Ctrl+G -	GSM-R REGISTER/DEREGISTER
H -	Headlight switch CLOCKWISE
Shift+H -	Headlight switch ANTI-CLOCKWISE
Shift+Ctrl+H -	Horn Factor UP
Ctrl+H -	Horn Factor DOWN
I -	Instrument lights switch ON/OFF
Shift+W -	Master key IN/OUT
Shift+M -	Motor Factor INCREASE
Ctrl+M -	Motor Factor DECREASE
Ctrl+N -	NRN radio REGISTER/DEREGISTER
P -	Power enable switch 0/1
. (full stop) -	Speed selector UP
, (comma) -	Speed selector DOWN
K -	Tail lights switch ON/OFF
Ctrl+T -	TVM-430 self-test
J -	Upper headlight switch ON/OFF
Shift+P -	VCB/HSCB close
Ctrl+P -	VCB open
Ctrl+Numpad Enter -	Visual aids ON/OFF

Features

Traction

Traction power is controlled via the power controller which aside from an initial 'On' notch, is infinitely variable.

A maximum tractive effort of 360 kN is available from a standing start. When using AC power, this starts reducing with speed at around 31mph. When using DC power, it starts reducing at 25mph due to the lower power available; 4000 kW vs 5000 kW.

When double heading, maximum tractive effort is halved on each locomotive to 180 kN so there is no increase in overall tractive effort. This is to prevent too much current being drawn. As a result, there is little benefit of double heading apart from better adhesion, which explains why it rarely happens in reality.

Maximum tractive effort can be increased to 400 kN below 5mph by pressing the 'Boost' button next to the AWS reset button. This must only be used within the channel tunnel.

Tractive effort can be observed as white LEDs on the 'TE/BE' meter to the right of the 'Speed Selector' switch.

Brakes

PBL (Train) Brake

This locomotive is fitted with a PBL brake lever to control train brake force. To apply or release the brakes, the lever must be held in the relevant position as you observe the outer needle on the brake pipe gauge. This needle tells you the target brake pipe pressure with 5 bar being fully released and 3.35 bar fully applied. The actual brake pipe pressure needle will follow closely behind.

As a rule, this brake is infinitely variable. The only exception is when applying the brakes from release, where an initial brake application of 4.6 bar will be applied even if you just briefly hold the lever in 'Apply'. Note that there is also a 1.5 second delay in the brakes applying when selecting this initial brake application.

Below 7mph, the locomotive's air brakes are used to provide its brake force but above this speed, the dynamic brake is used.

Direct (Loco) Brake

This brake lever controls solely the locomotive's air brakes and works in the same manner as the PBL brake. The only difference is that the 'Release' position is not spring-loaded.

You can observe brake force by looking at the brake cylinder pressure gauge to the left of the windscreen. 0 bar is fully released and 4.15 bar is fully applied.

Dynamic Brake

As mentioned above, this locomotive has a dynamic brake which effectively turns the traction motors into generators to provide brake force. Excess energy from this is fed into banks of resistors which dissipate it in the form of heat. This heat is then vented by a dedicated cooler group which revs up when the dynamic brake is in use. The sound of which led to these locomotives being nicknamed 'Dysons'. This cooler group continues to operate for 40 seconds after the dynamic brake was last active.

This brake saves brake pad wear and is faster acting than the air brakes.

This brake has no individual lever for its operation, it is simply applied automatically when using the PBL brake or the speed set.

With the use of capacitors, dynamic braking continues to operate through neutral sections.

Dynamic braking effort can be observed as red LEDs on the 'TE/BE' meter to the right of the 'Speed Selector' switch.

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. The only exception to this is Dellner coupler fitted locomotives, which almost exclusively work with Mk5 coaches which are disc braked. You can change the simulated 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.

Variable Performance

Any train driver will tell you that braking power performance can vary quite noticeably from train to train depending on a variety of factors. We have simulated this variance by randomly allocating a 'Brake Factor' every time you drive this 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 train has been allocated except for assessing its 'feel' when powering or braking; just like a real driver!

Speed Set

When accelerating, this locomotive is designed to be driven with speed set (cruise control).

To use this, simply turn the 'Speed Selector' to your chosen speed (located to the right of the brake pipe gauge). Possible speeds are in 5mph increments from 5mph to 85mph, with a final option of 87mph, the locomotive's maximum speed. When in 'BR CTRL' or 'EU AC' mode, 5kmh increments are offered from 5km/h to 140km/h. Please note that due to a fault with the original model, 100 & 105km/h incorrectly display as 110 & 115km/h.

Then open the power controller to specify the maximum rate of tractive effort speed set can use to reach your selected speed. Speed set cannot apply more power than you have selected on the power controller.

As you approach the selected speed, tractive effort will automatically tail off, and if required due to a downhill gradient, the dynamic brake may apply to maintain speed.

Due to the huge amount of tractive effort these locomotives have at hand, speed set also regulates acceleration to ensure it is not too quick. For example, applying full power from a standing start with a light locomotive could cause damage to the locomotive due to the large forces involved. This is why speed set should always be used when accelerating.

Speed set does not apply the train brake to control speed so should you be on a severe downhill gradient with a heavy train, the dynamic brake might be insufficient to maintain speed and if that is so, the speed set alarm will sound when speed is more than 1mph above the selected speed. When this occurs, you must move the power controller to 'Off' and apply the PBL (train) brake to control speed.

Speed set must not be used for reducing speed unless you are light engine. If so, it is fine to reduce speed by simply leaving the power controller open and moving the 'Speed Selector' to a lower speed. The speed set alarm will sound until you reach your desired speed.

Neutral Section Functionality

This locomotive will react correctly to the neutral sections on the WCML Over Shap route and any others that use the same system.

When passing a neutral section, it is advisable, but not essential, that you reduce power to a low level to avoid a jolt.

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.

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)

A sophisticated form of wheelslip protection is fitted which aids the driver during times of poor adhesion.

If wheelslip is detected, a multi-stage process takes place to try and control it:

1) 1.3 bar of bogie brake pressure is applied to the locomotive's brake to try and scrub the wheels of any contaminant.
2) Power is reduced on the slipping bogie only until wheelslip stops.
3) Once the wheelslip stops, the locomotive's brakes are released and power is slowly restored to the position of the power controller. If wheelslip reoccurs, the process starts again.

Most of the time, driver intervention is not required but should wheelslip persist, closing the power controller to lower power could help.

Dual Voltage Functionality

Follow the instructions below to change the power source from AC (overhead wires) to DC (third rail) and vice versa.

AC to DC

1) Ensure the reverser is in 'Neutral'.
2) Move the 'Power Enable' switch to '0' by pressing **P**. This will drop the pantograph and the 'Line Local' indicator will extinguish. The VCB will also open, indicated by the 'VCB Local' indicator illuminating.
3) Move the 'System Selector' switch to 'BR DC'.
4) Move the 'Power Enable' switch to '1' by pressing **P**. This will drop the shoes and the 'Line Local' indicator will illuminate when the shoes hit the third rail.
5) Press the 'VCB/HSCB Close' button by pressing **Shift+P**. The 'VCB Local' indicator will extinguish, showing that the VCB is now closed.

DC to AC

1) Ensure the reverser is in 'Neutral'.
2) Move the 'Power Enable' switch to '0' by pressing **P**. This will raise the shoes and the 'Line Local' indicator will extinguish. The VCB will also open, indicated by the 'VCB Local' indicator illuminating.
3) Move the 'System Selector' switch to 'BR AC'.
4) Move the 'Power Enable' switch to '1' by pressing **P**. This will raise the pantograph and the 'Line Local' indicator will illuminate when the pantograph hits the overheard wire.
5) Press the 'VCB/HSCB Close' button by pressing **Shift+P**. The 'VCB Local' indicator will extinguish, showing that the VCB is now closed.

Annunciator

The annunicator screen to the bottom left of the cab provides information on many aspects of the locomotive. Please see below for the various screens it displays which can be cycled through by pressing **Page Up** or **Page Down** on the keyboard.

Boot Screen

Displayed when the master key is inserted and the annunciator is booting up

Standby Screen

Displays which power mode you have selected and whether you are using speed set

Screen 012 - 'Auxiliary Values'

Displays a digital speedometer, dynamic brake demand & Electric Train Supply (ETS) current if on

Screen 013 - 'Cooling and Ventilation'

Displays the temperature of the traction motors, traction converters and transformer. Also shows the current ventilation level. Arrows indicate the temperature at which the traction package will lower tractive effort.

Screen 024 'Repetition of Failure Announcement'

Shows current and active faults. When no faults are present, it will automatically switch to the standby screen after 4 seconds. The next fault (if applicable) can be shown by pressing the 'Enter' key on the annunciator keyboard.

Temperature Simulation

Depending on locomotive power output, traction converter temperature is calculated from the transformer and traction motor temperature.

If traction converter temperature reaches above 63°C, ventilation level 3 is activated (cooler group fans speed up).

If traction converter temperature reaches 65°C or above, available power is lowered and a fault is shown on the annunciator which needs to be acknowledged by pressing the Fault Acknowledge Pushbutton (FAP) button (**F key**).

Ventilation level 3 will deactivate and full power will be restored once converter temperature falls to 50°C.

DLF Monitor

The DLF monitor checks for current levels and patterns that can be hazardous to the safe operation of track signalling systems. When triggered, power is cut, the FAP button illuminates and a fault message appears on the annunciator. The general fault light also illuminates if the power handle is open.

If asked to press 'Clear', navigate to the failure message on the annunciator by pressing **Page Up** or **Page Down**. Then acknowledge the fault by pressing the FAP button (**F key**) and you will be able to apply power again. Please note that there is more chance of this fault occurring on a winter morning due to frost/moisture on the overhead wires/third rail.

Electric Train Supply (ETS)

Electric Train Supply (ETS) can be turned on by using the 'Home' key and off by using the 'End' key. Please note that ETS can only be turned on when keyed in.

When on, the current is shown on screen 012 of the annunciator, which is calculated by the number of coaches attached to the locomotive.

Driver Vigilance Device

A driver vigilance device is provided which sounds every 60 seconds when the reverser is in either **Forward** or **Reverse**. This must be reset using the pedal (**E** key). This 60 second timer is reset should you move the power controller, PBL brake lever or reset the AWS.

Guard to Driver Signal

When using a Dellner coupler fitted locomotive which is used with Mk5 coaching stock, you will receive two beeps from the guard after the doors have closed. You are then expected to reply with two beeps using the **C** key. Please note that this will only work if the locomotive is fully on the platform.

TVM-430

TVM-430 is the signalling system used on the high-speed line section of the London – Faversham route and is simulated in this pack. When on this line, make sure to select 'BR CTRL' on the 'system selector switch'. Please consult the manual for that route on how this signalling works.

Self-test

A TVM-430 self-test can be initiated by pressing 'Ctrl+T' on the keyboard. The TVM display will then cycle through all possible aspects and end with an emergency brake application. As a result, the train brake will fully apply, the VCB open and a fault display on the annunicator. You will then need to acknowledge the fault by pressing the FAP button (**F key**) and close the VCB to restore power.

Variable Traction Motor Volume

The volume of the traction motors can vary depending on their mechanical condition. 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 prominent. This can also be controlled on the player locomotive by using **Shift+M** and **Ctrl+M**.

Horn Variants

Three horn variations are provided under the guise of 'Horn Factor'. Upon loading a scenario, your locomotive will be randomly allocated one of these horns. If you wish to change it, press **Shift+Ctrl+H** or **Ctrl+H**.

Dead Variant

A 'dead' variant of all liveries is provided with a '(Dead)' suffix in the scenario editor. This is identical to a normal variant, except the pantograph is down/shoes are raised and will not provide tractive effort in a consist. Ideal for 'dragging'.

National Radio Network (NRN)

To activate this, you must be familiar with the scenario editor and add **;NRN=x** to the locomotive's number. **x** is the 3-digit zone number you will be driving in. To have the NRN already registered when you start the scenario, add an asterisk, *****, after the number.

If not already registered upon starting the scenario, you may register the radio by pressing **Ctrl+N**. To deregister, press **Ctrl+N** again.

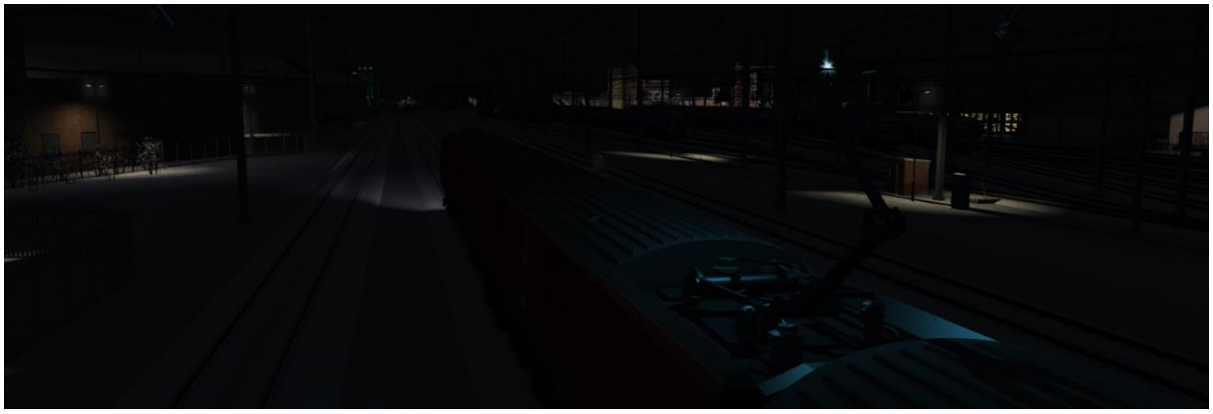
Global System for Mobile Communication-Railway (GSM-R)

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. A simple version of this communication system and its accompanying unit has been simulated.

To activate this, you must be familiar with the scenario editor and add **;GSMR=xxxxyyy** to the locomotive's number. **xxxx** is your 4-character train reporting number and **yyy** is the signal number you are standing at in a 3-digit format. To have the GSM-R already registered when you start the scenario, add an asterisk, *****, to the end of this.

To register the radio, assuming it is not already registered upon starting the scenario, setup the cab and wait for the GSM-R screen to boot. When 'GSM-R GB' appears, it has booted. You may then register the radio by pressing **Ctrl+G**. To deregister, press **Ctrl+G** again.

Arcing Pantograph



Special attention has been given to simulating arcing between the pantograph and overhead wire.

From one hour after sunrise to one hour after sunset on a dry day, there is only light arcing.

From one hour after sunset to one hour after sunrise, there is moderate arcing to simulate the moisture that tends to build up on the overhead wire once night falls. There is also moderate arcing when raining at any time of day.

During the winter, from one hour after sunset to one hour after sunrise, there is heavy arcing to simulate ice/frost that tends to build up on the overhead wire once night falls. There is also heavy arcing when snowing at any time of day during the winter.

Finally, arcing becomes more frequent as you gain speed.

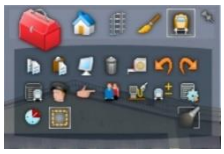
When arcing, you will visually see it on the pantograph which illuminates the area around it to a varying degree with each arc. Please note that the illumination of the surrounding area will only occur after sunset and before sunrise. This is to avoid the unrealistic appearance of projected light in broad daylight.

You will also audibly hear it if the arcing is moderate or heavy.

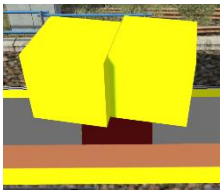
AI Horns

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.

Cold Start

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

- Main reservoir and brake cylinder pressures are 0
- Pantograph is down and shoes are raised
- Parking brake on

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

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

2) Move the reverser to 'Neutral' by pressing **W**.

3) Reset the AWS self-test by pressing **Q**.

4) If beneath overhead wires, ensure 'BR AC' is selected on the 'System Selector' switch. If on the third rail, ensure 'BR DC' is selected.

5) Move the 'Power Enable' switch to '1' by pressing **P**. The pantograph will now raise or the shoes will drop.

6) When the 'Line Local' indicator has illuminated, press the 'VCB/HSCB Close' button by pressing **Shift+P**.

7) The compressor will now charge the main reservoir. When the main reservoir reaches 7 bar, you have sufficient air to obtain a brake release and get on the move.

8) Now release the parking brake by pressing the 'Parking Brake Release' button above your head to your left. When the parking brake indicator diaplays 'OFF', the parking brake is released.

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

Bits and Bobs

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

- A comprehensive selection of 2D nameplates are included for all liveries.
- Various cab visual improvements such as higher quality gauges/lit indicators, weathering & realistically transparent windows
- 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.
- As per reality, the speedometer needle wobbles when providing a reading.
- The visible driver automatically moves to whichever cab you are in, or is leading on an AI train.
- In-cab decals which state the locomotive number and cab number.
- Annunciator casts a subtle light at night
- General fault light illuminates if brake pipe pressure is below 3.35 bar which cuts power. The general fault light extinguishes and power is restored once brake pipe pressure rises above 4.6 bar.
- If the main reservoir falls below 4.5 bar, the emergency brake will apply
- Safety System Isol fault light shows red when Driver Vigilance Device (DVD) is disabled
- Headlight only illuminates when the reverser is in 'Forward' or 'Reverse'
- AI train windscreen wipers activate when raining
- The frequency at which the ticking spirax valve sounds varies from locomotive to locomotive and increases when main reservoir pressure is higher.

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 'Neutral' by pressing **W**.
3) Cancel the AWS self-test alarm by pressing **Q**.
4) Turn the tail lights off by pressing **K**.
5) Turn the headlights on by pressing **H**.

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

Driving Guide

Starting a Train

The train should be held stationary with an initial PBL (train) brake application (4.6 bar) and the direct (loco) brake fully applied.

Configure the 'Speed Selector' to the desired speed, move the reverser to 'Forward' and release the train brake. Move the power handle to the 'On' position and check that the annunciator screen displays 'Speed Set'.

Gently move the power handle to full power and release the direct brake.

On the Move

Speed set will maintain the selected speed providing the power handle is open sufficiently for that speed to be attained. When a falling gradient is encountered, speed set will automatically reduce tractive effort and apply the locomotive dynamic brake to maintain the selected speed if required.

Speed set does not apply the train brake to control speed so should you be on a severe downhill gradient with a heavy train, the dynamic brake might be insufficient to maintain speed and if that is so, the speed set alarm will sound when speed is more than 1mph above the selected speed. When this occurs, you must move the power controller to 'Off' and apply the PBL (train) brake to control speed.

Once the gradient eases, speed set can be reapplied by opening the power controller.

Speed Changes

When a higher speed is desired, simply increase the speed set.

When a lower speed is ahead, close the power handle and apply the train brake to reduce speed to the new speed. Dial down the 'Speed Selector' to the new speed and open the power handle.

Only dial down the 'Speed Selector' to reduce speed when running light engine as with a load, this can lead to possible loco equipment damage or buffer locking on the train. Please note that when reducing speed using the speed set, an alarm will sound until you have reached the desired speed.

Stopping a Train

Close the power handle and apply the train brake. This will apply the train brakes and locomotive dynamic brake. The dynamic brake will fade at 5mph and a bogie brake application will blend in to maintain brake force.

Changing Ends

If changing ends, follow these instructions:

1) Move the reverser to 'Off' by pressing **S**.
2) Remove the mater key by pressing **Shift+W**.
3) Change the headlights and/or tail lights as required.
4) Change ends and insert the master key by pressing **Shift+W**.
5) Move the reverser to 'Neutral' by pressing **W**.
6) Cancel the AWS self-test alarm by pressing **Q**.
7) If using AC power, it is standard practice to use the rear pantograph. To ensure the correct pantograph is raised, move the 'Power Enable' switch to '0' by pressing **P**. The pantograph will now drop.
8) Move the 'Power Enable' switch to '1' by pressing **P**. The rear pantograph will now raise.
9) When the 'Line Local' indicator has illuminated, press the 'VCB/HSCB Close' button by pressing **Shift+P**.

Voilà! You are now ready to move off.

How to Use in the Scenario Editor

How to place

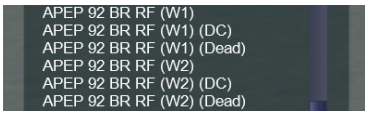
To place a class 92 in the scenario editor, please follow the instructions below:

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 'RSC' from the drop-down menu.

3) Tick the second & third box beside 'Class92Pack01'.

4) 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 locomotive number

Cold start

To activate cold start mode on a player train, add **;Cold=1**

NRN

To have the NRN available to be registered in a scenario, add **;NRN=x**.

x = 3-digit NRN zone number.

Add an asterisk, *****, to have the NRN already registered at the start of a scenario.

GSM-R

To have the GSM-R available to be registered in a scenario, add **;GSMR=xxxxyyy**.

xxxx = 4-digit train reporting number.

yyy = 3-digit signal number in front of locomotive.

Add an asterisk, *****, to have the GSM-R already registered at the start of a scenario.

Nameplates

You can control the nameplate shown by adding **;NP=x** to the locomotive number.

- The first nameplate carried by a locomotive in its relevant livery. x = **1**
- The second nameplate carried by a locomotive in its relevant livery. x = **2**

For example, for 92030 in BR Railfreight livery, **;NP=1** shows 'De Falla' & **;NP=2** shows 'Ashford'.

Adding **;NP=0** will remove any nameplates.

Overhead line warning stickers

To show older style overhead line warning stickers on BR Railfreight livery, add **;OHL=1** to the locomotive number.

Tail lamp

To add a tail lamp to the no. 1 end, add **;TL=1** to the locomotive number.
To add a tail lamp to the no. 2 end, add **;TL=2** to the locomotive number.

Brake type physics

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

Example number

92020;NRN=066*;BT=D;TL=2

Key:
92020 - Locomotive number
;NRN=066* – NRN radio to be registered to zone 066. Registered automatically upon scenario start.
;BT=D – Disc brake physics
;TL=2 – Tail lamp on no.2 end

Scenarios

APC92EP: 6S75 10:45 Sheerness - Mossend

Route = WCML South
Track covered = Wembley Yard – Milton Keynes Central
Traction = BR Railfreight (RfD) 92022
Date = 23rd November 2000
Duration = 1 hour

APC92EP: 6Z95 12:23 Warrington Arpley - Wembley Yard

Route = WCML South
Track covered = Milton Keynes Central – Wembley Yard
Traction = BR Railfreight 92041
Date = 4th June 2003
Duration = 55 minutes

APC92EP: 6B63 19:09 Wembley Yard - Dollands Moor

Route = Chatham Main Line: London Victoria to Dover & Ramsgate
Track covered = Latchmere Junction - Swanley
Traction = GB Railfreight 92032
Date = 16th June 2017
Duration = 40 minutes

Credits

Nicolas Schichan – Scripting

Perry Green 'yyyyamst' (class 92 driver) - Testing and providing invaluable knowledge/sounds.

Max Mortimer – Dellner coupler model