# GWR 4200/5205



# GWR 7200



 Release Version DTG.1.0

# Contents



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# Introduction

Thank you for purchasing the GWR 4200/5205/7200 Add-on for Train Simulator.

In keeping with our love of the Great Western Railway we are proud to present the 2-8-0 tank engine 4200, its improved stablemate, the 5205, and the huge 2-8-2T 7200 class.

The 4200/5205 classes were built from 1910 to 1940 primarily to move coal and mineral traffic in Wales the 175 members of these classes worked from the Great Western era, through the war years and the change to British Railways, right up to the end of steam in Britain with the last engine being withdrawn in August 1965. With no more power than the 5205 the 7200 improved on the main problem of the 4200/5205 design; that being a low water capacity. With the bunker extended an extra 6ft additional coal and water could be carried and the later “scuttle” modification sacrificed some of the extra coal for even more room for water.

However the extra 6ft in length and truck wheels to support it meant that the 2-8-2 monster was not always suitable for tight curves in some yards. Even so, the 7200 class was as successful as its smaller family members and survived until June 1965

With the GWR 4200/5205/7200 we have continued our quest to bring as much realism to our locomotives as possible and these tank engines include all of our realism features including second valve simulation and communication with the included guards vans making driving in Advanced Mode even more challenging, rewarding and immersive.

Or if you prefer the engines are equally as happy running in simple mode and standard mode using the F4 HUD, keyboard, mouse and/or Xbox controller.

Please read this manual thoroughly, especially to get the best from Advanced Mode, and we hope you enjoy driving this Great Western work horse.

All the best,
Victory Works

## Features

- Simple, standard and advanced driving modes
- Xbox controller support ***SIMPLE AND STANDARD MODES ONLY***

- GWR 4200 Class Locomotive
    - Square Frame, 3.5 ton Coal bunker
        - GWR Green (3 logos)
        - GWR Green (worn) (3 logos)
        - BR Black (3 logos)
        - BR Black (heavily worn) (3 logos)
    - Square Frame, 4 ton Coal bunker
        - GWR Green (3 logos)
        - GWR Green (worn) (3 logos)
        - BR Black (3 logos)
        - BR Black (heavily worn) (3 logos)
- GWR 5205 Class Locomotive
    - Square Frame
        - GWR Green (3 logos)
        - GWR Green (worn) (3 logos)
        - BR Black (3 logos)
        - BR Black (heavily worn) (3 logos)
    - Curved Frame
        - GWR Green (3 logos)
        - GWR Green (worn) (3 logos)
        - BR Black (3 logos)
        - BR Black (heavily worn) (3 logos)
- GWR 7200 Class Locomotive
    - Square Frame
        - GWR Green (2 logos)
        - GWR Green (worn) (2 logos)
        - BR Black (3 logos)
        - BR Black (heavily worn) (3 logos)
    - Curved Frame
        - GWR Green (2 logos)
        - GWR Green (worn) (2 logos)
        - BR Black (3 logos)
        - BR Black (heavily worn) (3 logos)

    - Curved Frame, Scuttle bunker
        - GWR Green (2 logos)
        - GWR Green (worn) (2 logos)
        - BR Black (3 logos)
        - BR Black (heavily worn) (3 logos)
- Optional parts and fittings including steam pipes, painted or polished safety valve covers, red or white lamps, bunker guards and more
- Custom sound sets inside and out recorded from preserved members of the classes
- Realistic cab with multiple views, including dual "head out" and fully modelled firebox and coal
- Realistic wheel slip physics and effects ***ADVANCED MODE ONLY***
- Simulated steam chest ***ADVANCED MODE ONLY***
- Cylinder cock management ***ADVANCED MODE ONLY***
- Boiler management with priming possible ***ADVANCED MODE ONLY***
- Realistic injector control ***ADVANCED MODE ONLY***
- Realistic "by the shovel" stoking with synchronised sound ***ADVANCED MODE ONLY***
- Dynamic steam and smoke colour and quantity
- Realistic boiler water gauges effected by gradient, acceleration and speed and with blow down test
- Opening windows with rain effects, doors and roof hatch
- Dynamic lamp setting
- Cab light effects including firebox glow and water gauge lamp
- Communication with the guard in the brake van for handbrake usage (when used with compatible GWR Toad brake van – included with this DLC) ***ADVANCED MODE ONLY***
- Second valve regulator effects ***ADVANCED MODE ONLY***
- Brand new atmospheric AI effects ***ADVANCED MODE ONLY***

- Great Western rolling stock
    - 20 ton Coal Wagon (Diagram N2)
        - GWR Black
        - GWR Grey
    - 65 ton Crocodile H Trolley
        - Empty
        - Cable

        - New boiler
        - Used boiler
    - 7 plank Private Owner Coal Wagons
        - 10 Welsh liveries
        - 1 West Country livery
        - Loaded with coal or pit props
    - 5 plank Private Owner Limestone Wagon
    - Tar Wagon with 2 liveries
        - Butler (Bristol)
        - Harvey (Plymouth)
    - 20 ton Toad Brake Van
        - User selectable 20 character depot names
        - Dynamic lamps
- British Railways rolling stock
    - 20 ton Coal Wagon (Diagram N2)
        - BR Grey
    - 65 ton Weltrol H Trolley
        - Empty
        - Cable
        - New boiler
        - Used boiler
    - 20 ton Toad Brake Van in Bauxite with BR markings
        - User selectable 20 character depot names in BR layout
        - Dynamic lamps

- 6 scenarios for 2 routes
- 21 Quick Drive consists with appropriate stock

## Background

In the early 20th century with welsh coal trains increasing in size and scale the Great Western Railway needed to develop a more powerful locomotive to run on relatively short distance routes with heavy loads. In 1906, Chief Engineer G.J. Churchward took the basic design of his GWR 2800 Class and modified it into the UK's first 2-8-0 tank engine. He upgraded the power of the design, modifying it to carry a GWR No.4 boiler instead of the No.1 of the 2800. The prototype No.4201 came out of Swindon Works in 1910 with a bunker capable of containing three tonnes of coal. In 14 months of testing it proved itself capable and was put into production in 1912.

The coal bunker was expanded to 3.5 tons but the heavy water consumption and comparatively small capacity (1800 gallons) led to them being nicknamed "Water Carts".

105 4200's were built between 1910 and 1923 with later versions given a larger 4 ton coal bunker.

In 1923 the design was given a power upgrade by fitting 19" cylinders instead of 18.5", along with outside steam pipes, creating the 5205 variant of which 70 were produced in total. Later versions of the 5205 were also given a curved frame design and many 4200's were rebuilt with all or some 5205 modifications later in their lives.

Between 1934 and 1936, 20 5205's were withdrawn from service and rebuilt into the larger 2-8-2 7200 class with another 20 being converted into 2-8-2's without having any significant running.

The 4200/5205’s performed superbly throughout their lives moving coal and minerals from the Welsh hills down to the ports for shipping and when British steam ended in 1965 many of them made their way to Barry scrapyard. Consequently 5 4200’s and 3 5205’s have survived into preservation, 3 of which are currently operational.

Between 1934 and 1936, 20 5205's were withdrawn from service and rebuilt into the larger 2-8-2 7200 class by extending the bunker and adding an extra set of truck wheels beneath. Another 20 5205’s were converted into 2-8-2's without having any significant running and 14 randomly selected 4200's were also rebuilt into members of the 7200 class.

Originally built to carry 6 tons of coal and 2400 gallons of water, the “Coal Scuttle” bunker design fitted to the last batch of conversions was adapted for more water and carried 5 tons of coal and 2700 gallons of water.

As well as working in Wales like the 4200/5205 class the 7200 also found work in the Home Counties on mineral trains and 3 of them were even located at Newton Abbot in the West Country.

Three 7200’s survived the scrap yard and are owned by preservation societies although none are currently in running condition.

## Scenarios

The 4200/5205/7200 add-on comes with the following scenarios.

***Route: Class J94 'Memories of Maerdy' Add-On*** [Link to Steam]

**GWR 42/52/7200: [1] Up with the Empties**
Friday 23rd September 1927. For this morning's shift you are driving 4200 class No. 4226. You will be collecting a rake of empty Private Owner coal wagons from Porth siding and taking them back up to Maerdy coal yard.

**GWR 42/52/7200: [2] Down with the Full**
Friday 23rd September 1927. Having brought the empty coal wagons up to Maerdy North bound yard you are now going to shunt wagons in the South bound yard and take them down to Newport.

**GWR 42/52/7200: [3] He ain't heavy…**
Saturday 24th January 1959. In an attempt to keep Maerdy colliery open it is being modernised and today your job is to take 15 reels of thick electrical cable up to the top. However each reel and its Weltrol wagon weigh nearly 30 tons and getting over 450 tons of train up these inclines is no easy task especially as you're running low on water!

***Route: Riviera Line in the Fifties: Exeter - Kingswear Add-On*** [Link to Steam]

**GWR 42/52/7200: [4] Brixham Exports**
Tuesday 18th September 1951. Despite the 4200 and 5205 classes and the extended 7200 class being primarily used in South Wales some of them went elsewhere during their long lives and from mid-1950 to late 1952 three members of the 7200 class were on shed at Newton Abbot in Devon.
Drive No. 7236, collecting coal wagons at Newton Abbot and running them down to Brixham where the coal will be moved onwards by boat.

**GWR 42/52/7200: [5] Hackney Carriage, Part 1**
Sunday 17th August 1952. Driving a recently serviced No. 7240 collect an assortment of empty stock from Heathfield, run it down to Newton Abbot Hackney sidings for shunting and then take empty coal wagons on to Exeter. It's a busy summer Sunday and you are but a humble freight service so don't expect priority over the masses of holiday makers heading to and from the seaside!

**GWR 42/52/7200: [6] Hackney Carriage, Part 2**
Part 2 of the above scenario.

# Control Modes

There are 3 ways to drive the 4200/5205/7200 locomotives.

(Note: All references in the driving controls section to 4200 also apply to the 5205 and 7200 classes)

**Simple Mode**

This is selected using the menu in Train Simulator and provides a simple stop/go, forwards/backwards set of controls via the simulators built in HUD.

**Standard Mode**

This is the default mode if you choose to drive in Expert mode using the Train Simulator menu. The locomotive will operate with more complex controls and can be driven using the F4 HUD or an Xbox controller.

**Advanced Mode**

This is an advanced mode for those who want a more realistic experience and introduces features such as condensed water in the cylinders, overfilling the boiler, realistic wheel slip and a simulated steam chest. To achieve these extra functions use of a keyboard is required, although this can be used in conjunction with mouse operation or the F4 HUD.

To turn on Advanced Mode you can press Control A at any time and this will also turn it off again.

The ***Advanced Mode*** controls and features are shown below.

## Driving Controls

**1. Regulator**

This controls the amount of steam allowed into the cylinders, hence directly controlling the speed in conjunction with the reverser.

Keys: A,D

### *Advanced Mode*

In advanced mode the locomotive steam chest is simulated. This will add a delay and smoothing to the increase and decrease of the regulators power to simulate steam moving through the locomotives pipes and valves. Please note that the F5 HUD regulator value will not reflect the actual position of the in-cab regulator but the value used to simulate the chest.

The 4200 features an all new realism feature which is a simulated second valve. When observing GWR tank engines being driven in real life it is common to see the driver fully open the regulator before closing it. The reason for this is to re-align the second valve so that it is fully closed when the regulator is closed. If this is not done then the regulator will not always close fully. If the regulator is forced closed this can stop the flow of steam, however on opening it again the second valve port is already open and a very large amount of steam can flow immediately.
This is all simulated in Advanced mode, so if you open the second valve (opening the regulator more than about halfway) you will need to open it fully to realign the valve before you close it.

**2. Reverser**

This is like the gears on a car. It is usual to start with the reverser set at 75 percent cut-off (full). As you pick up speed you reduce the cut-off, thereby allowing economic driving as well as good speed whilst hauling a load.

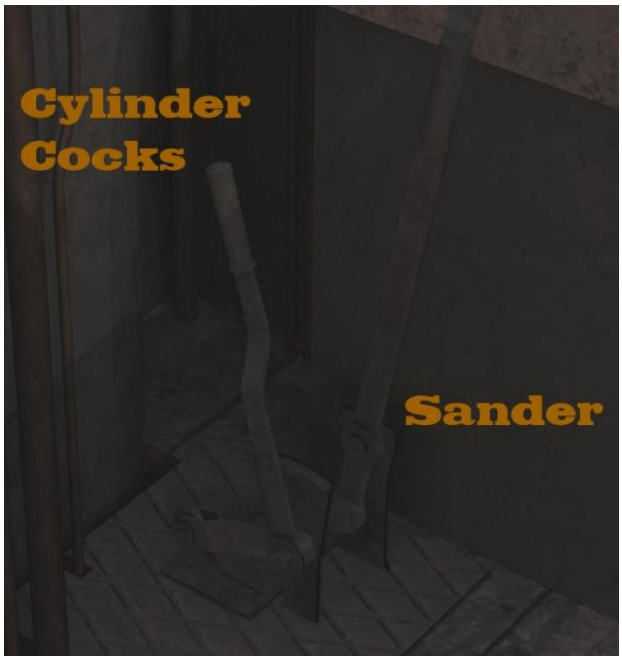
Keys: W, S

***Advanced Mode***

To move the reverser requires the hand lock to be taken off. To do this, press and hold the E key on the keyboard, move the reverser to the required position, and then release the hand lock (let go of the E key). Because of this speed is usually controlled more by the regulator than is common on screw reverser equipped locomotives.

Key: E




**3. Cylinder Cocks**

***Advanced Mode***

When a locomotive sits static for any amount of time, water condensation builds up in the cylinders. Thus when the piston is in motion, and because water does not compress, the cylinder will explode. The cylinder cocks are designed to expel this condensed water and should be opened for at least 4 turns of the locomotive wheels when the locomotive sets off after being stationary for some time.

The amount of stationary time varies depending on the time of day (the assumption that most steam locomotives were working from early in the morning) and also the weather. If you stop for more than a couple of minutes it's safer to open them for a few wheel rotations just to be sure, and always ensure they are open when first setting off in a scenario.

Key: C

**4. Sander**

The sander assists in starting and stopping without the wheels slipping.

Keys: X, Shift X

***Advanced Mode***

Sand is essential in pulling away with minimal wheel slip in wet or icy conditions.

**5. Firebox**

Ensure the firebox doors are fully open to allow maximum stoking. A related tool is the coal box door in the coal bunker. When the firebox door is open, pull the coal bunker door to regulate the input of coal into the firebox.

Key: F
Keys: R, Shift R (stoking)

## *Advanced Mode*

In advanced mode the 4200 features realistic stoking by the shovelful. As default in Train Simulator coal is slowly trickled into the firebox at a steady rate. In reality coal is thrown into the firebox by the shovelful and in Advanced mode this is now the case for this locomotive as well. The shovel still controls the amount of coal although this now varies from approximately half a shovelful to a loaded shovelful.

However with this comes the chance to tire out your fireman! Should you force him to shovel too much in too short a time he will gradually slow down between each shovelful and finally stop shovelling altogether – please note that GWR fireman are tough as nails and it takes a lot to make him do this!
The sound of the shovel is fully synchronised to the actual coal going into the firebox so you will be able to tell if he is slowing down. If he stops completely you will be shown a message to that effect and will receive another when he has recovered enough to continue.

As an additional tool for those who like to drive with minimal or no HUD display the firebox and coal is fully modelled with a specific cab view for checking the fire mass. The coal level is slightly exaggerated over its working range so it can be used as a visual indicator of when firing is needed. The coal level rises and falls gradually but the images below will help in visualising how this can help.

**Coal level low** *< 50% 591 lbs*
The grate can be seen with a small amount of coal.

**Coal level average** *67% 793 lbs*
The grate is covered with the coal's level on the 3nd rivet line on the back wall.

**Coal level high** *> 83% 982 lbs*
The grate is deeply covered with the coal's level almost up to the 2nd row of rivets on the back wall.

The coal bunker door controls the stoking speed/amount.


**6. Blower and Boiler Pressure Gauge**

The most useful application of the blower is when the regulator is at idle. Since there is no throughput of steam when at idle, air flow is minimised and therefore the fire loses heat. In some circumstances (such as when the safety valve is going off) this is acceptable but if you need to get some pressure into the boiler while the regulator is closed then fully opening the blower will force air over the fire, increasing temperature and then boiler pressure. It is good practice to turn off the blower again when you open the regulator to save on unnecessary steam usage.

Keys: N, Shift N

The boiler runs best at around 190 psi. At 195 psi the first safety valve will start to hiss and over 197.5 psi it will open and the excess steam will vent quickly and noisily. If the boiler is still continuing to gain pressure a second larger valve will open at 200 psi. Both valves close again when the boiler is under 195 psi.

**7. Dampers**

Another tool related to the firebox. This helps control the heat of the firebox, closing it will reduce the air flow through the fire, thereby lowering heat and steam production. Opening it will allow more air in, hence producing more heat and steam.

Keys: M, Shift M

***Advanced Mode***

There are 4 damper levers; the left hand are for the front damper and the right hand for the rear damper. Each has 3 notches: closed, half and full. To get the maximum amount of air to keep the locomotive running well you need to set the damper in the direction of travel to fully open (pulled up).

In addition to the dampers you can increase the amount of air entering the firebox by opening the firebox doors and this can be tempered by closing the firebox flap.


**8. Exhaust injector steam (left)**

This takes steam from the cylinders and recycles it to blast water from the tanks into the boiler. It is preferable when you are running low on steam.

Key: I, Shift I

**Live steam injector steam (right)**

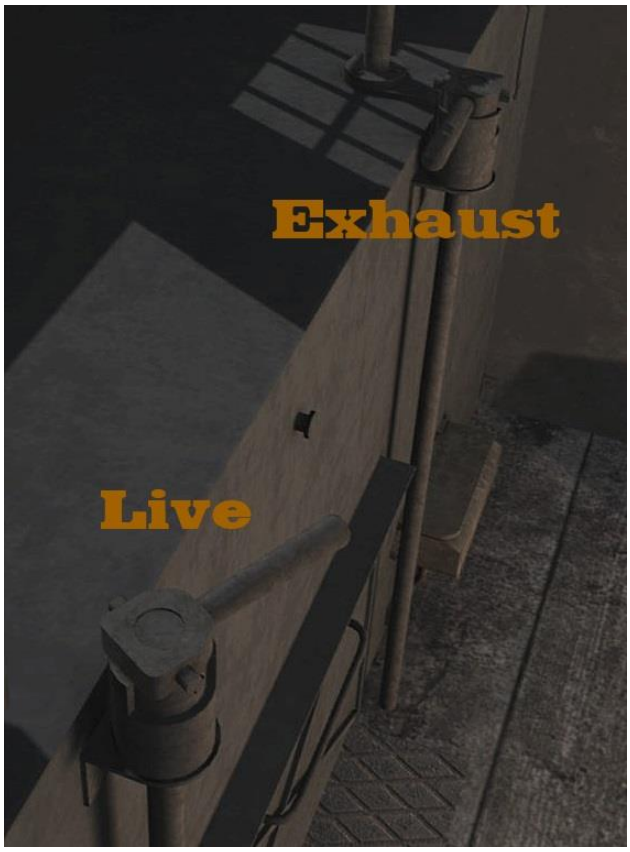
The Live injector works the same as the Exhaust injector but uses live steam from the boiler, rather than exhaust steam. This is the preferred method when you have lots of steam and need to fill the boiler quickly.

Key: O, Shift O

***Advanced Mode***

In Advanced mode the exhaust injector will only work when there is exhaust steam to be used, i.e. the regulator is open and the locomotive is in motion or if the Injector Steam Auxiliary (Exhaust) control is open allowing live steam to be used instead.




**9. Live and Exhaust water taps**

These are used to adjust the flow of water for the appropriate Live or Exhaust injector control.
Keys: K, Shift K / L, Shift L

## *Advanced Mode*

In Advanced Mode you will need to operate the injectors as the real thing and balance the water and steam to use them properly.
The correct procedure is as follows – for either Live or Exhaust injectors use the appropriately named controls:

1. Fully open the water control tap.
    - You will hear and see water coming from under the left or right hand side of the cab.
2. Turn the injector steam lever until you hear the injector start working.
    - If you hear a hiss and see a jet of steam under the cab you have too much steam pressure and the water is not entering the injector.
    - If you hear running water and see water running from the pipe under the cab you need more steam to force it into the boiler.

**10. Boiler Gauge Glass**

Attached to the boiler is a strong glass tube indicating the current level of water in the boiler. If this reaches the bottom then the fusible plugs will melt and relieve the boiler pressure whilst providing a warning to the locomotive crew.

The water level is not static when the locomotive is in motion and will wobble around appropriately. It is also affected by gradients, acceleration and deceleration.

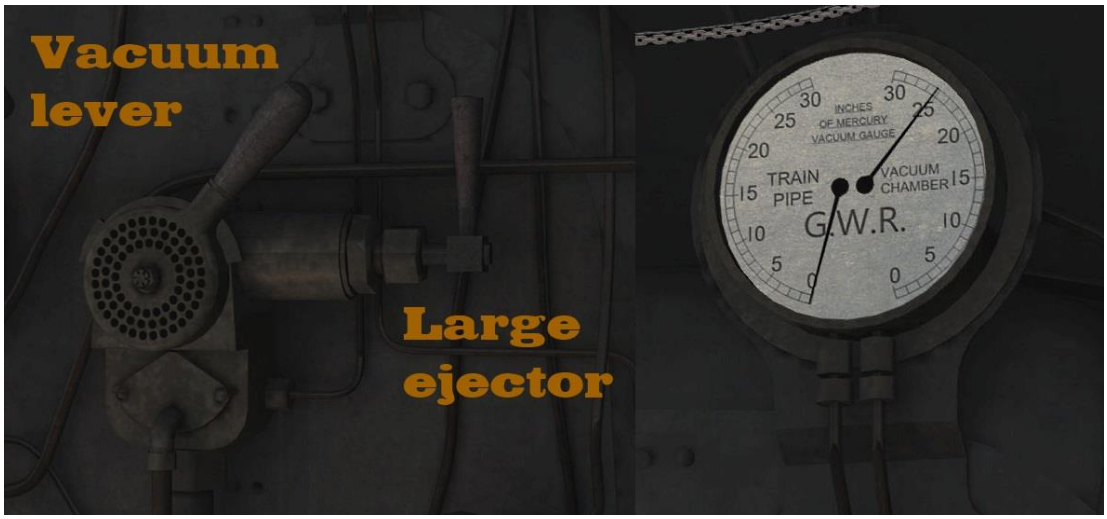
***Advanced Mode***

Overfilling the boiler (past 110%) at high pressure can force water into the cylinders and cause the same problems as having condensed water from standing still. It can also cause the regulator to become jammed open! If you overfill the boiler, open the cylinder cocks immediately and leave them open until the water level in the glass falls.

You can also perform a blow down test on the gauge glass by doing the following:

1. Shut off the water supply to the top and bottom of the glass by pulling the lever down, the water will empty from the glass.
2. Return the lever to its previous position by reversing the above process to refill the glass.




**11. Vacuum Brake and Brake Pressure Gauge**

The vacuum brake is used to pull the brake shoes away from the wheels by creating a vacuum in the pipes connected to them. The brake has 3 settings, brake off which forces a vacuum into the pipes and takes the brakes off, brake on which lets air into the pipes and applies the brakes, and brake running which holds the vacuum steady at its current pressure.
The brake pressure gauge shows the current pressure in the system, from 0” (on) to 25” (off).
In basic mode all of this can be controlled by the vacuum lever.

Keys: ‘ (apostrophe), ; (semicolon)

***Advanced Mode***

In Advanced mode the GWR 4200 requires the use of the Large Ejector to release the brake, the vacuum lever used only to apply it.

In addition the GWR 4200 has a mechanical ejector which will start to work when the locomotive is travelling at approximately 15mph and will keep the brake pressure up. At speeds lower than this the brake system will leak slowly when the large ejector is closed. To counter this leak you should leave the Large Ejector partially open until you are travelling fast enough for the mechanical ejector to be effective.

Keys: Large Ejector - P, Shift P

**12. Whistles**

Steam locomotive whistles are powered by steam from the boiler and are used to signal a trains approach, warn of danger and often to signify departure. The GWR 4200, like many GWR locomotives, has 2 whistles, the second being used to communicate messages to the guard of the train.

The main whistle is operated using the Space key, with a selection of short whistles by holding down Control at the same time. The B key operates the lower tone guard whistle.

Key: Space, B, Ctrl Space

Whistles were also used to communicate with signalmen, requesting clearance to go via certain tracks, etc. We have simulated this by adding a whistle sound when you use Tab and Ctrl-Tab to pass signals at danger. In truth there were dozens of whistle codes used for numerous request types however within the limitations of the game we have included a single long-short-short whistle to replicate this regularly used system.

***Advanced Mode***

If the train that you are driving has one or more brake vans in it and they are fitted with Victory Works “ActiveGuard” system then you can communicate with the guard in the van using the low-tone second whistle (B key).

To request the guard to put on the van’s handbrake give him 3 short on the second whistle. To request him to take off the handbrake give him 6 short blasts.

**13. Handbrake**

A hand operated screw that applies the brakes to the locomotive without the need to release the vacuum in the brake pipes.

Key: / (toggle on and off)

**14. Doors, Windows, Rear Hatch and Roof Hatch**

Working in the cab of any steam locomotive is hot work. To aid in the comfort of the crew you can open the windows and the roof hatch. Click and drag with the mouse.

You can also open the side doors, rear doors and slide the side weather protection panels if they are fitted.

**15. Automatic Train Control (ATC)**

This system indicates a signal being either clear or at danger and issues a bell or buzzer tone to the locomotive crew. If a warning buzzer is heard it will need to be acknowledged or the brakes will be automatically applied.

If you are driving on an AWS fitted route you will hear a bell ring if you pass a clear (green) signal. If you pass a signal at danger (red, yellows or distant red) a buzzer will sound and you will have 3.7 seconds to clear the warning or the train will be brought to a stop automatically.

Press the Q key or press down the lever on the side of the ATC box to acknowledge the warning.

Note: For AWS to function the route that the locomotive is running on needs to have been fitted with the relevant scenery markers.


**16. Head code setting and logos**

The GWR 4200 has a standard GWR 4 lamp set up for the front and rear – 1 lamp at the top and 3 below – to show the standard GWR head codes (see Appendix 1).

The codes can be pre-set using the scenario locomotive number or changed by the driver at any time.

You can show or hide each lamp by holding the Control key and pressing numbers 1 to 4 on the keypad.

The lamps are also intelligent in that they will not show for each end if something is coupled to the front or rear of the locomotive.

H and Shift H control the locomotive lights as follows:

- 0 – Lights off, forward running
- 1 – Lights on, forward running
- 2 – Lights on, reverse running
- 3 – Lights off, reverse running

Keys: H, Shift H, Ctrl + Numpad 1-4

# Driving in Advanced Mode

***Advanced Mode ONLY***

The following is a summary of how to drive successfully in Advanced Mode. It does not contain hard figures – e.g. set the reverser at 25% and the regulator at 30% - as these are the things you will learn by driving the locomotive.

However there are some realistic features that are incorporated that require some specific knowledge for the best operation.

## *Before you start*

**Dampers** – make sure you have the dampers set for running in the appropriate direction if the fire requires air. Cutting off the air is a good way to limit the boiler pressure from increasing when at a stand or running downhill (see Controls Section 7).

**Head Code** - If you wish to, set the appropriate head code (see Controls Section 16).

**Fire** – Assuming you are not using the auto-fireman and not about to run downhill for a long way you will want to start building the fire as soon as possible (see Controls Section 5).

**Gauge Glass Test** – If you have time at the start of a scenario then you can perform gauge glass blow down tests to pass the time (see Controls Section 10).

## *Setting Off*

**Cylinder Cocks** – If you are just starting or have been stationary for a while, ensure that the cylinder cocks are open. As you drive off, listen for the change in pitch as the water empties or count 4 full revolutions of the wheels and then close them (see Controls Section 3).

**Wheel Slip** – In wet or icy conditions due to the accurate wheel slip and simulated steam chest you will need to use the regulator like a real driver would. Primarily on starting (when the reverser cut off is high) this means you must manage the steam entering the pistons to make sure that the power being applied to the rails does not exceed the amount of grip available.

If you open the regulator and just leave it open the pressure will continue to build as will the amount of power being applied to the rail. This will likely cause wheel slipping in any conditions but even more so when wet or icy.
As a real driver would you need to pump the regulator to gradually build the pressure in the cylinders as you accelerate. This means opening the regulator for a moment and then closing it again, the residual steam will continue to work and cause the locomotive to carry on accelerating. Continually doing this will allow the locomotive to build speed and pressure gradually and avoid wheel slip.
Once a slow speed is reached you can then leave the regulator open and accelerate and adjust as needed to maintain a constant speed.
The speed at which you can stop pumping varies and is based on how much grip is available – an icy rail will need a much higher speed to allow full power than a dry rail.
The weight of the consist will also affect how long it takes before this speed is reached (simply because a heavier load takes longer to accelerate) which means you are more likely to have to manage the wheel slip for longer, therefore making it more likely.

In summary, as you set off do not throw the regulator to full and leave it there! Pump it gradually, increasing the power slowly until you can leave the regulator open.

You will also need to be aware of the second valve on the regulator. When opening the regulator more than about halfway you will then need to fully open it before closing it shut. Otherwise the second valve will not close properly and you will have trouble closing the regulator completely – you will also experience a large burst of steam when you open it again if it was not properly closed first.

Be aware of the weather, a wet or icy rail provides a lot less grip.
This brings us to:

**Sander** – The sander helps to provide grip for the wheels on the rail and should be used when starting in wet or icy conditions (see Controls Section 12).

### *Under Way*

**Water Filling** – You will need to use the water levers and the injector steam levers to fill the boiler (see Controls Section 9).

Due to the water gauge glasses wobbling around and being effected by gradient and acceleration it is normal procedure to try and keep the boiler between half and three quarters full to avoid overfilling the boiler and causing priming to occur.

## Locomotive Numbering

When a 4200/5205 is added to a scenario the number will be randomly chosen from a list of all members of the appropriate class and era selected.

These are pre-set with the correct configurations for each number as they were historically outfitted. However if you wish to change any of the components then the setups are listed below.

**4200/5205 GWR**, e.g. 4200NFY11RNNNK

1. to 4. 4 digit locomotive number
5. Outside Pipes – **Y**es or **N**o
6. Top Lamp on Top or Front of smoke box - **T**op or **F**ront
7. Display power disc - **Y**es or **N**o
8. Company logo
    - **1** – Great Western name (1910-34)
    - **2** - Shirt button logo (1934-42)
    - **3 –** GWR lettering11. Smokebox pipes (1942-47)
9. Safety Bonnet
    - 1 – Short, painted
    - 2 – Short, polished
    - 3 – Tall, painted
    - 4 – Tall, polished
10. Lamp casings – **R**ed or **W**hite
11. Boiler band handles – **Y**es or **N**o
12. Cab weather panels – **Y**es or **N**o
13. Bunker guard – **Y**es or **N**o
14. Head code – Letter of the head code class (see Appendix), note: lower case for running bunker first

**4200/5205 BR**, e.g. 420058CN11YYRK

1. to 4. 4 digit locomotive number
5. to 7. 3 digit shed code
8. Outside Pipes – **Y**es or **N**o
9. Company logo
    - **1** – British Railways white text (1948-49)
    - **2** – British Railways Lion (1950-56)
    - **3** – British Railways Wheel (1956-65)
10. Safety Bonnet
    - 1 – Short, painted
    - 2 – Short, polished
    - 3 – Tall, painted
    - 4 – Tall, polished
11. Cab weather panels – **Y**es or **N**o
12. Bunker guard – **Y**es or **N**o
13. Colour of cab number plate background – **R**ed (Nov 1949 – April 52) or **B**lack
14. Head code – Letter of the head code class (see Appendix), note: lower case for running bunker first

When a 7200 is added to a scenario the number will be randomly chosen from a list of all members of the appropriate class and era selected.

These are pre-set with the correct configurations for each number as they were historically outfitted. However if you wish to change any of the components then the setups are listed below.

**7200 GWR**, e.g. 7200YFY21RNNNK

1. to 4. 4 digit locomotive number
5. Outside Pipes – **Y**es or **N**o
6. Top Lamp on Top or Front of smoke box - **T**op or **F**ront
7. Display power disc - **Y**es or **N**o
8. Company logo
    - **1** – Great Western name (1910-34)
    - **2** - Shirt button logo (1934-42)
    - **3 –** GWR lettering11. Smokebox pipes (1942-47)
9. Safety Bonnet
    - 1 – Short, painted
    - 2 – Short, polished
    - 3 – Tall, painted
    - 4 – Tall, polished
10. Lamp casings – **R**ed or **W**hite
11. Boiler band handles – **Y**es or **N**o
12. Cab weather panels – **Y**es or **N**o
13. Bunker guard – **Y**es or **N**o
14. Head code – Letter of the head code class (see Appendix), note: lower case for running bunker first

**7200 BR**, e.g. 720058CN11YYRK

1. to 4. 4 digit locomotive number
5. to 7. 3 digit shed code
8. Outside Pipes – **Y**es or **N**o
9. Company logo
    - **1** – British Railways white text (1948-49)
    - **2** – British Railways Lion (1950-56)
    - **3** – British Railways Wheel (1956-65)
10. Safety Bonnet
    - 1 – Short, painted
    - 2 – Short, polished
    - 3 – Tall, painted
    - 4 – Tall, polished
11. Cab weather panels – **Y**es or **N**o
12. Bunker guard – **Y**es or **N**o
13. Colour of cab number plate background – **R**ed (Nov 1949 – April 52) or **B**lack
14. Head code – Letter of the head code class (see Appendix), note: lower case for running bunker first

## Rolling Stock Numbering


**GWR and BR 20 ton Toad Brake Van (Diagrams AA13 and AA15)**
The 20 digits after the 5 digit van number are used to put text on the side of the van. There must always be 20 digits (initially set as # characters) so # is used to add an empty space between words or to pad the start and end to centralise the text.
e.g. 17787####################T

Letters A to Z are catered for, they must be entered in upper case, as well as & (ampersand) ‘ (apostrophe) and . (period). Using $ will show a small underlined C, often used in the abbreviation for Junction, Jun$\underline{C}$
e.g. 17787###TRURO############T, 17787#SWINDON####JUN$####T

The 26th character can set the brake van with either **T**apered or **P**arallel buffers.

## Modification Policy

You are free to create modifications for this pack (including but not limited to re-skins, sound updates, “enhancement” packs, etc.) but they must not include any 3D model files, audio samples or scripts –original or modified. If you choose to make your mods public then they **must be provided free of charge**. They can be hosted on a site that asks a nominal membership fee for quicker downloads (e.g. UK Train Sim) but **cannot be sold in any way** without the express permission of Victory Works.

If you wish to discuss terms for selling modifications please contact us via email at victoryworks@live.co.uk

To summarise – free mods are fine but must not include model, audio or script files. If you wish to sell mods then you **MUST** get permission first.

## Acknowledgements

We would like to thank the following people for their help and encouragement during this project:

- Steam Sounds Supreme for sounds and testing
- SSS Beta testing team for in-depth testing
- Stuart Galbraith for his advice, ideas and critique
- Chris Barnes for his smoke/steam textures and ideas on new features

# Appendix: Head codes

The following are the 1936 GWR head code classes that you can set using the scenario numbering system.

The codes are shown here on a GWR 4575 Small Prairie but they were used by every locomotive running on the GWR network.

**Class A**

- Express passenger train.
- Breakdown van train going to clear the line, or light engine going to assist disabled train.
- Empty coaching stock timed at express speed.
- Express streamline railcar.


**Class B**

- Ordinary passenger or mixed train.
- Branch passenger train.
- Breakdown train not going to clear the line.
- Rail motor car, auto-train or streamline railcar.

**Class C**

- Parcels, newspapers, meat, fish, fruit, milk, horse, cattle or perishable train composed entirely of vacuum fitted stock with vacuum pipe connected to the engine.
- Express freight, livestock, perishable or ballast. Train pipe with not less than one third of the vehicles vacuum fitted and pipe connected to the engine.


**Class D**

- Express freight, or ballast train conveying a stipulated number of vacuum braked vehicles connected by the vacuum pipe to the engine and authorised to run at a maximum speed of 35mph.
- Empty coaching stock train (not specially authorised to carry "A" head code).

**Class E**

- Express freight, fish, fruit, meat, cattle or ballast train.
- Breakdown train not proceeding to an accident.


**Class F**

- Fast freight conveying through load, all unfitted.

**Class G**

- Light engine or light engines coupled.
- Engine with not more than two brake vans.


**Class H**

- Freight, mineral or ballast train or empty train carrying through load to destination.

**Class J**

- Freight, mineral or ballast train stopping at intermediate stations.


**Class K**

- Branch freight train.
- Freight or ballast train or Officers special train requiring to stop in section.