Class 175 Enhancement Pack 2.0

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How to Install

1) Locate where you have downloaded your pack. Extract it by right-clicking the .zip file and clicking 'Extract All'.
2) Go to the location where you have extracted the files from the .zip file.
3) Now find the .exe file called ‘Class 175 Enhancement Pack 2.0’. Double-click this file.
4) Follow the steps and by the end of the process, the main part of this pack will have installed.
5) If you intend to use any of the included scenarios, make sure you have the freely available extra stock pack and requirements installed, as listed on the product page.
6) To ensure the cab environment sounds as intended in this pack, please make sure that ‘EFX’ is ticked within your in-game Audio settings.

Liveries

First North Western:

with First North Western logo - *FNW*

without First North Western logo - *Ex-FNW*

with Arriva Trains Wales logo - *Ex-FNW (ATW)*

Arriva Trains Wales:

with Arriva Trains Wales logo - *ATW*

with Arriva Trains Wales & DB logos - *ATW (DB)*

without Arriva Trains Wales logo - *Ex-ATW*

Transport for Wales - *TfW*

Keyboard Controls

Non-standard keyboard controls are listed below:

Ctrl+A -	Automatic Warning System (AWS) ON/OFF
Numpad Plus -	Brake hold button
E -	Deadman's pedal (DVD reset)
Y -	Driver Reminder Appliance (DRA) ON/OFF
Ctrl+D -	Driver vigilance device (DVD) ON/OFF
C -	Driver to guard signal
Z -	Engine start button
Ctrl+Z -	Engine stop button
I -	Instrument lights switch ON/OFF
Shift+W -	Master key IN/OUT
O -	Passenger saloon lights ON/OFF
Ctrl+1 -	TMS key 1 or F1
Ctrl+2 -	TMS key 2 or F2
Ctrl+3 -	TMS key 3 or F3
Ctrl+4 -	TMS key 4 or F4
Ctrl+5 -	TMS key 5
Ctrl+6 -	TMS key 6
Ctrl+7 -	TMS key 7
Ctrl+8 -	TMS key 8
Ctrl+9 -	TMS key 9
Ctrl+Backspace -	TMS backspace key
Ctrl+Numpad Enter -	Visual aids ON/OFF
V -	Wiper switch INCREASE
Shift+V -	Wiper switch DECREASE

Features

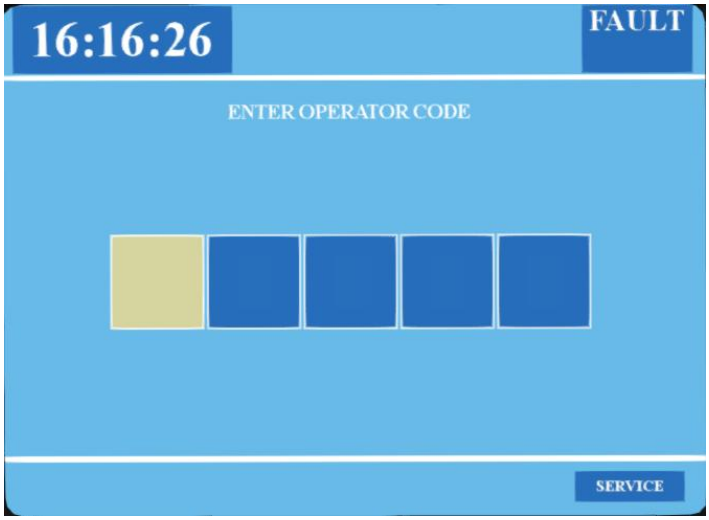
Train Management System (TMS)

The TMS screen to the left of the driver provides information on many aspects of the unit. Please see below for the screens it displays and how to use them:

Cab Not In Service

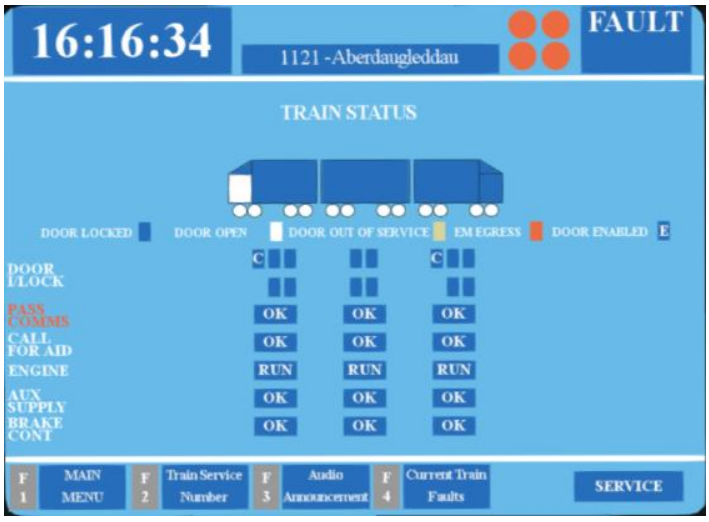
This is the first screen you'll see when entering the cab. To activate the TMS, you must turn the master key and move the reverser to neutral. The 'Operator Code' screen will then appear.

Operator Code



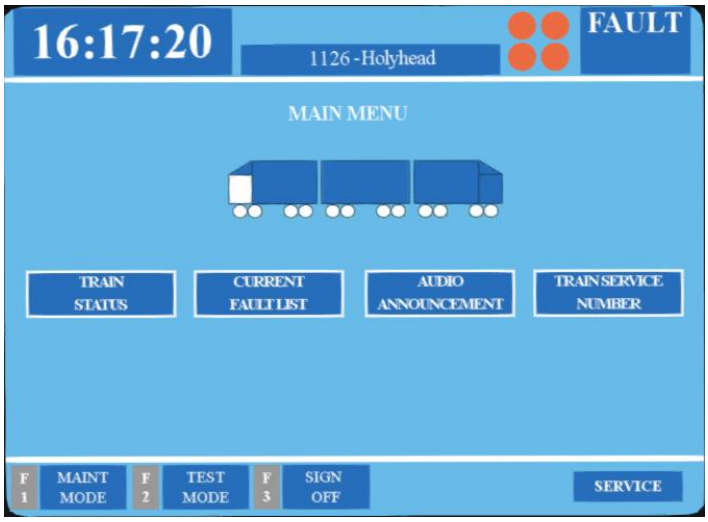
In reality, every driver has their own unique code that they must enter but seeing as this is a simulator, you may make up your own five digit code. To enter a number, press Ctrl+x, x being your chosen number. Please note that due to a quirk with the simulator, you are unable to enter '0'. Once all five digits have been entered, press Ctrl+1, and you will be taken to the 'Train Status' screen.

Train Status



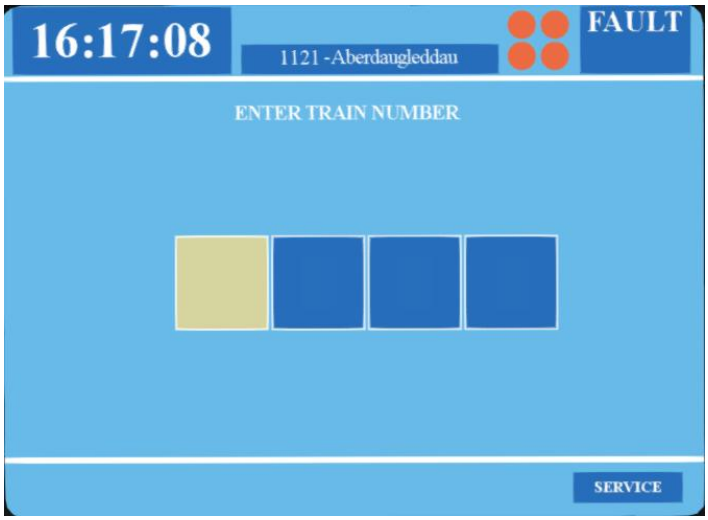
On this screen, you can view the formation of your train and real-time information on the state of the doors/engines. As well as this, you can access the 'Main Menu' screen by pressing 'Ctrl+1' and the 'Train Service Number' screen by pressing 'Ctrl+2'.

Main Menu



On this screen, you can view the formation of your train. Also, you can access the 'Train Status' screen by pressing 'Ctrl+4' and the 'Train Service Number' screen by pressing 'Ctrl+7'. Finally, you can sign off and enter a new operator code by pressing 'Ctrl+3'.

Train Service Number

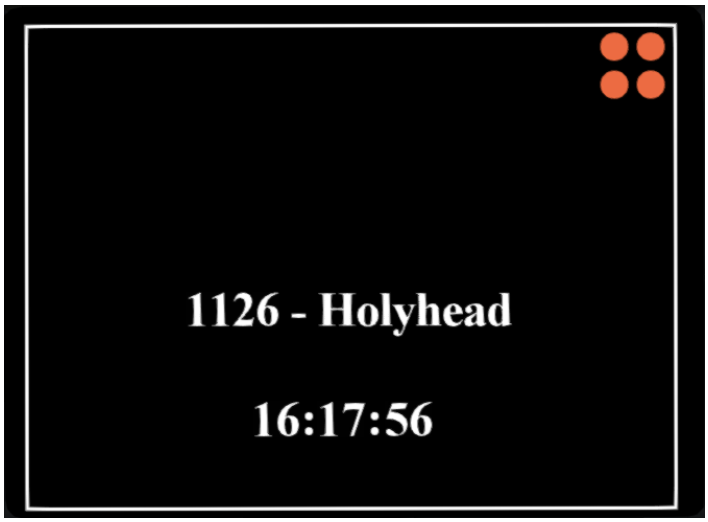


On this screen, you can change the destination displayed on the front and rear of the train. To do this, you must enter the relevant four digit code for the destination. A list of these codes can be found in the cab, to the left of the TMS screen. Once you have entered the four-digit code, press 'Ctrl+2', and the destination will be applied. You can then return to the Main Menu screen by pressing 'Ctrl+1'. Please see below for a list of the available destinations and their relevant 3 or 4 letter code if you wish to use them via the unit's number on an AI service:

1111/AYW Aberystwyth	**1135/NWPW Casnewydd**
1112/ATW Arriva Trains Wales	**1136/NWP Newport**
1113/BPW Bristol Parkway	**1137/CTRW Caer**
1114/BRI Bristol Temple Meads	**1138/CTR Chester**
1115/CDFW Caerdydd Canolog	**1139/PRE Preston**
1116/CDF Cardiff Central	**1141/WBQ Warrington Bank Quay**
1117/MST Maesteg	**1142/CRE Crewe**
1118/SWAW Abertawe	**1143/CREW Cryw**
1119/SWA Swansea	**1144/SHRW Amwythig**
1121/MFHW Aberdaugleddau	**1145/SHR Shrewsbury**
1122/MFH Milford Haven	**1146/CMNW Caerfyddin**
1123/GCRW Caerloyw	**1147/CMN Carmarthen**
1124/GCR Gloucester	**1148/BHM Birmingham New Street**
1125/HHDW Caergybi	**1149/WGN Wigan North Western**
1126/HHD Holyhead	**1151/WXC Wrexham Canolog**
1127/MIA Manchester Airport	**1152/WRX Wrexham General**
1128/LLJW Cyffordd Llandudno	**1153/NIA Not In Service**
1129/LLJ Llandudno Junction	**1154/SPE Special**
1131/BPN Blackpool North	**1155/CLAS Class 175**
1132/LLD Llandudno	**1156/CNM Cheltenham Spa**
1133/MANW Manceinion Piccadilly	**1157/DPO Empty To Depot**
1134/MAN Manchester Piccadilly	**9999/0 Blank**

For a player service to have a destination pre-selected upon loading a scenario, add **;TSN=xxxx** to the DMSLA number. 'xxxx' being the relevant four-digit code.

Screensaver



After 30 seconds of inactivity, this screen will appear. It displays the train service number, destination and time. If you wish to access the TMS again, press 'Ctrl+1'.

Voith T211 Hydraulic Transmission

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

1st Stage - Torque Converter

When accelerating from a standing start, oil fills the torque converter and the engine revs up, which allows acceleration to take place. Unlike the Class 15x family of units, the engine does not rev up until the oil has filled the converter, hence the lack of an initial surge of rpm before settling and a smooth increase in rpm instead. During this 1st stage, engine rpm is directly controlled via the notch selected on the power handle.

2nd Stage - Fluid Coupling

At 60 mph, the oil transfers from the torque converter to the fluid coupling which results in a reduction of engine rpm. During this stage, engine rpm is directly proportional to the speed of the train which means rpm will be the same regardless of which notch is selected on the power handle. All that varies is the load being placed on the engine. As speed increases then, you will gradually hear engine rpm rise in sync.

The unit will stay in this second stage until speed drops below 57 mph. At this point, the transmission reverts to the first stage.

Adhesion

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

Season

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

Weather

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

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

Time of Day

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

Tunnels

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

Wheelslip

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

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

1) Power is automatically reduced and sand is automatically applied.
2) Once wheelslip stops, power is reapplied to the notch selected on the combined power handle. If wheelslip reoccurs, the process starts again.

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

Wheelslide

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

1) Brake pressure is automatically reduced and sand is automatically applied.
2) Once the wheelslide stops, brake pressure is returned to the notch selected on the combined power handle. If wheelslide reoccurs, the process starts again.

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

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.

Automatic Unit Numbering

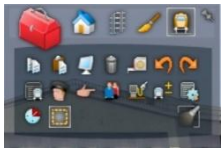
When placing a class 175 unit in the scenario editor or using one in Quick Drive, all coaches in the unit will automatically be given correct unit and coach numbers, instead of you having to select each vehicle and change the number manually so they match. If you wish to change the unit number, it is controlled via the DMSLA coach. Please note that the destination display on both driving coaches is also controlled via the DMSLA coach.

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:

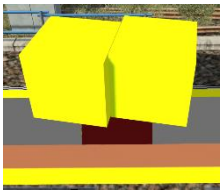
1) In the scenario editor, go to the location at which you would like the AI train's horn to sound, and press **Spacebar** 3 times. The track will now display a certain colour which represent its speed limit.

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:

- High quality headlight/marker light/tail light textures.
- Improved speedometer visuals.
- Improved illumination visuals on brake gauge and speedometer.
- Subtle dynamic exhaust.
- If speed increases over 101 mph, power will cut out and the overspeed indicator light will illuminate on the cab desk. To obtain power again, you must return the power/brake controller to 'Off' and ensure your speed is below 101 mph.
- 4-step reverser with 'Off' notch.
- Power brake controller will not move into a power notch unless the reverser is in 'Forward' or 'Reverse'.
- Reverser will not move if power brake controller is in a power notch or 'Off'.
- Headlight/marker light/tail lights proving indicator lights next to light switches
- 'Safety System Isolated' light illuminates to left of driver when 'DVD' or 'AWS' is isolated.
- Master keys visibly turn in the 'DVD' & 'AWS' isolation switches, to the right of the cab next to the window, when you toggle them.
- In-cab unit/vehicle number labels.
- Functioning brake hold button which applies the equivalent of step 1 brake. Only operational up to 3 mph.
- Intermittent, slow & fast wiper speeds.
- Different wiper sound when dry compared to when wet.
- Realistic delay before obtaining power when moving the power handle from off to a power notch.
- Visual alarms outside of cab when AWS or DVD are active.
- The visible driver automatically moves to whichever cab you are in.
- 1 second delay between train passing over AWS magnet and AWS warning sound occurring. The F3/F4 HUD will show the warning immediately so you must wait 1 second before trying to cancel it.

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

How to Use in the Scenario Editor

How to place

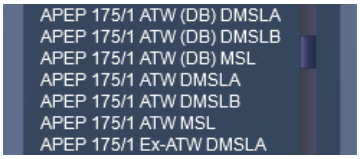
To place in the scenario editor, please follow the instructions below:

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 'DTG' from the drop-down menu.

3) Tick the second & third box beside 'SouthWales01'.

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



Setting up the Driver's Cab

Please follow the steps below to set up the cab of the class 175 so you are ready to move:

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

2) Move the reverser to the 'Neutral' position by pressing **S**. The TMS alarm will sound, shortly followed by an AWS self-test.

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

4) Set up the Train Management System as necessary.

5) Turn on the headlights by pressing **H**.

6) Check the door interlock light is lit.

7) Turn the Driver Reminder Appliance (DRA) off by pressing **Y**.

Scenarios

APC175EP: 1V48 15:30 Manchester Piccadilly - Carmarthen
Route = South Wales Main Line
Track covered = Newport - Swansea
Traction = Arriva Trains Wales 175103
Year = 2016
Duration = 1 hour 25 minutes

APC175EP: 1W12 07:07 Milford Haven - Manchester Piccadilly
Route = South Wales Main Line
Track covered = Swansea - Cardiff Central
Traction = Arriva Trains Wales 175106
Year = 2016
Duration = 1 hour

APC175EP: 11:17 Maesteg - Cheltenham Spa
Route = South Wales Main Line
Track covered = Bridgend - Caldicot
Traction = Ex-First North Western (ATW) 175005
Year = 2008
Duration = 1 hour 5 minutes

Credits

Nicolas Schichan - Advanced scripting

Arriva Trains Wales - Assistance in recording sounds

Video 125 - Audio samples