

# Class 43 (MTU)/Mk3 Enhancement Pack



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## How to install

- 1) Locate where you have downloaded this pack and unzip it. Information on how to do this can be found [here](#).
- 2) Go to the location where you have extracted the files from the .zip file.
- 3) Now find the .exe file called 'Class 43 (MTU)-Mk3 Enhancement Pack'. Double-click this file.
- 4) Follow the steps and by the end of the process, the main part of this pack will have installed.
- 5) If you intend to use any of the included scenarios, make sure you have the freely available extra stock pack and requirements installed, as listed on the product page.
- 6) To ensure the cab environment sounds as intended in this pack, please make sure that 'EFX' is ticked within your in-game Audio settings.

# Liveries

GNER - GNER (MTU) AP



Ex-GNER (National Express East Coast) - Ex-GNER (NXEC) (MTU) AP



National Express East Coast - NXEC (MTU) AP



Ex-NXEC (East Coast) - Ex-NXEC (EC) AP



East Coast - *East Coast AP*



First Great Western - *FGW AP*



Great Western Railway - GWR AP



BR InterCity 125 (43002) - BR IC125 (MTU) AP



InterCity Swallow (43185) - ICS (MTU) AP



CrossCountry - XC AP



Grand Central (Revised) - GC 2 AP



Network Rail - NR 2 (MTU) AP (with/ without buffers)



Network Rail (2016+) - NR 3 (MTU) AP (with/ without buffers)



## Keyboard controls

Non-standard keyboard controls are listed below:

Ctrl+P -	Automatic Train Protection (ATP) ON/OFF
Ctrl+' -	ATP brake cancel button
L -	Cab light ON/OFF
Ctrl+V -	Camera wiper switch ON/OFF ( <i>Network Rail only</i> )
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
Ctrl+F -	Fire alarm test button
J -	Marker lights switch ON/OFF
Shift+W -	Master key IN/OUT
K -	Tail lights (left-hand side) switch ON/OFF
Ctrl+K -	Tail lights (right-hand side) switch ON/OFF
Ctrl+ Enter -	Visual aids ON/OFF
V -	Wiper switch CLOCKWISE
Shift+V -	Wiper switch ANTI-CLOCKWISE

## Features

- 13 liveries
- Detailed internal & external audio
- Accurate acceleration and braking physics
- Automatic Train Protection (ATP)
- Electric Train Supply (ETS)
- Driver vigilance device (DVD)
- Driver reminder appliance (DRA)
- 4-step reverser (off/reverse/neutral/forward)
- Individually controlled headlights/marker lights/tail lights
- Cooling fan simulation
- Subtle exhaust effects
- Power car number displayed inside the cab
- Detailed headlight/marker light/tail light textures

## Automatic Train Protection (ATP)

Following a number of incidents, this safety system was introduced on the Great Western Main Line (GWML) between London Paddington & Bristol. It monitors signals/speed limits and should the driver not respond correctly to them, intervenes with a brake application. Note that due to inconsistent behaviour of signals in the simulator, we have not been able to simulate the signal monitoring part of the system.

For the purposes of this pack, ATP can be used on any route and is switched on or off by pressing **Ctrl+P**.

### ***Speed limit display***

On the speedometer, the current speed limit is displayed with a solid green LED next to the relevant speed. When moving to a higher speed limit, you will hear the 'blip' sound and the solid green LED will move next to the relevant speed. When approaching a lower speed limit, the green LED will start blinking next to the impending lower speed and you will hear the 'blip' sound. Once you reach the speed limit, the green LED will return to a solid state and you will hear the 'blip' sound.



### ***Brake intervention***

One of the main safety features of ATP is that it will apply the brakes if the driver is driving above the speed limit. When 3mph above the speed limit, a warning 'warble' sound will be audible, as an alert to the driver to reduce their speed. If the driver ignores this and reaches 6mph above the speed limit, a full service brake application will be made and can only be released once the speed reaches the speed limit and the 'warble' sound stops. To release the brakes, the ATP brake cancel button must be pressed; **Ctrl+'**.

A brake intervention can also be made when approaching a lower speed limit. If ATP judges that you are not braking sufficiently, the 'warble' sound will be audible, as an alert to the driver to apply the brakes more heavily. If the driver continues to not brake sufficiently, a full service brake application will be made and can only be released once the speed reaches the impending lower speed limit and the 'warble' sound stops. Once again, to release the brakes, the ATP brake cancel button must be pressed; **Ctrl+'**.

## **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 light illuminates in the cab.
- 2) Once the wheelslip stops, power is reapplied to the notch selected on the power handle and the wheelslip light extinguishes. If wheelslip reoccurs, the process starts again.

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

## **Electric Train Supply (ETS)**

In reality, ETS is usually supplied from the rear power car of an HST set. To do this in the simulator, move to the rear power car and hold the 'Train Supply On' button until the 'Train Supply Indicator' is illuminated. The engine will rev up accordingly to meet the load.

## Setting up the driver's cab

Please follow the steps below to set up the cab of the class 43 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 **W**.
- 3) Cancel the AWS self-test alarm by pressing **Q**.
- 4) If you have ATP enabled, the ATP self-test will initiate.
- 5) Turn off the tail lights by pressing **K** and **Ctrl+K**.
- 6) Turn the marker lights on by pressing **J**.
- 7) Turn the headlights on by pressing **H**.
- 8) Turn the Driver Reminder Appliance (DRA) off by pressing **Y**.

## How to use in the scenario editor

### Numbering

When placing a class 43 in the scenario editor, you are able to control whether ETS is turned on at the start of the scenario, via the vehicle number.

#### *Example number*

**43122;ETS=1**

Key:

**43122** - Vehicle number

**;ETS=1** - ETS turned on

# Scenarios

## **APC43MTUEP: 1B46 14:45 London Paddington - Swansea**

Route = South Wales Main Line  
Track covered = Bristol Parkway - Swansea  
Traction = InterCity Swallow 43185 & BR IC125 43002  
Year = 2016  
Duration = 1 hour 35 minutes



## **APC43MTUEP: 1L96 20:28 Swansea - Swindon**

Route = South Wales Main Line  
Track covered = Swansea - Bristol Parkway  
Traction = First Great Western 43150 & 43155  
Year = 2016  
Duration = 1 hour 30 minutes



## **APC43MTUEP: 1Z20 05:55 Old Oak Common - Derby R.T.C.**

Route = South Wales Main Line  
Track covered = Swansea - Bristol Parkway  
Traction = Network Rail 43014 & 43062 (NMT)  
Year = 2016  
Duration = 55 minutes



# Credits

**Nicolas Schichan** - Advanced scripting

**Old Oak Common Depot, 125 Group & East Midlands Trains** - Assistance in recording sounds