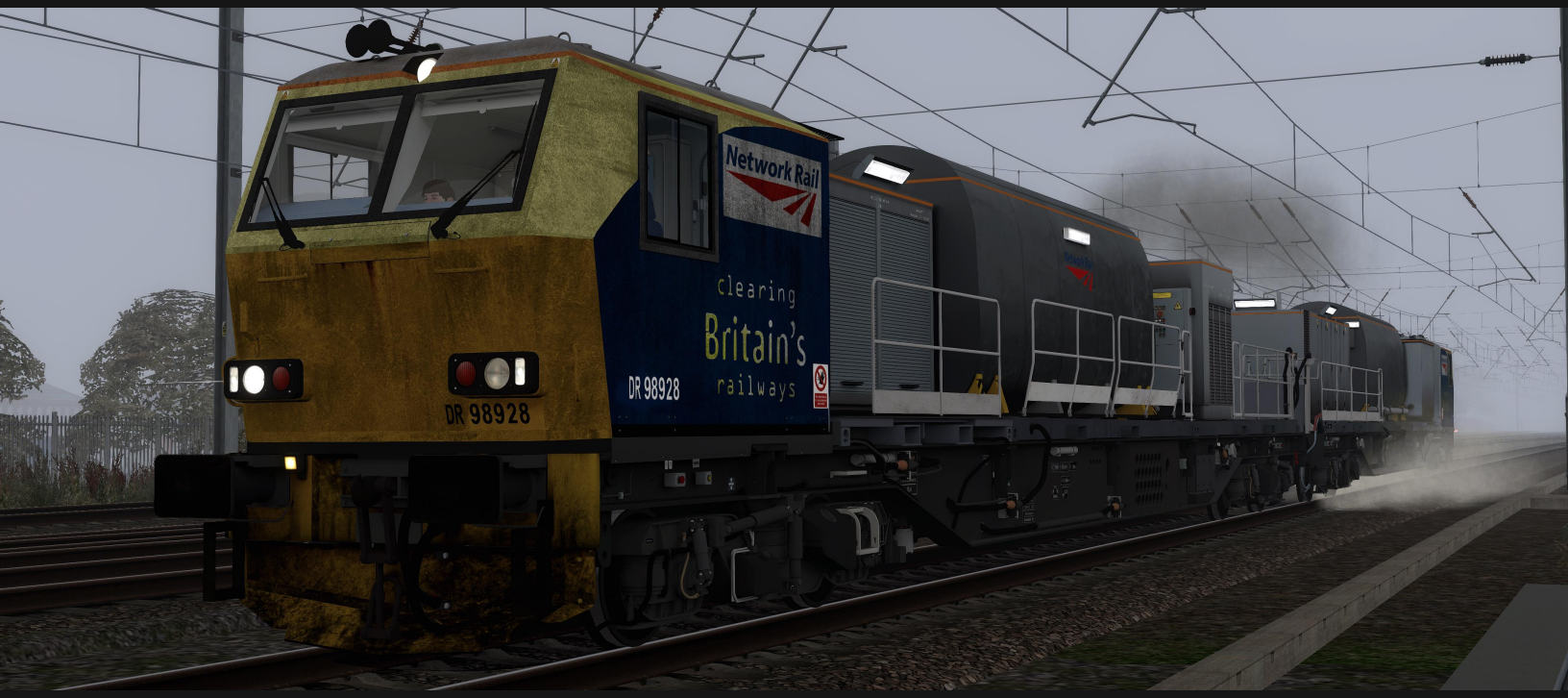
MPV2.0

Multi-
Purpose
Vehicle



Rail Head Treatment Train

User Manual

GOLD STAR TRAINS ®

MPV Introduction

The Multiple-purpose Vehicle or MPV is a purpose-built departmental derivative of diesel multiple units. Twenty-five two-car units were ordered by Railtrack to enable it to replace its varied collection of ageing departmental vehicles, many of which were converted from redundant passenger stock.

The vehicles were built in Germany by Windhoff. The design is based on the Windhoff "CargoSprinter" units that are operated by Deutsche Bahn (Germany) and CRT Group (Australia). Normally a unit consists of one powered vehicle fitted with twin 265 kW (355 hp) Railpac diesel engines, semi-permanently coupled to an unpowered slave unit without engines. The later orders for the Southeast of England are instead composed of two powered units, to give better acceleration and top speed. When first built there were problems with the vehicles being 'out of gauge' when running empty.

The concept of the design is that each vehicle has a driving cab and an under-floor engine/transmission with Multiple unit (MU) control. Much of each vehicle is a flat load bed that can carry combinations of 10-foot and 20-foot modules that are secured using the locking system for ISO standard containers. Modules can be changed as required to suit current requirements.

This pack brings to life the MPV in Train Simulator and was carefully constructed consulting a Network Rail operator at every step along the way. The vehicle controls are accurate, as is its behavior. The sounds for this pack were recorded professionally at a dedicated MPV recording session on a fine summer afternoon and are provided courtesy of Legomanbiffo in conjunction with GST.

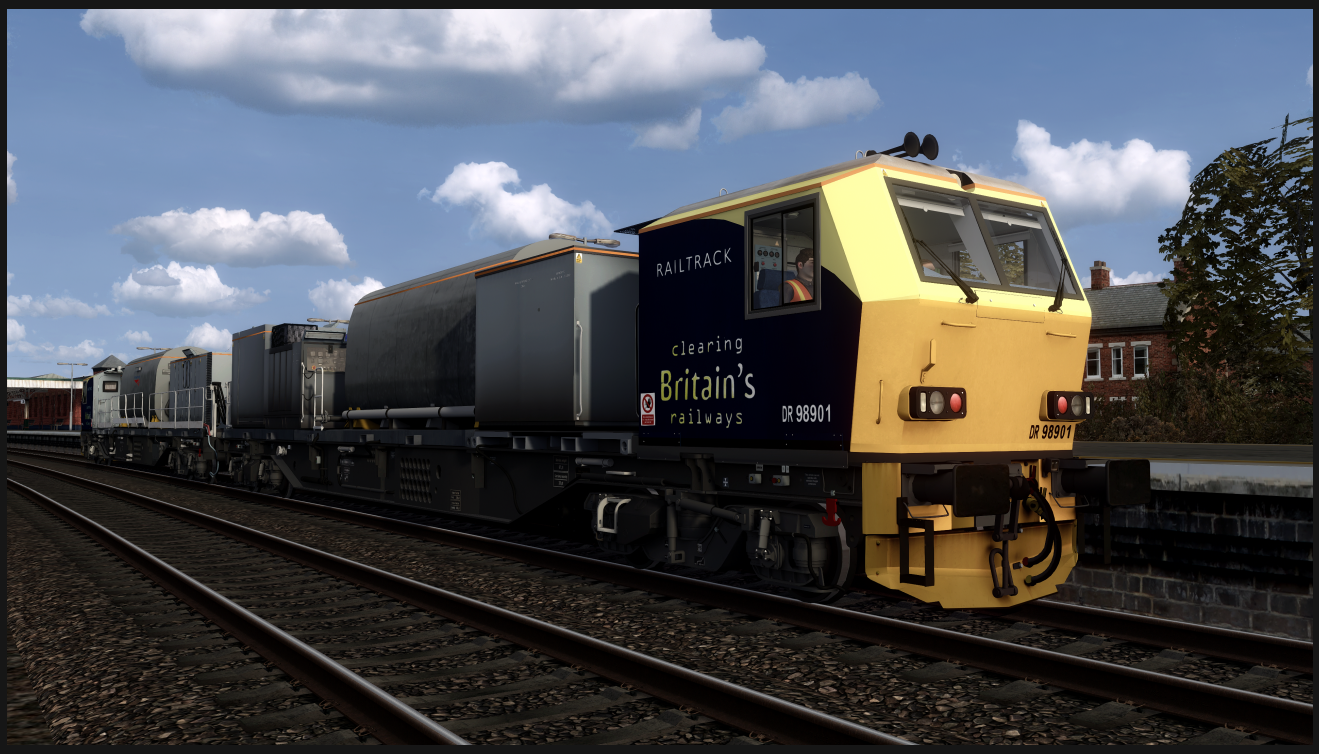
We hope you have as much enjoyment from this pack as we have had making it.

Contents

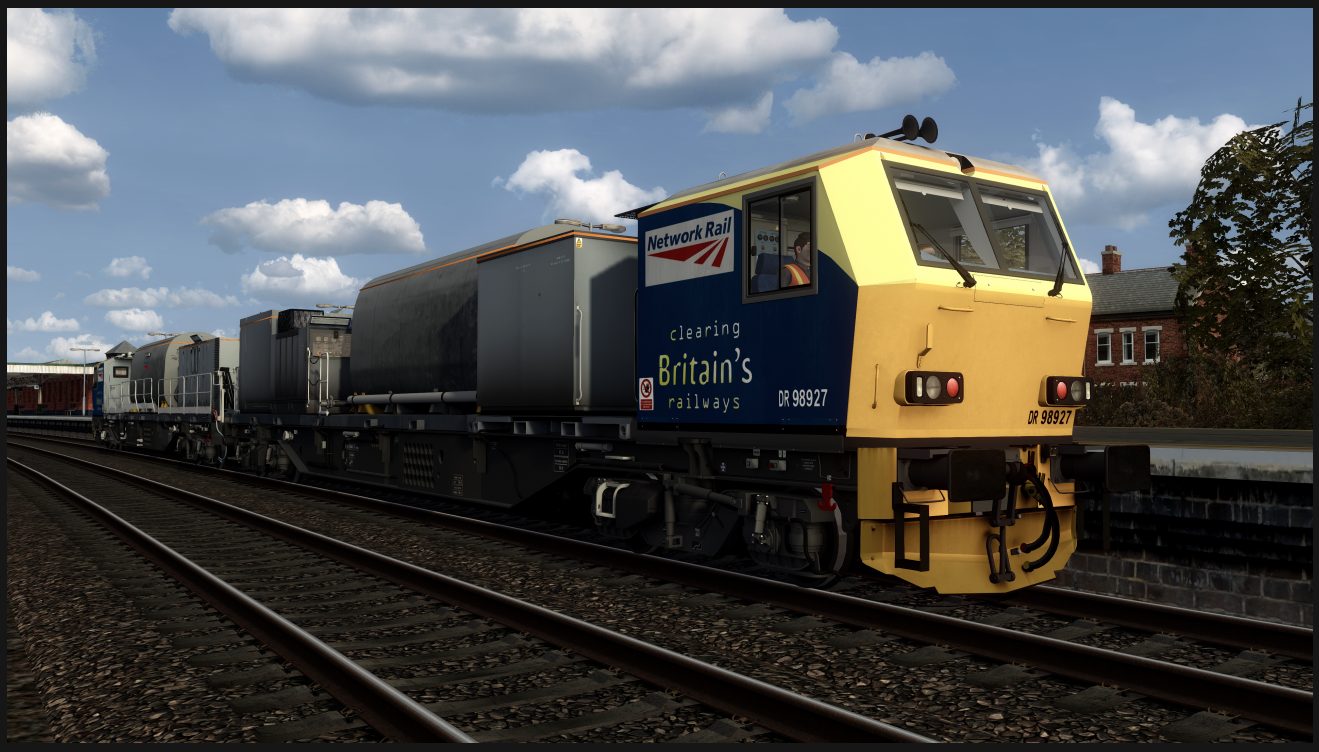
Liveries

Included in this pack are several MPV styles and liveries that the units have worn over their years of continued service. [illegible] These include: -

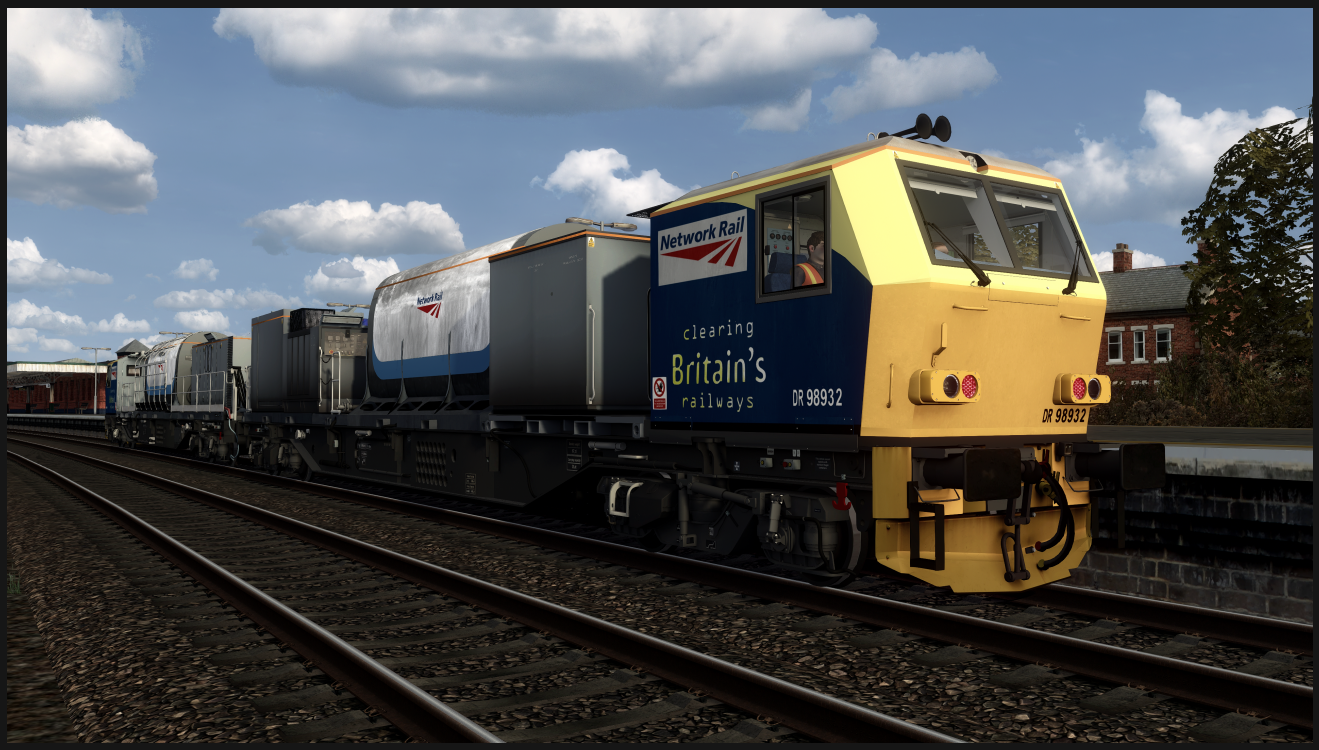
- Railtrack
- Network Rail (Original)
- Network Rail (Refurbished)
- Network Rail (Refurbished & Dirty)
- Network Rail/South West Trains (Original)
- Network Rail/South West Trains (Refurbished)



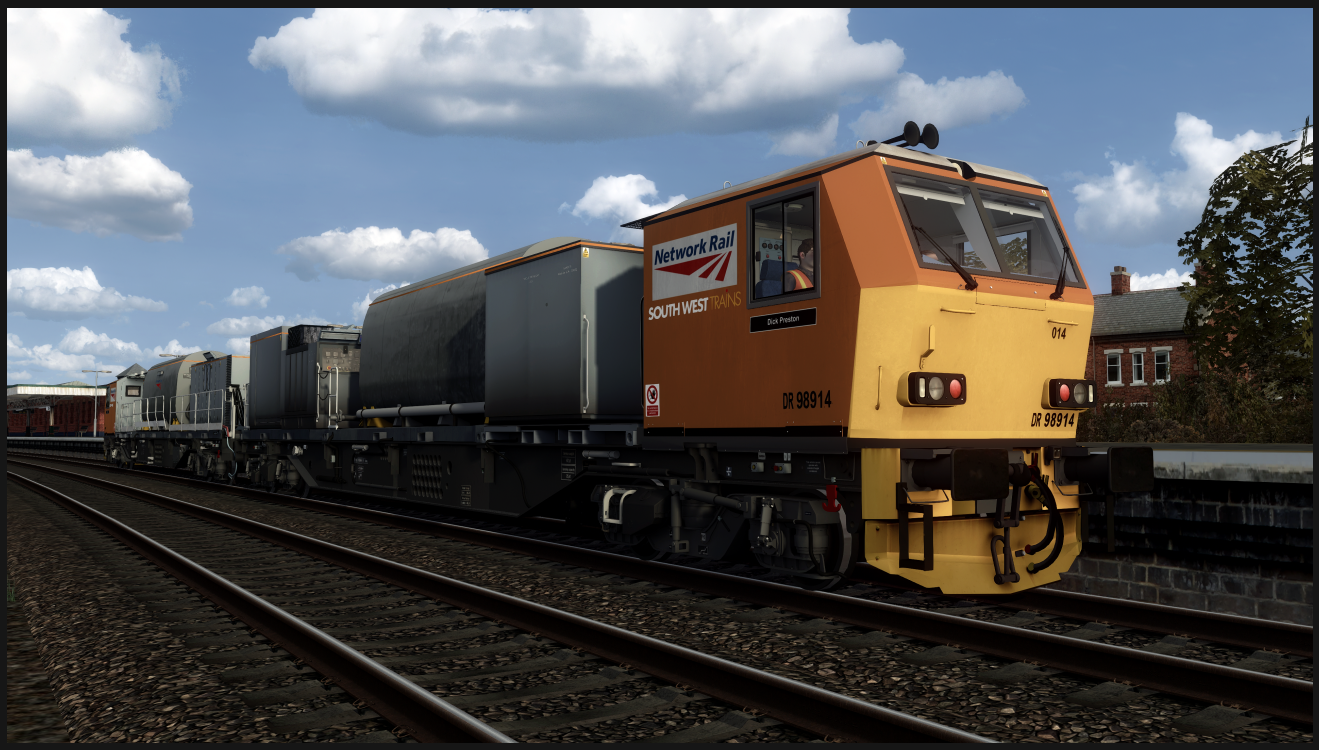
Railtrack



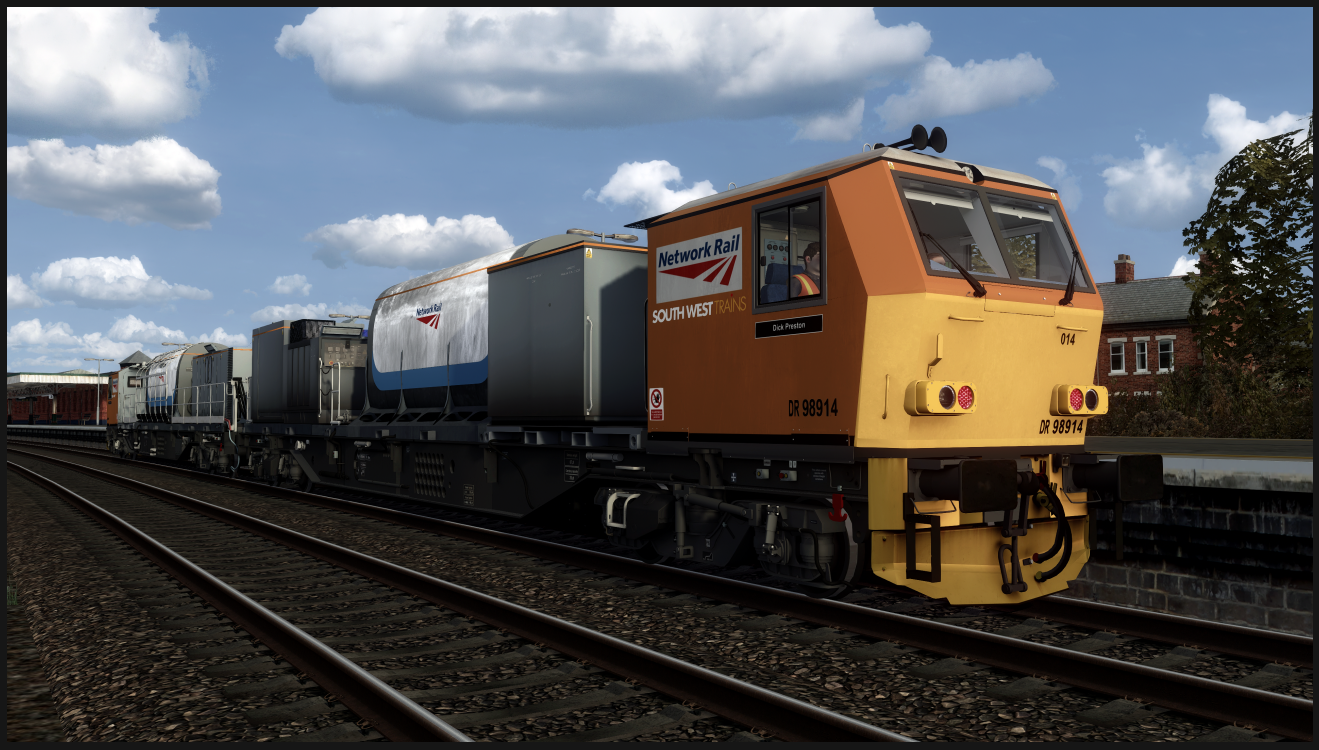
Network Rail (Original)



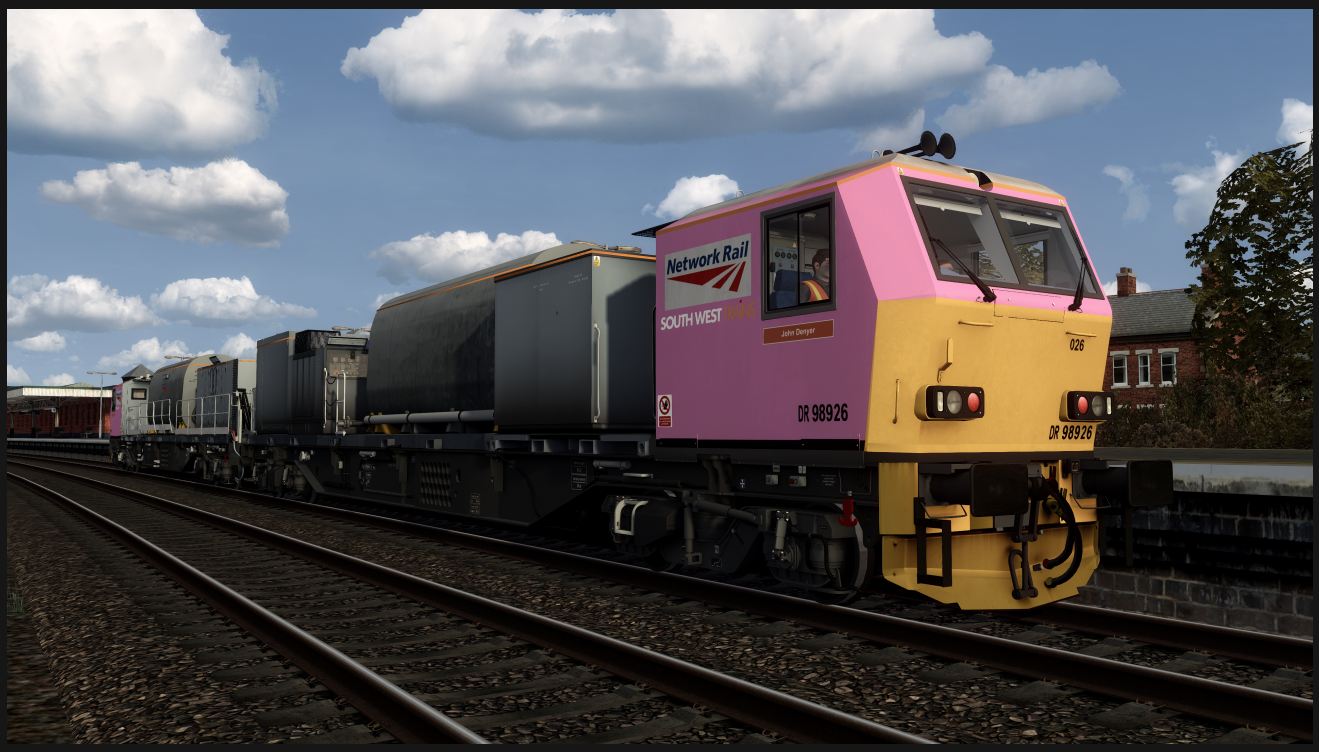
Network Rail (Refurbished)



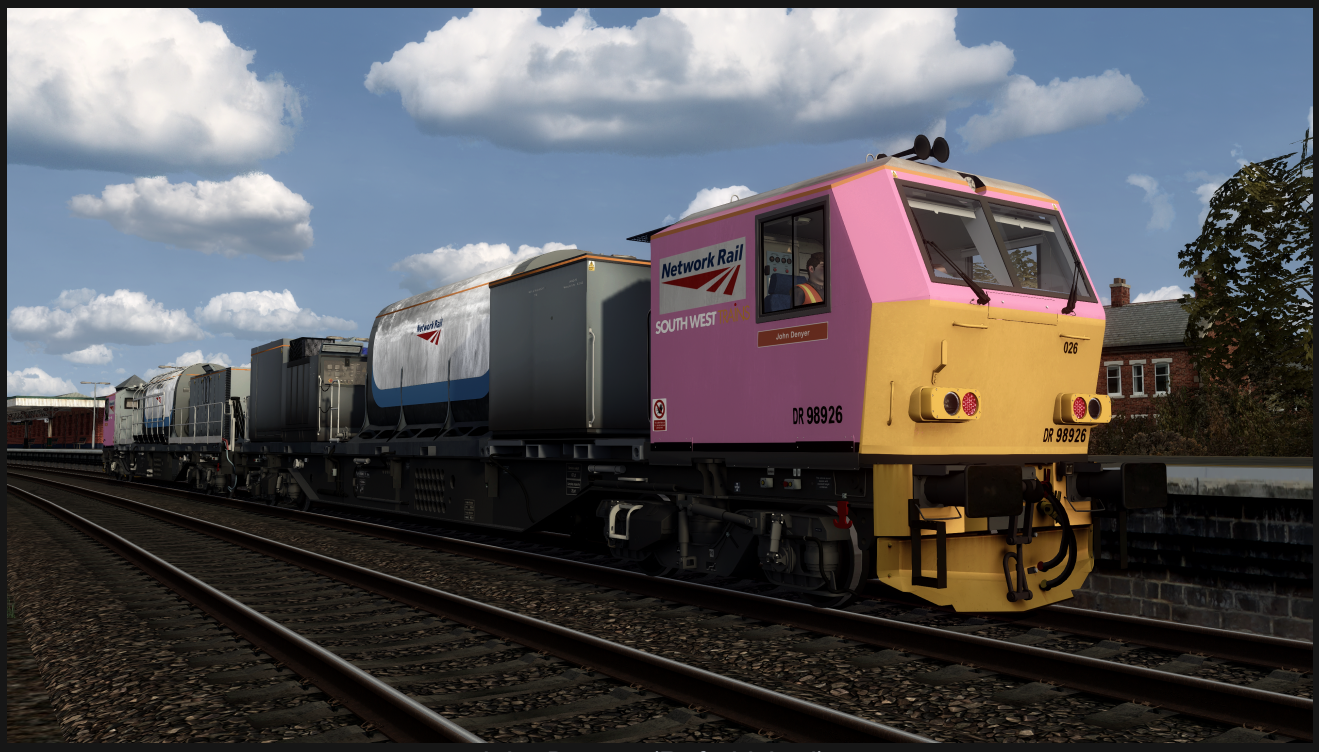
Dick Preston (Original)



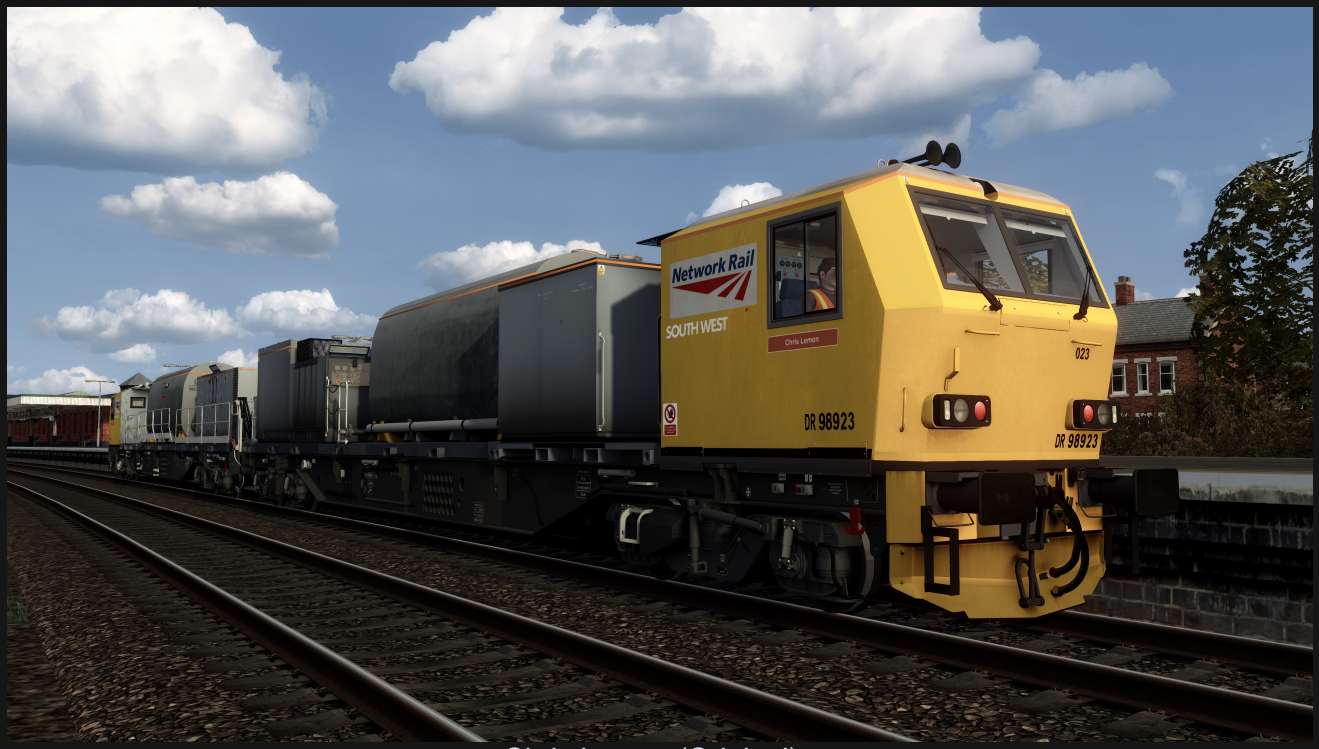
Dick Preston (Refurbished)



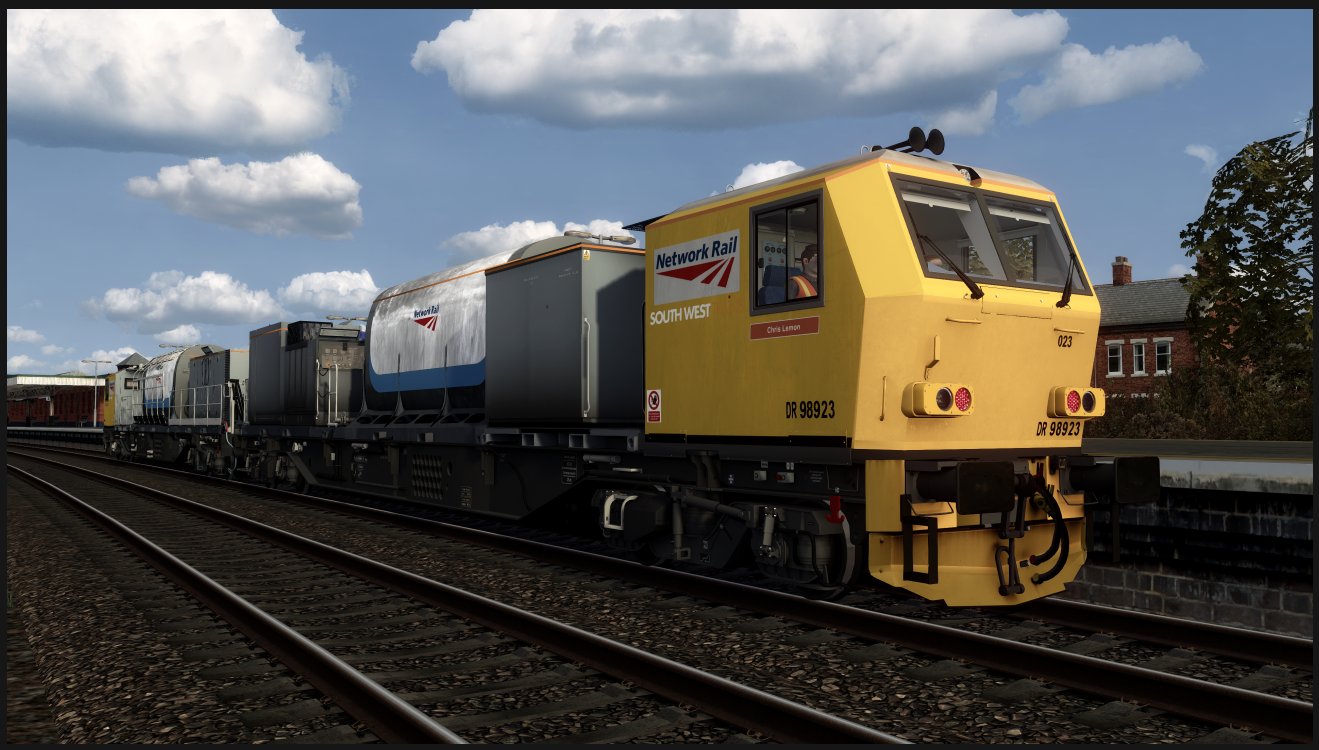
John Denyer (Original)



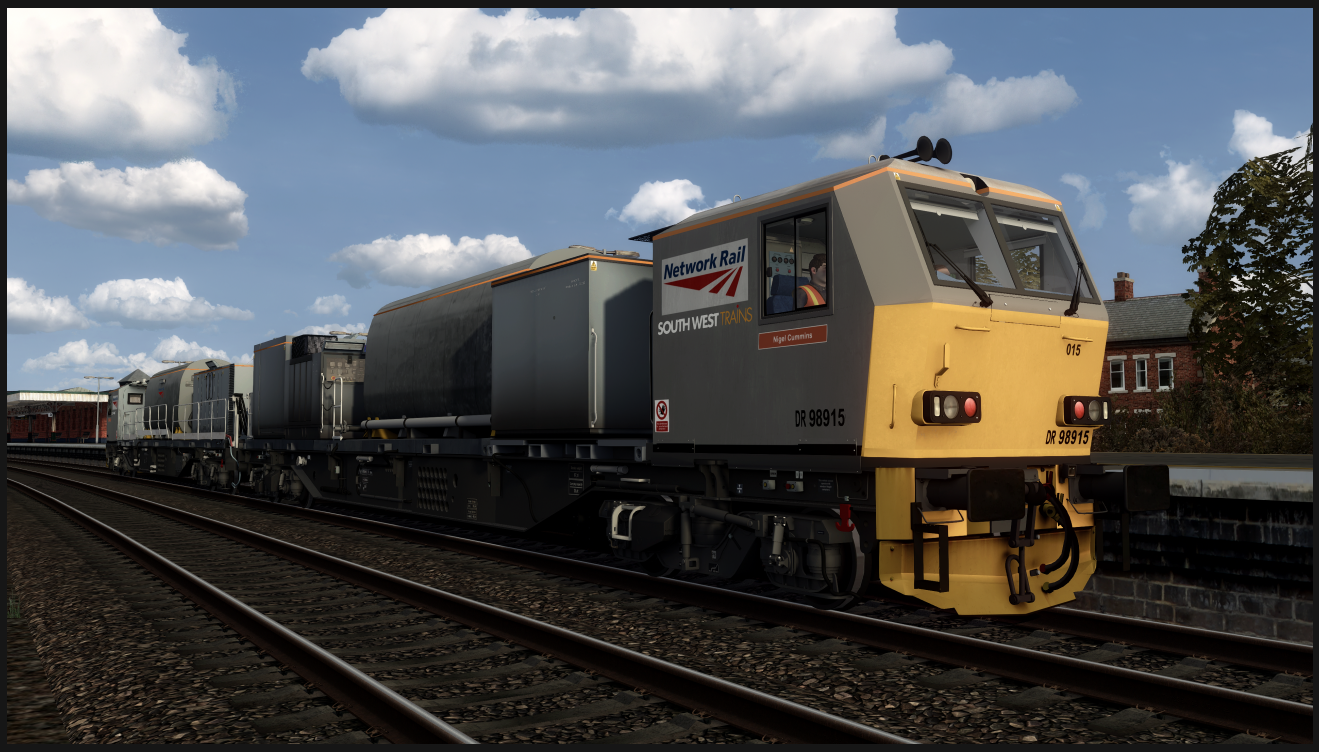
John Denyer (Refurbished)



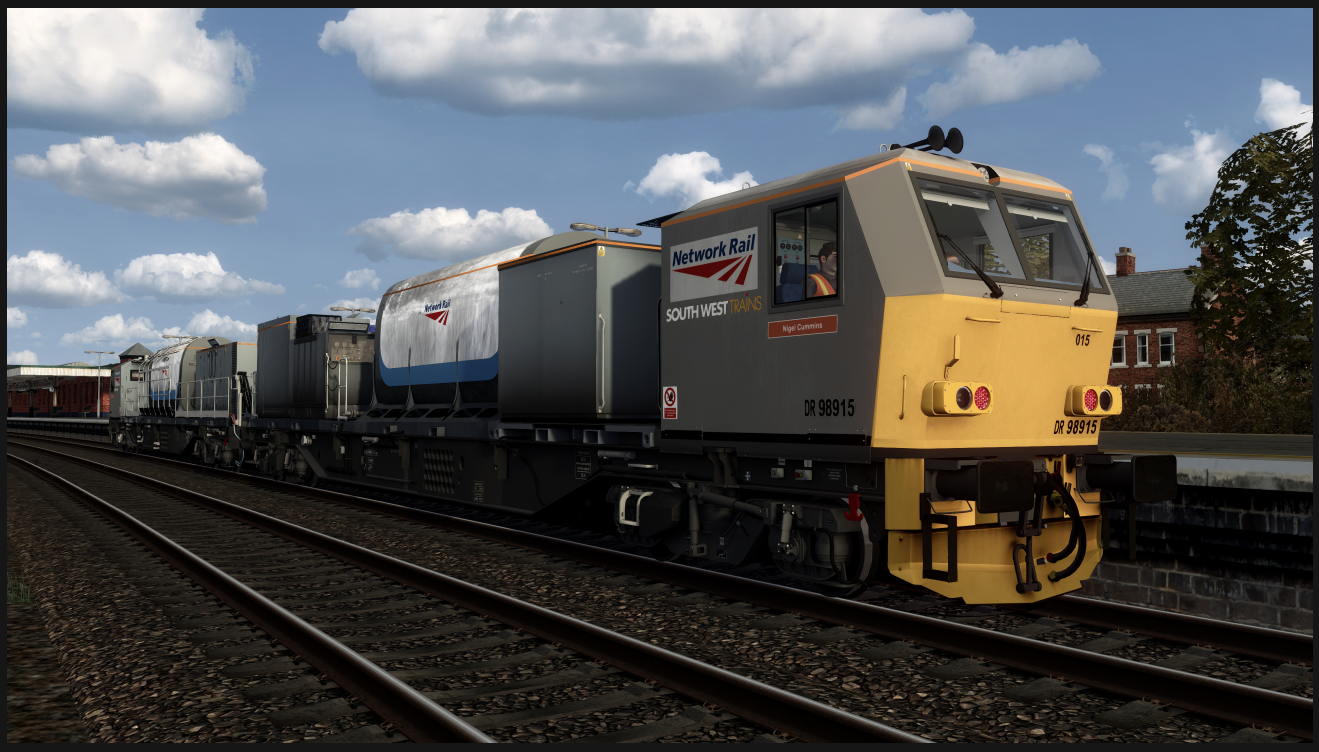
Chris Lemon (Original)



Chris Lemon (Refurbished)



Nigel Cummins (Original)



Nigel Cummins (Refurbished)

Vehicle Numbers

Trans 1s (2 Prime Movers)

DR98901 + DR98951
DR98902 + DR98952
DR98903 + DR98953
DR98904 + DR98954
DR98905 + DR98955
DR98906 + DR98956
DR98907 + DR98957
DR98908 + DR98958
DR98909 + DR98959
DR98910 + DR98960
DR98911 + DR98961
DR98912 + DR98962
DR98913 + DR98963
DR98914 + DR98964: *Dick Preston* (Orange)
DR98915 + DR98965: *Nigel Cummins* (Grey)
DR98916 + DR98966
DR98917 + DR98967
DR98918 + DR98968
DR98919 + DR98969
DR98920 + DR98970
DR98921 + DR98971
DR98922 + DR98972
DR98923 + DR98973: *Chris Lemon* (Yellow)
DR98924 + DR98974
DR98915 + DR98975

Trans 2s (2 X 2 Prime Movers)

DR98926 + DR98976: *John Denyer* (Pink)
DR98927 + DR98977
DR98928 + DR98978
DR98929 + DR98979
DR98930 + DR98980
DR98931 + DR98981
DR98932 + DR98982

Technical Information

Manufacturer	Windhoff
Entered service	1996–1997
Number built	18 single units 32 double units
Specifications	Unit length motor/control car 20.190 m (66.24 ft) Floor height 1,130–1,180 mm (44.5–46.5 in)
Maximum speed	120 km/h (75 mph) with 112 t (110 long tons; 123 short tons) load
Weight	121 t (119 long tons; 133 short tons)
Prime mover(s)	Volvo Railpac
Engine type	Diesel
Cylinders	6
Power output	265 kW (360 PS; 355 hp) @ 2,050 rpm
Transmission	6 speed mechanical transmission, with torque converter and retarder
Braking system(s)	Disc, all axles
Track gauge	1,435 mm (4 ft 8+1⁄2 in) standard gauge

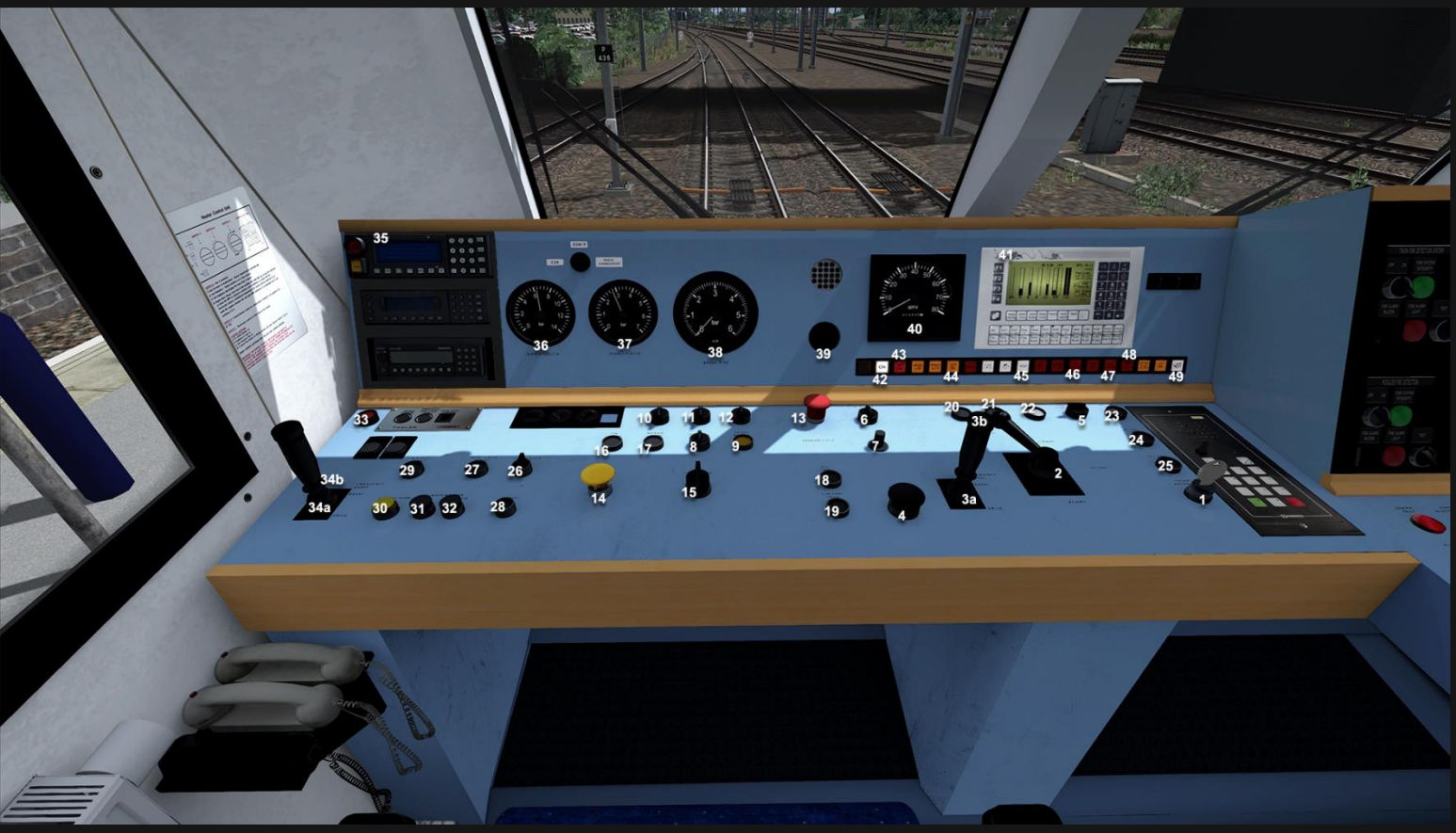
Installation

To install, please use the ATS installer provided.

You will be required to enter your username and password to proceed installing GST MPV Pack.

Once installed, listed under Quick Drives as: **MPV**

Driver Controls



1. Master Key
2. Reverser (Off, Forwards, Neutral, Reverse)
3a. Combined Throttle & Brake and Pull-up Lock
3b. Retarder Brake
4. DSD Reset
5. Handbrake
6. Instrument Lights
7. Instrument Lights Dimmer
8. Taillights
9. Hazard Lights
10. Left Working Light
11. Right Working Light
12. Front Working Lights
13. Emergency Stop
14. AWS Reset
15. Lights (Off, Night, Markers, Day)
16. Cab Lights
17. Walkway Lighting
18. Hill Start
19. Constant Speed
20. Engines Start
21. Engines Stop
22. Direct Brake
23. Battery Off
24. Battery On
25. Call Tone
26. Wipers (Intermittent, Off, On)
27. Front Screen Heater
28. Sander
29. Auxiliary Drive Enable
30. Depot Horn
31. High Horn
32. Low Horn
33. TCA Fault Test
34a/b. Shunt Combined Throttle & Brake
35. GSM-R
36. Brakes - Main Reservoir Pressure (bar)
37. Brake Cylinder Pressure (bar)
38. Brake Pipe Pressure (bar)
39. AWS Sunflower
40. Speedometer (mph)
41. Unit LCD Display
42. On Light
43. DRA Button
44. Wheel Slip Protection Isolation Button
45. Wheel Slip Protection Status Light
46. DSD Isolation Button
47. DRA Isolation Button
48. AWS Isolation Button
49. Lamp Test Button

1. Master Key

Used to turn the control desk on and off.

2. Reverser

Used to set the vehicle direction of travel. When setting up the control desk for operation, after turning the master key into it's on position, move the reverser from off to neutral. When the reverser is in the neutral position you can disengage the throttle lock (3b) and pull back on the throttle - you can hear three distinct clicking noises in succession to indicate that the unit has power available to it. When ready to move off, move from neutral into forwards/reverse. When moving the reverser, the units also make the appropriate sounds dependent upon what position it was moved from and to.

3a. Combined Throttle and Brake

Used to control the acceleration or deceleration of the vehicle. This control is not notched so careful control is required. Press 'R' on your keyboard to pull the throttle lock up and then pull the level back to apply throttle or conversely, push forwards to apply the brakes.

3b. Retarder Brake

The retarder brake applies brake force by using the gearbox – the '<' key switches the retarder on, causing the throttle power to be cut while the hydrostatic gearbox is still engaged. Conversely, '>' switches the retarder off.

4. DSD Reset

Push button used to reset and silence the DSD alarm. The alarm will sound approximately 60 seconds after the driver hasn't used any of the main 5 vehicle controls (Throttle/Brake, AWS reset, Reverser, Horns)

5. Handbrake

Used to keep the vehicle stationary when all auxiliary systems have been switched off. The handbrake indicator LED is found on the main cab control desk LCD panel, to the right of its button set. The distinct MPV handbrake motor whirring can be heard when using this control.

6. Instrument Lights

This switch will illuminate all brake gauges and the speedometer.

7. Instrument Light Dimmer

Used to control the brightness of the instrument lights. Turn anti-clockwise to dim, conversely, turn clockwise to brighten.

8. Taillights

Used to switch the vehicle taillights on - this control is not linked from unit to unit so must be set manually in the rear unit.

9. Hazard Lights

Used to indicate a hazard warning - on the 3rd generation BMAC lights, this is an alternate flashing of the marker lights while on the 1st generation BMAC lights the markers flash on and off in unison.

10. Left Working Light

Used to switch on the left working light of the vehicle. This is the small light on the left of the buffer bar.

11. Right Working Light

Used to switch on the right working light of the vehicle. This is the small light on the right of the buffer bar.

12. Front Working Lights

Used to switch on both working lights of the vehicle. This switch over-rides both the left working light and right working light switches.

13. Emergency Stop

Used to disengage the reverser and apply emergency brakes in the event of an emergency.

14. AWS Reset

Used to reset the vehicle AWS alarm system. The AWS system provides a long continuous high-pitched tone to indicate the alarm is on, while a chime can be heard to indicate the alarm has been cleared. The AWS self-test will sound when moving the reverser from its off position.

15. Lights

Used to control the vehicle marker and headlights. The first position is for a night running configuration, the second for markers only and the third is for day running. The light repeater on the cab front ceiling will show which light configuration has been selected just as the driver would see it.

16. Cab Lights

Used to switch the strip bulbs on at the rear of the cab.

17. Walkway Lighting

Used to turn the vehicle walkway lighting on. This applies to both units in sync. Note, all lights only illuminate around them at night.

18. Hill Start

Used to set off on steep gradients. When ready to set off on a steep gradient, pull back on the combination throttle/brake fully and let the engine revs build up to 760+ RPM giving time for the hydrostatic clutch to engage, then immediately press the Hill Start button to engage a slow brake release process. Once the brakes have released the MPV units will begin moving. Note it is essential to engage the throttle and clutch before using Hill Start, or the units will roll backwards.

19. Constant Speed

Used to set the constant speed of the unit. When a desired speed has been reached, and the throttle is engaged, press this button to set the desired speed. The unit will now manage its throttle and brakes, accordingly, usually settling around 1-2MPH slower than the set speed. The main control desk LCD display will update to indicate that a constant speed has been set. Moving the throttle/brake or pressing the constant speed button when it is set will disengage and reset.

20. Engine Start

Used to start the Volvo Railpac engines on both units. Note, engines can only be started when the battery is on.

21. Engine Stop

Used to stop the engines.

23. Battery Off

Used to turn the vehicle battery off. When off, only the vehicle lights will be functional.

24. Battery On

Used to turn the vehicle battery on. Essential for starting the diesel engines.

26. Wipers

Rotary switch which can be turned anti-clockwise to turn intermittent wipers on, or clockwise to turn wipers fully on. Rests at off in its middle position.

28. Sander

Used to lay sandite beneath the vehicle wheels for better traction when rail adhesion problems occur.

29. Auxiliary Drive Enable

Used when preparing unit 1 to be driven using the unit 2 cab (only applies to the trans 1 type MPV).

30. Depot Horn

Distinctive MPV beeper which is primarily used when in the depot.

31 & 32. High & Low Horns

Used to sound the high and low pitch vehicle horns.

33. TCA Fault Test

Press button to test TCA fault light on rear control panel of cab.

34a. Shunt Throttle & Brake

The left-hand side shunt throttle and brake is used when performing shunting maneuvers (limited to 15MPH).

35. GSM-R

Please see the GSM-R control reference for more detail.

36, 37 & 38. Brake Gauges

These are the brake main reservoir, cylinder and pipe pressure gauges. Readout is given in BAR.

39. AWS Sunflower.

When the AWS alarm is triggered and reset, the AWS sunflower will rotate clockwise into its on position. When the AWS clear alarm is given, it will rotate anti-clockwise back into its off position.

40. Speedometer

Control desk gauge used to measure the vehicle speed in miles per hour (MPH).

41. Unit LCD display

Please see LCD display section of manual for more details.

42. On Light

This light indicates that the master key is on and the control desk is active.

43. DRA Button

This is the Driver Reminder Appliance button and isolates the throttle/brake unless switched off.

44. Wheel Slip Protection Isolation Lamp

When isolated will show that state of the Wheel Slip Protection (WSP) system (turned off/on) - lamp is lit when engaged. Control is found on cab rear control panel.

45. Wheel Slip Protection Indication Lamp

Used to indicate when the WSP system is active (throttle will disengage temporarily when wheel slip occurs).

46. DSD Isolation Lamp

When isolated will stop the 60 second driver inactive alarm from sounding. Lit when isolated. Control is found on cab rear control panel.

.

47. DRA Isolation Lamp

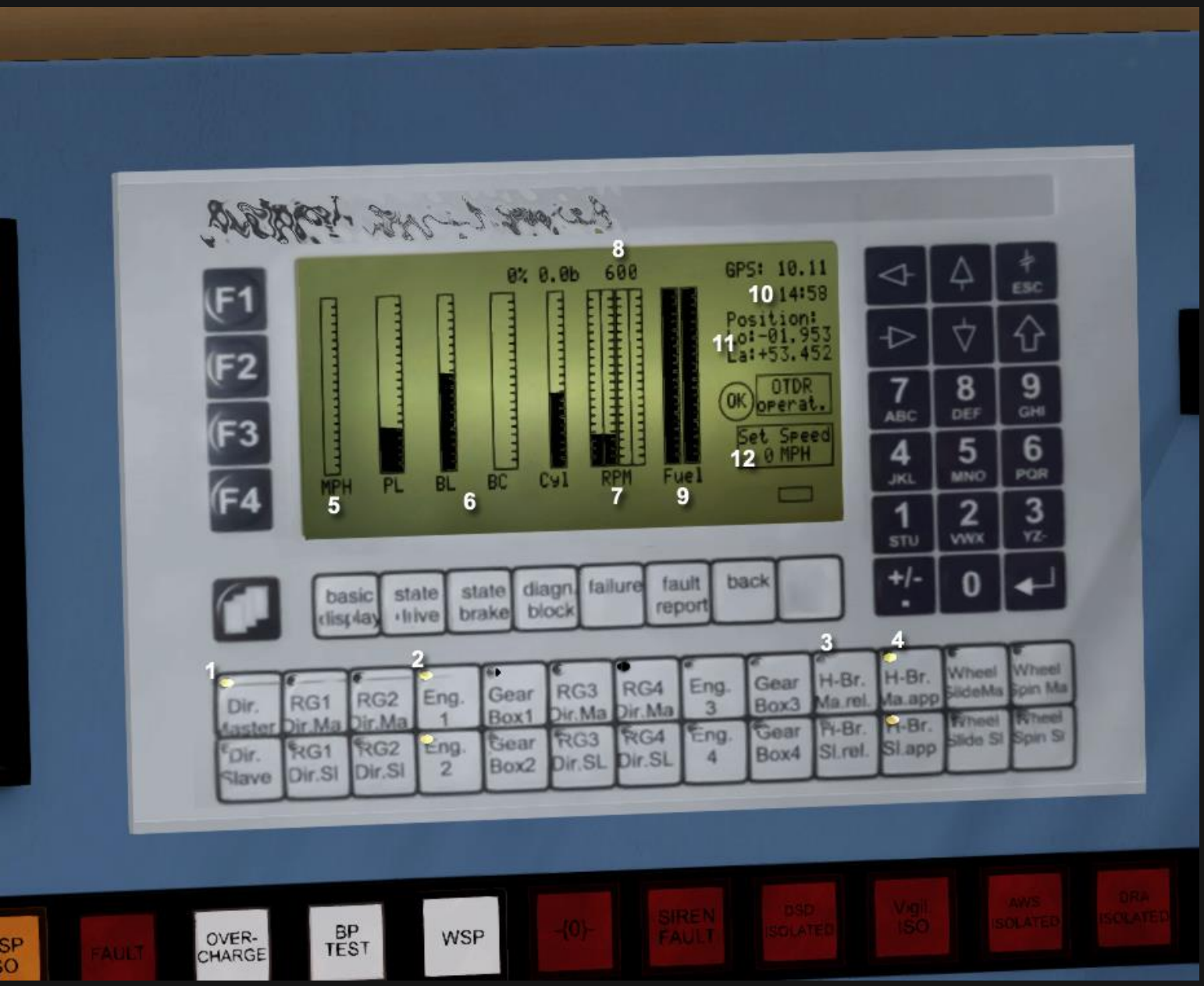
Lit when isolated. Control is found on cab rear control panel.

48. AWS Isolation Lamp.

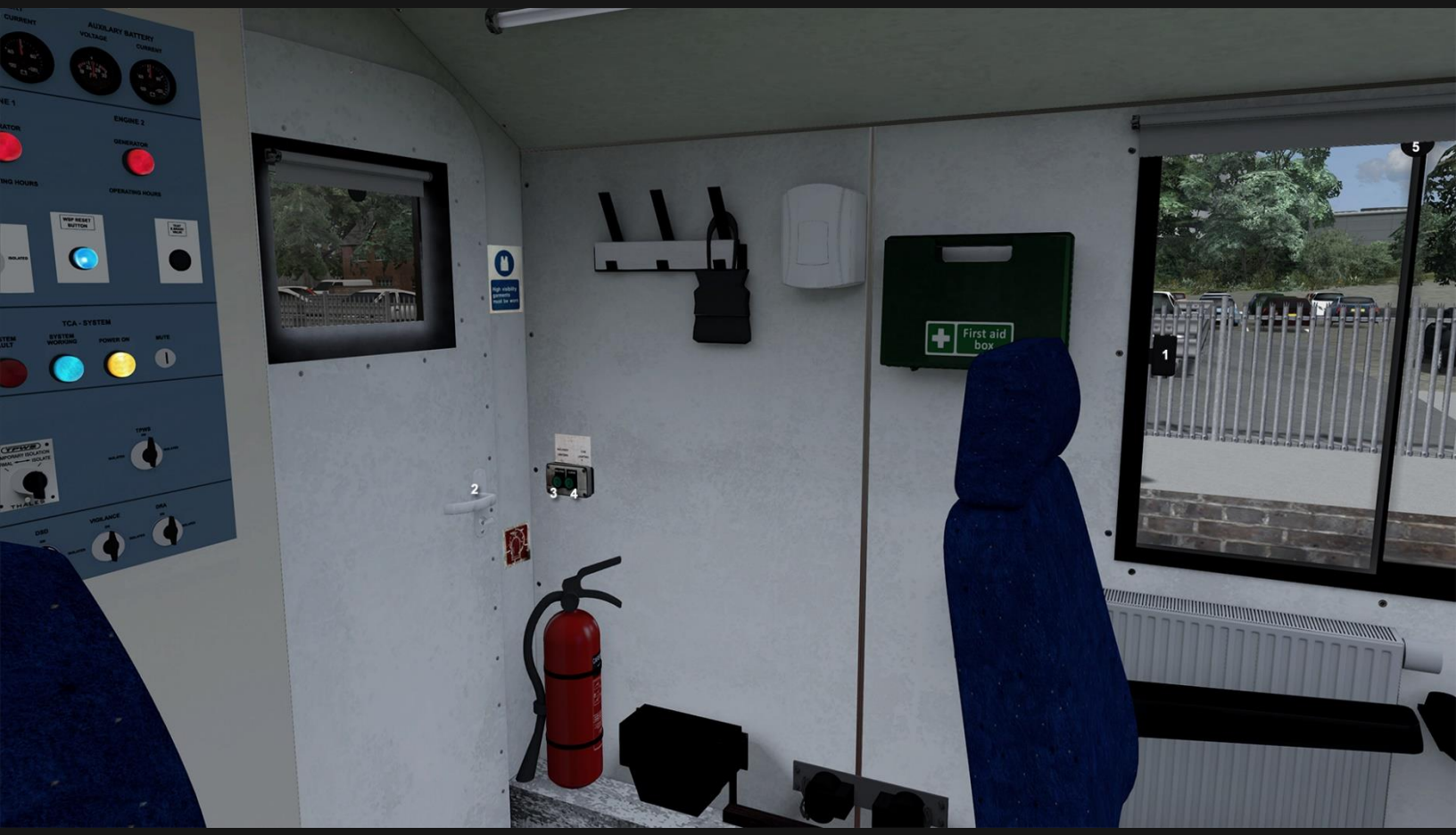
Lit when isolated.

49. Lamp Test Button

Used to check that all lamps are working on the strip bar button set.

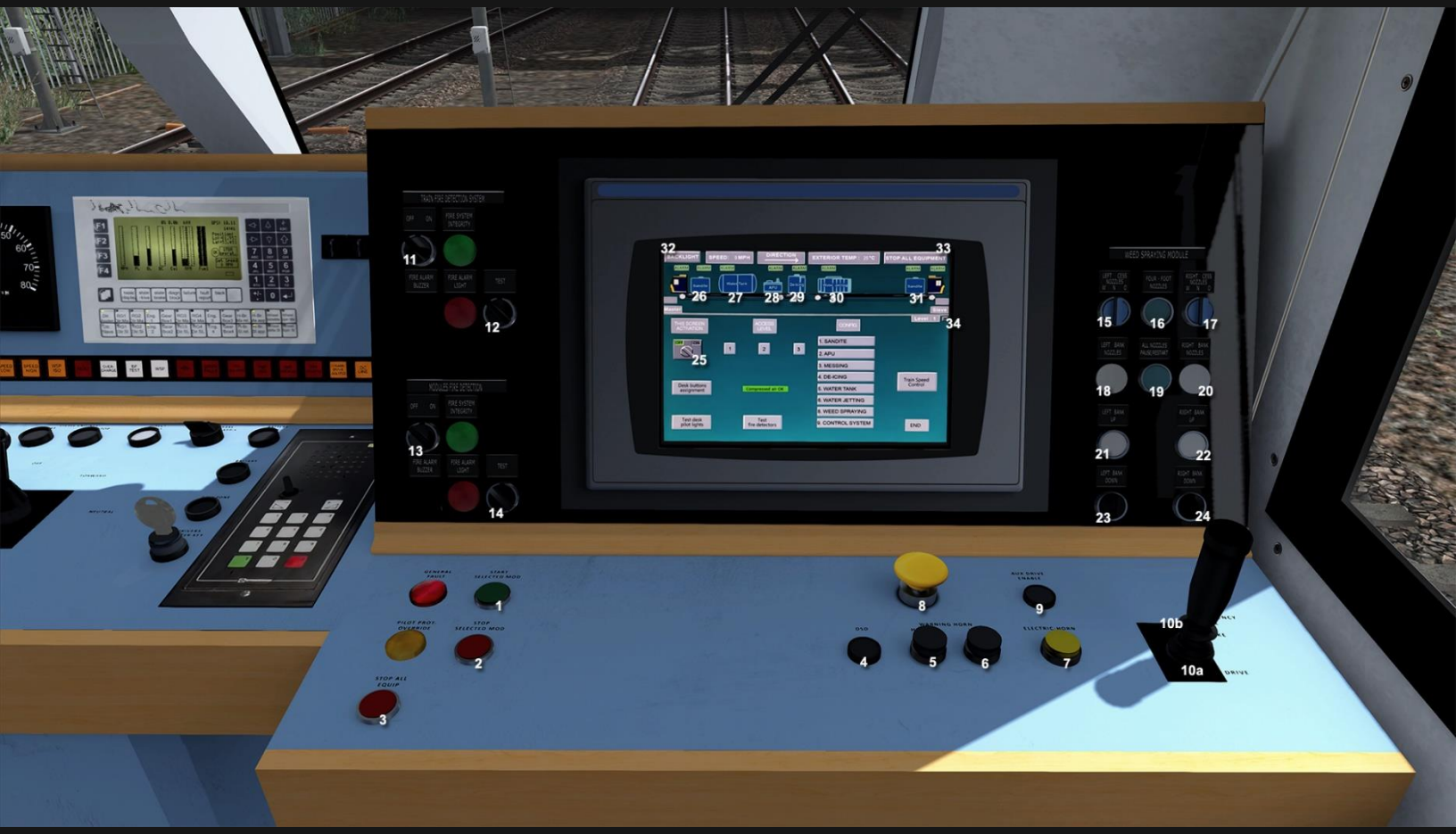


1. Unit Direction Light
2. Engine(s) Light
3. Unit Handbrakes Release Lights
4. Unit Handbrakes Applied Lights
5. MPH Meter
6. Four Brake Pressure Meters
7. Engine(s) RPM Meters
8. RPM Digital Display
9. Fuel Meter
10. Time
11. Latitude and Longitude
12. Constant Speed Set Display



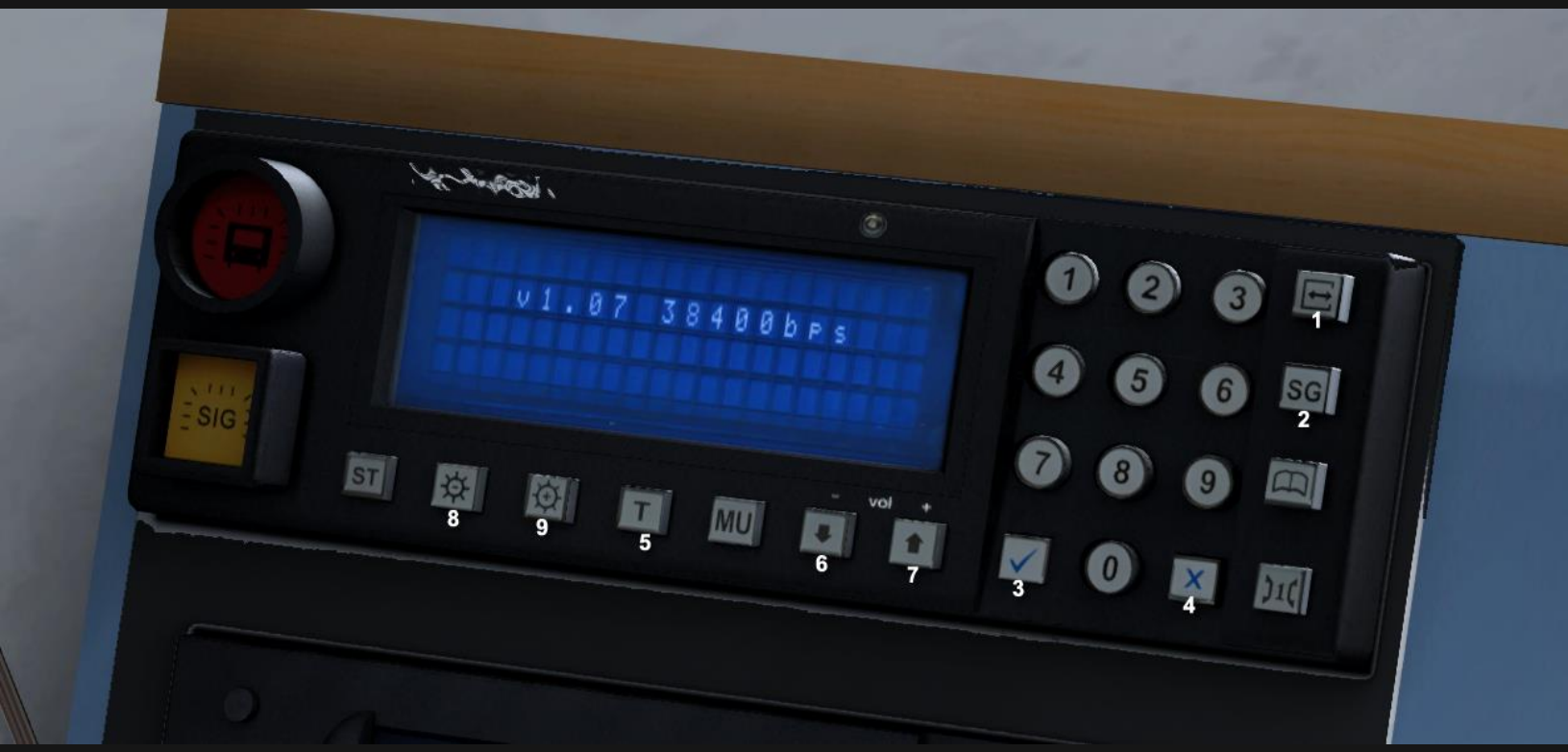
1. Cab Windows
2. Cab Door
3. Walkway Lighting
4. Cabine Light
5. Blinds

Operator Controls



1. Start Selected Module
2. Stop Selected Module
3. Stop All Equipment
4. DSD Reset
5. High Horn
6. Low Horn
7. Depot Horn
8. AWS Reset
9. Auxiliary Drive Enable
10a/b. Shunt Combined Throttle & Brake
11. Train Fire Detection
12. Train Fire Detection Test
13. Modules Fire Detection
14. Modules Fire Detection Test
15. Left Cess Nozzles
16. Four Foot Nozzles
17. Right Cess Nozzles
18. Left Bank Nozzles
19. All Nozzles Pause/Restart
20. Right Bank Nozzles
21. Left Bank Up
22. Right Bank Up
23. Left Bank Down
24. Right Bank Down
25. Touch Screen Activation
26. Sandite Display
27. Water Tank Display
28. APU Display
29. De-Icer Display
30. Jetter Display
31. Sandite Display
32. Backlight
33. Stop All Equipment
34. 'X' Return to Main Screen

GSM-R



1. Register
2. Standing at Signal
3. Confirm
4. Cancel
5. Self-Test
6. Volume Up
7. Volume Down
8. Brightness Down
9. Brightness Up

QuickStart Driving Guide

Unit 1 First

Unit 1

Master Key on
Configure cab (lights, instrument lights etc.)
Turn DRA off
Reverser into neutral
AWS self-test cancel
Handbrake off
Reverser into Forwards
Main throttle lock off (press 'R')
Pull Back throttle
(Pushing throttle forwards will brake)

A: Throttle/Brake +
D: Throttle/Brake -
W: Reverser +
S: Reverser -
W + SHIFT: Master Key On/Off
Q: AWS Reset
L: Cab light
O: APU Blue Beacon Light
J: Walkway lighting
H: Headlights +
H + SHIFT: Headlights -
K: Tail-lamps
I: Instrument Lights
V: Wipers +
V + SHIFT: Wipers -
<: Retarder +
>: Retarder -
SPACE: Low Horn
B: High Horn
C: Depot Beeper
K + SHIFT: Siren
E: DSD Reset
Y: DRA On/Off
U: Hazard Lights
F: Constant Speed Set
R: Main Throttle & Brake Lock Release (Toggle)
D + CTRL: DSD Isolation On/Off
X + CTRL: Auxiliary Drive Enable

Unit 2 First

Unit 2
Master Key on

Unit 1
Master Key on (Trans 1's only)
Auxiliary Drive Enable on (Trans 1's only)

Unit 2
Configure cab (lights, instrument lights etc.)
Turn DRA off
Reverser into neutral
AWS self-test cancel
Handbrake off
Reverser into Forwards
Main throttle lock off (press 'R')
Pull Back throttle
(Pushing throttle forwards will brake)

Changing Ends

Reverser into Off
Handbrake On
Throttle into Off position
(If Trans 1 MPV Cab 1 then press Aux Drive Enable)
Configure Lights (tails/headlights)
Master Key Off

Enter new Cab

Master Key On
Reverser Neutral
AWS Self-test Clear
Throttle into Full Brake (R to unlock)
Handbrake Off

QuickStart Operator Guide

To start up the APU and operator touch screen interface press the N key on your keyboard. You will hear the APU generator diesel engine fire up and shortly after the operator touch screen will load up and be available for use, although it will take around 60 to 90 seconds for each module alarm to clear.

Turn on the screen functionality by using the ‘screen activation’ button on the screen itself.

To start spraying, press the Jetter module button on the screen and then on the operator desk itself, press the green ‘start selected mod.’ button. Conversely, you can stop the Jetter module spraying at any time by pressing the ‘stop selected mod.’ button.

You can also start the Jetter module engine and high-pressure pump independently using the M and P keys (see top right).

Pressing the water tank touch screen button will load up the water tank status page and display a live read out of the water available in liters. This value decreases accordingly when spraying and is balanced across two tanks if loaded onto the MPV.

You can initiate an emergency stop of all module equipment by using either the red ‘stop all equipment’ button on the operator desk or the ‘stop all equipment’ on the top right of the operator touch screen interface.

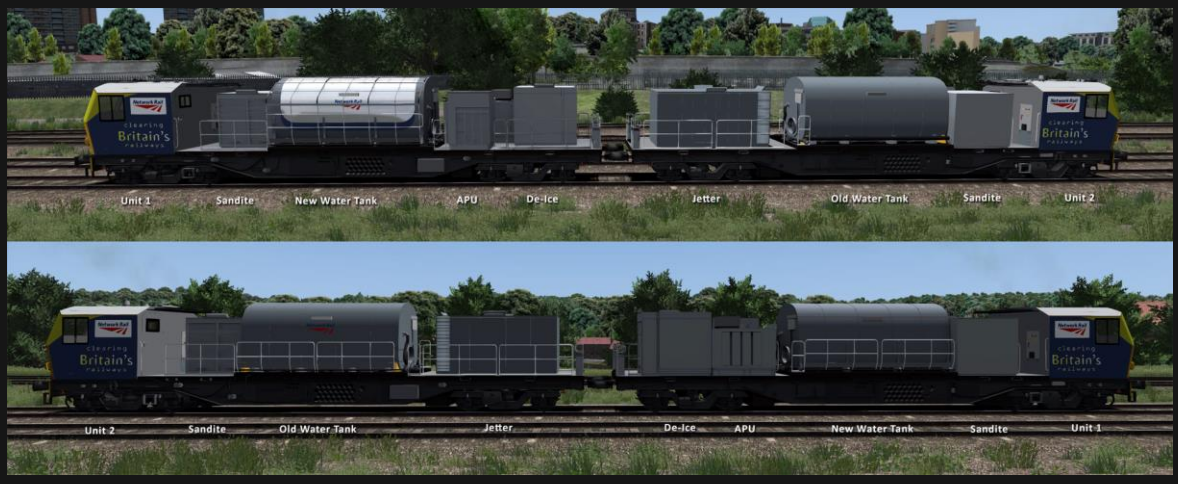
When spraying, if the available water drops to 1500L or below, an emergency warning will pop up on the operator touch screen and the jetter engine and high-pressure pump will automatically shut down as a failsafe.

N: APU

M: Jetter Module

P: HP Pump (Spray)

MPV – What's That?



MPV's are an essential piece of kit on modern railways. They are literally a working cab built on a flatbed allowing for combinations of working modules to be interlocked onto the back of the flatbed. They come in semi-permently couped pairs, Unit 1 being the master and Unit 2 is the slave. Unit 2 is always numbered 50 more than Unit 1 (e.g. DR98901 + DR98951). Unit 1 is a powered vehicle across the MPV range (which are made up of Trans 1 and Trans 2 paired units). Trans 1's are a powered Unit 1 and DVT (non powered unit) wheras Trans 2's are made up of 2 powered units coupled together. Trans2's literally have twice the power of Trans 1 arrangements and were provided in response to Trans 1 variants being reported as underpowered in some instances.

On the back of each unit, modules are arranged as in the picture above. Unit 1 carries a Sandite module, water tank, APU module and De-icer module. Unit 2 carries a Sandite module, water tank and Jetter module.

The main modules that feature in this pack are the APU (Auxilary Power Unit), Water Tanks and Jetter modules. The APU is the power generator for all of the kit and provides power to the operator touch screen interface, allowing the operator to control the modules from the cab. The water tanks are connected to the Jetter module to provide its high pressure pump (HP pump) with a continuous supply of water. The Jetter module also has it's own Volvo Railpac engine to power the HP pump.

In this pack, the APU, water tanks and Jetter module operations are simulated. All are controllable and even the water tank level is available as a read-out on the operator touch screen interface.

Using in Scenarios

To use 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 '**goldstartrains**' from the drop-down menu (goldstartrains will appear in the non-capitalised list at the bottom of the provider list.

3) Tick the second & third box beside '**mpv**'.

4) The vehicles should now be visible in the left-hand rolling stock fly-out, named MPV.

5) **Always use the pre-defined consists for MPV pairs in the consist box as this ensures that the units are paired correctly and that the scripting will work as intended.**

The MPV also features customsignalmessage support using signal ID 15. This feature is aimed at advanced/expert scenario creators. Use of this feature set requires knowledge of LUA scripting for scenarios.

APUon, APUoff, JETTERon, JETTERoff, SPRAYon, SPRAYoff are all recognized functions. It's important to note that before spraying can be done by an AI unit, the APUon and JETTERon modules must be turned on before using SPRAYon. The passed custom messages must be capitalized in the format shown. Examples are below:-

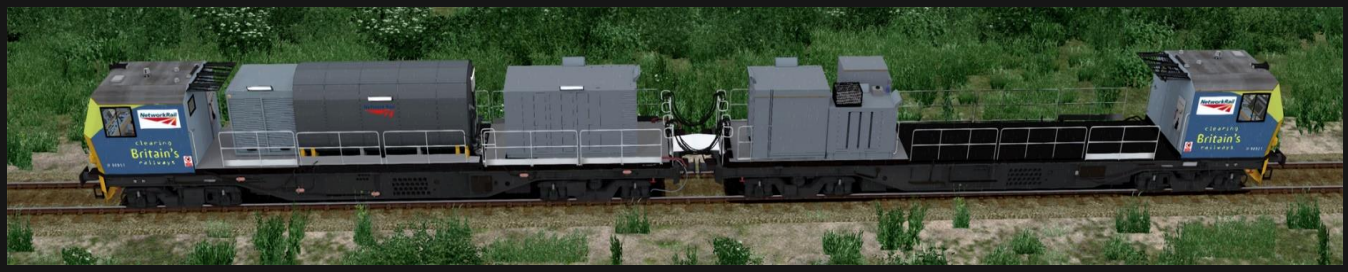
```
Call("SendConsistMessage", SIGMSG_CUSTOM, "APUon" )

Call("SendConsistMessage", SIGMSG_CUSTOM, "JETTERon" )

Call("SendConsistMessage", SIGMSG_CUSTOM, "SPRAYon" )
```

AI Vehicle lights and drivers are automatically scripted. AI consists have working lights (depending on stationary/driven direction/day or night) and AI consists have a driver and operator (depending on stationary/driven direction).

Module Loading System & Vehicle Numbering



The MPV modules are what is loaded onto the flatbed of the units. MPV's always come in a two-unit configuration, **Unit 1** and **Unit 2** (marked on the cab interiors, front ceiling).

The module loading system enables you to decide which modules are loaded onto the back of the MPV units by making use of the TS vehicle numbering system. On Unit 1, from cab end to rear you will find in this order; **Sandite Module**, **Water Tank Module**, **APU Module** and then finally the **De-Icer Module**. On Unit 2, from cab end to rear in order; **Sandite Module**, **Water Tank Module** and finally the **Jetter Module**.

To set your own unit numbers, **Unit 1 must always be used** - this is easily identified in the scenario editor by having a readable number (e.g. 98903), whereas Unit 2 has a series of numbers and characters (e.g. a4fe8-ebd42b-e9aef). Unit 1 is always the master unit, and its real-world numbers range from 98901 to 98925 for trans 1 vehicle arrangements and 98926 to 98932 for trans 2 vehicle arrangements. Unit 2 is automatically numbered by Unit 1 as in real life they are semi-permanently pairs, Unit 2's number always being 50 more than Unit 1 (e.g. 98901 + 98951 where 98901 is Unit 1 and 98951 is Unit 2).

The Module Loading System uses an additional 7 digits appended to a vehicle number e.g. 98901**0011121**

0 - Sandite (**Unit 1** - 0 = off, 1 = on)
0 - Water Tank (**Unit 1** - 0 = off, 1 = new tank, 2 = old tank)
1 - APU (**Unit 1** - 0 = off, 1 = on)
1 - De-icer (**Unit 1** - 0 = off, 1 = on)
1 - Sandite (**Unit 2** - 0 = off, 1 = on)
2 - Water Tank (**Unit 2** - 0 = off, 1 = new tank, 2 = old tank)
1 - Jetter (**Unit 2** - 0 = off, 1 = on)

The 7 additional digits are like dip switches for the modules. 0 is always off, 1 is on and where tanks are used 1 or 2 is on (1 being new style tanks, 2 being old style tanks).

If no additional 7 digits are provided in setting the vehicle number in the scenario editor, then a default configuration is used for the vehicle - unless the configuration is set in the extra preloads supplied in this back (bare flat bed vehicles with no module loaded on for instance).

For example: -

Vehicle number of Unit 1 specified as 989010011121, Unit 2 set to be the driver start vehicle. Numbering of Unit 2 is automatically allocated by Unit 1. Even though the player will be driving Unit 2, Unit 1 must be allocated the number for the pair of MPV's, so if Unit 2 were **98980**, Unit 1's number would be set to **98930**.

When creating a scenario, use the predefined MPV consists' supplied and allocate either a 5 or 12-digit number to unit 1 (e.g., 98901 or 989010000000 - the named units work with the module loading system, but their numbers cannot be altered).

When a module is turned off using this system, a flatbed and railings are automatically applied to the space the module usually takes. The controls for the modules are also unavailable to the player if the corresponding module is not loaded on to the MPV (e.g. No APU module, no spraying will be available).

Scenarios & Requirements

Scenario Requirements

Tutorial Scenario

ATS Chat Moss - Manchester Stations to Liverpool Lime Street via the Chat Moss

3S09 10.43 Chester to Wigan Springs Branch

ATS Chat Moss - Manchester Stations to Liverpool Lime Street via the Chat Moss
ATS / Imbue Class 185 Multiple Unit Pack
ATS Drax Biomass Wagons
Armstrong Powerhouse Class 66 Enhancement Pack *
Armstrong Powerhouse Class 150/1 Enhancement Pack *
Armstrong Powerhouse Class 150/2 DMU Pack
Armstrong Powerhouse Class 156 DMU Pack
Armstrong Powerhouse Class 319 EMU Pack Volume 1
Armstrong Powerhouse Class 175 Enhancement Pack v2.0 *
Armstrong Powerhouse Class 350 Enhancement Pack *
Armstrong Powerhouse JPA Wagon Pack
DTG Settle to Carlisle Route
Fastline Simulation EWS ZCA Sea Urchins ex.VDA Wagon Pack (Available on Steam)

3W74 05.36 Tonbridge West Yard to Tonbridge West Yard (RHTT)

DTG Chatham Main Line London Victoria to Dover and Ramsgate Route
DTG London to Faversham High Speed Route
Armstrong Powerhouse Class 375/377 Enhancement Pack *
Armstrong Powerhouse Sky & Weather Enhancement Pack

6B39 11.25 Eastleigh Works to Bournemouth T & R.S.M.D.

DTG South Western Main Line Southampton to Bournemouth
Armstrong Powerhouse Class 66 Enhancement Pack *
Armstrong Powerhouse Class 158/159 (Cummins) Enhancement Pack *
Armstrong Powerhouse Class 444/450 Enhancement Pack *
Armstrong Powerhouse JNA-C Wagon Pack
Just Trains Voyager Advanced (2019)

Please note that items marked '*' have their own individual requirements.

Credits

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