



# Weardale and Teesdale Rail Network



<b>1 ROUTE INFORMATION .....</b>	<b>3</b>
1.1 Background .....	3
1.2 The Route .....	3
<b>2 CLASS 101 DMU.....</b>	<b>4</b>
2.1 Class 101 DMU – BR Green.....	4
2.2 Design & Specification.....	4
2.3 Cab Controls .....	5
2.4 Destination Boards and Headcodes .....	6
2.5 Driving Technique.....	7
<b>3 CLASS 25 BR GREEN.....</b>	<b>8</b>
3.1 Class 25 BR Green .....	8
3.2 Design & Specification.....	8
3.3 Cab Controls .....	9
3.4 Headcodes .....	11
<b>4 OTHER ROLLING STOCK.....</b>	<b>12</b>
4.1 Class 08 Shunter .....	12
4.2 Class 37 .....	12
<b>5 SIGNALLING.....</b>	<b>13</b>
<b>6 SCENARIOS .....</b>	<b>15</b>
6.1 [101] Barnard Castle to Bishop Auckland.....	15
6.2 [101] Bishop Auckland to Darlington .....	15
6.3 [101] Bishop Auckland to Wearhead .....	15
6.4 [25] Darlington to Durham .....	15
6.5 [25] Darlington to Middleton .....	15
6.6 [25] Durham to Barnard Castle .....	15
6.7 [25] Shildon to Darlington.....	15
<b>7 CREDITS .....</b>	<b>16</b>

## 1 Route Information

### 1.1 Background

Built in and around 1820 and connecting the collieries near Shildon with Stockton-on-Tees via Darlington, officially opened in 1825 as the World's First public railway to use steam locomotives when they were introduced in 1833.

In 1825 the line was a mere 25 miles in length running from Phoenix Pit, Old Etherley Colliery to Cottage Row in Stockton-on-Tees. By 1960 the route had grown considerably, to more than 200 miles, with extensions and branches to virtually every corner of Weardale and Teesdale, now reaching from Durham City in the north, to Darlington in the south and Tebay in the west, to Saltburn on the North Sea coast at the eastern end of the route.

With a prestigious and long list of railway heritage with several railway related works and engineering facilities including Darlington Railway Works, responsible for building many steam and diesel locomotives, built in 1863 and closed in 1966; Shildon Railway Works, known locally as "The Wagon Works" as it built many of British Rail's freight revenue vehicles including the famed 'Merry-go-round' coal hoppers, the works was built in 1825 and closed in 1984.

In 1966 many of the branches were closed to passenger traffic, freight traffic was reduced to almost nothing in the next few years. By 1980 virtually nothing of the route was left. The key main line station at Bishop Auckland, which was once the centre point for the railway had been completely demolished.

### 1.2 The Route

The route for Train Simulator faithfully recreates the route as it was between 1950 and 1960, just before Dr Beeching swung his axe. Recreating almost all of the 200 miles between Durham City, Darlington, Middleton-in-Teesdale and Wearhead at the extremities of the route.

## 2 Class 101 DMU

### 2.1 Class 101 DMU – BR Green

The British Rail Class 101 diesel multiple units were built by Metro-Cammell in Birmingham from 1956 to 1959. The 101 DMU went on to be the most long-lived and successful of BR's first generation DMUs with the last units being withdrawn from service on the 24<sup>th</sup> December 2003, meaning the oldest set was over 47 years old.

Running all over the UK on passenger services these units were a familiar everyday sight for many years and survived through many iterations of livery.

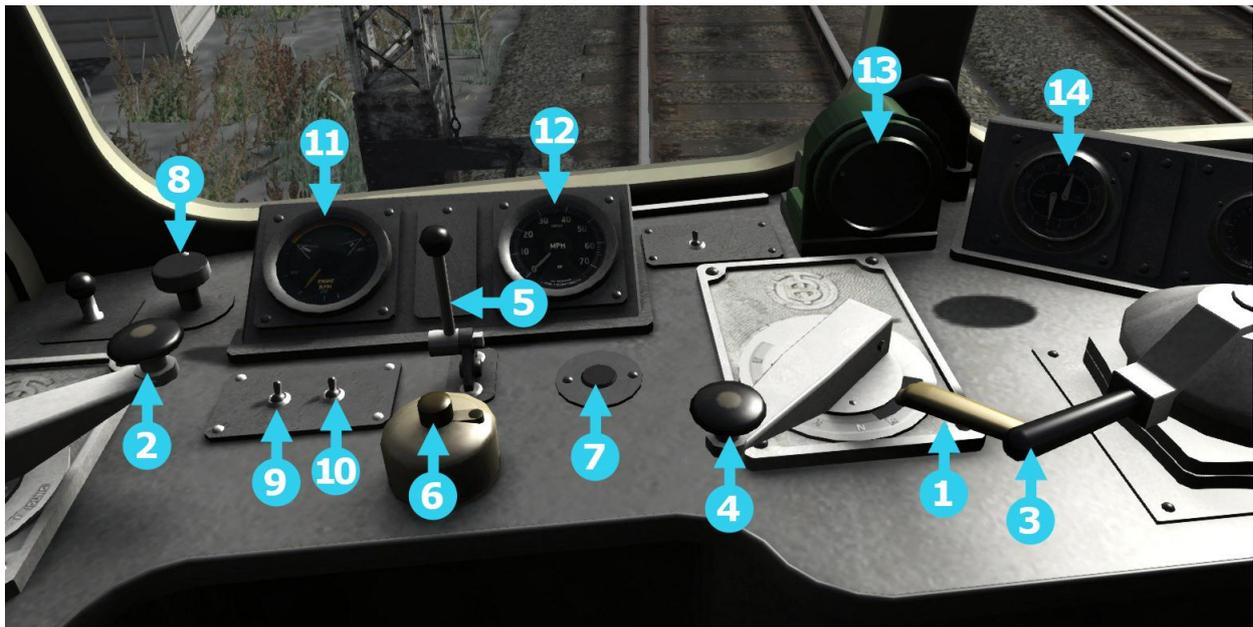
Originally, when TOPS classification was introduced only the DMBS (Driving Motor Brake Second) and DMCL (Driving Motor Composite, with Lavatory) were classified as Class 101s (AEC engines) or Class 102 (Leyland engines).

### 2.2 Design & Specification

Builder	Metro Cammell
In Service	1956-2003
Operator	British Rail
Weight	32.5 tonnes
Height	3.77m
Length	17.37m
Transmission	Mechanical: 4-speed epicyclic gearbox
Braking Systems	Vacuum
Max Speed	70mph
Gauge	1,435mm



## 2.3 Cab Controls



1	Reverser	8	Wiper Switch
2	Throttle	9	Cab lights
3	Brake Valve	10	Instrument Lights
4	Gear Lever	11	RPM
5	Horn	12	Speedometer
6	AWS Reset	13	AWS Sunflower
7	Buzzer	14	Vacuum Pipe/Chamber Needles

### Reverser Handle (1)

- Click the handle to set Forward or Reverse position (W & S on the keyboard)

### Power Controller (2)

- Pull the lever towards you to increase power (A on the keyboard)
- Push the lever away from you to decrease power (D on the keyboard)

### Brake Valve (3)

- Pull the lever left to apply the Train Brakes (' on the keyboard)
- Push the lever right to release the Train Brakes (; on the keyboard)
- Position the lever towards the left to 'Hold' the current brake pressure

### Gear Lever (4)

- Turn the lever to notch 1 (furthest) to engage 1st Gear (E on the keyboard)
- Turn the lever to subsequent notches to engage higher gears
- Move the lever away from you to select lower gears (Shift+E on the keyboard)
- Cycle the lever back to Neutral when stopped

### Additional Controls

- Engine Off - Located on the left hand wall
- Headlights - Located in front of the second man position on the right
- Handbrake - Located in front of the second man position
- Horn - Use this to alert pedestrians and line side workers (5)
- AWS Reset - Use this to react to signal warnings (6)
- Signal Buzzer - Use this to communicate with the Guard on the train (7)
- Windscreen Wipers - Use this to keep a clear view out of the cab (8)

## 2.4 Destination Boards and Headcodes

These units have a vehicle number, head code and destination board which makes a 9 Character code. If the code is not exactly 9 characters then nothing will display. Double click the engine in the scenario editor to access the properties panel where you can modify the code.

Example of a code with a custom destination:

E502162Bs

Key:

E50216

Vehicle Number (Can also use 'z' for special Scottish region Sc)

2B

Head code (Capital letters and numbers can be used).

s

Transparent. (This is assigned a letter for pre-defined destination boards only, see below).

Destination Board Codes:

a	Bishop Auckland
b	Leeds
c	Charter Special
d	Darlington
e	Wearhead
f	Barnard Castle
g	Middleton in Teesdale
h	Durham
i	Crook
j	York
k	Spennymoor
l	Redcar
m	Saltburn
n	Middlesbrough
o	Newcastle
p	Hexham
q	West Hartlepool
r	Whitby West Cliff
s	Not in Service
t	Richmond
u	Towlaw
v	Sunderland
w	Stockon-on-Tees
x	Ferryhill
y	Kirkby Stephen

## 2.5 Driving Technique

### Starting the Train

Move the Reversing Handle into the Forward position and set 15" vacuum in the Brake Pipe by moving the Brake Valve into the Release position until the gauge shows 15". Move the handle back into the Hold sector to maintain the vacuum level.

If the guard gives a 'Right Away' signal (two buzzes), acknowledge him by pressing 'B' twice and move the Gear Selector into 1st gear. Release the brake fully by moving the handle fully to the right and leave it there. Move the Power Controller to the Full position and let the train accelerate.

### Changing Gear

The change up into 2nd gear needs to happen at around 15 mph. When you reach that speed bring the Power Controller back to Idling and wait a few seconds for the engine speed to fall, move the Gear Selector to the 2nd gear position wait 2 seconds for the gearboxes to respond and then apply full power again. The speeds at which the other gear changes should be made are in the table below:

Speed Range (MPH)	Gear Ratio
0 - 15	1st
15 - 27	2nd
27 - 41	3rd
41 - 70	4th

When you've reached the desired speed (maximum permitted is 70 mph) ease back on the Power Controller. When coasting (Putting the Power Controller back to Idle), you must be in 4th gear to prevent damage occurring to the gearbox.

### Gradients

If you come to an adverse gradient and speed can't be maintained with full power then it will be necessary to change down to a lower gear, for example if you're running in 4th gear and the speed drops below about 40 mph. To change down bring the Power Controller back to idling and immediately select the next lower gear, pause for 2 seconds and then re-apply power. The speeds for down changes in other gears can be deduced from the table show above.

### Stopping the Train

To stop the train, return the Power Controller to Idle, select 4th gear, and apply the brake by moving the Brake Valve into the Apply sector. The vacuum will start to drop and the brakes will apply. The further you move into the Apply sector the faster the vacuum will drop and therefore the faster the brakes will come on. To hold the desired vacuum move the valve back into the Hold sector.

Keep 4th gear selected until you're almost stopped and then select Neutral.

## 3 Class 25 BR Green

### 3.1 Class 25 BR Green

The British Rail Class 25 diesel locomotives were also known as Sulzer Type 2. In total, 327 locomotives of this type were built between 1961 and 1967.

The Class 25 locos were primarily designed for freight work, but a significant number were fitted with boilers for heating passenger trains. Throughout the 1970s they could be found at work across the whole of the British Rail network although the Eastern and Southern Regions never had an allocation. Though regular performers into the early 1980s on Crewe–Cardiff passenger trains, they are best known in that respect for their use on the summer Saturday trains to Aberystwyth, a task they relinquished in 1984. The final Class 25 locomotive was withdrawn from service in March 1987.

### 3.2 Design & Specification

Builder	British Railways and Beyer, Peacock & Co.
Total Built	327
Operator	British Rail
Weight	71 tonnes
Height	3.86m
Length	15.39m
Engine Power	1,250hp
Transmission	Diesel Electric
Max Speed	90mph
Gauge	1,435mm



### 3.3 Cab Controls





- |   |                   |    |             |
|---|-------------------|----|-------------|
| 1 | Instrument Lights | 8  | Engine Stop |
| 2 | Cab Light         | 9  | Horn        |
| 3 | Train Brake       | 10 | Reverser    |
| 4 | Engine Brake      | 11 | Throttle    |
| 5 | Sander            | 12 | Handbrake   |
| 6 | Wipers            | 13 | AWS Reset   |
| 7 | Engine Start      |    |             |

### 3.4 Headcodes

You can change the headcode of the Class 25 with the following key combinations:

Ctrl+Shift+5

Ctrl+Shift+6

Ctrl+Shift+7

Ctrl+Shift+8

## 4 Other Rolling Stock

### 4.1 Class 08 Shunter

The Class 08 Shunter, in BR Green livery, features in scenarios as scenery and rail traffic and is also available to drive in Quick Drive scenarios.



### 4.2 Class 37

The Class 37, in BR Green livery, features in scenarios as scenery and rail traffic and is also available to drive in Quick Drive scenarios.



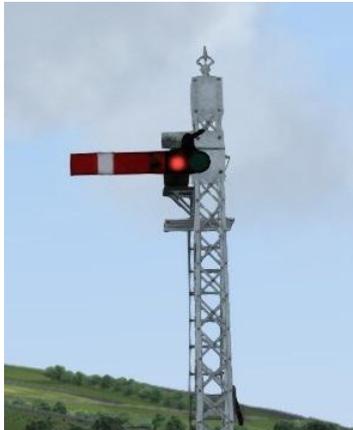
## 5 Signalling

Upper Quadrant Signalling is used on the route. Below are the key aspects seen on the line.



### HOME CLEAR

With the arm raised, and a green light illuminated, the line ahead is clear for you to proceed.



### HOME STOP

With the arm horizontal and a red light illuminated, the line ahead is occupied and you must stop without passing this signal.



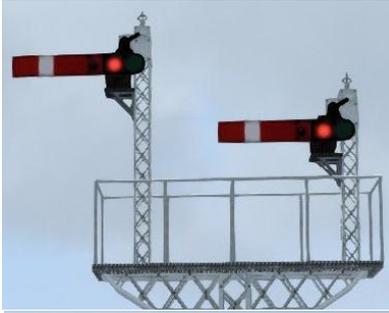
### DISTANT CLEAR

With the arm raised and a green light illuminated, the **HOME** signal ahead is displaying **CLEAR**.



### DISTANT WARNING

With the arm horizontal and a yellow light illuminated, you should reduce speed and be prepared to stop at the next **HOME** signal.



With both arms horizontal and both displaying red illuminated lights, no route through the junction is clear so you must **STOP** before this signal.



With the taller arm raised and a green light illuminated next to it, the **MAIN** route through the junction is **CLEAR** and you may proceed.

If the shorter arm(s) are raised and a green light illuminated, the **DIVERGING** route through the junction is **CLEAR** and you may proceed.

Be aware of any possible speed limit changes in relation to a change of direction.



A **DIAGONAL** line and **WHITE** light, the route ahead is **CLEAR** to proceed.



A **HORIZONTAL** line and **RED** light, the route ahead is blocked and you must **STOP** before the signal.



These are **SPEED** indicators.

A **WHITE ARROW** indicates a speed in relation to a direction. These appear at junctions.

Your speed must not exceed the white number.

## 6 Scenarios

### 6.1 [101] Barnard Castle to Bishop Auckland

You're tasked with driving this stopping passenger service to Bishop Auckland, on a rainy morning, from Barnard Castle.

### 6.2 [101] Bishop Auckland to Darlington

It's a lovely day here in the North of England and the passengers are ready to get going. You are tasked with driving a passenger service from Bishop Auckland to Darlington.

### 6.3 [101] Bishop Auckland to Wearhead

Starting at Bishop Auckland you take this westbound passenger service to Wearhead.

### 6.4 [25] Darlington to Durham

The main East Coast Main Line is closed for engineering works on this foggy autumnal day. Take this Class 25 hauled service non-stop between Darlington and Durham.

### 6.5 [25] Darlington to Middleton

Starting in Darlington, you take charge of a Class 25 pulling empty stone wagons from Darlington back to the Quarry at Middleton-in-Teesdale.

### 6.6 [25] Durham to Barnard Castle

Starting at Durham in a Class 25, you'll be driving this goods train from Newcastle down to Barnard Castle. Upon leaving Bishop Auckland, you will find yourself running behind a delayed goods train bound for Butterknowle. Keep a watchful eye on the signals!

### 6.7 [25] Shildon to Darlington

Today you have been tasked with coupling up to a consist of coal wagons and taking them down south to Darlington Gasworks. Please note that the scenario will begin with 1000 points.

## 7 Credits

Dovetail Games would like to thank those listed below for their contribution to the development of the route:

Everyone at Dovetail Games.

Skyhook Games.

Members of our Beta Forum for their continued valuable feedback.

Stuart Galbraith.

Mike Whitely.

Rob Payne.

Paul Godber.

Ricardo Rivera.

Simon Hall.

And finally Derek Siddle, who over the course of many years, researched and developed the route as his own passion project.

