



LMS Rebuilt Patriot Class



Please note: This manual is best viewed in Adobe PDF Viewer

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1 Background

1.1 Design & Specification

Power Type	Steam
Rebuild Date	1946 - 1949
Tractive Effort	29,570 lbf
Power Class	LMS: 6P BR: 7P
Total Produced	18
Fuel Capacity	4,000 gallons of water, 9 long tons of coal

2 Rolling Stock - Locomotives

2.1 Rebuilt Patriot Loco – BR Green Livery



- Also includes:
 - Tender – Stanier BR Green livery – welded.
 - Tender – Stanier BR Green livery – riveted.
 - All of the above with both late & early BR logos.

2.2 Rebuilt Patriot Loco – LMS Post-War Black Livery



- Also includes:
 - Tender – Stanier LMS Post-War Black livery – welded.
 - Tender – Stanier LMS Post-War Black livery – riveted.

2.3 Rebuilt Patriot Loco – LMS Plain Black Livery



- Also includes:
 - Tender – Stanier LMS Plain Black livery – welded.
 - Tender – Stanier LMS Plain Black livery – riveted.

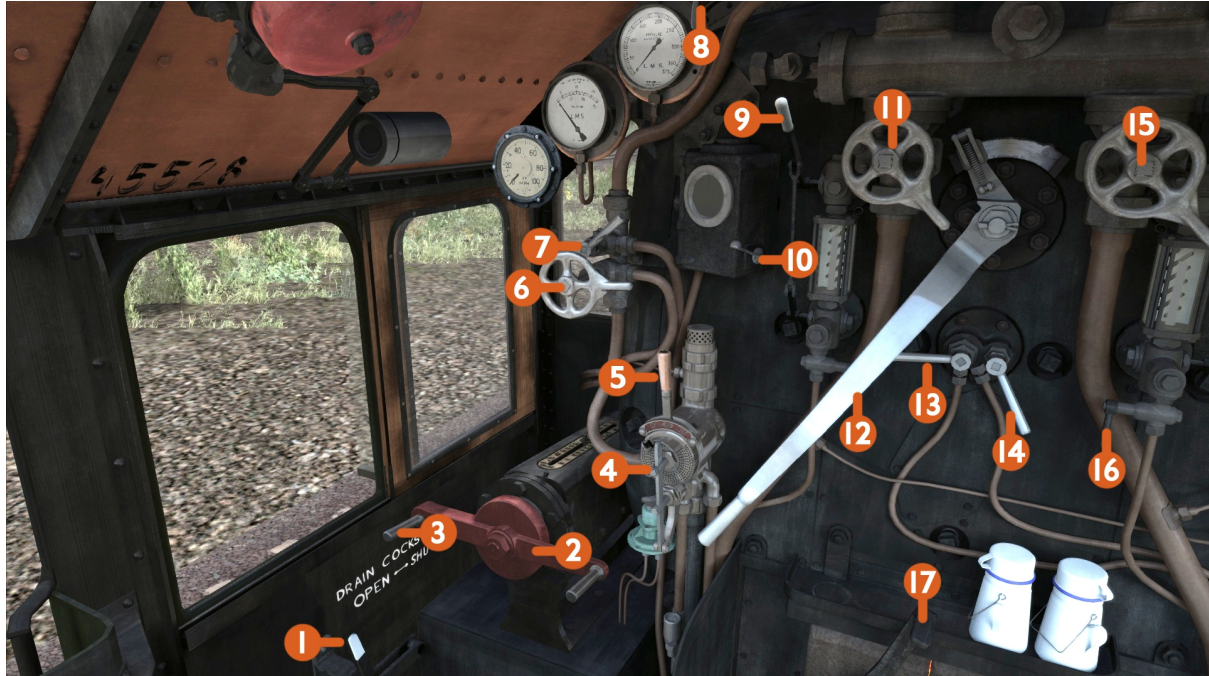
2.4 Rebuilt Patriot Loco – BR Black Livery



- Also includes:
 - Tender – Stanier BR Black livery – welded.
 - Tender – Stanier BR Black livery – riveted.

3 Driving the LMS Rebuilt Patriot Class

3.1 Cab Controls



1	Cylinder Drain Cocks	15	Right Injector Steam Valve
2	Reverser	16	Gauge Glass Drain Valve
3	Reverser Lock	17	Firebox Doors
4	Combi' Brake Handle (Vac & Steam)	18	Air Deflector Flap
5	Steam Brake	19	Right Injector Water Trimmer Valve
6	Large Ejector	20	Left Injector Water Trimmer Valve
7	Small Ejector	21	Steam Heat Control Valve
8	Whistle	22	Handbrake
9	Gauge Glass Isolating Handle	23	Right Injector Tender Water Stop Valve
10	AWS Acknowledgement	24	Left Injector Tender Water Stop Valve
11	Left Injector Steam Valve	25	Waterscoop Control
12	Regulator	26	Damper - Front
13	Steam Sander	27	Damper - Rear
14	Blower		

3.2 Locomotive Keyboard Controls

Key	Action
W / S	Reverser
E	Reverser Lock
A / D	Regulator Open / Shut
Shift+A / Shift+D	Regulator Slam Open / Slam Shut
Q	AWS Reset
; / '	Combination Vacuum/Steam Brake Off / On
[/]	Steam Brake Off / On
/	Handbrake On
Shift+ /	Handbrake Off
Ctrl+R	Automatic Fireman On / Off
H / Shift+H	Headboard – cycles through headboards
Space Bar	Whistle Loop
B	Whistle Variation
V	Short Whistle
F / Shift+F	Firebox Door Open / Shut
R	Stoke Fire
I	Injector Steam Valve Left
O	Injector Steam Valve Right
K	Injector Water Valve Left
L	Injector Water Valve Right
Ctrl+L / Ctrl+Shift+L	Water Trimmer Right Open / Shut
Ctrl+K / Ctrl+Shift+K	Water Trimmer Left Open / Shut
Ctrl+M / Ctrl+Shift+M	Front Damper Open / Shut
M / Shift+M	Rear Damper Open / Shut
N / Shift+N	Blower Open / Shut
C	Cylinder Cocks Open / Shut
X / Shift+X	Sander Front / Off / Rear
Ctrl+Shift+Y	Tender Tank Lid Open / Shut
Ctrl+F	Firebox Flap Up / Down

Page Up / Page Down Brake Mode

U / Shift+U	Large Ejector Open / Shut
J / Shift+J	Small Ejector Open / Shut
Y / Shift+Y	Water Scoop
Ctrl+Shift+P	Performance Mode

Locomotive Lamp controls – as viewed facing the front of the loco or tender.

Oil headlamp, oil tail lamp, high-intensity head lamp and modern tail lamp.

Ctrl+1 / Ctrl+Shift+1	Bottom left loco lamp
Ctrl+2 / Ctrl+Shift+2	Middle loco lamp
Ctrl+3 / Ctrl+Shift+3	Bottom right loco lamp
Ctrl+4 / Ctrl+Shift+4	Top loco lamp
Ctrl+5 / Ctrl+Shift+5	Bottom left tender lamp
Ctrl+6 / Ctrl+Shift+6	Middle tender lamp
Ctrl+7 / Ctrl+Shift+7	Bottom right tender lamp
Ctrl+8 / Ctrl+Shift+8	Top tender lamp

3.3 General Keyboard Controls

Key	Action
Shift + Ctrl+C	Couple Manually
G / Shift+G	Points/Switches
Tab / Ctrl+Tab	Request authority to pass a signal at danger
T	Load/Unload - Press once to load/unload passengers or freight.

3.4 Regulator

When using the regulator on this loco there are a couple of things to note:

- When you're in second valve (the second half of the regulator's travel) make sure to slam the regulator open and then slam it shut.
- If this isn't done the regulator will not shut properly.

3.5 Vacuum Brake Leak

As per the real life counterparts, the vacuum brake system on these locos have a slight leak. This means that once the vacuum brakes are released you must continue to use the ejectors to maintain vacuum. This can be done with the small ejector so as not to waste too much steam.

3.6 Sanders

When using the sanders on this loco, there is a delay of a few seconds whilst the steam that powers them works its way through the system. You'll be able to tell

they're working by either hearing the hiss of steam or seeing steam coming from the sanding pipes.

3.7 Injectors

Both injectors on the loco can be toggled on or off with their respective keyboard controls. Whilst the loco has water trimming valves, these are already set up in the correct positions for operation. They will take a few seconds to “pick up”. However, the water trimming valves may need to be adjusted when the boiler pressure drops dramatically below the normal operating pressure.

For example, to use the Fireman's side injector:

- Injector Water Valve Right – Open by pressing L or by using the mouse
- Injector Steam Valve Right - Open by pressing O or by using the mouse
- You should hear the injector “pick up” after a few seconds by listening out for a distinctive “singing” sound.
- If the boiler pressure is lower than around 200psi the injector may not work right away. You will hear the sound of steam blowing out of the injector and you may need to adjust the Water Trimmer Right until the injector “picks up”.

3.8 Firing/Stoking

To fire this locomotive you must hold down the “R” key until you reach your desired fire mass. It is recommended that this is done without the F4 HUD, using the F5 instead.

3.9 Ideal Fire Mass

The ideal fire mass for this locomotive is 875lbs for mainline running. The fire can be dropped to a lower mass if running on a preserved railway running at speeds of around 25mph to avoid unnecessary blowing off of the safety valves.

3.10 Automatic Fireman

This locomotive has an Automatic Fireman, which can be toggled on and off using Ctrl+R. This will take over control of stoking the fire. The injectors still need to be controlled manually as the automatic system cannot predict station stops and gradient changes etc. which may or may not require injector usage. On locos with a lifting fireman's seat, you can use the seat to control the automatic fireman. Putting the seat in the up position will turn on the automatic fireman.

3.11 Performance Mode

Performance Mode is available, which will improve frame-rates on older machines. To enable this press Ctrl+Shift+P.

3.12 Locomotive Numbers In Scenarios

It is possible to set various features on and off using the locomotive number within the scenario editor, for both the player train and AI services.

By default the number will appear like this example: **5521#NN#YN5##13A#**

5521 Locomotive number. Entering the number will automatically make the appropriate nameplate appear. The 4 prefix on BR numbered locos can be ignored.

#	Spacer character – no function.
N	Front lamp code - lamp codes explained below.
N	Rear lamp code - lamp codes explained below.
#	Headboard selection – headboards explained below.
Y	Smoke Deflectors: Y = Yes, N = No
N	BR Livery - Yellow cab stripe: N = no stripe, Y = stripe present.
5	Locomotive condition: 5 through to 1, 5 = engine in good condition, 1 = terrible condition. See section 3.17.
#13A	Shedcode. The first character is for single numbered shedcodes. The second and third character are for 2-digit numbered shedcodes. The fourth character is the letter of the shedcode. For example: #13A shows a 13A shedcode, and 1##B would show a 1B shedcode.

3.13 Headboards

A selection of headboards are included in this pack. The headboards are listed below, along with their corresponding letter, which can be used in the scenario editor as explained above. You can also scroll through the headboards in-game with the H / Shift+H keys:

- A - The Great Britain
- B - The Cathedrals Express
- C - Cumbrian Mountain Express
- D – Royal Scot
- E - North Wales Coast Express
- F – Welsh Marches Express
- G – The Royal Scot
- H – The Mid-Day Scot
- I – The Northern Irishman
- J – The Royal Highlander
- K – The Midlander
- L – The Mancunian
- M – The Lancastrian
- N – The Merseyside Express
- O – The Red Rose
- P – The Manxman
- Q – The Shamrock
- R – The Irish Mail
- S – The Emerald Isle Express

- T – The Welshman
- U – The Ulster Express
- V – The Lakes Express
- W – The Thames-Clyde Express
- X – The Waverley
- Y – The Palatine
- Z – The Devonian
- 1 – The Caledonian
- 2 – Christmas Market Express
- 3 – The Scarborough Flyer
- 4 – Torbay Express

3.14 Lamp Codes

The following lamp codes can be set using the scenario editor as explained above:

N	No lamp.
T	Tail lamp.
S	Shunting.
A	Express Passenger.
B	Ordinary Passenger.
C	Parcels, Fish, Fruit, Livestock, meat, milk or perishable train composed entirely of vehicles conforming to coaching stock requirements. Express freight, livestock, perishable or ballast train fitted with the automatic brake operative throughout. Empty coaching stock train, not authorised to carry class A headcode.
D	Express freight, livestock, perishable or ballast train partly fitted with the automatic brake operative on not less than one third of the vehicles.
E	Express freight, livestock, perishable or ballast train partly fitted with not less than four braked vehicles next to the engine and connected by the automatic brake pipe. Express freight, livestock, perishable or ballast train with a limited load of vehicles not fitted with the automatic brake.
F	Express freight, livestock, perishable or ballast train not fitted with the automatic brake.
G	Light engine or light engines coupled. Engine with no more than two brake vans.
H	Through freight or ballast train not running under class C, D, E or F head codes.
J	Mineral or empty wagon train.
K	Freight, mineral or ballast train stopping at intermediate stations. Branch line freight. Freight, ballast or Officer's Special train requiring to stop in section.

3.15 Numbers & Nameplates

Below is the list of numbers and names available in this pack:

5512 Bunsen
 5514 Holyhead
 5522 Prestatyn
 5523 Bangor
 5526 Morecambe and Heysham
 5527 Southport
 5529 Stephenson
 5530 Sir Frank Ree
 5531 Sir Frederick Harrison
 5532 Illustrious
 5534 E. Tootal Broadhurst
 5535 Sir Herbert Walker K.C.B.
 5536 Private W. Wood V.C.
 5540 Sir Robert Turnbull
 5545 Planet

3.16 Driver & Fireman Assistants

Using the headlights button on the HUD it is possible to switch on various assistance systems which help the player control the loco.

Mode Number	Mode Description
1	Automatic fireman.
2	Automatic fireman, water trimmer assistance and boiler warning indications.
3	Automatic fireman, water trimmer assistance, boiler warning indications water level alarms.
4	Automatic fireman, water trimmer assistance, boiler warning indications water level control.
5	Automatic fireman, F4 HUD now disables the reverser lock and opens small ejector.

3.17 Locomotive Condition

The locomotive condition modes change the steaming performance. Condition 5 will give you a loco in perfect condition, whereas lower numbers all the way down to 1 will give you worse locomotives. 5 simulates a locomotive “ex-works” with tight joints and clean tubes etc. 1 simulates a leaky loco in run down condition, and will thus be harder to drive/make steam. By default all locos are set to condition 5.

4 Scenarios

4.1 [LMS 6P 2] 01. The Thames-Clyde Express - Northbound

Take the northbound Thames-Clyde Express, with a Rebuilt Patriot Class loco, from south of Carlisle to Dumfries on a foggy afternoon!

Duration: 50 Minutes

Difficulty: Medium

4.2 [LMS 6P 2] 02. The Thames-Clyde Express - Southbound

Take the Rebuilt Patriot Class from Dumfries to Carlisle with the southbound Thames-Clyde Express. Enjoy the winter scenery!

Duration: 55 Minutes

Difficulty: Medium

4.3 [LMS 6P 2] 03. The Devonian - Part 1

It's a beautiful summer evening along the English riviera and your train is packed with holiday makers from cities such as Bradford, Leeds, Sheffield, Birmingham and Bristol with plans for a weekend away in Devon. The Castle Class loco due to haul this train failed at Bristol, so take the Rebuilt Patriot Class from Exeter to Paignton on the last portion of this train's journey, calling at Dawlish, Teignmouth, Newton Abbot, Torre and Torquay.

Duration: 80 Minutes

Difficulty: Medium

4.4 [LMS 6P 2] 04. The Devonian - Part 2

Your mission is to get the Patriot Class loco back on midland region territory after it hauled the train to Paignton the day before. Starting at Kingswear, you'll stop at Churston, Paignton, Torquay, Newton Abbot and Exeter St. Davids.

Duration: 85 Minutes

Difficulty: Medium

5 DLC Requirements

The following add-ons are required for the scenarios:

- **Western Lines of Scotland Route Add-On** – KrossRails
- **Riviera Line in the Fifties: Exeter - Kingswear Route Add-On** – Dovetail Games

These add-ons are available through the Steam Store: <http://store.steampowered.com/>



6 Credits

Ben Jervis

3D Artist, Scenario Writer, Audio Recordings & Bossman

Simon Payne

Internal Tester

Bossman Games would like to thank the following people for their invaluable contribution towards the development of the LMS Rebuilt Patriot Class:

Edward Fisk - Meshtools

Scripting & Audio Implementation

Rail Sim Users Group

UKTrainSim Forum

The Train Simulator Community

7 Disclaimers

7.1 Realism

Due to the level of realism provided in this pack the correct driving style must be adopted, which may differ significantly from any other steam locomotives in Train Simulator. This manual will provide you with all you need to know about successfully driving this loco.

This loco does not fully support control via the HUD, Xbox controller or via Simple Controls.

7.2 PC Performance

Every effort has been made to make this add-on as realistic and as detailed as possible within the confines of Train Simulator. As a result, some users may experience low frame rates on older machines. It is recommended that in cases where frame rates are low, the user should lower their graphical settings within Train Simulator to allow for a better gaming experience. TS2019 64bit is recommended.

7.3 End User License Agreement (EULA)

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7.4 Commercial Add-Ons & Scenario Packs

Bossman Games do not allow the development or sale of any commercial add-ons or associated products (without prior written consent) including but not limited to:

- Scenario Packs
- Audio Enhancement Packs

7.5 A Thank You From Bossman Games

Bossman Games would like to offer a huge thank you to you for purchasing this product and hope that you get many hours of enjoyment from it. Should you have any feedback for us - whether positive or negative - it is always appreciated.



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