New Haven EMD FL9

Release Version 1.0

1 Background

1.1 Loco

The FL9 came about in reaction to a set of criteria laid out in 1959 by New Haven's president Patrick McGinnis. The locomotive was to replace New Haven's worn out fleet of ALCO DL109's along with most of the older boxcab electrics. It must operate in diesel mode in the open air and DC electric mode whilst in the tunnel approaches to Grand Central and Penn Station. It must also comply with the 58,000 pound per axle load restriction imposed by New York's Park Avenue viaduct. The resulting locomotive had a B-A1A wheel arrangement. This was needed to accommodate its longer frame (The "L" in FL9 stands for lengthened F9) that held the additional electrical equipment necessary for 3rd rail operations and the water tank for the steam generator.

Although repainted and upgraded over the years the FL9's are to be considered a success story. It is only in the early years of the 21st century that the FL9's have been finally superseded by new power, a 50 year service life.

1.2 Design & Specification

Power Type	Electro Diesel
Locomotive Weight	287,000lbs (130t)
Vehicle Length	59ft (17.8m)
Build Date	1956-1960
Vehicle Power	1,800hp (1,300kW)
Top Speed	89mph (143km/h)
Brake Types	Straight Air
Tractive Effort	58,000lbf (258kN)
Total Produced	60

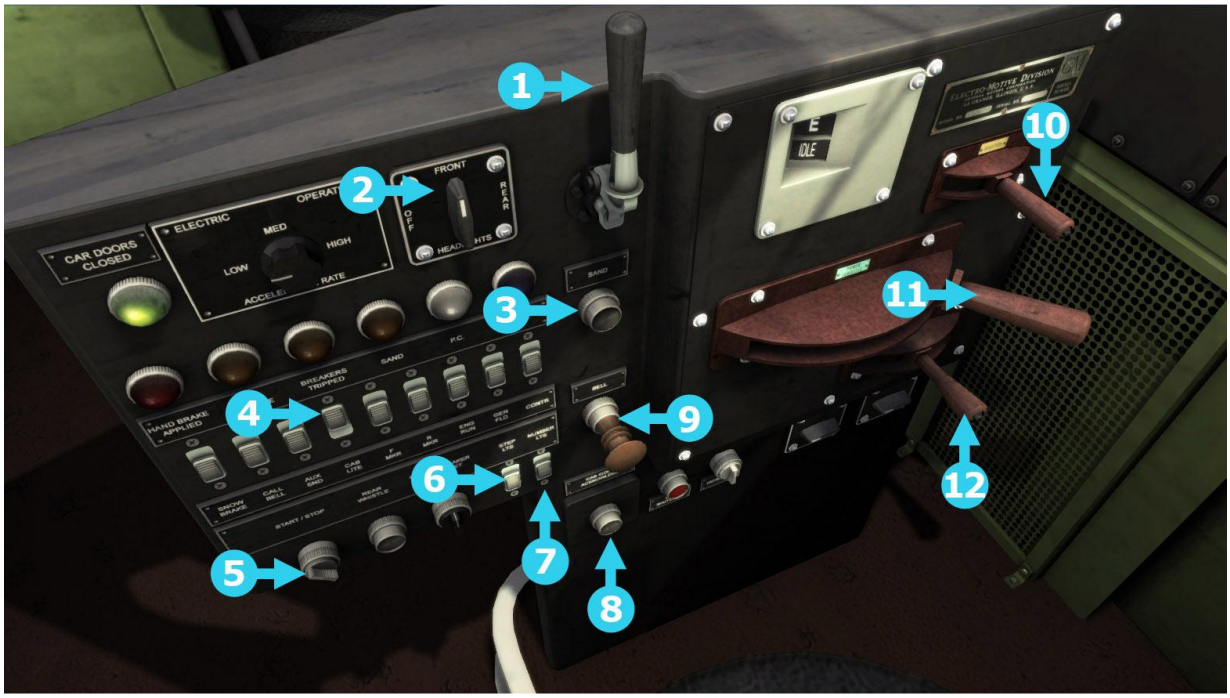
2 Rolling Stock

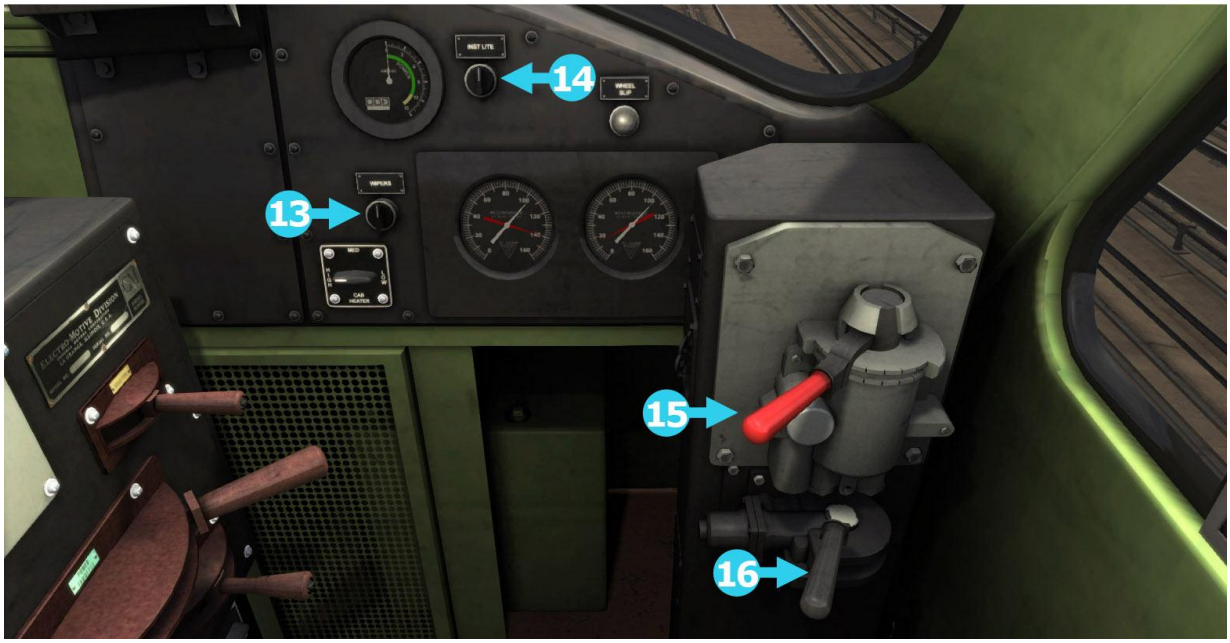
2.1 EMD FL9

2.2 Metro-North Shoreliner III Cab car and Passenger car

3 Driving the EMD FL9

3.1 Cab Controls





1	Horn (Spacebar)	9	Bell (B)
2	Headlights (H)	10	Gear Select (E/Shift+E)
3	Sander (X)	11	Throttle (A/D)
4	Cab Light (L)	12	Reverser (W/S)
5	Engine Startup/Shutdown (Z)	13	Wipers (V)
6	Step Light	14	Instrument Light (I)
7	Numbers Light	15	Train Brake (;/')
8	Alerter Reset (Q)	16	Independent Brake ([/])

3.2 In Cab Signaling

Locomotives on the New York to New Haven route feature in-cab signalling systems. The image below shows the in-cab display. Visually the display may vary for other locomotives but the principle remains the same.

Alerter: Alerts the user to react if they don't touch controls for 60 seconds. Cancel the alarm by pressing Q or the "!" icon on the HUD.

Cab Signal Aspect: The aspect of the section you are in now.

Signal Speed: Displays the speed associated with the cab signal aspect.

When running the FL9 EMD, if the signal aspect is "N" (Normal) then the speed indicator will show a green light and you should adhere to the current speed limit on the line. If the signal aspect is anything lower than normal then a speed signal aspect will be displayed and you should run at either the signal speed as indicated OR the current track speed limit – whichever is lowest. Because the FL9's in cab signalling lacks any displayed numerical values, it is understood that a Red indicator signifies a speed of 15mph, an Orange indicator signifies a speed of 30mph, an Orange and Green indicator signifies a speed of 50mph and a Green indicator signifies a speed of 80mph.

For the Metro North Shoreliner III Cab Car the display is different to the FL9 EMD. The current speed of the train is displayed in a digital readout in the centre of the display while the N/L/M/R signal indicators are located around the outside. Note that each one has a line pointing to the speedometer – this line points to the speed limit you should adhere to if that signal is active. For example, in the screenshot above, the train is not moving (0mph displayed in the centre) and the R light is illuminated – this points to 15mph on the speedometer and therefore tells us our signal speed limit.

If you enter a new block and it has a reduced aspect (e.g. going from Normal to Limited) then the following happens and must be done by the engineer:

An alarm will go off in the cab.

The cab signalling will update to reflect the new signal speed and confirm what the new aspect is.

If the train is within the MAS (Maximum Allowed Speed) then the engineer must simply press the ACKNOWLEDGE button (Q key) within 8 seconds.

If the train is above MAS then the engineer must zero the throttle, move the brakes into 40% application or greater, and then press ACKNOWLEDGE within 8 seconds.

(Note: It is not required to be within the speed limit during the 8 seconds, it is only required that the engineer has confirmed to the ATC system that they acknowledge the reduction in aspect and have taken appropriate action to comply with it.)

If the brakes fall below 40% while still being above MAS then the alarm will sound again and the same procedure must be followed.

Failure to acknowledge correctly within 8 seconds means the brakes will go to full service application - however, the engineer can apply the same procedure as above and they will be able to regain control of the train without having to stop.

Once the train is under the new MAS the engineer can simply release the brakes and apply throttle as required.

Speed increase alert
This alarm is a small audio ping as a notification that your signal speed limit has increased. Note - this only applies to SIGNAL speed limits, not track speed limits. Currently you can only see this working if you have the control state dialog visible, there's nothing on the cab to indicate it.

Disabling the alerts
If the player does not want ALERTER functionality, they can press CTRL-D to toggle this.

3.3 Power Switchover

The FL9 has both Diesel and Electric operating modes, and can be switched between these modes at any time. However unless the train is operating on a portion of track which has 3rd Rail power, the Diesel engine will need to be active in order to drive.

The steps to switch between power modes are relatively simple, but differ between the EMD FL9, and the Shoreliner III Cabcar.

Inside the EMD FL9, there is a “Selector” lever. This is used to switch power modes. The selected mode is visible to the left of the lever (“E”, “OFF”, “1 – 4”).

In the Shoreliner Cabcar, there is a switch to the left of the window with options “Diesel” and “Electric”. To change the operating mode, first the Regulator must be put into the Idle (0%) position. Then the lever or switch can be operated, and the power mode will change.

The power switching mode can be changed from manual to automatic, and back again via the keyboard (Ctrl-Shift A) and by default is set to automatic.

There are two variants of each of the cabs, to allow for starting in either Diesel or Electric mode. When starting a Quick Drive, or building a Scenario make sure to use the correct version for the current section of track.

The ability to use in cab switching from Diesel to Electric is only available on routes that use the same signals as New York to New Haven, as these signals are responsible for informing the consist of when 3rd Rail power is available. If running on a route that does not use the same signal system, starting in a 3rd Rail version of either cab will allow switching between Electric and Diesel at any point.

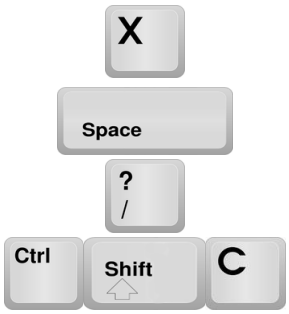
3.4 Locomotive Keyboard Controls

Key(s)	Action
	Decrease or Increase throttle.
	Move reverser control Forward or Backward.
	Decrease or Increase the Train brake.
	Decrease or Increase the Locomotive brake.
	Increase or Decrease the power Selector, changing modes (FL9 Cab only).
	
	Change between power modes (Shoreliner Cab Only).
	Toggle the cab Signalling system (ATC).
	Toggle automatic Power Mode switching (Expert Power Mode).

3.5 General Keyboard Controls

Key(s)	Action
	**Load/Unload.** Press once to load/unload passengers or freight.
	**Headlights.** Repeatedly pressing will cycle through headlight states as appropriate.
	**Instrument Lights.** Press to toggle instrument lighting on and off.
	**Cab Lighting.** Press to toggle the cab lighting on and off.
	**Ditch Lights.** Press to toggle the ditch lights on and off.
	**Windscreen Wipers**. Press once to switch on and again to switch off.
	**(Expert) Engine Stop/Start**. By default engines will already be running at the start of a scenario. Press this button to stop and then again to restart the engine.
	**(Expert) Alerter.** The Alerter is a system used on some trains to ensure that the driver has seen a signal. If the alert sounds (a black/yellow striped symbol is shown on the Driver's display), this must be acknowledged by pressing the Alerter button or the emergency brakes

will be applied.



(Expert) Sander. Causes sand to be laid on the rails next to the wheels to assist with adhesion. Press once to apply sand and again to stop.

Horn. Sound the horn's low tone.

Handbrake On/Off. This icon is displayed in the Coupling view

Couple manually.

4 Scenarios

For driving tutorials, please visit the Academy from the main TS2015 menu screen*

4.1 [FL9] Grand Journey: Part 1

The first part of a passenger run towards Danbury.

Starting here at Grand Central Station, this is the first part of a passenger service towards Danbury.

Duration: 30 Minutes
Difficulty: Easy

4.2 [FL9] Grand Journey: Part 2

After a short delay at New Rochelle, you are ready to finish the second part of this service to South Norwalk. A delayed ACS64 is ahead, so keep a check on the signals.

Engineer, you have been cleared for departure after your short delay at New Rochelle. A delayed ACS64 is ahead at the next station and you will be following it for most of your journey. Scheduled pick ups are at Stamford and South Norwalk.

Duration: 35 Minutes
Difficulty: Medium

4.3 [FL9] A Stormy Trip to the Big Apple

Brave the storm as you take this service from South Norwalk to GCT.

This morning you take control of a passenger service at South Norwalk as it battles a storm on its way to New York.

Duration: 50 Minutes
Difficulty: Easy

5 Acknowledgements

Dovetail Games would like to thank the Beta Testing Team and QA Department for their contribution to the development of the EMD FL9.