HHP-8
Electric Locomotive

Release Version 1.0

1 Background

1.1 Loco

The HHP-8 (High Horse Power 8000) is an electric locomotive built by a consortium of Bombardier Transportation and Alstom. The HHP-8s are currently used by operators Amtrak, who have 15 units, and Maryland Area Regional Commuter system (MARC) who have 6 units.

Due to high maintenance costs and the low unit volume, Amtrak began replacing the HHP-8s with ACS-64 locomotives after only a decade in service.

The HHP-8s have a 6 MJ crash energy absorbance structure; the body is stainless steel. The electrical traction system is directly derived from the system used on Alstom's BB 36000 Astride locomotives; the includes four 1.5MW three phase asynchronous traction motors powered by GTO based inverters, with one inverter per motor; the electric system also allows regenerative and rheostatic braking. The locomotives were designed for up to 135 mph operation but are actually limited in service to FRA Tier 1 standards, operating up to 125 mph.

1.2 Design & Specification

Builder	Bombardier/Alstom
Locomotive Weight	99.79 tonnes
Vehicle Length	67 ' 1"(20.4m)
Vehicle Power	8,000Hp (5.9kW)
Top Speed	125 MPH (201km/h)
Brake Types	Regenerative/Rheostatic

2 Rolling Stock

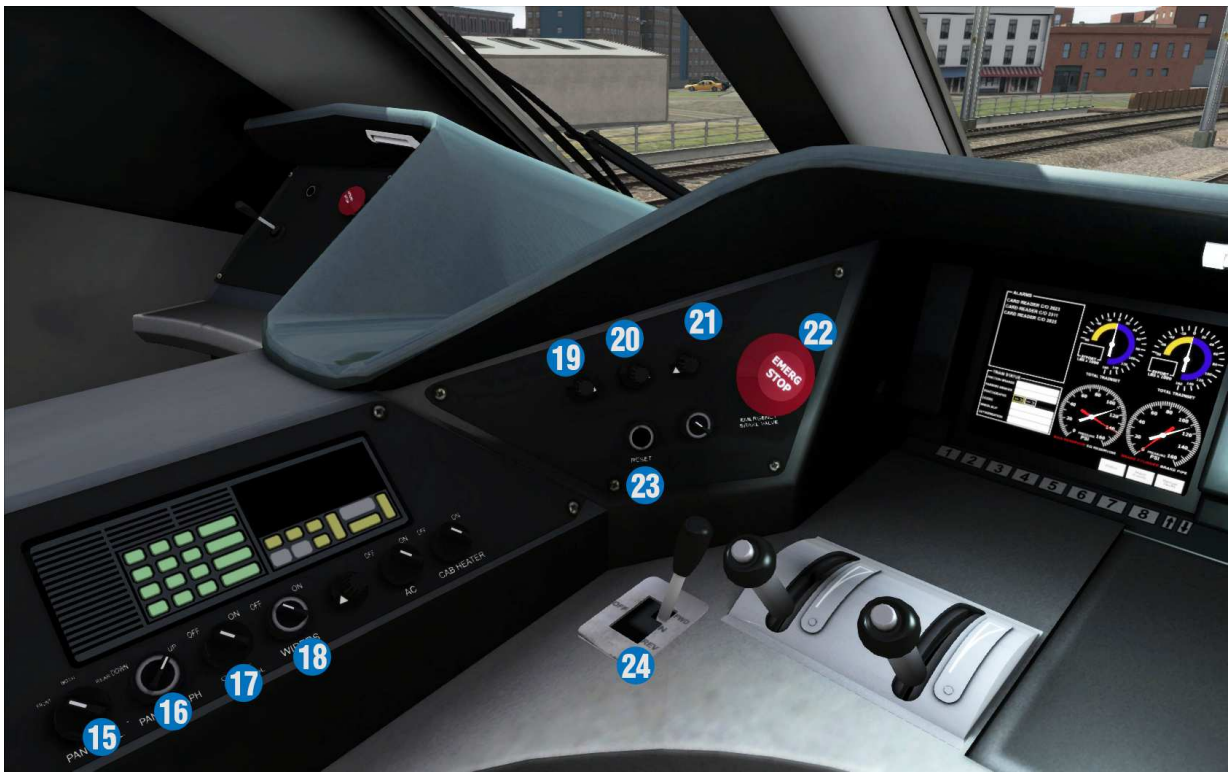
2.1 HHP-8 Electric Locomotive

2.2 Amcoach

2.3 Amcafe

3 Driving the HHP-8

3.1 Cab Controls



1	Cruise Control
2	Power Handle
3	Screen 1
4	Screen 2
5	Train Brake
6	Locomotive Brake
7	Horn
8	In-cab Signalling Display
9	Handbrake
10	Sander
11	Acknowledge
12	Bell
13	Headlights
14	Ground Lights
15	Pantograph Select
16	Pantograph
17	Cruise Control
18	Wipers
19	Screen 1 On/Off
20	Screen 2 On/Off
21	Screens Light
22	Emergency Stop
23	Reset Throttle/Cruise
24	Reverser

4 In-Cab Signaling and Alerts

4.1 Cab Controls

Locomotives on the New York to New Haven route feature in-cab signalling systems. The image below shows the in-cab display for the HHP8.

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 and Track Speed: You should drive according to the maximum allowed speed displayed on the cab signalling display. This takes in to account the current track speed and any restrictions imposed by the signalling.

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:

1. An alarm will go off in the cab

2. The cab signalling will update to reflect the new maximum allowed speed limit and confirm what the new aspect is.

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

4. If the train is above MAS then the engineer must zero the throttle, move the brakes to the SUPPRESSION notch 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 engineer moves the brake back out of suppression 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.

The maximum speed allowed indicator on the in-cab signal panel shows whatever the fastest you're allowed to go at the moment is - so if you're in a "limited" signal restriction then it will show 45mph even if the track speed is 70mph. Once that limited signal restriction is lifted up to a normal, it will then show track speed of 70mph. You can reliably use the “Maximum Authorised Speed” value to see what your maximum permitted speed is at any given time.

Disabling the Alerts –
If the player does not want ALERTER functionality, they can press CTRL-F to toggle ACSES Cut-out, this will actually toggle the alerter. This was used as there is UI on the cab signalling to remind the user what the setting is.

If the player does not want ALERTER OR ATC alarm and penalty brake functionality then they can press CTRL-D to toggle ATC Cut-out. In this case the cab signalling will still function, it just won't pester you with alarms or brake applications.

To quickly get to the SUPPRESSION notch on the brakes, the engineer can press SHIFT-‘

5 Scenarios

5.1 Simple Controls Tutorial: HHP-8 Simple Controls

Learn to drive the HHP-8 using simple controls.

5.2 Expert Controls Tutorial: HHP-8 Expert Controls

Learn to drive the HHP-8 using expert controls.

5.3 178 Northeast Regional

While the ACS64 is taking over more services every day, the HHP8 still provides staple traction of services along the Northeast Corridor. This long high speed trip takes in the section between New Rochelle to New Haven.

- **Duration 60 minutes**

5.4 Vermonter Rescue

The preceding train, the Vermonter, developed a brake fault and the passengers had to de-train at New Rochelle. As the following train, you need to bring all these passengers to Penn Station.

- **Duration 40 minutes**

6 Acknowledgements

Dovetail Games would like to thank the following people for their contribution to the development of the HHP-8.

Beta Testing Team