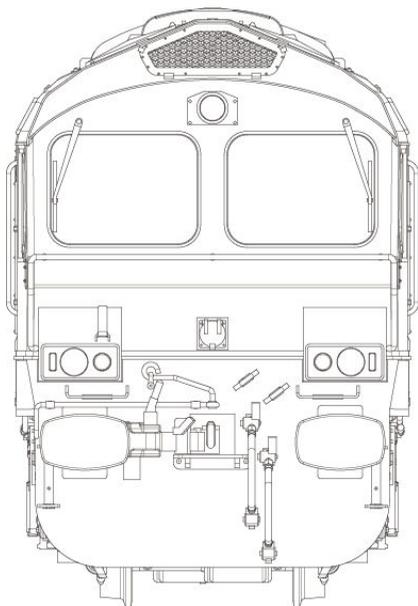




Class 66

Digital Sound Instructions



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Introduction

The Hattons Originals Class 66 has been designed, not only to look as realistic as possible, but also to work in the most prototypical way within the confines of OO gauge. With this in mind we have worked with the country's leading Digital Sound expert, Ian Bishop, to bring you the most advanced sound project ever installed in a UK ready-to-run model. This is loaded onto the latest ESU Loksound 5 21pin chip to give authentic sound and operation with ease of use.

This Hattons Sure Sound project is loaded with more sounds than has ever been heard before on a commercial project, but is actually easier to use than many previous chips. Allied to this is the simple customisation of the sounds meaning even a large fleet of Class 66 locos will sound individual.

Finally, the Hattons Rail Rumble speaker has been specified to enhance the whole experience, being a dual cone passive-radiator bass-boosting speaker to project the sense of power and presence of the real locomotives.

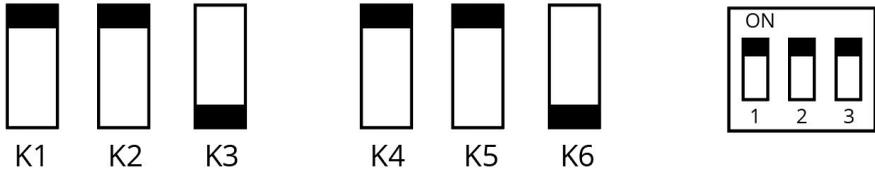
We hope this product will give you hours of entertainment and bring the operation of your layout a bit closer to real life.

These instructions will guide you through the use and customisation possibilities of the model and help you get the most out of the features that are included.



Loco Setup

The Hattons Class 66 comes with a set of switches to enable it to work with a number of different DCC chip setups. If you have purchased the loco with sound already fitted, you do not need to change anything as it will already be set up to run with the ESU chip out of the box. For users who are fitting a chip to their standard release model please see the diagrams below.



Switches K1-K6 are located on the main board inside the locomotive and require the bodyshell to be removed (see main instruction manual for details). Switches 1-3 are located on the underside of the locomotive.

Once these switches are set, they do not need to be altered as all lighting changes are performed on the chip.

Day and Night Running Lights



All rolling stock on the national network has to have “group standard” lighting to be allowed to run. This means there are 3 marker lights forming a triangle (one just above each buffer and one centrally above the cab windows) and 2 headlights. The Day headlight is on the non-drivers side and points towards the side of the tracks, away from the opposite running line so as not to dazzle oncoming drivers. The night headlight is below the drivers windscreen and points along the running rail to better illuminate reflective signs at night and also throw the light further to aid track workers sighting of traffic.

Function keys – introduction

Functions on the Sure Sound project are set up to try and work as realistically as possible, while still allowing the user to select some sounds on demand. This means some functions may act slightly differently to other projects, for instance:

- Some sounds are disabled when the loco is stationary (eg flange squeal), and others are disabled when the loco is moving (eg despatch whistle).
- Some sounds operate automatically and are *enabled* by pressing the appropriate function key (eg dynamic braking fans, brake application sounds etc). The sounds will only be heard when certain prototypical criteria are met (eg when braking heavily).
- Some sounds such as horns, air release & door slam are playable with the engine switched off, as per the prototype.

CV Settings

This project uses CV (Configuration Variable) settings to change some of the sounds. Almost all Digital controllers can change CV settings, consult the manual for your controller to find out how. Please be careful when setting CVs as some controllers can only set them on a programming track but this can be the same track as you run your trains on. Unless you have a separate programming track, it is advisable to only have the loco you want to program the CV to on the track to avoid accidentally changing CVs on other Digital fitted locos.

Function key summary

Function	Page	Function	Page
F0 Light engine mode	5	F13 Sanders	9
F1 Engine on / off	6	F14 Automatic 'radar hiss'	9
F2 High horn	7	F15 Spirax valves	9
F3 Low horn	7	F16 Enable automatic compressor speed-up	10
F4 Buffering up/ Coupling hook	7	F17 Windscreen wash / wipe	10
F5 Manual brake application/ Brake dump	7	F18 Detonators	10
F6 Driver's door slam	8	F19 Cab light (auto-extinguishing)	10
F7 Compressor	8	F20 Train mode	5
F8 Drive hold	8	F21 Parking mode	5
F9 Variable-speed flange squeal	8	F22 Night-time running	5
F10 Despatch whistle	8	F27 Battery Isolator Switch close & cab start-up	10
F11 RETB token request & optional reply	9	F28 Cab shut down & Battery Isolator Switch open	10
F12 Cooler group fan	9		

Some functions only require turning on and will function automatically thereafter. For a more detailed description of how to use each function, please see the relevant section below.

Sound and lighting modes

In order to greatly simplify the simulation of the real locos, and the trains which they operate, four different function keys have been set up, use whichever one is appropriate to the train you are operating;

Light engine mode (F0)

White marker lights and a single headlight in the direction of travel, and red tail lights to the rear. All lights reverse automatically when the direction of the loco changes.

The default headlight is the daytime running (left-hand) one. To select night-time running (right-hand headlight), turn on **F22** as well as **F0**. **F0** also selects Loco Brake sounds instead of Train Brake sounds.

Train mode (F20)

Selecting **F20** will override **F0**, turning off the red tail lights next to the train and selecting Train Brake instead of Loco Brake sounds.

The default headlight is the daytime running (left-hand) one. To select night-time running (right-hand headlight), turn on **F22** as well as **F20**. **F20** also selects Train Brake sounds instead of Loco Brake sounds.

Parking mode (F21)

When the loco is stationary, **F21** overrides **F0** or **F20**, extinguishing the marker and headlights and displaying red lights at both ends of the loco simultaneously.

Night-time running (F22)

Pressing **F22** changes from day-time to night-time headlight in light engine and train modes.

Engine priming & starting (F1)

The engine priming and startup sounds on the real Class 66 vary depending on when it was built and if it has been modified and this has been replicated on the project. There are 2 options:

CV157 choose between an original (Tier 1) loco with a priming pump, or a later (Tier 2) loco without priming pump

CV157 = 0 - original loco with priming pump

CV157 = 1 - later loco without priming pump

To carry out a normal engine start sequence turn **F1** on and leave it on. The engine will prime for around 20 seconds (if CV157 = 0), crank and then start. Once the loco is idling, pressing **F1** will cause the engine to stop in the normal manner.

To shorten the priming sequence, turn **F1** off at any time during priming, wait for priming to stop, and then turn **F1** back on. The engine will crank and start immediately.

The engine sound may be faded in and out automatically by turning **F1** on or off *when the loco is moving*. The start-up sequence is missed out in this case and the engine sound will come on at a notch appropriate to the current speed.

If the engine has been running and is then shut down, all subsequent starts will be 'warm' (ie. without engine priming) as the engine is already primed.

Driving technique

The loco can be moved around at slow speed with the engine at idle by opening the throttle to a low speed setting and leaving it there. The revs will increase and then revert back to idle.

There are various different departure sound sequences from 'gentle' to 'full thrash' depending upon how wide the throttle is opened from stationary. Open the throttle to the desired speed and leave it there, letting the inertia do the rest. The throttle setting can be increased or decreased at any time to abort the sequence or transfer to a 'higher' one. When moving at a steady speed, exaggerated movements of the throttle up or down can be used to make the loco 'thrash' or coast. Once triggered, the throttle can be returned to its original setting (if required) to maintain speed. The inertia setting smooths out the throttle variation so that loco

movement appears realistic.

If the throttle setting is suddenly reduced to trigger the coasting sequence, the loco will remain in coast until you increase the throttle again.

In addition to this the drivelock feature can be used to select any engine notch at any speed (see the drivelock description on page 8).

Horns (F2 & F3)

F2 is the high horn tone

F3 the low tone

Turn either function on to play the horn and off again to stop it. This allows you to sound the horns in any manner just like the real loco.

Some DCC controllers can be set to momentary operation so that the horn only plays whilst the key is held down (see controller manual for details).

There are three different types of horn, selectable via CV155;

CV155 = 0 - Tier 1 locos with original (loud) horns version 1

CV155 = 1 - Tier 1 locos with original (loud) horns version 2

CV155 = 2 - Tier 2 locos with later (quiet) horns

Buffering up/ Coupling hook (F4)

When approaching stock to buffer up, press **F4** *whilst still moving* to 'arm' the sound (no sound will be heard at this point). Continue the approach and stop the loco as the buffers touch, the sound will occur automatically a split second before the loco comes to a standstill.

Releasing **F4** before buffering up will disarm the sound and the loco can be brought to a standstill without it.

Pressing **F4** when stationary will produce one of several random sounds of the coupling going onto the hook.

Manual brake & brake dump (F5)

When the loco is stationary, pressing **F5** will produce the sound of the driver applying a full brake application ('dumping the brake').

When the loco is moving, **F5** acts as a brake, physically slowing the train and producing a brake sound. It can be used momentarily or repeatedly as required.

If the loco is decelerating, **F5** may be turned on and then off to produce a single brake application sound. There are three different brake application

sounds (light, medium and heavy) depending upon the rate of deceleration. This can be repeated any number of times.

If **F5** is turned on when moving at a steady speed the brake application sounds will be produced automatically *each time the throttle setting is reduced*. This is particularly effective when repeated a number of times when the loco is coasting up to a red signal (for example).

Driver's door slam (F6)

There are six different door slam sound, one of which is played at random each time **F6** is pressed.

Compressor (F7)

Pressing **F7** when the loco is at idle starts the compressor and subtly changes the engine idle note. Turn **F7** off again to stop the compressor and return to the standard idle sound.

Drive hold (F8)

The drive hold feature enables the selection of any engine notch at any speed, and is useful to simulate the effect of a very heavy train. Pressing **F8** at any speed (including stationary) causes the loco speed to be locked at its current setting. The throttle may then be used to select the engine sound without affecting the speed of the loco. When **F8** is released, the loco speed will slowly change to match the throttle setting. **F8** may be turned on and off to prolong that process.

Be aware that if **F8** is left on when stationary the loco will respond to function key presses but will not move in response to the throttle.

Automatic, variable-speed flange squeal (F9)

Turning **F9** on will produce a flange squeal sound proportionate to the current speed of the loco. If turned on when stationary the sound will begin when the loco starts to move and increase in intensity as speed increases. As the loco comes to a standstill the squeal will slow and stop automatically.

Despatch whistle (F10)

Turn **F10** on to produce a despatch whistle sound from the platform staff.

RETB token request & optional reply (F11)

Turn **F11** briefly on to send an RETB (Radio Electronic Token Block) token request, there will be a short silence when the sound should be turned off. This can be repeated any number of times. To simulate a successful response (ie the granting of the token), leave **F11** on after the short silence to receive the reply.

Automatic cooler group fans (F12)

Turning **F12** on enables the cooler group (radiator) fans and the cooler group louvres will open and the fans will start automatically as speed increases. The fan speed will rise during acceleration and fall back once speed stabilises. The fans will slow down and stop at slow speed and the louvres will close automatically. (The louvres are internal on the real loco but can be heard moving, no visual movement will be seen on the loco)

Sanders (F13)

Turn **F13** on to start the sanders and off again to stop them.

Automatic 'radar hiss' (F14)

In the Class 66, the loco's speed is measured by both the wheel revolutions and using a radar sensor pointing at the track to sense when the wheels may be slipping. The radar sensor is located at each end of the loco just below the cab. When the loco is moving, the sensor is blasted with compressed air every 25 seconds to keep it free of dirt and debris. Turn **F14** to enable this sound (and repeat it at intervals) and off again to stop it.

Spirax valves (F15)

Spirax valves expel water from the loco's braking system with a regular popping sound. Turn **F15** on to play randomised spirax valve sounds and off again to stop them.

There are two different types of spirax valves fitted to Class 66's, one popping much more frequently than the other. Choice between the two types is selectable via CV156 as follows;

CV156 = 0 Normal spirax valves

CV156 = 1 'Euro' style spirax valves (faster popping)

Compressor 'speed-up' (F16)

When idle, some Class 66 engines speed up periodically to build up air. This is automatic and not under the driver's control. Turn **F16** on to enable this. After 2-3 minutes of continuous idle the engine will speed up automatically and run at high speed for approximately 30 seconds before returning to normal. This will repeat until **F16** is turned off.

Windscreen wash / wipe (F17)

Press **F17** to turn on the windscreen wash / wipe and off again to stop it. (Sounds only, the windscreen wipers will not move)

Detonators (F18)

F18 is used to simulate the use of three track detonators as an 'emergency stop' indication to the driver, if the line is blocked ahead for example. The three bangs will be closer together the faster the loco is moving.

Directional cab light (F19)

When the loco is stationary, turning on **F19** will illuminate the cab light in the direction of travel. The light will turn off automatically when the loco moves off (drivers are not permitted to drive with the cab light on).

Battery Isolator Switch close & cab start-up (F27)

F27 enables the playing of cab start-up sounds with or without first closing the BIS (Battery Isolator Switch).

To play the BIS and cab start-up sounds, press **F27** and leave it on. There is a gap between the two as the driver moves from the BIS switch (next to the fuel tanks) to the cab.

To play just the cab start-up sounds without the BIS, turn **F27** briefly on and then off again.

Cab shutdown and Battery Isolator Switch open (F28)

F28 enables the playing of cab shut-down sounds on their own, or followed by the opening of the BIS.

To play the cab shutdown and BIS sounds, press **F28** and leave it on. There is a gap between the two as the driver moves from the cab to the BIS switch (trackside).

To play just the cab shutdown sounds, turn **F28** briefly on and then off again.

CV Quick List

Function	CV Number	Variable
F1 Engine priming & starting	157	0 = original loco with priming pump 1 = later loco without priming pump
F2 & F3 Horns	155	0 = Tier 1 locos with original (loud) horns version 1 1 = Tier 1 locos with original (loud) horns version 2 2 = Tier 2 locos with later (quiet) horns
F15 Spirax Valves	156	0 = Normal spirax valves 1 = 'Euro' style spirax valves (faster popping)
Decoder Reset	8	8 = Reset all values (including address)

There are other CV settings which can be altered to change other properties such as acceleration etc but it is not recommended to change these as, due to the complexity of the project, it could mean other features do not work correctly, if at all.

If you do incorrectly change a CV setting, setting CV8 to 8 will reset the decoder back to how it arrived with you.

Behind the project

The Class 66 Sure Sound project was recorded in partnership with Ian Bishop on location at Coleham Depot, Shrewsbury with loco 66847. Our thanks go to Ian Bishop for his expertise in the recording, mastering and programming of this project and to Colas Rail for allowing the use of one of their locomotives for an afternoon.