DCC & Sound Fitted Minerva Model Railways Peckett

The ID of your loco is #3

Thank you for purchasing a Peckett E class by Minerva Model Railways with DCC & Sound Installed by EDM Models, sole approved DCC & Sound installer for Minerva.

The sounds in your new loco were recorded from a genuine Peckett loco kindly made available to us to record running light engine and underload. The sound project contains all the usual sounds you would expect from a steam loco and the wagons its might be working plus some additional sounds.

As many of these loco's worked in the docks which involved street running some were fitted with a warning bell. F0 will get you a single `ding' whilst F10 will get you continuous ringing.

There are some additional atmospheric dock sounds on F24 & 25.

Later life hasn't been forgotten where many industrial engines make it in to preservation and find themselves working passenger trains. For this work they would need to be fitted with vacuum brakes and for this the brake ejector can be turned on with F21.

The sound project is the work of Paul Chetter and he has excelled himself just like he did with the Fowler diesel sound project

A New Way to Drive

In our efforts to make the operation ever more like the real thing your new loco probably works like no other you have got

By default your loco thinks it's attached to a heavy train. To set off you open the regulator and the loco will slowly get under way accelerating the load steadily with a hearty exhaust beat. When it gets up to the desired speed the exhaust eases so as just to maintain speed.

That's pretty much like any other loco but this is where it gets different.

Close the regulator and whereas most DCC equipped loco's will stop or start slowing down your new loco will keep rolling only slowing down very slowly until you put the brake on.

Pressing F2 (the whistle button on many DCC sets) and you will hear the steam brake apply and the train slow down. Dab the brakes and you can get a gradual slowing, press and hold you get a much more rapid deceleration.

I would recommend that you read Paul Chetters notes on page 4 and then clear yourself a length of track and have a play coming to controlled stops. Pick a sleeper and aim to stop by it. After a bit of practice put a wagon on the track and try buffering up without it moving.

The trick here (this with my "I drive real trains' hat on). Approach the wagon, slow down in plenty of time, stop short even, then roll up to the wagon at a snails pace when a dab of the brakes will stop you with the buffers touching.

With your DCC set, that is Step 28 to accelerate, step 0 to coast, F2 to dab the brake, get the speed down, let it roll, F2 to stop. If you need to inch up, Step 5, when it moves Step 0, F2 to stop.

Now when you get really good try this, F5 for light engine, Step 28, Step 0, F2, F2, F2, as it stops and buffers up F16 for the buffers sound. F17 for coupling up. Reverse, F5 off, F3 whistle, step 28 to accelerate away with the load. If it's on a curve try F9 for some wagon flanges squealing and some F18 on an off for the wagons snatching and clattering.

Of course if you're coming out the docks you might want F10 and F25 on!

When I first tried this I didn't like it but then I practiced with it and it is just like driving the real thing. Now I love it and want all my loco's to work like it. To that end, will we be doing revisions to our Hudswell Clarke and Fowler Loco sound projects.

More Keyboards than Rick Wakeman

A slight exaggeration (and you have to be of an age to understand what I am on about) but driving your train is getting to be more like being a keyboard player than a train driver. All the sound capability is getting to the point where it shows the limitations of DCC controllers.

Here are a few Q&A's and suggestions

Q. Why is the horn button now the brake?

A. Because on an NCE PowerCab it's the only button with a momentary rather than latching operation and it's a separate prominent button.

Q. How do I access the higher functions on my NCE PowerCab?

A. Reprogram the OPTION key to be a shift key. One press gets you F10 to F19, Two presses gets you F20 to F28 (Page 20 & 21 in the v1.65 Manual)

Other systems have more momentary buttons or buttons that can be set to momentary or latching. I am just beginning to experiment with a tablet based system that shows all the keys on one screen and remembers the settings per loco. Its driven off the DecoderPro program on my laptop.

Your Decoder/Speaker/Keep Alive

The ID of your loco is #3

Why #14? When you program lots of loco's everything being the default 3 gets a bit confusing and for me in my workshop changing it to #14 as part of loading the sound on to the decoder differentiates it from an un-programmed one.

Your loco has a ZIMO MX645R sound decoder installed along with a Sugar Cube Hi Bass speaker. It's not very big but it shouts loudly for its size. These components are mounted on the chassis and come away with it if you remove the body.

You loco also has a custom made Keep Alive unit installed in the body. This will stay with the body if you take it off. There is a two pin plug with the wires and the shrink sleeve colour coded. Be sure to match the colours when you reconnect it should you undo it.

The keep alive is custom built and matched to the regulator circuitry on the MX645 decoder. Do not use it with any other decoder.

Taking the body off

If you decide to take the body off here are a few tips: -

1. Take the four small screws out, two at each end. Don't touch the two that look like they have washers around them unless you want the cab off!
2. The body is a very tight fit on the chassis. Ease it up a little at each end and work it off a bit at a time. When putting it back on ease it down a bit each end in turn
3. Don't trap a single wired as you put the body on. On the one hand the body won't go down and on the other it'll cut the wire. I put a loop of fine thread around the keep alive wires and thread both ends out of the dome hole. This pulls the wires up into the body as you put it back on the chassis. You then just pull one end of the thread and it comes out and then tuck any loose wires back into the tank
4. Don't trap the front coupling in the chassis as you push the body back on

We make these mistakes so you don't have to

Feedback

We strive to make these projects as realistic as possible and would welcome your feedback. We would also like to see how you customise your loco and see pictures or videos of it running in its new home.

Please send us a link or post them on the online forums such as RMWeb.

User Notes for ZIMO Peckett Steam Sound Project V15.12

Please spend a few moments to read these notes which have been produced so that you may obtain the maximum satisfaction from your new Peckett sound fitted loco.

The sounds should work perfectly though individual locos may require some fine tuning that you can achieve with your DCC controller.

Operating Your ZIMO Sound Decoder.

As supplied, your new decoder will work in a 'heavy train' configuration, but you will be able to switch between the available sounds using your DCC controller by following the straightforward instructions below.

This project utilises ZIMO's ability to switch between the sounds of a heavy train load or sounds of a light engine.

These are all fully configured within the project, waiting for you to make your choice.

You can revert back at any time.

All the CVs have been optimised but you may need to make minor adjustments to perfect it for your individual tastes.

There are many Functions, most of which have an individual sound attached. Some will perform a physical function (like turning on the lamps, if fitted), and some will do both (depending on equipment installed). Please study the list below.

Some of the sounds have a finite length and will play from start to finish when selected. Other sounds will 'loop' until switched off, whilst others will vary in length, depending on how you operate the F keys on your DCC controller. I'll leave you with the pleasure of finding out which is which.

In any of the driving sound sets, increasing the speed step by 1 or more will produce an acceleration sound for a few seconds. If you wish continuous acceleration, ease the throttle setting upwards rather than 0- 128 in one jump!

Similarly, in each sound set, a reduction of 1 speed step or more will stop the exhaust beats and the loco will 'coast' (or drift) for a few seconds before resuming exhaust beats. Continuous drifting can be simulated by easing the throttle settings down, one step at a time.

All sounds may be modified (including changing or removing them) individually, and the volume levels of each one may also be varied to your own needs. For this, and much more information on your decoder's outstanding abilities, please download the latest Decoder Manual from: www.zimo.at/web2010/

You can get free advice in English by joining, : Zimo-DCC@yahoogroups.com

The Sound Sets

There are four sound sets loaded on your decoder; two are for a 'standard condition' locomotive and two are for 'work worn' condition. The first two, which are available for use immediately, work in conjunction to give the Heavy Train/Light Engine usually found in my sound projects. The second pair will also operate similarly in conjunction with each other, but use alternative sounds.

Within each pair:

Set 1 Heavy Loaded. This is the one to use if you have a heavy train on the hook.

Set 2 Light Engine. At very slow speeds, this set will simulate a very lightly stressed loco. This becomes more aggressive with acceleration, and as speed increases.

To access the alternative sounds, programme CV265 = 3, to return to default sets, CV265 = 1.

Special Zimo Function on F5.

As supplied, it is possible to toggle between Set 1 and Set 2 (change from one to the other and back again) and this may be done even whilst the loco is moving, with no loss of sound. This is useful to vary the sound of the exhaust beats. But it really comes into its own when you run light loco up to a train, couple up and chug away with the heavy sounds.

All you need to do to make this happen is to press F5 on your DCC controller, and press again to change back.

Heavy Mode

This is the default setting. Inertia and momentum have high settings to reflect the high mass of a loaded train. Maximum power would be required on a real loco to lift a heavy train. This means that as well as opening the regulator, the driver would allow maximum steam into the cylinders with the reverser fully open. Enginemen would call this 'full gear'.

During acceleration, the exhaust beats will bark aggressively, but the tone and volume will soften after a few seconds as the real driver would advance the steam cut-off to reduce steam entering the cylinders, increasing the efficiency of the engine

Light Engine Mode

Engaging F5 will switch the exhaust sounds to a different set of samples, so the 'chuffing' is less aggressive in nature and quieter. This represents the reduced 'cut-off' on the reverser on real locos as a Light Engine does not require the same power a heavy train would need to get moving.

The Inertia and Momentum settings are automatically reduced when Light Engine Mode is selected. The physical characteristics are changed so the model responds more urgently to control inputs. Acceleration is more brisk and stopping distance is reduced.

Brakes

F2 will give the sound of brake applications. F2 can be 'dabbed' or held for varying durations. The sound will respond accordingly.

However, if the throttle is reduced in advance, as a real driver would do, before operating the Brake Key, a braking force will be applied which will continue to increase the longer F2 is held. Short dabs will provide speed trimming, held down continuously will result in a controlled 'Emergency Stop'.

PowerCab users please note that the Horn/Whistle button operates the same sound/function as the F2, but set as 'momentary'. This facilitates the precise operation of the brakes and should be used in preference to the actual F2 key.

Other systems may have F2 set to operate as 'momentary' by default, or can be set to do so.

Shunt Mode

Inertia and momentum are reduced to zero plus speed is halved.

Shunt mode in on F26

Live Volume Control

Provide the sound is switched on and the 'fade' button is not active, it is possible to change the overall volume to suit changing needs.

Engage F27 and the sound levels will gradually reduce, eventually to silence

Engage F28 and the sound levels will gradually increase, eventually to maximum.

In each case, disengage the F key when the desired level is attained. Set F27 and F28 as 'momentary' if your DCC controller allows you to do so.

Note: If the volume controls appear to not function, check that F19, F27 and F28 are disengaged before making a further attempt.

Rod Clank Volume

Many projects have heavy rod clanking included. You can change the volume of these sounds played when the loco is drifting (coasting) to suit your requirements.

CV286 = 180 is the project default. Higher values will increase volume; lower values will reduce volume relative to the other sounds.

Adjusting the individual volumes

We've gone to quite a lot of effort to balance the individual sounds so they adjust as one with the master volume control but every layout is different and you may wish to alter them to suit your layout. The relevant CV's are shown in the function list as is the current attenuation. They work on having full volume when the CV value is 0 or 255 from where you attenuate it (turn it down) with these values: -

Value	Attenuation
1 >	-27dB Minimum Volume
11	--27dB
16	-24dB
23	-21dB
32	-18dB

Value	Attenuation
46	15dB
64	-12dB
91	-9dB
128	-6dB
181	-3dB

Alternative Sound Sets

As mentioned above your loco comes with four sound sets and uses (1 loaded train) by default and (2 light loco) when the F5 key is pressed. Change CV 265 from 1 to 3 and you'll get (30 by default and (4) on the F5 key. These sounds are for a slightly worn loco with a gland blowing.

Keep Alive Settings

Your loco is fitted with a custom made keep alive tailored to the regulation circuitry on the MX645 decoder. Don't try to use it with any other decoder**. (The bang might be quite impressive)**

The keep alive will keep the sounds running for many seconds and it would keep the loco running for that length of time if we let it. We did this as a party piece with the Fowler with videos of it running across table tops away from the track.

All quite impressive but common sense has prevailed with this loco having is super coast capability.

Your Peckett will stop after approximately 1.5 seconds after it last received a valid DCC signal. This is more than enough to get over dirty track but should reduce any tendency to carry on off road

You can, of course adjust this with CV153 =X, where X is a value equivalent to 1/10 second duration, valid range 1-25. For example, CV153 = 10 will give a maximum of 1 seconds running without a DCC signal.

Function Keys List

There are 28 Function Keys used in this sound project. Please see below.

Some of the sounds have a finite length and will play from start to finish when selected. Other sounds will 'loop' until switched off, whilst others will vary in length, depending on how you operate the F keys on your DCC controller.

Some keys have a control function rather than a sound.

These random sounds play when the loco is stationary

- Safety Valves
- Injector
- Blower
- Coal Shovelling

Key Number	Sound or Control Function	Volume CV	attenuation
F0	Single Bell Ring	CV571	-15dB
F1	Acknowledgement Toot	CV514	0dB
F2	Brake Key – see text for explanation	CV517	-12dB
F3	Short Whistle	CV520	0dB
F4	Long Whistle	CV523	0dB
F5	Heavy Train/Light Engine Selection	-	
F6	Coal Shovelling	CV529	-12dB
F7	Live Steam Injector	CV532	-12dB
F8	Blower	CV535	-15dB
F9	Wheel Flange	CV538	-12dB
F10	Bell Repeater	CV541	-15dB
F11	Hand Brake	CV544	-21dB
F12	Reverser	CV547	-15dB
F13 On	Firebox Doors slide open	CV550	-12dB
F13 Off	Firebox Doors slide closed	CV550	-12dB
F14	Damper	CV553	-12dB
F15	Cylinder Drains Opened	CV556	-3dB
F16	Buffering	CV559	-9dB
F17	Coupling	CV562	-9dB
F18	Wagons Snatching	CV565	-6dB
F19	Fade All Sounds	-	
F20	Safety Valves Lifted	CV674	-6dB
F21	Vacuum Ejector	CV677	-12dB
F22	Water Tank Filling - variable length	CV680	-9dB
F23	Guard's Whistle	CV683	-6dB
F24	Birdsong	CV686	-9dB
F25	Gulls	CV689	-9dB
F26	Shunt Mode. (Half Speed, No Inertia or Momentum)	CV692	
F27	Overall Volume Down	-	
F28	Overall Volume Up	-	