MarWick Class 40 – Soundscape with RealDrive

Putting you, the user, in the driving seat...

Manufacturer: Mark's Trains & Wickness Models
Project number: MW40-SSv1-RD-Graham Farish Version
Project version: V4.1-Airport/Christmas/Diesel Depot/Farm/ Grand Station/Hedgerow/London/Market/Seascape/Urban Station/ Special

Locomotive: BR Class 40
Power type: Diesel-electric
Builder: EE @ Vulcan Foundry, Robert Stephenson & Hawthorns
Build date: 1958 – 1962
Total produced: 200

Decoder type: ESU LokSound V4, V4 M4, V4 Micro, V4 L & V4 XL **DCC Address:** 3
Speed steps: 128 speed steps
CV63 main volume: 128 (max 192)
Speakers supported: 4 - 8 Ohms impedance, 1 Watt power
Volume CV's column: Relevant CV's to adjust individual sound volumes
Volume values column: Default volume setting for relevant sound CV's
Before changing volume settings CV32 must be set to 1, and returned to 0 when finished. Failing to do so will inadvertently alter function settings.

Diesel locomotive (diesel-electric)
Diesel-electric locomotives are in principle electric locomotives with electrical generators that are powered by diesel engines. The diesel locomotive is generally driven at constant Driving notches subject to the speed of the locomotive. Therefore the noise generated changes (driving) step by (driving) step. The quiet electric motor can hardly be heard over the noise of the diesel powered plant. Most diesel-electric locomotives have 4 to 8 throttle notches.

Fn Key	Function	Volume CV's	Volume Values		Fn Key	Function	Volume CV's	Volume Values
F0	Directional Headlights				F15	Compressor	283	60
F1	Startup / Shutdown	259	128		F16	Spirax Valve	291	128
F2	Horn (Random)	275	128		F17	Sanding Valve	323	60
F3	No1 Cab Lights				F18	Soundscape	331	128
F4	No2 Cab Lights				F19	Bi-directional Stabling (F5 must also be active)		
F5	Directional Tail Lights				F20	Shunting Mode (F5 must also be active)		
F6	Curve Squeal	339	128		F21	Coast Mode		
F7	Switch Flange	355	128		F22	Heavy Load		
F8	Rail Clank	347	128		F23	Diesel Manual Notch Up		
F9	Brake Key				F24	Diesel Manual Notch Down		
F10	Automatic Train Brakes (On / Off)	371	128		F25	[Unassigned]		
F11	Guard's Whistle	315	128		F26	Volume Control		
F12	Fire Bell Test	363	128		F27	Disable Brake Squeal Sound		
F13	Cab Door Open / Close	307	128		F28	Fade Out Sounds		
F14	Automatic Coupler	299	128					

MarWick Soundscape with RealDrive raises the bar to a much higher level than previously available in LokSound technology. These sound projects have been developed by Mark's Trains and Wickness Models in great detail to be more throttle and volume responsive through the range of 128 speed steps than other currently available sound projects, and with RealDrive features to give the user a much more prototypical user experience; putting the user in the driving seat.

The MarWick Soundscape system has been developed to be used on any DCC system although we do not recommend Hornby Select or Bachmann EZ Command due to limited function options.

So what is Soundscape then? Soundscape is set of ambient sounds on a given theme additional to the standard running sounds (engine, horns, compressor etc.). The soundscape runs on an available function within the project just like any other function such as a horn. This is exclusive to MarWick sound projects on LokSound V4 decoders. The soundscape is selectable, you can activate it during running or while motionless to provide additional background noises based on the theme of your layout. For example, you might choose Londonscape or Airportscape for a city centre layout, or Farmscape or Hedgerow for a rural one. You can listen to samples of the soundscapes available and view some of the project function sheets by visiting the following link -
https://www.marks-trains.co.uk/soundscape-realdrive-decoders/

What does RealDrive do? RealDrive fully utilises the advanced functions and logical programming available to the LokSound V4 decoder family, giving the user a prototypical and immersive experience. It's like driving a real train – to an extent!

One of the many new features of RealDrive is **active braking**; where you can back off the throttle to speed step 1 and let the locomotive gradually coast to a crawl, with a full (emergency) brake application available at speed step 0. You can also bring the train to a rapid stop from any speed by backing off to speed step 0, this bypasses any momentum effect and stops the train in a short distance. To remove this feature simply change **CV254 to 0** and reduce deceleration **CV4 to 68**, this will give you traditional throttle control. Normal brake applications can be made by using the new **brake key on F9**, this will bring the speed down gradually and can be pulsed (F9 on & off) to suit your desired speed. The other exciting features included in RealDrive are described below.

Multi start is now available on some projects with the use of F1 instead of using another function key; a warm start works as normal by selecting F1. Switching F1 on, then off again (within 1 sec) and finally back on again (within 1 sec) will activate the cold start engine sound.

Prototypical lights; Directional headlights (F0) and tail lights (F5) can be wired directly to their own function outputs, so that tail lights can be extinguished when a loco is in a train or consist. Bi-directional stabling (tail) lights can be activated (F19) so that tail lights at both ends illuminate. With this feature, lights can be operated just like the prototype. The complex function mapping has already been done for you, all you need to do is connect the lights to the appropriate function output. Instructions for this are on the next page. If traditional directional lighting is required simply connect to F0f and F0r as normal.

Cab lights; A directional cab light installed in both cabs can be activated to illuminate when stationary and automatically extinguish when moving off. Cab lights change ends when direction is changed.

Intelligent sounds; Curve squeal, switch flange, rail clank & spirax valve (where available) have powerful logic driving them, intelligently changing frequency with speed like the prototype and in the case of the spirax valve randomly sputtering and clicking away to sound much more realistic than a looped sound file ever did!

Random sound functions; A selection of horns and station announcements are now randomly played from a single function key, instead of having a mass of different horns and announcements spread around the various function keys, often difficult to reach. Some horns are also playable. So now there's a different horn every time you press F2!

Automatic train brakes; Brake releases and applications can be activated or disabled with F10, these sounds are separate to the engine sounds which means you don't have to listen to brake sounds during shunting or light engine moves for example. When activated they release and set automatically when you stop and set off.

Auto couple / **uncouple;** Along with the coupling / uncoupling sounds, this function now automatically pushes the train back towards a ramp / magnet at a predefined distance and speed and then drives the loco forward a set distance to clear the train that has been uncoupled.

Shunting mode; Shunting mode halves speed - useful in yard operations, and also disables momentum effects. Selecting this function also illuminates both sets of headlights and tail lights to simulate markers commonly used whilst in a yard or undertaking shunting movements.

Function key assignments; New function key assignments on RealDrive projects are organised to be more consistent throughout the range of sound projects; Diesels and Electrics will have the same mapping to be consistent with each other, and Steam will have their own consistent function mapping in place. This will make it easier to operate sound decoders across the *MarWick Soundscape with RealDrive* range.

Other traditional features include **Fade out sound;** when enabled fades the sound to the volume setting for “Fade sound” (CV133) in the “sound settings” section; this allows the simulation of going into tunnels, buildings, etc.

Diesel notch up; Allows notching up of one notch per key press (~ 1 sec cycle), or engage for multiple notch points. Notches up regardless of speed.

Diesel notch down; Notch down as above. Note: once engaged manual notching remains in effect until locomotive is stopped and notch point is at idle.

Disable brake squeal sound; When engaged turns off automatic brake squeal sound ((CV32=1) CV459).

Volume control; when set, allows setting the volume in 6 steps by toggling the function key on and off, once per step. Changes the master volume in 6 steps (CV 63).

All LokSound decoders can be fitted with a stay alive capacitor system, to see how please view the diagram at the bottom of the page.

Prototypical lighting installation instructions

This sound project has been specifically designed for the Graham Farish N gauge Class 40 which uses the Next-18 decoder interface. Simply install the decoder as per the instructions which come with the locomotive.

Due to the onboard chassis PCB transistors which control both the cab lights and the tail lights from F0 (headlights), some differences in behaviour will be observed without modification of the chassis PCB when using the various lighting functions.

Normal operation of the lights is achieved by activating F0 and F5, if you do not require tail lights when the Class 40 is inside a consist/pulling a train simply deactivate F5. Cab lights still work in the same arrangement through F3 & F4 and are directional.

Bi-directional stabling lights can only be achieved with F5 and F19 both active, you will notice the white marker lights/headcode boxes are active on both ends too albeit quite dim. This is because the transistors that control the tail lights need a supply from function output F0 to operate. The only way around this is to modify the chassis PCB so that the tail lights will work independent to the headlights on F0, and this can be quite a tricky task to the average modeller I'm afriad.

Red		Track Right	White		Front Lights
Black		Track Left	Yellow		Rear Lights
Orange		Motor Right (+)	Green		AUX 1
Grey		Motor Left (-)	Purple		AUX 2
Blue		Common Positive (+)	Brown		Speaker Wires (two wires)