N gauge digital sound

As Graham Farish releases its first N gauge digital sound steam locomotive: GWR Castle Class No. 5029 *Nunney Castle* (372-033DS). **Nigel Burkin** takes a look at the digital sound technology concealed in the tender.

IT IS INTERESTING TO SEE that Graham Farish chose a preserved example of the GWR 4-6-0 Castle Class locomotives as its first digital sound on-board steam locomotive model in N gauge. The locomotive concerned is No. 5029 *Nunney Castle* (Swindon 1934), which is privately owned, and one of eight surviving locomotives from a class of 171 constructed at Swindon between 1923 and 1950.

From a modelling perspective, having models of locomotives such as No. 5029 *Nunney Castle* in heritage condition opens up steam operations (potentially) to the diesel and electric modeller outside the transition era; the full-size No. 5029 returned to the man line in 1990 and is maintained in mainline condition, currently undergoing further repairs scheduled to be completed for main line running in 2018.

It is quite acceptable to operate steam locomotives on layouts based on an up-to-date theme provided the model has specific features relating to the modern railway, such as electrification warning notices and stock with the required livery markings. Operations would also include a support coach and possibly a diesel locomotive as back-up traction. However, that is not the main point concerning the Graham Farish model of No. 5029 *Nunney Castle*. The model has some interesting technology concealed in the tender and that is what this review is all about.

The technology

The Next18 DCC interface installed in the Graham Farish Castle Class model was introduced in Europe to overcome the problem of finding room for bulky connectors in the tight confines of N gauge models. As DCC develops with increased decoder functionality and vastly improved digital sound, there is a corresponding need for an increased number of physical connections between printed circuit boards and the decoder. The Next18 decoder interface solves this problem with a compact plug-fit connector with two rows of nine pins. This is different in appearance to the more common six-pin interface used in N gauge models. No wired versions are available at the time of writing and logically, there is no need for them.

Adoption of Next18 has reached a point where there is a MOROP standard (NEM-662) that specifies the number of pins, the type of plug and socket and allocation of the pins within the interface, which means any manufacturers' Next18 specification decoder will fit. Furthermore, the standard places a maximum length, width and depth on the decoder itself. Standard decoders should not exceed 15mm by 9.5mm while sound decoders (Next18-S) are allowed a little more room at 25.5mm by 10.5mm. The design ensures the decoder sits as flat to the printed circuit board as possible.

The Castle Class sound installation is located in the tender. The Zimo MX658N18 (Next18-S) decoder is plugged directly in the printed circuit board with the speaker placed inside a special mounting on the underside of the tender body. The sound reproduction from the sugar cube speaker is excellent and the tender body itself works like a sounding

The model is fitted with a Zimo MX658N18 (Next18-S) decoder plugged directly in the printed circuit board via a Next18 decoder socket.

The model was put through its paces on a test track and this allowed the functions to be tried one at a time. There is no doubt that digital sound has improved markedly in recent years as demonstrated by the Castle Class model and the sound reproduction better matches how a locomotive would be driven.

box. Matching the automated exhaust 'chuff' sound with the motion of the model is not the easiest thing to do, but the model has a good match between the two. The volume of the exhaust changes with the use of the controller, becoming louder as more steam 'power' is applied. Whistle notes and ancillary sounds such as both high- and low-pitched whistles, together with a combination of the two, are included in nearly 25 DCC sound functions. There are also random sounds built into what is an extremely sophisticated decoder.

Traditional analogue control

The model is not exclusive to DCC-users as a result of the on-board sound decoder. Those working with traditional analogue (DC) control can enjoy a number of important sounds, but without the same level of control of user-operated sounds available to DCC-users and with the lack of constant track power associated with DCC layouts, the functionality is not as broad. Nonetheless, it does work really well: driving to keep

the sound working even when pausing at signals and stations takes a little practice. When power is first applied, the automatic exhaust sound will operate together with the high-pitch whistle when the locomotive starts to move.

For sound to be active all the time the decoder needs to have a constant supply of power and that can be achieved on analogue control. When the power is first applied through the DC controller, the model will not move straightaway, which would normally be the case with a standard analogue model. Instead, the sound of steam will first be heard followed by the whistle as the model starts to move, the exhaust sound kicking in and accelerating as the model picks up speed.

It is possible to turn the controller down to a point where the model stops moving, but the steam sound may still be heard. This will help with pauses at signals and at stations – the sound does not have to be interrupted just because the train comes to a stop. Turn the controller off and, unlike a DCC-operated layout, the sound will be turned off too.

Some of the random sounds programmed into the decoder also operate on analogue control, bringing a degree of realism to traditional DC layouts not always possible without a special control box. It is worth noting that the performance of the decoder on analogue control will depend on the quality of the DC controller being used.

Overall

As we reported in the May issue of *RMM*, there is no doubt that the new tooling of the Castle Class locomotive has resulted in a very fine model with a nicely proportioned body and tender. Inclusion of the Next18 decoder socket together with ease of access to the tender interior makes DCC conversion and sound installation easy for modellers to undertake. The on-board sound steam locomotive (372-033DS) is a first for a Graham Farish and comes with some impressive features, including traditional DC sound operation, coasting and braking features.
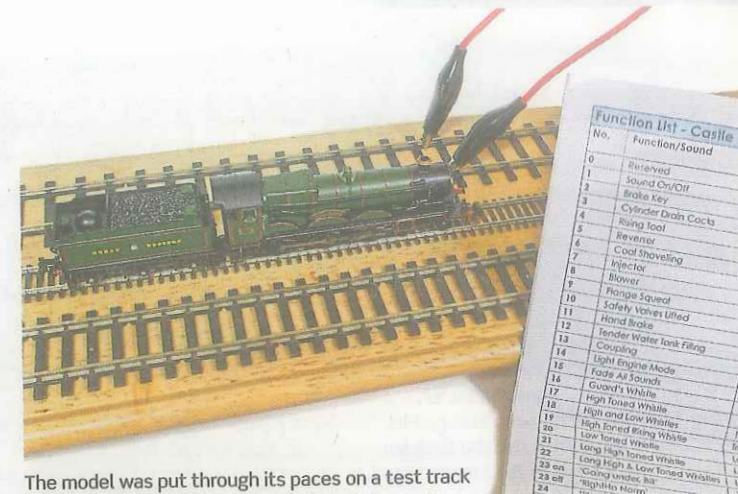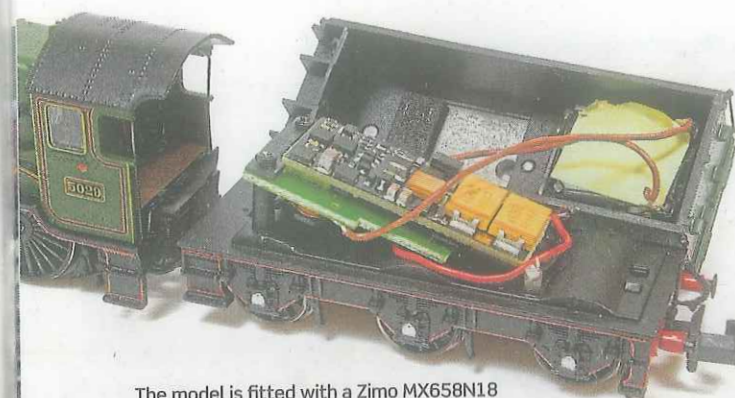
Traditional analogue layout operators may also enjoy a limited amount of sound function from the model.

Model details:
GWR 4073 Castle Class 4-6-0 express passenger locomotive equipped with digital sound. Specifically No. 5029 *Nunney Castle* finished in heritage GWR green and with on-board digital sound.

Catalogue number:
372-033DS

Manufacturer:
Bachmann Europe Plc. Sold under the Graham Farish by Bachmann brand.

Scale:
2mm (1:148) scale, N gauge.

Era:
1923-1965.

Web:
www.bachmann.co.uk

Suggested retail prices:
£219.95.

Function List - Castle Class

No.	Function/Sound	Type	Sound CV	Volume CV	Sound ID
0	Reserved	Latch	-	-	-
1	Sound On/Off		-	-	-
2	Brake Key		516	517	119
3	Cylinder Drain		-	-	-
4	Rising Tool		522	523	133
5	Reverser		-	-	-
6	Coal Shovelling			529	116
7	Injector			532	122
8	Blower			535	114
9	Flange Squeal			538	128
10	Safety Valves Lifted			541	121
11	Hand Brake			544	123
12	Tender Water Tank Filling	Latch			125
13	Coupling	Trigger			117
14	Light Engine Mode	Latch			-
15	Fade All Sounds	Latch			-
16	Guard's Whistle	Latch			124
17	High Toned Whistle	Trigger	561		
18	High and Low Whistles	Trigger	564		
19	High Toned Rising Whistle	Trigger	567		
20	Low Toned Whistle	Latch	673		
21	Long High Toned Whistle	Latch	676		
22	Long High & Low Toned Whistles	Latch	679	680	
23 on	'Going under, Bill'	Trigger	682	683	
23 off	'RightHo Norm'	Trigger	682	683	
24	'Right 'o way from the Guard'	Latch	685	686	
25	'Clear my side'	Latch	688	689	129
26 on	'Green Flag'	Trigger	691	692	130
26 off.	'RightyHo'	Trigger	691	692	130
27	Volume Down	Trigger	-	-	-
28	Volume Up	Trigger	-	-	-

Decoder.
This locomotive is fitted with a Zimo MX658 Next18 DCC Sound Decoder, for full details of the decoder please refer to information sheets on **Zimo MX658N18** available from **www.bachmann.co.uk**

An impressive number of sound functions are stored in the decoder including authentic whistle tones and function-activated sounds.

More N gauge models in the Graham Farish range are to be fitted with Next18 decoder sockets.
- SE&CR/SR C Class locomotive.
- Collett Castle Class locomotive.
- Stanier 8F 2-8-0 locomotive, one to be offered with digital sound (372-163DS).
- Class 40 diesel locomotive, one also to be offered with digital sound (371-183DS).
- Class 319 EMU.

Digital sound features:
- Model is capable of being used with sound activated on traditional DC as well as DCC layouts.
- DC operation includes automatic exhaust and motion sounds.
- DCC operation provides a wider range of driver-controlled sounds making operations more realistic.
- Coasting feature with no exhaust sounds until power is applied once again.

- Two whistle tones including high-toned warning whistle (F17) and lower pitched alert whistle (F20) and variations on the theme.
- Regulator-controlled sound relating to the layout's speed controller will reduce or increase the level of exhaust sound.
- 25 different sound functions controllable from a DCC throttle.

- Braking function on DCC controller function key F2 to control the coasting feature after the regulator is closed.
- Volume control through DCC function key F15.
- A comprehensive instruction leaflet with details of the decoder sound functions and how they relate to the operation of a full-size locomotive is supplied with the model.

The sound does not seem to come from the tender during operation of the model, but the whole locomotive. The volume is excellent given the compact size of the installed sugar cube speaker.