

'GRID'

UPGRADES

Installing digital sound can be a simple process with the right choice of motive power. **MIKE WILD** picks up a Hornby Class 56 and shows, with simple modelling techniques, how half an hour can transform this model to make the right noises.



TOOLS

- » Wire strippers
- » Wire cutters
- » 25w soldering iron
- » Electrical solder
- » Craft knife
- » Scissors
- » Superglue
- » Jewellers screwdrivers

DIGITAL SOUND doesn't have to be complicated – and this installation for Hornby's Class 56 is an ideal place to start if you haven't gone down this route before. Simple modifications make way for a large speaker to be fitted, and there is ample space for the decoder to be located.

As a general rule of thumb, the more recent a locomotive model is, the simpler it will be to equip with sound. There are exceptions – primarily small steam or shunting locomotives – while some earlier models which weren't designed with sound in mind have removable interior components which can make way for the latest generation of sound chip.

For the Hornby Class 56, we have elected to use a Zimo MX645R decoder with a sound file from Digitrains. There are plenty of options out there for the '56' with alternative sound files available for ESU LokSound and Zimo decoders from a number of sound producers.

This particular file is Digitrains DigiDrive E (Cat No. ZS56D) which allows more realistic driving through functions 5 and 6. Function 5 engages 'multi-mode' which adapts the way the engine sounds respond to reflect shunting or main line operations while Function 6 offers a highly usable 'coasting' feature which reduces the engine sound to idle at any speed. This latter feature can be used out on the main line at high speeds and when setting off to simulate a locomotive rolling under its own weight rather than requiring engine power to move.

In combination with the now standard horn, brake and auxiliary sounds it adds to up to a driveable and realistic package and you can read the full list of sound functions in the table to the left.

The Step by Step guide explains the process and skills required to upgrade your Class 56 with digital sound. [B36m](#)

• Visit www.hornbymagazine.com to see and hear this locomotive running on our test track.

FILE FUNCTION

FUNCTION	OPERATION
F0	Lights on/off
F1	Sound on/off
F2	Dual horn
F3	Triple horn
F4	Single horn
F5	Multi-mode
F6	Coasting
F7	Coupling
F8	Cab light (optional)
F9	Flange squeal
F10	Brake release
F11	Brake squeal
F12	Spirax valves
F13	Air releases
F14	Two-tone horn
F15	Single horn
F16	Compressor
F17	Spare
F18	Spare
F19	Fade all sounds

STEP BY STEP INSTALLING SOUND IN A HORNBY CLASS 56

1

Hornby's Class 56 first arrived on the scene in 2007 (HM6) and it is a very simple project to upgrade the model to feature sound. The decoder is a Zimo MX64SR loaded with Digitrains' Class 56 sound file while the speaker is a 55mm x 22mm twin driver 3D printed device for maximum sound quality.



2

Removing the body is simple. Four slotted screws are located above the bogies. Turn the bogie to each side for access and remove. The body then slides off. Keep the screws safe for reassembly.



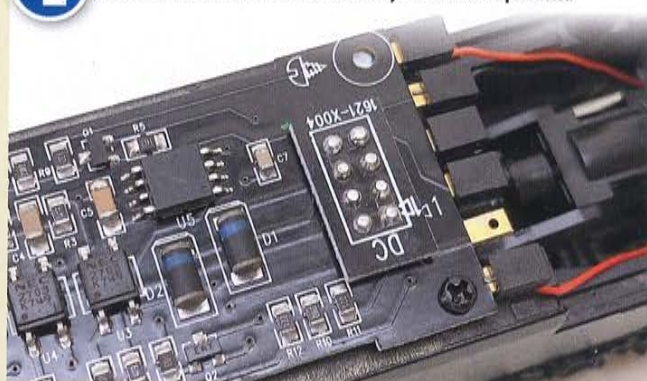
3



As the body lifts off, the internal spaces are revealed including the detailed cab bulkheads and twin rotating roof fans. The motor is encased inside the die-cast chassis block while the 8-pin socket is located on top of the main circuit board.

4

The decoder socket is an 8-pin type – the same on all Hornby Class 56s except those delivered with sound on board from the factory which have a 21-pin socket.



5

The opposite end of the chassis is occupied by the rotating roof fans – prime real estate for the location of a speaker. In our experience these fans can cause additional strain on the mechanism, so they will be removed.

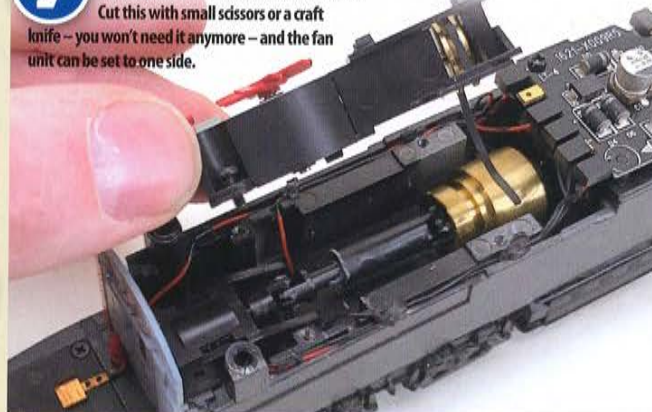


6

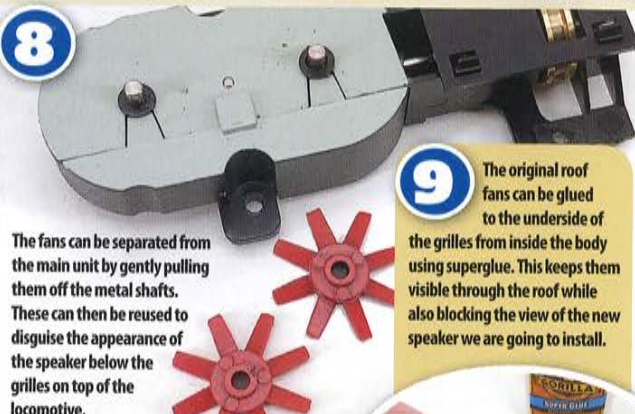
Removing the fan assembly is simple. Four crosshead screws hold it in place. Release them with a suitable screwdriver.

7

The fan assembly can now be lifted off partially to allow access to the drive band. Cut this with small scissors or a craft knife – you won't need it anymore – and the fan unit can be set to one side.



8



The fans can be separated from the main unit by gently pulling them off the metal shafts. These can then be reused to disguise the appearance of the speaker below the grilles on top of the locomotive.

9

The original roof fans can be glued to the underside of the grilles from inside the body using superglue. This keeps them visible through the roof while also blocking the view of the new speaker we are going to install.

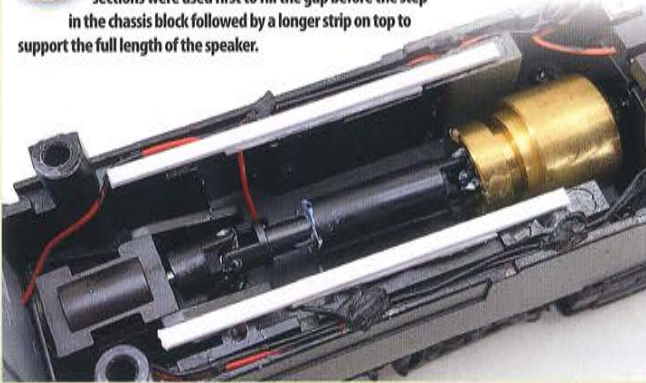


10

A dry run of the speaker shows that it is a perfect fit in length, but that it touches the brass flywheel to the right of this image. It needs raising up to clear this – another simple project.



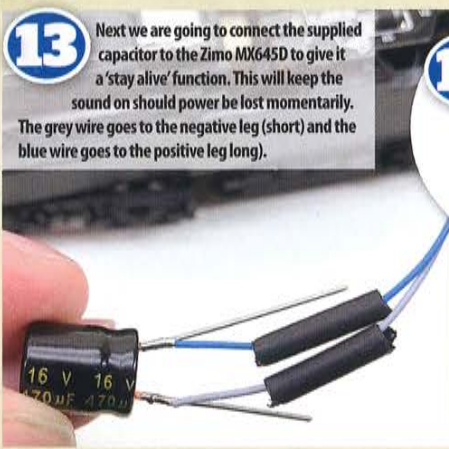
- 11** Strips of 2mm x 1mm plasticard were glued to the chassis block to raise the level of the speaker. Short sections were used first to fill the gap before the step in the chassis block followed by a longer strip on top to support the full length of the speaker.



- 12** The speaker now rests on the plastic strips and clears the brass flywheel comfortably. It can be glued in place with superglue for a strong bond with the chassis.

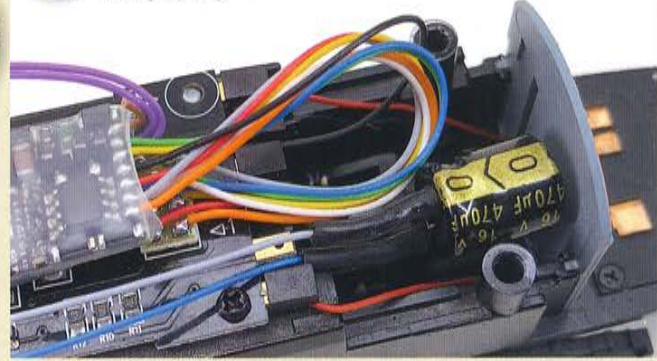


- 13** Next we are going to connect the supplied capacitor to the Zimo MX645D to give it a 'stay alive' function. This will keep the sound on should power be lost momentarily. The grey wire goes to the negative leg (short) and the blue wire goes to the positive leg (long).

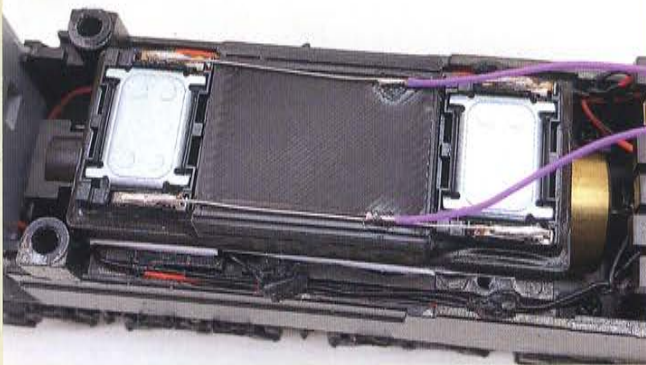


- 14** To ensure there is no possibility of a short circuit, both legs of the capacitor are trimmed down to the soldered joints and then covered with heatshrink insulation.

- 15** The decoder is then plugged into the 8-pin socket, ensuring that the orange wire lines up with Pin 1 on the main socket, and the capacitor is positioned over the rear bogie opening.



- 16** The final piece of the soldering jigsaw is to connect the purple speaker wires to the speaker. Tin the wire ends with solder first to minimise the amount of heat needed next to the 3D printed plastic speaker enclosure.



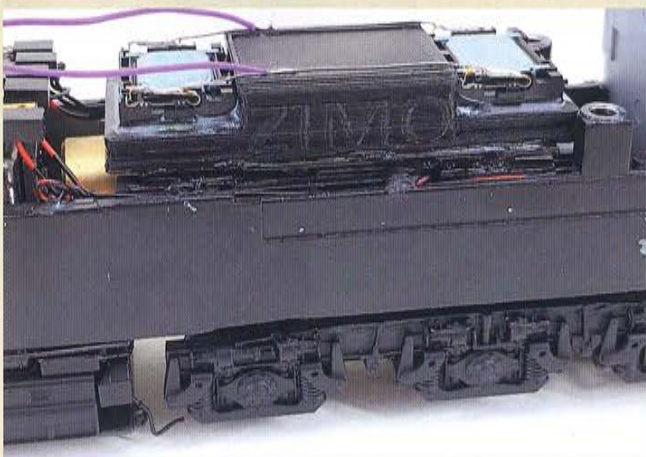
- 17** Having replaced the body we quickly realised that the white plastic used to raise the speaker stood out like a sore thumb through the side grilles. Removal of the body and a quick touch up with Humbrol satin black No. 85 resolved this.



TIP

The best sound installations are when the new internal components are invisible from the outside. During installation check that you can't see components by testing fitting the body prior to fixing speakers and decoders in place permanently.

- 18** With the white plastic strip painted in black, the body can be refitted with the original screws and the locomotive addressed for operation. The complete installation took around 30 minutes from start to finish.



WHAT WE USED

PRODUCT	SUPPLIER	CAT NO.
Zimo MX645R 8-pin harness decoder	www.digitrains.co.uk	MX645R
Zimo 55mm x 22mm twin driver 3D printed speaker	www.digitrains.co.uk	LS55x22x09
Class 56 Digidrive EV2.5 sound files	www.digitrains.co.uk	ZS56D
Humbrol satin black enamel paint	www.humbrol.com	85
Heatshrink insulation	www.digitrains.co.uk	HS1.6