

# FITTING SOUND to a HORNBY 'Hoover'

50  
YEARS  
OF THE  
CLASS  
50s

To celebrate 50 years of the Class 50s, **PAUL CHETTER** examines Hornby's DCC ready model of the 'Hoover' from different periods to explore options for installing sound.

**T**HE 50<sup>th</sup> ANNIVERSARY of the English Electric Type 4, later designated Class 50, and my own recent sound recordings of 50035 *Ark Royal* courtesy of the Fifty Fund presented the perfect opportunity to look again at the Hornby model which first appeared in 2003/2004.

With opening cab doors, manually operated variable position radiator grille louvres and a working cooler group fan, the Hornby model was and remains something out of the ordinary. Both models featured were obtained as used examples, so they are well run-in if not in pristine cosmetic condition. The most recent models of the Class 50 are supplied without the working roof fan, although the plastic moulding is retained. This has led me to consider removing it altogether to provide speaker accommodation.

The model's internal design has changed since the original release: the ones depicted here were selected from the early type and the revised releases to illustrate what you may find inside your model. The factory fitted

sound version - released in 2011 as 50015 *Valiant* in BR 'Dutch' grey and yellow - have further revisions not covered in this feature.

All the variants included external lighting - though the circuitry has a common negative wiring scheme rather than the common positive usually employed. This makes changing the lighting arrangements more challenging than it might otherwise have been so I've left this alone to offer simple installations.

## COMPONENT CHOICE

These models have an 8-pin DCC socket, though the early Printed Circuit Board (PCB) design has four additional pin positions adjacent. Do not use these additional positions.

The Zimo MX645R selected for this project is a 1.2A sound decoder with multiple Function Outputs (10) and is ideally suited to these conversions and there is ample space to house it inside the body. Importantly, it can be loaded with my latest Class 50 sound project with a new control feature, Speed Lock. Using this allows

the road speed to be temporarily fixed whilst the engine power sounds can be increased or decreased by using the throttle control.

Next a location for the speaker needs to be found. The model's underfloor fuel tanks are filled with metal casting for increased mass so there is no space available for any speaker there. Hornby's instructions show a 40mm x 20mm speaker fitted at the Number 2 end of the locomotive (the end without the large central roof mounted cooling fan), but I found the standard enclosure with these speakers too deep to fit the space.

Low profile enclosures are available, but I decided to test some more recent solutions. Zimo produced a range of 3D printed speaker enclosures with single or twin drivers. Three types are available to fit in the standard 20mm x 40mm space, including one twin driver design.

Since these are integrated units, all that is required is to solder speaker wires from the decoder and electrically insulate as necessary. They can be held in place with double sided tape or adhesive putty. Removing the







**Left:** Showing the original condition of the Class 50s with four-character headcode blind, no front headlight and the distinctive cutout in the roof, 50014 departs London Paddington for Bristol in 1974 with distinctive roar of its English Electric 2,400hp engine. Peter Dobson/Railphotoprints.co.uk.

**Below:** The Class 50s were popular machines during their careers which saw them operate on the Midland, Western and Southern Regions of BR. Here 50020 *Revenge* leads a rake of Network SouthEast liveried Mk 2s through Twelve Trees Junction representing a late 1980s Exeter-Waterloo working.

working fan apparatus will create a much larger space usefully adjacent to the radiator fan grill and body side louvres. The longest of the Zimo 3D speaker range will fit this newly created space and I also tested a bass reflex speaker, which is a simple drop-in fit here.

## INSTALLATION

The body and chassis are held together with four tabs so there are no screws to release. I found that the robust bodysides made these clips particularly tenacious.

One way of preventing the clips from re-engaging during the separation phase is to slip some thin plastic between the body and chassis sides. Credit cards are ideal strength and thickness for his task but I used thin styrene sheet off-cuts - Hornby's dismantling instructions show where these clips are situated. Gently prise outwards the lower edge of the bodysides and slip in the strips to prevent re-engagement of the clips. The body will now slide upwards and clear of the chassis.


The bodies of each type have almost identical construction. What variation is evident relates to the different prototypes modelled rather than construction methods, though this can have an impact upon what or how additional components may be accommodated.

The first real locomotives had a forced air filtration system which produced a distinctive sound resulting in the nick-name 'Hoover'. This was removed during refurbishment in the late 1970s/early 1980s. No existing Class 50 locomotives have the classic 'sucking' sound. As a result of these changes, the representation of early locomotives has a much greater intrusion into the roof space than those of the refurbished. This compromises the space Hornby suggest for speaker fitment. I found that the space could still be utilised provided the correct speaker choice

was made and that it was fitted asymmetrically.

One of the speaker options left enough free space in a non-modified model to accommodate a Zimo SC6800 supercapacitor, taking advantage of the MX645's in-built stay alive management circuitry and dedicated wires.

The Class 50s have always attracted a great following and Hornby's model does great credit to these powerful single engine Type 4s. Plus there is more to come for this class as the Little Loco Company and Heljan are both working on competing 'O' gauge models while Dapol has an 'N' gauge version in its list of projects.

For the 'OO' model the addition of sound brings a new dimension to its operation and by using the latest speaker designs and decoder software its capabilities are as advanced as the quality of its sound output. 





## STEP BY STEP INSTALLING DCC SOUND IN HORNBY CLASS 50s

**1** The body to chassis fastening clips are very secure. I found that it was necessary to slip in some strips of thin styrene sheet to stop them from re-engaging during the separation process. Credit/membership cards are a worthy substitute.



The air filtration system in the model of the original specification locomotive protrudes into the otherwise free space where a speaker would fit - top. During refurbishment this was replaced and the grille panel was plated over. The model of refurbished locomotives has more free headroom for speaker fitment - bottom.

### WHAT WE USED

PRODUCT	SUPPLIER	PRICE
Zimo MX645R sound decoder	<a href="http://www.digitrains.co.uk">www.digitrains.co.uk</a>	£95.00
Zimo LS 26mm x 20mm x 8mm	<a href="http://www.digitrains.co.uk">www.digitrains.co.uk</a>	£11.00
Zimo LS 40mm x 20mm x 9mm	<a href="http://www.digitrains.co.uk">www.digitrains.co.uk</a>	£12.00
Zimo LS 40mm x 22mm x 9mm (twin)	<a href="http://www.digitrains.co.uk">www.digitrains.co.uk</a>	£18.00
Zimo LS 55mm x 20mm x 9mm (twin)	<a href="http://www.digitrains.co.uk">www.digitrains.co.uk</a>	£20.00
Bass reflex 58mm x 20mm x 10mm	<a href="http://www.digitrains.co.uk">www.digitrains.co.uk</a>	£9.00

### NOTE:

Only one speaker is required per installation. We have listed full details and prices of all those trialled in this feature to show the options available.

### TIP

Early variants of a model may differ from the most recent releases internally, so it is well worth inspecting them carefully before starting work.



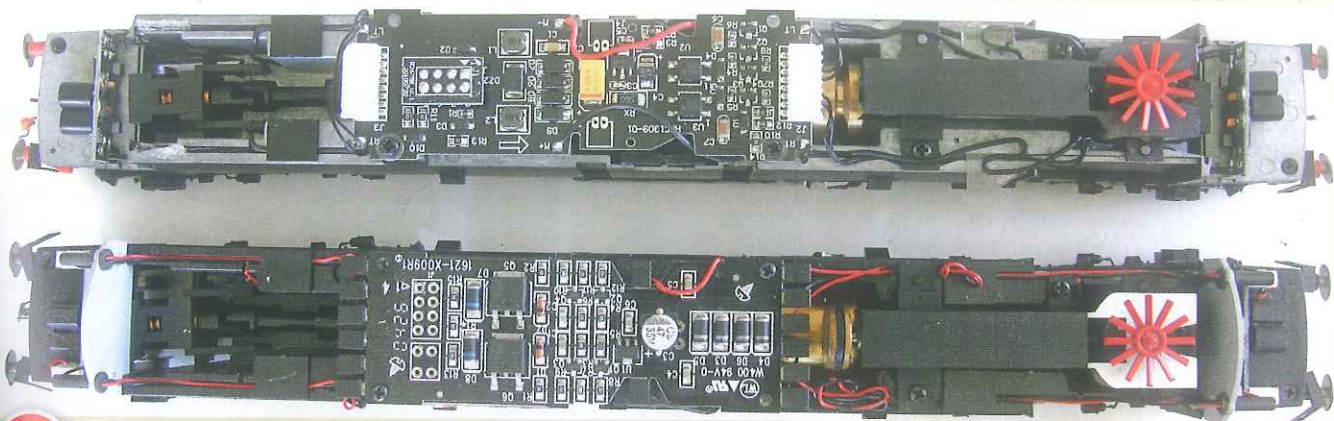
**3** Changes to the chassis and interior detail are more marked, however. In particular the Printed Circuit Board (PCB) has been redesigned as can be seen from this direct comparison. The early design is at the bottom of this image.

**4** Lighting wires are no longer carried in tubes internally above the cab doors on the most recent version (50024, right), and there is no representation of the engine room bulkhead - this now being part of the cab moulding.



Hornby's Class 50 tooling caters for early and late locomotives. On the left is 50024 Vanguard (Cat No. R3263 - released 2015) in refurbished condition and on the right is 50013 Agincourt (R2486 - released 2005) in original format.





**5** This overview shows the differences in PCB and chasis design. The later design (upper) shows individual board edge connections have been replaced with surface mounted multi-connectors and the DCC socket is now arranged longitudinally. The changes to the lighting wire routes are also evident. None of this, however, will impact on the installations in this guide.



Belt, pulley and drive shaft for the fan have been removed from later generation models at manufacture enhancing the running qualities of the locomotives. These mechanisms gained something of a reputation for spoiling the smooth slow speed running of these models.



The Zimo MX645R is an 8-pin wired sound decoder. Its powerful 1.2A continuous rating (2.5A peak) and 10 Function Outputs makes it an excellent choice for these models. On-board management of stay alive capacitors with dedicated circuitry and wiring as standard increase its desirability and usefulness. Also shown is a Zimo SC68, a 6800µF compact supercapacitor with simple two-wire connectivity to the decoder.



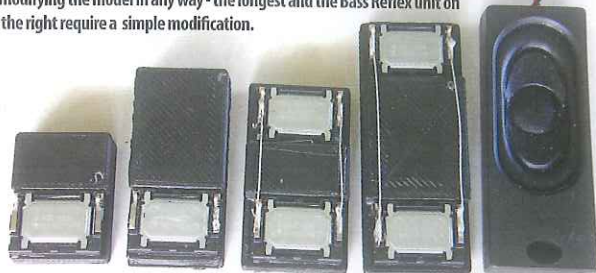


## STEP BY STEP INSTALLING DCC SOUND IN HORNBY CLASS 50s

Intermediate  
Beginner **SKILL LEVEL** Advanced

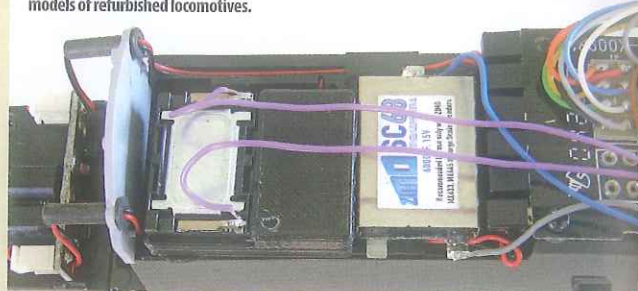
**8**

A good speaker is required to get the best from any decoder and sound project. Many people are very happy with the standard Zimo cube speakers, but where space is more readily available a range of 3D printed speakers have been developed which really improve the output. Three of these will fit without modifying the model in any way - the longest and the Bass Reflex unit on the right require a simple modification.



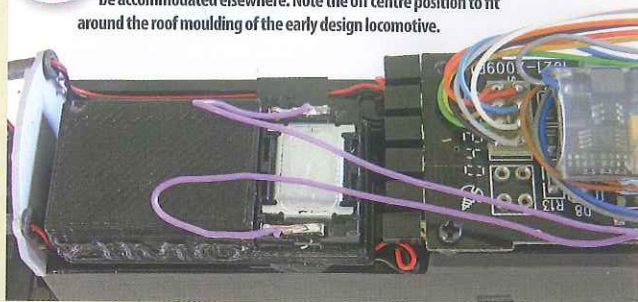
**9**

The smallest, 26mm x 20mm x 8mm speaker is compact enough to fit with space left to house an SC68 stay alive capacitor. Note that the speaker must be fixed asymmetrically to clear the air filtration fans and grille moulding on reassembly in the case of the original (non-refurbished) locomotive. Central positioning will be fine for the models of refurbished locomotives.



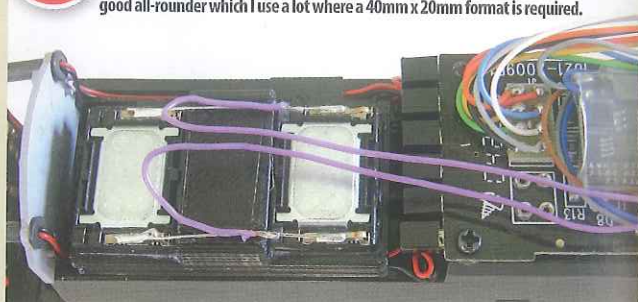
**10**

The 40mm x 20mm x 9mm single driver features a larger enclosure for increased sound quality but any stay alive capacitors must be accommodated elsewhere. Note the off centre position to fit around the roof moulding of the early design locomotive.



**11**

Still within the same footprint category, the LS 40mm x 22mm x 9mm speaker increases output by doubling the number of speaker drivers fitted. This is a very good all-rounder which I use a lot where a 40mm x 20mm format is required.



**12**

The now non-operational fan remains supported by the bulky moulding which prevents using the space for something useful. Removing this item will have little detrimental impact on the model's aesthetics but will create a long free space in which several other speaker types may be housed.



**13**

This Bass Reflex speaker, recommended by Dapol in some of its most recent diesel models, fits neatly under the radiator fan grille in place of the fan moulding. This has the added advantage of being positioned where sound can pass to free air easily through the roof grille.



**14**

This 55mm x 22mm x 9mm twin driver unit is difficult to accommodate in many 4mm diesel models but if space is available its performance is top class. With the roof fan removed it will fit in the Class 50.



**15**

Replacement of the fan mechanism with any speaker releases ample space to accommodate one of a variety of types of stay alive capacitor. Although not shown here, there is space to the left of the speaker for a capacitor or alternatively the speaker could be moved to the left to make space on the right. The choice is yours.

