

DIGITAL 128



HELJAN'S CLASS 128 is a delightful little model – full of character and perfect for large and small layouts alike. It's proving deservedly popular with four different body designs being released by Heljan over the past 18 months, so we thought we'd see how feasible a full Digital Command Control (DCC) installation with sound is.

The installation requires no modification of the original model, though you will need to be able to make fine solder connections or get assistance from someone who can. You will also need access to a set of jeweller's screwdrivers to remove the body.

The first priority is to remove the body from the chassis. It is held in place by four long, straight-slotted screws. After releasing these, the body can be eased gently away from the chassis. Care is required during this process to avoid damaging vulnerable components such as the lighting inside. On the body itself are the twin vertical exhaust pipes. The lower ends of these mouldings curl under the cab front and are unsupported. Make sure they do not catch on the chassis end, risking damage.

The chassis has a multitude of underfloor mouldings representing the engines, radiators,

fuel tanks, battery and other equipment boxes. These provide a comprehensively detailed appearance to the model, but they are very finely attached and may be easily dislodged by the sort of sideways force applied when gripping the chassis during body removal. I found that using the doorsteps cast into the chassis as holding points helped to reduce this tendency.

Once exposed, the interior reveals lots of spaces. Unfortunately, much of this space is intersected or encroached upon by other components, so fitting normal round or oval speakers would require a fair amount of modification. It would be very easy, however, to find accommodation for one or more cube type speakers within the chassis above the bogie mountings. Sound will be able to escape via the bogie opening.

DCC provision is via a 21-pin socket, so decoder installation is literally 'plug and play', only requiring care to orientate the decoder correctly before pressing it home. I used a Zimo MX644D decoder to provide motive power and sound, the output for the latter being provided via the 21-pin interface.

The main Printed Circuit Board (PCB) actually provides a two pin connector for the speaker wires. Unfortunately, no plug is provided to fit this connector. So, unless you are able to

source and successfully wire up such a plug the socket provided is more of a hindrance than a help. The speaker wires can be soldered either to the printed circuit board or to the decoder. I decided on soldering to the board.

This model is destined to perform on a *Hornby Magazine* exhibition layout in the future so I decided to add capacitors to help maintain performance. The MX644D has circuitry to manage charging and discharge of external capacitors, so it is a relatively simple task to wire one or more inexpensive electrolytic capacitors without the need for additional components.

I was able to fit two 1800µF capacitors behind the cab bulkhead at one end, wired in parallel to provide a 3600µF 'electronic flywheel'. This is not in the realms of power storage available with super capacitors, but should be more than adequate for most requirements. If not, a further two can be fitted at the other end.

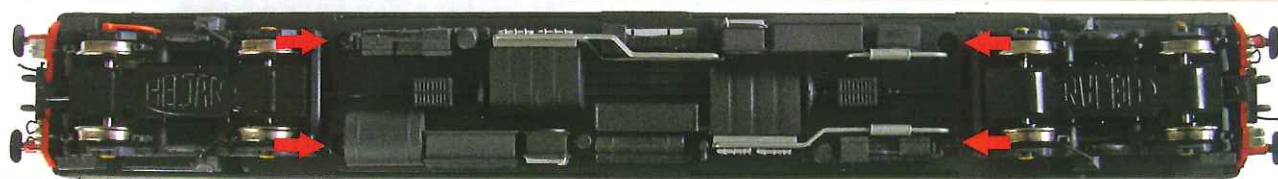
After testing performance and making final checks to ensure adequate clearances and satisfactory insulation of any bare metal, the body can be refitted to the chassis and the screws refastened. The 128 is a simple DCC installation and its abilities to work as a single car unit or haul a couple of vans makes it equally attractive for branch line and main line settings. **HOM**

Digital sound doesn't have to be complex. **PAUL CHETTER** demonstrates a straightforward way to install a DCC sound decoder, speaker and 'stay alive' capacitors in a Heljan Class 128 DMU.

The Heljan Class 128 has now been released with four different body styles covering Western and Midland units and in both original and modified forms. This is the Western Region BR green version with split headcode boxes either side of the cab front gangway connection which was released in April 2013 (HM71).

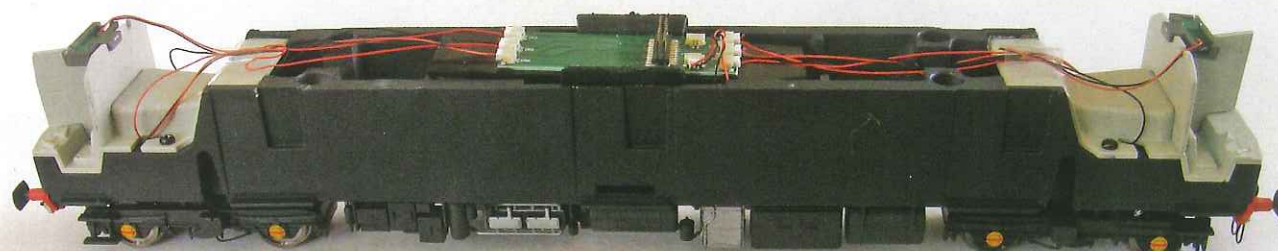


STEP BY STEP INSTALLING SOUND AND 'STAY ALIVE' IN A HELJAN CLASS 128



1

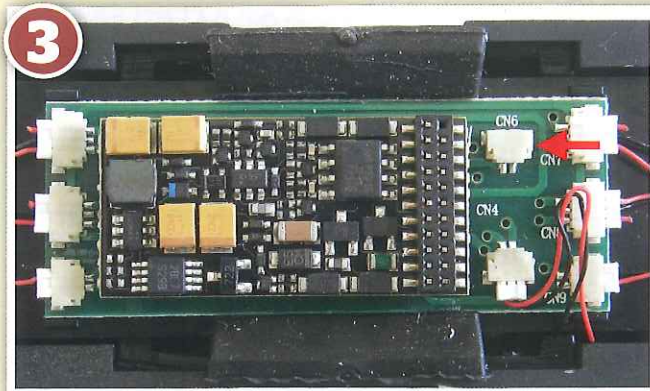
To remove the body, release the four screws, arrowed, using a jeweller's screwdriver.



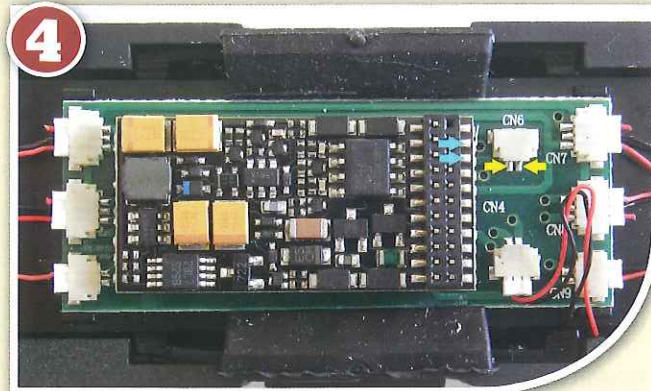
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This view shows the general arrangement of the internal components. Note the spaces between the chassis rails and behind the cab rear bulkheads.

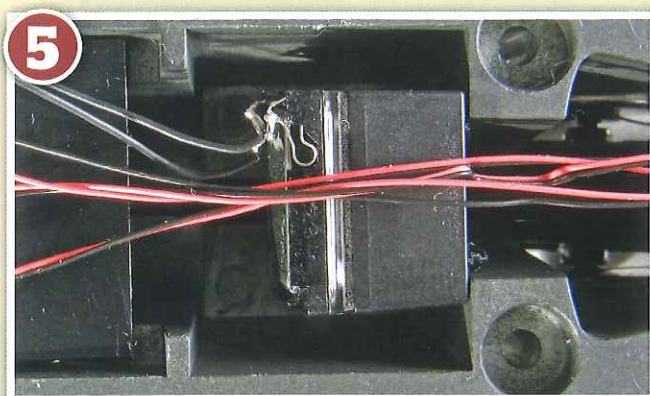
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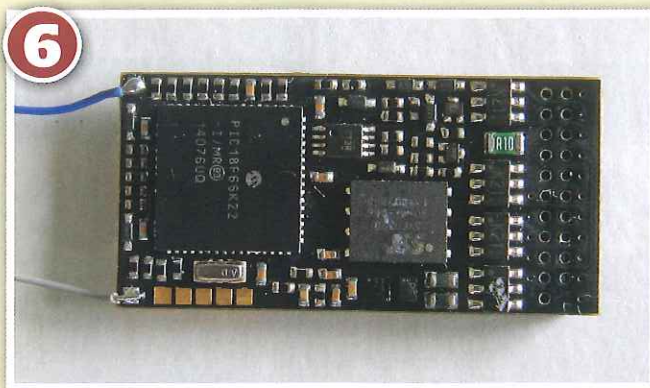
There is a speaker connection socket attached to the PCB, arrowed, but this can't be used without a matching wired plug. It would be possible to carve away the plastic housing to reveal the inner pins to form a connection, but this has destructive potential.



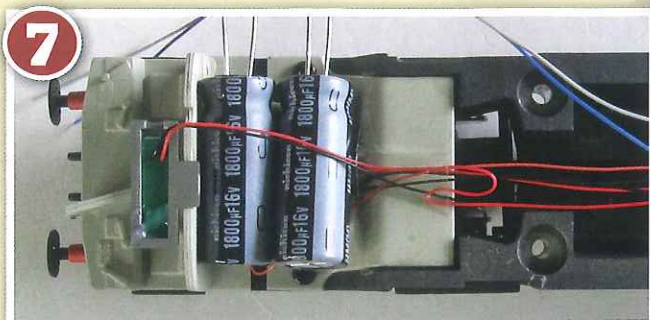
Alternatively, speaker wires can be soldered directly to the decoder, at the blue arrowed solder pads, or to the base of the PCB speaker connector, arrowed yellow.



Although the cardan shaft runs through the centre of this cavity there is enough clear space above it to fix a 'cube' speaker. I used mastic, but glue or silicone sealer would also be effective in holding it in place. I found that a second speaker was unnecessary in this installation, although there is ample space at the other end of the 128 for this.



I soldered a blue wire to the positive and grey wire to the negative solder pads provided on the lower side of the decoder as shown in this view. These will be used to connect to the 'stay alive' capacitors.

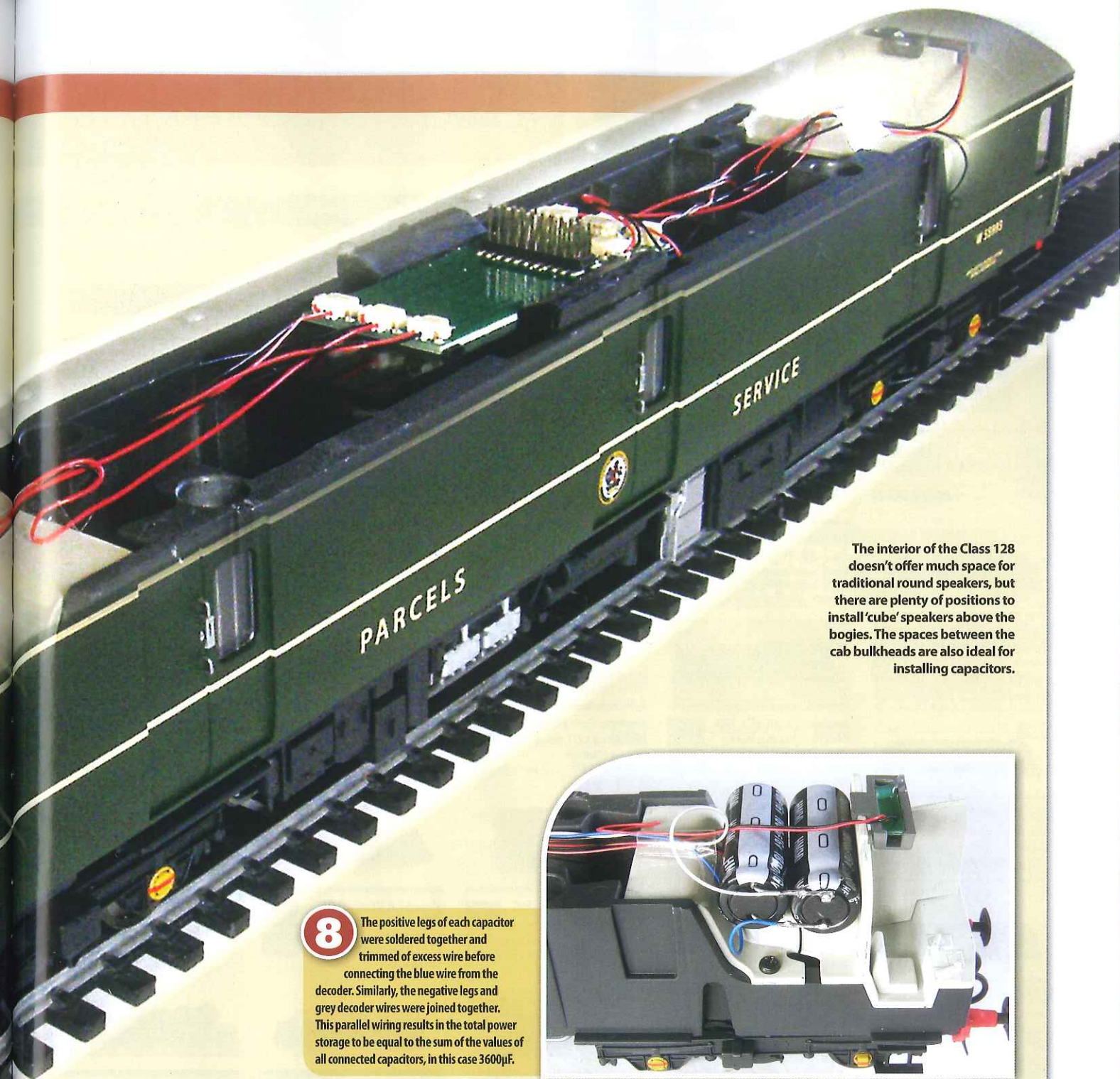


I tried several different sizes of capacitor until I found the best fit for the space available behind the cab. Here, a pair of 1800µF capacitors can be seen nestling snugly in the available space. A similar space is available at the other end if additional capacity is required.



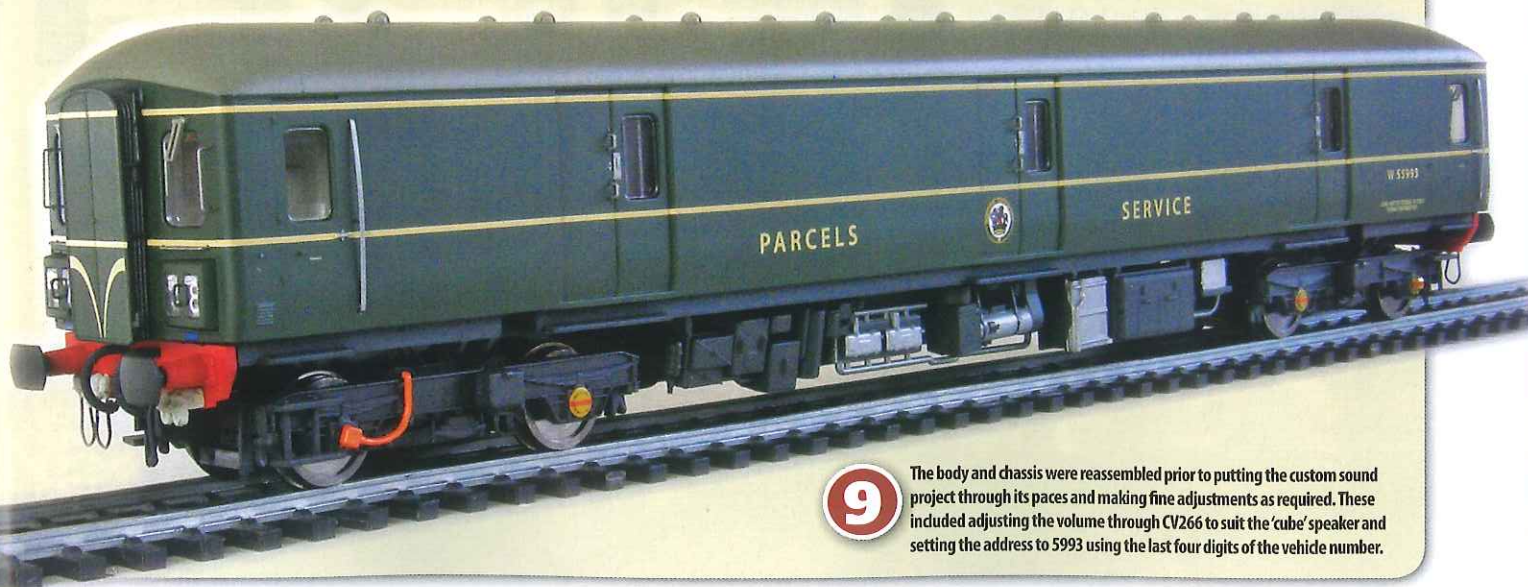
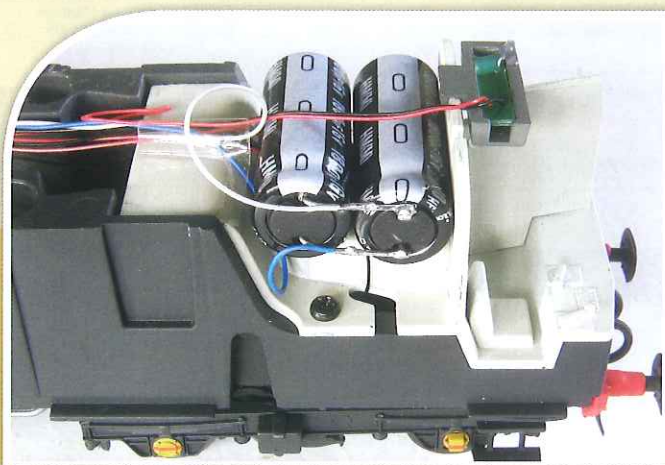
WHAT WE USED

PRODUCT	SUPPLIER	PRICE
Heljan Class 128	www.heljan.dk	£119.95
Zimo MX644D sound decoder	www.digitrains.co.uk	£82.00
Zimo 10mm x 15mm 'cube' speaker	www.digitrains.co.uk	£7.00
2 x 1800 microF capacitor	www.digitrains.co.uk	£1.00



The interior of the Class 128 doesn't offer much space for traditional round speakers, but there are plenty of positions to install 'cube' speakers above the bogies. The spaces between the cab bulkheads are also ideal for installing capacitors.

8 The positive legs of each capacitor were soldered together and trimmed of excess wire before connecting the blue wire from the decoder. Similarly, the negative legs and grey decoder wires were joined together. This parallel wiring results in the total power storage to be equal to the sum of the values of all connected capacitors, in this case 3600 μ F.



9 The body and chassis were reassembled prior to putting the custom sound project through its paces and making fine adjustments as required. These included adjusting the volume through CV266 to suit the 'cube' speaker and setting the address to 5993 using the last four digits of the vehicle number.