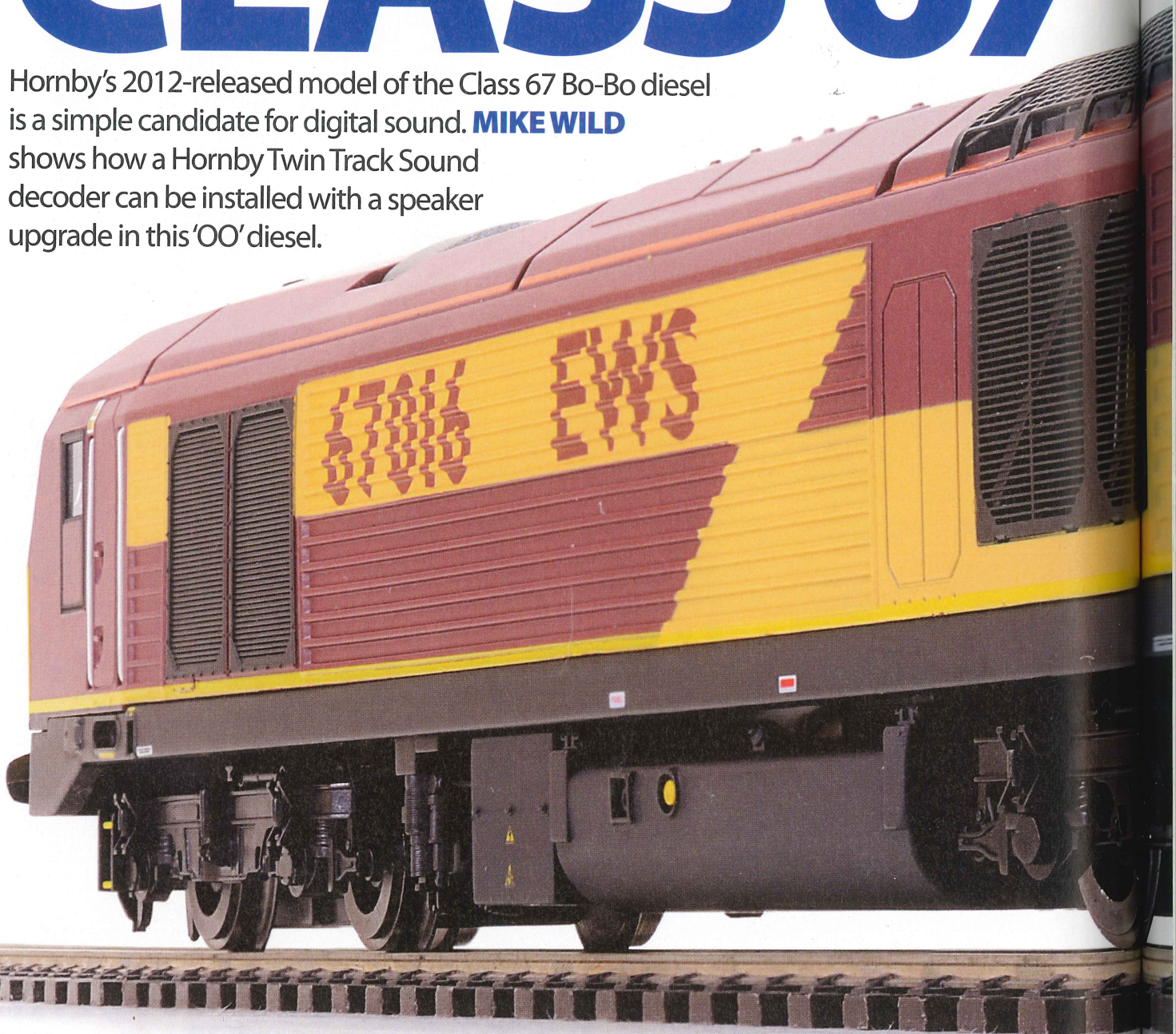


# Twin Track CLASS 67

Hornby's 2012-released model of the Class 67 Bo-Bo diesel is a simple candidate for digital sound. **MIKE WILD** shows how a Hornby Twin Track Sound decoder can be installed with a speaker upgrade in this 'OO' diesel.



**T**HE CLASS 67 Bo-Bo diesel locomotives have been a popular choice for modellers seeking to add variety on layouts set in the post 2000 era. The fleet of 30 locomotives entered traffic between 1999 and 2000 with all built by Alstom in Spain using engines, generators and traction motors made by General Motors' Electro Motive Division.

They were intended for parcels and mail traffic initially and were designed to be capable of running at 125mph. However, changes in

traffic levels saw the fleet cascaded to other work including charter trains, intermodal container traffic and front line passenger service too. All but two of the locomotives are now owned by DB Cargo UK, but have also been used by Arriva Trains, on First ScotRail's Caledonian Sleeper, Wrexham and Shropshire push-pull workings, Northern Belle dining trains and the Royal Train. In addition two have been sold to Colas Rail for use on test trains.

The first 'OO' gauge model of the Class 67

was produced by Lima not long after the real locomotives entered service. Following the sale of Lima's toolings to Hornby, the model reappeared in the Kent-based manufacturer's catalogue, but in 2012 it was replaced by a brand new version to modern standards.

This high fidelity model includes directional lighting (including a switch for day and night configurations), a twin flywheel motor in a heavy die-cast chassis, internal radiator detail, see through grilles, an 8-pin



# TOOLS

- » Slotted screwdriver
- » Crosshead screwdriver
- » Solder
- » Soldering iron
- » Wire strippers
- » Insulation tape
- » Scissors
- » Heat shrink tubing

Hornby's high detail model of the Class 67 debuted in 2012 for 'OO' gauge. Since then it has been available in a number of liveries including original EWS maroon and gold as shown here by 67016. This model has been equipped with a Twin Track Sound Class 67 decoder with sound output through a Zimo 40mm x 20mm 3D printed single driver speaker.



decoder socket and space for a 40mm x 20mm speaker in the fuel tanks.

Over the past six years it has been released in a number of colour schemes including EWS red and gold, DB Schenker red and grey, Wrexham and Shropshire grey and silver, Arriva Trains blue and Caledonian Sleeper blue with a Twin Track Sound decoder. In 2018 the model is due to be released in its latest livery – Colas Rail black, yellow and orange.

The advent of Twin Track Sound in 67004

*Cairn Gorm* in Caledonian Sleeper blue (Cat No R3388TTS) in 2016 showed the potential of the decoder and since 2017 the decoder has been available as a separate item allowing further locomotives to be equipped with this budget priced chip (£42.99). However, it isn't just the price which is favourable as the decoder has a large range of functions including manual notching and coast options, a variety of horns, and many more ancillary sound functions. Plus the sound file is highly effective.

The downside is that the factory supplied speaker is basic, but it is a simple job to upgrade this as we have done in this step by step guide with a Zimo 3D printed 40mm x 20mm speaker. The change in the sound quality and its ability to replicate a broader range of tones is instantly noticeable for an additional £12.

The step by step guide explains the full installation process for the Hornby Class 67 making it ready to make the right noises at the head of parcels and intermodal trains. [Hornby](#)



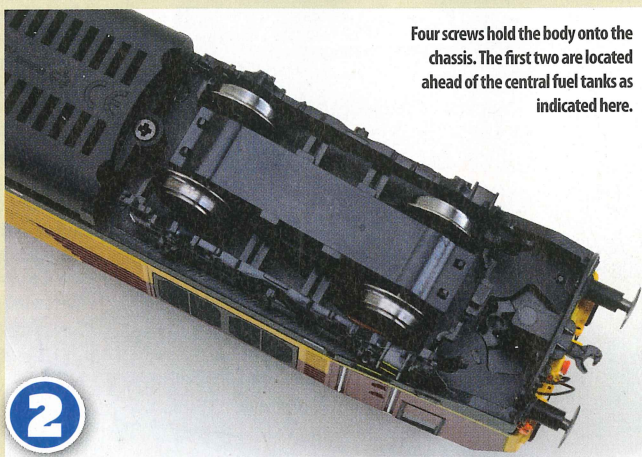
1

Installing a Twin Track Sound decoder into the Hornby Class 67 is a relatively straightforward process, but will require soldering and changes to the speaker wires to allow them to reach to the speaker housing in the chassis.



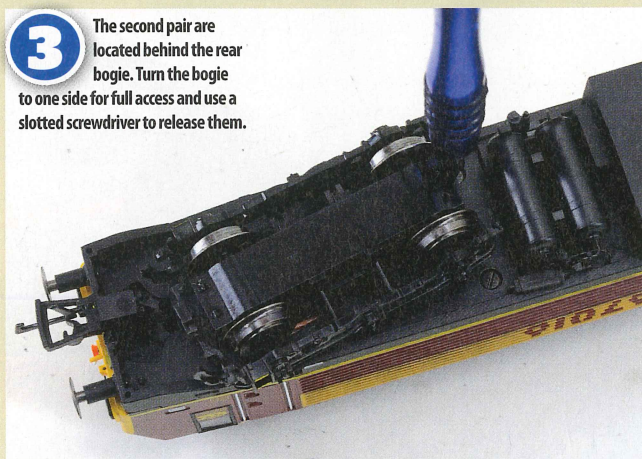
2

Four screws hold the body onto the chassis. The first two are located ahead of the central fuel tanks as indicated here.



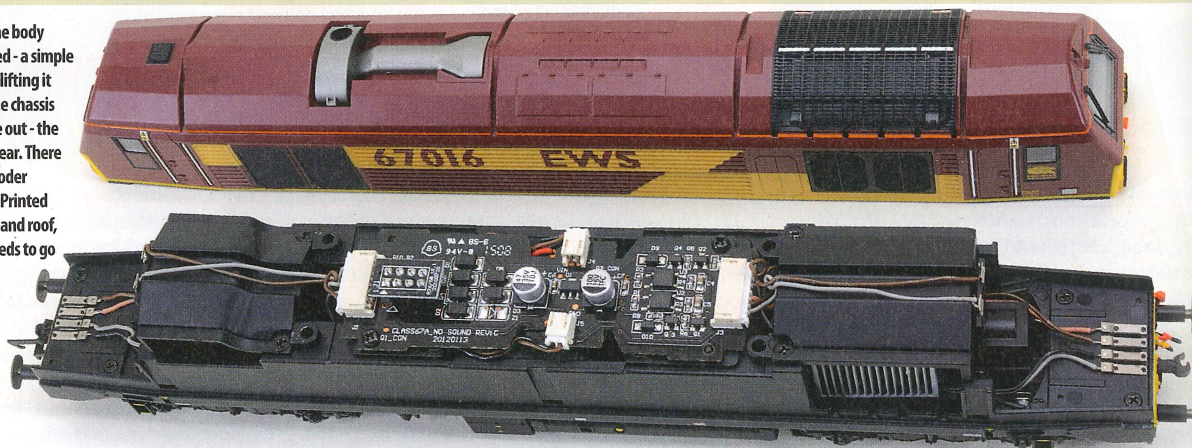
3

The second pair are located behind the rear bogie. Turn the bogie to one side for full access and use a slotted screwdriver to release them.



4

With the body removed - a simple case of lifting it straight up from the chassis once the screws are out - the internal layout is clear. There is space for the decoder between the main Printed Circuit Board (PCB) and roof, but the speaker needs to go into the fuel tanks.



## TECHNICAL DETAILS

Manufacturer:	www.hornby.com
First released:	2012 (HM64)
Cat No (featured):	R3348
Current alternatives:	R3574, R3481, R3399 (2016-2017 releases), R3659 (2018 release)
Description:	Alstom Class 67 Bo-Bo diesel-electric
Gauge:	'OO'/16.5mm
Scale:	4mm:1ft
Length (over buffers):	257mm
Price:	£159.99-£160.99 (locomotive), £241.99 (R3399 train pack)
Era:	9-11
Couplings:	NEM pockets with small tension locks
DCC:	DCC ready, 8-pin socket
Speaker space:	40mm x 20mm in fuel tanks
Exterior lights:	Front and rear
Interior lights:	None
Motor type:	Five pole, can motor
Flywheel:	Two
Wheel arrangement:	Bo-Bo
Purpose:	Mixed traffic
Haulage capacity (expected):	10 carriages
Haulage capacity (actual):	10+ carriages





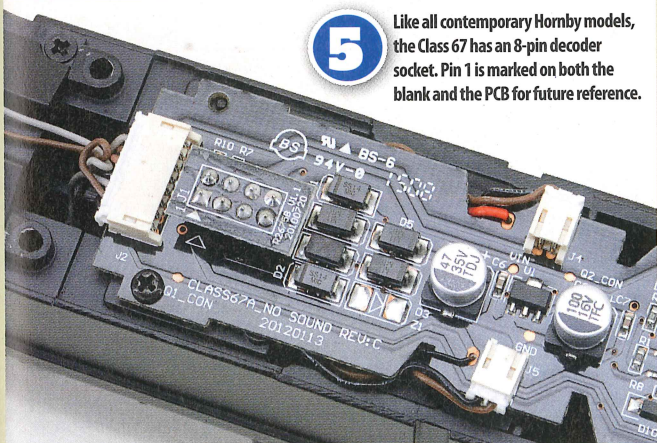


The Class 67s were originally designed for mail traffic, but following the loss of mail by rail in 2004 they have found use on charter trains, intermodal work and daily passenger services. On October 28 2006 67016 double heads with 67029 with an intermodal train on the East Coast Main Line at Marholm crossing. [Mike Wild](#).



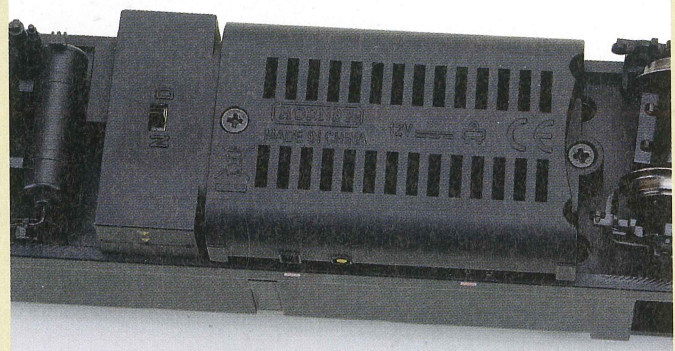
**5**

Like all contemporary Hornby models, the Class 67 has an 8-pin decoder socket. Pin 1 is marked on both the blank and the PCB for future reference.

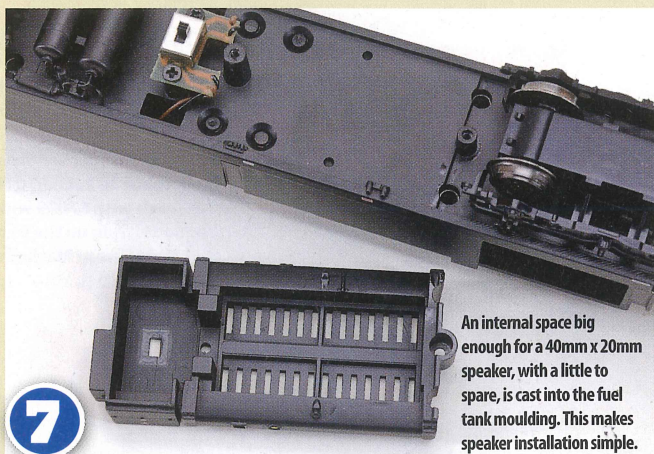


**6**

Hornby has provided a neat speaker housing in the fuel tanks. This cast metal moulding is held in place by two crosshead screws.

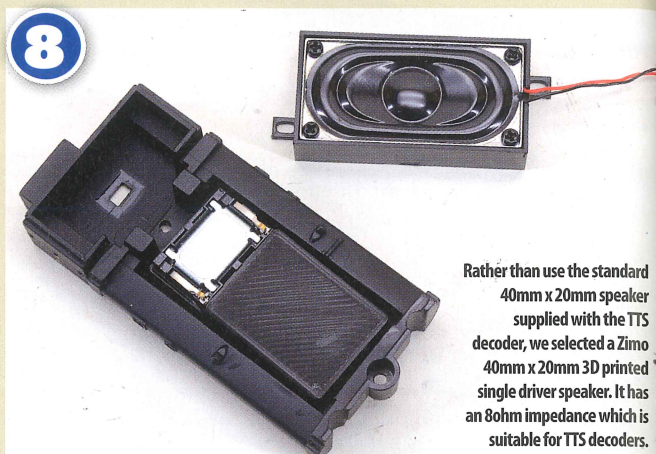






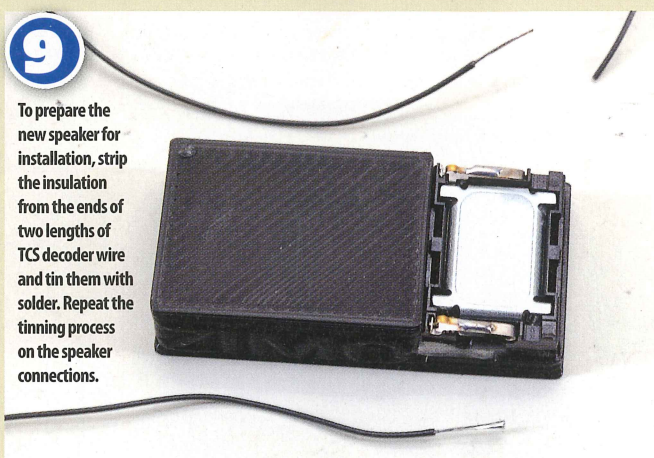
**7**

An internal space big enough for a 40mm x 20mm speaker, with a little to spare, is cast into the fuel tank moulding. This makes speaker installation simple.



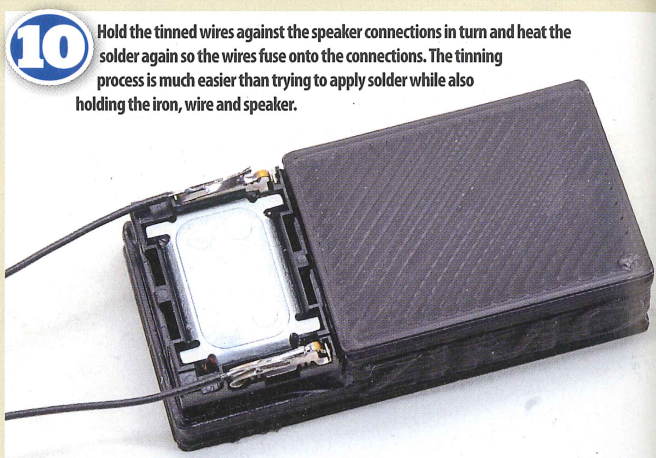
**8**

Rather than use the standard 40mm x 20mm speaker supplied with the TTS decoder, we selected a Zimo 40mm x 20mm 3D printed single driver speaker. It has an 8ohm impedance which is suitable for TTS decoders.



**9**

To prepare the new speaker for installation, strip the insulation from the ends of two lengths of TCS decoder wire and tin them with solder. Repeat the tinning process on the speaker connections.



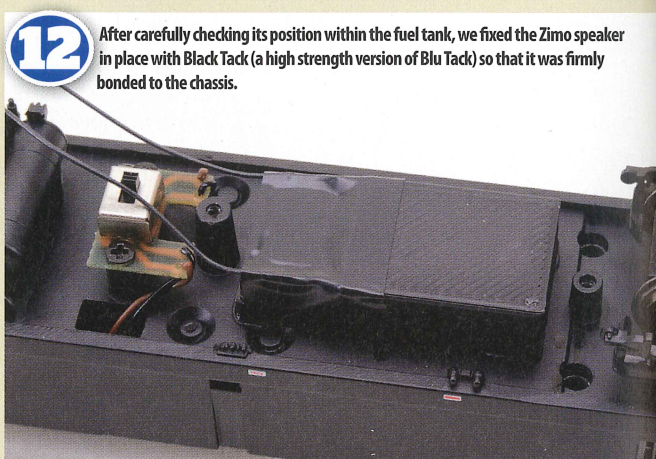
**10**

Hold the tinned wires against the speaker connections in turn and heat the solder again so the wires fuse onto the connections. The tinning process is much easier than trying to apply solder while also holding the iron, wire and speaker.



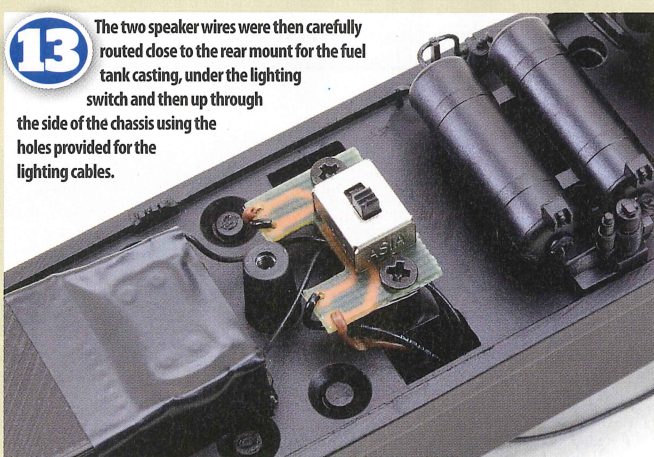
**11**

To prevent any chance of a short circuit in the cast metal fuel tank we wrapped the exposed metal parts of the speaker with black insulation tape.



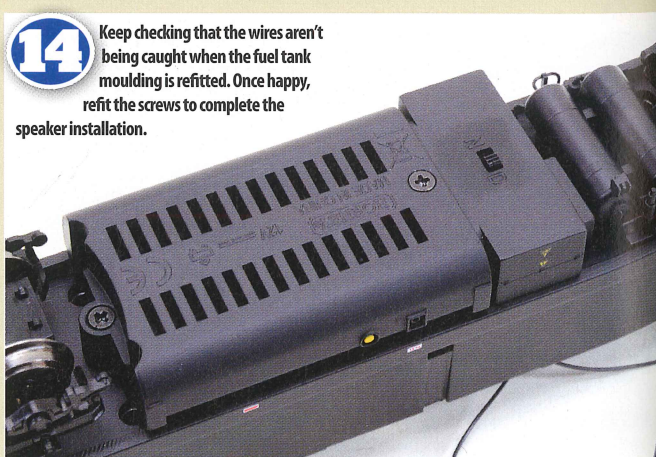
**12**

After carefully checking its position within the fuel tank, we fixed the Zimo speaker in place with Black Tack (a high strength version of Blu Tack) so that it was firmly bonded to the chassis.



**13**

The two speaker wires were then carefully routed close to the rear mount for the fuel tank casting, under the lighting switch and then up through the side of the chassis using the holes provided for the lighting cables.



**14**

Keep checking that the wires aren't being caught when the fuel tank moulding is refitted. Once happy, refit the screws to complete the speaker installation.

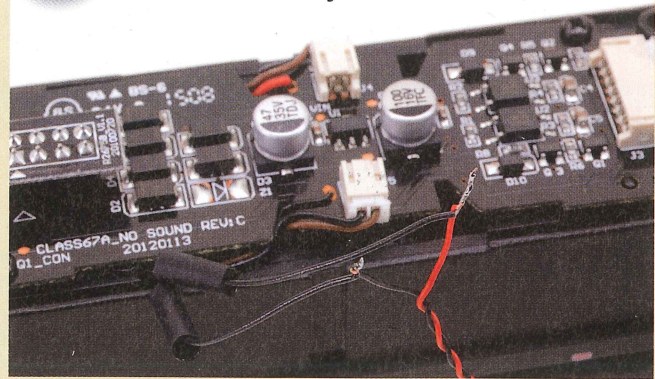


15



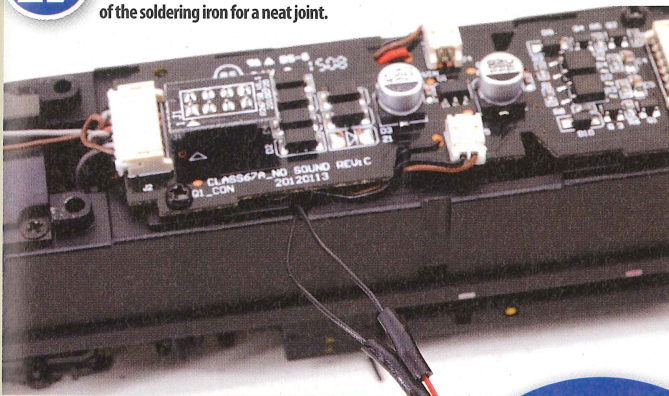
Next, we removed the speaker from the TTS decoder and prepared the ends of the wires for joining to the new speaker cables by stripping around 5mm of insulation from each.

16



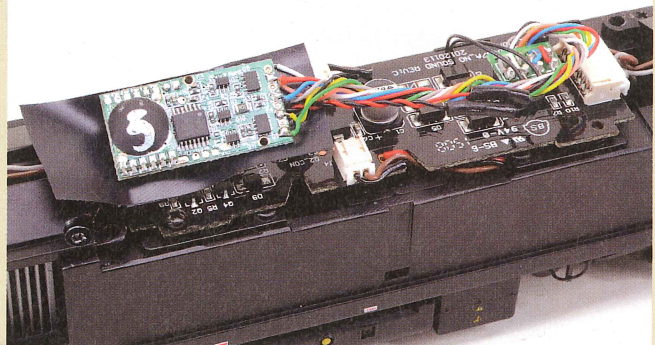
Two 10mm lengths of heatshrink insulation were then added over the black speaker wires and then the red and black wires from the decoder were twisted onto them and soldered together.

17



To make the wires safe from short circuits, the heatshrink insulation was moved over the connections and reduced in size using the side of the soldering iron for a neat joint.

18



Finally, the 8-pin plug of the TTS decoder was plugged into the socket, ensuring the orange wire lined up with Pin 1, and the decoder was prepared for final installation by covering one side with electrical insulation tape. This will be used to fix it to the roof of the Class 67 body during reassembly.

## TIP

Speakers make a tremendous difference to the sound output of a decoder and there are plenty to choose from. Be sure to check that the specification of the speaker and decoder will match otherwise you could damage components on the decoder.

### SOUND FUNCTIONS

F0	Lights on/off
F1	Sound on/off
F2	Horn
F3	Horn
F4	Brakes
F5	Notch up
F6	Notch down
F7	Coast
F8	Full power
F9	Cold start override
F10	Special horn
F11	Door slam
F12	Fan
F13	Horn long high
F14	Horn long low
F15	Primer
F16	Slow flange squeal
F17	Spirax valve
F18	Horn short low
F19	Horn short high
F20	Wagons buffering
F21	Wagons clanging
F22	Coupling
F23	Guard's whistle
F24	Locomotive buffering
F25	Aux (if used in locomotive)



19

67016 is now ready to enter traffic while the sound installation is completely invisible from the outside. The only change we made to the decoder settings was to give the model a four digit address using the first two and last two numbers from the locomotive – 6716.

### WHAT WE USED

PRODUCT	MANUFACTURER	CAT NO.
Twin Track Sound Class 67 8-pin decoder	Hornby	R8105
40mm x 20mm x 9mm 3D printed speaker	Zimo	LS40x20x09
Decoder wire, black	TCS	1216

### USEFUL LINKS

Hornby	<a href="http://www.hornby.com">www.hornby.com</a>
Digitrains	<a href="http://www.digitrains.co.uk">www.digitrains.co.uk</a>
Zimo	<a href="http://www.zimo-digital.co.uk">www.zimo-digital.co.uk</a>