HORNBY magazine

LOCOMOTIVE MANUAL

VOL.1

EXPRESS STEAM

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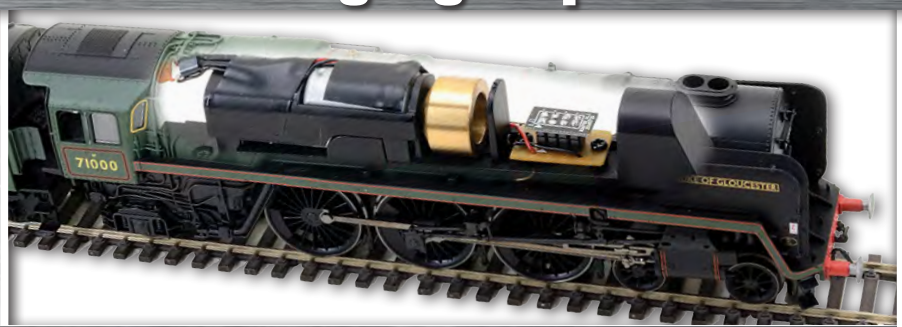
20 DECODER & SOUND FITTING GUIDES!

WE SHOW YOU HOW!

Hornby and Bachmann '00' gauge express steam locomotives



- Sound fitting
- DCC chip selection
- Installation guides
- Locomotive Directory
- 8-pin and 21-pin decoder listings

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BRITAIN'S FASTEST GROWING DCC DECODER BRAND BUILT ON QUALITY & SERVICE

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ZIMO

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Don't follow the crowd.
Let the crowd
follow you.

ZIMO

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A family of reliable, powerful and highly-specified DCC sound decoders and accessories to suit all scales and gauges. Common connection types are catered for including the newest Next 18 interface. ZIMO's silky-smooth motor control comes as standard. Many types include on-board circuitry for quick and easy connection of 'stay alive' capacitors.

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MX658 & MX659
Next 18 options

MX648
Ideal for 'N' gauge

MX644
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MX645
Best seller in '00'

SC68 Supercap
Stay-alive for MX645

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LS 15x11x09
Sugar cube 1W

LS 18x13x13
Cube 1W

LS 26x20x08
3D optimised 1W

LS 40x20x09
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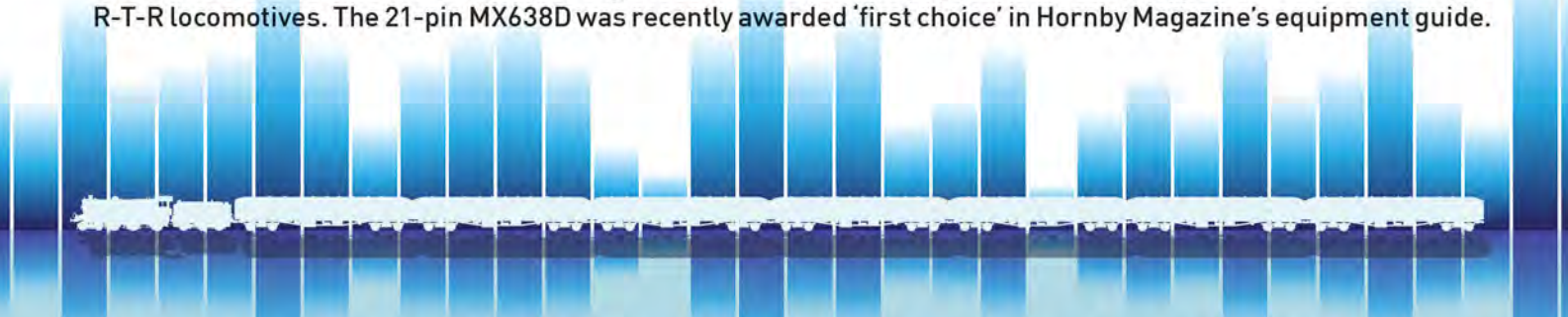

ASK FOR ZIMO BY NAME AND PURCHASE WITH CONFIDENCE

The ZIMO DCC range encompasses the flagship MX10 command station and MX32 handset, along with a wide range of sound, motor, function and accessory decoders (to suit all interface types and scales). These products are available only from officially approved retailers, listed opposite and below. RAIL EXCLUSIVE (Distributor) 01780 470086

AGR Model Store
01525 854788

DCC Train Automation
01823 429309

EDM Models (NG Trains)
01904 331973

Mark's Trains
07515 436396

Sunningwell Command Control
01865 730455

Wickness Models
01387 738175

Beware of imitations! Genuine ZIMO products can be distinguished by the blue-themed blister packaging and English language instructions.

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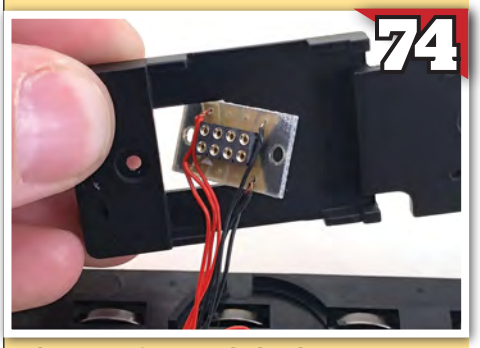

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The Locomotive Manual takes the mystery out of decoder and sound installation for 'OO'.

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Hornby's BR '8P' 4-6-2 71000 *Duke of Gloucester* is one of 26 'OO' locomotive classes featured in the first volume of the *Locomotive Manual*.

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GAUGEMASTER Spotlight
Prodigy Digital Control

Controller Types

Which Prodigy Controller?

Prodigy is compatible with most other DCC systems and manufacturers' DCC Decoders. It's strength is '*simplicity without compromise*' and Prodigy systems can grow with your layout, allowing you to use the system at a level appropriate to you, your layout, and style of operation. All Prodigy Walkaround Controllers have backlit displays as standard.

Prodigy Express consists of a Base Station, Walkaround Controller, and Power Supply and is an ideal entry level system for a newcomer. Extra features can be unlocked by using the **DCC14 Prodigy Advance Walkaround Controller**.

Prodigy Advance2 is our best selling DCC Controller. It consists of a Base Station, Walkaround Controller, and a Power Supply, and is suitable for operating most sizes of model railway.

Prodigy Wireless offers all the features of the **Prodigy Advance** unit but this system offers you wireless control, giving you maximum freedom to operate your layout. Its re-chargeable handset and radio transmission ensures easy and reliable performance.

DCC Controller Starter Packages

DCC01 Prodigy Express Starter Package
Most Suited for HO/OO/N Scale Layouts

- **INPUT:** 15-16V regulated DC at 2 amps
- **OUTPUT:** DCC Signal with 14.5V amplitude
- **MAXIMUM CURRENT:** 1.6 amps
- **MAXIMUM NUMBER OF WALKAROUNDS:** 20
- **ADDRESS CAPABILITY:** 2 Digit or 4 Digit
- **SPEED STEPS:** 14/28/128
- **ACCESSORY FUNCTIONS:** 28 (F0 to F28)
- **DOUBLE HEADING**
- **PROGRAM & MAIN TRACK PROGRAMMING**
- **"READ LOCOMOTIVE" CAPABILITY**

BEST FOR Beginners

DCC02 Prodigy Advance2 Starter Package
Most Suited to HO/OO/N Scale Layouts

- **INPUT:** 15-14V DC 3.5 amps
- **OUTPUT:** DCC Signal with 14.5v amplitude
- **MAXIMUM CURRENT:** 3.5 amps
- **MAXIMUM NUMBER OF WALKAROUNDS:** 99
- **ADDRESS CAPABILITY:** 2 Digit (1-127) or 4 Digit (1-9999)
- **SPEED STEPS:** 14/28/128
- **ACCESSORY DECODER AND ROUTE SETTING**
- **DOUBLE HEADING**
- **PROGRAM & MAIN TRACK PROGRAMMING**
- **"READ LOCOMOTIVE" CAPABILITY**

BEST FOR General Layouts

DCC04 Prodigy Advance Wireless Starter Package
Most Suited to OO/HO/N Scale Layouts

- **ALL THE FEATURES OF DCC02 PRODIGY ADVANCE**
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- **OUTSTANDING RANGE** (80ft Plus)
- **BUILT-IN RECHARGABLE BATTERY**
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Accessories

NEW! GO WIRELESS with the Prodigy WiFi

DCC05 Prodigy WiFi

This unit allows you to run your Prodigy-powered layout from your phone or tablet, using one of the recommended apps on Android or IOS.
The Prodigy WiFi is compatible with the JMRI Engine Driver and WiThrottle apps.

Full details of our Digital Controller range can be found in the Gaugemaster Full Catalogue AVAILABLE SUMMER 2018.
It also contains details of our Analogue Controllers, Scenics, Point Control, Electrics and much more in the Gaugemaster range.

It also contains selected items from many of the other brands that we stock.

GM353 Gaugemaster Full Catalogue **£3.95**

DCC80 DCC Autofrog

The DCC Autofrog is a simple switch that automatically changes the frog polarity of your electrofrog point.
With the frog powered by the DCC80 it will automatically detect the incoming polarity of the wheels and switch the frog to match.
The DCC Autofrog is available as a single item, and also as a handy pack of three.

DCC15 Prodigy Decoder Doctor

Makes programming and reading back your decoders easy! This device allows you to test decoders before or after installation.

There is a built-in 8 Pin socket, and the Decoder Doctor also comes supplied with an adaptor harness allowing you to also test 6 Pin decoders.

You can also attach it to a test track for testing already fitted decoders.

Power comes from either a 15V power supply (**DCC65**) or your DCC Main Track output.

DCC40 Auto Reverse Module

This useful module allows you to operate a reverse loop or turntable without needing to change the polarity of the track, a common situation that faces modellers with analogue control model railways.

PRICES

Controllers & Handsets

DCC01	Prodigy Express Package	**£179.95**
DCC02	Prodigy Advance2 Starter Package	**£309.95**
DCC04	Prodigy Advance2 Wireless Starter Package	**£499.95**
DCC05	**NEW Prodigy Wifi**	**£99.95**
DCC13	Prodigy Advance2 Wireless Walkaround	**£199.95**
DCC14	Prodigy Advance2 Backlit Walkaround	**£149.95**
DCC15	Prodigy Decoder Doctor	**£94.95**
DCC51	Prodigy Wireless Conversion Set	**£279.95**

Accessories

DCC11	Prodigy Extension Plate	**£44.95**
DCC49	Prodigy DCC Booster Unit (8 Amp)	**£209.95**
DCC55	Prodigy Advance Wired Computer Interface	**£64.95**
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DCC62	Prodigy Universal Lead (2m)	**£6.25**
DCC63	Prodigy Advance Power Supply Unit	**£27.95**
DCC64	Prodigy Power Pack Lead	**£7.75**
DCC65	Prodigy Express Power Supply Unit	**£27.95**
DCC66	Controller Caddy Walkaround Holder	**£7.35**
DCC71	Prodigy DC Adaptor Plate/Decoder Tester	**£10.95**
DCC77	Prodigy Walkaround Adaptor	**£10.95**
DCC80	DCC Autofrog	**£6.25**
BPDCC80	DCC Autofrog (Pack of 3)	**£15.95**

GAUGEMASTER products are available from your local Model Shop or, in case of difficulty, direct from ourselves.

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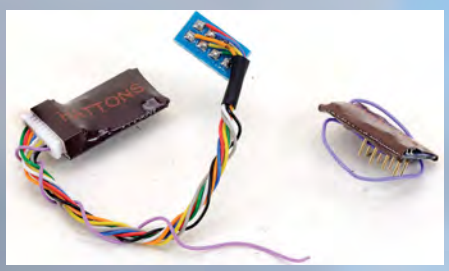
Introduction

MIKE WILD introduces the *Hornby Magazine* Locomotive Manual explaining how to use this guide and offering advice and techniques for all projects.

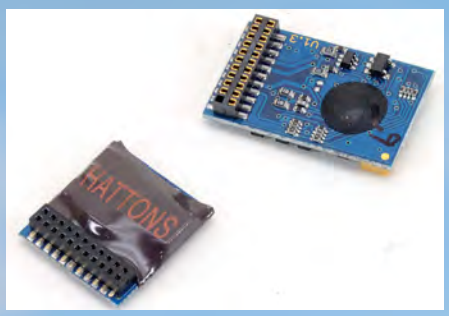
WELCOME to the first volume of the *Hornby Magazine Locomotive Manual* – a guide to maintaining and enhancing ready-to-run locomotives in 'OO' gauge. This first edition focuses on main line express locomotives of the 4-6-0, 4-4-2 and 4-6-2 variety and has been arranged in company order to cover Great Western, Southern, London Midland & Scottish and London and North Eastern railway motive power as well as the BR Standards of this genre.

In total there are 20 step-by-step guides covering 26 locomotive classes and in each case we illustrate in detail how to dismantle the model in question and, in a separate guide, how to equip it with a motor control decoder and a sound decoder.

Each guide is arranged in the same format and



Standard 8-pin decoders come in two formats – Direct fit (right) and harness fit (left). Both of these designs are from Hatton's own stable of locomotive control decoders.



21-pin decoders all follow a similar design theme and are designed with a blank pin to align them correctly with a decoder socket. All 21-pin decoders will fit all locomotives equipped with this type of socket.

while some have similar fittings and internal components, we have shown how to make the most of the space available when it comes to sound. We have also referenced between guides when different methods from other models can be used, but, for example, should you only be interested in the LMS locomotives you will find everything you need to know in each section.

With each guide we have also included a detailed reference on the model in question together with a cutaway image showing the internal layout. This gives you a clear picture of how much (or little) space there is inside for installation of digital control equipment. None of the locomotives in these pages are impossible, but some are simpler than others to work on. For example, the Bachmann LNER 'V2' 2-6-2 and Hornby's models of the LNER 'P2' 2-8-2 and BR '8P' 4-6-2 are amongst the most complex to fit digital sound into. At the opposite end of the scale the Hornby LNER 'A4' 4-6-2 and Bachmann LMS 'Jubilee' are some of the simplest to work on. That is the purpose of this manual – to make handling and enhancing your models a simple process.

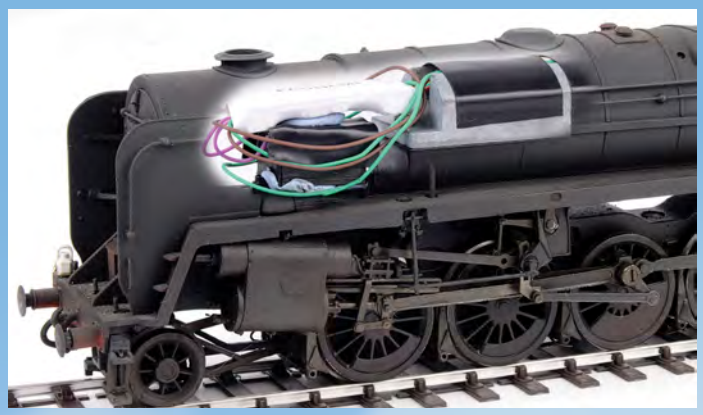
Many of the locomotives illustrated in this manual have been progressively redesigned over time and in each case we have used the latest version for our step by step guide. To make this picture clear we have generated a comprehensive Locomotive Directory on pages 124-130 which is a detailed survey of every version of each class featured in the manual released in the last 10 years. We've also included the soon to be released Bachmann 'H1' and 'H2' 4-4-2s and Hornby 'Lord Nelson' 4-6-0s for the Southern Region. The Locomotive Directory includes information such as the year of release, catalogue number, decoder socket type, socket location and speaker space and is an invaluable listing for those who want to know more before purchasing second hand models.

Moreover, if you do read the full content of this manual it will equip you with the skills and methods to upgrade any model from any era with a decoder and sound. The basic principles are transferable, though you will have to adjust them to suit the space available.

Digital control

Following on from the dismantling process, we move each locomotive on to show how it can be

Hornby's Twin Track Sound 8-pin sound decoders are an ideal entry point to try your hand with digital sound. Plus they are now available as separate items meaning you can add TTS to other models, so long as they have an 8-pin socket.



The Soundtraxx Econami is an option worth considering as it comes preloaded with multiple sound files allowing it to work with a variety of engine types. Versions are available for British outline steam and diesel traction on both 8-pin and 21-pin decoders. This decoder has been installed in a Bachmann '9F' 2-10-0.

equipped with a Digital Command Control (DCC) decoder. This form of model control has gained tremendous popularity over the past decade and is rapidly becoming a number one choice for layout builders – both at home and for exhibition layouts.

The basic premise of DCC is that it provides a constant alternating current power supply to the track and then uses the track to send signals to decoders – small computer chips – which have to be installed in every locomotive which runs on the layout. These decoders are given individual addresses – the last four digits of a locomotive number is a common convention – which means that the DCC handset or control system can communicate independently with each locomotive to instruct it to move, turn on lights, operate sounds and more. In this way multiple locomotives can occupy the same length of track, such as in a depot or storage yard situation, with independent control and without the need for any switches.

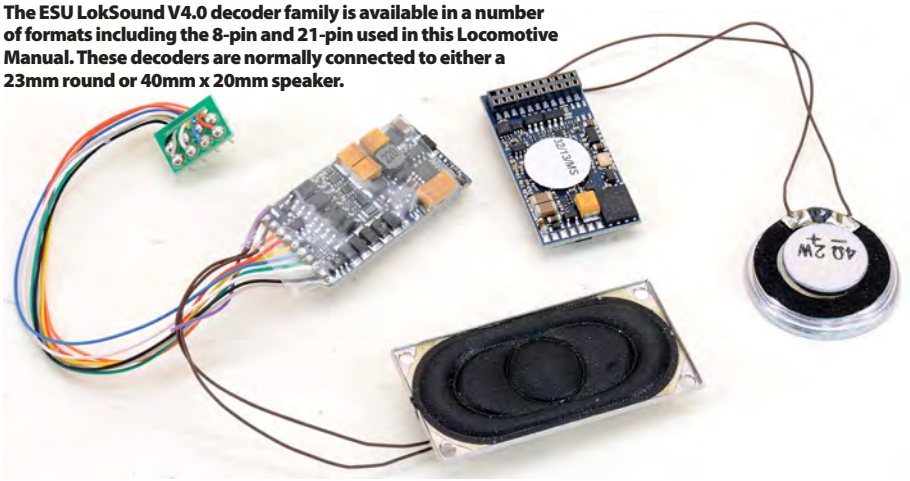
Of course, making all this happen means gaining confidence with fitting a decoder into your chosen locomotive – one of the reasons we have produced this manual. Before installing any decoder into your locomotive, it should always be tested on analogue control as it is easier to isolate any potential performance problems before a decoder has been installed.

There are two main types of decoder that you will come across in this volume of the Locomotive Manual – 8-pin and 21-pin – which refer to the number of pins provided on the plug/socket arrangement to connect the chip to the locomotive. There are other formats – Next18, Plux22, 6-pin and more – but for the purpose of this manual we don't need to worry about those as all the locomotives featured here use either 8-pin or 21-pin chips. All of Hornby's non-sound and Twin Track Sound equipped locomotives have an 8-pin decoder socket while Bachmann has used a combination of 8-pin and 21-pin decoder sockets over the years. Happily, it marks this on the box end, but our Locomotive Directory will also answer any uncertainty in this area.

In most cases fitting a standard motor control decoder – a chip which will control basic functions including the motor and lighting – is a straightforward process. You take the body off, the tender in most cases, take out the socket blank which allows the model to work on analogue control and align the new decoder correctly with Pin 1 and plug it in. Once the decoder is correctly fitted it can be tested on a layout – the factory address setting on all decoders is 0003 – before being addressed with your chosen identity. The model can then be put to work alongside the rest of the fleet. Making address changes varies from system to system and we recommend checking your DCC controller manual before making any changes if you are unsure of the process.

All 21-pin decoders are direct fit chips – they plug directly onto the socket and have no trailing wires. 8-pin decoders come in two formats: direct fit and harness chips. Direct decoders plug into the socket and have the decoder circuit board on top keeping the installation neat and tidy and »

The Great Western Railway favoured the 4-6-0 for express motive power. Hornby GWR 'Castle' 4-6-0 7029 *Clun Castle* departs Grosvenor Square – one of *Hornby Magazine's* 'OO' gauge exhibition layouts.



The ESU LokSound V4.0 decoder family is available in a number of formats including the 8-pin and 21-pin used in this Locomotive Manual. These decoders are normally connected to either a 23mm round or 40mm x 20mm speaker.

wire free. However, there are some instances where they won't fit because of fixing points or the height available inside a locomotive. The alternative is to use a decoder with an 8-pin harness, which has a plug on one end and is connected to the decoder at the other. The plug goes into the socket while the harness allows the decoder to be positioned away from the socket in a more convenient space, such as in the area inside a tender weight in a steam locomotive.

There are many decoder options available for 'OO' gauge locomotives and in this manual we have listed all the currently available 8-pin, 21-pin and sound decoders in the Decoder Directory on pages 122-123.

Sound decoders

One of the great advantages of digital control is its ability to make model railway operation more realistic. Even with standard motor control decoders, the operation of a layout becomes more realistic as each locomotive is individually controlled. However, digital offers much more than just motor control – it allows realistic sound to be introduced to individual locomotives with digital sound decoders.

Digital sound is gaining more and more popularity both for home and exhibition layouts. In fact it is near impossible to attend a model railway exhibition now without hearing a sound equipped layout. There are four main choices for sound decoders with British outline sounds: ESU LokSound, Hornby Twin Track Sound (TTS), Soundtraxx Econami and the Zimo family. Within this group of four decoder manufacturers the Hornby TTS and Soundtraxx Econami are aimed at the budget end of the scale while ESU and Zimo decoders are high value products which can output a greater number of sounds at any one time while also being feature laden in their specification.

Starting with Hornby's TTS brand, it launched in 2015 as an entry level sound decoder. Initially these 8-pin chips were only available with selected Hornby products where they added around £25-£30 to the price of a ready-to-run locomotive – excellent value for sound. The steam sounds don't match the exhaust beat of individual locomotives exactly, but do have a large number of sound options, while the architecture of the TTS decoder appears to be ideal for diesel locomotives where Hornby has produced some superb sound files with great driveability. The TTS decoders are now becoming available individually from Hornby priced from £41.99 per decoder. These include both steam and diesel subjects and are well worth investigating as an entry point to digital sound. The speakers can be upgraded for better audio, though they must only be exchanged for a speaker with a matching 8ohm impendence.

Next up the price list is the Soundtraxx Econami. This clever decoder is available in steam and diesel formats and each one has a number of different sound recordings loaded onto it allowing it suit a variety of engines. 8-pin and 21-pin decoders are available with selection of the sound file being achieved through the adjustment of Configuration Variables (CVs) on a digital handset. Again they are an attractive entry point with prices around £80 per decoder and with multiple sound files on board are flexible too. You will need to source a suitable speaker separately – the Soundtraxx Econami being designed to operated with 2 watt, 8ohm speakers.

ESU and Zimo offer the best sound decoders on the market with prices in the region of £99-£120 per decoder. Each has a comprehensive range of decoder types including 8-pin and 21-pin varieties as well as different sized decoders to suit a range of locomotives. They are capable of creating very realistic sounds when paired with a quality speaker and have plenty of power too to suit 'OO' gauge locomotives. ESU decoders are supplied with either a 23mm round or 40mm x 20mm speaker while Zimo decoders are supplied without a speaker leaving the purchaser to choose what type they want for their installation. It is simple to change a speaker on an ESU decoder too – desolder the brown speaker wires (ESU's colour coding, Zimo uses purple for speaker wires) and then attach them to the new speaker with solder.

Another high value feature of Zimo's decoders is the option to connect a 'stay alive' capacitor. This provides onboard power storage for individual locomotives which can be used to assist the model in running through short interruptions in power from the track – be it a spot of dirt or a momentary break in power. This has the advantage of keeping the wheels turning and the sound on so that the locomotive doesn't come to a halt. The 'stay alive' circuit is easy to use – and blue (positive) and grey (negative) wire are provided at one end of the decoder on their own. These can be connected to a capacitor or specially designed capacitor pack, always taking care to ensure the polarity is correct, to make the most of this facility.

Installing sound

When it comes to installing sound you will only need a basic tool kit, but that will almost definitely include some soldering. Soldering small components such as speakers takes care and dexterity, but it isn't difficult. If you have used a soldering iron before it will be very simple, but even you haven't the soldering skills required are explained in each feature.

In addition you will also need a set of modellers screwdrivers – we have used a mixture of DCC Concepts and Gaugemaster sets in this manual – wire strippers, electrical insulation tape, scissors

The Zimo decoder brand includes the MX645R (left) 8-pin decoder and the MX644D 21-pin decoders. These are supplied without speakers, leaving the customer to make their own choice to suit the installation. This MX645R has been connected to a 28mm round speaker and a 'stay alive' capacitor.

Ready-to-run manufacturers continue to develop and redesign models. Hornby's latest express locomotive to be released is the Stanier 'Duchess' 4-6-2 which was redesigned from scratch during 2017. Here 46256 *Sir William Stanier FRS* stands on the turntable on *Hornby Magazine's* roundhouse scene.

A wide variety of speakers are available including these popular Zimo 3D printed cube speakers. The range has been expanded recently to include high powered twin-driver speakers.

and either Blu or Black Tack.

The latter are used in sealing speakers to their enclosures. Blu Tack is perfectly useable in most situations while Black Tack is essentially a high strength version which will give a neater installation. Both materials can be rolled out into long strips to allow it to be looped around a speaker to hold it in position – just be certain not to get either material on the speaker cone.

Every sound installation should be approached in the same way. Test the model on analogue control first, as with motor control decoder installation, remove the body and assess the internal space, choose your decoder, choose your speaker and then start the process of installation.

Following these basic steps ensures a reliable sound installation and we recommend wherever possible using a decoder with 'stay alive' capacity as it will greatly enhance your operational experience.

We hope you enjoy this first volume of the Locomotive Manual and all the guides inside. As with any guide we recommend you read the full guide before committing to any work and be aware that in some cases – the 'P2' and *Duke of Gloucester* in particular – the work involved will invalidate any remaining warranty period. The results though are always worth the effort. The *Hornby Magazine* team has been installing sound on a monthly basis in the magazine for eight years while in the background our editorial team has installed well over 250 sound decoders giving us plenty of experience in making the best of the equipment available. And adding sound has definitely enhanced our model railway experience giving it the realism we so greatly desire. ■

SOUND SUPPLIERS

DC Kits/Legomanbiffo (ESU):	*www.dckits-devideos.co.uk*
Locoman Sound	*www.locomansounds.co.uk*
South West Digital (ESU)	*www.southwestdigital.co.uk*
Olivias Trains (ESU)	*www.oliviastrains.co.uk*
Howes Models (ESU)	*www.howesmodels.co.uk*
Digitrains (TTS, Econami, ESU and Zimo)	*www.digitrains.co.uk*
YouChoos (Zimo)	*www.youchoos.co.uk*
Coastal DCC (ESU and Zimo)	*www.coastaldcc.co.uk*
Mr Soundguy (Zimo)	*www.mrsoundguy.co.uk*
DCC Train Automation (ESU, Soundtraxx and Zimo)	*www.dcctrainautomation.co.uk*
Mark's Trains (ESU)	*www.marks-trains.co.uk*
EDM Models (Soundtraxx and Zimo)	*www.ngtrains.com*
Wickness Models (ESU)	*www.wicknessmodels.co.uk*
Rail Exclusive (Zimo)	*www.railexclusive.com*

HORNBY GWR 'Star' & 'Castle'

Four-cylinder 4-6-0s provided 'Top Link' motive power to the Great Western Railway from 1906 until the end of steam on the Western Region in 1965. We show how to equip Hornby's Churchward 'Star' and Collett 'Castle' 4-6-0s with digital control in 'OO' gauge.

GEORGE JACKSON Churchward's desire to continue development of the steam locomotive saw him lay down the template for the Great Western Railway's most successful express locomotives. Having created the 'Saint' two-cylinder 4-6-0 – which ultimately led to the 'Hall' and 'Grange' 4-6-0s – he turned his attention to introduction of a four-cylinder express locomotive design which could haul heavier loads and keep the Great Western at the top of its game.

In 1906 he built the first 'Star' locomotive, but initially it was developed as a 4-4-2 to compare Churchward's simple expansion designs with three French compound 4-4-2s. Its four-cylinder layout worked well, but the desire to increase its adhesion led to the modification of the wheel arrangement to create a 4-6-0 chassis with four-cylinders. It was this which set the template for the later Collett 'Castle' and 'King' 4-6-0s of the mid-1920s.

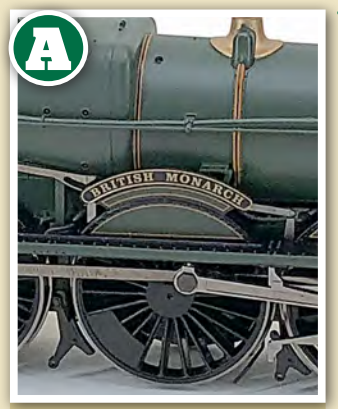
The 'Stars' were a roaring success and in total 73 were built in the 4000 number series at Swindon Works. They acquitted themselves well at the head of heavy express trains until the arrival of the new 'Castle' 4-6-0s which were introduced in 1923 by Collett. These were essentially 'Stars' with a larger, lighter boiler and frame extensions to carry the new Standard No. 8 boiler which gave the new breed of 4-6-0 more power.

In total 171 'Castles' were built between 1923 and 1950 with the last remaining in steam to the very end of Western Region steam working in 1965. The fleet were the most numerous express class on the Great Western Railway and Western Region from the 1920s until withdrawal and were found across the network from London to the Midlands, Oxfordshire, South Wales and Devon and Cornwall.

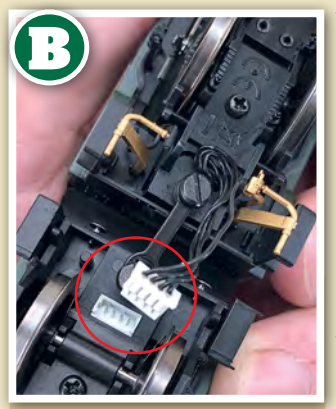
Such prestigious locomotives have naturally been the source of ready-to-run models for 'OO' gauge by Hornby, however, we had to wait until 2013 to be able to own a 'Star' while the 'Castle' has been part of the Hornby range since the early days of Hornby Dublo in the 1950s, though it has been redesigned several times between then and now with the latest version debuting in 2009. »

STEP BY STEP

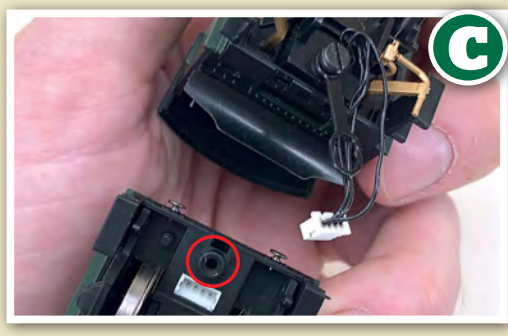
DISMANTLING HORNBY GWR 'STAR' AND 'CASTLE' 4-6-0s



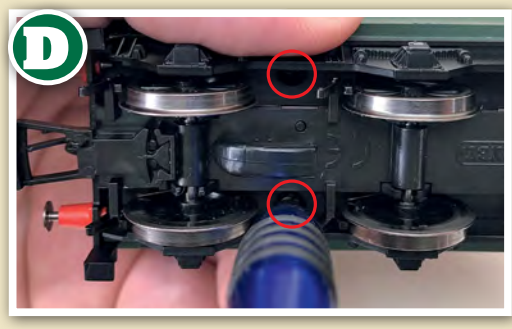
The Hornby GWR 'Star' and 'Castle' 4-6-0s are identical in their mechanical components and assembly method. Our project locomotive is 'Star' 4021 *British Monarch* in BR lined green with early crests (Cat No. R3229).



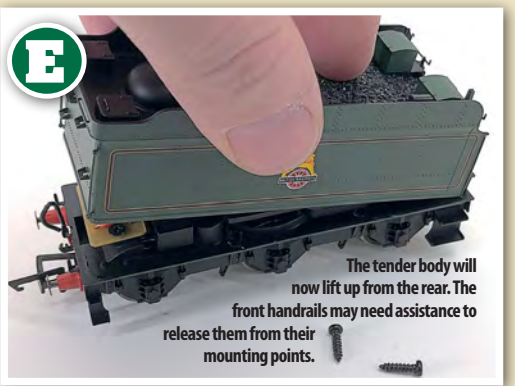
To begin dismantling the locomotive, disconnect the four-wire connection between the locomotive and tender. Don't pull on the wires – use Hornby's X6468 extractor tool to remove the plug from its socket carefully.



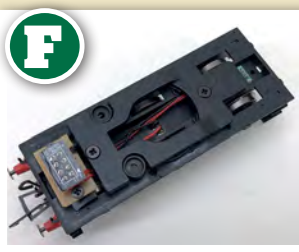
Next, release the rear of the two slotted screws which holds the tender drawbar onto the tender. This allows the locomotive to be separated from the tender, making it easier to work on the model.



Two screws located between the rear pair of axles outside of the inner frames of the tender secure the body in place. Use a crosshead screwdriver to release these two fixing screws.

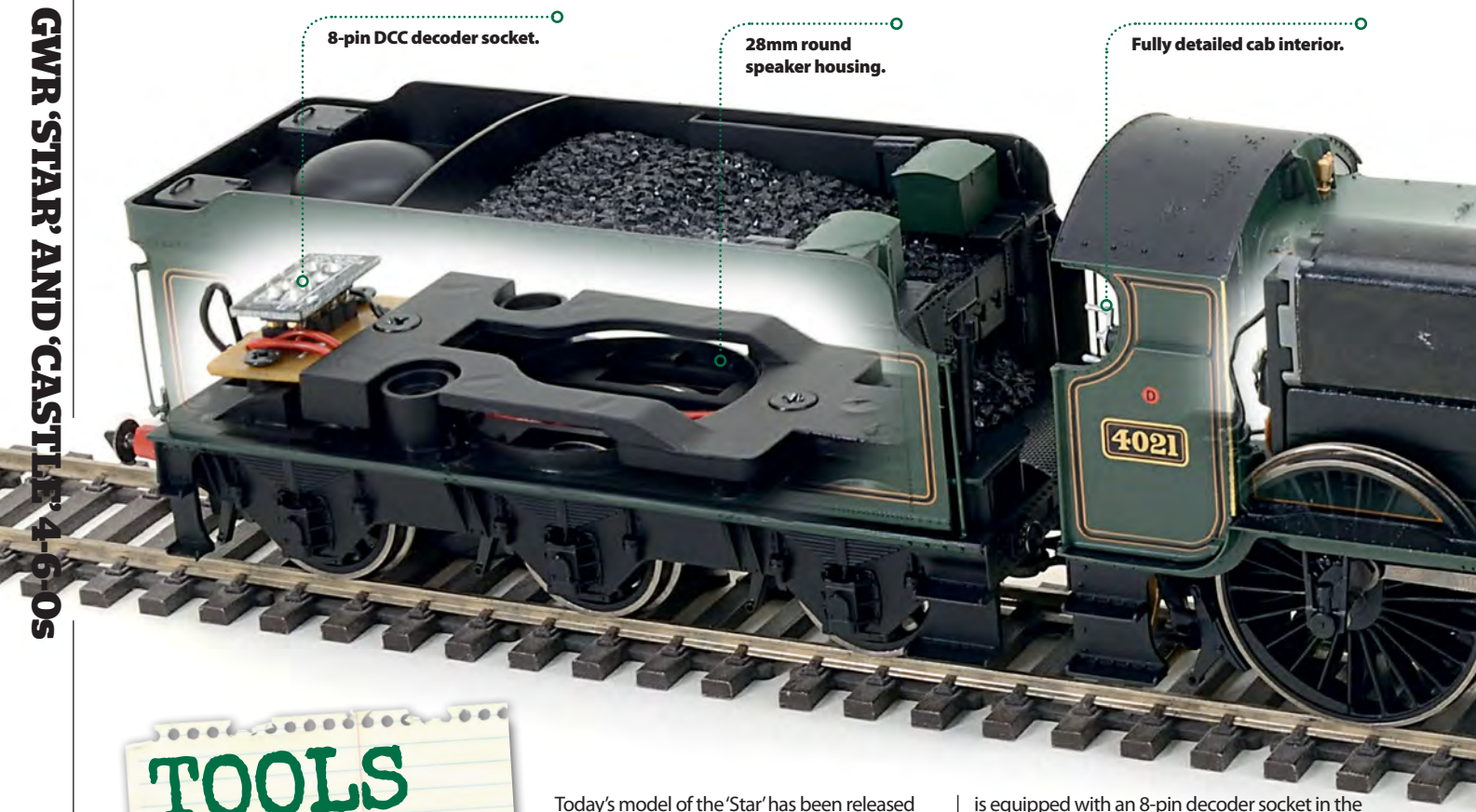


The tender body will now lift up from the rear. The front handrails may need assistance to release them from their mounting points.



With the tender body off you will be greeted with the sight of a metal weight allowing space for a 28mm round speaker housed underneath and an 8-pin decoder socket at the rear of the chassis for digital conversion.

The GWR 'Star' and 'Castle' 4-6-0s were closely related in the real locomotive development – and they are in model form too. The chassis design for both of these Hornby four-cylinder 4-6-0s is virtually identical.



TOOLS

DECODER INSTALLATION
» Small crosshead screwdrivers

SOUND DECODER INSTALLATION
» Small crosshead screwdriver
» Black tack
» Insulation tape

Today's model of the 'Star' has been released in both GWR and BR liveries and features an identical chassis to that of the 'Castle' from a mechanical perspective. It also fits into the body in the same way and has the same fixing points for both the locomotive and tender bodies.

The 'Castle' shown here was first introduced in 2009 and has been released in various GWR and BR liveries since its first release. Like the 'Star', it is equipped with an 8-pin decoder socket in the tender and space for a 28mm round speaker under the tender weight.

Our guide for the 'Star' and 'Castle' explains all you need to know to gain access to the inner workings as well as illustrating how to install a motor control decoder and a Hornby Twin Track Sound decoder with a 28mm round speaker. Read on to learn more. ■

STEP BY STEP DISMANTLING HORNBY GWR 'STAR' AND 'CASTLE' 4-6-0s

G

Should you need access to the locomotive chassis, optional when fitting a decoder, the body is simple to remove. Turn the front pony truck to one side and release the single crosshead screw located above.

H

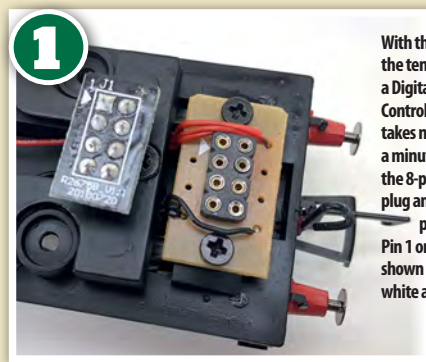
The locomotive body will now lift off with an arcing movement lifting from the front of the boiler first until the rear dip disengages.

I

For reassembly of the locomotive body and chassis it is important to line up the rear hook below the cab and the notch in the rear of the chassis first.

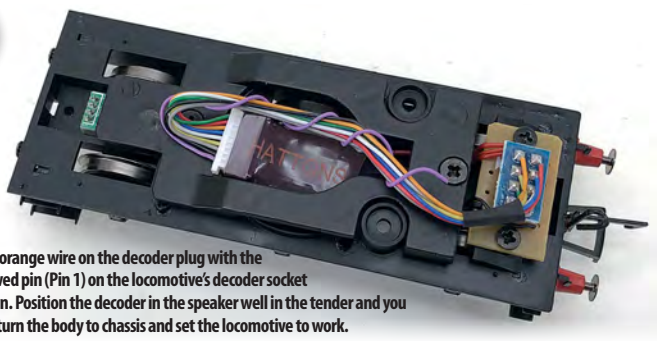
STEP BY STEP INSTALLING A DECODER AND SOUND

1

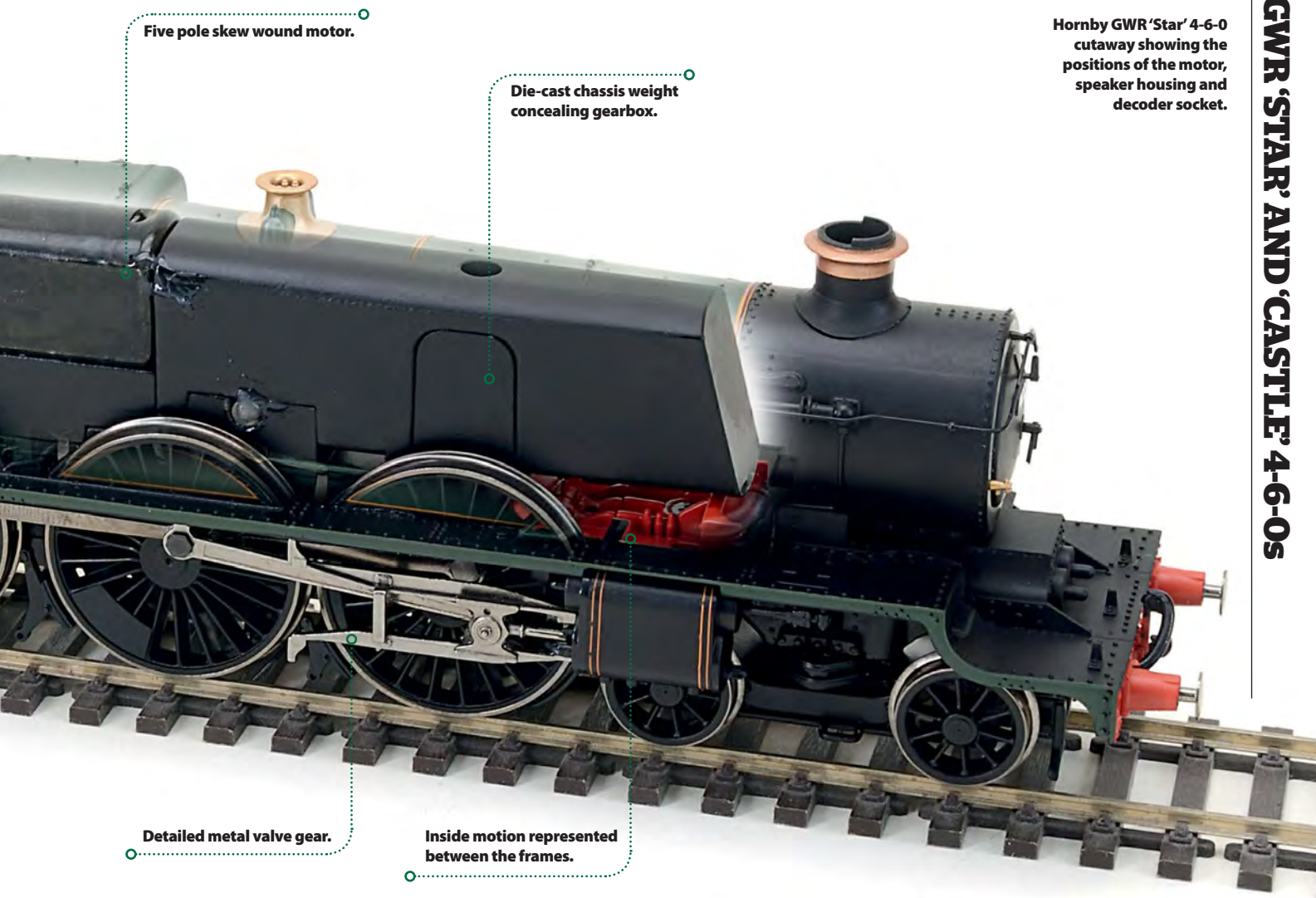


With the body off the tender, installing a Digital Command Control (DCC) decoder takes no more than a minute. Remove the 8-pin blanking plug and note the position of Pin 1 on the socket, shown by the small white arrow.

2



Line up the orange wire on the decoder plug with the white arrowed pin (Pin 1) on the locomotive's decoder socket and plug it in. Position the decoder in the speaker well in the tender and you can then return the body to chassis and set the locomotive to work.



Hornby GWR 'Star' 4-6-0 cutaway showing the positions of the motor, speaker housing and decoder socket.

TECHNICAL DETAILS

HORNBY GWR 'STAR' 4-6-0

Manufacturer:	*www.hornby.com*
First released:	2013 (HM78)
Cat No (featured):	R3229 (2015 release)
Current alternatives:	R3455 (2017 release)
Description:	Churchward 'Star' 4-6-0
Gauge:	'OO'/16.5mm
Scale:	4mm:1ft
Length (over buffers):	258mm
Price:	£150.99
Era:	4 (R3229), 3 (R3455)
Couplings:	Small tension locks in NEM pockets
DCC:	DCC ready, 8-pin socket
Speaker space:	28mm round
Exterior lights:	None
Interior lights:	None
Motor type:	Five pole, skew wound
Flywheel:	None
BR power classification:	'5P'
Wheel arrangement:	4-6-0
Purpose:	Express passenger
Haulage capacity (expected):	Eight carriages
Haulage capacity (actual):	Ten Hornby Mk 1 carriages

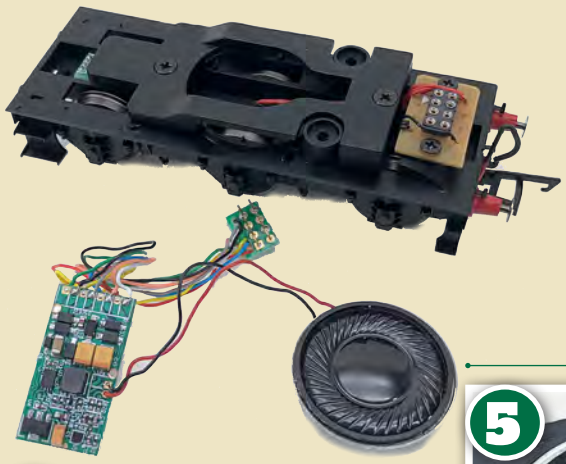
TECHNICAL DETAILS

HORNBY GWR 'CASTLE' 4-6-0

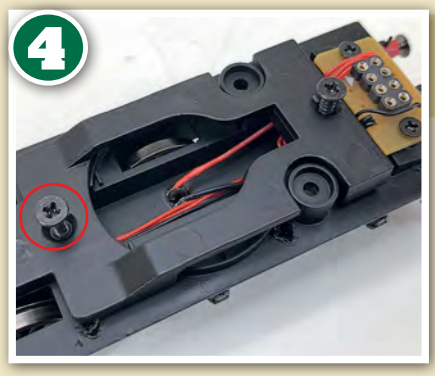
Manufacturer:	*www.hornby.com*
First released:	2009 (HM32)
Cat No (featured):	R3118 (2015 release)
Current alternatives:	R3454, R3383TTS (2017 releases), R3619 (2018 release)
Description:	Collett 'Castle' 4-6-0
Gauge:	'OO'/16.5mm
Scale:	4mm:1ft
Length (over buffers):	266mm
Price:	£169.99
Era:	5 (R3118, R3454, R33883TTS, R3619)
Couplings:	Small tension locks in NEM pockets
DCC:	DCC ready, 8-pin socket
Speaker space:	28mm round
Exterior lights:	None
Interior lights:	None
Motor type:	Five pole, skew wound
Flywheel:	None
BR power classification:	'7P'
Wheel arrangement:	4-6-0
Purpose:	Express passenger
Haulage capacity (expected):	Eight carriages
Haulage capacity (actual):	Ten Hornby Mk 1 carriages

Hornby GWR 'Castle' 4-6-0 cutaway showing the internal positions of the 8-pin decoder socket, speaker housing and motor.

STEP BY STEP INSTALLING A DECODER AND SOUND

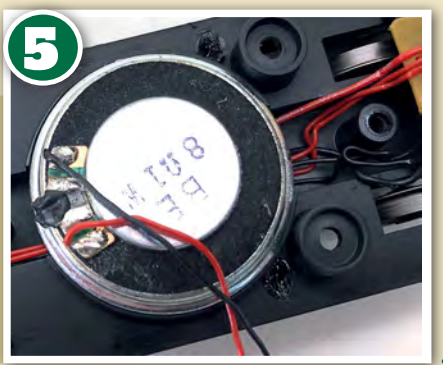


3 To take this example another step forward, we are installing a Hornby Twin Track Sound (TTS) decoder. On board is Hornby's GWR 'Castle' sound file which will work equally well for the 'Star'. It comes connected to a 28mm round speaker. If a rear baffle is fitted to the speaker, remove it before installation – they are a simple push fit onto the rear of the speaker when fitted.

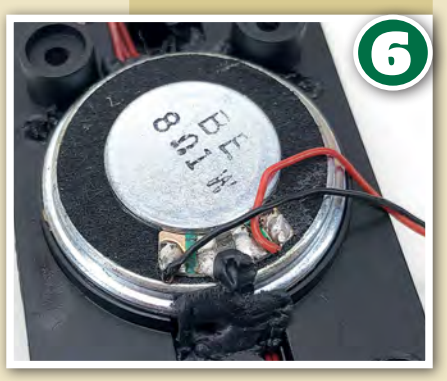


4 Release the two crosshead screws which hold the tender weight in place so that the speaker can be fitted.

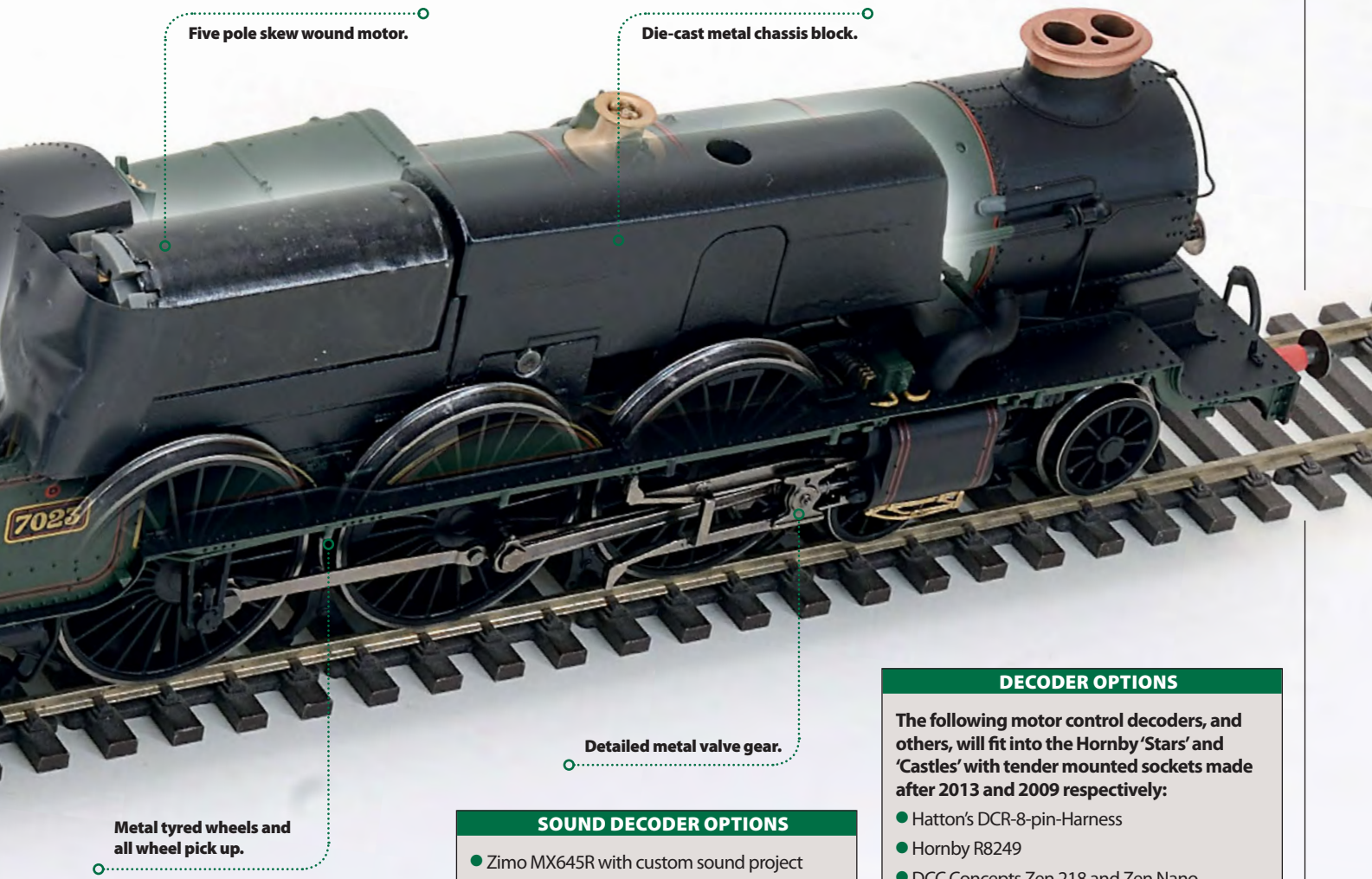
Next fill the gaps at the front and rear of the speaker into the chassis well with Black Tack or similar – sealing these gaps stops sounds from the front of the speaker interfering with those from the rear and provides a better audio experience.



5 Position the 28mm round speaker into the moulding on the tender chassis base ensuring that the wire connections are located towards the front of the tender.



6



SOUND DECODER OPTIONS

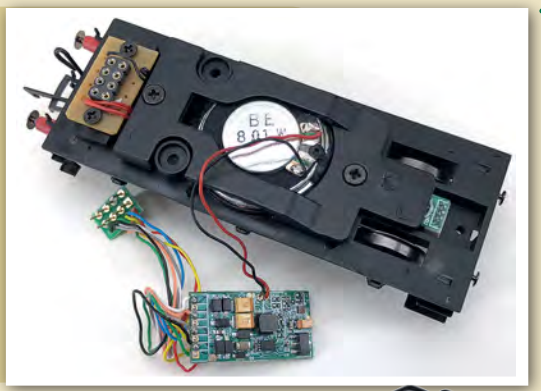
- Zimo MX645R with custom sound project
- ESU LokSound V4.0 8-pin with custom sound project
- Hornby Twin Track Sound 8-pin decoder with 'Castle' class sounds – R8110

DECODER OPTIONS

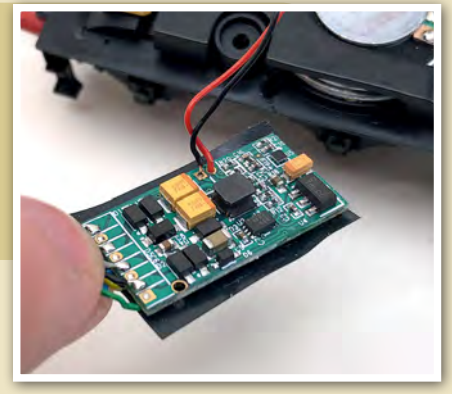
The following motor control decoders, and others, will fit into the Hornby 'Stars' and 'Castles' with tender mounted sockets made after 2013 and 2009 respectively:

- Hatton's DCR-8-pin-Harness
- Hornby R8249
- DCC Concepts Zen 218 and Zen Nano
- Gaugemaster DCC26, DCC27
- Bachmann 36-553
- ESU LokPilot V4.0 54611

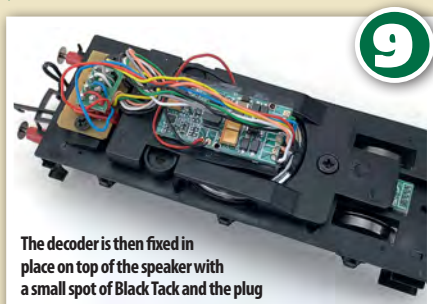
7 The decoder, plug and speaker wires are then fed through the tender weight before it is returned to its original position and fixed in place with the original screws. Keeping the speaker connections at the front ensures they don't foul the tender weight on refitting.



8 To protect the decoder from any potential short circuits on installation, we covered the rear with black insulation tape. The upper face can be left exposed if you are following our next steps.



9

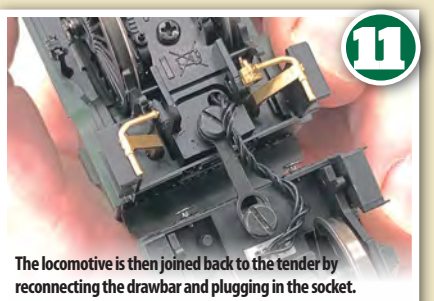


The decoder is then fixed in place on top of the speaker with a small spot of Black Tack and the plug connected to the socket using the orange wire to align with Pin 1 on the socket.

10

The tender body is then refitted to the chassis ensuring that the two front handrails go back into the their locating holes – if they don't, the front of the tender will sit proud of the chassis.

11



The locomotive is then joined back to the tender by reconnecting the drawbar and plugging in the socket. Ensure the socket is plugged in the correct way around, otherwise the locomotive will not operate.

HORNBY®

GWR 'King' 4-6-0

The powerful Collett 'King' 4-6-0s were the Great Western Railway's most prestigious and powerful locomotives. We show how to equip Hornby's latest version with a decoder and sound.

THE 1920s saw great rivalry between the Great Western Railway (GWR) and Southern Railway in developing the most powerful steam locomotives of the era. Collett's 'Castle' held the title in the first half of the decade, but the advent of the Maunsell 'Lord Nelson' on the Southern soon put the GWR's machine back in second place.

Changes to the permanent way and bridge replacements along the Great Western Main Line paved the way for the GWR to introduce a new and more powerful design which would take advantage of higher axle loads now being permitted. Collett's new design created the 'King' class of 30 locomotives. The first entered service in 1927 with the last being built in 1936. With their introduction the GWR gained the prestige of having the most powerful steam locomotive once again, at least until newer designs were developed in the late 1930s by the London Midland & Scottish and London North Eastern railways.

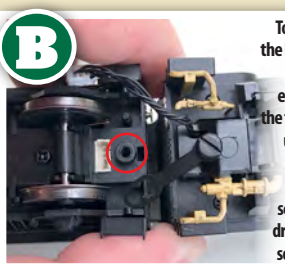
Such was the status of the 'Kings' that they were tasked with the GWR's heaviest trains and they were seen operating across its principal

STEP BY STEP DISMANTLING A HORNBY GWR 'KING' 4-6-0

A

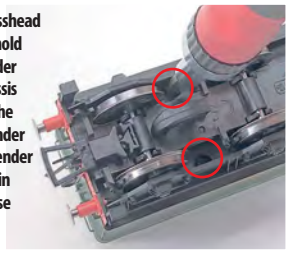
Hornby's latest model of the GWR 'King' made its debut in 2015. It has a tender mounted decoder socket and speaker location, as is now common on Hornby steam locomotives.

B



To simplify working on the locomotive, separate the tender from the engine by unplugging the four-wire connection using Hornby's X6468 extractor tool and unscrewing the rear screw from the tender drawbar. Don't pull the socket out by its wires.

C

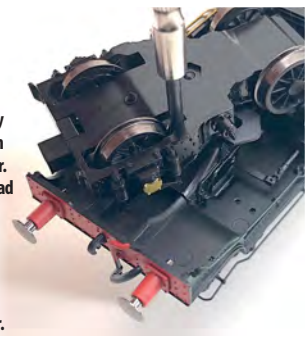


Two crosshead screws hold the tender body onto the chassis located between the rear two sets of tender wheels. Turn the tender upside down to gain access to undo these screws.

D

With the screws removed, the tender top will lift clear of the chassis to reveal the interior spaces consisting of a metal weight which is designed to house a 28mm round speaker and an 8-pin socket to the rear.

E



Removing the locomotive body is optional when fitting a decoder. A single crosshead screw located above the front bogie holds the latest Hornby 'King' body and chassis together.

F

Removal of the body starts by lifting at the front until the rear lug disengages. Be careful of the sandpipes during removal and refitting of the body.

Hornby's new model of the GWR 'King' 4-6-0 arrived in December 2015 offering a brand new version of these powerful express locomotives for 'OO' gauge. 6002 *King William IV* is our candidate which was released in 2016.

main lines. The last was withdrawn in 1962, but happily three have been preserved with 6000 *King George V* being part of the National Collection while 6023 *King Edward II* is operated at Didcot Railway Centre and 6024 *King Edward I* is in the hands of a private owning group which is currently overhauling the locomotive for a new career on the main line.

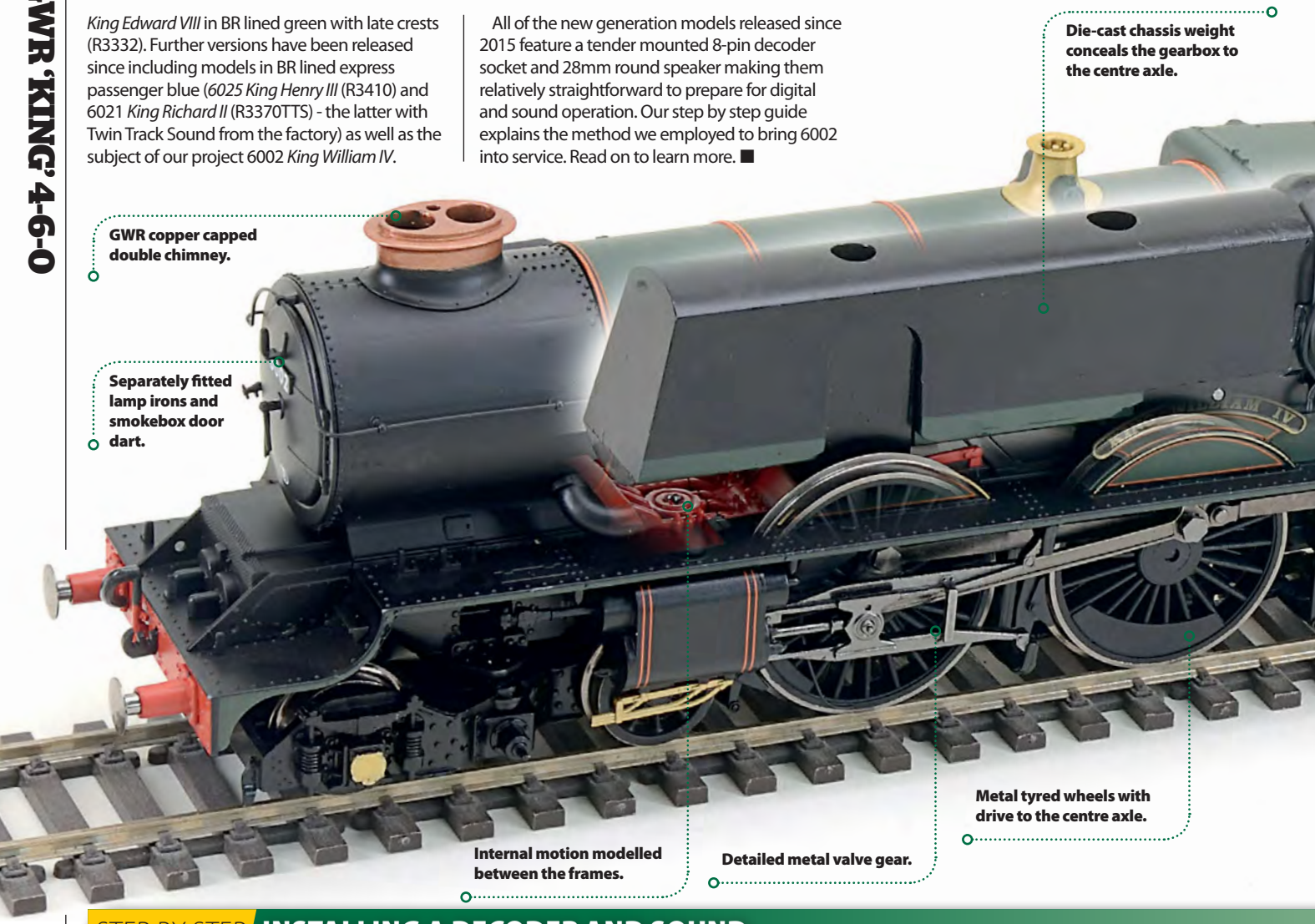
In model form the 'King' has long been part of the Hornby range with the first being produced in the late 1970s. Since then it has been a staple part of the catalogue going through a number of redesigns along the way until the model we have today. That was released in December 2015 with the first releases consisting of 6000 *King George V* in BR lined green with early crests (Cat No. R3330), 6011 *King James I* in Great Western lined green (R3331) and 6029 »

SOUND DECODER OPTIONS

- Zimo MX645R with custom sound project
- ESU LokSound V4.0 8-pin with custom sound project
- Hornby Twin Track Sound 8-pin decoder with 'King' class sounds – R8109

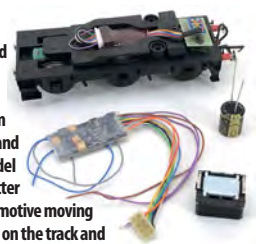
King Edward VIII in BR lined green with late crests (R3332). Further versions have been released since including models in BR lined express passenger blue (*6025 King Henry III* (R3410) and 6021 *King Richard II* (R3370TTS) - the latter with Twin Track Sound from the factory) as well as the subject of our project 6002 *King William IV*.

All of the new generation models released since 2015 feature a tender mounted 8-pin decoder socket and 28mm round speaker making them relatively straightforward to prepare for digital and sound operation. Our step by step guide explains the method we employed to bring 6002 into service. Read on to learn more. ■



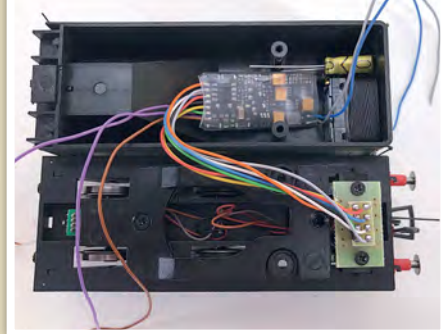
STEP BY STEP INSTALLING A DECODER AND SOUND

1 Always test your model with analogue control first. Connecting a motor-only decoder is as simple as removing the blanking plug from the socket, checking the position of Pin 1 and aligning the orange wire on the decoder plug. If that is as far as you want to go, the body can be refitted and the model put to work.



2 To take this model forward to sound we are going to install a Zimo MX645R decoder, an 18mm x 13mm x 13mm speaker and a capacitor to give the model 'stay alive' capacity. The latter assists in keeping the locomotive moving should it find a spot of dirt on the track and also maintains the sound output in that case.

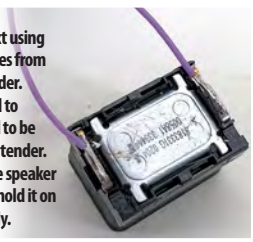
3 A dry run of the components shows that the speaker, capacitor and decoder will all neatly fit into the tender body. It may be necessary to relocate the decoder socket, but there is plenty of space to move this to sit in the centre of the metal weight.

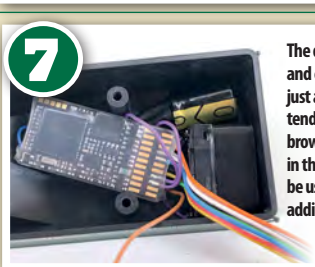


4 The first step to prepare the decoder is to connect a capacitor to the blue (positive) and grey (negative) wires which are provided at one end of the chip. Cut the blue and grey wires down to the length required, add an 8mm length of heatshrink tubing over each and then bare the ends with wire strippers.

5 The blue and grey wires are then curl around the legs of the capacitor (ensuring that grey goes to the negative side as marked) and then solder in place. The excess leg is then cut and the heatshrink tubing moved into place before heating with the side of the soldering iron. This ensures that there is no chance of a short circuit once fitted inside the tender.

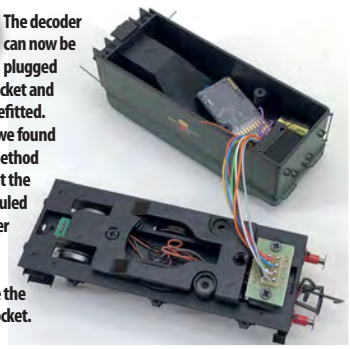
6 The speaker is connected next using the purple wires from the Zimo decoder. These were also shortened to reduce the bulk which had to be accommodated inside the tender. To assist in soldering to the speaker terminals, use Blu Tack to hold it on the workbench temporarily.





7 The decoder, speaker and capacitor all just about fit in the tender body. The brown wire is spare in this case but can be used to connect additional functions.

8 The decoder can now be plugged into the socket and the body refitted. However, we found that our method meant that the speaker fouled the decoder plug so we opted to relocate the decoder socket.



DECODER OPTIONS

The following motor control decoders, and others, will fit into the Hornby 'Kings' with tender mounted sockets:

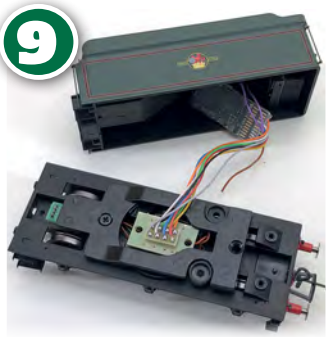
- Hatton's DCR-8-pin-Harness
- Hornby R8249
- DCC Concepts Zen 218 and Zen Nano
- Gaugemaster DCC26, DCC27
- Bachmann 36-553
- ESU LokPilot V4.0 54611

TOOLS

DECODER INSTALLATION
» Small crosshead screwdrivers

SOUND DECODER INSTALLATION
» Soldering iron with 2mm nib
» Solder
» Wire strippers
» Heat shrink insulation
» Small crosshead screwdriver
» Black tack
» Insulation tape

9



The ideal home for the decoder socket is in the unused tender weight well. Undo the two screws which hold it in place and then do the same for the weight. Lift the weight off, put the socket in position in the centre and secure with Black Tack, refit the tender weight and then plug in the decoder again.

10

The tender body can now be refitted, taking care to ensure that all wires are kept within the body and that they don't interfere with the screw mounts. Check that the front handrails go back into their locations and then secure the body in place with its original mounting screws.

11 The locomotive can now be reconnected to the tender and this 'King' is now complete, sound fitted and ready to enter service at the head of express trains.

TECHNICAL DETAILS

HORNBY GWR 'KING' 4-6-0

Manufacturer:	*www.hornby.com*
First released (current model):	2015
Cat No (featured):	R3409 (2016 release)
Current alternatives:	R3408, R3410 (2016 releases), R3534, R3535 (2017 releases)
Description:	Collett 'King' 4-6-0
Gauge:	'OO'/16.5mm
Scale:	4mm:1ft
Length (over buffers):	277mm
Price:	£182.99
Era:	5 (R3409)
Couplings:	Small tension locks in NEM pockets
DCC:	DCC ready, 8-pin socket
Speaker space:	28mm round
Exterior lights:	None
Interior lights:	None
Motor type:	Five pole, skew wound
Flywheel:	None
BR power classification:	'8P'
Wheel arrangement:	4-6-0
Purpose:	Express passenger
Haulage capacity (expected):	Eight carriages
Haulage capacity (actual):	12 Hornby Mk 1 carriages

GWR Express

Hornby GWR 6000 'King' Class 4-6-0

HORNBY

Digital Decoder Options

Hatton's DCR-8PIN-Harness - £15
Hornby R8249 - £16
Hornby King TTS decoder with sound R8109 - £36

Standard chip fitting service - £12. More info on page 132.

Pre-Owned versions available
Limited Stock
www.hattons.co.uk updated every day

R3331-PO 6011 'King James I' in GWR Green
Pre-owned - Like new - Very limited stock at £110

R3408-PO 6016 "King Edward V" in GWR Green with Shirtbutton logo - Like New - Very limited stock at £95

New versions available

R3331 6011 'King James I' in GWR Green - In stock at £159.99

R3408 6016 'King Edward V' in GWR Green Shirtbutton logo In stock at £109

R3410 6025 'King Henry III' in BR Blue early emblem In stock at £109

R3370TTS 6021 'King Richard II' BR blue early emblem - TTS sound fitted - In stock at £179.99

R3332 6029 'King Edward VIII' in BR Late Crest Green In stock at £159.99

R3384TTS 6006 'King George I' in BR Green late crest - TTS sound fitted - In stock at £125

Hornby GWR 4000 'Star' Class 4-6-0

HORNBY

Digital Decoder Options

Hatton's DCR-8PIN-Harness - £15
Hornby R8249 - £16
Hornby Castle TTS decoder with sound R8110 - £36
(suitable for Star locos)

Standard chip fitting service - £12. More info on Page 132.

New versions available

R3455 4013 "Knight of St Patrick" in GWR Green - In stock at £127

R3229 4021 "British Monarch" in BR Green early crest - In stock at £125.10

Pre-Owned versions available
Limited Stock
www.hattons.co.uk updated every day

R3167-PO02 4061 "Glastonbury Abbey" in BR green with early emblem - Pre-Owned
DCC Fitted - Limited stock at £95

R3165-PO02 4018 "Lode Star" in GWR green
Pre-Owned - Like New - Steam Museum Exclusive
Limited stock at £149

R3166-LN01 4018 "Knight of the Grand Cross" in GWR green - Pre-Owned
Like New - Limited stock at £108

R3219-PO 4050 "Princess Alice" in Great Western green - Train pack with 3 coaches - Pre-Owned
Limited stock at £145

See our full range of over 25,000 it

Locomotives

Hornby GWR 4073 'Castle' Class 4-6-0

Pre-Owned versions available
Limited Stock
www.hattons.co.uk updated every day

R3383TTS-PO 5050 "Early of St Germans" in BR green with early emblem - TTS Sound fitted - Pre-Owned
Limited stock at £140

R3237 4073 "Caerphilly Castle" in Great Western Green
In stock at £136.20

Digital Decoder Options

Hatton's DCR-8PIN-Harness - £15
Hornby R8249 - £16
Hornby Castle TTS decoder with sound R8110 - £36

Standard chip fitting service - £12 - More info on Page 132

New versions available

R3454 5076 "Drysllwyn Castle" in GWR Green
In stock at £140

R3105 5075 "Wellington" in GWR green
In stock at £124

R3237 4073 "Caerphilly Castle" in Great Western Green
In stock at £136.20

R3301 5043 "Earl of Mount Edgcumbe" in BR Green early emblem (as preserved) - In stock at£124

R3619 5013 "Abergavenny Castle" in BR green late crest
In stock at £136

R3118 7023 "Penrice Castle" in BR green late crest
In stock at £120

Hornby GWR 6800 'Grange' Class 4-6-0

New versions available

R3452 6825 "Llanvair Grange" in BR lined green late crest
In stock at £132

R3552 6860 "Aberporth Grange" in GWR green shirtbutton emblem - In stock at £132

Digital Decoder Options

Hatton's DCR-8PIN-Harness - £15
Hornby R8249 - £16
Hornby Castle TTS decoder with sound R8110 - £36
(suitable for Grange locos)

Standard chip fitting service - £12 - More info on Page 132

Pre-Owned versions available
Limited Stock
www.hattons.co.uk updated every day

R2402-PO01 6818 "Hardwick Grange" in GWR green
Pre-Owned - DCC Fitted - Limited stock at £102

R3019-PO 6845 "Paviland Grange" in BR green with late crest - weathered - Pre-Owned - Like New
Limited stock at £96

R2502-PO02 6879 "Overton Grange" in BR green with late crest - Pre-Owned
Like New - Limited stock at £116

R3209-PO 6803 "Bucklebury Grange" in BR green with late crest - Pre-Owned
Limited stock at £82

HORNBY

Maunsell 'King Arthur'

The Hornby 'King Arthur' received a new tender mounted decoder socket and speaker space in 2016. We show how to equip these 1920s 4-6-0s with a digital decoder and sound.

The most recent 'King Arthur' 4-6-0 to be released by Hornby is 742 *Camelot* in Southern Railway wartime black. Available since 2017, this is the second to be produced with a tender mounted decoder socket and space for a 28mm round speaker.

STEP BY STEP DISMANTLING HORNBY'S SR 'KING ARTHUR' 4-6-0s

A

The two most recent versions of the Hornby 'King Arthur' release in 2016 and 2017 have been upgraded to have a tender mounted 8-pin decoder socket and space for a 28mm round speaker. Previous models, except for 30452 *Sir Meliagrance*, have had a locomotive mounted decoder socket and no provision for sound. Our project locomotive is 742 *Camelot* in Southern Railway black (Cat No. R3527).

B

In common with the latest Hornby ready-to-run '00' gauge locomotives, the 'King Arthurs' with tender mounted sockets have a metal drawbar fitted with screws at each end and a four-wire plug to connect the two halves electrically. Whilst it is not essential to separate the locomotive from its tender to work it, knowing how is beneficial.

C

Using Hornby's X6468 tender socket extractor it is a straightforward job to remove the tender wiring connection. Access is tricky on this particular model due to the location of the socket and the proximity of the leading tender axle.

D

Having removed the four-wire plug, the rear screw can be undone to complete separation of the locomotive and tender. Keep the screw to hand for reassembly.

E

Two crosshead screws hold the tender body onto its chassis. The first is easy to access – it is located forward of the front bogie in the centre as shown here. Use a modeller's crosshead screwdriver to remove it.

THE HORNBY 'KING ARTHUR' first appeared in 2007 and soon it is to be joined by its bigger brother the 'Lord Nelson' 4-6-0 in 2018. With a Twin Track Sound version of the 'LN' coming it is highly likely that there will be more modellers wanting to upgrade their 'King Arthur' – or 'N15' – 4-6-0s to match.

The first of these fine 4-6-0s entered traffic in 1919 with the London & South Western Railway to a design by Robert Urie. At the 1923 grouping, the newly formed Southern Railway's Chief Mechanical Engineer Richard Maunsell continued construction of the 'King Arthur' class with modifications to the steam circuit, valve gear and cabs. In total 74 were built with the last entering traffic in 1926.

They were designed for fast express work and locomotives were paired with eight-wheel bogie tenders for the most part, although a batch were paired with six-wheel tenders for operation on former South Eastern & Chatham Railway (SECR) routes which had shorter turntables. The last of the 'King Arthurs' were withdrawn in 1962 while one has been saved for the nation by the National Collection – 30777 *Sir Lamiel*. This popular locomotive has enjoyed a busy preservation career working on the main line and on private heritage railways.

Hornby has produced a large number of 'King Arthurs' over the last 11 years with examples paired with eight-wheel bogie and six-wheel tenders. One version, 30452 *Sir Meliagrance* (R2905), was released in 2010 with an eight-wheel 'watercart' tender too. This was unique at the time in having a tender mounted decoder socket, though no specific provision was made for a speaker (HM132).

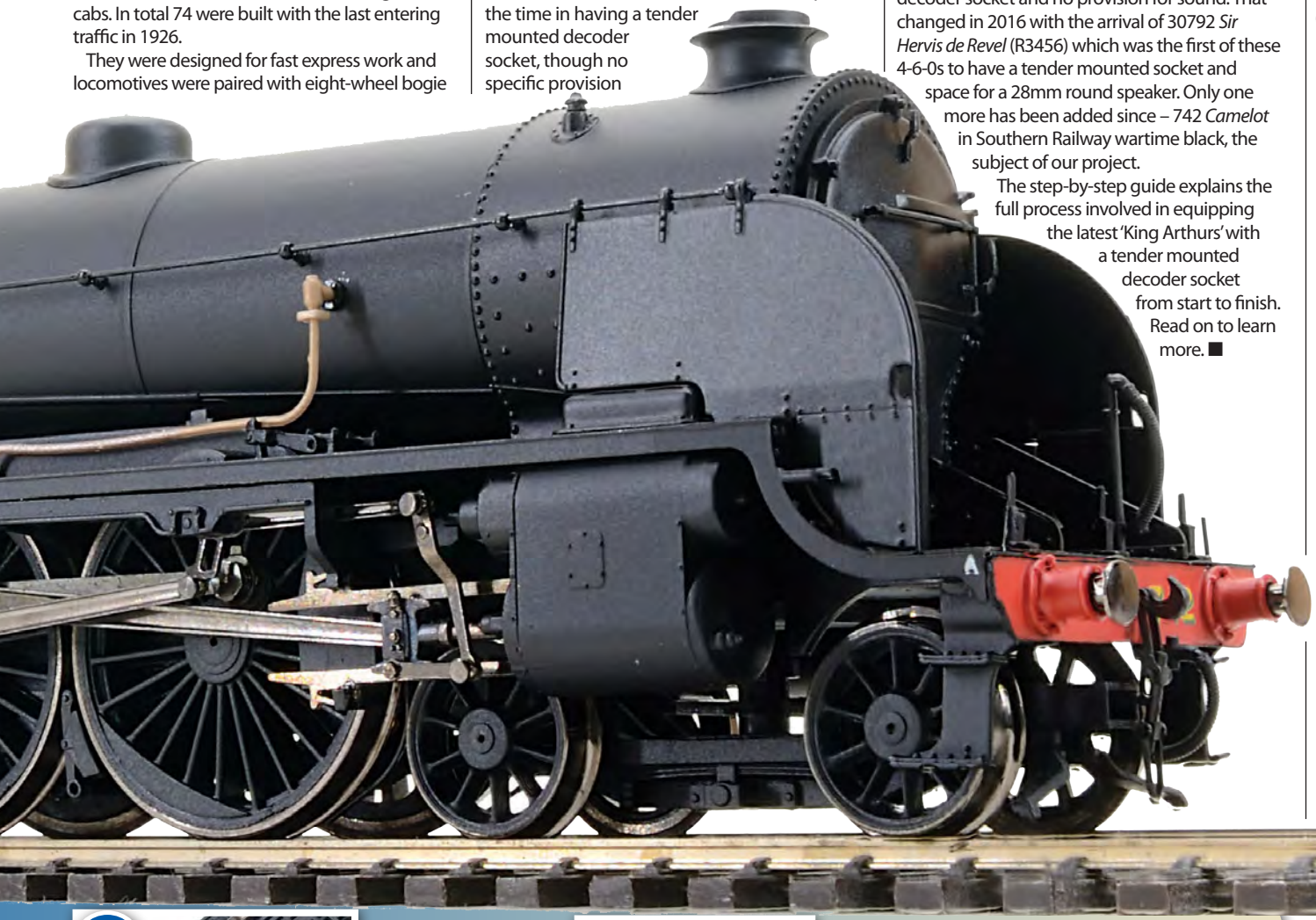
However, until recently the 'King Arthur' has been equipped with a locomotive mounted 8-pin decoder socket and no provision for sound. That changed in 2016 with the arrival of 30792 *Sir Hervis de Revel* (R3456) which was the first of these 4-6-0s to have a tender mounted socket and space for a 28mm round speaker. Only one more has been added since – 742 *Camelot* in Southern Railway wartime black, the subject of our project.

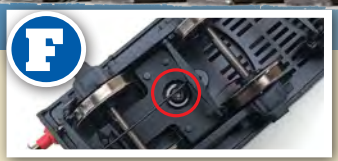
The step-by-step guide explains the full process involved in equipping the latest 'King Arthurs' with a tender mounted decoder socket from start to finish. Read on to learn more. ■

TOOLS

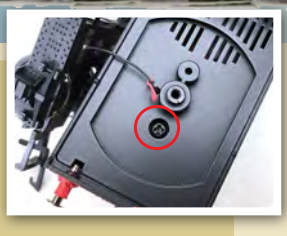
DECODER & SOUND INSTALLATION

- Small crosshead screwdrivers
- Small slotted screwdriver
- Black Tack or Blu Tack
- Heat shrink insulation
- Soldering iron

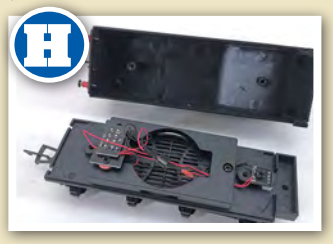




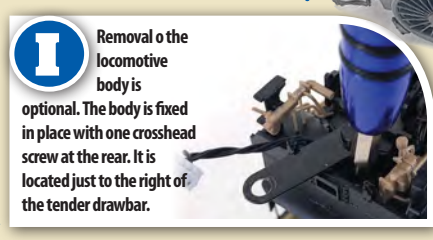
F Access to the rear body mounting screw is more difficult because it is located underneath the rear bogie. Take care when handling the bogie as there are two wires connected to them for the pick-ups. To remove the bogie, undo its central fixing screw with a crosshead screwdriver.



G Once the bogie is out of the way, the rear body fixing screw is easily seen. Use the same crosshead screwdriver to remove it. Note here that our model requires a repair to the red pick-up wire which has become disconnected during previous handling.

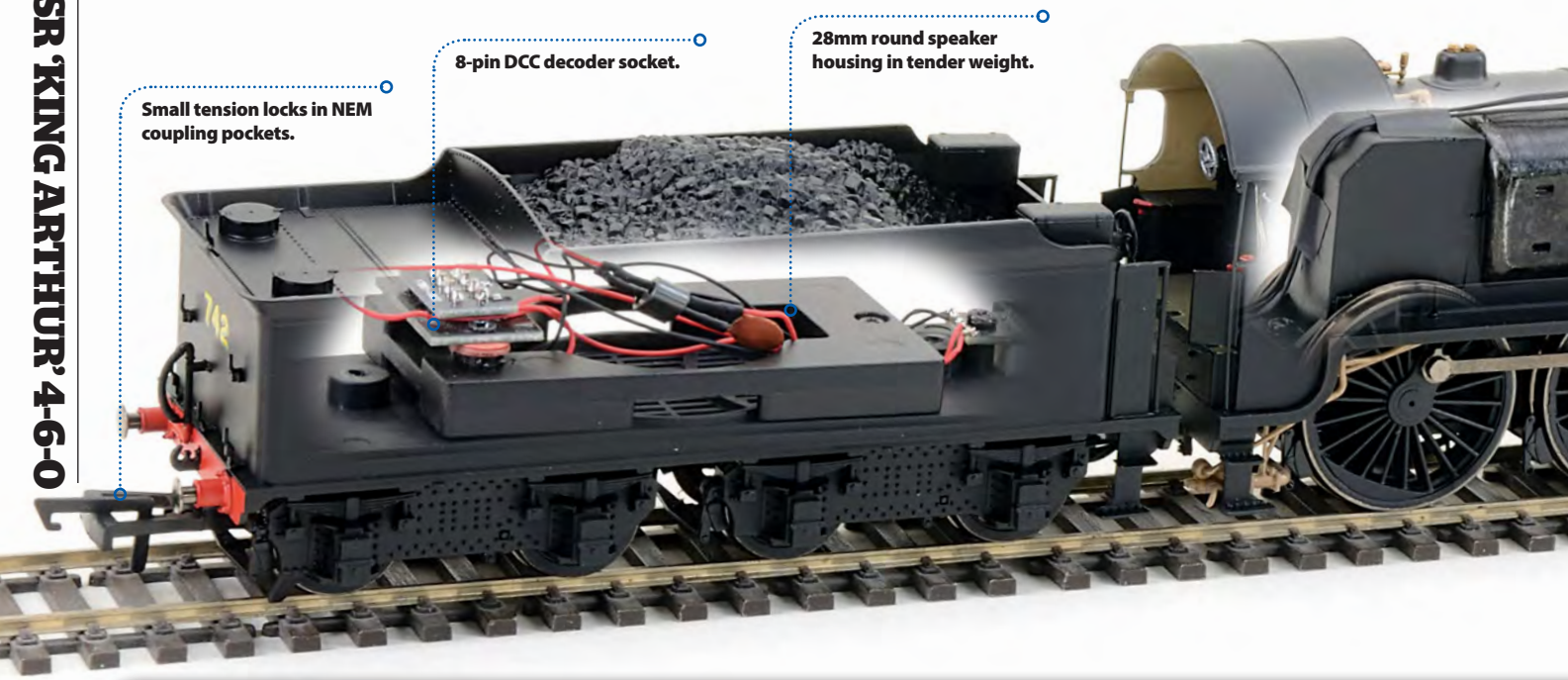


H The tender body on the bogie tenders supplied with the 'King Arthurs' lifts straight up from the chassis to reveal the 8-pin decoder socket and the tender weight with space for a 28mm round speaker.



I Removal o the locomotive body is optional. The body is fixed in place with one crosshead screw at the rear. It is located just to the right of the tender drawbar.

J The body lifts up from the rear until the front lug disengages. Our sample was a tight fit and took a couple of attempts to separate the body and chassis successfully. The five-pole motor is located at the rear while most of the weight is within the front half of the boiler.

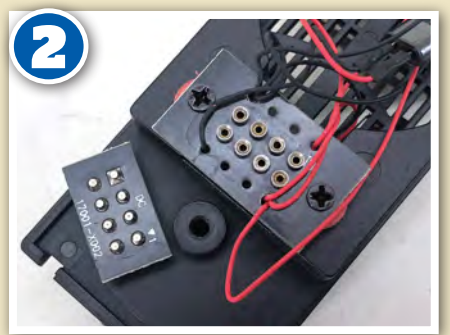


STEP BY STEP INSTALLING A DECODER AND SOUND

1

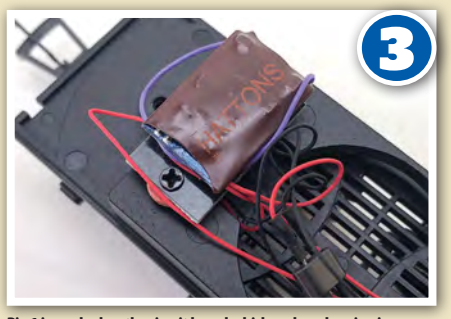
Movement of the 8-pin decoder socket to the tender makes equipping the 'King Arthur' for digital operation much simpler as there is more space available. If you have an earlier generation model with a locomotive mounted decoder socket and you wish to install a motor control decoder or sound we recommend following the steps for the Hornby 'P2' 2-8-2 on pages 92-97. Disassembly is the same as for the current versions shown in this guide.

2



Removal of the 8-pin decoder socket blanking plug simply requires even pressure on each side. Take care to ensure that you don't bend the pins as the blank comes out of the socket.

3



Pin 1 is marked on the circuit board which makes plugging in a decoder a simple case of matching the position of Pin 1 on the both the chip and socket. This is a Hatton's Direct plug 8-pin decoder which provides a very neat installation.

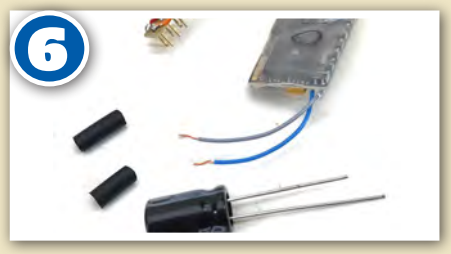
4

If you are planning to use a harnessed 8-pin decoder, line up the orange wire on the plug with Pin 1 on the socket. The harness from the decoder can then be curled around and the decoder tucked into the tender weight. Ensure your decoder is wrapped, as per this Hatton's decoder, if you plan on tucking into the weight to avoid short circuits.

5

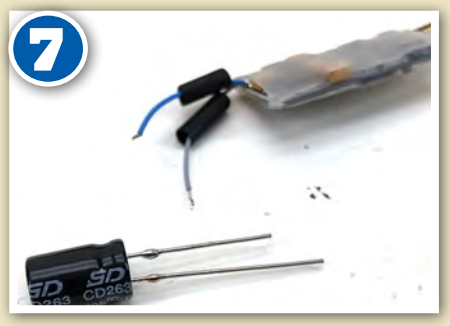
We are going to equip this locomotive with a Zimo decoder loaded with a Southern steam two-cylinder sound file from *www.digitrains.co.uk* (Cat No. ZS010MG). This Zimo MX645R comes with 'stay alive' capacity, a capacitor and no speaker. We have already connected a 28mm round speaker to the two purple speaker wires using a soldering iron.

6



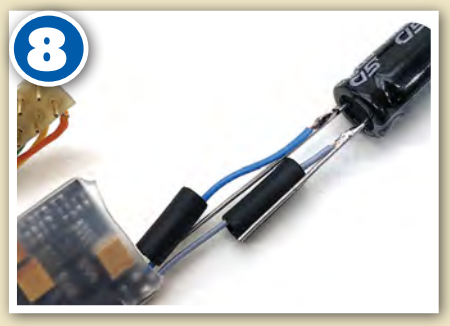
The 'stay alive' facility allows the model to continue uninterrupted over short spots of dirt on the rails without the sound stopping. Connection is simple. The blue wire goes to the long positive leg of the capacitor and the grey wire goes to the short negative leg. We have also cut two 10mm lengths of heatshrink tubing to cover the soldered joins once the wires have been connected.

7



Tin the legs of the capacitor by applying heat from the soldering iron and a small amount of solder. Repeat the process for the bare ends of the blue and grey wires. Then slide the heatshrink tubing over the wires ready for the connections to be made.

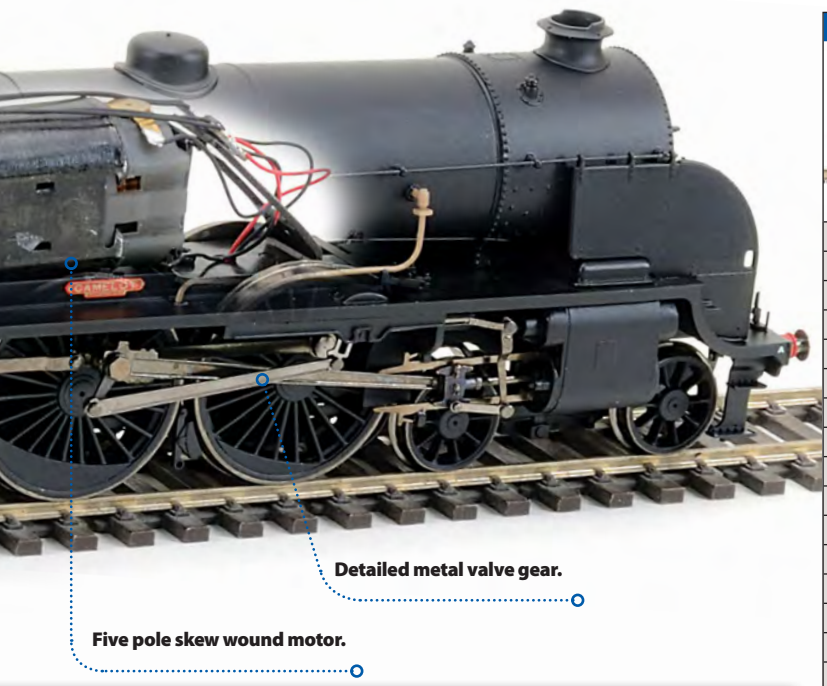
8



Here we have joined the blue wire to the long leg and grey wire to the short leg of the capacitor completing the soldering work for this project. The legs can now be trimmed to length before the heatshrink tubing is put in place.

9

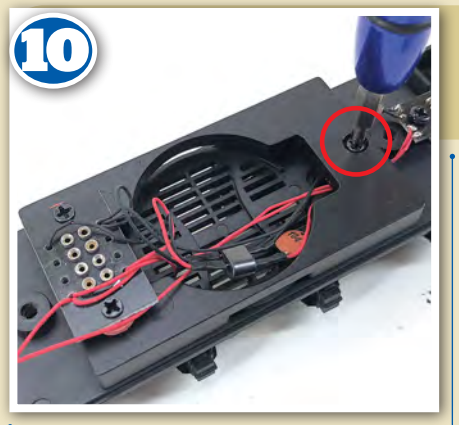
The heatshrink tubing has been reduced using heat from the side of a soldering iron to create a seal around the bare connections. This prevents short circuits and keeps the installation neat.



TECHNICAL DETAILS

HORNBY SR 'KING ARTHUR' 4-6-0

Manufacturer:	*www.hornby.com*
First released:	2007 (HM2)
Cat No (featured):	R3527 (2017)
Current alternatives:	R3456 (2016 release)
Description:	SR 'N15' 4-6-0
Gauge:	'OO'/16.5mm
Scale:	4mm:1ft
Length (over buffers):	262mm
Price:	£160.99-£175.99
Era:	3 (R3527), 4 (R3456)
Couplings:	Small tension locks in NEM pockets
DCC:	DCC ready, 8-pin socket
Speaker space:	28mm round (from 2016)
Exterior lights:	None
Interior lights:	None
Motor type:	Five pole, skew wound
Flywheel:	None
BR power classification:	'5P'
Wheel arrangement:	4-6-0
Purpose:	Express passenger
Haulage capacity (expected):	Eight carriages
Haulage capacity (actual):	Eight Bachmann Mk 1 carriages



10 To install the speaker we need to remove the tender weight. A single crosshead screw at the front holds it in place.

DECODER OPTIONS

The following motor control decoders, and others, will fit into the Hornby 'King Arthur' 4-6-0s with tender mounted decoder sockets:

- Hatton's DCR-8-pin-Direct, DCR-8-pin-Harness
- DCC Concepts Zen Direct, Zen Nano
- Gaugemaster DCC26, DCC27, DCC29

SOUND DECODER OPTIONS

- Zimo MX645R with custom sound project
- ESU LokSound V4.0 8-pin with custom sound project

This model has been fitted with a Zimo MX645R decoder connected to a 28mm round speaker. The sound file is *www.digitrains.co.uk* ZS010MG Southern steam two-cylinder sound file for Zimo decoders.

11 A 28mm round speaker will fit neatly into the moulding on the tender chassis base. We have also covered the solder connections on the speaker with insulation tape to prevent short circuits. If you wish, an alternative speaker can be used, but this will require removal of the weight and relocation of the decoder socket.

12 The tender weight can now be reinstated using the original fixing screw, taking care to ensure that none of the wires from the decoder socket or speaker are trapped by the weight.

13 The decoder can now be plugged in by aligning the orange wire on the plug with Pin 1 on the socket. The wires from the decoder are then curled around and the capacitor set in place alongside making this model ready for the body to be refitted.

14 Once the tender body has been refitted the locomotive can be coupled to it again and the model taken for testing. Once you are happy that all is well, the locomotive can be addressed and put into service.

HORNBY

Bulleid

'Light Pacifics'

TOOLS

Decoder and sound installation

- Small crosshead screwdrivers
- Soldering iron with 2mm nib
- Solder
- Wire strippers
- Black tack or Blu Tack
- Insulation tape

Bulleid's iconic air-smoothed 'Light Pacifics' stood out from the crowd for their appearance and construction, but were later rebuilt to improve their reliability. We show you how to upgrade Hornby's most recent models of the original and rebuilt locomotive in 'OO' gauge with digital control and sound.

THE BULLEID 'WEST COUNTRY' and 'Battle of Britain' class 4-6-2s were icons of their era. Different from everything else which went before, they stood out with their air-smoothed casing, chain driven valve gear, all welded boiler construction and modern cab layout. They were a cut above the rest, but so revolutionary was the design that it had its problems too.

Brighton and Eastleigh works were responsible for construction of Oliver Bulleid's new express passenger design with the first entering traffic in 1945. In total 110 were built with the last entering service in 1951. With their 4-6-2 wheel arrangement, they were equipped with a wide firebox, a 280psi boiler and the capability to run at express speeds with heavy loads.

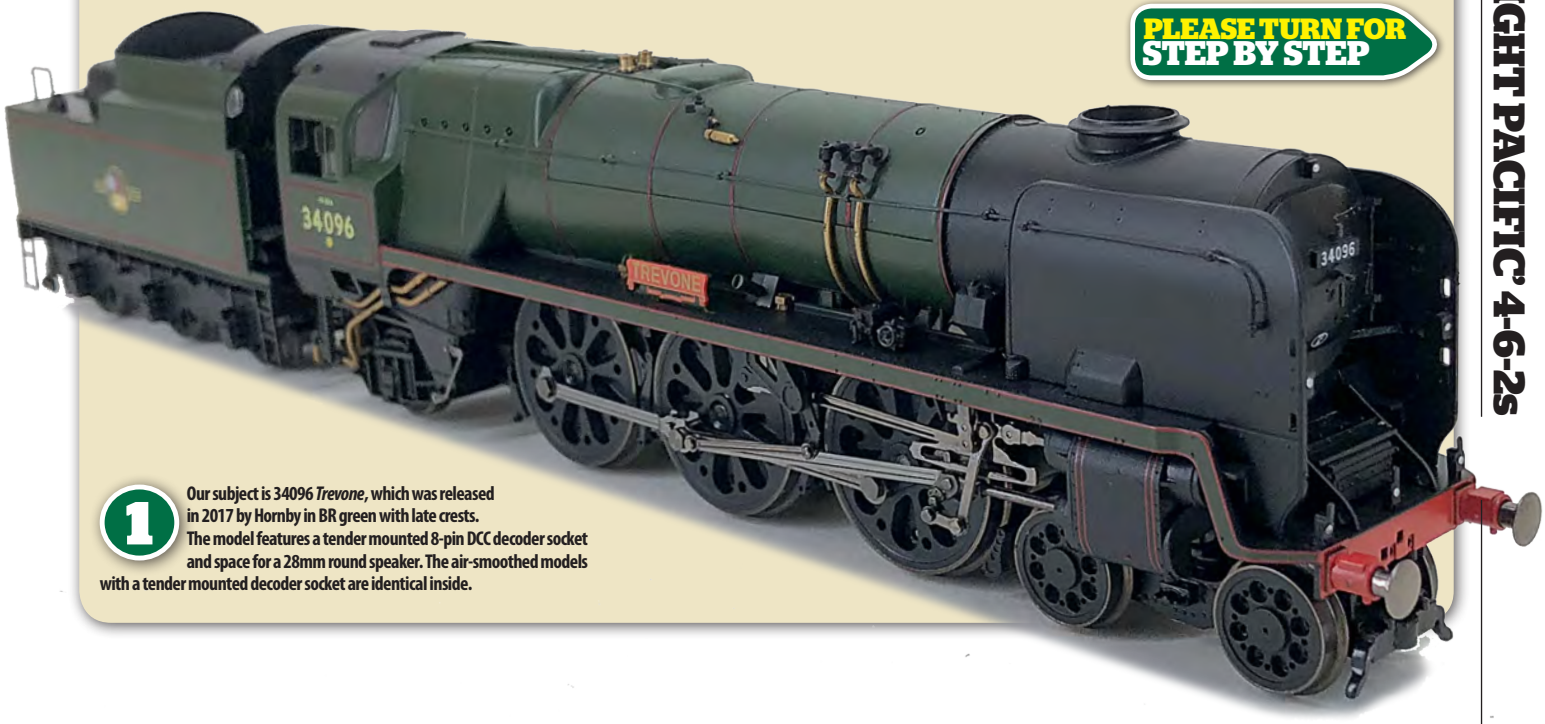
However, by the mid-1950s Bulleid's air-smoothed 'Pacifics' had become a troublesome breed and following success with rebuilding the larger 'Merchant Navy' class, British Railways decided on a rebuilding programme which took 60 of the 110 'West Country'/'Battle of Britain' fleet into a brand new form. Gone was the streamlined casing and chain driven valve gear to be replaced by an exterior not dissimilar to the BR Standard design of the 'Britannia' 4-6-2. The boiler pressure was reduced to 250psi while Walschaerts valve gear was fitted for all three cylinders.

Rebuilds were carried out at Eastleigh Works between 1957 and 1961 and all emerged in BR lined green with late crests on the tender sides. All were standardised in being equipped with smoke deflectors, their original names and numbers were retained while tenders now had cut down sides. In this form the rebuilds served BR until the last was withdrawn at the end of Southern Region steam in July 1967 alongside the last of the air-smoothed originals. Today 10 air-smoothed and 10 rebuilt locomotives have been preserved including several which have entertained on the main line at the head of steam specials.

Hornby has produced 'OO' gauge ready-to-

STEP BY STEP DISMANTLING HORNBY BULLEID 'LIGHT PACIFICS'

PLEASE TURN FOR STEP BY STEP



1 **Our subject is 34096 *Trevone*, which was released in 2017 by Hornby in BR green with late crests. The model features a tender mounted 8-pin DCC decoder socket and space for a 28mm round speaker. The air-smoothed models with a tender mounted decoder socket are identical inside.**

Hornby produces both the original air-smoothed and later rebuilt Bulleid 'Light Pacifics'. Both models now feature a tender mounted decoder socket and space for a 28mm round speaker as standard.

run models of both the original and rebuilt locomotives. Replicating history, the original locomotives were first to be announced as an all new model in 2001 arriving in 2002. Initially they were delivered without a Digital Command Control (DCC) decoder socket, but subsequently the model gained a locomotive mounted decoder and then, more recently, a tender mounted 8-pin socket and space for a 28mm round speaker for digital sound. Four years later, Hornby revealed its plans for the rebuilt locomotives with the first arriving in 2007.

There have been many versions since and while all have employed the same exterior design and mechanism, the most recent have seen the originally locomotive mounted 8-pin Digital Command Control socket migrate to the tender.

Recent 2016/2017 models of the air-smoothed 'Light Pacific' with a tender mounted decoder include 21C159 *Sir Archibald Sinclair* in British Railways lettered Malachite green (R3525) 21C168 *Kenley* in Southern Railway lettered Malachite green (R3515) plus 34001 *Exeter* (R3115) and 34042 *Camelford* (R3445) in BR lined green with early crests. Recent 2016/2017 models of the rebuilt locomotives with tender mounted decoder sockets include 34077 *603 Squadron* (R3468), *34100 Appledore* in the 'Golden Arrow' train pack (R3400) and one of the subjects of our guide 34096 *Trevone* (R3524), all in BR green with late crests. 2018 will also see Hornby release air-smoothed 'West Country' 34019 *Bideford* in BR lined green with late crest (R3638) and rebuilt 'Battle of Britain' 34050 *Royal Obsever Corps* in BR lined green with late crests (R3618).

In this step by step guide we will show how to dismantle the most recent version of the rebuilt 'Light Pacific', install a motor control 8-pin decoder and how to go a stage further by introducing digital sound too. The process is identical for the air-smoothed locomotives with tender mounted decoders. Read on to learn more. ■

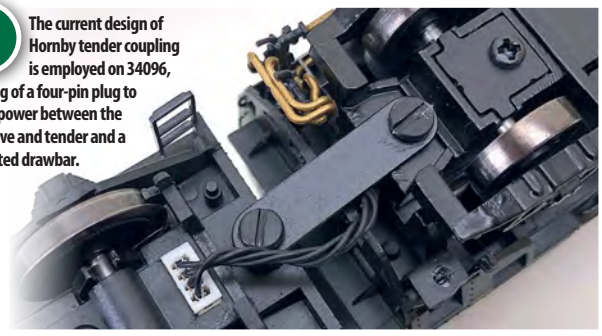
»

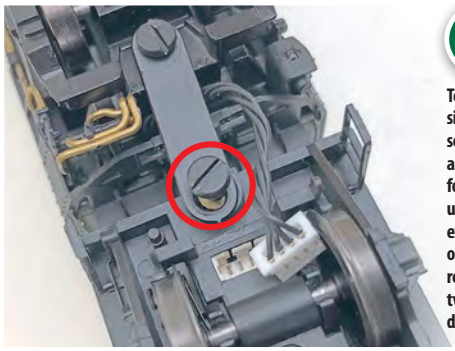
Hornby Bulleid air-smoothed 'Light Pacific' cutaway showing the internal layout.

STEP BY STEP DISMANTLING HORNBY BULLEID 'LIGHT PACIFICS'

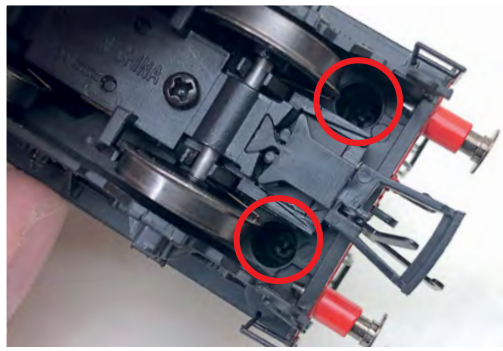
2 All of our work to add a digital control decoder to this model will focus on the tender which houses the socket and speaker location.

3 The current design of Hornby tender coupling is employed on 34096, consisting of a four-pin plug to connect power between the locomotive and tender and a screw fitted drawbar.





4 To make this project simpler to handle we separate the locomotive and tender. Unclip the four-pin plug carefully using Hornby's X6468 extractor tool (don't pull on the wires) and then release the rear of the two screws on the tender drawbar.



5 To remove the tender body, two screws secure it at the rear buried up inside the chassis. These require a crosshead screwdriver to release.

"We show how to dismanlte the most recent version and add a DCC decoder and digital sound too."

MIKE WILD

6 Removal of the tender body requires the rear to be lifted up until the front lugs disengage, but beware of the handbrake handle on the footplate – sometimes this is glued in place and can stop the tender body from being removed.

7 Inside you will find a large metal weight with the 8-pin decoder socket mounted on top. The opening in the weight is designed to accept a 28mm round speaker.

TECHNICAL DETAILS

HORNBY AIR-SMOOTHED BULLEID 'LIGHT PACIFIC'

Manufacturer:	*www.hornby.com*
First released:	2002
Cat No (featured):	R3525
Current alternatives:	R3638 (2018 release)
Description:	Bulleid original 'Light Pacific' 4-6-2
Gauge:	'OO'/16.5mm
Scale:	4mm:1ft
Length (over buffers):	270mm
Price:	£184.99
Era:	4-5
Couplings:	Small tension locks in NEM pockets
DCC:	DCC ready, 8-pin socket
Speaker space:	28mm round
Exterior lights:	None
Interior lights:	None
Motor type:	Five pole, skew wound
Flywheel:	None
BR power classification:	'7P/5F'
Wheel arrangement:	4-6-2
Purpose:	Express passenger
Haulage capacity (expected):	Eight carriages
Haulage capacity (actual):	Ten Hornby Maunsell carriages

TECHNICAL DETAILS

HORNBY REBUILT BULLEID 'LIGHT PACIFIC'

Manufacturer:	*www.hornby.com*
First released:	2007
Cat No (featured):	R3524 (2017 release)
Current alternatives:	R3618 (2018 release)
Description:	Bulleid rebuilt 'Light Pacific' 4-6-2
Gauge:	'OO'/16.5mm
Scale:	4mm:1ft
Length (over buffers):	270mm
Price:	£174.99
Era:	4-5
Couplings:	Small tension locks in NEM pockets
DCC:	DCC ready, 8-pin socket
Speaker space:	28mm round
Exterior lights:	None
Interior lights:	None
Motor type:	Five pole, skew wound
Flywheel:	None
BR power classification:	'7P/5F'
Wheel arrangement:	4-6-2
Purpose:	Express passenger
Haulage capacity (expected):	Eight carriages
Haulage capacity (actual):	Ten Hornby Maunsell carriages

DECODER OPTIONS

The following motor control decoders, and others, will fit into the Hornby Bulleid 'Pacifics' with tender mounted sockets:

- Hatton's DCR-8-pin-Harness, and DCR-8-pin-Direct
- Hornby R8249
- DCC Concepts Zen Direct and Zen Nano
- Gaugemaster DCC26, DCC27, DCC29
- Bachmann 36-553
- ESU LokPilot V4.0 54611

SOUND DECODER OPTIONS:

- Zimo MX645R with custom sound project
- ESU LokSound V4.0 8-pin with custom sound project
- This model has been fitted with an ESU LokSound V4.0 decoder loaded with *www.locomansounds.co.uk* Bulleid 'West Country' sound file and a Zimo 40mm x 20mm 3D printed speaker.

»

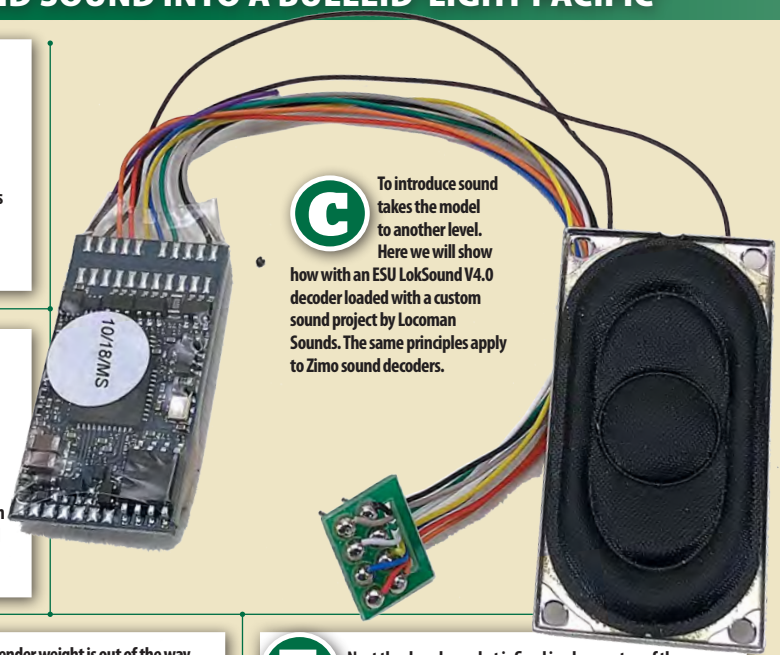
"The process is identical for the air-smoothed and rebuilt locomotives with tender mounted decoders."

MIKE WILD

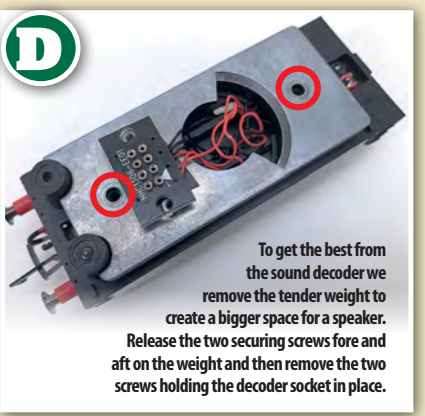
STEP BY STEP INSTALLING A DECODER AND SOUND INTO A BULLEID 'LIGHT PACIFIC'

A Fitting a standard motor control decoder is as simple as removing the blanking plug, noting the position of Pin 1 and then plugging in the decoder.
If it has a wired harness, the orange wire is always connected to Pin 1. Non-wired decoders will have Pin 1 marked on the wrapping.

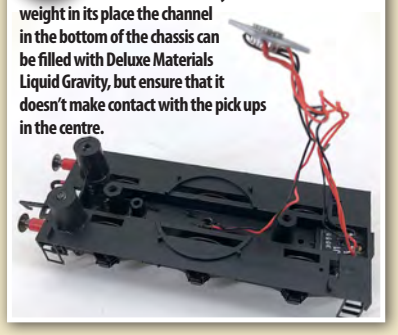
B If you want to stop at a standard motor control decoder, it is as simple as curling the wiring up for a tidy installation and positioning the decoder on top of the metal weight. The body can then be refitted and the model set to work.



C To introduce sound takes the model to another level. Here we will show how with an ESU LokSound V4.0 decoder loaded with a custom sound project by Locoman Sounds. The same principles apply to Zimo sound decoders.



D To get the best from the sound decoder we remove the tender weight to create a bigger space for a speaker. Release the two securing screws fore and aft on the weight and then remove the two screws holding the decoder socket in place.

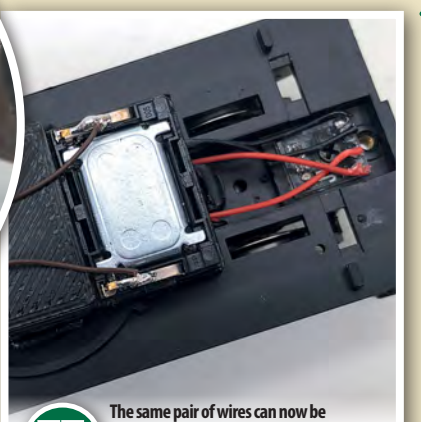


E Once the tender weight is out of the way we have a much larger space available inside the tender. If you want to add weight in its place the channel in the bottom of the chassis can be filled with Deluxe Materials Liquid Gravity, but ensure that it doesn't make contact with the pick ups in the centre.

F Next the decoder socket is fixed in place on top of the rear mount for the original weight using Black Tack. A Zimo LS 40mm x 20mm x 9mm speaker has been fitted in front requiring the front support for the metal weight to be trimmed down with a pair of side cutters.

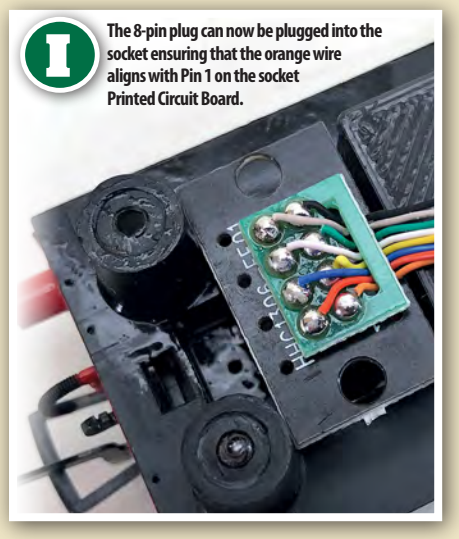
Hornby Bulleid rebuilt 'Light Pacific' cutaway showing the model's internal layout.

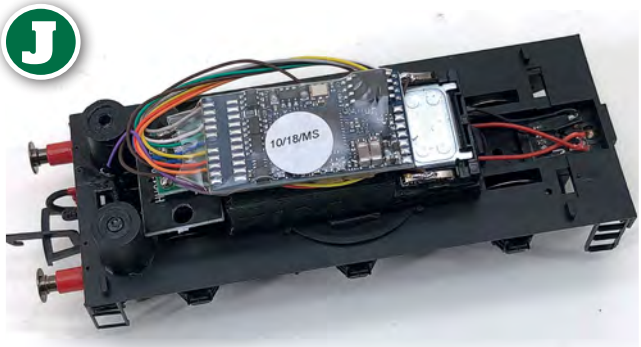
G To prepare the decoder for installation first we need to remove the factory fitted 40mm x 20mm speaker by removing its rear enclosure and de-soldering the brown speaker wires. Heat the wire connections with a soldering and then pull the wire away once the solder has melted.



H The same pair of wires can now be connected to the new speaker. Tin the connections by applying a small amount of solder with a soldering iron then reheat to connect the wires.

I The 8-pin plug can now be plugged into the socket ensuring that the orange wire aligns with Pin 1 on the socket Printed Circuit Board.





J Curl the wires of the decoder up and then fix the decoder on top of the speaker casing with Black Tack to secure it in place.

K The tender body can now be refitted and the locomotive taken onto a programming track for addressing. As an option further weight can be glued to the underside of the rear of the tender body and underneath the coal space. However, in our experience this hasn't been necessary.

HORNBY®

SR Bulleid 'Merchant Navy'

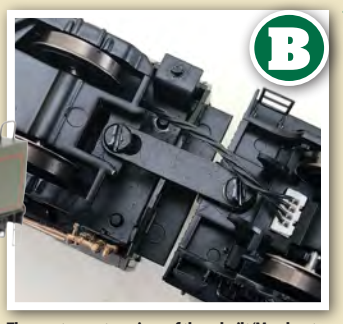
Bulleid's mighty 'Merchant Navy' 4-6-2s were exceptional machines. We explore the potential of the air-smoothed and rebuilt locomotives made by Hornby for 'OO' gauge.

The rebuilt 'Merchant Navy' (left) was Hornby's first all-new 'OO' gauge locomotive to be produced in China in 2000. 17 years on we received the air-smoothed 'Merchant' for 'OO' (right) covering all three series.

STEP BY STEP DISMANTLING HORNBY 'MERCHANT NAVY' 4-6-2s

A The rebuilt 'Merchant Navy' was the first all-new Hornby 'OO' gauge locomotive to be produced in China, but it has since been upgraded to have a tender mounted 8-pin decoder socket and space for a 28mm round speaker too. Most recently the original air-smoothed locomotives have been catered for in the 2017 released ready-to-run 'OO' gauge model.

B



The most recent versions of the rebuilt 'Merchant Navy' delivered since 2017 have Hornby's current metal drawbar and four-wire socket joining the locomotive and tender. This is identical for the air-smoothed model.

C

Hornby's X6468 tender plug extractor makes unplugging of the tender electrical connection straightforward. Don't be tempted to pull this connector out by its wires – that will almost certainly damage it.

THE BULLEID 'Merchant Navy' class was remarkable in many ways. Its appearance was outstanding and unlike anything in steam locomotive design while the fact that Bulleid was able to get permission to build these powerful 4-6-2s at the height of the Second World War is nothing short of exceptional.

The first was completed in 1941 at the Southern Railway's Eastleigh Works. It had an air-smoothed casing, chain driven valve gear encased in an oil bath, a modern welded boiler design, thermic syphons in the firebox to maximise its steam capability and a cab designed around the needs of the crew. It was a radical departure from conventional steam locomotive design – a signature of the flamboyant Southern Railway Chief Mechanical Engineer Oliver Bulleid.

In total 30 'Merchant Navy' 4-6-2s were built with numerous revisions along the way to improve the class' performance. The last weren't completed until 1949, under BR ownership, and they were seen at the head of principal expresses from London along the former London & South Western Main Line as well as on boat trains on the central section to Dover and Folkestone. Pullman trains were regular turns for the class after 1945 and the end of hostilities.

However, by the mid 1950s the air-smoothed casing and complex valve gear was becoming more and more troublesome and in 1956 BR began rebuilding the class of 30 into a conventional form. This included new Walschaerts valve gear, removal of the air-smoothed casing and myriad modifications to make them simpler to maintain and operate. All 30 were rebuilt by 1960 and in this form they continued in front line service until the end of Southern Region steam on July 9 1967. The last in service was 35030 *Elder Dempster Lines* which was withdrawn on July 9 1967.

In preservation the 'Merchants' have had a strong history with 11 of the class being saved for the future. 35005 *Canadian Pacific* and 35028 *Clan Line,* the latter in particular, have had busy careers on the main line while 35018 *British India Line* (the first to be rebuilt in 1956) has now been returned to steam and main line certified. 35006 *Peninsular and Oriental SN Co* has been fully restored at the Gloucestershire Warwickshire Railway while 35011 *General Steam Navigation* is currently being restored to original air-smoothed condition.

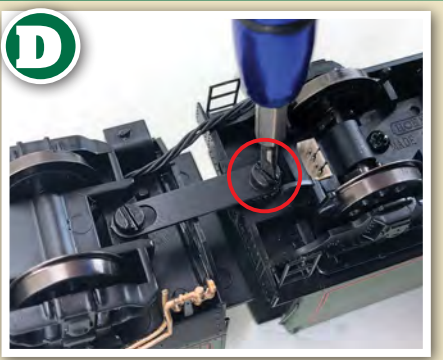
Hornby elected to produce the rebuilt 'Merchant Navy' first and it was its first China produced locomotive of the modern era. It made its debut in 2000 and took the modelling world by storm. Originally the Hornby 'MN' was released without a decoder socket, but later gained a boiler mounted 8-pin socket. More recently this »

TOOLS

DECODER & SOUND INSTALLATION

- Small crosshead screwdrivers
- Black Tack or Blu Tack
- Soldering iron

D

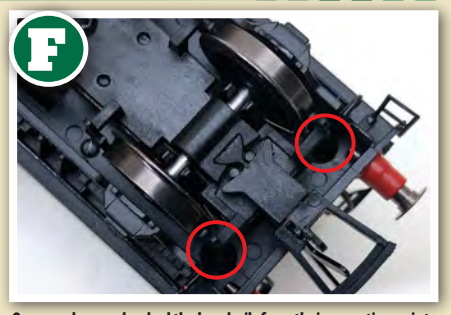


To complete separation of the locomotive and tender, undo the rear screw from the drawbar. Separating the two parts makes it easier to handle the model while working on it.

E

The tender handrails and handbrake are push fit items into the tender chassis. These need to be handled carefully during disassembly and the handbrake will prevent the body from being removed if it is not removed first. The latter is a very tight fit into its mount and is sometimes glued in place.

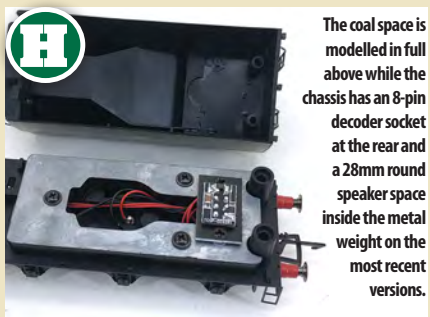
F



Once you have unhooked the handrails from their mounting points, the two screws holding the tender body in place can be removed. These are positioned in the same place on all tender styles – each side of the tender coupling mount above the rear brake shoes. A crosshead screwdriver is required to remove them.

STEP BY STEP DISMANTLING HORNBY 'MERCHANT NAVY' 4-6-2s

G The tender body lifts up from the rear until the front lugs disengage allowing full access to the interior.



H The coal space is modelled in full above while the chassis has an 8-pin decoder socket at the rear and a 28mm round speaker space inside the metal weight on the most recent versions.

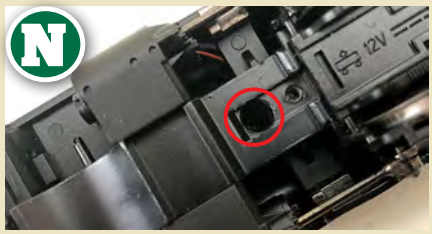
I Locomotive body removal is optional for decoder installation. The body fixing screw is located under the front bogie on the rebuilt 'MN. Turn the bogie to one side for access to the crosshead screw.

J The body lifts up from the front until the rear lugs disengage. If you have already fitted your model with front steps and brake rigging, take care handling these areas as it is easy to knock these parts off.

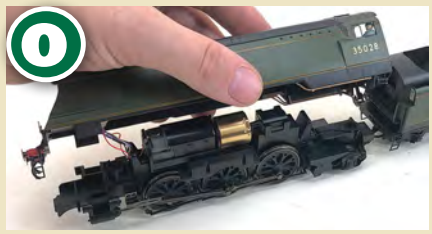
K With the decoder socket now located in the tender, the locomotive only contains the motor and gearbox as well as a pair of connections to the track pick ups.

L While the tender fixing points are identical on both the air-smoothed and rebuilt locomotives, the locomotive body fixing screws are in different positions on the new 2017 released air-smoothed models. The first screw is located at the rear of the trailing truck, buried into the casting.

M At the front of the air-smoothed model you need to remove the front bogie first to gain access to the front body fixing screw. Remove the single crosshead screw which holds the bogie in place.



N The front body fixing screw is located just behind the cylinders in a recess. It is a crosshead of the same pattern as the rear fixing screw.



O The body lifts off vertically on the air-smoothed 'Merchant Navy'. This model of 35028 has been modified for an advanced sound installation - see *Hornby Magazine Yearbook No. 10*.

has been relocated to the tender and the current models of 35014 *Nederland Line* (Cat No. R3566) and *35030 Elder Dempster Lines* (R3617) both feature space for a 28mm round speaker in the tender as well as the 8-pin socket.

In 2017 Southern Region modellers were given the chance to own the sought after air-smoothed 'Merchant Navy' when Hornby delivered its brand new model of the class. The first issues were 21C1 *Channel Packet* (R3434), 21C3 *Royal Mail* (R3435), 35028 *Clan Line* (R3436) and Twin Track Sound fitted 35023 *Holland-Afrika Line* (R3382TTS). All of these sold through quickly in 2017 and the next release is to be 35024 *East Asiatic Company* in BR lined blue with early crests (R3632) which is due to arrive in spring 2019. All of the air-smoothed 'Merchants' have tender mounted 8-pin decoder sockets and space for a 28mm round speaker.

The two versions, despite having 17 years between their original release dates, share common fixing points for the tenders, though the locomotive body fixing screws are in different locations. Our guide explains all. Read on to learn more. ■

DECODER OPTIONS

The following motor control decoders, and others, will fit into the Hornby air-smoothed and rebuilt 'Merchant Navy' 4-6-2s with tender mounted sockets:

- Hatton's DCR-8-pin-Harness, DCR-8-pin-Direct
- Hornby R8249
- DCC Concepts Zen 218 and Zen Nano
- Gaugemaster DCC26, DCC27, DCC29
- Bachmann 36-553
- ESU LokPilot V4.0 54611

TECHNICAL DETAILS

HORNBY SR AIR-SMOOTHED 'MERCHANT NAVY' 4-6-2

Manufacturer:	*www.hornby.com*
First released:	2017 (HM116)
Cat No (featured):	R3436 (2017 release)
Current alternatives:	R3632 (2019 release)
Description:	Bulleid air-smoothed 'Merchant Navy' 4-6-2
Gauge:	'OO'/16.5mm
Scale:	4mm:1ft
Length (over buffers):	291mm
Price:	£179.99
Era:	4
Couplings:	Small tension locks in NEM pockets
DCC:	DCC ready, 8-pin socket
Speaker space:	28mm round
Exterior lights:	None
Interior lights:	None
Motor type:	Five pole, skew wound
Flywheel:	One
BR power classification:	'8P'
Wheel arrangement:	4-6-2
Purpose:	Express passenger
Haulage capacity (expected):	Ten carriages
Haulage capacity (actual):	Ten Bachmann Mk 1 carriages

TECHNICAL DETAILS

HORNBY BULLEID REBUILT MERCHANT NAVY' 4-6-2

Manufacturer:	*www.hornby.com*
First released:	2000
Cat No (featured):	R3566 (2017 release)
Current alternatives:	R3617 (2018 releases)
Description:	Bulleid rebuilt 'Merchant Navy' 4-6-2
Gauge:	'OO'/16.5mm
Scale:	4mm:1ft
Length (over buffers):	282-291mm
Price:	£169.99-£185.99
Era:	4/5
Couplings:	Small tension locks in NEM pockets
DCC:	DCC ready, 8-pin socket
Speaker space:	28mm round
Exterior lights:	None
Interior lights:	None
Motor type:	Five pole, skew wound
Flywheel:	None
BR power classification:	'8P'
Wheel arrangement:	4-6-2
Purpose:	Express passenger
Haulage capacity (expected):	Ten carriages
Haulage capacity (actual):	Ten Bachmann Mk 1 carriages

8-pin DCC decoder socket and 28mm speaker space in tender.

Adjustable tender drawbar.

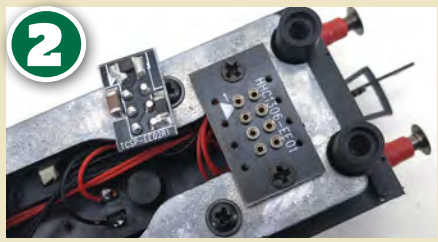
SOUND DECODER OPTIONS

- Zimo MX645R with custom sound project
- ESU LokSound V4.0 8-pin with custom sound project

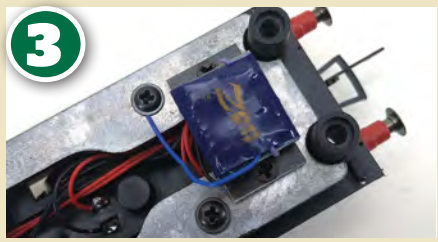
This model has been fitted with an ESU LokSound V4.0 decoder loaded with *www.locomansounds.co.uk* Bulleid 'West Country' sound file and a Digitrains 28mm round speaker.

STEP BY STEP INSTALLING A DECODER AND SOUND

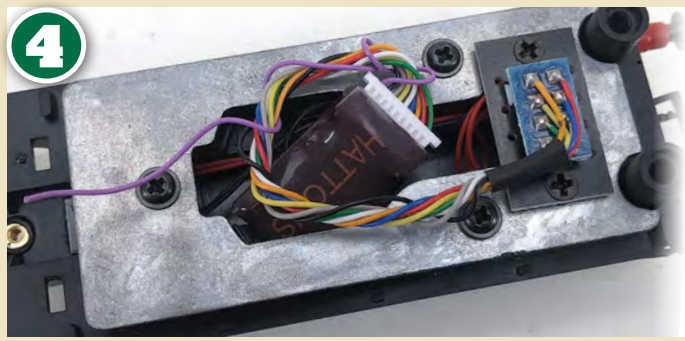
1 Using the tender of the rebuilt 'Merchant Navy' 35014 as the basis, this is the 8-pin decoder socket located at the rear of the tender. All versions, no matter which tender, have the socket in this location when it is in the tender.



2 The 8-pin socket is delivered with a blank in place to allow it to operate on analogue layouts. Test the model first on analogue and then remove the blank by easing it up with even pressure on each side. Pin 1 is marked on the circuit board and the blank.

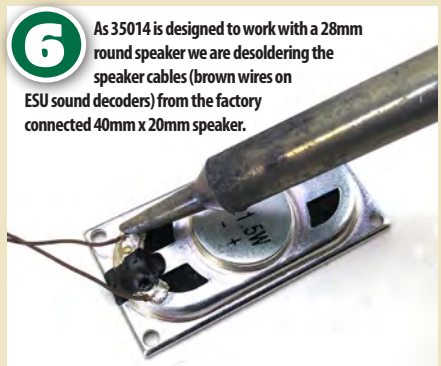


3 The socket location allows a direct plug 8-pin decoder such as those produced by DCC Concepts, Gaugemaster and Hatton's to be used. Align Pin 1 as marked on the decoder with Pin 1 on the socket to complete conversion to digital control.



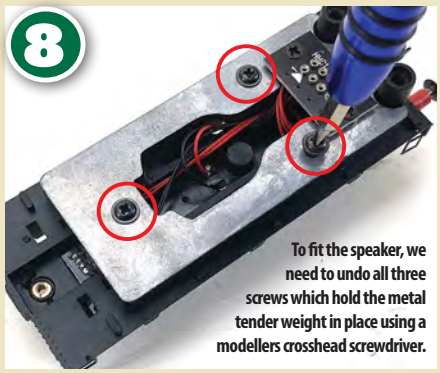
4 A harnessed 8-pin decoder socket can also be used with the 'Merchant Navy' 4-6-2s by housing it in the tender weight. Align the orange wire on the decoder plug with Pin 1 on the socket. If you wish you can stop at this point and reassemble your model for operation. Alternatively, follow the next steps to upgrade the model to digital sound.

5 Having removed the previous motor control decoder we are now going to install an ESU LokSound V4.0 8-pin decoder loaded with Locoman Sounds' Bulleid 'West Country' sound file. This particular decoder has come connected to a 40mm x 20mm speaker which won't fit into the tender of 35014.

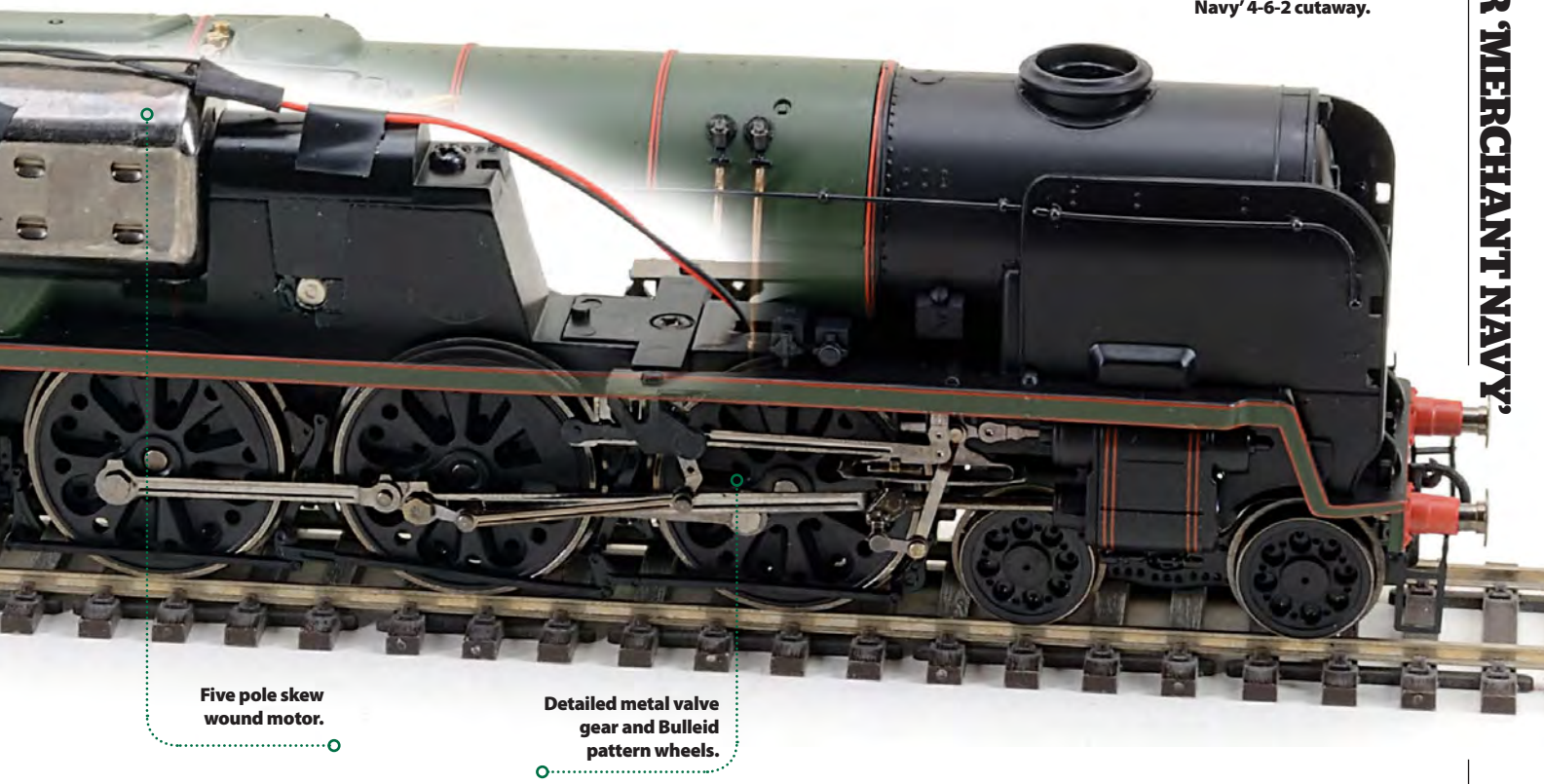


6 As 35014 is designed to work with a 28mm round speaker we are desoldering the speaker cables (brown wires on ESU sound decoders) from the factory connected 40mm x 20mm speaker.

7 In its place we have attached the brown wires to a high quality 28mm round speaker from *www.digitrains.co.uk*. Simply hold the wires in place and heat the solder connections on the speaker to set the two brown cables in place.



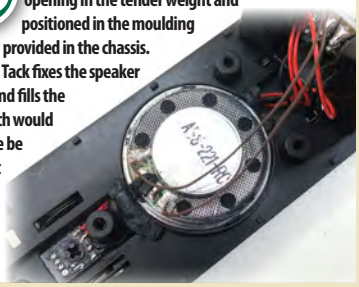
8 To fit the speaker, we need to undo all three screws which hold the metal tender weight in place using a modellers crosshead screwdriver.



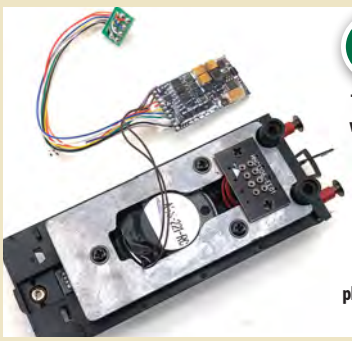
Hornby rebuilt 'Merchant Navy' 4-6-2 cutaway.

9 With the weight tipped up towards the rear we have used Black Tack (Blu Tack can also be used) to secure the original decoder wiring into the well along the centre of the tender chassis. This same material has also been used to fill the gaps in the well to ensure the best audio output from the speaker by sealing the front and rear sounds from each other.

10 The speaker is then fed through the opening in the tender weight and positioned in the moulding provided in the chassis. The Black Tack fixes the speaker in place and fills the gaps which would otherwise be prevalent at each end.

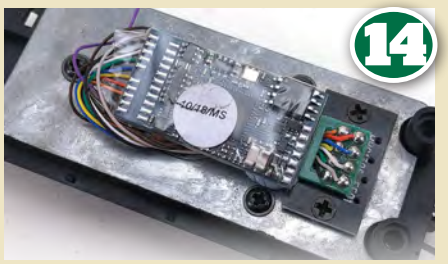


11 To ensure there is no chance of a short circuit, the speaker connections are covered with insulation tape before the tender weight is put back in place.



12 The tender weight has now been refitted which securely holds the speaker in place on the chassis.

13 Plug in the 8-pin plug from the decoder into the socket by aligning the orange wire with Pin 1 on the locomotive socket.



14 The decoder wires can then be neatly curled round underneath it and the decoder fixed in place on top of the tender weight with Blu Tack to keep it in place for reassembly.

15

After reversing the disassembly process, 35014 is now ready for testing, addressing and setting to work on our layout.

Hatton's Est.1946 MODEL RAILWAYS

SR Express

Hornby SR Class N15 'King Arthur' 4-6-0

HORNBY

©Cecil J Allen

Digital Decoder Options

Hatton's DCR-8PIN-Harness - £15
Hornby R8249 - £16
Hornby S15 TTS decoder with sound R8116 - £36
(suitable for King Arthur locos)

Standard chip fitting service - £12. More info on page 132.

New versions available

R3527 742 "Camelot" in Southern Railway wartime black - In stock at £149

BARGAIN

R3456 30792 "Sir Hervis de Revel" in BR lined green with early emblem - In stock at £108

Pre-Owned versions available

Limited Stock
www.hattons.co.uk updated every day

R2620-PO01 746 "Pendragon" in SR malachite green Pre-Owned - Like New - Limited stock at £94

R3010-PO E771 "Sir Sagramore" in Southern green Pre-Owned - Like New - Limited stock at £103

R2582-PO02 30803 "Harry Le Fise Lake" in BR green with early emblem - Limited stock at £108

R2583-PO04 30453 "King Arthur" in BR green with late crest Pre-Owned - Like New - Limited stock at £120

Hornby SR West Country & Battle of Britain 4-6-2s

HORNBY

©Hugh Llewelyn

Digital Decoder Options

Hatton's DCR-8PIN-Harness - £15
Hornby R8249 - £16
Hornby Merchant Navy TTS decoder with sound R8115 - £36 (suitable for Bulleid Light Pacifics)

Standard chip fitting service - £12. More info on page 132.

Forthcoming Releases

R3638 34049 "Bideford" in BR green with late crest Due in stock November 2018 at £148

R3618 34050 "Royal Observer Corps" in BR green late crest Due in stock July 2018 at £144

New versions available

R3525 S21C159 "Sir Archibald Sinclair" in British Railways malachite green - In stock at £139.50

R3524 34096 "Trevone" in BR green late crest In stock at £144

R3400 34100 "Appledore" in BR green with late crest and three Pullman coaches - In stock at £269

Pre-Owned versions available

Limited Stock
www.hattons.co.uk updated every day

R2219-PO 21C123 "Blackmoor Vale" in SR malachite green Pre-Owned - DCC Fitted - Limited stock at £150

R2221-PO 34067 "Tangmere" in BR green with early emblem Pre-Owned - Like New - Limited stock at £160

R2606-PO 34109 "Sir Trafford Leigh Mallory" in BR green with late crest - Pre-Owned - Like New - Limited stock at £164

Locomotives

Hornby SR Merchant Navy 4-6-2

Digital Decoder Options

Hatton's DCR-8PIN-Harness - £15
Hornby R8249 - £16
Hornby Merchant Navy TTS decoder with sound R8115 - £36
Standard chip fitting service - £12. More info on page 132.

Pre-Owned versions available
Limited Stock
www.hattons.co.uk updated every day

New versions available

R3566 35014 "Nederland Line" in BR green early emblem
In stock at £157

R3617 35030 "Elder Dempster Lines" in BR green late crest
In stock at £136

R3434-PO 21C1 "Channel Packet" in SR malachite green - Pre-Owned - Like New - Limited stock at £199

R3382TTS-PO 35023 "Holland-Afrika Line" in BR green with early emblem - TTS sound fitted
Pre-Owned - Like New - Limited stock at £216

R2171-PO02 35005 "Canadian Pacific" in BR blue with early emblem - Pre-Owned - Like New - Limited stock at £140

R2204-PO04 35020 "Bibby Line" in BR green with early emblem - Pre-Owned - Like New - Limited stock at £120

R2170-PO03 35023 "Holland-Afrika Line" in BR green with early emblem - Pre-Owned - Like New - Limited stock at £124

R2169-PO06 35028 "Clan Line" BR green with late crest
Pre-Owned - Like New- Limited stock at £125

Hornby SR Class LN 'Lord Nelson' 4-6-0

Digital Decoder Options

Hatton's DCR-8PIN-Harness - £15
Hornby R8249 - £16
Hornby S15 TTS decoder with sound R8116 - £36
(suitable for Lord Nelson locomotives)
Standard chip fitting service - £12. More info on page 132.

Pre-Owned versions available
Limited Stock
www.hattons.co.uk updated every day

Bachmann versions of the Lord Nelson locomotives were originally released in 2006 and feature a split chassis design.

This means that we are unable to offer digital fittings on these locomotives.

The forthcoming Hornby models will feature an 8-pin socket and we will be offering our usual fitting services.

31-407-PO06 856 "Lord St Vincent" in SR green
Pre-Owned - Like New - Limited stock at £76

31-403-PO02 30861 "Lord Anson" in BR green with late crest
Pre-Owned - Like New - Limited stock at £76

Forthcoming Releases

R3634 851 "Sir Francis Drake" in SR olive green
Due in stock October 2018 at £136

R3635 30863 "Lord Rodney" in BR green with early emblem
Due in stock November 2018 at £136

R3603TTS 30850 "Lord Nelson" in BR green with late crest
TTS Sound Fitted
Due in stock November 2018 at £156

HORNBY® LMS 'Princess Royal'

The first LMS 'Pacific' has been a longstanding part of the Hornby range, but has been out of the catalogue since 2013. We show how to dismantle the Stanier 'Princess Royal' 4-6-2 and explains what you need to do to upgrade it to digital and sound operation.

TOOLS

DECODER INSTALLATION
- Small flatblade screwdrivers
- Hexagonal nut driver/tweezers

SOUND DECODER INSTALLATION
- Small crosshead screwdriver
- Soldering iron
- Wire strippers
- Small scissors
- Heat shrink tubing
- Black tack or Blu Tack
- Insulation tape

IN THE EARLY 1930s the London Midland & Scottish Railway (LMS) had stiff competition from its great rival the London and North Eastern Railway (LNER). It needed to bridge the gap to provide faster trains which would be competitive with the LNER between London and Scotland.

The first step in the bold plan was to appoint William Stanier as the Chief Mechanical Engineer for the LMS. He brought with him a wealth of knowledge from the Great Western Railway (GWR) including the principles and potential of taper boiler designs. Just one year after his appointment, the first of Stanier's 'Princess Royal' 4-6-2s emerged from Crewe Works in 1933 offering a locomotive which was bigger and more powerful than anything that had run on the LMS network before.

This long wheelbase 4-6-2, 6200 *The Princess Royal*, was the first of 12 locomotives which would set the LMS on course to produce one of the finest 'Pacifics' Britain's railways have ever known – the Stanier 'Princess Coronation' class. However, in 1933 the 'Princess Royals' were the pinnacle of locomotive design and having settled into service, one of the class, 6201 *Princess Elizabeth*, soon stood out from the crowd. In November 1936 6201, which is now preserved by the 6201 Princess Elizabeth

STEP BY STEP

DISMANTLING A HORNBY LMS 'PRINCESS ROYAL' 4-6-2

A

The Hornby 'Princess Royal' 4-6-2 hasn't been listed in the annual catalogue since 2011 as a DCC ready model, though a DCC sound fitted model was listed until 2013. This is one of the last two DCC ready versions to be made – 46201 *Princess Elizabeth* in BR lined green with late crests which was released in 2009 (Cat No. R2823).

C

To begin removing the tender body, turn it upside down to find the single crosshead screw (located to the left of the drawbar pin in this image). Undo this screw with a suitable modeller's screwdriver.

B

The 'Princess Royal' is amongst the simplest to separate in this Locomotive Manual. Simply unhook the tender from its drawbar. No screws need to be released to perform this operation and if you are taking it out of the box for the first time you will find the two halves are already separate.

Hornby's Stanier 'Princess Royal' 4-6-2 was last produced in 2011. This is the 2009-released model of 46201 *Princess Elizabeth* in BR lined green with late crests (Cat No. R2823). It has a locomotive mounted 8-pin decoder socket and space for a 28mm round speaker in the tender.

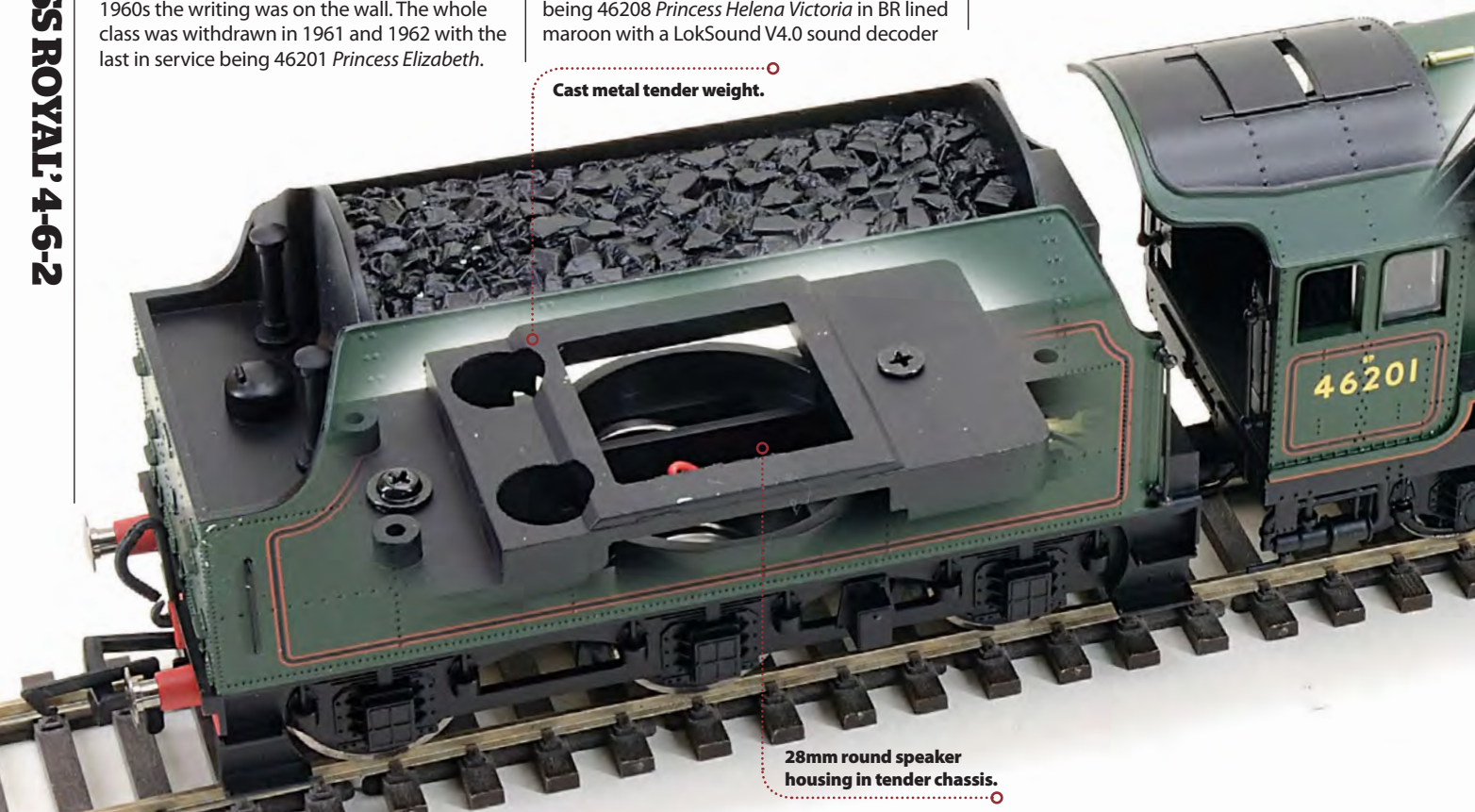
Society, set the record for the longest and fastest non-stop run by a steam locomotive. It achieved 401 miles from London to Glasgow in 5hrs 53 minutes and the return journey, at an average speed of 70.1mph, in 5hrs 45 minutes.

The 'Princess Royal' fleet continued in service through the 1940s and into British Railways ownership at nationalisation. Their home was the West Coast Main Line, though by the early 1960s the writing was on the wall. The whole class was withdrawn in 1961 and 1962 with the last in service being 46201 *Princess Elizabeth*.

Fortunately, both 46201 and 46203 *Princess Margaret Rose* were saved for preservation and the legacy of these fine 1930s 4-6-2s lives on.

Hornby produced its first model of the 'Princess Royal' class in 1959 as part of the Tri-ang Railways empire, but this was superseded by new versions in the 1970s and again in 2003 by the most recent iteration. This was available until 2013 – the last version being 46208 *Princess Helena Victoria* in BR lined maroon with a LokSound V4.0 sound decoder on board (Cat No. R2990XS). The last DCC ready model was 46207 *Princess Arthur of Connaught* (R3015) which was listed in the 2011 catalogue.

Our project is based on the model of 46201 *Princess Elizabeth* released in 2009 as part of Hornby's Pete Waterman Collection. It has an 8-pin decoder socket mounted in the locomotive and space for a 28mm round



STEP BY STEP DISMANTLING A HORNBY LMS 'PRINCESS ROYAL' 4-6-2 CONTINUED...

D Once the screw has been removed, lift the tender body up from the front until the rear plastic lug disengages from the rear of the chassis weight.

E This final generation of Digital Command Control (DCC) ready 'Princess Royal' models had provision for a 28mm round speaker in the tender chassis, but the decoder socket is still retained in the locomotive. The DCC sound fitted model of 46211 (Cat No. R2990XS) has both the decoder and speaker in the tender.

F Moving to the locomotive, the most important point to check is whether the locomotive has a speedometer drive or not. If it does you will need to undo the hexagonal screw which holds it onto the rear driving wheel.

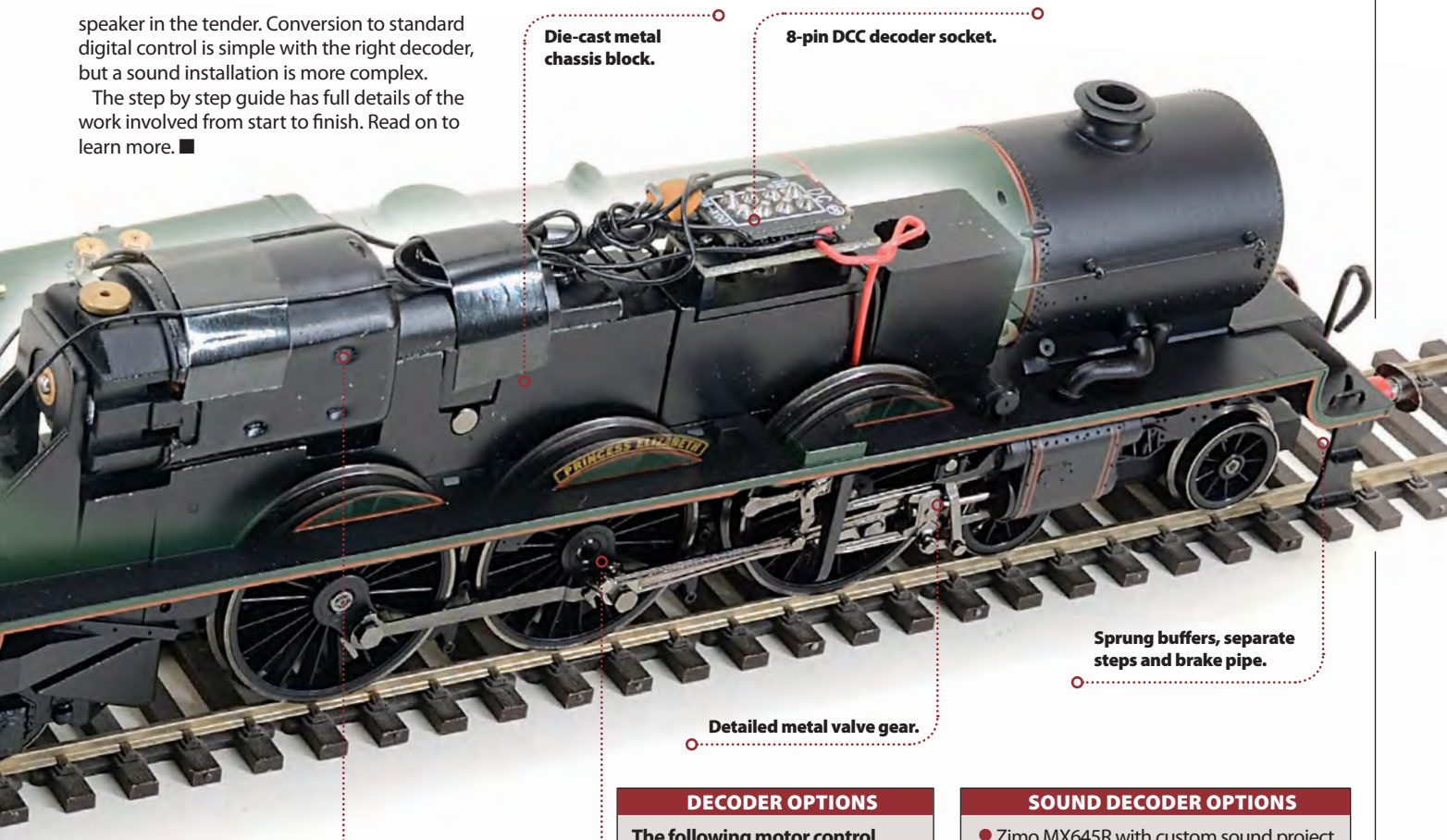
G Hornby produces a specific nut driver for motion screws, but if you don't have one the nut can be undone with careful use of a pair of tweezers.

H As you take the securing screw out be careful of the spacer – this is loose on the boss and needs to be lifted off and kept safe for reassembly.

I The locomotive body only has one fixing screw – a slotted design located above the front bogie. Swing the bogie to one side for access and use an appropriate flat blade screwdriver to release it.

speaker in the tender. Conversion to standard digital control is simple with the right decoder, but a sound installation is more complex.

The step by step guide has full details of the work involved from start to finish. Read on to learn more. ■



DECODER OPTIONS

The following motor control decoders, and others, will fit into the Hornby 'Princess Royals' with locomotive mounted sockets:

- Hatton's DCR-8-pin-Harness
- Hornby R8249
- Gaugemaster DCC26

SOUND DECODER OPTIONS

- Zimo MX645R with custom sound project
- ESU LokSound V4.0 8-pin with custom sound project

This model has been fitted with a Zimo MX645R decoder loaded with *www.digitrains.co.uk* ZS003A LMS two/four cylinder sound file.

J Our model had a damaged front screw mount which meant that the body could slide back to release the rear mount. Without this defect, the lifting action would be the opposite way round – lifting the boiler from the smokebox end until the rear lug disengages.

K With the body off, the chassis' internal workings are revealed. The 8-pin decoder socket is mounted at the front above the leading driving wheel and space is at a premium inside.

TECHNICAL DETAILS

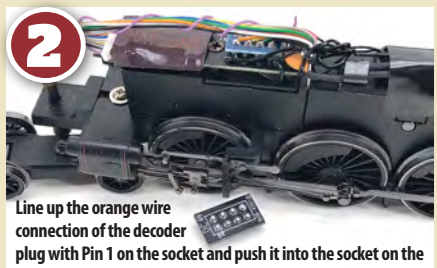
HORNBY LMS 'PRINCESS ROYAL' 4-6-2

Manufacturer:	*www.hornby.com*
First released (current version):	2001
Cat No (featured):	R2823 (2009 release)
Alternatives:	R2990XS (2011 release, ESU sound fitted)
Description:	Stanier 'Princess Royal' 4-6-2
Gauge:	'OO'/16.5mm
Scale:	4mm:1ft
Length (over buffers):	297mm
Price:	Not currently listed
Era:	5 (R2823)
Couplings:	Small tension lock in NEM pocket (rear only)
DCC:	DCC ready, 8-pin socket
Speaker space:	28mm round
Exterior lights:	None
Interior lights:	None
Motor type:	Five pole, skew wound
Flywheel:	None
BR power classification:	'7P' – '8P' from 1951
Wheel arrangement:	4-6-2
Purpose:	Express passenger
Haulage capacity (expected):	Eight to ten carriages
Haulage capacity (actual):	Ten Hornby Mk 1 carriages

STEP BY STEP INSTALLING A DECODER AND SOUND

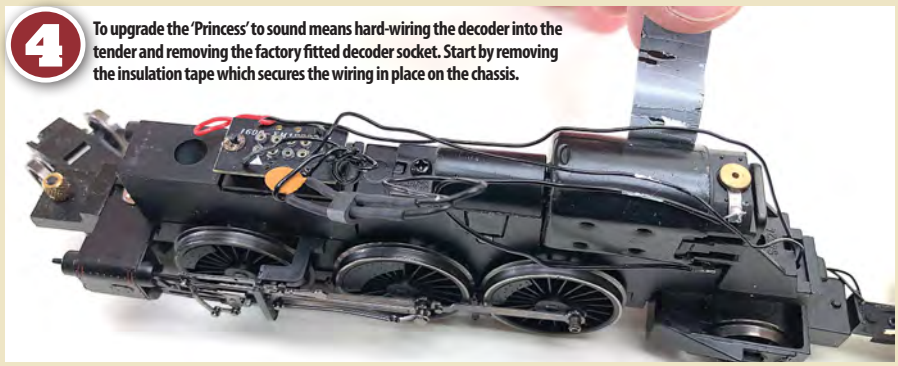
1 The 8-pin decoder socket of DCC ready 'Princess Royal' 4-6-2s makes conversion to digital operation straightforward, even though it is located in the boiler. Note the orientation of Pin 1 on the socket blank before removing it.

2 Line up the orange wire connection of the decoder plug with Pin 1 on the socket and push it into the socket on the locomotive. Keep your wires neat so that the decoder can be positioned inline with the socket Printed Circuit Board (PCB) so that it fits in the boiler barrel. You can now choose to refit the body and set the model to work or follow the next steps to upgrade to sound.



3 Installing a sound decoder in the 'Princess' is one of the more complicated projects in this manual. We are using a Zimo MX645R decoder (which will replace the Hatton's 8-pin decoder shown in Step B) together with a high quality Zimo twin driver 55mm x 22mm x 9mm 3D printed speaker.

4 To upgrade the 'Princess' to sound means hard-wiring the decoder into the tender and removing the factory fitted decoder socket. Start by removing the insulation tape which secures the wiring in place on the chassis.



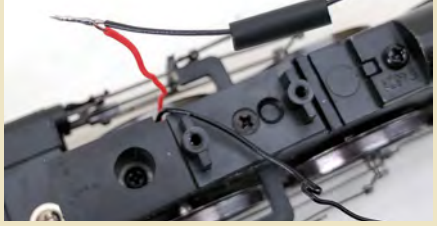
5 Next, undo the two screws which hold the decoder socket board in place using a crosshead screwdriver.

6 From here on in you need to work methodically and carefully to ensure all the wires are correctly reconnected at the end of the process. Using a pair of small scissors, cut the red track connection from the decoder socket. The aim is to keep the black lead connected to it (which runs back to the tender) attached for the time being. Repeat for the black pick-up wire on the other side.

7 Cut both wires from the motor terminals and discard them – we will replace them with new wire later in the process.

8 Your chassis will now look quite bare with only the track connections joined together through to the tender.

9 Next, we replaced the original lead between the locomotive and tender pick-ups with a new wire using black decoder wire so that continuity doesn't rely on the tender drawbar. Bare the ends of the two wires, twist together and then solder in place.

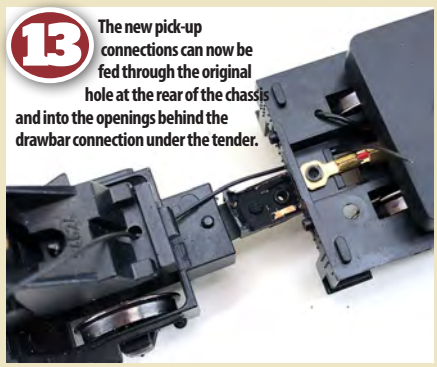


10 Slide heatshrink tubing over the new join and warm it with the side of a soldering iron to make a secure and insulated cover for the pick-up wire.

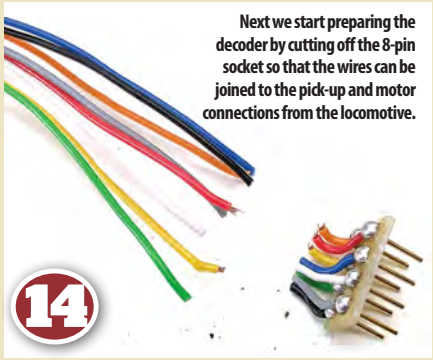
11 Repeat the process for the black wire from the other pick-up. To make sure we can keep track of which wire is which – since they are now both black – we add a spot of Blu Tack to the end of the red pick-up wire until it is connected to the decoder.

12 Keep the wiring in the locomotive neat – there isn't much space. Black insulation tape is ideal to keep the wires in position around the chassis.

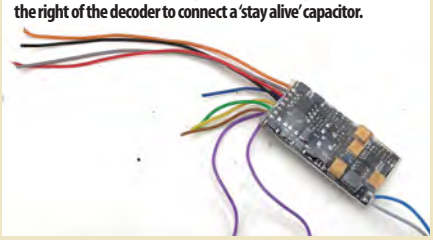
13 The new pick-up connections can now be fed through the original hole at the rear of the chassis and into the openings behind the drawbar connection under the tender.



14 Next we start preparing the decoder by cutting off the 8-pin socket so that the wires can be joined to the pick-up and motor connections from the locomotive.



15 We only need to keep the two purple speaker wires together with the red, black, grey and orange wires from the left-hand end of the decoder full length – the brown, yellow, green, blue and white can all be reduced in length. Make sure you retain the grey and blue wires on the right of the decoder to connect a 'stay alive' capacitor.



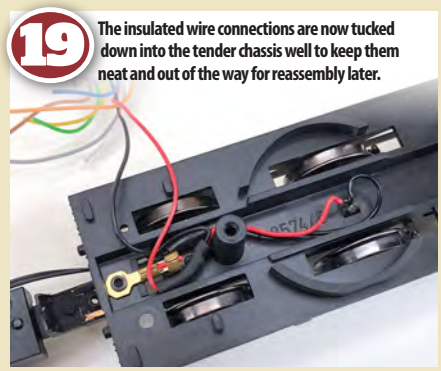
16

To join the pick-up connections from the locomotive to those in the tender – and in turn to the red and black wires from the decoder – the tender weight needs to be removed. Undo the two securing screws with a crosshead screwdriver.

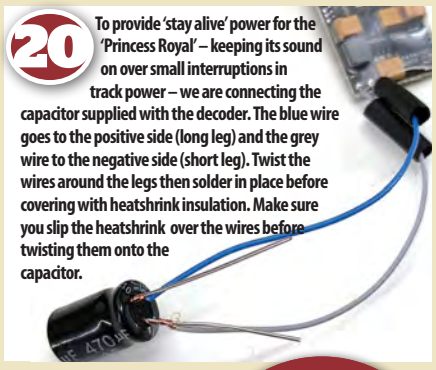
17 Starting with the black pick-up, here we have twisted together our new wire from the locomotive, the original tender pick-up wire (cut from the solder pad underneath) and the black wire from the decoder. These can be soldered together and then covered with heatshrink tubing.

18 Next we repeat the process for the red wire using the extended wire from the locomotive and the original tender pick-up.

19 The insulated wire connections are now tucked down into the tender chassis well to keep them neat and out of the way for reassembly later.



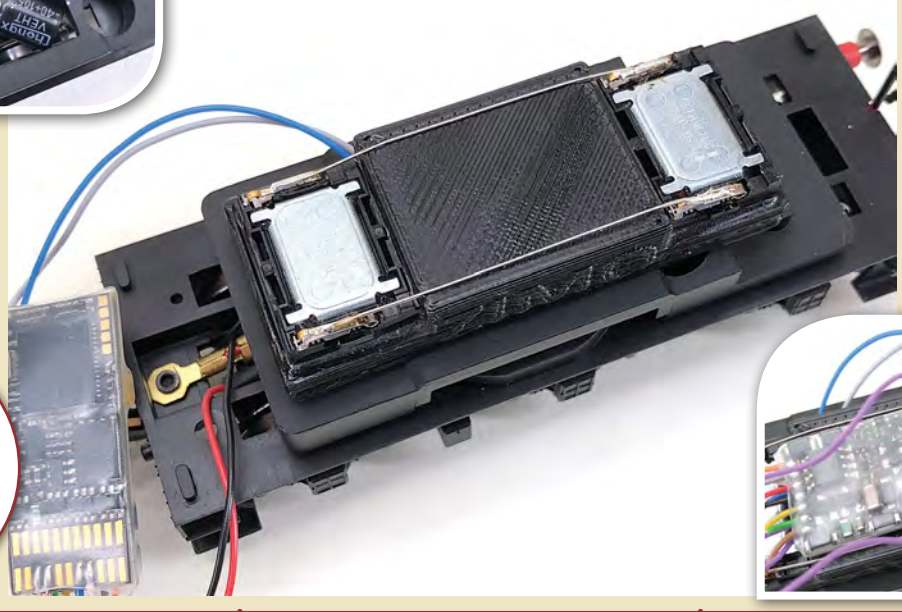
20 To provide 'stay alive' power for the 'Princess Royal' – keeping its sound on over small interruptions in track power – we are connecting the capacitor supplied with the decoder. The blue wire goes to the positive side (long leg) and the grey wire to the negative side (short leg). Twist the wires around the legs then solder in place before covering with heatshrink insulation. Make sure you slip the heatshrink over the wires before twisting them onto the capacitor.



21

The tender weight has now been refitted and the capacitor neatly fits into the well in its centre. The Black Tack either side of the well is to secure the speaker in place.

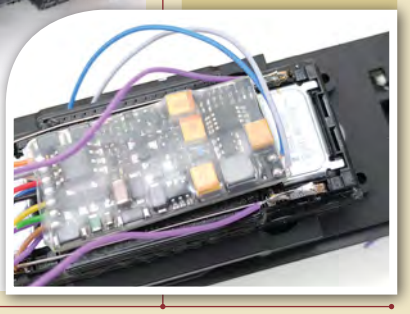
22 One of the great advantages for sound of this earlier model design is that there is lots of space inside the tender. This means we can keep the tender weight and position this large Zimo 55mm x 22mm speaker on top while still leaving room for a decoder and 'stay alive' capacitor too.



TIP

Keep motor and pick up connections together in pairs when hard wiring decoders to avoid confusion.

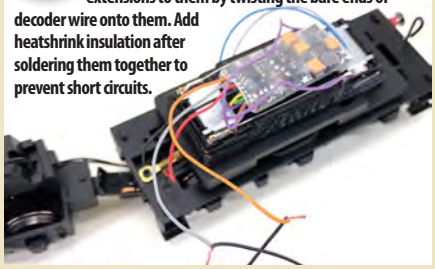
23 The decoder can now be mounted on top of the speaker with Black Tack and then the purple speaker wires can be trimmed to length and soldered to the speaker connections. Polarity is not important.



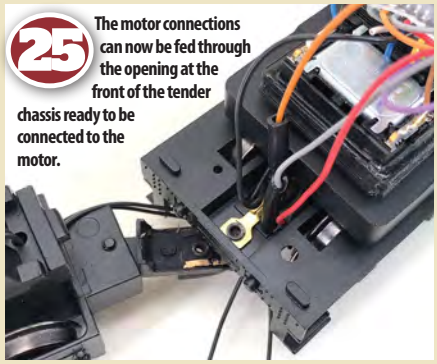
TIP

Plan the route of wires carefully and use factory provided openings wherever possible.

24 With the decoder, speaker and capacitor in place we can now finish off the motor connections. Bare the ends of the orange and grey wires then add extensions to them by twisting the bare ends of decoder wire onto them. Add heatshrink insulation after soldering them together to prevent short circuits.



25 The motor connections can now be fed through the opening at the front of the tender chassis ready to be connected to the motor.



26 The final connections have now been made. Test the model for direction of travel before refitting the body. If it runs the wrong way on DCC, switch the motor connections over and it will correct the direction of travel. Once that has been checked the body can be refitted by reversing the initial steps, the decoder addressed and locomotive set to work with realistic sounds.

HORNBY®

LMS 'Princess Coronation'

TOOLS

DECODER INSTALLATION
» Crosshead screwdrivers
» Flatblade screwdriver

SOUND INSTALLATION
» Small crosshead screwdriver
» Soldering iron
» Heat shrink tubing
» Black tack
» Insulation tape

Stanier's mighty 'Princess Coronations' were amongst the most powerful passenger locomotives to operate on the British railway network. We provide the full lowdown on dismantling and decoder fitting for Hornby's latest model.

YOU CANNOT FAIL TO BE impressed by Stanier's 'Princess Coronation' 4-6-2s. With their giant boiler filling the loading gauge, smoke deflectors, large cab and powerful stance, this fleet of 38 locomotives was once the pride of the West Coast Main Line taking all the heaviest trains from London to the North West and Scotland.

Introduced in 1938, the locomotives were built in streamlined and non-streamlined form. The streamlined locomotives were built at a time when speed and publicity worked hand in hand as the London Midland & Scottish Railway (LMS) aimed to trump its great rival, the London and North Eastern Railway in achieving the fastest journey time from London to Scotland. It was a colourful period with the streamlined locomotives carrying either LMS crimson lake with gold lining or Caledonian blue with silver lining. Carriages were painted to match too.

In the late 1940s the streamlined casing was removed from all of those built with it leading to all the class having a standard look. There were still detail differences – some retained the sloping smokebox top from streamlining for several years for example – while the last two to be built, 46255 and 46256, were to a modified design by Ivatt. The last was withdrawn in 1964 and three have been preserved: 6229 *Duchess of Hamilton* in streamlined form at the National Railway Museum, 6223 *Duchess of Sutherland,* which has been active on the main line and 46235 *City of Birmingham,* which is a static exhibit at the Thinktank Science Museum in Birmingham.

Hornby has produced models of the 'Coronation' – or 'Duchess' if you prefer – since 1948 when Hornby Dublo revealed its plans for a three-rail model of the class. Since then it has been remade several times over, leading to the ultimate example for 'OO' gauge which arrived at the end of 2017 as 6231 *Duchess of Atholl* in LMS crimson lake without smoke deflectors (Cat No. R3553) and 46256 *Sir William A Stanier F.R.S.* in BR lined maroon with late crests (R3555). These were followed in February 2018 by a Twin Track Sound fitted model of 46235 *City of Birmingham* in BR lined green (R3509TTS).

However, the good news for 'Duchess' fans doesn't stop there. As part of its 2018 line-up Hornby is producing a brand new version of the streamlined Stanier 'Princess Coronation' for release in the autumn and better still, Hornby Hobbies has informed *Hornby Magazine* that it employs the same body fixing methods and decoder provision as the non-streamlined model. Plus, if you own the previous generation of 'Duchess' with a tender mounted decoder socket, all the methods shown in our step by step guide are identical – the only difference is that the tender has a single screw at the front rather than a pair. Should you have an earlier model with the decoder socket in the locomotive our guide to the 'Princess Royal' 4-6-2s on pages 40-45 will be an ideal starting point. Read on to learn more. ■

STEP BY STEP

DISMANTLING A HORNBY LMS 'PRINCESS CORONATION' 4-6-2

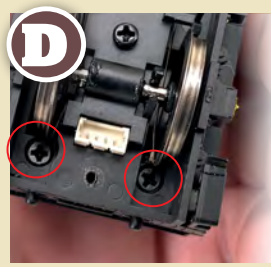
A The latest version of the Hornby Stanier 'Princess Coronation' touched down at the end of 2017 offering a higher level of detail than seen before and the first opportunity to own a ready-to-run Ivatt 'Duchess', as illustrated here by 46256 *Sir William A Stanier F.R.S.* (Cat No. R3555).

B

Dismantling starts by separating the locomotive and tender to avoid damaging the wires between the two. The 'Princess Coronation' has Hornby's standard arrangement of a drawbar fixed with slotted screws at both ends and a four-wire plug to join the two halves electrically.

C Remove the four-pin plug from the tender with Hornby's X6468 extractor tool and then release the slotted screw at the tender side. The locomotive and tender can then be separated.

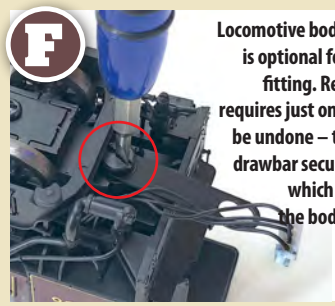
D



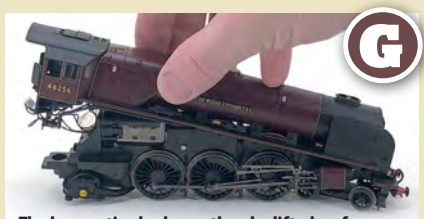
The tender body is secured to its chassis at the front by two crosshead screws. Release these with a crosshead jewellers or modelling screwdriver first.

E Lift the tender body up with an arcing motion to release the rear plastic lugs which secure the tender body at the rear and you have full access to the decoder socket and speaker location.

F Locomotive body removal is optional for decoder fitting. Removing it requires just one screw to be undone – the tender drawbar securing screw which also holds the body in place.



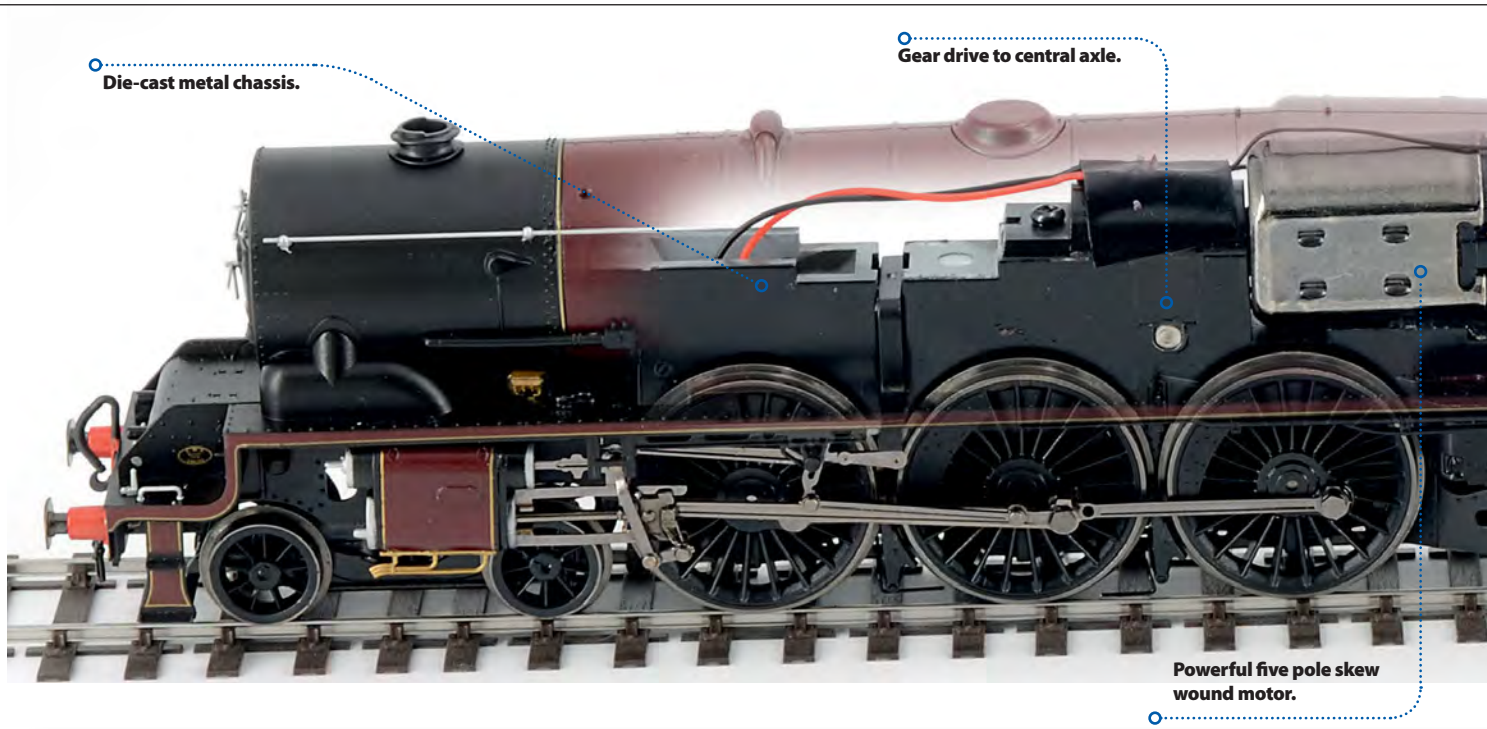
G



The locomotive body can then be lifted up from the rear until the front lug disengages from the chassis block.

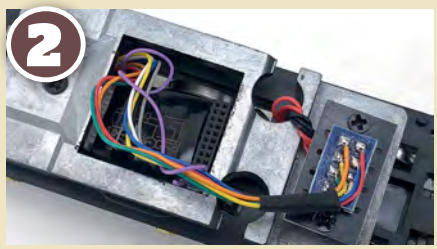
H With the body off, the chassis block and wiring is clear to see. The red and black wires running to the front of the locomotive are the pick-up connections. The motor is mounted towards the rear and drives the rear axle.

The latest version of the Stanier 'Duchess' for 'OO' arrived at the end of 2017 offering a brand new tooling for the entire locomotive. It also offers the final Ivatt locomotives in ready-to-run form for the first time. This is 46256 *Sir William A Stanier F.R.S* in BR lined maroon (Cat No. R3555).



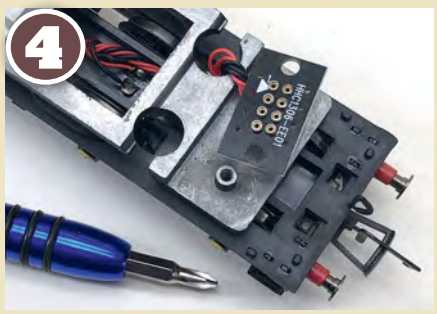
STEP BY STEP INSTALLING A DECODER AND SOUND

Decoder fitting begins by removing the 8-pin blanking plug while noting the position of Pin 1 on the socket – marked by the white arrow and No. 1 in this case.

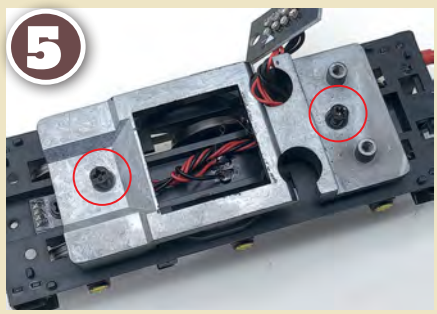


An 8-pin decoder can be plugged straight into the socket without modification while the speaker well in the tender weight can be used to house the decoder. Here we have installed a Gaugemaster DCC29 21 and 8-pin decoder using the 8-pin connection.

To create the ultimate 'Princess Coronation' we are going to add sound using a Zimo decoder loaded with Digitrains ZS003A sound file, a capacitor for 'stay alive' and a Zimo LS 40mm x 22mm x 9mm twin driver 3D printed speaker.



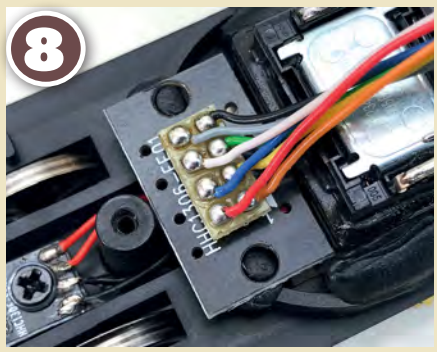
To begin this sound installation, we need to remove the tender weight. Start by releasing the screws holding the decoder socket in place.



Then release the two crosshead screws which hold the metal tender weight in place and remove the weight.

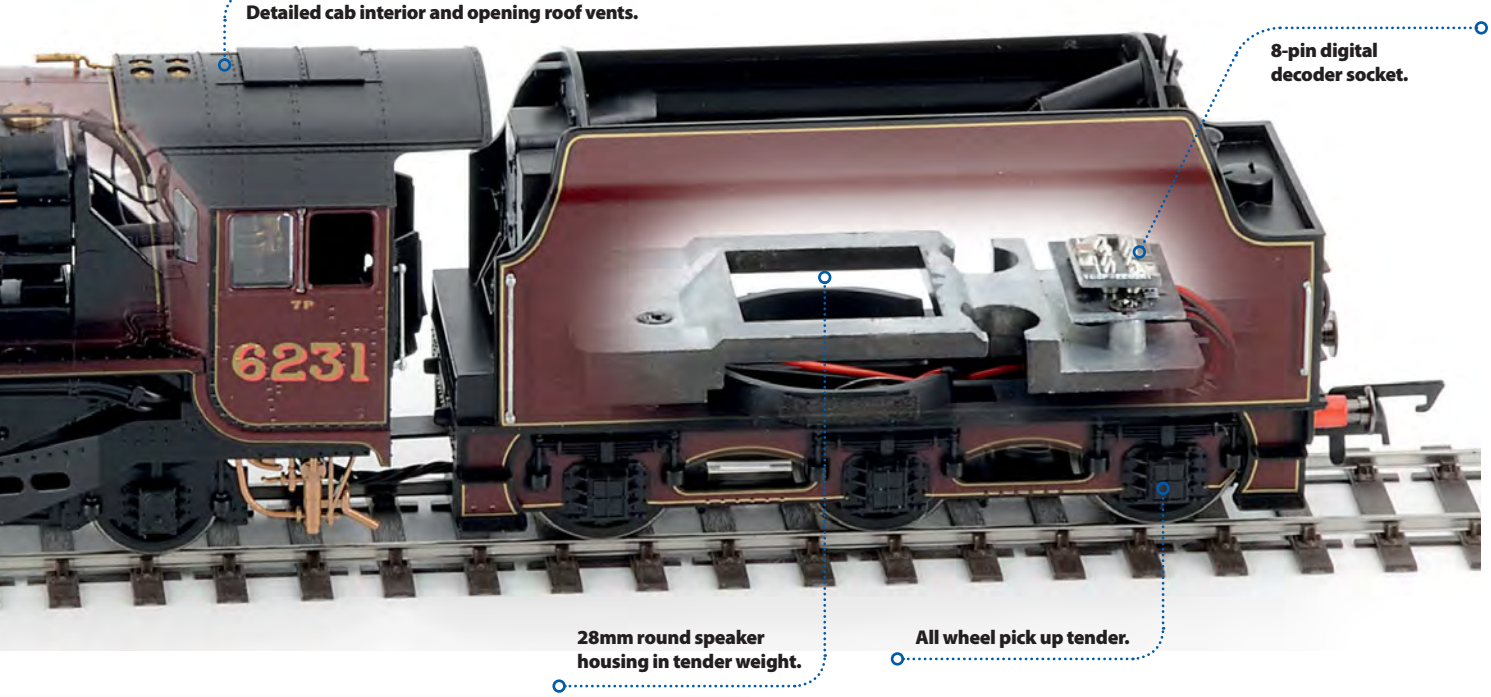
Having removed the weight, we have much more space available to create a better sounding 'Princess Coronation'. The addition of a decoder and speaker will add some weight back into the tender, but we have never found it to be an issue removing the weight from tenders for this purpose.

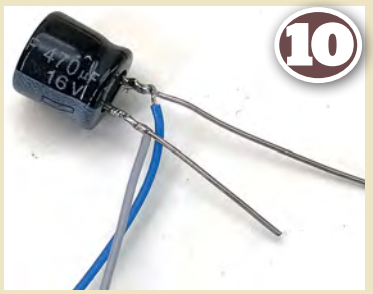
To make way for all the new components, we relocated the decoder socket to the front of the tender, just behind the front support for the tender weight, tucking its wires neatly into the well in the centre of the tender. The 40mm x 22mm speaker is then fixed behind – both held in place with Black Tack.



The decoder plug can now be connected to the socket, aligning the orange wire with Pin 1 on the socket.

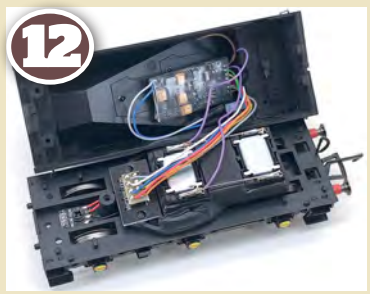
The purple speaker wires are shortened to around 50% of their supplied length and then soldered to the connections on top of the speaker.





10 To provide 'stay alive' capacity, helping to keep the locomotive moving and the sound on over small spots of dirt, means connecting a supplied capacitor to the blue and grey leads coming from the rear of the MX645R decoder. Solder them to the legs of the capacitor ensuring that the grey wire is connected to the negative side (short leg).

11 To protect the capacitor, the new soldered joints are covered with heatshrink tubing. This was put over the blue and grey wires before soldering them to the capacitor legs then shrunk with the side of a soldering iron.



12 The decoder and capacitor were mounted to the roof of the tender body before it was refitted, taking care to ensure that none of the wires were snagged on reassembly.

13 46256 is now ready for testing and addressing of its decoder before entering service sounding as good as it looks.

TECHNICAL DETAILS

HORNBY LMS 'PRINCESS CORONATION' 4-6-2

Manufacturer:	*www.hornby.com*
First released (current version):	2017 (HM125)
Cat No (featured):	R3555 (2017 release)
Current alternatives:	R3553, R3509TTS (2017 releases), R3681, R3682 (2018 releases)
Description:	Stanier 'Princess Coronation' 4-6-2
Gauge:	'OO'/16.5mm
Scale:	4mm:1ft
Length (over buffers):	300mm
Price:	£204.99
Era:	5 (R3555)
Couplings:	Small tension locks in NEM pockets
DCC:	DCC ready, 8-pin socket
Speaker space:	28mm round
Exterior lights:	None
Interior lights:	None
Motor type:	Five pole, skew wound
Flywheel:	None
BR power classification:	'8P'
Wheel arrangement:	4-6-2
Purpose:	Express passenger
Haulage capacity (expected):	10 carriages
Haulage capacity (actual):	12 Hornby Mk 1 carriages

DECODER OPTIONS

The following motor control decoders, and others, will fit into the Hornby 'Princess Coronations' with tender mounted sockets:

- Hatton's DCR-8-pin-Harness
- Hornby R8249
- DCC Concepts Zen 218 & Zen Nano
- Gaugemaster DCC26, DCC27
- Bachmann 36-553
- ESU LokPilot V4.0 54611

SOUND DECODER OPTIONS

- Zimo MX645R with custom sound project
- ESU LokSound V4.0 8-pin with custom sound project

This model has been fitted with a Zimo MX645R decoder loaded with *www.digitrains.co.uk* ZS003A LMS two/four cylinder sound file.

BACHMANN BRANCH-LINE

LMS 'Patriot' 4-6-0s

The parallel boiler 'Patriot' 4-6-0s were introduced in 1930 and while 18 were rebuilt in the late 1940s, the remaining locomotives soldiered on in original form. Bachmann has produced a highly detailed model of the original locomotives which we focus on here.

Fowler 'Patriot' 4-6-0 45504 *Royal Signals* was released in 2012 by Bachmann and was the first of its class to be delivered with a 21-pin decoder socket.

STEP BY STEP DISMANTLING A BACHMANN 'PATRIOT' 4-6-0

A Bachmann's Fowler 'Patriot' debuted in 2008 with an 8-pin decoder socket in the locomotive. Since 2012 it has had a tender mounted 21-pin decoder and space for a 40mm x 20mm speaker. This is 45504 *Royal Signals* which was delivered DCC sound fitted in 2012.

B

The locomotive and tender are joined by a metal drawbar and a four-wire connection which plugs into the tender chassis. This carries power from the locomotive to the decoder socket and back to the motor.

C If your model already has its brake rigging fitted to the tender, we recommend removing this for ease of access during disassembly and decoder installation. It is a clip fit into the brake shoes.

THE FOWLER 'PATRIOT' 4-6-0s were well regarded machines on the London Midland & Scottish Railway (LMS) network. The first entered traffic in 1930 and the first two were rebuilds of former London and North Western Railway 'Claughton' 4-6-0s.

After the first two entered traffic another 50 were built – 40 considered as rebuilds and the final 10 listed as new locomotives. They were similar to the Fowler 'Royal Scot' 4-6-0s of the same period in appearance, and while they shared a number of chassis components they had a smaller boiler. They were often referred to as 'Baby Scots'.

In LMS operation the 'Patriots' were numbered 5500-5551 and initially carried LMS lined crimson livery. This gave way to LMS lined black in the early 1940s and between 1946 and 1948 18 of the class were rebuilt with taper boilers (see pages 54-57). The remaining parallel boiler locomotives continued in traffic alongside the rebuilt engines with the last being withdrawn in 1962 by BR. In BR service they were numbered 45500-45551.

None of the 'Patriots' in original or rebuilt condition were preserved, but the LMS Patriot Project is building a brand new example which will be 45551 *The Unknown Warrior* (*www.lms-patriot.org.uk*). It is progressing towards completion with the boiler contract being signed in November 2017.

In model form Bachmann delivered a brand new ready-to-run 'OO' gauge model of the original parallel boiler 'Patriot' in November 2008. Initially it was available with an 8-pin decoder socket mounted in the locomotive, but since 2012 it has been produced with a 21-pin decoder socket and space for a 40mm x 20mm ESU speaker in the tender. The most recent versions were delivered in 2014.

The subject of our project is 45504 *Royal Signals* in BR lined green with late crests on the tender. It was supplied as a Digital Command Control (DCC) sound fitted model with an ESU decoder and 40mm x 20mm speaker which we have taken back to DCC ready format for this installation guide. Read on to learn more. ■

TOOLS

DECODER & SOUND INSTALLATION

- Small crosshead screwdrivers
- Soldering iron (sound only)
- Decoder wire (sound only)

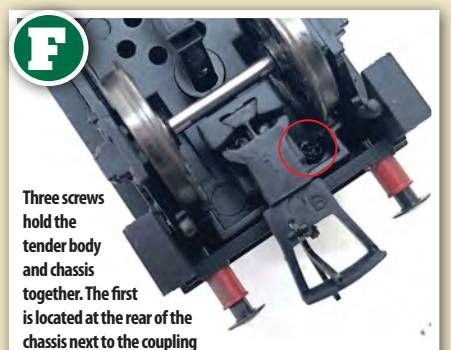
D

Using Hornby's X6468 tender plug extractor tool, the orange plug of the four-wire harness between the locomotive and tender is disconnected. Don't be tempted to remove this by pulling on the wires – it will damage them.

E

The metal drawbar simply unhooks from its peg on the tender chassis and the four-wire connection can be pulled out underneath the leading tender axle to separate the locomotive and tender.

F



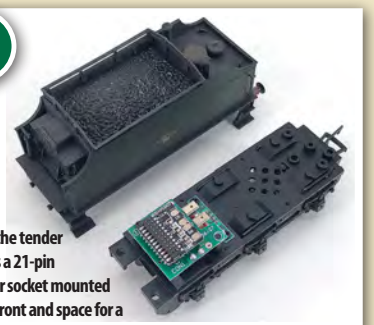
Three screws hold the tender body and chassis together. The first is located at the rear of the chassis next to the coupling pocket. It is a crosshead type with a long thread.

STEP BY STEP DISMANTLING BACHMANN 'PATRIOT' 4-6-0S

G

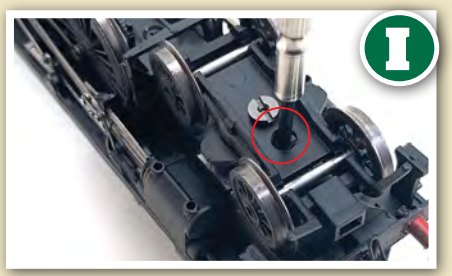
Two further small crosshead screws are located at the front of the tender chassis, one on each side. A magnetic modeller's screwdriver is useful for removing and reinstating these, such as those produced by DCC Concepts.

H



Inside the tender there is a 21-pin decoder socket mounted at the front and space for a standard ESU 40mm x 20mm speaker towards the rear.

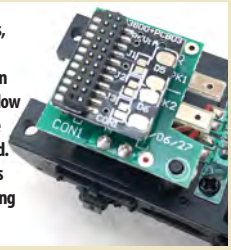
I



Removing the locomotive body is optional for decoder installation. Two screws hold the body onto the chassis. One is located below the front bogie, but Bachmann has included access via a hole in the front bogie. It is a crosshead type.

STEP BY STEP INSTALLING A DECODER AND SOUND

1



DCC ready versions, since 2012, will be fitted with a 21-pin blanking socket like this to allow them to operate on analogue controlled layouts as standard. Testing on analogue control is recommended before installing a decoder or sound.

2

The 21-pin blanking plugs can be tricky to remove. Rock them from side to side gently to ease them up the pins – sharp movements will bend the pins.

3

All brands of 21-pin decoder will fit into the 'Patriot' tender. Check alignment by ensuring the blank pin is in the correct place when the decoder is fitted.

4

After removing the 21-pin decoder, we are going to equip this model with an ESU LokSound V4.0 decoder. It came with a 40mm x 20mm ESU speaker.

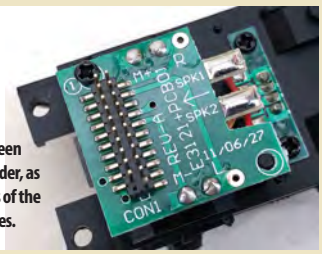
5

Our speaker choice this time is a Zimo 26mm x 20mm 3D printed design from *www.digitrains.co.uk* - we would have preferred the 40mm x 20mm design, but it would not fit due to the length of the sound decoder.

6

To connect the speaker, we have stripped 5mm of insulation from the end of two 80mm lengths of TCS decoder wire. These will join the speaker connections with the terminals on the locomotive's Printed Circuit Board (PCB).

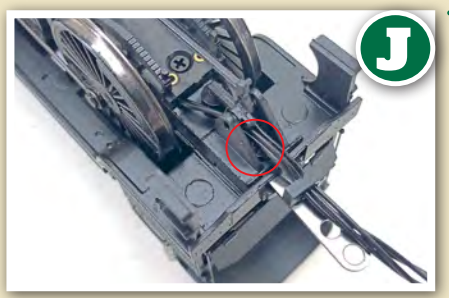
7



The speaker connections on the PCB have been tinned with solder, as have both ends of the connecting wires.

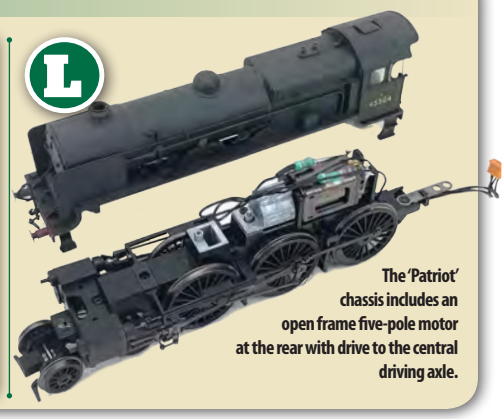
8

The speaker wires, which have been stripped of 5mm of insulation at both ends, trimmed to length and tinned with a soldering iron, are then joined to the speaker and PCB connection points using a soldering iron. Polarity is not important for speaker wires.

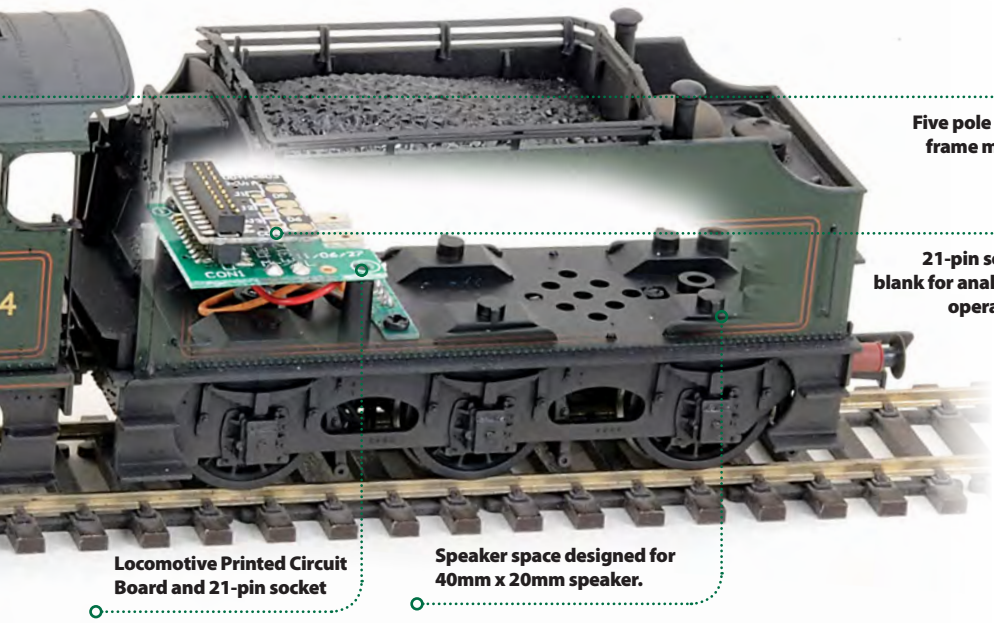


J The second body securing screw is hidden below the wiring at the rear of the chassis. It also holds the tender drawbar in place. Use a crosshead screwdriver to remove it.

K The 'Patriot' body lifts up from the front. To release the rear end, slide the drawbar out of the body and lift the body up. Replace the drawbar on its mounting point for safe keeping.



L The 'Patriot' chassis includes an open frame five-pole motor at the rear with drive to the central driving axle.



DECODER OPTIONS

The following motor control decoders, and others, will fit into the Bachmann 'Patriot' 4-6-0s with tender mounted sockets:

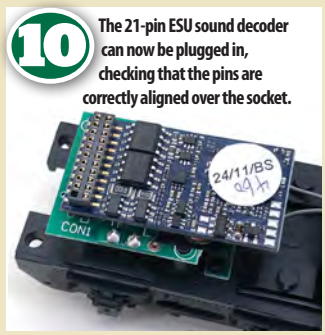
- Hatton's DCR-21-pin
- DCC Concepts Zen 218
- Gaugemaster DCC27
- Bachmann 36-557
- Lenz Silver 10321-01

SOUND DECODER OPTIONS

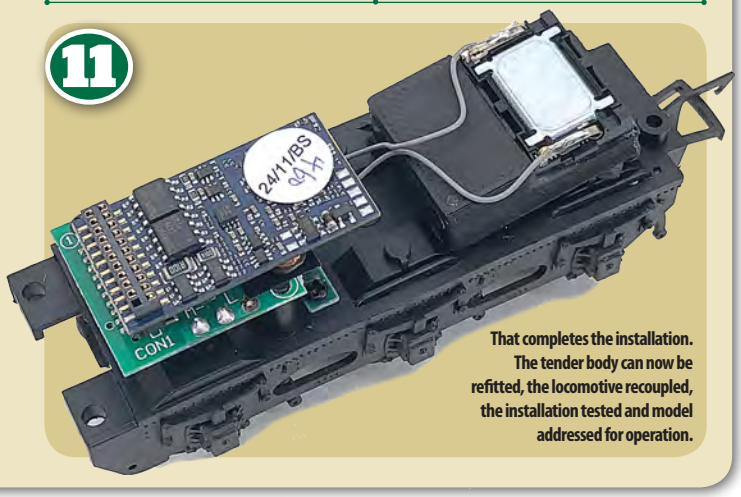
- Zimo MX644D with custom sound project
- ESU LokSound V4.0 21-pin with custom sound project

This model has been fitted with an ESU LokSound V4.0 decoder loaded with *www.southwestdigital.co.uk* generic 'Patriot' sound file and a 26mm x 20mm Zimo 3D printed speaker.

9 To protect the decoder from any potential short circuits, the speaker connections on the PCB have been covered with insulation tape.



10 The 21-pin ESU sound decoder can now be plugged in, checking that the pins are correctly aligned over the socket.



11 That completes the installation. The tender body can now be refitted, the locomotive recoupled, the installation tested and model addressed for operation.

TECHNICAL DETAILS

BACHMANN LMS 'PATRIOT' 4-6-0

Manufacturer:	*www.bachmann.co.uk*
First released:	2008
Cat No (featured):	31-213DS (2012 release)
Current alternatives:	31-204, 31-214 (2014 releases)
Description:	Fowler parallel boiler 'Patriot' 4-6-0
Gauge:	'OO'/16.5mm
Scale:	4mm:1ft
Length (over buffers):	254mm
Price:	£164.95 (DCC ready)
Era:	5 (31-213DS), 3 (31-204), 4 (31-214)
Couplings:	Small tension locks in NEM pockets
DCC:	DCC ready, 21-pin socket (since 2012)
Speaker space:	40mm x 20mm (since 2012)
Exterior lights:	None
Interior lights:	None
Motor type:	Five pole, skew wound
Flywheel:	None
BR power classification:	'5XP'/'6P'
Wheel arrangement:	4-6-0
Purpose:	Passenger
Haulage capacity (expected):	Seven carriages
Haulage capacity (actual):	Eight Bachmann Mk 1 carriages

HORNBY®

LMS REBUILT 'Royal Scot' and 'Patriot'

The rebuilt 'Royal Scot' and 'Patriot' 4-6-0s joined the Hornby range in 2007, but in 2017 and 2018 they received updated chassis to make them simpler to convert to digital operation. We explore the latest generation models of these popular express locomotives..

TOOLS

DECODER INSTALLATION
» Small flat blade screwdrivers

SOUND DECODER INSTALLATION
» Small crosshead screwdriver
» Soldering iron
» Black tack or Blu Tack
» Insulation tape

A REQUIREMENT for capable express motive power and trials with a Great Western Railway 'Castle' 4-6-0 led to the development of the London Midland & Scottish Railway (LMS) 'Royal Scot' 4-6-0s. The first was built in 1927 with the full fleet running to 70 locomotives which were built by the North British Locomotive Company and LMS at Derby Works.

These three-cylinder 4-6-0s were designed to replace costly double-heading on the West Coast Main Line. Here they performed well and gained smoke deflectors to assist in lifting the exhaust above the cab to give the driver and fireman a clear view of the route ahead.

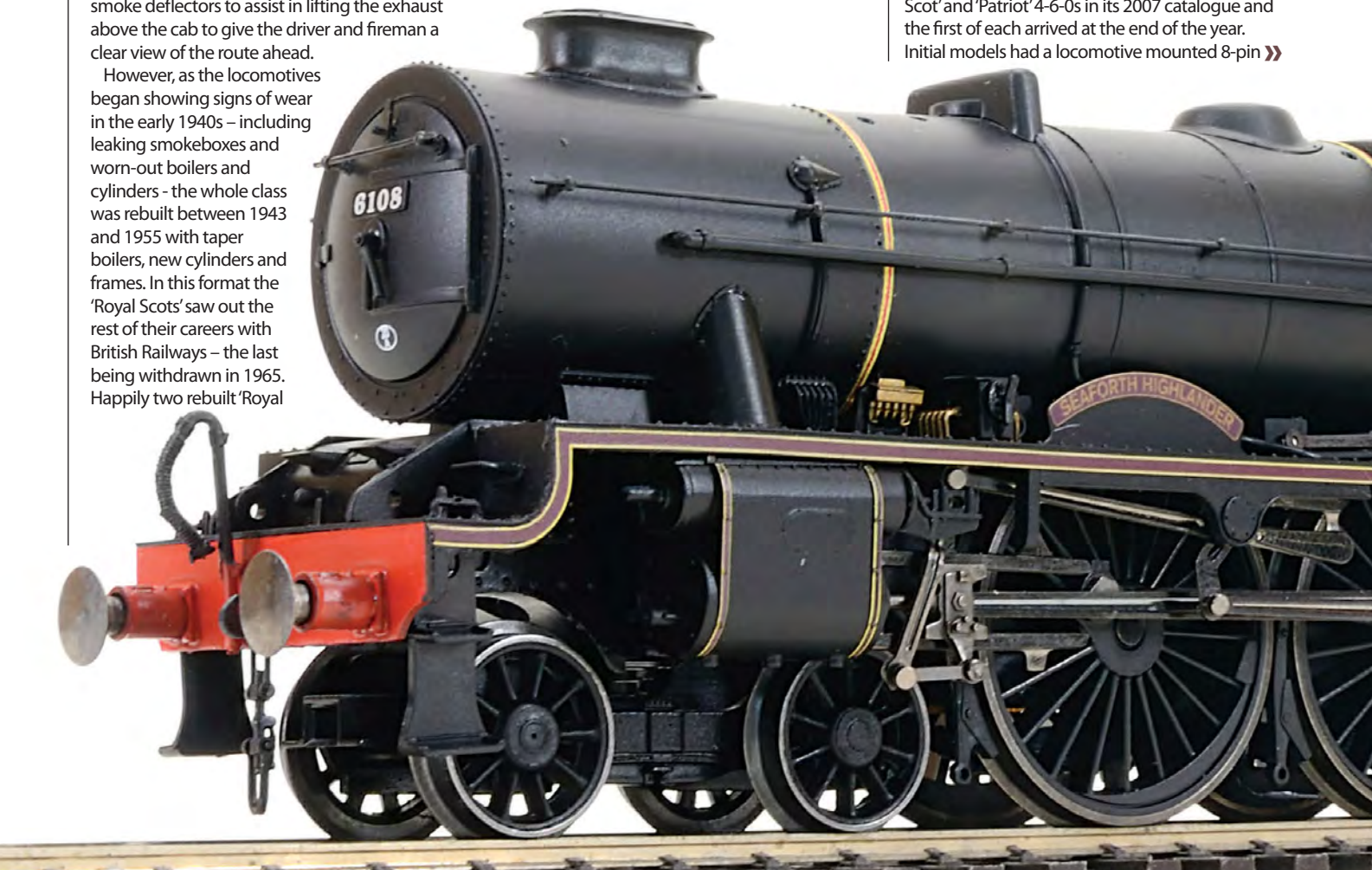
However, as the locomotives began showing signs of wear in the early 1940s – including leaking smokeboxes and worn-out boilers and cylinders - the whole class was rebuilt between 1943 and 1955 with taper boilers, new cylinders and frames. In this format the 'Royal Scots' saw out the rest of their careers with British Railways – the last being withdrawn in 1965. Happily two rebuilt 'Royal Scots' survive – 46100 *Royal Scot*, which is in working order and certified for main line use, and 46115 *Scots Guardsman* which is currently undergoing a 10-yearly overhaul at Carnforth.

However, the 'Royal Scots' weren't the only 4-6-0s of the era. In 1930 the LMS began development of the 'Patriot' class, initially by rebuilding London & North Western Railway 'Claughton' 4-6-0s. They had the same chassis as the 'Scots', but the boiler from the 'Large Claughtons' which gave them a similar outward appearance to their larger and more powerful cousins.

By 1934 Crewe and Derby works had built 52 'Patriots' – 42 rebuilds and 10 new locomotives – and they were used for a mixture of duties including passenger and parcels work. In 1946 the 'Patriots' began a similar rebuilding process to the 'Royal Scots'. A Stanier 2A taper boiler was added in place of the original parallel design, but this time only 18 of the fleet were rebuilt. Again their outward appearance was similar to the rebuilt 'Royal Scots'. The last was withdrawn in 1965, but none have been preserved.

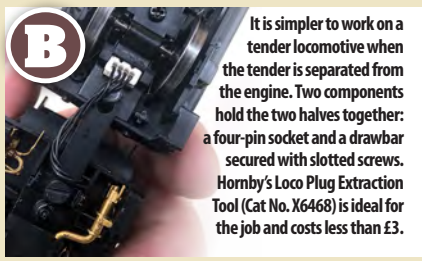
There is a project to build a brand new original 'Patriot' 4-6-0 – full details can be found at *www.lms-patriot.org.uk*.

In model form Hornby selected the rebuilt 'Royal Scot' and 'Patriot' 4-6-0s in its 2007 catalogue and the first of each arrived at the end of the year. Initial models had a locomotive mounted 8-pin »

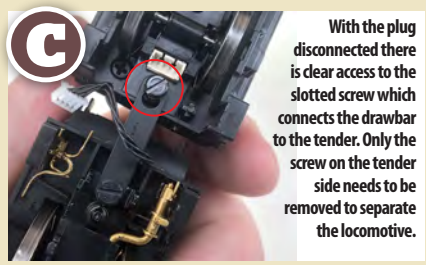


STEP BY STEP DISASSEMBLING A HORNBY LMS REBUILT 'ROYAL SCOT' AND 'PATRIOT' 4-6-0

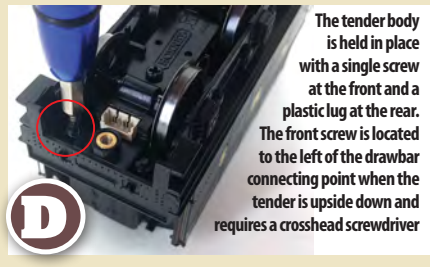
A The candidate for our project is 6108 (Cat No. R3517) which is one of three updated versions of the 'Royal Scot' to be released in 2017. The upgrades consisted of movement of the 8-pin decoder socket to the tender, a 28mm speaker space and the latest Hornby tender coupling.



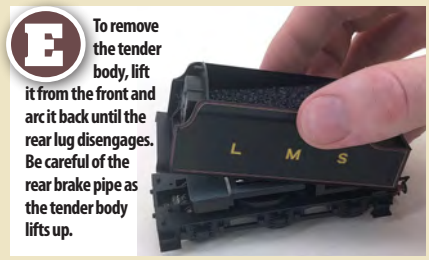
B It is simpler to work on a tender locomotive when the tender is separated from the engine. Two components hold the two halves together: a four-pin socket and a drawbar secured with slotted screws. Hornby's Loco Plug Extraction Tool (Cat No. X6468) is ideal for the job and costs less than £3.



C With the plug disconnected there is clear access to the slotted screw which connects the drawbar to the tender. Only the screw on the tender side needs to be removed to separate the locomotive.

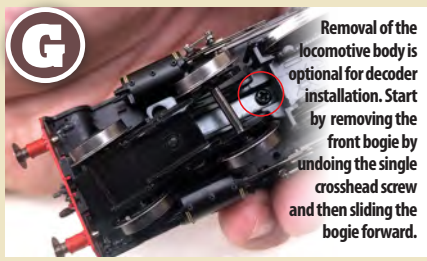


D The tender body is held in place with a single screw at the front and a plastic lug at the rear. The front screw is located to the left of the drawbar connecting point when the tender is upside down and requires a crosshead screwdriver

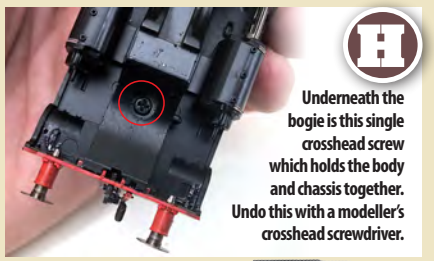


E To remove the tender body, lift it from the front and arc it back until the rear lug disengages. Be careful of the rear brake pipe as the tender body lifts up.

F Inside the tender you will find an 8-pin decoder socket to the rear and space for a 28mm round speaker underneath the metal weight in the chassis. Space above the weight is limited by the full relief coal space.



G Removal of the locomotive body is optional for decoder installation. Start by removing the front bogie by undoing the single crosshead screw and then sliding the bogie forward.



H Underneath the bogie is this single crosshead screw which holds the body and chassis together. Undo this with a modeller's crosshead screwdriver.

I The locomotive body lifts up from the front until the rear lug disengages from its mount. The motor and wiring at the rear of our sample was a tight fit into the firebox.

J Once the body is off full access to the motor and pick-ups is possible. The gearbox is ahead of the motor driving the centre axle.

Hornby upgraded its LMS rebuilt 'Royal Scot' 4-6-0 in 2017 to have a tender mounted decoder socket and speaker space. The rebuilt 'Patriot' is undergoing the same revisions for re-introduction in 2018. This is 6108 *Seaforth Highlander* in LMS lined black – it was produced as part of Hornby's 'Final Day' collection in 2017 (Cat No. R3517).

LMS REBUILT 'ROYAL SCOT' AND 'PATRIOT' 4-6-0

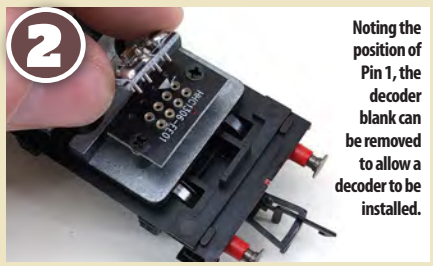
SOUND DECODER OPTIONS

- Zimo MX645R with custom sound project
- ESU LokSound V4.0 8-pin with custom sound project

This model has been fitted with a LokSound V4.0 decoder loaded with *www.howesmodels.co.uk* LMS 'Jubilee' sound file.

STEP BY STEP INSTALLING A DECODER AND SOUND

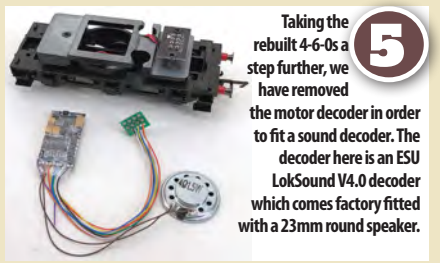
1 The rebuilt 'Royal Scots' released in 2017 and the new releases of the rebuilt 'Patriot' for 2018 have the same decoder and speaker arrangement. Both components can be located in the tender with an 8-pin socket provided.



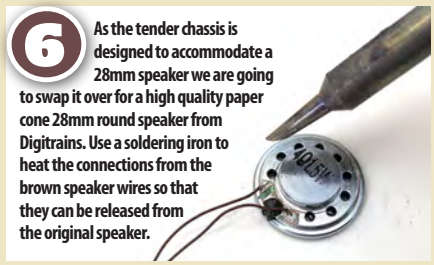
2 Noting the position of Pin 1, the decoder blank can be removed to allow a decoder to be installed.

3 Not all direct fit 8-pin decoders will fit in the 'Royal Scot' and 'Patriot' tenders due to the height available above the socket. Hatton's DCR 8-pin Direct decoder fits comfortably below the water space with the body refitted.

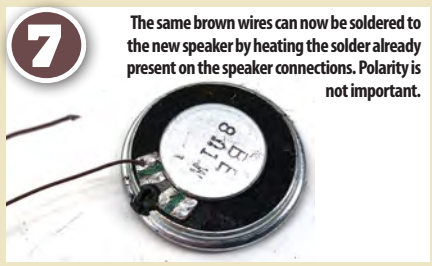
4 As an alternative, most 8-pin harness decoders – decoders with an 8-pin wired connection to a socket – will fit into the 'Royal Scot' and 'Patriot' tender. Here we have used the orange wire to align with Pin 1 on the socket and positioned the decoder in the well in the tender weight.



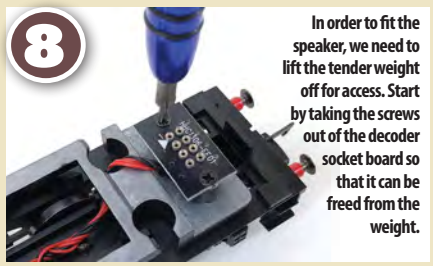
5 Taking the rebuilt 4-6-0s a step further, we have removed the motor decoder in order to fit a sound decoder. The decoder here is an ESU LokSound V4.0 decoder which comes factory fitted with a 23mm round speaker.



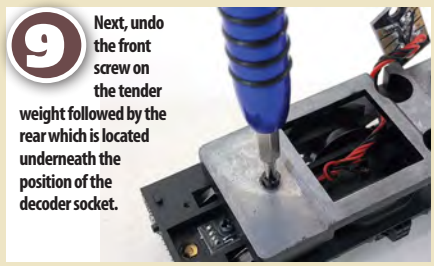
6 As the tender chassis is designed to accommodate a 28mm speaker we are going to swap it over for a high quality paper cone 28mm round speaker from Digitrains. Use a soldering iron to heat the connections from the brown speaker wires so that they can be released from the original speaker.



7 The same brown wires can now be soldered to the new speaker by heating the solder already present on the speaker connections. Polarity is not important.

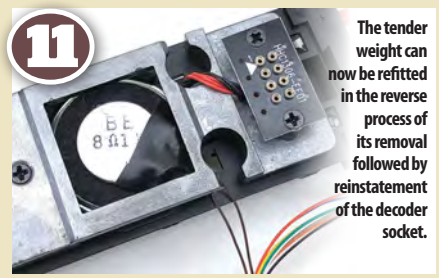


8 In order to fit the speaker, we need to lift the tender weight off for access. Start by taking the screws out of the decoder socket board so that it can be freed from the weight.

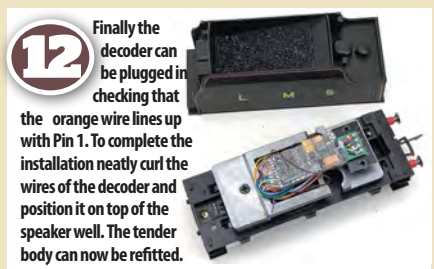


9 Next, undo the front screw on the tender weight followed by the rear which is located underneath the position of the decoder socket.

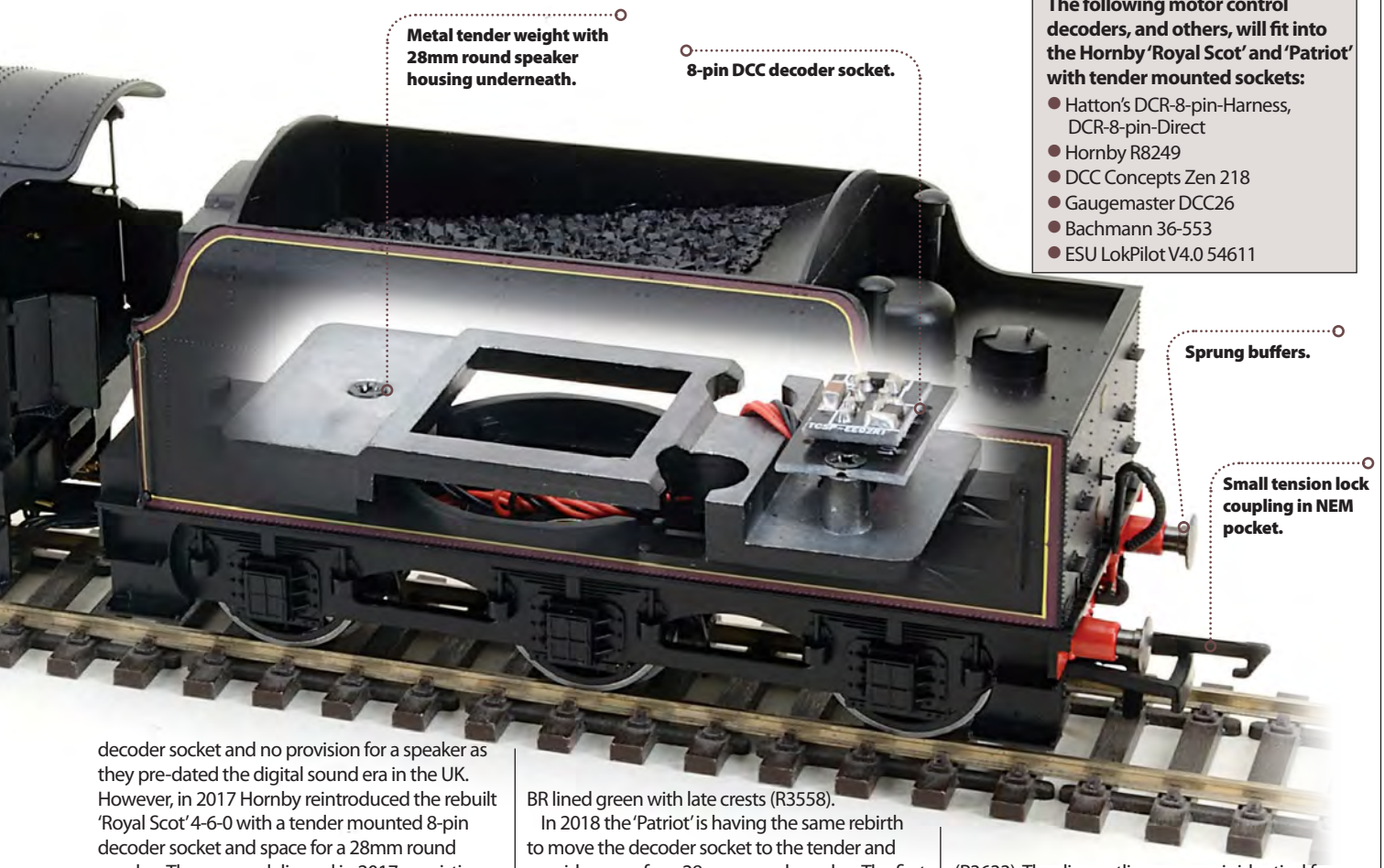
10 The speaker can now be positioned into the enclosure which is moulded as part of the chassis. We have used Blu Tack here to seal the gaps front and rear of the speaker – important for the best performance of the speaker - and covered the electrical connections with insulating tape.



11 The tender weight can now be refitted in the reverse process of its removal followed by reinstatement of the decoder socket.



12 Finally the decoder can be plugged in checking that the orange wire lines up with Pin 1. To complete the installation neatly curl the wires of the decoder and position it on top of the speaker well. The tender body can now be refitted.



DECODER OPTIONS

The following motor control decoders, and others, will fit into the Hornby 'Royal Scot' and 'Patriot' with tender mounted sockets:

- Hatton's DCR-8-pin-Harness, DCR-8-pin-Direct
- Hornby R8249
- DCC Concepts Zen 218
- Gaugemaster DCC26
- Bachmann 36-553
- ESU LokPilot V4.0 54611

decoder socket and no provision for a speaker as they pre-dated the digital sound era in the UK. However, in 2017 Hornby reintroduced the rebuilt 'Royal Scot' 4-6-0 with a tender mounted 8-pin decoder socket and space for a 28mm round speaker. Three were delivered in 2017 consisting of 6108 *Seaforth Highlander* in LMS lined black (Cat No. R3517), 6126 *Royal Army Service Corps* in LMS plain black (R3557) and 46165 *The Ranger* in BR lined green with late crests (R3558).

In 2018 the 'Patriot' is having the same rebirth to move the decoder socket to the tender and provide space for a 28mm round speaker. The first releases, due in September 2018, are 5521 *Rhyl* in LMS lined black (R3614) and 45534 *E Tootal Broadhurst* in BR lined green with early crests (R3633). The dismantling process is identical for the two locomotive designs and the following step by step guide explains everything you need to know. Read on to learn more. ■

TECHNICAL DETAILS

HORNBY LMS 'ROYAL SCOT' 4-6-0

Manufacturer:	*www.hornby.com*
First released (current version):	2007
Cat No (featured):	R3517 (2017 release)
Current alternatives:	R3557 and R3558 (2017 release)
Description:	Stanier rebuilt 'Royal Scot' 4-6-0
Gauge:	'OO'/16.5mm
Scale:	4mm:1ft
Length (over buffers):	266mm
Price:	£170.99
Era:	3 (R3517, R3557), 5 (R3558)
Couplings:	Small tension locks in NEM pockets
DCC:	DCC ready, 8-pin socket
Speaker space:	28mm round
Exterior lights:	None
Interior lights:	None
Motor type:	Five pole, skew wound
Flywheel:	None
BR power classification:	'7P' (from 1951)
Wheel arrangement:	4-6-0
Purpose:	Express passenger
Haulage capacity (expected):	Eight carriages
Haulage capacity (actual):	Ten Hornby Mk 1 carriages

TECHNICAL DETAILS

HORNBY LMS 'PATRIOT' 4-6-0

Manufacturer:	*www.hornby.com*
First released (current version):	2007
Cat No (featured):	R3633 (2018 release)
Current alternatives:	R3614 (2018 release)
Description:	Stanier rebuilt 'Patriot' 4-6-0
Gauge:	'OO'/16.5mm
Scale:	4mm:1ft
Length (over buffers):	259mm
Price:	£169.99
Era:	3 (R3614), 4 (R3633)
Couplings:	Small tension locks in NEM pockets
DCC:	DCC ready, 8-pin socket
Speaker space:	28mm round
Exterior lights:	None
Interior lights:	None
Motor type:	Five pole, skew wound
Flywheel:	None
BR power classification:	'6P/5F'
Wheel arrangement:	4-6-0
Purpose:	Express passenger
Haulage capacity (expected):	Eight carriages
Haulage capacity (actual):	Ten Hornby Mk 1 carriages

BACHMANN BRANCH-LINE

LMS 'Jubilee'

Stanier's three-cylinder 'Jubilee' 4-6-0s were direct descendants of the 'Patriots' and became synonymous with the Midland Main Line. We take Bachmann's 'OO' gauge model apart to install a decoder and sound.

TOOLS

DECODER INSTALLATION
» Small crosshead screwdrivers

SOUND INSTALLATION
» Small crosshead screwdrivers
» Soldering iorn

WILLIAM STANIER was quick to establish his influence as Chief Mechanical Engineer for the London Midland & Scottish Railway (LMS) following his appointment in 1932. His career at the Great Western Railway's Swindon Works had given him an excellent grounding in locomotive design and particularly the principles of standardisation and the potential of taper boiler designs.

Even into the early 1930s the LMS was still heavily reliant on 4-4-0s, particularly on the »

STEP BY STEP DISMANTLING A BACHMANN 'JUBILEE' 4-6-0

A

One of the two most recent 'Jubilees' from Bachmann is 45575 *Madras* in early British Railways black with cream and maroon lining. It has a 21-pin decoder socket in the tender and space for a 40mm x 20mm speaker on the tender chassis.

B

The locomotive and tender are linked together by a metal drawbar and a four-wire plug and socket. Use a Hornby X6468 extractor tool to remove the plug and unhook the drawbar.

C

With the two halves separated it is much easy to work on either the locomotive or tender and avoids any potential damage to the separately fitted cab doors or fallplate during handling.

D

Two screws located either side of the rear coupling on the tender secure the body in place. Release these with a small crosshead screwdriver to allow the body to be lifted off.

E

Once the screws are out, the tender body lifts up from the rear until the front lugs disengage. These were quite tight on our example – another good reason to separate the locomotive and tender.

F

Body off, the space inside is evident. The 21-pin decoder socket is at the rear while the full relief coal space above limits the depth of speaker which can be installed.

G

To remove the locomotive body – the same process is used for earlier models with the 8-pin decoder socket located in the boiler – two screws need to be removed. The first is at the rear and also holds the drawbar in place.

H

The second, another crosshead of the same size, is located above the front bogie. A magnetic screwdriver will be handy for this screw – both for removal and reinstatement.

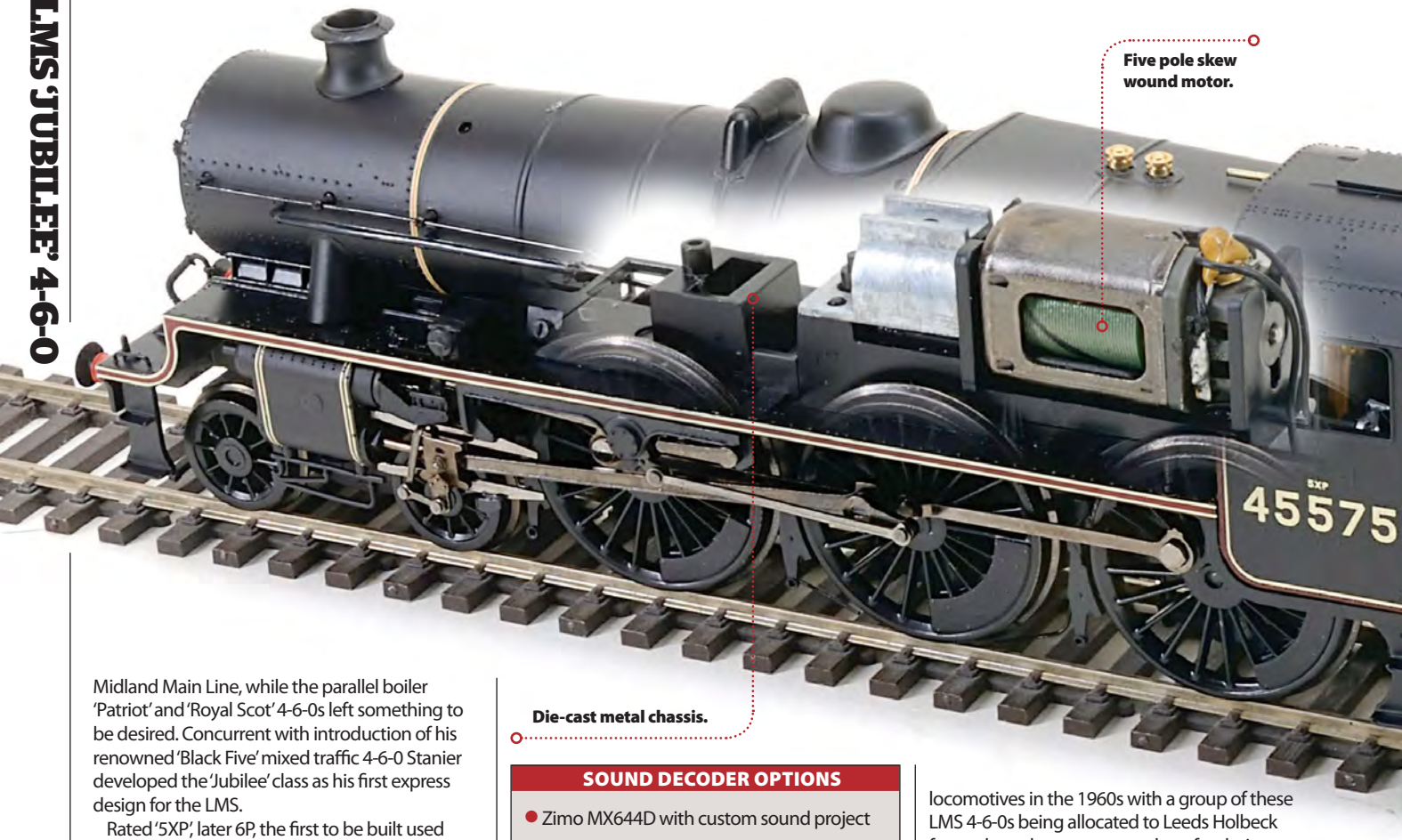
I

With both screws removed the locomotive body lifts clear of the chassis. The motor cradle is a tight fit into the firebox and may require a little side to side movement as the body is lifted up from its mounts.

J

For reassembly, refit the front screw first then reposition the tender drawbar by lifting the rear of the chassis from the body by a millimetre, slot in the drawbar then refit the rear screw.

'Jubilee' 45575 *Madras* was released in 2017 by Bachmann offering an unusual early British Railways livery consisting of black with maroon and cream lining. It is equipped with a 21-pin decoder socket and space for a 40mm x 20mm speaker.



Midland Main Line, while the parallel boiler 'Patriot' and 'Royal Scot' 4-6-0s left something to be desired. Concurrent with introduction of his renowned 'Black Five' mixed traffic 4-6-0 Stanier developed the 'Jubilee' class as his first express design for the LMS.

Rated '5XP', later 6P, the first to be built used the frames of the last three Fowler 'Patriots' but were equipped with new taper boilers. They weren't an instant success, but modifications to the draughting increased their performance and made these three-cylinder 4-6-0s competent locomotives.

The final 'Jubilees' became sought after locomotives in the 1960s with a group of these LMS 4-6-0s being allocated to Leeds Holbeck from where they were turned out for duties on the Settle and Carlisle line. Although designed for express work initially, the 'Jubilees' were no strangers to goods trains, particularly in their final years. The last was withdrawn in 1967.

In total 191 were built, though only four survive in preservation, but such a large class was

SOUND DECODER OPTIONS

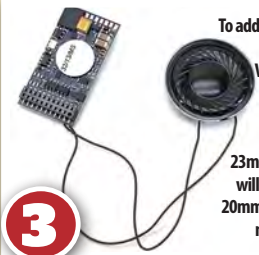
- Zimo MX644D with custom sound project
- ESU LokSound V4.0 21-pin with custom sound project

This model has been fitted with an ESU LokSound V4.0 decoder loaded with *www.howesmodels.co.uk* Stanier 'Jubilee' sound file and a 28mm round speaker.

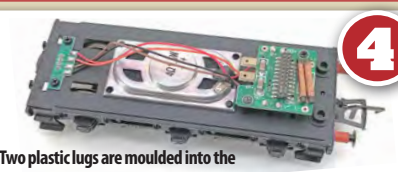
STEP BY STEP INSTALLING A DECODER AND SOUND

1 The 21-pin decoder socket of the latest generation of 'Jubilees' makes decoder installation very simple – no trailing wires, just a direct plug 21-pin decoder. All available brands will fit.

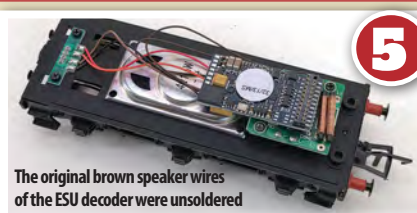
2 Here we have installed a Hatton's 21-pin Direct decoder onto the socket – the original blank is next to the tender. Take care when removing the blank – pulling it up from one side only will result in bent pins.



3 To add sound to *Madras*, we are using an ESU LokSound V4.0 decoder loaded with Howes Models 'Jubilee' sound file. The decoder comes pre-soldered to a 23mm round speaker, but we will change this to a 40mm x 20mm speaker to suit the floor mouldings on the tender.



4 Two plastic lugs are moulded into the tender chassis which fit into the holes in opposing corners of a standard 40mm x 20mm ESU speaker. Alternative designs could be fitted but would mean either modifying the coal space or sealing the speaker to the tender chassis.



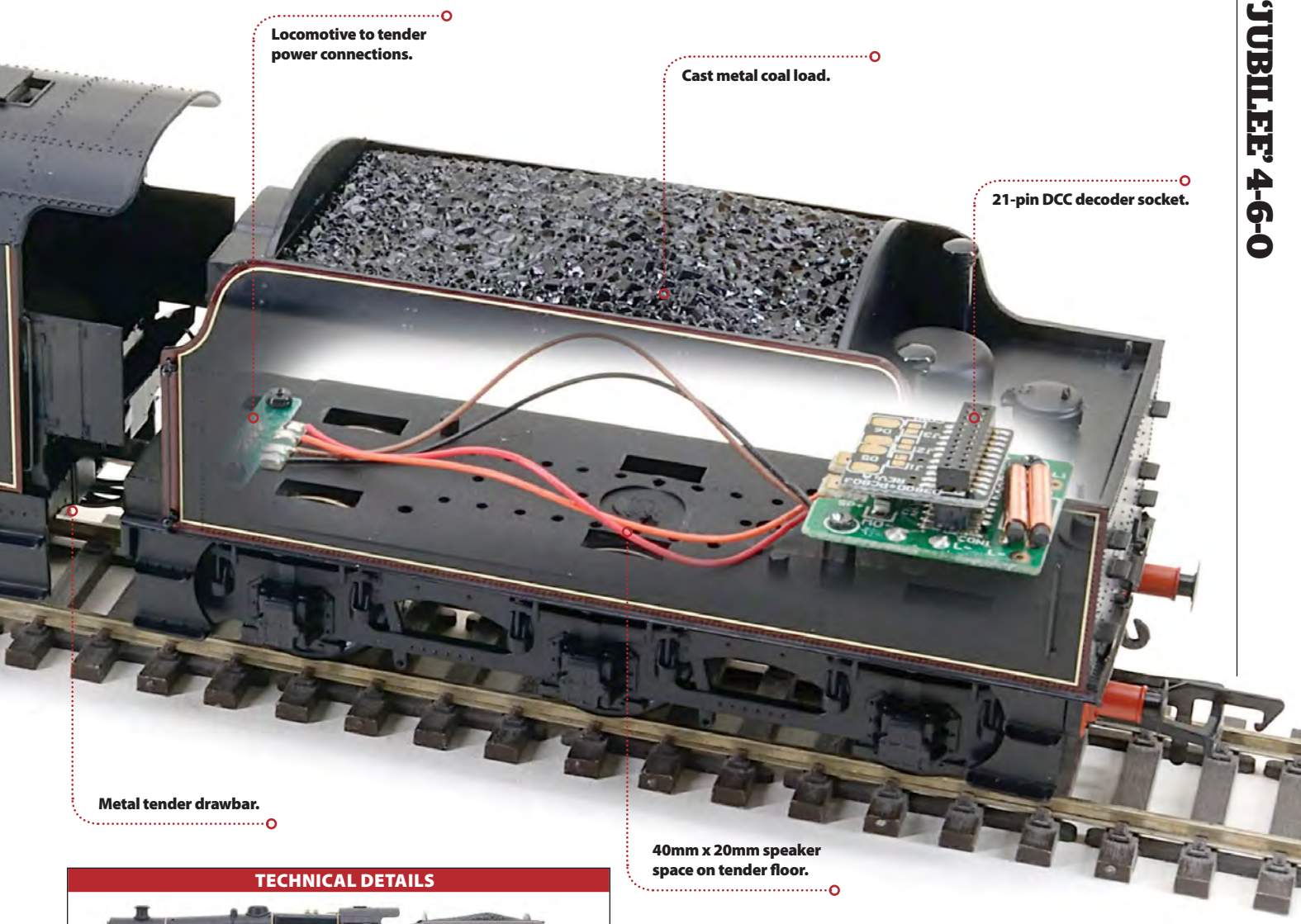
5 The original brown speaker wires of the ESU decoder were unsoldered from the original 23mm round speaker and then soldered to the tabs on the 40mm x 20mm speaker.

6 Completing this simple sound installation, the 21-pin LokSound decoder is pushed into place ensuring that Pin 1 is correctly aligned on the socket.

TIP

If you decoder is supplied without the speaker attached, Bachmann's 21-pin decoder locomotives have tabs to solder wires from the speaker to the main PCB in the tender.

7 45575 can now be reconnected to its tender with the four-wire plug before testing, addressing and entry to service.



TECHNICAL DETAILS

BACHMANN LMS 'JUBILEE' 4-6-0

Manufacturer:	*www.bachmann.co.uk*
First released:	2007
Cat No (featured):	31-190 (2017 release)
Current alternatives:	31-187DS (2017 release)
Description:	Stanier 'Jubilee' 4-6-0
Gauge:	'OO'/16.5mm
Scale:	4mm:1ft
Length (over buffers):	261mm
Price:	£164.95 (DCC ready)
Era:	4 (31-190), 3 (31-187DS)
Couplings:	Small tension locks in NEM pockets
DCC:	DCC ready, 21-pin socket (since 2014)
Speaker space:	40mm x 20mm (since 2014)
Exterior lights:	None
Interior lights:	None
Motor type:	Five pole, skew wound
Flywheel:	None
BR power classification:	'5XP'/'6P'
Wheel arrangement:	4-6-0
Purpose:	Express passenger
Haulage capacity (expected):	Eight carriages
Haulage capacity (actual):	Seven Bachmann Mk 1 carriages

"In total the LMS built 191 'Jubilees', though only four survive in preservation."

MIKE WILD

snapped up by Mainline and then Bachmann for 'OO' gauge as a ready-to-run product. The most recent iteration of the 'Jubilee' started life with an 8-pin decoder socket mounted in the locomotive in 2007 (HM7) but was later updated from the 2014 catalogue to have a 21-pin decoder socket positioned in the tender together with space for a 40mm x 20mm rectangular speaker.

Since introduction it has been available as a variety of locomotives in LMS crimson, BR lined black and BR lined green liveries – some of the latter with a weathered finish. Decoder installation is much simpler with locomotives released since 2014 with the tender mounted decoder socket – there is considerably more space than in the original 8-pin engines – while the provision of a space for a speaker makes upgrading to sound a straightforward process too. ■

DECODER OPTIONS

The following motor control decoders, and others, will fit into the Bachmann 'Jubilee' 4-6-0s with tender mounted sockets:

- Hatton's DCR-21-pin
- DCC Concepts Zen 218
- Gaugemaster DCC27
- Bachmann 36-557
- Lenz Silver 10321-01

LMS Express

Hornby LMS Princess Coronation 4-6-2

©Starfleet Academy

Digital Decoder Options

Hatton's DCR-8PIN-Harness - £15
Hornby R8249 - £16
Hornby Princess Coronation TTS decoder with sound R8117 - £36
Standard chip fitting service - £12. More info on page 132.

Pre-Owned versions available
Limited Stock
www.hattons.co.uk updated every day

New versions available

R3553 6231 'Duchess of Atholl' in LMS Crimson lake
In stock at £161

R3509TTS 46235 "City of Birmingham" in BR green - TTS Sound Fitted - In stock at £199

Forthcoming Releases

R3681 6241 'City of Edinburgh' in LMS post-war lined black - Due in stock December 2018 at £164

R3555 46256 'Sir William Stanier F.R.S' in BR maroon
Due in stock October 2018 at £189

R3682 46225 'Duchess of Gloucester' in BR express passenger blue - Due in stock December 2018 at £164

R3597-PO 46229 'Duchess of Hamilton' in LMS black
Pre-Owned - Like New - Limited stock at £230

R2553-PO01 46237 'City of Bristol' in BR blue
Pre-Owned - Like New - Limited stock at £132

R2231-PO 46228 'Duchess of Rutland' in BR green with early emblem - Pre-Owned - Like New - Limited stock at £124

Hornby LMS Princess Royal 4-6-2

©Mark Butcher

Digital Decoder Options

Hatton's DCR-8PIN-Harness - £15
Hornby R8249 - £16
Hornby Princess Coronation TTS decoder with sound R8117 - £36 (Suitable for Princess Royal locos)
Standard chip fitting service - £12. More info on page 132.

Pre-Owned versions available
Limited Stock
www.hattons.co.uk updated every day

R2313-PO01 6204 'Princess Louise' in LMS maroon
Pre-Owned - Like New - Limited stock at £85

R2426-PO01 46201 'Princess Elizabeth' BR black
Pre-Owned - Like New - Limited stock at £164

R2448-PO 46210 'Lady Patricia' in BR express passenger blue - Pre-Owned - DCC Fitted - Limited stock at £164

R2226-PO02 46203 'Princess Margaret Rose' in BR green with early emblem - Pre-Owned - Like New
Limited stock at £164

R2990XS-LN03 46208 'Princess Helena Victoria' in BR maroon with late crest - DCC Sound Fitted
Limited stock at £235

R3015-PO03 46207 "Princess Arthur of Connaught" in BR maroon with late crest - Pre-Owned - DCC Fitted
Limited stock at £112

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Locomotives

Hornby LMS Royal Scot & Patriot 4-6-0s

Digital Decoder Options

Hatton's DCR-8PIN-Harness - £15
Hornby R8249 - £16
Hornby Princess Coronation TTS decoder with sound R8117 - £36 (Suitable for Royal Scot & Patriot locos)
Standard chip fitting service - £12. More info on page 132.

Pre-Owned versions available
Limited Stock
www.hattons.co.uk updated every day

R2631-LN02 6133 'The Green Howards' in LMS black
Pre-Owned - Like New - Limited stock at £104

R3018X-PO01 46115 'Scots Guardsman' in BR green with late crest - DCC fitted - Pre-Owned - Like New
Limited stock at £124

New versions available

R3557 6126 'Royal Army Service Corps' in LMS wartime black - In stock at £144

R3517 6108 'Seaforth Highlander' in LMS black
In stock at £161

R3558 46165 'The Ranger' in BR green with late crest
In stock at £144

R3278 45518 'Bradshaw' in BR green with early crest Railroad Range - In stock at £64.80

Forthcoming Releases

R3614 5521 'Rhyl' in LMS black
Due in stock September 2018 at £136

R3633 45534 'E. Tootal Broadhurst' in BR green with early emblem - Due in stock September 2018 at £136

Bachmann LMS Jubilee 4-6-0

Digital Decoder Options

Hatton's DCR-21PIN-Direct - £15
Bachmann 36-557 - £18.66
Standard chip fitting service - £12. More info on page 132.

Pre-Owned versions available
Limited Stock
www.hattons.co.uk updated every day

31-185-PO03 5563 'Australia' in LMS crimson
Pre-Owned - Like New - Limited stock at £106

31-175K-PO 5593 'Kolhapur' in LMS crimson (as preserved)
Pre-Owned - Like New - Limited stock at £144

31-175Z-PO02 45637 'Windward Islands' in BR green with early emblem - Pre-Owned - Like New - Limited stock at £102

31-189-PO 45606 'Falkland Islands' in BR green with early emblem - Pre-Owned - Like New - Limited stock at £120

31-178DC-PO01 45659 'Drake' in BR green with late crest
Pre-Owned - DCC Fitted - Limited stock at £120

New versions available

31-187DS 5588 'Kashmir' in LMS crimson - DCC sound fitted
In stock at £212.46

31-190 45575 'Madras' in BR black
In stock at £140.21

31-186 45587 'Baroda' in BR lined green with late crest
In stock at £121

BACHMANN BRANCH-LINE

LNER 'A1' & 'A2'

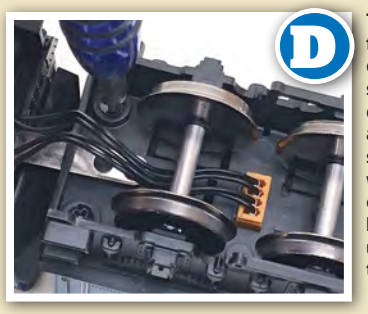
The Peppercorn 'A1' and 'A2' class 'Pacifics' were the last Eastern Region 4-6-2s to enter service. We investigate Bachmann's models of these fine express locomotives.

STEP BY STEP DISMANTLING BACHMANN 'A1' AND 'A2' 4-6-2s

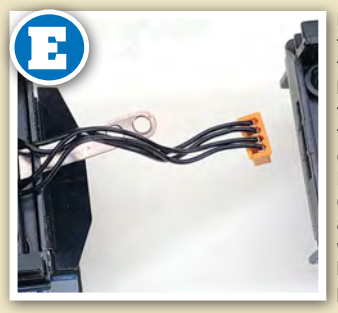
The subject of our project is Peppercorn 'A1' 60122 *Curlew* in British Railways lined blue. The dismantling process is identical for all Bachmann 'A1s' and 'A2s' released after 2014. Previous to this, both locomotives were equipped with an 8-pin socket in the locomotive, as shown in the cutaway of 60528 *Tudor Minstrel* in BR apple green, though the dismantling process is identical.

Modern Bachmann locomotives are equipped with a similar drawbar and electrical connection to Hornby models. However, the drawbar isn't permanently connected making it simpler to separate the two parts of the locomotive.

The tender body is held in place by three crosshead screws – two at the front either side of the drawbar which are easy to access plus a third located underneath the rear axle of the tender which isn't quite so easy to remove.



Taking the front screws out is a simple case of picking up a modeller's screwdriver with a crosshead bit and unwinding them.



Having released these we decided to separate the locomotive and tender by undipping the electrical connection. Use Hornby's X6468 extractor tool for this as it will work equally well with Bachmann locomotives – don't pull on its wires.

The reason for removing the locomotive is so that we can get a better grip on the tender to remove the rear wheelset. Lever out one side – be prepared through, the tender frames grip the axles well.

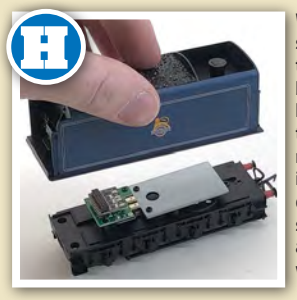
THE LATE 1940s WERE A spirited era of locomotive development and particularly on the Eastern Region. The East Coast Main Line had had a long association with 'Pacific' locomotive designs and even in the late 1940s there was still a need for new motive power to supplement Gresley's famous 'A3' and 'A4' designs.

The 'A2' 4-6-2s were the first to arrive in December 1947, just before nationalisation, while the first of the 'A1s' didn't enter service until 1948. Both were modern in their design with the most obvious differences between the two classes being the size of their driving wheel (the 'A2' had slightly smaller 6ft 2in diameter drivers as opposed to the 6ft 8in of the 'A1') which gave them potential as mixed traffic engines. In fact, while the two classes were designed with passenger traffic in mind, they could readily be seen on parcels and fast fitted freights too.

Following a relatively short career with BR, the two classes were withdrawn progressively in the mid-1960s with the last of the two classes bowing out in 1966. None of the 'A1s' were preserved, but 'A2' 60532 *Blue Peter* was saved and is now in the care of the North Eastern Locomotive Preservation Group. To stave off the loss of the 'A1s' the A1 Steam Locomotive Trust set about building a brand new 'A1', 60163 *Tornado*, which has been in regular use on the main line since 2008.

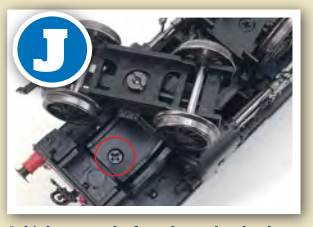
Bachmann has produced models of both of these East Coast 'Pacifics', including models of 60163 *Tornado*, with the first versions being equipped with an 8-pin Digital Command Control (DCC) decoder socket mounted in the locomotive. Space was provided in the firebox for a motor control decoder, but adding sound meant additional work to locate the speaker in the tender. Since 2014 both the 'A1' and 'A2' models have been equipped with tender mounted 21-pin DCC decoder sockets and space for a 28mm round speaker in the tender chassis. This has made them much simpler to equip for DCC operation and with sound, save for the location of the rear tender body securing screw which is above the rear axle of the tender. »

Then lever out the other side and the mounting screw will be revealed below. Use the same size crosshead screw driver as that for the front screws and then set aside for reassembly.



With the screws out, the tender body simply lifts clear of the chassis revealing its 21-pin decoder socket and metal weight.

To release the locomotive body, undo the two small crosshead screws at the rear of the chassis. You will need a fine screwdriver to do this.



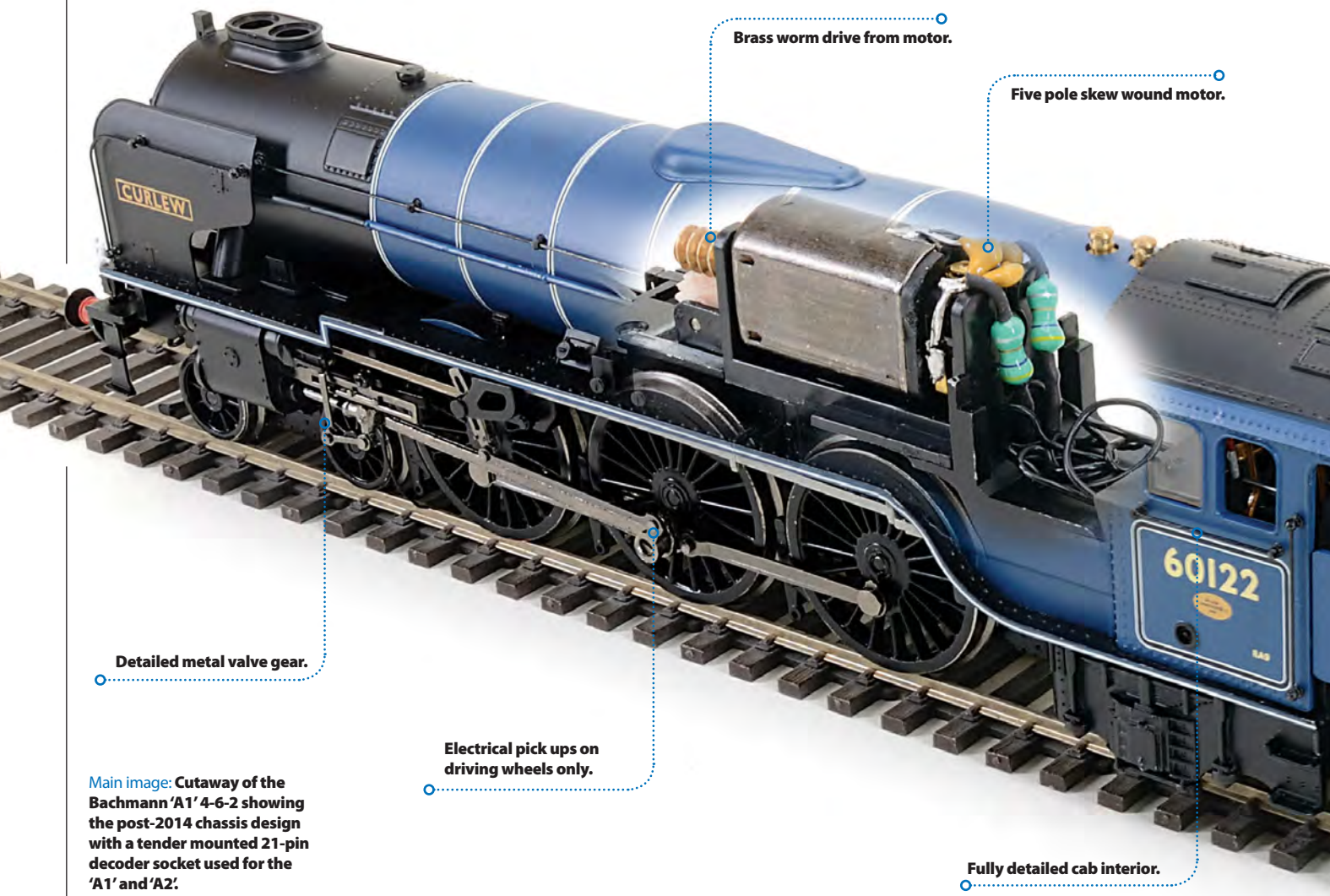
A third screw at the front, located under the pony truck, also needs to be removed before the body can be lifted off.

When lifting the body off be careful of the brass wire running to the motion through the footplate. As you lift the body clear of the motor, move it backwards to release the wire.

Once the body has been removed the tender drawbar will come loose too. Set this aside for reassembly.

Refitting the tender drawbar is best done after the body has been refitted, but before the rear screws are added. Lift the locomotive chassis just enough to allow the drawbar to be slotted back into place then refit the original screws.

»



Main image: **Cutaway of the Bachmann 'A1' 4-6-2 showing the post-2014 chassis design with a tender mounted 21-pin decoder socket used for the 'A1' and 'A2'.**

TECHNICAL DETAILS

BACHMANN LNER 'A1' 4-6-2

Manufacturer:	*www.bachmann.co.uk*
First released:	2002
Cat No (featured):	32-561 (2016 release)
Current alternatives:	32-560 (2016 release)
Description:	Peppercorn 'A1' 4-6-2
Gauge:	'OO'/16.5mm
Scale:	4mm:1ft
Length (over buffers):	280mm
Price:	£189.95
Era:	4 (32-561)
Couplings:	Small tension locks in NEM pockets
DCC:	DCC ready, 21-pin socket (since 2014) DCC ready, 8-pin socket (pre-2014)
Speaker space:	28mm round (since 2014)
Exterior lights:	None
Interior lights:	None
Motor type:	Five pole, skew wound
Flywheel:	None
BR power classification:	'8P/6F'
Wheel arrangement:	4-6-2
Purpose:	Express passenger
Haulage capacity (expected):	Eight carriages
Haulage capacity (actual):	Ten Bachmann Mk 1 carriages

TECHNICAL DETAILS

BACHMANN LNER 'A2' 4-6-2

Manufacturer:	*www.bachmann.co.uk*
First released:	2010 (HM42)
Cat No (featured):	31-527 (2010 release)
Current alternatives:	31-528A, 31-531 (2014 releases)
Description:	Peppercorn 'A2' 4-6-2
Gauge:	'OO'/16.5mm
Scale:	4mm:1ft
Length (over buffers):	295mm
Price:	£189.95
Era:	4 (31-531), 5 (31-528A)
Couplings:	Small tension locks in NEM pockets
DCC:	DCC ready, 21-pin socket (since 2014) DCC ready, 8-pin socket (pre-2014)
Speaker space:	28mm round (since 2014)
Exterior lights:	None
Interior lights:	None
Motor type:	Five pole, skew wound
Flywheel:	None
BR power classification:	'8P/7F'
Wheel arrangement:	4-6-2
Purpose:	Express passenger
Haulage capacity (expected):	Eight carriages
Haulage capacity (actual):	Ten Bachmann Mk 1 carriages

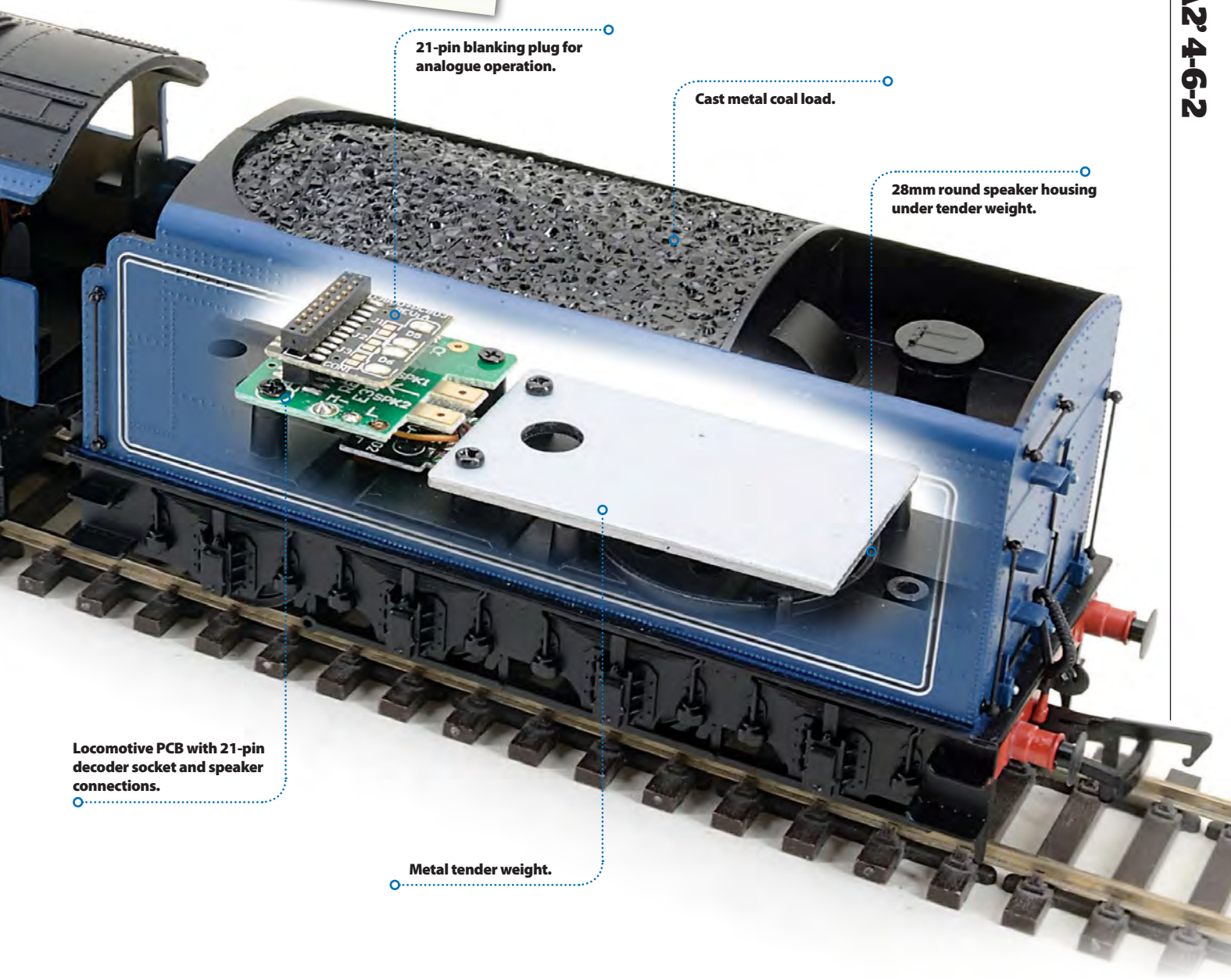
TOOLS

DECODER INSTALLATION
» Small crosshead screwdrivers

SOUND INSTALLATION
» Small crosshead screwdrivers
» Soldering iorn

"The most recent 'A1s' include 60117 Bois Roussel and 60122 Curlew in British Railways apple green and lined blue."

MIKE WILD



The most recent versions of the 'A1' include 60117 *Bois Roussel* in British Railways lined apple green (Cat No. 32-560) and 60122 *Curlew* in British Railways lined blue (32-561) both of which were released in 2016. The latest 'A2' models are 60529 *Pearl Diver* in BR lined green with late crests (31-528A) and 60536 *Trimbush* in BR lined green with early crests (31-531). All four have 21-pin decoder sockets.

For our step by step guide we have dismantled 60122 *Curlew* and installed a Hatton's DCR 21-pin direct decoder for motor control and then swapped it for an ESU LokSound V4.0 decoder with South West Digital's generic recordings for the 'A1'. The method of dismantling is identical for all 'A1' and 'A2' locomotives whether they are equipped with an 8-pin locomotive mounted decoder or a 21-pin tender mounted decoder.

SOUND DECODER OPTIONS

- Zimo MX644D with custom sound project
- ESU LokSound V4.0 21-pin with custom sound project

This model has been fitted with a ESU LokSound V4.0 decoder loaded with *www.southwestdigital.co.uk* Peppercorn 'A1 and 'A2' generic sound file.

The tell-tale sign of the 21-pin socket are four wires linking the locomotive and tender together.

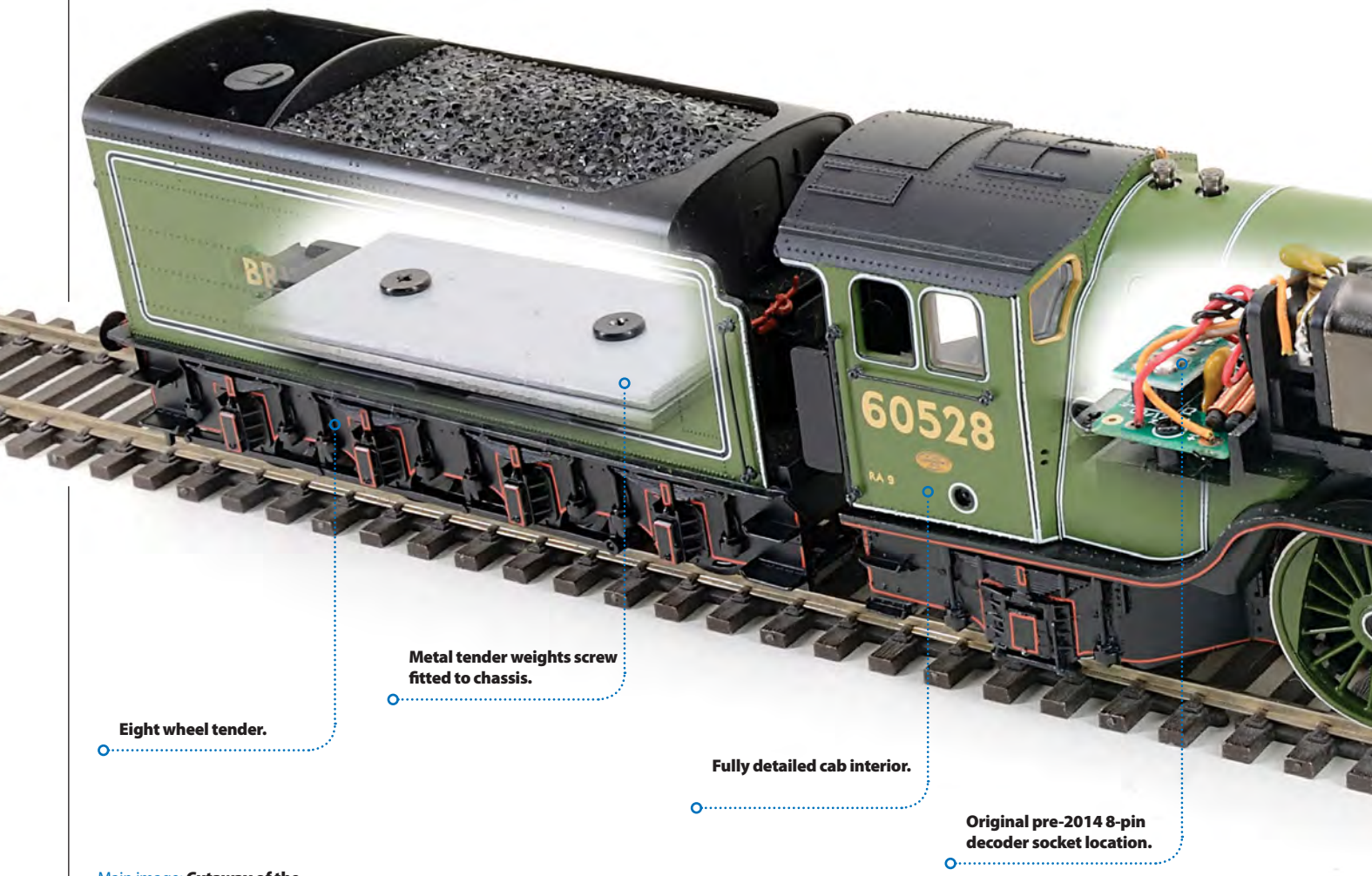
Our step by step guide explains all. Read on to learn more. ■

DECODER OPTIONS

The following motor control decoders, and others, will fit into the Bachmann 'A1 and 'A2' 4-6-2s with tender mounted sockets:

- Hatton's DCR-21-pin
- DCC Concepts Zen 218
- Gaugemaster DCC27
- Bachmann 36-557
- Lenz Silver 10321-01

»



Main image: **Cutaway of the original Bachmann 'A2' 4-6-2 showing the pre-2014 chassis design with a locomotive mounted 8-pin decoder socket used for the 'A1' and 'A2'.**

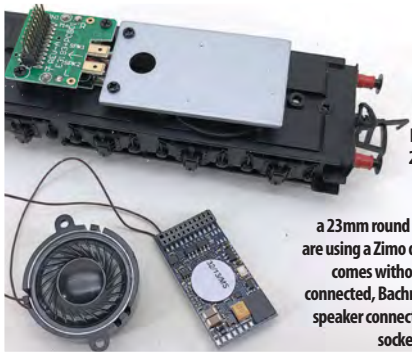
STEP BY STEP INSTALLING A DECODER AND SOUND

1 The current version of the Bachmann 'A1' and 'A2' 4-6-2 are equipped with a 21-pin decoder socket in the tender as well as space for a 28mm round speaker for sound installations.

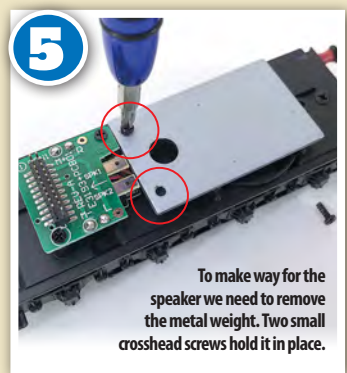
2 To install a decoder, carefully remove the 21-pin blanking plug by lifting up each side a little at a time – doing this in one go will result in bent pins.

3 Fitting a motor control decoder is as simple as plugging it in. Check the orientation to ensure that the blank pin connection aligns correctly with the decoder socket. This model could now be addressed and put into service.

4 To add sound, we are using a LokSound V4.0 21-pin decoder which comes connected to a 23mm round speaker. If you are using a Zimo decoder, which comes without the speaker connected, Bachmann provides speaker connection tabs on its socket circuit board.



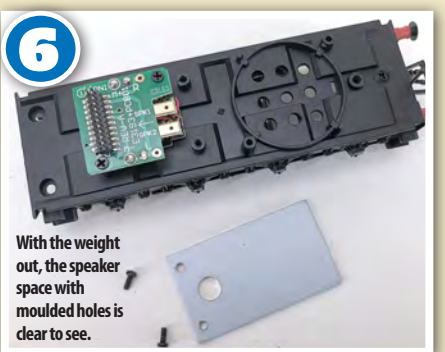
5 To make way for the speaker we need to remove the metal weight. Two small crosshead screws hold it in place.



"Until 2014 the Bachmann 'A1' and 'A2' 4-6-2s had 8-pin decoder sockets. Since then they have been upgraded to have a 21-pin decoder socket located in the tender."

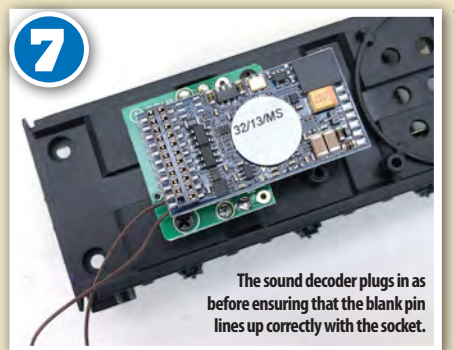
MIKE WILD

6



With the weight out, the speaker space with moulded holes is clear to see.

7



The sound decoder plugs in as before ensuring that the blank pin lines up correctly with the socket.

8

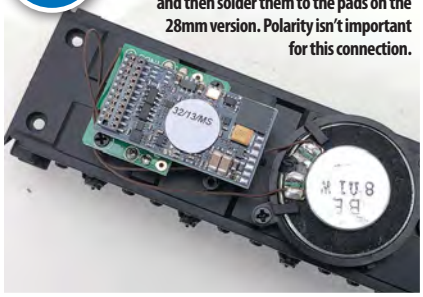
The original 23mm round speaker could be used as shown, but will need sealing in place and doesn't fully fit the space designed into the chassis by Bachmann.

9

As an alternative we have fitted this model with a 28mm round speaker secured in place with the supplied fixing ring and screws supplied with the model by Bachmann. There is plenty of space inside the tender and another alternative would be a Zimo LS 26mm x 20mm x 8mm boxed speaker.

10

To connect the new speaker to the decoder, de-solder the wires from the 23mm speaker and then solder them to the pads on the 28mm version. Polarity isn't important for this connection.



11

Finally the tender body can be refitted and the locomotive reconnected re- addressing and testing.

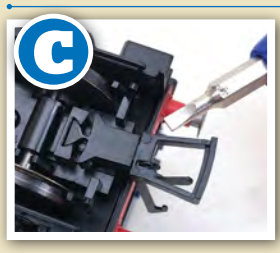
HORNBY LNER 'A1' 4-6-2

In 2008 the first all-new main line steam locomotive to be built in Britain since 1960 entered service - and Hornby naturally chose to model this modern day steam icon. We get to work on Hornby's model of new-build Peppercorn 'A1' 4-6-2 60163 *Tornado*.

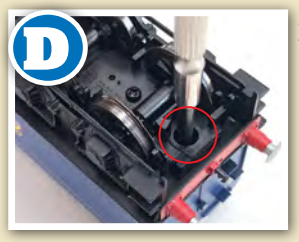
STEP BY STEP DISMANTLING HORNBY 'A1' 4-6-2 60163 *TORNADO*

A Hornby's model of 60163 *Tornado* was first released in 2011. Since then it has been available in a number of liveries including BR express passenger lined blue as shown here. A Twin Track Sound version was also released in 2015 (Cat No. R3245TTS) in the same colour scheme.

B 60163 has a simple tender drawbar in DCC ready format which just requires the locomotive to be lifted up to release the tender from the locomotive. If you are unpacking your locomotive from new the two halves are packaged separately. The Twin Track Sound version is connected as per Hornby's Gresley 'A3' and 'A4' 4-6-2s – see pages 74-79.



C To separate the tender body and chassis the first step is to turn the tender upside down and remove the coupling and its fish tail socket. A small flat blade screwdriver can be positioned underneath the coupling to lever it up.



D A single screw holds the tender body and chassis together. This is positioned below the rear coupling and is at the bottom of a cylindrical hole. Use a modeller's crosshead screwdriver to undo the screw.

E The tender body will then lift up from the rear until the front lug disengages from its mount.

TORNADO Is rapidly confirming its place in the British railway history books. Completed in 2008 – and becoming the first main line standard gauge steam locomotive to be built in Britain since BR '9F' 2-10-0 92220 *Evening Star* in 1960 – Peppercorn 'A1' 60163 *Tornado* has earned a fine reputation on the main line.

It was built at Darlington by the A1 Steam Locomotive Trust and fills a gap in the story of East Coast Main Line motive power in preservation, as none of the original 'A1s' were saved, and only one of the smaller 'A2' 4-6-2s. 60163 has risen to fame through television appearances and through its exploits on the main line and, while it might not be as famous as 60103 *Flying Scotsman*, it continues to make waves in the railway scene.

Most recently *Tornado* became the first steam locomotive to pass 100mph in more than 50 years during high-speed tests in April 2017 to allow it to operate regularly at 90mph on main line charters. Other accolades include recording the fastest ascent of Shap on the West Coast Main Line since the end of steam in 1968, taking part in a race from London to Edinburgh for an episode of television show *Top Gear* and becoming the first steam locomotive to haul scheduled passenger services since 1968 on the main line on the Settle and Carlisle route in 2017.

Such a prestigious locomotive was a sure-fire choice for Hornby and in 2011 the manufacturer released its first version of the new build 4-6-2. The model was designed as a crossover between the main and RailRoad ranges with the latter differing by reductions in the level of printed livery detail. Both employ a sturdy three-pole motor with a large brass flywheel, locomotive drive and an 8-pin DCC decoder socket. Hornby's model of 60163 is also specifically based on the new build locomotive including the unique details of its tender design.

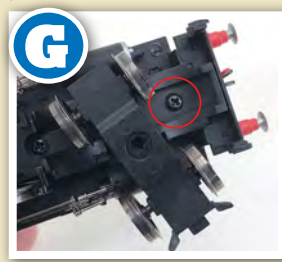
Since introduction in 2011 Hornby's model of 60163 has been released in British Railways lined apple green, BR express passenger blue (as shown here) – both without and with a Twin Track Sound decoder, and in BR lined green with late crests. It continues to be part of the RailRoad range on an annual basis with the current version being finished in a dressed-down British Railways lined apple green scheme.

In this guide we will show you how to disassemble your model in detail and offer choices to upgrade this attractive 4-6-2 to operate with digital control and sound too. Read on to learn more. ■

● **For our guide to the Bachmann Peppercorn 'A1' and 'A2' 4-6-2s see pages 64-69.**

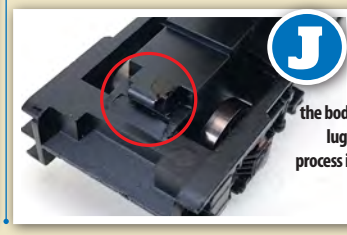
First released in 2011 Hornby's model of Peppercorn 'A1' 60163 *Tornado* has been available in apple green, BR green with late crests and BR lined blue as shown here (Cat No. R3206).

F With the tender body off, the internal space is revealed – a perfect place for a high quality speaker.

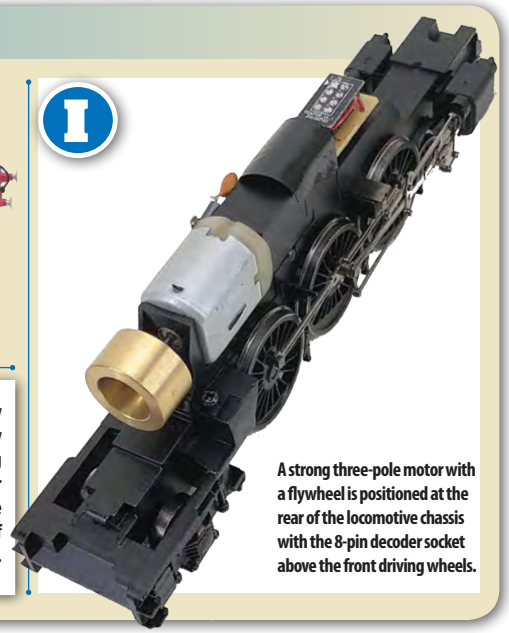


G A single screw holds the locomotive body in place which is located above the front pony truck. The pony truck can be turned to one side to allow full access to the screw head.

H Once the screw has been removed, the body can be lifted up from the front until the rear lug disengages from the chassis. Be careful when lifting the body clear of the motor as the wiring is a tight fit on one side.



J Reassembly starts by repositioning the body onto this rear lug. The rest of the process is the reverse of disassembly.



I A strong three-pole motor with a flywheel is positioned at the rear of the locomotive chassis with the 8-pin decoder socket above the front driving wheels.

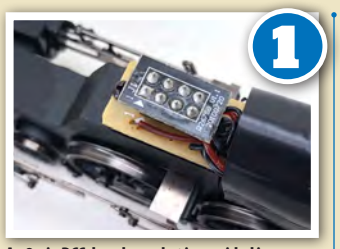
TECHNICAL DETAILS

HORNBY LNER 'A1' 4-6-2 60163 TORNADO

Manufacturer:	*www.hornby.com*
First released:	2011 (HM49)
Cat No (featured):	R3206 (2013 release)
Current alternatives:	R3060 (2017 release)
Description:	Peppercorn 'A1' 4-6-2
Gauge:	'OO'/16.5mm
Scale:	4mm:1ft
Length (over buffers):	293mm
Price:	£100.99 (RailRoad model)
Era:	10-11 (R3206/R3060)
Couplings:	Small tension locks in NEM pockets
DCC:	DCC ready, 8-pin socket
Speaker space:	None designed
Exterior lights:	None
Interior lights:	None
Motor type:	Three pole, skew wound
Flywheel:	One
BR power classification:	'8P'
Wheel arrangement:	4-6-2
Purpose:	Express passenger
Haulage capacity (expected):	Eight carriages
Haulage capacity (actual):	Ten Bachmann Mk 1 carriages

Main image: **Hornby's model of the Peppercorn 'A1' 4-6-2 specifically models new build locomotive 60163 *Tornado* and crosses between the RailRoad and main ranges.**

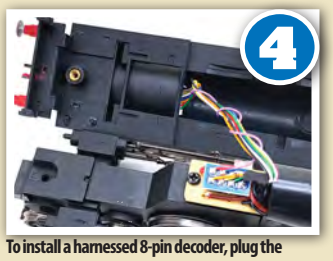
STEP BY STEP INSTALLING A DECODER AND SOUND



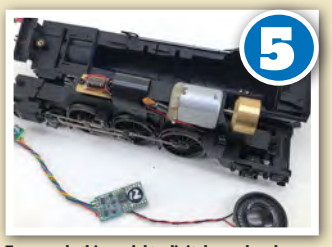
An 8-pin DCC decoder socket is provided in the locomotive which is factory fitted with a blanking plug. Note the position of Pin 1 on the blank and on the socket circuit board below.

The blanking plug simply pulls out of the socket as the first step to preparation to decoder fitting. Pin 1 is still marked on the locomotive circuit board for future reference.

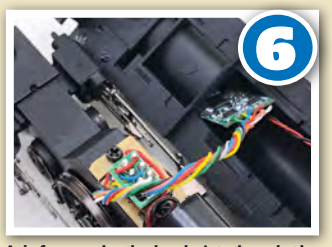
Both the Gaugemaster DCC29 and DCC Concepts Zen direct decoders fit comfortably inside the 'A1' boiler and provide a very neat decoder installation.



To install a harnessed 8-pin decoder, plug the decoder in ensuring the orange wire aligns with Pin 1 on the circuit board. The decoder can then be tucked into the empty smokebox.



To upgrade this model to digital sound we have removed the motor control decoder and will replace it with this Hornby Twin Track Sound 8-pin decoder for 60163 *Tornado* (Cat No. R8108).

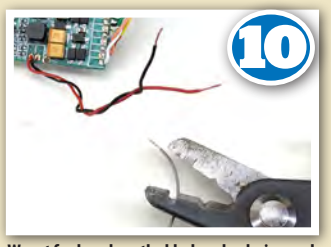


As before, we plug the decoder into the socket by aligning the orange wire with Pin 1 on the circuit board and the decoder can be tucked into the smokebox for a neat installation.

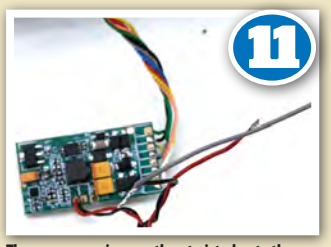
However, the 28mm round speaker won't fit into the locomotive body as well, so we will extend the speaker wires so that it can be housed in the empty tender.

Disconnect the black and red wires from the factory fitted speaker by heating the connection points with a soldering iron briefly until the solder melts and the wires can be pulled away.

We are using TCS decoder wire from *www.digitrains.co.uk* to extend the speaker cables. Polarity isn't important and we recommend black wire for a neat installation without the need to paint the cables.



We cut fresh ends on the black and red wires and then stripped 6mm of insulation from each. We then did the same with the grey wire – cutting both longer than we needed for flexibility.



The new grey wires are then twisted onto the black and red wires to extend their length and soldered in place for a permanent connection.

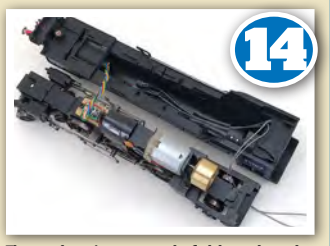
To protect the new connections from potential short circuits, heatshrink insulation cut into 10mm lengths was added to the wires and then shrunk to size with a soldering iron.

TOOLS

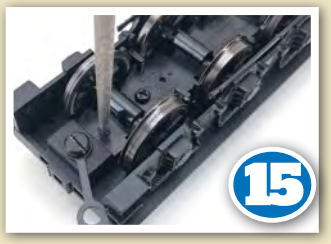
DECODER & SOUND INSTALLATION

- Small crosshead screwdrivers
- Small slotted screwdriver
- Black Tack or Blu Tack (sound only)
- Insulation tape (sound only)
- Soldering iron (sound only)
- Rat-tail needle file (sound only)

13 The newly extended wires were then taped to the roof of the 'A1' boiler on the inside to keep them out of the way of the chassis on reassembly.



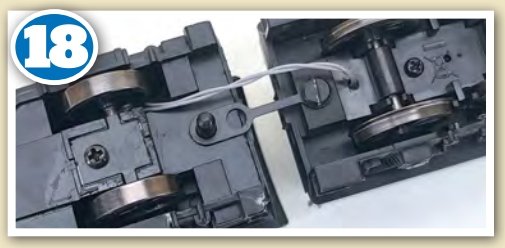
14 The speaker wires can now be fed down through the openings behind the rear pony wheels. We have now completed work on the locomotive and the body can be refitted.



15 To make way for the wires go inside the tender we opened out a 1.5mm hole in the chassis. To do this we used a rat-tail needle file until it was big enough for the wires to pass through.

16 The speaker wires can now pass freely into the tender body where there is ample space on top of the tender weight for a speaker.

17 Now you can simply bare the ends of the wire, tin them with solder and reconnect them to the original 28mm round speaker or take the opportunity to upgrade the speaker as we have done here. 8ohm speakers must be used with the Hornby TTS decoders to avoid damaging their onboard circuitry. This is a Zimo 40mm x 20mm 3D printed 8ohm speaker.



18 The tender body has now been refitted. The only traces of the sound installation are the two wires passing from the locomotive to the tender – they have been twisted together to keep them neat. To disguise these they can be painted black with enamel or acrylic paints.

DECODER OPTIONS

The following motor control decoders, and others, will fit into the Hornby 'A1' 4-6-2 60163 *Tornado* with a locomotive mounted socket:

- Hatton's DCR-8-pin-Harness
- Hornby R8249
- DCC Concepts Zen Direct and Zen Nano
- Gaugemaster DCC26, DCC29

SOUND DECODER OPTIONS

- Zimo MX645R with custom sound project
- ESU LokSound V4.0 8-pin with custom sound project
- Hornby Twin Track Sound for 'A1' 60163 *Tornado* – R8108

This model has been fitted with Hornby's TTS decoder for 60163 – R8108 – and a Zimo LS40x20x09 8ohm single driver 3D printed speaker.

HORNBY® LNER 'A3' & 'A4'

Britain's most famous 'Pacifics' have been immortalised in ready-to-run form for 'OO' gauge by Hornby. We explain how the Gresley 'A3' and 'A4' 4-6-2s can be equipped for digital operation.

EVERY RAILWAY had its own specific requirements for locomotive development. The Great Western needed locomotives capable of running at high speeds and tackling stiff gradients which saw it rely on 4-6-0s while the Southern had to create steam designs capable of keeping pace with the rapid acceleration of Electric Multiple Units (EMUs) leading to the Bulleid 'Pacifics'. On the Eastern Region there was a need for speed and power first and foremost – especially in the mid-1930s when the London and North Eastern Railway (LNER) was head to head with its great rival the London Midland & Scottish Railway for the fastest journey time between London and Scotland.

For the LNER, the grouping of 1923 and the appointment of Nigel Gresley as the Chief Mechanical Engineer (previously working for the Great Northern Railway) was the catalyst for two of the most famous 'Pacifics' ever built in Britain – 'A3' 4472 *Flying Scotsman* and 'A4' 4468 *Mallard*, both of which are now part of the National Collection.

The 'A3', originally classed as 'A1s' and later reclassified as 'A3', was Gresley's first great 'Pacific'. It was designed to handle the increasing loads that the 'Atlantics' (see pages 88-91) could no longer manage while reducing journey times. In total 78 were built – 51 by rebuilding 'A1s' and 27 new locomotives – between 1922 and 1935 with the first of the rebuilds being released to traffic in 1928 with a higher pressure boiler, long travel valves and increased superheating amongst other developments. This class is now most famous for the last example, 60103 (4472) *Flying Scotsman* which is currently active on the main line following a multi-million pound rebuild.

However, any efforts that the 'A3s' had made to dominate the East Coast Main Line were quashed with the arrival of Gresley's streamlined 'A4' 4-6-2s in 1935. Doncaster Works built 35 of these outstanding locomotives to take charge of a new generation of rolling stock offering greater comfort than ever before and even quicker journey times. One of the class, 4468 *Mallard*, went on to set the world speed record for a steam locomotive on July 3 1938 when it achieved 126mph descending Stoke Bank south of Grantham. It's an achievement which has never been beaten with steam power. The last 'A4' was withdrawn in 1966, the same year as the last 'A3' bowed out, and six of the streamlined 'Pacifics' have been saved for preservation.

Such high profile locomotives have typically been top choices for ready-to-run models with numerous examples from Hornby stemming back to the days of Hornby Dublo which produced the 'A4' as its very first 'OO' locomotive. Since then it has been redesigned many times over to reach the model we have today which features a tender mounted 8-pin decoder socket, 28mm speaker space and a powerful locomotive drive mechanism inside the boiler. The 'A3' is identical in its mechanical arrangement and both are rewarded with a high standard of running even with heavy loads.

Here we show how to dismantle these two 4-6-2s and how to take them to the next level by installing a motor and sound decoder for digital operation. Read on to learn more. ■

TOOLS

DECODER INSTALLATION

- Small crosshead screwdrivers
- Hexagonal nutdriver/tweezers
- Small slotted screwdriver

For sound add:

- Black Tack or Blu Tack
- Soldering iron

DECODER OPTIONS

The following motor control decoders, and others, will fit into the Hornby 'A3' and 'A4' 4-6-2s with tender mounted sockets:

- Hatton's DCR-8-pin-Harness, DCR-8-pin-Direct
- Hornby R8249
- DCC Concepts Zen 218 and Zen Nano
- Gaugemaster DCC26, DCC27, DCC29
- Bachmann 36-553
- ESU LokPilot V4.0 54611

Bachmann Gresley 'A4' 4-6-2

Bachmann has produced a model of the Gresley 'A4' too. Since 2011 it has been equipped with a locomotive mounted 8-pin decoder socket – previous models were devoid of any decoder provision – but it has not been listed in Bachmann's catalogue since 2013/2014. This cutaway shows the internal layout of the Bachmann 'A4'.

The Gresley 'A3' and 'A4' 4-6-2s are two of the most famous 'Pacifics' built for the British railway system. On the left is 'A4' 60026 *Miles Beevor* in BR lined green with early crests while on the right is 'A3' 108 *Gay Crusader* in LNER lined apple green from Hornby's 'Final Day' collection. Both were released in 2017.

TECHNICAL DETAILS

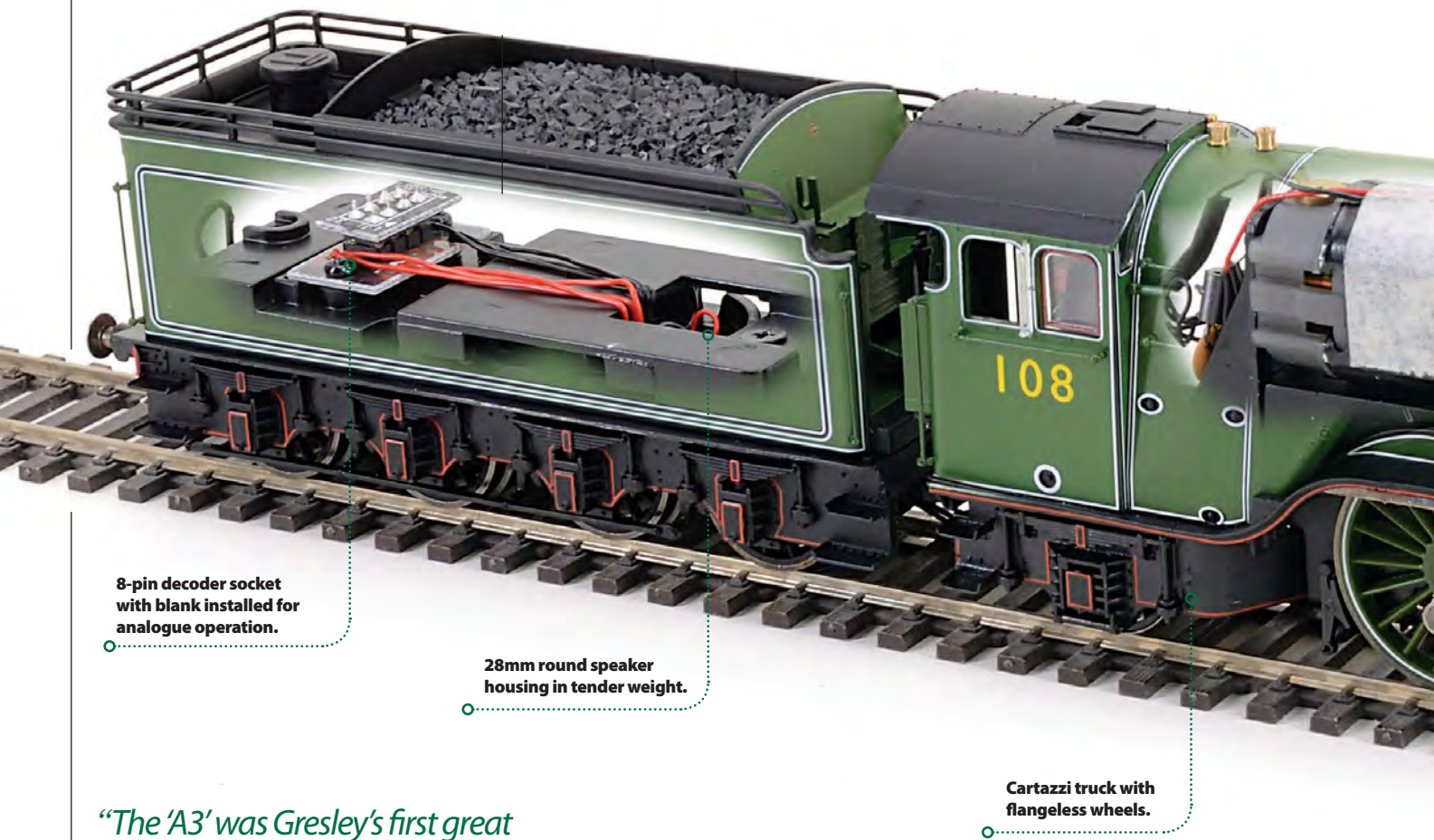
HORNBY LNER 'A3' 4-6-2

Manufacturer:	*www.hornby.com*
First released:	2005
Cat No (featured):	R3518 (2017 release)
Current alternatives:	R3508TTS (2017 release)
Description:	Gresley 'A3' 4-6-2
Gauge:	'OO'/16.5mm
Scale:	4mm:1ft
Length (over buffers):	293mm
Price:	£189.99
Era:	3 (R3518), 5/11 (R3508TTS)
Couplings:	Small tension locks in NEM pockets
DCC:	DCC ready, 8-pin socket
Speaker space:	28mm round
Exterior lights:	None
Interior lights:	None
Motor type:	Five pole, skew wound
Flywheel:	None
BR power classification:	'7P/6F'
Wheel arrangement:	4-6-2
Purpose:	Express passenger
Haulage capacity (expected):	10 carriages
Haulage capacity (actual):	10 Mk 1 carriages

TECHNICAL DETAILS

HORNBY LNER 'A4' 4-6-2

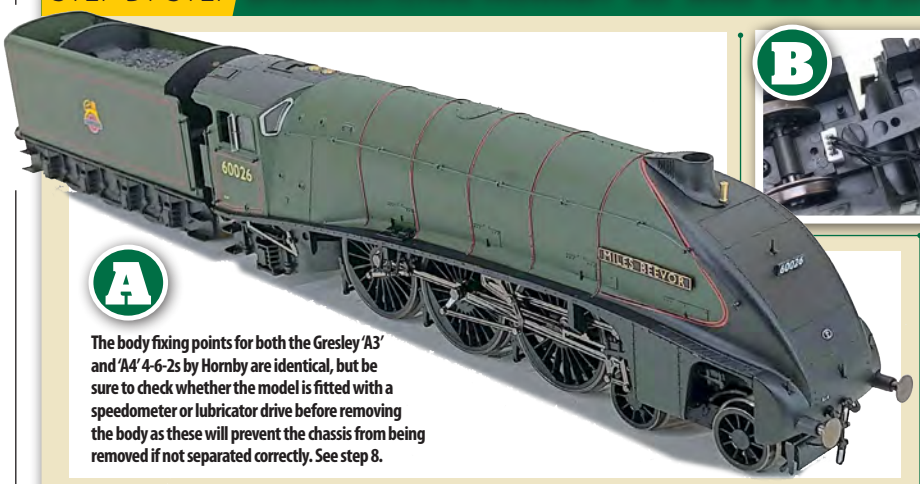
Manufacturer:	*www.hornby.com*
First released:	2002
Cat No (featured):	R3522 (2017 release)
Current alternatives:	R3676, R3630 (2018 releases)
Description:	Gresley 'A4' 4-6-2
Gauge:	'OO'/16.5mm
Scale:	4mm:1ft
Length (over buffers):	291mm
Price:	£169.99
Era:	4 (R3522), 3 (R3676, R3630)
Couplings:	Small tension locks in NEM pockets
DCC:	DCC ready, 8-pin socket
Speaker space:	28mm round
Exterior lights:	None
Interior lights:	None
Motor type:	Five pole, skew wound
Flywheel:	None
BR power classification:	'8P/6F'
Wheel arrangement:	4-6-2
Purpose:	Express passenger
Haulage capacity (expected):	10 carriages
Haulage capacity (actual):	10 Mk 1 carriages



"The 'A3' was Gresley's first great 'Pacific' designs to handle the increasing loads of the 1920s."

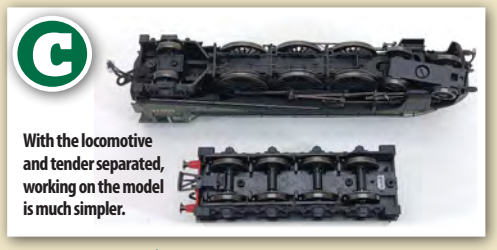
MIKE WILD

STEP BY STEP DISMANTLING HORNBY 'A3' AND 'A4' 4-6-2S

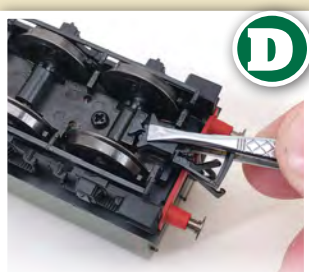


A The body fixing points for both the Gresley 'A3' and 'A4' 4-6-2s by Hornby are identical, but be sure to check whether the model is fitted with a speedometer or lubricator drive before removing the body as these will prevent the chassis from being removed if not separated correctly. See step 8.

B The versions of the 'A3' and 'A4' made since 2010 (2012 for the 'A3') have tender mounted decoder sockets, though only the most recent have the twin-screw drawbar as shown here. All have the four-pin plug and socket on the tender. To separate the locomotive and tender star by removing the rear screw from the drawbar and disconnecting the socket with Hornby's X6468 tender plug extractor tool.



C With the locomotive and tender separated, working on the model is much simpler.



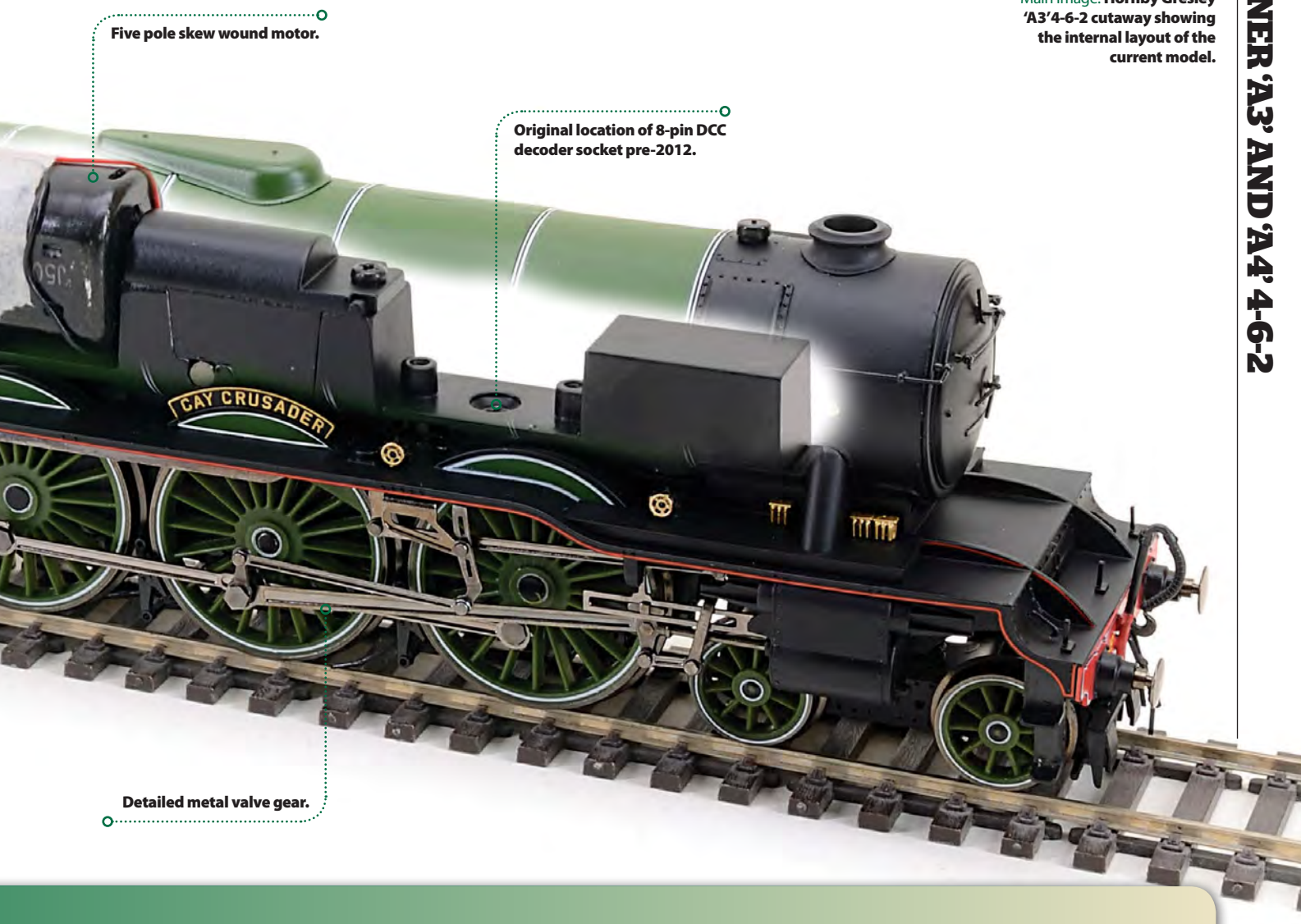
D To remove the tender body, the coupling and its mount need to be removed first for access to the screw underneath.

E This reveals a single crosshead screw which secures the body in place. Undo this with an appropriate modeller's screwdriver.

F The tender body will now lift up from the rear - keep lifting until the front lug disengages from the chassis.

G With the body off, the 8-pin decoder socket, tender weight and speaker space are revealed.

Main image: **Hornby Gresley 'A3' 4-6-2 cutaway showing the internal layout of the current model.**



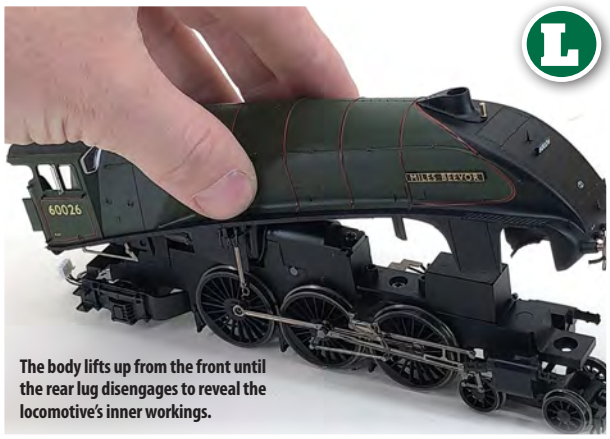
H Moving to the locomotive, we need to remove the nut securing the rear linkage in place. If your model has a speedometer drive (on the opposite side) the same process will be necessary before progressing.

I Hornby produces a specific connecting rod nut spanner for its locomotives (Cat No. R913), but it can also be done with tweezers if required. Take care unwinding the screw so as not to damage the motion around it.

J With the nut removed the linkage can be separated from the rear driving wheel. Keep the nut safe for reassembly.

K To remove the locomotive body, a single slotted screw is located above the front bogie. Move the bogie to one side for access and release with a suitable modeller's screwdriver.

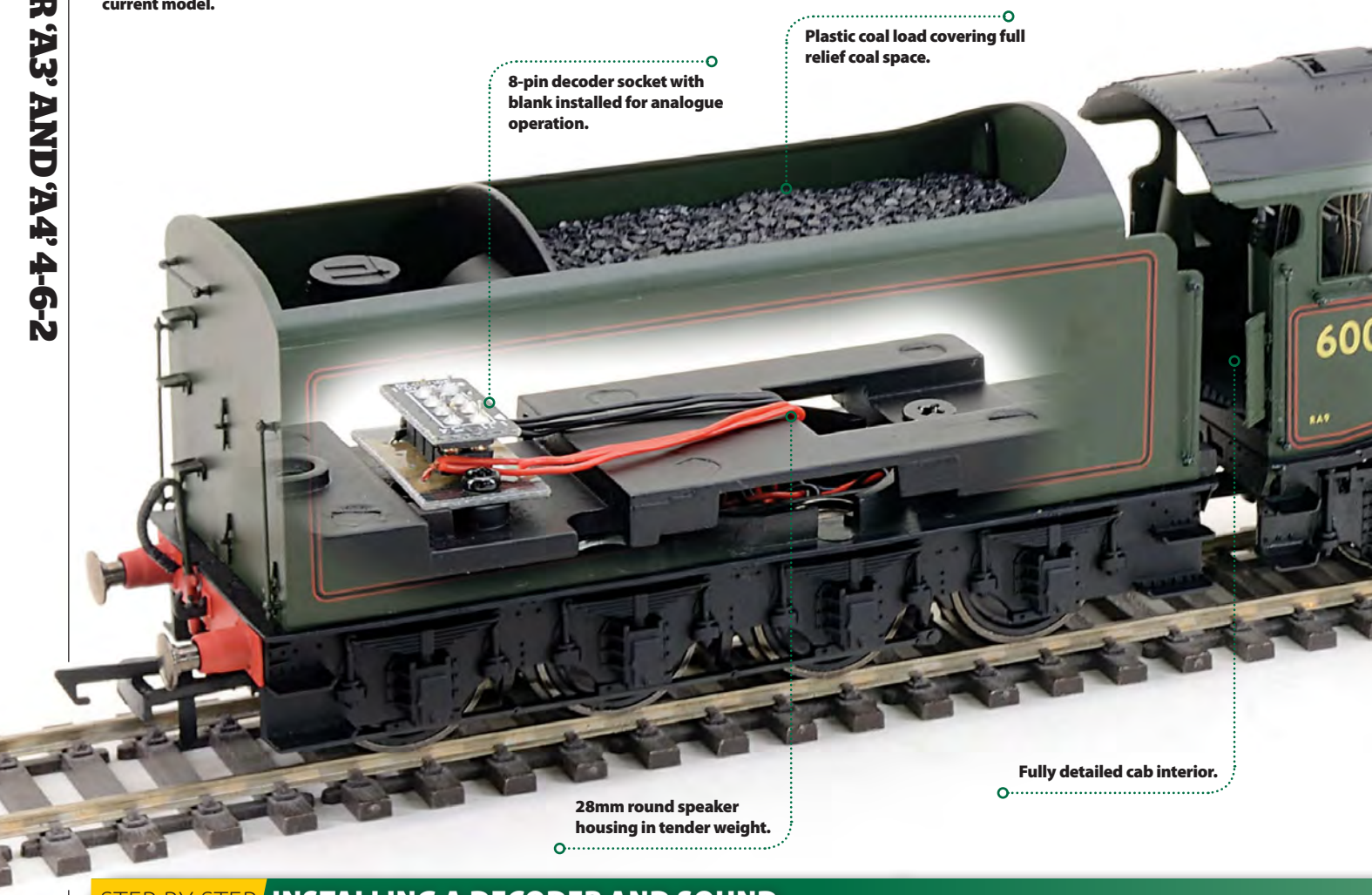
L



The body lifts up from the front until the rear lug disengages to reveal the locomotive's inner workings.

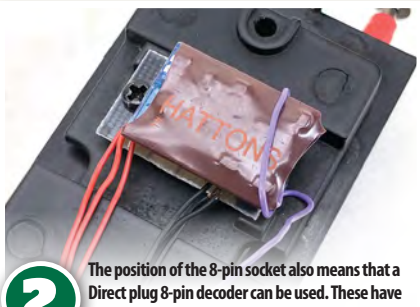
M To refit the body ensure the rear locates on the plastic lug at the centre above the trailing truck before lowering it back into place.

Main image: **Hornby Gresley 'A4' 4-6-2 cutaway showing the internal layout of the current model.**



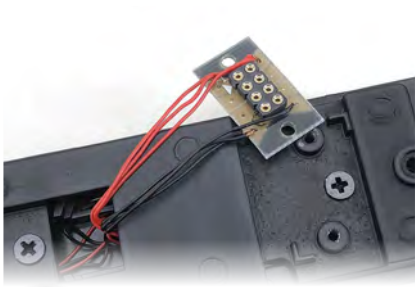
STEP BY STEP INSTALLING A DECODER AND SOUND

1 An 8-pin socket is provided in the tender of the 'A3s' made since 2011 and 'A4s' since 2010. This makes decoder installation simple as the locomotive body can be left in situ.

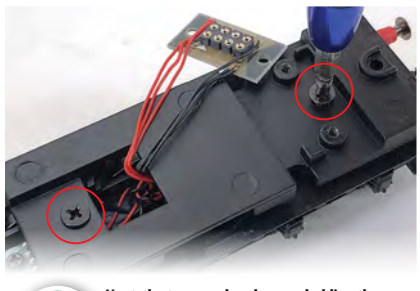


2 The position of the 8-pin socket also means that a Direct plug 8-pin decoder can be used. These have no harness as the decoder board is directly above the 8-pin socket. Installation is simplified by Pin 1 being marked on the decoder and the locomotive socket. Line them up and push the decoder into place.

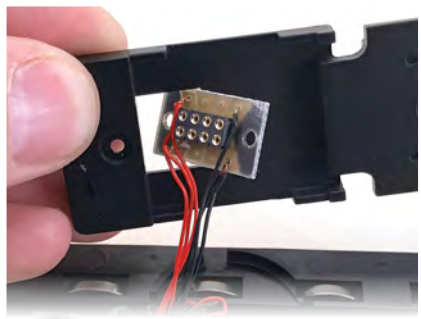
3 To add sound to the 'A4' we are installing an ESU LokSound V4.0 8-pin decoder loaded with Locoman Sounds latest Gresley 'A4' recording. It comes attached to a 40mm x 20mm rectangular speaker, but we will change that for an alternative design.



4 To make full use of the space available in the tender we are going to remove the tender weight. The first step is to undo the two screws holding the decoder socket in place.



5 Next, the two crosshead screws holding the tender weight in place can be taken out to release the metal weight. Removal of the weight hasn't caused running problems in our numerous sound installations.



6 The decoder socket can now be threaded back through the opening in the metal weight and the weight put to one side.

Detailed metal valve gear.

Five pole skew wound motor driving centre axle.

"Doncaster Works built 35 of the outstanding streamlined 'A4s' for the London North Eastern Railway."

MIKE WILD

SOUND DECODER OPTIONS

- Zimo MX645R with custom sound project
- ESU LokSound V4.0 8-pin with custom sound project

This model has been fitted with an ESU LokSound V4.0 decoder loaded with *www.locomansounds.co.uk* latest Gresley 'A4' sound file and a Zimo LS40x20x09 single driver 3D printed speaker.

7 To begin arranging the components in the tender, the decoder was plugged into the socket aligning the orange wire with Pin 1 on the socket.

8 Our speaker choice this time is a Zimo single driver LS40mm x 20mm x 9mm 3D printed speaker. We found this gave a strong overall sound profile for the 'A4' sound file. The decoder socket is now located in front of the speaker, covered with insulation tape. The speaker meanwhile is located as far back as possible without fouling the tender body screw connection.

9 The decoder can be stood up on one side next to the speaker to make the most of the space available. Ensure the speaker is firmly fixed to the tender chassis to complete the installation – superglue or Black Tack are ideal for this. The tender body can now be refitted ensuring that none of the wires from the harness are trapped during reassembly.

10 With the body refitted and the locomotive connected again, this model of 60026 *Miles Beevor* is ready for testing, addressing and entry to service.

HORNBY LNER 'B12' 4-6-0

The 'B12' 4-6-0 has been a consistent part of the Hornby catalogue since 1964. We examine the latest version which models the 'B12/3' and shows how this modern model can be disassembled and equipped for digital operation.

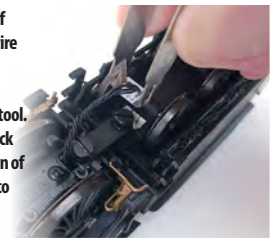
The latest Hornby 'B12' 4-6-0 debuted in December 2016. This is 61533 in BR black with early crests, as released in 2016.

STEP BY STEP DISMANTLING A HORNBY 'B12' 4-6-0

A Launched at the end of 2016, Hornby's latest iteration of the Holden 'B12' 4-6-0 leaves all its predecessors in the dust. Twin flywheel motor, speaker space in the tender, 8-pin decoder socket and a first class level of detail.

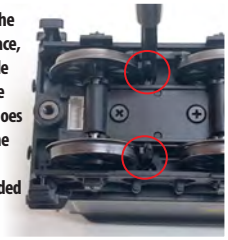
B The 'B12' uses Hornby's latest style of tender coupling consisting of a metal drawbar fixed at both ends with slotted screws and a four-wire connection for the motor and pick-up wires.

C Removal of the four-wire socket is simple with Hornby's own X6468 extractor tool. This device allows quick and reliable extraction of this otherwise tricky to remove connector.



D Next the rear of the two screws on the drawbar can be removed. Leaving the front of the drawbar connected to the locomotive makes reassembly one step simpler.

E Two screws hold the tender body in place, but they are a little awkward to access as they are tucked up above the brake shoes behind the front wheels of the tender. A narrow crosshead modeller's screwdriver is needed to undo these.



F Once undone, the tender body lifts up from the front until the rear lug disengages, allowing the body to be lifted clear of the chassis.

THE 'B12' 4-6-0s date back to the early 20th century when the Great Eastern Railway (GER) found that increasing traffic required new and more powerful motive power to supplement its 'Claud Hamilton' 4-4-0s. Chief Engineer S.D. Holden was tasked with the job and created an inside cylinder 4-6-0 as an evolution of the 'Claud Hamiltons'.

The first entered traffic in 1911 with 70 built. They had 6ft 6in driving wheels, single chimneys and, initially, decorative plating over the upper portion of the driving wheels. The GER classified the new locomotives 'S69', but following the grouping of 1923 they became 'B12' under the London North Eastern Railway (LNER) system – 'B' being the prefix for 4-6-0 locomotives.

The 'B12s' were fine machines in service and continued in front line operation on the former GER lines until the mid-1920s when they were joined by the Gresley 'B17' 4-6-0s. The 'B12s' were finally ousted from express work in the early 1950s by the arrival of the 'Britannia' 4-6-2s. The class' final years were working from Norwich to Cromer with occasional forays along the GER main line to London Liverpool Street. The last was withdrawn in 1961, but one has been preserved – 61572 at the North Norfolk Railway.

Hornby has produced a model of the 'B12' 4-6-0 since 1964 and its latest version debuted in 2016. It models the 'B12/3' sub class, as rebuilt from the original locomotives with large boilers in the 1930s. This new model puts all of its predecessors in the shade with an outstanding level of detail, a strong twin flywheel mechanism and digital compatibility through an 8-pin socket and space for a 28mm round speaker in the tender.

The first issues of the new 'B12' were released in December 2016 covering 8573 in LNER lined apple green (Cat No. R3430), 61533 in BR lined black with early crests (R3431) and 61580 in BR black with late crests (R3432). These were joined by 61576 in BR lined black with early crests in 2017 (R3546) and 2018 will see the addition of 8527 in LNER lined apple green (R3544) and 61556 in British Railways lettered lined black (R3545).

Installation of a decoder is straightforward, although access to the tender fixing screws is tight due to their position, while care will also be needed when arranging the components inside the tender for a digital sound installation due to the restricted size of the GER 'B12' tender. However, it is all possible and our guide explains how using an ESU LokSound decoder. The process is identical for a Zimo MX645R decoder, although it will be difficult to find space to include a 'stay alive' capacitor inside the 'B12' tender as well as the decoder and speaker.

Read on to learn more. ■

G Inside the tender is space for a 28mm round speaker below the tender weight and an 8-pin decoder socket is positioned at the rear.

H Locomotive body removal is optional for decoder installation. The first of three screws to remove is the crosshead securing screw for the front bogie.

I With the bogie out of the way we can access the front body fixing screw which is below the bogie pivot mount. A crosshead screwdriver is required again.

J The third and final body fixing screw is tucked away at the rear of the locomotive below the cab fallplate. It's easy to miss this fixing point, but the body won't come off unless it is removed.

K The body will now lift clear of the chassis. It may take a little side to side movement to separate the two parts as the base of the chassis is a tight fit into the boiler.

L The chassis design makes the most of the long boiler of the 'B12' and features Hornby's latest and – in our opinion – best motor arrangement. A twin flywheel motor is positioned up front followed by a short cardan shaft connected to a gearbox driving the rear axle.

TOOLS

DECODER & SOUND INSTALLATION

- Small crosshead screwdrivers
- Small slotted screwdriver
- Black Tack or Blu Tack
- Soldering iron

TECHNICAL DETAILS

HORNBY LNER 'B12/3' 4-6-0

Manufacturer:	*www.hornby.com*
First released:	2016 (HM114)
Cat No (featured):	R3431 (2016 release)
Current alternatives:	R3430, R3432 (2016 release), R3546 (2017 release), R3544, R3545 (2018 releases)
Description:	Holden 'B12' 4-6-0
Gauge:	'OO'/16.5mm
Scale:	4mm:1ft
Length (over buffers):	235mm
Price:	£160.99
Era:	3 (R3430/R3544), 4 (R3430, R3546, R3545), 5 (R3432)
Couplings:	Small tension locks in NEM pockets
DCC:	DCC ready, 8-pin socket
Speaker space:	28mm round
Exterior lights:	None
Interior lights:	None
Motor type:	Five pole, skew wound
Flywheel:	Two
BR power classification:	'4P'
Wheel arrangement:	4-6-0
Purpose:	Express passenger
Haulage capacity (expected):	Six carriages
Haulage capacity (actual):	Eight Bachmann Mk 1 carriages

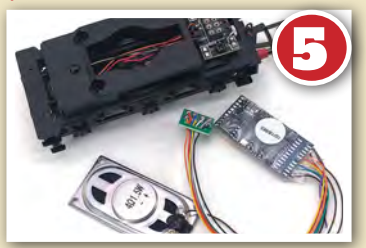
STEP BY STEP INSTALLING A DECODER AND SOUND

An 8-pin Digital Command Control decoder socket is provided in the tender positioned at the rear. Pin 1 is marked on the blank with a No 1 and a triangle.

Removal of the blank is a simple case of pulling evenly up on both sides. Pin 1 is still marked on the locomotive circuit board for future reference.

The position of the decoder socket means that Hatton's, DCC Concepts and Gaugemaster 8-pin direct fit chips will all fit comfortably.

If you are using a harnessed 8-pin decoder the tender well designed to house a speaker can be used to locate the decoder once connected.



We are using an ESU LokSound V4.0 decoder for sound. Our chip decoder came with a 40mm x 20mm speaker attached which will not fit in the 'B12'.

To retain the tender weight we are swapping the speaker on the LokSound decoder for a 28mm round design from *www.digitrains.co.uk*.

Fully detailed cab interior.

SOUND DECODER OPTIONS

- Zimo MX645R with custom sound project
- ESU LokSound V4.0 8-pin with custom sound project

This model has been fitted with an ESU LokSound V4.0 sound decoder connected to a 28mm round speaker. The sound file is *www.digitrains.co.uk* DS004G LNER two-cylinder generic recordings and whistles.

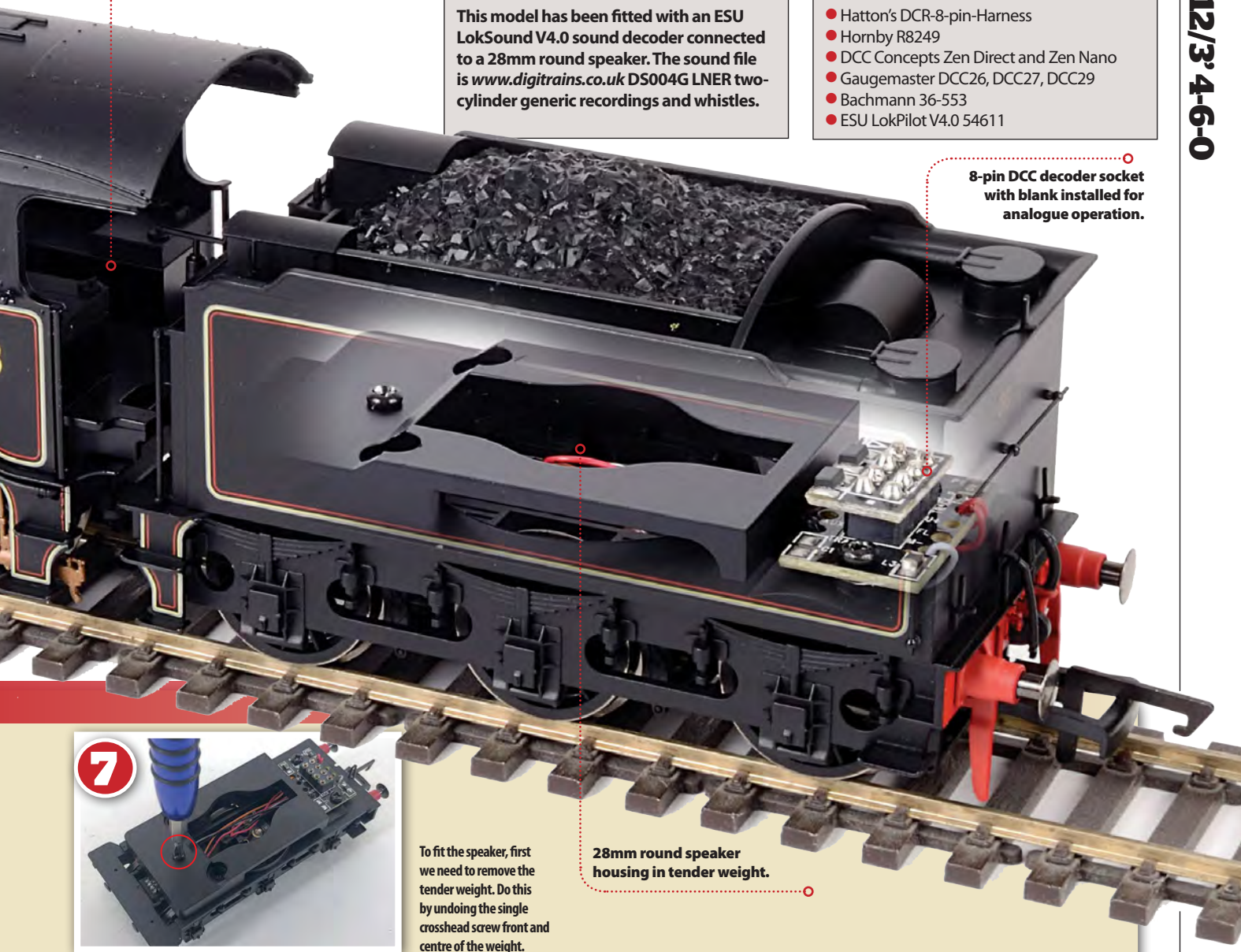
DECODER OPTIONS

The following motor control decoders, and others, will fit into the Hornby 'B12' 4-6-0 with a tender mounted socket:

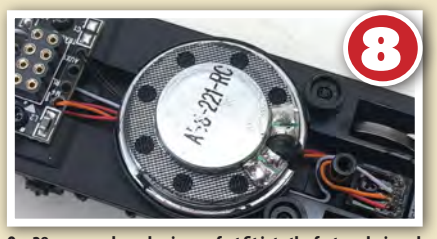
- Hatton's DCR-8-pin-Harness
- Hornby R8249
- DCC Concepts Zen Direct and Zen Nano
- Gaugemaster DCC26, DCC27, DCC29
- Bachmann 36-553
- ESU LokPilot V4.0 54611

8-pin DCC decoder socket with blank installed for analogue operation.

28mm round speaker housing in tender weight.



7 To fit the speaker, first we need to remove the tender weight. Do this by undoing the single crosshead screw front and centre of the weight.



8 Our 28mm round speaker is a perfect fit into the factory designed mount. Don't forget to seal it front and rear in the chassis well for the best sound output.

9 Disconnect the speaker cables (brown wires on an ESU decoder) by heating them with a soldering iron.

10 The wires are then soldered to the connection points on the new 28mm speaker – polarity is not important. We have then covered the soldered joints with insulation tape to prevent any short

11 There is just enough space in front of the tender weight for the speaker wires to be routed round in front of it once the body is refitted. This prevents the wires being trapped by the tender weight.

12 The decoder can now be plugged into the 8-pin socket by aligning the orange wire with Pin 1 and the decoder itself can be fixed on top of the socket to keep everything neat for reassembly.

13 There is a lot to fit into the small Great Eastern Railway tender paired with the 'B12' 4-6-0s, but it does all go in. Careful reassembly is required to ensure everything fits.

HORNBY® LNER 'B17' 4-6-0

In 1928 the first of 73 'B17' three-cylinder 4-6-0s entered service with the London and North Eastern Railway. Hornby's 2012 introduced 'OO' gauge Gresley 'B17' is the subject of this guide to decoder and sound installation.

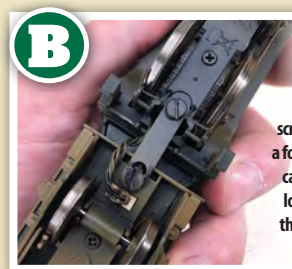
A number of 'B17s' have been released by Hornby since this high fidelity model debuted in 2012. This example is a *Hornby Magazine* limited edition of 61662 *Manchester United* in BR lined green with late crests. It is paired with the large LNER group standard 4,200gallon tender.

STEP BY STEP DISASSEMBLING HORNBY 'B17' 4-6-0S

A

Hornby's latest generation model of the Gresley 'B17' debuted in December 2012. This is the *Hornby Magazine* limited edition 'Footballer' 61662 *Manchester United*. It is coupled to the 4,200gallon LNER group standard tender. If your model has a smaller Great Eastern 3,700gallon tender, follow the 'B12' guide for tender disassembly and decoder installation on pages 80-83.

B



The locomotive and tender are joined together by a metal drawbar, fixed with screws at each end, and a four-wire harness. This carries power from the locomotive pick-ups to the decoder socket and back to the motor.

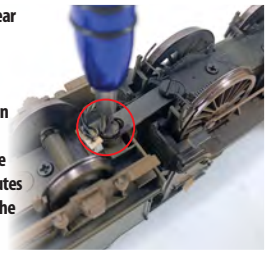
C

Hornby produces an extractor tool for removing its four-wire tender connectors. Cat No. X6468, it is a worthy investment of less than £3 for anyone planning to work on their steam locomotives.

D

The extractor tool grips underneath the sides of the connector to safely unplug it from the tender without any risk of damaging the wires. The worst way to remove this plug is by pulling on the wires – that is sure to damage it.

E



Undo the rear screw from the tender side of the drawbar to complete the separation of the locomotive and tender. These steps take no more than two minutes and make working on the model much simpler.

THE CHANGING traffic levels of the 1920s railway called for more and more powerful locomotives, but some areas still had restrictions which meant design criteria had to come first. One such route was the Great Eastern Main Line from London Liverpool Street to Ipswich and Norwich.

This busy line had weight restrictions but was in urgent need of another upgrade in its motive power as the 'B12' 4-6-0s (see pages 86-89) were no longer able to cope with the increasingly heavy express trains. The new design had to be able to work on the Great Eastern lines and be capable of handling heavy expresses. In the end a three-cylinder 4-6-0 design was created by the North British Locomotive Company with approval from the London and North Eastern Railway (LNER).

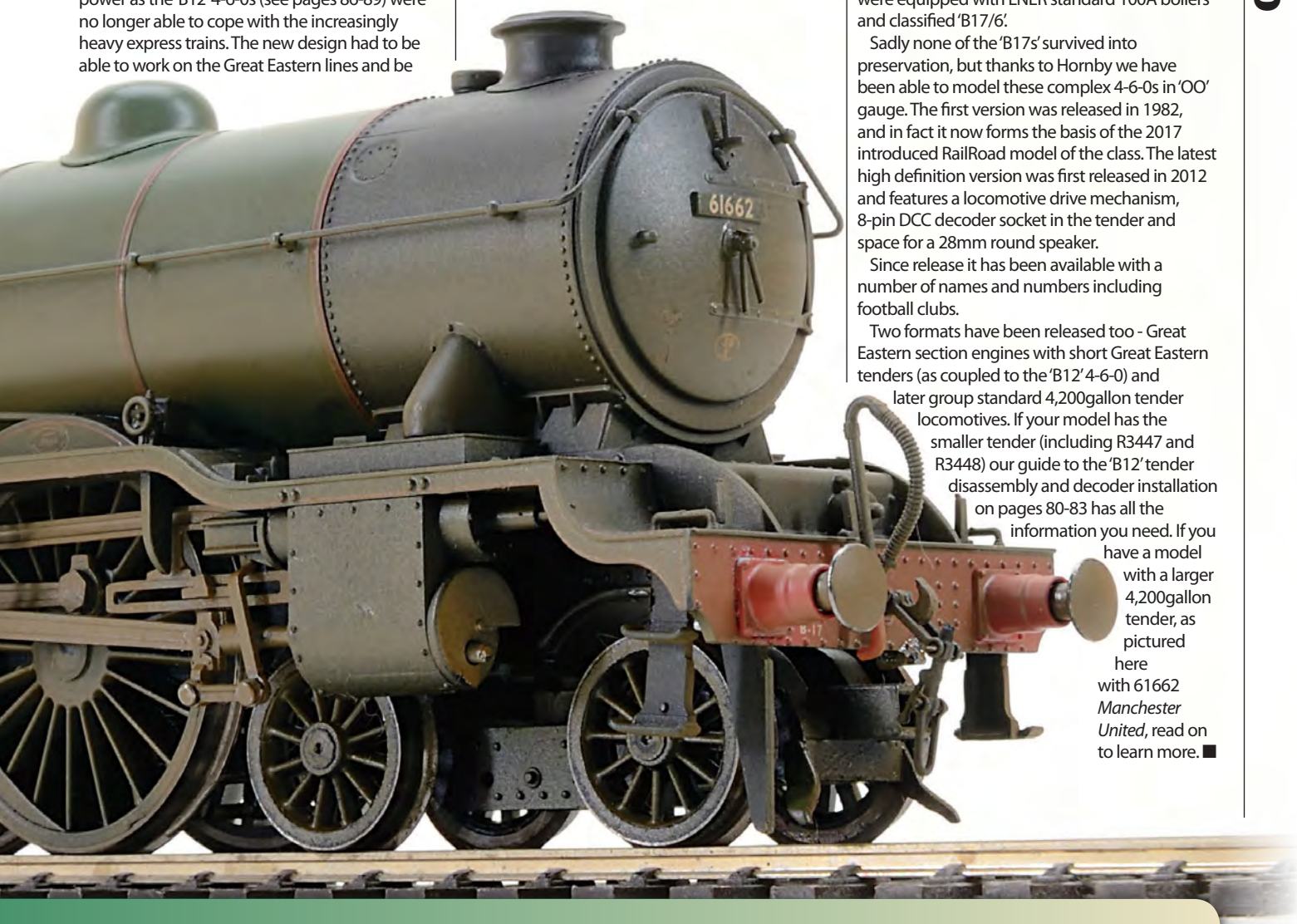
Overseen by Gresley, the 'B17' had the cab, cylinders and motion from his 'A1' 4-6-2s, a boiler based on the 'K3' 2-6-0 and 'O2' 2-8-0 and a Darlington pattern front bogie together with a Stratford Works Great Eastern style 3,700gallon tender. To meet the weight restrictions, the middle cylinder drove the leading axle while the outside cylinders drove the middle axle.

There were several variations in the 'B17' fleet. The first ten North British built engines were classified 'B17/1' while the Armstrong Whitworth locomotives were 'B17/2.' 'B17/3s' had different springs and the 'B17/4s' had larger 4,200gallon capacity LNER group standard tenders. Later, between 1943 and 1957, the remaining engines were equipped with LNER standard 100A boilers and classified 'B17/6'.

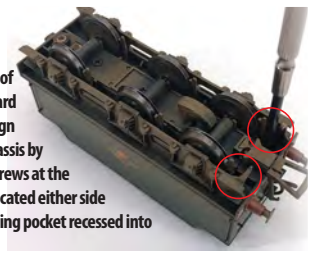
Sadly none of the 'B17s' survived into preservation, but thanks to Hornby we have been able to model these complex 4-6-0s in 'OO' gauge. The first version was released in 1982, and in fact it now forms the basis of the 2017 introduced RailRoad model of the class. The latest high definition version was first released in 2012 and features a locomotive drive mechanism, 8-pin DCC decoder socket in the tender and space for a 28mm round speaker.

Since release it has been available with a number of names and numbers including football clubs.

Two formats have been released too - Great Eastern section engines with short Great Eastern tenders (as coupled to the 'B12' 4-6-0) and later group standard 4,200gallon tender locomotives. If your model has the smaller tender (including R3447 and R3448) our guide to the 'B12' tender disassembly and decoder installation on pages 80-83 has all the information you need. If you have a model with a larger 4,200gallon tender, as pictured here with 61662 *Manchester United*, read on to learn more. ■



F

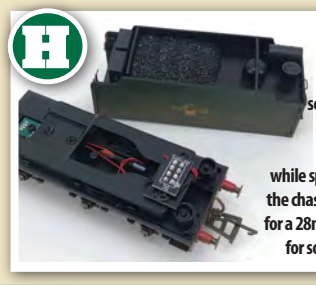


The tender body of the group standard 4,200gallon design is fixed to the chassis by two crosshead screws at the rear. These are located either side of the NEM coupling pocket recessed into the chassis.

G

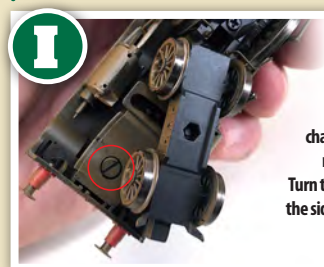
The body lifts up from the rear and the front lug quickly disengages allowing the body to be lifted clear revealing the internal spaces.

H



An 8-pin Digital Command Control (DCC) decoder socket is positioned at the rear of the tender interior while space is provided in the chassis/tender weight for a 28mm round speaker for sound installations.

I

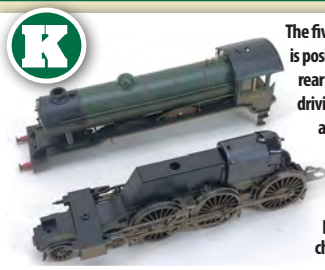


A single slotted screw holds the 'B17' locomotive body onto its chassis in all models made since 2012. Turn the front bogie to the side to allow access to the screw.

J

The body lifts up from the front until the rear lug disengages revealing the motor and chassis block inside the boiler.

K



The five-pole motor is positioned at the rear of the chassis driving the centre axle. The main gearbox is beneath the leading portion of the chassis weight.

TECHNICAL DETAILS

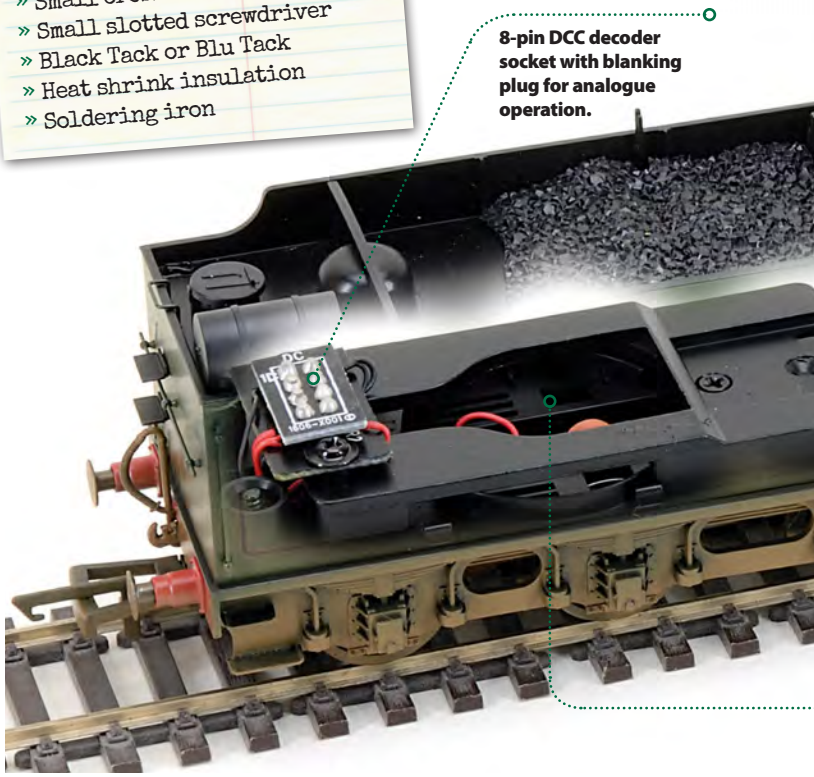
HORNBY LNER 'B17' 4-6-0

Manufacturer:	*www.hornby.com*
First released:	2012 (HM67)
Cat No (featured):	R3163 (2013 limited edition)
Current alternatives:	R3447, R3448 (2016 release), R3523 (2017 release)
Description:	Gresley 'B17' 4-6-0
Gauge:	'OO'/16.5mm
Scale:	4mm:1ft
Length (over buffers):	249mm (236mm with GER tender)
Price:	£160.99
Era:	3 (R3447), 4 (R3448/R3523), 5 (R3163)
Couplings:	Small tension locks in NEM pockets
DCC:	DCC ready, 8-pin socket
Speaker space:	28mm round
Exterior lights:	None
Interior lights:	None
Motor type:	Five pole, skew wound
Flywheel:	None
BR power classification:	'6P/5F'
Wheel arrangement:	4-6-0
Purpose:	Express passenger
Haulage capacity (expected):	Eight carriages
Haulage capacity (actual):	Nine Bachmann Mk 1 carriages

TOOLS

DECODER & SOUND INSTALLATION

- Small crosshead screwdrivers
- Small slotted screwdriver
- Black Tack or Blu Tack
- Heat shrink insulation
- Soldering iron



8-pin DCC decoder socket with blanking plug for analogue operation.

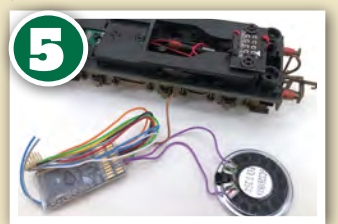
STEP BY STEP INSTALLING A DECODER AND SOUND

1 The 8-pin decoder socket at the rear of the tender makes conversion to digital control a simple process. Pin 1 is marked on both the blank and the circuit board underneath for future reference.

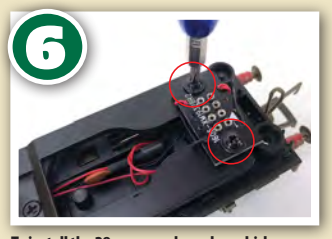
2 The blank unplugs with even upwards finger pressure on each side. If you have the original box we recommend returning the blank to it for future use should you decide to sell the model on.

3 The decoder socket position allows DCC Concepts, Gaugemaster and Hatton's direct plug 8-pin decoders to be fitted into the socket. Ensure Pin 1 on the decoder lines up with Pin 1 on the socket.

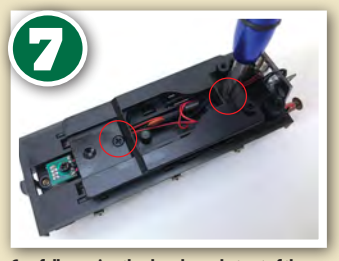
4 If you are using a harnessed 8-pin decoder, align the orange wire with Pin 1 on the socket and then tuck the decoder into the speaker well to keep it neat for refitting of the tender body.



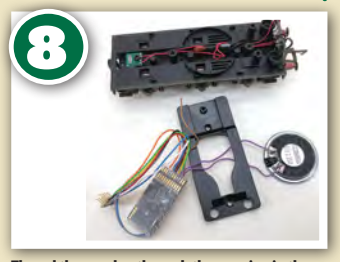
5 Next we are going to upgrade the 'B17' to operate with digital sound. We have removed the previous motor decoder and selected a Zimo MX645R with Digitrains Gresley 'A3' sound file.



6 To install the 28mm round speaker which we have selected for the 'B17' project, we need to remove the tender weight. First release the two crosshead screws which hold the socket in place.

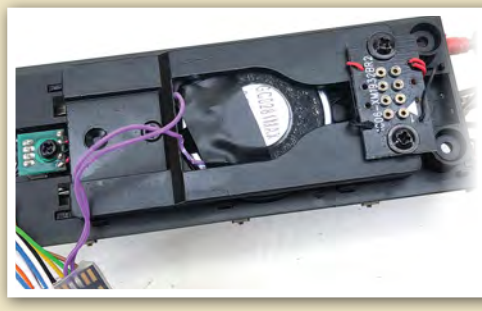


7 Carefully moving the decoder socket out of the way, we can now unscrew the two fixing screws at the front and rear of the metal tender weight.

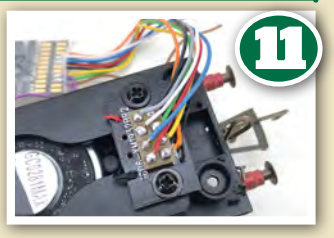


8 Thread the speaker through the opening in the metal weight before reinstating the tender weight on the chassis.

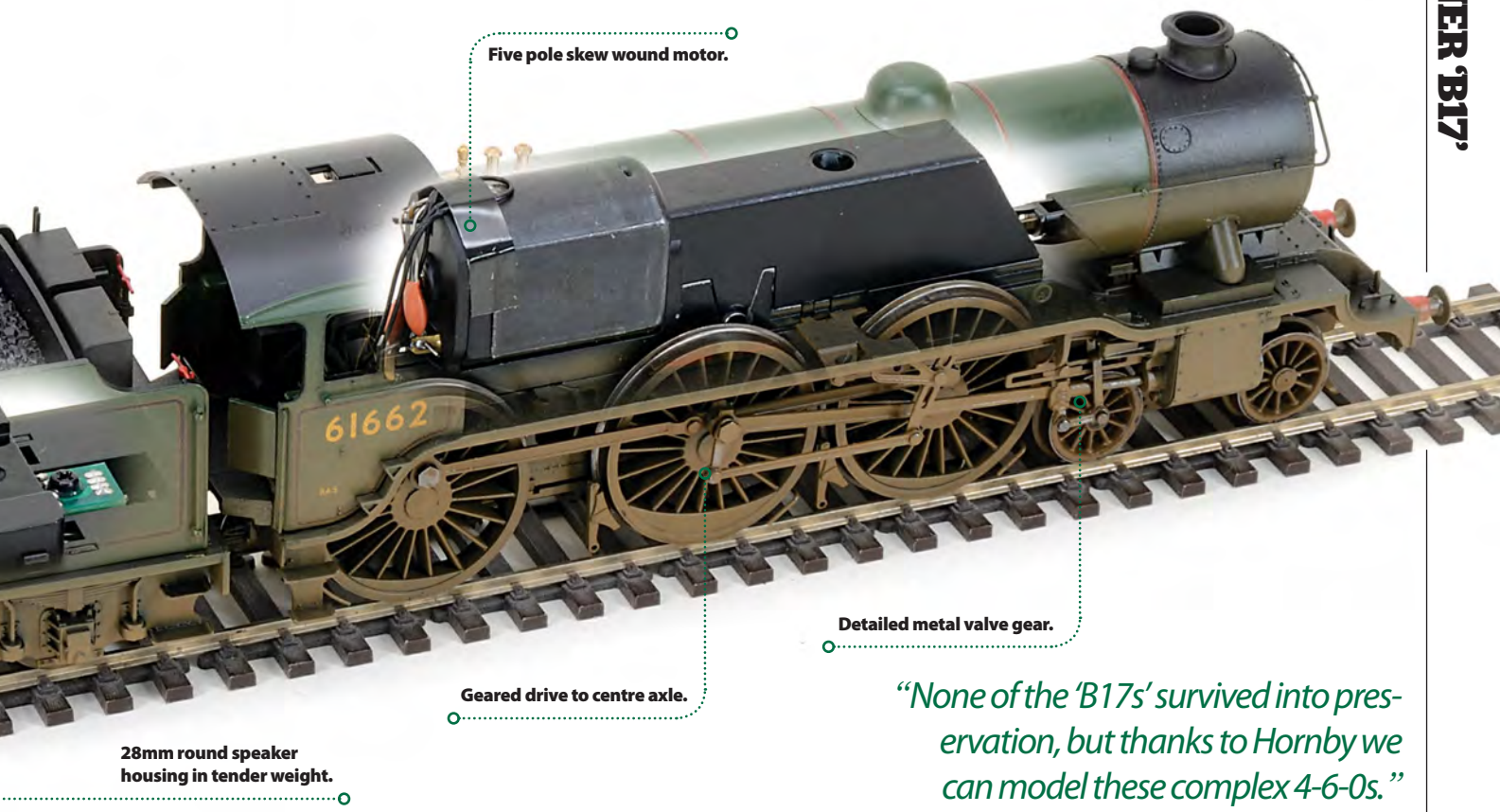
9 Cover the soldered speaker connections with insulating tape to ensure there is no possibility of a short circuit. Seal the speaker front and rear with blue or black tack for the best audio.



10 The tender weight can now be refitted followed by the decoder socket. Make sure none of the wires from the decoder or locomotive are pinched by the weight.



11 Plug the decoder into the socket by lining up the orange wire from the decoder with Pin 1 on the locomotive circuit board.



"None of the 'B17s' survived into preservation, but thanks to Hornby we can model these complex 4-6-0s."

MIKE WILD

12 The MX645R decoder can be connecetd to a 'stay alive' capacitor. We are going to use the tender coal space for this. Lift the plastic coal out then make a 2.5mm hole through the coal space.

13 Connect leads to the two legs of the capacitor supplied with the decoder – the short leg is negative which connects to the grey wire on the decoder.

14 With the wires soldered to the legs, trim the legs down in length and then cover each with heatshrink insulation. Use the side of the soldering iron to shrink the tubing onto the

15 The two wires of the capacitor can now be fed through the previously made hole in the coal space allowing them to be connected to the decoder.

16 To cover the capacitor, we are reusing the original coal load as the basis. Cut the lower front portion off using a sharp knife to clear the capacitor.

17 The plastic coal load will now sit on top of the ledge around the tender coal space. Real coal can be fixed on top with PVA glue.

18 The two wires from the capacitor can now be connected to the 'stay alive' wires on the decoder. The grey wire is always negative and the blue wire is positive. Solder together and insulate.

19 Finally the tender body can be refitted – taking care to ensure all wires are neatly tucked inside the body – recouple the locomotive and then take the model to the layout for testing, addressing and operation.

DECODER OPTIONS

The following motor control decoders, and others, will fit into the Hornby 'B17' 4-6-0 with a tender mounted socket:

- Hatton's DCR-8-pin-Harness and DCR-8-pin-Direct
- Hornby R8249
- DCC Concepts Zen Direct, Zen 218 and Zen Nano
- Gaugemaster DCC26, DCC27, DCC29
- Bachmann 36-553
- ESU LokPilot V4.0 54611

SOUND DECODER OPTIONS

- Zimo MX645R 8-pin decoder with custom sound project
- ESU LokSound V4.0 8-pin with custom sound project
- Hornby Twin Track Sound Gresley 'A3' sound decoder (R8106) – approximate sounds

This model has been fitted with a Zimo MX645R sound decoder connected to a 28mm round speaker. The sound file is *www.digitrains.co.uk* ZS005A for the Gresley 'A3' 4-6-2 with the exhaust speed adjusted through CV267 to match the 'B17' wheel size.

BACHMANN BRANCH-LINE

LNER 'Atlantic'

TOOLS

DECODER INSTALLATION
» Small crosshead screwdrivers

SOUND DECODER INSTALLATION
» Small crosshead screwdriver
» Soldering iron
» Blu tack

Before the dawn of the East Coast 'Pacifics', express traffic from London King's Cross to the north was in the hands of Ivatt's fine 'Atlantic' 4-4-2s. We strip down Locomotion Models' ready-to-run product from 2015 which is soon to join Bachmann's main catalogue.

IT'S 1897 and the Great Northern Railway (GNR) is struggling with its current motive power to provide the necessary power to move increasingly heavy trains. New carriages are enhancing the passenger experience, but the railway desperately needs a more modern and powerful locomotive.

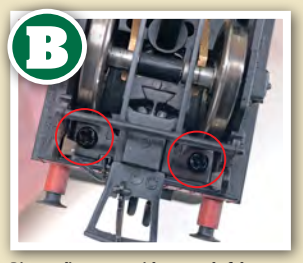
Henry Ivatt has recently been appointed as Chief Mechanical Engineer of the GNR and having developed a number of 2-4-0s and 4-4-0s to keep the railway running his ideas turned to a revolution in motive power – the 4-4-2 'Atlantic'. These characterful locomotives were able to support a larger boiler and, just as importantly, a wide firebox which provided much greater potential to develop more powerful locomotives.

The first Ivatt 'Atlantic' 990 *Henry Oakley* received the go-ahead the same year and in 1898 it was in service paving the way for further development. That came in 1902 when the first of the 'C1' large-boilered 'Atlantics' entered service on the East Coast Main Line. They reigned supreme until the early 1920s when Gresley began designing the first of the 'A1' (later 'A3') 'Pacifics'.

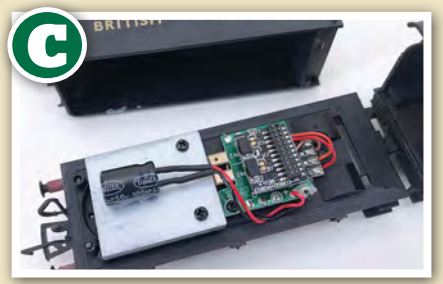
Just 17 of the 94 'C1' 4-4-2s survived into British Railways service with the last being 62822. One 'C1' is now preserved in the National Collection with its original GNR number 251. In 2015 Locomotion Models released its Bachmann produced 'OO' gauge model of this sought after class offering it in GNR, London and North Eastern Railway and BR liveries. Three year's on Bachmann is issuing two new mainstream models using the same 'C1' tooling suite in 2018 – and it is also expected to deliver models of the London Brighton & South Coast Railway Billinton 'H1' and 'H2' 4-4-2s during 2018 which is anticipated will share a similar chassis. Our step by step guides explain how the Bachmann Ivatt 4-4-2s can be dismantled and equipped with a decoder and sound. Read on to learn more. ■

STEP BY STEP DISMANTLING A BACHMANN GNR 'C1' 4-4-2

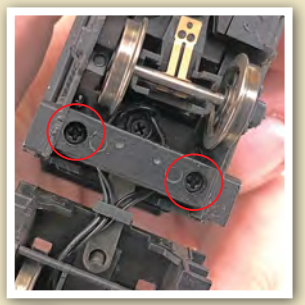
A The subject for our project is the British Railways black liveried National Collection model as 62822. It has already been through our workshop for weathering. It has a 21-pin decoder socket in the tender and space for a 23mm round speaker.



B Dismantling starts with removal of the tender body. Two crosshead screws located at the rear of the tender chassis either side of the coupling hold it in place.



C The tender body lifts up from the rear to unclip the front lugs revealing the 21-pin decoder socket, an energy storage capacitor and a pair of metal weights.



D Removing the locomotive body starts with release of the two screws in the bar at the back of the chassis. A crosshead screw driver is required again for these.

E Getting to the front body securing screw is more difficult. An opening has been left in the bogie, but you will need a narrow jewellers screwdriver, as shown here, to reach through to the small crosshead screw head underneath.

F With the body removed, it lifts straight up from the chassis, the motor and gearbox are clear to see at the rear of the chassis. Much of the weight to give the 'Atlantic' adhesion is mounted in the boiler.

The first issue of the LNER 'C1' 4-4-2 was Locomotion Models' limited edition as National Collection locomotive 251. In 2018 the 'C1' will be released in Bachmann's main catalogue range as 272 in GNR green (31-761) and 4421 in LNER green (31-762).

SOUND DECODER OPTIONS

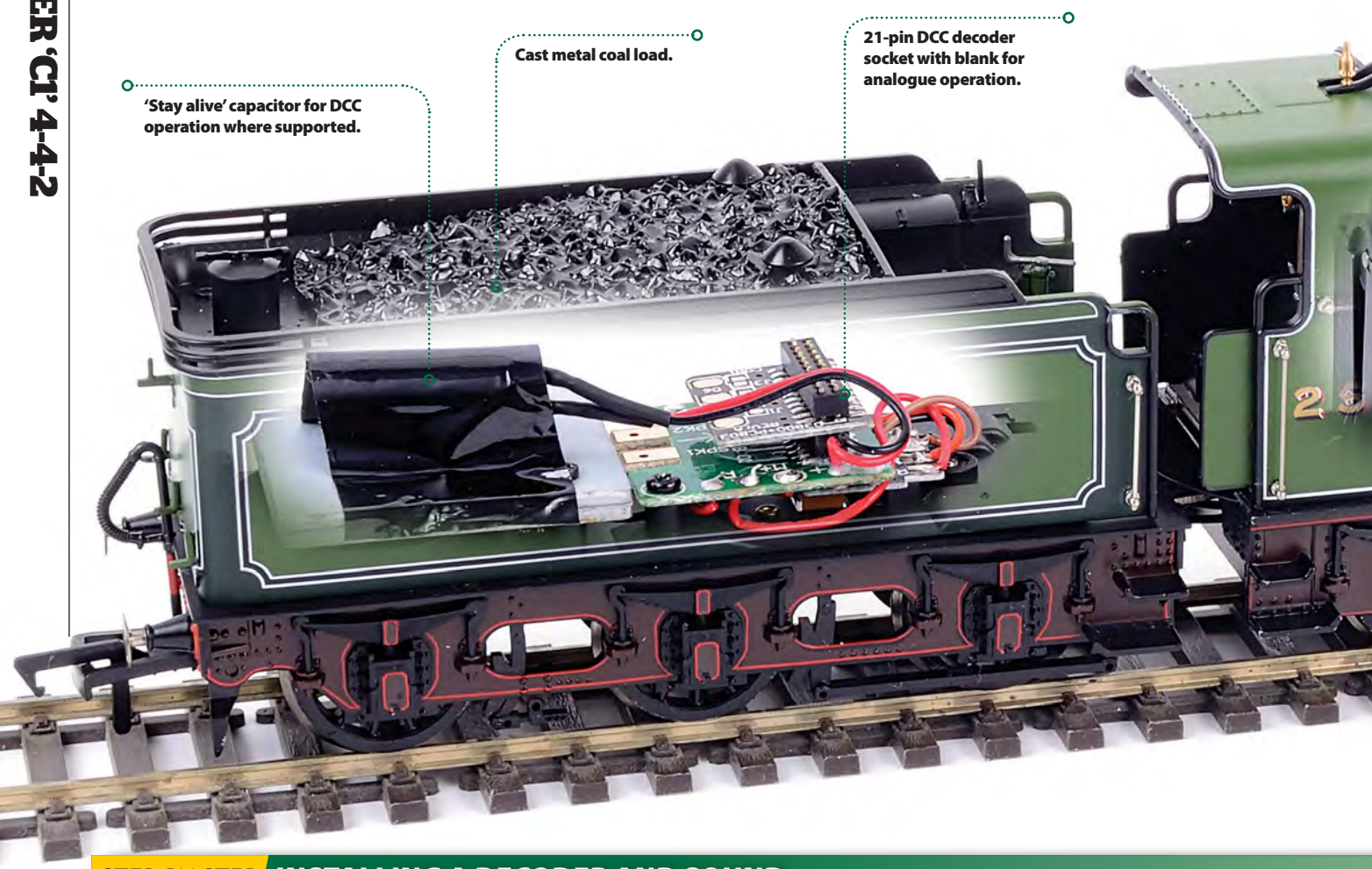
- Zimo MX644D with custom sound project
- ESU LokSound V4.0 21-pin with custom sound project

This model has been fitted with a ESU LokSound V4.0 decoder loaded with *www.howesmodels.co.uk* Robinson 'D11' sound file.

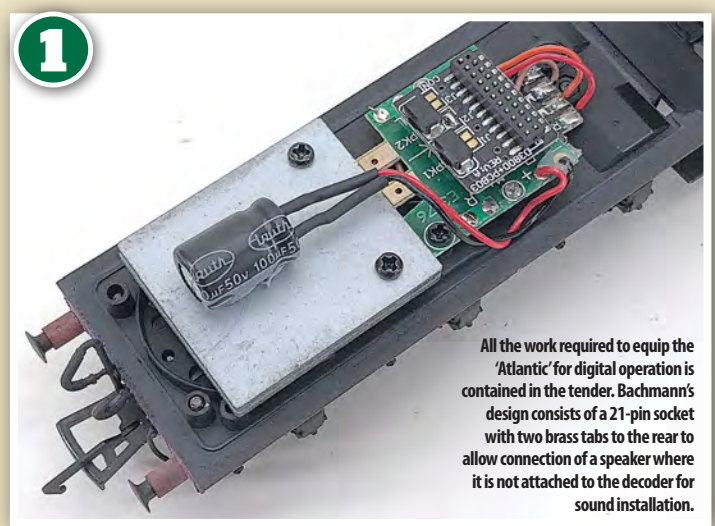
DECODER OPTIONS

The following motor control decoders, and others, will fit into the Bachmann 'C1s' with tender mounted sockets:

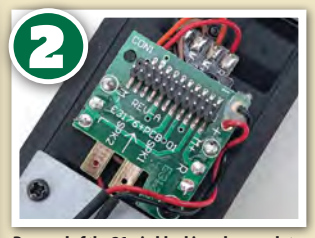
- Hatton's DCR-21-pin
- DCC Concepts Zen 218
- Gaugemaster DCC27
- Bachmann 36-557
- Lenz Silver 10321-01



STEP BY STEP INSTALLING A DECODER AND SOUND

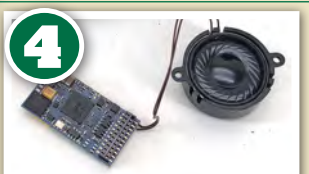


All the work required to equip the 'Atlantic' for digital operation is contained in the tender. Bachmann's design consists of a 21-pin socket with two brass tabs to the rear to allow connection of a speaker where it is not attached to the decoder for sound installation.



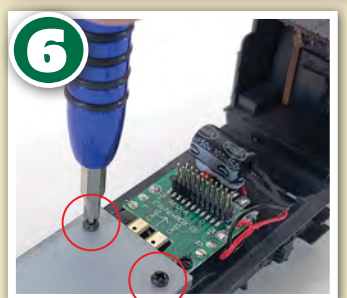
Removal of the 21-pin blanking plug needs to be done carefully. Lever up each side a little at a time until it becomes loose enough to lift off. Forcing up one side will result in bent pins.

Fitting a standard motor decoder is as simple as plugging it in. All 21-pin decoders have a blank pin hole which is used to align it in the socket. Check its orientation before pressing it into place.

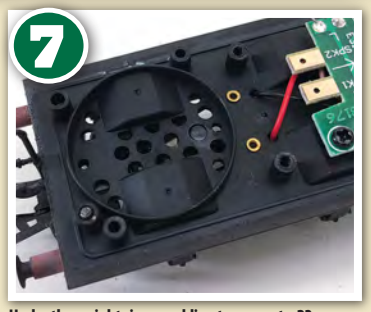


To add sound we are installing a LokSound V4.0 decoder which comes pre-fitted with a 23mm round speaker.

To make space for the sound decoder, our first step is to relocate the capacitor to the front of the tender. Its wires are long enough and there is space ahead of the decoder socket for it.

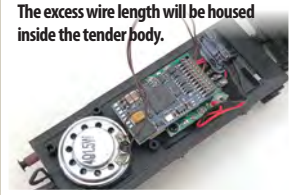


The two metal weights at the rear of the tender must be removed for a speaker to be fitted. They are secured in place with two crosshead screws.

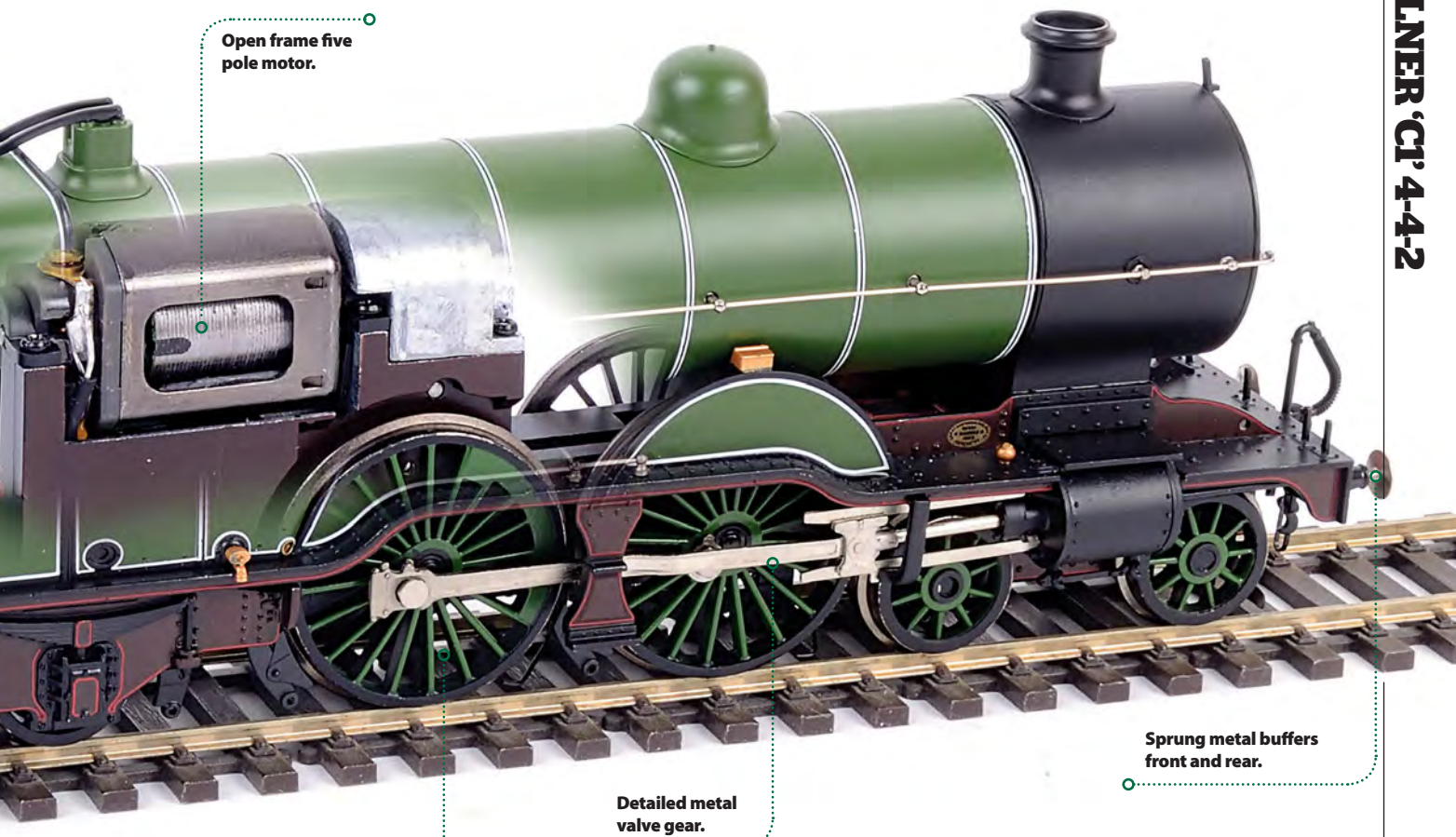


Under the weights is a moulding to support a 23mm round speaker with holes moulded as part of the tender chassis design.

The sound decoder can be plugged into the socket as before and the speaker is a neat fit onto the moulding at the rear. The excess wire length will be housed inside the tender body.



To enhance the sound output we upgraded the speaker to an 8ohm 2watt QSI 20mm square high bass design. The frame needs to be modified to clear the tender body mounts using a craft knife.



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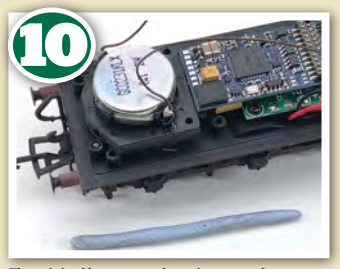
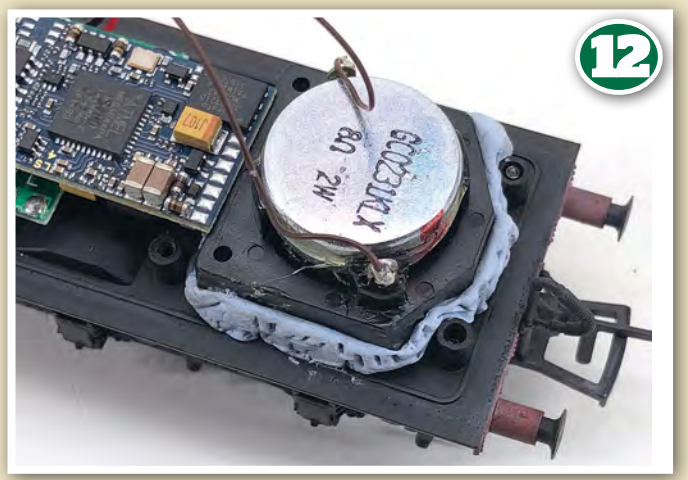


The original brown speaker wires were de-soldered from the original 23mm sound speaker and connected to the new speaker. Orientation isn't important.

11

The speaker can now be positioned over the mounting position. It does however require sealing to the tender chassis for the best sound quality. Simple as it is, Blu Tack can be a very useful medium in doing this.

12



By rolling the Blu Tack into a strip it can be wrapped around the speaker frame and pressed into place with a small flat blade screw driver completing the sound installation. Make sure the Blu Tack stays within the outline of the tender body and doesn't cover the screw holes at the rear.

TECHNICAL DETAILS

BACHMANN GNR 'C1' 4-4-2

Manufacturer:	*www.bachmann.co.uk*
First released (current version):	2015 (HM96)
Cat No (featured):	NCIM020 (2015 release)
Current alternatives:	31-761, 31-762 (2018 releases)
Description:	Ivatt 'C1' 4-6-2
Gauge:	'OO'/16.5mm
Scale:	4mm:1ft
Length (over buffers):	241mm
Price:	£189.95-£199.95
Era:	2 (NCIM020/31-761), 3 (31-762)
Couplings:	Small tension locks in NEM pockets
DCC:	DCC ready, 21-pin socket
Speaker space:	23mm round
Exterior lights:	None
Interior lights:	None
Motor type:	Open frame, skew wound
Flywheel:	None
BR power classification:	'2P'
Wheel arrangement:	4-4-2
Purpose:	Express passenger
Haulage capacity (expected):	Six carriages
Haulage capacity (actual):	Seven Bachmann Mk 1 carriages

HORNBY®

LNER 'P2' 2-8-2

One of the most spectacular designs of the steam era was Gresley's huge semi-streamlined express 'P2' 2-8-2. We illustrate how to enhance the Hornby model with a decoder and sound installation.

AMONGST the most difficult routes the London and North Eastern Railway (LNER) inherited at the 1923 grouping was that between Edinburgh and Aberdeen, featuring intensive working over hilly terrain and many twists and turns.

In the late 1920s and early 1930s services on this route were being accelerated and improved, largely due to the introduction of Gresley's 'A1' and 'A3' class 'Pacifics', but the new timings relied on maintaining train weights at a reasonable level. The introduction of Third Class sleeping cars on night trains, which came about in the 1930s, meant that the advantages gained by the use of the big 4-6-2s were eroded by increased train weights and when that was coupled with a difficult route and stiff gradients the only casualty would be timekeeping.

A particular problem in this respect was the 'Aberdonian', which contained sleeping cars as well as dining vehicles and consequently would often exceed the maximum permissible load for an 'A3' on this route of 440 tons.

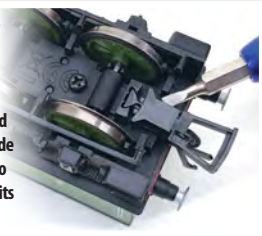
The 2014 released Gresley 'P2' 2-8-2 is a stand out model in the Hornby collection. It has been released in both DCC ready and DCC sound fitted formats – the latter with Twin Track Sound. This is the non-sound version of 2001 *Cock O' The North* in LNER lined apple green (Cat No. R3207).

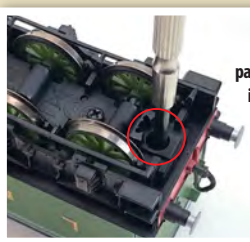
STEP BY STEP DISASSEMBLING HORNBY 'P2' 2-8-2S

A The Hornby 'P2' 2-8-2 has been released in DCC ready (R3207/R3171) and DCC sound fitted formats – the latter with a Twin Track Sound decoder (R3246TTS). All versions come apart in the same way, but the sound fitted model has its decoder socket positioned in the tender,

B On the non-sound versions the drawbar is the only connection between the locomotive and tender. Unscrew one of the two slotted screws to separate the locomotive and tender should you wish to. If your model has sound it will have a four-pin plug as shown in the guide to the 'B17' 4-6-0 on pages 84-87.

C To accessthe inside of the tender the first port of call is to remove the coupling and its mount. Use a flat blade modelling screwdriver to pop the coupling out of its fishtail socket.





D A single screw holds the two parts together – it is located at the bottom of the cylindrical hole at the rear of the chassis below the coupling mount. Use a crosshead modelling screwdriver to release it.

E With the screw out, the tender body will lift up from the rear until the front lug disengages.

F Inside the tender you will find a metal weight to support a 28mm round speaker and ample space to house other components too.

One answer was double-heading, but this was anathema to Sir Nigel Gresley, the LNER's Chief Mechanical Engineer, and he sought authority to design and construct a fleet of powerful express locomotives especially for use on heavy trains between Edinburgh and Aberdeen.

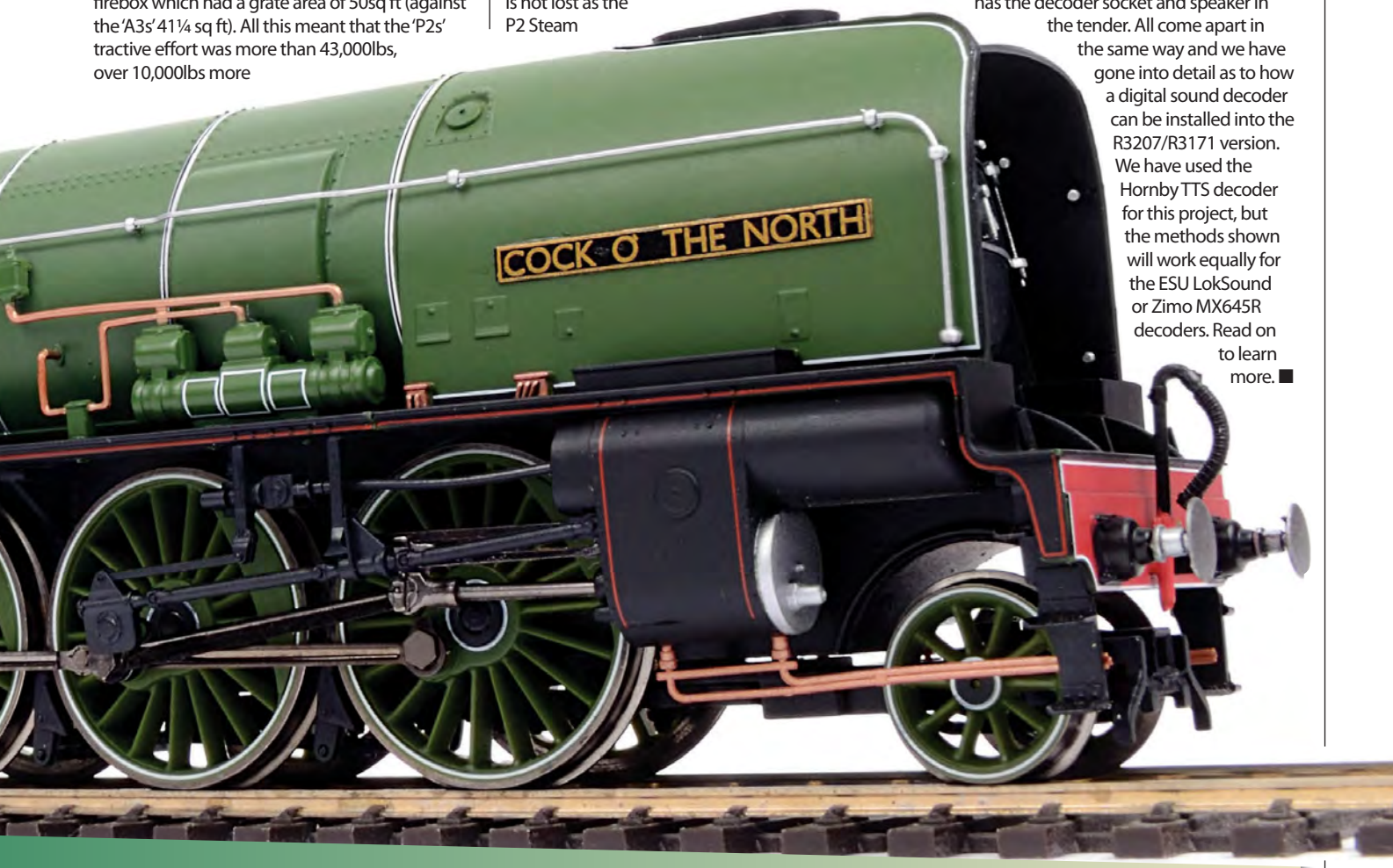
Drawing on his earlier successes with his 'Pacifics' Gresley designed a huge machine which had eight 6ft 2in driving wheels and a pony truck at each end. This 2-8-2 arrangement allowed much greater adhesion while still permitting relatively fast running. The driving wheels' smaller diameter than the 6ft 8in of the 'Pacifics' effectively made them slightly lower geared, giving them better acceleration characteristics.

The boiler supplied steam to three 21in diameter cylinders, and this was all fed by a firebox which had a grate area of 50sq ft (against the 'A3s' 41¼ sq ft). All this meant that the 'P2s' tractive effort was more than 43,000lbs, over 10,000lbs more than an 'A3' – and by a margin the most powerful passenger locomotives running in fleet service in Britain.

The first locomotive 2001 *Cock o' the North* was constructed during 1933 and early 1934 and it emerged fitted with Lentz rotary cam poppet valve gear. Trials were conducted throughout the summer and autumn of 1934 which saw the locomotive working between King's Cross and Doncaster and following modifications they were capable of hauling trains up to 535 tons. In total six were built, but 2001 *Cock O' the North* was unique in a number of ways.

However, there were reliability problems with the class in the early 1940s and Edward Thompson decided to rebuild the 'P2s' as 4-6-2s with work being completed by 1944. However, all is not lost as the P2 Steam Locomotive Company, which built new-build Peppercorn 'A1' 60163 *Tornado* (see pages 70-73) is building a brand new 'P2' 2007 *Prince of Wales* for main line charter work. Visit *www.P2steam.com* for more information.

In model form the concept of a ready-to-run 'P2' was once unthinkable, but Hornby delivered the goods for 'OO'. It was announced in 2013 and delivered in 2014 with the 2-8-2 being designed to span both the main (Cat No. R3207) and RailRoad (R3171) parts of the Hornby catalogue – the latter with reduced decoration. These were joined by a Twin Track Sound equipped model (R3246TTS) which had full decoration. If you already own one of these models you will find that R3207 and R3171 both have locomotive mounted 8-pin decoder sockets while R3246TTS has the decoder socket and speaker in the tender. All come apart in the same way and we have gone into detail as to how a digital sound decoder can be installed into the R3207/R3171 version. We have used the Hornby TTS decoder for this project, but the methods shown will work equally for the ESU LokSound or Zimo MX645R decoders. Read on to learn more. ■



G

The single locomotive body securing screw is buried below the front pony truck. Hornby has provided a hole through the pony truck to access the crosshead screw. Undo this and you are ready to release the body – just make sure you catch the screw as it comes out for reassembly.

H

The locomotive body will then lift up from the front until the rear lug disengages. It is a tight fit over the cables to the motor.

I

An 8-pin decoder socket is provided above the second driving axle, but despite the size of the 'P2' space is at a premium inside this locomotive, as we will explain.

SOUND DECODER OPTIONS

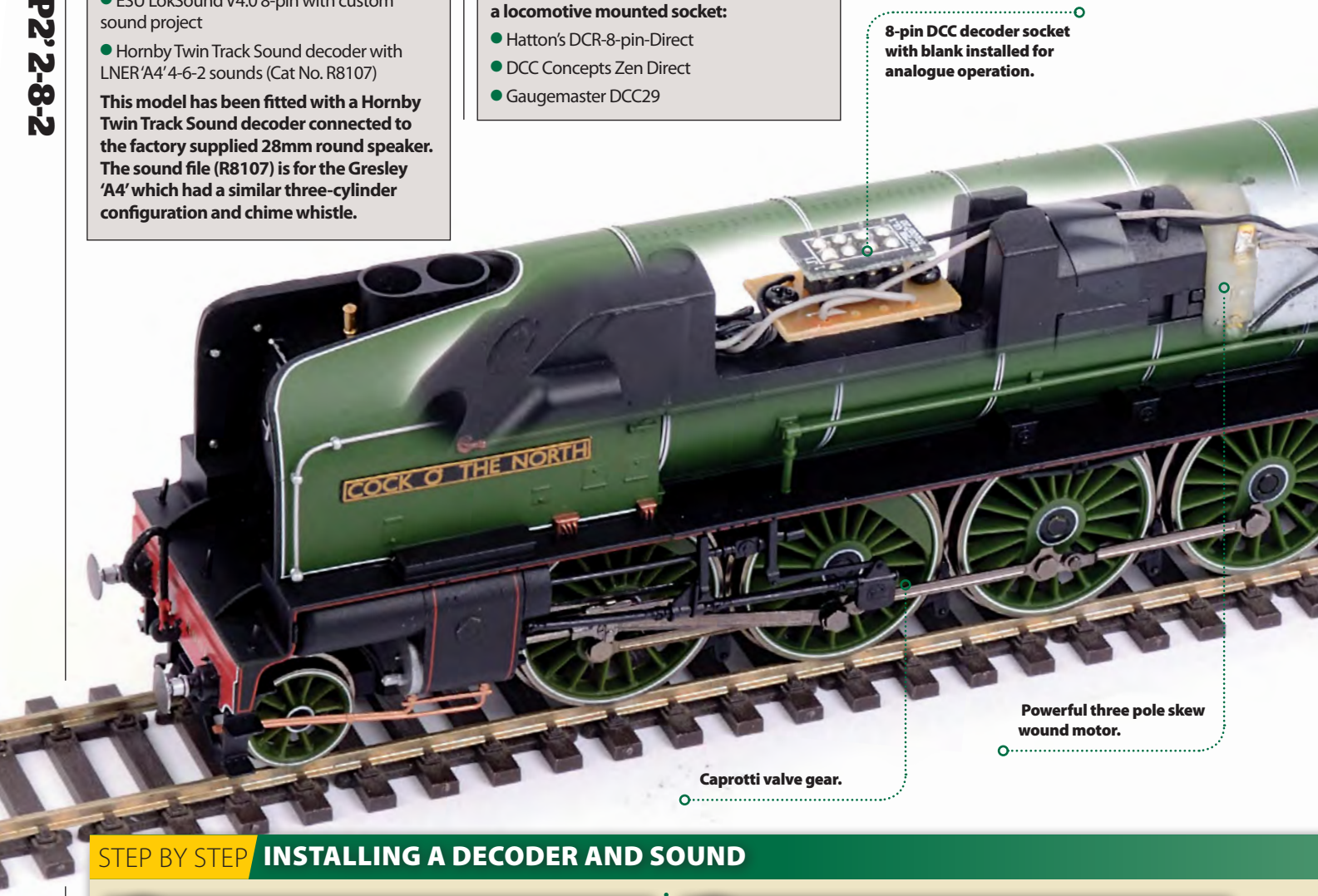
- Zimo MX645R with custom sound project
- ESU LokSound V4.0 8-pin with custom sound project
- Hornby Twin Track Sound decoder with LNER 'A4' 4-6-2 sounds (Cat No. R8107)

This model has been fitted with a Hornby Twin Track Sound decoder connected to the factory supplied 28mm round speaker. The sound file (R8107) is for the Gresley 'A4' which had a similar three-cylinder configuration and chime whistle.

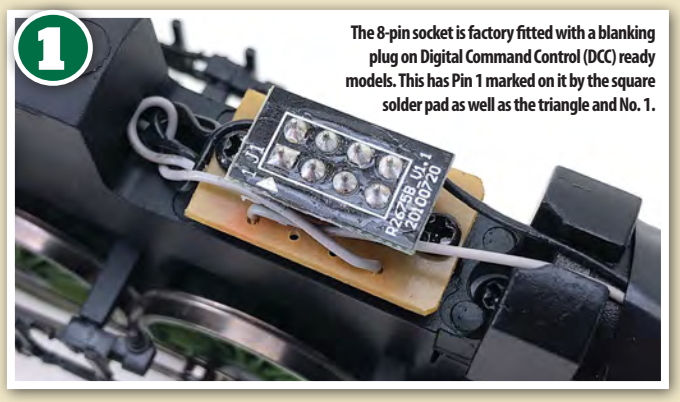
DECODER OPTIONS

The following motor control decoders, and others, will fit into the Hornby 'P2' 2-8-2 with a locomotive mounted socket:

- Hatton's DCR-8-pin-Direct
- DCC Concepts Zen Direct
- Gaugemaster DCC29



STEP BY STEP INSTALLING A DECODER AND SOUND



1 The 8-pin socket is factory fitted with a blanking plug on Digital Command Control (DCC) ready models. This has Pin 1 marked on it by the square solder pad as well as the triangle and No. 1.

2 The socket blank is removed with even pressure on each side lifting it straight up so as not to damage the pins. Pin 1 is marked on the circuit board underneath for future reference.

3 We found the only definite viable option for decoder fitting was to use a direct plug decoder such as this Hatton's version. These have no trailing wires and comfortably fit inside the decoder socket aperture in the chassis as well as within the body.

4 Moving on to sound installation, we are using a Hornby Twin Track Sound decoder for the Gresley 'A4' which had a similar three-cylinder exhaust beat and chime whistle. There is a problem though – it won't fit inside the locomotive body.

TOOLS

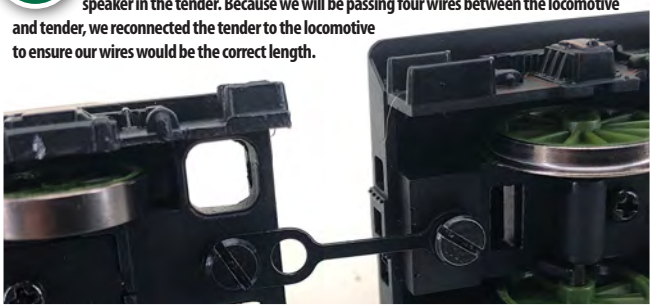
DECODER & SOUND INSTALLATION

- Small crosshead screwdrivers
- Small slotted screwdriver

For sound add:

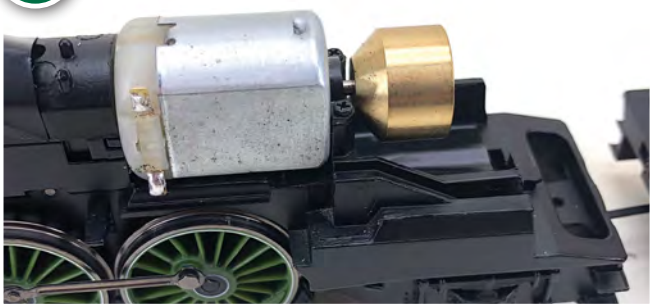
- Black Tack or Blu Tack
- Heat shrink insulation
- Decoder wire
- Soldering iron

5 After trying a number of potentially simpler options, we found the only way to comfortably install a sound decoder in the 'P2' is to position both the decoder and speaker in the tender. Because we will be passing four wires between the locomotive and tender, we reconnected the tender to the locomotive to ensure our wires would be the correct length.



6 The first steps are to strip out the original locomotive wiring and decoder socket to make way for our own wires from the decoder. Undo the two screws holding the decoder socket in place first.

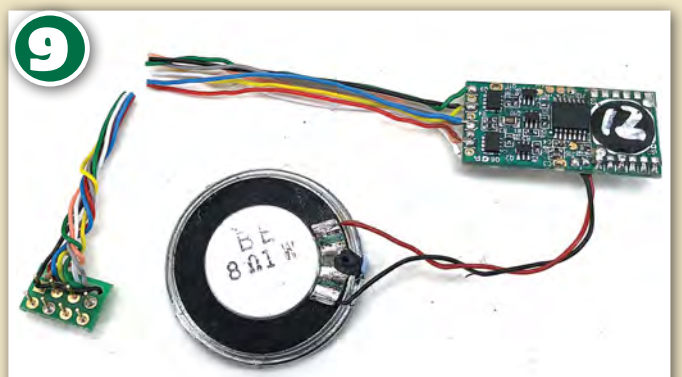
7 Next cut and remove the wires from the motor terminals and cut them from the decoder socket as well. We won't need these from here on.



8 Repeat the cutting process with the pick-up wires at the front of the locomotive – this black and grey wire is all that will remain of the original wiring.

STEP BY STEP INSTALLING A DECODER AND SOUND

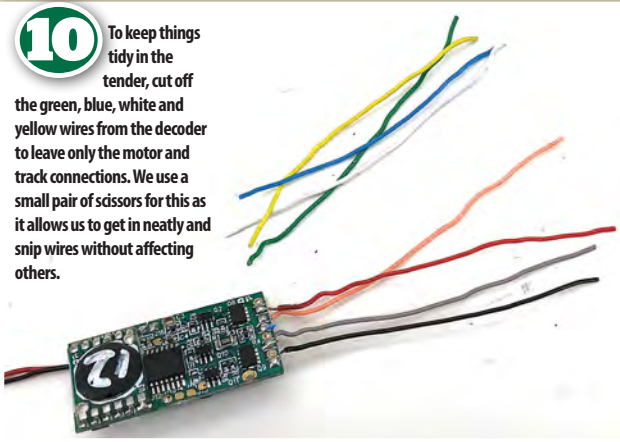
9



Our decoder needs modifying too. Cut off the socket leaving around 70% of the original harness wire length available for the installation.

10

To keep things tidy in the tender, cut off the green, blue, white and yellow wires from the decoder to leave only the motor and track connections. We use a small pair of scissors for this as it allows us to get in neatly and snip wires without affecting others.

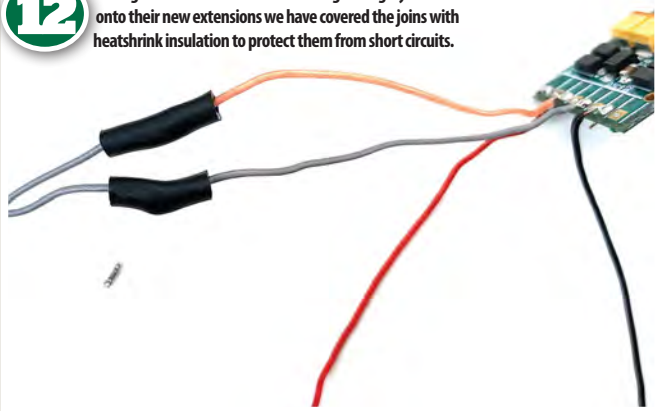


11

We are going to extend each pair of wires to the locomotive. The orange and grey wires go to the motor as a pair and the black and red go to the pick-ups as a pair. It doesn't matter which way round they are connected so long as they are done in pairs. You must not confuse the two pairs of wires though.

12

Having twisted and soldered the orange and grey motor wires onto their new extensions we have covered the joins with heatshrink insulation to protect them from short circuits.



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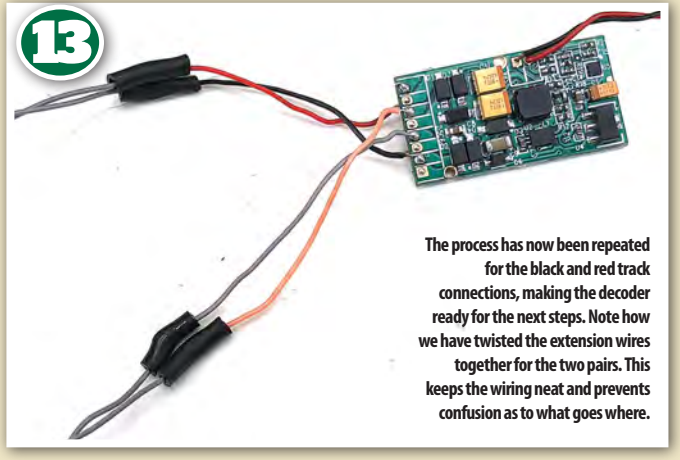
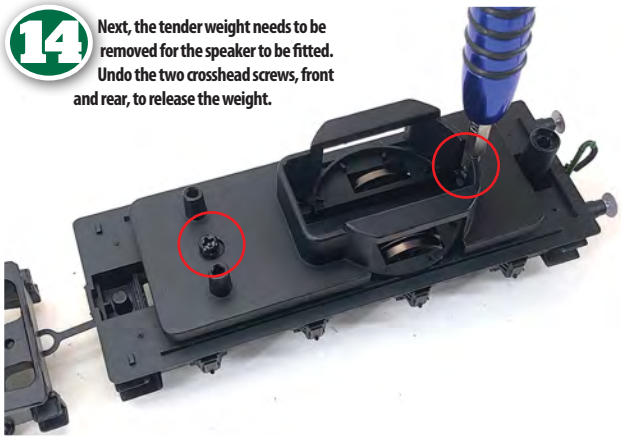


The process has now been repeated for the black and red track connections, making the decoder ready for the next steps. Note how we have twisted the extension wires together for the two pairs. This keeps the wiring neat and prevents confusion as to what goes where.

14

Next, the tender weight needs to be removed for the speaker to be fitted. Undo the two crosshead screws, front and rear, to release the weight.

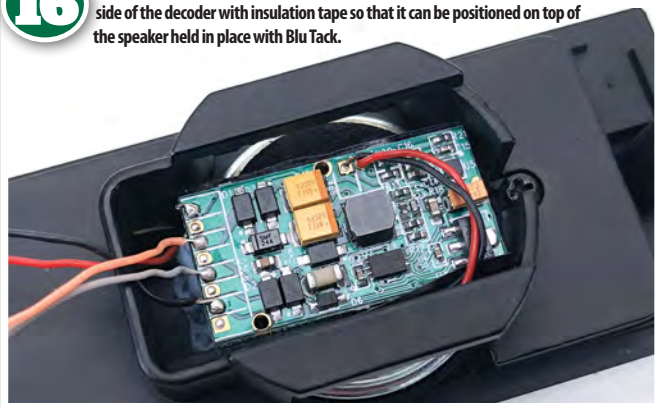


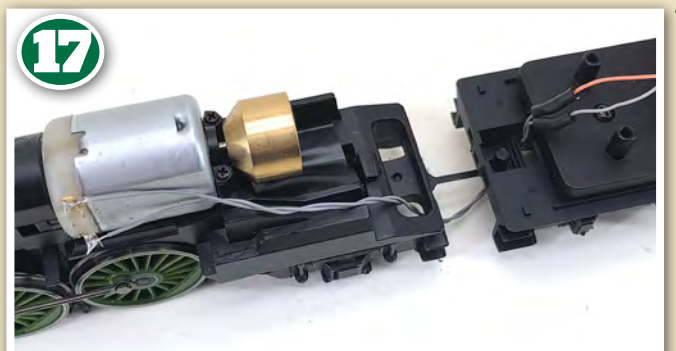
15

The 28mm round speaker fits into the moulding on the chassis floor. Fill the gaps each end of the speaker in the chassis well to prevent sounds from the front of the speaker clashing with those from the rear.

16

The tender weight can now be refitted over the speaker. We have now covered one side of the decoder with insulation tape so that it can be positioned on top of the speaker held in place with Blu Tack.





17 The wires from the orange and grey motor connections are now fed through the hole at the front of the tender chassis and into the locomotive before being soldered to the two solder tabs on the motor.

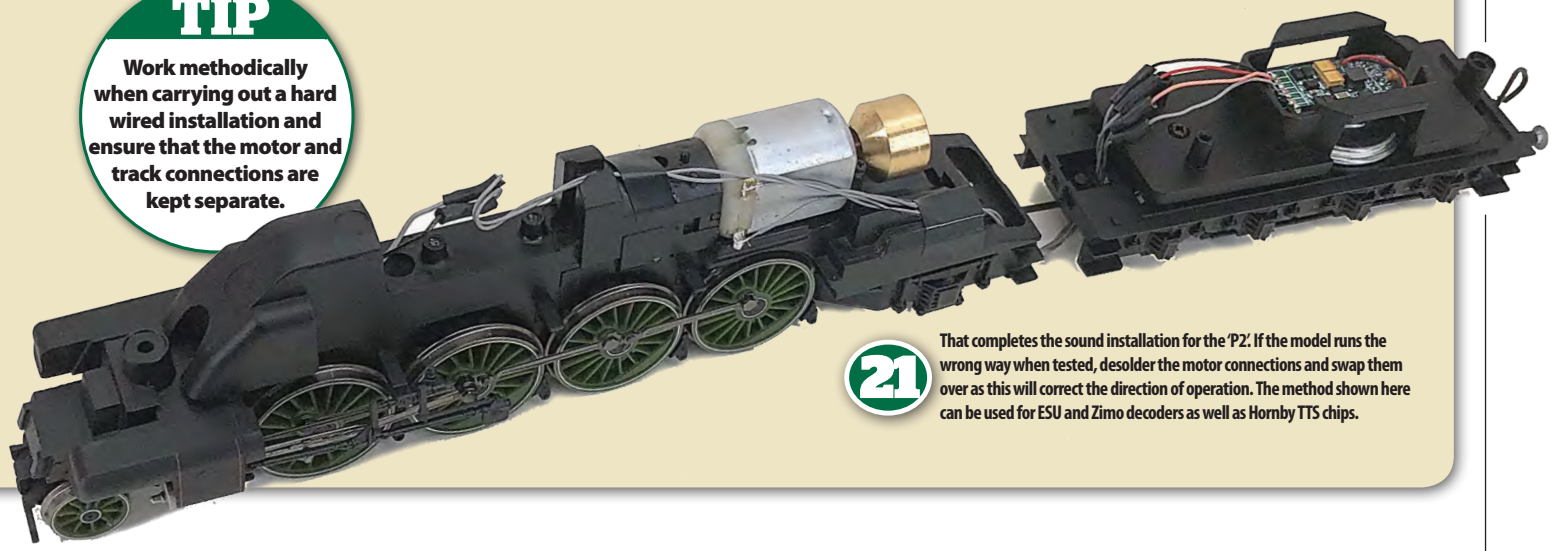
18 Following the same method, the track connections are fed through into the locomotive. We have used the original wiring run cast into the locomotive chassis for the wires, taping them in place with insulation tape to keep them neat.

19 The track connections then have their ends stripped by 6mm so that they can be twisted onto the original locomotive track connections before soldering in place. Note the heatshrink tubing in place ready to be moved over the connections.

20 The new track connections are hooked through the original wiring guide on top of the chassis and taped in place. The connections, now safe inside heatshrink insulation, are tucked into the space once occupied by the decoder socket.

TIP

Work methodically when carrying out a hard wired installation and ensure that the motor and track connections are kept separate.



21 That completes the sound installation for the 'P2'. If the model runs the wrong way when tested, desolder the motor connections and swap them over as this will correct the direction of operation. The method shown here can be used for ESU and Zimo decoders as well as Hornby TTS chips.

TECHNICAL DETAILS

HORNBY LNER 'P2' 2-8-2

Manufacturer:	*www.hornby.com*
First released:	2014 (HM89)
Cat No (featured):	R3207 (2014)
Current alternatives:	R3171 (RailRoad)
Description:	Gresley 'P2' 2-8-2
Gauge:	'OO'/16.5mm
Scale:	4mm:1ft
Length (over buffers):	296mm
Price:	£104.99 (RailRoad model)
Era:	3
Couplings:	Small tension locks in NEM pockets
DCC:	DCC ready, 8-pin socket
Speaker space:	28mm round
Exterior lights:	None
Interior lights:	None
Motor type:	Three pole, skew wound
Flywheel:	One
BR power classification:	'8P'
Wheel arrangement:	2-8-2
Purpose:	Heavy express passenger
Haulage capacity (expected):	10 carriages
Haulage capacity (actual):	15 Mk 1 carriages

BACHMANN BRANCH-LINE

LNER 'V2' 2-6-2

The Gresley 'V2' 2-6-2s have long been firm favourites with Eastern Region modellers. We work on Bachmann's most recent but soon to be replaced model of this class of 184 mixed traffic locomotives.

STEP BY STEP DISMANTLING A BACHMANN 'V2' 2-6-2

The most recent version of the Gresley 'V2' 2-6-2 by Bachmann arrived in 2012. It had an upgraded chassis with an 8-pin decoder socket which replaced the previous split chassis design but retained the original body which dated back to 1991. A brand new version of the 'V2' is currently being developed by Bachmann.

GRESLEY liked his three cylinder locomotives and even the express mixed traffic 'V2' 2-6-2s used this layout. The first were completed in 1936 at Doncaster Works with 184 locomotives being built over eight years.

They were powerful, efficient and capable locomotives which had smaller 6ft 2in driving wheels than the Gresley 'A3' 4-6-2s with which they shared a common appearance. The 2-6-2 wheel arrangement allowed a wide firebox to be provided to keep the free steaming boiler at its full working pressure.

The 'V2s' were renowned for their service during the Second World War where they recorded outstanding performances on heavy loads during the hostilities. In normal service they were just as likely to be seen on an express working as they were parcels or fast fitted freight. In particular they were commonly used on the fast fish trains on the East Coast Main Line.

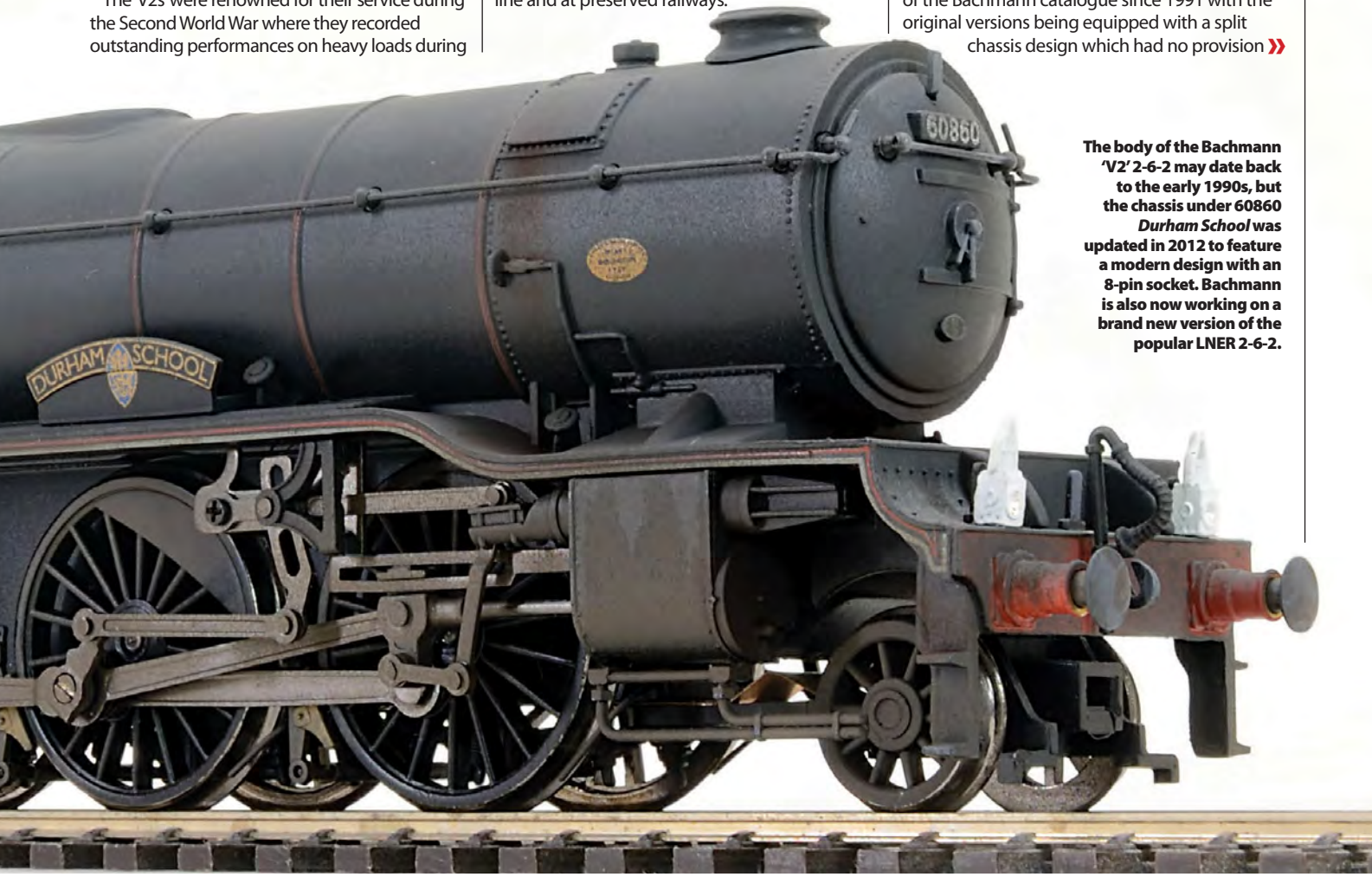
Despite being such a large class, all but one was scrapped following withdrawal with the last bowing out of traffic with British Railways in 1966. The National Collection owns the sole surviving example 4771 (60800) *Green Arrow* which is currently on static display at the National Railway Museum's Locomotion Museum in Shildon carrying LNER lined apple green after several years of service on the main line and at preserved railways.

TOOLS

DECODER & SOUND INSTALLATION

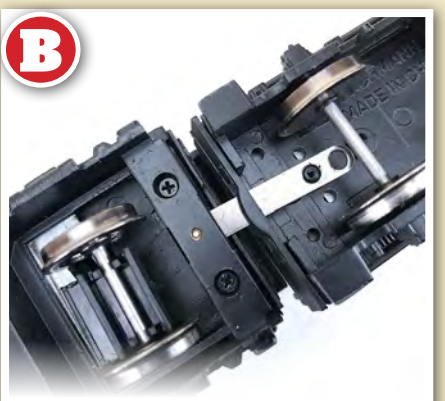
- Small crosshead screwdrivers
- Heatshrink insulation
- Wire strippers
- Decoder wire
- Soldering iron

In 'OO' gauge the 'V2' has been a regular part of the Bachmann catalogue since 1991 with the original versions being equipped with a split chassis design which had no provision »



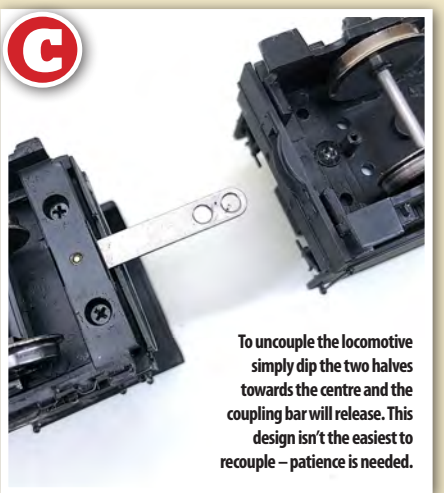
The body of the Bachmann 'V2' 2-6-2 may date back to the early 1990s, but the chassis under 60860 *Durham School* was updated in 2012 to feature a modern design with an 8-pin socket. Bachmann is also now working on a brand new version of the popular LNER 2-6-2.

B

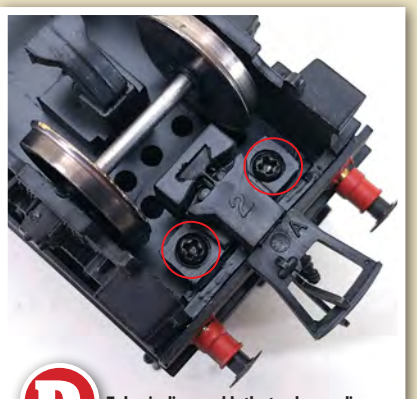


The tender coupling arrangement is simple on the 'V2'. A metal drawbar links to the tender and hooks over a peg. No wires pass between the two halves, as the tender has no pick-ups.

C

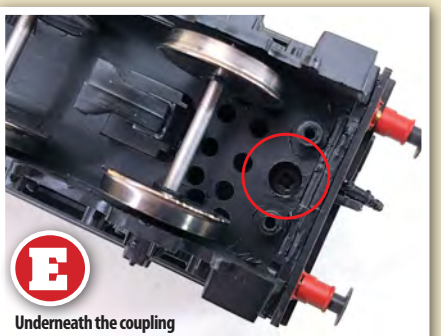


To uncouple the locomotive simply dip the two halves towards the centre and the coupling bar will release. This design isn't the easiest to recouple – patience is needed.



D **To begin disassembly the tender coupling mount needs to be removed. It is held in place with two crosshead screws which can be undone with a modeller's crosshead screwdriver.**

STEP BY STEP DISMANTLING A BACHMANN 'V2' 2-6-2



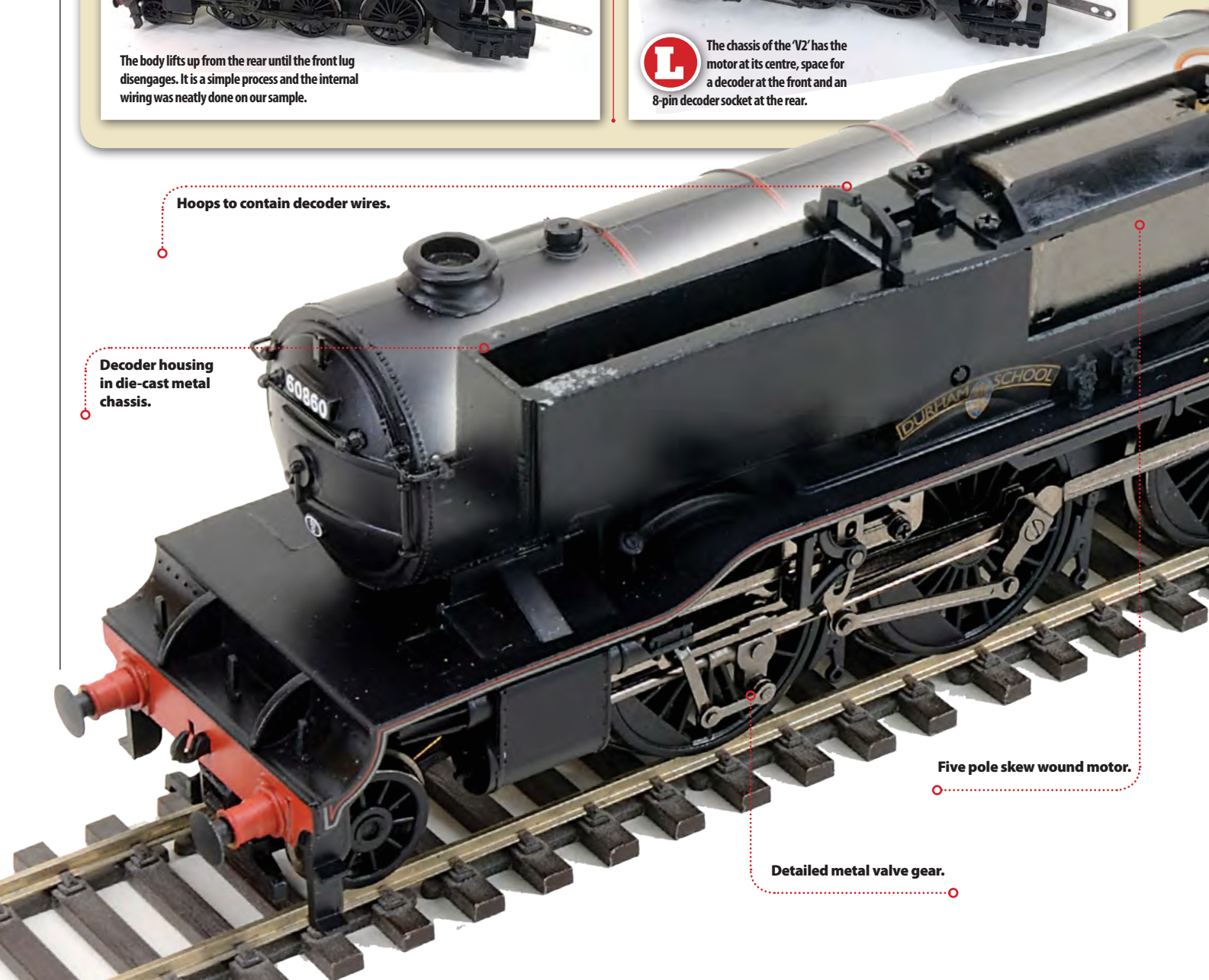
E Underneath the coupling position is a crosshead securing screw for the tender body. It is buried down inside the central well in this image.

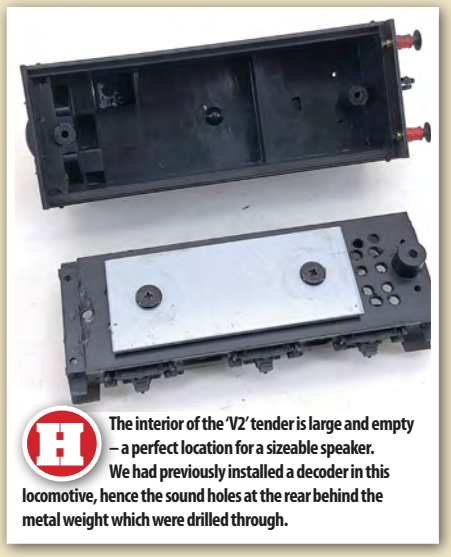
F Before the tender body can be separated, a second fixing screw needs to be removed at the front. It is the same type of crosshead found at the rear of the tender.

G The tender body will then lift up from the front. Draw it backwards to release the buffer shanks from the rear of the chassis.

K The body lifts up from the rear until the front lug disengages. It is a simple process and the internal wiring was neatly done on our sample.

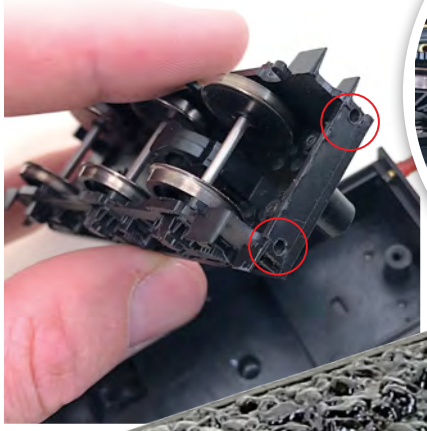
L The chassis of the 'V2' has the motor at its centre, space for a decoder at the front and an 8-pin decoder socket at the rear.

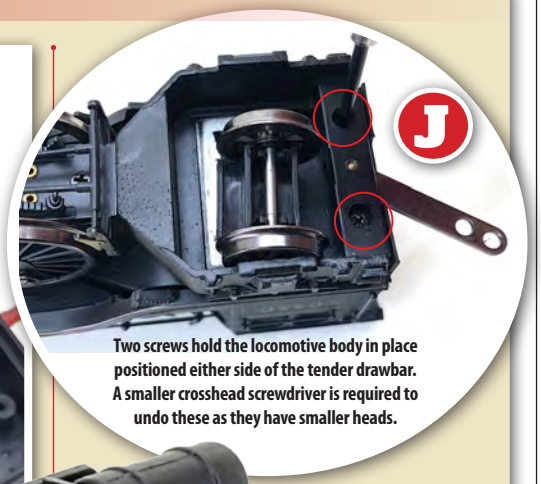




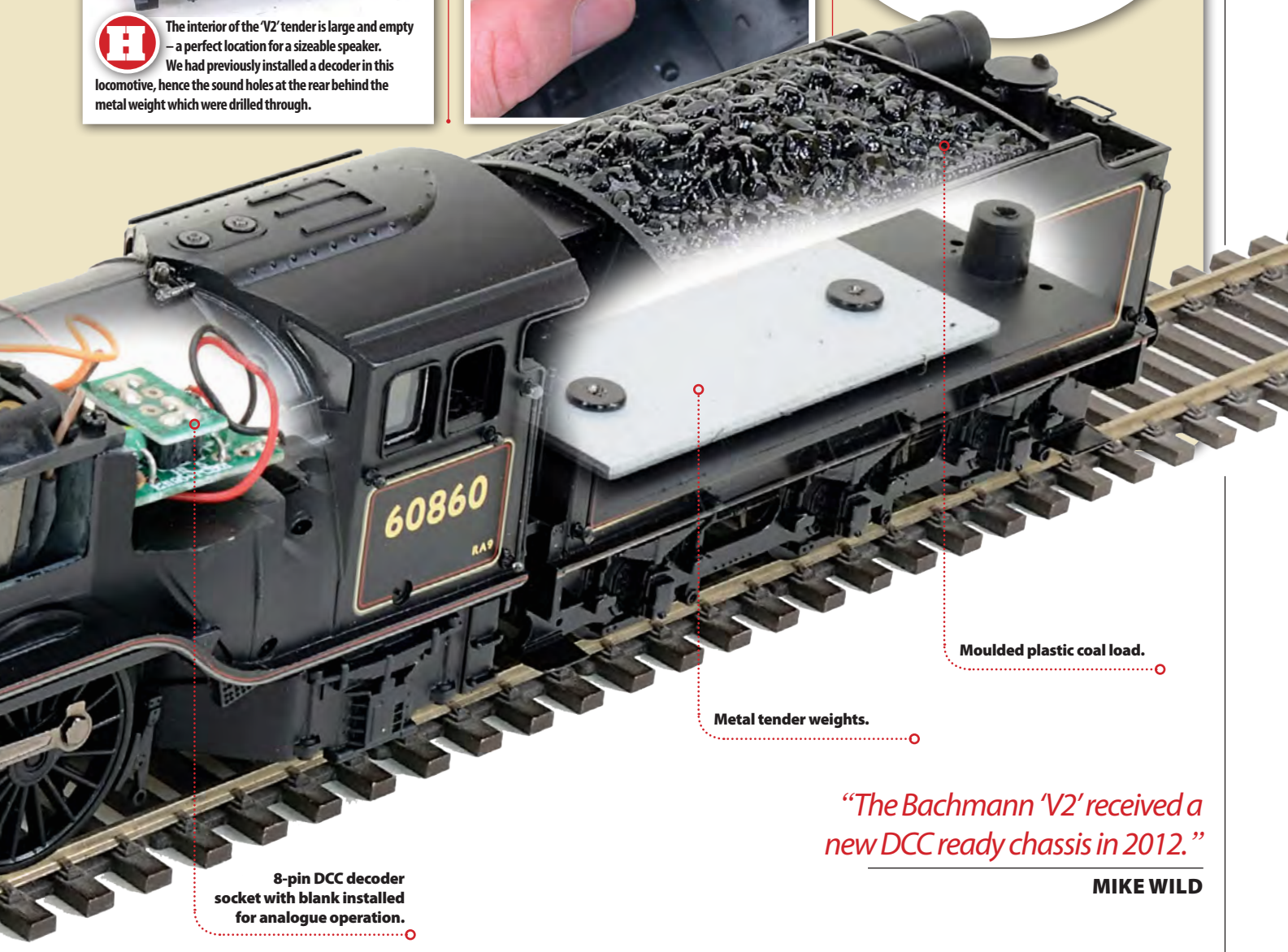
H The interior of the 'V2' tender is large and empty – a perfect location for a sizeable speaker. We had previously installed a decoder in this locomotive, hence the sound holes at the rear behind the metal weight which were drilled through.

I For reassembly of the tender it is important to align the rear of the buffers into these two holes at the back of the tender chassis. If you don't, it won't go back together.





J Two screws hold the locomotive body in place positioned either side of the tender drawbar. A smaller crosshead screwdriver is required to undo these as they have smaller heads.



"The Bachmann 'V2' received a new DCC ready chassis in 2012."

MIKE WILD

for a Digital Command Control (DCC) decoder socket. However, in 2012 Bachmann released an updated version which used the same 1990s bodyshell with a new DCC ready chassis containing an 8-pin decoder socket. In this format two versions have been released: 60860 *Durham School* (Cat No. 31-564) as featured here and 60862 in BR lined green with late crests (31-565).

These have since been withdrawn from the Bachmann catalogue as the manufacturer is currently working on a brand new model of the 'V2' which is expected to be released with a 21-pin decoder socket and space for a speaker in the tender. For now, we have the choice of 60860 and 60862 which we will show here how to equip with a decoder and sound. Read on to learn more. ■

SOUND DECODER OPTIONS

- Zimo MX645R with custom sound project
- ESU LokSound V4.0 8-pin with custom sound project

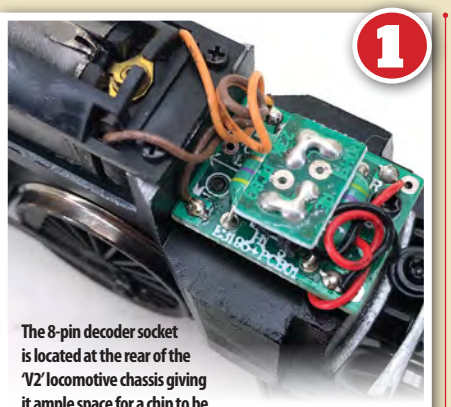
This model has been fitted with an ESU LokSound V4.0 decoder loaded with *www.howesmodels.co.uk* Gresley 'A3' sound file and a 40mm x 20mm bass reflex speaker.

DECODER OPTIONS

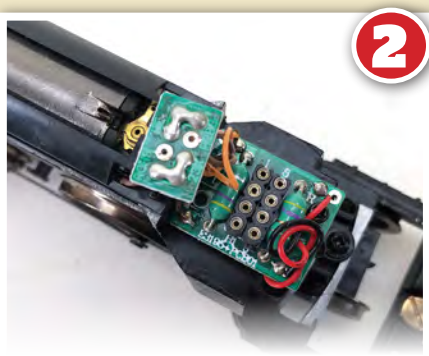
The following motor control decoders, and others, will fit into the Bachmann 'V2' 2-6-2s with locomotive mounted sockets:

- Hatton's DCR-8-pin-harness
- DCC Concepts Zen direct
- Gaugemaster DCC29
- Bachmann 36-557
- Lenz Silver 10321-01

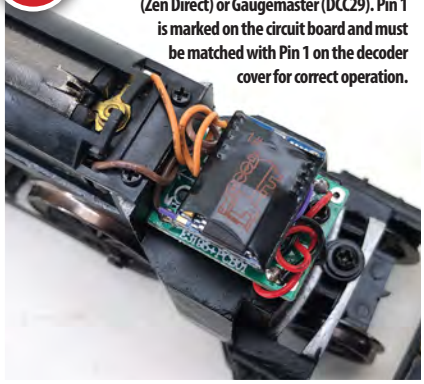
STEP BY STEP INSTALLING A DECODER AND SOUND



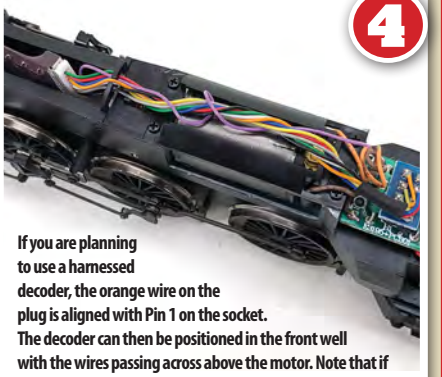
1 The 8-pin decoder socket is located at the rear of the 'V2' locomotive chassis giving it ample space for a chip to be plugged in inside the firebox area.



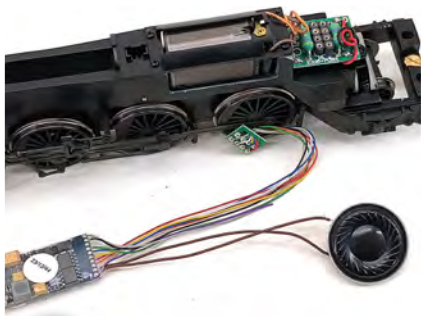
2 The decoder blank is a tight fit into the socket. Ease it up gently with even pressure to avoid damaging the pins. If you are upgrading to digital, we suggest putting the decoder blank into the locomotive's original box for safekeeping.



3 The socket position offers ample space for an 8-pin direct decoder from either DCC Concepts (Zen Direct) or Gaugemaster (DCC29). Pin 1 is marked on the circuit board and must be matched with Pin 1 on the decoder cover for correct operation.



4 If you are planning to use a harnessed decoder, the orange wire on the plug is aligned with Pin 1 on the socket. The decoder can then be positioned in the front well with the wires passing across above the motor. Note that if your decoder is not covered with insulation it will need to be for the 'V2', as the well is cast metal.

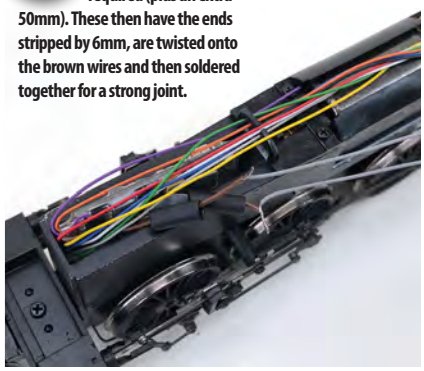


5 To upgrade the 'V2' to sound we are using a LokSound V4.0 8-pin decoder from Howes Models loaded with its Gresley 'A3' sound file. This was chosen as it has a similar three-cylinder exhaust which can be adjusted to suit the 'V2' with CV57 and CV58.

6 Installing the decoder is simple. Align the orange wire on the decoder plug with Pin 1 on the socket and push it into place. The decoder wires can then be routed across the top of the motor as before and the decoder located in the front well. However, the speaker will need to be moved to the tender which means extending the wires.

7 The first step to extending speaker wires is to cut the originals. Polarity is not important for the speaker. If you are using a Zimo decoder the speaker wires are purple: on the ESU decoder speaker wires are brown.

8 We have stripped 6mm of insulation from the ends of the brown speaker wires using wire strippers and then added two 10mm lengths of heatshrink insulation over the wires for future use.



9 Two grey wires are then cut to the length required (plus an extra 50mm). These then have the ends stripped by 6mm, are twisted onto the brown wires and then soldered together for a strong joint.

10 The heatshrink insulation is then moved into position over the bare wire connections and heated with the side of a soldering iron. Don't use the tip of the iron as the heatshrink will damage it.

11 The new connections are then placed into the decoder well to keep them neat and the new grey wires are sent along the length of the locomotive using the factory provided wire hoops.

12 To provide a route out of the locomotive for the speaker wires, two 1.5mm holes were made at the centre of the rear of the 'V2' below the cab. Use a pin vice to make these holes for a neat finish.

13 The two grey wires are then fed through the 1.5mm holes as the final step to preparing the locomotive body for refitting.

14 There is space above the tender drawbar for the two wires to pass without snagging on the chassis. Route them carefully and then refit the body securing screws in the rear bracket.

15

There are two holes just ahead of the metal weight on the tender chassis which can be used to route the speaker wires into the tender without modifications.

16

We then reconnected the tender to ensure we got the length of the speaker cables right for the 'V2'.

17 For a previous installation we drilled a series of holes using a 2.5mm drill bit in an electric minidrill at the rear of the tender chassis. These provide a route for sound to escape, but aren't essential.

18

Our speaker choice is a 58mm x 22mm bass reflex design which is available from DCC Supplies. It comes pre-wired in a baffle for enhanced sound output. We fixed it in place on top of the metal weight with high-strength Black Tack.

19 As with the connections at the locomotive end, we stripped 6mm of insulation from each of the two grey wires as well as the red and black and then twisted one grey wire to the red and the other to the black. They were then soldered together for a permanent connection. Note the heatshrink tubing already in place on the grey wires.

20

The heatshrink tubing is then moved over each wire in turn and reduced using the heat from the side of the soldering iron. These ensure there is no chance of a short circuit and keeps the wiring neat and tidy inside the tender body.

21 The tender body can now be refitted and the locomotive prepared for service. We adjusted two CV settings on the 'A3' decoder to match the exhaust beat to the wheel revolutions by setting CV57 to 95 and CV58 to 23. The locomotive is now ready for addressing and operation.

TECHNICAL DETAILS

BACHMANN LNER 'V2' 2-6-2

Manufacturer:	*www.bachmann.co.uk*
First released (current format):	2012 (HM61)
Cat No (featured):	31-564 (2012 release)
Current alternatives:	New model in development
Description:	Gresley 'V2' 2-6-2
Gauge:	'OO'/16.5mm
Scale:	4mm:1ft
Length (over buffers):	268mm
Price:	n/a
Era:	4 (31-564)
Couplings:	Small tension locks in NEM pockets
DCC:	DCC ready, 8-pin socket (since 2012)
Speaker space:	None
Exterior lights:	None
Interior lights:	None
Motor type:	Five pole, skew wound
Flywheel:	None
BR power classification:	'7P/6F'
Wheel arrangement:	2-6-2
Purpose:	Express mixed traffic
Haulage capacity (expected):	Eight carriages
Haulage capacity (actual):	Eight Bachmann Mk 1 carriages

LNER Express

Hornby & Bachmann Peppercorn Class A1 4-6-2

Pre-Owned versions available
Limited Stock
www.hattons.co.uk updated every day

32-550k-PO 60163 "Tornado" in works grey - Bachmann Collectors Club Ltd Edition
Pre-Owned - DCC Fitted - Limited stock at £242

32-550A-PO06 60163 'Tornado' in BR apple green
Pre-Owned - DCC Sound Fitted - Limited stock at £200

Digital Decoder Options

Hatton's DCR-8PIN-Harness - £15
Hornby R8249 - £16
Hornby Class A1 'Tornado' TTS decoder with sound R8108 - £36
Standard chip fitting service - £12. More info on page 132.

32-551DS-PO 60139 "Sea Eagle" in BR green with early emblem DCC sound fitted - Pre-Owned - Like New - Limited stock at £229

32-553-PO02 60161 "North British" in BR express blue with early emblem - Pre-Owned - Like New - Limited stock at £118

32-556-PO 60156 'Great Central' in BR grren with late crest
Pre-Owned - Like New - Limited stock at £120

New versions available

R3060 60163 "Tornado" in British Railways Apple Green Railroad Range - In stock at £68

32-560 60117 in BR apple green British Railways lettering
In stock at £161.46

32-561 60122 "Curlew" in BR express blue early emblem
In stock at £161.46

Bachmann LNER Peppercorn Class A2 4-6-2

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Limited Stock
www.hattons.co.uk updated every day

31-525-PO01 525 'A H Peppercorn' in LNER apple green
Pre-Owned - Like New - Limited stock at £114

31-527-PO 60528 'Tudor Minstrel' in BR apple green
Pre-Owned - Like New - Limited stock at £99

Digital Decoder Options

Hatton's DCR-8PIN-Harness - £15
Hornby R8249 - £16
Hornby Class A3 TTS decoder with sound R8106 - £36 (Suitable for Peppercorn Class A2 locos)
Standard chip fitting service - £12. More info on page 132.

31-527K-LN 60532 "Blue Peter" in British Railways apple green - as preserved - Bachmann Collectors Club Ltd Edition
Pre-Owned - Like New - Limited stock at £139.50

31-529-PO01 60534 "Irish Elegance" in BR lined green with early emblem- Pre-owned - Like New - Limited stock at £120

31-528-PO02 60533 'Happy Knight' in BR green with late crest - Pre-Owned - Like New - Limited stock at £112

New versions available

31-530 526 "Sugar Palm" in LNER lined apple green
In stock at £119

31-531 60536 "Trimbush" in BR lined green with early emblem - In stock at £121

31-526 60537 'Bachelors Button' in BR green with early emblem - In stock at £119

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Locomotives

Hornby LNER Class A1/A3 4-6-2

Digital Decoder Options

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Hornby R8249 - £16
Hornby Class A3 TTS decoder with sound R8106 - £36
Standard chip fitting service - £12.
More info on page 132.

Pre-Owned versions available
Limited Stock
www.hattons.co.uk updated every day

New versions available

R3518 108 "Gay Crusader" in LNER apple green "The Final Day" special edition - In Stock at £129

R3437 2503 'Firdaussi' in LNER apple green Gloss finish - In stock at £132.50

R3336 4472 "Flying Scotsman" in LNER Green - NRM Special Edition - In stock at £144

R3312 60062 "Minoru" in BR green with early emblem - In stock at £94

R3508TTS 60103 "Flying Scotsman" in BR green late crest TTS Sound fitted - In Stock at £187

R3100-PO 103 'Flying Scotsman' in NE Wartime black Pre-Owned - Crew Fitted - Limited stock at £130

R2617-PO02 60067 'Ladas' in BR green with early emblem Pre-Owned - DCC Fitted - Limited stock at £106

R3202-PO04 60103 'Flying Scotsman' in BR green with late crest - Weathered - Pre-Owned - Like New Limited stock at £138

Hornby LNER Class A4 4-6-2

Digital Decoder Options

Hatton's DCR-8PIN-Harness - £15
Hornby R8249 - £16
Hornby Class A4 TTS decoder with sound R8107 - £36
Standard chip fitting service - £12.
More info on page 132.

Pre-Owned versions available
Limited Stock
www.hattons.co.uk updated every day

Forthcoming Releases

R3612 4468 'Mallard' in LNER garter blue - Limited Edition Gold-plated and in a commemorative box Due in stock July 2018 at £184

R3630 4493 'Woodcock' in LNER apple green Due in stock July 2018 at £136

New versions available

R3676 Class A4 4468 "Mallard" in LNER garter blue - as preserved - In stock at £152

R3522 60026 "Miles Beevor" in BR green early emblem - In stock at £144

R3402 Queen of Scots Train Pack with 4500 'Garganey' in LNER garter blue and three pullman coaches Limited Edition - In stock at £280

R3308-PO 2511 'Silver King' in LNER silver Pre-Owned - Like New - Limited stock at £125

R3103-PO 60019 'Bitter' in BR green with late crest and double tender - Pre-Owned - DCC Fitted - Limited stock at £195

R3008-LN02 60011 'Empire of India' in BR green with late crest - Pre-Owned - Like New - Limited stock at £148

LNER Express Locomotives

Hornby LNER Class B12 4-6-0

Digital Decoder Options

Hatton's DCR-8PIN-Harness - £15
Hornby R8249 - £16
Hornby Class S15 TTS decoder with sound R8116 - £36 (Suitable for B12locos)
Standard chip fitting service - £12.
More info on page 132.

Pre-Owned versions available
Limited Stock
www.hattons.co.uk updated every day

Forthcoming Releases

R3544 8527 in LNER apple green
Due in stock August 2019 at £136

R3545 61556 in British Railways black
Due in stock August 2019 at £136

R3430 8573 in LNER apple green
In stock at £136

R3431 61533 in BR black early emblem
In stock at £136

R3432 61580 in BR black late crest
In stock at £136

R2156A-PO 8537 in LNER green
Pre-owned - Like New - Limited stock at £48

R2320 - PO 61520 in BR black with early emblem
Pre-Owned - Detailed with crew- Limited stock at £52

R2102B-PO 61553 in BR lined black with early emblem
Pre-Owned - Limited stock at £73

Hornby LNER Class P2 2-8-2

Digital Decoder Options

Hatton's DCR-8PIN-Harness - £15
Hornby R8249 - £16
Hornby Class A4 TTS decoder with sound R8107 - £36 (Suitable for P2 locos)
Standard chip fitting service - £12. More info on page 132.

Pre-Owned versions available
Limited Stock
www.hattons.co.uk updated every day

New versions available

R3171 2001 'Cock O' The North' in LNER green
Railroad Range - In stock at £84

R1183 Master of the Glens train set with
2001 'Cock O' The North' in LNER green and 3 coaches
In stock at £145

R3207-PO03 2001 'Cock O' The North' in LNER green
Main Range version - Limited stock at £142

R3246TTS-PO03 2001 'Cock O' The North' in LNER green
TTS sound fitted - Limited stock at £136

R3440 2001 'Cock O' The North' in LNER green - gloss finish
Pre-Owned - Like New - Limited stock at £120

R3207-OS 2001 'Cock O' The North' in LNER green
Pre-Owned - DCC sound fitted - smoke unit and firebox flicker
Limited stock at £200

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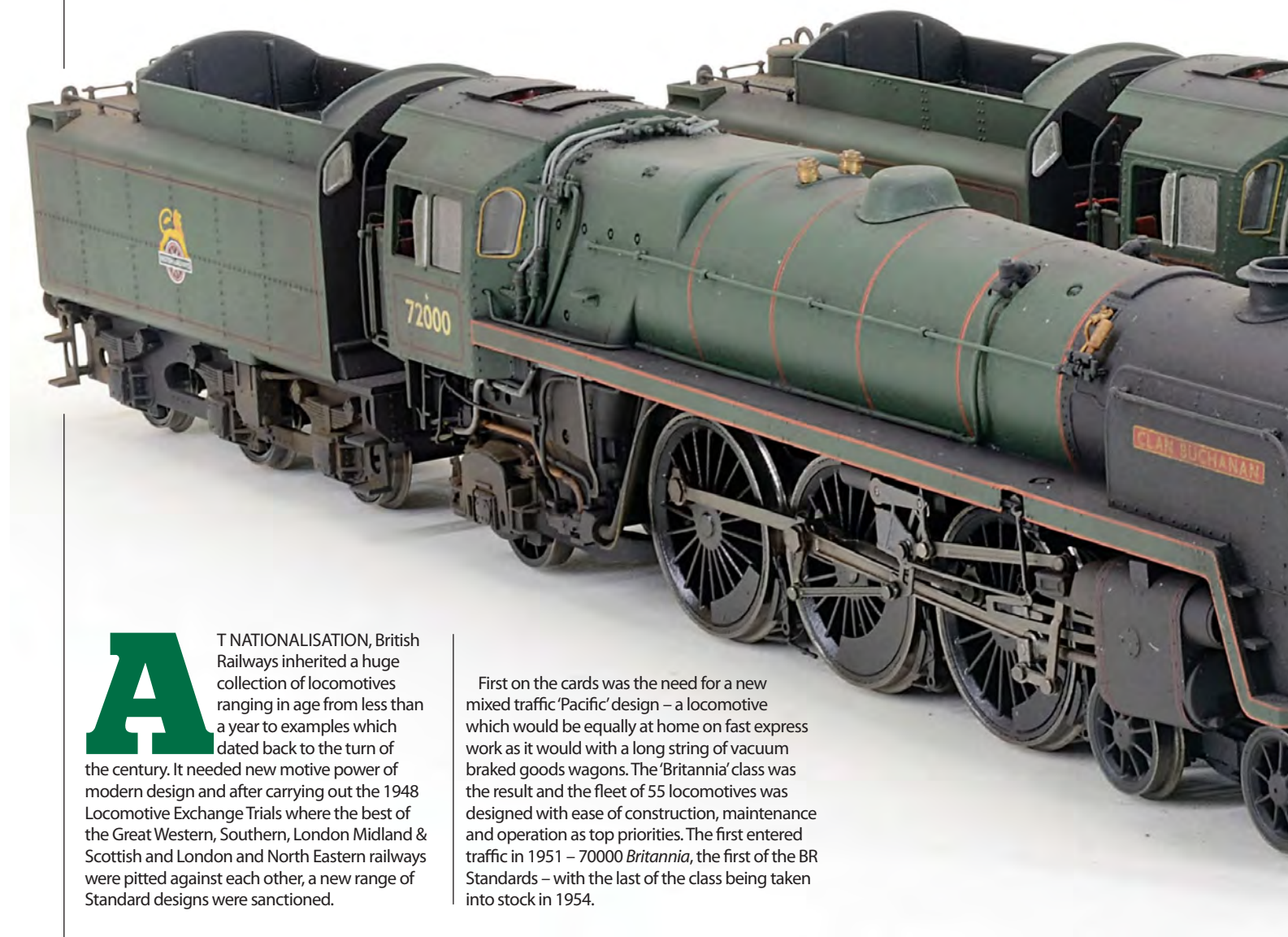
HORNBY® BR 'Britannia' & 'Clan' 4-6-2s

TOOLS

DECODER & SOUND INSTALLATION
- Small crosshead screwdrivers
- Small slotted screwdriver
- Electrical insulation tape (sound)
- Black Tack or Blu Tack (sound)
- Soldering iron (sound)

British Railway's Standard range of steam locomotives called for three types of 'Pacifics' – which looked similar but had very different characteristics. *Hornby Magazine* goes into detail with Hornby's 'OO' gauge models of the BR 'Britannia' and 'Clan' class 'Pacifics'.



AT NATIONALISATION, British Railways inherited a huge collection of locomotives ranging in age from less than a year to examples which dated back to the turn of the century. It needed new motive power of modern design and after carrying out the 1948 Locomotive Exchange Trials where the best of the Great Western, Southern, London Midland & Scottish and London and North Eastern railways were pitted against each other, a new range of Standard designs were sanctioned.

First on the cards was the need for a new mixed traffic 'Pacific' design – a locomotive which would be equally at home on fast express work as it would with a long string of vacuum braked goods wagons. The 'Britannia' class was the result and the fleet of 55 locomotives was designed with ease of construction, maintenance and operation as top priorities. The first entered traffic in 1951 – 70000 *Britannia*, the first of the BR Standards – with the last of the class being taken into stock in 1954.

Throughout their careers the 'Britannias' acquitted themselves well working across the Western, Southern, Midland, Eastern and Scottish regions on all manner of duties. In the 1960s the class became concentrated in the North West with the last, 70013 *Oliver Cromwell*, having the honour of hauling BR's '15 Guinea' special on August 11 1968 bringing down the curtain on main line scheduled steam operation in Britain. Two have been preserved – the first, 70000 *Britannia*, and 70013.

However, BR's requirements for a 'Pacific' were more complex than could be achieved with a single design. In fact there were two further 4-6-2s in the Standard series: unique '8P' 4-6-2 71000 *Duke of Gloucester* (see pages 114-119) and the fleet of 10 'Clan' 4-6-2s.

The 'Clans' were familiar to those who had worked on the 'Britannias', and in fact they shared a number of common components including the 6ft 2in driving wheels and 68ft 9in length. The big difference was the weight saving achieved through a number of revisions including a smaller boiler which allowed the small class of 10 to reach a large number of routes which would otherwise have been unable to savour the benefits of a 'Pacific' at the head of a train. This came at the cost of performance as the 'Clans' weren't as capable as the 'Brits'.

Introduced in 1951-1952 the 10 'Clans' numbered 72000-72009 were allocated to BR's Scottish Region, though trials were also carried out briefly on the Eastern Region with 72009 being allocated to Stratford. Following publication of the 1955 Modernisation Plan no further 'Clans' were built and the advent of diesel traction saw the remaining steam locomotives migrating gradually north. Ultimately the 'Clans' were relegated to secondary duties until the last was withdrawn in 1966. Happily, even though none survived into preservation, a new 'Clan', 72010 *Hengist*, is currently being built for operation on the preserved railway network.

In model form the BR 'Britannia' has been a long standing part of the Hornby range. The first was produced in 1960 with the latest generation making its debut in 2006/2007. For the 'Clan' we had to wait until 2009, though only three versions have been produced so far. These two 'Pacifics' share identical chassis for the locomotive and tender with all the 'Clans' having an 8-pin decoder socket in the tender and 'Britannias' made since 2010 having the same appointment together with an opening for a 28mm round speaker.

In the current catalogues there are no models of the 'Clan' listed, but the 'Britannia' is available as 70007 *Coeur-de-Lion* as a single locomotive (Cat No. R3520) and is to be released in 2018 as 70013 *Oliver Cromwell* in a train pack to mark the 50th anniversary of the end of steam in August 1968 (R3607).

Our guide explains how to dismantle both and goes through the process we used to install a sound decoder in the 'Britannia'. Read on to learn more. ■

SOUND DECODER OPTIONS

- Zimo MX645R with custom sound project
- ESU LokSound V4.0 8-pin with custom sound project

This model has been fitted with an ESU LokSound V4.0 decoder loaded with *www.locomansounds.co.uk* soon to be released BR 'Britannia' 4-6-2 sound file and a 28mm round speaker.

DECODER OPTIONS

The following motor control decoders, and others, will fit into the Hornby 'Britannia' and 'Clan' 4-6-2s with tender mounted sockets:

- Hatton's DCR-8-pin-Harness, DCR-8-pin-Direct
- Hornby R8249
- DCC Concepts Zen 218 and Zen Nano
- Gaugemaster DCC26, DCC27, DCC29
- Bachmann 36-553
- ESU LokPilot V4.0 54611

Custom weathered models of 'Clan' 4-6-2 72000 *Clan Buchanan* (left) and 'Britannia' 4-6-2 70009 *Alfred the Great* (right) show the similarities of these two 'Pacific' designs. The 'Britannia' remains a consistent part of the Hornby catalogue, but the 'Clan' hasn't been available since 2011 as a new item.

STEP BY STEP DISMANTLING HORNBY 'BRITANNIA' AND 'CLAN' 4-6-2s

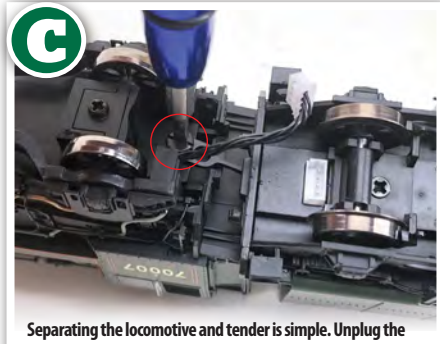
A

Hornby's models of the BR 'Britannia' and 'Clan' 4-6-2s share common chassis and body fixing points. Early models of the 'Britannia' made before 2010 were equipped with a locomotive mounted 8-pin decoder socket. Subsequent models have an 8-pin decoder socket in the tender.

B

Working with the 2017-released model of 70007 *Coeur-de-Lion*, it has the latest style of tender coupling which has a screw fitting on the locomotive. Previous versions have a peg which the drawbar, of the same design, hooks over. The four-wire harness is common to all locomotives with a decoder socket in the tender.

C



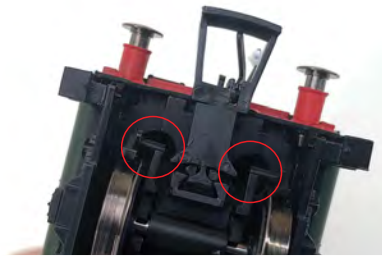
Separating the locomotive and tender is simple. Unplug the four-wire socket using Hornby's X6468 extractor tool. Next remove the screw, where fitted, to release the tender drawbar.

D

With the two halves of the model separated it is simpler to remove the respective bodies from the locomotive or tender.

E

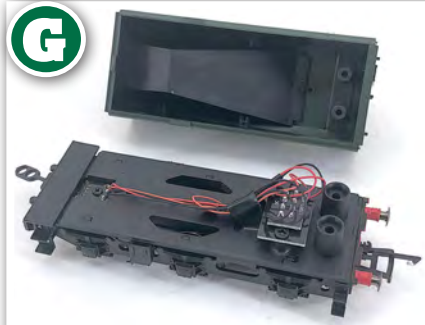
The 'Britannia' and 'Clan' tenders have their fixing screws at the rear in holes either side of the tension lock coupling. Access is restricted by the rear brake shoes, though these are flexible enough to allow a screwdriver to reach down to the two crosshead screws.



F

With the screws removed, the tender body lifts up from the rear until the single front lug disengages.

G

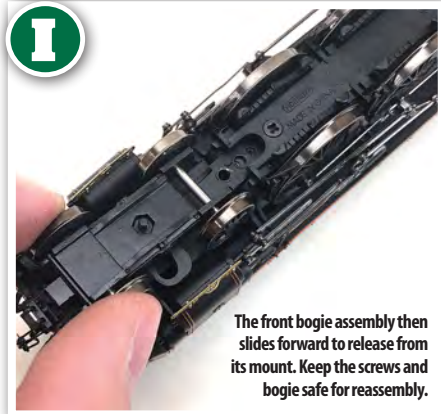


On removal the 8-pin socket is at the rear and this new generation 'Britannia' has openings for a 28mm round speaker in the die-cast tender frame. Note that the 'Clan' is devoid of openings in its tender chassis.

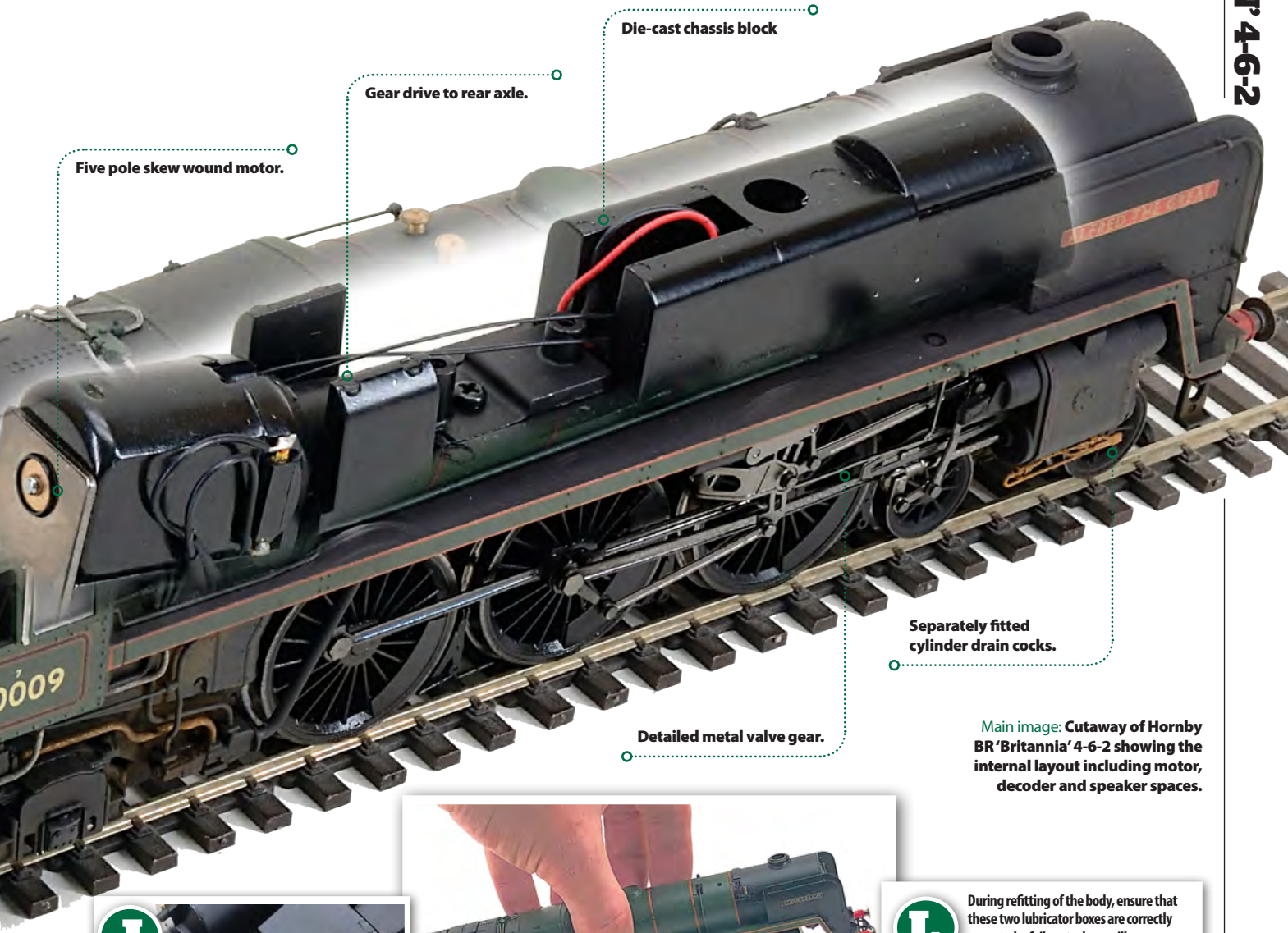
H

Moving to the locomotive, the front bogie needs to be removed to gain access to the single body securing screw. The two crosshead screws nearest to the axle must be removed.

I



The front bogie assembly then slides forward to release from its mount. Keep the screws and bogie safe for reassembly.

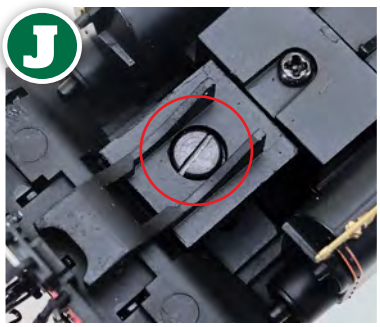


Main image: **Cutaway of Hornby BR 'Britannia' 4-6-2 showing the internal layout including motor, decoder and speaker spaces.**

K

The body then lifts up from the front until the rear lug disengages from the body. Ensure the lubricator arms separate from the body on lifting - see Step L for more detail.

J



This single slotted screw is the only one which requires removal for the locomotive body to be lifted off.

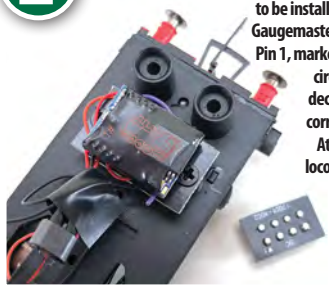
L

During refitting of the body, ensure that these two lubricator boxes are correctly mounted – failure to do so will cause running problems.

STEP BY STEP INSTALLING A DECODER AND SOUND

1 The 8-pin decoder socket is positioned at the rear of the tender just ahead of the screw mounts. The wiring needed gentle adjustment on this example to gain full access to the socket.

2 The decoder socket location allows a Direct fit 8-pin decoder to be installed such as this Gaugemaster DCC29. Align Pin 1, marked on both the circuit board and decoder cover, for correct operation. At this stage the locomotive can be reassembled, addressed and put to work.

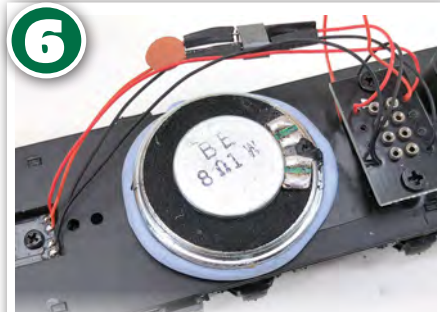


3 To install a sound decoder we need to rearrange the wiring in the tender to create a clear space for a speaker. Start by taking off the black electrical tape which holds the wiring together.

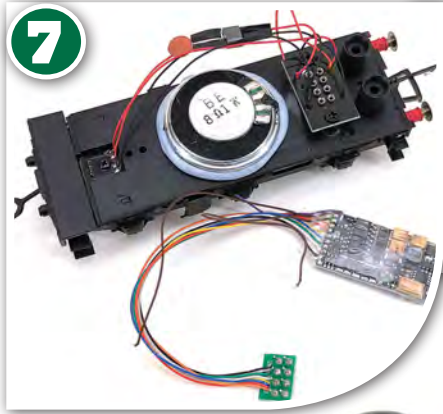
4 We then taped down the tender pick-up wires to the tender chassis using insulation tape to keep them out of the way. However, even taped down like this they are likely to interfere with the proper operation of a speaker.

5 To ensure our chosen 28mm round speaker doesn't touch the taped down wires, we have created an extra rim using Blu Tack for visibility for this guide. Black Tack will provide a stronger hold and neater finish.

6 Check that the Blu or Black tack doesn't touch the speaker cone and press it into position on the chassis. It has two effects: sealing the speaker to the chassis and raising it above the wires.



7 The decoder here is an ESU LokSound V4.0 8-pin decoder with Locoman Sounds' new 'Britannia' project loaded. We have already disconnected the original speaker from the brown wires using a soldering iron.



Main image: **Cutaway of Hornby BR 'Clan' 4-6-2 showing the internal layout including motor, decoder and speaker spaces.**

TECHNICAL DETAILS

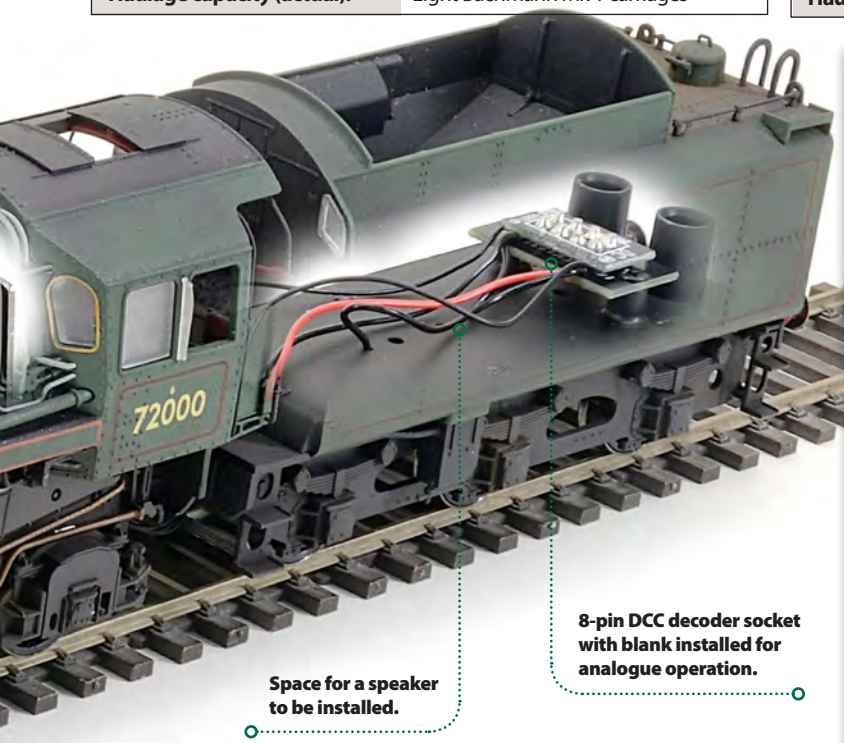
HORNBY BR 'BRITANNIA' 4-6-2

Manufacturer:	*www.hornby.com*
First released:	2006
Cat No (featured):	R3520 (2017 release)
Current alternatives:	R3607 (2018 train pack release)
Description:	BR 'Britannia' 4-6-2
Gauge:	'OO'/16.5mm
Scale:	4mm:1ft
Length (over buffers):	282mm
Price:	£180.99
Era:	5 (R3520/R3607)
Couplings:	Small tension locks in NEM pockets
DCC:	DCC ready, 8-pin socket
Speaker space:	28mm round (since 2010)
Exterior lights:	None
Interior lights:	None
Motor type:	Five pole, skew wound
Flywheel:	None
BR power classification:	'7P/6F'
Wheel arrangement:	4-6-2
Purpose:	Express passenger
Haulage capacity (expected):	Eight carriages
Haulage capacity (actual):	Eight Bachmann Mk 1 carriages

TECHNICAL DETAILS

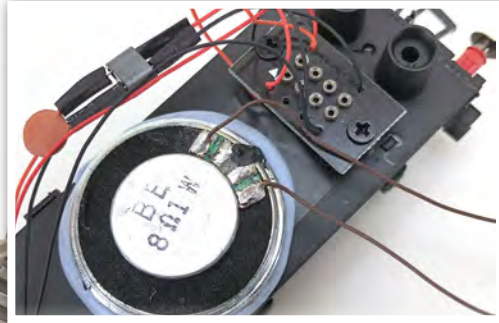
HORNBY BR 'CLAN' 4-6-2

Manufacturer:	*www.hornby.com*
First released:	2009
Cat No (featured):	R2846 (2009 release)
Alternatives:	R2847, R2905 (last produced 2011)
Description:	BR 'Clan' 4-6-2
Gauge:	'OO'/16.5mm
Scale:	4mm:1ft
Length (over buffers):	282mm
Price:	Not currently available new
Era:	4/5
Couplings:	Small tension locks in NEM pockets
DCC:	DCC ready, 8-pin socket
Speaker space:	None
Exterior lights:	None
Interior lights:	None
Motor type:	Five pole, skew wound
Flywheel:	None
BR power classification:	'6P/5F'
Wheel arrangement:	4-6-2
Purpose:	Express passenger/mixed traffic
Haulage capacity (expected):	Eight carriages
Haulage capacity (actual):	Eight Bachmann Mk 1 carriages

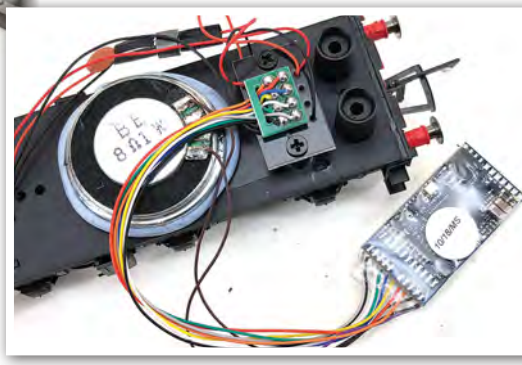


Space for a speaker to be installed.

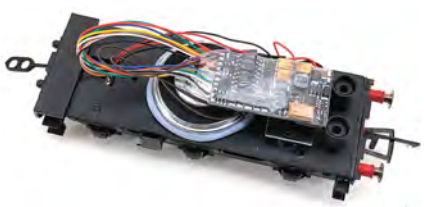
8-pin DCC decoder socket with blank installed for analogue operation.



8 Next the brown speaker wires are soldered to the solder pads on the 28mm round speaker. Polarity is not important.



9 The decoder plug is then connected to the socket, aligning the orange wire with pin 1 on the locomotive socket.



10 The decoder wires can then be coiled round and the decoder fixed in place on top of the socket to keep it neat for reassembly using Blu or Black tack.

11 The locomotive can now be reconnected to the tender, tested, addressed and enter service sounding just like the real thing.

TOP TIP: SOUND SELECTION

- To make the most of digital sound listen to videos on YouTube of the sound files you want to install and then choose which one works best for you.

HORNBY®

BR '8P' 71000 Duke of Gloucester

TOOLS

DECODER & SOUND INSTALLATION

- Small crosshead screwdrivers
- Small slotted screwdriver

For sound add:

- Black Tack or Blu Tack
- Heat shrink insulation
- Decoder wire
- Soldering iron

BR built just one class 8 'Pacific' before the Modernisation Plan was announced in 1955 and Hornby has produced it in ready-to-run form for 'OO'. We get to work on unique 4-6-2 71000 *Duke of Gloucester* explaining how to dismantle it and upgrade it for digital operation.

IF EVER A LOCOMOTIVE has led a charmed life then 71000 *Duke of Gloucester* is the one. It would never have been built had it not been for a tragic accident; it would never have survived into preservation had a mistake not been spotted and its full potential would never have been realised had it not been for a last-minute discovery of some long-forgotten drawings.

More than 60 years after it was built, the 'Duke' has only relatively recently reached its full potential and constant modifications and improvements carried out during its preservation career have shown that it could have been a design to take steam traction to a new level.

The unique BR '8P' 4-6-2 was developed by British Railways' Chief Mechanical Engineer, Robert Riddles, who wanted to add a high-powered express locomotive to his standard designs but was held back by financial constraints. The Harrow and Wealdstone crash of 1952 in which the London Midland Region's Stanier 'Pacific' 46202 *Princess Anne* was wrecked beyond repair provided enough reason for BR to allow Riddles to build a replacement steam locomotive which would be used to test a number of advanced features that might be of use for further locomotive development.

The design for the locomotive had an enlarged 'Britannia' boiler, three cylinders, Caprotti valve gear a large firebox and an unfortunately restrictive Swindon style double chimney. The new locomotive, numbered 71000 and named *Duke of Gloucester,* was exhibited at Willesden alongside other new rolling stock from May 25 to June 4 1954 following which it moved to Crewe North shed for running in. From there it was used to haul the 'Midday Scot' both North and South of Crewe.

It served on the West Coast Main Line throughout its short BR career, as well as making forays onto the North Wales coast route, but never really reached its full potential. Some modifications were carried out including having cuts made in the ashpan, but 71000 was withdrawn in November 1962 having covered 300,000 miles.

The locomotive came within a whisker of being lost when it was hauled to Cashmore's scrapyard in Newport by mistake instead of its intended destination of Woodham's of Barry. Work had already started to dismantle it when the error was noticed and the hulk was then sent on to its intended destination, where it survived in the famous yard for the next three years.

Fortunately it was there where it was saved for preservation, but rebuilding the 'Duke' was on a scale never before attempted in preservation and required construction of new outside cylinders and re-creation of the valve gear almost from scratch. Some regarded it as a project beyond the ability of the then fledgling railway preservation movement.

A number of modifications have been made to the locomotive during its preservation career making it one of the most powerful and distinguished main line performers in the post BR steam era. It is currently undergoing a 10-yearly overhaul to prepare it for another stint of operation on the main line where it is sure to wow the crowds again.

In model form, rather like the Gresley 'P2' 2-8-2, the idea of a ready-to-run model of 71000 *Duke of Gloucester* seemed rather far fetched – that is until Hornby revealed it would be making the unique 4-6-2 in its 2013 catalogue. It has since been released as a solo locomotive in preservation and BR period liveries as well as in train packs and with a Twin Track Sound decoder.

Our project uses the BR period model (Cat No. R3236) which was released in 2014. Like all but the Twin Track Sound model it has a locomotive mounted decoder socket and space for a 28mm round speaker in the tender chassis. Installing a decoder for motor control is simple, but upgrading to sound is more challenging. In a change to our method for the 'P2' – which employs a similar chassis design for DCC ready locomotives – we elected to relocate the entire 8-pin decoder socket into the tender for 71000 making it future-proof. The same methods could be used for the 'P2'. Read on to learn more. ■

DECODER OPTIONS

The following motor control decoders, and others, will fit into the Hornby 71000 *Duke of Gloucester* models with a locomotive mounted socket:

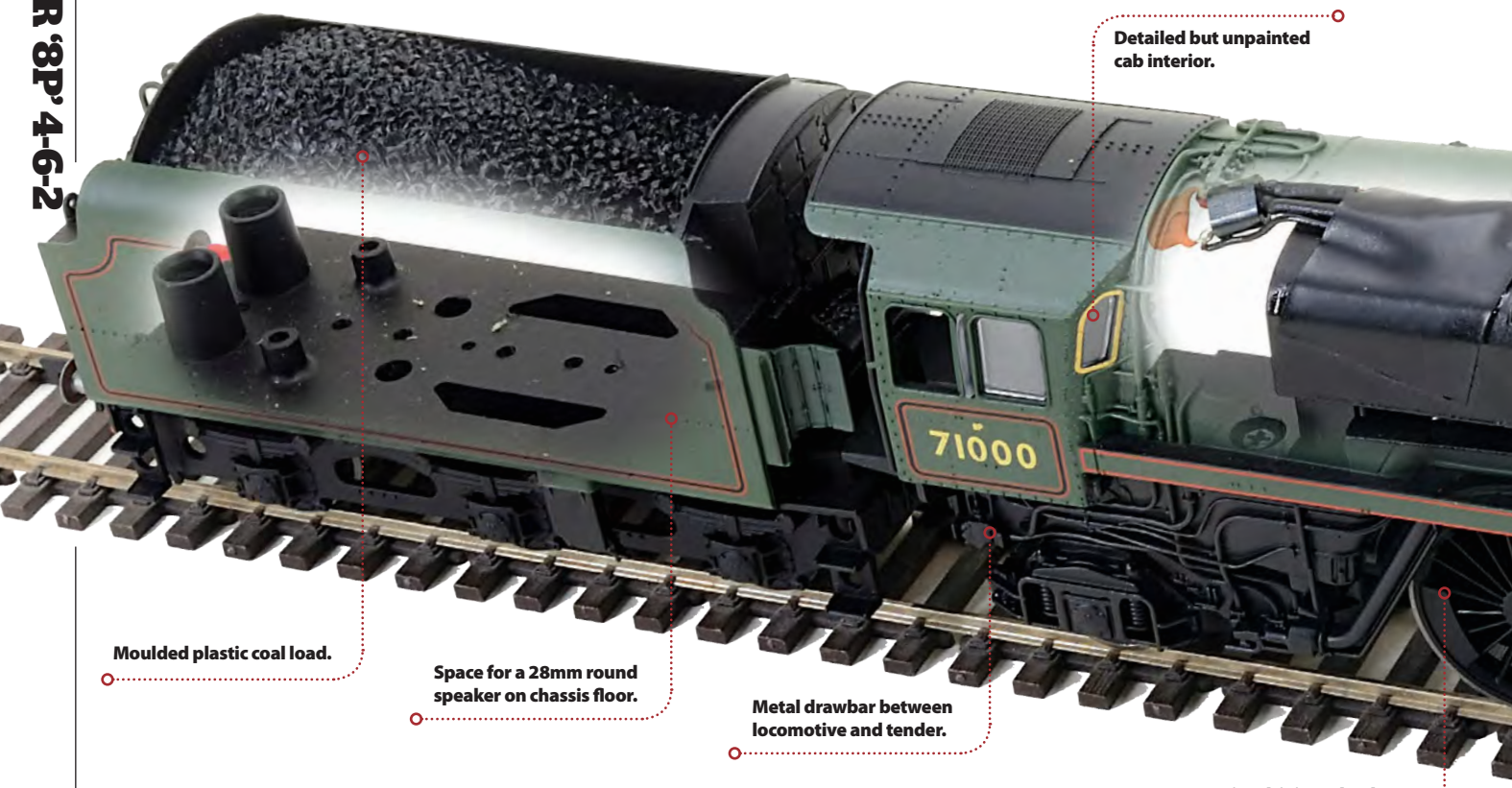
- Hatton's DCR-8-pin-Direct, DCR-8-pin-Harness
- DCC Concepts Zen Direct
- Gaugemaster DCC29

SOUND DECODER OPTIONS

- Zimo MX645R with custom sound project
- ESU LokSound V4.0 8-pin with custom sound project

This model has been fitted with an ESU LokSound decoder connected to a Zimo 40mm x 22mm x 9mm 3D printed speaker. The sound file is *www.locomansound.co.uk* for the Gresley 'A4' – selected for having a three-cylinder exhaust beat and chime whistles. A bespoke sound recording of 71000 is available from *www.howesmodels.co.uk* for ESU decoders and from *www.digitrains.co.uk* for Zimo decoders.

BR only ever built one '8P' 4-6-2 and Hornby immortalised this high powered 'Pacific' in 2013. This is the 2014 released BR 1960s period version of 71000 *Duke of Gloucester* (Cat No. R3236).



"Hornby revealed it would be making the unique 4-6-2 in its 2013 catalogue."

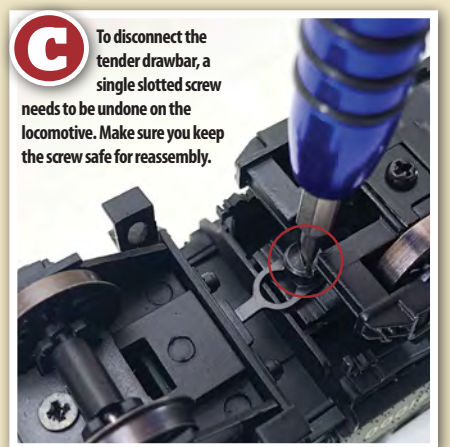
MIKE WILD

STEP BY STEP DISASSEMBLING HORNBY'S BR '8P' 4-6-2 71000

A Hornby added BR '8P' 4-6-2 71000 *Duke of Gloucester* to its collection in 2013. The initial release was in as preserved condition which was followed by a Twin Track Sound (TTS) version and then this BR 1960s condition model (Cat No. R3236) which is the subject of our project.

B The DCC ready and TTS models separate in the same way, except that the TTS model has a tender mounted decoder socket which means there is also a standard Hornby four-wire connection between the locomotive and tender. See our guide on the 'Britannia' and 'Clan' 4-6-2s on pages 108-113 for how to remove the socket.

C To disconnect the tender drawbar, a single slotted screw needs to be undone on the locomotive. Make sure you keep the screw safe for reassembly.



D The tender body is held in place with two crosshead screws. These are located awkwardly below the rear brake shoes on the tender. There is just enough space to get a standard modeller's screwdriver into the sunken holes to undo the screws and the brake shoes have a little bit of flexibility in them for this purpose.

E With the screws out, the tender body lifts up from the rear until the front lug disengages. The front lug was a tight fit on our example.

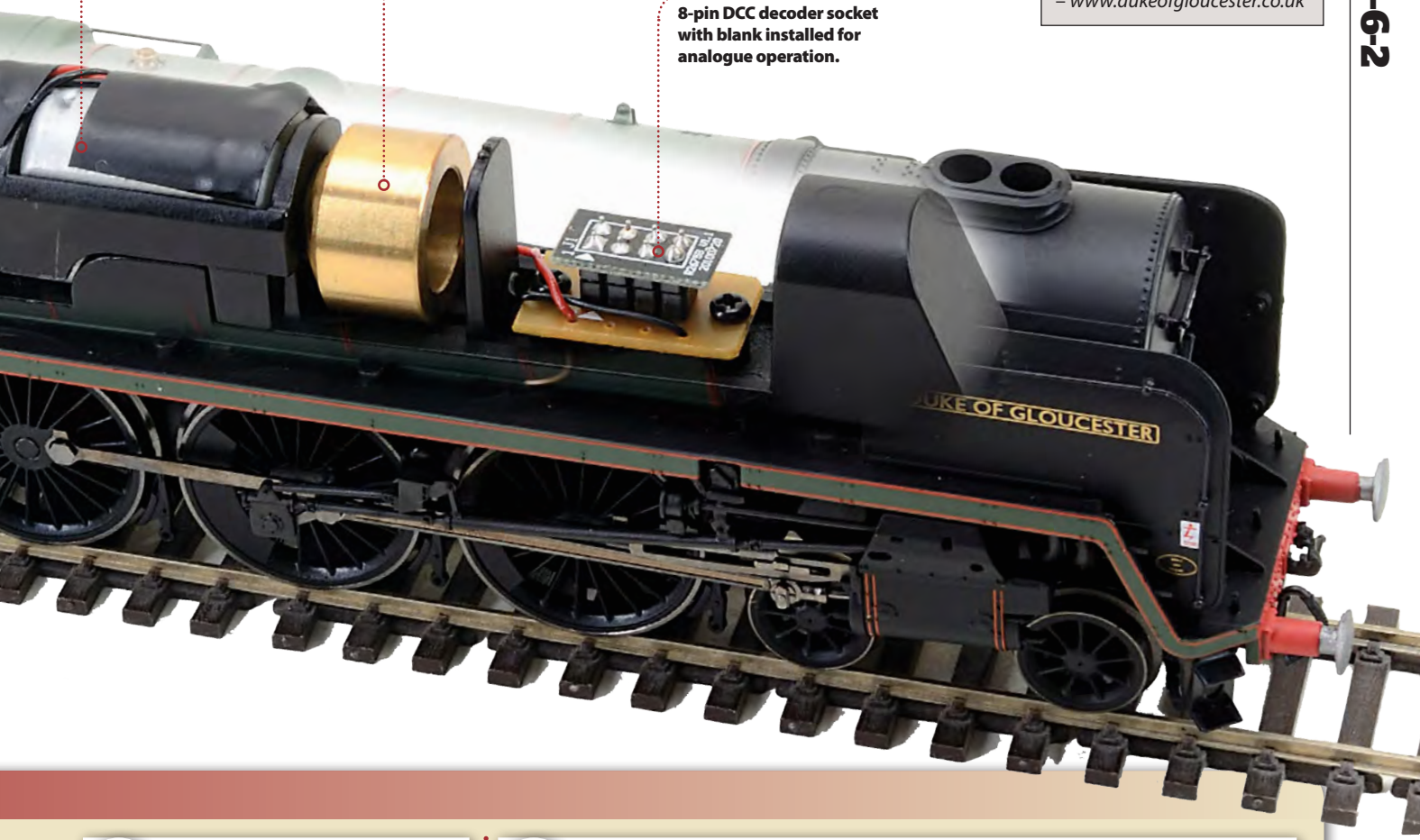
Powerful three pole skew wound motor.

Brass flywheel for smooth running characteristics.

8-pin DCC decoder socket with blank installed for analogue operation.

WHAT TO KNOW MORE?

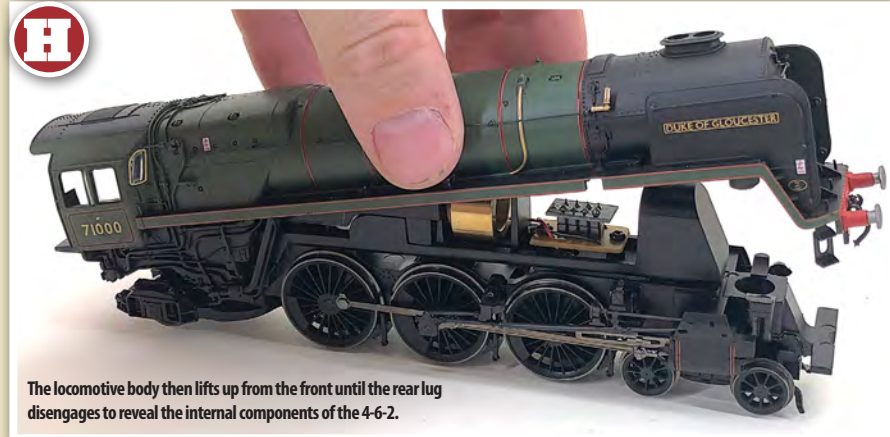
- **71000 Trust website**
  – *www.71000trust.com*
- ***Duke of Gloucester's* story**
  – *www.dukeofgloucester.co.uk*



F

The tender chassis is die-cast which gives it ample weight without the need for a separate metal weight. For the sound installer there is also plenty of space inside as the coal space is not modelled below the coal load.

H



The locomotive body then lifts up from the front until the rear lug disengages to reveal the internal components of the 4-6-2.

G

The locomotive body is held on with one screw at the front. Turn the front bogie to one side and you will be able to get direct access to the crosshead screw.

I

Inside you will find an 8-pin decoder socket, a three-pole motor with a brass flywheel and a gearbox transmitting drive to the rear axle.

STEP BY STEP INSTALLING A DECODER AND SOUND

1

The 8-pin socket for 71000 in DCC ready format is positioned at the front of the chassis above the leading driving wheels – TTS fitted locomotives have the decoder socket in the tender. Pin 1 is marked on both the socket blank and the Printed Circuit Board (PCB) below.

2

The 8-pin socket blank lifts out with even pressure on each side taking care not to force it out, as that is likely to bend the pins. Once the blank is out it can be put in the model's box for safekeeping for the future.

3

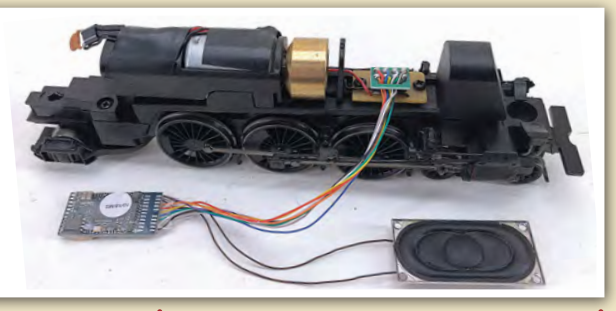
The socket position is ideal for use with British outline direct plug decoders including those by DCC Concepts, Hattons' and Gaugemaster – the latter shown here. There is limited space inside for a harnessed decoder.

4

There is just enough space for a harnessed decoder, but – if it is not already - it must be wrapped to prevent short circuits. Align the orange wire on the decoders plug with Pin 1 on the socket, curl the wires and position the decoder on top in the space allocated.

5

Moving this model forward with digital sound is a little more complex. You could select a smaller decoder such as the LokSound V4.0 micro or the Zimo MX648 and position it in the space provided, but that would still require the speaker to be wired through into the tender as per our installation for the Hornby Peppercorn 'A1' 4-6-2 (see pages 70-73).



6

We have alternative plans – and to show a different method from the similarly laid out 'P2' 2-8-2 on pages 92-97 we are going to relocate the decoder socket to the tender to make it future proof. Start by undoing the two screws which hold the socket in place on the locomotive. Keep the screws handy.

7

Lift up the socket and trace the track pick up wires into the chassis. Cut both of these from the socket using a pair of small scissors for accuracy.

8

We are now going to solder on two new pick-up leads using TCS decoder wire from *www.digitrains.co.uk*. First strip around 4-6mm of insulation from the end of the wire and then tin it with solder and a soldering iron. Repeat for a second wire to the other pick-up connection.

9

Next solder the new pick-up wires to the same connection points as the originals were cut from – they are at opposing corners of the socket. We used Blu Tack to hold the socket steady while we soldered the new wires on.

10

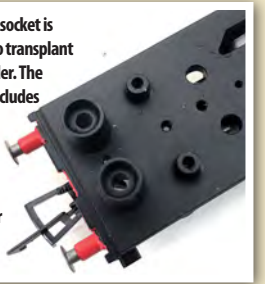
Unwrap the insulation tape which holds the motor connection wires in place to free them from the chassis.

11

Now desolder the motor connections from the motor terminals, but leave them attached to the decoder socket circuit board.

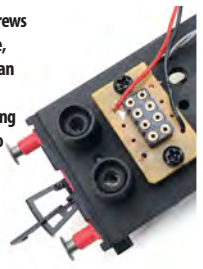
12

The decoder socket is now ready to transplant into the tender. The tender design includes two threaded supports for the decoder socket to mount on for the TTS version of 71000. We are going to use these to our advantage.



13

Using the original screws from the locomotive, the decoder socket can now be placed over the mounts and screwed in place using the original fixings. We have also neatly routed the two long grey pick-up wires connected in step 7, 8and 9 under the socket. The black and red connections on top are for the motor.



14

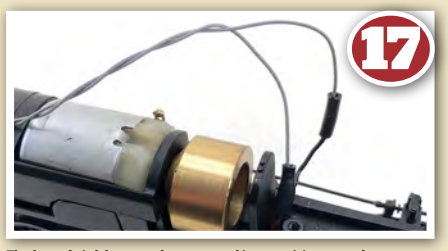
To ensure our wire will be the correct length to work around the speaker we have positioned our chosen Zimo 40mm x 22mm 3D printed speaker on the tender floor and routed the pick-up wires around it and through the hole provided for the wiring on TTS locomotives.

15

Next we refitted the tender drawbar screw so that we could be sure that the wires would be the correct length and then fed the pick-up wires up through the hole in the chassis provided for TTS locomotives.

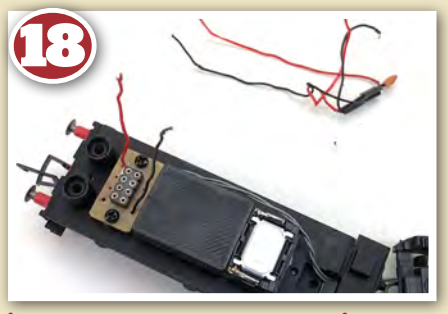
16

The pick-up wires are then routed over the top of the motor and soldered to the original black and red wires from the pick-ups – it doesn't matter which way round these two wires are joined, but they must be insulated with heatshrink insulation.



17

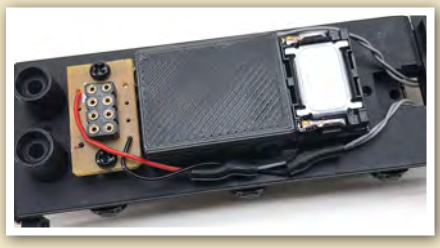
The heatshrink has now been moved into position over the soldered joins and shrunk with the side of the soldering iron. This provides a lasting insulated cover over the bare wires which we soldered together.



18 Back in the tender, we have cut down the length of the original motor connections to prepare them for extension. Upgrading to digital means we can also do away with the suppression capacitor (in orange on the original wiring) as the decoder has superior onboard suppressor circuits.

19 Two new lengths of grey decoder wire – used so that you can see its route through the locomotive – have had their ends stripped of 6mm of insulation to be twisted onto the black and red wires from the decoder socket which have also had their ends stripped.

20 Once the new connections have been soldered together heatshrink insulation can be added over the top and shrunk with the side of the soldering iron to protect them from short circuits.

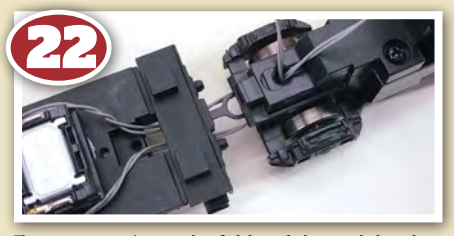


21 The motor wires are wound together as a pair and then fed along the side of the speaker and out through the hole at the front of the tender chassis.

TECHNICAL DETAILS

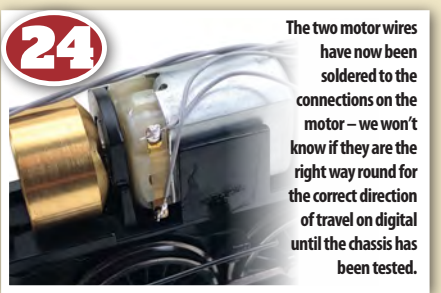
HORNBY BR '8P' 4-6-2 71000 *DUKE OF GLOUCESTER*

Manufacturer:	*www.hornby.com*
First released:	2013 (HM80)
Cat No (featured):	R3236 (2014)
Current alternatives:	Not currently listed
Description:	BR '8P' 4-6-2
Gauge:	'OO'/16.5mm
Scale:	4mm:1ft
Length (over buffers):	287mm
Price:	n/a
Era:	5
Couplings:	Small tension locks in NEM pockets
DCC:	DCC ready, 8-pin socket
Speaker space:	28mm round
Exterior lights:	None
Interior lights:	None
Motor type:	Three pole, skew wound
Flywheel:	One
BR power classification:	'8P'
Wheel arrangement:	4-6-2
Purpose:	Express passenger
Haulage capacity (expected):	Ten carriages
Haulage capacity (actual):	Ten Bachmann Mk 1 carriages

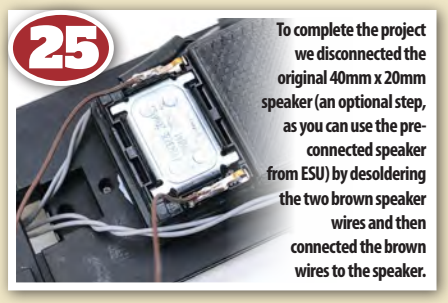


22 The motor connections are then fed through the same hole as the track connections to the locomotive and are held in place with the same strip of insulation tape.

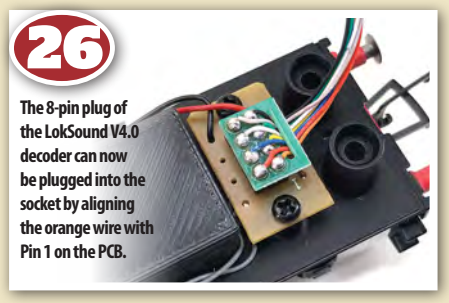
23 Here they have been cut to length and had 4mm of insulation removed from their ends ready for soldering to the motor terminals.



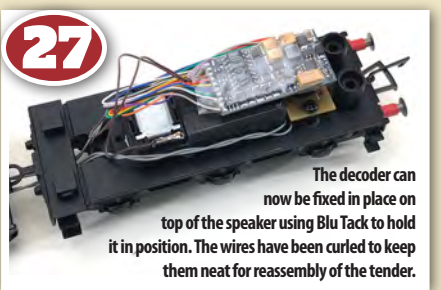
24 The two motor wires have now been soldered to the connections on the motor – we won't know if they are the right way round for the correct direction of travel on digital until the chassis has been tested.



25 To complete the project we disconnected the original 40mm x 20mm speaker (an optional step, as you can use the pre-connected speaker from ESU) by desoldering the two brown speaker wires and then connected the brown wires to the speaker.

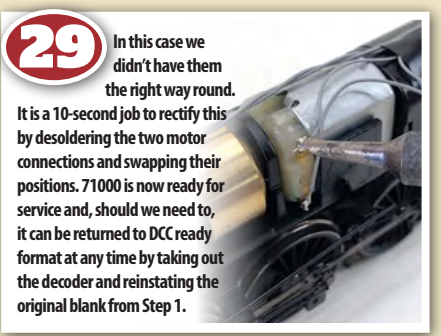


26 The 8-pin plug of the LokSound V4.0 decoder can now be plugged into the socket by aligning the orange wire with Pin 1 on the PCB.



27 The decoder can now be fixed in place on top of the speaker using Blu Tack to hold it in position. The wires have been curled to keep them neat for reassembly of the tender.

28 The chassis is now ready for testing, having ensured that all connections are suitably insulated and checking our work before proceeding. The test will check whether we have the motor connections the right way round or not.



29 In this case we didn't have them the right way round. It is a 10-second job to rectify this by desoldering the two motor connections and swapping their positions. 71000 is now ready for service and, should we need to, it can be returned to DCC ready format at any time by taking out the decoder and reinstating the original blank from Step 1.

BR Standard

Hornby BR Standard Class 6 'Clan' 4-6-2

Digital Decoder Options

Hatton's DCR-8PIN-Harness - £15
Hornby R8249 - £16
Hornby 9F TTS decoder with sound R8113 - £36

Standard chip fitting service - £12. More info on page 132.

Pre-Owned versions available
Limited Stock
www.hattons.co.uk updated every day

R2846-PO01 72000 'Clan Buchanan' in BR green with early emblem - Pre-Owned - Like New - Limited stock at £184

R2847-PO 72000 'Clan MacLeod' in BR green with late crest Pre-Owned - Like New - Limited stock at £213

R2925-PO 72005 'Clan Macgregor' in BR green with late crest Pre-Owned - Like New - Limited stock at £194

R2846-HR 72007 'Clan Mackintosh' in BR green with early emblem Pre-Owned - Renamed and numbered - Limited stock at £185

R2847-PO03 72003 'Clan Fraser' in BR green with late crest Pre-Owned - Renamed and numbered - Limited stock at £116

R2847-HR01 72006 'Clan MacKenzie' in BR green with late crest Pre-Owned - Renamed, numbered and weathered Limited stock at £212

Hornby BR Standard Class 7 'Britannia' 4-6-2

Digital Decoder Options

Hatton's DCR-8PIN-Harness - £15
Hornby R8249 - £16
Hornby 9F TTS decoder with sound R8113 - £36
(suitable for 'Britannia' locomotives)

Standard chip fitting service - £12. More info on page 132.

Pre-Owned versions available
Limited Stock
www.hattons.co.uk updated every day

R2562-PO01 70000 'Britannia' in BR green with early emblem Pre-Owned - DCC Fitted - Limited stock at £164

R2565-PO 70013 'Oliver Cromwell' in BR green with late crest NRM special edition - Pre-Owned - Like New - Limited stock at £204

R3520-OB 70007 'Coeur-de-Lion' in BR green with late crest Open Box - As New - DCC fitted - Limited stock at £162

R2975-LN01 70000 in unlined BR black (as built) Pre-Owned - Like New - Limited stock at £123

R2719-PO 70038 'Robin Hood' in BR green with late crest Pre-Owned - Slow Runner - Replacement box - Limited stock at £122

R2819-PO 70009 'Alfred the Great' in BR green with early emblem and 3 coaches Pre-Owned - Like New - Limited stock at £205

Locomotives

Hornby BR Standard Class 8 'Duke of Gloucester' 4-6-2


©John Grey Turner

Digital Decoder Options

Hatton's DCR-8PIN-Harness - £15
Hornby R8249 - £16
Hornby A4 TTS decoder with sound R8107 - £36
(suitable for 'DoG' locomotives)

Standard chip fitting service - £12. More info on page 132.

Pre-Owned versions available
Limited Stock
www.hattons.co.uk updated every day

R3244TTS-PO 71000 'Duke of Gloucester' in BR green with late crest - TTS Sound Fitted
Pre-Owned - Like New - Limited stock at £116

R3236-PO 71000 'Duke of Gloucester' in BR green (1960s condition) - Pre-Owned - Like New - Limited stock at £180

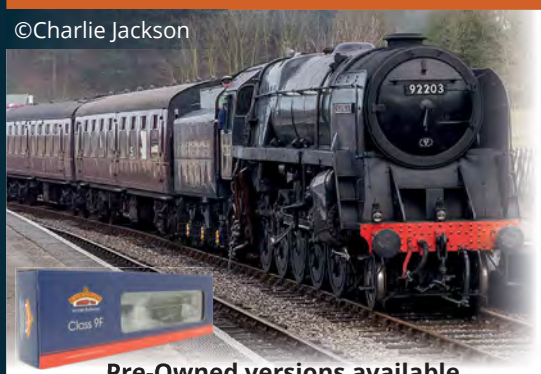
R3191-PO05 71000 'Duke of Gloucester' in BR green with late crest Pre-Owned - Like New- Limited stock at £108

R3168-LN01 71000 'Duke of Gloucester' in BR green with late crest Railroad Range - Pre-Owned - Like New - Limited stock at £86

R3192-PO 71000 'Duke of Gloucester' in BR green with late crest Special Edition Train Pack
Pre-Owned - Like New- Limited stock at £145

R1177-PO Gloucester City Pullman Train Set with 71000 'Duke of Gloucester in BR lined green and 3 pullman coaches
Pre-Owned - Like New - Limited stock at £90

Bachmann BR Standard Class 9F 2-10-0


©Charlie Jackson

Digital Decoder Options

Hatton's DCR-21PIN-Direct - £15
Bachmann 36-557 - £18.66

Standard chip fitting service - £12. More info on page 132.

Pre-Owned versions available
Limited Stock
www.hattons.co.uk updated every day

32-852-PO02 92116 BR black with early emblem
Pre-Owned - DCC Fitted - Limited stock at £142

32-853-PO02 92044 in BR blackwith late crest - weathered
Pre-Owned - DCC Fitted - Limited stock at £160

32-854-LN 92006 in BR black with early emblem
Pre-Owned - Like New - Limited stock at £138

32-856-PO 92005 in BR black with early emblem
Pre-Owned - Like New - Limited stock at £120

32-855-PO03 92249 in BR black with late crest
Pre-Owned - Like New - Limited stock at £136

New versions available

32-850A 92220 "Evening Star" in BR green with late crest
In stock at £161.46

32-858 92189 in BR black with late crest - weathered
In stock at £169.96

32-860 92211 BR black with late crest
In stock at £161.46

8-pin motor and function control decoders

CAT NO.	MANUFACTURER	FORMAT	PRICE	SIZE	FUNCTIONS	POWER	FUNCTION RATING*	BACK EMF	SPEED STEPS	ADDRESSES	DC RUNNING
36-566	Bachmann	Harness	£18.95	24mm x 15mm x 4.6mm	4	0.9A	250mA	Yes	14/28/128	1-9999	Yes
DCX70DS	CT Elektronik	Harness	£32.59	17mm x 11mm x 2.6mm	7	0.8A (1.5A peak)	250mA (600mA total)	Yes	14/28/128	1-10239	Yes
DCX74DS	CT Elektronik	Harness	£27.50	13mm x 9mm x 1.5mm	2	0.8A (1.6A peak)	500mA total	Yes	14/28/128	1-10239	Yes
DCX74zDS	CT Elektronik	Harness	£31.00	9mm x 7mm x 2.6mm	4	1.0A (2.0A peak)	500mA total	Yes	14/28/128	1-10239	Yes
DCX76DS	CT Elektronik	Harness	£31.00	10.8mm x 7.1mm x 1.3mm	4	0.8A (1.6A peak)	250mA (800mA total)	Yes	14/28/128	1-10239	Yes
DCD-Z360	DCC Concepts	Direct	£19.95	14.5mm x 12.9mm x 5mm	4	0.75A (1.0A peak)	100mA	Yes	14/28/128	1-9999	Yes
DCD-ZN8D	DCC Concepts	Direct	£21.95	15mm x 7mm x 5mm	4	0.75A (1.0A peak)	100mA	Yes	14/28/128	1-9999	Yes
DCD-ZN8H	DCC Concepts	Harness	£21.95	15mm x 7mm x 2mm	2	0.75A (1.0A peak)	100mA	Yes	14/28/128	1-9999	Yes
DCD-Z218	DCC Concepts	Plug-in harness	£22.96	22mm x 6mm x 4.5mm	6	0.75A (1.0A peak)	100mA	Yes	14/28/128	1-9999	Yes
DH126P	Digitrax	Plug-in harness	£18.50	27.3mm x 17mm x 6.6mm	2	1.5A (2.0A peak)	500mA total	-	14/28/128	1-9983	Yes
DH126PS	Digitrax	Short plug-in harness	£18.65	27.3mm x 17mm x 6.6mm	2	1.5A (2.0A peak)	500mA total	-	14/28/128	1-9983	Yes
DH165IP	Digitrax	Direct	£21.00	26.7mm x 17mm x 6.3mm	6	1.5A (2.0A peak)	500mA total	Yes	14/28/128	1-9983	Yes
DH166P	Digitrax	Plug-in harness	£25.10	17mm x 27.2mm x 6.6mm	6	1.5A (2.0A peak)	500mA total	Yes	14/28/128	1-9983	Yes
DH166PS	Digitrax	Short plug-in harness	£24.25	17mm x 27.2mm x 6.6mm	6	1.5A (2.0A peak)	500mA total	Yes	14/28/128	1-9983	Yes
DN136PS	Digitrax	Short plug-in harness	£18.99	14mm x 10.3mm x 5mm	3	1.0A (1.5A peak)	500mA total	Yes	14/28/128	1-9983	Yes
DN146IP	Digitrax	Direct	£27.00	29.4mm x 9.8mm x 2.9mm	4	1.0A (1.5A peak)	50mA total	Yes	14/28/128	1-9983	Yes
DN166PS	Digitrax	Short plug-in harness	£29.50	22.16mm x 10.3mm x 5.1mm	6	1.0A (1.5A peak)	500mA total	Yes	14/28/128	1-9983	Yes
DZ126PS	Digitrax	Short plug-in harness	£19.25	11.56mm x 9.37mm x 3.2mm	2	1.0A (1.5A peak)	500mA total	Yes	14/28/128	1-9983	Yes
DZ146PS	Digitrax	Short plug-in harness	£30.00	14mm x 10.23mm x 3.77mm	4	1.0A (1.5A peak)	500mA total	Yes	14/28/128	1-9983	Yes
53611	ESU	Harness	£24.90	25.5mm x 15.5mm x 4.5mm	4	0.9A	250mA (500mA total)	Yes	14/28/128	1-9999	Yes
53661	ESU	Harness	£31.00	8mm x 7mm x 2.4mm	4	0.75A	150mA (1.A total)	Yes	14/28/128	1-9999	Yes
54611	ESU	Harness	£32.00	21mm x 15.5mm x 5.5mm	4	1.1A	250mA (500mA total)	Yes	14/28/128	1-9999	Yes
DCC22	Gaugemaster	Short harness	£26.95	10.6mm x 8.7mm x 2.86mm	2	1.0A (2.0A peak)	500mA total	Yes	14/28/128	1-9999	Yes
DCC26	Gaugemaster	Plug-in harness	£16.95	18.5mm x 10.5mm x 4.8mm	4	1.1A (1.6A peak)	150mA (200mA total)	Yes	14/28/128	1-9999	Yes
DCC27	Gaugemaster	Plug-in harness	£20.95	22mm x 16mm x 5mm	4	1.0A (1.8A peak)	-	Yes	14/28/128	1-9999	Yes
DCC29	Gaugemaster	Direct	£21.95	15mm x 12mm x 10mm	4	1.0A (1.5A peak)	-	Yes	14/28/128	1-9999	Yes
DCR8PIN Harness	Hatton's	Plug-in harness	£15.00	19mm x 12mm	4	1.1A (1.6A peak)	200mA	Yes	14/28/128	1-9999	Yes
DCR8PIN Direct	Hatton's	Direct	£17.00	13mm x 18mm x 3.6mm	4	1.1A (1.6A peak)	200mA	Yes	14/28/128	1-9999	Yes
DCR8PIN Mini	Hatton's	Plug-in harness	£16.00	19mm x 10mm	2	1.1A (1.6A peak)	200mA	Yes	14/28/128	1-9999	Yes
R8245	Hornby	Plug-in harness	£42.99	23mm x 17mm x 6.5mm	4	1.0A (1.5A peak)	200mA (500mA total)	Yes	14/28/128	1-9999	Yes
R8249	Hornby	Harness	£20.99	17mm x 10mm x 3.5mm	4	0.5A (1.0A peak)	100mA	Yes	14/28/128	1-9999	Yes
10231-02	Lenz	Harness	£22.50	25mm x 15mm x 3.8mm	4	1.0A (1.8A peak)	150mA	Yes	14/27/28/128	1-9999	Yes
10330-01	Lenz	Direct	£35.85	19mm x 13mm x 3.35mm	4	1.0A (1.8A peak)	100mA	Yes	14/27/28/128	1-9999	Yes
10433-01	Lenz	Harness	£38.25	23mm x 16mm x 6.5mm	5	1.0A (1.8A peak)	500mA total	Yes	14/27/28/128	1-9999	Yes
D13SRP	NCE	Harness	£17.96	34mm x 16.5mm x 2.7mm	4	1.3A (2.0A peak)	40mA	-	28/128	1-9999	Yes
N12SRP	NCE	Harness	£22.50	18mm x 8.6mm x 3.2mm	2	1.0A (1.25A peak)	100mA	-	28/128	1-9999	Yes
N14SRP	NCE	Harness	£22.00	29.2mm x 10mm x 3mm	4	1.3A (2.0A peak)	50mA	-	28/128	1-9999	Yes
N14IP	NCE	Direct	£22.00	29.2 mm x 10.1mm x 3mm	4	1.3A (2.0A peak)	40mA	-	28/128	1-9999	Yes
852003	Soundtraxx	Plug-in harness	£22.75	25mm x 16mm x 6mm	4	1.0A	100mA (400mA total)	Yes	14/28/128	1-9999	Yes
DP2X	TCS	Direct	£27.95	17.5mm x 11.7mm x 3.5mm	2	1.0A (2.0A peak)	100mA	Yes	14/28/128	1-9999	Yes
DP2X-UK	TCS	Direct	£31.00	11.5mm x 17.5mm x 3mm	2	1.0A (2.0A peak)	100mA	Yes	14/28/128	1-9999	Yes
KAM4P-MH	TCS	Harness	£54.05	25mm x 16mm x 8.38mm	4	1.3A (2.0A peak)	100mA	Yes	14/28/128	1-9999	Yes
M1-P1	TCS	Short harness	£39.50	14.4mm x 9.1mm x 3.4mm	2	1.0A (2.0A peak)	100mA	Yes	14/28/128	1-9999	Yes
MC2P-LH	TCS	Plug-in harness	£26.43	18mm x 10.6mm x 4.8mm	2	1.0A (2.0A peak)	100mA	Yes	14/28/128	1-9999	Yes
M4P-UK	TCS	Harness	£33.72	14.4mm x 9.12mm x 3.43mm	4	1.0A (2.0A peak)	100mA	Yes	14/28/128	1-9999	Yes
T1P-UK	TCS	Plug-in harness	£30.55	24.9mm x 16.6mm x 5.25mm	2	1.3A (2.0A peak)	100mA	Yes	14/28/128	1-9999	Yes
T4XP-UK	TCS	Plug-in harness	£26.00	24.9mm x 16.6mm x 5.25mm	4	1.3A (2.0A peak)	100mA	Yes	14/28/128	1-9999	Yes
MX600R	Zimo	Harness	£20.00	25mm x 11mm x 3mm	4	0.8A (1.5A peak)	500mA total	Yes	14/28/128	1-10239	Yes
MX622R	Zimo	Harness	£35.00	14mm x 9mm x 2.5mm	4 (+2 logic)	0.8A (1.5A peak)	500mA total	Yes	14/28/128	1-10239	Yes
MX623R	Zimo	Harness	£31.00	20mm x 8.5mm x 3.5mm	4 (+2 logic)	0.8A (1.5A peak)	500mA total	Yes	14/28/128	1-10239	Yes
MX630R	Zimo	Harness	£35.00	20mm x 11mm x 3.5mm	6 (+2 logic)	1.0A (2.0A peak)	800mA total	Yes	14/28/128	1-10239	Yes
MX632R	Zimo	Harness	£40.00	28mm x 15.5mm x 4mm	8	1.6A (2.5A peak)	800mA total	Yes	14/28/128	1-10239	Yes
MX633R	Zimo	Harness	£45.00	22mm x 15mm x 3.5mm	10 (+2 logic)	1.2A (2.5A peak)	800mA total	Yes	14/28/128	1-10239	Yes
MX634R	Zimo	Harness	£40.00	20.5mm x 15.5mm x 4mm	6 (+2 logic)	1.2A (2.5A peak)	800mA total	Yes	14/28/128	1-10239	Yes

Note: * per output (unless shown otherwise)

21-pin motor and function control decoders

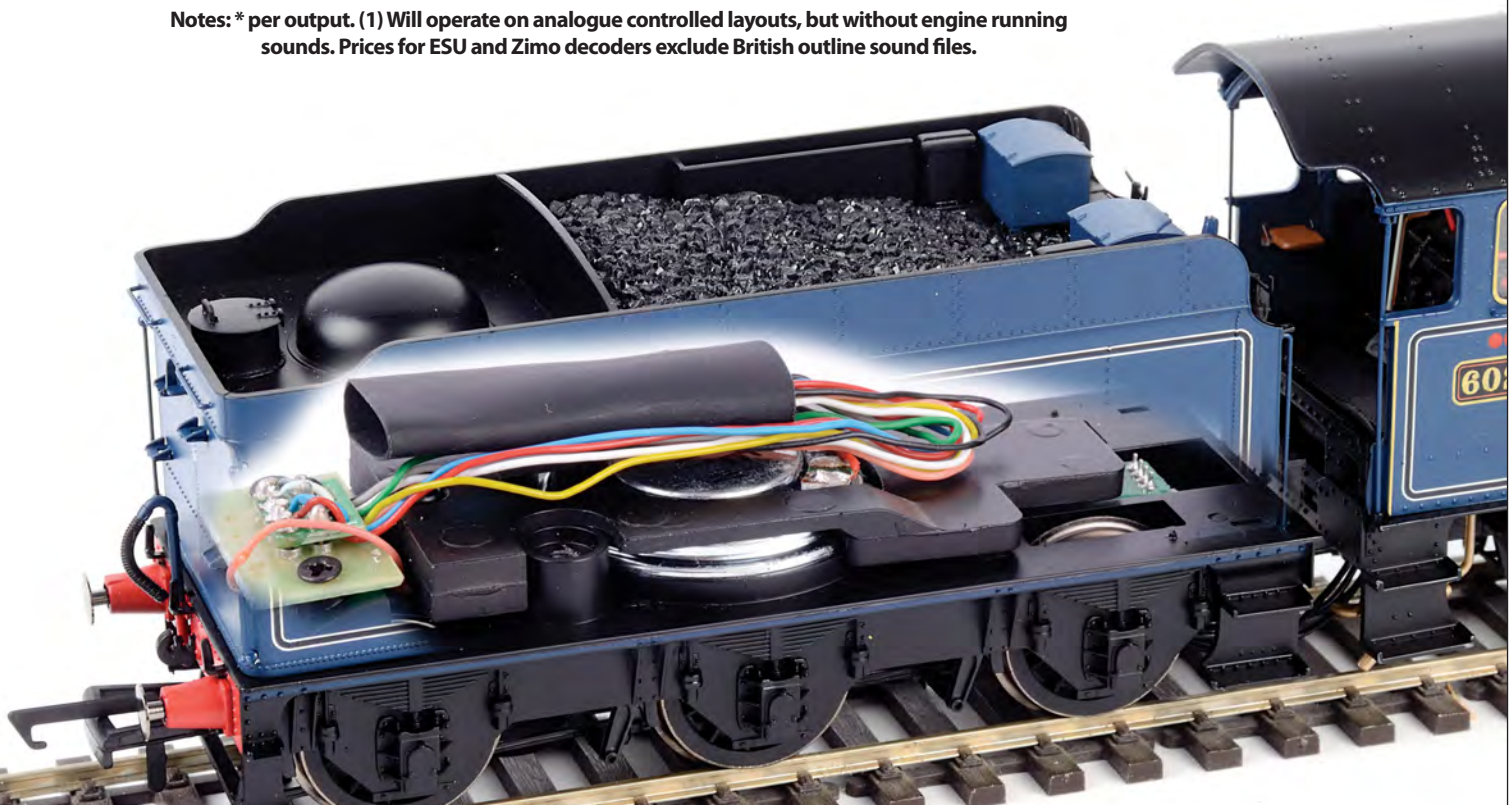
CAT NO.	MANUFACTURER	FORMAT	PRICE	SIZE	FUNCTIONS	POWER	FUNCTION RATING*	BACK EMF	SPEED STEPS	ADDRESSES	DC RUNNING
36-557	Bachmann	Direct	£21.95	24.5mm x 15mm x 4.5mm	4 (+2 logic)	0.9A	250mA (500mA total)	Yes	14/28/128	1-9999	Yes
IMPERIUM1	Dapol	Direct	£22.95	17.5mm x 16mm x 4mm	4 (+2 logic)	1.0A (2.0A peak)	100mA	Yes	14/28/128	1-9999	Yes
DCD-Z218	DCC Concepts	Direct	£22.96	22mm x 16mm x 4mm	6	0.75A (1.1A peak)	100mA	Yes	14/28/128	1-9999	Yes
DH126MT	Digitrax	Direct	£19.00	21mm x 16.3mm x 4.3mm	2	1.5A (2.0A peak)	500mA total	Yes	14/28/128	1-9983	Yes
DH166MT	Digitrax	Direct	£30.00	21mm x 16.3mm x 4.3mm	6 (+2 logic)	1.5A (2.0A peak)	500mA total	Yes	14/28/128	1-9983	Yes
53614	ESU	Direct	£24.90	25.5mm x 15.5mm x 4.5mm	4 (+2 logic)	0.9A	250mA (500mA total)	Yes	14/28/128	1-9999	Yes
54615	ESU	Direct	£32.00	21.3mm x 15.5mm x 5.5mm	4 (+2 logic)	1.1A	250mA (500mA total)	Yes	14/28/128	1-9999	Yes
DCC27	Gaugemaster	Direct	£20.95	22mm x 16mm x 5mm	4	1.0A (1.8A peak)	200mA	Yes	14/28/128	1-9999	Yes
DCR-21PIN-Direct	Hatton's	Direct	£15.00	17.5mm x 15.5mm x 3.5mm	4	1.1A (1.6A peak)	200mA	Yes	14/28/128	1-9999	Yes
R8245	Hornby	Direct	£42.99	23mm x 17mm x 6.5mm	4	1.0A (1.5A peak)	200mA (500mA total)	Yes	14/28/128	1-9999	Yes
10321-01	Lenz	Direct	£32.25	20.5mm x 15.5mm x 4mm	5	1.0A (1.6A peak)	500mA (500mA total)	Yes	14/27/28/128	1-9999	Yes
EU621X	TCS	Direct	£33.75	20mm x 15.5mm x 4.5mm	6 (+2 logic)	1.0A (2.0A peak)	100mA	Yes	14/28/128	1-9999	Yes
EU621-KA	TCS	Direct	£40.50	20mm x 15.5mm x 4.5mm	6	1.0A (2.0A peak)	100mA	Yes	14/28/128	1-9999	Yes
EU821X	TCS	Direct	£32.00	20mm x 15mm x 3.5mm	8 (+2 logic)	1.0A (2.0A peak)	100mA	Yes	14/28/128	1-9999	Yes
MX632D	Zimo	Direct	£39.00	28mm x 15.5mm x 4mm	8	1.6A (2.5A peak)	800mA total	Yes	14/28/128	1-10239	Yes
MX634D	Zimo	Direct	£38.00	20.5mm x 15.5mm x 4mm	6 (+2 logic)	1.2A (2.0A peak)	800mA total	Yes	14/28/128	1-10239	Yes
MX636D	Zimo	Direct	£TBA	26mm x 15mm x 3.5mm	8 (+2 logic)	1.8A (2.5A peak)	800mA total	Yes	14/28/128	1-10239	Yes
MX638D	Zimo	Direct	£20.00	20.5mm x 15mm x 4mm	6 (+2 logic)	1.0A (1.5A peak)	800mA total	Yes	14/28/128	1-10239	Yes

Note: * per output (unless shown otherwise)

8-pin and 21-pin motor and sound decoders

MANUFACTURER	DECODER TYPE	FORMAT	PRICE	SIZE (MM)	POWER	FUNCTIONS	FUNCTION SUPP.	FUNCTION RATING*	AMPLIFIER OUTPUT	SOUND CHANNELS	DC RUNNING	CAT NO:
ESU	LokSound Select	21-pin direct	£110.00	30 x 15.5 x 5.5	1.1A (1.6A peak)	6	F0-F28	250mA	2.0W@4ohm	8	Yes	73900
ESU	LokSound V4.0	8-pin harness	£96.00	30.3 x 15.5 x 5.5	1.1A (1.6A peak)	6 (4 +2 logic)	F0-F28	250mA	1.8W@4ohm	8	Yes	54400
ESU	LokSound V4.0	21-pin direct	£96.00	30.3 x 15.5 x 5.5	1.1A (1.6A peak)	6 (4 + 2 logic)	F0-F28	250mA	1.8W@4ohm	8	Yes	54499
ESU	LokSound micro V4.0	8-pin harness	£96.00	28 x 10 x 4	0.75A	4 (2 + 2 logic)	F0-F28	150mA	1.8W@4ohm	8	Yes	56899
Hornby	Twin Track Sound	8-pin harness	£42.99	25 x 14 x 5	0.5A (1.0A peak)	3	F0-F25	100mA	1.6W@8ohm	2	Yes (1)	Various
Soundtraxx	UK Diesel	21-pin direct	£79.95	30.5 x 15.5 x 6.5	1.0A	6	F0-F28	100mA	2.0W@8ohm	12	Yes	882106
Soundtraxx	UK Steam	21-pin direct	£79.95	30.5 x 15.5 x 6.5	1.0A	6	F0-F28	100mA	2.0W@8ohm	12	Yes	881106
ZIMO	Standard	21-pin direct	£99.00	30 x 15 x 4	1.2A (2.5A peak)	8 (2 logic)	F0-F28	800mA (total)	3.0W@4-8 ohm	6	Yes	MX644D
ZIMO	Standard	8-pin harness	£99.00	30 x 15 x 4	1.2A (2.5A peak)	10 (2 logic)	F0-F28	800mA (total)	3.0W@4-8ohm	6	Yes	MX645R
ZIMO	Micro	8-pin harness	£99.00	20 x 11 x 4	1.0A (1.5A peak)	6 (2 logic)	F0-F28	500mA (total)	1.0W@8ohm	6	Yes	MX648R

Notes: * per output. (1) Will operate on analogue controlled layouts, but without engine running sounds. Prices for ESU and Zimo decoders exclude British outline sound files.



The Locomotive

Great Western Railway express motive power 2008-2018

HORNBY 'OO' GAUGE GWR CHURCHWARD 'STAR' 4-6-0

Identity	Livery	Cat No.	Release year	Decoder socket	Socket position	Speaker provision
4013 *Knight of St Patrick*	GWR lined green	R3455	2017	8-pin	Tender	28mm round
4018 *Knight of the Grand Cross*	GWR lined green	R3166	2013	8-pin	Tender	28mm round
4021 *British Monarch*	BR lined green, early crests	R3229	2014	8-pin	Tender	28mm round
4050 *Princess Alice*	Great Western lined green	R2319	2015*	8-pin	Tender	28mm round
4061 *Glastonbury Abbey*	BR lined green, early crests	R3167	2013	8-pin	Tender	28mm round

** Delivered as part of a train pack*

HORNBY 'OO' GAUGE COLLETT 'CASTLE' 4-6-0

Identity	Livery	Cat No.	Release year	Decoder socket	Socket position	Speaker provision
4073 *Caerphilly Castle*	Great Western lined green	R3237	2014	8-pin	Tender	28mm round
4098 *Kidwelly Castle*	BR lined green, early crests	R2897XS	2010	8-pin	Tender	28mm round
5011 *Tintagel Castle*	GWR lined green	R2848	2009	8-pin	Tender	28mm round
5013 *Abergavenny Castle*	BR lined green, late crests	R3619	2018	8-pin	Tender	28mm round
5043 *Earl of Mount Edgcumbe*	BR lined green, early crests	R3301	2015	8-pin	Tender	28mm round
5050 *Earl of St Germans*	BR lined green, early crests	R3383TTS	2016	8-pin	Tender	28mm round
5053 *Earl Cairns*	BR lined green, early crests	R2822	2009	8-pin	Tender	28mm round
5068 *Beverston Castle*	BR lined green, early crests	R2849	2009	8-pin	Tender	28mm round
5075 *Wellington Castle*	GWR lined green	R3105	2012	8-pin	Tender	28mm round
5076 *Drysllwyn Castle*	GWR lined green	R3454	2017	8-pin	Tender	28mm round
7023 *Penrice Castle*	BR lined green, late crests	R3118	2013	8-pin	Tender	28mm round
7029 *Clun Castle*	BR lined green, late crests	R2994XS	2011	8-pin	Tender	28mm round
7034 *Ince Castle*	BR lined green, late crests	R2850	2009	8-pin	Tender	28mm round
7036 *Taunton Castle*	BR lined green, early crests	R2986*	2011	8-pin	Tender	28mm round

** Delivered as part of a train pack*
***XS** DCC sound fitted from the factory with ESU 21-pin decoder*
***TTS** DCC sound fitted from the factory with Hornby Twin Track Sound decoder*

HORNBY 'OO' GAUGE COLLETT 'KING' 4-6-0

Identity	Livery	Cat No.	Release year	Decoder socket	Socket position	Speaker provision
6000 *King George V*	BR lined green, early crests	R3330^	2015	8-pin	Tender	28mm round
6002 *King William IV*	Great Western lined green	R3074	2011	8-pin	Locomotive	None
6002 *King William IV*	BR lined green, late crests	R3409^	2016	8-pin	Tender	28mm round
6004 *King George III*	GWR lined green	R3516^	2018	8-pin	Tender	28mm round
6006 *King George I*	BR lined green, late crests	R3384TTS^	2016	8-pin	Tender	28mm round
6009 *King Charles II*	GWR lined green	R3401*^	2016	8-pin	Tender	28mm round
6011 *King James I*	Great Western lined green	R3331^	2015	8-pin	Tender	28mm round
6015 *King Richard III*	BR lined green, late crests	R3535^	2017	8-pin	Tender	28mm round
6016 *King Edward V*	GWR lined green	R3408^	2016	8-pin	Tender	28mm round
6023 *King Edward II*	Great Western lined green	R3534^	2018	8-pin	Tender	28mm round
6023 *King Edward II*	BR lined blue early crests	R3102	2012	8-pin	Locomotive	None
6025 *King Henry III*	BR lined blue, early crests	R3410^	2016	8-pin	Tender	28mm round
6021 *King Richard II*	BR lined green, early crests	R3370TTS^	2015	8-pin	Tender	28mm round
6029 *King Edward VIII*	BR lined green, late crests	R3332^	2015	8-pin	Tender	28mm round

** Delivered as part of a train pack*
^ New tooling from 2015
***TTS** DCC sound fitted from the factory with Hornby Twin Track Sound decoder*

Directory

The *Hornby Magazine* Locomotive Directory is your guide to the ready-to-run 'OO' gauge express locomotives produced over the past 10 years as well as those which are due for release in 2018 and beyond.

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BACHMANN 'OO' GAUGE BILLINTON 'H1' 4-4-2

Identity	Livery	Cat No.	Release year	Decoder socket	Socket position	Speaker provision
39 *La France*	LBSCR lined brown	31-910	2018 (expected)	21-pin	Tender	TBA

BACHMANN 'OO' GAUGE BILLINTON 'H2' 4-4-2

Identity	Livery	Cat No.	Release year	Decoder socket	Socket position	Speaker provision
2421 *South Foreland*	SR olive green	31-920	2018 (expected)	21-pin	Tender	TBA
32424 *Beachy Head*	BR lined black, early crests	31-921	2018 (expected)	21-pin	Tender	TBA

HORNBY 'OO' GAUGE MAUNSELL 'KING ARTHUR' 4-6-0

Identity	Livery	Cat No.	Release year	Decoder socket	Socket position	Speaker provision
742 *Camelot*	SR black	R3527	2017	8-pin	Tender	28mm round
751 *Etarre*	SR olive green	R2723	2008	8-pin	Locomotive	None
767 *Sir Valence*	SR olive green	R2836	2009	8-pin	Locomotive	None
771 *Sir Sagramore*	SR olive green	R3010	2014	8-pin	Locomotive	None
785 *Sir Mador de la Port*	SR olive green	R3075	2011	8-pin	Locomotive	None
30450 *Sir Kay*	BR lined green, late crets	R2725	2008	8-pin	Locomotive	None
30452 *Sir Meliagrance*	BR lined green, early crests	R2905	2010	8-pin	Tender	None
30792 *Sir Hervis de Revel*	BR lined green, early crests	R3456	2016	8-pin	Tender	28mm round
30800 *Sir Meleaus De Lile*	BR lined green, early crests	R2724	2008	8-pin	Locomotive	None

HORNBY 'OO' GAUGE MAUNSELL 'LORD NELSON' 4-6-0

Identity	Livery	Cat No.	Release year	Decoder socket	Socket position	Speaker provision
851 *Sir Francis Drake*	SR olive green	R3634	2018 (expected)	8-pin	Tender	28mm round
30850 *Lord Nelson*	BR lined green, late crests	R3603TTS	2018 (expected)	8-pin	Tender	28mm round
30863 *Lord Rodney*	BR lined green, early crests	R3635	2018 (expected)	8-pin	Tender	28mm round

HORNBY 'OO' GAUGE BULLEID AIR-SMOOTHED 'WEST COUNTRY'/'BATTLE OF BRITAIN' 4-6-2

Identity	Livery	Cat No.	Release year	Decoder socket	Socket position	Speaker provision
21C159 *Sir Archibald Sinclair*	British Railway malachite green	R3525	2017	8-pin	Tender	28mm round
21C168 *Kenley*	SR malachite green	R3515	2017	8-pin	Tender	28mm round
34001 *Exeter*	BR lined green, early crests	R3115	2015	8-pin	Tender	28mm round
34006 *Bude*	British Railways malachite green	R2685	2008	8-pin	Locomotive	None
34006 *Bude*	BR lined green, late crests	R3310	2015	8-pin	Tender	28mm round
34007 *Wadebridge*	BR lined green, early crests	R2817*	2009	8-pin	Locomotive	None
34019 *Bideford*	BR lined green, late crests	R3638	2018	8-pin	Tender	28mm round
34031 *Torrington*	BR malachite green, no crests	R2691	2008	8-pin	Locomotive	None
34032 *Camelford*	BR lined green, early crests	R3445	2017	8-pin	Tender	28mm round
34042 *Dorchester*	BR lined green, early crests	R2908*	2010	8-pin	Locomotive	None
34051 *Sir Winston Churchill*	BR lined green, late crests	R3300*	2015	8-pin	Tender	28mm round
34090 *Sir Eustace Missenden*	BR malachite green, early crests	R2692	2008	8-pin	Locomotive	None
34107 *Blandford Forum*	BR lined green, late crests	R2926	2010	8-pin	Locomotive	None

** Delivered as part of a train pack*

HORNBY 'OO' GAUGE BULLEID REBUILT 'WEST COUNTRY'/'BATTLE OF BRITAIN' 4-6-2

Identity	Livery	Cat No.	Release year	Decoder socket	Socket position	Speaker provision
34008 *Plymouth*	BR lined green, late crests	R2708	2008	8-pin	Locomotive	None
34013 *Okehampton*	BR lined green, late crests	R3203	2015	8-pin	Tender	28mm round
34058 *Sir Frederick Pile*	BR lined green, late crests	R2709	2008	8-pin	Locomotive	None
34040 *Crewkerne*	BR lined green, late crests	R2997XS	2012	21-pin	Tender	28mm round
34046 *Braunton*	BR lined green, late crests	R3160XS	2013	21-pin	Tender	28mm round
34050 *Royal Observer Corps*	BR lined green, late crests	R3618	2018	8-pin	Tender	28mm round
34077 *603 Squadron*	BR lined green, late crests	R3468	2017	8-pin	Tender	28mm round
34096 *Trevone*	BR lined green, late crests	R3524	2017	8-pin	Tender	28mm round
34100 *Appledore*	BR lined green, late crests	R3400*	2016	8-pin	Tender	28mm round

** Delivered as part of a train pack*

XS *DCC sound fitted from the factory with ESU 21-pin decoder*

HORNBY 'OO' GAUGE BULLEID AIR-SMOOTHED 'MERCHANT NAVY' 4-6-2

Identity	Livery	Cat No.	Release year	Decoder socket	Socket position	Speaker provision
21C1 *Channel Packet*	SR malachite green	R3434	2017	8-pin	Tender	28mm round
21C3 *Royal Mail*	SR malachite green	R3435	2017	8-pin	Tender	28mm round
35023 *Holland-Afrika Line*	BR lined green, early crests	R3382TTS	2017	8-pin	Tender	28mm round
35024 *East Asiatic Company*	BR lined blue, early crests	R3632	2018	8-pin	Tender	28mm round
35028 *Clan Line*	BR lined green, early crests	R3436	2017	8-pin	Tender	28mm round

HORNBY 'OO' GAUGE BULLEID REBUILT 'MERCHANT NAVY' 4-6-2

Identity	Livery	Cat No.	Release year	Decoder socket	Socket position	Speaker provision
35010 *Blue Star*	BR lined green, late crests	R2710	2008	8-pin	Locomotive	None
35014 *Nederland Line*	BR lined green, early crests	R3566	2017	8-pin	Tender	28mm round
35023 *Holland-Afrika Line*	BR lined green, late crests	R3130XS	2012	21-pin	Tender	28mm round
35026 *Lamport & Holt Line*	BR lined green, late crests	R2967	2011	8-pin	Locomotive	None
35030 *Elder Dempster Line*	BR lined green, late crests	R3617	2018	8-pin	Tender	28mm round

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BACHMANN 'OO' GAUGE FOWLER 'PATRIOT' 4-6-0

Identity	Livery	Cat No.	Release year	Decoder socket	Socket position	Speaker provision
5530 *Sir Frank Ree*	LMS lined crimson	31-204	2014	21-pin	Tender	28mm round
5541 *Duke of Sutherland*	LMS lined crimson	31-212	2008	8-pin	Locomotive	None
45503 *The Royal L'shire Reg'*	BR lined green, early crests	31-210	2008	8-pin	Locomotive	None
45504 *Royal Signals*	BR lined green, late crests	31-213DS	2012	21-pin	Tender	28mm round
45538 *Giggleswick*	BR lined green, early crests	31-214	2014	21-pin	Tender	28mm round
45543 *Home Guard*	BR lined green, late crests	31-211	2008	8-pin	Locomotive	None

HORNBY 'OO' GAUGE REBUILT 'PATRIOT' 4-6-0

Identity	Livery	Cat No.	Release year	Decoder socket	Socket position	Speaker provision
5521 *Rhyl*	LMS lined black	R3614	2018	8-pin	Tender	28mm round
45528 *R.E.M.E*	BR lined green, late crests	R2727	2008	8-pin	Locomotive	None

45534 *E Tootal Broadhurst*	BR lined green, early crests	R3633	2018	8-pin	Tender	28mm round
45535 *Sir Herbert Walker KCB*	BR lined green, early crests	R3017	2012	8-pin	Locomotive	None
45536 *Private W Wood VC*	BR lined green, early crests	R2726	2008	8-pin	Locomotive	None

BACHMANN 'OO' GAUGE STANIER 'JUBILEE' 4-6-0

Identity	Livery	Cat No.	Release year	Decoder socket	Socket position	Speaker provision
5563 *Australia*	LMS lined crimson	31-185	2007/2008	8-pin	Locomotive	None
5588 *Kashmir*	LMS lined crimson	31-187DS	2017	21-pin	Tender	40mm x 20mm
5664 *Nelson*	LMS lined crimson	31-187	2013	21-pin	Tender	40mm x 20mm
45562 *Alberta*	BR lined green, late crests	31-176DC	2007/2008	8-pin	Locomotive	None
45565 *Victoria*	BR lined green, late crests	31-188	2013	21-pin	Tender	40mm x 20mm
45575 *Madras*	British Railways lined black	31-190	2017	21-pin	Tender	40mm x 20mm
45587 *Baroda*	BR lined green, late crests	31-186	2009	8-pin	Locomotive	None
45593 *Kolhapur*	BR lined green, early crests	31-177DS	2009	21-pin	Tender	40mm x 20mm
45606 *Falkland Islands*	BR lined green, early crests	31-189	2013	21-pin	Tender	40mm x 20mm
45611 *Hong Kong*	BR lined green, early crests	31-175	2007/2008	8-pin	Locomotive	None
45659 *Drake*	BR lined green, late crests	31-178DC	2010	8-pin	Locomotive	None

HORNBY 'OO' GAUGE REBUILT 'ROYAL SCOT' 4-6-0

Identity	Livery	Cat No.	Release year	Decoder socket	Socket position	Speaker provision
6108 *Seaforth Highlander*	LMS lined black	R3517	2017	8-pin	Tender	28mm round
6126 *Royal Army Service Corps*	LMS black	R3557	2017	8-pin	Tender	28mm round
46100 *Royal Scot*	BR lined green, late crests	R2824	2009	8-pin	Locomotive	None
46115 *Scots Guardsman*	BR lined green, late crests	R3018	2011	8-pin	Locomotive	None
46120 *Royal Inniskilling Fusiliers*	BR lined green, late crests	R2728	2008	8-pin	Locomotive	None
46144 *Honourable Artillery Company*	BR lined green, late crests	R2729	2008	8-pin	Locomotive	None
46165 *The Ranger*	BR lined green, late crests	R3558	2017	8-pin	Tender	28mm round

HORNBY 'OO' GAUGE STANIER 'PRINCESS ROYAL' 4-6-2

Identity	Livery	Cat No.	Release year	Decoder socket	Socket position	Speaker provision
46201 *Princess Elizabeth*	BR lined green, early crests	R2823	2009	8-pin	Locomotive	None
46207 *Princess Arthur of Connaught*	BR lined maroon, late crests	R3015	2011	8-pin	Locomotive	None
46208 *Helena Victoria*	BR lined maroon, late crests	R2990XS	2011	21-pin	Tender	28mm round
46211 *Queen Maud*	BR lined green, early crests	R2616	2008	8-pin	Locomotive	None

***XS** DCC sound fitted from the factory with ESU 21-pin decoder*

HORNBY 'OO' GAUGE STANIER STREAMLINED 'PRINCESS CORONATION' 4-6-2

Identity	Livery	Cat No.	Release year	Decoder socket	Socket position	Speaker provision
6220 *Coronation*	LMS lined Caledonian blue	R3092*	2012	8-pin	Locomotive	None
6221 *Queen Elizabeth*	LMS lined Caledonian blue	R3623^	2018	8-pin	Tender	28mm round
6229 *Duchess of Hamilton*	LMS lined crimson lake	R2689	2008	8-pin	Locomotive	None
6229 *Duchess of Hamilton*	LMS lined crimson lake	R3101	2012	8-pin	Locomotive	None
6229 *Duchess of Hamilton*	LMS lined crimson lake	R3339	2015	8-pin	Locomotive	None
6229 *Duchess of Hamilton*	LMS lined crimson lake	R3677^	2018	8-pin	Tender	28mm round
6237 *City of Bristol*	LMS lined crimson lake	R3442	2016	8-pin	Locomotive	None
6239 *City of Chester*	LMS lined crimson lake	R2907*	2010	8-pin	Locomotive	None
6244 *King George VI*	LMS lined crimson lake	R3639^	2018	8-pin	Tender	28mm round

** Delivered as part of a train pack*
^ New tooling from 2018 onwards

HORNBY 'OO' GAUGE STANIER 'DUCHESS' 4-6-2

Identity	Livery	Cat No.	Release year	Decoder socket	Socket position	Speaker provision
6231 *Duchess of Atholl*	LMS lined maroon	R3553^	2017	8-pin	Tender	28mm round
6232 *Duchess of Montrose*	LMS lined maroon	R2989XS	2011	21-pin	Tender	28mm round
6233 *Duchess of Sutherland*	LMS lined black	R3014	2011	8-pin	Locomotive	None
6233 *Duchess of Sutherland*	LMS lined maroon	R2985*	2011	8-pin	Tender	28mm round
6234 *Duchess of Abercorn*	LMS lined maroon	R3119	2012	8-pin	Tender	28mm round
6241 *City of Edinburgh*	LMS lined black	R3681^	2019 (expected)	8-pin	Tender	28mm round
6246 *City of Manchester*	LMS lined black	R2856	2009	8-pin	Locomotive	None
46225 *Duchess of Gloucester*	BR lined blue, early crests	R3682^	2019 (expected)	8-pin	Tender	28mm round
46233 *Duchess of Sutherland*	BR lined green, early crests	R3221*	2014	8-pin	Tender	28mm round
46235 *City of Birmingham*	BR lined green, late crests	R3509TTS^	2017	8-pin	Tender	28mm round
46236 *City of Bradford*	BR lined maroon, late crests	R3241	2014	8-pin	Tender	28mm round
46240 *City of Coventry*	BR lined maroon, late crests	R2894XS	2010	21-pin	Tender	28mm round
46241 *City of Edinburgh*	BR lined blue, early crests	R3111	2012	8-pin	Tender	28mm round
46243 *City of Lancaster*	BR lined maroon, late crests	R2930	2010	8-pin	Locomotive	None
46247 *City of Liverpool*	BR lined green, early crests	R3195	2014	8-pin	Tender	28mm round
46252 *City of Leicester*	British Railways lined black	R2722	2008	8-pin	Locomotive	None
46256 *Sir William Stanier FRS*	BR lined maroon, late crests	R3555^	2017	8-pin	Tender	28mm round

** Delivered as part of a train pack*
^ New tooling from 2017 forwards
***XS** DCC sound fitted from the factory with ESU 21-pin decoder*

London and North Eastern Railway express motive power 2008-2018

BACHMANN 'OO' GAUGE PEPPERCORN 'A1' 4-6-2

Identity	Livery	Cat No.	Release year	Decoder socket	Socket position	Speaker provision
60115 *Meg Merrilies*	BR lined green, early crests	32-558	2009	8-pin	Locomotive	n/a
60117	British Railways apple green	32-560	2015	21-pin	Tender	28mm round
60122 *Curlew*	BR lined blue, early crests	32-561	2015	21-pin	Tender	28mm round
60139 *Sea Eagle*	BR lined green, early crests	32-551DS	2011	21-pin	Tender	28mm round
60157 *Great Eastern*	BR lined green, late crests	32-559	2010	8-pin	Locomotive	n/a
60163 *Tornado*	British Railways apple green	32-550A	2009	8-pin	Locomotive	n/a
60163 *Tornado*	BR lined green, early crests	32-550B	2014	21-pin	Tender	28mm round
60163 *Tornado*	BR lined blue, early crests	32-550C	2013	8-pin	Locomotive	n/a

HORNBY 'OO' GAUGE PEPPERCORN 'A1' 4-6-2 60163 *TORNADO*

Identity	Livery	Cat No.	Release year	Decoder socket	Socket position	Speaker provision
60163 *Tornado* (RailRoad model)	British Railways apple green	R3060	2011	8-pin	Locomotive	None
60163 *Tornado*	British Railways apple green	R3070	2011	8-pin	Locomotive	None
60163 *Tornado*	BR lined green, early crests	R3059*	2011	8-pin	Locomotive	None
60163 *Tornado*	BR lined green, late crests	R3098	2012	8-pin	Locomotive	None
60163 *Tornado*	BR lined green, early crests	R3093*	2012	8-pin	Locomotive	None
60163 *Tornado*	BR lined blue, early crests	R3206	2013	8-pin	Locomotive	None
60163 *Tornado*	BR lined blue, early crests	R3245TTS	2014	8-pin	Tender	28mm round

** Delivered as part of a train pack*

***TTS** DCC sound fitted from the factory with Hornby Twin Track Sound decoder*

BACHMANN 'OO' GAUGE PEPPERCORN 'A2' 4-6-2

Identity	Livery	Cat No.	Release year	Decoder socket	Socket position	Speaker provision
525 *A H Peppercorn*	LNER apple green	31-525	2010	8-pin	Locomotive	None
526 *Sugar Palm*	LNER apple green	31-530	2012	8-pin	Locomotive	None
60528 *Tudor Minstrel*	British Railways apple green	31-527	2010	8-pin	Locomotive	None
60529 *Pearl Diver*	BR lined green, late crests	31-528A	2014	21-pin	Tender	28mm round
60532 *Blue Peter*	BR lined green, late crests	20-2009	2010	8-pin	Locomotive	None
60533 *Happy Knight*	BR lined green, late crests	31-528	2012	8-pin	Locomotive	None
60534 *Irish Elegance*	BR lined green, early crests	31-529	2012	8-pin	Locomotive	None
60536 *Trimbush*	BR lined green, early crests	31-531	2014	21-pin	Tender	28mm round
60537 *Bachelors Button*	BR lined green, early crests	31-526	2010	8-pin	Locomotive	None

HORNBY 'OO' GAUGE GRESLEY 'A1'/'A3' 4-6-2

Identity	Livery	Cat No.	Release year	Decoder socket	Socket position	Speaker provision
103 *Flying Scotsman*	LNER black	R3100	2012	8-pin	Tender	28mm round
108 *Gay Crusader*	LNER apple green	R3518	2017	8-pin	Tender	28mm round
2503 *Firdaussi*	LNER apple green	R3437	2016	8-pin	Tender	28mm round
2554 *Woolwinder*	LNER apple green	R3439	2016	8-pin	Tender	28mm round
2599 *Book Law*	LNER apple green	R3132	2015	8-pin	Tender	28mm round
4472 *Flying Scotsman*	LNER apple green	R2687	2008	8-pin	Locomotive	None
4472 *Flying Scotsman*	LNER apple green	R2953*	2010	8-pin	Locomotive	None
4472 *Flying Scotsman*	LNER apple green	R3099	2012	8-pin	Tender	28mm round
4472 *Flying Scotsman*	LNER apple green	R3336	2015	8-pin	Tender	28mm round
4476 *Royal Lancer*	LNER apple green	R3073	2011	8-pin	Locomotive	None
60043 *Brown Jack*	BR lined green, late crests	R2966	2011	8-pin	Tender	28mm round
60049 *Galtee More*	BR lined green, late crests	R2720	2008	8-pin	Locomotive	None
60062 *Minoru*	BR lined green, early crests	R3312	2015	8-pin	Tender	28mm round
60093 *Coronach*	BR lined green, late crests	R3013	2011	8-pin	Tender	28mm round
60103 *Flying Scotsman*	BR lined green, late crests	R3202	2013	8-pin	Tender	28mm round
60103 *Flying Scotsman*	BR lined green, late crests	R3508TTS	2017	8-pin	Tender	28mm round

** Delivered as part of a train pack*

***TTS** DCC sound fitted from the factory with Hornby Twin Track Sound decoder*

HORNBY 'OO' GAUGE GRESLEY 'A4' 4-6-2

Identity	Livery	Cat No.	Release year	Decoder socket	Socket position	Speaker provision
2509 *Silver Link*	LNER silver	R2965	2011	8-pin	Tender	28mm round
2509 *Silver Link*	LNER silver	R3306	2015	8-pin	Tender	28mm round
2510 *Quicksilver*	LNER silver	R3307	2015	8-pin	Tender	28mm round
2511 *Silver King*	LNER silver	R3308	2015	8-pin	Tender	28mm round
2512 *Silver Fox*	LNER silver	R3309	2015	8-pin	Tender	28mm round
4462 *Great Snipe*	LNER garter blue	R3131	2012	8-pin	Tender	28mm round
4464 *Bittern*	LNER garter blue	R3254***	2013	8-pin	Tender	28mm round
4466 *Herring Gull*	LNER garter blue	R2805XS	2009	21-pin	Tender	28mm round
4468 *Mallard*	LNER garter blue, gold plated	R2684	2008	8-pin	Locomotive	None
4468 *Mallard*	LNER garter blue	R2339	2008	8-pin	Locomotive	None
4468 *Mallard*	LNER garter blue	R3251***	2013	8-pin	Tender	28mm round
4468 *Mallard*	LNER garter blue	R3676	2018	8-pin	Tender	28mm round
4468 *Mallard*	LNER garter blue, gold plated	R3612	2018	8-pin	Tender	28mm round
4489 *Dominion of Canada*	LNER garter blue	R3252***	2013	8-pin	Tender	28mm round
4491 *Commonwealth of Australia*	LNER garter blue	R3095	2012	8-pin	Tender	28mm round
4493 *Woodcock*	LNER apple green	R3630	2018	8-pin	Tender	28mm round
4494 *Osprey*	LNER apple green	R3438	2016	8-pin	Tender	28mm round
4498 *Sir Nigel Gresley*	LNER garter blue	R2688	2008	8-pin	Locomotive	None
4499 *Sir Murrough Wilson*	LNER black	R3441	2016	8-pin	Tender	28mm round
4500 *Garganey*	LNER garter blue	R3402*	2017	8-pin	Tender	28mm round
60001 *Sir Ronald Matthews*	BR lined green, late crests	R2896XS	2010	21-pin	Tender	28mm round
60007 *Sir Nigel Gresley*	BR lined blue, early crests	R3256***	2013	8-pin	Tender	28mm round
60008 *Dwight D. Eisenhower*	BR lined green, late crests	R3255***	2013	8-pin	Tender	28mm round
60009 *Union of South Africa*	BR lined green, late crests	R3253***	2013	8-pin	Tender	28mm round
60009 *Union of South Africa*	BR lined green, late crests	R2909	2010	8-pin	Tender	28mm round
60010 *Dominion of Canada*	BR lined green, late crests	R2910	2010	8-pin	Tender	28mm round
60011 *Empire of India*	BR lined green, late crests	R3008	2011	8-pin	Tender	28mm round
60018 *Sparrow Hawk*	BR lined green, late crests	R2721	2008	8-pin	Locomotive	None
60018 *Sparrow Hawk*	BR lined blue, early crests	R2991XS	2011	21-pin	Tender	28mm round
60019 *Bittern*	BR lined green, late crests	R3103**	2012	8-pin	Tender	28mm round
60021 *Wild Swan*	BR lined green, early crests	R2615	2008	8-pin	Locomotive	None
60023 *Golden Eagle*	BR lined blue, early crests	R3320	2015	8-pin	Tender	28mm round
60024 *Kingfisher*	BR lined blue, early crests	R2906*	2010	8-pin	Tender	28mm round
60026 *Miles Beevor*	BR lined green, early crests	R3522	2017	8-pin	Tender	28mm round
60027 *Merlin*	BR lined green, late crests	R3012	2011	8-pin	Tender	28mm round
60029 *Woodcock*	BR lined green, late crests	R2535	2008	8-pin	Locomotive	None

** Delivered as part of a train pack*
*** Released with double tender as a special edition*
**** Great Gathering Collection locomotive*
XS *DCC sound fitted from the factory with ESU 21-pin decoder*

BACHMANN 'OO' GAUGE GRESLEY 'A4' 4-6-2

Identity	Livery	Cat No.	Release year	Decoder socket	Socket position	Speaker provision
4468 *Mallard*	LNER garter blue	31-952B	2012	8-pin	Locomotive	n/a
60004 *William Whitelaw*	BR lined green, late crests	31-964	2012	8-pin	Locomotive	n/a
60008 *Dwight D. Eisenhower*	BR lined green, late crests	31-966	2013	8-pin	Locomotive	n/a
60010 *Dominion of Canada*	BR lined green, late crests	31-967	2013	8-pin	Locomotive	n/a
60019 *Bittern*	BR lined green, late crests	31-963	2009	None	n/a	n/a
60021 *Wild Swan*	BR lined green, early crests	31-965	2012	8-pin	Locomotive	n/a

HORNBY 'OO' GAUGE GRESLEY 'B12' 4-6-0

Identity	Livery	Cat No.	Release year	Decoder socket	Socket position	Speaker provision
8573	LNER apple green	R3430	2016	8-pin	Tender	28mm round
8527	LNER apple green	R3544	2017	8-pin	Tender	28mm round
61533	BR lined black, early crests	R3431	2016	8-pin	Tender	28mm round
61556	British Railways lined black	R3545	2018	8-pin	Tender	28mm round
61576	BR lined black, early crests	R3546	2018	8-pin	Tender	28mm round
61580	BR lined black, late crests	R3432	2016	8-pin	Tender	28mm round

HORNBY 'OO' GAUGE GRESLEY 'B17' 4-6-0

Identity	Livery	Cat No.	Release year	Decoder socket	Socket position	Speaker provision
2842 *Kilverston Hall*	LNER apple green	R3447	2016	8-pin	Tender	28mm round
2850 *Sandringham*	LNER apple green	R2920	2012	8-pin	Tender	28mm round
61619 *Welbeck Abbey*	BR lined green, early crests	R3448	2016	8-pin	Tender	28mm round
61637 *Thorpe Hall*	BR lined green, early crests	R2921	2012	8-pin	Tender	28mm round
61631 *Serlby Hall*	BR lined green, early crests	R3004	2014	8-pin	Tender	28mm round
61646 *Gilwell Park*	BR lined green, early crests	R3318	2015	8-pin	Tender	28mm round
61665 *Leicester City*	BR lined green, early crests	R3523	2017	8-pin	Tender	28mm round
61650 *Grimsby Town*	BR lined green, late crests	R2922	2012	8-pin	Tender	28mm round
61662 Manchester United	BR lined green, late crests	R3163	2013	8-pin	Tender	28mm round
61669 *Barnsley*	BR lined green, late crests	R3003	2014	8-pin	Tender	28mm round

BACHMANN 'OO' GAUGE IVATT 'C1' 4-4-2

Identity	Livery	Cat No.	Release year	Decoder socket	Socket position	Speaker provision
251	GNR lined green	NCiM0020	2015	21-pin	Tender	23mm round
3251	LNER apple green	MCiM0021	2015	21-pin	Tender	23mm round
62822	British Railways black	NCiM0022	2015	21-pin	Tender	23mm round
272	GNR lined green	31-761	2018 (expected)	21-pin	Tender	23mm round
4421	LNER apple green	31-762	2018 (expected)	21-pin	Tender	23mm round

HORNBY 'OO' GAUGE GRESLEY 'P2' 2-8-2

Identity	Livery	Cat No.	Release year	Decoder socket	Socket position	Speaker provision
2001 *Cock O' the North*	LNER apple green	R3207	2013	8-pin	Locomotive	28mm round
2001 *Cock O' the North*	LNER apple green	R3246TTS	2014	8-pin	Tender	28mm round
2001 *Cock O' the North*	LNER apple green	R3440	2016	8-pin	Locomotive	28mm round

TTS *DCC sound fitted from the factory with Hornby Twin Track Sound decoder*

BACHMANN 'OO' GAUGE GRESLEY 'V2' 2-6-2

Identity	Livery	Cat No.	Release year	Decoder socket	Socket position	Speaker provision
4771 *Green Arrow*	LNER apple green	31-550B	2012	8-pin	Locomotive	None
60860 *Durham School*	BR lined black, early crests	31-564	2012	8-pin	Locomotive	None
60862	BR lined green, late crests	31-565	2012	8-pin	Locomotive	None
60865	BR lined green, late crests	31-563	2008	None	n/a	n/a
4791	LNER apple green	35-200^	TBA	21-pin	Tender	TBA
60845	BR lined black, early crests	35-201^	TBA	21-pin	Tender	TBA
60847 *St Peter's School*	BR lined green, late crests	35-202^	TBA	21-pin	Tender	TBA

^ New tooling in development

British Railways express motive power 2008-2018

HORNBY 'OO' GAUGE RIDDLES 'BRITANNIA' 4-6-2

Identity	Livery	Cat No.	Release year	Decoder socket	Socket position	Speaker provision
70000 *Britannia*	BR lined green, late crests	R3094*	2012	8-pin	Tender	28mm round
70001 *Lord Hurcomb*	BR lined green, early crests	R3387TTS	2016	8-pin	Tender	28mm round
70004 *William Shakespeare*	BR lined green, early crests	R3096	2012	8-pin	Tender	28mm round
70007 *Coeur-de-Lion*	BR lined green, late crests	R3520	2017	8-pin	Tender	28mm round
70009 *Alfred the Great*	BR lined green, early crests	R2819*	2009	8-pin	Tender	None
70010 *Owen Glendower*	BR lined green, late crests	R2835	2009	8-pin	Tender	None
70013 *Oliver Cromwell*	BR lined green, late crests	R3607*	2017	8-pin	Tender	28mm round
70015 *Apollo*	BR lined green, late crests	R2717	2008	8-pin	Locomotive	None
70034 *Thomas Hardy*	BR lined green, early crests	R3444	2016	8-pin	Tender	28mm round
70038 *Robin Hood*	BR lined green, late crests	R2719	2008	8-pin	Locomotive	None
70043 *Lord Kitchener*	BR lined green, early crests	R3294	2015	8-pin	Tender	28mm round
70044 *Earl Haig*	BR lined green, late crests	R3295	2015	8-pin	Tender	28mm round
70040 *Clive of India*	BR lined green, late crests	R2992XS	2012	21-pin	Tender	28mm round
70050 *Firth of Clyde*	BR lined green, early crests	R2718	2008	8-pin	Locomotive	None

** Delivered as part of a train pack*

XS DCC sound fitted from the factory with ESU 21-pin decoder

HORNBY 'OO' GAUGE RIDDLES '8P' 4-6-2

Identity	Livery	Cat No.	Release year	Decoder socket	Socket position	Speaker provision
71000 *Duke of Gloucester*	BR lined green, late crests	R3191	2013	8-pin	Locomotive	28mm round
71000 *Duke of Gloucester*	BR lined green, late crests	R3192*	2013	8-pin	Locomotive	28mm round
71000 *Duke of Gloucester*	BR lined green, late crests	R3244TTS	2014	8-pin	Tender	28mm round
71000 *Duke of Gloucester*	BR lined green, late crests	R3236	2014	8-pin	Locomotive	28mm round

******* *Delivered as part of a train pack*

TTS *DCC sound fitted from the factory with Hornby Twin Track Sound decoder*

HORNBY 'OO' GAUGE RIDDLES 'CLAN' 4-6-2

Identity	Livery	Cat No.	Release year	Decoder socket	Socket position	Speaker provision
72000 *Clan Buchanan*	BR lined green, early crests	R2846	2009	8-pin	Tender	None
72008 *Clan MacLeod*	BR lined green, late crests	R2847	2009	8-pin	Tender	None

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