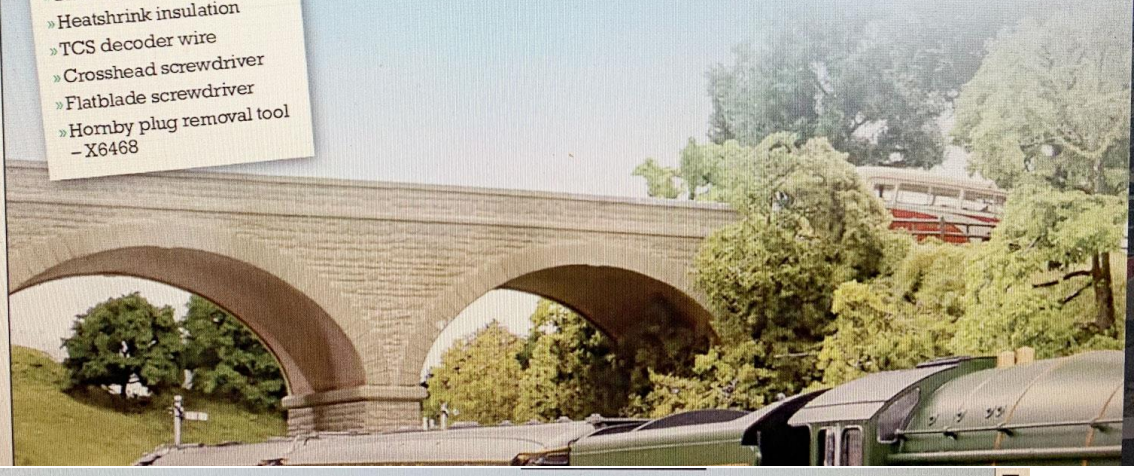
Locoman's 'Scotsman' SOUND

TOOLS & MATERIALS

- Soldering iron and solder
- Wire strippers
- Pin vice and 2mm drill
- Black Tack
- Heatshrink insulation
- TCS decoder wire
- Crosshead screwdriver
- Flatblade screwdriver
- Hornby plug removal tool – X6468

Using the latest Hornby model of the Gresley 'A3' and a Locoman Sounds profile loaded onto an ESU LokSound chip, **MIKE WILD** explains how sound can be added to a 'OO' gauge model.



INTRODUCING SOUND to a model locomotive opens up a world of new possibility when it comes to the enjoyment of its operation. With authentic sound comes the opportunity to hear the exhaust from the chimney, water filling the boiler, whistles blown and ancillary sounds like doors closing, water filling and coupling too.

These are just the tip of the iceberg when it comes to the possibilities of digital sound. In this project we are upgrading Hornby's latest model of 60103 *Flying Scotsman* with the latest sound profile from Locoman Sounds. This isn't the first time that we have installed sound in a model of 60103 as previously we added a ZIMO chip to a preservation era model of the famous locomotive.

For this project we are tackling the 2021-introduced single chimney model which has a die-cast running plate as well as factory fitted firebox glow. The sound installation surrounds the use of an ESU LokSound 8-pin chip from Locoman Sounds, but whereas previous projects have made use of the tender to house the speaker as well as the decoder, this time we have found a way to add a speaker in the boiler.

To complete the installation a DCC Concepts three-wire stay alive adaptor has been used to give this model onboard energy storage which will ensure that the sound continues uninterrupted, even if there is a spot of dirt on the track.

The sound project from Locoman Sounds is comprehensive and includes different driving modes to simulate normal running characteristics as well as working a heavy train and shunting. In these modes, the function buttons have different purposes with, for example, shunting mode on F12 playing a cab door sound while in train mode F12 plays coach door sounds. There are also sounds which only play when the locomotive is stationary too.

The installation process for this model of 60103 took around an hour and a half to complete and has been carried out to minimise any intrusion and modification required. In fact the only modifications are removal of a section of weight from the boiler by undoing a screw and making an additional hole in the tender chassis for the speaker wires to pass through.

The following step by step guide goes through the entire process from start to finish and don't forget to visit *www.keymodelworld.com* to see our video sound demonstration for this model.

● Visit *www.keymodelworld.com/flying-scotsman* to see our full collection of features.

WHAT WE USED

PRODUCT	SUPPLIER	CAT NO.
ESU LokSound V5 8-pin decoder	Locoman Sounds	58420
Gresley 'A3' sound file	Locoman Sounds	A3
Rail Exclusive 40mm x 20mm x 10mm speaker	Digitrains	SP40x20x10
DCC Concepts high power stay alive	DCC Concepts	DCD-SA3-SS.1
DCC Concepts adaptor wires	DCC Concepts	DCD-3WH3

1

In 2021, Hornby upgraded its 'A3' tooling to feature a die-cast running plate for greater strength and additional weight. It also gained firebox flicker.

2

To make handling of the model easier, we are separating the locomotive and tender. Start by unplugging the locomotive to tender connection using a Hornby plug removal tool (Cat No. X6468).

3

Next, the slotted screw on the tender can be removed allowing the drawbar to be released.

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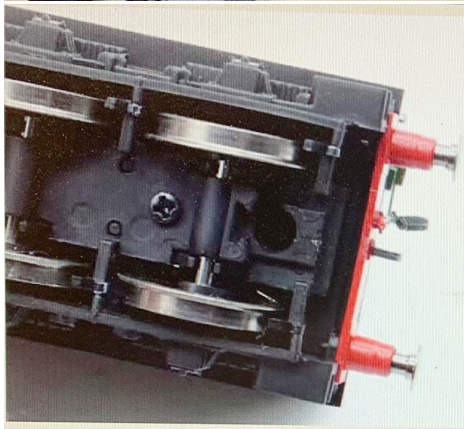

The tender body is held in place by a single screw which is located beneath the NEM coupling socket. Pop the coupling out of its fishtail mount for access to the screw head. It is a crosshead screw.

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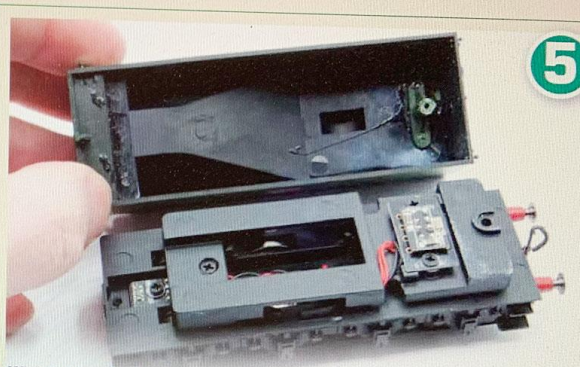

With the tender body removed the space inside is clear to see. The chassis is designed to support a 28mm round speaker and has an 8-pin socket. However, we plan on installing a larger speaker.

6

In previous 'A3' sound installations, we have cut away the coal space to make more space for a speaker, but in this case we looked to the locomotive for a new location. The body is held in place with a single crosshead screw located above the front bogie.

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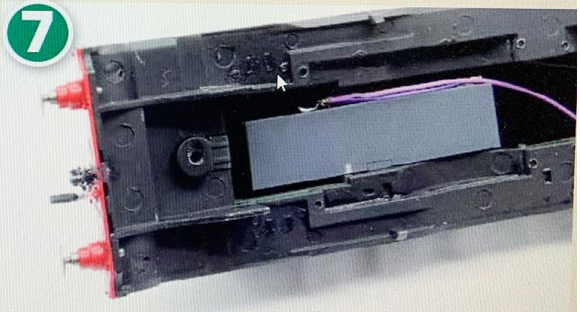
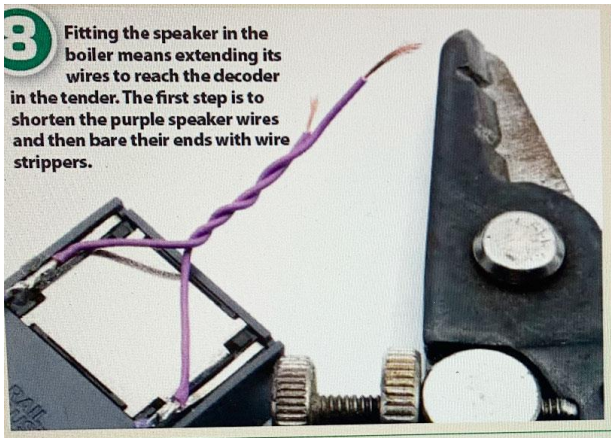
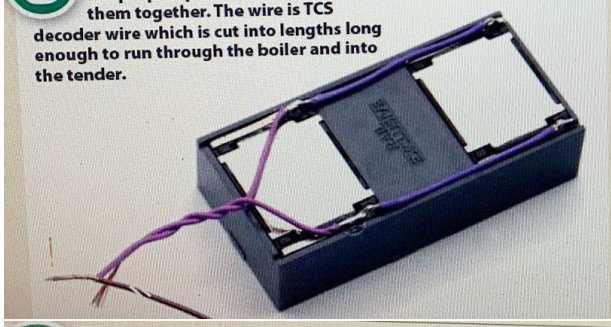


Removal of the leading section of weight from the chassis, held in place with a single screw, makes a large 45mm long space available in the smokebox and boiler – the perfect place to install a Rail Exclusive 40mm x 20mm x 10mm 'Boom Box' speaker.

8 Fitting the speaker in the boiler means extending its wires to reach the decoder in the tender. The first step is to shorten the purple speaker wires and then bare their ends with wire strippers.



9 Two new wires are then connected to the purple speaker wires by twisting them together. The wire is TCS decoder wire which is cut into lengths long enough to run through the boiler and into the tender.



LOCOMAN SOUNDS GRESLEY 'A3' FUNCTIONS

F0	Lights on/off (if fitted)
F1	Sound on/off
F2	Playable whistle
F3	Short whistle
F4	Active brake
F5	Drain cocks (stationary)
F6	Long whistle (short press station approach, long press long whistle)
F7	Flange squeal (moving), guard's whistle (stationary)
F8	Heavy exhaust
F9	Light engine
F10	Coal shovelling
F11	Injector
F12	Cab door (shunting mode), coach doors (train mode)
F13	Coupling and uncoupling
F14	Brakes
F15	Safety valve
F16	Blower control
F17	Shunting mode
F18	Disable brake sound
F19	Momentum off
F20	Smoke generator (if fitted)
F21	Coaling tower (shunting mode), water fill (train mode)
F22	Air pump (60103 in preservation)
F23	Reserved
F24	Brake valves
F25	Aux 5
F26	Aux 6
F27	Aux 7
F28	Mute secondary and random sounds

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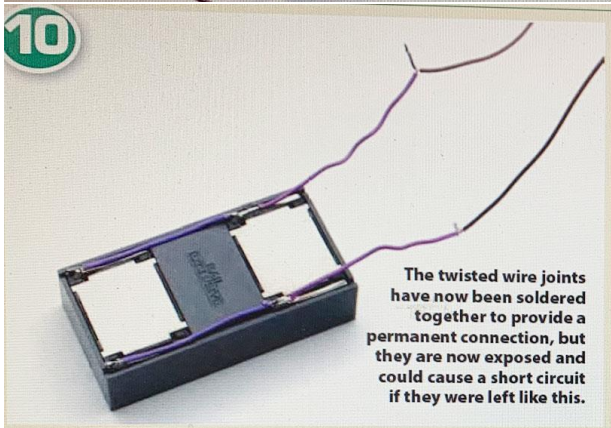
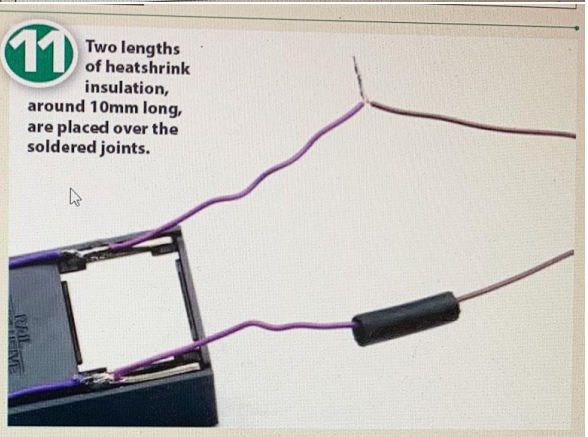


The twisted wire joints have now been soldered together to provide a permanent connection, but they are now exposed and could cause a short circuit if they were left like this.

11 Two lengths of heatshrink insulation, around 10mm long, are placed over the soldered joints.



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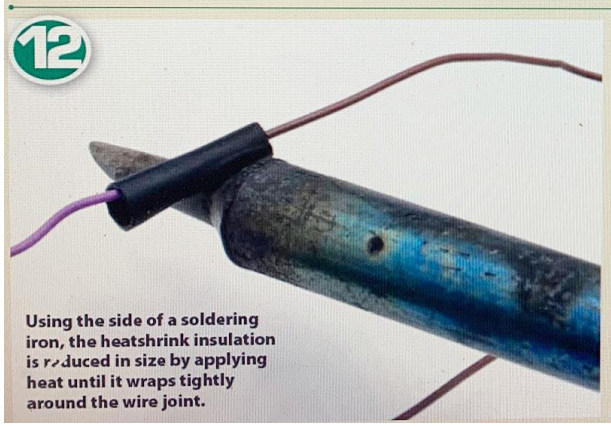

Using the side of a soldering iron, the heatshrink insulation is reduced in size by applying heat until it wraps tightly around the wire joint.

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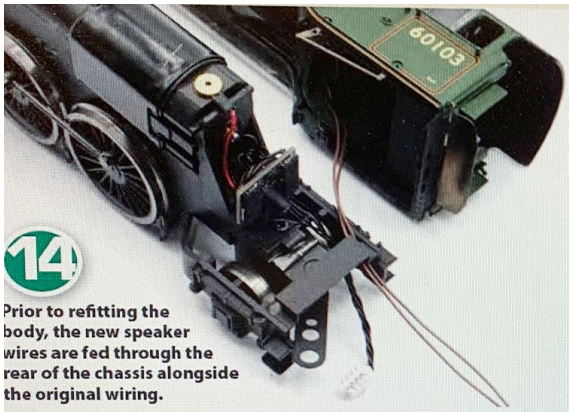
The speaker is fixed in position in the boiler with Black Tack – a semi-permanent but strong adhesive. The speaker wires have been positioned along the side of the boiler barrel out of the way of the mechanism.



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Prior to refitting the body, the new speaker wires are fed through the rear of the chassis alongside the original wiring.

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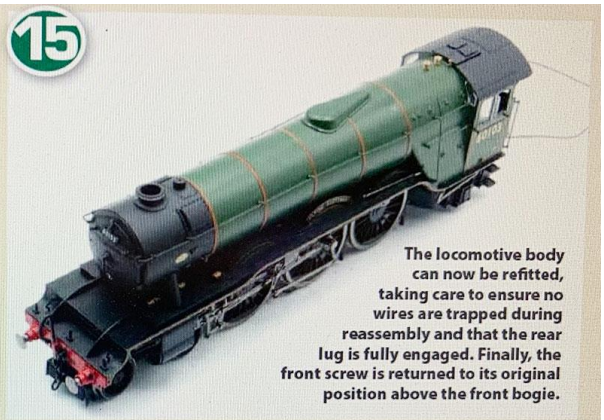

The locomotive body can now be refitted, taking care to ensure no wires are trapped during reassembly and that the rear lug is fully engaged. Finally, the front screw is returned to its original position above the front bogie.

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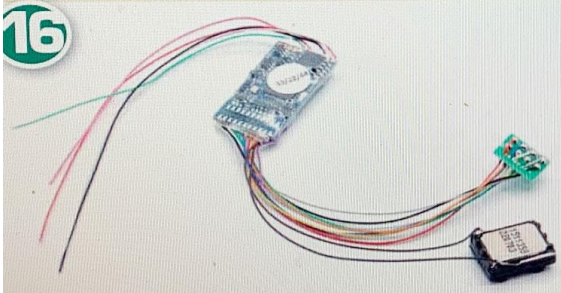

The decoder for this project is an ESU LokSound V5 8-pin chip. It is pre-wired to allow connection of a three-wire stay alive. It comes with a 15mm x 11mm cube speaker attached.

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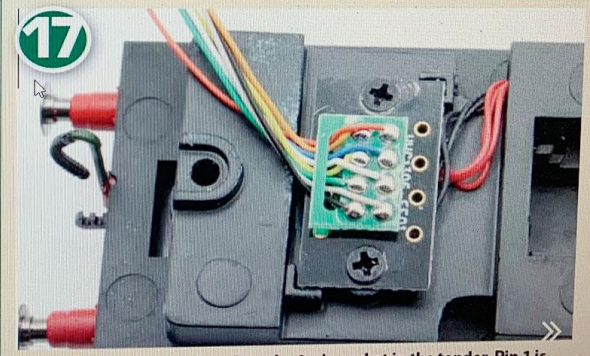

The 8-pin plug simply plugs into the 8-pin socket in the tender. Pin 1 is marked by the position of the orange wire on the socket.

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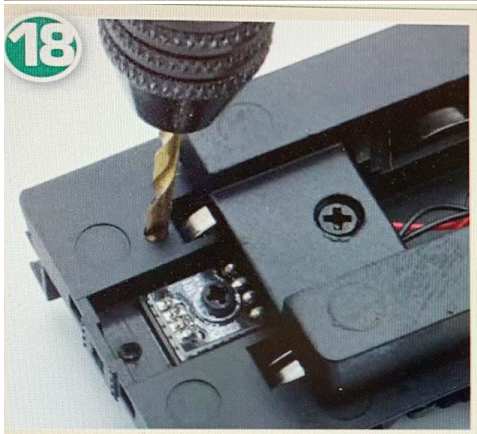

To make an opening for the new speaker wires to enter the tender, a 2mm hole is made through the chassis using a pin vice. Don't be tempted to use a power drill for this – a handheld pin vice gives much greater control.

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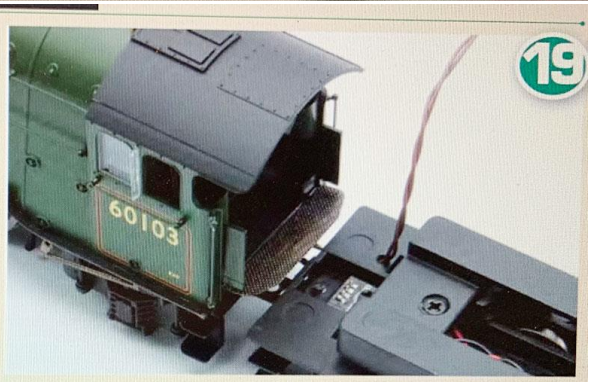

The tender has now been reconnected and the speaker wires fed through the new hole. They are longer than necessary, but can be trimmed to length.

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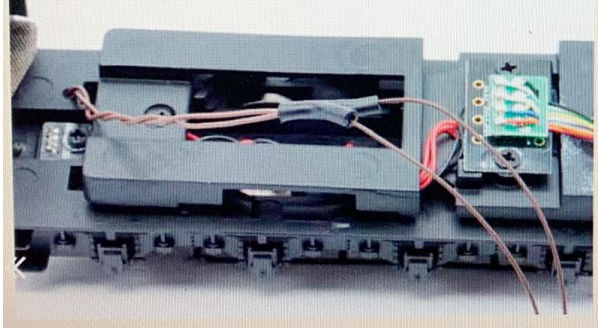
The new speaker wires are connected to the brown speaker wires on the decoder using the same method as detailed in steps 8-12.



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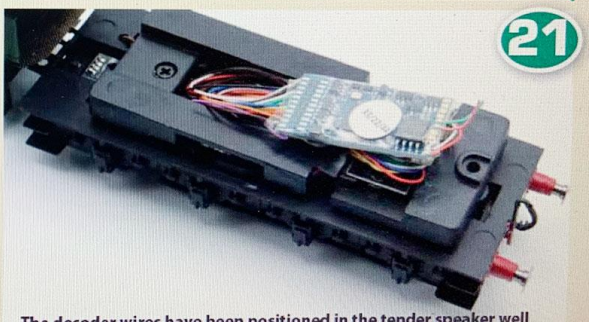
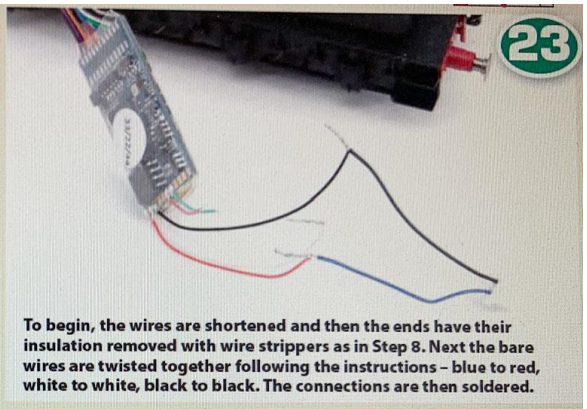


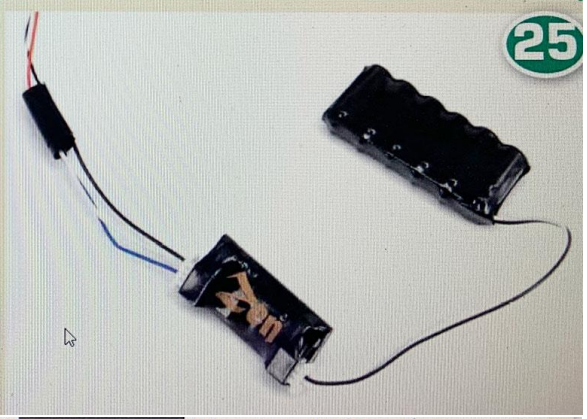
The decoder wires have been positioned in the tender speaker well and the decoder has been positioned on top of the socket completing this phase of the installation. At this point you could refit the body or continue with our guide to add a stay alive.

To add a stay alive, we are using DCC Concepts' modular kit which allows the ESU three-wire connection to be joined to a Zen stay alive via an adaptor board.

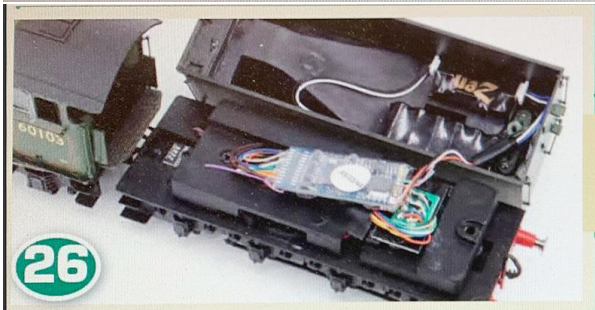


To begin, the wires are shortened and then the ends have their insulation removed with wire strippers as in Step 8. Next the bare wires are twisted together following the instructions – blue to red, white to white, black to black. The connections are then soldered.

The three-wire plug from DCC Concepts now plugs into one side of the adaptor board – you can't get this wrong as the other port is for a two-wire connection.



A ck six-pack capacitor has now been co re connector on the adaptor completing the circuit. Note the soldered connections are now fully insulated.



Left: The stay alive and adaptor are fixed to the roof of the tender to allow space for the decoder below. By placing the speaker in the locomotive, we have been able to use the tender to our advantage while also retaining the full depth coal space.

The upgrades to *Flying Scotsman* are now complete and it has sounds emitting from the chimney for greater authenticity. Now all it needs is a crew, real coal load, lamps and a little light weathering. That though, is another story.


60103
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