Install a SoundTraxx Sound Car Decoder into an HO stock car

Doug Dyer Victoria BC. Date: Oct 29 2017.

The SoundTraxx Sound Car Decoder has Bells, whistles , Brake squeal, wheel clickety-clack generator and other sounds, and 4 function outputs for lighting effects. SoundTraxx consist technology allows you to sync the sounds with the locomotive pulling the freight by a simple wave of a magnet over a sensor in the decoder, then emitting a sound simulating release of air brakes. Then pressing the mute key four times (F8) puts the Sound Car into the current locomotive address's consist.. By the same token, after spotting the car and uncoupling, you break up the consist by waving the magnet over the decoder's sensor again. Now you hear the Sound Car emitting sounds simulating turning the brake wheel and setting the brakes. Three sound cars in a consist are very effective and realistic.

Parts needed:
SoundTraxx Sound Car Decoder
SoundTraxx Current Keeper
SoundTraxx mini Oval speaker or round speaker 8 ohms

Wheel/truck mechanism for electrical Pickup from tracks
30 AWG flexible wire .. several colours
LEDs and suitable current limiting resistors depending on what lighting effects you want to enable.

For this project I used a stock car which conveniently has wide gaps between sideboards to allow easy escape of sound from the speaker. The latest Sound Car decoders include 'Beast Banter', cattle and sheep sounds, initiated by Programming a 1 or 2 into CV 226. A '0' disables Beast Banter. (Factory default).This feature was not available at the time I installed this Decoder. My next three upcoming Sound Car installations do have the Beast Banter sounds. The 4 function lighting outputs are particularly
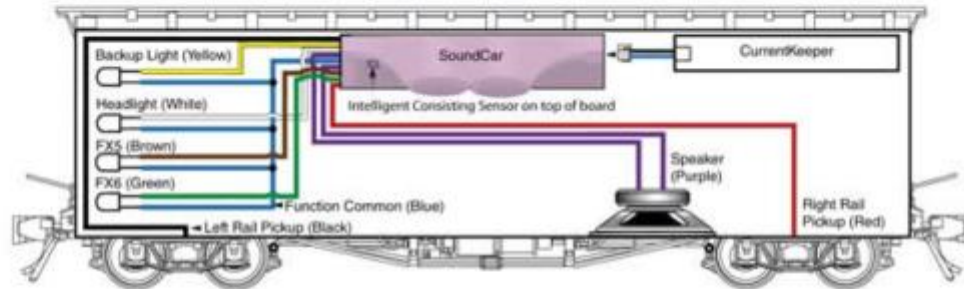
Here is the wiring schematic as supplied by Soundtraxx.

Tsunami™ SoundCar™ Wiring Diagrams

SoundCar Wiring Diagram
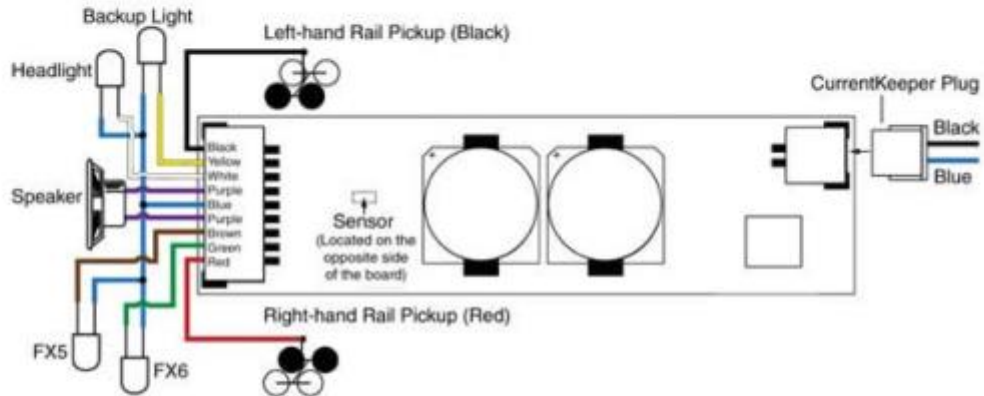
Installation Example

Note the location of the SoundCar on the roof of the model with the Intelligent Consisting sensor is facing outward for accessibility.

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New Dimensions in Digital Sound Technology

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useful for installations in passenger cars or a caboose. See my next article on installation of a Sound Car Decoder into a caboose.

On this project I created a **flashing rear end device (FRED)** in order to take advantage of one of the lighting effects. I used a 5 mm Red LED and a thin LEGO brick to create this, but a 3 mm led would have been to better scale. Connect to Function (0) or 5 depending on desired use. See note below.

Kadee HO Bettendorf Electrical Pickup Trucks

For **the electrical pick up** I purchased a pre-wired truck, but on my other projects I have used the tried and true method of converting a Kadee #5 Coupler spring fastened to the truck bolster with epoxy.

Kadee #5 coupler spring

Cut here and remove half

Bend out
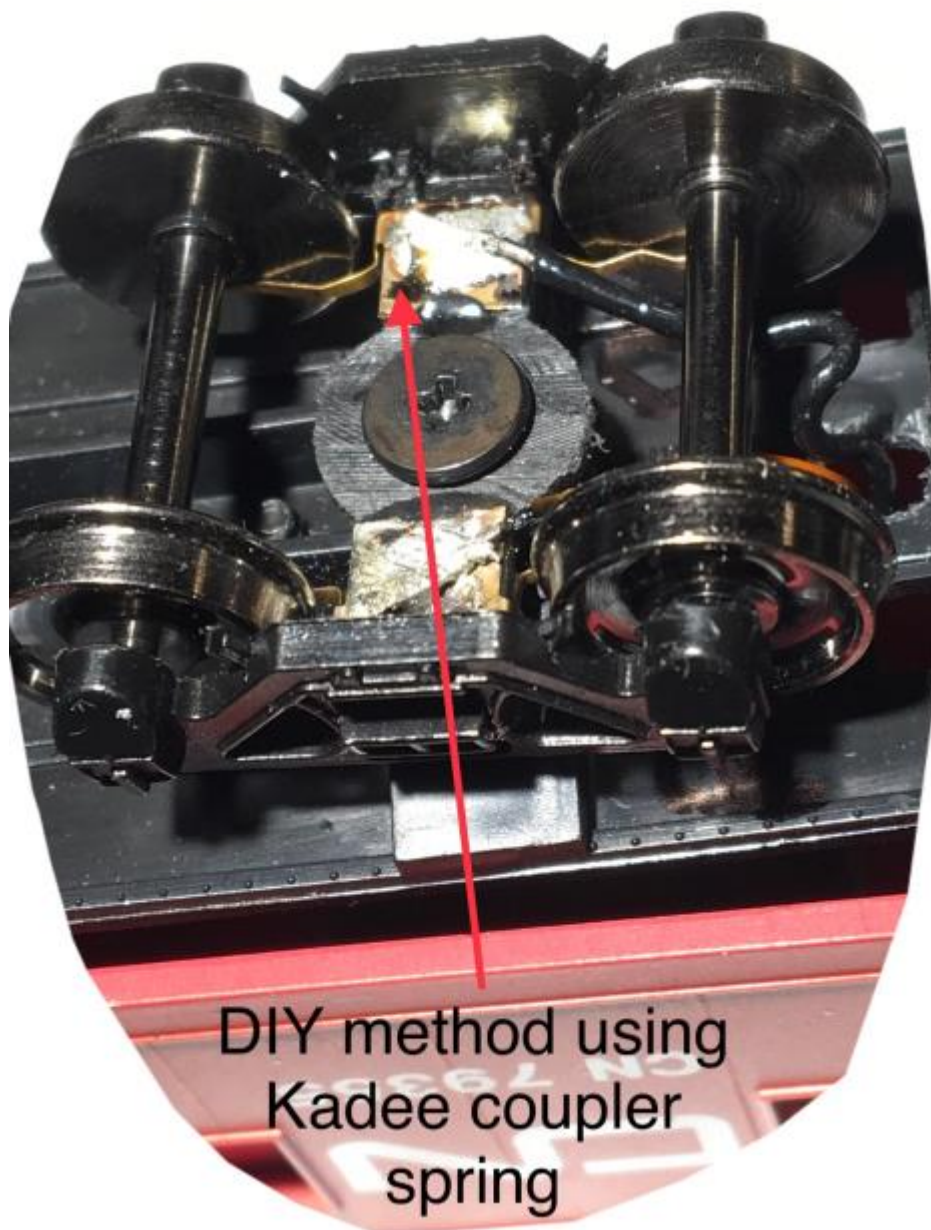
DIY method using
Kadee coupler
spring

My homemade truck electrical pick ups using Kadee coupler Springs! (See above)

I made a FRED using a thin LEGO block and a 5 mm Red LED. A 3 mm LED would be a more appropriate size. This is connected to the Function 5 lighting output. (Brown wire), and the appropriate CV set for flashing rear end device.
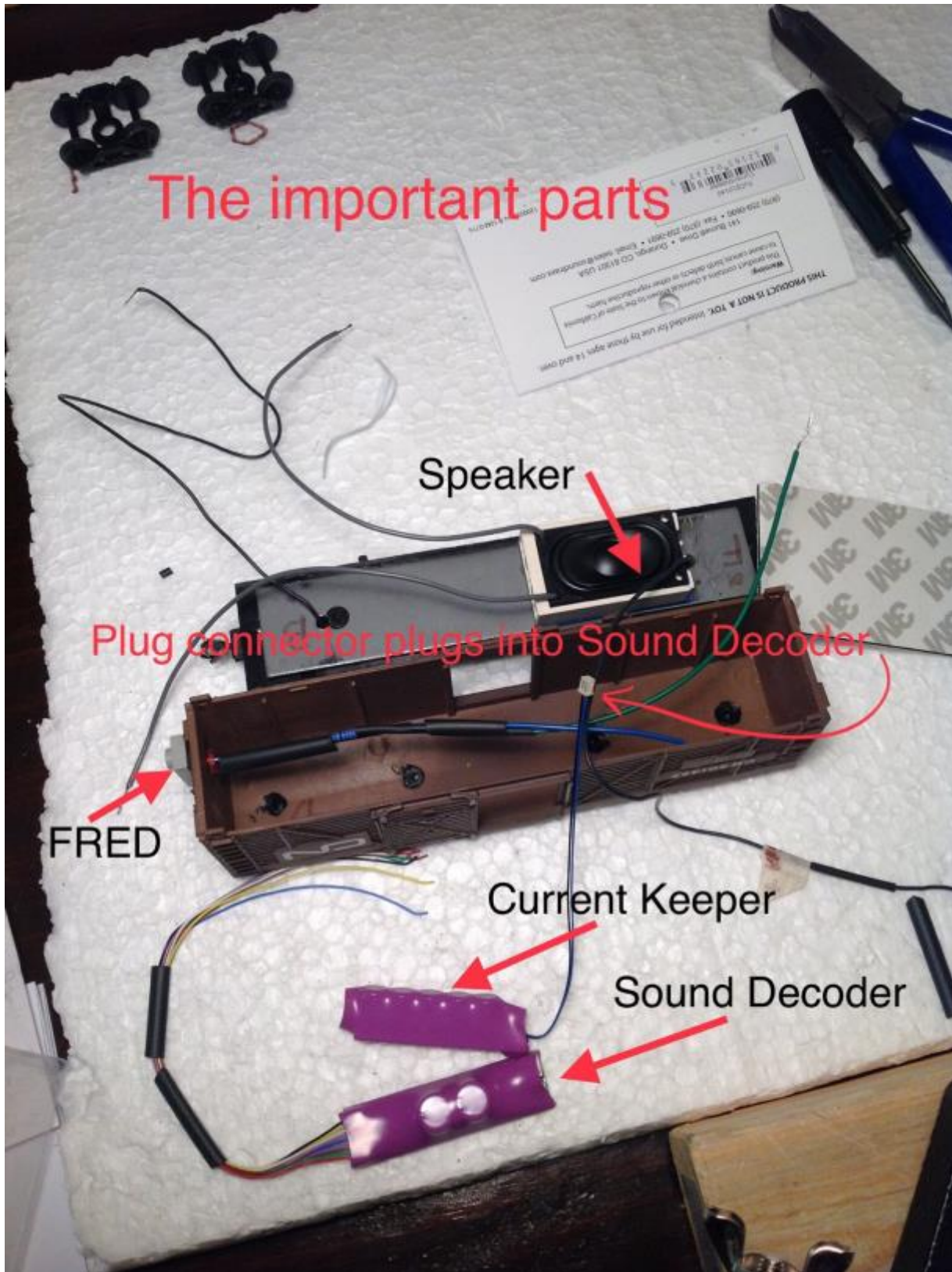
The Flashing Rear End Device

The mini oval **speaker** is inserted into a homemade Baffle using a LEGO door part. It is important to use a Baffle as otherwise the rear emitting sound waves cancel out the front emitting sound waves creating poor quality sound.
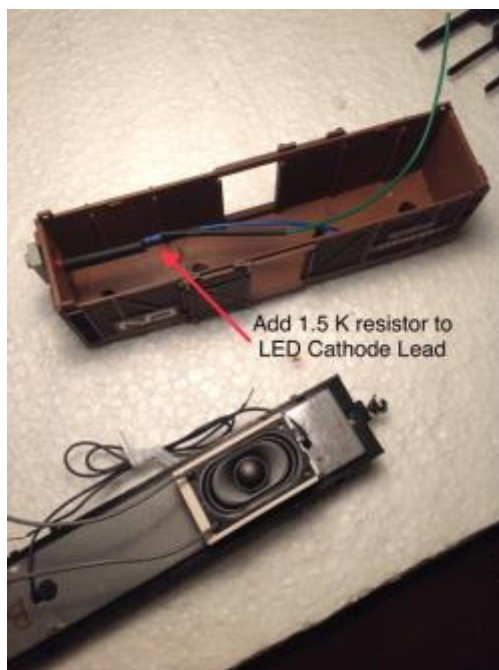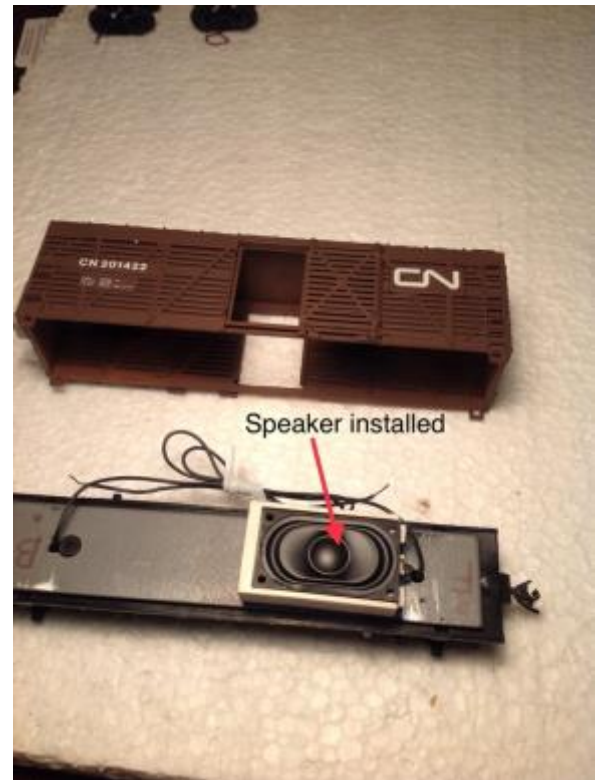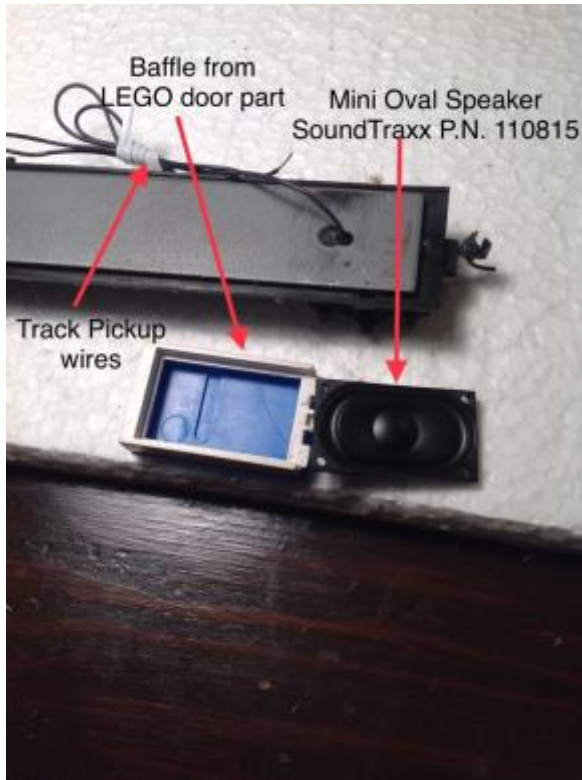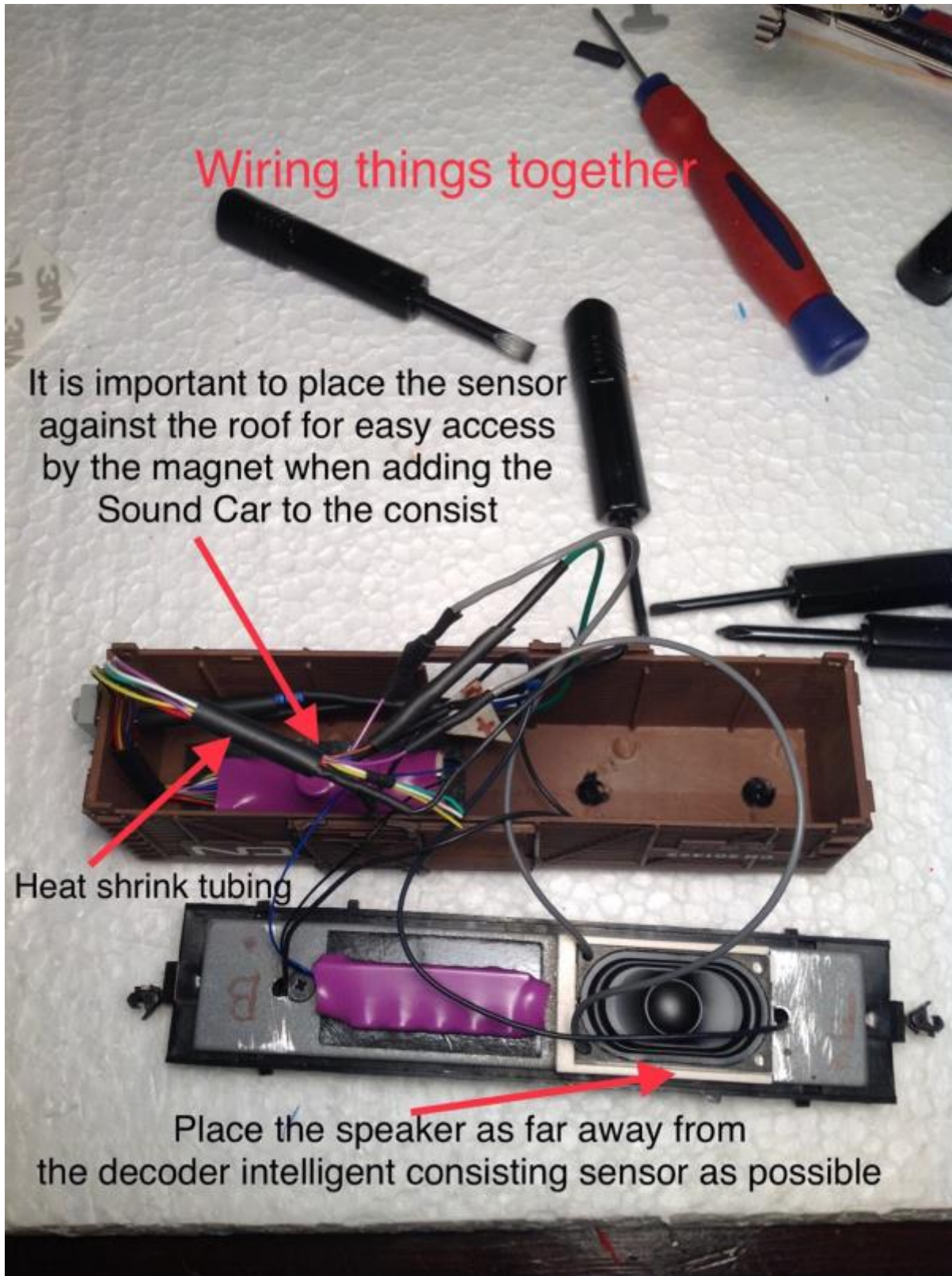

A **current limiting resistor** of about 1.5K is added to the cathode lead of the FRED LED.

Now it's time to connect the important parts. The magnetic intelligent consisting sensor on the top surface of the decoder should be kept as far away from the speaker magnet as possible. It is also best

placed adjacent to the underside of the roof using double sided sticky tape, for easy access to waving a magnet over it in order to add the Sound Car Decoder into the consist.

Sound Car Decoder

Current Keeper

The magnetic intelligent consisting sensor is placed against the stock car roof

Here is a final look before replacing the shell on the stock car. My initial concern about having the speaker magnet against the metal bar weight of the freight car, in interest of being as far away as

Wiring things together

It is important to place the sensor against the roof for easy access by the magnet when adding the Sound Car to the consist

Heat shrink tubing

Place the speaker as far away from the decoder intelligent consisting sensor as possible

possible from the consisting sensor in the decoder, proved unfounded as I noticed no deterioration of sound quality in doing so.

Programming CVs for desired effect:

I connected my FRED LED to the Function 5 output. This function is controlled by CV 51. A value of 11 creates a Phase A, Crossing Logic OFF, flashing light. Add 128 for LED compensation, so a total value of 139 is entered into CV 51.

If you wanted to configure the FRED lighting effect as a backup light (F(0) Reverse) to simulate the light mounted at the end of a freight train without a caboose, you should wire the LED to the rear light output of the decoder (yellow wire). CV 50 controls the rear light. Program CV 50 (Backup Light Effect Select) with a value of 139 to configure the FRED effect as a backup light with LED Compensation Mode enabled. The FRED effect will turn on when the F0 function key (default) is pressed and the train direction changes from forward to reverse. See the decoder user manual to configure Automatic and other sound effects.

By the way, here is what a real FRED looks like in the prototype.