



## **LGB Amtrak Genesis**



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## Overview

The LGB Amtrak Genesis is an installation of medium difficulty. The recommendations in this manual and the selected components represent our best efforts at balancing the amount of work you have to put in for the sound you get out. There are probably as many ways to do the installation as there are installers. We know that many of you will have your own ideas and come up with what for you are better ways than those presented here.

There are a lot of screws that hold the shell to the chassis - fortunately they are all the same size. Some are hidden or difficult to reach. It might be possible to do the installation without removing the shell.

None of our standard speakers exactly fit the speaker opening in the model. We are supplying our SP-2.5SQ speaker (824-660) as we do with most of our diesel kits. In order to fit this in the loco, you will need to make a big gasket out of the packing material. There is a template for doing this at the back of this manual. Alternately, you may trim all the ears from the speaker and glue it into the LGB speaker opening.

You will not need to do any soldering. We supply a connector to tap into track power from the LGB circuit board.

### **The Genesis kit includes:**

- BigSound™ board
- Volume Switch
- Computer Access Jack
- LGB Power Connector (2K2 & PB9 systems)
- SP-2.5SQ speaker
- 2 ea. 4-40 x 7/8" Speaker Mounting Screws
- 4 ea. foam mounting tape square
- 2 ea. Reed Switch (2K2 & PB9 systems)

## Disassembly

1. Turn the Genesis upside down on a carpet or foam pad.
2. Remove the 4 screws that attach the front cowling to the chassis and wiggle this out of the way. This may be left dangling from the flexible hoses. This will reveal two of the shell to chassis screws. You can start removing the shell screws here.
3. Working down the locomotive, there are a pair of screws just in front of the lead truck and two more at about the middle of the truck (these are fairly well hidden).
4. Remove the 6 screws that go through the deep recesses in the side frames in the middle of the locomotive.
5. Remove the 2 screws near the center of the rear truck.
6. Push the swinging rear bumper aside and remove the screw in the extreme corner. Push it the other way and remove the other screw.
7. You should have 20 screws floating around on the workbench or at least loose and partially stuck in the locomotive - 16 that went from the chassis to shell and 4 that held the front cowling.
8. Turn the car back on its wheels and lift off the shell. The wires are generous in length so it should not be necessary to disconnect any when installing the sound system.

## Mounting the Volume Switch and Access Jack

Drill a 1/4" hole for the volume switch and a 9/32" hole for the access jack in the upper portion of the divider baffle under the removable roof section.



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## Speaker Mounting

### Gasket Method

1. Prepare the speaker gasket. Cut out the template at the end of this manual. Align this over the packing foam speaker cutout and trim to size. Cut a small plug to fill in the speaker wire recess. Drill holes for the speaker mounting screws.



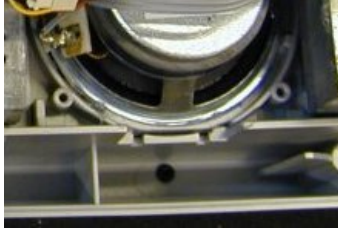
2. Remove the lead weight (1 of 4) that is adjacent to the speaker on the forward side. This weight crowds the speaker and makes it difficult for the speaker gasket to do its job. Ambitious modelers, or those that really need the weight, can resize the gasket and perhaps trim the weight to make everything fit. Leaving the weight out seems like the simple solution for most modelers. You are adding the speaker and battery which compensates somewhat for the lost weight.

3. Use the two 7/8" x 4-40 screws to seal the speaker to the gasket.



## Trimmed Method

1. Trim all four (4) mounting ears from the speaker. A pair of aviation metal snips – small, angled metal snips – work well. Check that the trimmed speaker basket fits into the speaker opening in the engine.
2. Once trimmed to fit, secure the speaker in place with adhesive. Running a bead of silicone adhesive around the speaker basket works well.



## Whistle and Bell Reed Switches

There is a box in front of the rear truck that will easily house the reed switches. Drill  $\frac{1}{4}$ " holes near the rear wall on the inside of the box  $\frac{1}{2}$ " either side of the center. Push the reed switches through these holes until the tips are approximately  $\frac{1}{4}$ " above the rail tops. Apply glue on the inside of the box to secure them. Drill a couple of holes in the floor(outside the lead weight) to feed the wires to the sound board.

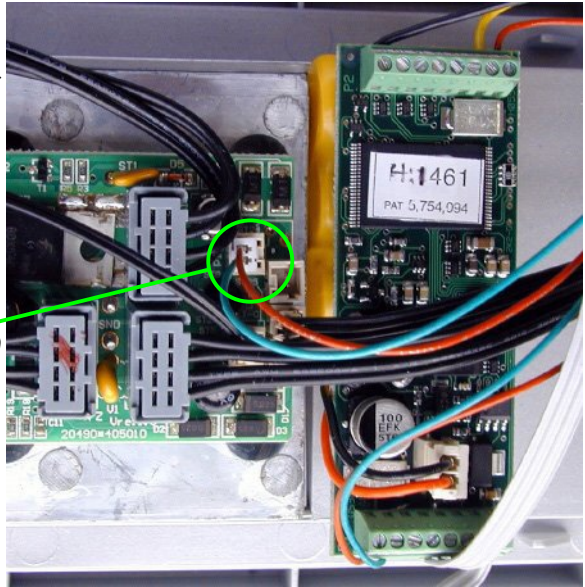


## Mounting the Sound Board.

### The 2K2 or PB9 and Battery

Use the foam mounting tape to fasten the battery next to the rear lead weight. Mount the sound board on top of the battery, leaving a gap between the sound board and the metal weight.

*DC Power Connection*  
(See "Powering the Board")



### The P5

Use the foam mounting tape to fasten the board on top of the speaker. The top of the speaker is also a fine location for a DCC decoder as well. We recommend placing a piece of heat shrink tubing around the board(s) before mounting them; this helps protect against accidental shorts.



## Powering the Sound Board

We have found two methods for powering the sound board. One method is more suitable for DCC installations while the other offers advantages for conventional DC operation.

### DC Operation

The LGB circuit board has a pair of 2-conductor sockets near each other. One is empty, the other is not. The empty socket is intended for the reverse light.

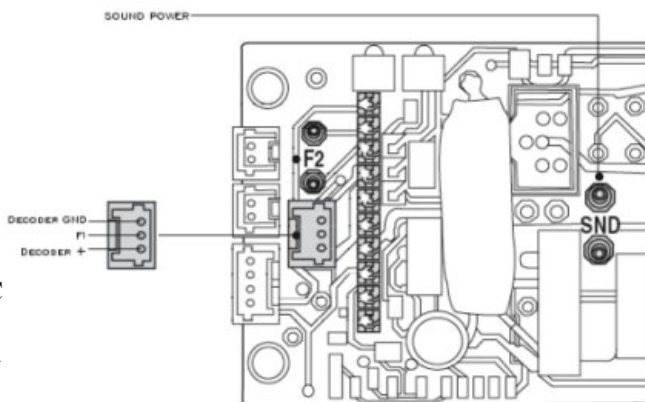
**DO NOT USE THE EMPTY SOCKET.**

Instead, unplug the connector that runs to the rear of the locomotive and plug the power connector supplied by Phoenix into this socket. The bare leads of the Phoenix connector should then be connected to terminals 1 [RED] and 2 [GREEN] on the BigSound™ 2K2 and PB9 boards.

This connection can be seen in the photo showing the placement of the 2K2 sound board and battery.

### DCC Operation

This connection allows for the sound system to be turned off through the motor switch, a benefit when one wishes to program the DCC decoder alone and not the sound system.



There are two pins labeled “SND” on the LGB circuit board. Slip one of the Phoenix power clips over each pin and connect to terminals 1 & 2 on the 2K2 or PB9. Since this is a DCC situation, polarity will not matter. The P5 can be powered from these pins as well.



## Testing

### DC Operation

Put the Genesis on a piece of track you can power. Set the motor/light switch to the center of the cab (motor and lights off). Apply power to the track. The sound system should come on when you get to about a quarter throttle. When the battery is charged, the sound system will come on almost immediately. Run the track voltage up and down and you should hear many different sounds.

At this point you may wish to let the locomotive sit and charge the battery so you can hear the idle sounds. The volume setting will not effect charging; you may set it to a pleasant level or turn it all the way down if you don't want to hear any sound while charging the battery. Charging will start at around 5 track volts, and is optimum at 8 volts. Full throttle will actually take longer to charge the battery.

If you decide to run the locomotive without charging the battery, set the motor/light switch to the motors and lights position. It may take a few laps before the battery will give you sound when your track voltage drops below 5 volts.

### DCC Operation

Place the Genesis on your layout or programming/test track and turn on your DCC system. The system should produce idle sounds and respond to the function keys of your controller. Run the locomotive around the track and experiment with the DCC functions and responses.

## Troubleshooting Basics

### Sound works in reverse only

The power connector is most likely inserted into the wrong socket. See page 7 for the proper connection.

### “All Aboard...Amtrak” announcement in reverse only

The power polarity is reversed. Switch the wires into terminals 1 and 2 on the BigSound™ 2K2 or PB9 board.

### Disabling the automatic “All Aboard...Amtrak” announcement

To disable the automatic play when starting, use the configuration procedure or the computer interface to select the other horn.



## Initial Terminal & Function Assignments

### Terminals

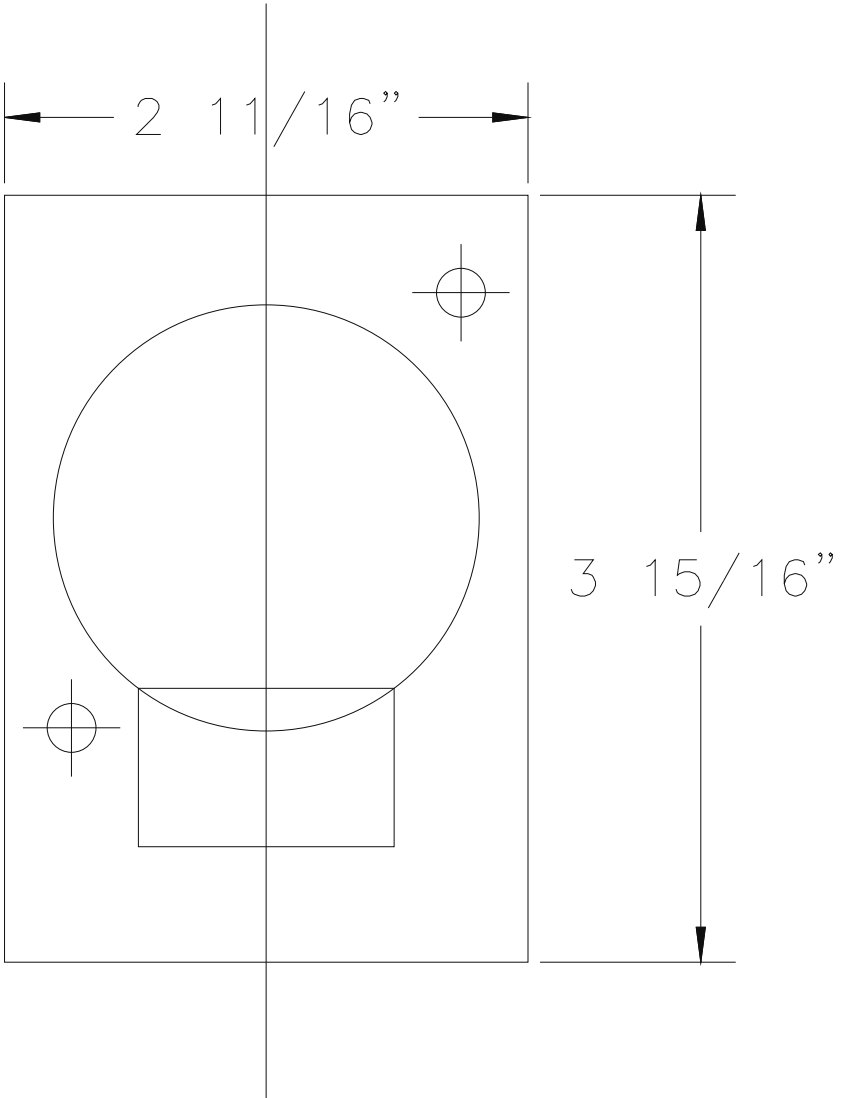
2K2		PB9	
Terminal	Effect	Terminal	Effect
10	Working	7	Rev Up
11	Station Announcement	8	Bell
12	Rev Up	9	Horn
13	Bell	10	<none>
14	Horn		
15	<none>		

### DCC

#### Address 3

Function	Sound or Effect
F1	Bell
F2	Manual Horn
F3	Coupler
F4	Crossing Horn
F5	Working
F6	Station Announcement
F7	Volume Up
F8	Volume Down
F9	Rev up
F10	Rev Down
F11	<none>
F12	Shut Down

# Speaker Gasket Template



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