

An 11-pin to Leslie 45/145 Adapter

Bob Rinker

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This document describes a circuit that will allow a Hammond 11-pin connector to control a Leslie Model 45 or 145 Speaker. The adapter can be installed inside the Leslie cabinet, and connects to the Leslie via the regular 6-pin connector on the 45/145. No modifications need to be made to the speaker itself (except for possibly some screw holes to mount the adapter), so the integrity of a vintage speaker can be maintained. The circuit also includes an additional (optional) relay to control a possible Slow/Stop (or Brake) circuit that might be installed in the speaker.

CAUTION!!! This circuit only works for the 45/145 and similar models - these are models originally built to connect to Hammond spinets and other organ brands. Even though the plug is the same, this circuit *will not work* with Models 22/122, which are the ones designed to connect to Hammond consoles such as the B3/C3 models. Be sure you know what you are working with!

Also, while I'm in cautioning mode, please note that the building of this adapter involves wiring for 120V connection - this unit must be plugged into standard household power. If you are not comfortable with such wiring, then you should not attempt this project.

The circuit uses small relays to do the necessary switching. Two relays are required - one to turn power to the Leslie on/off with the organ console, and a second to do the Fast-to-Off (Model 45) or Fast-to-Slow (Model 145) switching. I used relays with a 12V control - 12V is also necessary to create the signal back to the organ that turns off the simulated Leslie sim, so I can kill two birds with one stone by using 12 volts.

I tested the adapter on my Leslie 45, which has the Slow/Stop/Brake function provided by a Caribbean Controls board. A third relay was added to allow control of this board by the 11-pin connector signals. I use the "normally closed" contact of the relay - other boards may require other types of control connections.

The circuit includes a 12V regulator made with discrete components. This is probably overkill for what is needed, and certainly a 12V regulator chip like an LM7812 could be used, or even unregulated DC for that matter. I had the parts laying around, so I built my own regulator. I got all the parts except the 6 pin and 11 pin Amphenol connectors from Mouser Electronics, but everything is very common and can be procured at any electronic parts house. My source for the old-fashioned connectors is Triode Electronics.

On the next page is the schematic diagram, followed by the double-sided printed circuit board I designed for the circuit. The last page shows pictures of my completed unit - it is housed in a 2×3×5 inch aluminum box that mounts above the power amp in my Leslie 45. The box has an 11-pin connector input, and a 6-pin connector that goes to the Leslie. I also has an IEC socket, so a standard power cord can be connected. The black and white twisted pair of wires on the right goes to the stop/slow/brake unit.

I hope this circuit can be of some use to others who want to connect their 11-pin organ to a vintage Leslie. If you have questions, let me know. Good luck!

- Bob Rinker
rinker@cs.uidaho.edu

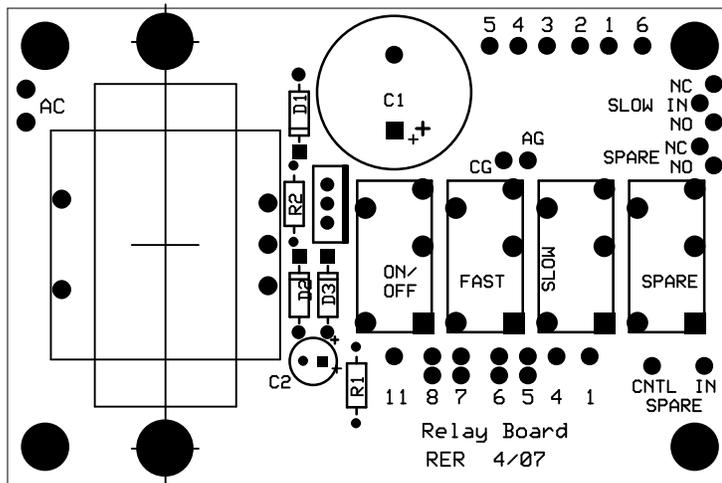
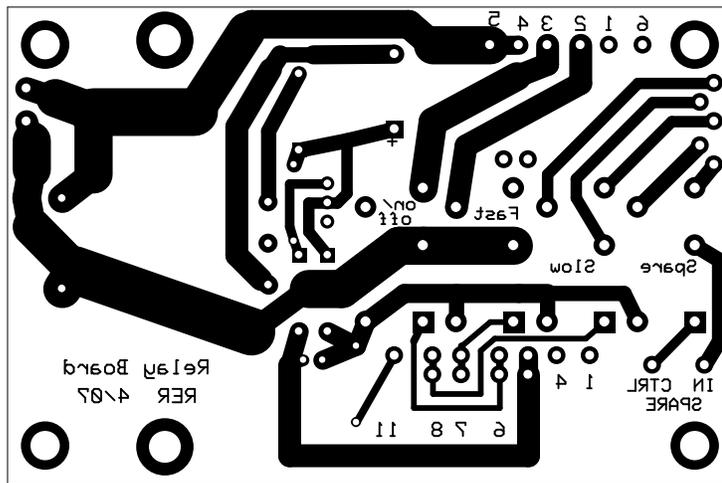
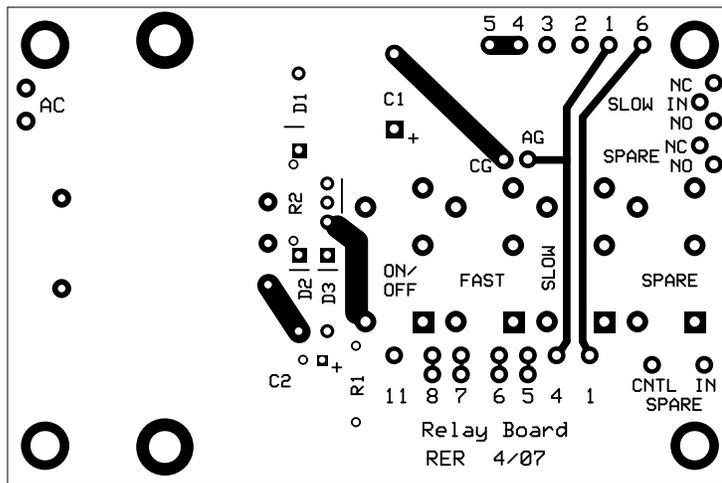


Figure 1: Top layer, bottom layer and parts placement on the printed circuit board designed for this project. Note that there is also a place for another relay (labelled "SPARE"), in case you need to control something else by the circuit. The views are shown full size, but due to printing variations, they may not be exact. Actual size is 3.8 inches by 2.5 inches.

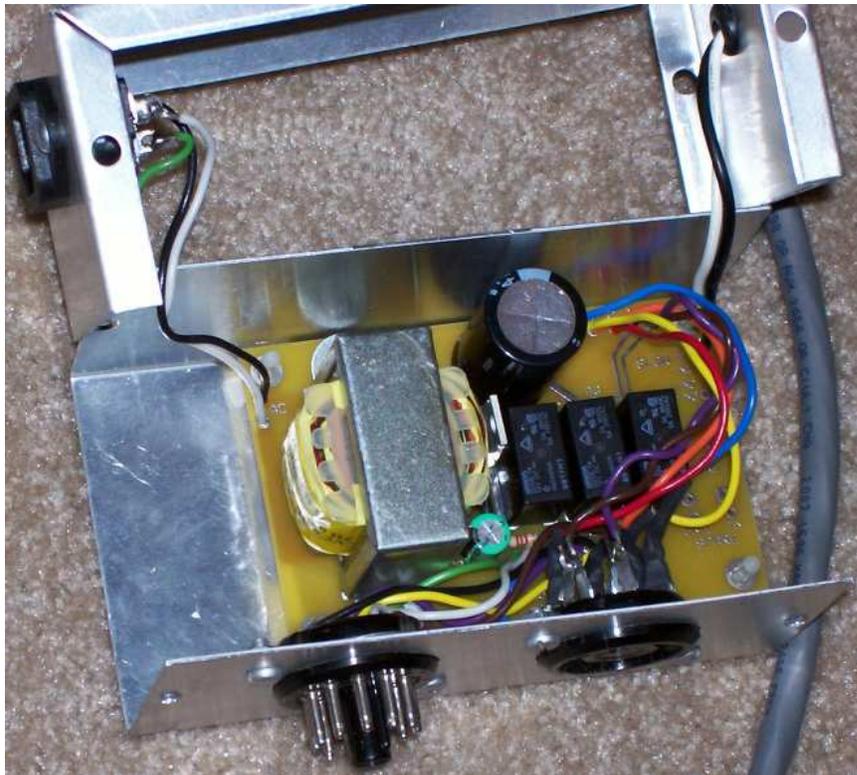


Figure 2: Pictures of the completed adapter. Mounting holes can be seen in the second view - adapter is installed just above the Leslie amplifier.