

nections from the XLR connectors going to a chassis ground lug right next to the connectors.

**Photo 15** shows the RCA connectors using insulators to float them from the chassis at the input point. Unlike the balanced XLR connectors, the shells of the RCA jacks are signal-carrying and

are connected through individual wires to the central ground point on the circuit board rather than at the chassis. **Photo 16** shows the ground connections on the board as well as ground leads from the box and the power cord going to the chassis ground on the lid.

The wire connection from the ground

lug on the box and the ground lug on the lid provides a ground connection when the lid is off for testing. Once closed, the mating sections of the metal box provide the definitive overall chassis ground. After making the power input and indicator connections, I was ready to test and close up the box. **Photo 17** shows the

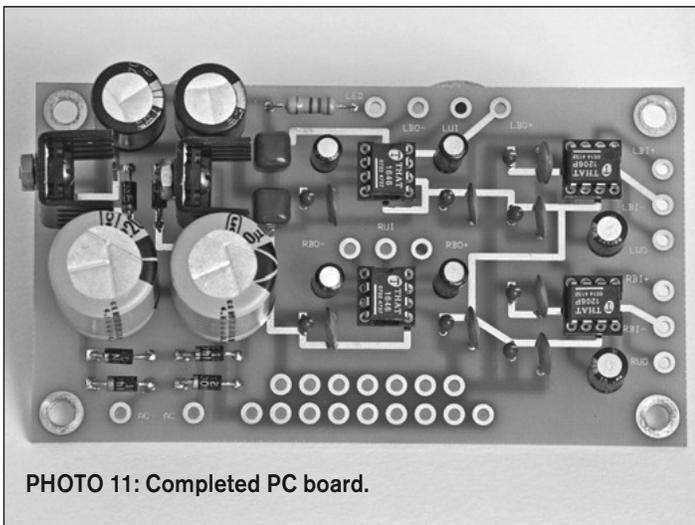


PHOTO 11: Completed PC board.



PHOTO 14: Pin 1 grounding.



PHOTO 12:  
Completed box.



PHOTO 15: RCA jacks insulated from chassis.

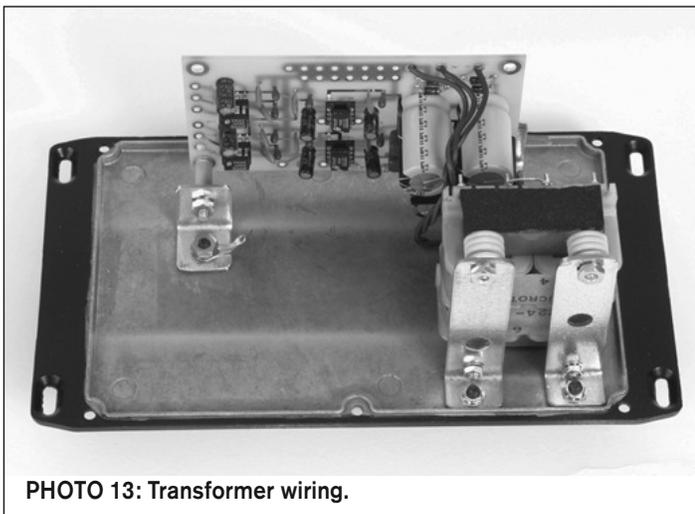


PHOTO 13: Transformer wiring.

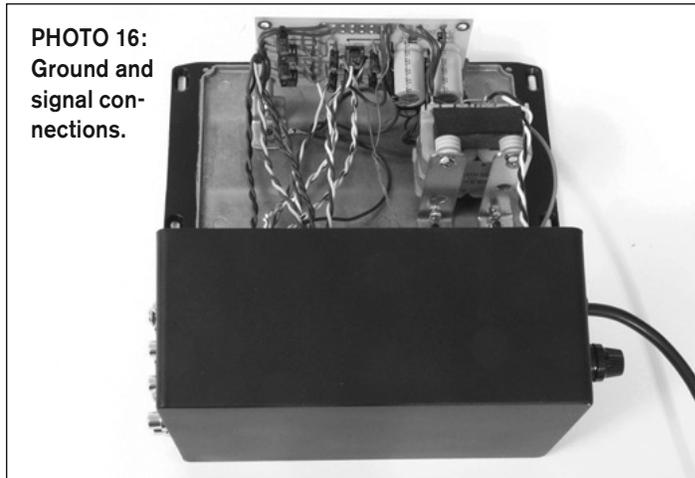


PHOTO 16:  
Ground and  
signal  
connections.

completed project just before closure.

Photos 18 and 19 show the completed box and a close-up of the connector arrangement. Note that for the unbalanced connectors there is one pair for input and three pairs for output. The triple output allows for connections to the computer sound card, a headphone amplifier, and any other test equipment I might choose to put into the circuit.

## TESTING

A good measure of how well an electronic device performs is to determine how closely it compares to a straight wire when a signal is passed through. To

test this project, I made two cables that would allow me to loop the output of the balanced circuit back into the balanced input. That would allow me to input a signal to the unbalanced circuit and measure the output signal of the unbalanced circuits after passing through two conversion steps. I used test sine waves of 1V RMS at 5Hz, 1kHz, and 500kHz with the input and output signals displayed on my oscilloscope.

Figures 6, 7, and 8 show the results at 5Hz, 1kHz, and 500kHz, respectively, with the input signal as the top trace and the output signal as the bottom trace. They are virtually identical. To make

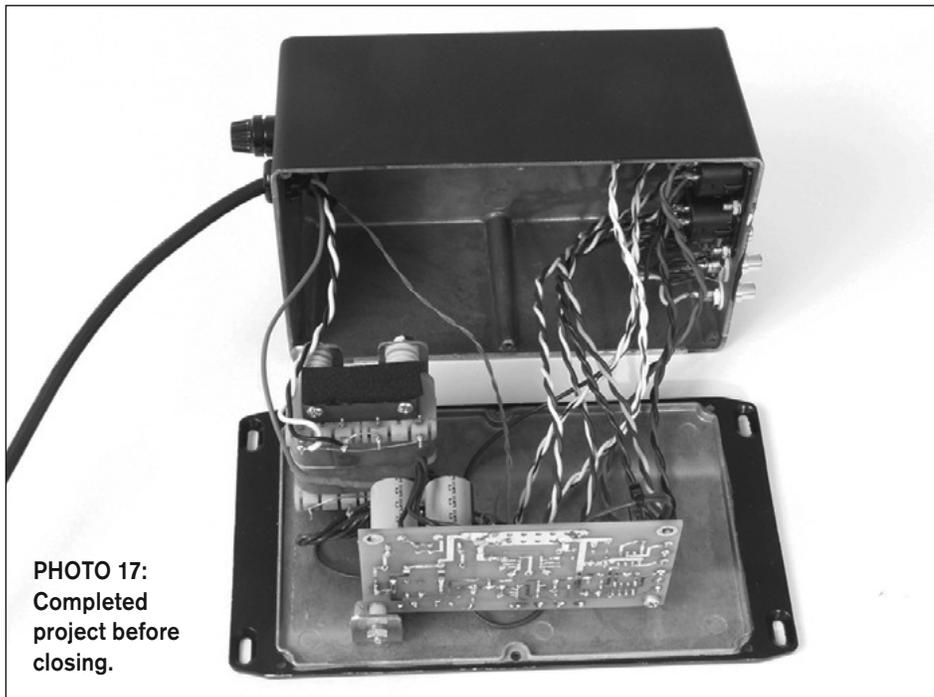


PHOTO 17:  
Completed  
project before  
closing.



PHOTO 18: Completed project.

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