GT-104 With Antek Transformer

Revision 1p2

Your GT-104 kit may have been supplied with one of three toroidal power transformers:

- Avel Lindberg YS236653
- Antek AS-2230 or Antek AS2232
- Hammond

These directions cover wiring and installation of the Antek transformers

Transformer Primary Side Preparation

The directions in this section cover 120 Volt wiring. For 240 Volt wiring, you'll need the V240 kit. This kit has the parts and directions to wire the transformer for 240-volt power. The kit builder must supply a country-specific 240 Volt power cord.

Locate the 5" long black and white 18 AWG wires with FASTON connectors pre-installed on one end. Also locate the 3/16" diameter (clear) heat-shrink tubing. For 120 Volt[1] wiring, the FASTON and toroidal primary wires will be connected as shown in Figure 1.

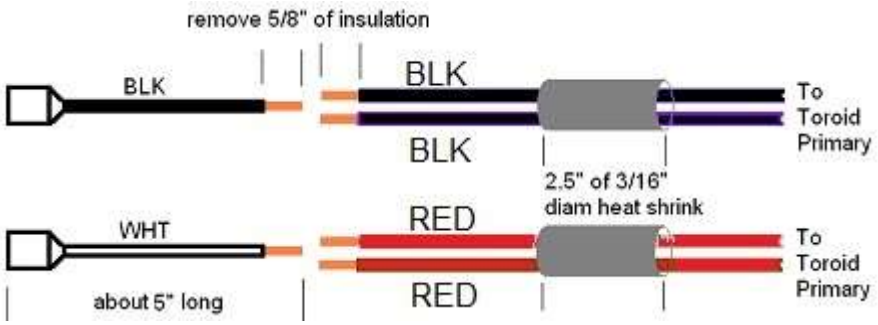
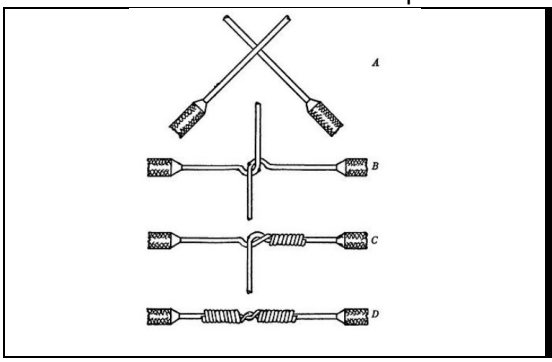


Figure 1-Wiring toroidal transformer for 120 Volt operation

1. Cut a 2.5" length of 3/16" diameter heat-shrink tubing. Slide it over the two black leads of the power transformer. Slide it as far from the cut ends of the wire as possible.
2. Even up the ends of the two black wires and cut them so the overall length is about 8".
3. Cut a second 2.5" length of 3/16" diameter heat-shrink tubing. Slide it over the two red leads of the power transformer. Slide it as far from the cut ends of the wire as possible.
4. Even up the ends of the two red wires and cut them so the overall length is about 8".
5. Remove 5/8" of insulation from the following 6 wires:
    i. Black 5" FASTON wire
    ii. White 5" FASTON wire
    iii. 2 red transformer wires
    iv. 2 black transformer wires
6. Twist together the stripped ends of the red transformer wires
7. Twist together the stripped ends of the black transformer wires.

[1] For 240 Volt wiring, see the directions that come with the V240 kit.

8. Make a Western Union splice between the two red transformer wires and the 4” white FASTON wire.
    i. Solder the splice.
    ii. Slide the heat shrink tubing evenly over the splice
    iii. Use the tip or the barrel of the iron to shrink the heat shrink tubing.
9. Make a Western Union splice between the two black transformer wires and the 4” black FASTON wire.
    i. Solder the splice.
    ii. Slide the heat shrink tubing evenly over the splice
    iii. Use the tip or barrel of the iron to shrink the heat shrink tubing.



Important Note:

- *Check your Western Union splices for smoothness. Sharp wire points must not push into the heat shrink tubing.*
- *If you even suspect that to be the case, then you must wrap each piece of heat shrink tubing individually with a layer of electrical tape.*

Figure 2-Western Union splice has diameter less than the insulated wires and no sharp points

Transformer Secondary Side Preparation

The secondary side wiring is always the same, no matter how the primary side is wired. On the secondary side, the windings are always wired in series.

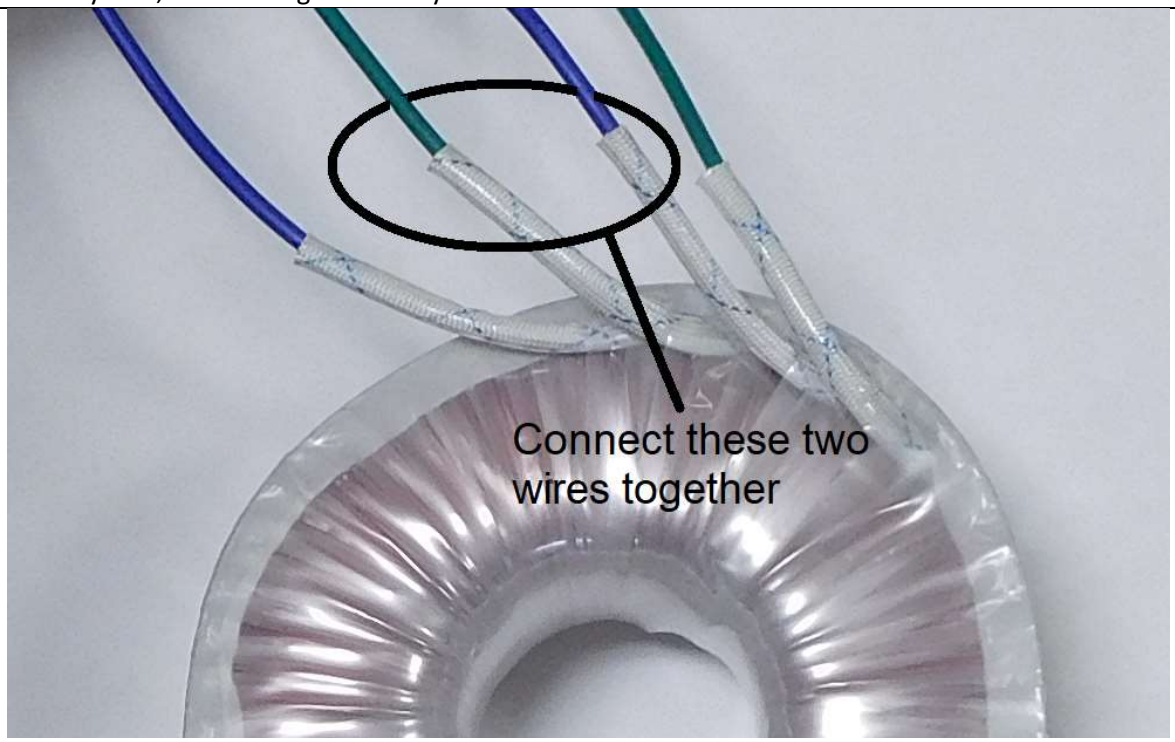


Figure 3-Showing inside blue and green wires

Warning – There are two secondary side windings. Each secondary has one blue and one green wire. You will connect a green wire from one winding to the blue wire from the other winding. Follow the directions carefully to make sure this happens. Should you instead connect a blue and a green wire from the same winding, then you will surely blow a fuse!

1. Cut the blue and green transformer wires (4 wires in total) to a length of about 8".
2. Remove 3/8" of insulation from the ends of the 2 blue and 2 green transformer wires.
3. Select the inside blue and green wires as called out in Figure 3. Use your ohmmeter to measure the resistance between these two wires. It should read open circuit if you have picked the right blue and green wires.
4. Form a twisted pair from these two wires. Twist the stripped ends of these wires together. See Figure 3. Solder the twisted connection.
5. Slide a 2" piece of 3/16" diameter (frosted) heat shrink tubing over the soldered joint, about half on, and half off.
6. Use the tip or the barrel of the soldering iron to shrink the heat-shrink tubing all along its length.
7. Once the heat-shrink tubing has cooled, test your work by tugging on the heat shrink to assure that it will remain in place.
8. Twist together the insulated portion of the remaining blue and green transformer wires. Twisting the pair reduces hum.
9. Measure the resistance between the unconnected blue and green wires. It should be about 0.6 Ohms. If it's less than 0.35 Ohms or more than 1 Ohm, then you may have a problem.
10. Separately twist and tin each wire, preparing them for installation into the power supply in a later step.
11. We will not use the purple wire. Leave it close to full length, just cut the bare end and then cover the end of the wire with a piece of electrical tape.

Transformer Installation

1. Set the transformer into the chassis, wire side up, over the raised circle in the chassis floor. You won't bolt it into the chassis until after the shield has been installed.
2. Twist the transformer primary leads (that's the transformer wires with the FASTON connectors) together to form a twisted pair. Slide the FASTON connectors from the toroidal power transformer thru the switch cut-out in the front panel. Connect them to the indicated switch terminals. Place black over black and white over white.

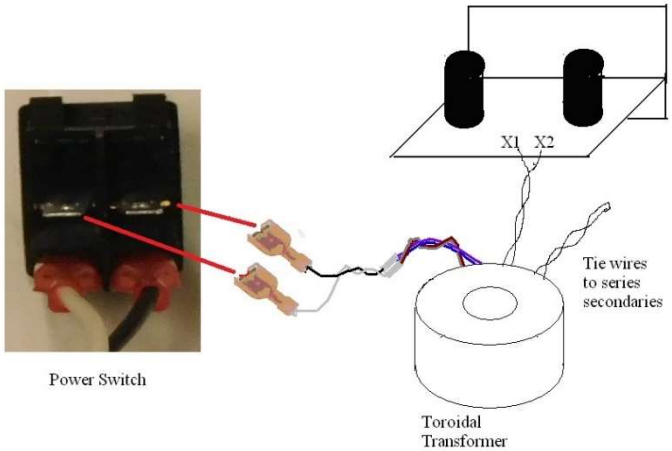


Figure 4-connecting up the power transformer

3. Insert the switch in from the front of the chassis. It may be a snug fit. ***Make sure that the | is at the top of the opening*** before you insert the rocker switch into the chassis. Push the rocker switch in the rectangular opening; it will click into place.
4. Dress the black-white twisted pair that goes from the switch to the power entrance connector into the crease along the right side of the chassis.
5. Dress the transformer primary leads as shown on the front cover of this manual.
6. Lay the power supply assembly into the case, fin side down, centered along the back of the chassis. The solder side of the circuit board should face the front of the chassis.
7. Insert the blue and green transformer wires into the X1 and X2 terminals of the power supply PCB, inserting them from the solder side and soldering them on the component side. Connect blue to X1 and green to X2, but it doesn't matter if they are reversed.

At this point, rejoin the main manual on page 41, "Testing the Power Supply".

Figure 5 shows a recommended orientation of the installed transformer.

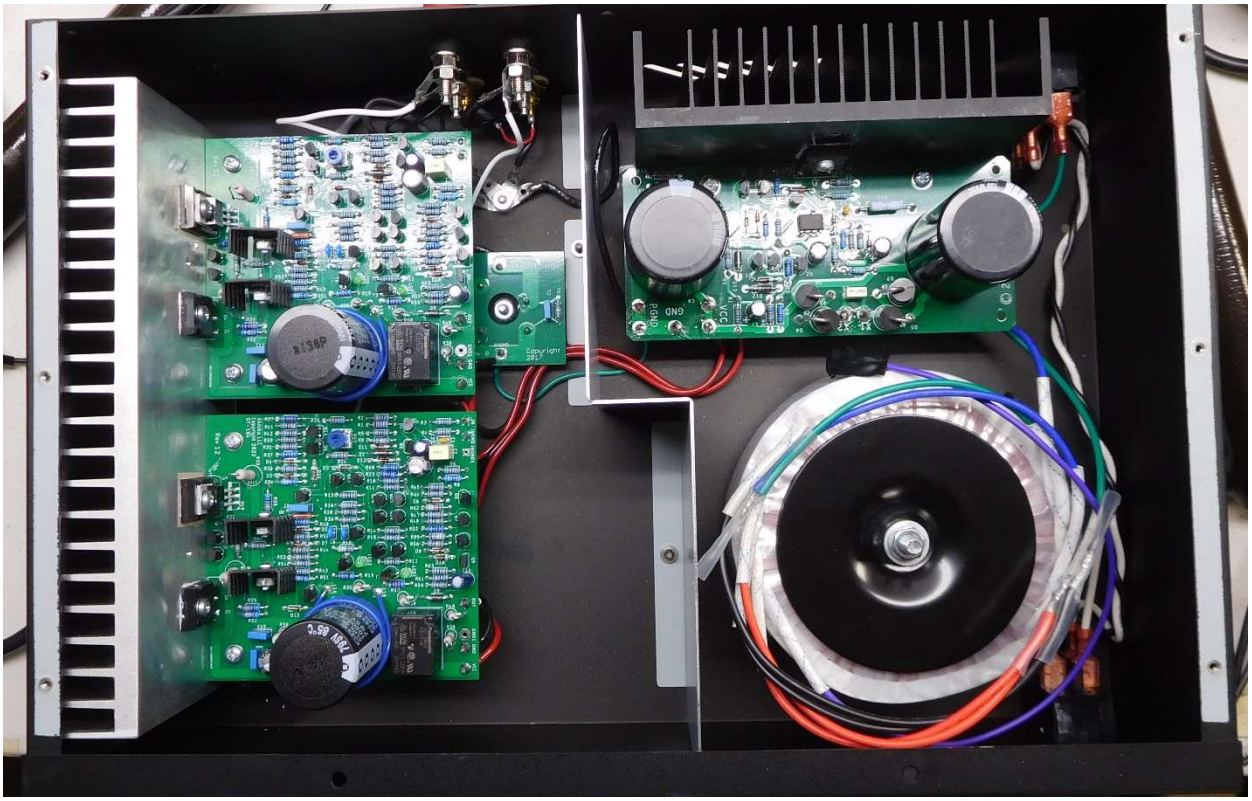


Figure 5-Antek transformer orientation