



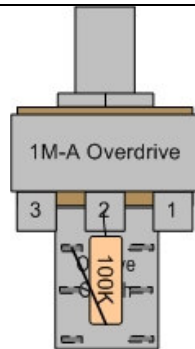
The  
**TRIWATT**  
Builder's Guide

April 2009, Version 0.96

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TRIWATT Builders Guide Ver. 0.96.doc

Some components are more easily installed on other components prior to installation. Use the following illustrations as a guideline.

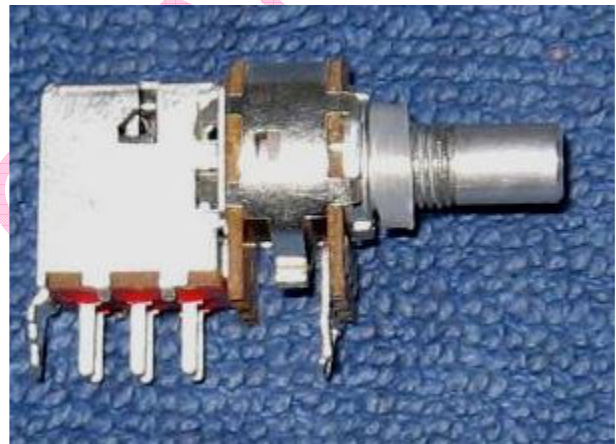


Before installing the Overdrive switch, pre-wire the switch with 100K resistor as shown.

\* Non Foot Switch model only: Not required when the relay board is used for foot switch option.

**TIP:** The Overdrive switch is typically a smaller diameter mounting than the other pots. This can be retrofitted easily with the supplied nylon 3/8" OD spacer. If not already in place:

- Remove all OD Potentiometer hardware
- Cut off the locating lug on the pot
- Push on the 3/8" OD nylon spacer - it fits tightly
- Insert pot assembly into chassis - it fits tightly
- Put on nut & flat washer on outside
- Tighten snugly in place



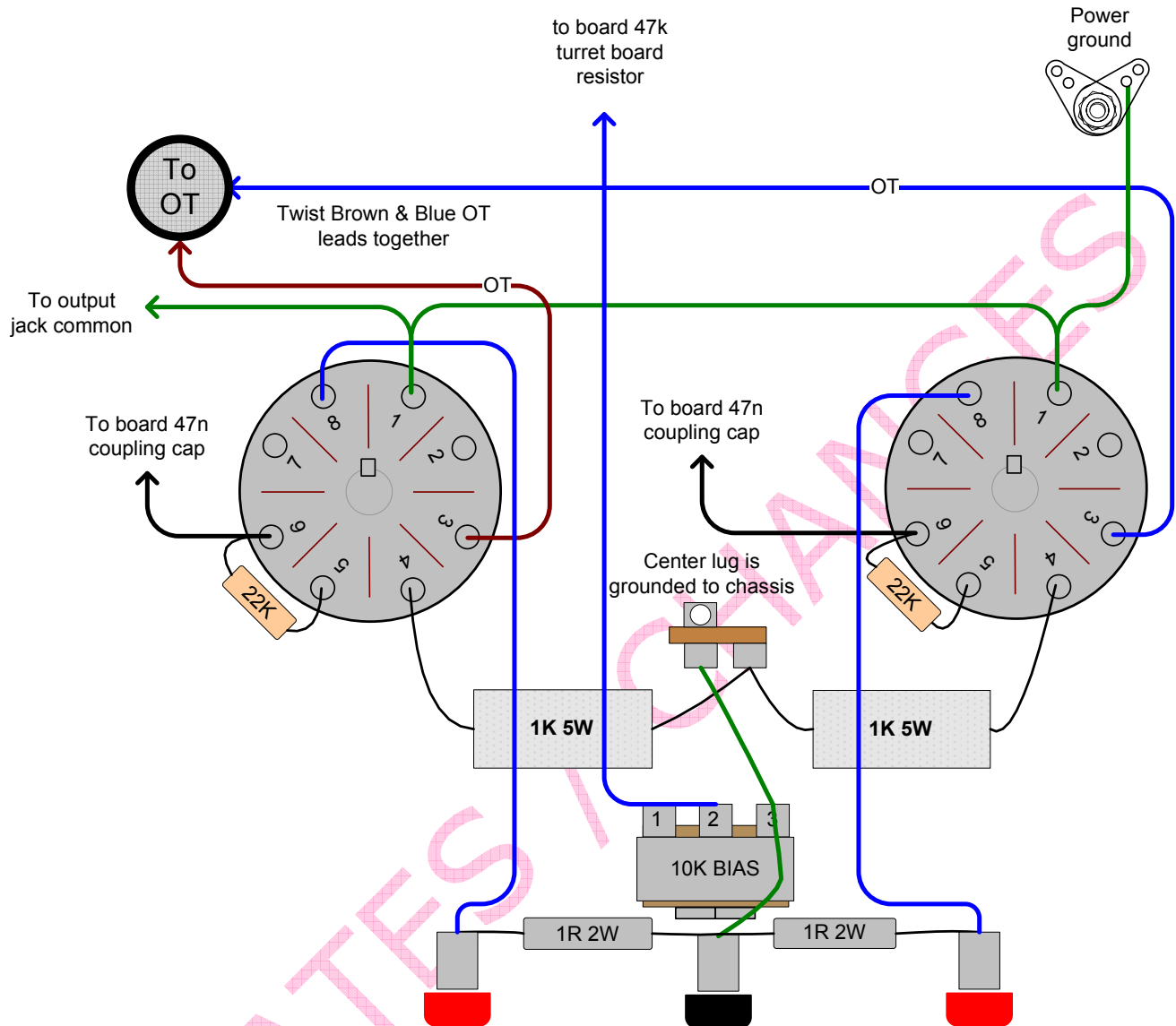
- Inside the chassis, install the 6 terminal strips (several solder lugs or 'terminals' attached to an insulated strip) for the power connections, the 1K 5W plate resistors to the 6V6/KT66, and the 68K input resistors to V1, and V3's 22k resistor. See the following diagrams for the areas where these are used. These are installed using the #4 screws and nuts.

◀ **TIP:** In some cases only one terminal is required. You can trim the extra terminals off later using a wire cutter.

## 2 Wiring

Here is a guideline for wiring the kits with the supplied wire:

- Use 20 gauge solid for hook up from board to tubes
- Use 20 gauge solid for hook up from board to pots/front panel
- Use 20 gauge solid stripped for turret board buss bar
- Use 20 gauge solid twisted pair supplied for tube heater wiring
- Use Yellow and Blue etc. 20/18 Gauge, stranded, for power supply hook up - to transformers, rectifier, standby etc.
- Re-use cut offs from the transformers for the power supply side as well.
- Use RG174U for input to V1 and as indicated on layouts



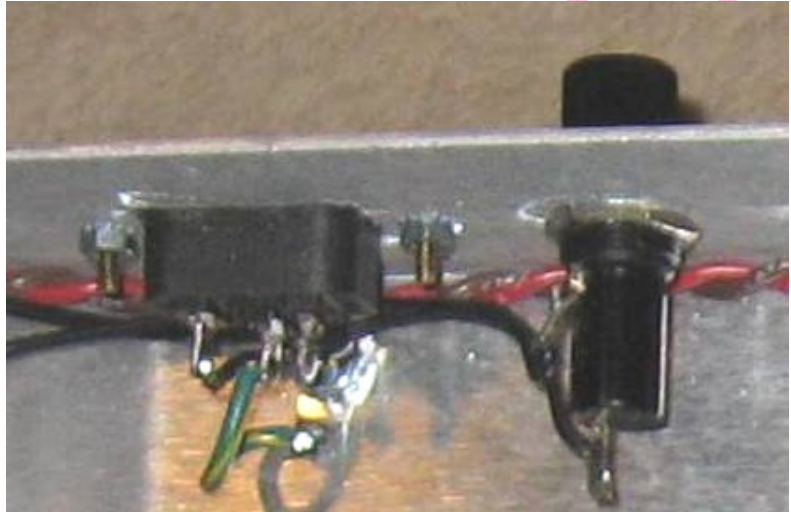
- Install terminal strip on chassis and 22K resistors on V5, V6 socket. Connect 1K5 resistor from 1 terminal strip common point (**NOT** the center lug which is connected to ground) and then on V5, V6 socket pin 4.
- Continue wiring up the bias terminal points (2-Red, 1-Black) with 1 ohm precision resistors soldered between them and the 10K bias pot and the connecting wires to the tube sockets. Solder the bias pot ground to the terminal strip center lug which is bolted to ground.
- Connect the Power tube pins 1 together and route to power ground chassis lug. Connect another lead to go from V5 to the output jack common.

- Align the High voltage leads so they are pointing towards the Power transformer. Feed the leads through the 2 grommets installed in the chassis with the High voltage and Secondary lead going through separate grommets. Bolt the transformer in place with the supplied 8-32 bolts & Keps nuts. The secondary leads should be in-line with the impedance switch.

## 4 Power Supply Wiring

Now is the time to wire up the rest of the main power supply.

- Start with the IEC socket and ensure it is grounded to the bolt/lug on the chassis immediately beside the socket. Tighten the ground bolt tightly. Run a wire from the 'Hot' or 'Line' side of the IEC connector to the lug on the side of the fuse holder and from the end of the fuse holder to the power switch.

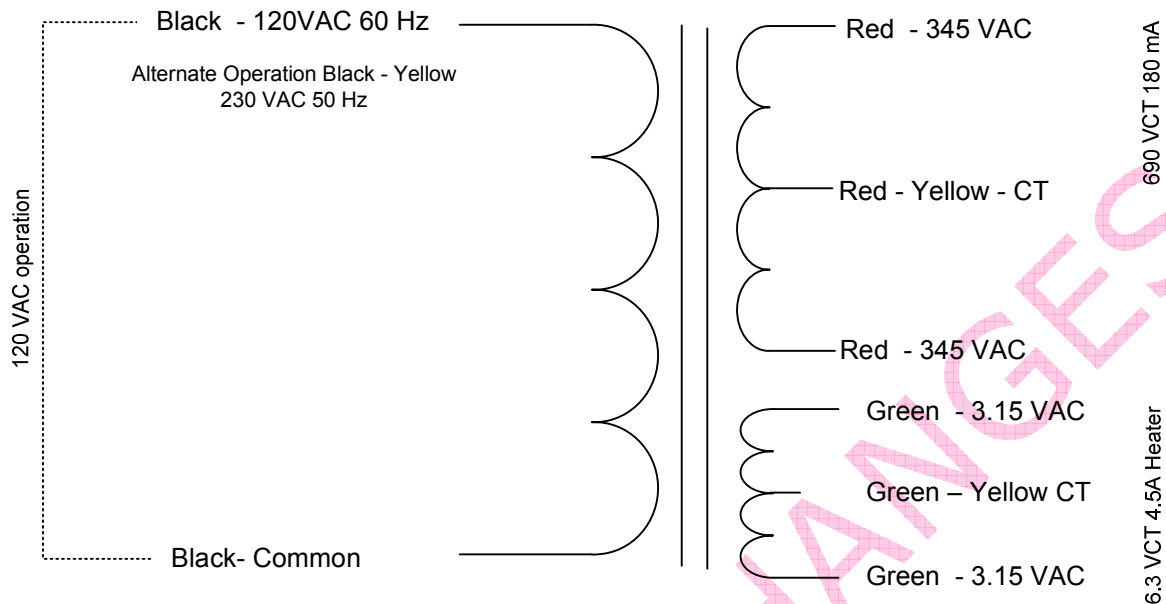


**TIP:** Make sure the switch was installed in the desired 'On' position when the connection is 'made'.

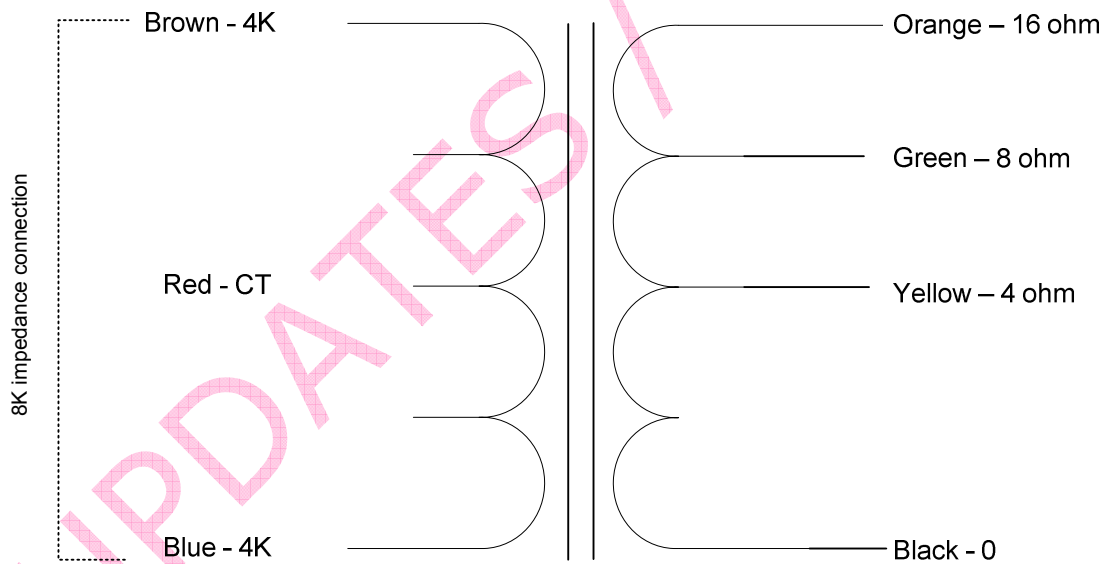
- The other side of the IEC socket or 'Neutral' gets connected to the 'Common' side of the power transformer.

| <b>Wiring of Mains circuits: European vs North America</b> |                              |   |                          |
|--|------------------------------|---|--------------------------|
|  | <b>Ground</b>                | <b>Hot (L)</b>  | <b>Neutral (N)</b>       |
| Europe   | Green/White or Green/Yellow  | Brown   | Blue                     |
| North America  | Green [USA-plug round prong] | Black [Small flat prong]                                    | White [Large flat prong] |
| European 230V  | Green/White or Green/Yellow  | It makes no difference how the other two wires are matched. |                          |

**TIP:** If necessary, tie off any unused taps that are is not required for the build. Tie it off by cutting off the exposed wire and then put heat-shrink over the end and then tuck it away as it is not used. You can also connect unused wires to a terminal strip.



### Trinity Amps HTS-9642 Power Transformer



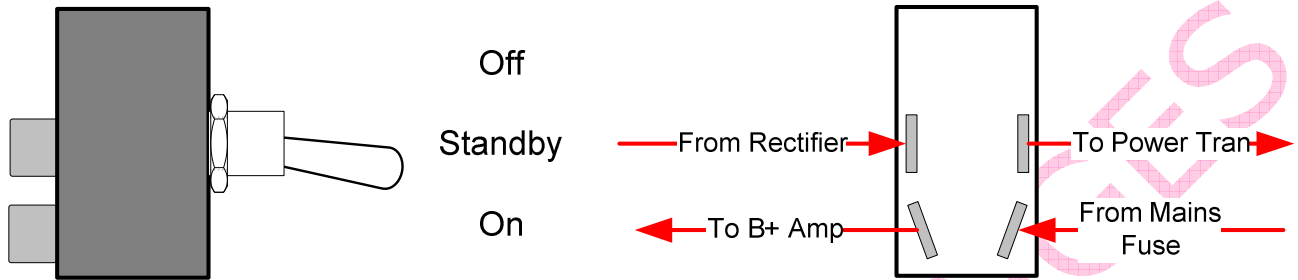
### Trinity Amps HTS-9641-1 50EZ Output Transformer

## Wiring the Progressive Power Switch

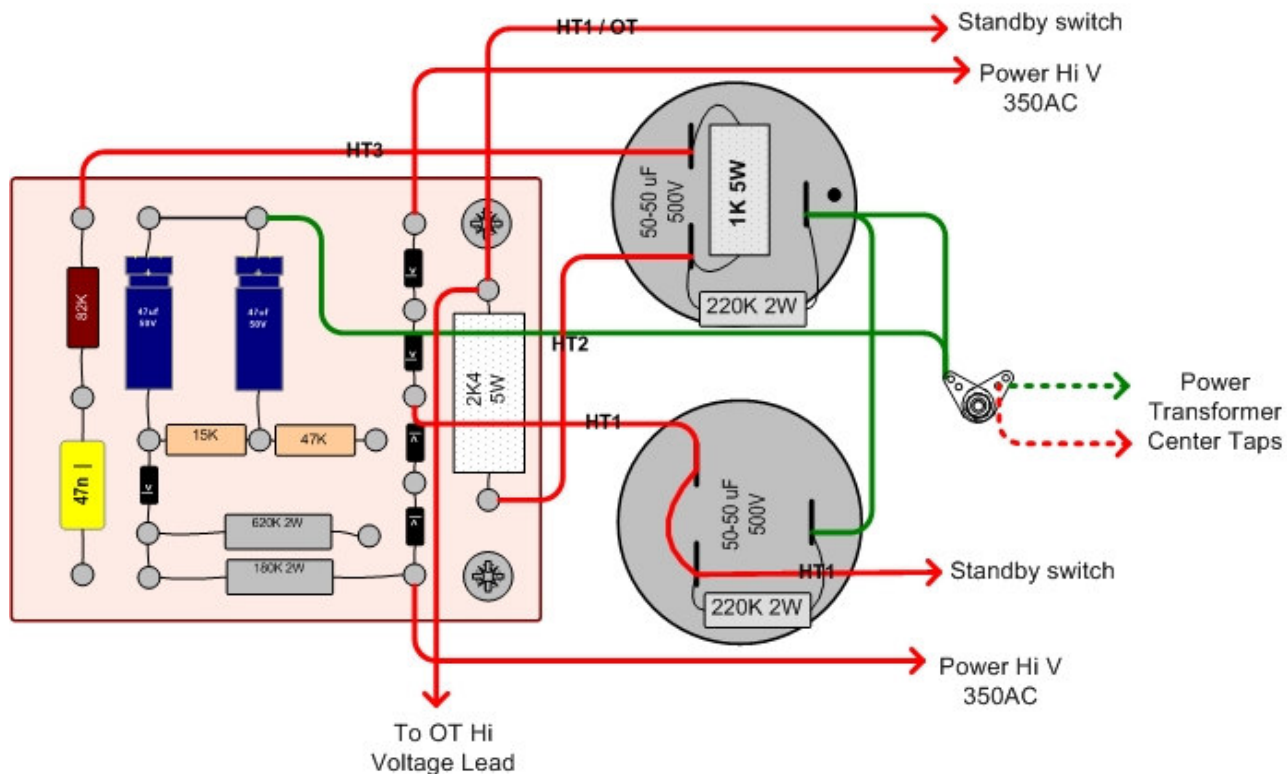
This amp has a special power switch that combines both Power and Standby into one convenient switch. In one extreme position, the amp is Off, in the middle position it is on Standby and in the

third position it is in the On position. This switch is **not wired up like other power switches** so follow the diagrams below and layout closely.

- Make sure the switch is in the desired on position when it is on. Align according to the front panel. Connect the twisted leads to the AC side of the switch.



- Now connect the lead from the rectifier center position to the switch DC side, and then return to the board 2.4K resistor for the DC side.
- Attach a wire to the other side of the standby contact and route that to one side of the can cap following the layout. From this point connect to the centre tap of the Output Transformer.
- Connect from the other side of the dual cap, and the 1K5 power resistor, to the turret board following the layout. Connect the centre of the can cap to the power amp star ground point.

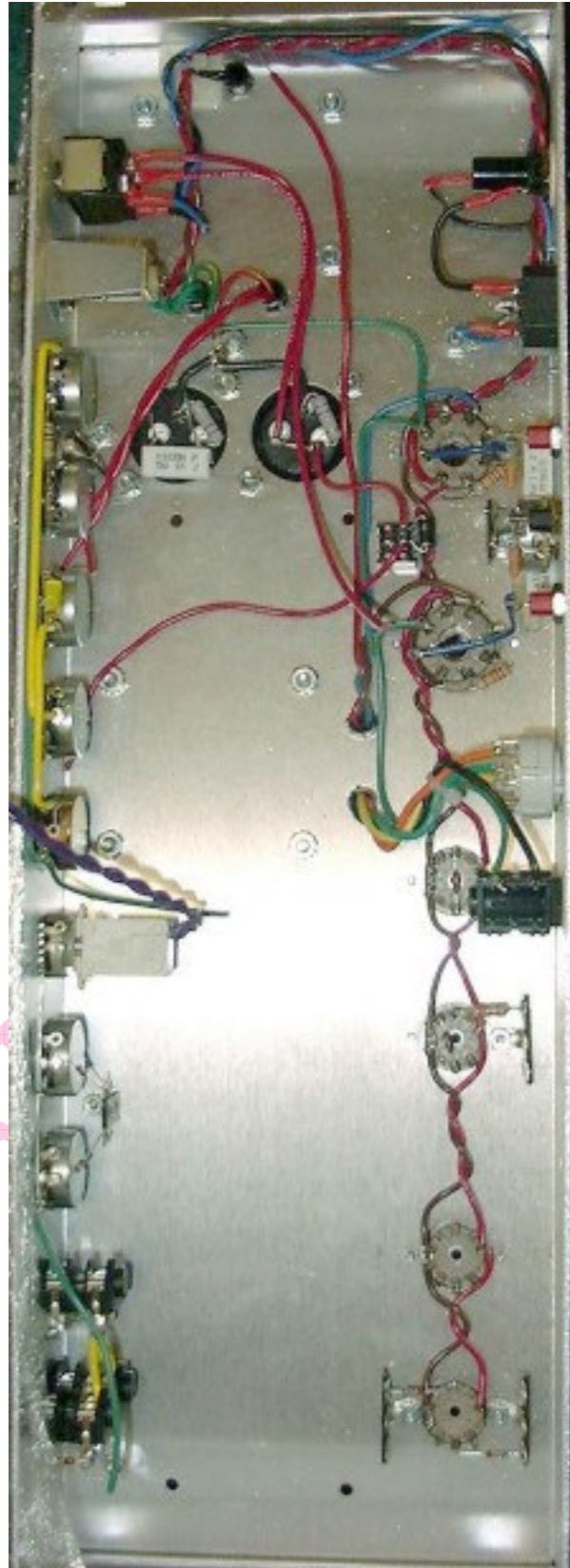


- Connect the center tap of the high voltage leads from the transformer to the power amp star ground point.

## Test the Power Transformer

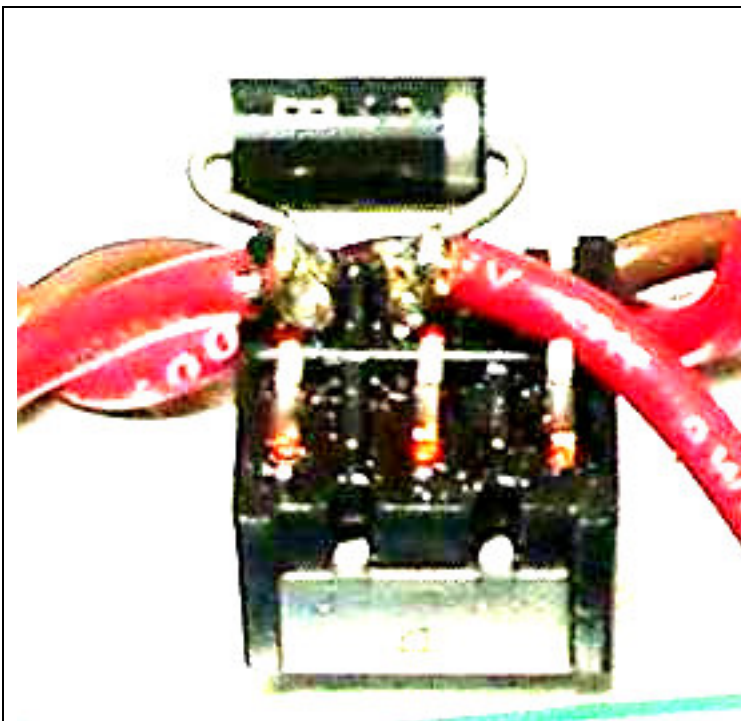
This is a good time to check your mains wiring to the power transformer and ensure all wires are safely connected or tied off.

- Without tubes installed, mains supply **unplugged**, trannies **NOT** soldered to the board, get out an ohmmeter. Remove the pilot lamp from the 6.3 V assembly. Use an ohmmeter to verify that the connection points for the Power Transformer (PT) secondaries are open circuits. With no tubes and no pilot lamp, the 6.3VAC (Volts A C) secondary should be open circuit i.e. no continuity. With solid-state diodes, there is continuity to the filter caps. So, you will see an initial low resistance that increases with time as the filter caps charge. Use the continuity setting on your meter for this.
- If all is well, solder in your transformer's low voltage secondary leads (120 or 230 volt primary). Don't solder in the High Voltage (HV) secondary. Also solder in your Output Transformer (OT) secondary.
- Install your pilot lamp and the slo-blo mains fuse. Switch to standby for 1 second just to see the pilot come on nice and bright. This checks that the 6.3VAC supply line is not shorted and is properly connected to the lamp. If the lamp did not come on, check to see if the fuse blew. If not, try another lamp and do the 1-second power thing again. If the fuse blows, there is a short on the PT or mains. If the fuse survives, then it's likely that the 6.3VAC is not properly









- Wire up the bias switch with the Zener diode so that in one position, the two resistors are connected to two terminals (center and outside) and the 18V 5W zener diode to the other two (center and outside) of the DPDT toggle switch. **This is the 6V6 Position**

**Use care when soldering to the switch terminal so as not to melt the switch body.**

**TIP:** You may prefer to pre-wire this before installing in the chassis.

## **7 Connecting the Turret Board to Controls**

Now is the time to make the connections from the turret board to the potentiometers.

- The easiest way to wire these correctly is to follow the layout, and do one terminal connection at a time. Some of these terminals require more than one wire connection, so arrange these accordingly and solder once.

**TIP:** Some builders may prefer to connect the control wires to the Turret board above the board, and not below. This approach is acceptable, minimizes waste and is the way Dave Reeves did it.

**TIP:** Some controls may require components need to be installed for tone controls etc.. Pre-form these components to fit into place and use some heat shrink tubing ensure they do not touch other parts. Solder them in place following the layout provided.

## **8 Output Transformer - Output Jacks**

Refer to the Output Transformer schematic.

- Twist the Blue & Brown output leads from the transformer to the output tubes. Leave enough transformer lead length to reverse the leads from one 6V6/KT66 to the other if necessary to eliminate amplifier squealing.
- Start by soldering the Brown output lead to V5 and the Blue to V6.