

Toroidal Transformer – Mounting and Failure Possibilities

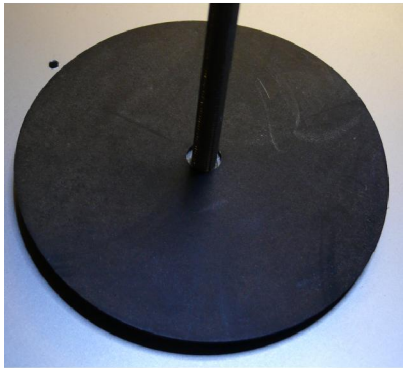


Mount the toroidal transformer to the front panel as follows:

Insert a countersunk screw M6 x 80 with washer, spring-lock washer and nut into the front panel (tighten screw firmly but do not overtighten).

Make sure that there are no protruding screws from the front panel in the transformer's area which could damage the transformer winding (socket box holder).

Cut down those screws before mounting the transformer.



Apply the rubber disk



Install the transformer and apply another rubber disk on top of the transformer



Apply metal sheet and fix transformer with a locking nut.

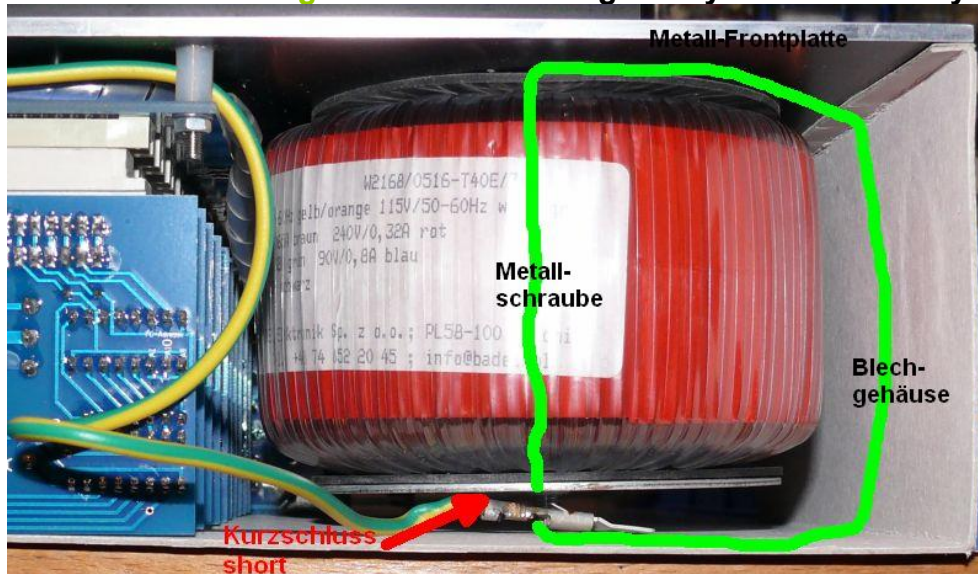
Caution: Tighten the locking nut carefully until the transformer holds reliably. Do not overtighten to avoid damage of the transformer winding!

Failure Possibilities:

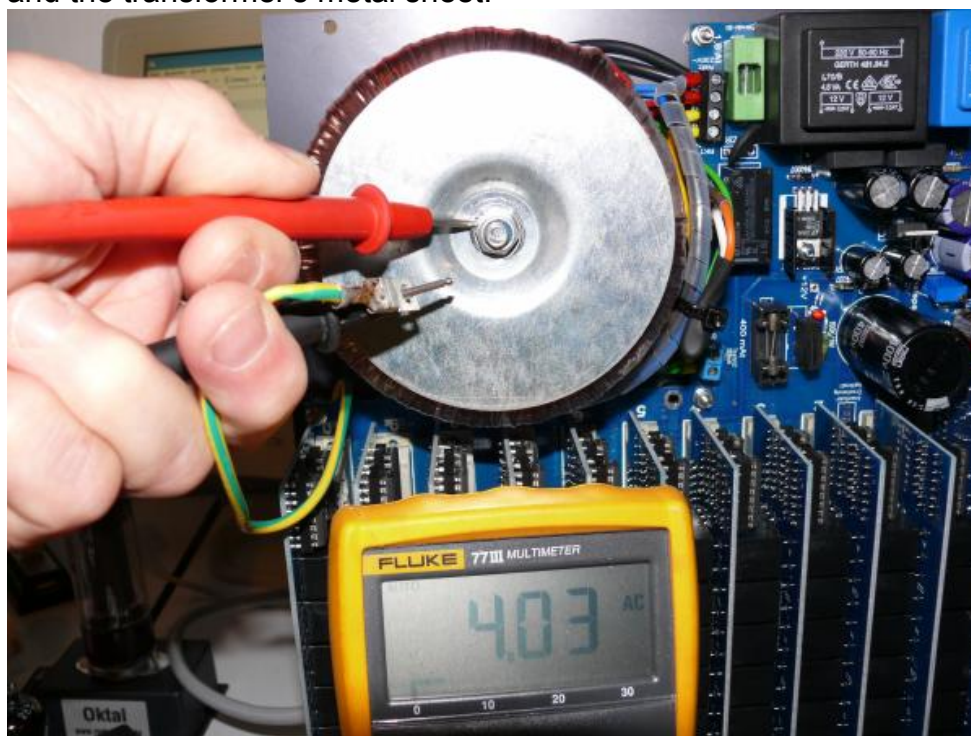
Neither the metal sheet nor the upper end of the transformer's mounting screw may touch any parts of the metal housing or protective ground.

This would create a shorted winding through the transformer causing a large current flow in this shorted winding.

I encountered the following problem: When I connected the metal housing to the protective ground with a 6,3 mm flat connector below the transformer that connector touched the transformer's metal sheet. This led to a **shorted, very low-resistance transformer winding**. The transformer got very hot without any load applied.



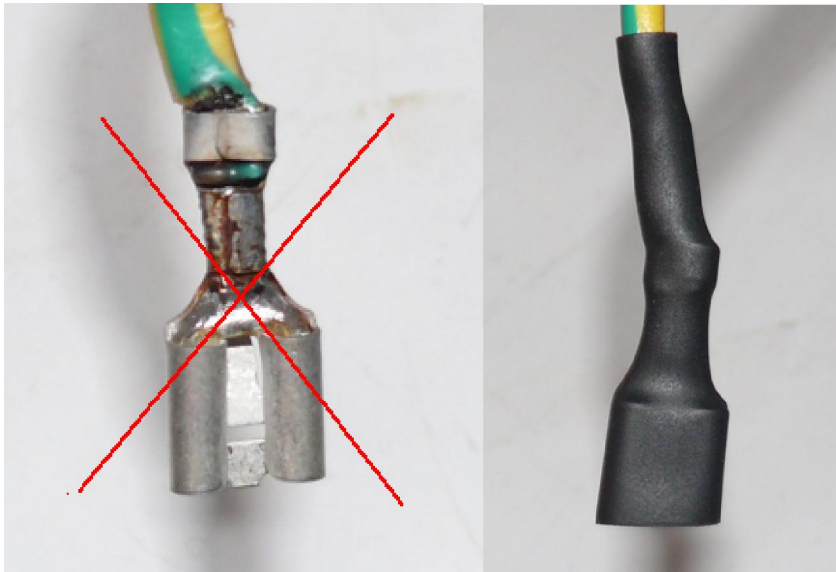
You can easily prove that there is a high short circuit current flowing when you connect an ammeter between the metal housing (or the attached protective ground) and the transformer's metal sheet:



In this case a current of 4A was observed. Without the long measuring cables - with the solid metal housing as conductor – the current path will probably have much less resistance and the current will be even higher.

Solution:

Put a piece of heat shrinkable tube over the connector to achieve sufficient insulation:



So the „winding“ through the toroidal transformer is now opened and there is no impact any longer.