NotTaR of Television Sets : Incredibly Handy widgets

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Incredibly Handy widgets

These are the little gadgets and homemade testers that are useful for many repair situations. Here are just a few of the most basic:

- Series light bulb for current limiting during the testing of TVs, monitors, switching power supplies, audio power amplifiers, etc. I built a dual outlet box with the outlets wired in series so that a lamp can be plugged into one outlet and the device under test into the other. For added versatility, add a regular outlet and 'kill' switch using a quad box instead. The use of a series load will prevent your expensive replacement part like a horizontal output transistor from blowing if there is still some fault in the circuit you have failed to locate.

- A Variac. It doesn't need to be large - a 2 A Variac mounted with a switch, outlet and fuse will suffice for most tasks. However, a 5 amp or larger Variac is desirable. If you will be troubleshooting 220 VAC equipment in the US, there are Variacs that will output 0-240 VAC from a 115 VAC line (just make sure you don't forget that this can easily fry your 115 VAC equipment.) By varying the line voltage, not only can you bring up a newly repaired TV gradually to make sure there are no problems but you can also evaluate behavior at low and high line voltage. This can greatly aid in troubleshooting power supply problems. Warning: a Variac is not an isolation transformer and does not help with respect to safety. You need an isolation transformer as well.

- Isolation transformer. This is very important for safely working on live chassis equipment. Since all modern TVs use a line connected power supply, it is essential. You can build one from a pair of similar power transformers back-to-back (with their highest rated secondaries connected together. I built mine from a couple of similar old tube type TV power transformers mounted on a board with an outlet box including a fuse. Their high voltage windings were connected together. The unused low voltage windings can be put in series with the primary or output windings to adjust voltage. Alternatively, commercial line isolation transformers suitable for TV troubleshooting are available for less than $100 - well worth every penny.

- Variable isolation transformer. You don't need to buy a fancy combination unit. A Variac can be followed by a normal isolation transformer. (The opposite order also works. There may be some subtle differences in load capacity.).

CAUTION: Keep any large transformer of this type well away from your monitor or TV. The magnetic field it produces may cause the picture to wiggle or the colors to become messed up - and you to think there is an additional problem!

- Degaussing coil. Make or buy. The internal degaussing coil salvaged from a defunct TV doubled over to half it original diameter to increase

its strength in series with a 200 W light bulb for current limiting will work just fine. Or, buy one from a place like MCM Electronics - about $15 for one suitable for all but the largest TVs. Also, see the section: Degaussing (demagnetizing) a CRT.

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