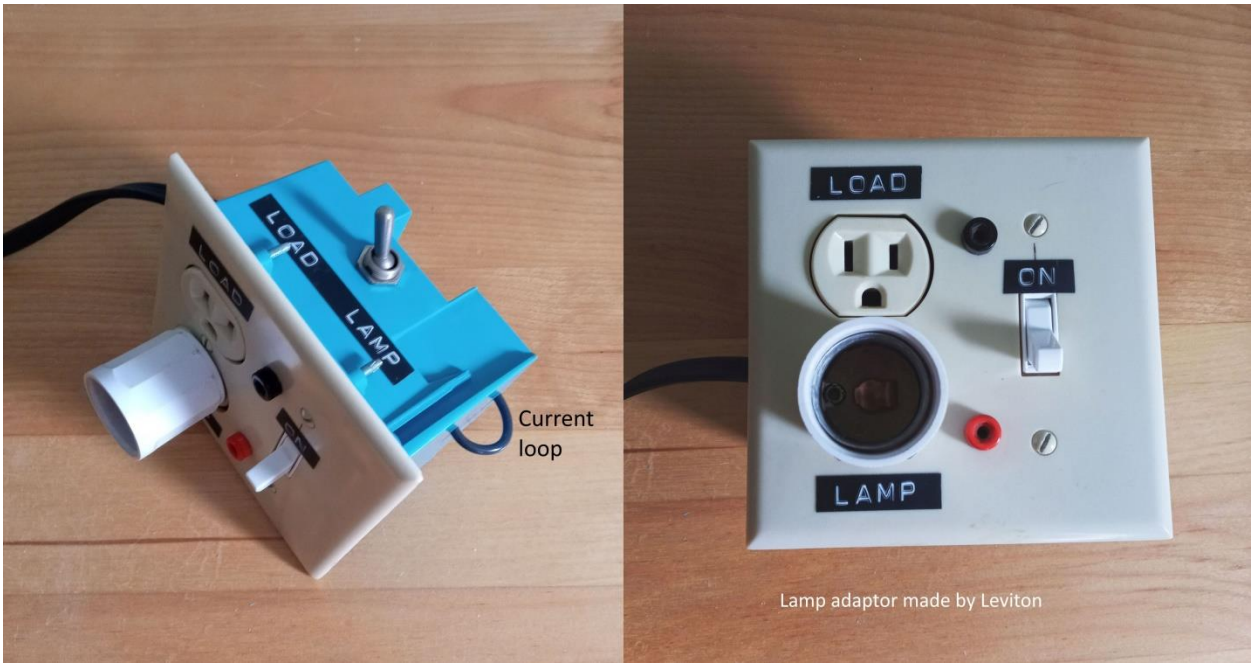
Current Limiting AC Receptacle

This was built mainly for use when working on old boat anchor tube type radios and other equipment that hadn't been powered up for a number of years. It is usually used after a Variac. It is also sometimes use to check the current draw of various appliances. An incandescent light bulb is used as the current limiter.

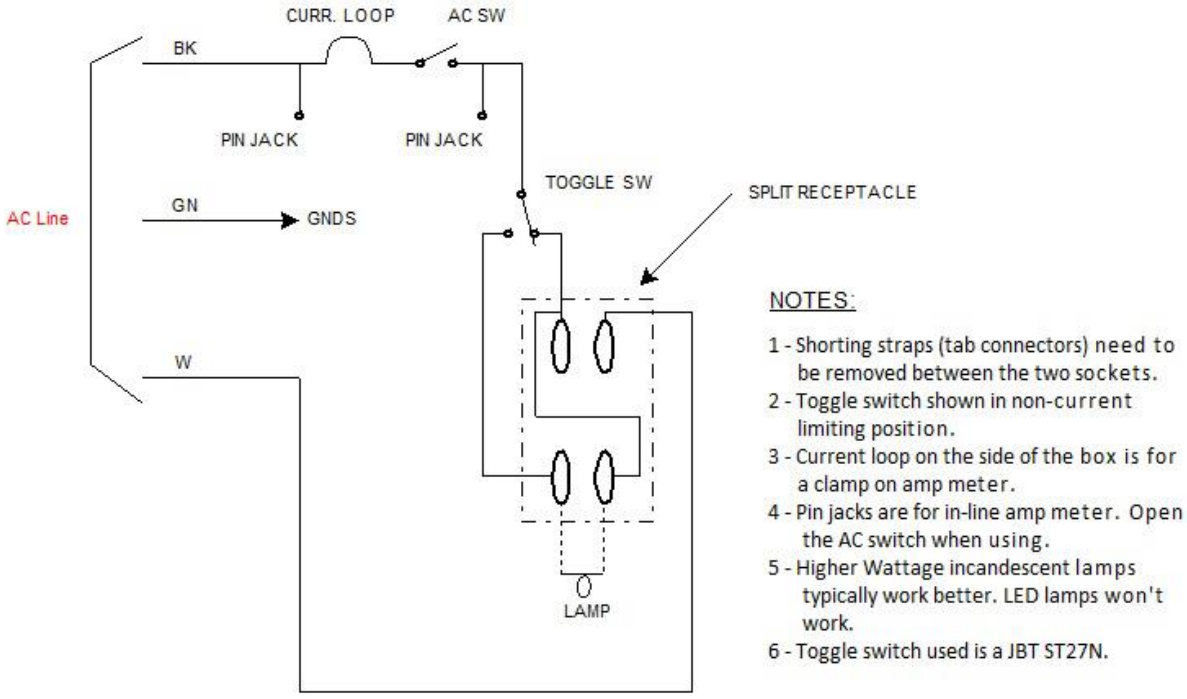


The load socket is where you plug in the radio or DUT and socket for the current limiting (lamp) accepts the incandescent light bulb. A higher Wattage light bulb is typically better. The two pin jacks are across the AC switch and are used to check the device current by turning off the switch and have the current pass through the current meter. I typically use a Fluke 75 DMM for this. The current loop on the side of the box is where a clamp on amp meter can be connected. I may use this when a higher current is expected.

The toggle switch on the top of the box determines whether the load socket is connected directly to the 120 VAC or is going through the current limiting lamp.

The schematic below shows the wiring. It is important to remember to cut the shorting straps (both sides) between the two sockets of the duplex receptacle. A split receptacle is need here.

CURRENT LIMITING AC OUTLET



I would have liked to have added a fuse and pin jacks to measure the actual voltage applied to the device but the box was running out of space. There are some wire nuts (Marr connectors) used that also took up space in the box.

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