

## Boat Anchor Night-Light (or What to do with those Old Vacuum Tubes) By Phil Salas – AD5X

### Introduction

If you do any work on old radios, you've probably accumulated a few extra vacuum tubes of various types. In my case, I like to solid-state the power supplies of old radios so I have a collection of 5U4, 5Y3, 5R4, and 6AX4 vacuum tube rectifiers. But for those of you who don't do this, you can find old tubes very inexpensively at flea markets. So what to do with your old tubes? You can throw them away, but why not build a night-light out of them? I know, I know – night lights only cost a dollar or two. But for only about \$30 in parts and shipping costs, you can recycle your old tubes into a dim but usable night light!

### The Design

As stated above, I elected to use rectifier tubes in my night light. Both 6.3V and 5V filament rectifier tubes are common and easy to find, but 5-volt filament transformers are not. Therefore, I decided to use a 12.6 VAC center-tapped with one 6.3V secondary used for 6.3V filaments, and the other 6.3V secondary used with a 1/2-ohm dropping resistor for 5V filaments. Of course, you can put 6.3V directly on a 5V filament and the night light will be brighter. But the filament life of the tube will be reduced. The schematic of my design is shown below. This circuit permits using any of the popular 5V rectifier tubes, as well as some of the popular 6.3V tubes.

### Building your night Light

The photos show the way I constructed my night light. You will need both a 1-inch and 1.25-inch chassis punch for ease in cutting the holes for the octal socket and AC plug. If you have an octal socket with mounting ears on it, you can easily mount this in the 1-inch hole. However, since I used the pc-mount octal socket called out in the parts list, I had to piece of printed-circuit board to make a sub-board to hold the pc socket. Then the sub-board was mounted with #6 hardware.

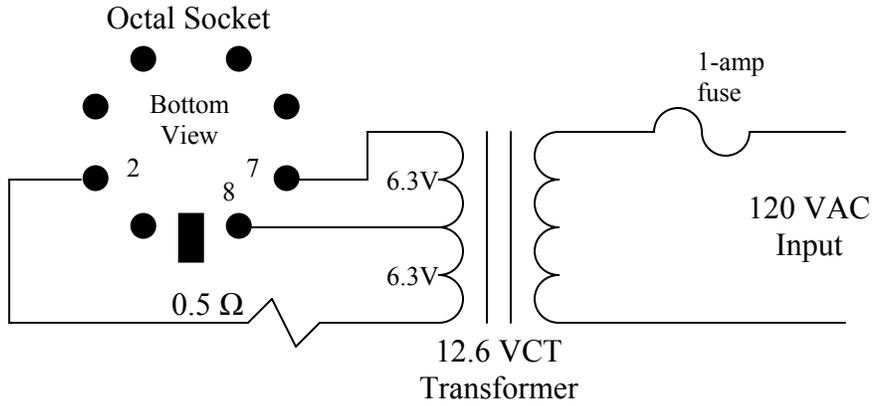
The AC plug called out in the parts list can be easily disassembled, and then the housing can be used as a retainer to hold the plug in place on the aluminum box.

### Parts List (Some substitutions may be made)

<u>QTY</u>	<u>Description</u>	<u>Source</u>	<u>Price</u>
1	12.6VCT 3-amp transformer	All Electronics TX-123	\$8.25
1	Fuse Holder	Mouser 441-R345A	\$0.93
1	1-amp Fuse	Mouser 504-GMA-1	\$0.24
1	PC Board	All Electronics PCB-46	\$2.00
1	0.47 ohm 2-watt resistor	All Electronics 0.47 2-watt	3/\$1.00
1	3-Prong AC Plug	All Electronics ACP-8	\$2.50
1	Octal Socket	All Electronics OCT-PC	\$1.00
1	Aluminum Box	Mouser 537-00-P	\$5.69
Miscl	Hardware, wire, solder, and heat-shrink tubing		

Conclusion

I've described a vacuum tube based night light that can be easily built. Obviously, the design can be modified to use any vacuum tube you may have. Yes, it is expensive and not very bright. And yes, it is bulky and dissipates a fair amount of power (up to 19 watts with a 5U4). But it resolves the question: "What do I do with those old vacuum tubes?"



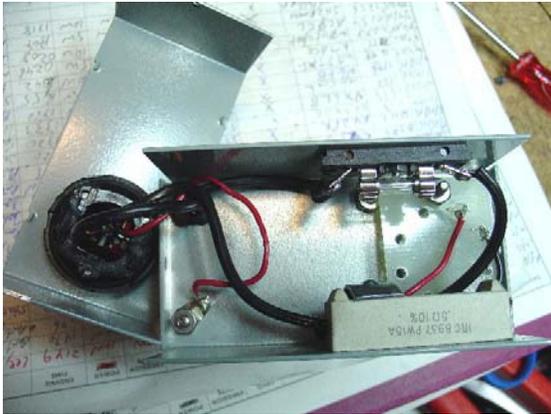
Schematic – Vacuum Tube Night Light



Back, or plug-side of Night-Light



Front, without tube installed



Inside Wiring of Night-Light



Mounted on wall – Note spare “bulb”