

Constructing Substitutes for GI-6B and GI-7B Sockets

By John Stanley, K4ERO

The Russian made GI-7B and GI-6B triodes are very attractive from a cost perspective provided you do not have to purchase the sockets. For persons seeking a very economical way to get



higher power, the socket cost becomes a major issue. The original sockets shown in Figures 1 and 2 (at left) are, sometimes, available from Eastern European stocks and come in both an all metal and an insulated version. (See www.ur4ll.net)

Nicely made US options can be found at gi7b.com and www.nd2x.net/gi7-socket.html (Figures 3 and 4, right)

With any of these options, plan to pay about twice the cost of the tube for each socket. This makes a very nice solution and the total cost of tube and socket can still be cheaper than the tube alone with the 3-500Z and other types. And the sockets, unlike tubes, have essentially infinite life.

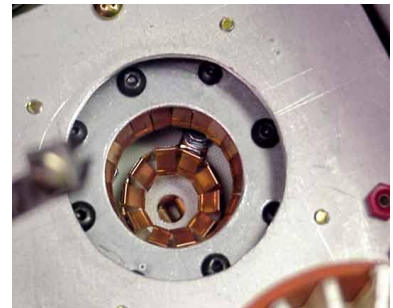


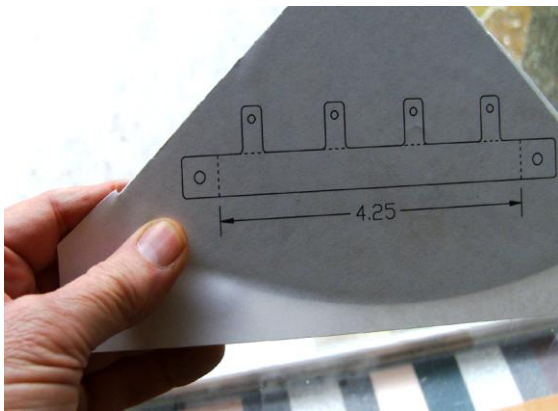
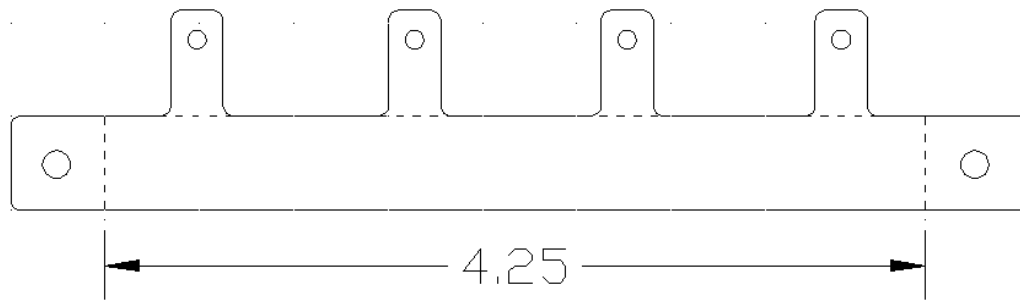
Figure 3 (upper) and Figure 4 (lower)

However, for the ultimate in low cost, there is another option of not using a "socket" at all. Once you accept the disadvantage of not being able to quickly change tubes, you can simply bolt or clamp the tube in place and pay next to nothing. Here are some ideas for doing that.

Figure 1 (upper) and Figure 2 (lower)

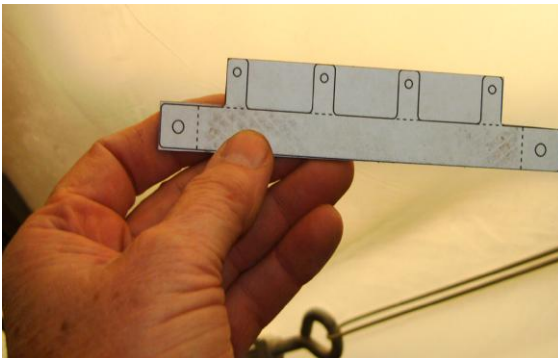
A flange for attaching the grid ring to ground works very well. Note that for many years similar flanges have been used to mount electrolytic capacitors to a chassis. You may find one in your junk box that is the right size. If so, be sure it is non-magnetic. Magnetic materials should not be used in an RF environment as they may heat up due to strong magnetic fields. Check any suspicious hardware with a magnet. If it is attracted, don't use it. .

Details for making the grid flange



Print the template above at full scale, checking the dimension shown to check for size. Paste the template to the aluminum. Rubber or contact cement works well for this.

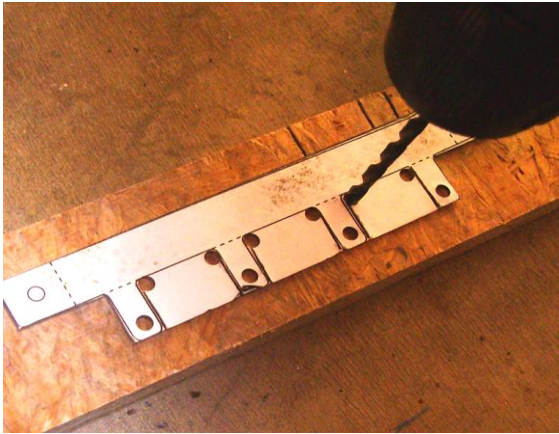
The aluminum should be about 1/16-inch thick and a relatively soft alloy.



Then cut the outline using snips or a hacksaw.



It will be difficult to cut out the square notches with either a snips or saw leaving the small tabs. A good approach is to cut slits with the hacksaw and break the notches out. Back up the saw with a wood block, if necessary, so the metal doesn't flex as you cut it.



Drill or punch the holes in the tabs and in the corners of each notch. Drill only one of the end holes, as you will want to drill the second hole after forming the ring to be sure the holes are aligned. This step and the previous one can be switched if you prefer.



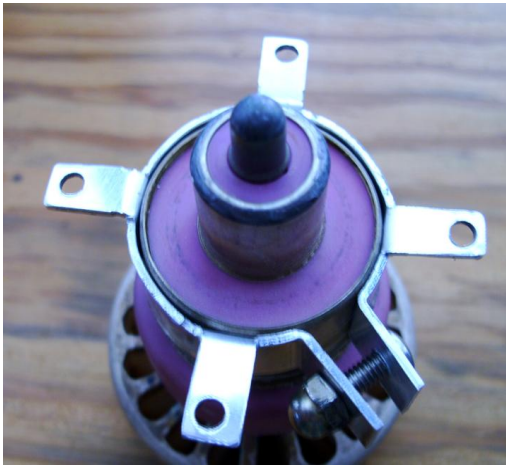
Clamp the piece back in the vice without the backup board. Align the bottom of the holes with the top edge of the vice as shown. Break off the wide tabs by bending back and forth with a plier as shown. Be careful not to bend or break the small tabs with the holes which will be for mounting.



File all of the places where the wide tabs broke off to remove all sharp edges. Also, file all of the corners around the profile so that everything is smooth.

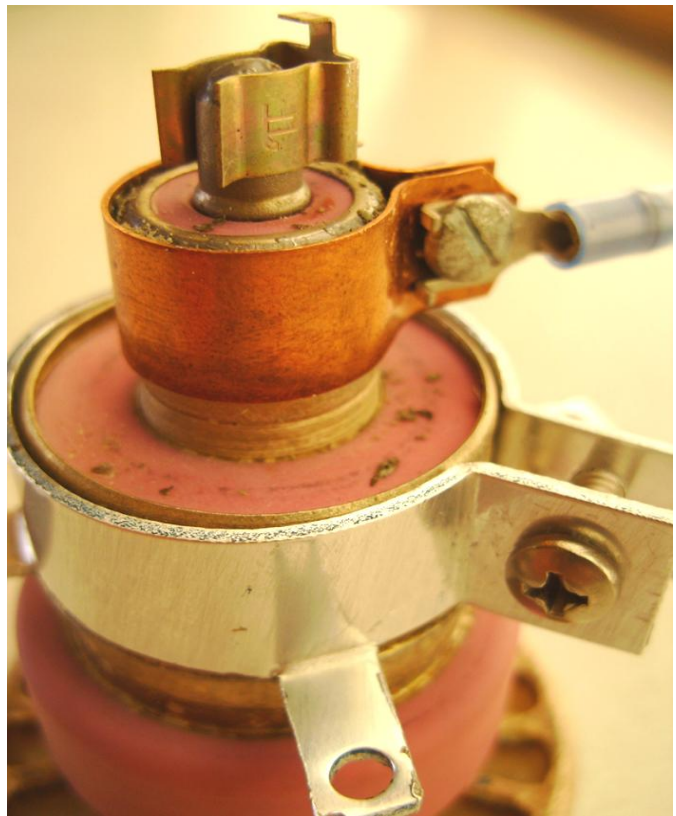
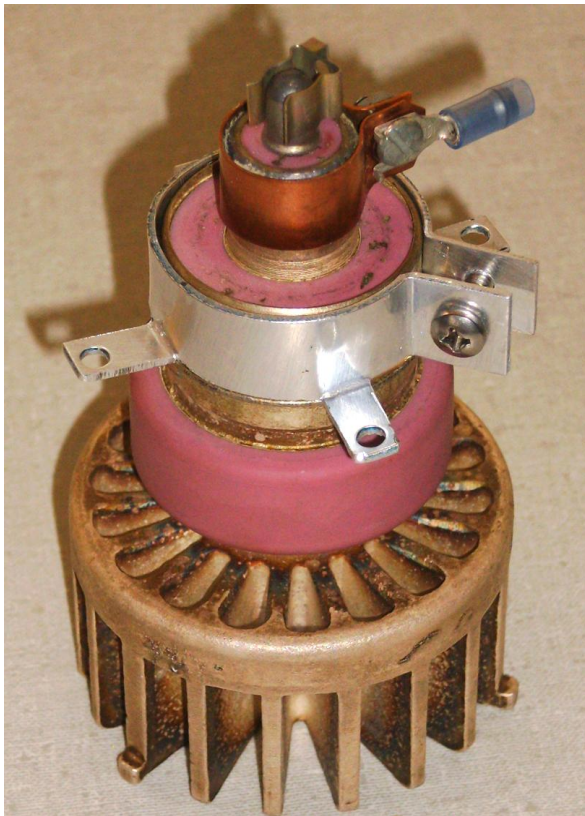


Then bend all six of the taps along the dotted lines at 90 degrees, all in the same direction. You can do this in the vice for the small tabs, and also for the end tabs by re-gripping the piece so the bend line is just showing.



Roll the flange into a round shape using the tube or something just a bit smaller in diameter. Line up the end tabs. You can now drill the hole in the second end tab being sure it lines up with the other side. You may wish to drill and tap one side so you don't need a nut, but the nut and bolt is stronger. If your sheet metal is thin, you may also want to use two large washers to allow more pressure on the screw without distorting the tabs. Secure it with a nut and bolt to the tube. Mounted on the tube as shown at left, the assembly is now ready to mount on the chassis in a 1.25 to 1.75 inch hole. For the cathode ring, a simple strap wrapped around the ring and secured with a single screw will work. For the smaller filament connection a fuse clip made of springy brass or beryllium copper works well.

Center the tube on a hole in the chassis about 1.25 to 1.75 inches in diameter. The larger hole would be used where air flow around the filament leads required it. Where the four tabs fall on the chassis, mark and drill the holes. The ring will be bolted to the chassis through these holes. The tube will then mount securely to the hole in the chassis. The single screw in the flange ends will release or clamp the tube. An even simpler method is to use three or four right angle tabs and a suitable hose clamp, but it doesn't look as nice.



The photos above show the flange mounted with the tube inverted. This allows more of the tube to be mounted below the chassis. With this method the tube must pass through the chassis so the hole must be at least 1.4 inches diameter. Here also we see a method of connecting to the cathode and filament terminals. A single copper or aluminum strap works well for the cathode, and a small fuse clip attaches to the center filament pin.

Note that the tube is shown upside down in these pictures. Normally the anode is mounted up, although it is permissible to operate the tube in any orientation.