

Another variation of the cooling fan for the 516F-2.

For anyone who is interested, I have posted some pictures of another variation of the cooling fan for the 516F-2.

There seem to have been a lot of mods done where the fan is attached to the bleeder resistor cage, but in my opinion these all have one shortcoming, they do not provide much additional cooling for the tubes. While there seems to be a lot of misinformation out there about tubes having a vacuum, so cooling of the envelope should not affect the temperature of the anode, some elementary knowledge of thermodynamics will show that this is not the case. Heat is transferred by radiation in both directions from anode to glass, and glass to anode. If you keep the glass cooler, there will be a reduction in the anode temperature and life of the tube also.

My mounting provides cooling air blowing downwards for both the bleeders and tubes. To ensure enough airflow, I am using a voltage doubler to drive the fan with a full 12V DC. The fan was one from my junkbox, but any small and quiet, brushless computer type fan will work fine. The fan can also be mounted to the case, but that makes it more awkward to remove the supply from the case and restricts the airflow.

There are a plethora of strange voltage doubler circuits on the web, some drawn in a very complex way. After some testing with a breadboard, I found some of them don't produce anywhere near 12V and others just waste a lot of components. See the attached drawing for a very simple full wave version that will provide over 12V with 6.3V input. You must use at least 400uF caps to get the required 12V.

The mod has been done in a completely reversible way - no holes have been drilled and the whole lot can be removed in a few minutes. Power comes from the 6.3V winding in the 516F-2.

I hope this is useful to somebody.

Cheers,
Peter - VK2AN



