Re: Selenium rectifier question

Source: http://sci.tech−archive.net/Archive/sci.electronics.repair/2008−04/msg00772.html

- *From*: "Arfa Daily" <arfa.daily@xxxxxxxxxxxx>

- *Date*: Wed, 16 Apr 2008 09:01:11 GMT

"David" <someone@xxxxxxxxxxxxxx> wrote in message
news:fh9Nj.1810$I55.1514@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

> "EricM" <ew_morr@xxxxxxxxxxx> wrote in message
> news:9c8d5b36−5f33−4ca1−9490−e28801bb9c4d@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
>
> > On Apr 14, 9:27 am, "David" <some...@xxxxxxxxxxxxxx> wrote:
> >
> > > I also forgot to mention that the unit in
> > > question was
> > > originally 6 −
> > > 1 inch square pieces in the stack, but only
> > > two
> > > connections. The
> > > other unit that I replaced with the 10A 600V
> > > units was
> > > four pieces
> > > about 1 1/8" (or just slightly larger) square,
> > > but had
> > > three
> > > connections. This particular unit was on the
> > > 15V side of
> > > the supply
> > > (filament supply for several 12 volt filament
> > > tubes) and
> > > the 600V 10A
> > > silicons seem to work fine. The other part of
> > > the supply
> > > circuit −
> > > the 600V plate supply − is where I used one
> > > of the 600V
> > > 10A jobs to
> > > replace the 6−stack 1" square two−lead unit.
> > > Smaller but
> > > more in the
> > > stack must have equaled more PIV handling
> > > than the 600V

> 10A silicon I
> put where it was (with no dropping resistor).
> Don't know
> why it's so
> hard to find info on these older rectifier
> units. They
> hadn't gone
> bad either, I'm just replacing them to prevent
> filling the
> cutting
> room with toxic stink if they should decide
> to fail...

> I admit I am very confused at this point. The three leaded rectifier was actually twoseleniumdiodes with a common cathode or anode. Your replacement here should work fine but
> check the filament voltage since it will be higher than before by one or two volts. 12.6 volt tubes will not like 14 volts over a long time period.
>
> There is no way a single 6 plate (stack)seleniumrectifier can be a half wave rectifier for a 600 volt supply. Each rectifier plate can withstand only about 50 reverse volts and as others have said, you need at least three times that for a PIV rating.
>
> David

> Here's a link to the schematic; after replacing CR1 and CR2A/B with 10 amp 600 V silicon diodes, when the relay closes to enable the 600V plate voltage, the main power fuse F1 blows. I'm not sure I need dropping resistors, because the output voltage on the 12.6 and −38 terminals is very close to what it should be. Is there something I'm missing? http://img410.imageshack.us/img410/4691/1567pscb9.jpg
> Thanks.

I looked at the schematic and as I suspected, none of the selenium rectifiers are not involved in the 600 volt supply. CR2 A&B generate the 12.6 volt filament voltage and can be adjusted with R1. No problem there. The other selenium rectifier CR1 is to generate a negative bias supply.which is also adjustable and further clamped by Zener CR3. The high voltage is rectified by CR4 and CR5 which, I assume are silicon diodes that you have not touched. The diodes you used for the selenium replacement are an overkill but should not be related to your problem. Are you sure the −38 is really there and is in fact a minus voltage? If so, at this point I would check the CR4 and CR5 diodes and other parts of the 600 volt circuitry to see if you blew something else when working on this

unit.

David

I wonder where exactly the 600v next goes ? I see that there is a further 1:1 transformer−isolated supply to the "regulator filament". As they've gone to this much trouble to isolate it, could it be a regulator for the 600v maybe ??

Arfa

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