Mic Kaczmarczik's Tube Information

This directory contains USENET articles Mic has saved about guitars, equipment, pickup, techniques, players, and so on. Mic has graciously granted permission to post the stuff on the JT30 page on the off chance that it might be useful in the context of Blues Harmonica. Mic is not responsible for the content, just the collection. He must have quite alot of free time.

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6V6s-in-6L6-amps	27-Mar-1996 13:32 6k
7408-info	05-Jun-1997 11:39 2k
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Amperex-history	16-Mar-1997 02:10 3k
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EL34-coding-explained	06-Apr-1995 10:09 2k
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Mazda-History	13-May-1998 13:50 5k
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No-More-Chinese-12AX7s	17-Feb-1998 09:30 2k
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Phillips-6L6GB-JAN	13-Jun-1996 09:58 1k
Photon-Noise	20-Jun-1998 11:27 4k
RTV-Tube-Damping	19-Jan-1997 10:58 5k
Real-Mullard-GZ34s	12-Jul-1996 20:46 3k
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SPICE-tube-models	22-Aug-1995 09:25 1k
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Sovtek-12AT7EH-5751-..>	21-Sep-2000 10:14 6k
Sovtek-5881	31-Aug-1996 09:46 4k
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Sovtek-5881-for-7027	19-Sep-1995 11:35 2k
Sovtek-5881-specs	03-Nov-1995 11:01 3k
Sovtek-5881WXT	24-Feb-1996 11:06 3k
Sovtek-6CA7-problems	01-Jun-1995 00:00 4k
Sovtek-6L6WXT+	11-Aug-1998 10:49 2k
Sovtek-Midget	28-Jul-1995 15:31 2k
Sovtek-Online	03-Jun-1996 00:14 1k
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Sovtek-page	24-May-1995 17:47 1k
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Svetlana-6550s	07-Nov-1995 11:01 4k
Svetlana-6L6GC	26-Oct-1996 00:18 2k
Svetlana-7591A	28-Oct-1996 20:13 1k
Svetlana-EL34-review	16-May-1996 10:18 6k
Telefunken-Tubes	16-Oct-1994 09:36 1k
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Tesla-12AX7	18-Feb-1998 11:07 2k
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Tomorrows-tubes	31-Aug-1995 22:03 9k
Tube-Amp-Books	17-Feb-1995 12:10 3k
Tube-Amp-FAQ-Feb-96	01-Mar-1996 18:51 65k
Tube-Chickens	24-Apr-1997 12:20 5k
Tube-Curve-Tracers	12-Apr-1996 20:36 1k
Tube-Data-Page	31-Jan-1998 23:44 1k
Tube-Data-Web-site	03-Feb-1996 19:24 1k
Tube-Failures	21-Mar-1996 12:58 2k
Tube-Manufacturers	13-Dec-1997 00:31 7k
Tube-Mfgr-Codes	17-Dec-1996 15:46 3k
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Why-5V-rectifier-vs-..>	23-Mar-1998 13:10 3k
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Why-Tubes-Coated-Inside	05-May-1998 08:53 5k
Worn-Out-GZ34s	19-Sep-1998 15:35 2k
YA-tube-page	28-Aug-1996 21:39 2k

From tabreaux@neworleans.com Thu Mar 26 15:31:21 CST 1998
Article: 93367 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!news.maxwell.syr.edu!news-peer.sprintlink.net!news-backup-west.sprintlink.net!news-in-west.sprintlink.net!news.sprintlink.net!Sprint!204.181.176.6!ux2.accesscom.net!not-for-mail
From: "Ted Breaux"
Newsgroups: alt.guitar.amps
Subject: Re: 12AX7 Tube Comparisons?
Date: 25 Mar 1998 09:24:57 GMT
Organization: AccessCom, THE New Orleans Internet Provider
Lines: 43
Message-ID: <01bd5801$40e67aa0$02bdb5cc@default>
References: <3518FA4A.572EEBF0@shellus.com>
NNTP-Posting-Host: p302.accesscom.net
X-Newsreader: Microsoft Internet News 4.70.1155
Xref: geraldo.cc.utexas.edu alt.guitar.amps:93367

> I have an Ampeg Superjet with Sovteks and would like to swap the tubes
> and see what tonal changes are affected, but I don't want to go out and
> buy a couple of each different types?
>
> Any ideas?
>

Yes. I have done quite a bit of time consuming, tedious research with different preamp tubes in different amps. In a nutshell, here are some plain and simple guidelines which will get you where you want to go all for about any amp application:

With respect to my NOS Mullards as a basis of comparison...

Chinese 12AX7A - Harsh, not very musical. Avoid.

Sovtek 12AX7WA - Brittle, thin, low gain. Avoid.

Sovtek 12AX7WB - Darker than the WA, better gain.

Sovtek 12AX7WXT - Better, quieter still, but more $$. Better suited for audio amps.

Tesla ECC83 - Good gain, quiet, best tube for drier sounding high gain amps (i.e. modern Marshalls). Robust internal structure, well balanced sound.

Tesla E83CC - High priced, very low noise. Save your $$, as this is only an advantage in phono preamps!

Ei ECC83 - (Yugoslavian) - Great gain, very noticeably warmer sound, and will warm up any amp. Best tube for Vox, Fender, vintage Marshall, and any other vintage amp. Telefunken 'diamond' copy, but not as quiet. Some are a little microphonic.

Ruby 7025STR - An upgraded, premium Chinese made tube. Anodized plates. Reported (by "Lord Valve") to be much better and quieter. Production ceased.

To sum it up, I find that if you are buying Tesla and/or Ei, that you really don't need other brands. Preamp tube selection is very important, and often will significantly change the sound of your amp.

Ted B.

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From ftom@netcom.com Sun Mar 26 14:37:25 CST 1995
Article: 616 of alt.guitar.amps
Newsgroups: alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.reston.ans.net!ix.netcom.com!netcom.com!netcom19!ftom
From: ftom@netcom.com (Tom May)
Subject: Interesting 12AX7 gain test results.
Message-ID:
Sender: ftom@netcom19.netcom.com
Organization: The Planet Eden
Date: Sun, 26 Mar 1995 18:32:24 GMT
Lines: 41

Hi,

I decided yesterday would be a good day to test the gain in all my
12AX7s. I used a circuit with a 1M grid resistor, 68k grid stopper,
2.7k cathode resistor bypassed with 50uF, a 220k plate reistor (no
other load), and a 340V power supply. My input signal was 200Hz 100mV
p-p. I only tested one half of each tube, unfortunately.

Here is how they all stacked up, in descending order of gain:

Sovtek 12AX7WXT 78
Sovtek 12AX7WXT 76
German-made Realistic 12AX7A
(i.e. Radio Shack) 76
Sovtek 12AX7WXT 72
Sovtek 12AX7WXT 72
Hungarian 12AX7 68
GE 12AX7 64
Hungarian 12AX7 64
Hungarian 12AX7 64
GE 12AX7 58
RCA 12AX7A 48

The Sovteks are new.

The Hungarian tubes were in my amp when I bought it in the late 80s
and for all I know had been in it since it was manufactured in 1980.
It looks like the manufacturer is Tungsram, but the letters are all
fairly rubbed out.

The RCA had been in my amp 2 years. I don't know if it was NOS or
just O when it was installed.

The GEs and Realistic are in an amp I've had since about 1982. The
Realistic was in a channel which hasn't been used since at least 1982.

So I take back what I said about the Sovteks not having more gain than
the Hungarians (I said that somewhere). Also, either the American
tubes were not that great to begin with or they haven't aged well.
--
Tom.

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From root@henry.henry.net Sun Aug 20 09:53:31 CDT 1995
Article: 126 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!swrinde!tank.news.pipex.net!pipex!in2.uu.net!news.uiowa.edu!henry.henry.net!not-for-mail
From: root@henry.henry.net (root)
Newsgroups: rec.audio.tubes
Subject: Re: 12AT7 vs. 12AX7?
Date: 20 Aug 1995 03:25:32 GMT
Organization: University of Iowa, Iowa City, IA, USA
Lines: 41
Distribution: world
Message-ID: <4169vc$ldf@nexus.uiowa.edu>
References: <4135vu$12k@newsreader.wustl.edu>
NNTP-Posting-Host: red.weeg.uiowa.edu
X-Newsreader: TIN [UNIX 1.3 941216BETA PL0]

Wilhelm Reich (wilhelm@yakima.wustl.edu) wrote:
: Whadda you know about these things?
i have the operational specs for both from my copy of (ta-da!) the 1959
ARRL handbook 8-)
Well, I've changed the format from a table going across to one going
down so I don't have to worry about 80 columns restriction on all this data
8-). Since this is like 10 or 20 pages FINE print, I'm only putting data on
those 2 tubes 8-).

Type 12AT7 : 12AX7
:
Name High-u dual triode (10): High-u Dual Triode
:A1 Amp.(10) : Class B
Base 9A : 9A
Fil or Header :
V. 12.6 : 6.3 : 12.6 : 6.3
Amp. 0.15 : 0.3 : 0.15 : 0.3
Capacitances uuf : :
C(in) 2.2 (7) : 2.2 (8) : 1.6 (7) : 1.8 (8)
C(out) 0.5 (7) : 0.4 (8) : 0.46(7) : 0.34 (8)
C(gp) 1.5 (7) : 1.5 (8) : 1.7 (7) : 1.8 (8)
Plate Suplly V. 100 : 250 : 250 : 300
Grid Bias 270 (*) : 200 (*) : -2 : 0
Screen Volts --------:-------- : -----------:----------
Screen Ma. --------:-------- : -----------:----------
Plate Ma. 3.7 : 10 : 1.2 : 40 (2)
Plate Res. Ohms 15K : 10.9K : 62.5K :----------
Transconductance(11) 4000 : 5500 : 1600 :----------
Amp. Factor(4) 60 : 60 : 100 : 14 (5)
Load Res. Ohms --------:-------- : -----------: 16K(6)
Watts Output --------:-------- : -----------: 7.5

(*) Cathode resistor ohms
(1) Per Plate
(2) Maximum-signal current for full-power output.
(4) Unless otherwise noted.
(5) No signal plate ma.
(6) Effective plate-to-plate.
(7) Triode No. 1.
(8) Triode No. 2.
(10) Values for each section.
(11) Microohms.

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From wright@uspto.gov Sat Aug 19 20:34:57 CDT 1995
Article: 120 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!news.sprintlink.net!in1.uu.net!intrepid.garcia.com!pioneer.uspto.gov!pioneer.uspto.gov!not-for-mail
From: wright@uspto.gov (Dirk Wright)
Newsgroups: rec.audio.tubes
Subject: Re: 5751 vs 12AX7
Date: 19 Aug 1995 21:01:20 -0400
Organization: United States Patent and Trademark Office
Lines: 13
Message-ID: <4161h0$9gm@pioneer.uspto.gov>
References: <414b1g$7bu@panix2.panix.com>
NNTP-Posting-Host: pioneer.uspto.gov
X-Newsreader: TIN [version 1.2 PL2]

Mark Garvin (mgarvin@panix.com) wrote:

: 5751 plate res: 58k transcond: 1200 Mu: 70
: 12AX7 plate res: 62.5k transcond: 1600 Mu: 100

: So why the reputation for being a plug-in replacement?

Probably because the lower impedance of the 5751 gave higher bandwidth, or
maybe lower distortion at higher frequncies in feedback circuits. Also, the
industrial design of the 5751 may have lower microphonics than a garden
varity 12AX7.

Dirk

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From mje@pookie.pass.wayne.edu Sat Aug 27 09:01:35 CDT 1994
Article: 26601 of rec.music.makers.guitar
Path:
geraldo.cc.utexas.edu!cs.utexas.edu!howland.reston.ans.net!europa.eng.gtefsd.com!ulowell!vtc.tacom.army.mil!news1.oakland.edu!news
From: mje@pookie.pass.wayne.edu (Michael J. Edelman)
Newsgroups: rec.music.makers.guitar
Subject: Re: HELP Identifying which TUBE to use (12AX7
Date: 26 Aug 1994 14:12:51 GMT
Organization: Wayne State University
Lines: 32
Message-ID: <33kt93$7au@oak.oakland.edu>
References: <1994Aug26.120111.806@paramount.nikhefk.nikhef.nl>
Reply-To: mje@pookie.pass.wayne.edu
NNTP-Posting-Host: pookie.pass.wayne.edu

In article 806@paramount.nikhefk.nikhef.nl, templon@paramount.nikhefk.nikhef.nl (Jeffrey Templon) writes:
...
>Blew up a couple of tubes in my amp last weekend. First time.
>In the back, there is a diagram:
>
> 6 6 12 12 7 12 7 7
> L L A A 0 A 0 0
> 6 6 T X 2 T 2 2
> 7 7A 5 7 5 5
>
>
> ^ ^ these are the ones that don't glow.
>
>They are both actually not 12AX7A or 7025 tubes, but ECC83. I have
>seen that ECC83 is the same as a 12AX7 and have also heard that
>an ECC83 is the same as a 7025. What I am guessing is:
>

These days 12AX7 = 7025 = ECC83 (British). There's really little difference.
In the olden days, the 7025 was a special 12AX& for instrumentation, having
low microphonic and noise characteristics. The 12AX7A was an 'improved' 12AX7.
Maybe. ;-) Anyways, consider today's versions functionally interchangeable. You'll
find more difference between brands than between tubes from the same mfgr
labeled 12AX7, 12AX7A, 7025 and ECC83.

The 12AT7 is identical to the 12AX7 but has about 20-30% less gain.
Some people put 12AT7s in the preamp section to get a cleaner sound; some put
12AX7s in place of the 12AT7 in the phase splitter stage to get more crunch.
You can experiment with this if you like.

--mike

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From tremolux@aol.com Tue Dec 20 11:19:17 CST 1994
Article: 35142 of rec.music.makers.guitar
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.reston.ans.net!pipex!uunet!newstf01.news.aol.com!not-for-mail
From: tremolux@aol.com (Tremolux)
Newsgroups: rec.music.makers.guitar
Subject: Re: Help: Biasing 5881's in a Deluxe Reverb
Date: 19 Dec 1994 23:27:05 -0500
Organization: America Online, Inc. (1-800-827-6364)
Lines: 42
Sender: root@newsbf02.news-fddi.aol.com
Message-ID: <3d5mep$8a9@newsbf02.news-fddi.aol.com>
References: <3d5ip7$7ka@newsbf02.news-fddi.aol.com>
Reply-To: tremolux@aol.com (Tremolux)

Careful making blanket statements like that regarding biasing, or someone will blow up their amp. The LAST thing you would want to do is put 5881s in a Deluxe and bias them for 50 ma per tube. No way, Jose!!!

The Deluxe power supply and output transformer were not designed for anything near that. I run mine (I have Russian 5881s in my 64 Deluxe Reverb) at 30 ma per tube, and this results in the output transformer primary winding dropping over 5 volts between center tap and plate due to IR losses. Any more would be too much. The 5881s in my Deluxe give it a real strong and clear clean tone with mondo low end, and a sweet high end as well.

Bear in mind that the Deluxe's magnetics were not designed for 5881s, so I have measured the output at 25 Watts at the onset of clipping. I'm running a solid-state rectifier in it, and I have replaced all the electrolytic filter caps (originally 16 uf @ 450V) with 22 uf @ 500V units, in order to stiffen up the supply a bit for the 5881s.

This is not to sell short the 6v6s. These tubes sound great, if you can get NOS American tubes. The current production Russian and Chinese 6V6s suck big time. The Groove Tubes 6V6HD is NOT a real 6V6, it's really a wimpy Russian 6L6, so forget it. I put in the 5881s specifically to get the thing to go as loud as possible before breaking up, and it worked. In the Deluxe, the 5881s are dead reliable.

The 50 ma bias figure sounds more like Calss A operation to me. Class A amps usually run at lower plate voltages so as not to over dissipate the tubes since they run at high idle currents. Don't try to get an amp designed for Class AB1 to run Class A, because the magnetics probably won't take it.

In amps designed for 6L6/5881s from the beginning, such as Super Reverbs, etc., the right AB1 bias value is around 35 ma. The 50 ma value will result in the power transformer running really hot (maybe too hot), probably hum due to inadequate filtering for this current level, short tube life (they would really be cooking), very early break-up, and probably a somewhat mushy sound.

Sorry, Omar, but I disagree with you on this one, without your putting in any qualifiers.

Regards.

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From tremolux@aol.com Sun Nov 20 09:58:47 CST 1994
Article: 32710 of rec.music.makers.guitar
Path:
geraldo.cc.utexas.edu!cs.utexas.edu!swrinde!howland.reston.ans.net!swiss.ans.net!newstf01.news.aol.com!newsbf01.news.aol.com!not-for-mail
From: tremolux@aol.com (Tremolux)
Newsgroups: rec.music.makers.guitar
Subject: Re: TUBE QUESTIONS
Date: 20 Nov 1994 04:15:19 -0500
Organization: America Online, Inc. (1-800-827-6364)
Lines: 41
Sender: news@newsbf01.news.aol.com
Message-ID: <3an437$3kc@newsbf01.news.aol.com>
References: <9411190135371215@clearspot.com>
NNTP-Posting-Host: newsbf01.news.aol.com

I have one of those 80s Concerts (a 2 x 10), those are the Paul Rivera abortions. Anyway, the BEST output tube for you to use would be for you to find a NOS American 6L6GC. There are NO REAL, honest to God, 6L6GC tubes being made today, period, regardless of the lies you hear from boutique tube sellers.

The best current production 6L6 type tube is the Sovtek 5881, which electrically is a 6L6GB. (Notice the suffix here.) A GB is not as powerful as a GC. The GC's had a 30 watt plate dissipation rating and a higher plate voltage rating (450 or so), while the GB is rated at only 23 watts and 360 volts (as I recall, I don't have a tube manual in front of me right now). Anyway, the manufacturer's ratings were conservative, and a GB will handle 450 volts no sweat. But since it's power handling is lower, your amp will probably lose a bit of power. However, the Sovtek 5881s are very consistent and reliable. They also have decent tone.

Now as to what is better, a Sovtek 5881 is better than the Chinese 6L6, or the Sovtek 6L6, yes. But they are in no way better than an old American 6L6GC. I'm sure the reason they want to sell you Rubys is because they make a handsome profit on those boutique tubes. Be advised that Antique will sell a matched pair of Sovtek 5881s for about $20. How much does your shop want for the Sovtek 5881s that have been re-labeled by Ruby? A Sovtek 5881 is a Sovtek 5881 regardless of who you buy it from. Save your money.

Re-biasing is a very good idea, go for it, once the new tubes are installed. However, insist that they use the current measurement method, not the crossover notch method. Instruct them to bias between 30 and 35 milliamps per tube. The crossover notch method is total bullshit and is not repeatable. It also results in overbiased, cold and harsh sounding amps about 99% of the time.

Re-soldering the tube sockets may or may not be necessary. Did they state why they want to do it? I know that the workmanship on those amps left a lot to be desired, maybe they found some bad solder joints. I did in mine. Go for it only to correct bad workmanship in the soldering, not just for the hell of it so they can charge you more labor time.

Damn, I'm glad I do my own work.

Regards.

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From hap@bnr.ca Fri Mar 1 16:51:56 CST 1996
Article: 6858 of rec.audio.tubes
Path:
geraldo.cc.utexas.edu!arlut.utexas.edu!news.io.com!imci4!newsfeed.internetmci.com!howland.reston.ans.net!torn!nott!bcarh189.bnr.ca!bmtlh10.bnr.ca!henryp
From: henryp@scrumpy.bnr.ca (Henry A. Pasternack)
Newsgroups: rec.audio.tubes
Subject: GE 5AR4's -- not Mullard.
Date: 27 Feb 1996 21:42:48 GMT
Organization: Bell Northern Research
Lines: 13
Message-ID: <4gvtso$afl@bmtlh10.bnr.ca>
Reply-To: hap@bnr.ca
NNTP-Posting-Host: bmtls126.bnr.ca
X-Newsreader: TIN [version 1.1 PL8]

I have several GE 5AR4's. Three are Made in Great Britain and are
Mullards. One is Made in USA and has the distinctive copper strip
visible on the side of the plate. I know about this from the Angela
catalog. And two are Made in Great Britain, but are not Mullards. In
particular, these have fewer notches in the sides of the plates and no
visible copper-colored laminate (as is slightly visible on a Mullard).

I know the Mullards are killer tubes that work great and last
forever. I was wondering about the others.

Thanks for info, tube gurus.

-Henry

From idkwid@smart.net Fri Mar 1 16:52:20 CST 1996
Article: 6866 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!arlut.utexas.edu!news.io.com!imci4!newsfeed.internetmci.com!news.smart.net!news
From: idkwid@smart.net
Newsgroups: rec.audio.tubes
Subject: Re: GE 5AR4's -- not Mullard.
Date: 28 Feb 1996 02:37:38 GMT
Organization: Foundation for the Elimination of Digitis and Odd Order Harmonics (FEDOOH)
Lines: 23
Message-ID: <4h0f5i$79n@news.smart.net>
References: <4gvtso$afl@bmtlh10.bnr.ca>
NNTP-Posting-Host: idkwid.smart.net
X-Newsreader: SPRY News 3.03 (SPRY, Inc.)

> henryp@scrumpy.bnr.ca (Henry A. Pasternack) writes:
> I have several GE 5AR4's. Three are Made in Great Britain and are
> Mullards. One is Made in USA and has the distinctive copper strip
> visible on the side of the plate. I know about this from the Angela
> catalog. And two are Made in Great Britain, but are not Mullards. In
> particular, these have fewer notches in the sides of the plates and no
> visible copper-colored laminate (as is slightly visible on a Mullard).
>
> I know the Mullards are killer tubes that work great and last
> forever. I was wondering about the others.
>
> Thanks for info, tube gurus.
>
> -Henry
>
>>>>>
I have three made in great Britain, one a Scott (maker unknown), one with logo rubbed off, and one RCA. They appear identical to each other. The plates each have two vertical perpendicular ridges. The top view would look like two crosses. There is no copper laminate.

!

Back to JT30 Home

From kurts@sr.hp.com Wed Dec 6 15:52:13 CST 1995
Article: 4005 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!uwm.edu!vixen.cso.uiuc.edu!howland.reston.ans.net!nntp.coast.net!col.hp.com!news.dtc.hp.com!canyon.sr.hp.com!kurts
From: kurts@sr.hp.com (Kurt Strain)
Newsgroups: rec.audio.tubes
Subject: Re: Need 5AR4 data
Date: 6 Dec 1995 16:58:51 GMT
Organization: Hewlett Packard Sonoma County
Lines: 59
Message-ID: <4a4i4b$5mn@canyon.sr.hp.com>
References: <49kt0o$s5r@canyon.sr.hp.com> <4a33ad$9bb@parlor.hiwaay.net>
NNTP-Posting-Host: hpsrmta2.sr.hp.com
X-Newsreader: TIN [version 1.2 PL2]

Joe Lowe (jlowe@hiwaay.net) wrote:

: TYPICAL OPERATION
: AC plate to plate supply voltage 450 V
: Effective plate supply impedance per plate 160 Ohms
: Average output current 225 Ma
: DC output voltage at input to filter 475 V
: Voltage drop for current of 225 Ma. 17 V

: No problem.

: : What transformer secondary voltage is needed for this? Like maybe 750VCT,
: : or 375Vrms per plate.

: AC input X 1.414 - 17 aprox.

For 420VDC, this formula says that AC input must be (DC output + 17) / 1.414,
or (420+17)/1.414 = 383 Vrms.

Above, where output = 475 VDC, expected input should be (475 + 17) / 1.414,
or 348 Vrms. But, instead, it says we need 450 Vrms. If the effective
plate resistance is 160 ohms and current is .225A, the drop looks like it
will only produce 160 ohms * .225 A = 36 V. Even that is not enough to
account for the large discrepancy between input 450 Vrms and 348 Vrms.

The difference is that series resistance before the input capacitor acts
to average down the voltage output, much like a choke input filter does.
So I modelled it on SPICE to check it out.

With no load, and an AC input of 450 Vrms, the voltage will rise to
1.414*450 = 636 VDC. It doesn't matter what Rrectifier and Cinput are.

With a 225 mA load, or a resistance load about 2200 ohms, the output voltage
with 160 ohm plate resistance yields not 636 - .225A*160 = 600 VDC, but
actually 450 VDC, as specified, with C = 40 uF. With C = 4000 uF, the
output remains 450 VDC again. The impedance of the tube refuses to allow
a full charge with that current drain.

To get 420 VDC output with 160 ohm rectifier resistance with a 170 mA load,
and 40 uF input capacitance or more, I went back to SPICE to find out it
needed an input of 400 Vrms. An easily obtainable transformer. But it
would be a mistake to buy a 375 Vrms transformer.

A 5U4, on the other hand, has less rectifier resistance, about 50 ohms.
It might be better to use the 375 Vrms transformer for it. Anybody using
5U4's to replace 5AR4 should expect higher DC voltages in capacitor input
supplies. Choke input supplies make rectifier differences produce much less
impact. That's because the input choke destroys the full charging capability
anyway, changing it from a peak voltage supply to an average rectified
voltage supply. Series resistance in the rectifier circuit has a similar
effect in ruining the peak voltage supply.

So, I am thankful for the data because I was able to calculate the needed
transformer for it. But I wanted to show how I differ in calculating
the expected output voltage.

Kurt

From kurts@sr.hp.com Thu Dec 7 10:43:55 CST 1995
Article: 4018 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!news.sprintlink.net!newsfeed.internetmci.com!chi-news.cic.net!nntp.coast.net!col.hp.com!news.dtc.hp.com!canyon.sr.hp.com!kurts
From: kurts@sr.hp.com (Kurt Strain)
Newsgroups: rec.audio.tubes
Subject: Re: Need 5AR4 data
Date: 7 Dec 1995 00:58:16 GMT
Organization: Hewlett Packard Sonoma County
Lines: 69
Message-ID: <4a5e78$n0t@canyon.sr.hp.com>
References: <49kt0o$s5r@canyon.sr.hp.com> <4a33ad$9bb@parlor.hiwaay.net> <4a4i4b$5mn@canyon.sr.hp.com>
NNTP-Posting-Host: hpsrmta2.sr.hp.com
X-Newsreader: TIN [version 1.2 PL2]

Kurt Strain (kurts@sr.hp.com) wrote:
: Joe Lowe (jlowe@hiwaay.net) wrote:

: : TYPICAL OPERATION
: : AC plate to plate supply voltage 450 V
: : Effective plate supply impedance per plate 160 Ohms
: : Average output current 225 Ma
: : DC output voltage at input to filter 475 V
: : Voltage drop for current of 225 Ma. 17 V

: : No problem.

: : : What transformer secondary voltage is needed for this? Like maybe 750VCT,
: : : or 375Vrms per plate.

: : AC input X 1.414 - 17 aprox.

: For 420VDC, this formula says that AC input must be (DC output + 17) / 1.414,
: or (420+17)/1.414 = 383 Vrms.
^^^
Sorry, 383 Vrms should read 309 Vrms. Let me change the rest of these
too quickly calculated numbers:

: Above, where output = 475 VDC, expected input should be (475 + 17) / 1.414,
: or 348 Vrms. But, instead, it says we need 450 Vrms. If the effective
: plate resistance is 160 ohms and current is .225A, the drop looks like it
: will only produce 160 ohms * .225 A = 36 V. Even that is not enough to
: account for the large discrepancy between input 450 Vrms and 348 Vrms.

: The difference is that series resistance before the input capacitor acts
: to average down the voltage output, much like a choke input filter does.
: So I modelled it on SPICE to check it out.

: With no load, and an AC input of 450 Vrms, the voltage will rise to
: 1.414*450 = 636 VDC. It doesn't matter what Rrectifier and Cinput are.

: With a 225 mA load, or a resistance load about 2200 ohms, the output voltage
: with 160 ohm plate resistance yields not 636 - .225A*160 = 600 VDC, but
: actually 450 VDC, as specified, with C = 40 uF. With C = 4000 uF, the
: output remains 450 VDC again. The impedance of the tube refuses to allow
: a full charge with that current drain.

: To get 420 VDC output with 160 ohm rectifier resistance with a 170 mA load,
: and 40 uF input capacitance or more, I went back to SPICE to find out it
: needed an input of 400 Vrms. An easily obtainable transformer. But it
: would be a mistake to buy a 300 Vrms transformer.

Note: Vout is about 1.05*Vrms for both the 420VDC and 475VDC cases.
A choke input supply would produce 1.414*0.637 = 0.900 times Vrms.
This resistive capacitor input situation is somewhere in between.

: A 5U4, on the other hand, has less rectifier resistance, about 50 ohms.
: It might be better to use the 375 Vrms transformer for it. Anybody using
: 5U4's to replace 5AR4 should expect higher DC voltages in capacitor input
: supplies. Choke input supplies make rectifier differences produce much less
: impact. That's because the input choke destroys the full charging capability
: anyway, changing it from a peak voltage supply to an average rectified
: voltage supply. Series resistance in the rectifier circuit has a similar
: effect in ruining the peak voltage supply.

: So, I am thankful for the data because I was able to calculate the needed
: transformer for it. But I wanted to show how I differ in calculating
: the expected output voltage.

: Kurt

Kurt, self corrected again.

From kurts@sr.hp.com Wed Dec 13 10:38:20 CST 1995
Article: 4250 of rec.audio.tubes
Path:
geraldo.cc.utexas.edu!cs.utexas.edu!bcm.tmc.edu!pendragon!news.msfc.nasa.gov!newsfeed.internetmci.com!news.kei.com!nntp.coast.net!col.hp.com!news.dtc.hp.com!canyon.sr.hp.com!kurts
From: kurts@sr.hp.com (Kurt Strain)
Newsgroups: rec.audio.tubes
Subject: Re: Need 5AR4 data
Date: 12 Dec 1995 19:06:50 GMT
Organization: Hewlett Packard Sonoma County
Lines: 18
Message-ID: <4akjsa$dlp@canyon.sr.hp.com>
References: <49kt0o$s5r@canyon.sr.hp.com> <4a33ad$9bb@parlor.hiwaay.net> <4a4i4b$5mn@canyon.sr.hp.com> <4a5e78$n0t@canyon.sr.hp.com> <4af4at$ce5@panix2.panix.com> <4ahn2d$1mv@canyon.sr.hp.com> <4aiua7$glm@panix2.panix.com>
NNTP-Posting-Host: hpsrmta2.sr.hp.com
X-Newsreader: TIN [version 1.2 PL2]

Mark Garvin (mgarvin@panix.com) wrote:

: B+ with no load Under load
: ----------------- ------------
: Silicon rect 480 volts 445 v
: 5AR4 (Mullard) 475 426
: 5U4 (RCA) 469 404

Thank you for this data. From this, my simulations indicate that the
load resistance is 1800 ohms, or the current draw is about 0.25A. The
source is 340Vrms. The effective resistance of the transformer is about
90 ohms. The effective static resistance of the 5AR4 is about 50 ohms,
and the effective static resistance of the 5U4 is about 120 ohms. Why
the 5AR4 quotes a resistance spec of 160 ohms, dynamic or otherwise, is
not apparent to me.

Kurt

From cigna@plato.phy.OhioU.Edu Wed Dec 13 10:38:37 CST 1995
Article: 4243 of rec.audio.tubes
Newsgroups: rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!bcm.tmc.edu!news.msfc.nasa.gov!newsfeed.internetmci.com!chi-news.cic.net!news.midplains.net!gw2.att.com!oucsboss!cigna
From: cigna@plato.phy.OhioU.Edu (Dave Cigna)

Subject: Re: Need 5AR4 data
X-Nntp-Posting-Host: plato.phy.ohiou.edu (cigna)
Message-ID:
Sender: postmaster@plato.phy.ohiou.edu (cigna)
X-Nntp-Posting-Date: Tue Dec 12 09:27:38 1995
Organization: Ohio University Physics and Astronomy
References: <49kt0o$s5r@canyon.sr.hp.com> <4a5e78$n0t@canyon.sr.hp.com> <4af4at$ce5@panix2.panix.com> <4ahn2d$1mv@canyon.sr.hp.com>
Date: Tue, 12 Dec 1995 14:27:39 GMT
Lines: 57

In article <4ahn2d$1mv@canyon.sr.hp.com>, Kurt Strain wrote:
>Mark Garvin (mgarvin@panix.com) wrote:
>: In <4a5e78$n0t@canyon.sr.hp.com> kurts@sr.hp.com (Kurt Strain) writes:
>
>: >: A 5U4, on the other hand, has less rectifier resistance, about 50 ohms.
>: >: It might be better to use the 375 Vrms transformer for it. Anybody using
>: >: 5U4's to replace 5AR4 should expect higher DC voltages in capacitor input
>: >: supplies.
>
>: Hi Kurt, In comparing a 5U4 to 5AR4, I've found that the 5U4 drops
>: considerably MORE voltage than the 5AR4.
>
>Then either the 5U4 datasheet is wrong in stating their plate impedance
>or the 5AR4 is not 160 ohms plate resistance. Could someone please double
>check? I'm talking about the conditions for 420VDC, 170mA operation, and
>they need to be apples to apples comparison. Only plate impedance at
>given voltage and current effects the output for a given input capacitor.
>Something must give. I wish I had the datasheet for the 5AR4, but I
>don't. It must be a late model, or one RCA never made. Thanks.

Hi Kurt,

My Sylvania tube book mentions a 'limiting resistor' of 125 ohms for 430VDC
operation. Evidently, this is a series resistor (!) that they suggest
adding. Could this be what your data sheet is talking about? I
misinterpreted it the first time I read it.

Anyway, here's most of what's in the Sylvania book:

Design center ratings:

heater current; 1.9 amps
peak inverse voltage: 1500 V
peak plate current: 750 mA
AC plate supply (max RMS each plate): 550 V
steady state DC output current: 250 mA
condenser input to filter (max): 60 uF

Typical operations:

Supply (RMS per plate): 300 350 400 450 500 550
DC output current (mA): 250 250 250 250 250 200
DC output voltage: 330 380 430 480 560 640
Limiting resistor 75 100 125 150 175 200
(per plate)

For a real-world example: I installed a Sovtek 5AR4 in a reissue
Bassman. I measured the transformer sec. at 345 VAC (~115VAC line).
With the amp idling (75-80 mA) and 50uF input capacitance there
was just about 460 VDC at the first filter. This amp has been
running fine for about six months, and I know that the owner likes
to play loud whenever he can.

-- Dave Cigna

From stephen.delft@welcom.gen.nz Thu Dec 14 11:50:33 CST 1995
Article: 4307 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!math.ohio-state.edu!uwm.edu!newsfeed.internetmci.com!in1.uu.net!comp.vuw.ac.nz!welcom!stephen.delft
From: stephen.delft@welcom.gen.nz (Stephen Delft)
Newsgroups: rec.audio.tubes
Subject: Re: Need 5AR4 data
Date: Thu, 14 Dec 1995 07:33:00 GMT
Message-ID: <9512142345372982@welcom.gen.nz>
Organization: WELCOM BBS
Distribution: world
References: <4aiua7$glm@panix2.panix.com> <49kt0o$s5r@canyon.sr.hp.com> <4a33ad$9bb@parlor.
Lines: 44

MG> First cap is 30 uf.

MG> B+ with no load Under load
MG> ---------- ----------
MG>Silicon rect 480 volts 445 v
MG>5AR4 (Mullard) 475 426
MG>5U4 (RCA) 469 404

MG>Anyone disagree?

Hi Mark, the metal platers have some kind of problem with the bath, so
I have a few days break from those amps

I got similar figures for the different rectifiers:

OPTX = 372-0-372 volts AC, with an additional 33 Ohm ballast in each
plate lead. Can't remember the first cap, but probably 2 x 47uF in
series, so take it as 23uF

At continuous DC current of 100mA ...

Two BYW96E Sil diodes.(Phil.1kV.3A) 479 V DC
GZ34/5AR4 (Mullard) 464 V DC
2 x 5Y3 wired in parallel 458 V DC
1 x 5Y3 440 V DC
5U4GB 433 V DC

...so if we take the diode drop as small (about 0.5 Volt)

at 100mA DC, 5AR4 drops about 15 V
Two x 5Y3 21 V
Single 5Y3 39 V
5U4 46 V

I didn't measure a 5U4, but from memory its static voltage drop is
is somewhere between 5AR4 and 5Y3.

BTW, If you are building from scratch, and can provide two sockets
and the (total) 3 Amp at 5 Volt fil. current, then TWO x old Russian
5Y3's (wrongly marked as GZ34) do a fine job in a 40 Watt guitar amp,
and are rated low enough to expect a long life. Sounds brighter than
5V4 or 5U4; similar to 5AR4, but a bit more compressed.

Cheers, Stephen.

Back to JT30 Home

From tremolux@aol.com Sat Apr 6 14:18:26 CST 1996
Article: 12542 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!arlut.utexas.edu!news.io.com!imci4!newsfeed.internetmci.com!howland.reston.ans.net!news-e2a.gnn.com!newstf01.news.aol.com!newsbf02.news.aol.com!not-for-mail
From: tremolux@aol.com (Tremolux)
Newsgroups: alt.guitar.amps
Subject: Re: Tremolux weirdness...
Date: 5 Apr 1996 20:06:35 -0500
Organization: America Online, Inc. (1-800-827-6364)
Lines: 16
Sender: root@newsbf02.news.aol.com
Message-ID: <4k4g2r$pge@newsbf02.news.aol.com>
References: <4k4bhb$o0u@newsbf02.news.aol.com>
Reply-To: tremolux@aol.com (Tremolux)
NNTP-Posting-Host: newsbf02.mail.aol.com

>>>Has anyone tried a GZ-37 rectifier? The tube is taller, but will appreciably lower the B+ levels. This is a fairly common tweak to ST-70's, especially when good EL-34's are in short supply.

For 6V6 amps, you can try using a 5V4 rectifier. It's like a lower rated 5AR4, a little more internal drop. Makes about a 10 to 15 volt difference in the B+ compared to a 5AR4.

BTW, I use a 5AR4 in my Tweed Tremolux. The plate voltages are kind of high (a little over 420), but the NOS RCA 6V6s seem to take it fine, as long as the bias is right. This extra voltage gives me a solid 18 Watts output at the onset of clipping. Not quite as powerful as a BF Deluxe Reverb, but close. The Tweed Trem can generally blow away the Tweed Deluxe.

Regards.

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From stratboy@onramp.nett Sun Dec 17 17:14:40 CST 1995
Article: 6624 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!uwm.edu!newsfeed.internetmci.com!chi-news.cic.net!news.mind.net!news.onramp.net!usenet
From: Nick Schepis
Newsgroups: alt.guitar.amps
Subject: Expert on Vintage Amps needed!
Date: 16 Dec 1995 01:31:00 GMT
Organization: On-Ramp; Individual Internet Connections; Dallas/Ft Worth/Houston, TX USA
Lines: 14
Message-ID: <4at7gk$ito@news.onramp.net>
NNTP-Posting-Host: turnpike13.onramp.net
Mime-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit
X-Mailer: Mozilla 1.22 (Windows; U; 16bit)
To: stratboy@onramp.net

Being well versed in vintage amps, it seems I've been unable
to find anyone who can answer this question for sure. I need
to know exactly what speakers were shipped in the
1962 Fender Twin-Amp. This is rough blond tolex with oxblood grill.
I have spoken to some of the top amp gurus and no one can seem
to agree. It seems at this time Fender was searchig for a speaker
to handle all the power this monster generated. I have seen models
with JBL D130's, Jensen P-12N's, CTS Alnico, CTS Ceramic,
Jensen C12N's and even a respectable looking set of old
Altec Lansings. This is a VERY rare amp, so it's rather difficult
to discern original speakers from replacements.

Anyone who has any insight, please respond!

From ggjaguar@aol.com Sun Dec 17 17:15:12 CST 1995
Article: 6630 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.reston.ans.net!news-e1a.megaweb.com!newstf01.news.aol.com!newsbf02.news.aol.com!not-for-mail
From: ggjaguar@aol.com (GGJaguar)
Newsgroups: alt.guitar.amps
Subject: Re: Expert on Vintage Amps needed!
Date: 17 Dec 1995 12:58:55 -0500
Organization: America Online, Inc. (1-800-827-6364)
Lines: 3
Sender: root@newsbf02.news.aol.com
Message-ID: <4b1lov$gnm@newsbf02.news.aol.com>
References: <4at7gk$ito@news.onramp.net>
Reply-To: ggjaguar@aol.com (GGJaguar)
NNTP-Posting-Host: newsbf02.mail.aol.com

I've even seen a blonde Twin with Oxfords. I bet Fender used whatever
they had at the time. There may not be one "correct" speaker but several
that would be historically accurate.

From tremolux@aol.com Sun Dec 17 17:15:19 CST 1995
Article: 6635 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.reston.ans.net!news-e1a.megaweb.com!newstf01.news.aol.com!newsbf02.news.aol.com!not-for-mail
From: tremolux@aol.com (Tremolux)
Newsgroups: alt.guitar.amps
Subject: Re: Expert on Vintage Amps needed!
Date: 17 Dec 1995 16:41:33 -0500
Organization: America Online, Inc. (1-800-827-6364)
Lines: 11
Sender: root@newsbf02.news.aol.com
Message-ID: <4b22qd$lh6@newsbf02.news.aol.com>
References: <4b1lov$gnm@newsbf02.news.aol.com>
Reply-To: tremolux@aol.com (Tremolux)
NNTP-Posting-Host: newsbf02.mail.aol.com

I believe that Fender may have used different speakers depending on what they had on hand and who was selling cheap at the time. I'd vote that "original" speakers may be either the Jensen C12N or P12N, or perhaps an Oxford. The JBL D120 may have been available as a factory "premium" option. Fender did use JBLs back in those days, recall the Showman heads with their "tone ring" cabinets. I just did a cap job on a near-mint rough-blonde tolex with oxblood grille Showman with the 1 x 15 D130 cabinet for Jay Graydon (LA studio ace). Sounds killer, he used it on his latest recording. Dick Dale, move over.

Regards.

Back to JT30 Home

From power@wwdc.com Tue Sep 3 09:41:03 CDT 1996
Article: 21974 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!news.sprintlink.net!news-stk-200.sprintlink.net!news-stock.gsl.net!news.gsl.net!van1s02.cyberion.com!news
From: O'Connor
Newsgroups: alt.guitar.amps
Subject: Re: FENDER MOD TO 6550
Date: Tue, 03 Sep 1996 03:49:44 -0700
Organization: London Power http://www.wwdc.com/~power/
Lines: 33
Message-ID: <322C0D48.E80@wwdc.com>
References: <50dp2s$dne@newsbf02.news.aol.com> <50e7ud$jc9@newsbf02.news.aol.com>
NNTP-Posting-Host: tc207.wwdc.com
Mime-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit
X-Mailer: Mozilla 2.0 (Win16; I)

> When you slap 6550s into a Fender, at those plate voltages, about how much
> negative grid bias is required, and where do you set the idle plate
> current? Any mods required to the bias supply? Did you change the 470
> ohm resistor on the screen grids?

I used a pair of 6550Cs in my Twin chassis (the only thing left that is original are the power and reverb transformers, and the power supply-- even the case is gone). I was surprised at how well they complimented the preamp tone that I was using at the time.

I left the screen values at 470-ohms; B+ was only 460V, and bias was -53V just as Fender wired it. No adjustments were necessary for the 6550s or 5881s. Each tube draws a unique yet appropriate, safe and toneful current. Reliability of Sovtek 5881s and Svetlana 6550s in this circuit has been road proven over the last two years.

In models with only a single pair of original power tube sockets, an auxiliary filament transformer will be required. Models like the Twin, Showman or 100+ Bassman can accept A SINGLE PAIR of 6550s, with the other pair of sockets empty!

> I think Svetlana makes a couple different 6550 versions. Anyone know what
> the differences are?
> Tonally there are no differences. Svetlana has swithced over to the 6550C exclusively, as far as I know. You might want to check with them for up to date info. The only technical difference between the A, B and C versions was the gettering.

If you do use 6550s in up-side down chassis', spring retainers are a must!

Happy playing!
Kevin O'Connor

Back to JT30 Home

From tremolux@aol.com Thu Jan 9 10:39:04 CST 1997
Article: 33704 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!news-xfer.netaxs.com!cam-news-hub1.bbnplanet.com!news.bbnplanet.com!cpk-news-hub1.bbnplanet.com!worldnet.att.net!uunet!in1.uu.net!152.163.170.17!newstf01.news.aol.com!audrey01.news.aol.com!not-for-mail
From: tremolux@aol.com (Tremolux)
Newsgroups: alt.guitar.amps
Subject: Re: 6EY6 Soon to Replace overpriced 6V6? (was: 6EZ6 & 6EY6? OPINIONS?)
Date: 9 Jan 1997 00:50:25 GMT
Organization: AOL http://www.aol.com
Lines: 13
Message-ID: <19970109004800.TAA20622@ladder01.news.aol.com>
References:
NNTP-Posting-Host: ladder01.news.aol.com
X-Admin: news@aol.com

>>>Murali, Tremolux:
Would it be safe to try these 6EY6's in a brownface deluxe which has
fixed bias?

Yes, providing that you have the bias reset. Your tech will have to
change a fixed resistor on the board in the amp's bias supply to get a
little more negative voltage on the grids. They should be biased at the
same idle current as a real 6V6. They work just fine and sound great.
Actually, the Tung Sol 6EY6s are quite a bit beefier in construction than
a 6V6. The 6EY6's fatter cathode should provide higher saturation current
as well!

Tremo.

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From ashinman@chem.ucalgary.ca Wed May 21 16:43:53 CDT 1997
Article: 50429 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!cpk-news-hub1.bbnplanet.com!news.bbnplanet.com!ais.net!newsfeed.direct.ca!news.insinc.net!scanner.worldgate.com!news.agtac.net!rover.ucs.ualberta.ca!news.ucalgary.ca!news
From: Scott Hinman
Newsgroups: alt.guitar.amps
Subject: Re: DELUXE 6V6????
Date: Wed, 21 May 1997 11:17:18 +0000
Organization: University of Calgary
Lines: 19
Message-ID: <3382D9BE.53AF@chem.ucalgary.ca>
References: <19970516233800.TAA02954@ladder02.news.aol.com> <19970520140200.KAA05815@ladder02.news.aol.com>
NNTP-Posting-Host: @plutonium.chem.ucalgary.ca
Mime-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit
X-Mailer: Mozilla 2.0 (Macintosh; I; 68K)
To: Mlpolutta
Xref: geraldo.cc.utexas.edu alt.guitar.amps:50429

Mlpolutta wrote:
>
>
> I looked this tube (these tubes) up in my RCA handbook. They didn't have
> a specific entry for this tube, just an entry in a table with a suggested
> operation point. It had 250V as the plate voltage. So what is the
> "Design Center Maximum" for this tube for plate voltage and screen
> voltage? Is this a drop-in sub for a 6V6?

Hi, Michael
This is from the GE Essential Characteristics handbook (1969).

Fil Current Max Plate Watts Max Plate Volts
6EY6 0.68 A 11 350
6EZ5 0.80 12 350

Regards,
Scott H.

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From tremolux@aol.com Sun Jan 5 22:03:33 CST 1997
Article: 33283 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!uwm.edu!newsfeeds.sol.net!newspump.sol.net!mindspring!news.bbnplanet.com!cpk-news-hub1.bbnplanet.com!portc02.blue.aol.com!audrey01.news.aol.com!not-for-mail
From: tremolux@aol.com (Tremolux)
Newsgroups: alt.guitar.amps
Subject: Re: 6EZ6 & 6EY6? OPINIONS?
Date: 6 Jan 1997 01:55:43 GMT
Organization: AOL http://www.aol.com
Lines: 13
Message-ID: <19970106015400.UAA11618@ladder01.news.aol.com>
References: <32CFA9E5.6314@nm-us.campus.mci.net>
NNTP-Posting-Host: ladder01.news.aol.com
X-Admin: news@aol.com

>>>I saw the post that says these are possible replacements for 6V6s.
They
look OK on paper, but has anyone *heard* them? And if so, what are they
like?

I've done this swap. I used NOS Tung Sol 6EY6s in a 65 Deluxe Reverb.
They sound just fine!! They do need noticibly more negative bias on their
control grids than a real 6V6, so if you do this, a re-bias job is
absolutely mandatory.

BTW, the other tube is 6EZ5, not 6EZ6.

Tremo.

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From postmaster@triodeel.com Wed Dec 3 20:24:02 CST 1997
Article: 74255 of alt.guitar.amps
Path:
geraldo.cc.utexas.edu!cs.utexas.edu!www.nntp.primenet.com!globalcenter1!news.primenet.com!nntp.primenet.com!nntp.flash.net!excalibur.flash.net!not-for-mail
From: postmaster@triodeel.com (Ned Carlson)
Newsgroups: alt.guitar.amps
Subject: Re: Best 6V6s for Deluxe Reverb
Date: Wed, 03 Dec 1997 07:56:50 GMT
Organization: Triode Electronics
Lines: 39
Message-ID: <34850e08.38933531@news.flash.net>
References: <19971203050900.AAA22379@ladder01.news.aol.com> <19971203052401.AAA23913@ladder01.news.aol.com>
Reply-To: postmaster@triodeel.com
NNTP-Posting-Host: dyn-max1-60.chicago.il.ameritech.net
X-Newsreader: Forte Free Agent 1.11/16.235
Xref: geraldo.cc.utexas.edu alt.guitar.amps:74255

tremolux@aol.com (Tremolux) wrote:

>I've put 6EY6s in a BFDR before. They work just fine. They can easily take
>the overvoltage. I don't know about that plate dissipatiopn rating you quoted,
>the TungSol 6EY6s I have are actually beefier in the plate structure than a
>6V6.

Actually, Tungsol 6V6's are beefier than typical 6V6's, too, and NOS
ones test hot (read: about 15-20% over average), and are supposed
to sound good, too. But hard to find (so sorry).
Look on the base of the tube to see the EIA code. If you see
"322", that's Tungsol, often they turn up under OEM names
like Motorola, etc.

>Additionally, the 6EY6 has a slightly larger cathode surface so I suspect
>the peak current capability is a bit higher.

Yup. IMA that trying to extrapolate ratings meant for TV sets to
guitar amplifiers is tricky, bear in mind that, for example, in the
case of 6EY6, the ratings are given as a vertical amp TV tube,
and are chosen to give acceptable life in that type of service.
Indeed 6V6's were given vertical-amp ratings, and were *derated*
to 10 watts from 14 when used in that fashion.

(gratuitous plug) Those NOS British 6V6-GT's we sell for
Deluxes for $29.95/pair work swell too.

Our next experiment will be to try some 6F6-GT or 6F6-G
tubes in a Deluxe. Those are pentodes, not beam-tetrodes,
and might yield some interesting results...

Ned Carlson, Triode Electronics, Chicago, IL http://www.triodeel.com
Open 12:30-8 PM CT, 12:30-5 PM CT Sat Closed Wed
ph:773-871-7459 fax 773-871-7938 "where da tubes are"
Email catalogs: email our CataBot: catalog@triodeel.com

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From tremolux@aol.com Sun May 28 10:32:54 CDT 1995
Article: 1427 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.reston.ans.net!news-e1a.megaweb.com!newstf01.news.aol.com!newsbf02.news.aol.com!not-for-mail
From: tremolux@aol.com (Tremolux)
Newsgroups: alt.guitar.amps
Subject: Re: Tube questions
Date: 28 May 1995 05:02:42 -0400
Organization: America Online, Inc. (1-800-827-6364)
Lines: 10
Sender: root@newsbf02.news.aol.com
Message-ID: <3q9e7i$lqu@newsbf02.news.aol.com>
References:
Reply-To: tremolux@aol.com (Tremolux)
NNTP-Posting-Host: newsbf02.mail.aol.com

>From what I understand, the GC at the end of the 6L6 means "glass container"

WRONG!!! This is an error coming from Aspen Pitman from Groove Tubes. The "G" means glass envelope. The "C" means this particular model (supposedly) conforms to the specifications for the C revision to the design, as opposed to the B revision, A revision, or original design. Don't believe everything you read in Pitman's books.

Regards.

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From mookie2112@aol.com Sat Jul 31 10:39:44 CDT 1999
Article: 193207 of alt.guitar.amps
Path:
geraldo.cc.utexas.edu!cs.utexas.edu!nntp.primenet.com!nntp.gctr.net!newsfeed.cwix.com!152.163.239.227!portc03.blue.aol.com!audrey03.news.aol.com!not-for-mail
From: mookie2112@aol.com (Mookie2112)
Newsgroups: alt.guitar.amps
Subject: Mook's Taste Tests: 6L6
Lines: 219
NNTP-Posting-Host: ladder06.news.aol.com
X-Admin: news@aol.com
Date: 31 Jul 1999 15:19:04 GMT
Organization: AOL http://www.aol.com
Mime-Version: 1.0
Content-Type: text/plain; charset=ISO-8859-1
Content-Transfer-Encoding: 8bit
Message-ID: <19990731111904.13324.00005265@ng-fr1.aol.com>
Xref: geraldo.cc.utexas.edu alt.guitar.amps:193207

INTRODUCTION:

Well, here are the 6L6 Taste Test results. I tested 9 different sets of 6L6s in a 1968 Fender Pro Reverb. Apart from some 6L6 tests that Gerald Weber did in Vintage Guitar Magazine, I know of know other sound/taste tests for the 6L6-type tube. Although I have not read Weber's write-up, I have heard from a number of sources that it was "rather sparse". Before we carry on any further, let me confess that I am not a 6L6 type of guy. Rather, I favor smaller tubes such as the EL84 and 6V6. In general, I did not get that excited about the listening tests, perhaps because I admit to having an "untrained" ear with respect to the 6L6.

The following list of gear is for "comparative" purposes only. This is NOT meant to plug or praise certain manufacturers. The guitar was plugged straight into the amp with a 20-foot Spectraflex cord. Volume and Tone knobs on the guitar were set to full (10).

· 1968 Fender Pro Reverb loaded with EV-12L speakers. Although this Fender has Silverface cosmetics, as far as I can tell, it came "Blackfaced" from the factory. In addition to the "back-breaking" speakers, this Fender has had the Negative Feedback and Vibrato circuits disconnected and there is a 12AX7A in the Phase Inverter slot. The plate voltage in this amp is 460. I kept the tone knobs as follows throughout the entire test: Bright=ON, Treble=8, Bass=5. I used the #1 input and did not bridge the channels. Reverb was turned OFF.

· Heritage Les Paul copy with Seth Lover pickups strung with D'Aquisto nickel round wound size .012-.052.

· Fender Stratocaster (American) with Fender Texas Special pickups strung with D'Aquisto nickel round wound size .012-.052.

One thing to note about the pickups in these guitars: It seems to me that the Texas specials are just as "hot" if not a bit hotter than the Seth Lovers. The Seth Lovers are actually fairly low output and have lots of high end. Another thing to note is that when the 6L6s were played distorted, a lot of the tube seemed to exhibit a "Marshall" type sound. I attribute this to both the lack of Negative Feedback and increased gain in the Phase Inverter section of the amplifier.

Tubes tested were Groove Tubes 6V6HD (really, it's a 6L6), Sovtek 5881R, AudioGlassic 6L6* (appear to be of Chinese origin), Ruby 6L6GC STR007, PhilipsEGC 6L6, 6L6GC STR415, 6L6GCRC, Svetlana 6L6, and GE 6L6. Each duet was evaluated with the volume knob at 2.5 (clean) and 10 (distorted. I played for about 10 minutes on each 6L6 duet. Hot tubes were removed with leather gloves. I kept my BiasProbe attached to one of the tube sockets and every time I inserted a new pair of tubes, I adjusted the bias to 40mA.

To the best of my ability, I tried to do a "blind" Taste Test. The night before the test (which occurred on 7/3/1999), I took all the duets out of their cartons/boxes. I placed a rubber band around each set and placed the duet in a box. I also assigned a random number (numbers "1" through "9" were written on a Post-It "sticky", shuffled to randomize, and placed in the rubber band) to each set of tubes. When all duets were banded and labeled, I put on a pair of leather gloves and "shuffled" (careful and slow movement) the tubes within the box so as to further randomize their test order. I sealed the box and went to bed. The following day, I used the leather gloves each time drew from the box when replacing tubes. Since I did not look into the box when selecting tubes, the test order was random. After testing, the tubes were removed from the amp, rubber banded, relabled (with the same random number), and placed in a separate location. All-in-all, I did not know the manufacturer of the tube.

RAW DATA:

Groove Tubes 6V6HD:

Les Paul - When played clean the bass notes lacked definition, especially on neck pickup (position #3), however chords in the upper register were interesting and pleasing. Positions #1 (bridge) and #2 (bridge+neck) were piercing and unmusical. Although fairly lifeless when played clean, they were nice and "Marshally" in positions #1 and #2. The neck pickup, when distorted, was muddy and useless.

Strat - When played clean, these tubes sounded fairly decent in positions #1 (bridge) and #2 (bridge+middle). Positions #3 (middle), #4 (middle+neck), and #5 (neck) seemed lifeless. Overall, these tubes seemed to lack bass. When fully distorted, position #1 was piercing and shrill. All other positions seemed respectable, but still "Marshally", just like the humbuckers.

Sovtek 5881R:

Les Paul - Handled bass fairly well in all positions, but rather two-dimensional. Not piercing, but nothing special; fairly even, but no sweetness. When distorted, these tubes were not as loud as some others were. Position #1 was decent and slightly "Marshally", but other positions were splotchy where the bass was too "farty".

Strat - Very high-ended when clean, but not totally piercing. Seems to handle bass well. The distorted sounds were actually not bad. Even though a tad bright, it sounded fairly thick. Position #4 was the best.

AudioGlassic 6L6:

Les Paul - When played clean, these tubes exhibited nice highs, chime, and stringy detail. Chords were nice and full. Chords on the neck pickup were lacking in bass. When distorted, these tubes were very Marshall-like. All pickup positions help up well in eveness and detail.

Strat - Toppy, but not piercing when played clean. These tubes seemed a bit "wimpy" due to their lack of bass. All pickup combinations, while lacking bass, seemed good. When overdriven, these tubes exhibited the "Marshall" sound, and were very full, tight, and thick! Even though they were a bit piercing, they reminded me of Richie Blackmore. Selection #3 was the best.

Ruby 6L6 STR007:

Les Paul - When played clean, these tubes were rather "generic" sounding. However, they were very balanced - good highs, mids, and lows. Not piercing in any way. When overdriven, they were very balanced and full. They did not fart out at all. Position #1 just rocked.

Strat - Very nice all around when played clean. Seem very harmonically rich with Strat - richer than other tubes in the competition. Did not fart out and handled bass very well. When distorted, these tubes were muddy and splotchy. Although excellent for cleaner Strat playing, these tubes did not like to be distorted.

PhilipsEGC 6L6:

Les Paul - A bit "honky" and piercing on position #1 when played clean. Fairly balance, but a bit to high-ended. Sounded best on positions #2 and #3. Distortion was very full on #1, but totally splotchy on #2 and #3 - perhaps a bit ratty.

Strat - When played clean in all positions these tubes were……WOW! Even though they were a bit "toppy", they had incredible harmonic richness - very juicy! When distorted, they were piercing on positions #1 and #2, but heavenly and full on positions #3 through #5. These are Strat tubes - period!

6L6GC STR415:

Les Paul - When played clean, these tubes were very harmonically rich with very even balance. All positions were good. Although they were very nice clean, they were absolutely splotchy when distorted. All positions were terrible with distortion.

Strat - Fairly balanced when clean. Very good in positions #2 and #4. Not piercing and fairly rich. The distorted sounds were nothing to write home about. Positions #2 and #4 were fairly nice and balanced. The other positions were lacking.

6L6GCRC:

Les Paul - Fairly decent when played clean, but plain - not as 3-D as other

tubes. Very good in the #2 position. When distorted, these tubes were very Marshall-like. Positions #1 and #2 were very full and tight. Not as harmonically rich as other tubes when overdriven.

Strat - Position #2 was very chimey. These tubes had a nice full bass response. Not piercing at all. When distorted, these tubes were great. Position #2 was best, very full and fairly rich.

Svetlana 6L6:

Les Paul - Much richer than others when played clean. Seem to hold up well to bass. Very full. The distortion setting was fairly nice, but not enticing. Splotchy on the neck pickup.

Strat - Also very harmonically rich when played clean. Special note is that they are very musical on position #1. Heck, they were also excellent in positions #3 and #5, as well. Very full on bass and even. When distorted, they were very harmonically rich. However, they did get a little splotchy on the neck pickup.

GE 6L6:

Les Paul - Very nice and chimey in positions #1 and #2 when clean. These tubes were very full and harmonically rich. When distorted, they were exceptionally "Heavenly" and "throaty" on position #1, but got a tad splotchy on #2 and #3.

Strat - Very nice, chimey, and harmonically rich when clean. Although fairly balanced, they were a bit shrill on position #1. Fuller than most tubes. Of special note was position #2. These tubes were not that good when distorted. Position #2 was not too bad, but other positions were piercing and also "flabby".

CONCLUSIONS:

If rewards were given out on a scale from 1-100, I'd say the best tube(s) in this Taste Test would start at about 85. That is, while some of the tubes performed very well in most categories, they had a few "low" spots and flaws that prevented them from getting a full score of 100. I'd like to split up the final comments into four categories: "All-Around", Stratocaster Tubes, Les Paul Tubes, and Losers.

Perhaps the best "all-around" 6L6 tube in this competition would be the GE 6L6. The GE showed great (cleaner) Strat playing coupled with great clean and distorted Les Paul playing. The next "all-around" runner-up would be the Ruby STR007. To me, the Ruby seemed like a less-professional version of the GE. The Ruby catered to decent Strat and Les Paul playability.

The Stratocaster guitar definitely preferred certain 6L6-types. The most notable were the PhilipsEGC and Svetlana. Hands down, these were the best tubes for clean and dirty Strat playing. Runners up included the GE, 6L6CRC, and Ruby STR007, in order of preference. I should note that the runners up didn't always play well in distorted settings - most were splotchy in certain positions.

On the other hand, the Les Paul guitar definitely preferred certain 6L6-types. The most notable was the GE. Runners up included the AudioGlassic 6L6, Ruby STR007, and 6L6GC STR415, in order of preference. The AudioGlassic 6L6 was an all around Les Paul winner, the STR007 seem better geared toward distorted tones, and the STR415 was better suited for cleaner, jazz comping, voicings.

I'd hesitate in buying the Russian 5881 and 6V6HD. These tubes didn't seem to offer any decent sound, whether clean or distorted. Of these, I preferred the Sovtek 5881, but again, I'd purchase a different 6L6-type altogether.

Thanks for your attention,

Mook

*-Special thanks to Miles O'Neal for lending me the AudioGlassic 6L6s for the Taste Test.

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From Dr.Distortion@bbs.mhv.net Sat Jan 20 15:41:53 CST 1996
Article: 8284 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!news.sprintlink.net!mhv.net!bbs.mhv.net!Dr.Distortion
From: Dr.Distortion@bbs.mhv.net (Dr Distortion)
Newsgroups: alt.guitar.amps
Subject: Re: 6L6 and other tubes
Date: 18 Jan 1996 17:25:54 GMT
Organization: MHVNet, the Mid Hudson Valley's Internet connection
Lines: 43
Message-ID: <4dlvr2$3b5@over.mhv.net>
References:
Reply-To: Dr.Distortion@bbs.mhv.net
NNTP-Posting-Host: csbh.mhv.net
X-Newsreader: TIN [version 1.2 PL2]

Tormod Eikill (teikill@telepost.no) wrote:
: I thought that the only tubes I could use on the output for my Twin was
: the 6L6 series. So when you're talking about "5881" or any other number, I
: don't understand shit. What is all this?

Between the varieties of 6L6 types available and the fact that certain
suppliers like to play fast and loose with the numbering system, it's
natural that a lot of confusion would result. Here's a very brief
overview of the 6L6 family of beam power tubes:

6L6: The original metal-cased version. Not recommended for most guitar amps.

6L6G, 6L6GB: The early glass versions. These are not rated for the kind of
service they would see in most modern guitar amps, although they are
found in some old amps from the '50s.

5881 (Old): This is a "ruggedized" military version of the 6L6GB. Again,
they're not rated for the kind of plate voltages and dissipation you see
in more modern amps, but they're great for old Fender Tweeds and the like.
Many folks (myself included) have used 5881s with no problems in
Blackface and Silverface amps, but they are being run beyond their
ratings in such cases.

6L6GC: This is the most modern version of the 6L6, and the one around
which all the '60s and later Fenders were designed. Ratings are higher
than the older versions.

7581, 6L6WGC, etc.: Ruggedized military 6L6GCs. A stock of Philips 7581s
has become available on the market recently, and the "word on the street"
is that they're very good tubes.

5881 (New): Sovtek/New Sensor and some other suppliers have seen fit to
revive the 5881 designation for their new 6L6GCs. These should not be
confused with the old 5881s--for instance, Tung-Sols. The Russian 5881s
are good reliable tubes, the best 6L6 type being manufactured right now.
They have been used succesfully in very tough applications, even as
quasi-substitutes for 7027s. In my opinion, this is the best tube to use
in just about all 6L6-based guitar amps.
One thing I should mention is that the new 5881 usually biases up at a
less-negative grid voltage than the other 6L6 types, so you cannot simply
plug a pair into your old Fender and get optimum results. The amp should
be rebiased by a competent tech.

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From postmaster@triodeel.com Thu Aug 27 09:02:24 CDT 1998
Article: 123715 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!news.maxwell.syr.edu!newsfeed.direct.ca!novia!sequencer.newscene.com!not-for-mail
From: postmaster@triodeel.com (Ned Carlson)
Newsgroups: alt.guitar.amps
Subject: Re: 6L6GCs
Date: 26 Aug 1998 22:06:16 -0500
Organization: Triode Electronics
Lines: 43
Message-ID: <35e4cc54.375310446@news1.newscene.com>
References: <35db431f.69335955@news1.newscene.com> <1998082007064600.DAA00767@ladder01.news.aol.com>
<35DBDF69.A8D78B8@worldnet.att.net> <35dca304.159433885@news1.newscene.com>
Reply-To: postmaster@triodeel.com
X-Newsreader: Forte Free Agent 1.11/32.235
Xref: geraldo.cc.utexas.edu alt.guitar.amps:123715

On Wed, 26 Aug 1998 13:36:55 -0700, kroger@ucla.edu (Jim Kroger)
wrote:

>Hi Ned, somebody's trying to trade me some tubes for a tuner.
>Have you ever heard of an RCA 6L6GC with dark plates and tall
>glass like a 7027? Are these of any quality or value comparable
>to the black plate RCA 6L6GC of fame?

Well, take a look at the numbers etched into the glass.
Solid letters in an octagon=RCA (sometimes Tungsol, but unlikely
in this case)
Solid letters underlined=Westinghouse
Solid letters, *not* underlined= Sylvania/Philips
Broken, "stencil" style letters= GE

No etching? Better compare them to some Mesa Boogie
Chinese "STR 6L6-GC". They've got tall bulbs, but
I think they've got grey plates. Haven't looked at one
for awhile.
Note: the current RCA/Thomson D&SP Division
can stamp RCA on anything they like...

It's not impossible that RCA could've made some
6L6-GC in tall bulbs like 7027, tho I've never seen any.
I have seen some Sylvania made, RCA labelled,
6L6-GC like that, but they had grey plates.

>
>Sorry to bug you for free advice, but what can I say, I'm a slimebag.

According to my wife, so am I..I'm sure she's kidding..

Ned Carlson Triode Electronics "where da tubes are!"
2225 W Roscoe Chicago, IL, 60618 USA
ph 773-871-7459 fax 773-871-7938
12:30 to 8 PM CT, (1830-0200 UTC) 12:30-5 Sat, Closed Wed & Sun
http://www.triodeel.com
Your Start Page for Tube and Tube Amp info on the net...
http://www.triodeel.com/tlinks.htm

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From pbunn624@teleplex.net Sun May 11 21:58:20 CDT 1997
Article: 30468 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!news.maxwell.syr.edu!newsfeed.internetmci.com!news.teleplex.net!usenet
From: pbunn624@teleplex.net (Pat Bunn)
Newsgroups: rec.audio.tubes
Subject: Re: 6L6 = ??
Date: 12 May 1997 01:06:36 GMT
Organization: STF Electronics
Lines: 42
Message-ID: <5l5qes$hbt@news.teleplex.net>
References: <19970509140601.KAA13957@ladder02.news.aol.com> <33739eba.630134@news.worldlinx.com>
<3374D337.6297@interramp.com> <3375475a.1058514@news.spry.com>
NNTP-Posting-Host: dp07.teleplex.net
Mime-Version: 1.0
Content-Type: Text/Plain; charset=ISO-8859-1
X-Newsreader: WinVN 0.99.5
Xref: geraldo.cc.utexas.edu rec.audio.tubes:30468

In article <3375475a.1058514@news.spry.com>,
triodeel@spam_in_a_can.interserv says...
>
>
>>I beleive this is incorrect the 5881 is a 6L6WGB NOT WGC. The WGC is
>>rated for a higher plate voltage than the WGB or 5881. The Sovtek 5881
>>is rated for the higher plate voltage, but any NOS 5881 should not be
>>assumed to handle the voltage in an amp that specifies WGC. Check your
>>plate voltage, and the rating of the particular tube you are using.
>>Vince.
>I believe "-WGC" is a suffix Sovtek folks invented for their 5881, so
>as to induce people to use their 5881 (which ain't exactly a 5881,
>really it's a separate Russian tube number) in place of 6L6-GC
>(which often they can), easier for dealers to sell to their tube-
>guitar-amp customers that way.
>I have never heard of US mfr 6L6-WGC, only 6L6-WGB...
>note later model 5881 or 6L6-WGB had same guts as 6L6-GC,
>just smaller bottle, thus in reality nearly same ratings as
>well (cheaper to buy all the guts for both types all the same)
>altho smaller bulb might affect dissipation rating, essentially
>the same beast despite what books say. Note most books were
>written in 1960's, most of 6L6-WGB on market were made in 1980's.
>Tube mfrs weren't too concerned if old specs jived with new tubes,
>so long as customer would take 'em.
>Ned
>Ned Carlson
>

Ned:

Thanks for trying to set the record striaght. I get at least one
comment a week about the 6L6WGB being rated too low in plate voltage and
comparing it with an ancient 6L6GB.

All the Phillips 6L6WGBs I have appear to have the same internal
structure that the Phillips 7581s have. They were made in the same
general time frame. I think they are the best buy available for 6L6GC
replacement. I sell them at $29 per matched pair plus postage.

Pat Bunn
STF Electronics

From Les@neuron.uchc.edu Mon May 12 10:22:56 CDT 1997
Article: 30498 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!news-peer.sprintlink.net!news.sprintlink.net!Sprint!cpk-news-hub1.bbnplanet.com!cam-news-feed1.bbnplanet.com!news.bbnplanet.com!nutmeg.uchc.edu!not-for-mail
From: Les Bernstein
Newsgroups: rec.audio.tubes
Subject: Re: 6L6 = ??
Date: Mon, 12 May 1997 09:26:46 -0400

Organization: Univ of CT Health Center
Lines: 64
Message-ID: <33771A96.4558@neuron.uchc.edu>
References: <19970509140601.KAA13957@ladder02.news.aol.com> <33739eba.630134@news.worldlinx.com>
<3374D337.6297@interramp.com> <3375475a.1058514@news.spry.com> <5l5qes$hbt@news.teleplex.net>
NNTP-Posting-Host: 155.37.16.149
Mime-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit
X-Mailer: Mozilla 3.01Gold (Win95; U)
Xref: geraldo.cc.utexas.edu rec.audio.tubes:30498

Pat Bunn wrote:
>
> In article <3375475a.1058514@news.spry.com>,
> triodeel@spam_in_a_can.interserv says...
> >
> >
> >>I beleive this is incorrect the 5881 is a 6L6WGB NOT WGC. The WGC is
> >>rated for a higher plate voltage than the WGB or 5881. The Sovtek 5881
> >>is rated for the higher plate voltage, but any NOS 5881 should not be
> >>assumed to handle the voltage in an amp that specifies WGC. Check your
> >>plate voltage, and the rating of the particular tube you are using.
> >>Vince.
> >I believe "-WGC" is a suffix Sovtek folks invented for their 5881, so
> >as to induce people to use their 5881 (which ain't exactly a 5881,
> >really it's a separate Russian tube number) in place of 6L6-GC
> >(which often they can), easier for dealers to sell to their tube-
> >guitar-amp customers that way.
> >I have never heard of US mfr 6L6-WGC, only 6L6-WGB...
> >note later model 5881 or 6L6-WGB had same guts as 6L6-GC,
> >just smaller bottle, thus in reality nearly same ratings as
> >well (cheaper to buy all the guts for both types all the same)
> >altho smaller bulb might affect dissipation rating, essentially
> >the same beast despite what books say. Note most books were
> >written in 1960's, most of 6L6-WGB on market were made in 1980's.
> >Tube mfrs weren't too concerned if old specs jived with new tubes,
> >so long as customer would take 'em.
> >Ned
> >Ned Carlson
> >
>
> Ned:
>
> Thanks for trying to set the record striaght. I get at least one
> comment a week about the 6L6WGB being rated too low in plate voltage and
> comparing it with an ancient 6L6GB.
>
> All the Phillips 6L6WGBs I have appear to have the same internal
> structure that the Phillips 7581s have. They were made in the same
> general time frame. I think they are the best buy available for 6L6GC
> replacement. I sell them at $29 per matched pair plus postage.
>
> Pat Bunn
> STF Electronics

Sorry Pat, but the record here is far from straight. As a 6L6 hobbyist, allow me to add to the fray. The difference between a true 5881 and a true 6L6WGB is in the spacers-- mica vs. ceramic. I am not aware (although I could be convinced) that any 6L6WGB's or "late" 5881's EVER contained the same guts as a true 6L6GC. I would insist on documentation and not go by looks. The Sovtek 5881 is not, as you correctly stated, a true 6L6 at all. It is, however, a fine substitute. The max plate voltage is not the 250v claimed in an earlier posting. That is the result of a common but understandable misreading of the poorly written spec sheet on the Sovtek. The Sovtek's are routinely run at up to 550v on the plate. I understand that in guitar amps, the Sovtek's are not generally desirable. In "hi-fi" applications they seem

quite nice. I use them routinely. They are inexpensive, quite rugged and a fine audio tube. I purchased a matched pair for all of $22.00 and in my application (vitage hi-fi) they leave little to be desired even when compared to "true" 6L6GC's and "true" 5881's. For a complete history of the 6L6, I suggest Eric Barbour's fine article in VTV #4.

Les

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From raydeeohh@aol.com Mon Jan 30 10:35:30 CST 1995
Article: 50 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!usc!howland.reston.ans.net!swiss.ans.net!newstf01.news.aol.com!newsbf02.news.aol.com!not-for-mail
From: raydeeohh@aol.com (RAYDEEOHH)
Newsgroups: alt.guitar.amps
Subject: Re: Need pinouts for 6MB8 tubes
Date: 29 Jan 1995 17:22:41 -0500
Organization: America Online, Inc. (1-800-827-6364)
Lines: 18
Sender: root@newsbf02.news.aol.com
Message-ID: <3gh4fh$hi1@newsbf02.news.aol.com>
References: <3geo0t$f6n@deep.rsoft.bc.ca>
Reply-To: raydeeohh@aol.com (RAYDEEOHH)
NNTP-Posting-Host: newsbf02.mail.aol.com

>From the RCA Receiving Tube Manual:

6MB8:

Heater: Pins 4,5

Triode Section:
Plate: Pin 2
Control Grid: Pin 1
Cathode: Pin 3

Pentode Section:
Plate: Pin 6
Screen Grid: Pin 7
Control Grid: Pin 9
Cathode & Supressor Grid: Pin 8

Now I remember why I never tossed that book out.

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From power@wwdc.com Tue Jan 14 10:42:45 CST 1997
Article: 34343 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.erols.net!news-peer.gsl.net!news.gsl.net!news-stock.gsl.net!news.gsl.net!van1s03.cyberion.com!news
From: O'Connor
Newsgroups: alt.guitar.amps
Subject: Re: Replacing 6V6s with 6L6s: some issues
Date: Tue, 14 Jan 1997 04:17:40 -0800
Organization: London Power http://www.wwdc.com/~power/
Lines: 49
Message-ID: <32DB7964.64B3@wwdc.com>
References:
NNTP-Posting-Host: pm3-25.wwdc.com
Mime-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit
X-Mailer: Mozilla 2.0 (Win16; I)

S. W. Wortis wrote:
>
> Hello.
>
> In the Ultimate Tone, there is some discussion regarding tube replacement.
> He mentions three factors that might disuade one from switching to 6L6s in
> 6V6s amps. The first, heater current draw, seems pretty obvious and
> straightforward. The others, transconductance and mu, he doesn't explain.
> Could someone explain how transconductance and mu are factors in tube
> replacement?
>
> Thanks,
> ShaunHello Shaun

You have misunderstood something-- mu and transconductance differences
were not cited as reasons for not substituting 6L6s for 6V6s. I believe
you are mentally transposing a statement made about the complimentary
substitution, from an earlier part of the Power Amplifier chapter of "The
Ultimate Tone".

Maybe I can clarify this for you.

6L6s in 6V6 amps:
1) If the amp was designed for 4x6V6; you can plug in 2x6L6
2) If the amp was designed for 2x6V6; you CANNOT install ANY 6L6s
UNLESS-- you add an auxilliary heater transformer to supplement
the main winding-- 6V6 heaters draw 450mA each
6L6 heaters draw 900mA each
OR-- you have the manufacturer's nod that they say it is okay

6V6s in 6L6 amps:
1) If B+ is less than or equal to 450V; okay
2) If B+ > 450V; NOT okay
UNLESS-- screen voltage can be reduced to below 400V; preferably
below 350V

Regarding transconductance and mu: These parameters are a bit more than
half for a 6V6 relative to a 6L6 i.e. the 'V' has half the gm of an 'L'.
This fact means that for identical plate voltage, screen voltage and bias
voltage, the 'V' will settle to an idle current of about half the value
of a 6L6. This is borne out in actual use and greatly simplifies the
"bias option" circuit requirements for amps that are to accomodate both
types of tube.

More light will be shed on these issues in "The Ultimate Tone: Volume 2"
which is all-new information, and should be available in Feb/March.

I hope this helps!
Kevin O'Connor

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From bbolton@earthlink.net Fri Sep 27 15:27:04 CDT 1996
Article: 23596 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!news.sprintlink.net!news-peer.sprintlink.net!uunet!news-in2.uu.net!nntp.earthlink.net!usenet
From: Brad & Dona Bolton
Newsgroups: alt.guitar.amps
Subject: NOS 6V6 vs. Sovtek 6V6 report
Date: Fri, 27 Sep 1996 13:47:19 -0700
Organization: Earthlink Network, Inc.
Lines: 23
Message-ID: <324C3D57.50D9@earthlink.net>
Reply-To: bbolton@earthlink.net
NNTP-Posting-Host: cust71.max3.cleveland.oh.ms.uu.net
Mime-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit
X-Mailer: Mozilla 3.0 (Win16; I)

I've been playing a rebuilt Deluxe Reverb on lots of gigs, and noticed that it was very bright sounding, like listening to a guitar plugged directly into a mix board. Painfully so. I removed the 47 pf cap that bypasses highs around the volume cap, and it was still too bright. I didn't think the power tubes were to blame, because all my old rebuilt Fender amps are pretty bright. So I received some NOS JAN GE 6V6's for repairs and threw a couple in the DeLuxe. Holy mackerel, Andy, the sound I remember from my halcyon teenage days! Very warm, stronger mids, and NO annoying harshness. I even have to reinstall the 47 pf cap because the amp isn't quite bright enough. I was amazed at the drastic difference between the 2 tubes. The GE compresses the sound a little more than the Sovtek, which may not be to everyone's liking.

Summary - if your 6V6 amp sounds like it lacks treble or dynamics, try the Sovteks. Or service the amp, which may be what it needs. If you need a bright, dynamic amp for a heavily processed guitar tone, the Sovteks may also be a good choice. But for most situations, I think NOS JAN tubes are much more musical, if you don't mind the slight compression. And, the added midrange helps counteract that 330 Hz notch in Fender amps!

Brad Bolton, Kent Ohio's very own plate load prima dona.

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From power@wwdc.com Mon Jul 29 10:38:23 CDT 1996
Article: 19657 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!news.sprintlink.net!news-stk-200.sprintlink.net!news-stock.gsl.net!news.gsl.net!van1s02.cyberion.com!news
From: O'Connor
Newsgroups: alt.guitar.amps
Subject: Re: Tube Rectifier Replacement For Fender Amps
Date: Mon, 29 Jul 1996 05:40:14 -0700
Organization: London Power http://www.wwdc.com/~power/
Lines: 28
Message-ID: <31FCB12E.3442@wwdc.com>
References: <4sunj4$2qp@fox.comm.net>
NNTP-Posting-Host: tc241.wwdc.com
Mime-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit
X-Mailer: Mozilla 2.0 (Win16; I)

William R Rodrick wrote:
if, for example, the amp in question is a Fender with a 6V6
> output stage, replacing the tube rectifier with solid state rectifiers is
> liable to fry the 6V6(s) because of the resulting increase in plate voltage;
> Fender already runs them way over spec to begin with.
>
> Bill
Contrary to popular belief, Fender never operated 6V6s beyond their ratings. Most people are familiar with the 360V anode rating of the 6V6, but this is an old style rating called a "Design center value". This is a rating that has a built in allowance for variations in tube manufacturing, AND, it tries to anticipate variations in the application circuit.

Later, the rating system was revamped to list "Design maximum values", where only the production variations were accounted for. The low 360V plate voltage then magically soared well above 400V with no actual change to the tube itself. The same was true for the 5881.

With respect to the solid-state rectifier sub question: As long as the bias level is properly proportioned for the higher anode voltage, then 6V6s are happy to work at B+ values above 420V.

Note that the 6V6 was used in early TVs as a horizontal driver subject to 1,200V at a 15% duty cycle. Don't try this with an EL84!

Tinker carefully!
Kevin O'Connor

From Teleologist@Sorry.NoEmail Mon Jul 29 10:38:42 CDT 1996
Article: 19660 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!swrinde!newsfeed.internetmci.com!newshub.csu.net!newshub.sdsu.edu!newsfeeder.sdsu.edu!in-news.erinet.com!ddsw1!news.mcs.net!usenet
From: Teleologist
Newsgroups: alt.guitar.amps
Subject: Re: Tube Rectifier Replacement For Fender Amps
Date: Mon, 29 Jul 1996 06:58:38 -0500
Organization: MCSNet Internet Services
Lines: 30
Message-ID: <31FCA76E.52D1@Sorry.NoEmail>
References: <4sunj4$2qp@fox.comm.net> <31FCB12E.3442@wwdc.com>
NNTP-Posting-Host: alsnt.image.ctt.com
Mime-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit
X-Mailer: Mozilla 2.0 (WinNT; I)

O'Connor wrote:
>
> William R Rodrick wrote:

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> >
> > Bill
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> ratings. Most people are familiar with the 360V anode rating of the 6V6,
> but this is an old style rating called a "Design center value". This is
> a rating that has a built in allowance for variations in tube
> manufacturing, AND, it tries to anticipate variations in the application
> circuit.
>
> Later, the rating system was revamped to list "Design maximum values",
> where only the production variations were accounted for. The low 360V
> plate voltage then magically soared well above 400V with no actual change
> to the tube itself. The same was true for the 5881.
>
> With respect to the solid-state rectifier sub question: As long as the
> bias level is properly proportioned for the higher anode voltage, then
> 6V6s are happy to work at B+ values above 420V.
>

The dissipation rating for 6V6GTs also goes up to 14W from 12W.
Re 6V6s, SS plug ins, & 420+V, for posterity you probably need to add:

Don't try this at home with Sovtek 6V6GTs :)

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From postmaster@triodeel.com Fri Jan 29 12:36:56 CST 1999
Article: 155951 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!news-peer1.sprintlink.net!-program!newsfeed.direct.ca!novia!sequencer.newscene.com!not-for-mail
From: postmaster@triodeel.com (Ned Carlson)
Newsgroups: alt.guitar.amps
Subject: Re: 6L6 Swap to 6V6 or EL84?
Date: 29 Jan 1999 05:24:02 -0600
Organization: Triode Electronics
Lines: 34
Message-ID: <36b196a9.187209409@news1.newscene.com>
References: <36ADA952.1D23@londonpower.com> <19990126120006.22201.00004667@ng-fi1.aol.com> <36AF08AC.D05@londonpower.com>
Reply-To: postmaster@triodeel.com
X-Newsreader: Forte Free Agent 1.11/32.235
Xref: geraldo.cc.utexas.edu alt.guitar.amps:155951

On Wed, 27 Jan 1999 04:38:04 -0800, O'Connor
wrote:

>Besides, the voltages found in the DR are not "too high" for 6V6s. Do
>you think Fender was stupid? They did not want complaints from customers
>or frequent field failures. The 6V6 is a robust tube and the Russian
>versions made until recently were also decent tubes and were often
>repackaged and sold under other names since at least the early eighties.

Yeah, but let's be honest with each other, Kev, they're not nearly as
good as later model, NOS US & European made 6V6's. They're not really
as good even as earlier 6V6's, I've tried 'em (more than one set, IMA)
in an old Hammond M3 and they didn't work right. They're a knockoff,
albeit not a great one, of a 1940's RCA, as are a number of other
Russian tubes, I don't think that Russian 6SN7's looking so similar to
1940's RCA's is any coincidence.

Sure, you can run 6V6's at nutty voltages by limiting screen current
or voltage, and AAMOF, if I ever find time, I'd like to try 'em with
some kind of current regulator (as opposed to a voltage regulator)
just to see how well that works.
But I bet if you could scrape the black shit from
inside a Sovtek 6V6, even with the higher screen resistor you suggest,
you'd see the screen glowing red as a beet with any kind of decent
size signal, even in a DR, let alone a Super or Twin.

Ned Carlson Triode Electronics "where da tubes are!"
2225 W Roscoe Chicago, IL, 60618 USA
ph 773-871-7459 fax 773-871-7938
12:30 to 8 PM CT, (1830-0200 UTC) 12:30-5 Sat, Closed Wed & Sun
http://www.triodeel.com
Tube and Tube Amp info on the net... The Big Tube Links Page!

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From postmaster@triodeel.com Sat Nov 7 10:50:38 CST 1998
Article: 137557 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!uwm.edu!news-penn.gip.net!news-peer.gip.net!news.gsl.net!gip.net!news.maxwell.syr.edu!newsfeed.nyu.edu!novia!sequencer.newscene.com!not-for-mail
From: postmaster@triodeel.com (Ned Carlson)
Newsgroups: alt.guitar.amps
Subject: Re: Help ! 6V6 tube question
Date: 7 Nov 1998 00:21:08 -0600
Organization: Triode Electronics
Lines: 51
Message-ID: <3643dfa6.177541556@news1.newscene.com>
References: <19981107000032.00811.00000412@ng-fb2.aol.com>
Reply-To: postmaster@triodeel.com
X-Newsreader: Forte Free Agent 1.11/32.235
Xref: geraldo.cc.utexas.edu alt.guitar.amps:137557

On 7 Nov 1998 05:00:32 GMT, myship007@aol.com (My Ship007) wrote:

>What is the difference in 6V6GT,6V6GTA,6V6GTY and 6V6GT/G ?

6V6-GT and 6V6-GT/G are the same thing. Older version of
6V6, made prior to 6V6-GTA. The "GT/G" designation is
to indicate it can replace the even older 6V6-G.

6V6-GTY: Same as 6V6-GT, but with a brown or yellow base.

6V6-GTA: Newer version (introduced ca. 1960), with improved
plate dissipation (14 vs 12W) and plate voltage (350 vs 315V)
ratings. Usually has grey instead of black plates.
7408 is an industrial number for 6V6-GTA, they are interchangeable.

>What would be the
>best replacement in a '67 Deluxe Rev. ?

If I were you, I would be more concerned with getting good quality
6V6-GT or GTA than the exact numbers stamped on the side, anyone
with a silk screen machine can slap "6V6-GTA" or "7408" on any old
piece of shit, and it's been done, too.
I kid you not, I've got a smokeball Sovtek 6V6-GT right here on my
desk that's labelled "Mullard 6V6-GTA Made In England".
It was even labelled Mullard by the company that's got a license
to use the name.

The Groove Tubes so-called "6V6-HD" is actually a cheap 6L6,
not a 6V6.

Mainly, if you avoid Chinese or Russian 6V6's , you're OK.
Any good US or West European 6V6 will do just fine,
6V6-GTA (or some of the later European 6V6-GT, apparently
they never went to using the "6V6-GTA" designation)
will handle more bias current before they red-plate.

As to what sounds best, you'll hear a lot of opinions, you might
try going to http://www.dejanews.com and read some of the
previous threads on the subject.You'll notice there's more
discussion of the brands and vintage of the tubes, than
exactly which number got labelled on them.

Ned Carlson Triode Electronics "where da tubes are!"
2225 W Roscoe Chicago, IL, 60618 USA
ph 773-871-7459 fax 773-871-7938
12:30 to 8 PM CT, (1830-0200 UTC) 12:30-5 Sat, Closed Wed & Sun
http://www.triodeel.com
Your Start Page for Tube and Tube Amp info on the net...
http://www.triodeel.com/tlinks.htm

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From SRSN81A@prodigy.com Sat Nov 25 00:12:48 CST 1995
Article: 5667 of alt.guitar.amps
Path:
geraldo.cc.utexas.edu!cs.utexas.edu!uwm.edu!homer.alpha.net!solaris.cc.vt.edu!newsfeed.internetmci.com!in1.uu.net!prodigy.com!usenet
From: SRSN81A@prodigy.com (Joseph Pampel)
Newsgroups: alt.guitar.amps
Subject: Re: Q: 6V6s in AA964 Vibrolux Reverb???
Date: 22 Nov 1995 04:21:36 GMT
Organization: Prodigy Services Company 1-800-PRODIGY
Lines: 61
Distribution: world
Message-ID: <48u8gg$1ola@usenetz1.news.prodigy.com>
References: <48k40u$h94@taco.cc.ncsu.edu> <48ovsc$9r3@newsbf02.news.aol.com> <48qka6$1ggm@usenetz1.news.prodigy.com>
<48rhsi$bn1@ixnews5.ix.netcom.com>
NNTP-Posting-Host: inugap4.news.prodigy.com
X-Newsreader: Version 1.2

reaiken@ix.netcom.com (Randall Aiken) wrote:
>
(Said Joe, more or less..)
>>abused in all guitar amps.. 415V is no big deal to a 6V6, if you look
at
>>their absolute max ratings, the plate voltage is 1200V max. (or is it
>>1400? been a while since I looked it up..) 425V is, as a MOF what
>>Sylvania reccomends for running class A...

I agree with your comments vis duty cycle, and I believe we are saying
similar things: I'm saying that the plate voltage level alone is not the
big issue (as do you I believe). Max plate voltage, forgetting
dissipation for a moment, is a function of lead spacing in the pinch
primarily from what I understand. If the tube couldn't handle 400V, it
couldn't handle 1200 for any period of time, forget current draw and duty
cycle. We also agree, I believe, that running AB (less than 100%, more
than 50% duty cycle) is cooler for the tubes than is running class A. If
a class A spec has the tube sitting at 425V, then I think it's reasonable
to conclude that 425V at a colder bias and lower duty cycle should be ok.
(all else equal) The thing that caught my eye about the Sylvania design
example is that the spec they use is a 250V spec - I had always assumed
that 250V or 315V (what RCA lists as max for the 6V6GT) were the Vmax..
but in the example they perform at the end of the book, it is clear that
the voltages spec'd in those tables are the center points of the
operating characteristic. So, if 250V sits idle at 425V, where does that
315V (and 350V) spec sit at idle? Above 425 I'd say. Anyhow, that 250V
spec is in every tube book I've seen, give or take a few. It's the one
that goes:

Va 250V
Vg2 250V
Bias -12.5
Rk 250 Ohms
Iplate (zero signal) 45mA
Iplate (max signal) 47mA
Ig2 (zero signal) 4.5mA
Ig2 (max signal) 7.0mA
rp (approx) 50,000 Ohms
Transconductance: 4100 umhos
Load Resistance: 5,000
Max signal pwr output: 4.3W
THD 4.8% 2nd, 5.7% 3rd HD

I also agree 100% that the tubes being sold as "6V6"'s are not up to the
job that our old GE's and RCA's were up to. I guess my only real point
in posting that last note was just that I'm kinda tired of seeing these
unsubstantiated rumors of Princetons and Deluxes being "tube eaters".. It
makes no sense historically (Fender amps are reliable as heartburn at a
chili cook off..) and like I said before, I have not found (not yet
anyhow) here, or in print, any evidence to support those rumors. I just
hate seeing people get all paranoid for nothing. Further, I've been
gigging & rehearsing steadily for 3 years now on the same set of NOS GE
6V6GTA's, in a Deluxe Rvb running at 415V @idle and current draws of 15mA

& 20mA resp. And the tubes are just starting to show their age a bit.
Some tube killer.

Anyhow, I hope I didn't come off as too hard headed.. Thanks for the interesting reply.

Joe

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From postmaster@triodeel.com Sun Nov 8 11:36:22 CST 1998
Article: 137713 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.erols.net!novia!sequencer.newscene.com!not-for-mail
From: postmaster@triodeel.com (Ned Carlson)
Newsgroups: alt.guitar.amps
Subject: Re: Convert from Cathode Bias 6V6 TO EL-84
Date: 8 Nov 1998 04:02:06 -0600
Organization: Triode Electronics
Lines: 23
Message-ID: <36456b29.6895796@news1.newscene.com>
References: <36457775.618@shore.net>
Reply-To: postmaster@triodeel.com
X-Newsreader: Forte Free Agent 1.11/32.235
Xref: geraldo.cc.utexas.edu alt.guitar.amps:137713

On Sun, 08 Nov 1998 02:50:29 -0800, Bill Young
wrote:

>Do these require radically different bias resistors on I tried it and
>bias seems low with 6v6 Cathode resistors ..... Thanks Bill
>
>Anyone been there done that ?????

Just look at this diagram:
http://www.triodeel.com/dyna6bq5.gif
To switch between 6V6 (or 6AQ5) and 6BQ5, the cathode resistor
is changed from 250 to 130 ohms. This is a rough rule of thumb,
6BQ5's use about half the value of cathode resistor as 6V6 does.

Ned Carlson Triode Electronics "where da tubes are!"
2225 W Roscoe Chicago, IL, 60618 USA
ph 773-871-7459 fax 773-871-7938
12:30 to 8 PM CT, (1830-0200 UTC) 12:30-5 Sat, Closed Wed & Sun
http://www.triodeel.com
Your Start Page for Tube and Tube Amp info on the net...
http://www.triodeel.com/tlinks.htm

From mathe.nospam@kabelfoon.nl Sun Nov 8 11:37:01 CST 1998
Article: 137722 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!math.ohio-state.edu!howland.erols.net!newsfeed.berkeley.edu!newsfeed.wirehub.nl!sun4nl!newnews.nl.uu.net!not-for-mail
From: "Marc"
Newsgroups: alt.guitar.amps
Subject: Re: Convert from Cathode Bias 6V6 TO EL-84
Date: Sun, 8 Nov 1998 14:43:08 +0100
Organization: UUNET-NL
Lines: 13
Message-ID: <72476mdsa1@newnews.nl.uu.net>
References: <36457775.618@shore.net> <36456b29.6895796@news1.newscene.com>
NNTP-Posting-Host: k1nw053.dial.kabelfoon.nl
X-Newsreader: Microsoft Outlook Express 4.72.3110.5
X-MimeOLE: Produced By Microsoft MimeOLE V4.72.3110.3
Xref: geraldo.cc.utexas.edu alt.guitar.amps:137722

You're correct Ned, but I would like to add a small thing:
To avoid that any unbalance in the duet of tubes might influence the bias
point of each tube, use 2 seperate kathode resistors of 250 Ohms / 3Watt.

Marc

>To switch between 6V6 (or 6AQ5) and 6BQ5, the cathode resistor
>is changed from 250 to 130 ohms. This is a rough rule of thumb,
>6BQ5's use about half the value of cathode resistor as 6V6 does.

Back to JT30 Home

From rongon@bway.net Tue Jul 9 01:03:51 CDT 1996
Article: 11776 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!news.tamu.edu!bloom-beacon.mit.edu!spool.mu.edu!sgigate.sgi.com!news-res.gsl.net!news.gsl.net!hunter.premier.net!newsfeed.internetmci.com!in2.uu.net!betty.bway.net!news
From: Ron Gonzalez
Newsgroups: rec.audio.tubes
Subject: Re: Military substitution for 6V6GT, EM80, EM34
Date: Tue, 09 Jul 1996 00:28:18 -0400
Organization: Mannes / New School Jazz Program
Lines: 16
Message-ID: <31E1DFE2.1617@bway.net>
References:
Reply-To: rongon@bway.net
NNTP-Posting-Host: dial52.bway.net
Mime-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit
X-Mailer: Mozilla 3.0b5aGold (Win95; I)

TVI@ytv.fi wrote:
>
> Hi all tubes around the world!
>
> Could you please help me to find military numbers (4 digits) for following
> tubes 6V6GT, EL34, EM80, EM34 and EL84. I happen to run to a large number of
> military tubes, but it is impossible to identify those, so please help me.
>
> Keep them glowing
>
> Teemu

Oops!! I posted that 6V6 = 7308. Nope, that's a 6DJ8! 6V6 is a 7408 as
Tremolux pointed out. Mark are you catching this? I'm losing it!

Ron G.

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From mookie2112@aol.com Tue Dec 21 13:14:21 CST 1999
Article: 221209 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!news.maxwell.syr.edu!newsfeed.cwix.com!portc03.blue.aol.com!audrey04.news.aol.com!not-for-mail
From: mookie2112@aol.com (Mook)
Newsgroups: alt.guitar.amps
Subject: Mook's Taste Tests: The Sovtek 6V6EH
Lines: 211
NNTP-Posting-Host: ladder07.news.aol.com
X-Admin: news@aol.com
Date: 21 Dec 1999 01:19:15 GMT
Organization: AOL http://www.aol.com
Mime-Version: 1.0
Content-Type: text/plain; charset=ISO-8859-1
Content-Transfer-Encoding: 8bit
Message-ID: <19991220201915.19526.00000528@ng-ck1.aol.com>
Xref: geraldo.cc.utexas.edu alt.guitar.amps:221209

Introduction:

First off, I'd like to thank Lord Valve (email: LORD_VALVE@prodigy.net) for supplying, for test purposes, the set of 6V6EH's. Before shipment, Lord Valve "burned-in" these tubes for over 24 hours (from what I understand, his standard procedure) and these tubes arrived closely matched, about 2mA apart. Lord Valve told me not to hold back in my critique - that is, he said if I thought they sucked, indicate so, and vice-versa.

The point of this write-up is not to test the physical attributes of the 6V6EH, rather, this is an aural exercise only. There have been numerous reports of physical testing of the new Russian 6V6 on AGA, Ampage, and various other BBSs, all with passing grades - I refer you to DejaNews archives for those claims.

The following list of gear is for "comparative" purposes only. This is NOT meant to plug or praise certain
manufacturers. The guitars were plugged straight into the amps with a 10-foot Spectraflex cord. Volume and Tone knobs on the guitars were set to full (10).

· 1955 Fender Tweed Deluxe with Weber C12Q (plate volts = 370V). I kept the Tone knob on 10 (out of 12) for the entire test.

· Reissue Blackface Fender Deluxe Reverb with Mojo 12V30 (plate volts = 360V). I kept the Treble knob on 8 and the Bass knob on 5 for the entire test. I always keep a 5Y3 rectifier in this amp to keep the voltage down.

· Stinger Texas Tornado with Weber P12Q. For those who aren't familiar with this amp, it is a higher-gain BFDR; imagine a DR that crunches up a bit more.

· Heritage Les Paul copy with Seth Lover pickups.

· Fender Strat (American) with Lindy Fralin Vintage Hots.

· Hamer GT Archtop with Seymour Duncan Custom P90s.

The Heritage Les Paul and Fender Strat were strung with D'Aquisto nickel round wound size .012-.052. The Hamer was strung with .013-.056 of the same make and manufacture.

Since the new EH is supposed to be modeled after an old RCA 6V6, I thought I'd test it against that. In addition, I thought it would be good to test it against the older Sovtek 6V6. When I tested the 6V6 tubes, I followed the same "blind" testing procedure as I did for the 6L6 tests - so, please refer to my 6L6 Taste Tests for my procedure on randomizing the tubes.

I played both guitars through each amp for every duet of 6V6s. Both amps were evaluated with the volume knob on 3.5 (clean) and 10 (distorted - or 12 in the case of the Tweed Deluxe). I played for about 10 minutes on each 6V6 duet. Hot tubes were removed with leather gloves. In the case of the Blackface-type amps, I kept my BiasProbe attached to one of the tube sockets and every time I inserted a new pair of tubes, I adjusted the bias to 27mA.

Raw Data:

BFDR R.I.:

Les Paul:

RCA - Very detailed when clean, slightly piercing on bridge position when playing single note leads. Warm and tight. When distorted, this tube was extremely tight, creamy, and lush! All pickup settings were great.

Old Sovtek - This tube was lifeless when played clean. Piercing single note runs. When played distorted, this tube crunched up a lot, but was very muddy. Chords and riffs would run together and have no separation. Not too detailed.

EH - When clean, very good balance on all pickups. Chimey, overall. A bit piercing on the bridge pickup. When maxed, these tubes provided some good Malcom Young type riffage sounds. These didn't "crunch" up as much as the other two, but still provided some good grind. Muddy on the neck positions.

Strat:

RCA - Very detailed when clean. Warm and tight. When distorted, this tube was extremely tight, creamy, and lush! All pickup settings were great. Excellent tube for Strat.

Old Sovtek - Fairly nice in all pickup positions, but seemed to have a loss of bass. When distorted, that loss of bass came in "handy", as the neck pickup provided a nice "woman" tone. The bridge pickup, when cranked was way to shrill.

EH - When clean, all positions were great - chimey and full! When distorted, again, these tubes were winners. Good raunch and grind - not as full as the RCAs, but still very good.

Hamer:

RCA - Very detailed when clean, slightly piercing on bridge position when playing single note leads. Warm and tight. When distorted, this tube was extremely tight, creamy, and lush! All pickup settings were great.

Old Sovtek - A bit better than the Les Paul but provided shrill single notes runs, especially on the bridge setting. Actually, the neck position, when clean was pretty nice. When maxed out, the bridge pickup was very nice and thick. The neck postion, however, was total mud!

EH - Excellent open and barre chords on clean settings throughout the pickup selections. When maxed, the bridge pickup provided some good lead sounds, but not too full. Decent grind. The neck pickup was a tad muddy.

1955 Tweed Deluxe:

Les Paul:

RCA - Very even when played clean. Harmonically rich and balanced when overdriven. All around great tube!

Old Sovtek - When clean, these tubes were fairly even and all around "decent", but were fairly flat and two-dimensional. When maxed, these tubes were, again, fairly decent with a middy crunch.

EH - Much more detailed and responsive than the older Sovtek. Full and crunchy when overdriven - not muddy at all.

Strat:

RCA - Very even when played clean. Harmonically rich and balanced when overdriven. All around great tube!

Old Sovtek - All around good in all pickup selections, except for the bridge, which was unpleasant and brittle. Fairly flat sounding. When overdriven, these tubes were muddy, especially on the neck pickup.

EH - A tad shrill on the bridge pickup when played clean, otherwise, very nice. When distorted, this tube stayed rather thin as it did not seem to crunch up as much as the older Sovtek. The bridge+middle was very nice and chimey when both clean and overdriven.

Hamer:

RCA - Very even when played clean. Harmonically rich and balanced when overdriven. All around great tube!

Old Sovtek - All around good in all pickup selections, except for the bridge, which was unpleasant and brittle. Fairly flat sounding. When overdriven, these tubes were very muddy, especially on the neck pickup.

EH - A tad shrill on the bridge pickup when played clean, otherwise, very nice. When distorted, this tube was fuller than with the Strat, but still did not crunch up as much as the older Sovtek. The bridge+neck was very nice and chimey when both clean and overdriven.

Stinger Texas Tornado:

Les Paul:

RCA - When clean, not as chimey as a regular BFDR. But, still nice and full. Slightly jazzy, as this amp seems to roll off a bit of highs. The overdriven sound was extremely full and creamy. No bad sounds here.

Old Sovtek - Clean sounds were very one-dimentional. Single note runs on the bridge pickup were terrible. Although not very good when clean, the distorted tones were passable. The bridge pickup was very crunchy and perhaps about the best tone this tube could give. Distorted tones on the neck pickup were mushy.

EH - The clean sounds, to my ears, were almost no different than the RCA. The distorted tones, however, were not as full as the RCA.

Strat:

RCA - All around very "Straty" when both clean and overdriven. Clean sounds were chimey and overdriven sounds were harmonic and three-dimensional.

Old Sovtek - Piercing on the bridge pickup when clean - shrill and tinny. The neck pickup was decent sounding. When distorted, this tube was very crunchy, but rather bland. The neck pickup was too muddy.

EH - All around very "Straty" when both clean and overdriven. Clean sounds were chimey and overdriven sounds were harmonic and three-dimensional.

Hamer:

RCA - Very jazzy and nice and full when clean. The overdriven sound was extremely full and creamy. No bad sounds here.

Old Sovtek - Piercing on the bridge pickup when clean - shrill and tinny. The neck pickup was decent sounding. When distorted, this tube was very crunchy, but rather bland. The neck pickup was way too muddy. This tube rather sucked for a P90 guitar.

EH - Pretty much like the Les Paul - the clean sounds, to my ears, were almost no different than the RCA. The distorted tones, however, were not as full as the RCA. But still, with P90s, this tube was rather crunchy.

Conclusions:

For each test in each amp it was very easy to pick out the "best" sounding tube (RCA). In addition, it was easy to pick out the "worst" sounding tube, as well (the older Sovtek). So, that left the EH somewhere in the middle. I had 100% success rate in identifying the tubes when "blindfolded".

I'd say "chalk-up" a winner for Sovtek. Clean sounds, overall, were nice and chimey - pretty darn decent. But, distorted tones were a bit grainey and bright - but nothing too bad that one couldn't live with (or, perhaps get used to). In terms of overall tone, this new Russian tube is much better than Sovtek's old 6V6, especially since the new one is much more balanced and has more harmonic content. On a 10 scale, where the old Sovtek is a "1" and the Blackplate RCA is a "10", I'd say this tube deserves solid 6 rating.

Personally, I'm going to still buy NOS while they are available; I think the NOS tubes offer a "creamier" top end and thicker, richer distortion qualities. Just so readers understand, my favorite NOS 6V6s are RCA, Visseaux, Mazda, Philips, and Marconi. I don't like the GE 6V6 (wafer base), so I'd probably opt for the new EH in lieu of the GEs.

From larrysb@aol.comNOspahm Tue Dec 21 13:14:38 CST 1999
Article: 221219 of alt.guitar.amps
Path:
geraldo.cc.utexas.edu!cs.utexas.edu!news.maxwell.syr.edu!news.idt.net!peerfeed.news.psi.net!portc01.blue.aol.com!audrey04.news.aol.com!not-for-mail
From: larrysb@aol.comNOspahm (nuke)
Newsgroups: alt.guitar.amps
Subject: Re: Mook's Taste Tests: The Sovtek 6V6EH
Lines: 20
NNTP-Posting-Host: ladder05.news.aol.com
X-Admin: news@aol.com
Date: 21 Dec 1999 02:10:45 GMT
References: <19991220201915.19526.00000528@ng-ck1.aol.com>
Organization: AOL http://www.aol.com
Message-ID: <19991220211045.25326.00000357@ng-fi1.aol.com>
Xref: geraldo.cc.utexas.edu alt.guitar.amps:221219

I'll concur with Mook on the 6V6EH. Overall a decent tube and quite a bargain.
Thumbs up as a worthy 6V6. I haven't done a long term life test of these, but
they don't seem to strain in a Deluxe Reverb. There was no sign of glowing
screen grid wires under hard operation.

The EH tends for the "soft" distortion, akin to most Sovtek tubes, but it isn't
pronounced.

I'm partial to Sylvania 6V6's above all others, I like the sparkle and
tightness. They seem to last near forever too. Besides, I dig the Sylvania's
pretty blue glow.

I'm not so fond of the Visseaux, but it is a good tube.

The GE's are OK, but they have tendency to rattle inside.

Old RCA's are good, but tend to be pricey and a touch "soft" to my ear.
--
Dr. Nuketopia
When replying, please note that your email is *not* spam in the subject line.

From bkahle@hotmail.com Tue Dec 21 13:14:55 CST 1999
Article: 221346 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!news.maxwell.syr.edu!wn4feed!worldnet.att.net!wnmaster1!not-for-mail
From: "BK"
Newsgroups: alt.guitar.amps
Subject: Re: Mook's Taste Tests: The Sovtek 6V6EH
Date: Tue, 21 Dec 1999 11:12:13 -0500
Organization: FMI
Lines: 17
Message-ID: <83o8jg$5nq$1@bgtnsc02.worldnet.att.net>
References: <19991220201915.19526.00000528@ng-ck1.aol.com>
NNTP-Posting-Host: 12.76.74.169
X-Trace: bgtnsc02.worldnet.att.net 945792432 5882 12.76.74.169 (21 Dec 1999 16:07:12 GMT)
X-Complaints-To: abuse@worldnet.att.net
NNTP-Posting-Date: 21 Dec 1999 16:07:12 GMT
X-Newsreader: Microsoft Outlook Express 4.72.2106.4
X-MimeOLE: Produced By Microsoft MimeOLE V4.72.2106.4
Xref: geraldo.cc.utexas.edu alt.guitar.amps:221346

Another well-done, Mook-review!

I like the sound of this new 6V6 but believe it sounds better when operated
closer to it's plate dis. max. (somewhere between 80-90%, ie. ~12W). I know
you had to maintain some control for your tests and 27ma was a good choice
for evaluation. Having said that, I think that burning them on the hot side
warms up the tone and alleviates most of your reported upper-end harshness.
BTW, after seeing LV's post about trying to "kill" some intentionally, who
can say what the max. dis. IS on these things. Do DR-reissues really have
plate voltage at 360? I'm just surprised by this knowing that the oldies are
usually well above 400.
Thanks, Mook.

Bill

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From meo@rru.com Wed Apr 19 14:02:18 CDT 2000
Article: 246129 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!nntp.primenet.com!nntp.gctr.net!cpk-news-hub1.bbnplanet.com!news.gtei.net!dca1-hub1.news.digex.net!intermedia!dca1-nnrp1.news.digex.net.POSTED!not-for-mail
Message-ID: <38FCFFC8.38FD27B@rru.com>
From: Miles O'Neal
Organization: Roadkills-R-Us
X-Mailer: Mozilla 3.01Gold (X11; U; Linux 1.3.97 i486)
MIME-Version: 1.0
Newsgroups: alt.guitar.amps
Subject: Re: 6V6 vs. 6V6EH
References: <8di2ga$7bj$1@grandprime.binc.net>
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit
Lines: 18
Date: Wed, 19 Apr 2000 00:04:34 GMT
NNTP-Posting-Host: 206.81.38.2
X-Complaints-To: abuse@digex.net
X-Trace: dca1-nnrp1.news.digex.net 956102674 206.81.38.2 (Tue, 18 Apr 2000 20:04:34 EDT)
NNTP-Posting-Date: Tue, 18 Apr 2000 20:04:34 EDT
Xref: geraldo.cc.utexas.edu alt.guitar.amps:246129

mark evans wrote:
>
> REcently I read that Sovtek has replaced their 6V6-Gt line of output tubes
> with a new variant: 6V6EH. According to some reports, the EH's hold up to
> higher voltages and, more importantly, SOUND BETTER. Can anyone attest to
> this or draw comparisons?

Here's the URL for my comparo of the EH tubes to a pair of old RCA
blackplates:

http://www.rru.com/~meo/Guitar/Tubes/Miles/6v6eh.html

You can also read Mook's 6V6 comparo and subsequent 6V6EH
tests here:

http://www.rru.com/~meo/Guitar/Tubes/MooksTasteTests/

-Miles

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From postmaster@triodeel.com Tue Feb 9 16:20:51 CST 1999
Article: 157901 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!cpk-news-hub1.bbnplanet.com!news.gtei.net!news.maxwell.syr.edu!newsfeed.novia.net.MISMATCH!novia!sequencer.newscene.com!not-for-mail
From: postmaster@triodeel.com (Ned Carlson)
Newsgroups: alt.guitar.amps
Subject: Re: 6V6GT tubes
Date: 9 Feb 1999 15:15:08 -0600
Organization: Triode Electronics
Lines: 31
Message-ID: <36c0a552.37174213@news1.newscene.com>
References: <19990209095523.25043.00000500@ng147.aol.com>
Reply-To: postmaster@triodeel.com
X-Newsreader: Forte Free Agent 1.11/32.235
Xref: geraldo.cc.utexas.edu alt.guitar.amps:157901

On 9 Feb 1999 14:55:23 GMT, ntshaq@aol.com (NTshaq) wrote:

>What are the differences between the following 6V6's:
>
>6V6GT
>6V6GTA

6V6-GTA has higher ratings than 6V6GT

>6V6GT/G

Same as 6V6-GT, but "/G" was added to the number to indicate
it could replace the older 6V6-G (which is the same but has a larger
bulb). Later the "/G" was dropped and they were just labelled
6V6-GT.

>6V6GTY

Same as 6V6-GT but has a yellow or brown base

BTW, 7408 is the same as 6V6-GTA, at least going
by the ratings given.

Ned Carlson Triode Electronics "where da tubes are!"
2225 W Roscoe Chicago, IL, 60618 USA
ph 773-871-7459 fax 773-871-7938
12:30 to 8 PM CT, (1830-0200 UTC) 12:30-5 Sat, Closed Wed & Sun
http://www.triodeel.com
Tube and Tube Amp info on the net... The Big Tube Links Page!

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From SRSN81A@prodigy.com Sat Aug 19 00:08:57 CDT 1995
Article: 2940 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.reston.ans.net!tank.news.pipex.net!pipex!in1.uu.net!prodigy.com!usenet
From: SRSN81A@prodigy.com (Joseph Pampel)
Newsgroups: alt.guitar.amps
Subject: Re: 6v6gt, gta, gty
Date: 17 Aug 1995 03:57:22 GMT
Organization: Prodigy Services Company 1-800-PRODIGY
Lines: 24
Distribution: world
Message-ID: <40uen2$1g8o@usenetw1.news.prodigy.com>
References: <9508161014452010@welcom.gen.nz>
NNTP-Posting-Host: inugap2.news.prodigy.com
X-Newsreader: Version 1.2

stephen.delft@welcom.gen.nz (Stephen Delft) wrote:
>
>Could someone please explain the spec. differences between
> 6V6 GT, 6V6 GTA, 6V6 GTY.

The primary difference between the 6V6GT and the 6V6GTA is the total maximum plate and screen dissipation.. the GT has a combined dis of 12W, the GTA of 14W.. Just makes the GTA that little bit tougher.. Probably a slightly different plate structure or something. My personal faves are the GE 6V6GTA's from the 60's and 70's with the clear envelope. I try to set the idle current around 20-25mA per tube, but my favorite pair of tubes I've ever had in the amp is pretty badly mismatched (and sound amazing to me..) those 2 are at 22mA and 30mA resp.. and have held up beautifully through 2 years of steady gigging. No kidding.

What does the Y mean? Good Question.. I'm not sure.. Most suffixes like that denoted mil-spec versions, or special versions. "W" for instance denotes a "ruggedized" version, usually having thicker mica spacers to hold the "guts" more tightly in place.. "Y" may mean low loss base or something..

Dr. Joe
Somewhere near NYC..

Back to JT30 Home

From Teleologist@sorry.noEmail Thu Mar 21 13:26:51 CST 1996
Article: 11719 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!math.ohio-state.edu!howland.reston.ans.net!newsfeed.internetmci.com!news.exodus.net!ddsw1!news.mcs.net!usenet
From: Teleologist
Newsgroups: alt.guitar.amps
Subject: Re: Attention 6V6 experts - advice wanted!!!
Date: Thu, 21 Mar 1996 06:50:21 -0600
Organization: MCSNet Internet Services
Lines: 29
Message-ID: <3151508D.6372@sorry.noEmail>
References: <4ihksb$avp@fountain.mindlink.net> <314EA89F.3CD6@sorry.noEmail> <4in2kd$7h@curly.cc.utexas.edu>
NNTP-Posting-Host: 198.182.250.132
Mime-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit
X-Mailer: Mozilla 2.0 (WinNT; I)

Mic Kaczmarczik wrote:
>
> In article <314EA89F.3CD6@sorry.noEmail>,
> Teleologist wrote:
> >The reason for not using 6V6s in 6L6 amps has to do with the
> >impedance of the output transformer - it's typically too low for
> >6V6s & they draw too much current at full scream & die. That's
> >also why putting 6L6s in a 6V6 amp does not significantly raise
> >the wattage. The impedance is too high for the 6L6, but in this
> >case the tube is not damaged & in fact may live a very long life!
>
> Hmmm. If you had a 2x6L6 amp with a 4 ohm output transformer, say a
> Pro Reverb, could you use 2 6V6's if you increased the speaker
> impedance to 8 ohms? Or would the plate voltages typical for 6L6 amps
> still cause a problem?
>
I know a guy running 6V6s in a '65 Tremolux head with a stock 4 ohm output transformer into an 8 ohm speaker emulator(GT Electronics). He told me he has it biased at 25ma per tube with about 430 on the plates & the tubes last about 500-600 hours(he 'cranks' it up!). With the higher voltage Pro-Super power transformer, you could probably do it(but I've never tried it!) with a well matched set of GTAs. You'd be running 'on the edge of destruction'!(bringing the idle current down from 35-40ma to 20-25ma would increase the voltage to something like 475-480). Probably wouldn't work on a 50W SS or SF chasis.

The load impedance the tubes want to see varies with voltage & the curves are different for the 6L6 and 6V6, but generally 6L6s want to see about 2/3rds the load of a 6V6.

From Teleologist@sorry.noEmail Fri Mar 22 11:44:41 CST 1996
Article: 11775 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!math.ohio-state.edu!howland.reston.ans.net!newsfeed.internetmci.com!news.exodus.net!ddsw1!news.mcs.net!usenet
From: Teleologist
Newsgroups: alt.guitar.amps
Subject: Re: Attention 6V6 experts - advice wanted!!!
Date: Fri, 22 Mar 1996 07:38:50 -0600
Organization: MCSNet Internet Services
Lines: 29
Message-ID: <3152AD6A.1F1A@sorry.noEmail>
References: <4ihksb$avp@fountain.mindlink.net> <314EA89F.3CD6@sorry.noEmail> <4in2kd$7h@curly.cc.utexas.edu> <3151508D.6372@sorry.noEmail>
NNTP-Posting-Host: 198.182.250.132
Mime-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit
X-Mailer: Mozilla 2.0 (WinNT; I)

Teleologist wrote:
>
>
> I know a guy running 6V6s in a '65 Tremolux head with a stock 4 ohm output
> transformer into an 8 ohm speaker emulator(GT Electronics). He told me he
> has it biased at 25ma per tube with about 430 on the plates & the tubes
> last about 500-600 hours(he 'cranks' it up!). With the higher voltage
> Pro-Super power transformer, you could probably do it(but I've never tried

> it!) with a well matched set of GTAs. You'd be running 'on the edge of
> destruction'!(bringing the idle current down from 35-40ma to 20-25ma would
> increase the voltage to something like 475-480). Probably wouldn't work on
> a 50W SS or SF chasis.
>
> The load impedance the tubes want to see varies with voltage & the curves
> are different for the 6L6 and 6V6, but generally 6L6s want to see about
> 2/3rds the load of a 6V6.
MORE:
One other thing to watch out for is that the filament voltage doesn't go to high, especially if you have higher than average AC line voltages. Filaments are supposed to get 6.3V+-.6 At higher voltages their life expectancy will be shorter. This would probably affect preamp tubes more than the 6V6s which will 'die' sooner from other causes.

One other alternative if you want a more 6V6-like sound is GE 6L6WGBs. These have a mellower top end, areen't as loud, & break up easier than the Phillips or Sovtek tubes. They also sound great in reissue Bassmans with a tube rectifier & a rebias! Groove Tubes sells these as 6L6OS (old style) at some pretty crazy prices - $120+/pair, you can usually find them for about $60/pair at the usual NOS sources.

From timtube@aol.com Wed Mar 27 13:32:49 CST 1996
Article: 12027 of alt.guitar.amps
Path:
geraldo.cc.utexas.edu!arlut.utexas.edu!news.io.com!imci4!newsfeed.internetmci.com!in2.uu.net!newstf01.news.aol.com!newsbf02.news.aol.com!not-for-mail
From: timtube@aol.com (TimTube)
Newsgroups: alt.guitar.amps
Subject: Re: Attention 6V6 experts - advice wanted!!!
Date: 27 Mar 1996 01:15:07 -0500
Organization: America Online, Inc. (1-800-827-6364)
Lines: 24
Sender: root@newsbf02.news.aol.com
Message-ID: <4jamdb$22h@newsbf02.news.aol.com>
References: <4j6tku$js4@newsbf02.news.aol.com>
NNTP-Posting-Host: newsbf02.mail.aol.com
X-Newsreader: AOL Offline Reader

In article <4j6tku$js4@newsbf02.news.aol.com>, tremolux@aol.com (Tremolux)
writes:

>
>>>>>Ah, think you got that backwards .... Most 6L6s with -35 to -37 on
the
>grids
>would be running very fat at about 45-60ma/tube. In a Deluxe that would
>drag
>all the voltages down
>
>I agree. Like I said, a re-bias is smart and essential.
>

OOPS,

My appologies, bass akwards I am.

Tim

A great amp can make a lousy guitar sound great.
A lousy amp will make a great guitar sound lousy.

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From dhaugen9@mail.idt.net Thu Jun 5 11:39:56 CDT 1997
Article: 52073 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!news.maxwell.syr.edu!news.idt.net!nntp.farm.idt.net!news
From: Gruvmyster
Newsgroups: alt.guitar.amps
Subject: Re: The 7581 of 6V6's?
Date: Wed, 04 Jun 1997 23:37:12 -0500
Organization: Rampant Hysteria
Lines: 22
Message-ID: <33964278.25AE@mail.idt.net>
References: <19970603235100.TAA29332@ladder02.news.aol.com> <19970604043101.AAA29171@ladder02.news.aol.com>
Reply-To: dhaugen9@mail.idt.net
NNTP-Posting-Host: ppp-8.ts-2.min.idt.net
Mime-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit
X-Mailer: Mozilla 3.01 (Win95; I)
Xref: geraldo.cc.utexas.edu alt.guitar.amps:52073

TimTube wrote:

>
> I believe the 7408 is just an industrial name for a 6V6, like a 7025 is a
> 12AX7.

True, but like a 7025 (low noise), the 7408 has a different
characteristic to justify the number. The 7408 was designed for HiFi
use, and has, according to Raytheon's "Electron Tubes, Industrial and
Military Manual, Volume 2" (them thar really BIG tube manuals), a plate
voltage "knee" and cut-off voltage controlled to very small variations,
which give the 7408 "uniformity of power-output performance with a
minimum of harmonic and intermodulation distortion."

Although I have some, I've never tried them since I also have a batch of
RCA 6V6GTAs I am happy with. I wonder how the 7408 would break up
compared to the 6V6. Anyone have first hand experience in a DR?

Doug
--
"Think, think, think."-- Winnie-the-Pooh
You can also use mailto:dhaugen9@idt.net

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From tremolux@aol.com Fri May 19 22:39:05 CDT 1995
Article: 46251 of alt.guitar
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.reston.ans.net!news-e1a.megaweb.com!newstf01.news.aol.com!newsbf02.news.aol.com!not-for-mail
From: tremolux@aol.com (Tremolux)
Newsgroups: alt.guitar
Subject: Re: 5881's
Date: 19 May 1995 17:45:54 -0400
Organization: America Online, Inc. (1-800-827-6364)
Lines: 14
Sender: root@newsbf02.news.aol.com
Message-ID: <3pj3ii$q82@newsbf02.news.aol.com>
References: <3pisgq$3mv@newshost.loc3.tandem.com>
Reply-To: tremolux@aol.com (Tremolux)
NNTP-Posting-Host: newsbf02.mail.aol.com

Paul, why didn't you just call me on this one??

YES, the Sylvania 7581As that a few people are now selling are simply EXCELLENT!!! These are the tight spec versions of the old STR 6L6GC asskicker. These are the tubes that made the original Boogies boogie. Next to the old RCA Blackplates, these are the best ever. (Not counting the totally excellent British KT66 and EL37).

Go for it!! I bought 7 matched quartets of these 7581As from New Sensor when they had them.

Regards

John.

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From cigna@helios.phy.OhioU.Edu Sat Oct 5 13:16:11 CDT 1996
Article: 15623 of rec.audio.tubes
Newsgroups: rec.audio.tubes
Path:
geraldo.cc.utexas.edu!cs.utexas.edu!www.nntp.primenet.com!nntp.primenet.com!hunter.premier.net!netnews.worldnet.att.net!cbgw2.lucent.com!oucsboss!cigna
From: cigna@helios.phy.OhioU.Edu (Dave Cigna)
Subject: Re: [Query] Tube Equivalence (7868 specifically)
X-Nntp-Posting-Host: helios.phy.ohiou.edu
Message-ID:
Sender: news@boss.cs.ohiou.edu (News Admin)
X-Nntp-Posting-Date: Sat Oct 5 08:17:05 1996
Organization: Ohio University Physics and Astronomy
References: <199610041311.NAA20919@soyokaze.biosci.ohio-state.edu>
Date: Sat, 5 Oct 1996 12:17:05 GMT
Lines: 14

William C. Ray wrote:
>I'm looking for a reasonable source of tube characteristics & an
>equivalency chart. The proximal reason is that I seem to have
>acquired an ancient Fisher receiver which is missing a `7868`

The 7868 is very close to the 7591 and 6GM5 electrically. The 6GM5
is a 9 pin also, but not pin compatible. There is an article by
Gary McClellan in Glass Audio, April 1996 ("Yes, You Can Substitute
for the 7591 Tube!") that compares these tubes and a couple of others.

You can find a little data about the 7868 on my web page:
http://www.phy.ohiou.edu/~cigna/tubes/sheets/

-- Dave Cigna

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From Kevin@UPSCALEaudio.com Sun Mar 16 02:10:07 CST 1997
Article: 26670 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!news.sprintlink.net!news-peer.sprintlink.net!news.maxwell.syr.edu!demos!news.stealth.net!uunet!in3.uu.net!204.245.3.50!news.primenet.com!primenet
From: Kevin@UPSCALEaudio.com (Kevin Deal /UPSCALEaudio/)
Newsgroups: rec.audio.tubes
Subject: Re: Amperex Bugle Boy 12AX7 reborn. Any Good?
Date: 15 Mar 1997 15:06:02 -0700
Organization: Primenet
Lines: 52
Message-ID: <5gf6ga$a6p@nnrp1.news.primenet.com>
References: <3329b7fc.4098833@news.hkstar.com>
X-Posted-By: @204.212.52.245 (upscale)
X-Newsreader: News Xpress Version 1.0 Beta #4
Xref: geraldo.cc.utexas.edu rec.audio.tubes:26670

In article <3329b7fc.4098833@news.hkstar.com>,
yauyp@hkstar.com (Patrick) wrote:
>I have seen Amperex Bugle Boy 12AX7 (and 12AU7) reborn being sold
>locally (Hong Kong). They were marked as "Made in U.S.A." and
>accompanied by certificates dated 1996.
>
>Any one tried it before? Is it comparable with NOS Bugle Boys?

It has nothing to do with a real Amperex Bugle Boy from a manufacturing standpoint. They are U.S. made JAN spec tubes, mostly Sylvania/Philips ECG I would guess. Wash 'em, label 'em and there you go....

The history is this:

NV Philips (Holland) bought Amperex in 1955 to market Philips Holland and to a lesser degree German and French made tubes in the U.S. They also manufactured Philips designs in the Amperex tube plants, more specifically the 6922 and 7308.

Some British made stuff was made in the Mullard factory, since Philips owned Mullard outright since the 1920's. These could also be found branded Amperex, most often EL-34's and 5AR4's. That's why the internal construction is so similar on all those tubes.

In later years, Philips bought Sylvania...hence Philips ECG which are based on Sylvania designs. They look the same....they ARE the same. When that happened the Holland and U.S. factories Amperex stopped production of audio numbers in the 70's as far as I can tell.

National bought the Amperex name. They are taking U.S. made tubes and testing them, supplying some report of somesort, them labeling them Amperex with the Bugle Boy. I have my own opinions on National as a company and a name in tubes...but should speak to my attorney before airing them.

The constuction of the tubes will be U.S. made and be based on U.S. designs. Not that they are bad...I just want to clarify that the rumors about buying old manufacturing equipment from Holland and so on is B.S.

Best Regards,

Kevin Deal Fine Tube Components, Home Theater,
UPSCALE and Vintage Tubes from Telefunken,
Audio/Home Theater/Rare Tubes Mullard, Amperex, etc. Showroom
1410 Lemonwood Dr West Open 7 Days By Appointment.
Upland, CA 91786 (909) 931-9686

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From postmaster@triodeel.com Thu Aug 27 09:00:58 CDT 1998
Article: 82873 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!news.iag.net!news-spur1.maxwell.syr.edu!news.maxwell.syr.edu!feed.nntp.acc.ca!novia!sequencer.newscene.com!not-for-mail
From: postmaster@triodeel.com (Ned Carlson)
Newsgroups: rec.audio.tubes
Subject: Re: best 6v6 tube?
Date: 26 Aug 1998 21:43:02 -0500
Organization: Triode Electronics
Lines: 41
Message-ID: <35e4c526.373472170@news1.newscene.com>
References: <6s0jb8fef1@news1.c2i.net>
Reply-To: postmaster@triodeel.com
X-Newsreader: Forte Free Agent 1.11/32.235
Xref: geraldo.cc.utexas.edu rec.audio.tubes:82873

On Wed, 26 Aug 1998 11:10:56 +0200, "Tom André Hansen"
wrote:

>just wondering

There's a lot of good ones, the only ones I'm not terribly
fond of are the Chinese & Russian ones.

We've done some torture testing on 6V6's, the British STC
ones have been able to handle 450V successfully..
I'm not sure I'd recommend that as standard practice,
tho.

At least for guitar amps, Tungsol seems to be best.
They often turn up as Motorola branded.

There's some interesting pin-compatible
interchanges: 6F6-GT, WE-349A, and
KT63. These should need a little bias adjustment
if used in place of 6V6-GT. They also draw
a bit more filament current, which *usually*
isn't a problem.
When I've tried 6F6 GT in place of 6V6-GT,
I liked the 6F6-GT better.

Part of the problem over naming what's the best
6V6 is that so many places made them..I suspect
that as many as 80% (just a USWAG) of the tube
manufacturers that have ever existed, have made
6V6 or something that will interchange.
And most of those were good tubes, too.

Ned Carlson Triode Electronics "where da tubes are!"
2225 W Roscoe Chicago, IL, 60618 USA
ph 773-871-7459 fax 773-871-7938
12:30 to 8 PM CT, (1830-0200 UTC) 12:30-5 Sat, Closed Wed & Sun
http://www.triodeel.com
Your Start Page for Tube and Tube Amp info on the net...
http://www.triodeel.com/tlinks.htm

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From robertc908@aol.com Sun Jan 18 10:20:14 CST 1998
Article: 51415 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!news-peer.sprintlink.net!news.sprintlink.net!Sprint!newsfeed.internetmci.com!152.163.199.19!portc03.blue.aol.com!audrey01.news.aol.com!not-for-mail
From: robertc908@aol.com (RobertC908)
Newsgroups: rec.audio.tubes
Subject: Sylvania answer to "Blue Light in Tubes"
Date: 17 Jan 1998 13:51:52 GMT
Lines: 74
Message-ID: <19980117135101.IAA19762@ladder01.news.aol.com>
NNTP-Posting-Host: ladder01.news.aol.com
X-Admin: news@aol.com
Organization: AOL http://www.aol.com
Xref: geraldo.cc.utexas.edu rec.audio.tubes:51415

The following quote is from a small book by Sylvania entitle "Radio Tube Hints" volume one dated 1943.

Quote
Three Reason for Blue Glow

Many inquires are received relative to the blue glow which is present in a number of Sylvania Tubes. Most of these are based on the misunderstanding of the different types of glow that may be present in a tubes. There are three different types of blue haze that may appear while tubes are in operation. The are classed as: Fluorescent glow; Mercuty Vapor Haze; Gas.

The fluorescent glow is usually of violet color, and is noticable around the inside surface of the glass blub. This glow is a phenomenon caused by electronic bombardment taking place within the tube. This glow changes with the intensity of the signal and may at time become quite brilliant. Fluorescent glow has absolutely no affect on the operation of a receiver. In fact, tubes with this characteristic are particularly good as regards gas content.

Mercury vapor haze is a blue glow which is noticeable between the plate and filament in Types 82 and 82 rectifier tubes. These are the only types of Sylvania receiving tubes in which this type of haze appears. The perfect operation of Types 82 and 83 is dependent upon a mercury vapor which comes from free mercury that has been placed in the bulb during the exhaust period. Therefore this type of blue haze is in no way detrimental to the operation of these tubes.

Gas is a blue haze which is usually confined to the vicinity of the plate and filament structure. Its presence, when of large content, affects the operation of a receiver to the extent that erratic performance is noticeable. Gaasy tubes should always be replaced with new tubes.

Testing for the above conditions can be best accomplished by actual operation in a receiver. It is not necessary to test for the blue glow evident in Type 82 and 83, since this is characteristic of these two tubes.

When in doubt as to the blue content of other types of tubes a sure test can be made by using a strong magnet next to the blub. A gaasy tube will not be affect in any way by the presence of the magnet, while the fluorescent glow, which has no affect on the performance of the tube, will shift about as the magnetic filed is shifted.

Unquote

The above blue glow explanation is Sylvania's and is for your information. It is not to rebuke anything someone else has stated.

Also if your are interested here is the table of contents for this volume of Radio Tube Hints. This is the only volume I have according to the cover there must have been additional volumes.

Table of contents:

Converter Tube Design Features.

Three Reason for Blue Glow

Tuning Indicators Type 6E5 va Type 6G5

Tube Mysteries Explained

Type 35Z5G and Type 35Z5GT Trouble

Tracking Down Grid Emission

Filament Grid Short Circuits

Plate and Screen Dissipation Ratings

Service to Servicemen

Bob, W4RLC (formerly WA7OGU)

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From ebarbour@netcom.com Sun Jun 18 09:45:51 CDT 1995
Article: 16758 of rec.audio.tech
Newsgroups: rec.audio.tech
Path: geraldo.cc.utexas.edu!cs.utexas.edu!news.sprintlink.net!noc.netcom.net!netcom.com!ebarbour
From: ebarbour@netcom.com (Eric Barbour)
Subject: Re: Tube amp break-in revisited...
Message-ID:
Organization: NETCOM On-line Communication Services (408 261-4700 guest)

X-Newsreader: TIN [version 1.2 PL1]
References: <3rthem$dah@crl6.crl.com>
Date: Sun, 18 Jun 1995 08:57:55 GMT
Lines: 21
Sender: ebarbour@netcom15.netcom.com

All oxide-cathode power tubes have this problem. Their
distortion varies slightly as the oxide "breaks in"
>from fresh. This is because of the process used to make
the oxide--usually they start with a coating of barium and
strontium carbonates, then the air is evacuated and the
entire tube structure is heated red-hot with an RF
induction coil. This cooks the carbonates down to oxides,
and the CO2 gas is drawn off by the pump.
Unfortunately, no matter how long it is processed, this
oxide is never fully cooked. So when the tube is first
powered up, some time with current coming out of the
cathode is needed to stabilize the outer oxide layer.
Apparently the operation of this kind of cathode is quite
complex, involving electrolytic reaction of the nickel base
with the barium, driving it to the surface where it can
emit electrons effectively.
You can avoid this by using a tube with a directly-heated,
thoriated tungsten filament. This is a simpler cathode
and has little or no break-in effect, and will last longer
than oxide to boot.

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From perkins@iex.com Thu Aug 24 15:02:18 CDT 1995
Article: 3097 of alt.guitar.amps
Newsgroups: alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!swrinde!tank.news.pipex.net!pipex!news.sprintlink.net!news.onramp.net!iex!usenet
From: perkins@iex.com (Robert Perkins)
Subject: Re: Gibson Les Paul
X-Nntp-Posting-Host: 192.153.191.112
Message-ID:
Sender: usenet@iex.iex.com (USENET news)
Organization: IEX Corporation
X-Newsreader: Forte Free Agent 1.0.82
References: <41fjg2$b2b@warp.cris.com>
Date: Thu, 24 Aug 1995 15:54:15 GMT
Lines: 11

bbbean@cris.com wrote:

>I need a spare set uf tubes for My Gibson Les Paul amp. I've tenatively dated it to 1954, but thats a best guess based on the Jenson speaker (looks original) in the thing. At any rate, if I could just locast a list of teh tubes, that would help. Most of teh tubes are so old and black, no markings are visible.

When I was young and so was Elvis, I was taught to breathe on
illegible tubes until they fogged, so that they could be read. You
won't believe how well this works until you try it. I have even used
this trick on metal envelope tubes.

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From tekman@execpc.com Thu Oct 17 11:57:28 CDT 1996
Article: 16362 of rec.audio.tubes
Path:
geraldo.cc.utexas.edu!cs.utexas.edu!bcm.tmc.edu!news.msfc.nasa.gov!news.sgi.com!mr.net!www.nntp.primenet.com!nntp.primenet.com!news.mindspring.com!mindspring!newspump.sol.net!posts.execpc.com!usenet
From: tekman@execpc.com (Brendan Biever)
Newsgroups: rec.audio.tubes
Subject: Special Quality Valves: 12AX7
Date: 17 Oct 1996 05:46:39 GMT
Organization: Coastal Concepts
Lines: 58
Message-ID: <544h7v$p2q@newsops.execpc.com>
NNTP-Posting-Host: kings-park.execpc.com
Mime-Version: 1.0
Content-Type: Text/Plain; charset=ISO-8859-1
X-Newsreader: WinVN 0.99.5

Some information for tubephiles.....

BRIMAR SPECIAL QUALITY TUBES

The limiting factor in performance and reliability of valves (tubes)
lies in the tube pins and socket rather than in the tube itself.

Features of Brimar Flying Lead Special Quality Tubes:

* Ruggedised construction: Improved design of micas to eliminate
electrode movement, with control of mica and internal bulb dimensions
to precision limits. This eliminates rattle noise and microphony,
at the same time obviating cathode poisoning by gas evolution
resulting from frictional movement between mica and glass

* Redesign of grid profiles to control resonances arising from
vibration and shock

* Improved metal piece-parts giving greater mechanical rigidity

* Redesign of connecting links and stem wires to reduce the possibility
of failure

* Specially processed tungsten and advanced methods of heater coating
to give a greatly improved heater life

* Long life (10,000+ hours) Deterioration of electrical characteristics
over 10,000 hours of operation is less than 30%

LOW CATHODE INTERFACE IMPEDANCE:

The low Cathode interface impedance feature of Brimar Long-Life valves

is of considerable importance in many applications. In use, valves build up a resistive layer between the metallic cathode and its emissive coating. As this resistive layer appears in the cathode circuit, it results in a negative feedback condition giving the valve a reduced performance figure due to the loss of slope. The growth of this interface impedance is more likely to occur where valves are used with very low cathode current or in cut-off condition for long periods. This also applies where valves are required to give high pulse current after a long period of low current operation. To overcome this problem Brimar Long-Life valve types incorporate new cathode alloys which, as well as giving increased strength at working temperatures, virtually eliminate cathode interface growth.

I have a few of the special quality flying lead CV4035=12AX7 and CV4069=12AU7.

Regards,
Brendan Biever
tekman@execpc.com
(414) 208-0353 (phone/fax)

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From postmaster@triodeel.com Fri Oct 23 09:22:07 CDT 1998
Article: 92024 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.erols.net!novia!sequencer.newscene.com!not-for-mail
From: postmaster@triodeel.com (Ned Carlson)
Newsgroups: rec.audio.tubes
Subject: Re: 6V6 GT I.D. help needed
Date: 23 Oct 1998 00:13:08 -0500
Organization: Triode Electronics
Lines: 24
Message-ID: <36300f28.284292229@news1.newscene.com>
References: <19981021084542.27505.00003906@ng125.aol.com>
Reply-To: postmaster@triodeel.com
X-Newsreader: Forte Free Agent 1.11/32.235
Xref: geraldo.cc.utexas.edu rec.audio.tubes:92024

On 21 Oct 1998 12:45:42 GMT, tubecntral@aol.com (TUBECNTRAL) wrote:

>Hi, I have a pair of black glass 6V6 GT's...they are branded as CEI. These have
>very thick glass with a dimple in the very top of the envelope. Says "Made in
>Italy"
>on them in white screenprint. Are these Amperex-made, and if not who? I've
>never seen these before, except for some Tung-sols that I have. Thanks in
>advance...

Probably Russian. These have turned up with a number of country
of origins labelled, mainly due to the former 35% punitive duty on
Soviet goods.
CEI just relabelled surplus & imported stuff.

Ned Carlson Triode Electronics "where da tubes are!"
2225 W Roscoe Chicago, IL, 60618 USA
ph 773-871-7459 fax 773-871-7938
12:30 to 8 PM CT, (1830-0200 UTC) 12:30-5 Sat, Closed Wed & Sun
http://www.triodeel.com
Your Start Page for Tube and Tube Amp info on the net...
http://www.triodeel.com/tlinks.htm

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From tremolux@aol.com Fri Dec 1 10:37:54 CST 1995
Article: 3844 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!news.sprintlink.net!newsfeed.internetmci.com!swrinde!howland.reston.ans.net!news-e1a.megaweb.com!newstf01.news.aol.com!newsbf02.news.aol.com!not-for-mail
From: tremolux@aol.com (Tremolux)
Newsgroups: rec.audio.tubes
Subject: Re: Are ALL Chinese tubes bad?
Date: 30 Nov 1995 23:58:52 -0500
Organization: America Online, Inc. (1-800-827-6364)
Lines: 23
Sender: root@newsbf02.news.aol.com
Message-ID: <49m22c$b38@newsbf02.news.aol.com>
References: <49klmu$oaj@newsbf02.news.aol.com>
Reply-To: tremolux@aol.com (Tremolux)
NNTP-Posting-Host: newsbf02.mail.aol.com

Re the 12AT7s, we're coming from different worlds. You're into hi-fi. I'm into guitar amps. In a typical old Fender, the 12AT7s are run with close to 400 volts on the plates. They're used as a driver tube for the reverb tank and for the phase inverter.

In the reverb driver, they just don't hit the tank's input transducer with as hot a signal as an NOS tube, requiring that you turn-up the reverb level significantly in order to achieve the right mix.

In the phase inverter, they do seem to work ok, since that stage has more than enough gain and drive anyway. Yeah, they do "sound" ok.

Re being "weak", they typically score at a significantly lower value on my TV7 tube tester than does NOS examples. Since the thing measures transconductance, they appear to have less than the NOS, by about 25%.

If they work well for you in your circuits, that's great. But in guitar amps, they fall just a bit short.

The only Chinese 12AT7s that do seem to work-out favorably are the ones >from the boutique houses that test them and weed-out the duds.

Regards.

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From dpowers@jeeves.la.utexas.edu Tue Sep 12 22:45:12 CDT 1995
Article: 3598 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!pc3.soc.utexas.edu!dpowers
From: dpowers@jeeves.la.utexas.edu (Daniel A. Powers)
Newsgroups: alt.guitar,rec.music.makers.guitar,alt.guitar.amps
Subject: Re: Ruby Tubes - opinions?
Date: Tue, 12 Sep 1995 22:30:23 GMT
Organization: University of Texas at Austin
Lines: 38
Message-ID:
References: <42hiao$cl@mindy.vnet.net> <42j9es$cl4@cbs.ksu.ksu.edu> <42r5n3$3sem@Phoenix.kent.edu>
<433hoa$33g@hilbert.dnai.com>
NNTP-Posting-Host: pc3.soc.utexas.edu
Xref: geraldo.cc.utexas.edu alt.guitar:59428 rec.music.makers.guitar:63889 alt.guitar.amps:3598

In article <433hoa$33g@hilbert.dnai.com> Stan Jacox writes:
>From: Stan Jacox
>Subject: Re: Ruby Tubes - opinions?
>Date: 12 Sep 1995 08:52:26 GMT

>dgreene@Phoenix.kent.edu (Dona Greene) wrote:
>>Sovtek tubes are good tubes, but their 6V6's are not as forgiving of
>>the voltages required of them as NOS American tubes. Noone today
>>makes 6V6's that will survive in guitar amps like the NOS tubes,
>>unfortunately. I guess that's why there's a plethora of EL84 amps on
>>the market (and 6L6 amps).
>>
>> -Brad Bolton, whose Deluxe developed runaway current
>>on Sovtek 6V6's.

>Try the Ruby Chinese 6V6GTBC, it's a very heavy duty tube that easily
>handles the plate voltages found in any guitar amp, even Jim Kelly amps.
>We use all types of tubes as needed to satisfy the wants of our customers,
> but for high stress circuits we have gotten the best reliablity from the
>6V6GTBC. Most other chinese tubes (with the exception of the Ruby GZ34)
>are not as rugged as their European cousins.

>Stan Jacox
>Studio Maintenance Center
>1-800-918-3300
> SMC WEB site http://www.dnai.com/~stanj

I agree. I just had my '68 Deluxe Reverb worked on. The guy at the shop said they only use Ruby 6v6gtbc in the old Fenders they service. I don't know if it was the cap job, the screen resistors, or the tubes, but my tweaked Deluxe is the sweetest thing I've played through in the past 20 years.

Cheers,

Dan
Austin,TX

Back to JT30 Home

From peter@goldaero.com Sun Dec 31 10:52:30 CST 1995
Article: 4724 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!natinst.com!news-relay.us.dell.com!swrinde!elroy.jpl.nasa.gov!news.msfc.nasa.gov!newsfeed.internetmci.com!in2.uu.net!nntp.news.primenet.com!news.primenet.com!ip181
From: peter@goldaero.com
Newsgroups: rec.audio.tubes
Subject: Re: Tube design ratings
Date: 31 Dec 1995 03:43:02 -0700
Organization: Primenet Services for the Internet
Lines: 16
Sender: root@primenet.com
Message-ID: <4c5pfm$g9v@nnrp1.news.primenet.com>
References: <4b3u80$sr6@threed.uchc.edu>
X-Posted-By: ip181.lax.primenet.com
X-Newsreader: IBM WebExplorer DLL

Quote from RCA Receiving Tube Manual RC-30;

ABSOLUTE MAXIMUM ratings are the limiting values which should not be exceeded with any tube of the specified type under any condition of operation. These ratings are not too often used for receiving types, but are generally used for transmitting and industrial types.

DESIGN CENTER ratings are limiting values which should not be exceeded with a tube of the specified type having characteristics equal to the published values under normal operating conditions. These ratings, which include allowances for normal variations in both tube characteristics and operating conditions, were used for most receiving tube prior to 1957.

DESIGN MAXIMUM ratings are limiting values which should not be exceeded with a tube of the specified type having characteristics equal to the published values under any conditions of operation. These ratings include allowances for normal variations in tube characteristics, but do not provide for variations in operating conditions. Design Maximum ratings were adopted for receiving tubes in 1957.

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From npstewar@eos.ncsu.edu Thu Apr 6 10:09:41 CDT 1995
Article: 784 of alt.guitar.amps
Path:
geraldo.cc.utexas.edu!cs.utexas.edu!howland.reston.ans.net!news.moneng.mei.com!uwm.edu!news.alpha.net!solaris.cc.vt.edu!news.duke.edu!news-server.ncren.net!taco.cc.ncsu.edu!npstewar
From: npstewar@eos.ncsu.edu (Nathan Phillip Stewart)
Newsgroups: alt.guitar.amps
Subject: Re: tube sound
Date: 6 Apr 1995 05:24:50 GMT
Organization: North Carolina State University, Project Eos
Lines: 25
Message-ID: <3lvtv2$4sf@taco.cc.ncsu.edu>
References: <67256.repoman@fox.nstn.ca>
NNTP-Posting-Host: c00313-11pa.eos.ncsu.edu

In article jholland@mindspring.com (Jason Holland) writes:
>In article <67256.repoman@fox.nstn.ca> writes:
>>do you tell if your Marshall has the English or American
>>tubes/Configuration? Any help would be appreciated.
>
>English tubes are EL34's E for English. American tubes are like 6L6's or
>6550's I think.

The 'E' in EL-34 means it has 6.3 volt heaters. L designates a power
pentode, and the 3 specifies a large octal base. The first 6 in 6L6
indicates it has a 6.3v heater in the American system. (The traditional
American system gets convoluted after the heater voltage - the last number
being the total number of elements.)

Sometime in bygone years ('83?) Korg, the American distributor of Marshall
at the time, made the switch from EL-34's to 6550's for tube life. Rebias
is all that's necessary to switch one of these back to EL-34's. Marshall
did recently switch to 5881's (mil spec 6L6), but it was long after the
JCM-800's were gone.

_____
| | Nathan Stewart
| Marshall | npstewar@eos.ncsu.edu
| _____ | Play skillfully to the
| |!!o Q Q Q Q Q Q :: | | Lord with a
|===| *LOUD* noise. Psalm 33:3

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From mcs@post5.tele.dk Tue Jan 21 11:28:56 CST 1997
Article: 22554 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.erols.net!newsxfer.itd.umich.edu!news.ececs.uc.edu!newsfeeds.sol.net!nntp.uio.no!news-feed.inet.tele.dk!not-for-mail
From: "Mikkel C. Simonsen"
Newsgroups: rec.audio.tubes
Subject: Re: European Tube Code Scheme
Date: Mon, 20 Jan 1997 21:37:11 +0100
Organization: Dantimax
Lines: 75
Message-ID: <32E3D777.4E9D@post5.tele.dk>
References: <32e235ae.129338156@news.netrunner.net>
Reply-To: mcs@post5.tele.dk
NNTP-Posting-Host: ppp3.sdb.tele.dk
Mime-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit
X-Mailer: Mozilla 2.02E (OS/2; I)

David deForrest wrote:
>
> Recently David Crittle gave some infomration on the European tube
> nomenclature. Could you post the entire scheme?
>
> Best Regards,
>
> David deForrest
> buybeach@buybeach.com
> phone: 305-866-6048
> fax: 305-531-6742
>
> http://www.buybeach.com/access/tubes
>
> ***Svetlana EL34's/GE 6550's @ Discount Prices!***

The first letter indicates the heater supply.

A: 4V
B: 180mA, various voltages
C: 200mA, various voltages
D: 1.4V
E: 6.3V
F: 12.6V
G: Various voltages
K: 2V
L: 450mA, various voltages
P: 300mA, various voltages
U: 100mA, various voltages
V: 50mA, various voltages
Y: 450mA, various voltages

The types where a current is stated, are series connected and
connected directly to the 120V or 220V mains supply. There where used for
low-cost radios and TV's.

The second letter(s) indicate the tube type.

A: signal diode
B: double signal diode
C: low-power triode
D: power triode
E: low-power tetrode
F: low-power pentode
H: hexode or heptode
K: octode or heptode
L: power tetrode or pentode
M: indicator tube
Y: half-wave rectifier
Z: full-wave rectifier

The first figure indicates the socket type.

1: various types
2: decal (miniature 10-pin)
3: octal 8-pin
4: rimlock 8-pin
5: magnoval 9-pin
6: enne-al 9-pin
8: noval (miniature 9-pin)
9: miniature 7-pin

The last figure(s) are the tube type number.

There are (of couse) some exceptions to the rules. Some tubes have a
"1" in front of the number, ECC189 for instance. It is still the 8
that indicates the socket type.

I hope this information is helpful and hopefully complete. The
information is from the Philips Pocketbook 1968.

Mikkel C. Simonsen

From rkremer@worldonline.nl Tue Jan 21 11:29:36 CST 1997
Article: 22638 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!arlut.utexas.edu!news.io.com!out2.nntp.cais.net!in1.nntp.cais.net!enews.sgi.com!arclight.uoregon.edu!news.bbnplanet.com!su-news-hub1.bbnplanet.com!newsxfer3.itd.umich.edu!howland.erols.net!surfnet.nl!news.unisource.nl!news.worldonline.nl!usenet
From: rkremer@worldonline.nl (Ron Kremer)
Newsgroups: rec.audio.tubes
Subject: Re: European Tube Code Scheme
Date: Tue, 21 Jan 1997 14:56:13 GMT
Organization: World Online

Lines: 110
Message-ID: <32e4d8fd.1029280@news.worldonline.nl>
References: <32e235ae.129338156@news.netrunner.net> <32E3D777.4E9D@post5.tele.dk>
NNTP-Posting-Host: grngn1-p14.worldonline.nl
X-Newsreader: Forte Agent .99e/32.227

Some remarks to the tube coding scheme Mikkel
C. Simonsen posted in the newsgroup.

The scheme is not entirely correct and complete.
The scheme only applies to 'consumer tubes', not to
professional, cathode-ray and transmitter types.

In the European scheme the first letter indicates heater
current or -voltage. The following letter(s) indicate the type of
tubesystem (or tubesystems in case of a combination tube)

Ballast tubes have only one letter representing the current
series.

Completion to Mikkel's scheme is following:

>A: 4V
>B: 180mA, various voltages
>C: 200mA, various voltages
D: 0.625, 1,2 or 1.4V
>E: 6.3V
G: 5 V
>H: 150 mA, various voltages
>K: 2V
M: 2,5 V
L: various voltages and currents (very old types)
>P: 300mA, various voltages
>U: 100mA, various voltages
>V: 50mA, various voltages
X: 600 mA
>Y: 450mA, various voltages
>
>The types where a current is stated, are series connected and
>connected directly to the 120V or 220V mains supply. There where used for
>(AC-DC) low-cost radios and TV's.
>
>The second letter(s) indicate the tube type.
>
>A: signal diode
>B: double signal diode
>C: low-power triode
>D: power triode
>E: low-power tetrode
>F: low-power pentode
H: hexode or heptode (of the hexode type)
>K: octode or
pentagrid tube (= heptode of the octode type)
>L: power tetrode or pentode
>M: tuning indicator tube
P: secondary emission tube
Q: enneode
W: half wave gasfilled rectifier
X: full wave gasfilled rectifier
>Y: half-wave rectifier
>Z: full-wave rectifier

>The figures indicate the socket type.
>
1...9 pinch based tubesystem; pin- side- or octal-socket
(often side contact of the 'P type')
11..19 pinch or pressed glass based tubesystem with steel or glass
envelope. (often referred to as the 'German steel series'
with G8A socket)
20..29 pressed glass based tubesystem with Loctal socket (B8G)
30..39 pressed glass or pinch based tubesystem with Octal socket.
40..49 pressed glass based miniature system with Rimlock socket
(B8A)
50..60 often 9 pin Loctal (B9G) socket or special sockets.
61..69 5 pin sub-miniature socket round or in-line
70..79 8 pin sub-miniature socket round or in- line
or 8 pin Loctal socket
80..89 and 180..189 9 pin Noval miniature socket (B9A)
90..99 and 190..199 7 pin miniature socket (B7G)

This scheme came into effect around the mid-thirties.
Tubes manufactured or developed before that time had,
and often kept, a manufacturer based coding.

>From 1963 the system was streamlined to basically a 2 letter/ 3 figure
system based on the same coding system as above.
Tubes developed from that time onwards where mainly:
the tubes in the 500 series which had a Magnoval socket (B9D), the 200
series which had a Decal (10 pin miniature) socket and the 800 series
with a Noval (B9A) socket. Tubes in the 900 series had a 7 pin
miniature socket.

The last of the three figures indicates the kind of characteristic
except for power tubes.
-An even figure indicates a sharp cut-off tube and an odd figure
indicates a variable-mu characteristic.

There are some deviations from the scheme, like ECC2000.

>I hope this information is helpful and hopefully complete. The
>information is from the Philips Pocketbook 1968.
Additional information comes from Philips Electronic Tube

pocketbook (1952), 1963 ' Rohren Taschen Tabelle' and a 1994 reprint
of ' Rohren Taschen Tabelle' (1974) of Franzis' Verlag Munich.

>Mikkel C. Simonsen

Additions, Ron Kremer

--
Ron Kremer
rkremer@worldonline.nl

'Strive for perfection in everything you do' (Henry Royce)

From moby@kcbbs.gen.nz Wed Jan 22 19:01:14 CST 1997
Article: 22707 of rec.audio.tubes
Path:
geraldo.cc.utexas.edu!cs.utexas.edu!uwm.edu!spool.mu.edu!munnari.OZ.AU!comp.vuw.ac.nz!ak.netlink.co.nz!manawatu.planet.co.nz!manawatu.gen.nz!news.express.co.nz!status.gen.nz!kcbbs!moby
Newsgroups: rec.audio.tubes
Subject: Re: European Tube Code Scheme
From: moby@kcbbs.gen.nz (Mike Diack)
Date: 22 Jan 97 21:00:58 GMT
Message-ID: <499721.75658.4816@kcbbs.gen.nz>
References: <32E4D5F4.1C9E@mail.idiot.net>
Organization: Kappa Crucis Unix BBS, Auckland, New Zealand
Lines: 33

In message <<32E4D5F4.1C9E@mail.idiot.net>> Gruvmyster writes:
> >
> > So, why doesn't this list have "Q" in it?
> > They also had tubes marked, like QQVO3-50-A
> > and similar!
> >
>
> That's a transmitting tube. Different scheme.
>
The transmitting scheme :
First letter :
D : Rectifier
M : Triode (AF amp or modulator)
P : Pentode
Q : Tetrode
T : Triode (RF,AF or osc)

Second letter (third in dual tubes ie QQE06/40)
A : Directly heated tungsten fil
B : DH thoriated tungsten
C : DH oxide
E : Indirectly heated oxide

First figure group
Rectifiers : Approx DC output voltage (in KV) in a 3 phase rectifier
TX tubes : Approx max anode voltage (in KV)

Second figure group
Rectifiers : Approx DC oupput power (in W or KW) per tube in 3 phase
rectifier
RF tubes : Approx output power (in W or KW) in class C telegraphy
Modilators : Approx anode dissipation (in W or KW)
M

From stein@iet.hist.no Thu Jan 23 00:04:38 CST 1997
Article: 22721 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.erols.net!worldnet.att.net!arclight.uoregon.edu!news-feed.inet.tele.dk!sn.no!nntp-oslo.UNINETT.no!nntp-trd.UNINETT.no!pravda.tisip.no!ans62.iet.hist.no!stein
From: stein@iet.hist.no (Stein-Olav Lund)
Newsgroups: rec.audio.tubes
Subject: Re: European Tube Code Scheme
Date: Wed, 22 Jan 1997 09:01:17 GMT
Organization: Sor-Trondelag College of Engineering, Electronics Dept
Lines: 61
Distribution: world
Message-ID:
References: <32e235ae.129338156@news.netrunner.net> <32E3D777.4E9D@post5.tele.dk>
NNTP-Posting-Host: ans62.iet.hist.no
X-Newsreader: Trumpet for Windows [Version 1.0 Rev A]

In article <32E3D777.4E9D@post5.tele.dk> "Mikkel C. Simonsen" writes:
>From: "Mikkel C. Simonsen"
>Subject: Re: European Tube Code Scheme
>Date: Mon, 20 Jan 1997 21:37:11 +0100

>David deForrest wrote:
>>
>> Recently David Crittle gave some infomration on the European tube
>> nomenclature. Could you post the entire scheme?

>The first figure indicates the socket type.
>1: various types
>2: decal (miniature 10-pin)

This is true for newer "TV" types, like PCF200. Older types with two digits
like ECH21 are loktal. However, some are octal! E.g. the DK21.

>3: octal 8-pin
>4: rimlock 8-pin
>5: magnoval 9-pin

Same as above: This applies to newer 3-digit numbers, like the EL504.
The old EF50 (which contributed so much to the UK success with radar during
WWII) has a B9G base: A big 9-pin with center spigot like on a loktal.

>6: enne-al 9-pin

7 is also a "miscellaneous" , the EM71 magic eye has a loktal base.

>8: noval (miniature 9-pin)
>9: miniature 7-pin

>The last figure(s) are the tube type number.

>There are (of couse) some exceptions to the rules. Some tubes have a
>"1" in front of the number, ECC189 for instance. It is still the 8
>that indicates the socket type.
>I hope this information is helpful and hopefully complete. The
>information is from the Philips Pocketbook 1968.

The Pocketbook of 1971 was one of my first tube manuals, it now is rather worn..The older types were not covered very well in these books, the equivalent lists often say "obsolete" if you look up a type from say the late forties.Better manuals are available, I particularly like the "Radio tubes Vade Mecum", printed in Brussels 1960. It covers nearly all types up to that time. I'm sure also newer manuals (or reprints) exist.

>Mikkel C. Simonsen

Stein
Stein-Olav Lund, LA9QV
Electronics Engineer
Sor Trondelag College,
Dept. of Engineering,
Inst. of Electronics
TRONDHEIM, NORWAY
Email:stein@iet.hist.no
"There's nothing like the sounds, sights and smell
of an old tube radio working.."

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From asek@micron.net Sun Jan 21 19:55:15 CST 1996
Article: 5482 of rec.audio.tubes
Path:
geraldo.cc.utexas.edu!cs.utexas.edu!atlantis.utmb.edu!news.tamu.edu!news.utdallas.edu!news01.aud.alcatel.com!gatech!newsfeed.internetmci.com!in1.uu.net!news.micron.net!news
From: asek@micron.net
Newsgroups: rec.audio.tubes
Subject: Re: Fingerprints :the real story
Date: 21 Jan 1996 18:27:42 GMT
Organization: Micron Internet Services
Lines: 51
Message-ID: <4du0iu$1le@is05.micron.net>
References:
NNTP-Posting-Host: cs018p05.boi.micron.net
X-Newsreader: SPRY News 3.03 (SPRY, Inc.)

> Andrew McWhirter writes:
> Some guys wrote:
> >>>>>Also - Don't
> >>>>>touch the tubes with your fingers, a primary form of tube failure is
> >>>>>people's fingerprints, which migrate from the outer portion of the
> >>>>bottle,
> >>>>>to the inside (over several years) and turn the tube gassey
>
> >>> If you've seen old tubes - that people touched, just try to wipe
> >>> those fingerprints off. You can't, they are already inside the
> >>> glass (the glass here being a LIQUID, but a very, very viscus >>>liquid).
>
>[text deleted]
> Once the fingerprints are on the outside again it is a simple matter of
> wiping them away with a lint free cloth.
>
> For the above reasons, police are now dusting for prints on the outside
> of windows at all crime scenes where there may be free electrons on the
> outside of the building. If that fails, they just take all the glass
> (just in case the prints are still trapped inside).
>
>
> Seriously guys, the fingerprint just gets etched into the glass by the
> action of the acid, accelerated by heat. You can't wipe it off after
> this happens, but you can still get any remaining chemicals from the
> print off by cleaning (for whatever good that does). If stuff can
> migrate through glass, shouldn't Louis Pasteur's soup be a bit dried out
> by now?
>
>
>>>>
Great post! I loved it!

The real, REAL, _REAL_ story with finger prints on tubes is that they promote devitrification of the glass. Glass is called "vitreous" because it has no crystalline structure. However, the major component elements of glass are silicon and oxygen, and these elements would just love to make a crystal called quartz. Fingerprints contain impurities which give the silicon and oxygen a starting point to grow quartz crystals. The heat makes the process go faster, so this problem is more severe on power tubes. It is a problem because the quartz crystals have intrinsic strength but are not attached firmly to the glass, and do not contribute to the strength of the envelope. However, they are made from the envelope and consume it as they grow. The glass will eventually become thin enough that the envelope leaks or breaks.

This is a significant problem with the pure quartz tubes used for very high temperature (in excess of 1000 degrees Centigrade) processing of semiconductor devices, and goes much faster on vacuum tubes because the glass envelope is quartz melted down with metallic oxides to reduce the melting point and make it easier to work with.

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From triodeel@ameritech.net Wed Jun 18 17:24:20 CDT 1997
Article: 33463 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!chi-news.cic.net!howland.erols.net!ais.net!ameritech.net!chi.ameritech.net!not-for-mail
From: triodeel@ameritech.net (Ned Carlson)
Newsgroups: rec.audio.tubes
Subject: Re: Any progress since 1960???
Date: Wed, 18 Jun 1997 19:07:42 GMT
Organization: Triode Electronics
Lines: 102
Message-ID: <33a824d5.7832964@news.chicago.il.ameritech.net>
References: <33a447d6.2184367@news.online.no> <33a6327a.133275182@news.chicago.il.ameritech.net>
<33A8A1CF.72F1@awwwsome.com>
Reply-To: triodeel@ameritech.net
NNTP-Posting-Host: dyn-max1-31.chicago.il.ameritech.net
X-Newsreader: Forte Free Agent 1.11/16.235
Xref: geraldo.cc.utexas.edu rec.audio.tubes:33463

"Norman S. Braithwaite" wrote:

>Fuzzy cathodes?
>
Norm: PLease excuse me if I sound a bit patronizing..this is being
posted in a newsgroup..you understand?

Oh my, I was hoping someone would be brave enough
ask about this so I could have an excuse to elaborate..

An article about this appeared in 1969, but doggone
it I can't remember which magazine!
It's a very interesting concept but not easy to implement.

Imagine you are in a cave with a flat, wet ceiling.
Some drops of water will drop on your head, but most will
run down the walls.
Now imagine the same wet cave roof full of stalactites.
Most of the water would drip off the tips of the stalactites
and you wouldn't be able to walk through the room
without some some water dripping on your head.

(ahh I love that water/electron analogy, makes things
much easier to explain..)

Now imagine those drips were electrons, and the
floor was the anode, and you were God (or the
deity of your choice) and could increase the
force of gravity (or in this case the voltage
of the anode) as much as you cared to.

Pow!! (you're God, remember)
You could get a lot more electrons
dripping between the cathode (roof)
and the anode (floor) without expending
nearly as much energy on gravity
(voltage).

Save some energy for creating life on nearby
planets, or stirking spammers with bolts
of lightning...

You could get enormous amounts of electrons
flowing with very little voltage!
And there aren't any atoms of silicon in the way
(imagine your cave was full of styrofoam packing
peanuts) to impede water flow.

(There's an argument that advocates of transistors
always try to evade!)

I'd hope the Dave Cigna (the physics prof) might weigh in

with a better explanation, but in lieu of that..

Make a cathode that looks like the back of a
porcupine., and install it in a standard
electron tube. Wow, tons of electron flow at
low voltage and little heat!! Killer tube!
OTL heaven!!!
Cancel all those MOSFET orders!

Arggh! Big problem! All those little
porcupiine cathode quills need to be
equidiistant from the anode, otherwise you get
hot spots. Very hard to avoid in production.
So the concept of GFET (Gated Field Effect Triodes)
was born. Every liittle stalactite cathode is on a
ceramic substrate,and gets its own anode.
A little circular grid surrounds each cathode,
controlling

Now, go REALLY nuts. Put 10,000 of the
little buggers in a circular millimeter.
Holy VLSI, Batman, a vacuum tube
integrated circuit!!

No theory here..it's already been done.
Yes, there are web pages on it!
Ask your Government why we spend millions
of $$$$ of tax money every year on this item,
yet you folks have to learn about it on Usenet.

Gotta run, the Illuminati have seen this
post, and are coming to kidnap me!!

Just kidding, but why isn't all this
common knowledge? It's not a new thing!

Ned Carlson
Triode Electronics
2225 w. Roscoe St
Chicago, IL 60618 USA
email: triodeel@ameritech.net
ph:773-871-7459
fax:773-871-7938
"Worldwide service,
Neighborhood prices"
since 1985

Back to JT30 Home

From ebarbour@netcom.com Sat Aug 26 22:14:27 CDT 1995
Article: 451 of rec.audio.tubes
Newsgroups: rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!news.sprintlink.net!noc.netcom.net!netcom.com!ebarbour
From: ebarbour@netcom.com (Eric Barbour)
Subject: Re: WANTED : 7591A tubes
Message-ID:
Organization: NETCOM On-line Communication Services (408 261-4700 guest)
X-Newsreader: TIN [version 1.2 PL1]
References: <41buo2$v9@ibridge.iohk.com>
Date: Sat, 26 Aug 1995 06:43:56 GMT
Lines: 14
Sender: ebarbour@netcom23.netcom.com

Robert F. Antoniewicz (antoniew@eagle.dfrc.nasa.gov) wrote:
: Excuse me, but aren't GE and Sylvania the same company???

Not ever! GE split their tube division off as MPD Corp.
in the 1980s. Sylvania went into 2 pieces--the electronics
division went to Philips in the 70s, and the lamp division
went to GTE. The electronics division (what's left of it)
is now Philips Components, and they no longer make tubes
that I know of.

eric barbour
Vacuum Tube Valley
Glass Audio

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From gkaufman@bu.edu Tue Jan 20 23:06:38 CST 1998
Article: 51766 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!cpk-news-hub1.bbnplanet.com!cam-news-feed2.bbnplanet.com!news.bbnplanet.com!news.bu.edu!ppp1
From: gkaufman@bu.edu (Gary Kaufman)
Newsgroups: rec.audio.tubes
Subject: Re: 5V4G vs GZ-37 vs GZ-34/5AR4
Date: 20 Jan 1998 02:07:36 GMT
Organization: Boston University
Lines: 34
Message-ID: <6a10t8$a16$1@news1.bu.edu>
References: <69vjvb$h94$1@snipp.uninett.no> <6a017p$jrk@bgtnsc01.worldnet.att.net>
NNTP-Posting-Host: ppp-92-23.bu.edu
X-Newsreader: News Xpress Version 1.0 Beta #3
Xref: geraldo.cc.utexas.edu rec.audio.tubes:51766

I have a small "collection" of 5AR4's here. There is no doubt to me
that the Mullard or Amperex parts are worth the price. Better to spend $25
for a good used part that will last forever. I've had several Chinese parts
short or emulate a meltdown. I'd hate to loose a power transformer.

The GZ37 is a beautiful tube, but is very tall and won't fit in most
integrated amps. It also won't make it under the cover of Dynaco stuff if you
like keeping the cage on. Lastly the 3 amp filament rating may tax the Dynaco
transformers a bit more than you'd like to. Dynaco does say that the 5U4 is
an ok substitute in a pinch - and that is a 3 amp filament, but I'm a bit
cautious. The Dynaco stuff runs rather warm regularly.

The GE/Sylvania large bulb version of the 5AR4 is also fine, as are
the Japanese "X-Top" parts.

Many RCA or other US labeled 5AR4's are actually Mullard. It is worth
getting to know the construction.

I have several 5AR4's labeled "Merit made in USA" that look Chinese
and don't last.

I have a National 5AR4 that is actually a 6106. The 6106 is a very
nice tube actually, but is an indirectly heated 5Y3, and originally a Bendix
part. It is rated much less than a 5AR4 however.

I have also seen 6087's relabeled as 5AR4's - they are another very
nice indirectly heated 5Y3.

Lastly I have a few Sovtek 5AR4's with the dimple top more
characteristic of East German tubes. They seem to work ok, but I haven't put
much time on them.

>I recently got an amp that had a National 5AR4 in it that I suspect was of
>Chinese origin.

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From Kevin@UpscaleAudio.com Wed May 13 15:19:58 CDT 1998
Article: 104476 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!www.nntp.primenet.com!globalcenter1!news.primenet.com!news.primenet.com!not-for-mail
From: Kevin Deal / Upscale Audio
Newsgroups: alt.guitar.amps
Subject: Re: WTB: GZ34 tube
Date: 13 May 1998 12:00:01 -0700
Organization: Primenet Services for the Internet
Lines: 39
Message-ID: <3559EDF6.BA78CFCB@UpscaleAudio.com>
References: <3558f889.0@news.vphos.net>
X-Posted-By: @204.212.52.211 (upscale)
X-Mailer: Mozilla 4.01 [en] (Win95; U)
MIME-Version: 1.0
To: mjoly@mail.netshop.net
X-Priority: 3 (Normal)
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit
Xref: geraldo.cc.utexas.edu alt.guitar.amps:104476

mjoly@wkpowerlink.com wrote:
>
> Anybody know a source for a couple of these - I've found Chinese manuf.
> ones, but I would like something better.
>
> Thanks,
>
> Marc

What you have is

G.E. - U.S. made has a copper strip that runs up and down. Excellent.

British made is a Mullard and has a hole in the center of the plastic
locating key on the bottom. Could be branded anything. Etched batch
code towards bottom of glass will ususally have a B in it.

Japanese - could be branded many names. Some have a X shaped seam in
the glass on top. Will also say Made In Great Britain may times, but is
not.

Sylvania Fat Bottle

Holland - Looks like a Mullard but the galss top is flatter. Usually has
a hole in the locating key like a Mullard, since they owned Mullard.

5Y3 - branded by National as a 5AR4.

--
Regards,

Kevin Deal Precision selected fine vintage audio tubes
Upscale Audio Authorized Sonic Frontiers, Anthem, Golden Tube
2504 Spring Terrace Audible Illusions, Presence, Margules/Magenta
Upland, CA 91784 Basis, Benz, B&K, Meadowlark, PSB, Energy
Voice(909) 931-9686 Eminent Technology, Odyssey, Speakercraft, Kimber
Fax (909) 985-6968 Nordost Flatline, Synergistic, and much more

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From jdekort@concepts.nl Thu Apr 3 12:42:22 CST 1997
Article: 27848 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!math.ohio-state.edu!howland.erols.net!rill.news.pipex.net!pipex!dispatch.news.demon.net!demon!fido.news.demon.net!demon!news2.euro.net!news.euro.net!usenet
From: "Jim de Kort"
Newsgroups: rec.audio.tubes
Subject: Re: GZ37 vs GZ34 for tube rectifiers
Date: 3 Apr 1997 18:18:45 GMT
Organization: EuroNet Internet
Message-ID: <01bc3f8a$10beaea0$LocalHost@default>
References: <19970323003200.TAA18593@ladder01.news.aol.com> <3334B36F.1723@worldnet.att.net> <3338FD82.6910@xerox.fr.remove.this.for.legit.reply> <333F78DF.550C@hotmail.com>
NNTP-Posting-Host: 194.134.47.189
X-Newsreader: Microsoft Internet News 4.70.1157
Lines: 8
Xref: geraldo.cc.utexas.edu rec.audio.tubes:27848

> Yup. FYI, the GZ-34 is the European designation for the 5AR4, and the
> GZ-37 is a 5U4.

That's not entirely true. The GZ37 and 5U4 have almost the same specs but these are two different tubes. The GZ36 = CV837, but it is not the same as a 5U4 although it can be used to replace it.

Jim

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From tremolux@aol.com Sat Oct 1 00:22:56 CDT 1994
Article: 29027 of rec.music.makers.guitar
Path: geraldo.cc.utexas.edu!news.utdallas.edu!wupost!howland.reston.ans.net!swiss.ans.net!newstf01.cr1.aol.com!newsbf01.news.aol.com!not-for-mail
From: tremolux@aol.com (Tremolux)
Newsgroups: rec.music.makers.guitar
Subject: Re: Re-biasing after retubing
Date: 30 Sep 1994 21:54:05 -0400
Organization: America Online, Inc. (1-800-827-6364)
Lines: 38
Sender: news@newsbf01.news.aol.com
Message-ID: <36ifft$arb@newsbf01.news.aol.com>
References: <36h55m$m5j@nic.com>
NNTP-Posting-Host: newsbf01.news.aol.com

Groove Tubes 6L6s????? Bend over and grab your ankles, GT just reamed out your bank account. Those damn things are the most over rated, over hyped and way over priced things around. You just threw a whole wad of money out the window, Aspen Pitman thanks you all the way to the bank.

Here's the straight shit on Groove Tubes. They currently offer 3 kinds of 6L6 tubes: 1. - Chinese shit aka commie firecrackers (POW!!)(6L6C), 2. - Russian Sovtek 5881's, not too bad, reliable, sound ok (6L6B), and 3. - GE 6L6GC, American NOS, their best, good sounding, powerful (6L6 "Old Style"). Which ones did you buy? Their prices are OUTRAGEOUS.

Avoid the Chinese stuff altogether, it sounds lame, dosn't last long, and falls short performance wise. This leaves Russian or NOS GE. Antique Electronics in Tempe, AZ can fix you up with a matched pair of either for about 1/4 the price you'd pay GT. They're the same damn tubes, why the hell pay so much more for GT's testing and re-painting????? I've been doing business with Antique for a long time, and they haven't let me down yet. All GT does is buy tubes from suppliers, tests them and matches them, re-paints them, and re-sells them.

Let's examine GT's margins, by looking at the Sovtek 5881, the tube they sell as the 6L6B. In the large quantities they buy them, they pay about $5.00 or less per tube. They then re-sell matched pairs at a list price of (I think) $110.00. Now, let's assume the yield is 75% (which should be easy with the 5881 since they're very consistent and fairly reliable), this gives a per-tube cost of $7.50 or so. Now the testing, which they do in large lots, probably costs them about $5.00 per tube in labor. This now brings the tube cost to about $12.50. They would then put the pairs together for about $25.00. Wholesale price would then be $50 per pair, and your local retailer sells them for $100. Antique will sell a matched pair of these Russian 5881s, the very same damn tube, for less than $20. A matched pair of GEs will go for less than $40, where I think they list for $150 from GT. Hey, if you have that much money to spend, I have a good stock of tubes I'll sell you at a discount off the GT price.

Just my 2 cents worth.

Regards.

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From tremolux@aol.com Thu Nov 24 19:53:44 CST 1994
Article: 33136 of rec.music.makers.guitar
Path: geraldo.cc.utexas.edu!cs.utexas.edu!swrinde!pipex!uunet!newstf01.news.aol.com!newsbf01.news.aol.com!not-for-mail
From: tremolux@aol.com (Tremolux)
Newsgroups: rec.music.makers.guitar
Subject: Re: Groove Tube 6V6HD
Date: 24 Nov 1994 16:55:05 -0500
Organization: America Online, Inc. (1-800-827-6364)
Lines: 36
Sender: news@newsbf01.news.aol.com
Message-ID: <3b323p$ph7@newsbf01.news.aol.com>
References: <3b2vpt$mdk@tamsun.tamu.edu>
NNTP-Posting-Host: newsbf01.news.aol.com

I know what the hell is going on because I spoke to the people at GT about
the damn things.

You guessed it, the GT 6V6HD is really a Sovtek 6L6 (not the Sovtek 5881).
These particular 6L6s are really wimpy as far as 6L6s go, and are "low
yield" according to the GT representative I spoke with. These things sell
for about $5 each from Antique electronics, how much did you pay GT to put
their label on them?

I believe one guy who posted has the wrong idea about biasing, when he
said he lowered his plate voltage by 8 volts in accordance with the
instructions that came with the tubes. WRONG!!!! You need to increase
the negative grid bias by 8 volts relative to the cathode, and leave the
damn plate alone. Also, the oscilloscope method is not consistent, and
generally results in over-biased amps. If you're going to do it, do it
right and actually measure the plate current. In this application, I
recommend an idle current of about 25 ma per tube.

Anyway, since you are re-biasing your amp for a 6L6, why the hell not just
go ahead and put in a good one instead of a wimpy "low yield" tube?????
Antique will sell the very consistent and reliable Sovtek 5881 for about
$20 for a matched pair. I bet this is less than you paid GT. BTW, the
Sovtek 5881 is what GT sells as their top of the line GT6L6B. In short, I
do not recommend using the GT6V6HD, period, it a rip-off.

Now, as far as real 6V6 tubes go, there are no decent ones being made
today, period, regardless of hype and tube designer boutique salesman's
lies. Both the Sovtek and Chinese 6V6s suck. The're unreliable, and in
applications where they're subjected to overvoltage (like in Fender amps),
they have a tendency to blow. If you want to use a real 6V6, start
scouring the market and find yourself a set of old RCAs, Sylvanias or GEs.
They'll last where the commie crap will fail.

I hope this answers your questions. Happy Thanksgiving.

Regards.

From tremolux@aol.com Sun Nov 27 17:04:28 CST 1994
Article: 33165 of rec.music.makers.guitar
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.reston.ans.net!pipex!uunet!newstf01.news.aol.com!newsbf01.news.aol.com!not-for-mail
From: tremolux@aol.com (Tremolux)
Newsgroups: rec.music.makers.guitar
Subject: Re: Groove Tube 6V6HD
Date: 25 Nov 1994 15:05:04 -0500
Organization: America Online, Inc. (1-800-827-6364)
Lines: 45
Sender: news@newsbf01.news.aol.com
Message-ID: <3b5g1g$akr@newsbf01.news.aol.com>
References:
NNTP-Posting-Host: newsbf01.news.aol.com

The additional heater current drawn by the 6L6/5881 compared to a 6V6 is
an issue in some amps, like Princetons because they have small power
transformers. It is NOT an issue in a Deluxe Reverb. FYI, I have Sovtek
5881s in my Blackface Deluxe Reverb and it sounds great. The Deluxe has a

bit beefier magnetics and they can handle it. Mine has successfully survived several multi-hour gigs with flying colors. It will, obviously, cause the power transformer to run a bit hotter, but it isn't running too hot so that it is damaged.

Since the 5881s can easily handle the higher voltage, should you decide to put them in your Deluxe, this gives you options of making a louder Deluxe. Most Black and early Silver Deluxes by now should have their filter caps changed to avoid catastrophic failures, since these electrolytic caps have finite life spans. When replacing them, I recommend using the 22 uf @ 500 volt caps (the originals are 16 uf @ 450V). The additional capacitance will firm-up the power supply a bit without making it too stiff, and the higher voltage rating will provide additional safety margin. These new caps will then let you change the rectifier to one that will increase the plate voltages, increasing gain and power output. Specifically, if your Silver Deluxe now uses a 5U4 rectifier, you can safely plug-in a 5AR4 (the Sovtek 5AR4 is a good one). If your Deluxe is Black and already has a 5AR4, you can go to a solid-state plug-in module. (Note: Never use a solid state rectifier with 6V6 tubes, the increased voltage will cause early failure.) I am using the SS module in mine, and it sounds like a little Twin. I have had mine sitting along side another 64 Deluxe (stone stock) at a gig, and mine was noticibly louder, cleaner, and had more low end punch, without sounding harsh or brittle. The other guitarist commented that mine sounds real "chunky", and now wants me to work on his. Mind you, all this is easily reversible should you want to sell the amp to a collector.

Anyway, back to the original subject. I recommend avoiding the GT 6V6HD since it is just an overpriced wimpy 6L6. If you're going to put a 6L6/5881 in your amp anyway, put in a good one. If you want to stay with 6V6s, start looking for some American glass. Call long distance information and get the phone number of Antique Electronics in Tempe, Arizona. I get most of my tubes from them. I've scored Sylvania 6V6s
>from them before. Also. don't discount using used tubes. I've found many tubes at electronics liquidators, used, good quality tubes that test way better than minimum, and have lots of life still in them. For this, call Alltronics in San Jose, California. I know they have lots of good used 6V6s in stock, I saw them!!.

Regards.

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From datc1NospaM@concentric.net Wed Sep 23 09:11:03 CDT 1998
Article: 128489 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!uwm.edu!chicago-news-feed1.bbnplanet.com!su-news-hub1.bbnplanet.com!cpk-news-hub1.bbnplanet.com!news.bbnplanet.com!feed1.news.rcn.net!rcn!newsfeed.concentric.net!207.155.183.80.MISMATCH!global-news-master
From: "Whole Lotta Tom"
Newsgroups: alt.guitar.amps
Subject: Re: Groove Tube = Sovtek?
Date: 22 Sep 1998 22:45:56 PDT
Organization: Concentric Internet Services
Lines: 125
Message-ID: <6ua1uk$6ho@journal.concentric.net>
References: <19980922115442.10404.00000094@ng146.aol.com> <19980922181604.10254.00000255@ng149.aol.com> <6u9err$8oq@journal.concentric.net> <6u9m4b$2nj$1@supernews.com> <36085C26.9111408E@bigfoot.com> <6u9tdh$6qm$1@supernews.com> <360870D5.1F4E4F36@bigfoot.com>
NNTP-Posting-Host: ts013d48.lap-ca.concentric.net
Mime-Version: 1.0
Content-Type: text/plain;
charset="iso-8859-1"
Content-Transfer-Encoding: 7bit
X-Newsreader: Microsoft Outlook Express 4.72.3110.5
X-MimeOLE: Produced By Microsoft MimeOLE V4.72.3110.3
Xref: geraldo.cc.utexas.edu alt.guitar.amps:128489

Well, I guess that makes my last post a bit on the extreme side.

OK. As I expressed to Trem by private e-mail (I've explained a lot of things to Trem over the years, but it all goes out the window when he wants to shoot off a hate post at the target of his priapic obsession, Pittman) my responsibilities at GT were related to GT Electronics, the guitar amps, the audio processors and mics. I did not do any tube testing (except my own stuff) although I did service the machine. The specifics of the test equipment I am not at liberty to divulge, anymore than I am at liberty to divulge the specifics of the Fernandes Sustainer following my employ there, or the Aural Exciter circuit of SWR following my employ there. As for tube duds, I quote from my e-mail to Trem:

*I observed that most power tube rejects and all preamp tube rejects were
*thrown away. If a power tube was shorted, inoperative or real low in the
*specs it came in swift contact with the trash can. The tubes that were
good
*but were on the fringes of the GT numbering spectrum, I.E. they were high
or
*low and had no mates, were stored in case mates were found in subsequent
*batches. If over time they were still around, these might be sold off.
*Keeping the ones that are near the spectrum but are not yet mated has
proven
*to be worthwhile. Most of the tubes end up in the 4-7 range. If Eddie is
*going on tour and wants twenty quartets of his fav 6L6 in numbers 1, 2
*and/or 3, and you only have five in stock, you run a new batch with some
low
*backstock to see what comes up mated. This happens damn near every VH tour
*and during tours. Since eddie only runs three output tubes in the one 5150
*head that is the master for his rig, he burns up a set a night.
*
*As for preamp tubes, when they are bad, they are shit. Not too much value
*there.

OK. Some clarification. As I stated, most tubes end up in the 4-7 range. There are folks who must have grades 1, 2 or 3 of a particular type, and these must be kept in stock. If a batch yeilds only three tubes in the #3 range, that is not a quartet, which is the preferred stocking method. So, you might package a duet and put the other aside for inclusion in a later batch. Those tubes that rate outside the #1 or #10 range are sometimes sold off, as they can not be used by GT but are not inoperative. I do not know who they sell to. If I did, I might not post it but I could give it out by private e-mail. The simple truth is I did not pay attention as I was swamped with production every day. Ever do production line testing? You have to figure out why something does not work that has NEVER worked before. It's not that something breaks, it's that someone on the line has left you a

little gift of a bad trace, a bad LDR, a solder blob that can not be seen
>from above the board, etc. I was also designing and answering phone calls
(you know THAT story!) and ordering parts. I could not have cared LESS
about the goddamn tubes. When Red was still there I was learning all I
could from him, as well as sussing out the EQ1 and doing the Slave, my forst
PC board. When Red was gone, I was the only one there testing production.
I was goddamn busy.

The Eddie thing is fact.

I was given info by one frequent poster as to one of the possible recipients
of GT rejects. Perhaps he could post that info, I will not do so for him.
Also, there are not that many rejects sold. Most rejects are trash. The
ones that are unmatched are kept. The others that are outside the "norm"
are also few and are put into eggcrate holders and stacked up. Anyone who
has been to GT can tell you what a goddamn mess it is. Pittman is a king
packrat and he's got production tubes from the 70s. It's not like they are
selling hundreds a month, more like hundreds in few years.

BTW, I defy the frequent posters claiming some VGTC (vast GT conspiracy) to
find a NONdisgruntled ex-GT employee. On any continent. Chaos does not a
happy workplace make.

You may all bite me now.

Pleasant dreams.

--
Remove nospam to reply.

.
Andrew McWhirter wrote in message <360870D5.1F4E4F36@bigfoot.com>...
>Roy,
>
>Lemmme just say that my posts here indicate no malice toward you, GT, Tom,
>Aspen or anyone else.
>
>profrets wrote:
>>
>> Andrew McWhirter wrote in message <36085C26.9111408E@bigfoot.com>...
>> >
>> >"What does GT do with the duds????"
>>
>> Look, Andrew, nobody wants to hear what we have to say. We have said it a
>> dozen times in numerous posts.
>
>I haven't seen that particular question addressed in any post. I don't
>read 'em *all* though, so if I missed it, I apologise.
>
>> Everyone has their own preconceived idea of
>> what goes on, and our efforts to appease the masses have made no
>> difference.
>
>Well, maybe not *everyone*. My question is genuine; my idea of what goes
>on at GT is based on his book, posts here (from both sides), and a bit o'
>common sense. I'm quite aware of the way GT operates, but never have I
>seen the definitive answer to that one question.
>
>> As Tom said to me one time, "Roy, nobody wants to listen to reason about
>> Groove Tubes." So I gave up, too.
>
>I can appreciate that both you and Tom might feel this, but you and GT are
>being bashed about by, dare I say it, an extremely vocal and opinionated
>minority.
>
>
>
>

>If GT products work for you and your customers, who the hell am I to argue?
>
>Cheers
>Andrew
>--
>Andrew-dot-McWhirter-at-Bigfoot-dot-com
>
>These opinions are hereby disowned by the company I work for.

Back to JT30 Home

From svetengr@aol.com Fri Mar 7 22:16:52 CST 1997
Article: 41292 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.erols.net!portc02.blue.aol.com!audrey01.news.aol.com!not-for-mail
From: svetengr@aol.com (SVETENGR)
Newsgroups: alt.guitar.amps
Subject: Re: How are tubes made???
Date: 7 Mar 1997 20:16:09 GMT
Organization: AOL http://www.aol.com
Lines: 42
Message-ID: <19970307201601.PAA28105@ladder01.news.aol.com>
References: <5fh0p8mkk1@enterprise.desy.de>
NNTP-Posting-Host: ladder01.news.aol.com
X-Admin: news@aol.com

How to make tubes:

Row upon row of nice ladies in smocks sit at benches with air-filtration
hoods
and slip the parts together with tweezers, then weld them in place with
small spot-welders. The completed assemblies are inserted into the glass
envelopes, then the base button (with pre-sealed-in wires for connections
and
a tube out the middle for exhausting gases) is sealed on with a rotating
flame-ring.
This assembly is put on a "sealex" machine, which pumps it down thru the
bottom tube while cooking the whole assembly with an RF induction heater
coil.
(this also flashes the getter, which was welded to the plate along with
other parts.)
After a couple minutes, the machine takes it out and seals the bottom tube
with
a flame and a pneumatic cylinder to lift the assembly. Once the tube is
sealed,
the base, labeling etc. can be applied. Miniature tubes are done the same
way except
the pump-down tube is on top and the base button is the entire base.
These tubes are plugged into a big aging rack, holding 100-200 tubes at
a time.
They are aged for 4-6 hours while monitoring the plate current. The aging
involves
starting with filament voltage at 25% above normal for 2-5 minutes
(depending on the
tube type being made), then reducing to normal operating voltages and
running it at the
limit of plate dissipation.
Inspectors check each tube at the end of burn-in, then box them up.

At least, that's how it happens at the Svetlana factory in St.
Petersburg. I even have
photos of this. Can't speak for other makers.....at least Svetlana doesn't
allow
smoking on the factory floor.....Scott! Any comments? :)

Eric Barbour
Svetlana Electron Devices

From svetengr@aol.com Mon Mar 10 22:11:44 CST 1997
Article: 41593 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.erols.net!portc02.blue.aol.com!audrey01.news.aol.com!not-for-mail
From: svetengr@aol.com (SVETENGR)
Newsgroups: alt.guitar.amps
Subject: Re: How are tubes made???
Date: 11 Mar 1997 02:16:43 GMT
Organization: AOL http://www.aol.com
Lines: 13
Message-ID: <19970311021600.VAA28088@ladder01.news.aol.com>
References: <5fq9mv$soh@panix2.panix.com>
NNTP-Posting-Host: ladder01.news.aol.com

X-Admin: news@aol.com
Xref: geraldo.cc.utexas.edu alt.guitar.amps:41593

Sorry Mark, no prizes. Why, you some kinda masochist or something???
You WANT tubes that blow up? .....:)

As for that guy who wants to know how the grid are made:
it's a special lathe--two copper rods are chucked into it and the
grid wire is wrapped automatically at the pitch set on the lathe
controls. It also automatically swages the rods so the wire is
buried in the rods partway--the soft copper would have to melt
for the grid wire to get loose--the wire itself will break before that
happens.
All these interior parts are stuck into one mica spacer, then the plate
is put over all of them, then the other spacer is attached. It ain't easy.

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From dhaugen9@mail.idt.net Fri Oct 18 10:02:20 CDT 1996
Article: 16451 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.erols.net!feed1.news.erols.com!uunet!news-in2.uu.net!news.idt.net!news
From: Gruvmyster
Newsgroups: rec.audio.tubes
Subject: Re: Manufacturer of Hytron tubes?
Date: Fri, 18 Oct 1996 00:31:31 -0500
Organization: IDT Corporation
Lines: 34
Message-ID: <32671633.1C09@mail.idt.net>
References: <546pdv$83k@curly.cc.utexas.edu>
Reply-To: dhaugen9@mail.idt.net
NNTP-Posting-Host: dial399.skypoint.net
Mime-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit
X-Mailer: Mozilla 3.0 (Win95; I)

Mic Kaczmarczik wrote:
>
> I recently bought a pair of NOS Hytron brand 6V6GT's. The acceptance
> date on the box indicated 5/53. The inside of the glass has a opaque
> dark gray coating, and the base of the tube has the inscription
> ``Licensed under applicable patents" or something like that.
>
> I've seen the inscription on some of the RCA tubes I've used. Did
> Hytron make their own tubes, or resell tubes made by other
> manufacturers?
>
> Thanks,
>
> --mic--
> --
> -- Mic Kaczmarczik -- Unix Services, UT Austin Academic Computing --

Yes, Hytron made their own tubes. At some point in the mid-fifties, CBS bought them. Hytron was based in Danvers, MA.

This does not mean, however, that your tubes were produced by them. As far as I can tell every tube manufacturer purchased tubes from other manufacturers and put their own brand on them. Perhaps they did this because they weren't running a particular number at the time. For example, I have some types of GE-branded tubes that are obviously Mullards.

Many tubes had some kind of licensing agreement printed on either the box or on the tube itself. I don't think you can tell who made it based on that.

Hope this helps...

Doug

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From postmaster@triodeel.com Wed Dec 17 12:44:55 CST 1997
Article: 48383 of rec.audio.tubes
Path:
geraldo.cc.utexas.edu!cs.utexas.edu!news.iag.net!newsxfer3.itd.umich.edu!news.maxwell.syr.edu!nntp.flash.net!excalibur.flash.net!not-for-mail
From: postmasterspameater@triodeel.com (Ned Carlson)
Newsgroups: rec.audio.tubes
Subject: Re: GM (General Motors) 6V6 ???
Date: Wed, 17 Dec 1997 06:17:22 GMT
Organization: Triode Electronics
Lines: 77
Message-ID: <34976c9c.31963164@news.flash.net>
References: <01bd0a87$1207b680$863ef1cf@wwa.com>
Reply-To: postmaster@triodeel.com
NNTP-Posting-Host: ctc17-80.flash.net
X-Newsreader: Forte Free Agent 1.11/16.235
Xref: geraldo.cc.utexas.edu rec.audio.tubes:48383

"Jamie" wrote:

>A friend of mine stumbled across a GM 6V6. It tests great, and sounds
>fine..... Question is.... Who the hell actually made it? It is one of the
>'dark' tubes having been internally coated with some blackish-grey powder.
>Any ideas? Also, anyone out there dying for one of these? I have no need
>for it....

Well, if there's any numerical codes on it you can
look up the EIA/RETMA mfr code number here:
http://www.triodeel.com/eiacode.htm

At any rate, most of the GM-Delco ones I've seen were
RETMA code 274: RCA.

Here's a response I gave on alt.guitar.amps ref 7591.

>>Here's a quick ID chart (for 7591's, at least):
>>
>>Numbers are sandblasted in glass in a "stencil"
>>("broken letters")pattern= GE
>>Numbers etched in glass are inside an octagon:
>>RCA. (usually)
>>Numbers are "solid" , not broken, but not in an octagon:
>>Sylvania (later, Philips ECG)
>>Numbers are solid, but underlined, usually with "Made
>>in USA" underneath the underlining: Westinghouse.
>>
>>7591 were made in Japan by Toshiba for sure, possibly
>>Hitachi as well.

BTW, same applies for 6L6's & 6V6's, generally.
Tungsols 6L6-GC have the number in an octagon like RCA,
but the guts look like a GE! The Tungsol 6V6's have big
black plates, which, if you've ever seen one, wouldn't be
mistaken for anything else. BTW, Tungsols RETMA code
was 322.

CBS Hytron 6V6-GT that I've seen have the number inside
circle on the top of the tube.

Oh, yeah, Toshiba made almost dead-on copies
of the old RCA black plate 6L6-GC, too.
Fortunately, all the ones I saw were labelled
as Toshiba made in Japan.

>>
>>
>>Ned Carlson, Triode Electronics,
>
>Thanks Ned for your info. The pair of 7591A's that I have, have a top getter

>with the numbers on top in a grey paint to simulate etching. The numbers are
>arranged thus:
>
> 7591
> A
> USA

If it's on the top of the tube, it's almost certainly
Sylvania/Philips ECG.

The only GE's I ever saw that were etched on the top were
those notorious compactrons (6K11, 6BK11, 6C10).
which you'll hardly see unless you have an Ampeg or a
really weird Fender, or an old TV set.

If they're solid letters, it's a Sylvania (Philips ECG, same factory)
if they're broken letters (look like a stencil), it's GE.

Ned Carlson, Triode Electronics, Chicago, IL http://www.triodeel.com
Open 12:30-8 PM CT, 12:30-5 PM CT Sat Closed Wed
ph:773-871-7459 fax 773-871-7938 "where da tubes are"
Email catalogs: email our CataBot: catalog@triodeel.com

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From timtube@aol.com Mon Jan 27 09:52:42 CST 1997
Article: 36054 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.erols.net!newsxfer3.itd.umich.edu!portc01.blue.aol.com!newstf02.news.aol.com!audrey01.news.aol.com!not-for-mail
From: timtube@aol.com
Newsgroups: alt.guitar.amps
Subject: Re: RCA STR387's??
Date: 27 Jan 1997 13:02:32 GMT
Organization: AOL http://www.aol.com
Lines: 21
Message-ID: <19970127130200.IAA27004@ladder01.news.aol.com>
References: <854359110.27489@dejanews.com>
NNTP-Posting-Host: ladder01.news.aol.com
X-Admin: news@aol.com
X-Newsreader: AOL Offline Reader

In article <854359110.27489@dejanews.com>, emesone@elwha.evergreen.edu
writes:

>I have a NIB RCA 6L6GC that looks EXACTLY identical (in side by side
>compoarison) to a philips STR387 (dual getter variety). Is it "common
>knowledge" that RCA relabeled some of these?

RCA, Sylvania, GE, Tungsol, Boogie, Fender, Peavy, Groove Tube. I'm sure
there are others. There was lots of swapping among brands. They did have
some identifying characteristics:

RCA - have the tube # in a stop sign shape.
GE - had a series fo dots next to the tube #. (similar to a brail figure)
Sylvania - the tube # is acid etched, not painted. No matter how hard you
rub it, it will not rub off.

Tim

A great amp can make a lousy guitar sound great.
A lousy amp will make a great guitar sound lousy.

From PYLOT@AZTEC.ASU.EDU Mon Jan 27 16:35:20 CST 1997
Article: 36108 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!ennfs.eas.asu.edu!nntp.dist.maricopa.edu!usenet
From: Dale VanZile
Newsgroups: alt.guitar.amps
Subject: Re: RCA STR387's??
Date: Mon, 27 Jan 1997 14:05:59 -0700
Organization: Maricopa Community Colleges
Lines: 17
Message-ID: <32ED18A6.6722@AZTEC.ASU.EDU>
References: <854359110.27489@dejanews.com> <19970127130200.IAA27004@ladder01.news.aol.com>
Reply-To: PYLOT@AZTEC.ASU.EDU
NNTP-Posting-Host: mac42.stu-serv-2.sc.maricopa.edu
Mime-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit
X-Mailer: Mozilla 3.0 (Macintosh; I; PPC)

> RCA - have the tube # in a stop sign shape.

Type font is tall and skinny, stop sign is often elongated
in the horizontal direction to make ample room for # on small
tubes (like 12AX7, etc).

> GE - had a series fo dots next to the tube #. (similar to a brail figure)
> Sylvania - the tube # is acid etched, not painted. No matter how hard you
> rub it, it will not rub off.

GE tube # and dots are etched. Slyvania had an ink stamp that
resembled the current "Arial" font available with most word
processor programs. This ink is /very/ difficult to remove
entirely.

Dutch

From jatwood@netcom.com Fri Jan 31 20:48:40 CST 1997
Article: 23233 of rec.audio.tubes
Newsgroups: rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.erols.net!ix.netcom.com!jatwood

From: jatwood@netcom.com (John Atwood)
Subject: Re: Q: sylvania tube origins?
Message-ID:
Organization: Netcom On-Line Services
X-Newsreader: NN version 6.5.0 CURRENT #9
References:
Date: Fri, 31 Jan 1997 19:55:45 GMT
Lines: 56
Sender: jatwood@netcom21.netcom.com

krusty writes:

>i noticed that with a bunch of old sylvania tubes i have, the markings
>seem to vary. some have the GE 'etched' tube munbers, some have the RCA
>'stop-sign' marking, and others just have letters...did sylvania >groove tubes> just get other makers' tubes and relabel them? strangley
>enough, i have a bogen pa that has 'bogen -made by sylvania' stamped on
>them, so did someone else make them, then sold them to sylvania, who sold
>them to bogen? the lettering on these 7868s are thin letters, written like
>the rca type but just with letters, i've seem similar letters on
>tung-sols, but they have a second set of numbers below them. can anyone
>help me out here? thankx....

Sylvania was a major manufacturer of tubes from the 1920s (when they were called Hygrade Sylvania) until the early 1980's when their tube line was bought by Philips ECG. Up until the lates 1950s, they used the octagon "stop-sign" type marking, although with thinner and more distinct lines than Tung-Sol or RCA. After that, they used simple type numbers using a font similar to "Helvetica". Sylvania probably made more of its own tubes than any other American tube company, but as with all of them, didn't make every single type. Since it was important to provide servicemen and distributors with a complete line of receiving tubes, all the tube manufacturers had "cross-branding" agreements. For example, Raytheon developed the 6AH6 in the late 1940s, and was initially the sole manufacturer. The other tube manufacturers bought or traded for these Raytheon tubes, but had them marked with their own brand. The actual tube type number was put on by Raytheon, so by looking at the type you can identify the brand. (By the way, for the 1940s and early 1950s, Raytheon minature tubes had their type numbers marked in a circle around the exhaust tip.) Even when a tube company produced a given type, they sometimes cross-branded other types if they were short of production capacity. In the 1970s and '80s, American companies, particularly Raytheon and RCA, started cross-branding European and Japanese tubes as they started to shut down their own production lines. These imports are legitimate in the sense that they were sanctioned and sold by the original American tube companies. With the current demand for name-brand American and European N.O.S. tubes, there is a thriving industry of illegitimate tube counterfeiters who take average Chinese or military surplus tubes and mark them as Mullards, Telefunkens, RCAs, etc. Being aware what the originals look like will help you avoid these counterfeits.

Anyone who has worked with old consumer or industrial tube-based equipment is aware that many companies had their names marked on their tubes by the tube company. Again, by looking at the tube type number, the original manufacturer can be identified, if it is not already indicated on the tube.

By the way, American military-procured tubes (in the white boxes) were never (to my knowledge) cross-branded. On some, the box may give the name of the government contractor using the tube, but the tube itself was always branded by the original manufacturer.

- John Atwood

--
John Atwood
Preferred e-mail address: atwood@one-electron.com

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From Dstork@deathstar.cris.com Fri Oct 14 11:17:16 CDT 1994
Article: 29988 of rec.music.makers.guitar
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.reston.ans.net!news.sprintlink.net!deathstar.cris.com!deathstar.cris.com!not-for-mail
From: Dstork@deathstar.cris.com (Dr.Distortion)
Newsgroups: rec.music.makers.guitar
Subject: Re: Matched pair, is this a joke??
Date: 14 Oct 1994 01:34:28 -0400
Organization: Concentric Research Corporation
Lines: 55
Message-ID: <37l594$gn7@deathstar.cris.com>
References: <37jfoj$25g@hobbes.cc.uga.edu>
NNTP-Posting-Host: deathstar.cris.com
X-Newsreader: TIN [version 1.2 PL1]

Doug Ahern (doug@cosmic.uga.edu) wrote:
: I was talking to a guy who has been working on tube equipment since
: the forties, although it has been primarily Jukeboxes, pinball games,
: and PA's (some Guitar amps). He insisted that that selling tubes
: in a matched pair is a joke. As he put it, if 2 tubes are not matched,
: you can put them in an amplifier, and leave it on over night, and
: when you get back in the morning, they will be matched. any truth to
: this??

I'm sorry, but that's total bullshit. The military started matching
tubes as far back as the '20s, so the concept of tube matching is
not some recently-conceived marketing scheme. When you use tubes
as pairs or quartets in push-pull (like in most guitar amps),
the tubes won't be working together very efficiently unless
they spec out about the same for transconductance and current draw.
Plus, if one tube is drawing more current than the other, that causes an
imbalance in the output transformer, resulting in hum.
You can't cause unmatched tubes to match up simply by running them
together in an amp overnight. It just doesn't work that way.
Since the oldtimer you talked to cut his teeth back in the '40s, he's
probably used to cathode-biased output stages, where the match
between the tubes is not quite as critical as in fixed-bias
setups.In his day, I doubt most servicemen worried much about
installing matched tubes, especially when working on "consumer"
equipment. Tube manufacturers adhered to stricter tolerances back
then; and like I said, most equipment used cathode-biased outputs.
So, in conclusion: yes, tube matching makes a difference.

--Dr.Distortion, New York

: He also has some RCA 12ax7's made by National in Chicago, but they say
: "RCA National, made in Yugoslavia", I'm probably going to pick up 3
: to plug them in to my amps. Anyone know who made these??

: The guy had a lot of interesting stories about working with Wurlitzer
: and RCA (he's got a picture of himself at the Wurlitzer factory in
: the fifties, and picture of himself with Hank Snow, and a VP from
: RCA, all three with wifes too).

: By the way. I'm playing the "find some new power tubes and not lose
: my ass" game right now. A local tech who sells only Groove tubes
: quoted me some prices: $300 for a quartet of US 6550's or $250 for
: a quartet of kt-88's, $70 for a duet of 6L6GT's !!! Groove Tubes
: is making a bundle!!! I called Antique electronics (Thanks for the
: pointers here on the net) and orders a matched pair of Sovtek 6L6's
: for $11.20/pair, and a matched pair of Sovtek 5881's for $17.50/pair.
: 12AX7's were $4.90-$5.35 depending on soviet or yugoslav original.
: and the folks were super nice.

: doug, the systems guy, high-tech custodian.
: COSMIC~Nasa's software technology transfer center. Athens, Georgia.
: got a problem with my driving? dial 1-800/dev/null

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From LORD_VALVE@prodigy.net Fri Apr 30 03:05:18 1999
Flags: 000000000001
Received: from pimout4-int.prodigy.net (pimout4-ext.prodigy.net [207.115.58.198])
by curly.cc.utexas.edu (8.9.1/8.9.1/cc-uts-1.29) with ESMTP id DAA14005
for ; Fri, 30 Apr 1999 03:05:17 -0500 (CDT)
Received: from pavilion (DNVRB103-18.splitrock.net [209.156.134.64])
by pimout4-int.prodigy.net (8.8.5/8.8.5) with SMTP id EAA30274;
Fri, 30 Apr 1999 04:04:29 -0400
Message-ID: <080801be92e0$bfe15da0$40869cd1@pavilion>
From: "LORD VALVE"
To: "zzz"
Subject: VISSEAUX 6V6 TECH BULLETIN (from Lord Valve)
Date: Fri, 30 Apr 1999 02:09:08 -0600
MIME-Version: 1.0
Content-Type: text/plain;
charset="iso-8859-1"
Content-Transfer-Encoding: 7bit
X-Priority: 3
X-MSMail-Priority: Normal
X-Mailer: Microsoft Outlook Express 4.72.3155.0
X-Mimeole: Produced By Microsoft MimeOLE V4.72.3155.0

A NOTE FOR VISSEAUX 6V6GT USERS...

If you're installing this tube in a Fender amplifier (or in any amplifier which has the power tube sockets wired the same as those in a Fender) you should be aware of a potential problem. The Visseaux 6V6GT has a metal shell at the base; like many tubes which use this construction, this shell is internally connected to the #1 pin of the tube. In a Fender amp, pin one is used as a tie point for the 1.5K swamp resistors, and the negative bias voltage is present there. If your amp has butterfly-type tube retainer clips, these clips can dump the bias to ground, thereby destroying the tubes in short order. Three different remedies are possible:

1) Remove the tube retainers. The Visseaux has seven pins on the bottom; unless your sockets are extremely worn, you won't have to worry about the tubes falling out.

2) Push both sides of the clamps down against the chassis so that they can't touch the bases of the tubes.

3) Remove the swamp resistor from pin one and fly it off pin five, Marshall-style. While you're at it, change your screen resistors to 1K/5W types and tie pin one to the chassis.

Enjoy!

Regards,
Lord Valve

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From jjensen@sirius.com Wed Apr 30 19:26:42 CDT 1997
Article: 29751 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!news.maxwell.syr.edu!news-out.communique.net!communique!uunet!in1.uu.net!140.174.229.1!sun.sirius.com!usenet
From: "John W. Jensen"
Newsgroups: rec.audio.tubes
Subject: The TRUTH about GEC (M-O Valve)
Date: 30 Apr 1997 23:24:28 GMT
Organization: Thorn Microwave Devices Limited
Lines: 20
Message-ID: <01bc55bd$9ca57400$50e586cd@FRIEDL.sirius.com>
NNTP-Posting-Host: ppp080-sm0.sirius.com
X-Newsreader: Microsoft Internet News 4.70.1161
Xref: geraldo.cc.utexas.edu rec.audio.tubes:29751

Recently, I clipped some material from this newsgroup and e-mailed it to one of my work cohorts. He used to work at M-O Valve in Hammersmith (not on the regular tubes of our interest but on microwave tubes). He recently sent the following to me:

John,

MOV were making Gold Lion tubes when I worked there, they were bog standard KT88's pumped on 2nd world war rotary machine pumps imported from the States. Pumps were two stage box pumps and town gas bake plus much ECH outgassing. The Gold Lion was just a marketing stunt to dramatically increase the selling price, and it worked brilliantly. The Genelex logo was used for overseas sales particularly to the States to avoid infringement of the US General Electric name and logo. However, the 'bog standard' KT88's were pretty good anyway, and although the grids should not glow during normal operation, they sure did during the standard processing and ageing, to outgas and burn the crap off them.

Howard

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From postmaster@triodeel.com Sat Sep 6 10:11:57 CDT 1997
Article: 62681 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.erols.net!newsfeed1-hme1!newsfeed.internetmci.com!199.0.154.56!ais.net!ameritech.net!chi.ameritech.net!not-for-mail
From: triodeel@ameritech.net (Ned Carlson)
Newsgroups: alt.guitar.amps
Subject: Re: Phillips 6L6WGB, reliability?
Date: Sat, 06 Sep 1997 06:17:48 GMT
Organization: Triode Electronics
Lines: 62
Message-ID: <3410e793.6586551@news.chicago.il.ameritech.net>
References: <19970901144701.KAA25020@ladder01.news.aol.com> <01bcb724$b71d7d00$0c80e6ce@clearr> <340cc25e.665526@news.chicago.il.ameritech.net> <01bcb8c1$dd433760$c90258aa@CCTT07.ISDEV.CTT.COM> <340f9753.5814415@news.chicago.il.ameritech.net> <01bcb9fa$b3413950$610258aa@alsnt>
Reply-To: postmaster@triodeel.com
NNTP-Posting-Host: dyn-max1-50.chicago.il.ameritech.net
X-Newsreader: Forte Free Agent 1.11/16.235
Xref: geraldo.cc.utexas.edu alt.guitar.amps:62681

"Teleologist" wrote:

>Interesting thought about temperature - hadn't considered that. I also
>realize the same tube from the same plant on different weeks can sound
>slightly different, but I'm just one of those people who likes looking at
>tubes & trying to figure out what might make them sound the way they do. :)

Me too. I spent a whole day going over the ex-GE works
after glass tube production shut down
(they let me have the run of the place,
which was quite a treat), asking questions & so forth.
One of the telling comments came from the ex-shop foreman,
who noted that "making tubes is an art". Even with personnel that
averaged 15 years experience, on a *good* day, 10% of the run was
NFG and had to be chucked. No lie, I saw 55 gallon drums full of
dud 6550A's.

OK, I would attribute the differences between Philips ECG
6L6-WGB and 7581A/6L6-GC to the following:
1.More heat concentrated in a smaller bulb. More heat means more
control-grid current, thus hotter tubes would start clipping at the
grid than cooler ones would.
The fact that the later model Philips 6L6-WG/5881 didn't
have grid cooling fins (which, IMHO, they should have had),
I attribute to one thing : Philips mgmt did exactly what they
had to, & no more. Some of the stuff the *military* actually
type accepted and spent US tax dollars for, was truly bizarre.
2. The specs that 5881/6L6-WGB had to pass to be type-accepted
weren't as tough as those for 6L6-GC/7581A.

>BTW I also have some GE WGBs from the 70s - these have a fatter/taller
>bottle(but not as tall as the Phillips 6L6GC) & use a larger diameter base
>than the Phillips WGBs. Internal structures are quite different & they
>sound much different. They're my personal favorites for Tweed Bassmans.

BTW, if you've ever seen Tungsol 6L6-GC...they look like a GE 6L6-GC
in a Sylvania bottle!

Your comment about the sound of tubes changing from one
production week to the next, is not without foundation.
Cathode coating is a suspension, not a compound, and
the skill of the folks mixing & applying the stuff is very
important.
Two anecdotes:
(1) AT&T/Western Electric wanted to get out of the tube biz in the
1980's (they quit in 1988). They tried to job the tube production
out to another company, Cetron. Despite Cetron's efforts, they could
not produce tubes (300B's) that would pass WE spec for plate current.
The only known reason was Cetron's problems with mixing &
applying cathode coating.

(2) When the Chinese tried making 6550's & KT88's
(BTW, no coincidence that they look like Tungsols),
their skill at doing cathode coating was so bad that
there were a number of failures where the coating
actually peeled off during use & touched the
control grid. Some of the failures were truly spectacular.

Ned Carlson, Triode Electronics, Chicago, IL http://www.triodeel.com
Open 12:30-8 PM CT, 12:30-5 PM CT Sat Closed Wed
ph:773-871-7459 fax 773-871-7938 "where da tubes are"
Email catalogs: email our CataBot: catalog@triodeel.com

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From Kevin@UpscaleAudio.com Wed May 13 13:50:14 CDT 1998
Article: 104456 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!uwm.edu!www.nntp.primenet.com!globalcenter0!news.primenet.com!news.primenet.com!not-for-mail
From: Kevin Deal / Upscale Audio
Newsgroups: alt.guitar.amps
Subject: Re: Black 6V6's
Date: 13 May 1998 09:33:00 -0700
Organization: Primenet Services for the Internet
Lines: 71
Message-ID: <3559CB6D.C21C954@UpscaleAudio.com>
References: <354FFB79.E88D44B6@monmouth.com> <6j6i6q$on5@bgtnsc03.worldnet.att.net> <355757E2.EA83705F@monmouth.com> <35577fd3.1133898948@news.demon.co.uk> <35578BBA.1513568B@theriver.com> <35578c22.1137050541@news.demon.co.uk>
X-Posted-By: @204.212.52.189 (upscale)
X-Mailer: Mozilla 4.01 [en] (Win95; U)
MIME-Version: 1.0
To: postmaster@muffy.demon.co.uk
X-Priority: 3 (Normal)
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit
Xref: geraldo.cc.utexas.edu alt.guitar.amps:104456

Duncan Munro wrote:
>
> On Mon, 11 May 1998 16:37:30 -0700, Andy R
> wrote:
>
> >RCA 7408's are like that to sometimes. Probably not a big deal. I guess
> >English Brimars are black too.
> >
> >Andy
>
> Don't know the make of these, maybe Uncle Ned will come along and tell
> - got 4E6 etched into the glass, and the war dept arrow with MF
> underneath.
>
> Next to that is CV511 and underneath this KB / FB. Tube detectives?
>
> --
> Best Regards, Duncan Munro [BOF #023]
> http://www.duncanamps.simplenet.com/ for SPICE models,
> vacuum tube data and custom guitar amps...

Here's some codes for you. I don't know what FB code is...perhaps it
could be related to the Mazda stuff.

KB = tube factory

D = Mullard

DA = Mullard but in different location

FE = STC (Standard Telephone and Cables)

Z = M.O.V

DA = Brimar

In the early 1960's STC spun off Brimar to "Thorn-AEI Radio Valves and
Tubes LTD"

The history gets a bit complex.

This company made tubes under the Mazda and Brimar names, as well as
Ediswan. FYI, Mazda was a British company for those who don't know, and
in the 1920's Ediswan and Mazda were major makers of radio tubes.
Ediswan being the world's first radio tube maker (A joint efort started
in 1883 by Edison Eletric Light Co and Swan Electric Lighting Co.)

Many of Mazda's later tubes were made in French factories and are excellent. I have some of the 6V6GT's someone mentioned, and they are very nice sounding, and extremely durable. They are early production made for the war dept labeled "services plublic guerre". Guerre meaning war in French.

In fact one of the earliest 12ax7's I've ever seen was a Mazda made in France. It has the exact same plate as the first Amperex 12ax7 (I'm talking before Bugle Boy). This Amperex tube is very rare and may not have even been made in Holland, though the label says it was. The getter ring of the Mazda is unmistakably Telefunken. It's very nice.

--
Regards,

Kevin Deal Precision selected fine vintage audio tubes
Upscale Audio Authorized Sonic Frontiers, Anthem, Golden Tube
2504 Spring Terrace Audible Illusions, Presence, Margules/Magenta
Upland, CA 91784 Basis, Benz, B&K, Meadowlark, PSB, Energy
Voice(909) 931-9686 Eminent Technology, Odyssey, Speakercraft, Kimber
Fax (909) 985-6968 Nordost Flatline, Synergistic, and much more

From postmaster@triodeel.com Wed May 13 13:50:22 CDT 1998
Article: 104359 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!cpk-news-hub1.bbnplanet.com!news.bbnplanet.com!news.maxwell.syr.edu!Supernews60!supernews.com!Supernews69!not-for-mail
From: postmaster@triodeel.com (Ned Carlson)
Newsgroups: alt.guitar.amps
Subject: Re: Black 6V6's/
Date: Wed, 13 May 1998 02:05:15 GMT
Organization: Triode Electronics
Lines: 31
Message-ID: <3558fca1.1717339@news.supernews.com>
References: <354FFB79.E88D44B6@monmouth.com> <6j6i6q$on5@bgtnsc03.worldnet.att.net> <355757E2.EA83705F@monmouth.com> <35577fd3.1133898948@news.demon.co.uk> <35578BBA.1513568B@theriver.com> <35578c22.1137050541@news.demon.co.uk> <3557fa40.39186515@news.supernews.com> <355883BF.9F410BA@home.com>
Reply-To: postmaster@triodeel.com
X-Trace: 895025259 IG5G0KQDTA0C3C7B3 usenet47.supernews.com
X-Complaints-To: newsabuse@supernews.com
X-Newsreader: Forte Free Agent 1.11/16.235
Xref: geraldo.cc.utexas.edu alt.guitar.amps:104359

On Tue, 12 May 1998 12:15:43 -0500, Marc Ferguson
wrote:

>Ned, you are one smart mutha! Please enlighten me on the Mazda 6v6
>tubes.

Mazda 6V6's are probably French, or at least I've heard of French Mazda 6V6-GT. I did miss British maker, there were Cossor 6V6-G, too, made in UK, and Cossor did use at least some US numbers, eg: I have a Cossor 6J5-G here. BTW, the price was 7 bob & sixpence, plus 1 bob & 8d PT, for a total of 9s/2d. Out of a guinea you'd have recieved 11/10 in change.
Got that?
Don't quote me, but I believe Mazda is another head of the Philips hydra, there was British Mazda, French Mazda, plus another Belgian cousin, Adzam, which is Mazda spelled backwards.

I'd bet FIVRE in Italy and Neotron in France made 6V6-G, too. Just to confuse matters further.
ADZAM did make 6SQ7-GT, so I'd bet they made (or sold) 6V6-G or GT, also.

Ned Carlson Triode Electronics,2225 W Roscoe Chicago, IL, 60618 USA
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From Dr.Distortion@bbs.mhv.net Wed Jun 21 12:13:57 CDT 1995
Article: 1842 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.reston.ans.net!news.sprintlink.net!mhv.net!bbs.mhv.net!Distortion
From: Dr.Distortion@bbs.mhv.net (Dr Distortion)
Newsgroups: alt.guitar.amps
Subject: Re: Metal 6V6 tubes in a Vibro Champ?
Date: 21 Jun 1995 15:50:57 GMT
Organization: MHVNet, the Mid Hudson Valley's Internet connection
Lines: 18
Message-ID: <3s9f51$1es@over.mhv.net>
References: <3s8581$sqv@curly.cc.utexas.edu>
NNTP-Posting-Host: csbh.mhv.net
X-Newsreader: TIN [version 1.2 PL2]

Mic Kaczmarczik (mic@uts.cc.utexas.edu) wrote:
: Recently a friend of mine came across some *metal* 6V6 tubes, so I put
: one in my Vibro Champ to see what it would sound like. The tube
: worked for a few minutes but then started humming loudly and
: sputtering. Thinking the tube was bad, I tried this with the rest of
: them. All 5 of them did the same thing.

The :glass: 6V6 tubes left pin 1 unused, so Fender usually used this pin as a "holder" for the grid stopper resistor. :Metal: 6V6s, on the other hand, connect pin 1 to the metal envelope, presumably so that pin 1 can be grounded and allow the envelope to act as a shield. When you put the metal tubes in your Champ, you're tying the metal envelope to the signal grid and making an antenna out of the tube, thus picking up all kinds of noise.
The metal 6V6s are not up to the punishment (spec-wise) that they're going to receive in a Champ, anyway, so it's best for you to stick to the glass 6V6GT types.

From mgarvin@panix.com Sun Jun 25 09:30:06 CDT 1995
Article: 1941 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!news.sprintlink.net!simtel!agis!news1.best.com!ddsw1!panix!not-for-mail
From: mgarvin@panix.com (Mark Garvin)
Newsgroups: alt.guitar.amps
Subject: Re: Metal 6V6 tubes in a Vibro Champ?
Date: 25 Jun 1995 02:53:40 -0400
Organization: PANIX Public Access Internet and Unix, NYC
Lines: 32
Message-ID: <3sj15k$7h4@panix2.panix.com>
References: <3s8581$sqv@curly.cc.utexas.edu>
NNTP-Posting-Host: panix2.panix.com

In <3s8581$sqv@curly.cc.utexas.edu> mic@uts.cc.utexas.edu (Mic Kaczmarczik) writes:

>Recently a friend of mine came across some *metal* 6V6 tubes, so I put
>one in my Vibro Champ to see what it would sound like. The tube
>worked for a few minutes but then started humming loudly and
>sputtering. Thinking the tube was bad, I tried this with the rest of
>them. All 5 of them did the same thing.

Thanks for trying those out for us. Nobody else had the hair ...
The voltage ratings on a lot of those old tubes were dubious. So watch it! You don't want to smoke the transformer in your amp.
I'm surprised that all of the tubes would 'break down' in the same way, but you never know.

>It is of course possible that all 5 of the tubes could just be bad.
>Is there some other factor that might make the tubes behave that way,
>though? If so, is there any way to work around the problem?

Champs in general have a couple design 'flaws'. No limit resistor on the screen grid, for instance. Not sure if Vibrochamps have limit resistors or not. This can be a bad thing when marginal tubes are plugged in. Screen dissipation problems are supposedly the main failure mode for Champs w/o the resistor.

Some metal tubes are OK, but for the most part, stay clear. Look around for a bit (garage sales, flea markets) and you'll find old American (glass) 6V6Gt's or GTA's. Even if they're used, those will probably sound the best.

Mark Garvin

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From jjensen@sirius.com Fri May 2 14:20:01 CDT 1997
Article: 29861 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.erols.net!worldnet.att.net!hunter.premier.net!zephyr.texoma.net!uunet!in2.uu.net!140.174.229.1!sun.sirius.com!usenet
From: "John W. Jensen"
Newsgroups: rec.audio.tubes
Subject: More M-O Valve History
Date: 2 May 1997 14:16:08 GMT
Organization: Thorn Microwave Devices Limited
Lines: 73
Message-ID: <01bc5703$54bca9a0$35e586cd@FRIEDL.sirius.com>
NNTP-Posting-Host: ppp053-sm0.sirius.com
X-Newsreader: Microsoft Internet News 4.70.1161
Xref: geraldo.cc.utexas.edu rec.audio.tubes:29861

The following is more histroy regarding M-O Valve and the type of tube processing they did, both routine and for special military tubes (valves). This is from Mr. V. Howard Smith, past Technical Director.

****

The special "military" valves (I have not used that word for a long time!) made by MOV were given the designation 'Q' or 'SQ' if I remember correctly, although many of the specials were military versions only with relatively conventional type designations or CV numbers.

The vast majority of these tubes, sorry valves, were only made in the special mil versions. So they were not selected from commercial production, but specially made to the mil specs.

Commercial valves were made by a different organisation and management, on floor 'E3' (east wing, 3rd floor). Another group (where I worked 1969 - 1971) known as 'Disc Sealed valves' made the high frequency disc-sealed tubes (up to 1 GHz) and the special mil types in E4 (East wing 4th floor). There was a lot of friendly rivalry as you can imagine.

The commercial valves (E3) were pumped on very large rotary machine pumps with fast indexing speeds, everything geared for high volume and low cost, they were very good at it too! They hung in to the very last, until most of the other big guys had given up, and world demand = production capacity again, then increased the price and were very profitable for years after the pundits had said that valves were dead. I know that the KT88's were doing 10,000 hours, and made at 2,000 per month.

In section E4, the special valves were pumped, aged and tested to much higher standards (usually Mil, or UK equivalent). The disc-sealed tubes were pumped on multi head (10 head manifold, if I remember correctly) metal or glass diffusion pumps. Glass were mercury, metal were oil. The 'valves' (conventional glass with octal bases mainly) were pumped on smaller rotary machine pumps with low indexing speeds, a cause of much debate with the commercial valve people! Again the pumps were two and three stage box pumps, but these were maintained to a very high standard and tested to a worst pressure of 0.0005 Torr, usually making about 0.0003.

Like in most businesses, the quality actually comes down to the pride and ability of people. Both E3 and E4 had very good people and they maintained the quality certainly to my knowledge up to 1984 when I left MOV (as Technical Director). They were very much of the 'old school', a dying breed unfortunately (pun not intended). People who joined the sections, but did not have the 'right' attitude, some how seemed to leave the company fairly quickly, with the 'right' attitude you could join the 'family'.

MOV was very lucky in having Mr Pat Cundy (rumour has it that he was seconded to work on the 'black box' flight recorder) as the technical boffin for valves, he had seen and fixed every possible problem, and probably several times in his life. Infrequently, as he was a very proud man, he was supported by Dr R.O. Jenkins ('Jenks') from the MOV "Valve Research Labs" (VRL) in Wembly. When I joined, E3 was run by Mr Macfarlane ('Mac', nobody ever knew his Christian name), and E4 by Jeff Thorpe. Pat and Mac used to have furious rows, as can be usual between engineering and production, whilst they would each defend the other just as furiously in all other circumstances.

One other interesting feature, occasionally the demand for commercial tubes would exceed the machine pumps in E3 (or they were down for servicing, the pump rotating plates had to be reground occasionally and they could be out of service for several months getting the pressure down to spec), and commercial tubes were manufactured in E4. Pumped aged and tested. One of the differences on the Mil valves was the number of times the valves were ECH'ed, and how the cathodes were activated, this was all automated, and was difficult to change efficiently.

Thus the pump indexing speeds and processing was maintained to Mil standards for the commercial tube spill over production. There are thus

some exceedingly good Gold Lion KT88's somewhere out there!!!

From jjensen@sirius.com Tue May 6 16:49:42 CDT 1997
Article: 30110 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.erols.net!newshub2.home.com!newshub1.home.com!news.home.com!news1.best.com!sun.sirius.com!usenet
From: "John W. Jensen"
Newsgroups: rec.audio.tubes
Subject: M-O Valve (Still More Info)
Date: 6 May 1997 18:16:03 GMT
Organization: Thorn Microwave Devices Limited
Lines: 30
Message-ID: <01bc5a49$8d3c8f40$36e586cd@FRIEDL.sirius.com>
NNTP-Posting-Host: ppp054-sm0.sirius.com
X-Newsreader: Microsoft Internet News 4.70.1161
Xref: geraldo.cc.utexas.edu rec.audio.tubes:30110

For those who read the previous message and wondered what ECH means, here is an explanation. In the U.S. tube industry, such a piece of equipment was often called a 'bomber' meaning that the work inside the vacuum was being heated by 'rf bombing'.

ECH
Stands for “Eddy Current Heating”. Used to heat up the valve internal electrodes through the glass envelope to red heat, in order to outgas them, and even hotter than the bake temperature. It was particularly important to ‘ECH’ the getters during processing, as getters are made of particularly active constituents and soak up crap during storage.
The getters were outgassed several times during processing on the pump, fired just prior to pinch off, and fired again after cathode processing (about twice normal heater/filament voltage and drawing emission current).

M-O V

Originally “Robertsons Lamps” circa 1890, and made vacuum lamps with carbonised cotton filaments. When I left M-O V in 1984 you could still see a picture of a lamp (about 15 feet high) with a pinch off at the top of the bulb, with Robertson’s Lamps written underneath, on the side of one of the old original buildings.
Then purchased by a German company called Osmium Wolfram (Wolfram as in Tungsten) who made gas filled lamps, the name was Anglisised and truncated to Osram.
This then German company ‘Osram’ was impounded during the first World War and passed to GEC (which was then mainly an American company I believe?).
The name was changed to Marconi Osram Valves in 1919, and about a year later to M-O V.

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From tomhiwatt@aol.com Thu Nov 21 13:44:58 CST 1996
Article: 18756 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.erols.net!newsxfer2.itd.umich.edu!portc01.blue.aol.com!audrey01.news.aol.com!not-for-mail
From: tomhiwatt@aol.com
Newsgroups: rec.audio.tubes
Subject: Re: RCA Tube Factory Re-opening??
Date: 21 Nov 1996 18:08:48 GMT
Organization: America Online, Inc. (1-800-827-6364) (1.13)
Lines: 32
Message-ID: <19961121181100.NAA12414@ladder01.news.aol.com>
References: <19961120211400.QAA22882@ladder01.news.aol.com>
NNTP-Posting-Host: ladder01.news.aol.com
X-Admin: news@aol.com
X-Newsreader: AOL Offline Reader

As promised.

Here are the details from a Groove Tubes press release handed out at AES.
Call them for a copy. (818) 361 4500 and tell Paul Patronette I said he
was a poo-poo head! ;-)

S. F. Johnson president and founder of Fritztronics in Randolph, Mass has
set up a tube manufacturing facility in Milford mass, inside the Beam
Power Tube building that once produced tubes for RCA, Hytron, Raytheon and
others. It uses original restored RCA equipment from the Harrison NJ
plant. The first tube to be produced is a copy of the 1956 RCA 6L6GC. (
it is interesting to note that the 56, although overshadowed by it more
popular sibling, the '57, had a 2x4 carb option for the 265 V8

The GT-6L6FZ (TOO many letters!!) will use the same type materials as the
'56 Chev- er- 6L6GC including carbonized grade A nickel plates
(audiophiles rejoice!) pure tungsten grids, premium A-31 Cathaloy
cathodes, all from the original vendors.

This was started while I was still there (at GT) and I remember Johnson as
very detail oriented and intent on getting this thing right. He even
found the original producers of the mica spacers!

Release date is said to be mid 1997.

The press release also says that Johnson has come up with a non-toxic
cathode coating formula. This would be important as this environmental
issue has hampered others from getting into tube production.

So, don't hold your breath but it looks promising.

Tom

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From bhatcher@mindspring.com Tue Feb 17 09:30:07 CST 1998
Article: 86339 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!math.ohio-state.edu!howland.erols.net!cpk-news-hub1.bbnplanet.com!news.bbnplanet.com!news.mindspring.com!usenet
From: bhatcher@mindspring.com (Bill Hatcher)
Newsgroups: alt.guitar.amps
Subject: No more Chinese 12AX7s
Date: Tue, 17 Feb 1998 11:39:54 GMT
Organization: MindSpring Enterprises
Lines: 20
Message-ID: <34e973cc.2668587@news.mindspring.com>
Reply-To: bhatcher@mindspring.com
NNTP-Posting-Host: user-38lcb14.dialup.mindspring.com
X-Server-Date: 17 Feb 1998 11:36:06 GMT
X-Newsreader: Forte Free Agent 1.1/32.230
Xref: geraldo.cc.utexas.edu alt.guitar.amps:86339

There will be no more Chinese 12AX7 tubes made. Factory space was leased out to Nabisco or somebody. All the machinery was left out in the weather and ruined. Worldwide demand for 12AX7s is estimated at over 300,000 a year of which the Chinese supplied over 1/2. They were not making the kind of money they wanted to on the 12AX7. This info >from a reliable source at Svetlana.

Boogie bought the last 10,000 that New Sensor had. Better get used to paying some higher prices for these. My wholesale suppliers have ALL raised the price of chinese 12AX7s.

MOJO is now getting $5 ea. They only have 300. Ruby the same. New Sensor has raised the wholesale price of the medium quality 12AX7WB to over $4 each wholesale!

Are we seeing the start of overall higher prices for tubes in general?? Is this window of great tube prices from these countries finally closing?

Better stock up!!!! Bill

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From postmaster@triodeel.com Sun Aug 10 21:34:47 CDT 1997
Article: 37567 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!su-news-hub1.bbnplanet.com!cpk-news-hub1.bbnplanet.com!news.bbnplanet.com!ais.net!ameritech.net!chi.ameritech.net!not-for-mail
From: postmaster@triodeel.com (Ned Carlson)
Newsgroups: rec.audio.tubes,alt.guitar.amps
Subject: Re: Maximum plate voltage for 6L6WGB ???
Date: Mon, 11 Aug 1997 01:19:58 GMT
Organization: Triode Electronics
Lines: 117
Message-ID: <33ee49b7.138887968@news.chicago.il.ameritech.net>
References: <33DCC82B.1A01@tele.fi> <5rqe3i$2tt$1@murrow.corp.sgi.com> <33EBB640.1BEA@newschool.edu> <33ec864e.9164620@news1.mnsinc.com> <33ecec4b.49455788@news.chicago.il.ameritech.net> <33ecf9b2.362110095@news.demon.co.uk>
Reply-To: postmaster@triodeel.com
NNTP-Posting-Host: dyn-max1-12.chicago.il.ameritech.net
X-Newsreader: Forte Free Agent 1.11/16.235
Xref: geraldo.cc.utexas.edu rec.audio.tubes:37567 alt.guitar.amps:59415

My, you guys don't throw the easy questions out, do ya?
Yours truly may have to go rummaging thru some
reading material or call some folks
to get the Last Word on tube ratings.
But I'll take a whack at it..what the heck, I'm sure
Randy N will call me on any errors !!

Ok: first: what's the dilectric strength per mil for
a vacuum? And at how good of a vacuum?.
None of my books say.
That ought to give Duncan some idea what the
absolute limits are!

Maybe if I'm lucky Scott Frankland will weigh in
as well, re theory,and what really happens to them
'trons in a tube, he's way better than I.

postmaster@muffy.demon.co.uk (Duncan Munro) wrote:

>On tubes, what is the failure mode with over-voltage???

AFAIK, they arc over internally.
Arcing around the tube sockets might happen sooner, depending
on the situation...
I once had someone show me a cracked, blacktracked
ceramic socket out of a Marshall (a hairy one, not yer typical
100W lead head). Apparently (remember, I hadda wing this a bit)
the player liked to overdrive his amp, and the harmonics reached
out to way out past where the speakers unloaded, and a big AC
voltage was showing up on the primary of the OPT.
Enough to whack the socket.
And it blew up tubes, too. Of course that was under overdrive
conditions, I'd certainly like to know more as to what
exactly what happens to a guitar amp power tube when it is
clipped with a distorted signal at full power.
What kind of peak voltages show up at the plate?
I'm on the learning curve as far as this geetah stuff goes..
Heck, I learn something new every day, for that matter.

>I'm no tube
>expert, but I'm still waiting to see a tube croak from voltage
>overdose.

The way I get it, these main factors affect voltage ratings:

1. Plate dissipation & current. As I noted, people have used
6V6-GT in Marshalls, but the idle current had to have
been very low, the typical Marshall has a g1 voltage
of about -50 volts! (note the model used, I do not know)

2.Vacuum. Take a 4-65A. It's about the same size as a 6550,

but it has no "getter", like a 6550A. But they run 3KV
at 115 ma as a Class C RF amp. I was told they were pumped
for like 24 hours for a much better vacuum than what one would see
in a normal recieving tube.
This makes sense. Look in a power tube like a 5881, you'll see a
blue glow which to me looks very similar to the glow I see
with 2050 thyratrons, ie: the less inert gas there is left,
the less chance of an arcover.

3.Quality control. Compare a 4-65A to a 4PR65A.
They look the same, but 4PR65A is pulse rated
(from memory, specs no longer listed in the Eimac catalog)
for use with a 10KV supply. I know 4-65A won't work,
in place of 4PR65, I sold some (back when they were a
bit more plentiful) cheap to place that makes flight simulators,
where they promptly failed. (their idea, not mine!)
Since I couldn't discern the
differences by eyeballing, I'd assume even
more vacuum pumping & tighter tolerance control.
BTW: a cousin of the 4PR65, the 4PR60C, does
20KV, 1.25KV screen, and peak current of 18 amps,
peak power of 337KW. It's only 6 inches long, but
has a ..egads.. 54 watt filament!

4. Duty cycle. Hmmm, perusing my Eimac book
I see the Y-141 planar triode. 59 mm long, weighs
70 grams. Typical operating parameters: 5 KV anode,
plate current 4 amps. Output power, 11 KW.
Duty cycle, .001 %.

5.Distance between pins. Note the differences
between 807 & 6L6 re voltage rating. Again, back to
the socket-cracking problem, as noted above.

6.Plate material, at least on glass recieving tubes.
I have a T-40 Taylor here. Looks just like a '50,
but has carbon anode and plate cap.
Voltage rating, 1500 volts.

>I know they can take big K's. Has anyone actually got a case of tubes
>dying from too many K's?????

Well, it's lot easier to blow up gas rectifiers than vacuum tubes...

>Lacking the equipment to do proper tests, I wonder if anyone out there
>has done proper lab tests on 6L6's or EL34's to see what they really
>will take.....

In terms of terms of plate dissipation and max cathode current,
you probably have a pretty good idea already.
Guys that build illegal CB kickers with tubes really go
nuts on that angle, one customer with a *mobile*
(musta had a double alternator) tube kicker reported
that he was running 40KG6's, at 1000V, plates glowing
with the mic keyed. Yow!

I'll bet it has been done. What's more, I'd say no tube mfr
in the old days, at least, would've shipped boxcars full of
tubes to OEM's without extensive testing.

Ned Carlson, Triode Electronics, Chicago, IL http://www.triodeel.com
Open 12:30-8 PM CT, 12:30-5 PM CT Sat Closed Wed
ph:773-871-7459 fax 773-871-7938 "where da tubes are"
Email catalogs: email our CataBot: catalog@triodeel.com

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From Teleologist@Sorry.NoEmail Thu Jun 13 09:58:02 CDT 1996
Article: 10785 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.reston.ans.net!world1.bawave.com!newsfeed.internetmci.com!in2.uu.net!in-news.erinet.com!ddsw1!news.mcs.net!usenet
From: Teleologist
Newsgroups: rec.audio.tubes
Subject: Re: Opinions of Phillips 6L6GB JAN?
Date: Thu, 13 Jun 1996 06:54:44 -0500
Organization: MCSNet Internet Services
Lines: 15
Message-ID: <31C00184.598D@Sorry.NoEmail>
References:
NNTP-Posting-Host: 198.182.250.132
Mime-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit
X-Mailer: Mozilla 2.0 (WinNT; I)

S.W. Wortis wrote:
> PHILLIPS 6L6WGB
> New Sensor is selling these. Gerald Weber aside, does anyone have an
> opinion on these? I'd be using them in guitar amps.
>
> Thanks,
> Shaun
IMO they sound great in low & medium power BF Fenders (Deluxe, Vibrolux, Pro, & Super Reverbs) & especially in Tweed Bassmans and Twins, but I wouldn't put them in a BF Twin Reverb, Showman, or a Boogie. They sound nice and 'Fendery' clean & have a nice smooth distortion with less harshness & bite than the 6L6GC/STR/7581 style tubes while having more bite and top end than the Sovtek 5881s. Most of the ones I've used are the earlier Sylvania 5881 variety, but the later Phillips version looks virtually identical & I can detect no difference in sound.

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From datc1NOSPAM@concentric.net Sat Jun 20 11:27:15 CDT 1998
Article: 110979 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!uwm.edu!chicago-news-feed2.bbnplanet.com!news.bbnplanet.com!news-feed.fnsi.net!news.idt.net!netnews.com!newsfeed.concentric.net!global-news-master
From: "The Continuing Tom"
Newsgroups: alt.guitar.amps
Subject: Re: Stupid, stupid tube question....
Date: 20 Jun 1998 03:10:07 EDT
Organization: Concentric Internet Services
Lines: 69
Message-ID: <6mfn8f$cct@examiner.concentric.net>
References: <19980620020018 00.WAA17672@ladder03.news.aol.com> <6mf5fq$1ph@bgtnsc02.worldnet.att.net> <6mf8uabtk1@supernews.com> <6mflf1$b33@sjx-ixn2.ix.netcom.com>
NNTP-Posting-Host: ts021d44.lap-ca.concentric.net
X-Newsreader: Microsoft Outlook Express 4.72.3110.5
X-MimeOLE: Produced By Microsoft MimeOLE V4.72.3110.3
Xref: geraldo.cc.utexas.edu alt.guitar.amps:110979

I heard it when I tested for it in the soundroom at GT, but only with a very quiet power supply. Photons have energy, are energy, and when they strike the plate, they impart noise. Normally that is buried in the sound floor or too weak to even register. But when you have a tube way down at the start of a high-gain circuit that is optimized for low noise, such as you have in a tube amplified condenser mic system, photon noise can be a problem. It depends on the sensitivity of the circuit and how quiet the rest of the audio chain is. It's real enough that the Germans delt with it years ago in the same manner as GT. That is also the reason the new GT mics do not have holes in the case. A PMT (photo multiplier tube) is a vacuum tube optimized to take advantage of this effect. You find these in use for optical soundtracks on film and in some film to videotape transfer machines.

As the GT mics improved and we learned ways to lower the noise floor the problem was revealed to us. We also got calls from mixers and producers who ran into the problem. Consulting with audio pros helped to prove and isolate the phenomena (too bad we didn't have some old Germans laying around) (shut up, Roy) And the paint was a simple solution. Another simple solution would have been to stop drilling holes and laser cutting logos into the mic shells, but that was the visual ID of the product and, oh nooooo, we could not mess with that.

Hifi guys who love to build tube preamps for MC cartridges also are aware of this. I wish I could give you some references to look up, but I do not have any off the top of my head and I'm too damn tired and stuffed up with the latest cold to look. If you are still interested, I will make the effort (to pick up the phone and ask someone, that is) to find some.

This is NOT a problem with guitar amps. We tolerate a noise floor level that masks anything as low-level as photon noise. A monster 4 or 5 gain-stage preamp could reveal photon noise, but not with the noise floor you usually get in a Mesa or whatever.

I have never seen sparks as a result of eating Wint-O-Green Lifesavers, and do not know of it's effects with regard to vacuum tubes.

BTW, I said that damn tube was a Peavey when, of course it is Mesa. I knew that. My brain caries the scars of the misadventures of youth.

--
To reply remove NOSPAM from address.

Lord Valve wrote in message <6mflf1$b33@sjx-ixn2.ix.netcom.com>...
>In <6mf8uabtk1@supernews.com> "profrets" writes:
>>
>>I think that is the idea. It is shrink tubing, as far as I can tell.
>>When I was working for GT, it was discovered that light entering the
>>tube on the microphone products increased the distortion levels,
>>subsequently, they started dipping the tubes in heat resistant flat

>>black paint. This is a good case for tube shields,
>(snip)
>
>Lord Valve Speaketh:
>Man, that sounds like a load o' crap to me. I ain's sayin' it IS,
>but it sure *sounds* that way. Post details.
>
>Lord Valve
>Visit my website: http://www.freeyellow.com/members2/lord-valve/
>Good tube FAQ for newbies. Click the e-mail link and request a
>tube catalog. I specialize in top quality HAND-SELECTED NOS and
>current-production vacuum tubes. Good prices, fast service.
>
>"Ninety percent of everything is CRAP." - Sturgeon's Law (see above)

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From keen@eden.com Sun Jan 19 10:58:15 CST 1997
Article: 34997 of alt.guitar.amps
Path:
geraldo.cc.utexas.edu!cs.utexas.edu!howland.erols.net!worldnet.att.net!uunet!in2.uu.net!204.177.172.254!news.eden.com!matrix.eden.com!keen
From: keen@eden.com (R.G. Keen)
Newsgroups: alt.guitar.amps
Subject: Re: Sale: New 3M Tube Dampers @ $4.00!
Date: 19 Jan 1997 16:12:04 GMT
Organization: Adhesive Media, Inc.
Lines: 86
Message-ID: <5bth4k$3aa$1@boris.eden.com>
References: <32dcf546.51420174@news.netrunner.net>
NNTP-Posting-Host: matrix.t10.nfs.eden.com
X-Newsreader: TIN [version 1.2 PL2]

David deForrest (buybeach@buybeach.com) wrote:
: New High Performance Vacuum Tube Dampers From 3M
: Vibration Control Help Improve Musical Clarity and Focus
sniff... sniff... do I smell snake oil? Someone said "musical clarity and
focus"...

...
: ...The vacuum tube dampers resemble clear O-rings and are made
: of 3M ISD 110 Viscoelastic Damping Polymer,
...
OK. $4.00 each for a super-whoop-de-doo O-ring? That melts onto your tube?

A workable and highly effective alternative that I've used for quite some
time is the high temperature RTV gasket material sold in auto parts stores.
This gook goes for about $4.00 a tube (of gook, not vacuum...) and one
tube will treat MANY vacuum tubes. It cures to a dense silicon rubber...

: The 3M tube dampers, which have damping performance up to 140 C
: (284F),
... and the gasket material is good to 450F. By the way, vacuum tubes are
specified for dissipating their rated power at a glass envelope
temperature of about 200-250C, according to the data books. What does 3M
O-ring material do at over 200C? Does it decompose, melt, or just quit
damping?

Of course, it's preamp tubes that really need vibration damping, and they
usually aren't run that high, but I'd be careful about putting the rings
on high temperature output tubes until I knew it would not melt down into
the tube socket, glueing the tube in, or decompose in place.

...

: Application of 3M tube dampers is easy. Simply stretch the dampers to
: fit the appropriate tube, slide the damper over the tube and turn on
: the equipment. The heat from the tube will cause the damper to adhere
: to the tube, providing a permanent fit. Two dampers are suggested for
: larger tubes; one or two can be used for the smaller size tubes.
Application of red RTV gasket material is easy. You unscrew the top, and
apply a bead of gook all around the tube. Of course, there is a curing
time, so you can't just plug it in and turn it on.

I prefer one at the base and one near the top to leave most of the middle
area open for heat dissipation - both o-rings and rtv will prevent heat
>from coming out of the glass right under them. In most cases, a thinnish
bead will silence microphonic preamp tubes. You can adjust the amount of
damping by adjusting the amount of gook, and if you need more, you still
have the tube of gook. You have to use a razor blade to get it off, though.

For hard cases, you can use the RTV material as a glue to attach a heavy
metal ring to the tube. This adds decoupled mass to the tube which
requires that vibrational energy shake both the tube and the decoupled
metal ring, passing through the elastic material two times at resonance.
You can effectively move the resonance below audio this way.

In fact if you REALLY want to damp a tube, you can also use the RTV
material to glue the tube sockets into the chassis rather than hard
mounting them. This is a lot of work to do well, but now you have the tube
and socket soft mounted to the chassis, so you get a dissipative path from
the chassis, too. The chassis is MUCH more effective than the tube at

coupling in airborne sound to the tube, so this helps kill the vibration
on the way in. And of course, the chassis is the only path in to the tube
for structure-born vibration.

Rubbermounted tube sockets used to be available, but I don't know of any
source of them now. I suppose one could make a rubber mounted socket with
heavy rubber sheet, a socket and some patience, but that would be a labor
of love.

: This is the most effective, yet inexpensive, tube damper on the
: market. It combines damping performance that is equal to or better
: than many other styles of typical tube dampers, with a high-tech,
: one-size-fits-all design that is a first in the marketplace.
And of course, RTV is also one size fits all ;-)

I do respect 3M's research, and it is entirely possible that their special
viscolastic megapolymer is better per unit volume at absorbing vibration,
but a tube of auto gasket rtv offers you a whole lot more volume.

By the way, how did you test for effectiveness of all those tube dampers?
What metric did you use, and how did you run the tests? I'd like to see
the test data to see how much more effective these things are than the
other dampers on the market. I might just switch over to 3M O-rings
entirely if the data supports it. Would it be possible for you to post
the test data here?

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From Kevin@UPSCALEaudio.com Fri Jul 12 20:46:17 CDT 1996
Article: 11979 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!swrinde!sgigate.sgi.com!news1.best.com!nntp.primenet.com!news.primenet.com!primenet
From: Kevin@UPSCALEaudio.com (Kevin@UPSCALEaudio)
Newsgroups: rec.audio.tubes
Subject: How to tell if Tubes are FAKES? Was: Source/subs for GZ34?
Date: 12 Jul 1996 07:11:01 -0700
Organization: Primenet
Lines: 66
Message-ID: <4s5mdl$t2g@nnrp1.news.primenet.com>
References: <4s1l8m$lpc@usenet.ucs.indiana.edu> <4s30f1$sj7@nnrp1.news.primenet.com>
X-Posted-By: ip191.pom.primenet.com
X-Newsreader: News Xpress Version 1.0 Beta #4

In article ,
Elton Toma wrote:
>
>
>On 11 Jul 1996 Kevin@UPSCALEaudio.com wrote:
>
>> I have some rarer stuff too for the folks that need it...1950's Philips
>> Miniwatt made in Holland, G.E's, Mullards, etc..but the pricing is almost
>> embarrasing...even to me.
>
> How can I tell if the Mullard or GE 5AR4s I have are real or made
>in Japan versions? How much are the 'real things' going for these days
>anyway?
>
>Elton

Real Mullards 99% of the time will have a hole in the center locating key...in addition, at least in the falsely labeled Mullards and RCA's, there is an X sheped seam in the top of the glass, and the getter is a dark caramel color.

One other thing....a fellow netter bought a couple of the Amperex JAN 7308's being advertised by Four Seasons Audio in Audiomart. We were discussing tube upgrades for his equipment, and when I recommended Amperex, he said he had some, and they suuuuucked. I asked him if he got them from Four Seasons...he seemed suprised that I knew.

He has now sent them to me for inspection....they're cheap ass Russian 6DJ8's..the biggest piece of shit in the 6DJ8 world....I mean, they could have at least used Russian 6922's if they were going to bullshit the public.

I called Four Seasons a year ago, first to buy some (and I would have at that price...a bargain), but after I heard the description I new they weren't real.
I told the owner that I know that tube about better than anybody...and he was doing his customers a disservice...and his position was "prove it, show me in print in some Amperex literature". I also called Audiomart, and they said well....it's a tough one with tubes...but they wouldn't do anything. Could this have something to do with the advertising revenue they get from Four Seasons?

The problem here is there are a lot of people trying this tube and either getting turned of to the glory of tube hi fi or as a minimum getting ripped off and thinking "yea, I tried the Amperex...they sucked"...when indeed they're one of the all time greats in the 6DJ8 family. I expect this type of stuff at a hamfest....I mean it's so common, and the fakes are so obvious it's almost laughable and boring..but a high end dealer should either know better OR be concerned when more than one expert has clued him in. Shame on Four Seasons AND Audiomart.

Best Regards,

Kevin Deal

UPSCALE
Audio/Home Theater/Rare Tubes
(909) 931-9686 8AM-6PM PDT
Fine Tubes from Telefunken,
Amperex, NV Philips, Mullard

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From triodeel@aol.com Sun Mar 23 20:01:36 CST 1997
Article: 27237 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.erols.net!newsxfer.itd.umich.edu!newsxfer3.itd.umich.edu!portc01.blue.aol.com!audrey01.news.aol.com!not-for-mail
From: triodeel@aol.com
Newsgroups: rec.audio.tubes
Subject: Some note on relabelled tubes
Date: 24 Mar 1997 00:52:08 GMT
Organization: AOL http://www.aol.com
Lines: 36
Message-ID: <19970324005200.TAA00162@ladder01.news.aol.com>
NNTP-Posting-Host: ladder01.news.aol.com
X-Admin: news@aol.com
X-Newsreader: AOL Offline Reader
Xref: geraldo.cc.utexas.edu rec.audio.tubes:27237

I get lots of questions on this, this is an answer given to one customer
regarding this subject:
In a message dated 97-03-23 18:55:15 EST, you write:

> And thanks for the information. Interestingly I've seen RCA 5AR4's
>labeled "Great Britian" that appear to be japanese in construction, as well
>as others that look like Mullards. Cross labeling was pretty rampant!

RCA never made 5AR4, they just bought from whoever was
convienient. (same goes for GE). Crosslabelling not just
rampant, it was "business as usual" for years, often they swapped
internal parts as well, or bought internal stampings,parts &
bulbs from same suppliers. eg, I vistied ex-GE tube factory, they
had cases of bulbs from Sylvania. No kidding.
We've seen Russian 5V4-GT relabelled with major-brand
US names, there's apparently some really phoney stuff coming out of Asia,
and possibly Great Britain as well.
On the other hand, one can find super bargains if you know
what you're looking at: OEM's (Magnavox, Zenith, Motorola, et al)
and retail/wholesale relabeller/distributors (Sears, Monkey Wards,
Zaerix, Ultron, Radio Shack, Allied, etc ad nauseum)
often bought tubes from major manufacturers (including but not
limited to GE, RCA, Telefunken, Mullard, etc, as well as Japan, Korea
and Eastern Europe) and stuck pedestrian brand names on them.
Other major-brand names (Mullard,Amperex and Canadian Sylvania
come to mind) were sold off to third parties who have legal rights to
plaster those names on anything they like.
Note that anyone with the right kind of equipment (mandrel or pad
silk-screen printer) can stick any name on tubes that they like,
altho not always legally.
Maybe next time I'll go off on a tangent about tube grading
& selecting....
Ned, Triode Electronics

Ned Carlson, Triode Electronics, Chicago
Ph 773-871-7459 aft 1230CT (1830 UTC)

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From stanj@dnai.com Sun Nov 19 10:55:53 CST 1995
Article: 3442 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!news.sprintlink.net!newsfeed.internetmci.com!in1.uu.net!hilbert.dnai.com!usenet
From: Stan Jacox
Newsgroups: rec.audio.tubes,alt.guitar.amps,rec.music.makers.guitar
Subject: Re: Chinese 6V6GTs
Date: 18 Nov 1995 07:45:41 GMT
Organization: Studio Maintenance Center
Lines: 27
Message-ID: <48k2v5$a42@hilbert.dnai.com>
References: <481bjt$a2p@over.mhv.net> <482o97$lm3@newsbf02.news.aol.com>
NNTP-Posting-Host: 204.188.27.10
Mime-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit
X-Mailer: Mozilla 1.1N (Windows; I; 16bit)
Xref: geraldo.cc.utexas.edu rec.audio.tubes:3442 alt.guitar.amps:5544 rec.music.makers.guitar:71142

tremolux@aol.com (Tremolux) wrote:
>Ruby Tubes' hype is that the new design Chinese 6V6GTB is the best thing
>since sliced bread. Of course, you have to realize they're trying like
>hell to sell the things. However, they do claim that it will hold up to
>the high plate voltages of a Deluxe Reverb. How long will they last???
>Who knows?? Chinese power tubes are notorious for gassing-up. Anyway,
>they're cheap, so maybe you could try a apir and report back to us on the
>results!
>
>Regards.

After testing the prototype tubes some time ago we've installed several hundred Ruby 6V6GTBC in amps requiring higher voltage ratings. Without a doubt, this is the best 6V6 made as far as power, stability and durability is concerned. Sound is, of course, a personal opinion, so depending on personal taste, playing style and amp design you may find others more to your liking. The Russian 6V6s is fine (we use many of them from Ruby, Sovtek and others) for applications that need earlier distortion and lower output, a number clients who are well known blues players perfer the Russian tubes in lower voltage amps because they are a weaker tube. If your playing is more to the Rock or Clean side you will appreciate the extra headroom of the 6V6GTBC.

Stan Jacox Studio Maintenance Center
http://www.studio-maint.com/~stanj
1-800-918-3300

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From awelker@hermes.dciem.dnd.ca Tue Aug 22 09:25:52 CDT 1995
Article: 202 of rec.audio.tubes
Path:
geraldo.cc.utexas.edu!cs.utexas.edu!swrinde!howland.reston.ans.net!torn!nott!dgbt!netfs.dnd.ca!hermes.dciem.dnd.ca!zeus.dciem.dnd.ca!not-for-mail
From: awelker@hermes.dciem.dnd.ca (Andrew Welker)
Newsgroups: rec.audio.tubes
Subject: Re: Pspice models for Tubes
Date: 21 Aug 1995 13:07:13 -0400
Organization: Defence and Civil Institute of Environmental Medicine
Lines: 20
Message-ID: <41aeg1$427@zeus.dciem.dnd.ca>
References: <415vob$d1j@ccnet2.ccnet.com>
NNTP-Posting-Host: zeus.dciem.dnd.ca

In article <415vob$d1j@ccnet2.ccnet.com> turnerde@ccnet.com (Donald E. Turner) writes:
>I'm designing, and eventually building a new tube amp. In the spirit
>of other design projects using Pspice to confirm the performance (and
>find mistakes!) in a new design, I'd like to model the new tube amp.
>Does anyone have models for the 6SN7, 12AX7, or 6550. Or maybe, by
>chance, know where I can get them?
>

I think I have just what you need. Check out the March 1995
issue of the Audio Engineering Society journal. (Vol.43, No.3).
There is an article that explains how to create netlists
for Pentode and Triode tubes.

"SPICE Models for Vacuum-Tube Amplifiers"
W. Marshall Leach, Jr.

Hope that helps.

Andrew Welker

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From jcassidy@svetlana.com Thu Oct 24 20:41:10 CDT 1996
Article: 16926 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.erols.net!newsfeed.internetmci.com!news.Traveller.COM!news
From: Jared Cassidy
Newsgroups: rec.audio.tubes
Subject: Re: Anyone tried Svetlana 6L6GC's yet?
Date: Thu, 24 Oct 1996 16:27:01 -0500
Organization: Svetlana Electron Devices, Inc.
Lines: 24
Message-ID: <326FDF25.2C19@svetlana.com>
References: <54cr2v$t8o@panix2.panix.com>
Reply-To: jcassidy@svetlana.com
NNTP-Posting-Host: 206.154.253.75
Mime-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit
X-Mailer: Mozilla 3.0Gold (Win95; I)
To: Mark Garvin

Mark Garvin wrote:
>
> Just heard that Svetlana is producing a 6L6GC now. Not sure if
> it's actually available yet. Has anyone seen or tried them?
>
> Are they based on any particular previous design?
>
> MG

It is true, we are manufacturing the SV6L6GC. It is not currently
available, but should be within the next few months.

The Svetlana SV6L6GC is based on the Sylvania 6L6GC/STR387 design. This
was a very popular version used in many guitar amps back in the 70's.

The data sheet for the SV6L6GC is now online at our website:
http://www.svetlana.com

Hope this information helps.

Best regards,

Jared Cassidy
Svetlana Electron Devices, Inc.

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From detritus@ix.netcom.com Thu Sep 21 10:15:02 CDT 2000
Article: 276885 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!newsfeed.cs.utexas.edu!cpk-news-hub1.bbnplanet.com!news.gtei.net!newsfeed.skycache.com!Cidera!cyclone2.usenetserver.com!news-out.usenetserver.com!newsfeed2.earthlink.net!newsfeed.earthlink.net!news.mindspring.net!firehose.mindspring.com!not-for-mail
From: Lord Valve
Newsgroups: alt.guitar.amps
Subject: SOVTEK TEST REPORT
Date: Thu, 21 Sep 2000 01:41:49 -0600
Organization: MindSpring Enterprises
Lines: 140
Message-ID: <39C9BBBD.C16EFA5D@ix.netcom.com>
NNTP-Posting-Host: c7.ae.e9.a4
Mime-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit
X-Server-Date: 21 Sep 2000 07:37:07 GMT
X-Mailer: Mozilla 4.04 [en] (Win95; U)
Xref: geraldo.cc.utexas.edu alt.guitar.amps:276885

Lord Valve Speaketh:
Just got samples of two new tubes from Sovtek...
the 12AT7EH and the 5751. Both of them look
just like the 12AX7LPS/EH inside and out, so
obviously the plates are made with the same
tooling and the bottles are the same. I only
got two of the 12AT7EH and four of the 5751s.
I did preliminary testing on them with my Hickok
752, and came up with some curious numbers; as
a control, I pulled two each of the NOS JAN 12AT7WC
by Philips and GE (at random from my untested stock)
and four NOS JAN 5751 by Philips. It seems that
the transconductance ranges on the Sovteks don't
match up all that well with the original American
tubes. Here are the numbers for the 5751s, in
umohs, per section:

SOV #1 - 1840/1900
SOV #2 - 2020/1880
SOV #3 - 1800/1860
SOV #4 - 1920/1840

NOS #1 - 1500/1460
NOS #2 - 1400/1420
NOS #3 - 1280/1280
NOS #4 - 1380/1340

It would seem that the Sovteks have higher
transconductance numbers than the NOS parts...
and that the NOS tubes are more tightly matched
>from section to section. (Close section matching
is a specification for this particular tube.) In fact,
the lowest TC measurement for the Sovteks is higher
than the highest TC figure for the NOS by a considerable
margin. Of course, this doesn't matter; you just need
to bear in mind that the Sovteks will have more gain
than the NOS will. I tried all of the Sovteks out in
my test rig...two of 'em had noisy sections. (One
case of Niagara Falls Disease, and one Harley Davidson
Infestation.) The two good ones were fairly free from
microphonics, and very quiet. Many of you who have
used NOS 5751s have found out that they tend to hum
in some circuits, especially high-gain front ends;
the Sovteks were remarkably free of this. Since
they're "hotter" than "real" 5751s, they will produce
more gain than the NOS; depending on what you're
looking for, this may or may not be a good thing.
When I get a few in the field, I'll have more to
say on the subject. So far, the reject rate (50%!!)
is not encouraging. Of course, the sample was very

small, so it could have been plain bad luck. We'll
see.

The 12AT7s tested as follows:

SOV #1 - 3340/3340
SOV #2 - 2840/3440 (See below)

NOS GE #1 - 3800/4400
NOS GE #2 - 3800/3700
NOS PH #1 - 4080/4300
NOS PH #2 - 4000/3700

(NOTE: SOV #2 initially produced a reading of 3200 umohs
in the first section, but this reading dropped off to
2840 within ten seconds. The tube displayed this behavior
every time it was tested. I usually reject tubes which
test like this during my screening process, but since I
only had two to work with, I went ahead and did audio
testing on both of them.)

In contrast to the 5751s (above) the Sovtek 12AT7EHs
produced lower readings than their American NOS
counterparts. When installed in sockets which called
for 12AX7s (front end gain stage) they were *really*
microphonic; if these are typical, they will be
useless in that application, and probably fairly iffy
for reverb drivers, too. When used in the PI position
in one of my Fender test rigs, they passed with flying
colors, even the one which displayed bogus readings
on the tube tester. Since these cost considerably
more than the (still available) NOS JAN 12AT7WCs, I
can see no reason at this time for me to stock any.
Of course, when the NOS finally run out, it's nice to
know that there is another choice on the table.

While I'm at it, I got a couple of pre-production
samples of the soon-to-be-available Sovtek GZ-34/5AR4.
These have straight-sided bottles, with no outward flare.
The ones I got have only four pins on the bottom; I
suggested to Mike Matthews that he add the fifth pin
than NOS 5AR4s have so folks won't cry about it. He
allowed as how that might be a smart notion, and said
he'd see what he could do. They tested just fine on my
equipment, and sounded fine in several amps...HOWEVER...
when used upside down, they rattle a bit. It seems that
the filament wires are vibrating inside the cathode
sleeves. This is nearly inaudible when the tubes are
right-side-up, but fairly annoying when they are inverted.
Since 90% of the amps that use this tube use them upside-
down, I suggested to Mike that he might like to pass this
info on to the boys back in Mother Russia. He allowed as
how that might be a smart notion too. Of course, this
wouldn't be a problem for amps used on stages with live
rock bands, but that little jingle could worry the hell
out of the bedroom jammers, and might put the kabosh on
a recording session to boot. Time will tell.
So Sayeth the Lord.

Lord Valve

VISIT MY WEBSITE: http://www.freeyellow.com/members2/lord-valve/
Good tube FAQ for newbies. Click the e-mail link and join my
SPAM LIST; just put "SPAM ME" in the header and I'll sign you
up. (If you only want a set of e-mail catalogs, put "CATS ONLY"
in the header.) I specialize in top quality HAND-SELECTED NOS and
current-production vacuum tubes for guitar and bass amps. Good
prices, fast service. TONS of gear and parts in stock...let's DEAL!

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channel #CONELRAD. Look for me there most any night after
11:00 PM Denver (Mountain) time. Guitar-amp questions and
what-have-you are welcome.

"Great fleas have little fleas
Upon their backs to bite 'em
And little fleas have lesser fleas,
And so ad infinitum"

DeMorgan, (1915)

Back to JT30 Home

From larrysb@aol.com Sat Aug 31 09:46:42 CDT 1996
Article: 21827 of alt.guitar.amps
Path:
geraldo.cc.utexas.edu!cs.utexas.edu!swrinde!howland.erols.net!newsxfer2.itd.umich.edu!portc01.blue.aol.com!newstf01.news.aol.com!newsbf02.news.aol.com!not-for-mail
From: larrysb@aol.com (LarrySB)
Newsgroups: alt.guitar.amps
Subject: Re: Sovtek 5881 and 6L6 --- Quality?
Date: 31 Aug 1996 02:35:54 -0400
Organization: America Online, Inc. (1-800-827-6364)
Lines: 60
Sender: root@newsbf02.news.aol.com
Message-ID: <508mga$nlq@newsbf02.news.aol.com>
References:
Reply-To: larrysb@aol.com (LarrySB)
NNTP-Posting-Host: newsbf02.mail.aol.com

jc@lynx.bc.ca (jc maillet)
<<<<<
a true 6L6GC (e.g. Phillips) has a rated plate dissipation of 35w whereas
a 5881/6L6 (Sovtek or otherwise) has a rated plate dissipation of 23w -
Sovtek labels their 5881's as 6L6GC's - this is fraud to me. How much B+ a
tube can handle will not tell how good it sounds. Sovtek 5881's can handle
upwards of 700 volts but most 6L6 amps have B+ voltages that lie more
around the 365 to 420 volt range; so a high-B+ tube is irrelevant.
>>>>>>

Actually, according to my 1979 Sylvania tube data, the 6L6GC is rated at
30 watts max. I beleive the 7581 is rated for 35.

Though I am not fond of the Sovtek 5881WXT, I have to admit that it is a
very tough tube and it *does* in fact have good power dissipation. Other
people have bench tested the Sovtek 5881WXT to more than 45watts plate
dissipation before meltdown.

I don't think New Sensor is misleading anyone on that one. I don't have a
clue with what they are labeling as 6L6GC and 6L6GB. The sheet I've seen
says they are slightly off-spec 5881's. What the heck that means is
anyone's guess.

The Sovtek 5881 isn't really a 5881 at all. It's a Russian type 6pi33C.
The spec sheet I've seen was derated for *military* usage in avionics and
battle equipment. In fact, it's supposed to be a servo amp/voltage
regulator for some models of Mig jets. It has very good shock ratings,
and a long specified life at derated voltages. The plates are quite
beefy, and the internal structures are heavily built. Much more heavily
built than NOS USA 6L6GC (I have a whole box of those to look at.)
Comparatively, the Sovtek plates are about 1/8 inch shorter than the late
production Phillips 6L6GC. The actual useful area looks identical.

I know many gigging/touring musicians who make a living with Sovtek tubes.
They are certainly a good tube for the money. Considering their low cost,
they do deliver a favorable cost/performance ratio.

My gripes with the tube is that it doesn't sound as good as better 6L6GC,
and it doesn't last as long. (probably due to cathode coating
differences). There are a lot of structural parameters that set the sonic
character of a tube. The motivations behind the russian tube seem to be
oriented in the favor of durability and cost savings. There is little
curvature in the Sovtek's plate, where the NOS 6L6GC has a pronounced
curved area. The boxy plate probably eases construction and improves
structural rigidity. The curvy plate probably contributes to a cleaner
tone and wider response.

--
Dr. Nuketopia
Technology Director of the World-Wide Monetary Conspiracy
All opinions strictly reflect the party line.
Read the Blue Glow in Tubes FAQ at http://www.persci.com/~larrysb
****
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From larrysb@aol.com Tue Sep 24 13:15:13 CDT 1996
Article: 109160 of rec.music.makers.guitar
Path: geraldo.cc.utexas.edu!cs.utexas.edu!swrinde!nntp.primenet.com!news-peer.gsl.net!news.gsl.net!news-res.gsl.net!news.gsl.net!portc01.blue.aol.com!newstf01.news.aol.com!newsbf02.news.aol.com!not-for-mail
From: larrysb@aol.com (LarrySB)
Newsgroups: rec.music.makers.guitar
Subject: Re: 6L6 vs. 5881?
Date: 24 Sep 1996 13:03:29 -0400
Organization: America Online, Inc. (1-800-827-6364)
Lines: 49
Sender: root@newsbf02.news.aol.com
Message-ID: <529491$ec5@newsbf02.news.aol.com>
References:
Reply-To: larrysb@aol.com (LarrySB)
NNTP-Posting-Host: newsbf02.mail.aol.com

<<<
What exactly is the difference between
a 6L6GC and a 5881? In particular, the question applies to the Sovtek
>>>

That's a good question.

I'm afraid Sovtek Marketing has confused what used to be simple part numbers for tubes.

In the olden days when tubes were made in the USA, a 5881 was equivalent to 6L6WGB. This tube had a improved mechanical structure, and was an industrial/military designation for the 6L6WGB. The old timey 6L6GC was an improved 6L6, with higher voltage and power dissipation ratings than the original and the "B" series tubes. (the "g" means glass, the "c" means third version, the "w" usually meant mechanically improved, the "b" meant second version). The 7581 was the ultimate 6L6, with the highest ratings and best mechanics.

OK, now that brings us to Sovtek.

In Sovtek parlance, the 5881W and WXT are their best 6L6 like tubes. The WXT has a full size octal base. They are really re-labeling a Russian military tube, which is called type 6pi33C (or something like that). It aint a 6L6 or a 5881. But it is a rugged tube that is very similar to those specs.

Sovtek also sells some kind of 6L6GB and 6L6GC, neither of which is as good as their 5881WXT. Actually, their 6L6GB and GC are crap.

Confused?

Well so is everyone else.

Ok, the rules are this.

USA buy 6L6GC, which is better than 5881 and 6L6WGB.

Sovtek buy 5881WXT, which is better than their GC and GB.

In any case, you will likely find that the USA made tubes last longer than the Sovtek.
--
Dr. Nuketopia
Technology Director of the World-Wide Monetary Conspiracy
All opinions strictly reflect the party line.
Read the Blue Glow in Tubes FAQ at http://www.persci.com/~larrysb
****
Please, no unsolicited e-mail.

Back to JT30 Home

From lewis@jpmorgan.com Wed Apr 17 00:57:11 CDT 1996
Article: 8589 of rec.audio.tubes
Path:
geraldo.cc.utexas.edu!cs.utexas.edu!swrinde!newsfeed.internetmci.com!gatech!newsjunkie.ans.net!newsfeeds.ans.net!jpmorgan.com!mo008!lewis
From: lewis@jpmorgan.com (Lewis King)
Newsgroups: rec.audio.tubes
Subject: Sovtek 5881/6L6WGC Data
Date: 16 Apr 1996 21:14:06 GMT
Organization: J.P. Morgan & Co
Lines: 228
Distribution: world
Message-ID: <4l12iu$tg@hardcopy.ny.jpmorgan.com>
Reply-To: lewis@jpmorgan.com
NNTP-Posting-Host: mo008.ny.jpmorgan.com

Someone in the past asked for Sovtek 5881/6L6WGC tube data. Well now
that I've figured out how much to pay the president ;-) I have a
some time to post this. The following is from a tube characteristics
sheet received with these tubes directly from New Sensor.

If someone has the initiative, I would appreciate a followup post that
compares (where possible) data on key attributes with a Tung-Sol
5881 (or Phillips, Sylvania, etc.) - seems like there are discussion
frequently enough about what can be used to substitute the Sovtek
5881/WGC.

LK

PS - Did I see that someone out there was doing some characteristic curve
traces on these?

PSS - Data suggests these can be operated at very high accelerations,
so how 'bout some groovin tube amps for space shuttle/ MIG crews ;-)

============================== begin ====================================

Made in Russia
Tube 6H36 E {<---- Cryllic overwritten with
58816L6WGC}

1. GENERAL

Beam tetrode in a glass envelope with a base insert and
indirectly heated cathode designed for use in final stages of Cryllic
low-frequency amplifiers of radiotechnic devices, type 6H36 E {<- overwritten}

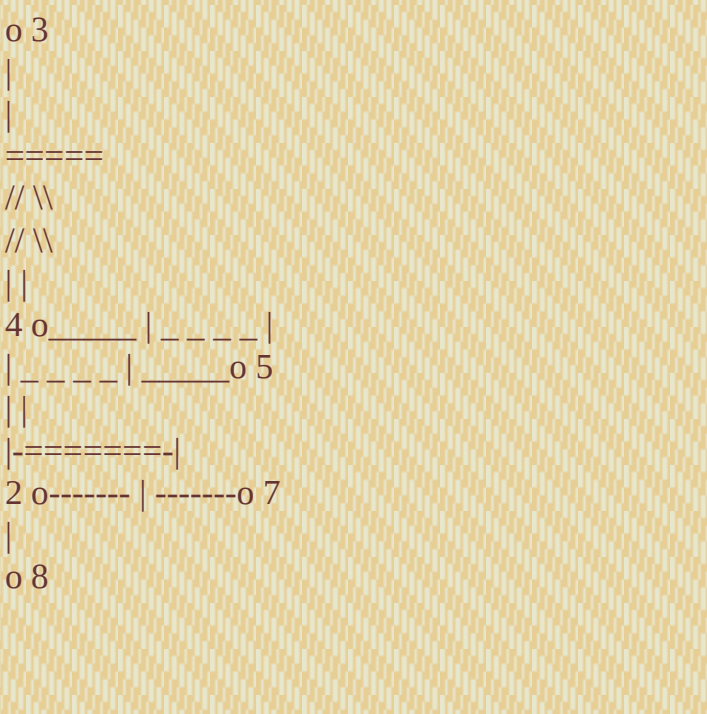
{drawings of bottom and side view of tube with dimensions}

Mass max-80g.

Terminal Connections

Pin Electrode

2 and 7 Heater
3 Plate
4 The second grid
5 The first grid
8 Cathode and beamforming screen



2. SERVICE CONDITIONS

Sinous vibration (prolonged):
frequency range, Hz 1-300
acceleration amplitude, m/s*2 29.4
Sinous vibration (short term):
frequency range, Hz 1-300
acceleration amplitude, m/s*2 58.8
Mechanical shock:
of a single order
pick shock acceleration, m/s*2 1471
shock duration, ms 2 +- 1
of a multiple order
pick shock acceleration, m/s*2 147
shock duration, ms 8 +- 3
Linear acceleration, m/s*2 981
High ambient operating temperature, K 358
Low ambient operating temperature, K 213
High relative humidity at temperature 308K
without moisture condensation, % 98
Low atmosphere pressure, Pa 666
High air or other gas pressure, Pa 297198
Temperature variation, K:
from 453
up to 2123
White frost effect with its subsequent
melting {value not given}
Salt fog {value not given}
Mould (for tropical version) {value not given}

3. BASIC SPECIFICATIONS

3.1. Electric Characteristics At Delivery

Parameters, units Rate Notes

Heater current, mA: 1
min 840
max 920
Plate current, mA: 1,2,3
min 60
max 86
Plate current at the origin of
characteristic, mA, max 10 1,2,4
The first grid reverse current, uA, max 0.5 1,2,3,5
The second grid current, mA, max 6 1,2,3
Output power, W, min 5.8 1,2,3,6
Output power at underheating, W, min 5 2,3,6,7
Transconductance, mA/V 1,2,3
min 5.2
max 6.8
Cathode-to-heater insulation
resistance, Mohms, min 4 1,8
The first grid- (cathode+heater)
insulation resistance, Mohms, min 200 9,11,12
Internal resistance, kohms, max 65 1,2,3
Nonlinear distortion factor, % , max 15 1,2,3,6
Input capacitance, pF, nominal 11
Output capacitance, pF, nominal 6.7
Transfer capacitance, pF, max 1
Cathode-to-heater cap, pF, nominal 11
Readiness time, s, max 50 1,2,3

Notes:

1. Heater voltage 6.3V
2. Plate and the second grid voltage 250V
3. The first grid voltage -14 V

4. The first grid voltage -35 V
5. Resistance in the first grid circuit 0.5 Mohms
6. The first grid alternative current, effective, 9.8V;
resistive in a plate tuned circuit 2.5 kohms
7. Heater voltage 5.7 V
8. Cathode-to-heater voltage +- 250V
9. Heater voltage 7 V
10. The first grid voltage -100 V
11. The first grid voltage -200 V
12. All the other electrodes are free

3.2 Electric Characteristics Changing During Operation

Parameters, units Rate

The first grid reverse current, uA, max 4
Output power at normal ambient temp, W, min 4.5
Plate current instability at high ambient
temperature 358 K, % , max +- 25

3.3 Maximum Ratings

Rate Rate
up to up to
Parameters, units 500 hrs 5000 hrs

Heater voltage, V:
min 5.7 6
max 7 6.6
Plate voltage, V, max 250 250
The second grid voltage, V, max 250 250
Cathode-to-heater voltage:
of positive polarity V, max 90 90
of negative polarity V, max 200 200
Cathode current, mA, max 90 90
Plate dissipated power, W, max 20.5 20.5
The second grid dissapted power, W, max 2.75 2
Resistance in the first grid circuit, Mohms, max 0.5 0.5
Envelope temperature in the most heated
part against the plate, K, max 483 483

4. OPERATING INSTRUCTION

4.1 It is not advisable to use the tube in heater series connection circuit in order to secure tube reliability.
4.2 Heater voltage should not exceedits nominal value in order to increase parameter instability and operating time.
4.3 The second grid voltage must never exceed (even for a short time) the maximum rating and voltage applied to the plate at a given moment.
4.4 If it is possible one should use automatic bias by means of including resistance of an appropriate value in the cathode circuit.
4.5 In any case resistance in control grid circuit must be confined to the possible minimum.
4.6 When mounting panels one should provide free floatinging of terminals in sockets. Panel mounting must be realized by means of a mounting gadget inserted in a panel; or one may use a tube with straight and parallel pins.
4.7 It is not allowed to use tube free socket lugs as support mounting points.
4.8 It is recommended to provide the minimum envelope temperature (e.g. ventilation improvement, practical tube placement in units, appli-cation of heat sinking panels and screens).
4.9 When operation the tube it is recommended to keep within the values specified by the absolute maximum ratings. Otherwise the tube will become inoperative.
4.10 It is not allowed to combine envelope temperature more than 453 K and heater voltage more than 6.3 V.

5. STORAGE

5.1 Tubes should be kept in depots at temperature 213-323K and relative humidity as high as 90%.
5.2 Acid vapour, alkali and other chemical agents as well as gases easily diffusing through glass, especially helium, must not be present in the room where there are tubes.

6. CERTIFICATE

The tube 6H36 E {Cryllic overwritten} is tested by the Technical Control Department; it is fit for operation.

OTK Stamp { OTK - 12 }

========== end ==========

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From PYLOT@asu.edu Tue Sep 19 11:35:02 CDT 1995
Article: 1494 of rec.audio.tubes
Path:
geraldo.cc.utexas.edu!cs.utexas.edu!bcm.tmc.edu!news.msfc.nasa.gov!newsfeed.internetmci.com!uunet!in1.uu.net!nntpgate.primenet.com!news.asu.edu!ppp1-17.INRE.ASU.EDU!PYLOT
From: PYLOT@asu.edu (Ruth and Dale VanZile)
Newsgroups: alt.guitar.amps,rec.audio.tubes
Subject: Re: Electrolytic cap problem in an Ampeg V-2
Date: Mon, 18 Sep 1995 19:08:09
Organization: Arizona State University
Lines: 23
Message-ID:
References: <438djp$1im@news1.wolfe.net> <1995Sep15.171054.26651@ttinews.tti.com>
NNTP-Posting-Host: ppp1-17.inre.asu.edu
X-Newsreader: Trumpet for Windows [Version 1.0 Rev A]
Xref: geraldo.cc.utexas.edu alt.guitar.amps:3764 rec.audio.tubes:1494

In article <1995Sep15.171054.26651@ttinews.tti.com> reid@soldev.tti.com (Reid Kneeland) writes:
>From: reid@soldev.tti.com (Reid Kneeland)
>Subject: Re: Electrolytic cap problem in an Ampeg V-2
>Date: Fri, 15 Sep 1995 17:10:54 GMT

>In article swortis@oeb.harvard.edu (S. W. Wortis) writes:

>>At some point (depending on the availablity of 7027s)

>It's pretty poor. Even Antique couldn't come up with a matched
>quartet the last time I called. Too bad, because I doubt that
>6550s or KT88s will make as much power on 540V (somebody tell
>me if I'm wrong, it would be good news).

It's not a problem. Use Sovtek's 5881, and up the screen resistors to 1k/5W, then adjust the bias to idle at about 30mA or so. They work great as subs for 7027/7027A with these conversions, as well as working great in place of 7581A types.... Got this tip through Joe Pampel, who got it from Ed Pennypacker at New Sensor. He claims that even after a year of service, he's getting 96W out of his V-4. They're certainly cheaper than 7027s or most any NOS tube. Damned tough, too....

Dutch

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From PYLOT@asu.edu Fri Nov 3 11:01:37 CST 1995
Article: 2924 of rec.audio.tubes
Path:
geraldo.cc.utexas.edu!cs.utexas.edu!atlantis.utmb.edu!news.tamu.edu!bcm.tmc.edu!news.msfc.nasa.gov!newsfeed.internetmci.com!in2.uu.net!news.wwwi.com!news.asu.edu!ppp3-17.INRE.ASU.EDU!PYLOT
From: PYLOT@asu.edu (Ruth and Dale VanZile)
Newsgroups: rec.audio.tubes
Subject: Re: 5881's for GTA-SE40; Tung-Sol vrs. Sovtek
Date: Thu, 2 Nov 1995 20:10:52
Organization: Arizona State University
Lines: 44
Distribution: world
Message-ID:
References: <47bqhb$njq@hardcopy.ny.jpmorgan.com>
NNTP-Posting-Host: ppp3-17.inre.asu.edu
X-Newsreader: Trumpet for Windows [Version 1.0 Rev A]

In article <47bqhb$njq@hardcopy.ny.jpmorgan.com> lewis@jpmorgan.com (Lewis King) writes:

>Ok, if I read this right, then:

> - the 6L6GC has higher power ratings than the 6L6GB
> - the 6L6GC has higher power ratings than the *original* Tung-Sol 5881
> - the 6L6GC has about the same or higher power ratings as the Sovtek 5881

Actually, the Sovtek 5881/6L6WGC is equivalent to a ruggedized version of a 6L6GC, which means that its ratings would be at least as good, if not the 20-30% better that the original 5881 was better than a 6L6GB. A friend of mine near NYC has tested these with a high-voltage supply and found that they will dissipate almost 42W before the plates start to glow. I've tested them as high as 40W (approx. 500V @ 80mA) for red plate conditions in a darkened room (when you can see even the smallest trace of red glow.....). Definately not a regular 6L6GC. It can handle rather high voltages (I've heard rumors of 600VDC not being a problem as long as idle current keeps disspation below specs...). The 5881 nomenclature for this tube is really misleading, as they perform like a slightly-higher-transconductance version of a 7581A or 7027A.... Very hard to kill. I've been using a quartet at 500VDC (with a healthy 45mA of idle current) in a musical instrument amp for at least a year with no signs of weakening. No emmision burn on the glass (even when viewed in front of a clean, white sheet of paper), no rattles, no bad sounds.
They've been pumping out 35W/channel all this time (small output transformers & power supply...).

>The Sovtek 5881/6L6WGC's more powerful than the Tung-Sol 5881/6L6WGB's ?

Yes, very much so.

>(What is the meaning of the 'W' in 6L6WGB vrs. 6L6WGC? Isn't that just
>a reference to the physical base?)

Nope. It means that the tube is "ruggedized" for military or similar service.

>Would any circuit changes (i.e. plate voltages) be advised or should I
>just pop them in without worry?

I'd be sure to check idle current, overall B+, and set bias when plugging in the Tung-Sols. If they are safe in your amp's circuit (not over the 22? W dissipation rating or over the Vp-max figure from Tung-Sol's literature), they ought to sound really nice when the amp is adjusted to suti them....

Dutch

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From grego@mud.lattice.com Thu Feb 22 13:51:33 CST 1996
Article: 6689 of rec.audio.tubes
Path:
geraldo.cc.utexas.edu!arlut.utexas.edu!news.io.com!imci4!newsfeed.internetmci.com!sierra.net!bug.rahul.net!rahul.net!a2i!hustle.rahul.net!rahul.net!a2i!lattice!lscpdx.lattice.com!grego
From: grego@mud.lattice.com (Grego Sanguinetti)
Newsgroups: rec.audio.tubes
Subject: Re: Bias curve for Sovtek 5881WXT?
Date: 21 Feb 1996 19:40:58 GMT
Organization: Lattice Semiconductor Corporation
Lines: 34
Message-ID: <4gfsga$2hd@lscpdx.lattice.com>
References: <3119df2e.70fd@wwdc.com> <4fgfgk$2pm@nntpd.lkg.dec.com> <3121c9b8.3764@wwdc.com> <4g3lu8$v2e@usenetp1.news.prodigy.com>
NNTP-Posting-Host: mud.lattice.com

In article <4g3lu8$v2e@usenetp1.news.prodigy.com>,
Joseph Pampel wrote:
>O'Connor wrote:
>>
>>With respect to your observations about 5881 operation:
>>
>>427V at 30mA is only about 12W plate dissipation.
>>470V at 35mA is still only 16W of idle power. This will sound nice but
>>tube life decreases as idle dissipation is pushed closer to the limiting
>
>>value of 23W.
>
>I have set up 5881's in amps at rehearsal studios at 16-18W and never had
>an amp come back. (and it's been years..) (35-40mA @ 440-460Va typical
>set up range)
>
>Where did you get that 23W spec from? Mathews & assorted NS employee/tech

This is old news. The 23w rating is for the old 5881's. These tubes that
Sovtek labels as 5881's are NOT really 5881's. OK?

The original 5881 was an industrial version of the 6L6GB. The Sovtek version
is more closely related to the 6L6GC.

The bottom line is that the Sovtek 5881WXT... is MUCH stronger than the
old 5881's and will easily run 40mA at 460v. I set up an amp recently
running 500v at 65mA. I ran it that way for quite a while without
a single failure. relax and enjoy them.

-grego
--

Grego Sanguinetti, Lattice Semiconductor Corp. | Water, water everywhere,
grego@lattice.com | but I'd rather drink beer.

From cigna@helios.phy.OhioU.Edu Sat Feb 24 11:06:48 CST 1996
Article: 6753 of rec.audio.tubes
Newsgroups: rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!uwm.edu!chi-news.cic.net!news.midplains.net!gw2.att.com!oucsboss!cigna
From: cigna@helios.phy.OhioU.Edu (Dave Cigna)
Subject: Re: 5881s
X-Nntp-Posting-Host: helios.phy.ohiou.edu
Message-ID:
Sender: postmaster@helios.phy.ohiou.edu
X-Nntp-Posting-Date: Fri Feb 23 10:55:50 1996
Organization: Ohio University Physics and Astronomy
References: <4gb5u6$9nh@ground.cs.columbia.edu> <4gflhi$a50@newsbf02.news.aol.com> <4gi7uh$9jb@spica.cc.utexas.edu>
Date: Fri, 23 Feb 1996 15:55:52 GMT
Lines: 17

Clancy wrote:
>Tremolux wrote:
>>The 5881WXT is Sovtek's version of their regular 5881 except with a
>>full-size base. Electrically, the 5881WXT is identical to Sovtek's
>>regular 5881.
>
>how come they generally cost two dollars more each then?
>Is that just marketing?

Because you get an extra hunk of phenolic with the WXT. I couldn't
figure out what "full-size base" meant until I saw one without. They
should have called the WXT "normal-size base" because the non-WXT
doesn't really have much of a base at all. The bottom line is that if
your amp has 'bear trap' tube retainers then you need the WXT,
otherwise you can save a couple of bucks on the cheaper ones.

-- Dave Cigna

Back to JT30 Home

From tremolux@aol.com Sat Apr 8 11:42:49 CDT 1995
Article: 46965 of rec.music.makers.guitar
Path: geraldo.cc.utexas.edu!cs.utexas.edu!news.sprintlink.net!uunet!in1.uu.net!newstf01.news.aol.com!newsbf02.news.aol.com!not-for-mail
From: tremolux@aol.com (Tremolux)
Newsgroups: rec.music.makers.guitar
Subject: Re: Help: Did I Get a Bad Set of Tubes?
Date: 8 Apr 1995 03:30:24 -0400
Organization: America Online, Inc. (1-800-827-6364)
Lines: 30
Sender: root@newsbf02.news.aol.com
Message-ID: <3m5e2g$q8r@newsbf02.news.aol.com>
References:
Reply-To: tremolux@aol.com (Tremolux)
NNTP-Posting-Host: newsbf02.mail.aol.com

YES!!! Call and bitch!! You're right on the money. Send them back in exchange for tubes that are matched. Be sure you call them and be polite but firm. Clearly explain the situation, and tell them you want a MATCHED set next time, and you'll tolerate no more than a 4 ma current difference between the two.

I've seen this recently from Antique as well. A buddy bought 4 NOS GE 6BQ5s. Three were well matched, but the fourth was 12 ma hotter than the rest. He called and bitched, and they agreed to refund his matching fee, as well as try to get him a new set.

Sometimes Antique does a good job, sometimes not. Also, one thing I've noticed about those Sovtek 6CA7s (and New Sensor, the importer, is aware of), is those tubes exhibit high screen grid intercept. You'll notice little peep holes in the side of the plate structure. Look inside there when the tubes are running. See if you can spot any screen grid wires glowing red hot from beam interception. These tubes have a known grid alignment problem. Also, you gotta get that bias current UP!! Try 35 ma per tube!!! 25 ma is borderline overbiased. Anyway, if you have incandescent screen grid wires, watch out. Screen intercept will increase when you start driving the tubes with signal, which means these wires will get even hotter. If one melts and flips out due to spring tension, and touches the beamformer, catastrophic amp failure is likely. It will be a screen grid to ground short. Resistors will instantly smoke. Hope to hell your fuse blows before your transformer does. Sadly, there are known problems with the 6CA7, so I recommend avoiding them altogether until the Russians fix it. If you really want a 6CA7, Angela has the NOS Sylvanias, but he'll want about $50 each.

Regards.

From tremolux@aol.com Thu Jun 1 00:00:03 CDT 1995
Article: 1488 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.reston.ans.net!news-e1a.megaweb.com!newstf01.news.aol.com!newsbf02.news.aol.com!not-for-mail
From: tremolux@aol.com (Tremolux)
Newsgroups: alt.guitar.amps
Subject: Re: Tube questions
Date: 31 May 1995 01:32:11 -0400
Organization: America Online, Inc. (1-800-827-6364)
Lines: 16
Sender: root@newsbf02.news.aol.com
Message-ID: <3qgv0r$ea9@newsbf02.news.aol.com>
References: <3qefhr$q2u@panix2.panix.com>
Reply-To: tremolux@aol.com (Tremolux)
NNTP-Posting-Host: newsbf02.mail.aol.com

Of course, the local Sovtek types won't shoot themselves in the foot! They won't mention the screen grid problems unless specifically asked. I talked to New Sensor about it, and they said that they knew all about that problem.

Specifically, it appears that the winding of either (or both) the screen

or control grid is sloppy. As you know, the screen windings is supposed to be in the electron shadow of the control grid so as to minimize interception (the grid wires are aligned). They miss in some spots, because if you look into the peep holes on the sides of the plates, you can see a couple of individual screen wires glowing orange, at idle. With drive, the current rises, which would heat these wire segments even more. If one melts, and flips out due to spring tension and touches either the beam former or plate, fireworks.

Regards

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From larrysb@aol.com Tue Aug 11 10:49:05 CDT 1998
Article: 120975 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.erols.net!portc02.blue.aol.com!audrey03.news.aol.com!not-for-mail
From: larrysb@aol.com (LarrySB)
Newsgroups: alt.guitar.amps
Subject: New Sovtek 6L6WXT+ more thoughts...
Lines: 42
Message-ID: <19980811074224400.DAA23877@ladder03.news.aol.com>
NNTP-Posting-Host: ladder03.news.aol.com
X-Admin: news@aol.com
Date: 11 Aug 1998 07:42:23 GMT
Organization: AOL http://www.aol.com
Xref: geraldo.cc.utexas.edu alt.guitar.amps:120975

I posted some earlier thoughts on the new Sovtek 6L6WXT+, which is a new 6L6
tube from Sovtek.

Here's my final read on them.

It is a real 6L6GC.
It handles hi volts fine.
It handles hi power fine.
It even glows blue like a real Sylvania 6L6GC.
It breaks up a little early, like a classic RCA 6L6GC.
It is not microphonic, and other than being set crooked in the base, built
well.

In guitar amps, even those awful 135-watt Silver face twins, it sounds right.
Gets a good warm tone, breaks up just right in Super Reverbs.

The break up is kind of softish, creamy rather than gritty. It's not exactly
like a vintage RCA or GE 6L6, it is somewhat more like the 5881WXT sound,
except substantially more clean range. However, they have a rounder tone
played clean, as opposed to the NOS Phillips 6L6GC, which tend toward brittle
and glassy.

I think they are a good alternative 6L6GC, for guitar players.

However, I tried them in a silver face Bassman Ten. They sound good for the
most part and deliver good power, but in the lower registers, below B on a 4
string bass guitar, they tend to give up a little early. They distort a little
too soon under severe low frequency current demand. In the higher registers,
they performed well, providing clean rich tone.

With the NOS 6L6GC in short supply and getting more expensive, the Sovtek
6L6WXT+ is a viable alternative for guitar amps, especially where you want good
power and a smoother transition into breakup, ala the early style 6L6.

If you want ultimate clean headroom, I think NOS Phillips 7581 and 6L6GC is the
best choice still, with the Svetlana a close second. The 6L6WXT+ is a good
tube at a good price.
--
Dr. Nuketopia
Compiling at this very moment.
Read the Blue Glow in Tubes FAQ at http://www.persci.com/~larrysb
Please note that your email is *not* spam in the subject line.

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From ep@interport.net Fri Jul 28 15:31:46 CDT 1995
Article: 2543 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!news.sprintlink.net!news.interport.net!interport!not-for-mail
From: ep@interport.net (Elan Portnoy)
Newsgroups: rec.music.makers.marketplace,alt.guitar.amps
Subject: Re: Sovtek MiG 50H "the Tube Midget"
Followup-To: rec.music.makers.marketplace,alt.guitar.amps
Date: 28 Jul 1995 11:08:54 -0400
Organization: Interport Communications Corp.
Lines: 43
Message-ID: <3vaui6$1e0@interport.net>
References: <3v6e8m$495@firewall.ihs.com>
NNTP-Posting-Host: interport.net
X-Newsreader: TIN [version 1.2 PL2]
Xref: geraldo.cc.utexas.edu rec.music.makers.marketplace:30017 alt.guitar.amps:2543

Steven Milberger (smilbrgr@ihs.com) wrote:
: I had a Sovtek MiG 50 (non master volume) but got rid of it
: since it didn't have a built in distortion circuit. I
: tried out "the Tube Midget" and thought it sounded good.
: I'd be interested in hearing from people who own this amp.
: How do you like it? What can I expect to pay for one
: (within reason)? How is its reliability? Does anyone out
: there want to part with one. Please e-mail.

: Thanks in advance.

: Steve

I work at SOVTEK as the Director of Engineering. Here's some info:

The Midget is our most reliable guitar amp, it's one of the more recent designs and has the bugs worked out. They almost never come back for repair. They're built at former Russian Military factories with certified components. Built like a brick!

They have a really high gain preamp, if you like high gain super crunch, you'll like The Midget. There is also a low gain input so decent cleaner sounds are possible. There are some simple mods we've suggested to some of our customers to mellow out the pre-amp for a cleaner prettier tone.

The thing I like best aside from the variety of sounds, is the tiny size and kick in the face power. It' my favorite amp for gigs now.

The amp is FAR better than Marshall in every way.
When you put the two up against each other in a side-by-side test,
SOVTEK always wins - at a fraction of their price.

We stand behind the amps - even if it's out of warranty, the charge for parts/service is less than some techs will charge you for an hour on their bench.

We also have a Bass Midget version, sounds like the Ampeg B-15, we just put this on the market with a matching 1x15 cabinet.

I'm planing on buying myself another Midget and running them in stereo. I love 'em. And that's not a sales pitch, I don't get commissions!

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From sovtek@emedia.net Mon Jun 3 00:14:24 CDT 1996
Article: 10403 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!chi-news.cic.net!newsfeed.internetmci.com!news-feed.iguide.com!news.delphi.com!news2.near.net!maceo.emedia.net!dti-nntp
From: sovtek@emedia.net (SOVTEK)
Newsgroups: rec.audio.tubes
Subject: New Sensor - Online Orders
Date: Thu, 30 May 1996 18:19:12 GMT
Organization: SOVTEK/ELECTRO-HARMONIX
Lines: 19
Message-ID: <4okoeo$ngi@maceo.emedia.net>
NNTP-Posting-Host: 199.93.174.31
X-Newsreader: Forte Free Agent v0.55

New Sensor Corp. invites all of our customers to place orders via
our newly renovated web site at:

http://www.turnstlye.com/sovtek

Full line of SOVTEK tubes and amps

Huge selection of JAN USA tubes

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From PYLOT@asu.edu Tue Aug 8 11:34:28 CDT 1995
Article: 2778 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!asuvax!news.asu.edu!usenet
From: PYLOT@asu.edu
Newsgroups: alt.guitar.amps
Subject: Re: sylvania 6L6's
Date: 6 Aug 1995 22:08:44 GMT
Organization: Arizona State University
Lines: 39
Message-ID: <403ehc$q54@news.asu.edu>
References: <3vqtgv$6bf@newsbf02.news.aol.com>
NNTP-Posting-Host: ppp2-06.inre.asu.edu
Mime-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit
X-Mailer: Mozilla 1.1N (Windows; I; 16bit)

tremolux@aol.com (Tremolux) wrote:
>As opposed to working on a knockoff of the Tung Sol 5881 (yes, a very good
>tube), it seems to me that they (Svetlana) would be better spending their
>time trying instead to replicate either the RCA or Sylvania 6L6GC. The
>current production "Sovtek" 5881 is good enough for 5881 requirements.
>What we really need is the more powerful 6L6GC, not another 5881.

Actually, the Sovtek 5881 is a misnomer. It's a 6L6WGC, not WGB. A more accurate number to describe the tube would be 7581A. A friend and I have both run tests on the Sovtek 5881 up to see where its plate starts to glow and have come up with a figure in the area of 40W of dissipated power before you start to get the "red plate special" effect.... They handle really high voltages well, and are probably good to about 600V without any real big problems, as long as quiescent current is kept within a plate dissipation of 30 to 35 watts. They also make a decent sub for a 7027A, provided you tweak the bias to suit, and up the screen resistor a bit. In most Ampegs, you'd need to swap a 470 ohm screen resistor with a 1k at a higher wattage, and adjust the bias to a little bit warmer idle current, as the transconductance of the Sovt. 5881 is a little bit higher than a 7027, on average.

>Additionally, a decent 6V6/7408 tube from the Russians would be welcome.
>The current "Sovtek" 6V6 is built rather lightweight, and they just don't
>cut it in the old Fenders that hit them with 420 volts. Reliability is
>poor. Again, a replica of the old RCA 6V6 would be welcomed.

Or a nice Tung Sol. Their current 6V6GT is actually an old Russian type that has /similar/ specs. The voltage rating isn't one of the really similar specs, I guess....

>Lastly, we need a Russian alternative to the Chinese made 12AT7. I
>received email from a guy in the Moscow chapter of some hi-fi group, and
>he assured me that the Russian factories already made a tube that would be
>a good substitute for our 12AT7. He (nor I) couldn't figure out why
>someone like Matthews doesn't import them.

Well, if he gets enough noise about it, maybe he'll do it.....

Dutch

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From ep@interport.net Wed May 24 17:47:00 CDT 1995
Article: 1367 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!news.sprintlink.net!news.interport.net!usenet
From:
Newsgroups: alt.guitar.amps
Subject: SOVTEK - Electro Harmonix WWW Site
Date: 24 May 1995 04:23:48 GMT
Organization: Interport Communications Corp.
Lines: 9
Message-ID: <3pucck$c31@park.interport.net>
NNTP-Posting-Host: ep.port.net
Mime-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit
X-Mailer: Mozilla 1.1N (Macintosh; I; PPC)
X-URL: news:alt.guitar.amps

Come visit the new SOVTEK - Electro Harmonix WWW Site at:

HTTP://www.emedia.net/sovtek

Check out our amps, effects, speakers, tubes, parts, etc.
Coming soon . . . sound clips, old EH stuff, new catalog and
pictures of Mike Matthews!

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From postmaster@triodeel.com Sat Oct 2 13:55:38 CDT 1999
Article: 205949 of alt.guitar.amps
Path:
geraldo.cc.utexas.edu!cs.utexas.edu!arclight.uoregon.edu!logbridge.uoregon.edu!sunqbc.risq.qc.ca!novia!sequencer.newscene.com!not-for-mail
From: Ned Carlson
Newsgroups: alt.guitar.amps
Subject: Re: Stand-By Switches and Tubes Theory
Date: 2 Oct 1999 01:08:06 -0500
Organization: Triode Electronics
Lines: 75
Message-ID: <37F5A1AE.AF055396@triodeel.com>
References: <19991001142854.21067.00000604@ng-co1.aol.com>
Reply-To: postmaster@triodeel.com
X-Mailer: Mozilla 4.61 [en] (X11; I; Linux 2.2.10 i586)
X-Accept-Language: en
MIME-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit
Xref: geraldo.cc.utexas.edu alt.guitar.amps:205949

Kent Pearson wrote:
>
> I've heard that it's best for the amp and/or the tubes to allow the tubes to
> warm up for a minute or two on stand-by before switching to play mode.

This isn't a bad idea...since you've got a standby switch, why not use it.
But lots of tube amps were made that had no standby at all. AAMOF, I've got
a couple Bogen MO-100 tube PA amps here, diodes and no standby.
Since Bogens were typically used in places like hospitals and
schools, one can figure they were either run 24/7 or
got hit with a turnon surge every morning.

Directly heated rectifiers like 5U4 and 5Y3 are not a slow
warmup device, despite rumors to the contrary.
A simple voltmeter check will verify this.

Fortunately for most tube amp owners, nearly all
tube amps used in audio frequency service (which includes
guitar amps), either apply a negative voltage to the grid
of the output tubes at the time the power is applied,
or have a cathode resistor to limit current.

Also,
> I've heard that it's best to put the amp on standby for a minute or two before
> powering down. My understanding is that this practice will help to get the
> most life out of your tubes. Can someone elaborate on that a bit? Why is
> that? To Stand-by, or not to Stand-by . . what goes on? That is the
> question!

I would do exactly the opposite, turn off the power then LATER turn off
the standby, so as to drain off the charge in the power supply
capacitors.

I've recieved some lengthy missives from certain folks regarding
cathode stripping and possible damage from too fast warmup in tube amps.

>From these I have determined the following:
1.If you've got a tube regulated radar power supply on your B52-B bomber,
you'd better use a tube rectifier, as using diode replacements that
slap B+ voltage on cold 6336B tubes can destroy them.
List price on 6336B is $141.00, which ain't chopped liver, especially
if you have to replace them on taxpayer's money. So if you are
a 3rd world dictator with some used B52-B's that need retubing,
call us and get some 5R4-WGB tube rectifiers before you send your
bomber fleet to carpet bomb suspected terrorist sites.
2.if you've got an Wurlitzer bubble-tube jukebox, it uses
a fast warmup circuit that jacks the filament voltage to
over 9 volts when someone hits the selection button.

So figure replacing 6L6's a bit more often than usual in these
units...of course, if you've got $10,000 to blow on a jukebox,
a few bucks replacing 6L6's probably won't bother you much.
3.Tungsten and thoriated tungsten filaments (not ones you'll
find in guitar amp) apparently aren't bothered by this at all,
at least one BE has confessed to slapping thousands of volts
of B+ on a cold 4CX20,000. This is a tube that lists for
over $4500. Yep, a single tube that lists for $4500.
Presumably if he'd screwed up and blown a $4500 tube, he might
not have a job, but major market FM stations don't think much
about blowing a million bucks for an AM drivetime DJ.

Heck, I think a major market outlet could drum up some major
drive-time cume numbers by hosting a political debate
between me & Lord Valve. I can see it in the Pioneer Press,
"Who the hell is Lord Valve?".

--
Ned Carlson Triode Electronics "where da tubes are!"
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From idkwid@mail.smart.net Tue Nov 7 11:01:13 CST 1995
Article: 3041 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!news.eas.asu.edu!gatech!newsfeed.internetmci.com!news.smart.net!news
From: Art Sackman
Newsgroups: rec.audio.tubes
Subject: Re: Svetlana 6550B's
Date: 7 Nov 1995 04:10:00 GMT
Organization: Smartnet Internet Services [via news]
Lines: 15
Message-ID: <47mm6p$mk0@news.smart.net>
References: <47ma0l$9ej@newsbf02.news.aol.com>
NNTP-Posting-Host: idkwid.smart.net
Mime-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit
X-Mailer: Mozilla 1.2 (Windows; U; 16bit)

According to recent discussions with Audio Glassic sales staff, they currently sell
Svetlana 6550B2, 6550B3, and 6550C. The 6550B2 has two splashes of getter on the top and
one on the side. The 6550B3 has NO getter spalshed on the top, and two rings on the side,
ouside the plate, which are solid centered and hold getter material which is not splashed
on the glass. This tube is referred to as a "clear top". The 6550C has two splashes of
getter on the top and none on the side. I previously purchase two sets of Audio Glassics
6550B(the first version, similar to the B2) and Svetlana labeled 6550B's from ANtique
Electronic Supply. They were identical. The 6500B's from both sources were identical AND
unique. All the 6550's I have ever seen , besides these tubes, have seven pins and one
missing pin. These all had eight pins. Also, the pins and bases were unusual, in that they
did not fit the tube socket exactly right. The pins are longer and skinnier, and the
key/guide is also skinnier. With all these anomalies, it was possible, as I stupidly
proved, to put the tube in the socket with the wrong pin facings.

From idkwid@smart.net Tue Nov 7 11:01:44 CST 1995
Article: 3049 of rec.audio.tubes
Path:
geraldo.cc.utexas.edu!cs.utexas.edu!atlantis.utmb.edu!news.tamu.edu!news.utdallas.edu!news01.aud.alcatel.com!gatech!psuvax1!news.math.psu.edu!chi-news.cic.net!newsfeed.internetmci.com!news.smart.net!news
From: idkwid@smart.net
Newsgroups: rec.audio.tubes
Subject: Re: Svetlana 6550B's
Date: 7 Nov 1995 04:54:09 GMT
Organization: Smartnet Internet Services [via news]
Lines: 26
Message-ID: <47moph$moi@news.smart.net>
References: <47mm7r$mo7@news.smart.net>
NNTP-Posting-Host: idkwid.smart.net
X-Newsreader: SPRY News 3.03 (SPRY, Inc.)

> Art Sackman writes:
> According to recent discussions with Audio Glassic sales staff, they currently sell
> Svetlana 6550B2, 6550B3, and 6550C. The 6550B2 has two splashes of getter on the top and
> one on the side. The 6550B3 has NO getter spalshed on the top, and two rings on the side,
> ouside the plate, which are solid centered and hold getter material which is not splashed
> on the glass. This tube is referred to as a "clear top". The 6550C has two splashes of
> getter on the top and none on the side. I previously purchase two sets of Audio Glassics
> 6550B(the first version, similar to the B2) and Svetlana labeled 6550B's from ANtique
> Electronic Supply. They were identical. The 6500B's from both sources were identical AND
> unique. All the 6550's I have ever seen , besides these tubes, have seven pins and one
> missing pin. These all had eight pins. Also, the pins and bases were unusual, in that they
> did not fit the tube socket exactly right. The pins are longer and skinnier, and the
> key/guide is also skinnier. With all these anomalies, it was possible, as I stupidly
> proved, to put the tube in the socket with the wrong pin facings.
>
>
>
>>>>
Now I see how everyone else gets these obnoxious multiple identical posts. I tried out a new internet software package, Netscape,
which did this to me with one click of the mouse, sorry!
It goes in the trash tonight.
Easier to screw up than the first run Svetlana 6550B!

Anyway, to continue (with reliable Internet in a Box), I was told by the Audio Glassics rep that none of the hree of the current Svetlana
6500's have the offending base. They went back to the typical 7 pin base. Hopefully the pins are the correct size, shape and center
offset ant the guides are correctly sized.

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From larrysb@aol.com Sat Oct 26 00:18:50 CDT 1996
Article: 17031 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.erols.net!news-peer.gsl.net!news.gsl.net!portc01.blue.aol.com!newstf01.news.aol.com!newsbf02.news.aol.com!not-for-mail
From: larrysb@aol.com (LarrySB)
Newsgroups: rec.audio.tubes
Subject: Re: Anyone tried Svetlana 6L6GC's yet?
Date: 26 Oct 1996 00:45:53 -0400
Organization: America Online, Inc. (1-800-827-6364)
Lines: 46
Sender: root@newsbf02.news.aol.com
Message-ID: <54s521$25s@newsbf02.news.aol.com>
References: <327147FC.794B@ptdcs2.intel.com>
Reply-To: larrysb@aol.com (LarrySB)
NNTP-Posting-Host: newsbf02.mail.aol.com

<<<<<<<<<
Interesting, I just went to the web site and read that the
SV6L6GC is a tetrode as apposed to a true pentode power beam.

Any comments?

Thought the Sylvania STR387 was a pentode power beam.
>>>>>>>>>>>>

Ahh! This is a classic source of confusion.

OK: here is the real deal:

All 6L6 series tubes are beam power tubes.

Now, some people disagree over whether a beam power tube is a Pentode or a tetrode with beam forming plates. (the KT in tubes like KT-88 stands for "kinkless tetrode", which means it has beam forming plates).

Now, in a power pentode like the EL34, there is a third wire wound, helical grid. For some people, this makes it a "true" pentode.

In a Kinkless tetrode, 6L6, beam power tube, there is a set of beam forming electrodes instead of third wire grid.

In either case, the third (suppressor) grid or the beam forming plates perform essentially the same job of suppressing secondary emmissions. In either case, this electrode is almost always connected to the cathode, either internally (for KT-xx, 6L6, 6550, 6V6, etc) or externally in the case of the EL34 (on pin 1).

In most cases, the 6CA7 is beam power tube, but is a plug-in equivalent to the EL-34.

Whether you want to call it a beam power pentode, kinkless tetrode or what not, it's really just a question of nomenclature.

The SV6L6GC is a true blue 6L6GC, and I can't wait to get my hands on some and try them out.
--
Dr. Nuketopia
Technology Director of the World-Wide Monetary Conspiracy
All opinions strictly reflect the party line.
Read the Blue Glow in Tubes FAQ at http://www.persci.com/~larrysb
****
Please, no unsolicited e-mail.

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From vtvchk@aol.com Mon Oct 28 20:13:06 CST 1996
Article: 17208 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!news.sprintlink.net!news-peer.sprintlink.net!newsfeed.internetmci.com!uunet!in3.uu.net!newstf01.news.aol.com!newsbf02.news.aol.com!not-for-mail
From: vtvchk@aol.com (VTVCHK)
Newsgroups: rec.audio.tubes
Subject: Re: Anyone tried Svetlana 6L6GC's yet? and the 7591's!!
Date: 28 Oct 1996 20:16:07 -0500
Organization: America Online, Inc. (1-800-827-6364)
Lines: 16
Sender: root@newsbf02.news.aol.com
Message-ID: <553lsn$ltk@newsbf02.news.aol.com>
References: <54mr81$d0c_001@vf.pond.com>
Reply-To: vtvchk@aol.com (VTVCHK)
NNTP-Posting-Host: newsbf02.mail.aol.com

We have tried the Svetlana 6L6GC in hifi and guitar amps. It is excellent. A cross between NOS STR Sylvania 6L6GCs and the original RCA blackplate 6L6GCs. Very durable, Dave Wolze put over 600 volts on the plate with no complaints or red spots on the plate.

As for the 7591, I have been instrumental in the reissue of that tube. Over two years ago, I met with Geoge Badger, President of Svetlana and urged him to reissue this needed tube. Well, our prayers our answered, I recently supplied several NOS samples of the 7591A to Svetlana which were hand-carried to Russia to begin the reverse engineering process. I was told by Svetlana officials that we will see the new 7591A re-issue sometime in mid to late 1997.

Charlie Kittleson, Editor
Vacuum Tube Valley
Sunnyvale, CA

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From larrysb@aol.com Thu May 16 10:18:43 CDT 1996
Article: 9787 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.reston.ans.net!news-e2a.gnn.com!newstf01.news.aol.com!newsbf02.news.aol.com!not-for-mail
From: larrysb@aol.com (LarrySB)
Newsgroups: rec.audio.tubes
Subject: Review: Svetlana EL34
Date: 15 May 1996 19:01:52 -0400
Organization: America Online, Inc. (1-800-827-6364)
Lines: 113
Sender: root@newsbf02.news.aol.com
Message-ID: <4ndnp0$t82@newsbf02.news.aol.com>
Reply-To: larrysb@aol.com (LarrySB)
NNTP-Posting-Host: newsbf02.mail.aol.com

I recently purchased a matched quad of Svetlana EL-34 from Antique Electronic supply in Tempe, Arizona. AES sells the Svetlana for $16.50 each, plus $2.00 for matching labor. They were replacing a set of RAM EL-34's, which I beleive were Teslas. I was never happy with that set of tubes.

I also purchased a pair of NOS 7199, made by RCA but branded and boxed under the Seeburg name. (Seeburg made jukeboxes, if I am not mistaken). The NOS 7199 cost $24 each, rather high for a signal tube but a bargain in today's market. The Parts Connection is getting $45 each for the same 7199 tube.

The tubes were installed in a good working, essentially stock Dynaco St-70. This particular example was factory wired. Only minor modfications have been made, resistors upgraded to mil surplus precision MF parts, WIMA .15 polypropelene blue film caps and some surplus polyester yellow body tubulars .047. The stock 82pf and 390pf caps are still in place. (both test good). Power supply filter uses the original values (30,20,20,20 @ 500wvdc) and a GE 5AR4 rectifier with the copper plates. Bias supply uses a 1n4007 in place of the original selenium unit. It also uses a 24v zener in the last leg of the divider chain off the control pots. Input connectors are gold plated teflon units, insulated from the chassis. The mono switch is removed. Input load resistors were changed to 270K, to better suit the solid state preamp temporarily being used.

Interconnects are mogami, speaker wire is new JSC OFHC "monster cable" type, 10AWG. The wire pairs are seperated along the center, and held together with small plastic spacers every 8 inches. (this dramatically lowers the capacitance of the cable, an easy and reccomended tweak). Connectors are simple crimp on terminals on the amps side, and none on the speaker side.

Speakers are Magnepan SMG, about 8 years old. All original everything. The speakers have been carefully positioned symmetrical to the listening position, slightly wider than tangent to an arc drawn from the center.

Signal source is a Magnavox CDB-650, upgraded with a Phillips Crown Chip D/A and matching digital filter chip. No other significant changes were made. Signal was drawn from the "extra filtering" outputs.

Volume control was handled by an early Carver C1 preamp (my all tube homebrew unit is out of commission for the moment.) I also used a passive control, composed of Pas3 volume pot and a couple of jacks. Guess which sounded better. .

I inspected the EL34's, and overall construction appears to be quite good. Svetlana uses two topside getters, small rivets in the mica supports, along with spot welded plates and small support fingers to the glass envelope. Bases are applied with a good bit light brown glue (epoxy?). Bases are black, numbered and pins are nicely soldered. This tube is a true pentode, with a suppressor grid rather than beam forming elements. There is a large red painted "S" symbol on the side, and "EL34 made in Russia" in small gold letters.

AES matched the tubes as a quad, and conveniently wrote the matching

numbers on an inside flap of the box. I paired them by the closest numbers. The tubes biased up nicely, well within the expected range for EL34. The tubes warmed up in about a minute, drifted slightly for the next 30 minutes when I re-biased them again. The bias held rock-steady for hours afterward.

These tubes sound very good, with an extremely detailed and focused middle range, enhancing the stereo image. The high end was bit splashy, but fairly well controlled. Bass was strong, but a tad flabby - probably due to the lack of capacitance in the stock ST70 power supply. I strongly suspect a larger reservoir will tighten this up tremendously.

Overall, I would describe the sound as "etchy." Details really came through, clearly. Even minute details become well defined.

Listening material:

Mulligan Meets Monk (a favorite of mine)
Wonderful tone on the barri-sax. Got a nice dose of reed "raspiness" that makes it sound like it is in the room with you. Piano was well focused and controlled. Bass was a little fuzzy, kick drum was right on and palpable. This recording a has a peculiar doubling on the high hat, so that it sounds from two places in the image.

The mono tracks were very crisp, and sharply focused. Mono is a great test for your stereo image, just like grey scale is for testing a color monitor or printout. Everything should appear focused along the center of your listening space. If it isn't, you know something is out of kilter.

Buddy Guy and Junior Wells, Alone and Acoustic (alligator CD)
Yeah! The thin woody sound of Buddy Guy's Guild acoustic come through loud and clear. Vocals were natural and clean, very expressive. The reverb effect shimmered around the listening room.

Dave Brubeck's Out of Time
Take Five's left channel high-hat was prominent, sweet, well defined. All the sizzle it should have, and a good strong "tack" with the strike of a the stick. Instrument positioning was well defined, and three dimensional.

Stevie Ray Vaughan, "The Sky Is Crying"
Stevie's gritty, dark tone came through nicely, especially on Wham. It really sounded like the amp was in the room, burnin away! Every little bit of edge was there. Bass response was nice and clean on this one too, but a tad loose.

I'd say these were some of the best EL-34s I've had in a long time. I highly reccomend these. I wish I had a guitar amp handy to try them in as well. But, as good as they sound in a ST-70, I'd be willing to bet they sound great in any amp. AES is a great place to get them, good price and a good enough job matching them. These tubes are available from other matching/testing providers if you are so inclined.

Cheers,

--
Dr. Nuketopia
Technology Director of the World-Wide Monetary Conspiracy
All opinions strictly reflect the party line

Back to JT30 Home

From tremolux@aol.com Sun Oct 16 09:36:33 CDT 1994
Article: 30160 of rec.music.makers.guitar
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.reston.ans.net!pipex!uunet!newstf01.cr1.aol.com!newsbf01.news.aol.com!not-for-mail
From: tremolux@aol.com (Tremolux)
Newsgroups: rec.music.makers.guitar
Subject: Re: Is telefunken a good tube?
Date: 16 Oct 1994 03:44:01 -0400
Organization: America Online, Inc. (1-800-827-6364)
Lines: 15
Sender: news@newsbf01.news.aol.com
Message-ID: <37qlk1$b90@newsbf01.news.aol.com>
References: <37jh4i$jnu@maggie.austin.wireline.slb.com>
NNTP-Posting-Host: newsbf01.news.aol.com

Yes, Telefunkens are great. I have a slightly souped-up 64 Deluxe Reverb, and I use a Telefunken "flat-plate" ECC-83 (12AX7) as the #2 tube (a Sovtek 12AX7WXT is in the #1 spot, but I never use that channel). I then use an Amperex "Premium Quality" 12AT7 in the #3 spot to drive the reverb, and a Mullard ECC-83 in the #4 spot. The phase inverter is a GE 5-star 6201 (industrial ruggedized 12AT7) that I hand selected for high transconductance and close section-to-section match, and I've re-biased the output for Sovtek 5881s. I use a solid-state rectifier module so as to put as much voltage on the Sovteks as I can. The amp sounds killer, and is quite loud. It's easily my best sounding amp. In one word, the tone is "sweet", and that happened after I put in the Telefunken and Mullard. I also replaced the wimpy Oxford speaker with a Celestion Vintage 30.

Regards.

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From timtube@aol.com Fri Dec 8 12:47:40 CST 1995
Article: 6239 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!news.sprintlink.net!newsfeed.internetmci.com!howland.reston.ans.net!news-e1a.megaweb.com!newstf01.news.aol.com!newsbf02.news.aol.com!not-for-mail
From: timtube@aol.com (TimTube)
Newsgroups: alt.guitar.amps
Subject: Re: Telefunken tubes
Date: 8 Dec 1995 01:11:21 -0500
Organization: America Online, Inc. (1-800-827-6364)
Lines: 11
Sender: root@newsbf02.news.aol.com
Message-ID: <4a8ku9$gse@newsbf02.news.aol.com>
References: <4a6lvg$l7u@newsbf02.news.aol.com>
Reply-To: timtube@aol.com (TimTube)
NNTP-Posting-Host: newsbf02.mail.aol.com

Sterile is a good description, the audio guys do love these.

Try the Telefunkens in the driver position. These tubes are usually very
balanced,
even in Fenders calling for 12AT7s, these should be excellent.

I think you will like the Mullards in the first gain stage of your
Fenders. They tend to have lots of gain, especially in the mids around
1k.

Regards, Tim.

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From postmaster@triodeel.com Wed Feb 18 11:07:23 CST 1998
Article: 86534 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.erols.net!newspeer.monmouth.com!nntp.flash.net!excalibur.flash.net!not-for-mail
From: postmaster@triodeel.com (Ned Carlson)
Newsgroups: alt.guitar.amps
Subject: Re: No more Chinese 12AX7s
Followup-To: alt.guitar.amps
Date: Wed, 18 Feb 1998 13:58:43 GMT
Organization: Triode Electronics
Lines: 33
Sender: postmaster@triodeel.com
Message-ID: <34eae4af.26599847@news.flash.net>
References: <34e973cc.2668587@news.mindspring.com> <34e9f33b.2271752@news.flash.net>
<34ea336a.31971639@news.mindspring.com> <34EA423D.5579A4B6@bottom.NOSPAM>
Reply-To: postmaster@triodeel.com
NNTP-Posting-Host: dyn-max1-24.chicago.il.ameritech.net
X-Newsreader: Forte Free Agent 1.11/16.235
Xref: geraldo.cc.utexas.edu alt.guitar.amps:86534

Andrew McWhirter wrote:

>'Course, since I can go buy NOS 12AX7's for $A5 (about $3), I might just go do
>that.

Hey, Andy, if you can turn us up a pile of NOS AWA 12AX7 for
Au$5 each, lemme know how many you can get. Sure, you
can make a few bucks on the deal...or trade..

You asked me about Tesla 12AX7. So did Danny Russell.
(Tried to email you, but you spamproofed the address)

The Tesla 12AX7 is a frame grid tube. Unlike regular 12AX7
12AX7, which have a grid that looks a bit like a
distended slinky (a spiral grid around two posts), a frame
grid looks like a little ladder. Each side has *two* plates
and *two* grids, on each side of a single cathode.
(They look like a 6DJ8/ECC88, another frame-grid tube)
At any rate, the frame-grid arrangement makes for more
consistent characteristics, lower microphony, and
lower noise, which makes them particularly well
suited for mic & phono preamps.
As far as guitar amps are concerned, it's players' call
as to whether they like the tone or not. Marshall players
seem to like the Teslas better than Vox or Fender
players do.

Ned Carlson, Triode Electronics, Chicago, IL http://www.triodeel.com
Open 12:30-8 PM CT, 12:30-5 PM CT Sat Closed Wed
ph:773-871-7459 fax 773-871-7938 "where da tubes are"
Email catalogs: email our CataBot: catalog@triodeel.com

Back to JT30 Home

From andre@indigo.ie Mon Oct 21 00:50:30 CDT 1996
Article: 16529 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.erols.net!newsfeed.internetmci.com!news.indigo.ie!usenet
From: Andre Jute
Newsgroups: rec.audio.tubes
Subject: Tesla 6L6GC available
Date: Sat, 19 Oct 1996 03:53:34 +0100
Organization: Communication Jute
Lines: 16
Message-ID: <326842A2.7AA6@indigo.ie>
Reply-To: andre@indigo.ie
NNTP-Posting-Host: ts03-16.cork.indigo.ie
Mime-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit
X-Mailer: Mozilla 3.0 (Macintosh; I; 68K)

The promised Tesla 6L6GC has arrived. For a source try

http://www.ireland.net/marketplace/foundation/ComJute/LOSCONI/Losconi.html

a wholesaler who sales a minimum order of ten tubes for just about the
same price others charge for four.

Andre
--
Andre Jute
Communication Jute

http://www.ireland.net/marketplace/foundation/ComJute/ComJuteF1.html

also leads to the pages we support for audiophiles, writers, lovers of
classical music, and environmentalists

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From joelnice@diva.EECS.Berkeley.EDU Thu Aug 31 22:02:38 CDT 1995
Article: 666 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!swrinde!howland.reston.ans.net!agate!joelnice
From: joelnice@diva.EECS.Berkeley.EDU (Joel Nice)
Newsgroups: rec.audio.tubes
Subject: Tomorrow's tubes?
Date: 31 Aug 1995 00:24:00 GMT
Organization: University of California, Berkeley
Lines: 42
Message-ID: <422vf0$l9e@agate.berkeley.edu>
NNTP-Posting-Host: diva.eecs.berkeley.edu

In article <42164p$ckk@fontainebleau.ensmp.fr> you write:
>May be they use a network of silicon vacuum microtriods. Microtriod
>is a cold cathod vacuum silicon device the dimension of which
>is around one hundred of micrometer (snip). Microtriod was designed
>few years ago for microelectronics and thought to >be the faster and
>the more linear amplifying device.

At the Berkeley Sensor & Actuator Center where I work, researchers
created microvacuum tubes on a silicon chip. For details please
read: K. R. Williams and R. S. Muller, "IC-Processed Hot-Filament
Vacuum Microdevices," 1992 IEEE International Electron Devices Meeting
(IEDM '92), pp. 387-390, San Francisco Hilton, San Francisco, CA,
December 13-16, 1992.

Here is a quote:
>"Micromachined vacuum devices that employ a hot tungsten filament as a
>source of electromagnetic radiation and thermionically emitted electrons
>have been fabricated. These hot-filament devices have been
>characterized for use as "microlamps", vacuum diodes, and triodes.
>Coplanar filaments are used for the grids in the triodes. The filaments
>are typically 200-um long and are suspended over a cavity in the silicon
>substrate. The devices tested were operated in a pumped vacuum chamber...
>in this research, we employ thermionic emission from heated tungsten
>filaments as the source of electrons in devices we call "microtubes."

I was trying to convince one of the researchers that plays gtr to
hook up some of these microtubes to some of our microresonator filters
and we have micro piezo element speakers and microphones as well to
creat the world's first microtube instrument amplifier on a computer
chip. Of course, this would all be on the micron size level. So,
you could create quite a sizeable "stack" on one 4 in. wafer. Just
thought that some readers would find this interesting.

##
Joel Nice #
Berkeley Sensor & Actuator Center # Ph. (510) 643-7176
University of California, Berkeley #
497 Cory Hall # FAX (510) 643-6637
Berkeley, CA 94720-1774 #
##

From lecleach@cgi.ensmp.fr Thu Aug 31 22:02:55 CDT 1995
Article: 689 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!swrinde!howland.reston.ans.net!tank.news.pipex.net!pipex!oleane!univ-lyon1.fr!news-rocq.inria.fr!news-sop.inria.fr!cemef.cma.fr!news
From: lecleach@cgi.ensmp.fr (Le Cleac'h Jean-Michel)
Newsgroups: rec.audio.tubes
Subject: Re: Tomorrow's tubes?
Date: 31 Aug 1995 12:03:56 GMT
Organization: Centre Geologie Ingenieur
Lines: 61
Message-ID: <4248fc$jro@cemef.cma.fr>
References: <422vf0$l9e@agate.berkeley.edu>
NNTP-Posting-Host: cgipc13.ensmp.fr
Mime-Version: 1.0

X-Newsreader: WinVN 0.99.3

In article <422vf0$l9e@agate.berkeley.edu>,
joelnice@diva.EECS.Berkeley.EDU says...
>
>
>In article <42164p$ckk@fontainebleau.ensmp.fr> you write:
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>>source of electromagnetic radiation and thermionically emitted
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>>have been fabricated. These hot-filament devices have been
>>characterized for use as "microlamps", vacuum diodes, and triodes.

Joel,

Thank you for the information about those microtube with a hot cathod.

I found, in my archives a previous answer of mine about the subject of
cold cathod microtriodes.
You'll find here some interesting papers in english.

Here was my post:

Microtriods:
If you are interested on the subject, please check those references:

"A come back for the vacuum tube" by Lawrence M. Fisher
New York Times 18 May 1988.

There are few conferences on that topic intitled "VACUUM MICROELECTRONIC"
with the subtitle "BACK TO THE FUTURE ":
The first one was in Williamsburg, Virginia, USA, 13-15 June 1988 and
organised by Henry Gray of the Naval Research Center in washington and by
Charles Spindt of the Stanford Research Institute.
The second one was held in Bath ,Great Britain, 24-26 July 1989.

As you can imagine those were not conferences for "audiotubegurus". One
major conclusion was: "microtriods will be probably in the future the
fastest electronic components".

Interesting papers in french can be found in:
"L'Audiophile" N° 3 and N°4 (nouvelle serie) , 1989.

Good references about the earlier works on the subject can be found in
the very interesting scientific paper:
"DC I-V Characteristics of Field Emitter Triodes"
Heinz H. Busta, Bruce J. Zimmerman and Al.
IEEE Transactions on Electron Devices, Vol. 38, N°.11, Nov 1991,
p.2558-2562

Best regards.

Jean-Michel Le Cleac'h, Paris, France.

From borowski@spk.hp.com Thu Aug 31 22:03:15 CDT 1995
Article: 721 of rec.audio.tubes
Newsgroups: rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!news.sprintlink.net!howland.reston.ans.net!vixen.cso.uiuc.edu!sdd.hp.com!hp-pcd!hpcvsnz!borowski
From: borowski@spk.hp.com (Don Borowski)

Subject: Re: Tomorrow's tubes?
Sender: news@hpcvsnz.cv.hp.com (News)
Message-ID:
Date: Thu, 31 Aug 1995 18:59:44 GMT
References: <4248fc$jro@cemef.cma.fr>
Nntp-Posting-Host: hpspkla.spk.hp.com
Organization: Hewlett-Packard
X-Newsreader: TIN [version 1.1.1 PL7]
Lines: 73

Le Cleac'h Jean-Michel (lecleach@cgi.ensmp.fr) wrote:
: In article <422vf0$l9e@agate.berkeley.edu>,
: joelnice@diva.EECS.Berkeley.EDU says...
: >
: >
: >In article <42164p$ckk@fontainebleau.ensmp.fr> you write:
: >>May be they use a network of silicon vacuum microtriods.
: >At the Berkeley Sensor & Actuator Center where I work, researchers
: >created microvacuum tubes on a silicon chip. For details please
: >read: K. R. Williams and R. S. Muller, "IC-Processed Hot-Filament
: >Vacuum Microdevices," 1992 IEEE International Electron Devices Meeting
: >(IEDM '92), pp. 387-390, San Francisco Hilton, San Francisco, CA,
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: >
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: >>"Micromachined vacuum devices that employ a hot tungsten filament as a
: >>source of electromagnetic radiation and thermionically emitted
: electrons
: >>have been fabricated. These hot-filament devices have been
: >>characterized for use as "microlamps", vacuum diodes, and triodes.
:
: Joel,
:
: Thank you for the information about those microtube with a hot cathod.
:
: I found, in my archives a previous answer of mine about the subject of
: cold cathod microtriodes.
: You'll find here some interesting papers in english.
:
: Here was my post:
:
: Microtriods:
: If you are interested on the subject, please check those references:
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: New York Times 18 May 1988.
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: The second one was held in Bath ,Great Britain, 24-26 July 1989.
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: "L'Audiophile" N° 3 and N°4 (nouvelle serie) , 1989.
:
: Good references about the earlier works on the subject can be found in
: the very interesting scientific paper:
: "DC I-V Characteristics of Field Emitter Triodes"
: Heinz H. Busta, Bruce J. Zimmerman and Al.
: IEEE Transactions on Electron Devices, Vol. 38, N°.11, Nov 1991,
: p.2558-2562

Good reference all, but there have been major improvements in current

density and lifetime of cold cathode electron emitters in the past 3 or 4 years. There was an paper about it earlier this year in IEEE Transactions.

These recent improvements are driving the current effort by several companies to come out with flat panel display tubes. I just sent in a "bingo card" from a technical magazine to get literature from Texas Instruments about the products they hope to bring to market by the end of the year.

Donald Borowski WA6OMI Hewlett-Packard, Spokane Division
"Angels are able to fly because they take themselves so lightly."
-G.K. Chesterton

Back to JT30 Home

From mcjimi@aol.com Fri May 12 12:40:58 CDT 1995
Article: 1195 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.reston.ans.net!news-e1a.megaweb.com!newstf01.news.aol.com!newsbf02.news.aol.com!not-for-mail
From: mcjimi@aol.com (McJimi)
Newsgroups: alt.guitar.amps
Subject: Re: Query,Does anyone know a good book about making an amp??
Date: 11 May 1995 20:43:27 -0400
Organization: America Online, Inc. (1-800-827-6364)
Lines: 180
Sender: root@newsbf02.news.aol.com
Message-ID: <3ouavf$jtp@newsbf02.news.aol.com>
References: <3no6no$n1i@walton.maths.tcd.ie>
Reply-To: mcjimi@aol.com (McJimi)
NNTP-Posting-Host: newsbf02.mail.aol.com

TUBE AMP BOOK FAQ

This really isn't a tube amp book FAQ, just the bare beginnings of
one. It's woefully incomplete. I'd like very much for people who really
know this stuff to put a REAL tube amp book FAQ together. The newsgroups
seem to be getting a lot of questions about where to get information on
learning about guitar amps, so such a FAQ could prove useful. Until then,
here's something to get people started.

MODERN BOOKS for Guitar Tube Amps:

1. The Ultimate Tone, by Kevin O'Connor.
This is the only true guitar tube amp design book I've seen. It
really is a guitar tube amp cookbook, and it is packed with info on power
supplies, preamp modifications and design, power amps, effects loops,
reverb, switching (91 pages!) and more. I've seen nothing like this until
now, though I've talked to several amp designers who've talked to me about
putting out such a work.
TUT is far from perfect, but if you're more into creating your own
designs than just learning what Leo Fender did, I recommend you check this
book out. While it does cover Fender and Marshall type topologies, if
you're primarily a fan of old Fender and early Marshall amps, I suggest
you look for another book. Those are fantastic amps, but this book is
simply more forward looking. The main problem is that it isn't available
in stores in the U.S., so you have to take a chance by ordering direct
>from Canada. I know this sucks, but I can tell you that three very
knowledgeable people I've talked to who've seen this book like it a lot. I
hope Guitar Player does a review of it soon, or that you can see if
someone in your area has picked up a copy of it.
Maybe whomever picks up on this Tube Amp Book FAQ idea could include
reviews (by several people, with different backgrounds, interests, and
levels of experience) of this and other books.
Anyway, here's what you need to get ahold of your own copy:
U.S. price until March 31, 1995: $40. includes shipping
U.S. price after March 31, 1995: $55

Power Press Publishing
P.O. Box 1777, Stn.B, London, Ontario, Canada N6A 5H9
tel:519-668-3132
fax: 519-660-8992

2. The Tube Amp Book (Volume 4 is the most recent-765 pages.).
This is put out by Groove Tubes. It has chapters on the history of
several major amp companies, including Fender, Marshall, Ampeg, Gibson,
Hiwatt, Vox, and Orange, among others. I've just got volume 3, and I've
heard Volume 4 has more on tube mics.
There are pages on tube specs, trouble shooting, some common mods
(master volume, power tube changes, capacitor changes for fuller tone),
and some beautiful color shots of amps with guitars. The best part about
the book is that is has several hundred pages of schematics for amps. Most
of these are for older amps-you won't find more recent offerings by
Mesa-Boogie and Soldano, for instance. Very few high gain monsters. But
there's a great deal to be learned from studying the schems of older amps,
and having them in one book is quite convenient.

Antique Electronic Supply sells this book for $29.95. Call 1-602-820-5411.
Or call Groove Tubes at 818-361-4500. They're in Slymar, CA.

3. A Desktop Reference of Hip Vintage Guitar Amps. by Gerald Weber, owner of Kendrick Amplifiers. $26.95, 500 pages.
I've only glanced at few pages of this book. It seems to cover similar ground to that in the Groove Tubes book. He gets into more detailed circuit analysis of several classic Fender amps, however. There are a couple of hundred pages of schems.
I'd try to get a gander at the book from somebody in your area, or at least read Guitar Player's review of the book from last year.
Call Kendrick, or call AES at 602-820-5411.

4. The History of Marshall, by Michael Doyle. ($32.95, 254 pages)
If you're a rock guitarist even remotely interested in what makes amps tick, you should get this book. It does a good job of documenting Marshall's humble beginnings, ups and downs along the way, chiefly by looking at various amps it's produced thru the years. There's an especially nice comparison of the circuit differenced between the 1959 Fender Bassman, which Marshall used as the model for its first amps, and Marshall's version of this amp, which had a few minor differences.
The back has about 100 schematics for Marshalls old and new, including a great many of their more recent products, like the Valvestates, JCM-900 amps, and their 30th Anniversary model. So, there's plenty in here for students of high gain amp architecture. Some of you may be surprized to see how often Marshall has used transistors along with tubes to get overdriven tones. But what the hell, even SRV used a transistor based overdrive pedal to push his Fender, Dumble, and Marshall amps into distortion.
Go down to your own local music store, or call Marshall or AES to get a copy.

5. Tom Mitchel's "How to Service Your Own Tube Amp".
A decent introduction to basic electronics and amp upkeep. There's even a small chapter on mods-output protection circuits, power tube conversions, adding an effects loop, giving Master Volume Marshall's a little gain and overdrive boost, and bias monitoring.
If you are into using several gain stages for generating overdrive (like Soldano, Bogner, CAE, Boogie, etc.) this book is not for you. Tom explicitly states his aversion to using multiple gain stages to generate thick overdrive in this manner. He suggests you buy a distortion pedal, like the Ibanez Tube Screamer. (Funny, the "TUBE screamer" name suggests the sound of screaming tubes, like in a high gain preamp...)
If you're into amp maintenance, you may want to look at his book, but if you want to do design work, get Kevin's TUT book. It has a lot more on mods and overall preamp topology. Or if we're lucky enough to get more "cookbooks", look into buying one of those.

6. "AMPS! The Other Half Of Rock'n'Roll" By Ritchie Flieger. 120 pages.
A nice overview of tube amps that has chapters on Fender, Vox, Ampeg, Marshall, Mesa-Boogie, Soldano, Gibson, Matchless, Hiwatt, and even some transistor wonders. While there are very few schematics, he does talk about the circuits of these amps. He gets into the British high gain approach (EQ after several stages of preamp gain), and the more American early Mesa-Boogie approach (EQ very early on in the preamp-before the distortion). There are also comments on the circuits and construction of Vox's, Hiwatts, Soldano's, etc.

7. OTHER BOOKS-
I've heard Dan Torres has put out a $50 amp design book. But if it's anything like the amps I've heard that he's modded, I'd stay clear away.
I'm hoping that other true tube amp cookbooks will be written by those in the know-Ken Fischer, Bob Gjika, Guy Hendricks, John Suhr, among others. Guy, a Michigan based amp designer, has talked to me about putting out such a book, but I think he's got other projects keeping him busy at present.
In case you haven't yet come across them yet, RG Keen has great FAQ's on tube amps and effects pedals he posts regularly on guitar related newsgroups. I think some of them are archived at the ualberta site and its

mirrors. Or try:
"It is also available on Web Pages:
>http://www.wwu.edu/~n9343176
>http://www.eecs.umich/~tjs/guitar/effects.hmtl"

The FAQ's contain info on other books pertaining to tube amps.
Maybe a guitar amp mag could help develop the market for these kinds
of publications.

_
Vintage Guitar magazine has several people writing for it on the
subject of tube amp electronics. I like some of what David Funk has
written in VG. He covers older amps and modern ones.
Vintage Guitar
Depatment W
P.O. Box 7301
Bismark, ND 58507
tel: (701)-255-1197, fax: (701)-255-0250

Another good source of information on tube amps is the world of
high-end audio. The magazine I'm most familiar with that covers this is
GLASS AUDIO, one of several magainzes published by Audio Amateur
Publications, Inc., P.O. Box 576, 305 Union Street, Peterborough, New
Hampshire, 03458-0576. Tel: 603-924-9464. The magazine is fairly
technical, but it's not all that expensive, and I've noticed more and more
guitar amp articles sneaking in. The publisher is seriously considering
publishing a separate magazine for musicians who use tube amps. Old Colony
Sound Lab, a branch of Audio Amateur sells a lot of the same books on
guitar amps that AES does. See if there are any audiophile associations of
clubs in your area-I bet they'd have a few copies of GLASS AUDIO on hand.

OLDER TEXTS:
1. Tube Recieving Manuals:
These have spec sheets on hundreds of tubes. Given the relatively
small number of tubes used in guitar amps, you may be surprized at the
number of different tube types there are.
These books also have information on setting up tube circuits. A few
companies are reprinting some of these books, like RCA's manuals. But see
if you can track down an old original copy first. It's likely to be
cheaper.
2. THE RADIOTRON DESIGNERS HANDBOOK by Langford & Smith.
This is the CLASSIC text for tube amp designers. Kind of heavy on the
theory, but it's a goldmine of information. It is a radio and audio amp
cookbook that any serious tube amp nut should have. If you can't get an
original copy, I've heard rumours that someone is reprinting this book.
Check the audio mags-they're much more fanatical about tube info than are
most folks into guitar amps.
3. Electronic Radio Engineering
4. Radio Engineering
Both of these are by a guy named Frederick Terman. The same kind of
book as the Radiotron book. In some ways, even more technical. I found my
copies while in Asia of all places. Maybe by the time I'm 90 I'll
understand some of these two books. (Yes, they're in English.)

There's a lot I've neglected to put in here, I'm sure. Here's hoping
someone takes the idea, and expands on it. And improves it!

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From keen@eden.com Fri Mar 1 18:51:31 CST 1996
Article: 82125 of alt.guitar
Path: geraldo.cc.utexas.edu!arlut.utexas.edu!news.eden.com!matrix.eden.com!keen
From: keen@eden.com (R.G. Keen)
Newsgroups: rec.music.makers.builders,rec.music.makers.guitar,alt.guitar
Subject: Tube Amp Mini-FAQ Posting
Date: 28 Feb 1996 19:42:45 GMT
Organization: Adhesive Media, Inc.
Lines: 1301
Message-ID: <4h2b7l$e74@boris.eden.com>
NNTP-Posting-Host: matrix.eden.com
X-Newsreader: TIN [version 1.2 PL2]
Xref: geraldo.cc.utexas.edu rec.music.makers.builders:9127 rec.music.makers.guitar:83648 alt.guitar:82125

This is the (very irregular) posting of my tube amp mini-FAQ. I usually
leave this out on Jamie's web page at
http://www.wwu.edu/~n9343176/docs/tube.amp.mini.faq
rather than posting the whole thing, but this is the first update in a
year.

Please send any comments, corrections, or - please - additional material
that should be included.
==========

MUSICAL INSTRUMENT TUBE AMP BUILDING, MAINTAINING AND MODIFYING FAQ

Much of this material applies to building or re-building hi-fi equipment,
as well but it was originally intended for musical instrument crazies.

Assembled by R.G. Keen, keen@eden.com

Most recent revision level is Version 1.07, appx. 2/28/96

Changes from the previous version are marked with a ">"
==========

Special thanks to the contributors who made this possible:

Hundreds of folks who taught ME stuff when I didn't know a triode from a
Tri-Axis; I can't remember all of your names, and it all comes out as
general knowlege now, but I appreciate it. A few names in that category
stand out:

Tom Balon, balon@cup.hp.com
David Mourning, dam@dcs.gla.ac.uk
Mark Hammer, no longer on the net that I can find

And people who have contributed things that I have included as part of
the actual text:

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==========

> 0. *** SAFETY WARNING *** READ THIS FIRST!!!!!
> Working inside a tube amplifier can be dangerous if you don't know
> the basic safety practices for this kind of work. If you aren't
> prepared to take the time to learn and apply the right precautions
> to keep yourself safe, don't work you your own amp. You can
> seriously injure yourself or get yourself killed. This section is
> not intended to be a complete guide to safety in tube equipment,
> just to hit the high points as refresher for those of you who have
> some experience. The best way to learn the requirements and
> practices for safety in tube equipment is to find someone who will
> teach you one on one.
>
> BASIC REQUIREMENTS
> - UNPLUG IT FIRST
> Pretty self explanatory. Do not, ever, ever, leave the equipment
> plugged in and start work on it. Leaving it plugged in guarantees
> that you will have hazardous voltages inside the chassis where
> you are about to work. This is like setting a trap for yourself.
>
> - LET IT DRAIN
> If the amp has been turned on recently, the caps will still have
> some high voltage left in them after the switch is turned off.
> Let it sit for five minutes after you turn it off.
>
>
> - SUCK IT DRY
> When you open up an amp, you need to find a way to drain off any
> residual high voltage. A handy way to do this is to connect a
> shorting jumper between the plate of a preamp tube and ground.
> This jumper will drain any high voltage to ground through the 50k
> to 100K plate resistor on the tube. To do this successfully, you
> will need to know which pins are the plate pins. Look it up for
> the amp you're going to be working on. You'll need to know this
> for the work anyway. Leave the jumper in place while you do your
> work (high voltage electrolytics caps can "regrow" voltage like
> a battery sometimes. Really.) Remember to remove it when you
> finish your work.
>
> - TEST IT
> Take your multimeter and ground the (-) lead. Probe the high
> voltage caps and be sure the voltage across them is down,

> preferably to less than 10V.
>
>
> - BUTTON IT BACK UP FIRST
> Take the shorting jumper out. Put the chassis back in the
> cabinet, making sure all of your tools, stray bits of solder,
> wire, etc. are out of it. You don't have to actually put all the
> screws and so forth back in if you believe more work might be
> needed, but make sure that the chassis is sitting stably in the
> cabinet and won't fall out. At the end of a listening test,
> either continue buttoning up if you're done, or go back to
> UNPLUG IT FIRST.

1. Why is AMP building in a musical instrument building group?
For electric guitars, basses, and possibly other instruments, the amp is as much a part of the final sound as the nominal instrument is, perhaps more. The instrument is relegated to a role of providing a base tone which is profoundly modified by the following effect and amplification stages. The "instrument" is properly the instrument and amp together.

2. Where can I learn about building tube amps?
> Get one or more of the following references (note that these books
> are mostly old, and highly sought after, and so may be expensive and
> hard to find):
> - "The Ultimate Tone" by Kevin O'Connor. This the best book on
> guitar amps I've found. It assumes you know some electronics
> to start with, so is not a beginner's book. Published by
> Power Press, which now has a web page at
http://www.wwdc.com/~power/ .
- "The Tube Amp Book" by Aspen Pittman, now in its fourth edition. This contains the majority of guitar amp schematics ever made.
- "Electric Guitar Amplifier Repair Handbook" (?) By Jack Darr. Good intro to actually making repairs as well as many schematics.
- "ARRL Handbook", preferably a late 60's or early 70's edition. Read the sections on construction practice, safety, and tube info.
- Guitar Player Magazine's article on tube types and operation from a year or so ago
- Glass Audio magazine, Old Colony Sound in Peterboro NH
- Mesa/Boogie will send schematics of their amps, call 1-707-778-6565; note however, that these schematics are known to be innaccurate.
- "Vacuum Tube Amplifiers" by G.E. Valley, Jr. Part of the MIT radiation lab series, originally published by Boston Technical 1964. Reprints are currently available from Antique Radio Classified (P.O. Box @, Carlisle, MA 01741, 508-371-0512)
- Amplifiers, H. Lewis York.
(Evidently part of the Encyclopedia of High Fidelity). Good basic technical ref. Simple math, good explanations. Includes a couple of designs (several use hard to find tubes) and tips on phyiscal construction as well.
- Radiotron Designer's Handbook, Langford-Smith. Heavy theory, heavy technical. Not coffee table reading, but it you want to know, it's probably in there. (Rumoured to be divinely inspired - if not the Bible on vacuum tubes, it's at least Leviticus.)
- RCA Receiving Tube Manual. Reprints available from several sources, including Antique Electronic Supply & others (Old Colony?) Mostly tube spec sheets & some charaterstic charts. The intro is a pretty good technical primer.
- Electron Tubes, R.G. Kloeffler. little application, but a good easy to digest explanation of charateristics of diodes, triodes, beam power & true pentodes, with the math to go along. Worth reading if you're trying to do modeling.
- The Audio Designer's Tube Register. Tom Mitchel. 1993, Media Concepts. Volume 1 - Common Low Power Triodes. 144 pages of freshly compiled tube data, some of which was not previously published. Kinda pricey ($18 from Antique Electronic Supply) unless you need the data. Included are plate characteristcs, tranfser characteristics, constant current curves, mu as a function of grid

potential and plate potential, transconductance as a function of plate current and grid potential, and dynamic and static plate resistance as a function of plate potential and plate current.

(Tom mentions a 2nd and 3rd volume in the distant future - covering low power pentodes & oddball tubes, and Power & Beam Power pentodes respectively.)

- Learn about the manual and safety aspects of working on tube amplifier circuits. Read the ARRL handbook, or better yet, get to know a ham radio operator who will give you some guidance and teaching. Do not skimp on the safety aspects. Tube circuits contain deadly voltages. You can - * DIE * - if you mess up or are careless. It is your personal responsibility to learn how to do this safely.

- Get to know a guitar repair technician, perhaps do some free apprentice grunt work for them in return for some teaching.

3. Where can I find parts to build/repair amplifiers?
New tube parts and supplies are steadily getting harder to find, but paradoxically, used parts are often nomimal cost or free. The hard parts to find are the transformers.

If you're building, I recommend building around what transformers are available to you. And AFTER you have them in your grubby little hands. It often happens that the transformers you THOUGHT you would buy after you got the chassis, sockets, etc. was just sold to another fellow, and there aren't any of those left... (Stewart)

The easiest but most expensive source for parts is at your retail musical instrument store. Other sources:
- Musical instrument repair shops will sometimes order parts or sell you parts out of their stock.
- Amp makers' repair parts departments. Many manufacturers will sell their parts to "repair shops" to fix their amps. Some of them are better than others about this, so be polite and businesslike.
- Antique Electronics Supply, Tempe AZ. They stock tubes, some transformers, some capacitors, tube sockets, etc.
Antique Electronic Supply recently added several steel and a few aluminum chassis boxes to their line. I was told this is to be a continuing trend, and not just a one time buyout of a couple of boxes.
- Mouser and SESCOM (don't have the address/phone) sell various rack enclosures. Mouser has a couple which would house a healthy size tube amp project.
- old, broken, or unloved equipment. This may be free, or units-of-dollars. You get transformers, sockets, tubes, and chassis in the deal. May require cruising garage sales or diving in dumpsters. Trash every part except the tubes, transformers, sockets and chassis. I got a 15 Watt mono amp/preamp intended for mono hi-fi music for $20 at a local garage sale. Needs only some tweaking to be a Studio .22 or an AC-15.

Be sure to look at Appendix A for more sources.

In some issue of The Absolute Sound (a "high-end" audio mag), Steve Melkisethian wrote an article called "Where the Tubes Are: Tube Tips and Topics" [reference lost, sorry, I just have a copy of the article; it was sometime in 1987-1992). The article obviously is aimed at the high-end hifi market, not at guitarristas, but he lists some of the following sources, with various cautions (see the article for more info).

SM called the following "premium suppliers":
o Fender Musical Instruments - call 800-854-6230 for a list of dealers
o Richardson Electronics - 800-348-5580 for dealer list
o RAM Tubes, 805-962-4445
o VTL, 714-627-5944

Here are "more tube supply sources":
o Triode Electronics, 312-871-7459
o Elmiria Electronics 800-847-1695
o Antique Electronic Supply, oriented to radio collectors,
602-820-5411
o Antique Audio, oriented to radio collectors, 512-467-0304
o New Sensor, mostly imported tubes (here's the source of Sovtek),
call Mike Mathews, 212-980-6748. Min. order is $50.00.
o ARS Electronics, 800-422-4250
o Department of Defense surplus auctions. DRMO-Tobyhanna Army Depot,
Building 16, Tobyhanna, PA 18466 is the gummint storage facility
for communications gear and is said to have good stuff. Also,
get "How to buy...Surplus Personal Property from the Department of
Defense", free from DOD Surplus Sales, PO Box 1370, Battle Creek,
Michigan 49016.
o Surplus electronics dealers - see the Telco yellow pages
o call everybody in the yellow pages under Electronics, TV-Repair,
Communications, and any other promising category.
o Hamfests
o SM's store, Angela Instruments, 8600 Foundry St. Box 2043, Savage,
Md. 20763, 301-725-0451.
o Tube Amp Service in San Francisco,run by Tom Balon; call
415-334-5200 PST. (O'Neill)

George Kaschner notes that parts other than tubes and transformers
can be obtained easily from Mouser Electronics (800-346-6873). I have
used Mouser and they give good service and prices; $20 min order.
another good source is Digi-key for resistors, capacitors, and other
general electronic parts. They are not tube oriented, but are also
a good general parts source.

4. How can I modify my Blender Tweety Bird amp to be as loud as a
Marshall Major/AC30/Tweed Bassman/SVT/etc.? (Alternatively, how can I
make my amp twice as loud/more power/ etc.?)
You can't do this in a low power amp, at least not electronically. To
put out the power the big amps put out, you need the entire power
train to be as beefy as the big amps. This means bigger power
transformer, rectifiers, filter capacitors, output transformer, more
power tubes, bigger chassis, more ventilation to carry off the heat,
lots of things. You can't just add a couple of tubes.

> An amplifier is properly thought of as primarily a big power supply
> that has some extra junk tacked onto it to carefully let a little of
> the power out to the speakers under special, controlled circumstances.

You might be able to just pull a couple of tubes OUT of a high power
> amp to make it quieter, under some conditions. O'Connor discusses
> this in "The Ultimate Tone".

5. How can I extend my tube life?
- modify the power on switching to heat the filaments first, let them
warm up for 30 seconds, then switch on the high voltage plate supply.
- add more ventilation to the amp chassis, perhaps with a small fan.
- modify the tube operating conditions so the maximum cathode current
is not exceeded under even maximum warp drive conditions. Exceeding
max cathode current causes cumulative emission losses and early tube
death. This requires a somewhat deep understanding of the design of
tube amps to do, unfortunately.

6. How do I get...
- blues distortion? Made by overdriving preamp and power tubes a
little, enough to just start compressing the peaks of the waveforms,
and not very much high frequency content, by electronically cutting
highs or running the signal into a speaker cab that acoustically
cuts highs.

> Guitar Player magazine ran a construction article on this very
> topic, modifying a Fender Bassman to be the "Ultimate Blues
> Machine". The article ran in 1995, authored by John McIntyre.

>
> A recently voiced although intuitively applied idea in
> distortion is that tube distortion sounds best when each
> successive distortion stage is overdriven by less than about
> 12db. This has the effect of keeping the tubes inside the area
> where the signal is more compression-distorted than clipped. That
> is what those resistive divider chains between distortion stages
> are for inside those distortion preamp schematics. Mesa's
> distortion preamps are another good example.
>
> Overdriving a tube stage too much gives you harsher clipping, not
> the singing, sweet distortion we want. To really get sweet,
> crunchy distortion, keep each stage that goes into distortion no
> more than 6-9db into distortion.

- Marshall/metal/Boogie/etc. distortion? Made by massively overdriving preamp tubes until the original waveform is massively compressed and clipped. Usually followed with a moderate amount of high frequency cut to remove some of the "insect attracting" overtones generated in the clipping process. There is commonly some output tube overdrive in this process, too.

- good distortion at low(er) volumes? overdrive preamp tubes until you get the clipping you want, then feed a limited amount of this to a power amp stage to get the loudness you want. This is how master volume controls work.

7.Where can I find plans for a Belchfire/Maximo/etc. speaker cabinet?
- ElectroVoice sells (?) makes available (?) plans for cabinets for their speakers
- copy an existing cab
- some cabinet fitting suppliers have example plans
-- (addresses in a future posting) ---

8. Output transformer questions:
> A. How can I tell if my output transformer is live or dead?
There are some simple tests you can run to quickly determine if a transformer is grossly bad. This is much simpler than determining if it will work well and sound "good" for you. The tests of relative "goodness" are also possible, but require a lot of equipment and experience to do correctly. For the quick and dirty tests described here, you'll need a means of measuring AC voltage and current simultaneously, such as a pair of VOMs or DMMs, and a 110/120 to 6.3VCT filament transformer, and either a variac (variable transformer) or a light bulb socket in series with the primary of the filament transformer to limit the power you put into the transformer under test.

CAUTION
CAUTION
CAUTION

Both the filament transformer and the transformer under test will have at least AC line voltage on them, an may well have much higher voltage, several hundred volts on one or more windings. You are therefore in danger of being KILLED if you are not both knowlegable and careful about how you do these tests.

DO NOT TRY THIS IF YOU DO NOT HAVE THE KNOW-HOW AND EXPERIENCE TO WORK SAFELY WITH THESE VOLTAGES. IF YOU HAVE ANY QUESTION IN YOUR MIND WHETHER YOU CAN DO THIS WORK SAFELY, YOU CAN'T.

Seek experienced help if you have any question in your own mind.

The tests run like this. Identify which wires are which by color code, circuit connection, or by using an ohmmeter to find which connects to which. Label the wires. From the same ohmmeter test, write down the resistances you measured on the windings. Generally, windings with resistances over a few ohms are high voltage windings, either a power transformer primary or high

voltage output, or an output transformer primary. Note that it is common for primary windings on power transformers to have from two to six wires, with the wires over two being taps to adjust for various line voltages from 110-117-120-125-208-220-240. Secondary windings on power transformers and primaries on output transformers will have either two or three leads, and secondaries on output transformers will have to to four leads.

Also note if any winding is shorted to the transformer core. Sometimes an internal shield will be deliberately connected to the core, but if a multi-lead winding is connected to the core, this is usually an internal short, and a dead transformer.

Once you have identified the windings, hook up one and only one winding to either 1/2 of the 6.3VCT or to the variac. Try to select a low voltage winding, one that has low resistance from the ohmmeter test. Make sure that no other leads are connected (or shorted together, or touching your screwdriver on your bench or... well, you get the idea). A turn of plastic tape on each wire end you'r not using at the moment is a good idea. Set your voltmeter on this winding, and the current meter to measure the current through it, and bring the circuit up. The voltmeter should measure 3 volts AC, the light bulb (if used) should NOT be lit brightly, and nothing should be humming or smoking ;-). There should be little current going through the winding. If the voltage is lower than 3 volts, or you are pulling amps of current, then there is a load on the transformer, internally since you have disconnected all the leads, meaning that there is an internal short. You should try to select a winding for this test that is normally a low voltage winding, either a filament winding in a power transformer, or a secondary in an output transformer.

If all is well, measure the voltage that now appears on the other windings. The voltages will be equal to the ratios of the voltages that will appear on these windings in normal operations.

> B. Where can I get a good replacement output transformer for my
> vintage DoppelBanger amp?
> Dixie Sound Works, Gunthersville, Alabama has a great reputation
> for (re)winding quality vintage re-makes.
> The company that made the amp may have service parts. The quality
> is variable from company to company and time to time, though.

C. I want to make my own power and output transformers. How do I do this?/ Where can I find information about this?
- Designing and hand winding transformers is not terribly difficult, but it does require information and skills that are relatively hard to find. You are unlikely to save a whole lot of money unless used or broken parts are cheaply available to you. You may want to do this if you feel that you were selected by some deity to take this on as a life work.
- First, take a transformer apart. A burned out tube-type power transformer will do. Do this carefully and slowly, imagining how you would have put it together in the first place to get it the way it was. This is an excellent introduction to the manual skills and materials needed to sucessfully produce one on your own.
- Learn about how transformers are designed from one or more of the following, in this order:
* "Transformers for Electronic Circuits", Grossner (check your library)
* "Radiotron Designer's Handbook, fourth edition
* "Audio Transformer Design Manual", Wolpert, $36, privately published, available from:
Robert G.Wolpert
5200 Irvine Blvd. #107
Irvine CA 92720
* "The Williamson Amplifier" D.T.N Williamson, reprint available from Old Colony Sound Labs
* Handbook of Transformer Design and Applications by William Flanagan (second ed.)

* "rewinding transformers with CAD" by Hugh Wells W6WTU Ham Radio Dec '86 p.83
* "Fast Optimization of Transformer Design" EDN Nov '62 by Davis, J. H.

These sources will help. They are NOT a complete cookbook. Note that it is very possible to make a transformer that will operate relatively well, but may break down unexpectedly and KILL you if it is not constructed with safety in mind.

> D. Should I replace my stock transformer with a new/old/vintage/purple
> one for better clean/grunge/grit/etc. sound?
> - Unless you REALLY know what you're doing and have heard the
> transformer you'll be swapping in and like it, no.
>
> There are a huge number of variables in the "sound" of a
> transformer, and you should exhaust other means first. You might
> not get that magic sound after all that work unless your ears
> - and amp tech - are really good.

9. What is the easiest way to get tube sound at a good price?
- Obtain an old piece of tube gear, perhaps intended for another purpose, like mono hifi, at no or low cost. Modify this to duplicate to a certain extent the circuit of an existing amplifier. Tinker to your heart's content.

> There is a document on exactly this at
> http://www.wwu.edu/~n9343176/old2new.html
> The document goes into excellent detail on the in's and out's of
> building from old tube gear and the possible and useful
> variations of which stages with how much gain go where in the
> amp.

- Build a tube preamp from scratch, and use this to drive another larger amplifier which does not necessarily have to be tube based. I have designed things like this, so have others. Good tube sound, and inexpensive. Really convincing tube distortion, especially if you add some lowpass filtering to simulate the high frequency cutoff of guitar speakers.
This is what the Hughes and Kettner Blues Master and Cream Machine tube preamps did (they've been discontinued). These were entire tube amplifiers with maybe 2 or 3 watts output, a simulated load, and a line level output in addition to the speaker output. They did a VERY respectable job.

10. How can I modify my tube amp to ... ? (also see recommended mods, below)
- get lower hum?
* replace the defective humming tube
* replace or improve the power supply filter capacitors
* fix the defective internal ground wiring, as on a reverb tank, or previous "improvements" and modifications
* run the preamp filaments on regulated DC, not AC, starting with the input tubes
* rewire the grounding so the amp is star grounded, and does not use the chassis as a ground bus
* move the signal wires around, nearer/farther from the chassis or 60 Hz AC carrying wires
* use coax cable in the signal path, at least in the early sections where noise counts the most. Tie one end of the shield to ground and terminate the other end with some shrink tube so it cannot touch anything. This way the coax shield acts as an antenna and conducts the RF to ground (as well as Faraday shielding hum out). If you tie both ends to ground you set up some capacitance (and the possibility of ground loops) you're better off without. The shield should be tied to the star gound point individually, and bypassed to the chassis locally with a good RF cap of about 0.001 to 0.01.

George notes "You may already use this in your own amps but I thought we might share it with the rest of the tinkerers - it's

especially useful for people that are trying to add extra gain stages. I even use it between the input jacks and the first stage since in most Fender amps it has to traverse the width of the board. (Kaschner)
- have higher gain/more distortion?
* install an extra gain stage by
-using an unused tube section if one exists
-adding another tube to the chassis
-using the reverb tubes as additional gain stages
-using a power MOSFET as a cathode follower to drive tone control and volume controls for lower loss
-using a power MOSFET to replace an existing cathode follower, freeing up that tube section for more gain
-remove the feedback on the power amp stage; newer Fenders and other amps use feedback on the power amp to reduce distortion. Removing this increases gain and and distortion, and makes the distortion start at lower volumes. On Fenders, it's generally a white wire from the 'ext speaker' jack to a 2.2k resistor. Cut this wire, or lift it at one end. To be really slick, put in a toggle switch. (Edelman)
* use the alternate channel for more gain, perhaps jumpering two channels together
- have a smoother, less buzzy distortion?
* use a lowpass filter somewhere inside the amp in the signal path to cut higher harmonics; perhaps a capacitor to ground from the final preamp tube grid or plate -or-
* use series grid resistors to cut the high frequencies in and after distortion stages
* use a lowpass filter after the amplifier and before the speakers to cut out some of the higher overtones.

11. When should I bias my amp and how do I do this?

A. What is "bias"?
"Bias" in this context refers to the amount of voltage held on the grids of the output power tubes. This controls the amount of current the output tube(s) conduct exclusive of the signal current, or, looking at it another way, the amount of overlap where both tubes are conducting simultaneously.

I will talk about the output tube current since the terms "underbiased" and "overbiased" are confusing with tube amps. A technician who works with only tube amps will usually refer to the

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From triodeel@interserv.com Wed Apr 23 17:21:23 CDT 1997
Article: 29278 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!cpk-news-hub1.bbnplanet.com!news.bbnplanet.com!news-peer.gsl.net!news-peer.sprintlink.net!sprint!news-pull.sprintlink.net!news.sprintlink.net!netnews.nwnet.net!news-hub.interserv.net!news.interserv.com!news
From: triodeel@interserv.com (Ned Carlson)
Newsgroups: rec.audio.tubes
Subject: Tube Chickens crossing the road
Date: Wed, 23 Apr 1997 20:02:22 GMT
Organization: Triode Electronics
Lines: 41
Message-ID: <5jlq09$7n7@lal.interserv.com>
Reply-To: triodeel@interserv.com
NNTP-Posting-Host: hd35-100.hil.compuserve.com
X-Newsreader: Forte Free Agent 1.0.82
Xref: geraldo.cc.utexas.edu rec.audio.tubes:29278

How various tube chickens cross the road

Audio Research chicken: Crosses the road if you send it in for a factory upgrade first.

VTL chicken: Crosses the road only if you can collect on the lifetime warranty.

Dynaco chicken: Almost always crosses the road, even with some broken bones, it'll usually limp across anyway.Often looked down on, even by chickens that can't cross the road.

Ongaku chicken:Crosses the road only if you pay it $60,000 first.

Stereophile chicken:Clucks a lot of incoherent babble while crossing the road.

Single Ended chicken:Crosses only very efficient roads.

Marantz chicken:Crosses the road very carefully to avoid getting scratched.

Homebrew chicken:Sometimes has beak on its tail and wings where it's feet should be, but usually manages to get across anyway.

Jadis chicken: Needs a new set of a dozen 6550's almost every time it crosses the road.

845 chicken: If you touch it while it's crossing the road, you might get a 1000 volt shock.

Tube relabeller chicken: Puts new feathers on your chicken, then charges your chicken five times the going rate to cross the road. Sometimes seen doing things like putting green feathers on a Rhode Island Red.

Ned, Triode Electronics, Chicago

From triodeel@interserv.com Wed Apr 23 22:51:10 CDT 1997
Article: 29288 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!cpk-news-hub1.bbnplanet.com!su-news-hub1.bbnplanet.com!news.bbnplanet.com!arclight.uoregon.edu!netnews.nwnet.net!news-hub.interserv.net!news.interserv.com!news
From: triodeel@interserv.com (Ned Carlson)
Newsgroups: rec.audio.tubes
Subject: Re: Tube Chickens crossing the road
Date: Wed, 23 Apr 1997 23:26:05 GMT
Organization: Triode Electronics
Lines: 30
Message-ID: <5jm5ut$bd6@lal.interserv.com>
References: <5jk67u$4p6@lal.interserv.com>

Reply-To: triodeel@interserv.com
NNTP-Posting-Host: dd60-238.compuserve.com
X-Newsreader: Forte Free Agent 1.0.82
Xref: geraldo.cc.utexas.edu rec.audio.tubes:29288

OTL chicken: Gets so hot it melts the road tar while crossnig.

AtmaSphere chicken:The feathers cost 2 cents each,
but the chicken costs $10,000

Heathkit chicken:If it won't cross the road, re-read the
instruction book.

Really old WE chicken: A forklift has to pick it up
and carry it across the road.

British chicken:While croosing the road, slows down every
so often to walk around in circles with other chickens.
Often makes detours for a"pint" while crossing.
Appears to find it amusing to confuse American chickens.

Aussie chicken:Crosses the road, but complains loudly about
"pommie" and "septic" chickens while doing so.
Wants other chickens to see road from it's point of view:
upside down. Accuses Kiwi bird of fraternizing with sheep.

Kiwi bird: American chickens often mistake it for a
British chicken.

Ned, Triode Electronics, Chicago

From Kevin@UPSCALEaudio.com Thu Apr 24 12:20:03 CDT 1997
Article: 29321 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!cpk-news-
hub1.bbnplanet.com!news.bbnplanet.com!newsfeed.nacamar.de!uunet!in1.uu.net!206.165.3.21!news.primenet.com!primenet
From: Kevin@UPSCALEaudio.com (Kevin Deal /UPSCALEaudio/)
Newsgroups: rec.audio.tubes
Subject: Re: Tube Chickens crossing the road
Date: 24 Apr 1997 08:03:01 -0700
Organization: Primenet
Lines: 31
Message-ID: <5jnsn5hde1@nnrp01.primenet.com>
References: <5jk67u$4p6@lal.interserv.com>
X-Posted-By: @204.212.52.207 (upscale)
X-Newsreader: News Xpress Version 1.0 Beta #4
Xref: geraldo.cc.utexas.edu rec.audio.tubes:29321

In article <5jk67u$4p6@lal.interserv.com>,
triodeel@interserv.com (Ned Carlson) wrote:
>
>How various tube chickens cross the road

Magazine Reviewer Chicken - Crosses road. States all older roads crossed were
inferior and dirty, and can't believe he ever crossed them.

Neurotic Chicken - Before crossing road, dampens it with Sound Coat, lines it
with Shakti Stones and VPI bricks, wears tennis shoes with Sorbothane soles.
Places amp clamp on his beak. Reads numerous maps and travel books. Crosses
road. Changes roads in two weeks.

Newbie Chicken attemtping to impress other chickens. States that while
crossing road...listens to "everything from rock to classical". In reality
listens to Paula Abdul, Basia, and Janet Jackson.

Best Regards,

Kevin Deal High End, Home Theater,
UPSCALE Audio and Rare Vintage Tubes
1410 Lemonwood Dr West Voice (909) 931-9686
Upland, CA 91786 Fax(909) 985-6968

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From liang@arc.ab.ca Fri Apr 12 20:36:00 CDT 1996
Article: 8439 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!math.ohio-state.edu!uwm.edu!lll-winken.llnl.gov!enews.sgi.com!decwrl!tribune.usask.ca!rover.ucs.ualberta.ca!mercury.arc.ab.ca!usenet
From: Jiandong Liang
Newsgroups: rec.audio.tubes
Subject: Re: curve tracers
Date: Fri, 12 Apr 1996 13:37:05 -0600
Organization: Alberta Research Council
Lines: 12
Message-ID: <316EB0E1.2781@arc.ab.ca>
References:
NNTP-Posting-Host: thor.arc.ab.ca
Mime-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit
X-Mailer: Mozilla 2.0 (X11; I; IRIX 5.3 IP22)
To: "Jack D. Wills"

Jack D. Wills wrote:
>
> Are they using 30 year old test equipment or is there another way?

You may want to check out:

Audiomatica srl - Florence - ITALY
http://www.mclink.it/com/audiomatica/sofiaeng.htm

They make PC-controlled curve tracers.

JD

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From bry@REMOVETHIS.mnsinc.com Sat Jan 31 23:44:22 CST 1998
Article: 53212 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!math.ohio-state.edu!howland.erols.net!newsfeed.internetmci.com!206.55.3.16!news2.mnsinc.com!news1.mnsinc.com!not-for-mail
From: bry@REMOVETHIS.mnsinc.com (Brian Carling)
Newsgroups: rec.radio.amateur.boatanchors,rec.audio.tubes,rec.radio.amateur.misc
Subject: WWW Tube Data Library
Date: Wed, 28 Jan 1998 12:24:02 GMT
Organization: Dis
Lines: 23
Message-ID: <34cf2247.7595954@news.mnsinc.com>
Reply-To: bry@REMOVETHIS.mnsinc.com (Brian Carling)
NNTP-Posting-Host: 206.239.150.65
X-Newsreader: Forte Free Agent 1.11/32.235
Xref: geraldo.cc.utexas.edu rec.radio.amateur.boatanchors:16364 rec.audio.tubes:53212 rec.radio.amateur.misc:123996

I just found this! Jan Axing in Sweden (SM5GNN) has put together a
wonderful resource.

Some GREAT tube data on the web, including characteristic curves for
many types, including:

5AR4 6AB8 6AQ8 6BL8 6BM8 6CA7 6CH6 6CJ6 6CK6
6CW5 6DL5 6DX8 6GW8 6J6 807 813   6BM8 EC80
ECC85 ECC91 ECF80 ECL80 ECL82 ECL84 ECL86
EL34 EL81 EL83 EL86 EL95 EL360 EL821 EL822 GZ34
QE06/50QB2/250   EL34 ECC86 EF97 EF98 ECH83 etc.

All found at:

http://www.algonet.se/~janax/tubedata.htm

Enjoy!

See http://www.mnsinc.com/bry/hamfiles.htm
for a great variety of radio files and information.
AF4K / G3XLQ

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From cigna@helios.phy.OhioU.Edu Sat Feb 3 19:24:09 CST 1996
Article: 5979 of rec.audio.tubes
Newsgroups: alt.guitar.amps,rec.audio.tubes
Path:
geraldo.cc.utexas.edu!cs.utexas.edu!howland.reston.ans.net!newsfeed.internetmci.com!uwm.edu!fnnews.fnal.gov!gw1.att.com!gw2.att.com!oucsboss!cigna
From: cigna@helios.phy.OhioU.Edu (Dave Cigna)
Subject: Web site with tube data
X-Nntp-Posting-Host: helios.phy.ohiou.edu
Message-ID:
Sender: postmaster@helios.phy.ohiou.edu
X-Nntp-Posting-Date: Sat Feb 3 18:05:37 1996
Organization: Ohio University Physics and Astronomy
Date: Sat, 3 Feb 1996 23:05:39 GMT
Lines: 12
Xref: geraldo.cc.utexas.edu alt.guitar.amps:9024 rec.audio.tubes:5979

I promised many moons ago to scan some pages from my
Amperex Special Purpose Tubes book and make them available
via the WWW. I've finally done it. I selected a few tubes
that I know are popular. The pages are .gif images. Some
are large (over 100k). There's over 50 pages and about
as many curves. I may add more...

http://www.phy.ohiou.edu/~cigna/tubes/tubes.html

Comments are encouraged.

-- Dave Cigna

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From keen@austin.ibm.com Thu Mar 21 12:58:33 CST 1996
Article: 11727 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!math.ohio-state.edu!howland.reston.ans.net!newsfeed.internetmci.com!in2.uu.net!ausnews.austin.ibm.com!keen
From: keen@austin.ibm.com ()
Newsgroups: alt.guitar.amps
Subject: Re: 6CA7
Date: 21 Mar 1996 14:40:28 GMT
Organization: IBM Austin
Lines: 22
Distribution: world
Message-ID: <4irpos$h1u@ausnews.austin.ibm.com>
References: <9603210433005233@welcom.gen.nz> <4iqmi4$bfa@newsbf02.news.aol.com>
NNTP-Posting-Host: keen.austin.ibm.com
Originator: keen@keen.austin.ibm.com

In article <4iqmi4$bfa@newsbf02.news.aol.com>, timtube@aol.com (TimTube) writes:
...
>
> I do have an interesting Sovtec EL34 that has the same shape bottle and
> the components look identical to a 6CA7, possibly a prototype. I pulled
> this out of a Mig 60 that was in on repair. There is a bullet shaped hole
> in the bottle. Apparently, the tube got so hot that it melted the glass
> and it sucked into the plate? Anyone else ever see a tube do this?
...
I keep an exhibition set of interesting tube failures. I have two of these, one a 5881 that melted the glass just to softness and has a fingertip sized indentation on one side and the prints of the tips of the mica spacers showing through the glass at the top and bottom of the straight section of side; the other is an EL-84 that has a cone sucked all the way in til it hit the plate and vented. The glass cooled so fast that it snapped in a crack around the tube.

Sure enough, both owners noted that "It sounded really great just before it blew..."

R.G.

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From svetengr@earthlink.net Sat Dec 13 00:31:26 CST 1997
Article: 48046 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.erols.net!ais.net!news1.chicago.iagnet.net!iagnet.net!nntp.earthlink.net!usenet
From: svetengr@earthlink.net
Newsgroups: rec.audio.tubes
Subject: Re: So you want to open a tube (valve) factory?
Date: Fri, 12 Dec 1997 12:57:54 -0800
Organization: EarthLink Network, Inc.
Lines: 168
Message-ID: <3491A552.47A5@earthlink.net>
References: <348e425f.22494863@news.flash.net> <348F42BC.7440@xnet.com> <66p2mu$qqs@dfw-ixnews11.ix.netcom.com> <34907c0e.54768958@news.flash.net> <66r9vg$5u4@sjx-ixn6.ix.netcom.com>
Reply-To: svetengr@earthlink.net
NNTP-Posting-Host: 153.34.226.69
Mime-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit
X-Mailer: Mozilla 3.0 (Win95; U)
Xref: geraldo.cc.utexas.edu rec.audio.tubes:48046

> This whole thing as to where tubes are made gets pretty weird, and >every distributor that you talk to has his own tale of the differences >between brands, etc....which plant, copy cats, quality etc. To be >honest, I'd rather have one less book on Western Electric tubes, and a >little more on information on current production and actual differences >between brands.

CURRENT GLASS TUBE MANUFACTURERS
(not counting exotic devices, such as
photomultipliers and microwave devices)
by Eric Barbour, VTV--October 1997

(note: I think that no one else, such as the French
company Thomson CSF or the American company EG&G, is making
glass power or audio tubes at this time. --EB)

CHINA:

Shuguang Electrical Factory No. 1: State-owned until recently.
Shuguang makes most of the popular audio and guitar types, which
are frequently rebranded by importers. Large guitar-amp manufacturers,
such as Mesa-Boogie and Fender, are the world's largest consumers
of audio tubes today, and they get most of their tubes from Shuguang.
PM Components, a British firm, has "Golden Dragon" types made by
Shuguang, which are then marketed by firms such as Whirlwind and
Tubes By Design.
Types in production:
6L6GC, EL34 (3 types), 6550, KT88 (2 types), 300B (4 types),
KT100, 5AR4, 12AX7, 12AT7, 12AU7, 2A3, 211, 845, KT66,
EL84, 807, 6GH8, 6AN8, occasional runs of 6AU6 and EF86.

There are many other tube factories in China. Most keep a very
low profile. CEIEC-Hunan claims to make many types, including
an EL156. There are believed to be two factories in Beijing making
tubes. Some of these factories specialize in transmitting
tubes such as the 811A, 812A, 813, 3-500Z, 4-400, 100TH, 833
and others.

RUSSIA:

Reflector Corp, Saratov:
Makes most of the tubes marketed by New Sensor Co. of New York
under the "Sovtek" brand name. Some of these are old Russian
types, others are made especially for export.
Types in production:
12AX7 (3 variations known), EL34 (3 versions), 6CA7 fat, 5AR4,
5881, 6922, 6EU7, 6L6GB, 6V6GT, 7199, EL84 (2 versions), 6P15P.

Sovtek also markets 5U4G, 5Y3GT, 6SN7, 6SL7, two 12AX7s and a few other types made at other factories.

Ryazan Plant of Electronics, Ryazan:
Makes power triodes for RF and audio applications. Some are sold outside Russia by Svetlana Electron Devices. Ryazan has also made large thyratrons and pulse tubes.
Types in production:
811A (popular and sold all over the world), 812A, SV811-3, SV811-10, SV572-3, SV572-10, SV572-30, SV572-160, GM-100, others. SV types and 812A are made especially for Svetlana Electron Devices.

Svetlana Electron Devices, St. Petersburg:
The major Russian power-tube manufacturer. Formerly a part of the huge Svetlana collective factory, now independent. A joint-stock agreement with Svetlana Electron Devices USA has been set up.
Types in production:
EL34, SV6L6GC, SV6550C, 300B, EL509, EF86, 6BM8, 6AS7, 3CX300A1, 6D22S, GP-5, and a long list of large power types for amateur radio, broadcast and industrial uses.

Ulyanov, Ulyanovsk:
Large state-owned factory specializes in military equipment. Also makes tubes for use in military aircraft electronics.
Types in production:
GU-50, GU-13/813, 6S33S-V, 6S19P, 6S41P, others. 6S33 is becoming popular in high-end amplifiers in America and Japan.

Voskhod, Kaluga:
Large collective factory, makes many ICs and other semiconductors as well as receiving tubes.
Types in production:
Makes 6N1P-EV, 6AX7, 7025 (2 types), 6SN7, 6SL7 and a few other types sold by various firms outside Russia.

SLOVAKIA, CZECH REPUBLICS:

Teslovak, Cadca:
Spinoff from now-defunct state factory Tesla. Currently the major source for Groove Tubes. Teslovak tubes are often sold under the Tesla brandname.
Types in production:
KT88S, EL34, E34L, ECC83/12AX7, EL84, 6L6GC. Some of the power types are available in red or blue glass.

JJ Electronic, Prague:
Another alleged spinoff of Tesla. Products such as a 6L6GC and 7027 have been announced.

AVVT, Prague:
Run by former Vaic Valve Co. founder Alesa Vaic. Makes power triodes for high-end audio amplifiers, marketed by Audio Note UK. Production source unknown.
Types in production:
AV300B SL, AV32B SL, AV62B SL, possibly others.

KR Enterprise, Prague:
Formerly Vaic Valve Co, now operated by Riccardo and Eunice Kron. Makes power triodes for high-end audio amplifiers. Production source unknown.
Types in production:
VV30B, VV300B, VV52B, KR1, others.

YUGOSLAVIA:

EI Electronic Industries, Nis, Serbia:
Former state-owned factory, makes all types of electrical

products, still making tubes using some old Philips production
tooling and equipment.
Types in production:
6CA7, 6CG7, 12AT7, 12AX7, 12BH7, 12DW7, EL34, EL519, PL519,
KT90, KT99, EL84, EL86, possibly a few others.

UKRAINE:

Poljaron, Lvov:
Makes 833A and some Russian power types, plus related
products such as vacuum capacitors.

USA:

Richardson Electronics, LaFox, IL:
Makes large power tubes and specialized types. Also makes
a 300B, 845 and 50 sold under the Cetron brand, as well as a
KT88 sold under the National brand. Richardson
has large quantities of tooling obtained from old American
tube factories when they shut down. Also makes some larger
transmitting and HV types.

Westrex Corporation, Kansas City MO (alleged):
Makes the reissued Western Electric 300B. Claims to be
developing a KT88, 212E, 274A and other old WE types
for future manufacture.
Company office is in Atlanta, GA. This firm is independent
of AT&T Corporation and has licensed the brandnames from
AT&T.

MU, Oceanside, CA:
Small contract factory, makes occasional runs of unusual
glass and metal-ceramic tubes for military use. Still makes
some of the old "Bendix Red Bank" tubes, such as the 6094 and
6384, in occasional lots.

Fritztronics, Randolph MA:
Rebuilds klystrons and other large power tubes. Claimed to
be in a cooperative agreement with Groove Tubes to manufacture
an exact copy of the original RCA "black plate" 6L6GC.

Triton Services ETD, Gaithersburg MD:
Makes some Eimac and Litton glass power types, using equipment
>from the original manufacturers.

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From rcsigurd@mm.com Tue Dec 17 15:46:25 CST 1996
Article: 20311 of rec.audio.tubes
Path:
geraldo.cc.utexas.edu!cs.utexas.edu!howland.erols.net!www.nntp.primenet.com!nntp.primenet.com!visi.com!mr.net!news.mr.net!204.73.34.145
From: rcsigurd@mm.com (Richard Sigurdson)
Newsgroups: rec.audio.tubes
Subject: Re: tube manufacturer codes?
Date: Tue, 17 Dec 1996 20:23:26 GMT
Organization: Minnesota Regional Network (MRNet)
Lines: 43
Message-ID: <32b70997.0@vortex.mm.com>
References: <32AC7E1F.7ED9@redrose.net>
NNTP-Posting-Host: vortex.mm.com
X-Newsreader: Forte Free Agent 1.0.82

Gordon Trump wrote:

>Many years (25+) ago when I serviced consumer and pro audio and video gear,
>the tubes we bought for replacement use all had a 3-digit code on the side.
>"274" was RCA and "312" was Sylvania and "337" was Zenith? This code
> Does anyone have a list of these codes? They ocasionally also
>appeared on other parts- like transformers, etc.
>--
>Gordon O. Trump Sales Engineer
>Red Rose Communications
>717.738.8441 voice 717.738.7030 fax

Gordon,

In the early 70's I was a tech at a local Sylvania TV distributor and had a book
published by the EIA (trade association of domestic OEMs) which had a list of numbers
followed by the vendor. I wish I had a copy of that book today. The numbers you have
listed are correct.

Other OEMs are GE -188 , Westinghouse-337, Tung-Sol-322, Raytheon-280.
GE put 188 on tubes they made and labeled GE but RCA did not put 274 on RCA branded tubes,
but 274 was found on tubes they made for other OEMs including Sylvania and GE.

Zenith didn't make their own receiving tubes but did have a CRT plant (Rauland) and put
the Rauland number on those tubes. Sylvania made the majority of small tubes for Zenith,
and I believe they designed tubes for their specific needs.

Motorola, Admiral, and other smaller manufacturers bought tubes from who ever made tubes
that fit their specs. Those tubes had the set name (Motorola, etc,) labeled, along with
the EIA code stamped on the tube, along with a date code, such as 6812, meaning the tube
was made in 1968, 12th week.
Picture tube date codes were usually 2 years (color) or 1 year (b&w) from the date of
manufacture which indicated the end the warranty period.

With the majority of components for home entertainment product being made off-shore, most
of them don't have EIA numbers. I have seen currently made CRTs with familiar 312 and 274
numbers on them though.

Richard Sigurdson
Sr. Eng. Tech. KMSP-TV/UPN9-Mpls/St. Paul
rcsigurd@mm.com

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From howardc@kaiwan.com Tue May 30 22:42:37 CDT 1995
Article: 1481 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.reston.ans.net!news-e1a.megaweb.com!newstf01.news.aol.com!uunet!tandem!UB.com!kaiwan.kaiwan.com!not-for-mail
From: howardc@kaiwan.com (Howard Christeller)
Newsgroups: alt.guitar.amps
Subject: Re: Tube questions
Date: 30 May 1995 08:33:36 -0700
Organization: KAIWAN Internet (310-527-4279,818-756-0180,909-785-9712,714-638-4133,805-294-9338)
Lines: 96
Sender: howardc@kaiwan009.kaiwan.com
Message-ID: <1tjyvc001wtK083yn@kaiwan.com>
References: <3q331l$lb3@newshost.loc3.tandem.com> <3q3960$ehp@panix2.panix.com> <3q7v5u$p6r@panix2.panix.com> <3q81oi$g69@over.mhv.net> <3q8s07$j8o@panix2.panix.com>
NNTP-Posting-Host: kaiwan009.kaiwan.com

In article <3q8s07$j8o@panix2.panix.com>,
mgarvin@panix.com (Mark Garvin) wrote:
> In <3q81oi$g69@over.mhv.net> Dr.Distortion@bbs.mhv.net (Dr Distortion) writes:
>
> >The "G" stood for glass envelope. B, C and so on indicated upgrades. How
> >come there was never a 6L6GA? I have no idea... I believe the
>
> > We could probably get more definitive answers to these questions on the
> >newsgroup rec.antiques.radio+phono. Those guys are real knowledgeable
> >about ancient electronics lore.
>
> Yeah, it would be nice. Unfortunately such questions are frowned
> upon there. I hate moderated news groups.

r.a.r+p is not moderated. It is a good source, and one that I read,
even though I am not a radio collector. Mark it "read-only" ;-)

The tube numbering scheme used by US companies comes from the Radio Manufacturer's Association. It consists of a number, a one or two letter type designation, another number, and suffixes.

The first number indicates, very roughly, the filament voltage. If there is a center tap, the series voltage is used. For example, a 12AX7 may used with 12.6V or 6.3V connections.

The type designator is a sequentially assigned letter, or pair of letters. Other than the fact that they started assigning rectifiers in reverse order, the letter doesn't mean anything. When they ran out of single letters, they used two. In some cases, if the first letter is L, then that means a locking-base type. If the first letter is S, it may mean a single-ended (using pins on one end only) version of a tube which has a plate or grid cap.

The second number is the number of useful elements. Elements which are internally connected count as one. Using the 12AX7 again, there are two cathodes, two grids, two plates, and a heater. If you wonder what the six elements of a 6L6 are, they are the cathode, grid, screen, plate, heater, and shield. The shield is the metal envelope of the original 6L6. Glass versions of the 6L6 were not renumbered, in spite of not having the sixth element, because that would confuse the replacement issue.

Suffixes A, B, C, D, E, and F indicate a newer version which can replace any previous version. G indicates a large glass bulb, and GT a small, straight-sided glass bulb (T9). W indicates an industrial or military version. An industrial version may be more rugged, have lower noise, or a longer life. The reason for the industrial version may or may not be something that you care about. X and Y mean low-loss or medium-loss bases, which affect RF performance.

The European numbering system has been described on r.a.r+p, and I can check my files if anyone is interested.

The two, three, and four digit industrial numbers have no meaning, except perhaps the order of design. Some industrial types are based on standard types, but with different specs. They are similar, but may not be suitable replacements.

GE ETRM-15N lists these industrial variations on the 6L6:

6L6 1622
6L6G 5881, 5932
6L6GC 7581, 7581A

The 6L6 family:

TYPE BASE OUTLINE PLATE PLATE SCREEN SCREEN
WATTS VOLTS WATTS VOLTS
6L6 7AC 10-1 19 360 2.5 270 DESIGN CENTER
6L6-G 16-3
6L6-GA 14-3
6L6-GB 12-15
6L6-GC 12-15 30 500 5.0 450 DESIGN MAX

Outline Drawing 10-1 shows a small-wafer octal base with a metal MT10 envelope. 16-3 shows a medium-shell octal base with a glass ST16 bulb. 14-3 uses a smaller ST14 bulb. 12-15 uses the straight-sided T12 bulb. The ST bulbs are the "Coke-bottle" shape.

The RMA Design Center ratings for power line operated equipment assume a 10% power line variation. In 1957 the RMA switched to the Design Max ratings and eliminated the power supply tolerance. Thus, the Design Center ratings are about 10% lower than the Design Max ratings. The 5881 Design Max ratings of 21W & 400V are equivalent to the Design Center ratings of 19W & 360V of the 6L6G it is derived from.

So the 6L6 started as a metal tube, went to a large Coke bottle (G), a small Coke bottle (GA), and then the straight-sided bulb (GB). Finally, the ratings were increased (GC). Rugged (W) versions exist. NOS tubes follow this naming scheme. Some distributors screw up, so you get bullshit like a Coke bottle labeled 6L6GC, which it can't be.

--
Howard Christeller howardc@kaiwan.com Irvine, California

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From postmaster@triodeel.com Sat Nov 7 18:47:24 CST 1998
Article: 137636 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.erols.net!novia!sequencer.newscene.com!not-for-mail
From: postmaster@triodeel.com (Ned Carlson)
Newsgroups: alt.guitar.amps
Subject: Re: Help ! 6V6 tube question
Date: 7 Nov 1998 14:26:05 -0600
Organization: Triode Electronics
Lines: 72
Message-ID: <3644990c.225010242@news1.newscene.com>
References: <19981107000032.00811.00000412@ng-fb2.aol.com> <3643dfa6.177541556@news1.newscene.com>
<36443BB9.128C@timeelect.com>
Reply-To: postmaster@triodeel.com
X-Newsreader: Forte Free Agent 1.11/32.235
Xref: geraldo.cc.utexas.edu alt.guitar.amps:137636

On Sat, 7 Nov 1998 09:22:13 -0500, "Steve Watson"
wrote:
>I always thought that tube relabelers had to put the country of origin on
>the tube. Is this not true?
>Steve

This was the convention that was adopted by US Customs for tube
importers, in lieu of labelling the box with the country of origin
(which the Canadians used to do with all their tubes), the tube
companies had the tubes labelled with country of origin
in the originating country, then the boxes said "Country
Of Origin as Stated On Tube".

Customs was much more diligent about checking this back when
there was a 35% punitive duty on most products from Communist
countries, because goods were frequently mislabelled to avoid the
duty, and some, including Richardson, who labelled the fake
"English 6V6-GTA", got in a peck 'o trouble for that.
(I myself had tubes impounded by customs because the vendor
had failed to label them properly, then I had to put up a
bond to get 'em out, then had to have Customs reinspect them
after I'd paid to have them labelled myself)
This problem was exacaberated by the fact that EC (Common Market)
countries normally don't require the country of origin labellling, and

people were importing unlabelled Eastern bloc tubes intended for sale
there,such as the Yugoslav and East German product that
Siemens & Telefunken were marketing.

Nowadays Customs seems more concerned with industrial & transmitter
tubes of the same types as US companies like Eimac make,
that might be imported, fake labelled and passed off as
US product. Small tubes don't seem to be a priority, so long as
importers aren't trying to pass them off as something they're not.
They're also quite diligent about trying to prevent illegal export of
items like krytrons and ignitrons, which might be used in
weapons systems. A lot of high-tech vacuum technology is export
restricted.

The problem with the 6V6's, is that there's still likely thousands
of Russian ones from the bad old days floating around with fake
country of origin labelling. Since there's a plethora of real NOS
on the market, the new Sovtek ones are etched in the glass
"Sovtek 6V6-GT Made In Russia", and Russian tubes are charged
the same duty rate as tubes from other countries,it's unlikely that
many people nowadays are fake labelling Russian 6V6's.

You are much more likely to run across fake labelled
product if you are trying to purchase rare European NOS
product, eg: like the famous (or infamous) Amperex "Bugle
Boy" or Telefunken 12AX7's & EL84's, due to the elevated
prices on those products, some folks have been rumored to
be fake labelling stuff like Hungarian and Yugoslav product
with those marques. As I mentioned before, Siemens and

AEG/Telefunken themselves aren't above slapping their
brand on new Eastern European tubes, either.
Also, quite *legally*, the current owner of the Amperex brand name
has been grading and relabelling US made Philips (nee Sylvania)
ECG product as "new Amperex Bugle Boys" at what I consider
ridiculous prices. I've heard that their "Bugle Boy" EL84's and
EL34's are really Sovteks. Not bad tubes, but not NOS Dutch
product, either!

Ned Carlson Triode Electronics "where da tubes are!"
2225 W Roscoe Chicago, IL, 60618 USA
ph 773-871-7459 fax 773-871-7938
12:30 to 8 PM CT, (1830-0200 UTC) 12:30-5 Sat, Closed Wed & Sun
http://www.triodeel.com
Your Start Page for Tube and Tube Amp info on the net...
http://www.triodeel.com/tlinks.htm

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From postmaster@triodeel.com Thu Aug 12 11:45:11 CDT 1999
Article: 195512 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!news.maxwell.syr.edu!sunqbc.risq.qc.ca!novia!sequencer.newscene.com!not-for-mail
From: Ned Carlson
Newsgroups: alt.guitar.amps,rec.audio.tubes
Subject: Re: NOS Tube stability
Date: 12 Aug 1999 03:18:01 -0500
Organization: Triode Electronics
Lines: 26
Message-ID: <37B2835C.3D3219F3@triodeel.com>
References: <7osa2ogau1@nnrp1.deja.com>
Reply-To: postmaster@triodeel.com
X-Mailer: Mozilla 4.5 [en] (X11; I; Linux 2.0.36 i586)
X-Accept-Language: en
MIME-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit
Xref: geraldo.cc.utexas.edu alt.guitar.amps:195512 rec.audio.tubes:133014

fiftywatt@yahoo.com wrote:
> A respected amp tech friend of mine now tells me that these old stock
> tubes still have unstable elements inside that are not inert and that
> NOS tubes are not reliable and essentially deteriorate over time even
> if they have never been used. Comments anyone?

I think you answered your own question, your experience indicates
otherwise, and you done seen & heard it yourself.This equates
with my experience.

I believe your amp tech friend is referring to thorium when he
refers to "unstable elements". AFAIK, the types of tubes used in
guitar amplifiers do not contain thorium.

I've seen some really, really old (we're talking 30's & 40's stuff)
tubes with a little layer of white sheen on the getter.
This will only happen if there are gasses in the tube to react with the
getter, whether the gasses in question were from the inside of the
tube or migrated through the glass, I don't know.

--
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http://www.triodeel.com

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From ftom@netcom.com Mon Jun 26 21:11:15 CDT 1995
Article: 1974 of alt.guitar.amps
Newsgroups: alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!news.sprintlink.net!noc.netcom.net!netcom.com!netcom10.netcom.com!ftom
From: ftom@netcom.com (Tom May)
Subject: Re: Phase splitters: new vs old
In-Reply-To: mgarvin@panix.com's message of 25 Jun 1995 03:08:25 -0400
Message-ID:
Sender: ftom@netcom10.netcom.com
Organization: The Planet Eden
References: <3rgpq6$i5g@panix2.panix.com> <3rl7ai$cr3@over.mhv.net>
<3sj219$8i7@panix2.panix.com>
Date: Mon, 26 Jun 1995 22:40:25 GMT
Lines: 29

In article <3sj219$8i7@panix2.panix.com> mgarvin@panix.com (Mark Garvin) writes:

>There *is* something else, too. I've been hesitant to mention this
>cause it's pretty obscure, but I've slowly been coming to accept it.
>(Again, I haven't reproduced this--it's a long-term effect):
>I understand that the higher DC path can let ionization/residual
>charge buildup within the tube, which ionizes yet more of the
>residual gases. The increased ionized gas compounds the effect
>and it avalanches. The tube 'goes gassy' much earlier.

>How's that for urban tube folklore? Probably true, tho.

I thought that was the effect you were talking about all along. I quote from the RCA Receiving Tube Manual where this effect is described: "Also, the grid resistor of the following stage should not be too large, the actual maximum value being dependent on the particular tube type. This precaution is necessary because all tubes contain minute amounts of residual gas which cause a minute flow of current through the grid resistor. If the grid resistor is too large, the positive bias developed by the flow of this current through the resistor decreases the normal negative bias and produces an increase in plate current. This increased current may overheat the tube and cause liberation of more gas which, in turn, will cause further decrease in bias. The action is cumulative and results in a runaway condition which can destroy the tube."

Is there another effect which can be cured by cycling the power?
--
Tom.

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From dam@dcs.gla.ac.uk Thu Mar 24 12:37:23 CST 1994
Article: 16832 of rec.music.makers.guitar
Newsgroups: rec.music.makers.guitar
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.reston.ans.net!pipex!uknet!dcs.gla.ac.uk!dam
From: dam@dcs.gla.ac.uk (David Morning)
Subject: Re: 6L6=>6V6
Message-ID:
Organization: Computing Science Dept., Glasgow University, Glasgow, Scotland
References: <2mo0du$12n@taco.cc.ncsu.edu>
Date: Thu, 24 Mar 1994 16:05:55 GMT
Lines: 73

lebow@psl1.nrl.navy.mil writes:

>In article keen@austin.ibm.com (RG Keen)
>writes:
>>
>>Nathan mentions a good trick (Hi, Nathan. Oh, yeah, drop me a note on
>>transformers...). Use a tube rectifier to drop B+. You can keep your
>solid
>>state rectifiers there, just stick a tube in series. This will help
>>extend the life of the other tubes, BTW, by not allowing the B+ to be
>>present before the heaters are warm, inducing cathode stripping. You
>could
>>even stick in two in series :-) . You'll drop about 50 volts or so per
>>tube. You could also stick in a -*power*- resistor and drop some volts
>that
>>way, too.

>Does this mean amp is running hotter at idle due to rectifier tube
>current?

No. The heater circuit has little to do with the plate current, it relates
to 'thermionic' effects.

All metals when heated in a vacuum exhibit this effect over a small range of
temperature, some are better than others at it. The operating temperature is
around 1200degC although that is variable dependant on the metal, some are
down as low as 500degC, others are nearer 2000degC. What happens is this.

As the metal is heated in a vacuum it reaches a point at which electrons start
to migrate off the surface and collect in a cloud. The size of the cloud and
its distance from the surface is dependant on the metal and its temperature.

Eventually the cloud becomes so negatively charged with electrons, it repels
any further electrons trying to leave the surface and equilibrium is reached.

Now introduce a positively charged electrode and electrons will start to leave
the cloud and head for the electrode. For each electron that leaves the cloud,
this leaves space in the cloud for one from the heated surface to move up and
join. A third electrode is used to control the rate of flow of electrons from
the cloud to the positive electrode. The heated electrode is the cathode and
is usually made out of thoriated tungsten. The heater is just a filament like
a light bulb to warm up the cathode and the positive charged electrode is the
anode or plate.

The current through the plate is, to a certain extent independant of temperature
(it isn't really, at extremes it obviously matters) thus if you switch on
an amp with both heater and HT (B+) off, the HT (B+) comes on immediately
with a solid state rectifier but the cathode is not up to temperature yet.

The anode is trying to grab electrons that aren't there. As things hot up,
there is a rustling on the ol' cathode as the electrons slowly start to warm
up, the anode grabs them before they even get a chance to move to the cloud
ripping them out the cathode and literally taking lumps of the cathode with
it - cathode stripping. Once it's all up to temperature though, everything
is ok and settles down as this only happens during the 'warm-up' phase.

That's the reason tube amps are usually fitted with two power switches, the
main power starts up the heaters, while the 'stand-by' switches on the HT(B+)

By incorporating a tube rectifier into the main supply, it takes a while to heat up before allowing HT to pass through, giving the main tubes in the amp a chance to get up to working temperature before HT is applied thus, less chance of cathode stripping, longer tube life. Dropping the HT by 50 volts will cause a slight fall in the quiescent current through all the tubes.

Lowering the HT voltage will dramatically reduce your power output as the relationship between power output and voltage is a square law.

--

==========

| Where are they now? | Dave Morning |
| No.52.....Gonks | dam@dcs.gla.ac.uk |

==========

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From ftom@netcom.com Sat Aug 26 22:23:18 CDT 1995
Article: 3121 of alt.guitar.amps
Newsgroups: alt.guitar.amps
Path:
geraldo.cc.utexas.edu!cs.utexas.edu!news.sprintlink.net!newsfeed.internetmci.com!howland.reston.ans.net!ix.netcom.com!netcom.com!netcom16.netcom.com!ftom
From: ftom@netcom.com (Tom May)
Subject: Re: 6v6gt, gta, gty
In-Reply-To: Dr.Distortion@bbs.mhv.net's message of 25 Aug 1995 18:02:03 GMT
Message-ID:
Sender: ftom@netcom16.netcom.com
Organization: The Planet Eden
References: <9508161014452010@welcom.gen.nz> <40uen2$1g8o@usenetw1.news.prodigy.com>
<41kslo$1a57@Phoenix.kent.edu> <41l36r$crf@over.mhv.net>
Date: Fri, 25 Aug 1995 22:58:24 GMT
Lines: 108

In article <41l36r$crf@over.mhv.net> Dr.Distortion@bbs.mhv.net (Dr Distortion) writes:

>That makes sense. If the operating points of the two tubes are somewhat
>mismatched, the clipping points should be skewed, which supposedly
>generates more even-order harmonics. I don't know the actual
>mechanics of why that is, since it involves shit like Fourier analysis
>that I really don't understand too well.

Here is an intuitive (I hope) explanation of this odd/even harmonic
stuff with no Fourier analysis. It may not be rigorous, but it helps
me to remember what's what with harmonics and distortion:

Take one sine wave (this is gonna be tough):

```
***
** **
* *
* *
-*----------*----------*
* *
* *
** **
***
```

That is the first harmonic, also known as the fundamental. The second
harmonic is a sine wave of twice the frequency. Here's a plot of the
first(*) and second(+) harmonics:

```
***
** **
* *
* +++++ * +++++
-*--+-----+--*--+-----+--*
++++ +++*+ +*+
* *
** **
***
```

If they are added together, the resulting wave is asymmetric. The
second harmonic increases the peak of the first half, but flattens the
peak of the second half (I cheated a little on the addition here to
make it look better):

```
@@@
@***@
@* *@
* *
*@ +++++ @* +++++
-*@-+-----+-@*--+-----+--*
+@++ ++@*+ +*@
@* *@
@@@@@@@@@@
***
```

That is what your asymmetrically biased push-pull output tubes are
doing to the wave -- giving it lots of second-harmonic distortion
(same for a SE output). Admittedly, I adjusted the phase of the
second harmonic to make the result look like this (i.e., I moved it
left or right until its peaks coincided with the peaks of the
fundamental), but that is not important. What is important is that
whatever it is doing to one side, it is doing the opposite thing to
the other side, regardless of the phase.

Here is the picture with the third harmonic:

```
***
** **
* *
```

```
+++ +++ +++
-+---+---+---+---+---+---+
+++ +++ +++
* *
** **
***
```

Adding together:

```
@ *** @
@*@@@@@*@
@* *@
+++ +++ +++
-@---+---+---@---+---+---@
+++ +++ +++
@* *@
@*@@@@@*@
@ *** @
```

Here the wave is clipped symmetrically. Even if you adjust the phase of the third harmonic, the resultant wave will always be symmetric -- what happens to one side happens to the other. This same symmetry holds for all odd harmonics.

So the moral of this whole thing is, if you have an asymmetric wave (clipped harder on one side, say, as in a single-ended circuit or mismatched push-pull), you got even harmonics (mostly second), and possible odd harmonics as well in smaller amounts. If your wave is distorted symmetrically (as happens in push-pull with matched tubes), you got odd harmonics only (because even harmonics would cause asymmetry).

I should be clear what I mean by symmetry. What I mean is, with a symmetric wave, you can take the top half and flip it over the horizontal axis, then slide it to the right and it will match up exactly with the bottom half of the wave. E.g., square waves are symmetric, sawtooth waves (/|/|) are not.
--
Tom.

From tremolux@aol.com Sat Aug 26 22:23:46 CDT 1995
Article: 3134 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!swrinde!howland.reston.ans.net!news.sprintlink.net!in1.uu.net!newstf01.news.aol.com!newsbf02.news.aol.com!not-for-mail
From: tremolux@aol.com (Tremolux)
Newsgroups: alt.guitar.amps
Subject: Re: 6v6gt, gta, gty
Date: 25 Aug 1995 22:49:08 -0400
Organization: America Online, Inc. (1-800-827-6364)
Lines: 5
Sender: root@newsbf02.news.aol.com
Message-ID: <41m234$gko@newsbf02.news.aol.com>
References:
Reply-To: tremolux@aol.com (Tremolux)
NNTP-Posting-Host: newsbf02.mail.aol.com

This unequal clipping amplitude is EXACTLY what I did in Mike Fuller's FullDrive overdrive pedal specifically to increase the even-order content.
It works!!

Regards.

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From jlowe@hiwaay.net Thu Apr 18 12:11:04 CDT 1996
Article: 8663 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!bcm.tmc.edu!news.msfc.nasa.gov!newsfeed.internetmci.com!news.sprintlink.net!new-news.sprintlink.net!HiWAAY.net!fly.HiWAAY.net!jlowe
From: jlowe@hiwaay.net (Joe Lowe)
Newsgroups: rec.audio.tubes
Subject: Re: Restoring power audio vacuum tubes
Date: 18 Apr 1996 15:52:27 GMT
Organization: HiWAAY Information Services
Lines: 36
Message-ID: <4l5ofr$kv2@parlor.hiwaay.net>
References:
NNTP-Posting-Host: fly.hiwaay.net
X-Newsreader: TIN [version 1.2 PL2]

: Do someone know how to regenerate (weak, used) power audio vacuum
: tubes?
: Some time ago I read something about rejuvenating the barium
: oxide cathode coating but not remembering the specifics, tried 8V heater
: voltage between pins 2 and 7 (draws about 1 A. current) during 60-80
: seconds and left all other pins open. Got a nice orange glowing cathode,
: but did not seem to help much.

As far as I know the ONLY type of cathode that can be "regenerated" is the directly heated thoriated tungsten _filament_ types. The theory is this: The active thorium is dispersed throughout the filament wire and is diffused to the surface at a rate that will keep up with the demand for electrons. If the filament is operated at too low a voltage or overloaded the surface layer of thorium will be depleted faster than it diffuses to the surface.

The reactivation process starts by operating the filament at about 3X normal voltage for a couple of min. this causes the thorium which is bound with carbon in the filament to become an active emitter of electrons, and cleans the surface of the filament. Next the filament is operated at a slightly elevated voltage for a period of hours to allow the thorium to diffuse to the surface. I have tried this and it does work, however on extremely old tubes it will not last long, the thorium eventually becomes depleted and the tube is worn out. This process will however fix a tube damaged by a heavy overload, or that has been operated at the wrong filament voltage.

Trying this with a coated cathode WILL NOT WORK, in fact it will damage the cathode further.

My source for this information is _A Radio Physics Course_ by Gerabaldi, and various Radio texts from the 30's, 40's, and 50's

Joe

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From keen@austin.ibm.com Sat Aug 13 16:19:44 CDT 1994
Article: 22238 of alt.guitar
Newsgroups: alt.guitar
Path:
geraldo.cc.utexas.edu!cs.utexas.edu!howland.reston.ans.net!swiss.ans.net!newsgate.watson.ibm.com!watnews.watson.ibm.com!bocanews.bocaraton.ibm.com!portal.austin.ibm.com!awdprime.austin.ibm.com!keen
From: keen@austin.ibm.com (RG Keen)
Subject: Re: Tube question (confusion)
Originator: keen@keen.austin.ibm.com
Sender: news@austin.ibm.com (News id)
Message-ID:
Date: Fri, 12 Aug 1994 16:27:31 GMT
References:
Organization: IBM Austin
Lines: 90

In article , Ken Harris writes:
> I'm getting confused on tubes. Would it be possible
> for someone to list the different types of tubes,
> both preamp and power amp tubes? (OR are there
> too many?)
>
> Creating this confustion, I took my
> old preamps tubes in, they were 12AX7As, and
> they guy gave my 12AX7s, saying there was no
> difference. The power tubes I think were 6L6s
> or something, and he gave me ones with a four
> digit code. They worked fine, but left me
> confused.
>
> Any help in this would be appreciated. Is there
> a FAQ covering this kind of stuff?

Tubes were made in a bewildering array of types, just as transistors were in the golden age of transistors. And since many of these differed only trivially, they could be substituted for one another in many cases. As manufacturers noticed this, they began manufacturing fewer types which were labeled with different numbers, but which could work at least passably as the different types. (gosh, how's that for a fast, broad brush?)

Today, there are very few tube lines in operation, and even before the US and Euro lines shut down, the number of different tubes contracted drastically, until today, any difference between say a 12AX7 and a 7025 is academic or accidental. They may well have come from the same tube line, and just be labelled differently. This is one reason people search out new-old-stock (NOS) tubes, to actually get a quieter 7025.

The following is a run down of audio tube types. I'll probably miss a few

and make a mistake or two, but it should give the flavor.

Class - twin triodes

Primary member - 12AX7 and substitutes/equivalents
12AX7 - original high gain twin triode, amp factor 100
12AX7A- "improved" 12AX7, better specs on some things
ECC83 - Euro designation for a 12AX7 compatible twin triode
7025 - originally an industrial number for a lower noise/hum 12AX7
5751 - originally a military special type that is slightly lower gain,
but sturdier, less microphonic

Other members
12AT7, 12AU7, 12AY7, ECC82, many others; lower gain, higher current
twin triodes with a type "9a" pinout. These are used where lower gain
or wider frequency response, or higher current is needed.
6EU7 and clones - high gain twin triode, functionally similar to 12AX7,
different pinout and some parameters.
6DJ8, 6922, and clones; high transconductance twin triode intended for
radio use but used in some hifi audio stuff

Class - power output tubes

6L6 and its other variants - the "standard" beam power tube for Fenders
and many others; a pair can put out 50 watts if they are pushed to the
edge; 6L6 is an old design, but became a standard
5881 - a "military" type like the 6L6, may be directly substituted
EL34/6CA7 - Euro/US versions of a true power pentode roughly similar to
the 6L6 in power output, but not directly pin or circuit compatible
without modifications
6550 - an industrial power pentode, higher voltage and power output than
6L6 types; used in the SVT
7027/7027A - yet another power tube slightly higher ratings than 6L6, not
directly plug or circuit compatible; used in old Ampeg amps.
8417 - late design (60's) power tube with high transconductance, low Rp,
suitable for high power, easier design of output transformers. never
produced in high quantity because transistors came along.
6V6 - Smaller output tube than 6L6, produces 15-20 watts when pushed. 6L6
can be sub'ed into a 6V6 socket, but needs rebiased to work right.
6V6 into a 6L6 socket kills the 6V6.
6AQ5 - mini-envelope version of 6V6, same characteristics but lower power
and voltage ratings. Used only in old, obscure guitar amps, but sounds
good.
EL84/6BQ5/7189 - mini-envelope pentode, produces 20-30 watts when pushed;
famous for use in quads in the Vox AC-30

Class - miscellneous tubes
7199 - combined pentode/triode in one envelope. Used as an amplifier/phase

splitter in many hifi amps, lots of old Ampeg, Gibson, other guitar amps
6AN8 - different pinout, same discription
6U8 - ditto
6AU6 - high gain pentode used as an audio amp in some older gear

Can anyone help me with making this more accurate and inclusive? I'll include it in the tube amp mini-faq.

R.G.

Back to JT30 Home

From mgarvin@panix.com Fri Jul 7 11:23:08 CDT 1995
Article: 51507 of alt.guitar
Path: geraldo.cc.utexas.edu!cs.utexas.edu!swrinde!hookup!panix!not-for-mail
From: mgarvin@panix.com (Mark Garvin)
Newsgroups: alt.guitar
Subject: Re: SOLID-STATE VS. TUBE AMPS
Date: 6 Jul 1995 07:30:04 -0400
Organization: PANIX Public Access Internet and Unix, NYC
Lines: 83
Message-ID: <3tghfs$725@panix2.panix.com>
References: <73166-804387660@mindlink.bc.ca>
NNTP-Posting-Host: panix2.panix.com

>In article <73166-804387660@mindlink.bc.ca>, Dario_Sartor@mindlink.bc.ca (Dario Sartor) writes:
>> I've used tube amps and solid state amps and find that solid-state
>> are superior over the tube amps in many ways. 1: realiable 2: cheaper
>> 3:consistent 4: alot more bottom.

In keen@austin.ibm.com () writes:
>Sounds great. You use the neato solid state amps, I'll just scrape
>by and make do with these old, silly, weak, tired tube amps...

This post is not intended as a reply to Mr. Keen. I agree with
his preference for tubes, but some day they'll...some day they'll...
oh..sorry..momentary flashback.

The overall effect is very dependent on design. No reason why a
solid-state amp should have inherently more bass, for instance.
And *lots* of nasty unreliable solid-state amps have come thru
my shop.

Tubes will probably continue to be less consistent, but that may
mean that solid-state amps have 'consistently' bad tone. I will
not argue that, since everyone has their own preference. The
fact is, though that when cost is no object, most guitarists
go with tubes.

Tubes will probably continue to be more expensive, true.

And on the technical side (you were waiting?):

Tube amp power supplies can get by with much less regulation,
and frequently have to, due to the cost of high-voltage regulators.
This means that the amp will tend to starve its own preamp slightly
when it is pushed hard. This is one of the reasons that tube
rectifiers are popular: The additional impedance in the supply
causes even more 'sag'. The overall effect is a sort of compression,
and enhanced perception of sustain.

Tubes do not top- or bottom- out sharply. This attributes what
could be called 'headroom'. Also causes a compression/sustain
effect at high drive levels.

Tube amps have big transformers. Properties such as phase shift
and damping factor are affected. Lower damping factors in tube
amps mean that speakers become more of the equation. And the sound
becomes looser, less controlled. This is usually regarding in
hifi amps as a drawback, by the way.

Tube amps usually have low overall feedback levels. Not Hendrix-
style feedback. Internal electronic feedback in extremes was one of
the real problems with early solid state designs. It caused some
types of (bad-sounding) distortions that hadn't even been named
yet...slew-induced distortion, and transient-intermodulation.
Some new amps try to minimize 'global feedback', but it is generally
tougher to accomplish in a solid-state amp.

Here's the tough one: Why hasn't anyone done a perfectly convincing piano sample? Because hitting one note on the piano causes the whole instrument to vibrate. Sets all the other strings in motion.

Well, to some extent, tubes end up being mechanical devices. Tap on them and you can generally hear a microphonic effect. Is it coincidence that old combo amps like Vibro's and Super's are held in high regard? Possibly, but some hold that the amp is acting like a holistic organism (hey..) and feeding a part of energy back into its own tubes.

This could be good or bad, but it's something a transistor amp doesn't know how to do. Transistor amps, contrary to the above, behave as small isolated sections. Very little interaction, good or bad, thru their power supplies, etc.

So, it's a different thing. If you want a tight, controlled sound, which maybe you *do* want for your stereo or bass guitar, then the solid-state amp may be the thing.

If you want a looser, maybe less predictable, personal sound, with inherent compression, that acts like a breathing organism, then find the right tube amp and learn how to make it respond.

Mark Garvin

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From kevin@upscaleaudio.com Sat Feb 6 13:28:17 CST 1999
Article: 157368 of alt.guitar.amps
Path:
geraldo.cc.utexas.edu!cs.utexas.edu!news.maxwell.syr.edu!newsfeed.cwix.com!206.165.3.11!nntp.primenet.com!news.primenet.com!not-for-mail
From: "KEVIN DEAL / UPSCALE AUDIO"
Newsgroups: alt.guitar.amps
Subject: Re: Best 6V6s for '58 Tremolux?
Date: Sat, 6 Feb 1999 07:26:58 -0500
Organization: Frontier GlobalCenter Inc.
Lines: 72
Message-ID: <79hn2fbfe1@nnrp02.primenet.com>
References:
NNTP-Posting-Host: ip-50-226.bur.primenet.com
X-Complaints-To: abuse@globalcenter.net
X-Posted-By: @207.218.50.226 (upscale)
X-Newsreader: Microsoft Outlook Express 4.72.3110.5
X-MimeOLE: Produced By Microsoft MimeOLE V4.72.3110.3
Xref: geraldo.cc.utexas.edu alt.guitar.amps:157368

Shaun Wolf Wortis wrote in message ...
>Suggestions for 6V6s for a '58 Tremolux? I've been using NOS Philips but
>seem to be going through them at an alarming rate (they seem to last about
>10 hours before suddenly developing unpleasant qualities--crackling, other
>noise, bias problems, etc). Plus they are very expensive..
>
>Should I assume that there are still no quality new 6V6s being made?

I have RCA and Visseaux in stock. The Visseaux is the best I have used.

Here's an excerpt of what Terry Buddingh who writes for Guitar Player and Vacuum Tube Valley said about this tube in the 6V6 shoot out in the most recent issue of VTV:

By the way...if you want to read a cool mag check out VTV. It's a hoot....great history, great pictures. Go to www.vacuumtube.com
---

"VISSEAUX: I was initially reluctant to push these cute little metal-based 1951 tubes very hard. But the bias was rock-solid at 400 VDC, so I thought I'd push them to see what they could really take. The bias was still rock-solid as high as 465 VDC (In a Fender Super Reverb!), where I chickened-out, before they did. These are tough little tubes! They sounded unbelievably good at 450 VDC and 30ma. Nicely balanced, great detail, strong and punchy midrange, and startling transients.

In the 1965 Deluxe (at 425 VDC and 30 ma) I was impressed with this stout and punchy, forward sounding little tube. It evoked images of a Mullard
EL-34 powered Marshall Super Lead 100. Rich, smooth, un-harsh, well balanced, and
silky smooth. Full and creamy mids, with a polished stainless steel-like quality to the top. The mids were tighter, punchier, more aggressive, more assertive, and more focused than the RCAs. It's one mean and nasty tube!"

This tube was made for the French Military and came out of Fort D'Issey where they have been in storage since 1951. I have the in the original shipping cartons, and they are in the coolest boxes.

I have not had a single defective tube come back. In fact...I have not had one test bad in our custom built tube matching jig. And we run 'em at real voltages. I know this is hard to fathom, but true. So you have a tube that is more consistent, last longer, and most folks think sounds better than RCA's.

The price for matched pairs/quads is $22 per tube.

Qty discount available

Regards,

Kevin Deal Voice: (909) 931-9686 Fax: (909) 985-6968 10-6 pst Mon-Sat
Upscale Audio 2504 Spring Terrace, Upland, California 91784

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Meadowlark *** PSB *** Eminent Technology *** Speakercraft *** Odyssey
Nordost Flatline *** Basis *** Benz *** Nitty Gritty *** Kimber Kable & more

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From larrysb@aol.comNOspahm Thu Apr 29 22:58:54 CDT 1999
Article: 175854 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.erols.net!portc02.blue.aol.com!audrey01.news.aol.com!not-for-mail
From: larrysb@aol.comNOspahm (LarrySB)
Newsgroups: alt.guitar.amps
Subject: Warning for Visseaux 6V6GT
Lines: 26
NNTP-Posting-Host: ladder05.news.aol.com
X-Admin: news@aol.com
Date: 29 Apr 1999 20:07:01 GMT
Organization: AOL http://www.aol.com
Message-ID: <19990429160701.24942.00000283@ng-fi1.aol.com>
Xref: geraldo.cc.utexas.edu alt.guitar.amps:175854

Just a note to anyone trying the Visseaux 6V6GT.

Unlike most (all?) other glass 6V6 GT's, the Visseaux has a metal band around
the base, like a 6550. The metal band is connected to pin 1. Usually, on any
glass type 6V6GT, pin 1 is either absent or not connected on pin 1. The metal
band on the Visseaux is painted black, not shiny bright metal, so it isn't
entirely obvious that it is metal.

In the typical Fender amplifier, pin 1 is used as a tie point for the control
grid, and the negative bias voltage is present.

If you use the Visseaux 6V6, this voltage will be present on the metal base of
the tube.

If your amp has the "bear-trap" type tube clamps, they will ground the metal
base of the tube and pin 1 in the socket, and rob the tube of all bias voltage.

To safely use the Visseaux 6V6 on the typical 6V6 guitar amp, you need to make
sure that pin 1 of the socket is not connected to anything other than ground,
or remove the tube clamps to make sure the base doesn't accidently get
grounded.
--
Dr. Nuketopia
The Blue Glow FAQ is temporarily down - look for a new link in the near future.
When replying, please note that your email is *not* spam in the subject line.

From kevin@upscaleaudio.com Fri Apr 30 13:26:55 CDT 1999
Article: 176062 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!nntp.primenet.com!news.primenet.com!not-for-mail
From: "KEVIN DEAL / UPSCALE AUDIO"
Newsgroups: alt.guitar.amps
Subject: Re: Warning for Visseaux 6V6GT
Date: Fri, 30 Apr 1999 08:44:43 -0400
Organization: Frontier GlobalCenter Inc.
Lines: 57
Message-ID: <7gcive$i1m$1@nnrp03.primenet.com>
References: <19990429160701.24942.00000283@ng-fi1.aol.com> <73gW2.25494$tY1.16126@wbnws01.ne.mediaone.net>
NNTP-Posting-Host: 1cust134.tnt1.ontario.ca.da.uu.net
X-Complaints-To: abuse@globalcenter.net
X-Posted-By: @208.254.108.134 (upscale)
X-Newsreader: Microsoft Outlook Express 4.72.3110.5
X-MimeOLE: Produced By Microsoft MimeOLE V4.72.3110.3
Xref: geraldo.cc.utexas.edu alt.guitar.amps:176062

Jeff Morris wrote in message
<73gW2.25494$tY1.16126@wbnws01.ne.mediaone.net>...

>
>What about amps without tube clamps?
>-Jeff
>
>

They are excellent, and te only issue is if you have tube clamps, in

which case you use unscew and remove them. In case you aren't familiar with the Visseaux, here is an excerpt from the 6V6GT shoot out from Vacuum Tube Valley www.vacuumtube.com

Here's what Terry Buddingh who writes for Guitar Player and Vacuum Tube Valley said about this tube in the 6V6 shoot out in the most recent issue of VTV:

"VISSEAUX: I was initially reluctant to push these cute little metal-based 1951 tubes very hard. But the bias was rock-solid at 400 VDC, so I thought I'd push them to see what they could really take. The bias was still rock-solid as high as 465 VDC (In a Fender Super Reverb!), where I chickened-out, before they did. These are tough little tubes! They sounded unbelievably good at 450 VDC and 30ma. Nicely balanced, great detail, strong and punchy midrange, and startling transients.

In the 1965 Deluxe (at 425 VDC and 30 ma) I was impressed with this stout and punchy, forward sounding little tube. It evoked images of a Mullard
EL-34 powered Marshall Super Lead 100. Rich, smooth, un-harsh, well balanced, and
silky smooth. Full and creamy mids, with a polished stainless steel-like
quality to the top. The mids were tighter, punchier, more aggressive, more
assertive, and more focused than the RCAs. It's one mean and nasty tube!"

Regards,

Kevin Deal Voice: (909) 931-9686 Fax: (909) 985-6968 10-6 pst M-S
Upscale Audio 2504 Spring Terrace, Upland, California 91784
www.upscaleaudio.com
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Basis *** Benz *** Nitty Gritty *** Kimber Kable *** Nordost Flatline

From kevin@upscaleaudio.com Fri Apr 30 13:27:28 CDT 1999
Article: 176063 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!nntp.primenet.com!news.primenet.com!not-for-mail
From: "KEVIN DEAL / UPSCALE AUDIO"
Newsgroups: alt.guitar.amps
Subject: Re: Warning for Visseaux 6V6GT
Date: Fri, 30 Apr 1999 08:45:51 -0400
Organization: Frontier GlobalCenter Inc.
Lines: 45
Message-ID: <7gcj1h$i21$1@nnrp03.primenet.com>
References: <19990429160701.24942.00000283@ng-fi1.aol.com>
NNTP-Posting-Host: 1cust134.tnt1.ontario.ca.da.uu.net
X-Complaints-To: abuse@globalcenter.net
X-Posted-By: @208.254.108.134 (upscale)
X-Newsreader: Microsoft Outlook Express 4.72.3110.5
X-MimeOLE: Produced By Microsoft MimeOLE V4.72.3110.3
Xref: geraldo.cc.utexas.edu alt.guitar.amps:176063

LarrySB wrote in message
<19990429160701.24942.00000283@ng-fi1.aol.com>...
>Just a note to anyone trying the Visseaux 6V6GT.
>

In answer to this. Just take off the tube clamps. I'll answer the other guys seperately..but one guy asked how many of these tubes have fried due to this problem.

The answer is I have sold over 1000 of them. I had one dealer who I sold to return three that I could tell got torched, and a light didn't come one until I got a note from another guy who noticed it and the tubes were starting to run away at installation.

So anyone else buying them will get a note and the other dealers who have bought them from me I'm sure are keyed into it.

This has been not only the best sounding but by a HUGE margin the most dependable 6V6GT I have ever ever seen. Period. Nothing even comes close.

I can slap them in my test jig.....one after another...and run 450v on the plates and 30 mils without even one hiccup. I have had a total of 6 defects....three of which were related to the one dealer who fried three before we knew about the tube clamp. And most of the amps in question don't have that clamp in place. The ones who do...just unscrew them.

Now it's not a problem.

Regards,

Kevin Deal Voice: (909) 931-9686 Fax: (909) 985-6968 10-6 pst M-S
Upscale Audio 2504 Spring Terrace, Upland, California 91784
www.upscaleaudio.com
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B&K *** Presence *** Meadowlark *** PSB *** Speakercraft *** Tannoy
Basis *** Benz *** Nitty Gritty *** Kimber Kable *** Nordost Flatline

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From ebarbour@netcom.com Fri Sep 1 08:14:09 CDT 1995
Article: 743 of rec.audio.tubes
Newsgroups: rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!news.sprintlink.net!noc.netcom.net!netcom.com!ebarbour
From: ebarbour@netcom.com (Eric Barbour)
Subject: On the Vudu "metal tube"
Message-ID:
Organization: NETCOM On-line Communication Services (408 261-4700 guest)
X-Newsreader: TIN [version 1.2 PL1]
Date: Fri, 1 Sep 1995 07:03:41 GMT
Lines: 9
Sender: ebarbour@netcom9.netcom.com

For the last time: the Vudu "tube" is nothing but a pair of
400v MOSFETS mounted in a metal can with a 12AX7 basing. The
gates are attached to the grid pins (2 and 7) via resistive
dividers, to reduce the voltage gain. They sound quite different
>from genuine vacuum triodes. Does that settle it?

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From cbuttacavo@aol.com Mon Apr 12 10:20:00 CDT 1999
Article: 171420 of alt.guitar.amps
Path:
geraldo.cc.utexas.edu!cs.utexas.edu!nntp.primenet.com!newsfeed.cwix.com!152.163.199.19!portc03.blue.aol.com!audrey01.news.aol.com!not-for-mail
From: cbuttacavo@aol.com (CButtacavo)
Newsgroups: alt.guitar.amps
Subject: Re: 6L6 tubes...question.
Lines: 11
NNTP-Posting-Host: ladder05.news.aol.com
X-Admin: news@aol.com
Date: 12 Apr 1999 02:02:29 GMT
Organization: AOL http://www.aol.com
References: <370FB0ED.8DB1B8CB@triodeel.com>
Message-ID: <19990411220229.26350.00001976@ng02.aol.com>
Xref: geraldo.cc.utexas.edu alt.guitar.amps:171420

Gentlemen, maybe some of this may help.the 6L6 was made of metal and introduced in march of 1936.The G followed in June of that year.This was a glass bottle in the "cokebottle" shape.The GA was the same shape but a touch smaller,ST-14 versus ST16.This was 1943.The GB was the first straight sided glass version introduced in 1954.Up to this point all were rated 19W . The GC utilised thicker plate material and a different base structure and was uprated to 30W.This was 1958. I think this progression of changes illustrates that the suffixes serve a definite design change purpose and not merely to denote envelope material. This is just some info that I thought would make things better for the N.G. ,nothing more
Charlie

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From triodeel@interserv.com Fri May 23 11:35:18 CDT 1997
Article: 31260 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!feeder.chicago.cic.net!su-news-hub1.bbnplanet.com!cpk-news-hub1.bbnplanet.com!news.bbnplanet.com!newsfeed.internetmci.com!netnews.nwnet.net!news-hub.interserv.net!news.interserv.com!news
From: triodeel@interserv.com (Ned Carlson)
Newsgroups: rec.audio.tubes
Subject: So what IS a 5881, anyway???
Date: Fri, 23 May 1997 05:56:45 GMT
Organization: Triode Electronics
Lines: 70
Message-ID: <33851418.5105773@news.spry.com>
Reply-To: triodeel@interserv.com
NNTP-Posting-Host: ad40-146.compuserve.com
X-Newsreader: Forte Free Agent 1.11/16.235
Xref: geraldo.cc.utexas.edu rec.audio.tubes:31260

After participating in several discussions re 5881/6L6-WGB here,
I did a little rummaging through my reference material and came up
with the following items:

RCA RC-23: Lists max plate voltage (design center) at 400V,
Pa at 23 watts, but then refers the reader to 6L6-GB for typical data.

Sylvania: Lists 23 watts max Pa, 360V max Va, but then gives data
for using them as ultralinear PP cathode-bias amp with 450V.

GE:Reiterates 6L66-GB data, same Pa max 23W, Va max 360V.

World Vacuum Tube Technical Manual: Lists same Pa max and Va max
as GE & Sylvania, but then gives data for using them in triode
at 400V.

Now IMHO, the differences between 5881 and 6L6-G/GA/GB were
likely marketing and different interpretations of how tube ratings
should be arrived at. As far as being a truly substantial difference,
as far as enduser were concerned, for practical purposes there
would have been little or none at all.
Same goes for 1614...I've seen a number of RCA 1614's that had
"6L6" stamped in the metal. Apparently even RCA didn't consider
the differences between 6L6 and 1614 to be worth worrying about.

The reasons I say this, is because (a) there were amplifier designs
almost dating back to the 6L6's introduction in 1936, that put over
400V on them (b) RCA sold "6L6-GC" tubes that appeared not to
have the special plate (anode) material that the GE 6L6-GC had.
Essentially, they were 6L6-GB's. Changing a label does
not, of course, change the internal parts, and shouldn't change the
ratings, either. But they were issued as 6L6-GC with the
purchasers assuming that they had 6L6-GC ratings.
Even stranger, RCA also issued the original 7027
about the same time, which had ratings of 450V Va max
and 25W Pa max. And internally they sure look a
lot like a 6L6-GB...Golly, they test about the same, too.
(note I'm not talking about 7027A, which was re-rated
using the design-maximum system)
In effect, RCA was saying that you *could* have run the old
6L6/G/GA/GB at much higher Pa and Va than the ratings RCA
originally issued for those tubes...!

The first 6L6 version with a substantial difference in construction
and ratings was the 6L6-GC, introduced by GE in 1961.
These used a new type of 5-ply composite anode (plate)
material that substantially improved heat dissipation
capacity. GE rated them at 30W Pa, 500V Va max.

To throw a monkey wrench in the whole tube ratings game,
tube manufacturers issued 6L6-WGB and 5881 later, which
apparently used the same 5-ply plate material as a 6L6-GC.
Thus you really just have a 6L6-GC with a smaller bulb.

Then there's Russian 5881, which aren't quite the same
as the late model US ones, and seem to get their "5881"
moniker mainly due to having a similar bulb size as the
US 5881....

Ned Carlson
Triode Electronics
2225 w. Roscoe St
Chicago, IL 60618 USA
email: triodeel@interserv.com
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fax:773-871-7938
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From triodeel@interserv.com Fri May 23 11:35:39 CDT 1997
Article: 31273 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!cpk-news-hub1.bbnplanet.com!news.bbnplanet.com!newsfeed.internetmci.com!netnews.nwnet.net!news-hub.interserv.net!news.interserv.com!news
From: triodeel@interserv.com (Ned Carlson)
Newsgroups: rec.audio.tubes
Subject: Re: So what IS a 5881, anyway???
Date: Fri, 23 May 1997 09:55:05 GMT
Organization: Triode Electronics
Lines: 45
Message-ID: <338565ef.9232288@news.spry.com>
References: <33851418.5105773@news.spry.com>
Reply-To: triodeel@interserv.com
NNTP-Posting-Host: ad69-131.compuserve.com
X-Newsreader: Forte Free Agent 1.11/16.235
Xref: geraldo.cc.utexas.edu rec.audio.tubes:31273

triodeel@interserv.com (Ned Carlson) wrote:

>After participating in several discussions re 5881/6L6-WGB here,
>I did a little rummaging through my reference material and came up
>with the following items:
>
>RCA RC-23: Lists max plate voltage (design center) at 400V,
>Pa at 23 watts, but then refers the reader to 6L6-GB for typical data.
>
>Sylvania: Lists 23 watts max Pa, 360V max Va, but then gives data
>for using them as ultralinear PP cathode-bias amp with 450V.
>
>GE:Reiterates 6L66-GB data, same Pa max 23W, Va max 360V.
>
>World Vacuum Tube Technical Manual: Lists same Pa max and Va max
>as GE & Sylvania, but then gives data for using them in triode
>at 400V.

And here's another spanner to toss in the gears of this debate:
ARRL Raidio Amatuer's Handbook 1951 gives
ratings for 6L6/6L6-G
as Pa max = 21 watts, Va max 400V.
And 6L6-GX (GX is ceramic-base version)
with Va max 500V.
These *may* be ICAS ratings, but book does not
say that.

There were also some other odd 6L6 variants...T-21, RK49, and
HY-6L6-GTX, as well.

Then there's 807 (a spinoff of 6L6-G, but with diifferent screen
voltage ratings), plate looks about the same size as 6L6,
GE gives it 25W absolute-maximum rating, ARRL
(this again may be ICAS, though) gives it 30 watts.

Ned Carlson
Triode Electronics
2225 w. Roscoe St
Chicago, IL 60618 USA
email: triodeel@interserv.com
ph:773-871-7459
fax:773-871-7938
"Worldwide service,
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From les@neuron.uchc.edu Fri May 23 11:36:00 CDT 1997
Article: 31281 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!uwm.edu!chi-news.cic.net!su-news-hub1.bbnplanet.com!cam-news-feed1.bbnplanet.com!news.bbnplanet.com!nutmeg.uchc.edu!not-for-mail
From: Les Bernstein
Newsgroups: rec.audio.tubes
Subject: Re: So what IS a 5881, anyway???
Date: Fri, 23 May 1997 08:58:02 -0400
Organization: Univ of CT Health Center
Lines: 27
Message-ID: <3385945A.EB9@neuron.uchc.edu>
References: <33851418.5105773@news.spry.com>
Reply-To: les@neuron.uchc.edu
NNTP-Posting-Host: 155.37.18.209
Mime-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit
X-Mailer: Mozilla 3.01Gold (Win95; U)
Xref: geraldo.cc.utexas.edu rec.audio.tubes:31281

Ned Carlson wrote:

> The first 6L6 version with a substantial difference in construction
> and ratings was the 6L6-GC, introduced by GE in 1961.
> These used a new type of 5-ply composite anode (plate)
> material that substantially improved heat dissipation
> capacity. GE rated them at 30W Pa, 500V Va max.

Actually, the 6L6GC was introduced in 1959.

>
> To throw a monkey wrench in the whole tube ratings game,
> tube manufacturers issued 6L6-WGB and 5881 later

The 5881 and 6L6WGB were not issued later, but quite a bit BEFORE the
6L6GC. The Tung-Sol 5881 dates back to 1951-52 and has ratings between
a 6L6GB and a 6L6GC. Note that the 6L6WGB is virtually identical to the
5881 differing in the type of spacers used. That is, a 6L6WGB is NOT
the same as a 6L6GB.

Otherwise, thanks Ned for the detailed history. I suggest those who are
interested in the history of the 6L6 series grab a copy of Eric
Barbour's "6L6 Forever 1936-96 60 Years of Amplifier Service" in VTV #4.

Les

From triodeel@aol.com Fri May 23 20:53:59 CDT 1997
Article: 31306 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!feeder.chicago.cic.net!portc01.blue.aol.com!audrey01.news.aol.com!not-for-mail
From: triodeel@aol.com (TRIODE EL)
Newsgroups: rec.audio.tubes
Subject: Re: So what IS a 5881, anyway???
Date: 23 May 1997 22:20:23 GMT
Lines: 22
Message-ID: <19970523222000.SAA27868@ladder01.news.aol.com>

NNTP-Posting-Host: ladder01.news.aol.com
X-Admin: news@aol.com
Organization: AOL http://www.aol.com
References: <3385945A.EB9@neuron.uchc.edu>
Xref: geraldo.cc.utexas.edu rec.audio.tubes:31306

>Actually, the 6L6GC was introduced in 1959.
My GE paper says 1961, maybe GE didn't introduce
their version til then.
Or they typoed the date (certainly not impossible!) !!

> To throw a monkey wrench in the whole tube ratings game,
> tube manufacturers issued 6L6-WGB and 5881 later
>The 5881 and 6L6WGB were not issued later, but quite a bit BEFORE the
They were INTRODUCED earlier, but later the factories
ISSUED new versions using different than original materials etc.
Sorry for the misunderstanding.
The 5881 shows up in my 1951 Tungsol Tube Guide.
Oddly, no additional voltage rating is claimed for it
(as opposed to 6L6-G).

Ned, Triode Electronics, Chicago

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From postmaster@triodeel.com Tue Mar 31 22:19:48 CST 1998
Article: 61726 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!cpk-news-hub1.bbnplanet.com!news.bbnplanet.com!newsfeed.direct.ca!news.he.net!Supernews60!supernews.com!Supernews69!not-for-mail
From: postmaster@triodeel.com (Ned Carlson)
Newsgroups: rec.audio.tubes
Subject: Re: New production 7027's and rumours of 7591's
Date: Wed, 01 Apr 1998 01:22:09 GMT
Organization: Triode Electronics
Lines: 45
Message-ID: <3521943d.21298596@news.supernews.com>
References: <758165AF7FD973E6.3D526AC643FD6E61.74EEE41B50D5B7E2@library-proxy.airnews.net>
Reply-To: postmaster@triodeel.com
X-Trace: 891394478 IG5G0KQDTA030C7B3 usenet40.supernews.com
X-Complaints-To: newsabuse@supernews.com
X-Newsreader: Forte Free Agent 1.11/16.235
Xref: geraldo.cc.utexas.edu rec.audio.tubes:61726

On Tue, 31 Mar 1998 20:05:51 GMT, ddiez@NOSPAMciti-link.com (Don Diez)
wrote:

>Is anyone familiar with the new Tesla 7027 tube, and if they are any
>good? I heard they are doing a final 'test' run of some sort before
>they go to final production on these.

It's just a Tesla 6L6-GC with two extra pins.
I can't think of any apps where 6L6-GC
wouldn't work just as well as 7027.
You might want to read this page

http://www.triodeel.com/7027.htm

before spending any time worrying about 7027's..

>How does the 7027 differ from
>the 7027A (if it does at all) ?

The 7027A had higher ratings,
and it was also rerated
under a different ratings system.
The Tesla 7027 has the higher ratings.
There were not a lot of old straight 7027
made, when people refer to 7027 they are almost
invariably talking about the later version, even if
if they don't mention the "A".

At any rate, IMHO, the 7027 was YARCAMS
"Yet Another RCA Marketing Scam"
and basically a big waste of time & cause
for lots of unnecessary confusion
amongst consumers, to no-one's benefit but RCA's..

Ned Carlson Triode Electronics,2225 W Roscoe Chicago, IL, 60618 USA
ph 773-871-7459 fax 773-871-7938
12:30 to 8 PM CT, (1830-0200 UTC) 12:30-5 Sat, Closed Wed & Sun
http://www.triodeel.com
Text file catalogs:Catalog 'Bot at catalog@triodeel.com

Back to JT30 Home

From SRSN81A@prodigy.com Sat Nov 25 00:18:26 CST 1995
Article: 5760 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!uunet!in1.uu.net!prodigy.com!usenet
From: SRSN81A@prodigy.com (Joseph Pampel)
Newsgroups: alt.guitar.amps
Subject: Re: Easy(?) Tube Rectifier Question
Date: 25 Nov 1995 04:16:38 GMT
Organization: Prodigy Services Company 1-800-PRODIGY
Lines: 39
Distribution: world
Message-ID: <4965b6$qh0@usenetz1.news.prodigy.com>
References: <494h2p$138i@usenetp1.news.prodigy.com>
NNTP-Posting-Host: inugap4.news.prodigy.com
X-Newsreader: Version 1.2

CXPN06A@prodigy.com (Eric Erickson) wrote:
>
>I've a '73 Vibrolux Silverface that uses a 5U4 rectifier. Is it
possible
>(without modification) to advantageously use a different tube? I'm not

>concerned with the overall RMS of the amp, JUST THE TONE...

You can use any of the 3 "popular" rectifier tubes by simply plugging
them in. The 5Y3, 5U4 and 5AR4/GZ34 all pin out the same (effectively).
Big difference is how much current each can deliver to the amp, and their
internal resistances which effect the voltage drop across them (and
thereby the overall B+ level) The 5Y3 is the "weakest", and will make the
amp "saggy" or squishy.It will also be overtaxed in a circuit like this
and will not live as long as it should. The 5U4 and 5AR4 are both up to
the job and differ in two primary ways.
#1 the 5AR4 has a smooth turn-on characteristic which is good for your
filter caps and tubes since the high voltage 'ramps up' rather than
coming on all at once. The 5AR4 has a low internal resistance and your
B+ (plate) voltage will likely go up a bit, so you'll want to re-bias the
amp to use it. I should say you should re-bias the amp whichever
rectifier tube you switch to. The 5U4 has a higher internal resistance
and will drop more voltage. If you have been using a 5AR4 and want to
drop your B+ voltage a little, a 5U4 is a good start.

Tone wise, make sure your amp has good output tubes, a good phase
inverter tube (try and find a NOS US made 12AT7) and make sure the amp is
biased correctly. Then and only then should you worry about which
rectifier tube it uses. The rectifier tube is only an incremental player
in the tone equation. Overrated really. The output tubes, phase inverter
and bias setting are the biggies, and they get overelooked far too often.
If you've never had the amp set up before, you're in for a treat. It's a
real eye opener to get an amp biased up correctly if it hasn't been
before..

There is a BIG difference between working and working :just right:.

Joe

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From dawsondc@postoffice.worldnet.att.net Mon Mar 23 13:10:39 CST 1998
Article: 60680 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!news.eng.convex.com!newsgate.duke.edu!nntp-out.monmouth.com!newspeer.monmouth.com!news-peer-east.sprintlink.net!news-peer.sprintlink.net!news.sprintlink.net!Sprint!worldnet.att.net!newsadm
From: Douglas Dawson
Newsgroups: rec.audio.tubes,rec.antiques.radio+phono
Subject: Re: 6.3 V vs. 5 V heater
Date: Mon, 23 Mar 1998 07:59:17 -0800
Organization: AT&T WorldNet Services
Lines: 37
Message-ID: <6f60ps$k10@bgtnsc03.worldnet.att.net>
References:
Reply-To: dawsondc@postoffice.worldnet.att.net
NNTP-Posting-Host: 12.64.38.150
Mime-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit
X-Mailer: Mozilla 3.0C-WorldNet (Win95; I)
Xref: geraldo.cc.utexas.edu rec.audio.tubes:60680 rec.antiques.radio+phono:71691

Here's a few more points that no one has touched on yet:

1. The early AC tubes (types '24 & '27, but not type '26) were 2.5 volt heater types. The '26, with its 1.5 volt filament, was a special AC design which attempted to eliminate hum by mutual cancellation of the effects of the electric and magnetic fields from the filament. This required that the choice of filament voltage and current be "just right" in order to get the cancellation effect.

2. The type '80 has a 10 watt filament which would have required 4 amps at 2.5 volts, probably a bit too much for the plug-in socket connection. Therefore it probably seemed reasonable to double the "standard" filament voltage to 5 volts in order to keep the current down to 2 amps.

3. The first 6.3 volt tubes, types '36, '37, '38, etc. were developed for use in automobile receivers when cars had 6 volt batteries. Some radio manufacturers, notably Philco in the US, quickly adopted these for mains-power radios as well. The rest changed over within a few years.

The result of these choices, as the earlier commenters have noted, was to establish 5 volts as the "standard" for rectifiers and 6.3 volts for other types.

Doug Dawson

Claude Frantz wrote:
>
> It has been a common practice to use a rectifier with a 5 V heater
> although the other tubes had 6.3 V heaters. In fact, rectifiers with
> a 6.3 V heater exist too. Using a rectifer with direct heating
> make it necessary to use a separate winding on the transformer, but
> why should the voltage be different ? Any explanation available ?
> --
> Claude
> (claude@bauv106.bauv.unibw-muenchen.de)
> The opinions expressed above represent those of the writer
> and not necessarily those of her employer.

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From jvd@seq1.ebr.ericsson.se Tue Nov 19 09:53:34 CST 1996
Article: 18584 of rec.audio.tubes
Path:
geraldo.cc.utexas.edu!cs.utexas.edu!www.nntp.primenet.com!nntp.primenet.com!nntp.uio.no!ifi.uio.no!news.sics.se!eua.ericsson.se!erinews.ericsson.se!news
From: Jos Van Dyck
Newsgroups: rec.audio.tubes
Subject: Re: Filament voltages, historically...
Date: Tue, 19 Nov 1996 14:41:14 -0800
Organization: Ericsson
Lines: 19
Message-ID: <3292378A.3CDE@seq1.ebr.ericsson.se>
References: <32910410.431E@earthlink.net>
NNTP-Posting-Host: pc322.ebr.ericsson.se
Mime-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit
X-Mailer: Mozilla 2.0 (Win16; I)

S. Husky Hoskulds wrote:
>
> I wonder how the number (value) 6,3 came up. It always seemed like an
> odd number to me. And also, how accurate does that have to be? Is 6.5
> ok? or 7? Just wondering...
>
> Thanks, H.
> --
>

This dates from the time equipment was battery powered.
Filaments (heaters) were driven from three lead acid batteries, giving
the voltage 3 * 2.1 V = 6.3 V.

Applying more than the nominal voltage will shorten the filament life, or
simply melt it. Applying slightly less (e.g. 5 V) will extend the tube
(valve) life, but lower output power and amplification.

Jos

From cigna@helios.phy.OhioU.Edu Tue Nov 19 19:25:25 CST 1996
Article: 18635 of rec.audio.tubes
Newsgroups: rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.erols.net!www.nntp.primenet.com!nntp.primenet.com!news.bbnplanet.com!su-news-hub1.bbnplanet.com!news.pbi.net!cbgw3.lucent.com!cbgw2.lucent.com!oucsboss!cigna
From: cigna@helios.phy.OhioU.Edu (Dave Cigna)
Subject: Re: Filament voltages, historically...
X-Nntp-Posting-Host: helios.phy.ohiou.edu
Message-ID:
Sender: news@boss.cs.ohiou.edu (News Admin)
X-Nntp-Posting-Date: Tue Nov 19 08:21:42 1996
Organization: Ohio University Physics and Astronomy
References: <32910410.431E@earthlink.net>
Date: Tue, 19 Nov 1996 13:21:43 GMT
Lines: 45

S. Husky Hoskulds wrote:
>I wonder how the number (value) 6,3 came up. It always seemed like an
>odd number to me. And also, how accurate does that have to be? Is 6.5
>ok? or 7? Just wondering...

The only source of information that I have on this is Robert B. Tomer,
"Getting the most out of Vacuum Tubes", Howard . Sams & Co., 1960. He
put in an interesting chapter called "Why So Many Tube Types?". I'll
summarize what he says about heater voltages (leaving out a lot).

The 1.1 volt filament tubes were designed to be run on 1.5V dry cells.
The reason they didn't have 1.5V filaments is that dry cells won't
produce a full 1.5V under load. In some systems a rheostat was used
to adjust the output to 1.1 volts.

Next, 6 volt wet batteries were adopted. These were typically run
partially discharged because the only way to charge them was to take
them to the local service center. Consequently, 5 volt filaments
were employed and rheostats were again installed to adjust the final
voltage at the tube.

The 2V filaments were originally designed for farms with wind driven
electrical systems. Supposedly, the batteries were kept at nearly
full charge, and so "the battery terminal voltage stayed fairly close
to the theoretical 2 volts per cell of the normal lead-type storage
battery." Don't ask me why 1.5V cells were suddenly 2V.

After that, people wanted radios in their cars. Here, the batteries were kept at full charge most of the time, so you could count on a full 6 volts. Evidently, somebody measured a bunch of car batteries, because they decided on 6.3V as the average. According to Tomer, this was the first effort at standardization. Later, the current draw of heaters were standardized to increments of 300mA so that they could be used in series. Subsequently, there were also tube types with heater voltages that ran in multiples of 6.3. This allowed series and parallel combinations to be built up in TV's and radios.

Tomer also says, in a different chapter, that running heaters 10% over their rated voltage will reduce the heater life by 50%. Likewise, a 10% decrease in heater voltage is likely to double the lifetime. Of course cathode emission will also be reduced, so performance might suffer depending on the application.

-- Dave Cigna

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From saddrj@aston.ac.uk Tue May 5 08:52:59 CDT 1998
Article: 66039 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.erols.net!news-peer.gip.net!news-lond.gip.net!news.gsl.net!gip.net!baron.netcom.net.uk!netcom.net.uk!knife.netcom.net.uk!netcom.net.uk!news.enterprise.net!not-for-mail
From: "Russ Sadd"
Newsgroups: rec.audio.tubes
Subject: Re: Black coated tubes. Why?
Date: Mon, 4 May 1998 15:45:43 +0100
Organization: Aston Business School
Lines: 23
Message-ID: <6ikknslqh1@news.enterprise.net>
References: <354DA6C5.5D6376F7@pacific.net.sg>
NNTP-Posting-Host: ppp140.enterprise.net
X-Newsreader: Microsoft Outlook Express 4.71.1712.3
X-MimeOLE: Produced By Microsoft MimeOLE V4.71.1712.3
Xref: geraldo.cc.utexas.edu rec.audio.tubes:66039

Hiya,

We had this one a while back. You find coatings on the inside that:

- act as a getter
- give shielding
- enable better heat dissipation (black body radiation)

You're more likely to find that the latter is the main use, external shielding being more common. For example, the metal valves used in Britain, America and Germany (the Germans made some superb ones in the 1930's), metallized coatings (such as the rich golden and red colours used by Mullard), all helped to screen the valve. People also looked to the base and the pin connections to give better shielding and a clearer connection (the Telefunken doorknobs, the Mullard acorns). These casings would also enable better heat dissipation - the Americans went for metal, the Germans ended up with ceramic, and the British played around with silica and external coatings.

Russ

From eyejack@pacific.net.sg Tue May 5 08:53:39 CDT 1998
Article: 66160 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!cpk-news-hub1.bbnplanet.com!su-news-hub1.bbnplanet.com!news.bbnplanet.com!newsfeed.wli.net!news.he.net!newsserver.pacific.net.sg!not-for-mail
From: Kamaruddin
Newsgroups: rec.audio.tubes
Subject: Re: Black coated tubes. Why?
Date: Tue, 05 May 1998 16:58:44 +0800
Organization: William Chan & Associates
Lines: 35
Message-ID: <354ED4BA.C8B1A5FE@pacific.net.sg>
References: <354DA6C5.5D6376F7@pacific.net.sg> <1998050422304300.SAA21271@ladder03.news.aol.com>
Reply-To: eyejack@pacific.net.sg
NNTP-Posting-Host: dyn246ppp94.pacific.net.sg
Mime-Version: 1.0
Content-Type: text/plain; charset=us-ascii; x-mac-type="54455854"; x-mac-creator="4D4F5353"
Content-Transfer-Encoding: 7bit
X-Mailer: Mozilla 4.04 (Macintosh; I; PPC)
To: Garthap
Xref: geraldo.cc.utexas.edu rec.audio.tubes:66160

Garthap wrote:

> >Ok you RATs. Here's a question. what is
> >the logical reason why some tubes is
> >coated black in the inside of the glass?

> >I was given one answer which I think is
> >the most logical. I want to know your
> >logical reason. This could be a good
> >lesson to the newbies.
> >
> >One Eye Jack
> >
> >
>
> All wrong!
>
> I think it serves no other purpose than to eliminate any possible light source
> in MIL applications. I have some vintage 40's 2A3s with this and I can't think
> of any other possible reason.
>
> They sound exactly like "Nak Ed" 2A3s from the same manf.
>
> So? Do I win?
>
> Gartb

And the winner is.... Gartb. That's what I've been told. It's to sheild the light in military equipment. Sounds very logical to me. No light, no target to shoot. Shitty Chinese tubes should not have any coating on them!.

One Eye jack.

From vactubes@cinternet.net Tue May 5 08:53:59 CDT 1998
Article: 66123 of rec.audio.tubes
Message-ID: <354E9754.3984@cinternet.net>
Date: Tue, 05 May 1998 00:36:49 -0400
From: Jim Cross
Reply-To: vactubes@cinternet.net
Organization: Vacuum Tubes Inc.
X-Mailer: Mozilla 3.0 (Macintosh; I; PPC)
MIME-Version: 1.0
Newsgroups: rec.audio.tubes
To: eyejack@pacific.net.sg, saddrj@aston.ac.uk
Subject: Re: Black coated tubes. Why?
References: <354DA6C5.5D6376F7@pacific.net.sg>
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit
NNTP-Posting-Host: 206.112.217.72
X-Trace: 5 May 1998 00:38:30 -0500, 206.112.217.72
Lines: 34
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.erols.net!dca1-hub1.news.digex.net!dca1-feed1.news.digex.net!digex!news.one.net!206.112.217.72
Xref: geraldo.cc.utexas.edu rec.audio.tubes:66123

Kamaruddin wrote:
>
> Ok you RATs. Here's a question. what is
> the logical reason why some tubes is
> coated black in the inside of the glass?
> I was given one answer which I think is
> the most logical. I want to know your
> logical reason. This could be a good
> lesson to the newbies.
>
> One Eye Jack

It seems that I answered this question a week or two ago. I'm a bit appalled by everyones wacky answers, but the gray/black coating on the inside of tube bulbs is carbon and is meant to act as an electrostatic shield and to prevent emission from the glass induced by the electron streams. Again I will cite my source, the 4th edition of the Radiotron Designer's Handbook, page 5:

"(iv) Bulbs - The inside surfaces of glass bulbs are frequently blackened. This has the effects of making them more or less conductive, thereby reducing the tendency to develop static charges, and reducing the tendency towards secondary emission from the bulb."

--
Jim Cross - Vacuum Tubes, Inc.
http://www.cinternet.net/~vactubes
email to vactubes@cinternet.net
Check us out for new, used, audio, antique, and collectable types.

Vacuum Tubes, Inc.
3246 Floridale Lane
Cincinnati, OH 45239-6203

Back to JT30 Home

From postmaster@triodeel.com Sat Sep 19 15:35:57 CDT 1998
Article: 127736 of alt.guitar.amps
Path: geraldo.cc.utexas.edu!cs.utexas.edu!math.ohio-state.edu!howland.erols.net!news.maxwell.syr.edu!novia!sequencer.newscene.com!not-for-mail
From: postmaster@triodeel.com (Ned Carlson)
Newsgroups: alt.guitar.amps
Subject: Re: Sovtek EL34s rattle prone/how 'bout gz34 rectifiers too?
Date: 18 Sep 1998 23:42:02 -0500
Organization: Triode Electronics
Lines: 44
Message-ID: <36033048.353285019@news1.newscene.com>
References: <19980917022156.06727.00000531@ng-fa2.aol.com> <3601f9cd.6964764@enews.newsguy.com> <3602C943.63DA579B@home.com>
Reply-To: postmaster@triodeel.com
X-Newsreader: Forte Free Agent 1.11/32.235
Xref: geraldo.cc.utexas.edu alt.guitar.amps:127736

On Fri, 18 Sep 1998 20:58:11 GMT, Marc Ferguson
wrote:

>You're not the only one with the Chineeze GZ34 problem. Multiply # of tubes X .4 =
># of sparkomatics. Good light show in da combo! Ned's got the real deal.
>Mullards. EOS. NOS.

Not many, and not cheap, tho.
Note that GZ34 take a long time to wear out..they'll
outlast the power tubes by a long time, normally.
Don't toss them just 'cause they're old, used or both.

If you've got a worn out GZ34, you can hear it,
lack of headroom, breaks up too early, lack of power.
It's even easier with a meter: with normal bias, if the
GZ34's shot, the voltages will be way low.

Same goes for other rectifier tubes...while there's
no great shortage of 5U4 & 5Y3, since there's
a finite supply, might as well hang onto good
used ones.

One rectifier tube that draws about the same
filament current as 5AR4 but has a load o' sag,
but can handle the current is 5R4
(GY/GYA/GYB/WGB..same thing in different bottles),
which can usually be had pretty cheap, since there's
not much stuff out there that uses them.

5R4-WGA & WGB look like little weird flower
vases, and they're aviation rated to 40,000 feet,
so you can brag to your friends that you've
got "B-52 tubes" in your amp. Just the thing
to have if you get a gig at the USO on Diego Garcia.

Ned Carlson Triode Electronics "where da tubes are!"
2225 W Roscoe Chicago, IL, 60618 USA
ph 773-871-7459 fax 773-871-7938
12:30 to 8 PM CT, (1830-0200 UTC) 12:30-5 Sat, Closed Wed & Sun
http://www.triodeel.com
Your Start Page for Tube and Tube Amp info on the net...
http://www.triodeel.com/tlinks.htm

Back to JT30 Home

From mattijs.devries@student.utwente.nl Wed Aug 28 21:39:43 CDT 1996
Article: 13768 of rec.audio.tubes
Path: geraldo.cc.utexas.edu!cs.utexas.edu!howland.erols.net!surfnet.nl!news.nic.utwente.nl!news
From: mattijs.devries@student.utwente.nl (Mattijs de Vries)
Newsgroups: rec.audio.tubes
Subject: my tube archives opened on WWW
Date: 28 Aug 1996 12:19:08 GMT
Organization: MachMat
Lines: 34
Message-ID: <501dfs$dn9@dinkel.civ.utwente.nl>
NNTP-Posting-Host: cam041214.student.utwente.nl
X-Newsreader: WinVN 0.99.7

Hello,

After all these hours, browsing on WWW, E-mailing, FTP-ing, etc, I thought it
was time to put all the data I've found in my archives. They can be read at:

http://cam041214.student.utwente.nl/mattijs/stereo/audio/!tubes/

lots of schematics, information, datasheets. Have fun! You could also take a
look at my tube pages:

http://cam041214.student.utwente.nl/mattijs/stereo/tubes/tubes.htm

CU around,
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/| /\ /\ /\ /\ /\ /\ /\ /\ /\ /\ /\ /\ /\ /\ |\
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			Mattijs.deVries@student.utwente.nl			
	/	http://Cam041214.student.utwente.nl	\	
+--+/ | Campuslaan 41-214, 7522 NG Enschede, The Netherlands. | \+--+
\ | Phone: +31-53-4895091 | /
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"Imagination is more important than knowledge....", A. Einstein.

"Nothing shockes me, I'm a scientist", Indiana Jones

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