



# OSCILLATOR

DELAWARE VALLEY HISTORIC RADIO

The Official Newsletter of the DVHRC

Vol. 7. No. 8, August 1999

## Next Meeting

The August meeting of the NJARC will be held at 7:30PM, August 10 at the Telford Community Center.

## High-line Auction II

Our second quarterly premium auction will be held at the September meeting. Like the last time, sellers are encouraged to bring better quality merchandise. Buyers are encouraged to bring money! Some really nice items changed hands at the June meeting.

The *Oscillator* will run a list of items expected to be sold if appropriate input is received. Please observe the August 20<sup>th</sup> deadline, as the September edition needs to be out earlier than usual. E-mail is always a good medium for *Oscillator* submissions.

### Philmore Crystal Sets "Little Wonder Set"



D9006—  
YOUR PRICE... **59¢**

Compact in size but big in results. Receives broadcasts within 25 miles from station. Open type, super-sensitive crystal detector permits finest adjustments to be made. Slider is provided for station selection. Attractive bakelite case.

## DVHRC July Meeting

by Dave Snellman

Well, the summer heat is getting to all of us - at least to this humble writer. The July meeting was held at our usual location. Many brave souls made a great effort to make the meeting in spite of the heat. (*Buy the way, The Community Center is nicely airconditioned. - Ed.*)

The "business" end of our meeting was short. A few members reported on the second round of the Krantz auction. Sounds like there were still a few treasures to be had.

Our technical presentation included a showing of a video on radio. It was part of the "Secret Life of Machines" series. This series ran on the "History Channel" a while back and thanks to Ted Sowirka, we had a chance to see it. We saw Marconi, Armstrong, Sarnoff, and others portrayed historically with a slightly wry "British" twist. (*Yeah, like a cartoon Howard Armstrong jumping out of a window. - Ed.*)

After that showing we had a brief video on Philo T. Farnsworth and the role he played in developing TV as well as his trials and tribulations.

Snacks as usual were followed by the regular auction. "Colonel" Pete Grave took us around the room offering up the treasures our members brought to sell. Tubes, amps, parts, service literature, and a whole lot more went on the auction block.

## COMING EVENTS

Aug 7	Swap Meet, Lewistown, Pa.
<b>Aug 10</b>	<b>DVHRC Meeting, Telford</b>
<b>Aug 13</b>	<b>NJARC Radio Meet, Freehold, NJ</b>
Aug 15	Hamfest, York, Pa.
Aug 22	Hamfest, Mullica Hill, NJ
<b>Sep 1-4</b>	<b>AWA Conference, Rochester, NY</b>
<b>Sep 10</b>	<b>NJARC Radio Meet, Freehold, NJ</b>
Sep 11	Hamfest Dover, DE
<b>Sep 14</b>	<b>DVHRC Meeting, Telford</b>
Sep 18	Hamfest Schnecksville
Sep 19	Hamfest, Trenton, NJ
Sep 19	Hamfest, York, Pa.
Sep 25	Hamfest, Mt. Holly, NJ
Sep 26	FARFEST, Bowie, MD (formerly Gaithersburg)

**THE OSCILLATOR**  
Newsletter of the  
Delaware Valley Historic Radio Club  
P.O. Box 847  
Havertown, Pa. 19083

The *Oscillator* is published monthly by members of the non-profit DVHRC. Its purpose is to provide a forum to educate, inform, entertain, and communicate with collectors and preservers of vintage radio technology.

We welcome and solicit information relating to radio history or collecting. Submissions should be carefully researched, typed and accompanied with clear photographs or diagrams. Material on-disc (3-1/2" DOS/Win95) is particularly welcome.

Unless copyrighted by the author, material in this publication is available for attributed reproduction for nonprofit purposes. (For convenience, the editor can supply copy on-disc.)

Personal views, opinions and technical advice offered in this newsletter do not necessarily reflect those of the members, officers or Board of Directors of the DVHRC, nor is the organization responsible for any buying or selling transaction incurred.

To join: DVHRC dues are \$15 per year. The membership year runs January-through-December. Please mail to the club PO box above.

Meetings are held the second Tuesday of the month at 7:30 PM

**DVHRC BOARD OF DIRECTORS**

Dave Abramson Jim Amici Pete Grave  
Al Klase Bill Overbeck

**FOUNDING PRESIDENT**

Jay Daveler

**1998 DVHRC OFFICERS**

President Bill Overbeck (610) 789-8199  
Vice-President Dave Abramson (610) 827-9757  
Treasurer Phil Fabrizio  
Secretary Dave Snellman (215) 345-4248

**OSCILLATOR EDITOR**

Al Klase

**OSCILLATOR CONTRIBUTORS**

John Dilks, K2TQN Alan Douglas  
Alton DuBois, Jr Mike Koste  
Bob Thomas, W3NE Ludwell Sibley  
Dave Snellman Ted Sowirka

**DVHRC TECHNICAL COMMITTEE**

Jim Amici Ned Borger  
Lewis Newhard Ted Sowirka

**FLEA MARKET & AUCTION COMMITTEE**

Pete Grave Dave Abramson

**LIBRARIAN & TUBE PROGRAM**

Charlie Class

**WEB PAGE**

<http://pw2.netcom.com/~firstake/dvhrc.htm>

Webmaster: Brian Erwin 610-566-8858

**MEMBERSHIPS**

Mike Koste

**OSCILLATOR ARTICLES & MEMBER ADS**

Mail to the editor at 22 Cherryville-Stanton Rd., Flemington, NJ  
08822

(908) 782-4829

Fax: (908) 783-8361

E-mail: skywaves@bw.webex.net

**COPY DEADLINE:** The 20th of each month.

Before we end this month's meeting notes, I don't want to forget to mention we have a new member joining our ranks, James Lambert of Baltimore, Maryland.

A few members have received "dues due" notices. We are in the process of updating and verifying all of our records. All updates should be finished by August. We are sorry for any confusion or inconvenience this may have caused.

Hope to see everyone at our August meeting - August 10th at the Telford Community Center.

## Out of Cyberspace !

Subject: oscillator

Date: Sat, 10 Jul 1999 10:34:45 -0400

From: Bill Jones <wrj@solaratm.com>

To: "'skywaves@bw.webex.net'"

<skywaves@bw.webex.net>

EDITOR: THE WRITE UP FOR THE RACAL RA.17 WAS VERY WELL DONE AND A CLASSIC. I CAN ONLY ASSUME THE BYLINE IS THE EDITOR AL KLASE, EVEN SO CREDIT SHOULD BE NOTED. WHAT IS SO NOTEWORTHY IS THE GENIUS OF THE DESIGN. THIS IS A CLEAR TRIBUTE TO OUR CLASSIC ELECTRONIC ENGINEERS, PRIOR TO SOLID STATE ELECTRONICS. IF ANYONE DOES NOT UNDERSTAND, THEY SHOULD KNOW, WE STAND TODAY ON THE SHOULDERS OF OUR FATHER TEACHERS.

ONE OF THE MAIN REASONS I AM A MEMBER OF THE D.V.H.R.C. IS TO RECEIVE THE OSCILLATOR. LIKE MANY, I RECEIVE MANY PUBLICATIONS VIA MAIL.. BUT THE OSCILLATOR HAS SPECIAL ATTENTION AND I READ COVER TO COVER AND USUALLY TWICE.

AS AN ALL VOLUNTEER ORGANIZATION YOU DESERVE SPECIAL RECOGNITION.

WILLIAM R. JONES PO BOX 205 TELFORD PA. 18969.

*Guilty as charged. Thanks Bill. - Ed.*

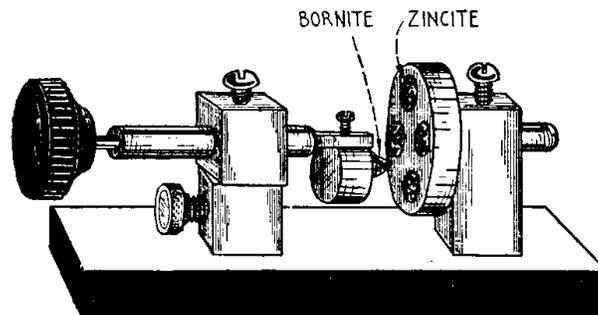


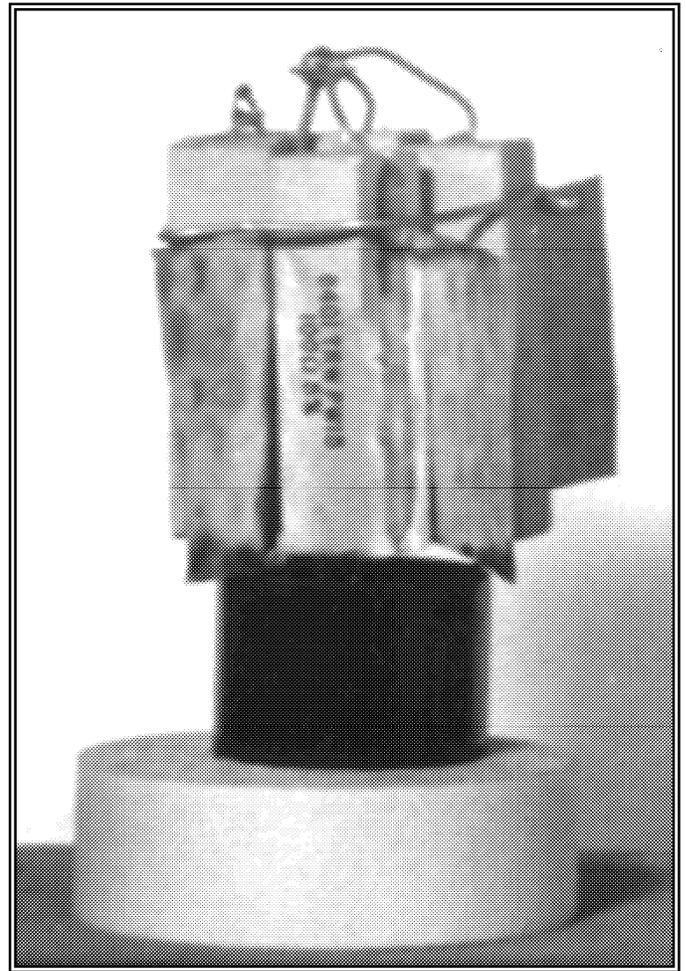
Fig. 159—The Zincite Bornite Detector.

# Homebrew Ballast Tube Substitute

by Alton A. Dubois, Jr.

Needing a ballast tube for a Motorola TV, and having no luck finding one, I developed a replacement that works fine.

The circuit diagram gave the values, and they even listed the pin numbers on the octal socket. I bought four 10-watt sandbody resistors, stood them on end in the old tube base, and made the appropriate connections. I also slipped two one-by-three-inch sheets of aluminum from an old pie pan between the resistors. It worked beautifully and dissipates very little heat.



## Voltage Doubler Circuit Substitution 'Eye' Tubes

From Colorado Radio Collector's "The Flash!!" Larry Weider/95

This month I'd like to present a few ideas for making substitution "eye" tubes work for the relatively pricey 6U5 and 6E5 tubes. I want to thank Barney Wooters for much of the information contained in this article. Barney developed the circuit values, and has used and proven the circuit in his own restoration projects.

There is a relatively inexpensive "eye tube" available known as the 1629. Although this tube would work in most replacement situations for the 6XX tubes, in terms of operating characteristics particularly for the 6U5, it does have a couple of major exceptions. One exception is that the 1629 uses a 12 volt filament while the 6XX tubes use a 6 volt filament. The other exception is that the 1629 uses an 8 pin base while the 6XX's use a 6 pin base.

The filament issue is really the show stopper problem. However, Barney worked out a very clever, inexpensive and unobtrusive solution for providing the required voltage. His solution is to use a voltage doubler that converts the 6 volt AC filament voltage to 12 volts DC.

Refer to fig. 1 to see how this circuit works. The voltage doubling circuit consists of diodes D1, D2 and capacitors C1, C2. Since the supplied filament voltage is AC the individual diodes, in this configuration, conduct current on alternate half cycles of the input voltage. That is, first the voltage passes through D1 and charges C1. Then, on the other half cycle of the AC voltage, the voltage passes through D2 and in turn charges C2. Since the capacitors are wired in series, they effectively present twice the charging voltage all at once to the load - the 1629 filament.

As in most things, nothing is perfect. This circuit is no different. The charging voltage, on each capacitor, is something less than the supplied filament voltage. In addition, the 1629 filament drain of 150 Ma. is enough to keep the caps from coming up to full charge. So, the output voltage will be something less than the optimum value of 12.6 volts. However, we can make lemonade from this

2E5, 6E5, 6U5

1629

Fig. 1

lemon by considering that although this circuit certainly works as advertised, it could also be used to re-invigorate an otherwise unusable 6XX tube because of its depleted and/or darkened green iris - if you chose not to replace it. That is, use this circuit to increase the filament voltage to the 6XX "eye" tube. You might want to try experimenting with lower values for the capacitors in order to arrive at a supplied voltage that's perhaps only a few volts higher than the 6 volt supply. What do you have to lose? Heck, the tube is no good anyway!

Another idea for keeping the old weak 6XX tube in place and not tearing into the filament circuit is to use a source of B+ supply for the tube that is higher than what is normally supplied. Look for this higher voltage at the audio output screen grid, or even directly from the cathode of the power supply rectifier. In the case of an "eye" tube the B+ supply does not have to be very smooth.

The circuit itself can be mounted anywhere - presumably under the chassis. These parts are very small and can be mounted by perf-board, by tie-point bracket or even left "hanging in the air" (if properly insulated). Simply cut the filament voltage lines where they go ONLY to the "eye" tube. The cut lines that come from the tube are then connected to the (+) and (-) points in the doubler, and the cut lines that come from the filament winding of the power transformer go to the AC points on this circuit. By-the-way, it's assumed that the filament supply that you're working with IS derived from a transformer.

What happens if your "eye" tube is in a series filament string? Well, you can get darn close. The required filament current for the 1629 is half that of the 6XX tubes. However, Ohm's Law will tell you that current is the same, no matter what, for all components in a series circuit. So, we need to allow 150 ma. of current to "go around" the 1629 by adding a resistor in parallel with the 1629 filament that is equal to the resistance of the 1629 filament. The resistor value should be  $V(1629 \text{ fil.})/I(1629 \text{ fil.}) = 12.6/.150 = 84$  ohms (at just under 2 watts - so use at least a 5 watt'er). The next problem is that you now have a filament that will take an additional 6 volts away from the rest of the tubes in the string. Take heart as this voltage loss, distributed among the rest of the tubes, will probably not have any adverse effect. Oh well, my information says that these kinds of radio sets are very few and far between anyway.

The socket problem is taken care of by substituting an 8-pin bakelite ring mounted socket for the old 6-pin socket. In most cases the original socket is fitted with a hood that hides and protects the lead wires as well as providing a mounting point for the "eye" tube. Therefore, once your sockets are interchanged, the above chassis look will be exactly the same as the original. Once again, refer to fig. 1 for socket pin-outs.

If exact look is not an issue you might also consider making an adapter with an 8-pin socket and a 6-pin plug (perhaps from an old tube). If you do this you could put the doubler in the adapter and not cut any wires at all. Just make sure you have room in the cabinet.

Another idea comes from Dick Hagrman. He has substituted a 2E5 for a 6E5. In this case, since the required filament voltage is now lower, you only need to install a dropping resistor in series with one of the filament lines in order to provide the correct voltage. Ohms Law will tell you that for a 2.5 V. load at .8 A. (this is the 6E5's filament requirements), coming from a 6.3 V. source, you would need a 4.75 ohm resistor. If you can't find one a 5 ohm'er will work. Although the resistor will dissipate a little more than 3 watts, it should be closer to a 10 watt unit for safety and for better under chassis heat dissipation.

Now for the lazy restorer's idea. Antique Electronic Supply (and perhaps others) sells a ready made adapter that goes between a 1629 and the existing tube socket for a 6U5. AES's goes for \$15.95 plus shipping. As above, make sure you've got the room if you go with this solution.

Good luck in keeping those wonderful "magic eyes" staring out into your living room.

# BUY SELL SWAP

**WANTED:** The May 1966 issue of *Electronics Illustrated*. Richard C. Yingling, 2 S. Locke Ave., Yeagertown, Pa. 17099, (717) 242-1882

**WANTED:** Information on "Lang" radios: literature, pictures, pricing, etc. Charles J Dreitleio, 515 Elizabeth St., New Milford, NJ 07646, 201-384-3862

**FOR SALE:** Assorted: 3 Home brew amplifier chassis with UTC and Acrosound transformers- tubes- and meters (SEE: <http://www.netaxs.com/~am004d/equipment> for pictures), Amprobe RS3, AKG D109mic, EV 660A mic, Sony VP2011 3/4U matic-NR, Simpson 371 AC voltmeter, Simpson 260 manual, RCA T2K radios(2),12" Jensen speaker from floor console radio-with field coil, Triplettfrequency counter Model 7000 - Mike Muderick-610-449-6970, or Mike@Muderick.com

**WANTED:** Gernsback's Official Radio Service Manuals: 5, 7, 8. **RCA Victor Service Data:** '47, '48, '49, '51. Mike Tannenbaum, 215 540-8055, [k2bn@agtannenbaum.com](mailto:k2bn@agtannenbaum.com) A.G. Tannenbaum, POB 386 Ambler PA 19002, Phone 215 540 8055 Fax 215 540 8327, Web URL [www.agtannenbaum.com](http://www.agtannenbaum.com), e-mail [k2bn@agtannenbaum.com](mailto:k2bn@agtannenbaum.com).

**FOR SALE:** Old radios and 78 RPM records from an estate. Includes **Zenith #5614**, **Silvertone** radio/disk recorder, and **RCA ACR-175** communications receiver. Contact: George Rottina, 17A Lumberjack Cir., Horsham, Pa. 19044. Phone: 215-675-9055.

**FOR SALE::** **7JP4 CRT**, good filament, screen looks OK, make offer. Alton Dubois, Jr., 67 Peggy Ann Road, Queensbury, NY 12804, Phone 518-792-3130

**HELP:** Would the person who sold Marc Ellis the Philco 70 cabinet please contact him at PO Box 1306, Evanston, Ill 600204-1306; [ellis@interaccess.com](mailto:ellis@interaccess.com); 847-869-5016.

**HELP WANTED:** Need someone to repair a Philco 4654 Predicta TV. Ray Casper (609) 695-8312

**WANTED:** Emerson AU-190 chassis; FADA 659 dial glass; Chelsea ZR-4 audio transformer; Sentinel 400 Television; Plastic CRT cover (front) for 17" Philco Predicta; Pilot TV-37 tuning knob (wood). Frank Johnson, 530 Elford Rd., Fairless Hills, PA 19030-3624 (215) 943-8295

**FOR SALE:** Parted out Stromberg Carlson model 19-20 AC. Power transformer appears O.K. IF's are O.K. Electrodynamic speaker is electrically O.K., needs cone repair. Make offer. Alton Dubois, Jr., 67 Peggy Ann Road, Queensbury, NY 12804, Phone 518-792-3130

**WANTED:** Sales literature, service manuals, and equipment for theatre sound / broadcast use by RCA Photophone, Century Sound, Motiograph, Altec, Western Electric, etc. Theatre catalogs by Jay Emmanuel Publications, Philadelphia. Scott Stillwell, 2328 Cambridge Circle, Hatfield, PA 19440 (215) 393-1833 pager: (800) 717-9306