

*The*

# *Call Letter*

*July, 2012  
Vol. 38 – No. 7*



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**NEXT MEETING: JULY 14th**

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# The Northwest Vintage Radio Society

Post Office Box 82379

Portland, Oregon 97282-0379

The Northwest Vintage Radio Society is a non-profit historical society incorporated in the State of Oregon. Since 1974 the Society has been dedicated to the preservation and enjoyment of "Vintage radio" and wireless equipment.

Membership in the Society is open to all who are actively interested in historic preservation. The dues are \$25.00 for domestic membership, due on January 1st of each year (prorated quarterly).

The Call Letter has been a monthly publication since 1974. It was originated with the founder, Bob Bilbie, and our first president, Harley Perkins. Through several editors and with the assistance of numerous society members, the Call Letter has continued to be a publication that informs members of the society's business and that supports the hobby of collecting, preserving, and restoring vintage radios.

Society meetings are held the second Saturday of each month at the Abernethy Grange Hall at 15745 S. Harley Ave. in Oregon City, Oregon. They convene at or about 10 AM for the purpose of displaying radios, conducting Society business, and exchanging information. Guests are welcome at all Society meetings and functions (except board meetings).

Other Society functions include guest speakers, auctions, radio shows, and radio sales which are advertised in the Call Letter and are held in and around Portland.

With each issue of the Call Letter, we remember Jim Mason, a charter member of the society who remained active until his death in 1999. A generous bequest from Jim's estate ensures the vitality of the Northwest Vintage Radio Society, and continued publication of the Call Letter.



## Society Officers for 2012:

President	Mark Moore (503)286-5224	<a href="mailto:mark@pdxhistory.com">mark@pdxhistory.com</a>
Vice-President	Mike McCrow (503)730-4639	<a href="mailto:tranny53@frontier.com">tranny53@frontier.com</a>
Treasurer	Ed Tompkins	<a href="mailto:edtomp@Q.com">edtomp@Q.com</a>
Recording Secy	Charlie Kent (503)281-9335	<a href="mailto:radiogallerykent@qwestoffice.net">radiogallerykent@qwestoffice.net</a>
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# July 2012

## Table of Contents

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From The Editor.....2  
 NWVRS Meeting Minutes.....3  
 NWVRS Monthly Meeting Tech Talk Calendar.....5  
 The 1929 Radio Show.....6  
 PSARA Swap Meet Flyer.....8  
 NWVRS BOD Meeting Minutes.....9  
 From The Bench of WRNO.....10  
 NWVRS Calendar of Events.....12  
 General Radio Type 1680-A Automatic Capacitance Bridge Part I.....13  
 Swap Shop.....16

**On the cover:** Dan Howard’s Disney radio from June’s Member’s Choice display. July’s display will continue the Member’s Choice theme.

**The next meeting is July 14, 2012**  
**Monthly feature: Member’s Choice**

Visit our web site at <http://nwvrs.com>  
 and on Facebook:  
[www.facebook.com/northwest-vintage-radio-society](http://www.facebook.com/northwest-vintage-radio-society)

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**Next Call Letter deadline: July 29, 2012**

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The *Call Letter* is the official publication of the Northwest Vintage Radio Society. Circulation is limited to the membership and guests of the Society. The Society is not responsible for the material contributed for publication, nor the quality, timeliness, or accuracy of the items or services offered for sale in the SWAP SHOP. By common agreement of the board of directors, the buyer assumes all responsibility for the satisfaction of any transaction.

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# From The Editor

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by *Call Letter* editor, Tony Hauser

It finally feels like summer has arrived and I, for one, have been enjoying the sunshine and hope all of you have, too. I'm certain that some of our members went home with treasures from our trash bash and that all in attendance at the June meeting went home with a new-found appreciation of early Portland radio history thanks to our guest speaker Craig Adams.

July brings a continuation of the "members choice" display that began at our June meeting. I will combine pictures from the June and July displays in the August edition. This month's tech talk, presented by Liles Garcia, will be "Building Power Supplies for Battery Radios."

Art Redman returns in this issue with two articles; one on the Portland 1929 Radio Show and a reprint of an article on radio sales in Oregon from *The Oregonian* from 1929. We also bring you part I of an article David Wise has submitted on restoration of a General Radio Automatic Capacitance Bridge.

Sid Saul has contributed a very useful article on replacing selenium rectifiers. This issue also includes the Board of Directors meeting minutes from June.

Most importantly, we welcome Ed Tompkins as our newly appointed Society Treasurer! Ed takes over for Cliff Tuttle, our interim Treasurer. We thank Cliff for his many years of service on the Board and wish Ed well in his new position.

Finally, I have included the flyer for the upcoming PSARA swap meet in August. Please note the new location!

Remember, the dial stops here.

Tony

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# NWVRS June Meeting Minutes

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by Recording Secretary Charlie Kent

President Mark Moore called the June 9, 2012 meeting of the NWVRS to order at 9:55 a.m. Guests were Kevin Toon, Brian's brother; Yoko, Galen Feight's girlfriend; and Vincent Marcellino.

The April meeting minutes were approved as published in *The Call Letter*.

**New Treasurer** Ed Tompkins was welcomed in his new role. Outgoing Treasurer Cliff Tuttle was thanked for his years of service to the club, and given applause. Cliff noted he had written a check to himself to cover club expenses.

**Found:** A pair of glasses and case were left on the front table after the April meeting. Anyone wishing to claim them can contact Mark Moore.

**Swap/Sale:** Brian Toon reported the last Swap/Sale held in May was sold out. The tables are selling quickly for October, so contact Brian soon if you wish to purchase one.

**Merchandise:** Club polo shirts are for sale, as well as caps and name tags. Contact Wendy Johnson-Kent to purchase.

**Website:** Pat Kagi gave a website report indicating we now have the two domain names of NWVRS.org and NWVRS.com. He also said any suggestions on the site are welcome.

**Library:** A video of Craig Adams' June 9 presentation will be added to our library by Charlie Kent soon.

**Kudos:** Thanks goes to Vice President Mike McCrow for taking care of the trailer for the Trash Bash held before the meeting.

**Rosters:** New Rosters are here! Jerry Hertel handed out updated rosters to members in attendance. Unclaimed copies will be mailed.

**Monthly Feature:** The June Monthly Feature was postponed to July. It will be “Member’s Choice”.

**Good and Welfare:** Past President Dick Bixler had a knee mishap.

**Leads and Needs:** Corresponding Secretary James Harper announced the Michigan Antique Radio Club will have a Spartan Nocturne available at their upcoming swap meet. David Wise has capacitors available for repairing oscilloscopes. The website [www.vintagetek.org](http://www.vintagetek.org) has items for sale.

Fifty-six were in attendance. The meeting was adjourned.

**10% DISCOUNT**

To members in good standing of the  
**Northwest Vintage Radio Society**  
for any purchase from



**NORVAC**  
Electronic Parts, LLC  
WE'RE STILL HERE!

SALEM (503) 585-9810  
1545 Commercial Street

Please show your  
NWVRS membership  
card for discount

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# NWVRS Monthly Meeting Tech Talk Calendar

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by Mike McCrow

- July 14**      **Building Power Supplies for Battery Radios.**      Guest speaker: Liles Garcia
- August 11**      **Unusal Radios: Two-tube Superheterodynes.**      Guest speaker: George Kirkwood
- September 8**      **Wood Radio Cabinet Restoration.**      Guest speaker: Esteban Mendoza



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# The 1929 Radio Show

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by Art Redman

The era of Portland Radio Expositions ended in 1927 after only three years when radio became just another piece of household furniture. This reality came to a climax in 1929 when eleven Portland furniture dealers sponsored a night radio show starting December fifth where their stores were open until after ten pm on Thursday, Friday and Saturday nights devoting their entire main floors to the radio displays.

The firms which participated were the furniture stores of Henry Jennings & Sons, Paul Schatz, Star, Alberta, William Gadsby, Cohn Brothers, Powers, Edwards, Mayson, Gevurtz, Upstairs, Hollywood, Watson-Stiff and S.H. Nizic.

The radios were marketed as “being shown by all concerns and an opportunity to consider which cabinet would best harmonize with the rest of the furniture and blend with the scheme of decoration.” The downtown Powers Furniture Company at SW Yamhill and SW Third Avenue showed Victor, Radiola, Atwater-Kent, Majestic, Sparton, and Philco brands. The Schatz stores at 40<sup>th</sup> and Sandy and their other store on Grand Avenue had Sparton and Temple sets for sale. The other nationally known brands shown at the other nine stores were Royal, Courier, Sonora, Bosch, Stewart-Warner, and Stromberg-Carlson.

The radios were played in the stores beside the furniture displays and it was stated that the tones would be just as good in the small space of the customer’s living room. Radio experts were on hand each night at each of the stores to offer technical advice on what tubes to buy and to the fact that they can also service receiving sets. They offered to visit the customer’s home for the purpose of assisting buyers who are following definite color schemes and make the cabinet harmonize with other pieces of furniture in the home.

What is remarkable about the 1929 radio show is what was absent. There were no local radio companies like the Long Radio Works or participation by Hallock and Watson who still sold Fada and other brand radios at their SW Park Avenue store. The Meier and Frank Company also did not participate in the radio show but instead ran their Radiola ads in the Oregonian. There was no mention of tabletop or mantle model sets which would become the dominant trend in 1930. Speed ran ads in the newspapers hawking their tubes by stating if “you didn’t get good reception last night? Better look to your tubes.” RCA in

its ads stated the “builders of many makes of fine radio sets recommend RCA Radiotrons as tubes that have no superior for fine reception. They are the acknowledged standard of the industry.”

The only reality of the beginning of the Great Depression after the stock market crash of October 1929 was that a person could buy a radio set on installment. Also there were no live or remote broadcasts, demonstrations or lectures on new developments in radio like the screen grid, superhet circuits or electrodynamic speakers with better fidelity.

However, the show included the last word in battery sets and new development in tubes without mentioned the screen grid by name. The 1929 radio show was like a show at a city wide retail mall where all the large stores stayed open past 10 pm during the Christmas shopping season to sell more radios “in the most attractive cabinets yet introduced” along with other items of living room furniture.

### **Oregon Behind In Radio Thousands of Homes Lack Sets, Figures Show. Improved Battery Receivers Now Available to Result In Material Gain.**

From *The Oregonian*, December 2, 1929, page 9.

Despite the popularity of the radio in Portland there are still thousands of Oregon homes without a receiving set, furniture houses which are sponsoring the three day radio exposition this week, learned Saturday when they checked figures compiled by the federal government.

So many Oregon homes are without the radio that the state is quite a distance behind Washington, and far behind California in proportion to the number of families, it was said.

In California two homes out of every three have receiving sets and can tune into daily programs; in Washington every other home in three has a receiving set.

Several explanations have been offered for Oregon’s failure to keep abreast of its neighboring states on the coast, but none is wholly satisfactory. Up until a few months ago the average battery set was often unsatisfactory, and in the absence of power lines in agricultural districts thousands of farm homes have balked at installing a radio.

The condition that formerly obtained on the farm has been outlawed by the introduction of improved battery sets in practically all makes, and as a result Oregon, with a larger rural population in proportion to the total than either California or Washington may be expected to increase the number of radios.

The latest improvements in standardized models will be shown at the radio exhibition Thursday, Friday, and Saturday. The sets to be seen at the show being put on by the home furnishers will include the last word in battery sets.

## ***Antique Radio Swap Meet***

**Celebrating our 30th Year.  
Tune in to the largest vintage radio event in the Northwest.  
Collectors, hobbyists and sellers alike are invited to buy,  
sell and trade old radios and related gear.**

***Sunday, August 19, 2012***

**9:00 a.m. to 1:00 p.m.**

**(new location)**

**Shoreline Community College  
16101 Greenwood Avenue North  
Shoreline, WA 98133**

**FREE ADMISSION  
Vendors \$10 donation  
recommended**

**Sponsored by  
Puget Sound Antique Radio Association  
P. O. Box 7567, Tacoma, WA 98417-0567  
<http://www.eskimo.com/~hhagen/psara/>**

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# **NWVRS BOD Meeting Minutes**

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by Recording Secretary Charlie Kent

Northwest Vintage Radio Society  
Board Meeting  
June 6, 2012

In attendance: Mark Moore, Charlie Kent, James Harper, and Ed Tompkins.

Excused: Dick Bixler and Mike McCrow.

Guest: Wendy Johnson-Kent

The Board of the NWVRS was called to order by President Mark Moore at the Mall 205 Elmer's Pancake House at 6:30 pm. The minutes of the April 11, 2012 meeting as printed in the May 2012 *Call Letter* were approved.

## **Appointment of New Treasurer**

The Board voted Ed Tompkins as our New Club Treasurer, and gave him a warm welcome to the Board of Directors.

## **Treasurer's Report**

Mark reviewed the report submitted by Cliff Tuttle for the past two months' activity. Questions were asked by our new Treasurer and answered by our President. A vote was taken and approved to have two signers on all accounts.

## **Bylaws**

The Bylaws will be reviewed and updated by year-end for the annual meeting. For continuity, consideration will be made by the Board to include a new position of Club Photographer as part of the Board of Directors.

## **June NWVRS Meeting**

As we will be having the annual trash bash, and a scheduled outside speaker, we'll have an abbreviated meeting canceling the monthly fea-

ture to July. Brian Toon will be reporting on the May Aurora Swap/Sale, and Pat Kagi will be telling about our new website. Pat is looking for software to support our new website.

The meeting adjourned.

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## From The Bench of WRNO

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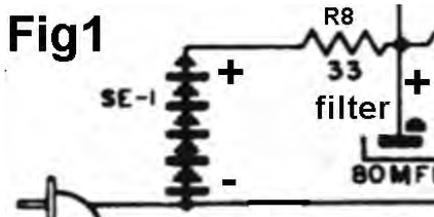
by Sid Saul

### “Selenium Rectifiers, Now What?”

We often see small AA5 radios come across the bench with selenium rectifiers in place of the typical 35Z5 equivalent rectifier tubes. After trying to ignore this multi-plate device, the time now comes to address this much-feared horror. Some may regret getting into the hobby altogether, for fear of the dreaded selenium. I myself believe selenium rectifiers will morph back into tubes someday.

We find selenium from the late 40s to late 60s. The advantages were that they had a ten year *plus* life span; some still alive after over 50 years! After that, it’s day by day, hour by ... Neglect replacing? Think fire, smoke, and the smell of rotten eggs or garlic. Add just a touch of blown transformer, and the picture becomes clear, *replace*.

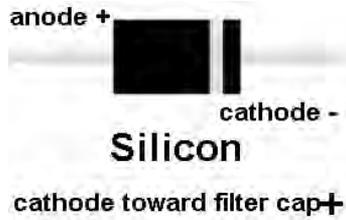
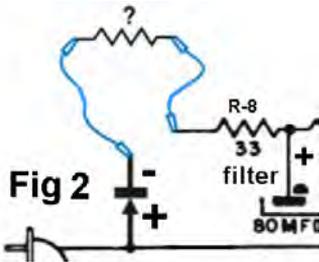
We may be tempted to use nos *new old stock* still in the box, but shelf life has made this option just as risky. The selenium rectifiers were configured back in the day with the *positively* marked side facing toward the filter caps, *see photo and Fig 1*. This often throws people off. Today, we place the *banded* or negative side of our replacement silicon diode toward the positive end of the filters.



The problem is voltage drop. Tube rectifiers drop 10-25 volts or more. The selenium can drop 5-10 volts. The modern silicon diode

drops about a volt. If we don't compensate for this, we could burn out our 1.4 volt tube filaments.

To drop 10 volts, simply use ohms law to select our resistor. Since the filaments are in series, the current is the same throughout the filament string. We see from a *Tube Data* chart that all the tube filaments for this radio draw 150mA of current. Volts divided by current  $10V/.15mA = 66.7$  ohms. Standard value is 68 ohms.



We add our new resistor in series with the existing resistor R-8 in *Fig 2*. As far as wattage or power rating of our new resistor, just make sure it is equal or greater to R-8, remembering that the current needed to flow through the original circuit applies to the new resistor. Radio Shack sells the 1N4007 diode rated at 1amp and 1000 volts for about a buck. Others rated at 3 amps, if so desire.

Lastly, we use a *variac* to slowly increase the line voltage after the modification. Place your DC voltmeter across a tube filament somewhere in the middle of the string. If the voltage exceeds 1.4 volts before the variac reaches full line voltage, stop increasing. You may have saved the tubes from blowing out. Just increase the ohm value of the new resistor and try again *slowly*. Likewise, lower the new resistor value if the 1.4 volts is not reached.

Myself, I'm going for the new selenium world record. I should live so long!

Until next time from the bench of WRNO,

Sid

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## NWVRS Calendar of Events

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Most of the hamfest and ham swap meet information comes from: PNW Hamfair web page at [www.n7cfo.com/amJradio/hf/hf.htm](http://www.n7cfo.com/amJradio/hf/hf.htm)

**July 14** NWVRS monthly meeting 10 am; tailgate swap 8:30.

**July 21** **Coos County Radio Club Hamfest and Swap-meet.** North Bend, Oregon. *This is an ARRL sanctioned event.* [zane.albertson@gmail.com](mailto:zane.albertson@gmail.com)

**July 28** **Chehalis Valley ARS 13th Annual Swap.** Lewis County Fairgrounds. Contact John Ellingson, K7OSK. [k7osk@boatanchor.com](mailto:k7osk@boatanchor.com) . <http://www.cvars.org/>

**August 3-5** **57<sup>th</sup> Annual PacNW DX Convention.** Monarch Hotel, Clackamas, OR. *This is an ARRL sanctioned event.* Hosted by the Willamette Valley DX Club. <http://wvdx.org/dotnetnuke/>

**August 11** NWVRS monthly meeting 10 am; tailgate swap 8:30.

**August 11** **Radio Club of Tacoma Hamfair.** Graham, WA. *This is an ARRL sanctioned event.* <http://www.w7dk.org/>

**August 19** **PSARA Swap Meet.** 9-1. *NEW LOCATION!* Shoreline Community College, 16101 Greenwood Ave. North, Shoreline, WA, 98133. <http://www.eskimo.com/~hhagen/psara/swap.html>

**August 25** **Annual Clark County Amateur Radio Club (CCARC) Ham Fair, Vancouver, WA.** *This is an ARRL sanctioned event.* Held at the Clark County Square Dance Center, 10713 NE 117<sup>th</sup> Ave, Vancouver, WA. [clarkcountyhamfair@w7aia.org](mailto:clarkcountyhamfair@w7aia.org) or [www.w7aia.org](http://www.w7aia.org)

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# GR Type 1680-A Auto Capacitance Bridge

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by David Wise

## Part I

Winter 2011 - Spring 2012



This was GR's first automatic capacitance bridge, and they say it's the first ever.

Unlike the 1650-A, the Heathkit IB-1 and so on, this is a "transformer ratio arm" bridge. Rather than varying the standards to match the unknown, this type of bridge drives the unknown and standard with low-impedance voltage sources, and senses the net AC current coming out the other side with a low-impedance "transresistance" amplifier. Decade ranges are selected by tapping the transformer windings. Since drive and sense are low-impedance, strays to ground (resistive or capacitive) have no effect, which makes a "three-terminal" connection practical. The instrument has two GR 874 connectors, with drive and sense on the center contacts and the shields grounded. The usual setup runs a pair of coax cables out to a test fixture. Since the transformer turns ratios are fixed, this technique is very stable. It was used on other laboratory-grade bridges such as the 1615, the manual bridge on which the 1680-A was based.

It was made around 1965 and contains about 250 transistors, about half germanium, half silicon. Weighing 77 pounds, it's a beast. It's in two pieces, bolted and cabled together: the 1672-A Digital Control Unit and the 1673-A Measurement Unit. (GR planned to create other Measurement Units, but that never went anywhere.) The Control box has the readouts and the digital sequencing logic, plus the voltage sources, and the Measurement Unit has the ratio transformer, configuration and range switching relays, standard capacitors and resistors, and the detector preamp. (For some reason, it also contains the Power Amp which drives the unknown and the standards, even though its input and output go back to the Control Unit for processing before coming back to the Measurement Unit.) Two thick cables join the boxes, one digital signals, the other analog. Both connectors are GR proprietary designs. (According to Wikipedia, the Cannon D-subminiature connector had been around since 1952, so this can only be attributed to NIH.) The front panel has an impressive row of the unique English-made "Numerik" digital readout modules, with sign, digits, decimal points, and special symbols etched into a stack of thin plastic sheets; the appropriate one is edge-lit by an incandescent lamp. The bases of the lamps protrude to the rear, and press against a matching array of spring-loaded "button" contacts in the socket. These quickly disappeared when Burroughs started producing the "nixie".

The basic idea is to send three adjustable AC voltages, one to the unknown, one to a standard capacitor, and one to a standard resistor, and adjust them until the net current out the other end is zero. As I said, the ratio transformer determines the range. It has five windings: 1000 turns, 100 turns, two 10-turns, and 1 turn. To cover seven orders of magnitude, GR turns the transformer around at the halfway point. On ranges 4 through 7 (the high ranges), the transformer steps down the voltage driving the unknown, from 1V to 100mV to 10mV to 1mV. (The master voltage is 1V, so on range 4 it's 1:1.) On the low ranges (3 through 1), it steps up the current from the unknown, 10 to 1, then 100 to 1, then 1000 to 1. (With respect to the standard current, which comes in on the 1-turn winding; the other 10-turn winding goes to the detector.) GR wanted one more range, but a 10000-turn transformer was not practical; instead they added a second standard capacitor, 1uF versus the normal 0.1uF. The big cap is used only when the bridge is operated at 120Hz, making range 7 top out at 2000uF. On the other two

frequencies, 400Hz and 1000Hz, the 0.1uF cap is used. These ranges go from 200uF down to 200pF full-scale, with 0.01pF resolution.

The standards are driven by voltages supplied by two digital-to-analog converters. Each converter ("divider" in GR-speak) is made of seventeen two-transistor analog switches, four binary-coded decimal (BCD) decades plus one more significant bit for a total of 20000 counts. These DACs are controlled by the two front-panel readouts. The readout handling capacitor voltage displays capacitance, and the one handling resistor voltage displays conductance. (You can also set the 1680 to display Dissipation Factor instead of conductance. To get D instead of G, they switch a relay so that DAC's reference voltage is obtained from the C DAC instead of the master oscillator. This is equivalent to performing a mathematical division.) At full count plus one, each DAC would produce 2V, so, for example, the range 5 full-scale display is 1.9999uF at 400Hz or 1kHz, or 19.999uF at 120Hz.

In-phase and quadrature components of the sense current are separated out by two sample-and-holds, one timed at zero degrees phase, the other at 90. (They were clever with the 90; the oscillator is a levelled Wien bridge, and they just tapped into its backside. At resonance, the voltage there is 90 degrees away from the output.) The digital logic figures out the appropriate range, then turns each DAC up or down, depending on the polarity of the corresponding sense current.



End of Part I

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## Swap Shop

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*FOR SALE:* Thousands of tubes, hundreds of radio parts, panels, meters, surplus, etc. R5-D3 electronic surplus, Bob Lee, 9770 S.E. Stanley Ave., Milwaukie, OR 97222, (503) 513-0410

*FOR SALE:* \*Reducing collection for moving. Consoles and other stuff. Extremely reasonable. Contact Rick Walton, 503-701-3260, [rewalton@gmail.com](mailto:rewalton@gmail.com).

### Leads and Needs

Questions about restoration of vintage radio? Visit Radiolaguy's web site often for this information plus lots of other interesting displays, photos, virtual museum plus lots of other information on vintage radio and television. Oh, yes, there are items for sale as well and NVRS members get a substantial discount on most of these items. Thank You, Sonny the Radiola Guy  
Visit my vintage radio web site: <http://www.radiolaguy.com>

### Radio Service

These members have indicated they are willing to perform radio repairs:

Roger Brown – (503) 693-6089

Bruce Baur - (503)-708-4537, [brucebaur@comcast.net](mailto:brucebaur@comcast.net)

Blake Dietze – (360) 944-7172, [wb6jhi@ix.netcom.com](mailto:wb6jhi@ix.netcom.com)

Jack Doyle – (503) 305-8097

Pat Hickman – (503) 887-9015 Web: [www.classictubeaudio.com](http://www.classictubeaudio.com)

Email: [phickman@comcast.net](mailto:phickman@comcast.net)

Jim Myers – (509) 525-6264

Todd Ommert – (503) 246-4141 Web: [www.burlingame-radio.com](http://www.burlingame-radio.com)

Email: [burltv@msn.com](mailto:burltv@msn.com)

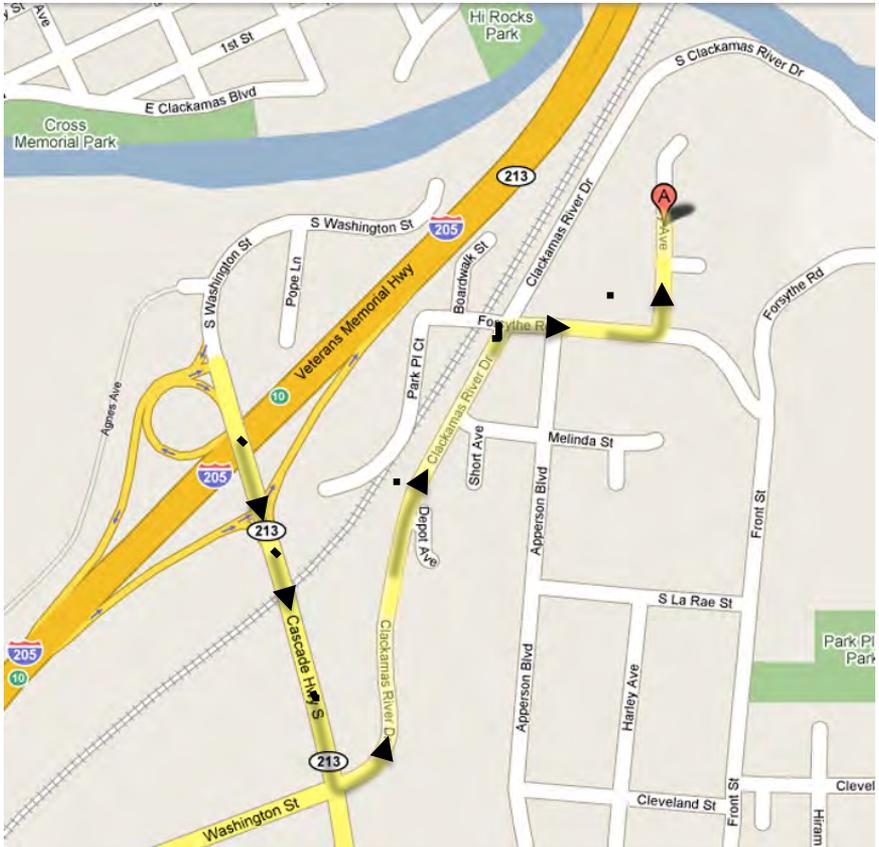
Tony Ranft – (360) 944-8489 or [walterranft@hotmail.com](mailto:walterranft@hotmail.com) – General repairs.

Dave Wise – (503) 648-0897, [david\\_wise@phoenix.com](mailto:david_wise@phoenix.com)

If you are willing to repair radios, give your name, phone and/or e-mail, and any comments to the *Call Letter* editor.

The Northwest Vintage Radio Society is not responsible in any disputes arising from services provided by members listed here. By common agreement of the board of directors, the buyer assumes all responsibility for the satisfaction of any transaction.

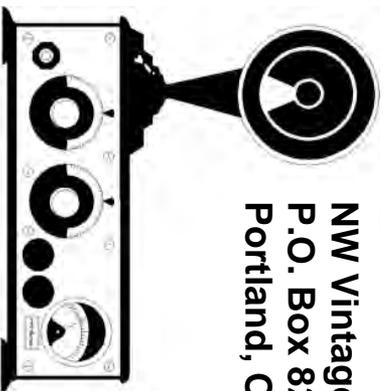
# Meeting Location



To get to the Abernethy Grange Hall:

1. Exit I-205 at SR-213 (Exit 10 to Molalla) and head south on 213.
2. At the first intersection (the traffic light), turn left onto Clackamas River Dr.
3. Turn right at Forsythe Rd.
4. Turn left onto Harley Ave. The Grange Hall is on the left about a block and a ha

**NW Vintage Radio Society  
P.O. Box 82379  
Portland, Oregon 97282-0379**



**FIRST CLASS MAIL**