

The Jersey Broadcaster

NEWSLETTER OF THE NEW JERSEY ANTIQUE RADIO CLUB

July 2005

Volume 11 Issue 7



MEETING/ ACTIVITY NOTES

Reported by Marv Beeferman

The NJARC June meeting featured a "show-and-tell" of foreign radios and members were treated to some great examples and amusing stories. It was all caught on film (what else at an antique radio club?) and you'll find the photos in this month's *Broadcaster*. Here's a summary of what we saw:

- Tom Provost displayed a Dutch 89WKN "Emud" Mittelwellen which took some heavy-duty restringing to get the dial working right. He also showed an early 50's Phillips "431D" which was manufactured in Australia but used American tubes and a German Blaupunkt NU630V superhet (and supercap - 48 capacitors in all) with permeability tuning. Tom noted that with any foreign radio restoration, be prepared to do some active searching to find the right tubes.

- Your editor talked about his British BTH Type C twin detector crystal set manufactured by Thomson Houston in 1924. Marv explained that Thomson Houston was a subsidiary of RCA and was part of the consortium (GE, Marconi, Metropolitan Vickers, the Radio Communication Company and Western Electric) that formed the BBC in 1922. The set bears the BBC/PMG stamp marked with the British GPO (General Post Office) registration number. Not foreign but interesting, Marv also showed a novelty clock made from a vacuum tube and assorted electronic components.

- Phil Vourtsis described the repair clinic that ran during lunch hours at Bell Labs. The repaired radios were donated to the less fortunate. At the close of AT&T in 1983,



MEETING NOTICE

The next meeting of the New Jersey Antique Radio Club will take place on Friday, July 8th, at the David Sarnoff Library in Princeton, NJ at 7:30 PM. Contact President Phil Vourtsis (732-446-2427) for directions. This month, we'll hear from Al Klase who attended the Armstrong Commemorative Broadcast from the Alpine, NJ tower. The broadcast was conducted on the old FM band on Saturday, June 11th under a special temporary license from the FCC. Al will report his "birds eye" view of the festivities with sound bites and pictures.

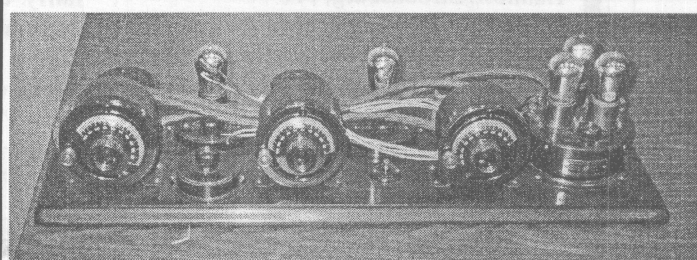
Phil received one of his first foreign sets as a gift. Also shown was a Grundig Majestic obtained at a house sale and a Telefunken "Bajazzo TS/Europa-W" which was a gift from a 1970 trip to Germany from Phil's father-in-law. This last one had quite a history. The radio was in the trunk of Phil's 1967 Pontiac Bonneville when the

a TV shop during a trip to far away Latvia and runs off 220/127 volts. Leo also displayed a Russian military set of unknown history. We could tell it was Russian since the voltmeter was enclosed in red bakelite.

- Walt Heskies showed a Normende Globe-trotter which he used as a car radio (uses 8 "D" cells). Like Tom Provost's sets, this also had "an impossible dial string."

- Dave Snellman talked about his Normande "Transita Deluxe" and Owen Gerboth described his Dynatron "Nomad" portable.

- Richard Lee gave us a history lesson on his VE301 German People's Radio (Volksempfänger). The concept was a mass-produced cheap radio receiver for the reception of German State propaganda. The radio



This Atwater Kent breadboard, in excellent condition with brass-based/tipped 01A's, showed up for an unplanned auction and was hammered down at over \$1,000. Two additional items are shown on page 2.

car was stolen and used as a bank robbery get-away car. The car was recovered along with the radio, but the FBI asked Phil if they could use it (the car, not the radio) as bait to capture the "Mutt & Jeff" bank robbers who had a penchant for mid-60's GM cars. Phil declined of course - I think he didn't want to risk losing another radio.

- Marty Friedman found his late 50's Grundig Majestic 2520U at an NJARC auction about 10 years ago for \$3.00. Marty tells us that the radio has a great sound and uses an electrostatic tweeter.

- Leo Assur's table set was obtained from

sported the Reichsadler emblem, an eagle with outstretched wings and talons grasping a swastika, that familiar symbol of the Third Reich and ultimate evil. In keeping with the limited sensitivity necessary to make reception of stations outside Germany difficult, the TRF design had only two stages - a first stage detector followed by an audio output stage.

- Another working dumpster treasure - Mike Christiansen's Portuguese-made Grundig "Satellit 1400 Professional."

- Darren Hoffman showed off a real beauty - a Norwegian "Symfoni" Super DV made by the RadioNett Company. Darren

THE JERSEY BROADCASTER is the newsletter of the New Jersey Antique Radio Club (NJARC) which is dedicated to preserving the history and enhancing the knowledge of radio and related disciplines. Dues are \$20 per year and meetings are held the second Friday of each month.

The Editor or NJARC is not liable for any other use of the contents of this publication.

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bought this radio when he was 17; the asking price was \$50. With \$35 in his pocket, his enthusiasm for the radio and his promise never to resell it brought the price down to \$30. With its flywheel drive, this radio is as satisfying to tune as driving a BMW.

•Rob Flory showed us his C6Q-43005-A transmitter/receiver. Its origin was Okinawa and was fired up during Memorial festivities on the Battleship New Jersey. It was also the radio of choice of the Navajo Code Talkers.

As requested by our members without access to the NJARC website (<http://www.njarc.org/>), here's a calendar of upcoming events (NJARC events in bold):

7/10: Mid-Atlantic ARC Hamfest, Kimberton PA

7/16: Restoration Workshop, Sarnoff Library, Princeton NJ

7/30: NJARC Summer swapmeet, Parsippany NJ

8/4-6: ARCI Radiofest XXIII (Elgin), Bolingbrook, IL

8/23-27: AWA Annual Conference, Rochester NY

9/10: Eastern PA ARA Pocono Area Hamfest, Stroudsburg, PA

9/10: Infoage swapmeet (in lieu of meeting) - tentative

9/16-17: DVHRC Kutztown Radio Meet, Rennigers, Kutztown PA

10/2: DVRA Hamfest, West Windsor, NJ

10/16: RF Hill ARC Hamfest, Sellersville PA

10/23: NJARC Fall swapmeet, Hazlet, NJ

LOVE IS IN THE AIRWAVES AS FM TURNS 70

By Jim Beckerman

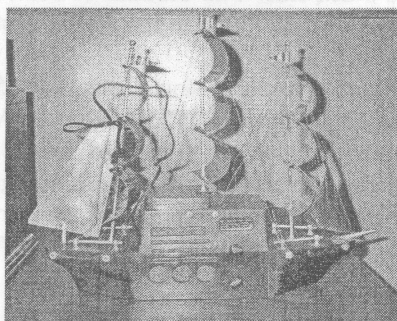
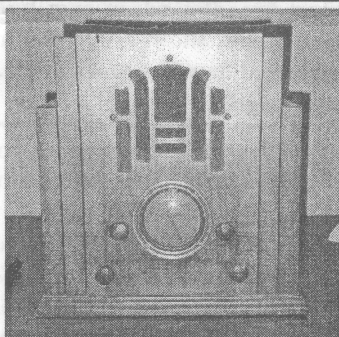
The following article by Jim Beckerman is courtesy of the Bergen Record (Sunday, June 12th). NJARC members Al Klase and Richard Lee were major participants in this celebration of FM's 70th...Ed.

Someone else might have celebrated FM radio's 70th birthday by baking a cake. Steve Hemphill built a transmitter. "This is a labor of love for me," Hemphill said Saturday, standing next to a towering 6-foot-6-inch aggregation of dials, knobs and vacuum tubes, 4 inches taller than he is.

Hemphill, a Philadelphia broadcast engineer, spent a year of his life and \$5,000 of his own money to create this replica - fairly close - of the equipment used in November 1935 by famed inventor Maj. Edwin Howard Armstrong for the first public demonstration of FM radio from a New York office building. Two years later, in 1937, Armstrong built the world's first FM radio station, W2XMN, in Alpine, along with a research laboratory and the gargantuan 400-foot radio tower that still looms over the Palisades Parkway. That's the historic spot where some 125 hard-core radio buffs gathered Saturday to quaff coffee inside a reception tent, and listen on loudspeakers to a live noon broadcast, via Hemphill's replica transmitter, on 42.8 FM - the original frequency band Armstrong used in 1935.

"Somewhere at this very moment, a young boy or girl is tinkering with an idea," said WINS radio host Judy DeAngelis, imported from New York to emcee. "Somewhere the seed of an American dream is forming. Many years ago another boy had another idea. You know his name - Edwin Armstrong." Her words were being spoken from the nearby red brick W2XMN building - unused for broadcasting since 1954.

On Saturday it briefly became a studio again, as DeAngelis led a panel of experts



in paying tribute to the inventing genius known, universally and reverentially, as "The Major." "Anybody who uses a cell-phone, anybody who watches a TV program or turns on a car radio or a scanner, he's using an invention that came from Major Armstrong," Hemphill said.

Saturday's 42.8 FM broadcast was also simulcast on WFDU 89.1 FM, and streamed on the Internet - making it a sort of technological meeting of the past, present and future. "This crosses three generations of moving information," said WFDU general manager Carl Kraus.

Currently 42.8 is a public safety band. It was made available for Saturday's broadcast only by special Federal Communications Commission dispensation and is defunct as a commercial FM band - and thereby hangs a tale. It's a tale of genius, pride and business skulduggery that casts Armstrong in an especially poignant role. "It's moving to see how many people honor his memory," said his great-nephew, Robert Brecht, one of Saturday's guests of honor.

Among technophiles, "The Major" is a cult figure of Gandhi-like proportions. Books, such as Tom Lewis' "Empire of the Air," have been written about him. Documentary filmmaker Ken Burns has made a series about him. At least once during Saturday's broadcast, Hemphill teared up while talking about him.

"He gave his whole life for us," Hemphill said, choking back tears. "I feel very strongly about this. I just owe him a great deal."

Armstrong (1890-1954) invented the first practical vacuum tube radio receiver in 1914. The inventing honors were stolen from him, many feel, by vacuum tube inventor Lee DeForest, who won money and bragging rights through a series of court cases. Later, Armstrong developed the FM system as a way to improve on static-plagued AM. By modulating the frequency of the radio waves, rather than their height, Armstrong created a crystal-clear signal that was especially suited to music.

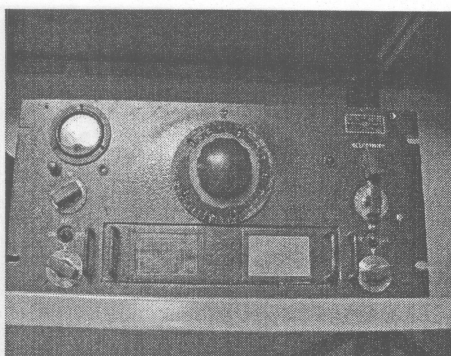
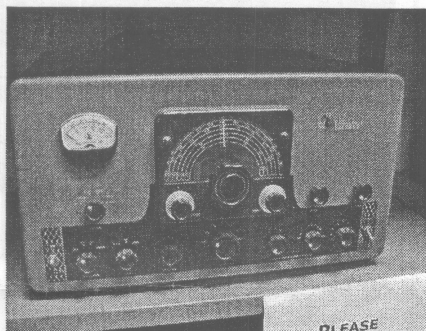
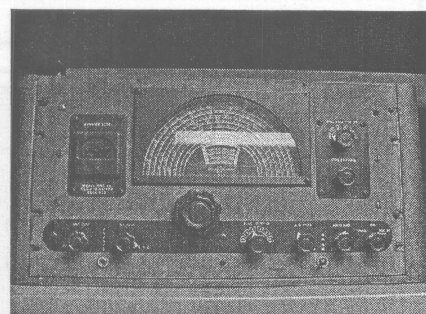
In those first years the Alpine studio was largely an experimental outpost, doing demonstration broadcasts a few hours a day, recalled Renville H. McMann Jr., who worked with Armstrong in the early 1940s. "They would set up receivers in auditoriums like Town Hall, bring in critics, and they'd hear sound like they'd never heard it before," McMann recalled. "They particularly liked the tinkling of water in glasses. You

could never hear anything like that on AM."

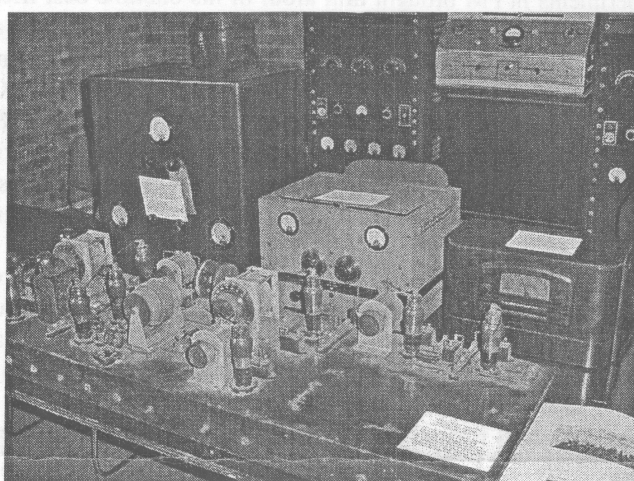
But Armstrong's experiments in FM brought him afoul of his onetime best friend, RCA's David Sarnoff, who was putting his research money into TV and didn't want any other new broadcast technologies to distract the public. Sarnoff began a campaign of low-level harassment of Armstrong, which included successfully pressuring the FCC, in 1945, to change the FM band range from 42 to 50 MHz to its current range, 88 to 108 - thus effectively rendering obsolete all FM receivers sold until that time. Sarnoff's strong-arm tactics, many feel, that literally pushed Armstrong over the edge - causing him to commit suicide by jumping out a 13-story window of his New York apartment building in 1954.

But his invention, FM, flourished - helping, among other things, to fuel the rock music revolution when it became the bastion of renegade disc jockeys and album-oriented rock radio in the early 1970s. Now broadcasting is at another crossroads. Satellite and Internet technology are poised to steal FM's thunder, just as FM nudged aside AM in the 1960s and 1970s.

Saturday's event was a poignant reminder that - in broadcasting and elsewhere - nothing is permanent but change. "It's always a continuing struggle, one form of technology replacing another form," Hemphill said.



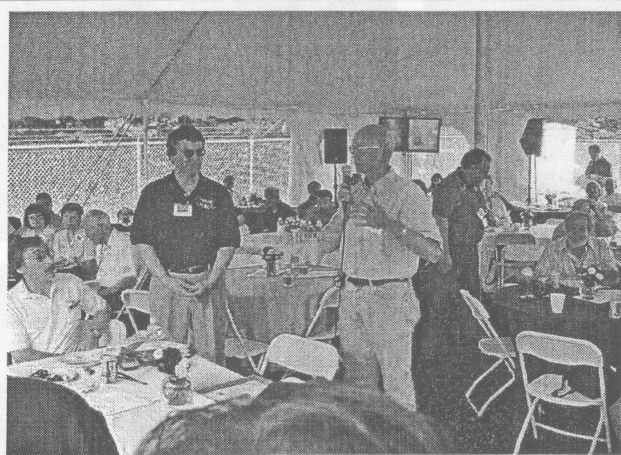
In the Alpine Tower Museum - some communication receivers and test equipment in need of ID's.



The beginnings of early FM receivers.



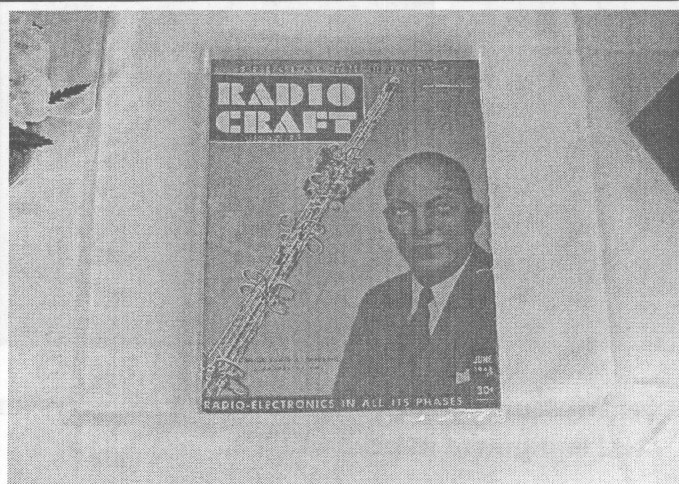
NJARC Tech Coordinator Al Klase gives WFDU producer Barry Sheffield and show host Judy DeAngelis (1010 WINS) a website for signal distance reports.



Richard Lee, representing the NJARC, is about to present Chuck Sackermann with a restored Zenith 8-H-034.



Alpine Tower owner Chuck Sackerman graciously accepts a 1946 commemorative Zenith known as "The Major." The radio covers the old FM (42-50 MHz), the new FM (88-108 MHz) and AM bands.



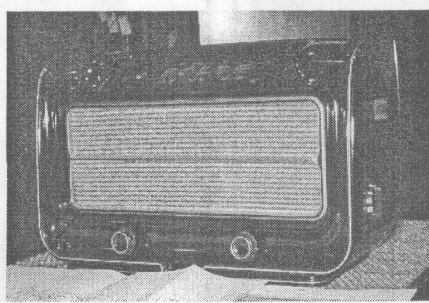
The club also donated this June 1948 issue of *Radio Craft* with Major Armstrong on the cover

Photos courtesy of Richard Lee.

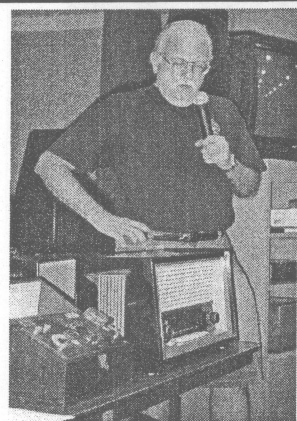
SHOW-AND-TELL



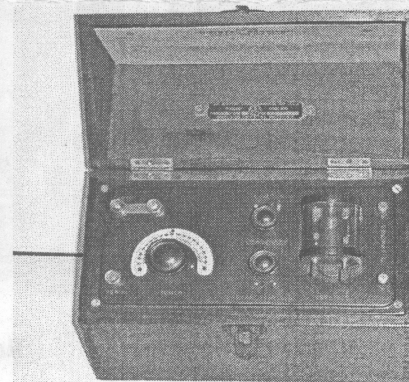
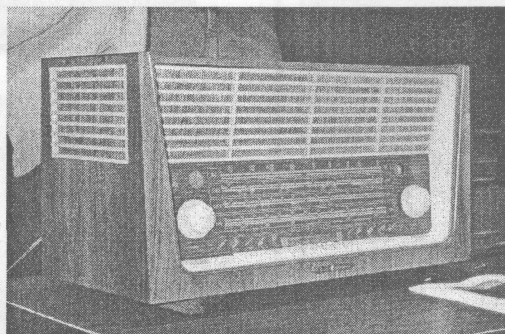
Tom Provost



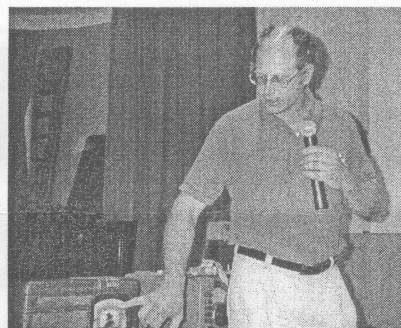
Marv Beeferman



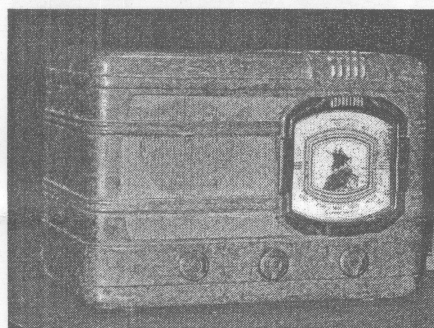
Phil Vourtsis



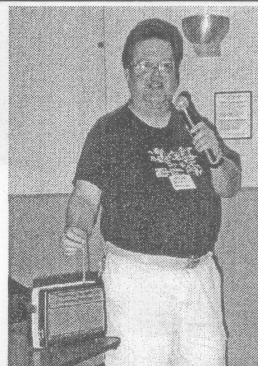
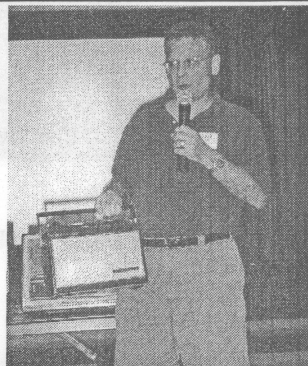
Marty Friedman



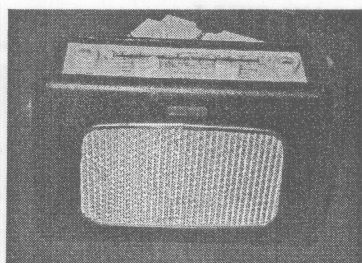
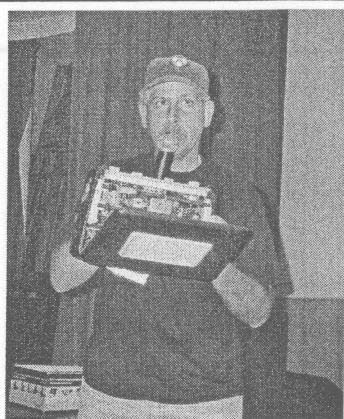
Leo Assur



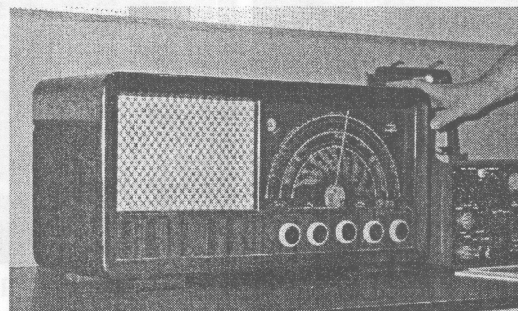
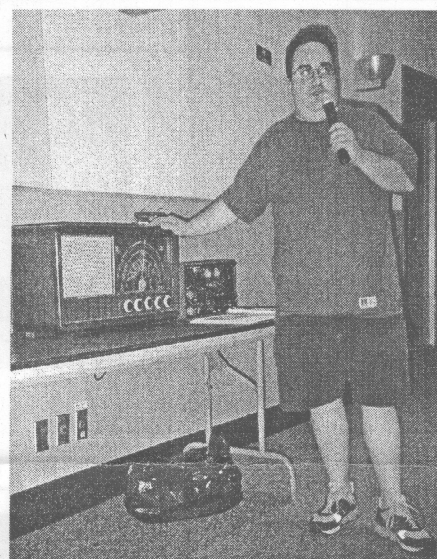
More pictures
on page 6...



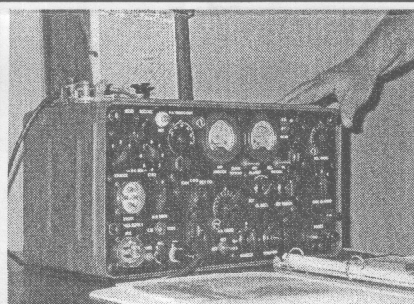
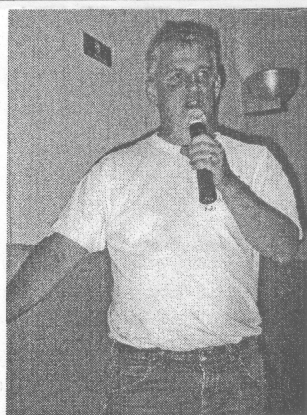
Walt Heskes and
Dave Snellman



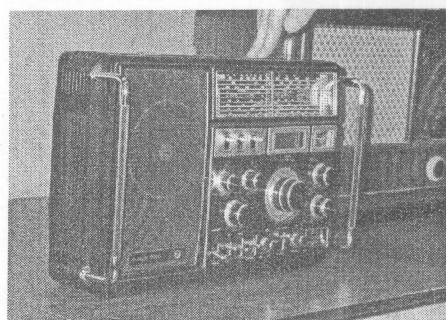
Owen Gerboth



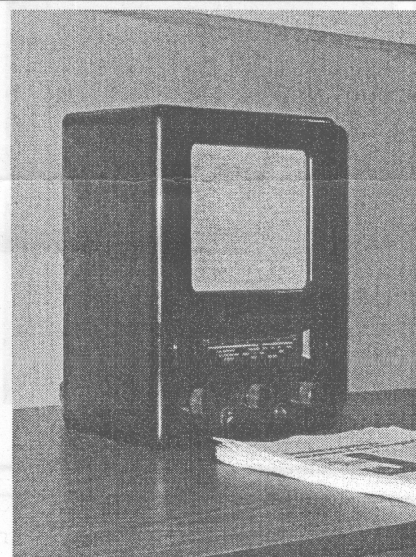
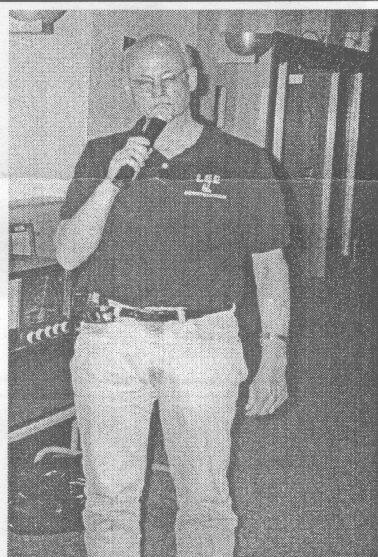
Daren Hoffman



Rob Flory



Mike Christiansen



Richard Lee describes his VE301 "People's Radio"

THE ZM-11/U: A SMALL WORKHORSE

By Marv Beeferman

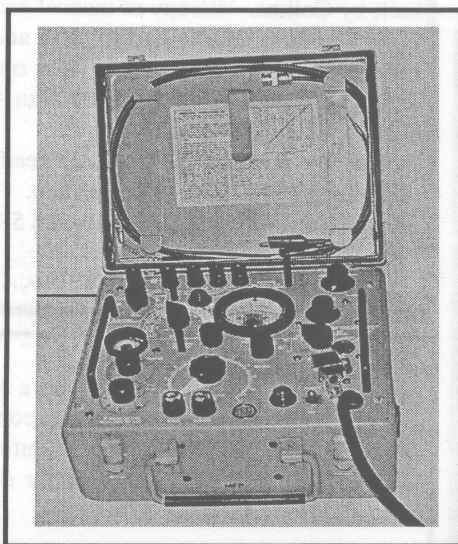
Most basic radio troubleshooting can be accomplished by using a voltmeter. Even when suspect culprits are mis-diagnosed, the cost of common discrete components (capacitors and resistors) is so reasonable that most of us resort to wholesale replacement as a solution to a majority of problems. But sometimes a tougher problem warrants a little more intensity. Also, there are those few occasions (incomprehensible to many) where a troubleshooter might want to use a more technical approach to isolating a problem or examine the condition of a resistor, capacitor, coil, choke or transformer **prior** to installation.

There are many modern pieces of test equipment that are available to test individual radio component parameters, both with one component lead disconnected or without removing the component from its circuit. For example, Electronic Design Specialists offers an in-circuit capacitor checker (CapAnalyzer 88A) for \$199 and a short locator (LeakSeeker 82B) for \$199. However, building a portable tool box of equipment that can look at a number of parameters could get costly and take up quite a bit of real estate. I have found one solution in the ZM-11/U Capacitance-Inductance-Resistance Bridge. Unfortunately, I picked up my unit some 40 years ago in pristine condition and I have yet to see another example being used. On the plus side, its still going strong without any repairs...quite an accomplishment for an 8-tube instrument!

The bridge is contained in a very compact 9-3/4" X 8-1/2" X 6" case with its power cord stored on panel posts and test leads and instruction manual stowed in the lid. It can be used to measure capacitance, inductance, resistance, transformer turn ratio, the dissipation factor of inductors and capacitors, the storage factor of inductors at 1,000 Hz, insulation resistance and electrolytic capacitor leakage. In addition, it can perform a quality test for determining whether a capacitor is open or shorted even though a resistance or inductance remains

connected across it. Entirely self-contained, the unit has an adjustable source of direct current for capacitor leakage and insulation resistance testing and a 6E5 eye tube to indicate bridge balance.

Although designed primarily for service measurements, the bridge has a very respectable overall accuracy about half that found in bulky and complex laboratory equivalents of its day. This is more than acceptable for basic radio work. Basic measurements of resistance, capacitance, inductance, and turns ratio are made by suitable bridge circuits. Although a detailed review of these circuits is beyond the scope of this article, there are a few unique characteristics of the ZM-11/U which might be found interesting.



In addition to its reactive property, a capacitor will always have some loss. This loss may have the property of either a shunt or series resistance or a combination of both. Whatever its true nature, it can be represented by a simple series resistance and can be balanced in a bridge by a calibrated series resistance. Rather than calibrating this control in resistance, the ZM-11/U calibrates it in dissipation (D). Besides providing a means to accurately balance the capacitance bridge, the dial shows a merit figure for the capacitor under test from which its ESR (Effective Series Resistance) can be calculated. For example, an 18 mfd capacitor that balances at a "D" dial setting of 0.3 has an ESR of 2.67 ohms where $R = 159(D/C)$.

Two values of standard capacitance are used to obtain an appropriate measurement range - 1000 mmfd and 1.0 mfd. Thus, two values of the dissipation (D)

control are provided. The 1000 mmfd standard is used in the 10 mmfd to 0.11 mfd range. Capacitors measured in this range are usually mica or paper dielectric and are suspect if they have a high dissipation. Therefore, measurements with the 1000 mmfd standard are made with a "D" range of 0 to 0.06.

The remaining capacitance ranges cover 0.1 to 1100 mfd. In the higher end of this range, the capacitor is more likely to be electrolytic and a wider range of "D" is required for balance. Thus, a range of 0 to 0.6 is provided.

It was stated that the ZM-11/U can determine if a capacitor is either shorted or open without disconnecting it from its circuit even though it is shunted by a resistor or inductor of not too low of a value. For the OPEN test, the ZM-11/U's VTVM is connected across the output winding of an oscillating transformer. Connected in parallel to these are an impedance element and the capacitor test cable. The impedance element acts as terminal loading for the cable so that the combination has the qualities of a 1/4-wave transmission line at about 10.75 MHz. It may be recalled that an impedance connected to the output end of a 1/4-wave line is reflected to the sending end as the reciprocal of the connected impedance; that is, an open on the output end appears as a short on the sending end and vice-versa.

Thus, with the test cable clips open, a short appears across the transformer output winding when the frequency is adjusted with the ZM-11/U's "OSCILLATOR ADJUST" to the 1/4-wave frequency of the line. At this point, the voltmeter reads full scale corresponding to zero voltage. If the test cable is now clipped across a good capacitor (still connected in its circuit), some impedance other than zero will appear across the input of the 1/4-wave combination; the increased voltage will cause the meter reading to drop. If the capacitor is open, there will be no change in the meter reading.

The SHORT test employs the same VTVM and meter setting procedure but is supplied from the ZM-11/U's 1000 Hz generator. Thus, the test cable has no special electrical properties at this frequency. If the capacitor is shorted, the voltmeter will receive no input and will remain at full scale. If the capacitor is not shorted, the meter indication will drop.

CONNECTIONS

Free exposure for buyers and sellers! Unless requested otherwise, each ad will run for two months in both the *Jersey Broadcaster* and the *Delaware Valley Oscillator*. All buying and selling transactions are the responsibility of the parties involved.

FOR SALE

Check out NJARC's capacitor program for those most commonly needed replacements. Contact John Ruccolo at any club meeting or call him at home (609)-426-4568 to find out what's available. All proceeds go to the club.

SUPPORT THE SARNOFF LIBRARY

SUPPORT INFOAGE

See Marv Beeferman

The NJARC tube program offers clean, tested, boxed tubes at very reasonable prices with availability at any club meeting (no dealers, please...not for resale). Proceeds go to the club. Of course, donations of radio-type tubes in any condition are welcome. See Gary D'Amico at the next meeting.

National NC100 ASD with manual. Has been re-capped, needs alignment, \$55. Jack Winans, 609-882-9296, WA2LGE@aol.com.

WW2 Navy/Marine TCS9 TX & RX built by Collins. W/copy of manual and 2 dynamotors, remote control box and most of the connecting cables. Was operated on ham bands OK. \$400 firm + SH or pick up in Freehold, NJ
Philco 50 - operates OK, cabinet needs refinishing. \$50 firm +SH or pickup.
Steve Kiraly, 732-462-2705 between 5-8 PM.

Are you aware that NJARC now has a resistor program which includes many commonly needed replacements? Contact Walt Heskes at any club meeting for details.

Spring cleaning sale: Shortwave radios - Hallicrafters SX99 \$100, SX130 \$120, SX-43 \$130, Lafayette HA225 \$70, BC348 \$65, Heathkit G4-1680 \$65.

Test equipment - HP 400D AC voltmeters, 1mV to 300V full scale, 4MHz bandwidth, great for measuring gain in broadcast band radios, audio work, etc., good operating condition, \$10. Measurements grid dip meter with book, \$50. Tube testers, distortion analyzers, spectrum analyzer, scopes, etc. available - ask. Near recent (1980s?) stereo equipment receivers, tuners, turntables, \$10 each (working).

Parts available: Tek465, Philips 3052 and various other HP and Tek equipment. Steve Goulart, 732-219-6963, sgoulart@att.com

WANTED

Anybody have a junker BC-344 or BC-314 (that's the low frequency version of the BC-312) or parts thereof? I need the 1st IF can, part number C-293. It's a 95 KHz IF transformer.

Thanks - Ray Chase, 908-757-9741



New Jersey Antique Radio Club's Summer Swap Meet

New Location: Parsippany PAL building, Smith Field

Rt. 46 & 33 Baldwin Rd. Parsippany, NJ 07054

Saturday, July 30th, 2005

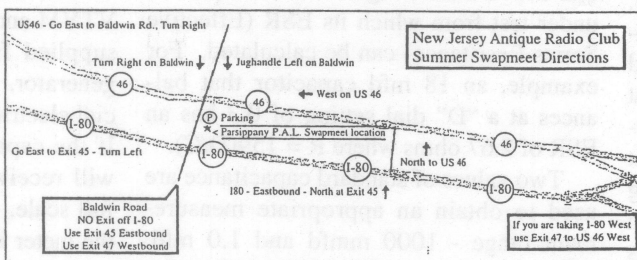
8:00 AM to 1:00 PM - Open to the Public - Vendor Set-up at 7:00 AM

Easy access ground level hall with 70 8-foot tables. Table costs are \$15 for members and \$20 for non-members. There is a \$5 entrance club donation. For directions, follow the map, visit our club website at www.njarc.org or "Mapquest" 33 Baldwin Rd., Parsippany, NJ 07054

Make your reservations NOW by contacting:

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Vice President Richard Lee,
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Radiorich@prodigy.net.



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