

The Jersey Broadcaster

NEWSLETTER OF THE NEW JERSEY ANTIQUE RADIO CLUB

November 2015

Volume 21 Issue 11



**MEETING/
ACTIVITY
NOTES**

Reported by
Marv Beeferman

The ON-LINE Broadcaster

The New Jersey Broadcaster is now on -line. The majority of your fellow NJARC members have already subscribed, saving the club and your editor a significant amount of money and work. Interested? Send your e-mail address to mbeeferman@verizon.net. Be sure to include your full name.

Thanks again to Mike Molnar for his talk on the Western 41 mechanical TV at the October meeting. Unfortunately, for me, Art Garfunkel took precedence that evening (yes, he did sing a portion of *Bridge Over Troubled Waters*) but attending NJARC members gave Mike's talk an A+ rating. I'm looking forward to Al Klase's presentation next month which he has titled "The Mysterious Tuned Circuit." Al has prefaced his talk with the following:

"We often make judgments about radios based on how many tubes they contain. Yes, amplification is important, but a radio is largely defined by the tuned circuits that determine it's frequency range, selectivity, stability and ease of tuning. In this presentation, we'll take a look at these often under-appreciated components."

Along these lines, you might find an article on Philco's "special service band" in this month's *Broadcaster* something of a prelude to Al's presentation.

Final plans have been made for our Holiday Party on December 12th. In an attempt to reduce costs, it will be held at the West Lake Golf and Country Club in Jackson, NJ where NJARC member Bill Zukowski is a resident member and has obtained a nice rental discount. Reservations are a must so please return the form on page 7 as soon as possible. Additional forms will be available at this month's

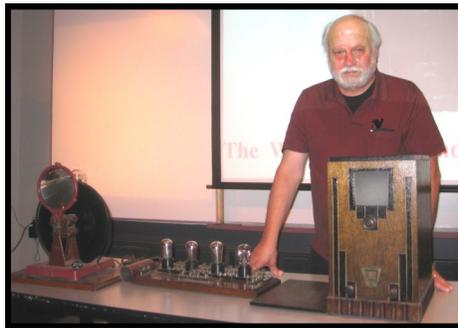


MEETING NOTICE

The next NJARC meeting will take place on Friday, November 13, at 7:30 PM at InfoAge. Directions may be found at the club's website (<http://njarc.org>). This month's meeting will feature a talk by our Technical Coordinator Al Klase which he has titled "The Mysterious Tuned Circuit." Although there will be no auction, members are always invited to sell radios, phonos, books, etc. prior to and following the meeting.

meeting, on the club's web page and the *Reflector*. While you're at it, start thinking about a gift for the Mystery Grab Bag. Also, remember our Fall swapmeet at the Parsippany PAL on November 7th.

As a thank you for Bill's efforts in finding our Holiday Party location, perhaps someone can furnish him with three tube shields to fit ST12 size tubes (6A8, 6F5, for example) with openings for grid cap wires. The shield lower opening diameter measures approximately 1-5/8" and the shield is 3.5" high. The shields themselves do not have to have an ST shape, but must have grid cap wire openings.



Mike Molnar and his Western 41 mechanical TV at the October meeting.

In a reply to a request by member Joe Bentrovato for a dial cord stringing guide for his Sparton 737 (and other dial cord problems), Bill suggests the following site:

<http://www.theoldradiofixerupperguy.com/dial%20cord.html>

The site has posted links to the full 1947 edition of *Sams Dial Cord Stringing Guide* in PDF format and it's broken down into smaller segments to allow for

faster loading.

If you have any similar part or information requests, besides posting them on the NJARC Reflector, you can also send them to me (mbeeferman@verizon.net) and I'll try to post them in the *Broadcaster*.

Bill also suggests the following site for browsing vintage historical audio recordings:

<http://www.sonicmemorial.org/sonic/publicarchive.jsp>

A search on "Radio Row" will yield, as Bill notes, "many fond memories."

An expanded version of "RCA's Fabulous 45s" is now being offered on the first floor of the Samuel C. Williams Library at the Stevens Institute of Technology in Hoboken. The original version was first staged at the David Sarnoff Library in Princeton over ten years ago and was based on a productive collaboration between NJARC members Dr. Alex Magoun and Phil Vourtsis (called the "world's leading collector of 45-rpm record changers"). Alex's dissertation chapter in Phil's book "The Fabulous Victrola 45" is a topic he pursued because of his record collecting and DJ activities. The exhibit will be up at least until early January, and the library is open 7 days a week. Alex notes that you'll have to sign in at the library front desk but "just tell them you're there to see the distant ancestor of smartphone music players!"

Upcoming Events

November 7th: Fall NJARC swapmeet at Parsippany PAL; see flyer on page 8.

December 12th: Holiday Party at the West Lake Golf and Country Club in Jackson, NJ. (No meeting.)

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 \$25 per year and meetings are held the second Friday of each month at InfoAge or Princeton University.

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

PRESIDENT:

Richard Lee
(914)-589-3751

VICE PRESIDENT:

Sal Brisindi
(732)-308-1748

SECRETARY/NEWSLETTER EDITOR:

Marv Beeferman
(609)-693-9430

TREASURER:

Harry Klancer
(732)-238-1083

SERGEANT-AT-ARMS (WEST):

Darren Hoffman
(732)-928-0594

SERGEANT-AT-ARMS (EAST):

Rotating

TRUSTEES:

Ray Chase (908)-757-9741
Phil Vourtsis (732)-446-2427
Bill Zukowski (nocusr@optonline.net)

TECHNICAL COORDINATOR:

Al Klase
(908)-892-5465

TUBE PROGRAM CHAIRMAN:

Al Klase
tubes@njarc.org

SCHEMATIC PROGRAM:

Aaron Hunter
(609)-267-3065

CAPACITOR PROGRAM:

Matt Reynolds
(567)-204-3850

RESISTOR PROGRAM:

(To be announced.)

WEB COORDINATOR:

Dave Sica
(732)-382-0618
<http://www.njarc.org>

MEMBERSHIP SECRETARY:

Marsha Simkin
33 Lakeland Drive
Barnegat, N.J. 08005
(609)-660-8160

A "NOT SO EASY" RECAP

By
Joseph Devonshire

Last fall, after getting settled from our 500 mile move to Maine, I was looking for an easy project to get back to things "radio-wise." I chose a Zenith AA5 from the late 50's. As I examined the circuitry, I thought to myself...two electrolytics, three paper caps and no selenium rectifier; what could be easier? The schematic and "Sams" information (with thanks to NJARC member Aaron Hunter) were located and I got to work.

In short order (one evening) I had everything on the electronic side replaced. I looked over the wiring and compared it to the schematic and once I was sure that all was in order, I replaced the tested tubes and powered up the radio.

At first, there were no problems. With no noise (static crashes or hum), I let the radio play for a couple of hours. But over the course of the second hour, I noticed that the output was dropping. This was one of those "Hmmm" moments that we all experience. So, once again, I checked the tubes and found them OK. A factory update suggested that by replacing the 12AT6 with a 12AV6, better performance could be achieved. I tried this substitution but there was no improvement.

The problem only got worse and now I was getting static crashes. Another "Hm" moment. I started to take voltage and resistance readings and found everything to be mostly right on spec. After some searching and some memories of a past NJARC meeting where a discussion of the "silver mica disease" took place, I started e-mailing NJARC member Al Klase. He made some other suggestions to rule out all other possibilities but what really sealed the case was when I would tap on one of the IF cans, the radio would play as normal but then crackle and go quiet. At this point, all I could receive were stations from 1200 KHz and up.

While considering recommendations and researching the problem, I couldn't find anything specific to my radio's chassis. However, there was quite a bit of information directly related to my problem...I certainly wasn't the first to deal with it! Being not too keen about taking the IF can apart, I felt at this point there

wasn't much to lose. As it turned out, the whole disassembly, repair and reassembly was not all that difficult. I found it very important to take pictures before you do anything and draw a schematic of where everything goes. This will result in a lot less stress when things go back together.

As I'm sure most of you know, no two IF cans are alike. In my case the capacitors for the IF's were built into the base of the can. They were made of a single mica disc with a silver coating (see Figure 1). Internally, the disc is situated between two shoes.

Trying to take a reading of "diseased" capacitors is nearly impossible. You will need to disconnect each coil connection to take any readings. The readings I obtained on the caps of the part number 95-1011 IF can were not even close to each other. How was I able to obtain the value of a relatively workable replacement?

But persistence pays. I was able to locate a thread on Dan Schoo. (You might also find him under "Dan's Cockatto Ranch.") What a find! Mr. Schoo provided a tech sheet describing five Zenith IF transformers and it gave me a great starting point. Fortunately, one of the IF's (part number 95-1102) in my radio was on the sheet. Based on my measurements and research, I made the assumption that both IF used the same capacitance values.

Removing the mica discs wasn't too difficult. Although there are probably many ways to accomplish the task, this is the method I used:

- Disconnect the IF can and remove it from the radio.
- Carefully bend the retaining tabs on the bottom of the can.
- Slide the IF assembly out of the can. Look it over so you know where everything is, and take a picture.
- With a nut driver, remove the retaining nut on the bottom of the IF. Be careful not to manhandle the assembly and pay close attention to the "Litz wire."
- Slowly separate the upper and lower assemblies just enough to free the shoes from the disc.
- You don't need to cut the disc. At this point, you may be able to remove the disc, but don't rush it. With a small cutter, remove just enough of the shoes to keep them from touching. At this point, you should be able to remove the disc.
- Slide everything back together, tighten the nut, reinsert the assembly in the can and bend the shield retaining tabs back. At the same time, be sure that the IF tube is centered in the top of the can.

Reinstall the IF's back in the radio and reattach the circuit connections. Solder them but allow room for the new mica caps that will replace the removed discs.

This is where your testing begins. In my situation, 120 and 180 pf mica caps were called for. I had the 120 but not the 180 so I used a 150 pf capacitor I had on hand. A 100 pf replacement should have worked as well in both cases since the values are not all that critical. Surprisingly, I had very little to do to align the radio.

The case was cleaned with Novus 1 and 2 to nearly the original luster. So, what started out as a one night project turned into a multi-month one but also a valuable learning experience. It was completed along with the help of NJARC members and in particular the wise guidance of our Technical Coordinator Al Klase.



A classic 50's Zenith.

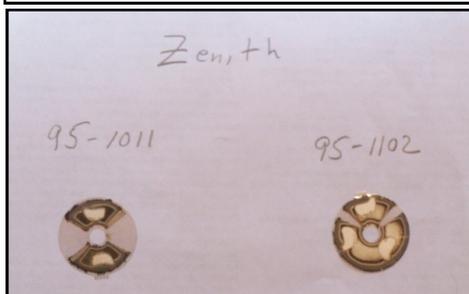


Figure 1: "Diseased" capacitors.

FALL REPAIR CLINIC TAKES THE CHILL OFF COLD RADIOS

By
Marv Beferman

Some successfully revitalized radios supplemented the heating system at InfoAge on October 24th when the NJARC crew gathered to knosh on bagels, coffee and pizza, shoot the breeze and occasionally replace a capacitor or two.

Perhaps you remember the Summer Repair Clinic article from last month

where it took Bob Bennet, Nevell Greenough and myself close to half a day to get the knobs off Todd Edward's Zenith 7S634 so the chassis could be removed and worked on. Todd had saved the radio from the trash 30 years ago and the broadcast band came in loud and clear after just a tube socket cleaning. Todd then asked Bob Bennett if he could perform a recap and repair of the SW bands.

The radio had a broken ON/OFF switch which Bob said he would repair by mounting a replacement switch on the rear. Fortunately, Bob found a similar Zenith in Kutztown that had a melted transformer but good switch; he purchased it for \$20. About 15 capacitors, three resistors and an ON/OFF switch later and a cleaning of the SW band switch, the Zenith was back to its full glory for another "satisfied customer."



A beautifully restored Zenith 7S634 attests to the fine work of NJARC member Bob Bennett.

Similar success stories (and some disappointments) could be found at our Fall clinic:

- I had purchased a very nice Crosley 11-108U some years ago in working condition. I recently fired it up and could only get static. Ugh! Not another case of silver mica disease! I left it on the shelf for a few months and figured I could work on it at the clinic. The night before, I decided to try the radio again and found that the tube filaments did not even light.

After pulling the chassis and getting ready to get down to business, a client showed up and I was put on a new track. Member Nevell Greenough had just checked out an Eico 460 and B&K 1460 scope for president Richard Lee and appeared bored so he volunteered to look at my Crosley. It wasn't long before Nevell found a broken ON/OFF/VOLUME switch, easily repaired it and presented me with a working radio.

Thanks Nevell!



- Bob Bennett worked with member Chris Pistilli on an Emerson 708 (tested and aligned) and RCA 117 (tested, recapped). Both radios went home in working condition.

- Chuck Paci worked on a Fada 652 for Max Theis. Electrolytics, power cord and a bad resistor were replaced but a another replacement resistor needs to be sourced.

- Phil Vourtsis repaired a GE Radio/Phono combination for Kevin McDermott, replacing a bad tube and capacitor.

- Bill Zukowski started on a 1937 Crosley Super 8 (Model 817) for client Jim Meyers; the radio was dead on arrival. The radio was to be a gift to Jim's father, who used to listen to baseball games with his son. Bill found an incorrect tube and multiple leaking capacitors. He got the radio to work marginally with a low, distorted audio. A final leaking capacitor to one of the push-pull output tubes cleared the distortion.

Jim was ecstatic that Bill got the set working and said that he may come back and become a member. In a follow-up message, Mr. Meyers told Bill that he had first taken the radio and new tubes to Flemington Electronics for repair. It turns out that Flemington was the culprit who installed the wrong tube and was unable to repair the radio. As Bill said..."makes you feel good."

Mr. Meyers went on to say:

"I wanted to again thank you so much for your time you spent on my (Dad's) Crosley Supper 8 radio. I listened to it Sunday and the sound is excellent...I am going to join the NJ radio club, but won't be able to make all the meetings. I have told several friends about the InfoAge museum and you guys who do great work. I thought about calling Flemington Electronics today but decided not to."

- Steve Calandra and Brian O'Neill replaced capacitors on an RCA 5T.

- Harry Klancer said that client Joe Domolki did most of the work on a National Union six tube receiver. Problems discovered were a weak 12SA7, noisy electrolyt-

ics and a slipping dial cord. It "now works great!"

- Jules Bellisio started with no output from a Sears Silvertone from about 1940 that belongs to the Mayor of Wall Township. Tubes were checked and a general evaluation was conducted but the radio was kept for future work. A 1940 Buick car radio looked to be in very good shape and was taken home by Bob Bennett for further work.

- Len Newman brought in a dead Philco 38-8 console. With help of Paul Hart, a separated speaker wire was discovered on the audio output transformer. Other loose connections, a bad 6K7 and loose socket were also found.

- Ray Chase attacked a large Telefunken Bayreuth model 5552MX AM/FM/Stereo/Phono from about 1965. It was so large that Ray had to pick it up in his van along with the customer who lived in Point Pleasant. It had not been used in over a year and blew its fuse when energized. The model has a separate power supply/audio amp chassis. The filter caps were original - three dual 100 mfd units. Ray replaced two of these with four 47 mfd capacitors which required quite a bit of mechanical engineering and terminal strips to get them installed below the chassis. With the blown fuse problem corrected, the third dual cap was left for another time. Unfortunately, the set worked very weakly on AM and not at all on FM. Some problems still remain in the tuner chassis but with no schematics or technical data and 4:00 PM fast approaching, more work would have to wait.

- Charles Blanding and Rich Phoenix worked on restoring Rich's silent 1936 RCA-Victor 10T tombstone. The process started with the replacement of the AC line cord that was not only missing its male plug but was deteriorated. Upon changing the cord, it was found that the power switch was open as well. Since the switch was part of a multi-position wafer switch, it was decided to just bypass it by plugging in and unplugging the radio.

Examination found two of the three electrolytic capacitors already replaced with the third testing OK. The radio was then powered up at low power with a light bulb load and the radio came to life after all these years! Strong, local stations were heard with amazing clarity and tone quality through the unit's massive 8" speaker in its fine, wood cabinet.

Full line voltage was applied after 10 minutes and volume and tone got even better but reception was weak (so it was thought) for a radio with a three-ganged tuning capacitor and tuned RF stage. Suspicions were confirmed when removing

the 6K7 rf tube made no difference to the radio's performance! The tube was ice cold as the result of an open filament.

When the 6K7 was replaced, extreme gain returned but the radio had massive regenerative oscillations in the broadcast band. The shortwave bands were not affected and stations came in clearly. Troubleshooting rf stage components involved replacing an aged filter capacitor and some off-value grid bias resistors, but the oscillations remained. With 4:00 PM fast approaching, it was decided to resolve this problem at a later date. (Thanks to Charles Blanding for this write-up.)

- Your editor worked on a 1940 AM/SW Stromberg Carlson chassis from a model 420-PL radio/phono combo. (The model number was later determined by using the chassis number on the radio.) It was brought in by client Ed Kamper but he had no schematic or other information. The chassis was very clean and there were no significant visible mechanical or component deterioration problems. The unit was fired up using Chuck Paci's isolation transformer/variatic/light bulb unit and showed an above-average current draw at full power. Nothing was heard from the speaker. After about 10 minutes, the power supply multi-unit aluminum electrolytic started heating up and power was removed.

It was decided that it would be more convenient to remove the capacitor for replacement so no mistakes would be made in installing substitutes. Luckily, it had the usual circle/triangle/half-moon designators so lead connections were easily identified. This also left room for the installation of a terminal strip supplied by Nevell Greenough for easy capacitor mounting.

One electrolytic was installed and I went on to show Mr. Kamper how to replace wax capacitors. All tubes were tested; although the 80 rectifier tested good, it showed some questionable oscillations. Also, a 6J8 was found in the 6A8 modulator/oscillator slot. It appears that a 6J8 is a good substitute most of the time but the rf section might need readjustment to restore dial tracking. Also, the 6J8 takes a lower "oscillator plate" voltage than the 6A8 so it isn't ideal and may not work in all sets.

Time ran out and I offered to take the radio home to complete the power supply capacitor replacement. I also offered to tag the wax capacitors with their values and return the radio to Mr. Kamper at our Nov. 7th swapmeet. There he can obtain the required replacement caps and perhaps a good 6A8.



Let's Go Mets! ("Hope I can get the ballgame.")



**PHILCO'S
"SPECIAL SERVICE"
BAND**

**By
Marv Beeferman**



Last year, I purchased a box lot at auction that contained a Philco model 53-561 table radio that was missing its knobs and dial station indicator. Recently, I decided to see if I could at least salvage the chassis that appeared to be in good shape. When I looked at the back, I noticed a two-pole switch that was labeled "BROADCAST" and "SPECIAL

SERVICE." For long time collectors, the function of this switch is probably obvious, but I must admit I was a little stumped.



There's not a lot of source information on the subject, but I've managed to pull together enough to offer a little historical perspective and a reasonable description.

As radio evolved from the early 30's on, the lower short-wave frequencies between 1.7 and 3.4 MHz took on more users; first amateurs, then civil defense, fishing fleets, the forest service, police, fire, aircraft and marine service. Many early radios did indeed include this band (1933 Philco Model 89 "Baby Grand" for example) and identified it with a "shortwave" or "medium frequency" designation.

Beginning in late 1951, Philco decided to use this frequency range as a selling point and called it a "Special Services" band; it was clearly identified as such on the tuning dial of many of its radios. Icons around the dial showed a telephone, ships, police badge, a clock (for station WWV in Colorado which still transmits time information continuously on 2.5 MHz), airplanes and the old Civil Defense symbol. Philco felt that the interesting information that could be heard in this range had a mystique that radio buyers might like.

By 1953, the vast majority of Philco's models could receive this band. In my Model 53-561, the band was accessed by a switch on the back of the radio. In others, the tuning knob was pulled to the "out" position. In 1954, the company continued its emphasis on its Special Services band as a selling point in most of its table model sets and some portable models. But by 1955, as use of the band started to wane, Philco all but dropped it and only one 1955 portable model (C-667) was manufactured that could receive the band.

Now the question arises as to why would Philco gamble on consumers paying extra money for a feature that might not be all that appealing? Well, the answer is very simple...parallel resonance. Philco did not have to switch oscillator frequencies to have this band; all that was required was to include a few extra components in the tuned detector circuit that could be switched in at the front end and

produce a resonant frequency between 1.7 and 3.4 MHz (see Figure 1). Once heterodyning took over, the IF remained the same! It was a low cost sales gimmick that did not require a big increase in the price of the radio but could be used as a sale advantage.

The concept is not new. In the 1930's, there was basically two systems for providing dual band coverage without switching in the oscillator circuit in smaller receivers in which simplicity and economy of parts were important factors. One receiver, the RCA Model T 5-2 made use of the second harmonic of the oscillator's fundamental range to provide the heterodyning frequency for the "short-wave" band. The 1.6 to 3.5 MHz was obtained by using the second harmonic of the oscillator's fundamental range, which is from 1000 KHz to 2180 KHz. In other words, on the upper band, the range of oscillator frequencies was *twice that of the range on the broadcast band*, or from 2000 to 4360 KHz.

In contrast, the Stewart Warner R-142A did not use harmonics. Instead, when the short-wave band was switched

in, the oscillator frequency *was below the signal frequency rather than above it* (as it is on the broadcast band) and in this manner the frequency range of the receiver was extended without switching in the oscillator circuit. However, it may be noted that this method did not provide as wide a frequency range as does the first method which employed harmonics.

In all cases, no adjustments of the short-wave range was required. If the receiver was aligned for the broadcast band, it stayed in alignment for the short-wave band.

Today, the so-called "special services" band has very little if any activity in most areas. You may occasionally hear a few hams on the 160 meter ham band (1800 to 2000 KHz) but the vast majority of activity is either CW or single sideband. There are some new broadcasters showing up but most are religiously orientated and the band is not intended as a US domestic broadcast service. These broadcasters are licensed to beam their messages to other countries although they are receivable in the US at some locations.

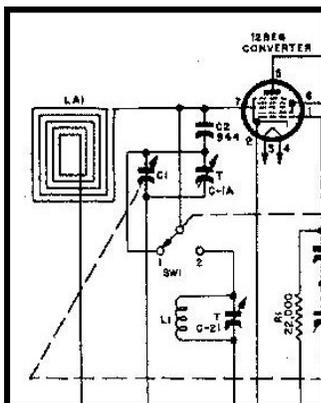


Figure 1 - Front end of Philco Model 53-561 showing special service switch (SW1) in "BROADCAST" position. L1 and C-21, in parallel with the tuning capacitor, are the service band components but their values are not identified. C-21 is a trimmer which is adjusted for maximum output at 3.2 MHz.

Below: A 1953 Philco model 53-562. Note the "Special Services" band in the center of the dial, the 170 to 340 range and the ship and plane icons to the right.

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Special Service Band

Here for Christmas giving . . . the first new home radio service in years!
Now enjoy regular radio programs on the most advanced, most beautiful receivers ever designed. In addition, tune in the fishing fleets . . . police calls . . . emergency Civil Defense flashes . . . and many more exciting short-wave messages you can't get on ordinary sets. Yours in a 1953 Multiwave Philco with exclusive Special Service Band and latest engineering achievements from the world-famous Philco laboratories. Finest styling and performance in 22 years of Philco leadership. Wide selection of new 1953 Philco models from \$23.95 to \$230.00.*

PHILCO *Famous for Quality the World Over*

AMATEUR RADIO
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NJARC Holiday Party

Date: Saturday, December 12th, 2015
Time: 5:00 PM – Cocktail Hour
 6:15 PM – Dinner
Place: West Lake Golf & Country Club
 1 Pine Lake Circle
 Jackson, NJ 08527

Members: \$25 each
Non-Member Adults and Children over 12: \$25 each
Children under 12: \$5 each

Cocktail Hour, Dinner Buffet, Mystery Grab Bag, Surprises
 A wonderful evening of fun, good food and fellowship with a radio theme.

*******RESERVATIONS REQUIRED *******

If you plan to attend, please fill out the attached coupon, detach it and mail it with a check to:

Marvin Beeferman
2265 Emerald Park Drive
Forked River, NJ 08731
609-693-9430
mbeeferman@verizon.net

by December 7th. Everyone who plans to attend must send back a response form with the name(s) of attendees. Reservations must be made via the form below. Please refrain from telephone or email reservations unless absolutely necessary! Payment must accompany the form.

-----Cut here -----

Name(s): _____

Telephone or email: _____

Number of **Members**: _____ X \$25 = \$ _____

Number of **Children** under 12: _____ X \$5 = \$ _____

Number of **Non-Members**: _____ X \$25 = \$ _____

TOTAL: \$ _____

Make checks out to **NJARC**, enclose with this form and **mail before 12/07/14.**



New Jersey Antique Radio Club's

Fall Swap Meet



Parsippany PAL Building

33 Baldwin Road

Parsippany, NJ 07054

**Just off Route 46,
Adjacent to Smith Field**



Saturday November 7th, 2015



Refreshments Available

(70) 8 Foot Tables

\$25.00 for members

\$30.00 for non-members

Reserve Additional Tables \$20.00

At the Door \$25.00

Open to the Public

8am to 12 noon

Vendor setup at 7:15 AM

\$5.00 ENTRANCE FEE

CLUB DONATION

For Directions

Visit our website: www.njarc.org

or Mapquest

33 Baldwin Rd Parsippany NJ 07054

Vendors Make Your Reservations Now!

Contacts:

President

Richard Lee

(914) 589-3751

radiatorich@prodigy.net

Vice President

Sal Brisindi

(732) 857-7250

salb203@aol.com

Secretary

Marv Beeferman

(609) 693-9430

mbeeferman@cs.com