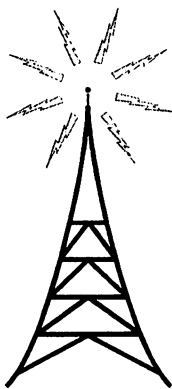


SARS RADIO CLUB



SUMMER 7-2000

GENERAL INFO

Southeastern Antique Radio Society
P.O. Box 1055
Tucker, GA 30085-1055
Club Officers

President: Gordon Hunter
(770) 475-0713 gwhunter@earthlink.net

Vice President: Marty Reynolds
(404) 365-9280 marty@aa4m.ba-watch.org

Secretary/News Bulletin: Bob Niven
(770) 586-5816 bobwiz@aol.com

Treasurer: Frank Lindaur
(770) 934-4294 cad49@mindspring.com

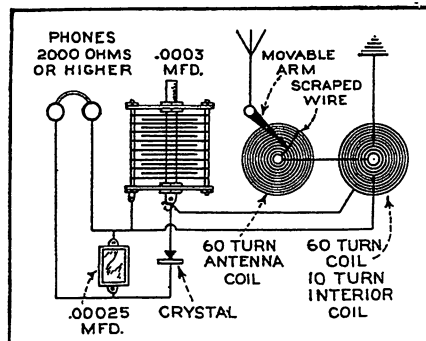
SARS REFLECTOR

sars-refl@g10.com

1250 Miles with a Crystal Detector

An item appeared under this title in "With the Experimenters" department in the January issue. Our attention has since been called to the fact that the circuit diagram was incorrect. The correct diagram is herewith shown. A surprisingly large number of inquiries have been received from readers for information concerning this crystal receiver, both by Mr. Howard Byrne, the author, and by RADIO NEWS.

Mr. Byrne writes that in his receiver he has the coils mounted at right angles. The antenna coil is placed flat on the baseboard while the other coil is mounted in a vertical position. The coils are of the spider-web type, wound on a form having thirteen legs. The number of turns for each coil is shown on the diagram. All windings employ number 22 d.c.c. wire.



There are undoubtedly many readers who will be interested in obtaining this additional information concerning this receiver. Incidentally Mr. Byrne has been adding to the list of stations received. His little crystal set now has to its credit the reception of 25 stations with an average distance per station of 641 miles.

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10 to 80 METERS FOUNDATION KIT




Engineered around the BC-610 series of plug-in tuning units. Described in the 11th edition Radio Handbook. Completed exciter uses 6AG7 crystal or electron coupled oscillator, 6L6 buffer-doubler and 807 amplifier. Kit includes four tuning units (illustrated at right above with cover removed), special 5/4" aluminum relay rack panel, socket for plug-in units and special hardware, together with full instructions and diagrams for assembling complete exciter. **\$9.95**
No. 31A28, FU-40 Foundation, Spec.

PARTS KIT. Everything needed to complete exciter except tubes and power supply. Includes all mica condensers, resistors, RF chokes, sockets, meter switch, 0-200 ma meter, key jack, and miscellaneous parts. **\$9.31**
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Where has this year gone already? You just blink and all of a sudden it is summer and the year is half over. The days are already getting shorter. It's scary! As for me, there is so much to do and so little time to get things done. I have so many uncompleted projects in my life that I am looking forward to November 2002 when I will officially retire, and then hope to get started on this huge list of life's "to do's". On the radio side of my life's interests, I have so many radios lying around that need to be worked on.

I need to spend some quality time with some of our talented club members and finally learn how to do minor technical trouble-shooting and repairs. I have relied on the time and talents of so many of my club friends to do all of the work for me that I really feel that it is time that I really become more self reliant. Thank goodness for the generosity of these friends to put up with my ignorance and busy schedule to help me in the past with bringing some of my acquisitions back to life.

To add even more to my already full plate, I'm really intrigued with the possibility of getting a Ham license and to explore another spectrum of our great radio hobby. Thanks to my good friend, Fred Dorsey, and the influence of John Pelham, Charlie Milton, Marty Reynolds, Charlie Pierce and other s, I would like to get into the communication part of the radio world. I have always had an interest in it since I was a kid. I had a close uncle, who was a signalman in the Navy during World War II, and he taught me Morse Code and we used to play games of sending messages back and forth. Fred Dorsey and I bought out an estate last year of a deceased ham operator and we decided to set up a station at my place so I could finally get into the ham world. Thanks to Fred bringing the new ham license books to our last meeting, I think that will give me the stimulus to get going at last. Hopefully, by the next newsletter, I will have passed the first test and have earned my first license.

There have been some really good swap meets so far this year. Our own meet in June was a great success according to everyone that I've spoken with. Although it was much smaller in size compared with years past, it was an excellent selling show. We only had between 15 and 20 vendors, but there were a lot of radios sold. The public attended in good numbers, and I think that speaks well for our 0800 starting time, which allows the community to find good radios before 10:00 am. I know we have some die-hards that love the excitement of getting up before dawn and finding the first treasures by flashlight, but for the overall good of the hobby, I believe that the 8:00 start is better for all of us in the long run. If there are any strong opinions to the contrary, we will certainly consider them and abide by majority rule. Anyway, our June Meet was the first in my personal history where I actually took in more money than I spent! Also, the car show was a success and could develop into quite a nice event in the future if we want it to go that way. It does bring more people out and they are all potential radio buyers.

Our Fall swap meet is scheduled for September 23rd and if everyone likes the idea of a social dinner the night before, we can meet again at the Canyon Café on Friday night before the meet. I really have enjoyed those dinners and we get a great chance to involve our spouses in the friendships that we have with one another. I think the era of our "Mega Meets" is probably over for awhile. I think we did a great job in the past with the grander scale meets, but for all the work that was involved and for the way that the hobby is changing, I think that there is not much interest in such a big event. Even some of the very big meets, such as Lansing and Elgin, are downsizing a bit to adjust to the changes brought by Internet buying. I really enjoyed the Michigan meet once again at Lansing, but it is becoming a bit less than it used to be. However, it was still a great meet, and let me report on it for you from my perspective.

I didn't make the extra effort to get up there the night before, so I missed out on the flashlight flurry of Friday morning in the parking lot. From all who made it, including John Pelham, Johnny Hubbard, Bob Niven, and Paul Squires, there were some great radios purchased very early. When I strolled in about 11:00 things had calmed down considerably, and Bob Niven had even found some good things, run out of money and left before I got there. It kind of reminds me of Larry Smith who blitzes early morning swap meets and then leaves just as quickly with a load full of goodies. Nevertheless, I found a few nice things, saw a whole lot of people that I've become friends with over the years, and enjoyed the beautiful weather and great hospitality of the local club. The fun of being there and rooming with John and Johnny made it a great experience, and this is what keeps me coming back. Hopefully, this is what will keep swap meets going in the future.

As I close, I hope you will all have a great summer. Don't forget our monthly meetings. We hope to have some interesting programs and events for you. The Board has approved a set of By-laws, and we hope to get them in your hands for your vote of approval before the Fall. Thanks for your support.

Gordon

Radio Tech Tips

Electrolytic Reformation:
Intro by Bob Niven.

Vacuum tube radios are especially prone to faulty capacitors due to age and the heat generated by the components (primarily the tubes) when operating. Both of these factors can cause failure. Electrolytic capacitors (polarized) are the type most apt to fail. There are other techniques to fire up an old radio, like using a Variac (variable AC transformer) to slowly raise AC line voltage. The below version of reformation seems more scientific, although a bit more complicated.

Note: The voltages encountered in Radio or TV repair are potentially lethal. Great care must be taken to avoid electrical shock or electrocution!

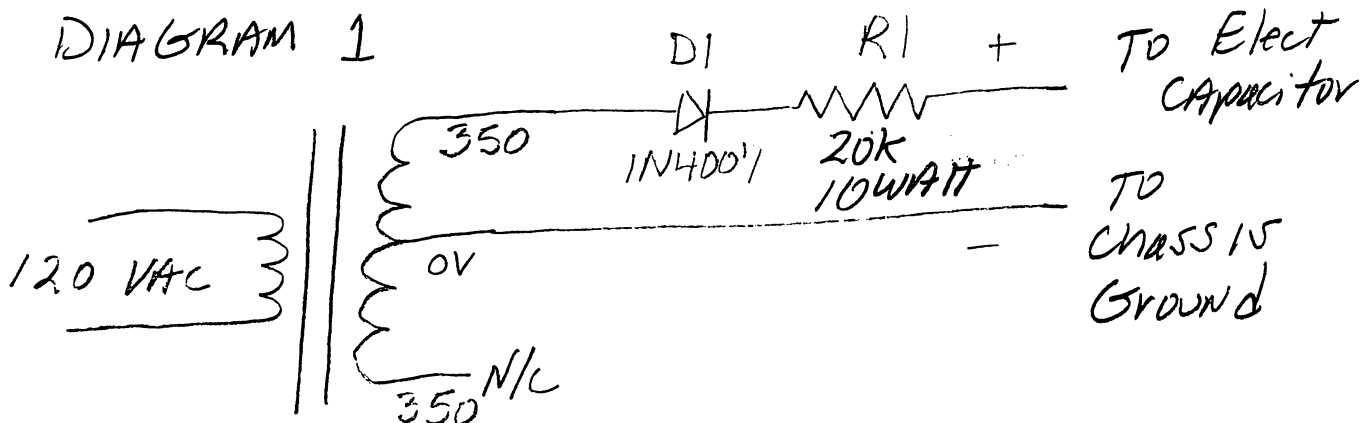
WARNING: CAPACITORS STORE CHARGES! ASSUME ALL CAPACITORS TO BE CHARGED UNTIL PROVEN OTHERWISE WITH A KNOWN GOOD VOLTMETER. DISCHARGE ALL CAPACITORS WITH A BLEEDER RESISTOR (diagram 3).

Electrolytic Reformation ala Marty Reynolds

Electrolytic reformation is something that should proceed at its own pace. Something like 1 ma per 100 volts of rating.

Here is what I do:

I have an old receiver power transformer that's something like 350-0-350 volts plus filaments. I place a 1N4007 diode on one of the 350V leads and series it with a 20K Ohm, 10 Watt wire-wound resistor which I connect to the sets rectifier tubes filament/cathode (see diagram 1) lug. The transformers 0 V secondary lead connects to the chassis (ground).



Electrolytic Reformation Contd.

This means that initially a 400 volt unit goes at ~ 20 ma, which is 5X suggested-but it does not seem to hurt anything.

After connections, I plug in the external transformer. Electrolytic voltages rise, as they can, no faster.

The electrolytics themselves decide "how to bring up the voltage". Not the Variac adjuster.... A naïve start-up method for at least two reasons.

1. Reformation rate unknown
2. Oxide filament rectifiers like 80's and 5U4's do not even begin conduction until about 70% of normal filament voltage.

The voltage should rise in each electrolytic or electrolytic section to the rated value. If it doesn't, there are two reasons:

1. The capacitor is shot (possibly shorted) & the electrolyte is gone.
2. The circuit has a bleeder resistance to ground-which must be temporarily lifted off ground and the procedure started again.

Some brand/type observations:

About all twist-lock electrolytics are fine. Seals were well designed.

Near half of Metal-can, fabric end-disk caps OK. Bad ones have bubbles or white powder deposit on the end-disk.

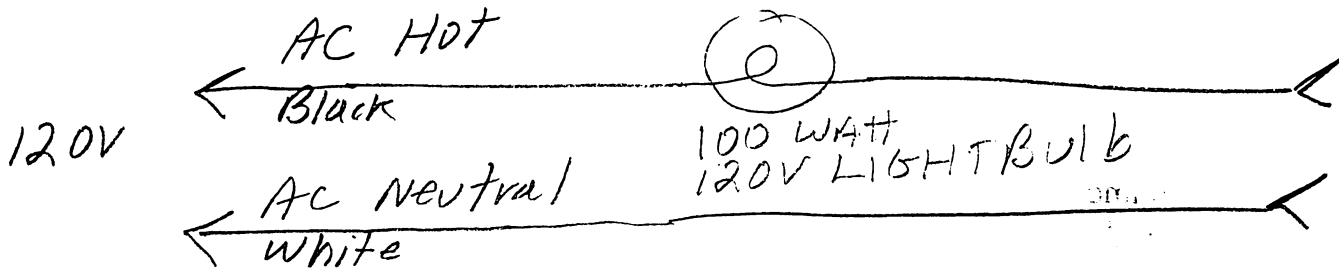
Few cardboard wax-sealed capacitors survive.

The side benefit of using this procedure is you can measure leakage of audio coupling and screen bypass capacitors when you have B+ applied without filament power. Then you can put B+ on the AVC line and look for bad resistors and capacitors.

Often all that's needed to revive an old receiver is this process/analysis alone. I've had a long dead AA% receiver going in less than an hour with the process.

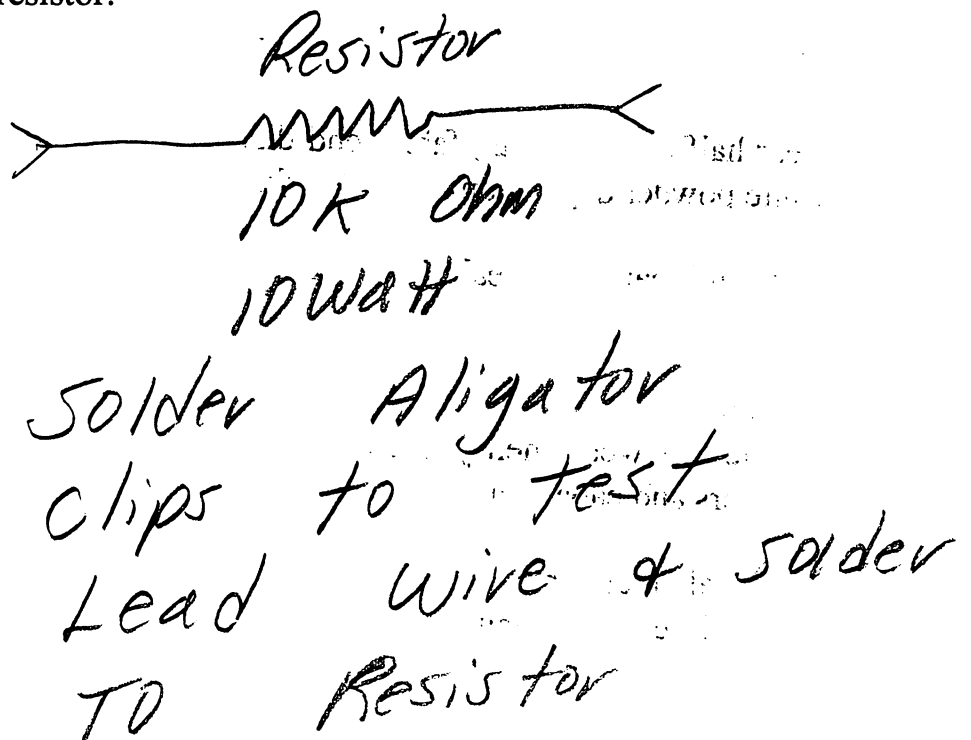
The best thing about this pre-start B+ business is you fix/identify what's wrong rather than applying infantile replace everything shotgun "good practice" and hope that it goes.

Another technique is to series a 100 watt standard light bulb with the AC power (diagram 2) to the receiver. This protects against failed line bypasses and power transformer if used.



The last consideration is what to do if the radio runs splendidly, but hums. Well the answer is there wasn't enough electrolyte to bring the capacitors back to their original value. Say 50 mfd capacitors came back as 5 mfd. In this event, they should be replaced to eliminate the hum.

Diagram 3, Bleeder resistor:

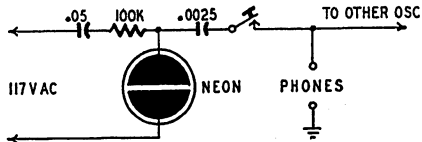


Radio-Electronic Circuits

CODE OSCILLATOR

This simple code oscillator can be used by itself, or in conjunction with another unit just like it for 2-way communication or code practice.

The circuit is that of an ordinary relaxation oscillator using a neon lamp.



I found that the GE type NE-2 lamp worked best.

If two oscillators are used, they should be connected together as the diagram indicates.

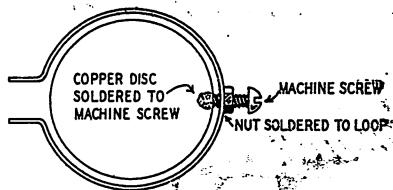
Connect the free end of the headphones to a good ground. It may be necessary to reverse the line plug to obtain oscillation. Change the value of the .0025- μ f capacitor if a different tone is desired.

JOHN V. MULLENDRE,
Boonsboro, Md.

HIGH-FREQUENCY TUNER

Here is a simple method of making a high-frequency tuned circuit. It can be used when the original coil consists of just one or two turns of wire.

Make a loop of a strip of sheet copper, the width of the strip to be determined



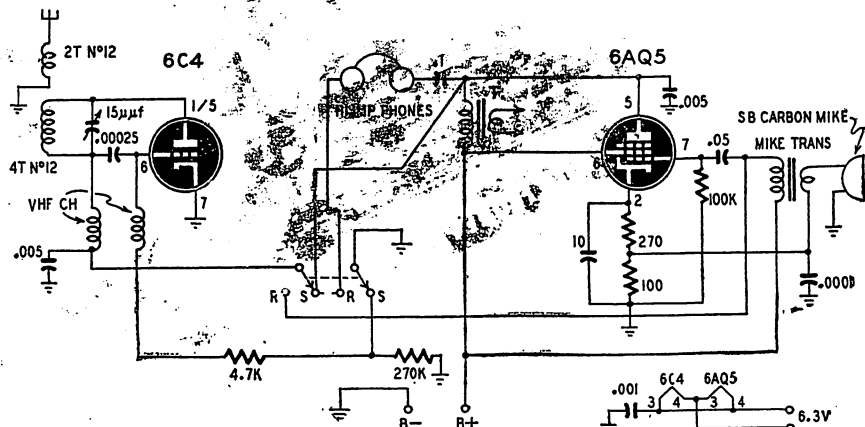
experimentally. Make a disc of the same sheet copper to fit inside the loop.

Solder a nut to the loop, as shown in the diagram, and fasten a screw to the disc. Now the disc can be turned within the loop, varying the inductance of the coil over a wide range.

R. A. CUNNINGHAM,
Newport, R.I.

2-METER TRANSCEIVER

The transceiver shown in the diagram can be fitted into a very small space. Power may be taken from a receiver or amplifier or a pair of 90-volt batteries



and a 6.3-volt battery can be used for portable or mobile operation.

The 6C4 is used both as transmitting and receiving oscillator. When receiving, the plate-current variations appear as a varying voltage across the mike transformer secondary and the sound, amplified by the 6AQ5, is heard in the phones.

When transmitting, the oscillator receives its plate voltage through T, which acts as a Heising modulation choke. The microphone is energized by voltage taken from the 6AQ5 cathode resistor. T is an audio output transformer, of which only the primary is used. If several transformers are in the junk box select the one which works best. An audio choke can also be used.

Adjust the coupling between the antenna and the oscillator plate coils for best results when receiving.

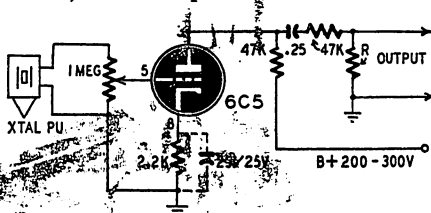
FRED W. CREED, VE3BUC,
Toronto, Canada

CRYSTAL PICKUP CONNECTION

The phono and microphone inputs on my amplifier are both 500 ohms. I wanted to connect a crystal pickup.

Connecting a crystal pickup through a transformer, even one with a 100,000-ohm primary, would have destroyed the low-frequency response, to say nothing of other frequencies where a resonance between the capacitive crystal and the inductive transformer might have created large peaks.

The small 1-tube amplifier shown in the diagram was the solution. The 6C5 is used as an ordinary resistance-coupled amplifier. The output, instead of being taken from the plate, is taken from a small resistor R in series with the 47,000-ohm equivalent of the follow-



ing grid resistor. R is equal to the impedance of the amplifier input, 500 ohms in this case.

Since the output arrangement acts as a voltage divider, output voltage is less than the tube input voltage. However,

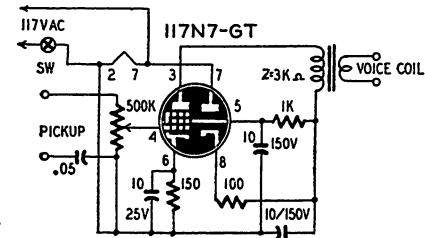
the amplifier input transformer steps it up so that a normal phono channel gives the proper gain. If higher output is wanted, use a plate-to-line transformer.

The 6C5 is mounted inside the phonograph case. A cable brings filament and plate voltages to it from the main amplifier.

ARMAND BRISSAC,
Fond-du-Lac, Mich.

1-TUBE AMPLIFIER

Here is a 1-tube phonograph amplifier with sufficient output for comfortable listening if a high-output crystal pickup

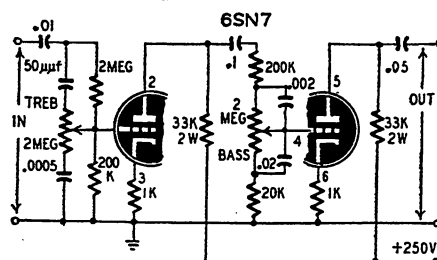


is used. No tone control was found necessary, but if one is desired, a capacitor and 1-megohm variable resistor may be placed in series between the amplifier grid and common negative.

HARRY C. AICHNER, JR.,
Erie, Pa.

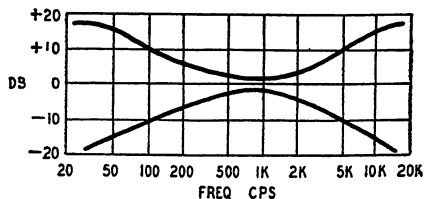
A NO-LOSS EQUALIZER

When an R-C equalizer is added to an existing amplifier, its insertion loss reduces the over-all gain of the circuit. Often the amplifier does not have sufficient reserve voltage gain.



The equalizer controls both treble and bass. Efficient reserve voltage gain.

This equalizer, described originally in *The Review of Scientific Instruments*, can be added to audio amplifiers without reducing the gain. As shown in the graph, it provides up to 20 db of boost or attenuation in the bass and treble channels. Both channels are controlled with logarithmic potentiometers so that



Graph shows maximum possible tone variations. the equalizer response is flat when control shafts are at mid-points in their arcs. At these settings, the insertion loss of each channel is 20 db. The losses are compensated by 20-db triode amplifiers following each network.

Insert the equalizer at a point in the amplifier where the input signal does not exceed 5 volts. This prevents overloading at maximum boost.

SARS

SOUTHEASTERN ANTIQUE RADIO SOCIETY

FALL OUTDOOR MEET

Friday night (September 22) "No Host Dinner"
at The Canyon Cafe at 7:00 P.M.

Saturday (September 23rd) Flea Market from
8:00 A.M. to 12:00 P.M.

11385 Haynes Bridge Road
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Special rates for attendees at the Fairfield Inn
(770) 663-4400

Vendors (unlimited space)- \$10.00
(this is a tail-gate event)

Amateur radio operators invited to buy or sell
HAM gear as well.

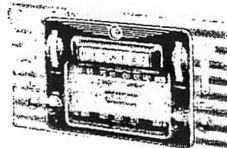
Held at our usual outdoor location in back of the
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Speaker/Program Gordon Hunter

December "Anything goes..."
Speaker/Program Marty Reynolds

★ NOTICE: DOOR PRIZE AT AUGUST 14th MEETING "Active Antenna"

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JOHN PELHAM
1185 BEND CREEK TRAIL
SUWANEE GA 30024



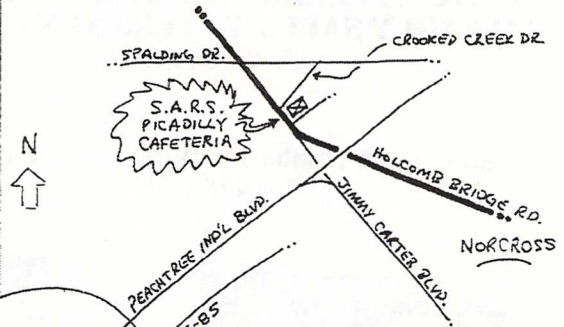
Southeastern Antique Radio Society
P.O. Box 1055
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JOIN SARS!

Dues are \$15, payable on a calendar-year basis. (Dues are pro-rated during the year: After June 30, pay \$7.50 for membership for the remainder of the year.) Send payment with name and address to SARS at the address above.

SUPPORT YOUR CLUB!

The Southeastern Antique Radio Society holds monthly meetings on the second Monday of each month at Piccadilly Cafeteria, 3400 Holcomb Bridge Road, Norcross, GA. Meetings start at approximately 6:30 PM. Most attendees arrive early and eat before the meeting. In addition to club business, meetings have a Show and Tell feature, where members bring items to display and discuss. All are encouraged to participate in this fun. See the schedule below, and map, right.



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