

The Jersey Broadcaster

NEWSLETTER OF THE NEW JERSEY ANTIQUE RADIO CLUB

Fall 1996

Volume 2 Issue 3



MEETING/ ACTIVITY NOTES

Reported by Marsha Simkin

The February meeting of the New Jersey Antique Radio Club was held on the 9th at Grace Lutheran Church in Freehold. The weather was most cooperative and we had an excellent turnout. Over 50 members attended with a larger number of sellers than usual. The extent of selling going on before the meeting leads one to believe that our March 16th flea market in Hightstown will be anxiously anticipated by all who have had a rough time finding anything to add to their collections during this very lean winter season.

A well deserved "thank you" goes to Al Klase who treated us to a very interesting technical program about the "Secrets of the Autodyne." Sprint would be jealous of the "pin drop" attention given to Al's presentation.

President Tony Flanagan read a letter from Reverend Frank Watson of Grace Lutheran Church thanking us for our donation and installation of a PA system. Members who worked on this project included Don Cruse and John Dilks who donated amplifiers, Rick Wiebezal who donated speakers, Tony and Kathleen Flanagan, Jim Amici, Phil Vourtsis, Gary D'Amico, Ernie Hartman, John Ruccola and Marty Friedman. My apologies to anyone I may have omitted.

Dave Sica discussed our club involvement in a newsletter exchange program with several other clubs and the following were available for browsing:

SCARS Gazette - Southern California
California Antique Radio Society
Pittsburgh Oscillator - Pittsburgh
Antique Radio Society
Arizona Antique Radio Club News

(continued on page 2)



MEETING NOTICE

The next meeting of the NJARC will take place on Friday, March 8, 1996 at 7:30 pm at the Grace Lutheran Church, corner of Route 33 and Main Street in Freehold. Contact Marv Beeferman at (609)-693-9430 for directions. In lieu of a formal presentation, members are requested to bring a radio-related "show-and-tell" item or interesting anecdote they might want to share informally with the club.

WELCOME TO THE WORLD OF SOLID STATE

By Marv Beeferman

In the February 1996 issue of *Radio Age* (newsletter of the Mid-Atlantic Antique Radio Club), club member Ludwell Sibley celebrated the fiftieth anniversary of the 1N34, the first mass-market germanium diode, with an excellent article describing its introduction by Sylvania, its predecessors and later applications. Describing its markings, Lud noted that "the original 1N34 was lettered in green, and was stamped "+" at the anode end and "-" at the cathode - a tube-orientated view and the opposite of the later industry practice...In early 1948 the marking became a green band at the cathode end." For a generation of users nurtured on traditional tube conventions, this was an important distinction, so much so that the change was introduced by Sylvania Electric's *Engineering News Letter* No. 1 (March 20, 1948).

"The type 1N34 germanium crystal diode has by now found application in many widely diversified industrial, scientific, and communications fields. Misunderstanding has arisen in some quarters concerning the interpretation of the polarity markings and schematic symbols. It is the purpose of this news letter to clarify this matter and explain the new polarity markings which will be used in future production..."

"Of course, the important thing to anyone who wants to connect the crystal into a circuit is not what is inside, but how to get the polarity correct. On Sylvania germanium crystal diodes manufactured in the past, polarity markings were stamped on the cartridge in the form of a plus and minus sign. Since some people erroneously interpreted these signs as indicating the polarity of the d-c output in a rectifier circuit, some hook-up mistakes resulted.

To obviate this difficulty in the future, polarity will be indicated by a green band and the word "CATH" marking the cathode. The cathode corresponds to the bar in the circuit symbol..."

Ludwell suggests that Sylvania never went ahead and used the "CATH" marking (or it was quickly discarded), so input would be appreciated from any members who might still have an example. An interesting side note relates to the newsletter author's description of operation: "When the anode is made negative, current flow is minimum. A vacuum tube diode would pass no current if its anode were made negative, but the crystal diode is not a true valve and accordingly exhibits a finite but high resistance." Even in 1948, the use of the word "valve" seems somewhat dated, but is indicative of an industry still in technological transition.

(meeting/activities continued)

Reproducer - Journal of the Vintage Radio and Phonograph Society
Horn of Plenty - Puget Sound Antique Radio Association
Ottawa Vintage Radio Club
Michigan Antique Radio Chronicle
CRC Flash - Journal of Colorado Radio Collectors

Check these out from time to time - lots of interesting articles and news of the hobby from different parts of the country and beyond.

It was reported that both our tube and capacitor programs are going well. These are great services for all involved in the restoration of antique radios and electronics...support them. Ray Chase told us about a TV show that deals with an imaginary radio station in the 30's. "Remember WENN" airs on AMC (American Movie Classics) on Wednesday evenings at 8. Try to catch it as it is very well done and most entertaining. I was very sorry that I missed Ray's radio postcard presentation in January. Having seen it at the AWA conference in September of 1995, I was eager to see his newest additions. Ray and Edith are premier New Jersey postcard people and the display featured professional slides of radio related cards from his most extensive collection, including a set of Marconi cards from England that has no equal. It was unfortunate that the weather was so bad that day and more of us didn't have the opportunity so see this extremely interesting program.

John Dilks has an antique radio display at the May's Landing Library until March 23rd. Hope some of us will get a chance to see it. The subject was brought up about the club doing a display at the Monmouth County Headquarters branch. Several people seemed interested in getting involved. A new member revealed that he had found out about the club on the Internet. This is definitely the way to go. I've heard of special sales that were only advertised this way. Several potential buyers including myself were left out because we're not "on-line" yet.

WELCOME NEW MEMBERS!

John Conti, Hazlet N.J.
 Sam Faust, Chagewater N.J.
 Donald Smith, Baltimore MD

SWAPMEET UPDATE

Cabin fever has initiated very brisk indoor table sales with close to 35 spots already taken. With only 13 tables remaining, I highly suggest you get your reservation to me soon or you will be limited to outside tables only...we don't expect many cancellations. I'm toying with the idea of providing coffee, doughnuts and bagels on a self-serve basis, with the buyer paying the person collecting entrance fees at the cloak room.

Marv

SAVED!...BY A LADY FROM NEW JERSEY

Edited by Marv Beeferman

The Sept. 2, 1993 issue of Electronic Design's "40 Years Ago" column caused a flurry of nostalgia. It described a compact, self-contained, portable lifeboat radio transmitter-receiver that weighed only 56 pounds and was designed to provide all the facilities needed for sending and receiving SOS calls in both intermediate (500kc) and high frequency (8364kc) bands. The unit (401A) was developed by ITT Mackay Marine (formerly Mackay Radio & Telegraph Company) in Clark N.J. The company is now located in Edison N.J. as Mackay Communications, Inc. and produces shipboard satellite receivers for the Navy. The editor's comment "Did that 56-lb. weight include the batteries?" solicited quite a response.

By now, many readers probably recognize the 401A as a variation of the "Gibson Girl" or "Coffee Grinder" series of air-sea rescue radios. It gained the first name by its pinched-in center to fit between the legs of a person seated in a life raft and the second from its crank operating handle on the top. Of course, there were no batteries; similar to the Mackay 401A, the crank drove a

generator for filament and high voltage supplies and an encoder for transmitting "SOS."

The "Gibson Girl" or SCR-578 has an interesting history, being developed with few changes from the German Notsender NSG 1 (see OTB Vol. 31, No. 4 and Vol. 33, No. 1). In mid-1941, a captured NSG2 set, together with its development specifications, was taken with a British military mission visiting the USA. One of their assignments was to seek a North American manufacturer, as the British lacked the capacity for producing such a set in very great numbers. Bendix Aviation Ltd. was approached and, after the U. S. Army and Navy became interested, it was suggested that a joint Allied dinghy set be developed. When the U.S. became directly involved in the war, the demand was speeded up, with first units of an 11,600 set initial order being delivered toward the end of May, 1942, initially by Bendix but later assembled by other subcontractors.

The "Gibson Girl" name for the SCR-578 was taken from the narrow-waisted female pen and ink drawings of 1890's fashion artist Charles Dana Gibson. It was superior to both its German and British predecessors, consisting of a BC-778 transmitter unit and a number of accessories and weighing 34 pounds. It was painted bright yellow and completely packed in a single padded yellow canvas bag, with initial versions being divided between two bags. The unit could be dropped by a parachute, which was part of the set, but usually it was thrown into the sea from a ditched aircraft (as remembered by Waldo T. Boyd, K6DZY) at the same time as the dinghy:

"My memory of the "Gibson Girl" transmitter is quite strong, as I was privy to her innards in a way shared by very few of those who used her over the years of World War II. I tested many of her clones between my thighs at the end of the line; in the shielded room where no stray SOS signals would leak out to bring ships up to our front or back door! And then, to top the experience with frosting, as I was returning to the US from my naval World War II assignment in Australia, via FAT (first available transportation), which happened to be a "Flying Fortress," we hit

a typhoon and crew and passenger (yours truly) just missed ditching in the ocean between Biak-Pellieu and Manilla - the Gibson Girl and life raft were readied for the anticipated plunge into the drink."



"Youth in bloom" was personified by the "Gibson Girl," created by Charles Dana Gibson, most famous artist and cartoonist of the late '80s and '90s. Young girls tried to look as much like his drawings as Nature would allow.

The SCR-578 consisted of a 12A6 tetrode, 500 kHz r.f. oscillator which was grid modulated by a 1000-Hz tone oscillator (12SC7). The antenna tuning capacitor rotated 360°, during 180° of which a switch closed, adding an extra capacitor. RF power output was given at five watts with a range quoted as 200 miles to an aircraft flying at 2000 feet.

In a unit described by E.T. Montgomery in *Radio Age* (March 1984), through an elaborate cam and gear arrangement, a dual output generator provided provided 24 volts D.C. for the series tube filaments and over 200 volts D.C. plate voltage for the oscillator and modulator. Electromechanically rotating cams determined the operating frequency and caused a series of coded SOS signals to be transmitted automatically. Turning speed was a nominal 80 RPM; an indicator light showed when sufficient crank speed was attained. A built-in reel of antenna wire attached to either a balloon or kite; a weighted ground wire enhanced radiation.

David E. Zimmerman of Grass Valley California, who removed the radios from life rafts and tested them once a year inside a screen room, remembered similar details:

"The unit had a small light that came on to indicate when the generator as spinning fast enough. Believe me, keeping that generator going for more than a minute or two was real work! The radio was packed in a water-resistant rubberized canvas pouch and it would float. Included in the pouch were two antennas, a grounding mechanism, a spool of wire and a box kite. One of the antenna was a 12-ft. whip, but the neatest idea was the long wire antenna. The box kite was made of aluminum rods and canvas and was slightly larger than the wood and paper kites that are sold today. The idea was to use the wire included as the kite "string" and as the long wire antenna."

"The grounding device was a weight on the end of a length of copper braid. It was supposed to be pitched over the side when you wanted to transmit. The instructions were printed on a placard attached to the radio. I don't remember what their recommendations were about flying the kite during electrical storms."

"Several years after being in the service I bought one of the kites at a surplus store. I still have it as it is a terrific flyer (when the wind is above 10 mph)."

Ed. Note: A new "radio collectable?" In 1994, Circle Prime Mfg. Co. of Cuyahoga Falls, Ohio built and delivered a quantity of these same kites to the military. It turned out to also be a terrific flyer, carrying 300 to 400 feet of 30 lb. fishing line.

Gil Pilz of Mundelein, Ill. had similar remembrances:

"I first came across one when I was 19 years old and fresh out of high school, where I had been on the wrestling team. Nonetheless, I found it very tiring to turn the handle while testing one on a repair bench. I wonder how a person in a tiny lifeboat could have operated one in a weakened condition."

"There was a cylinder of helium for inflating the balloon...I doubt that the unit could have been effective since the antenna tuning could only have been an approximation."

In addition to transmission, the SCR-578 could also be used as a hand-powered signal light, continuously or automatically keyed. It was intended to be used for visual signalling by night if an aircraft could be heard overhead. The M-308 signal lamp was plugged into a socket and held on the operator's head by chin straps.

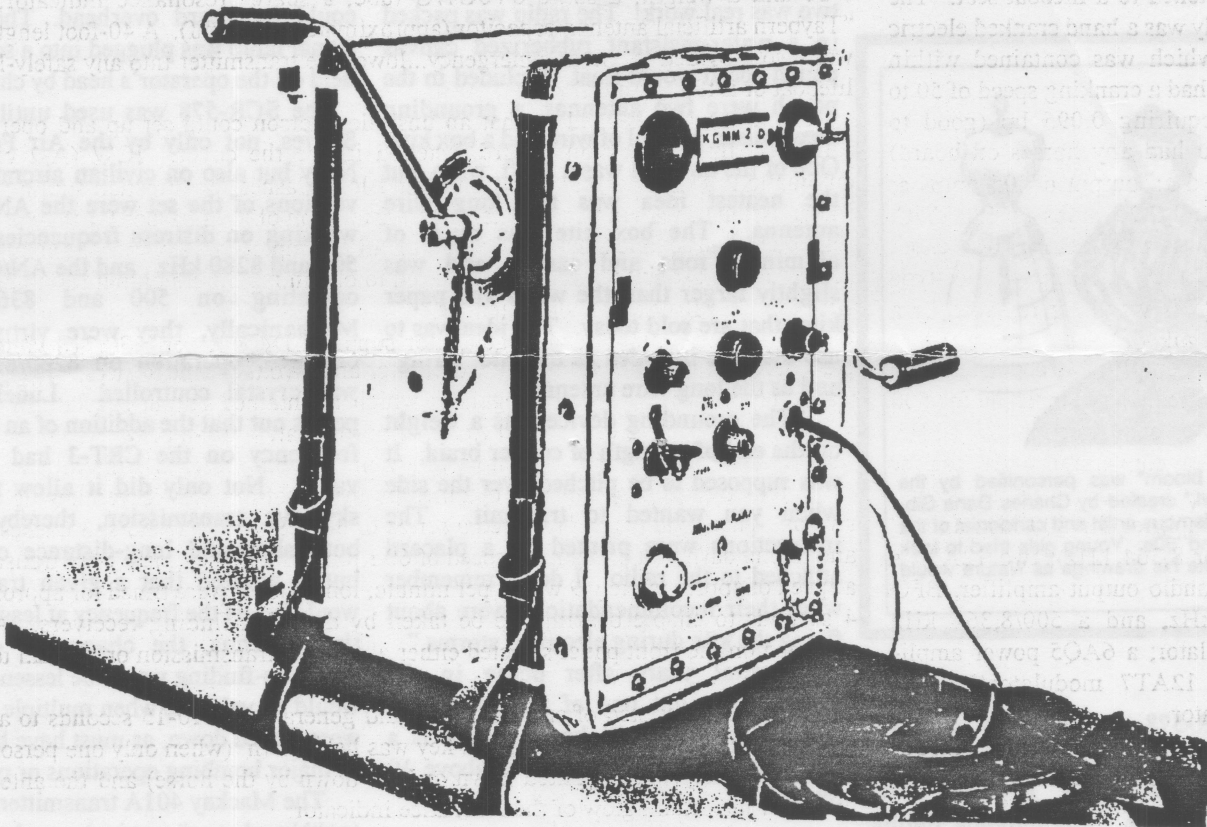
The SCR-578 was used until the late Sixties, not only by the Air Force and Navy but also on civilian aircraft. Later versions of the set were the AN/CRT-3, working on distress frequencies of both 500 and 8280 kHz, and the AN/CRT-3A, operating on 500 and 8364 kHz. Mechanically, they were virtually unchanged; operation on 8280/8364 kHz was crystal controlled. Ludell Sibley points out that the addition of an alternate frequency on the CRT-3 had multiple value. Not only did it allow for good skywave transmission, thereby giving both short-and long-distance coverage, but it assured that a given transmitter would be off the frequency at least half the time. Thus, the chance of confused direction-finding would be lessened. This would be valuable when multiple aircrews were forced down, as must have happened in major bombing operations or typhoons.

The Mackay 401A transmitter/receiver (or "New Jersey" version) was designed to be operated by a person without any knowledge of radio. A special device took over the moment the set was placed in automatic operation and transmitted signals on both 500kHz and 8364kHz. Searching vessels used these signals to locate the lifeboat by means of direction finders. The 401A could also be operated by a radio operator for transmission and reception of messages.

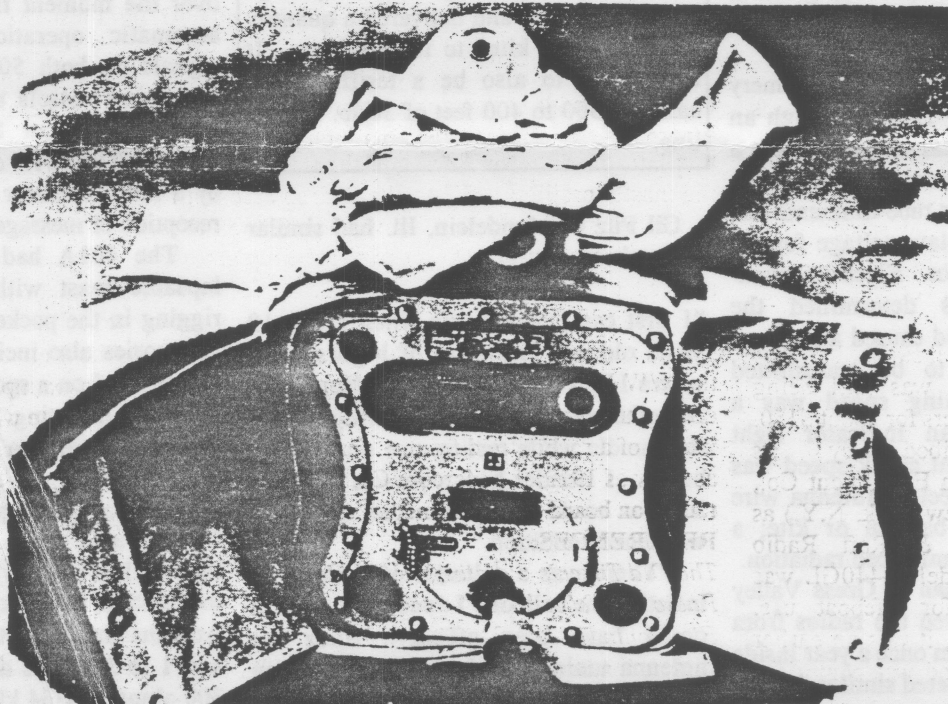
The 401A had a four section collapsable mast with antenna wire and rigging in the pocket of its canvas cover. Accesories also included braided ground wire wound on a spool, headphones, forty feet of lowering rope, an artificial antenna, three 12AT7's, one 6AQ5, one 6U8, one 6BJ6, one NE51 neon lamp and a desiccator cartridge.

The unit used an A-2 (modulated keyed telegraphy) type of emission with a modulation frequency of 550 Hz at 70%. Antenna characteristics were 75 to 500 pF and 1 to 20 ohms at 500 kHz and 30 to 300 ohms at 8364 kHz. The receiver had

THE 401A PORTABLE LIFEBOAT TRANSCEIVER STRAPPED TO SEAT



THE "GIBSON GIRL" COMPLETE WITH PARACHUTE



a frequency range of 492 kHz to 508 kHz (fixed tuned) and 8,266 kHz to 8,745 kHz (tunable).

The 401A had straps so it could be securely fastened to a lifeboat seat. The power supply was a hand cranked electric generator which was contained within the unit. It had a cranking speed of 50 to 70 RPM requiring 0.095 hp (good to know if you had any horses on board) and provided an output of .05 amps at 425 VDC and 2.25 amps at 6.3 VDC. Regulation was provided by a solenoid operated direct acting finger-type regulator. This was later replaced by a solid state regulator.

The tube compliment consisted of a 6U8 (signal frequency amplifier for 500 kHz, frequency converter for 8,364 kHz, and frequency conversion oscillator for 8,364 kHz); a 6BJ6 (second signal frequency amplifier for 500 kHz and IF amplifier for 8,364 kHz); two 12AT7's used as an audio output amplifier, BFO for 8,364 kHz, and a 500/8,364 kHz crystal oscillator; a 6AQ5 power amplifier and a 12AT7 modulator/550 Hz audio oscillator.

The keying cycle consisted of 12A/A dashes and 3 SOS signals at 500 kHz and 3 SOS signals and 30 second direction finding dashes at 3864 kHz. Keying was accomplished by a 2 RPM, permanent magnet field 6.3 VDC motor.

In the mid-seventies, the 401A was redesigned to a 403A and lightened from 57 to 38 lbs. A smaller motor-alternator was driven by the hand cranks. This was achieved by converting the vacuum tubes, with hearty filament requirements, to solid state devices; all other capabilities remained the same. The 403A was still in use up until late 1993, when implementation of the Global Maritime Distress and Safety System (GMDSS) retired it to history. Up until late 1993, the 401A was still being carried by surplus dealers for about \$150.

Although described by its manufacturer (Taybern Equipment Co., 120 Greenwich St., New York, N.Y.) as a Portable Lifeboat & Raft Radio Transmitter", the Model T-440GL was primarily designed for lifeboat use. Manufactured in 1944, it was an earlier version of the 401A and was comprised of a transmitter chassis, a separate hand

generator and a spares compartment, all within a water-tight case with a total weight of about 60 lbs.

The spares compartment contained an antenna assembly with 50 feet of stranded copper wire and 3 insulators; a ground wire assembly consisting of 20 feet of copper wire and a weight; a spare 6V6GT/G tube; a spare "resonance indicator," and a "Taybern artificial antenna capacitor (approximately 100mmf). A 40-foot length of line was also provided to, "in an emergency...lower the transmitter into any safely-launched lifeboat or into the water."

The unit was designed so that an unskilled person could set up and operate it by following instructions on a card fastened inside the cover. ICW (A-2 emission) automatic transmission of SOS signals and long dashes for direction finding, manual transmission of telegraphy and manual transmission of long dashes for the operation of rescue craft automatic alarm devices could all be employed. A variable antenna tuning control and a 5-point tap switch were used to obtain maximum output (60 to 250 mmf) with long, medium and short antennas.

A detached, hand-operated generator supplied D.C. power, 330/218 volts for the plate/screen finals, 175 volts for the oscillator and 6 volts for the heaters. The generator was equipped with a voltage regulator which maintained output substantially constant with cranking speeds of 50 to 70 r.p.m. Approximately 0.1-h.p. was required to crank the generator to obtain 5 watts into a 100 mmf./10-ohm artificial antenna.

Automatic transmission was obtained by means of a motor-driven keying cam and switch. The keying cam produced a series of 3 SOS signals (3 dots, 3 dashes, 3 dots) and a long dash. At a cranking speed of 60 r.p.m., the SOS signals were transmitted at a speed of approximately 9 words per minute; long dashes were timed for approximately 4 seconds to enable bearings to be taken by direction-finding receivers. A switch mounted on the front panel selected either automatic transmission or manual telegraph keying.

Operation consisted of cranking the hand generator for 10-15 seconds to allow the tubes to heat. The manual telegraph key was held down (when only one person was in the raft, the key was weighted down or held down by the horse) and the antenna was tuned for maximum glow of the resonance indicator.

The transmitter itself employed 4 6V6GT/G tubes. The master oscillator operated at 500 kHz in a Hartley parallel-fed circuit. The tank circuit of the final amplifier was inductively-coupled to the antenna loading coil which was tapped to accommodate antenna capacity variations from approximately 50 mmf. to over 250 mmf. and approximately 600 to 800 mmf. Tuning of the loading circuit was accomplished by means of a 5-point tap switch and an adjustable iron core; the resonance indicator (pilot lamp) was inductively coupled to the antenna load coil. Plate and screen modulation (approximately 75%) of the final amplifier was obtained using a 6V6GT/G as an A.F. oscillator-modulator. Keying of the transmitter was accomplished in the grid circuit of the master oscillator. The voltage drop across a resistor in the B- circuit of the power supply when the key was open was applied to the grid of the tube as a negative blocking voltage. At the same time, the voltage drop across the resistor reduced the plate voltage applied to the final amplifier (and modulator) so the plate current would not be excessive when the final amplifier received no driving voltage.

This article offered just a few examples of typical lifeboat emergency transmitters of the WW II era; interesting variations are numerous. For example, the British T1333 dinghy transmitter had an antenna that was supported by a kite which was launched by means of a rocket fired from a Very pistol. In fact, the fundamental idea was not new; as early as 1913, the Marconi Company announced the fitting of self-contained lifeboat radios on board two new liners.

REFERENCES:

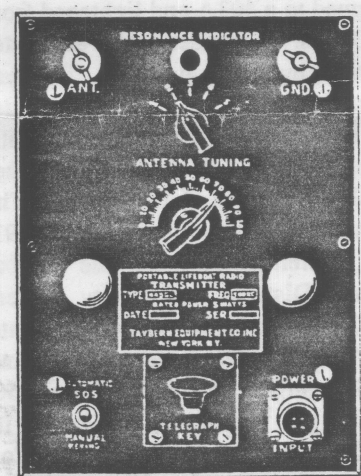
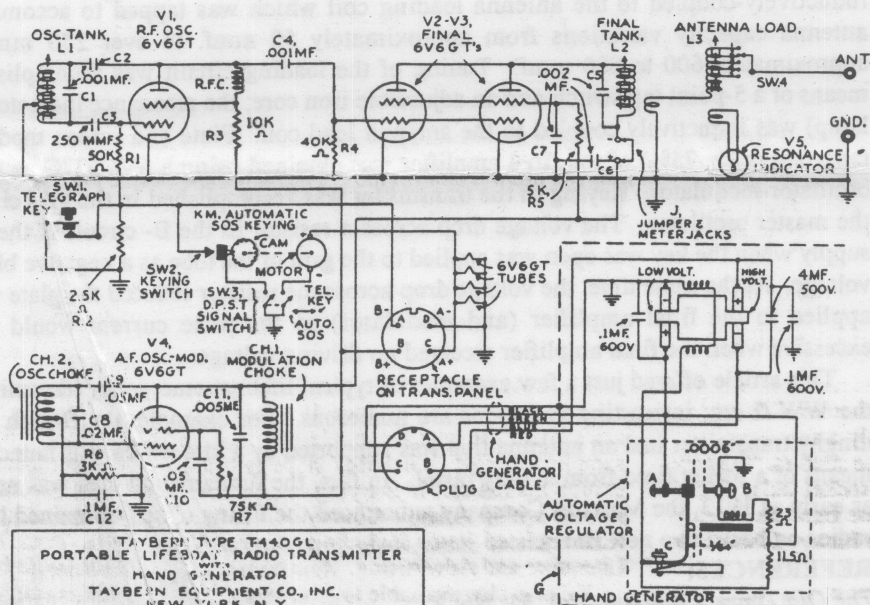
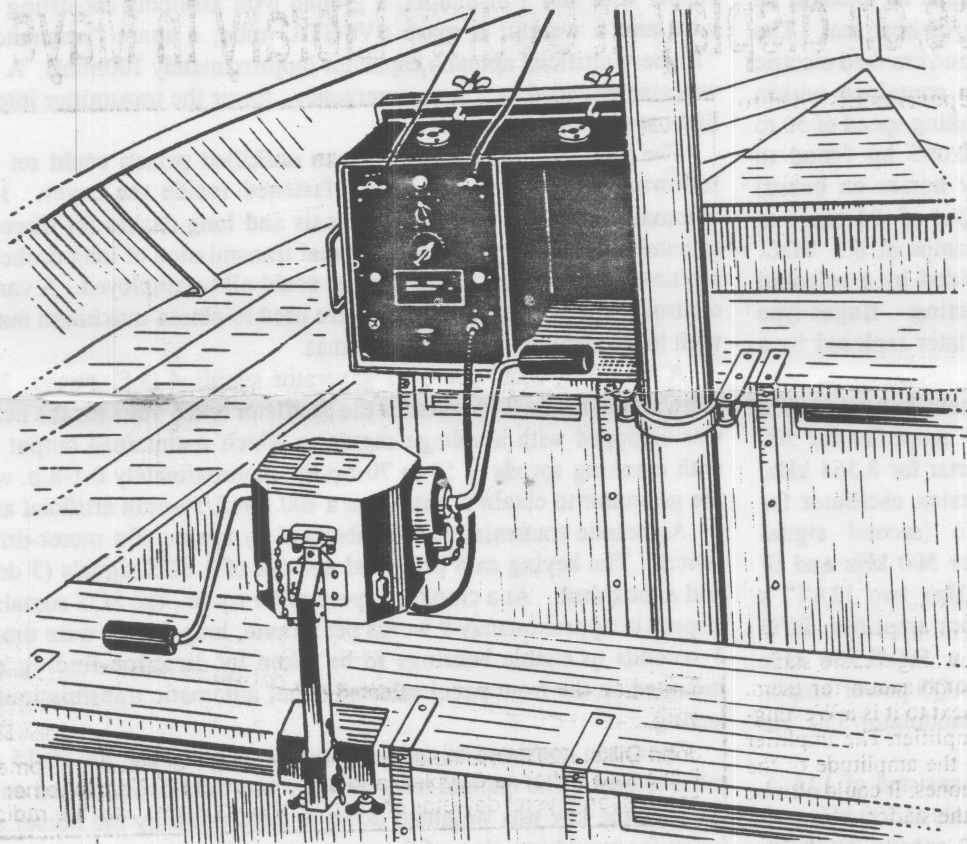
The Old Timer's Bulletin, Vol. 31, No. 4

Radio Age, March 1984

Electronic Design, Sept. 2, 1993, Nov. 1, 1993, Jan. 10, 1994, March 21, 1994.

Instruction Book, Taybern Model T-440GL Portable Lifeboat & Raft Radio Transmitter. Specifications, Mackay 401A Portable Lifeboat Transceiver

THE TAYBERN T-440GL



Old Radios on display at County Library in Mays Landing

Radios our Grandparents Listened to

Radios from as early as 1914 through the 1950's are shown, complete with descriptive cards. In this display, radios of note are: (*Dilks holding*) a 1914 "Loose Coupler" together with a Variable Condenser, Crystal Detector and Earphones make up the earliest radio. This radio would have been built and used by an enthusiast or Ham Radio Operator. The only signals being broadcast then were Morse Code messages between various land stations. Also interesting communications were sent between land stations and ships at sea, messages from stations in the United States to Foreign countries across the oceans, and of course the military. Broadcast radio, as we know it, was not invented yet.

The next oldest are: (*lower-left of center*) a Westinghouse Aeriola Senior one-tube radio from 1921. Westinghouse owned the earliest station, KDKA in Pittsburgh, Penna. Making and selling radios and owning a radio station was a good business combination for them. The identical size box next to it is a Westinghouse-RCA two-tube amplifier. The amplifier was needed to increase the amplitude of the radio sound to the earphones. It could also be used with a speaker, if the station was strong enough. *This radio pair was located in English Creek, NJ, and has not been out of that town until this exhibit.*

As more radio stations got on-the-air, more radio manufacturers got into business. Some were small backyard garage-shop operations, and some were much larger. In 1924 Crosley, one of the new large manufacturers, made the "Crosley Model 51" (*lower-right of center*.) This radio became very popular because it was inexpensive. It was a good radio as it also had two tubes, one for detecting the radio signal and one for amplification of the sound. *This radio was located in New Hampshire where it had rested on top of a beam in an old barn. It was discovered in 1995, just before the barn was torn-down.*

As radio broadcasting became more popular, listeners demanded better, more powerful radios. The 1925 Thompson "Neutrodyne" five-tube radio was one of these. It was quite a bit more expensive than earlier sets. With three tuning knobs and two filament knobs, this radio required some dexterity to tune in stations. To assist in this, a large station log sheet was provided under the lid, or top, of the radio cabinet. *This radio was located in Galloway Twp., NJ.*

All three of the above radios required large batteries in order to work. This was common back then as many homes didn't have electricity. Batteries were costly and lasted only a few hours. As homes electrified a new product came onto the market, "Battery Eliminators." These units plugged into the wall socket and replaced the batteries (*bottom-left*). This one-time purchase freed the listener from the continuing cost of buying batteries. *The battery Eliminator was located in Bridgeton, NJ.*

During the 1930's radios improved and most sets were AC powered. You will notice the large radio near the center of the



John Dilks, K2TQN, is holding the earliest piece of Radio equipment on display. It is called a "Loose Coupler" and dates from 1914. This together with a variable condenser, crystal detector and a pair of earphones, was the radio of the day.

display. This is an RCA from about 1934. Its shape gives it its name, "Tombstone." This type and size radio was made by many manufacturers. They were very popular and found in many homes. *This RCA Tombstone was located in Staten Island, NY.*

The other radios above, are table models from the 40's and 50's.

The Exhibit - Dates and Times

Starting in February and continuing through March 23, 1996, the Atlantic County Library in Mays Landing, New Jersey will be hosting this old radio exhibit. The radios are located just inside, next to the book checkout counter. The Library is open Monday through Thursday from 9 a.m. until 9 p.m. and on Friday and Saturday from 9 a.m. until 5 p.m., closed holidays and Sundays.

About John Dilks, Radio Collector and Radio Historian

The radios in this exhibit are part of a collection owned by John H. Dilks, K2TQN, from Egg Harbor Twp., NJ. John Dilks has been a Ham Radio operator since 1956 and has been collecting radios since then. He owns a modest collection and this exhibit is a sampling thereof. It is Dilks' hope to find a permanent location to exhibit his radios. He is trying to establish a Radio Museum, to be located within Atlantic County. His collection also contains many Radio related items including: Books, Magazines, Parts, Tubes, Literature and Advertising. And he is always searching for more.

Dilks is also available to give talks to organizations and groups who are interested in radio.

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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

Entire lot of 6,000 tubes, N.I.B. All must go! Call or write for list. J.J. Papovich, 53 Magnolia Ave., Pitman, NJ 08071. 609-582-8279

"Radio USA" mike style radio, 16" tall, AM/FM, \$35 ("Radio USA" lights when mike is on). Novelty radios: Red racing car, AM/FM with clock in sun roof, \$20; Simplex 1912 car, AM, \$20; 1828 locomotive, AM, \$20; Ferrari red car, AM/FM, \$25; Ferrari white or black car, \$20. Many other unusual novelty radios from 50's, 60's, etc. Prices include postage and insurance! All NIB, listed in Bunis/Breed. Richard Brill, PO Box 5367, Old Bridge, NJ, 08857. 908-679-8026; fax 908-679-8524.

RCA Radiola 18, works, \$60; Philco 40-190 console, \$100; RCA 100A speaker, cloth indented, \$20. Amy Lancaster, (215)-348-9654.

Booklet of 64 pages describes Federal Tel & Tel's radio operation from the beginning in 1921 to its demise in 1929. Over 60 illustrations, including pictures of early Federal RF and audio aps, all early radios, and many Federal parts. The article and NFWA presentation by Dick Schamberger, Federal expert, are included. All Federal models are listed with the year/month introduced, price new, and brief description. Buffalo's first broadcast station, Federal's WGR, is covered. This is more about Federal than exists in any other spot! Larry Babcock, 8095 Centre Ln., East Amherst NY 14051.

WANTED

Philmore #400 "SkyRover" crystal set; NIB a plus. Emerson 790B in black, blue or red. Frank Feczko, (201)-437-6895.

Collins R-390 parts set or parts. dust covers, rack cabinet. Pick-up within 100 miles of central New Jersey. Tom Provost, 19 Ivanhoe Drive, Robbinsville, NJ 08691. (609-259-7634)

Phonograph-related items; top dollar paid immediately for Vogue Picture Records, wax-cylinder records, needle tins, Nipper, record cleaners, puzzles, advertising, mirrors, pins, phonograph toys, posters, original advertising from Edison and Victor. Thanks! Bernie Seimberg, 714 Moredon Rd., Meadowbrook, PA 19046-1907 (215)-348-9654.

Circuit diagram and purpose (not in *Sams*) for a Knight FM monitor receiver, model KG-220, 30-50 MHz, by Allied Radio, Chicago. **MANUAL AVAILABLE:** I have a an Electronic Measurements Corp. emission-type tube tester, model 205. It has a roll chart and the operating instructions are in a four-page typewritten document that includes settings for ballast tubes and also some additional settings for newer tubes; published in April 1957 *Radio & TV News*. Please send \$1.00 for copying cost and postage if needed. Alton DuBois, Jr., 67 Peggy Ann Rd., Queensbury, NY 12804, (518)-792-3130.

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