RF

ORANGE COUNTY AMATEUR RADIO CLUB, INC.

VOL. LVIII NO. 11 P.O. BOX 3454, TUSTIN, CA 92781-3454 November 2017

The Prez Sez.....

by Tim N6GP

November is the month for our Thanksgiving holiday in the U.S. Personally, I resent those people who call this meaningful holiday "Turkey Day."

Having gratitude is a great way to live, and has many benefits for our lives. A November 2014 Forbes magazine article highlights 7 benefits from being grateful, including physical and mental health, and better sleep.

We have a lot to be thankful in our country, from the basics of food and shelter to our freedoms. What does this have to do with amateur radio? We have much to be grateful for. I am thankful to have so many friends in OCARC. We have a dynamic club with lots of smart individuals who have a wealth of knowledge to share. There is a lot of 'Elmering' going on, which is one reason why we have enjoyed our long history of almost 85 years.

By the time you read this, the December QST digital issue should be released. It will contain the much anticipated Field Day results, and word has it that we finished in 8th place in the 5A category [and 1st on West Coast in 5A]!! Congrats to our fine team who made this happen.

The ARRL is also making a big announcement for the 2018 operating event. I have some advance info that it will be called the International Grid Chase, and will be on HF as well as VHF. This will add even more fuel to the fire to the popularity of the FT8 digital mode that exchanges grid squares.

I am looking forward to seeing Doug Millar's (K6JEY) talk on test equipment. He will be giving us some practical advice about test equipment, from cheap and affordable to first class. There is no reason to avoid the November meeting because of our election. There are no un-filled positions, and there will be no arm-twisting. You can still make nominations from the floor, if you like.

Tim Goeppinger N6GP
President OCARC

Next General Meeting

The November OCARC General Meeting program will be:

"Test Equipment and Measurements for Amateur Radio"

by
Doug Millar K6JEY

The next General Meeting will be on:

Friday, November 17, 2017
@ 7:00 PM

ENTER from the WEST SIDE entrance of the Red Cross Building, Room 208
Take elevator to the 2nd Floor. *See you there!*

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www.W6ZE.org

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Feedback & Corrections:
rf_feedback@w6ze.org

Submit Articles:
editors@w6ze.org

Monthly Events:

General Meeting:
Third Friday of the month
at 7:00 PM held at:
American Red Cross
600 Parkcenter Drive
Santa Ana, CA
(Near Tustin Ave. & 4th St.)

Club Breakfast (Board Mtg):
Normally First Saturday of month at 8am
Marie Callender's Restaurant
1821 North Grand Ave
Santa Ana, CA
(Between 17th & Santa Clara)

Club Nets (Listen for W6ZE):
28.375 ± MHz SSB
Wed- 7:30 PM - 8:30 PM
Bob AF6C, Net Control
Alt: Corey, KE6YHX, Net Control

146.55 MHz Simplex FM
Wed- 8:30 PM - 9:30 PM
Corey, KE6YHX, Net Control

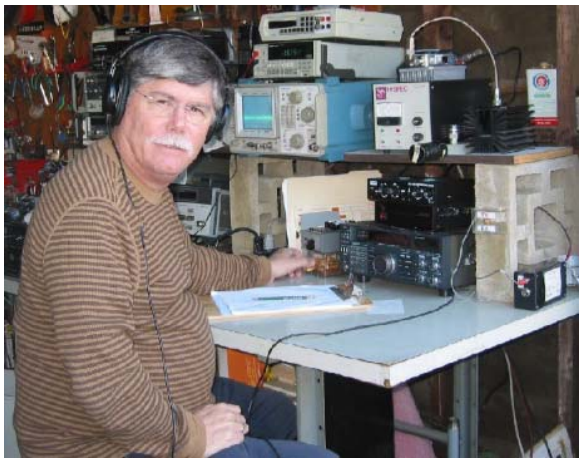
7.086 ± MHz CW **OCWN**
Sun- 9:00 AM – 10 AM
Ann K6OIO, Net Control

Club Dues for 2017:
Regular/New Members* - - - - - - $30
Family renewal/Join**- - - - - - - - $45
New Member Join Jul-Sept*** - -$15
Replacement Badge**** - - - - - - $ 3

* New members Jan-March, w/badge.
** Two members or more, w/badge.
*** New members July-Sept, w/badge.
**** There is a $1.50 charge if you'd like to have your badge mailed to you.

This month's speaker - K6JEY, Doug Millar, EdD

"Test Equipment and Measurements for Amateur Radio"



Doug Millar will suggest a collection of test equipment appropriate for amateur radio bench use. He will show a variety of accessible and reasonably affordable test equipment appropriate for both newly licensed and for experienced hams. As such, Doug's talk will help us in setting up or improving our own labs regardless of our level of experience. His suggestions range from the basic such as multimeters to more advanced equipment such as oscilloscopes and spectrum analyzers.

Doug has an extensive background in metrology. He holds a Doctorate in Educational Technology, is active as Director of Education for the Owens Valley Radio Observatory. He offers metrology consultation to industry and conducts a small instrument repair service. Doug presents often and he has published a group of books and articles. Several years ago he authored the ARRL Handbook chapter on "Test Equipment and Measurements" and continues to serve as the ARRL Southwest Division Technical Advisor in Metrology.

Doug has a wide variety of interests. He enjoys HF CW DXing, AM, boat anchors, microwave, and astronomy. As such he is a past President of the Southern California DX Club and is a very active member of the San Bernardino Microwave Society.

Doug's interest in microwave is highlighted by his EME activity on 144, 432, and 1248 MHz. He developed a moon bounce station running 300 Watts to a 10 ft dish that he sets up in the driveway and operates from the garage.

A ham since 1957, first licensed as KN6JEY in Redondo Beach, he currently resides and operates in Long Beach with his wife Helen, KI6LQV.

73, Jim, AF6N

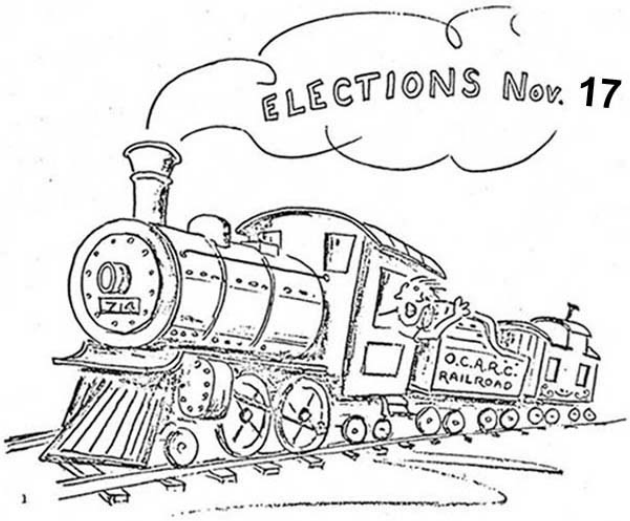
Election Announcement

The OCARC 2018 Board election will bw held at our General Meeting, Friday November 17. Other nominations will be taken from the floor

List of Nominations from the Nominating Committee

Nominating period still open. OCARC members are encouraged to run for any of these offices.

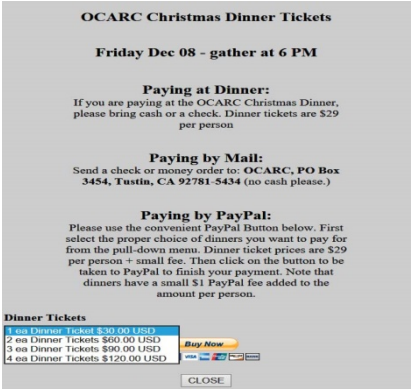
Office	Nominations for 2018
President	Tim N6GP
Vice President	Dan KI6X
Secretary	Jim AF6N
Treasurer	Ken W6HHC
Activities	Ron W6WG (aka W6FPS)
Membership	Bob AF6C
Public Relations	Tim N6TMT
Technical	Nicholas AF6CF
Director at Large 1	Clem WØMEC
Director at Large 2	Corey KE6YHX



"ITS RAILROAD TIME"

OCARC Holiday Party!!!!
Friday, December 8th

Come and celebrate the Holiday season with OCARC on **Friday, December 8th 2017** at Mimi's Cafe in Tustin. **Social hour begins at 5:30 PM…dinner at 6:30 PM,**


OCARC Christmas Dinner Tickets

Friday Dec 08 - gather at 6 PM

Paying at Dinner:
If you are paying at the OCARC Christmas Dinner, please bring cash or a check. Dinner tickets are $29 per person

Paying by Mail:
Send a check or money order to: OCARC, PO Box 3454, Tustin, CA 92781-5434 (no cash please.)

Paying by PayPal:
Please use the convenient PayPal Button below. First select the proper choice of dinners you want to pay for from the pull-down menu. Dinner ticket prices are $29 per person + small fee. Then click on the button to be taken to PayPal to finish your payment. Note that dinners have a small $1 PayPal fee added to the amount per person.

Dinner Tickets
1 ea Dinner Ticket $30.00 USD
2 ea Dinner Tickets $60.00 USD
3 ea Dinner Tickets $90.00 USD
4 ea Dinner Tickets $120.00 USD
Buy Now
CLOSE

Easiest way to pay and reserve your spot is to go to our weblink below: **http://www.w6ze.org/XMAS/Christmas-Paypal.html**

This will allow you to reserve a place for you and your party. Tickets are $29 per person with a $1 PayPal fee per ticket for a total $30 on online. $29 if paying cash or check.

You may also purchase your tickets at our next General Meeting or e-mail our treasurer at **W6HHC@w6ze.org** to arrange purchasing your holiday party dinner tickets! Remember to bring your spouse and friends too! Amateur entertainment will be provided.

Dinner is priced at $29 per person and it includes the following meal choice:

- **10oz Steak with Frites**
- **Grilled Atlantic Salmon**
- **French Pot Roast**

All dinners include a choice of coffee, tea, lemonade or soft drink and come with choice of house salad, Caesar salad or a cup of soup.

You do not need to make your meal selection until the evening of the event **but you must let us know in advance since seating is limited.** Check the club Website for upcoming info www.w6ze.org.

Drawing prizes include: $500 in gift certificates and items. Drawing tickets available for $1 per ticket.

Separate drawing: ICOM IC-7300. Tickets $10 each with sales limited to club members who purchase a holiday meal ticket. A club member cannot purchase more than 10 IC-7300 drawing tickets. All member meal ticket purchasers will be given the opportunity to purchase 2 drawing tickets. After each has had that opportunity then sales of remaining tickets will proceed. We reserve the right to modify the rules as necessary to make this fair.

Mark the date on your calendar!
Friday night, December 8th - gather at 5:30pm.

Location: Mimi's Cafe
17231 E. 17th St., Tustin, CA 92780
Located East of the 55 Freeway at the 17th St. Tustin exit.
Restaurant is on North side of street next to the freeway.

https://www.google.com/maps/place/17231+17th+St,+Tustin,+CA+92780/@33.760277,-117.8325052,17z/data=!3m1!4b1!4m5!3m4!1s0x80dcda2a95e4dbd1:0x4bc7c38bbef6d618!8m2!3d33.760277!4d-117.8303165

OCARC Christmas Dinner Tickets

Friday Dec 08 - gather at 5:30 PM

Paying at November Meeting:

If you are paying at the OCARC November General Meeting, please bring cash or a check. Dinner tickets are $29 per person

Paying at Dinner:

If you are paying at the OCARC Christmas Dinner, **please reserve your seats by e-mail** and bring cash or a check. Dinner tickets are $29 per person

Paying by Mail:

Send a check or money order to: **OCARC, PO Box 3454, Tustin, CA 92781-3454** (no cash please.)

Paying by PayPal:

Please use the convenient PayPal Button below. First select the proper choice of dinners you want to pay for from the pull-down menu. Dinner ticket prices are $29 per person + small fee. Then click on the button to be taken to PayPal to finish your payment. Note that dinners have a small $1 PayPal fee added to the amount per person.

Dinner Tickets

- 1 ea Dinner Ticket $30.00 USD
- 2 ea Dinner Tickets $60.00 USD
- 3 ea Dinner Tickets $90.00 USD
- 4 ea Dinner Tickets $120.00 USD

Buy Now

CLOSE

The HEATH COMPANY
BENTON HARBOR, MICHIGAN

Heathkit of the Month #80:

by Bob Eckweiler, AF6C
AMATEUR RADIO - SWL

The Heathkit K-1
Three-Tube All-Wave Beginner's Receiver

Some K-1 All-Wave Receiver History:
The first piece of **radio** equipment using the ***Heathkit*** name is the K-1 "Three-Tube All-Wave Beginner's Radio" (Figure 1). It was introduced in the March 1948 Heath Flyer (Figure 2) and soon after in ads in the April issue of ***Popular Mechanics*** and May issue of ***Radio News***. Prior to that, Heath advertised in *Radio News* for three months (January through March) an Amateur Transmitter with the *Heathkit* name (Figure 3). The model number is unknown, as is whether any were ever delivered. None have been found as of yet, so it is not being considered as the first piece of *Heathkit* radio equipment. While the ad appeared in some magazines between January and March of 1948, this transmitter kit never appeared in a Heath flyer.

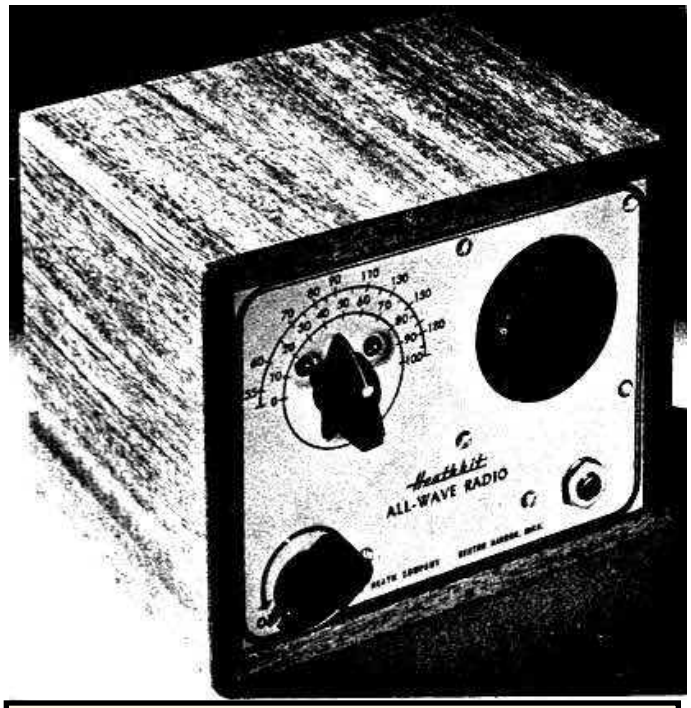


Figure 1: The Heathkit K-1: 3-Tube All Wave Receiver shown with optional mahogany cabinet that became available after January 1949 (Heath Co. photo)


HEATHKIT 3 TUBE · · BEGINNERS
ALL-WAVE RADIO

This Heathkit was developed to provide a simple interesting means of starting in radio. It has many of the features of large complex sets, yet the design has been simplified and the instructions prepared to allow a beginner to achieve success. The kit uses 3 metal tubes, has a 110 V.A.C. power transformer power supply. Two plug in coils are supplied covering 500 Kc. to over 6,000 Kc. The panel is calibrated in the broadcast band.

Foreign broadcasts, police, amateur and aircraft broadcasts are all covered with the coils supplied.

$8.75

This kit with a few tools will provide months of useful entertainment and good training for boys 12 years or older. In addition, it frees the family radio the constant series of boys' programs. This kit is complete less loud speaker or phones, all parts supplied, all metal parts drilled, punched, printed and plated. Detailed pictorial diagrams and instructions. A battery type (2 tubes as it requires no rectifier) is available where no house current is available.

Heathkit Beginners' Radio 110 volt type..... $8.75
Heathkit Beginners' Radio, battery type (2 tubes, no rectifiers)..... $8.75
Headphones for either type HS 30 per set..... $1.00
2½" permanent magnet loudspeaker for either type..... $1.95
Batteries, complete kit for battery type set..... $3.25

Figure 2: The first Heathkit K-1 ad from the March 1948 Heath Flyer. Do you notice anything wrong with this ad?


HEATHKIT
TRANSMITTER KIT

A best buy in an amateur transmitter kit. Circuit uses latest post war improvements, can be assembled to cover 80-40-20-10 meters with 25 Watt output. Comes complete with 80 meter crystal, modulator, 80 meter coil, four tubes, cabinet, beautiful panel and all additional parts needed less power supply. Blueprints and instructions included. Power supply kit $10.00 additional. Shipping weight 20 pounds; 8 pounds for power supply.

$19.50

Figure 3: The "Mystery" Heathkit Transmitter from March ad in *Radio News*. At 20 lbs. shipping weight (less power supply) it must have had some serious iron inside.


110V.-A.C. MILITARY RECEIVER
POWER SUPPLY KIT

Ideal way to convert military sets. 110V 60 cy. transformer operated. Supplies 24 Volts for filament — no wiring changes inside radio. Also supplies 250V D.C. plate voltage at 50-60 MA. Connections direct to dynamotor input. Complete with all parts and detailed instructions. Shipping wt. 6 lbs.

$5.95

110V.-A.C. TRANSMITTER
POWER SUPPLY KIT

For BC-645, 223, 522, 274N's, etc. Ideal for powering military transmitters. Supplies 500 to 600 Volts at 150 to 200 MA plate, 6.3 C.T. at 4 Amps, 6.3 at 4 Amps. and 12V at 4 Amps. Can be combined to supply 3-6-9-12 or 24 Volts at 4 Amperes. Kit supplied complete with husky 110V 60 cycle power transformer, 5U4 rectifier, oil filled condensers, cased choke, punched chassis, and all other parts, including detailed instructions. Complete — nothing else to buy. Shipping Wt. 22 lbs.

$14.50

Figure 4: Two popular Heath kits that never received ***Heathkit*** status. Generally these were kits associated with war surplus (Ad from *Radio News* Jan. 1949)

The K-1 was followed by the K-2 sometime in 1949. The date of that change is controversial in the Heathkit community, but my research believes it to be after April 1949 and before September 1949. The K-2 stopped being advertised at the end of 1949. Why is the date of a kit so hard to determine? To answer that, one needs to realize a few things about the early Heath ads. Heath almost never gave model numbers to the kits in their ads. The model number might appear on the manual and/or schematic, and often on the equipment itself, but looking at an ad you have nothing to go on but the kit name and appearance. Sometimes, when they updated a kit they gave it a "New" status, but they also sometimes kept the "New" status as part of the ad so long that another change occurred. The O-2 to O-3 transition is such an example. Heathkit ads often took time to propagate from engineering to the flyers, to the magazine ads. That time could be up to three months, and some changes never did show up in the ads. Also, Heath sold some kits that it never gave the *Heathkit* name to. These were often related to surplus equipment. Two such examples are two power supplies, the "110V A.C. Military Receiver Power Supply Kit" and the "110V A.C. Transmitter Power Supply Kit", both which ran in ads for many months (Figure 4).

The picture in the ad of Figure 2 appears in the March 1948 Heath Flyer and twice in Heath ads in *Radio News* (May and June). In this picture the speaker grill is made up of many (29) holes and is on the left of the front panel. But the photo of Figure 1 shows a single speaker hole on the right, with a grill screen covering the opening. What isn't obvious in the ad of Fig. 2 is that the image is printed in reverse[1]. A high resolution scan of the March Flyer reveals this clearly. See figure 5.

Why is this important? Originally some Heath historians believed that the speaker

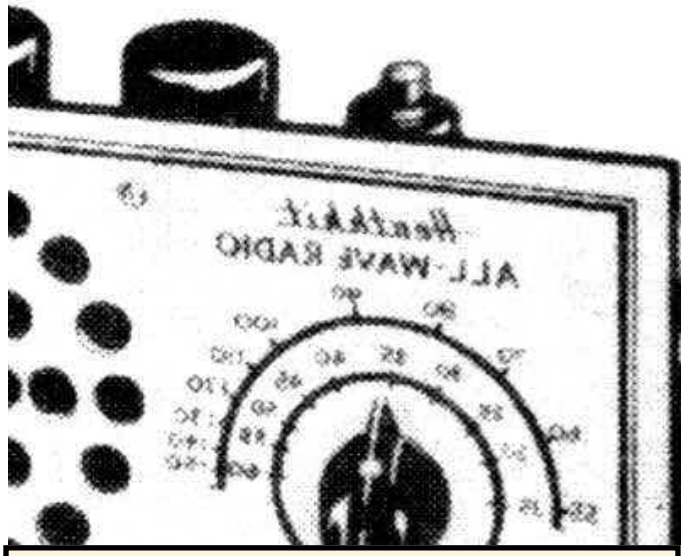


Figure 5: A closeup of Figure 1 shows the image has been flipped horizontally before printing. Thus the speaker is on the right. The metal tubes, 2 ea. 12A6 and one 12C8 (with the grid cap) define the K-1 radio.

position defined whether the radio was a K-1 or a K-2. However it turns out that all the radios really had the speaker on the right. Also, the picture with the multi-hole speaker grill may have been a prototype, as none have shown up with the feature. What really defines the difference between the K-1 and the K-2 is the tube lineup, which is different between models. Heath continued to show the reversed image of the radio in their flyers and ads until June of 1948 when the image was corrected in the flyer (Figure 6); by July the magazine ads had been corrected too. This updated image shows the single hole speaker grill and has the correct orientation.

Another question surrounding the K-1 is its price. The first appearance of the radio was in the March 1948 Heath flyer (Fig. 2). It was priced at $8.75. However, the first time it was advertised in the May ad in *Radio News* the selling price was $5.95. This quickly changed the next month where the identical two-page ad appeared again, but with one correction, the All-Wave radio price increased to $8.75. In *Popular Mechanics* the All-Wave Radio appeared in the April and May 1948 Heath ad at $5.95, rising to $8.75 in June.

Figure 6: Ad from the June 1948 Heath Flyer. For the first time the radio appeared correctly oriented and with the single hole speaker grill.

The K-1 All-Wave Receiver:

The K-1 originally came in two models. One is a three-tube transformer operated 110 VAC 60 cycle powered receiver and the other is a two-tube battery powered receiver. Since the battery powered unit didn't need the power transformer nor rectifier tube, it is surprising they were both priced the same. A battery set was available as an accessory for the battery powered receiver for $3.25. Other accessories were headphones (HS-30) for $1.00, and a speaker for $1.95 that mounted behind the grill. Two coils came with the K-1, one covering the broadcast band and the other the shortwave band up to 6 mc. No cab-

Figure 7: Front view of the K-1 All-Band Radio from the collection of Erich Brueschke. Photo by Chuck Penson.

Figure 8: Rear view of the K-1 All-Band Radio from the collection of Erich Brueschke. Photo by Chuck Penson.

inet was initially available, but one was announced in the January 1949 Heath Flyer and began appearing in magazine ads around April. Offered at the same time as the cabinet were two additional plug-in coils: The long-wave coil for 200 kc to 500 kc and a second short-wave coil for 6,000 kc to 21,000 kc. The battery version of the K-1 disappeared after only a few months, last seen in the July 1948 Heath ad in Radio News. Advertising for the accessory coils also disappeared after a few months though they may have still been available from the factory. Available coils are shown in Table III.

The K-1 controls are very simple (See Figure 7). There is a tuning condenser with two scales, one for the broadcast band covering 550 kc to 1,800 kc and a logging scale from 0 to 100. This condenser mounts near the top left of the front panel. Below it at the bottom left is the **VOLUME** control which has a switch that turns the radio off when fully counterclockwise. This control actually controls the regeneration level of the receiver tube. Changing bands requires changing coils which mount in an octal tube socket. The cutout and grill for the optional 2-1/2" speaker is in the upper right and below it in the lower right is a standard 1/4" headphone jack.

The K-1 Layout:

Most of the K-1 components mount on a U shaped chassis. A flat plate front panel mounts to the chassis by the volume control and earphone jack, as well as by two screws

#	Tube	Type	Function
1	12C8	Pentode Dual-Diode Metal Octal w/grid cap	Regenerative Receiver
2	12A6	Beam Power Pentode Metal Octal	Audio Output
3	12A6	Pentode (wired as a diode) Metal Octal	Half-wave Rectifier

Table I: K-1 All-Wave Radio Tube Line-up

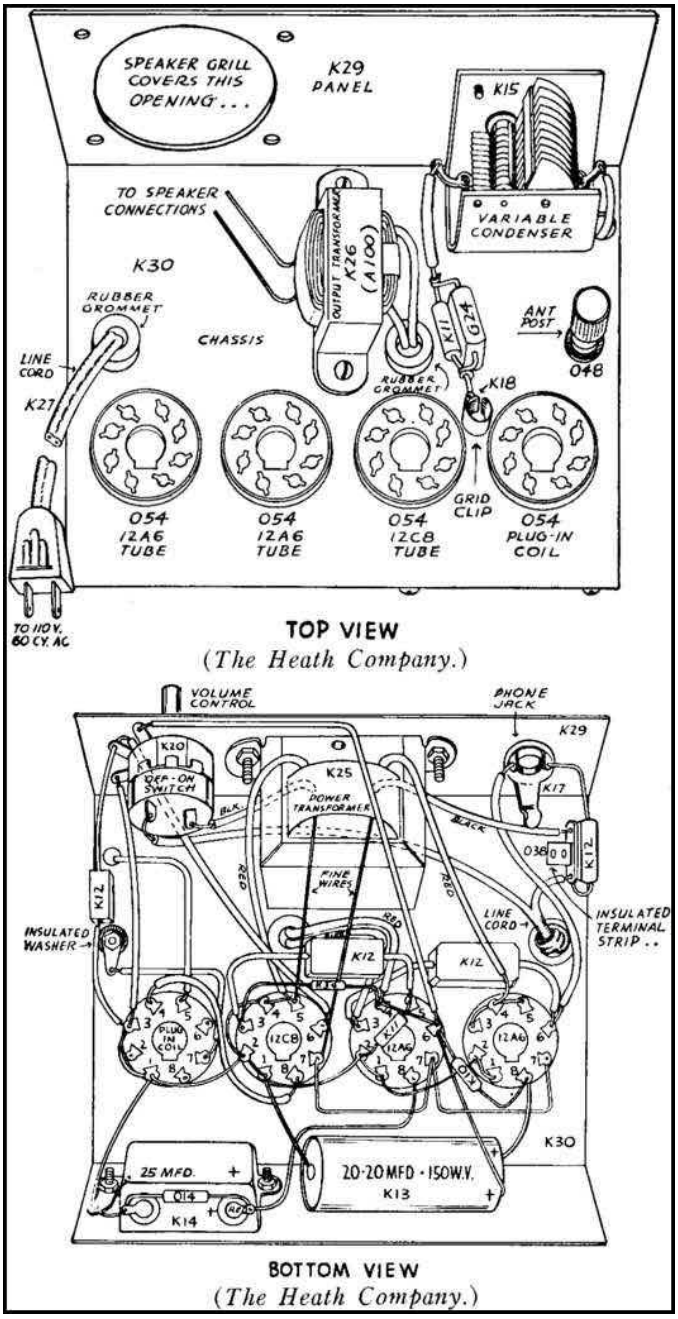


Figure 9: Chassis Layout for the K-1 All-Wave Receiver from a copy found of parts of the K-1. (Heathkit Manual)

that also mount the power transformer. Four octal tube sockets mount across the back of the top of the chassis. These hold, from left to right, as viewed in Figure 8, the 12A6 rectifier tube, the 12A6 audio amplifier tube, the 12C8 receiver tube, and the plug-in coil; in Figure 8 the two plug in coils, that come

mounted in octal tube bases, are taped head-to-head, hence the unused coil's pins sticking up. The tubes are all metal-cased and the 12C8 has a grid cap atop. The antenna attaches to a binding post that is on the top of the chassis near the socket for the plug-in coil (Figure 9). The remaining components that mount to the chassis are the audio output transformer atop the chassis and a 25 µf bathtub style condenser that mounts on the inside rear flange. The 365 µµf tuning condenser mounts to the front panel using short screws. The front panel has concave dimples to prevent the mounting screws from interfering with the knob movement. Chassis drawings are shown in Figure 9.

The K-1 Circuit:

The K-1 is a simple regenerative receiver using three tubes as shown in Table I. One feature of the AC powered K-1 is its use of a power transformer to provide operation from the AC mains, while preventing all the safety issues of AC-DC operation with direct connections to the AC line. The short-lived battery version of the K-1 is operated by an extra cost battery set; one battery supplying filament voltage and the other suppling plate voltage.

The rectifier circuit is a bit unusual, but something that Heath engineers have done more than once; a beam power pentode 12A6 is used as a half-wave diode by tying the screen and control grids to the plate. Evidently the war-surplus 12A6 tubes were cheap on the market and Heath had bought a lot of them. The rectified DC is filtered by a dual 20 µf electrolytic and 470 Ω resistor providing about 210 VDC. Most of the power was used for the audio amplifier, especially if it was driving the optional speaker.

Regenerative receivers were very popular for ham and SWL activities in the early years of radio. By using positive feedback (regeneration) the gain of a tube can be significantly

#	Tube	Type	Function
1	1626	Triode Glass Octal	Regenerative Receiver
2	12A6	Beam Power Pentode Metal Octal	Audio Output
3	1626	Triode (wired as a diode) Glass Octal	Half-wave Rectifier

Table II: K-2 All-Wave Radio Tube Line-up

increased. Thus, fewer tubes are required, and tubes were expensive in the day. The coils each consist of three coupled windings. The antenna winding couples the signal to the tuned grid winding, the third "tickler" winding couples the amplified signal from the cathode to the grid coil, providing regeneration. There are many ways to control the level of regeneration. In the K-1 it is controlled by the control marked VOLUME that varies the screen voltage on the receiver tube.

Audio from the receiver tube is coupled to another 12A6 tube that is used more conventionally as an audio amplifier. The [then] new beam powered pentode easily can drive


HEATHKIT 3 TUBE ALL WAVE
RADIO KIT

No. K-1. Enjoy the thrill of building your own set which receives broadcast, police, aircraft, amateur, marine and foreign stations. Simple easy instructions make assembly fun. Every part included — coils for 550 to 6000 Kc. tubes, 110 Volt power transformer, ready punched chassis, calibrated dial. Has power output tube operates loudspeaker (not included). Ideal start in radio. Shipping weight 3 lbs.

$8.75

Loudspeaker 2½" PM (extra) 1.95
Headphones $1.00

Figure 10: Ad from February 1949 Popular Mechanics Magazine. This is one of the rare early ads that gives a model number.

Figure 11: Ad shown on the RigReference website for the K-2. Ad shows model number and an increase in shipping weight to four lbs. Source for this ad is unknown - see text.

headphones or the optional speaker. The schematic for the K-1 is shown in Figure 13.

The K-2 All-Wave Receiver (Figure 12):

Figure 10 leads us to believe that the K-1 was still selling in February of 1949. In the January 1950 Heath ads no reference was made to an all wave radio, nor did the K-1 or K-2 ever appear again to my knowledge. Thus, sometime after February and before 1950, the K-2 replaced the K-1. Another clue might come from an ad on the RigReference.-com website (Figure 11). Instead of a photograph of a K-2 they show an ad with the comment *Heathkit K-2 - Magazine Ad*. Unfortunately no magazine or date were given. A search for this ad has, so far, not turned up anything. What makes the ad unique is that it states: Model K-2. One thing of note is that the shipping weight changed to 4 lbs. in this ad. Looking over the ads from Radio Craft and Radio News the weight never seemed to have been updated through the end of December 1949. However the September 1949 Heath flyer does show the updated weight so I'm assuming the K-2 was being sold by then.

From the front, the K-2 looks almost identical to the K-1. The model is included on the front panel of (at least some of) the K-2s. The few K-2s I've seen in photos also seem to have a different knob and possibly a vernier for the tuning capacitor. This likely is a user add-on. Out of the case, or from the rear, it is easy to tell the K-1 from the K-2. The K-2 has a different tube line-up. A single metal 12A6 audio amplifier tube remains in between two glass 1626 triodes. These tubes replace the 12A6 used as a rectifier and the 12C8 receiver tube in the K-1. (Table II). One of the 1626 tubes is now wired as a diode for power rectification. I have not seen a K-2 schematic, but the change from a pentode to a triode must result in changes to the receiver tube wiring including how the VOLUME (regeneration) control functions.

Operating the K-1 or K-2:

Before operating the K-1 or K-2 an aerial must be connected to the binding post near the tuning condenser. A wire about 20' long is okay for local stations but a longer aerial (50' - 100'), up 20' or more is recommended

Figure 12: Photo of a K-2 from the Antique Wireless Association Museum. Note model number on front panel (lower center) and the two 1626 glass tubes that replace the 12C8 and one of the 12A6 tubes used in the K-1 Photo posted by Jim - N2EY on QRZ.

#	Coil Name	Low Frequency	High Frequency	Cost
1	Long Wave *	200 kc	500 kc	90¢
2	AM Broadcast	500 kc	2,000 kc	Included with kit
3	Short Wave	2,000 kc	6,000 kc	Included with kit
4	Short Wave *	6,000 kc	21,000 kc	90¢
* Optional coil advertised from Nov. 1948 till Feb. 1949 in Heath Flyers Only				

Table III: K-1 and K-2 Plug-in Band Coil Data

for DX. If the radio has the optional speaker installed you are all set. If not, or if you want to do some private listening, a pair of high impedance (~2,000 Ω) earphones needs to be plugged into the headphone jack on the front panel.

To operate the regenerative radio first decide what band you want and install the proper coil in the octal coil socket. Once installed and the AC line cord is plugged in, the radio is turned on by advancing the VOLUME control clockwise until the switch clicks. After a short wait for the tubes to warm up the VOLUME control can be advanced and a station tuned in. Continue to introduce regeneration until a whistle is heard. At this point back off the volume until the oscillation stops. This is the most sensitive setting. Any significant frequency change may require readjusting the regeneration. To receive CW you may increase the VOLUME until oscillation begins; this oscillation acts as a BFO and gives the CW signal a tone. A skilled operator can use this feature to actually receive SSB; but it takes a lot of practice.

One caveat: when the receiver is oscillating it is radiating a signal to the antenna. Many a want-a-be ham, in the early days, would hear a CW signal and turn up the regeneration and key the receiver for their first QSO. Many better regenerative receivers had an RF amplifier stage in front of the regenerative stage to isolate the receiver from the antenna, eliminating radiation. In the early days of radio receiver regeneration leakage was a major source of QRM.

Summary:

This article is the result of reviewing dozens of Heath ads from many different magazines. Only a handful of K-1s seem to exist today and even fewer K-2s. Heath, not using model numbers for their ads, further makes researching early Heath history more complex. Sometimes a model would change without the ad being updated and the only clue would be that the item drawing changed in some slight way.

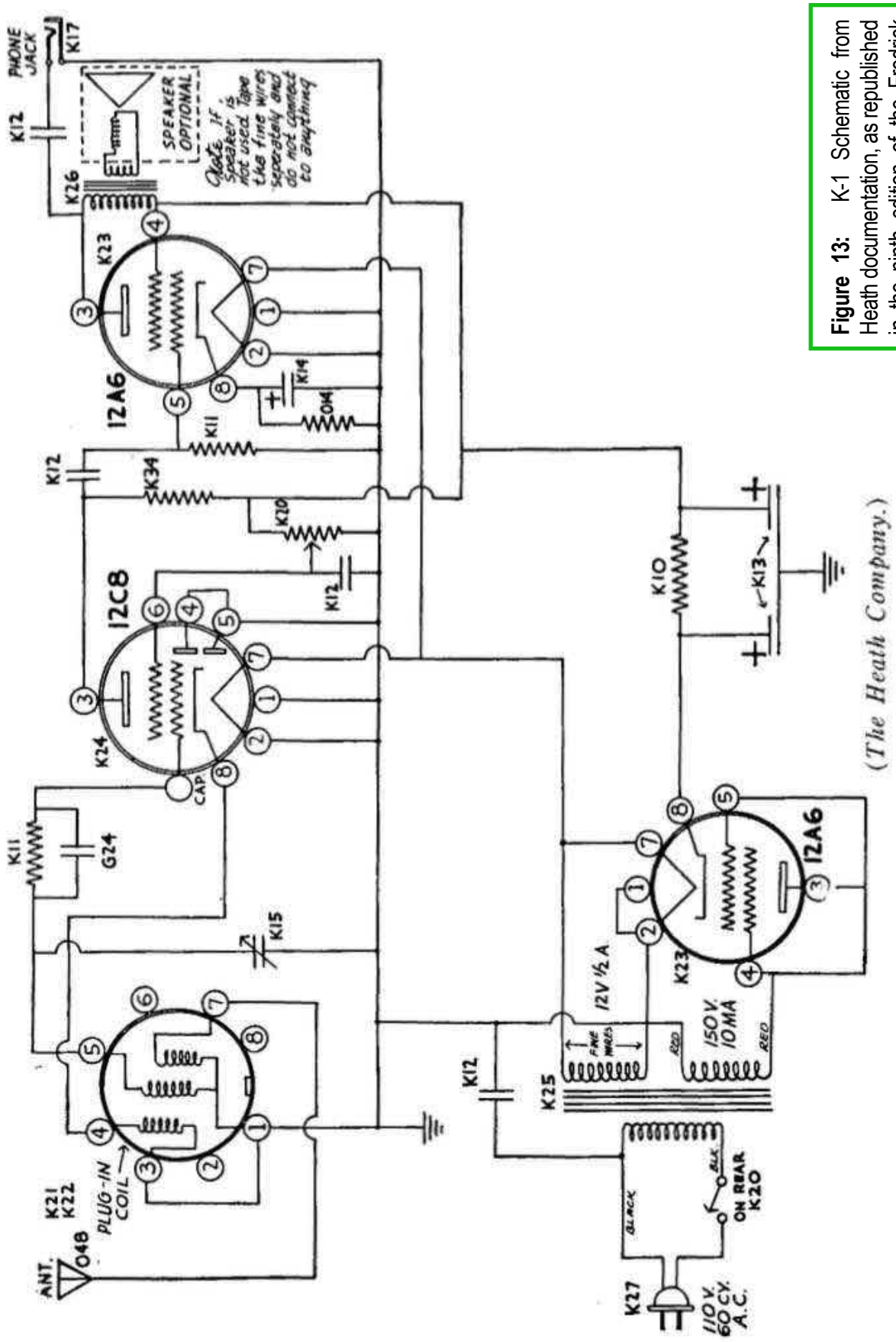
73, from AF6C

Note 1:

The reversing of an image is something Heath did on occasion in their advertising. In the Dec. 1947 *Radio News* ad that introduced the V-1 VTVM, the meter needle was at full scale. This continued each month until the March ad where the image was shown properly. I mentioned this to Chuck Penson - WA7ZZE and he showed me that the photos on the front and back cover of the Fall - Winter 1960 - 1961 Heathkit Catalog were printed backwards. It is hard to tell, as there is no text large enough to read. The kits shown are flipped, and the biggest clue is that the two tone Heathkit emblem on two of the kits are reversed, with the red on the left. There is no readable text (without magnification) to give the reversal away. Even knowing this, K-1 speaker position at first.

Remember, if you are getting rid of any old Heathkit Manuals or Catalogs, please pass them along to me for my research.

Thanks - AF6C



(The Heath Company.)

Figure 13: K-1 Schematic from Heath documentation, as republished in the ninth edition of the Fredrick Collins Radio Amateur's Handbook; also the source for Figures 1 and 9.

UPCOMING EVENTS

NOVEMBER 17, 2017 MEETING
Doug Millar, K6JEY, will speak on "Test Equipment & Measurements for Amateur Radio". Doug will bring an accurate voltage source. He asks that members bring a personal meter to the meeting and he volunteers to calibrate member's voltmeters at the meeting.

DECEMBER 08, 2017 CHRISTMAS DINNER 5:30 PM Social Hour, Dinner 6:30 PM
Our dinner is at Mimi's Café in Tustin. Raffle drawing for the ICOM IC-7300. Amateur entertainment.

JANUARY 12, 2018 MEETING
Lito de los Reyes, WI6Y will make a presentation on the All Star network. Lito previously presented a very interesting show and tell on the All Star system and will expand upon its growth and advantages.

JANUARY 27/28, 2018 WINTER FIELD DAY
We will be braving the elements at the Ocean View School District in Huntington Beach.

FEBRUARY 16, 2018 MEETING
To be announced.

MARCH 23, MEETING (note: Moved to 4th Friday due to Baker to Vegas)
Tim Duffy, K3LR, from DX Engineering will present via Skype. The topic will be an introduction to the amazing Multi Multi K3LR contest station.

For the most current Upcoming event information go to: http://www.w6ze.org/Events.html

Tom W6ETC

RadioActivity
November 2017

Upcoming Activities:

NOVEMBER

- ***November Sweepstakes CW:** First full weekend in November, 2100 UTC Saturday through 0259 UTC Monday.
- ***November Sweepstakes SSB:** Third full weekend in November, 2100 UTC Saturday through 0259 UTC Monday.
- ***CQ WW DX / CW**: Last full weekend.

DECEMBER

- ***ARRL 160 Meter Contest:** First full weekend in December, 2200 UTC Friday through 1559 UTC Sunday.
- ***ARRL 10 Meter Contest:** Second full weekend in December, 0000 UTC Saturday through 2359 UTC Sunday.
- ****Rookie Roundup CW:** Third Sunday, 1800 UTC through 2359 UTC.

*** Indicates club entries are accepted****
****Indicates team entries are accepted**

Repeating Activities:

- **Phone Fry** Every Tuesday night at 0230Z to 0300Z
- **SKCC** Weekend Sprintathon (Straight Key CW) on the first weekend of the month after the 6TH of the month. 1200 Sat. to 2359Z Sunday.
- **SKCC** Sprint (Straight Key CW) 0000Z to 0200Z on the 4th Tuesday night (USA) of the month.

Recent Activities by OCARC Members:

- **CQ WW DX / SSB:**
  Ron W6WG, Tim N6GP

Send an email to *Ron W6WG, w6fps@w6ze.org to have your favorite activity or your recent RadioActivity listed in next month's column.*

Stray RF
Items of Interest

W6FPS->W6WG
Congrats to Ron Mudry on getting the vanity call W6WG. This is a weighty callsign for CW that is sure to bust the pileups.

N6HC Field Day
Congratulations to the ABCD Field Day group for winning the #1 spot in the 6A category and #10 overall.

Kris W6KJC Rides the Zamboni
#1 LA Kings Ice Hockey fan, Kris Cutting. W6KJC can now cross off "riding the Zamboni" from his bucket list. At the Kings game at Staples Center on Oct 15, Kris got to ride the machine as it resurfaced the ice between the 2nd and 3rd periods!

Kris W6KJC at Staples Center

Auction Photos
Oct 20, 2017

"I haven't seen one of these gizmos since 1979. A lot of 'cool factor' here". -Chip

Going once! Going Twice! Sold!!!!

(L-R) Ron W6WG and Ken W6HHC handled the monies during the auction

OCARC
GENERAL MEETING MINUTES
2017-10-20

The OCARC General meeting was held at the Red Cross Complex in Santa Ana on October 20, 2017.

Club Officers: There was a quorum with all officers present with the exception of Tim N6GP, Greg W6ATB and Dan N6PEQ.

Attendance: We had 24 members, and 9 guests in attendance.

Meeting was called to order at 7:00 pm and was followed by the Pledge of Allegiance to the Flag and introductions of the members and guests.

Announcements:

- Jim, AF6N, Many OCARC members participate in the annual 120 mile Baker to Vegas Relay Race by providing communication support. To avoid a conflict, the March General Meeting the date of the March meeting has been changed to Friday March 23, 2018.
- Jim, AF6N, Doug Millar K6JEY will be the November guest speaker.
- Jim, AF6N reminded members the Christmas dinner will be at Mimi's Café in Tustin on Friday, December 8.
- Jim, AF6N, reviewed the rules for the Icom 7300 raffle prize. The Board approved a prize pool of a hundred $10 squares to be sold with the winner receiving an Icom IC-7300. In order to purchase squares the purchaser must have purchased a Christmas Banquet Ticket or have one in his/her possession. Two raffle tickets may be purchased prior to the day of the banquet. Any unsold tickets will be sold at the banquet, one at a time to the banquet attendees. Before a attendee can purchase additional available tickets each person in attendance shall have the opportunity of purchasing a ticket. A maximum of 10 squares will be sold to any one attendee. The winner need not be present at the banquet.
- Jim, AF6N, reviewed the rules of the annual October auction.
- Tom, W6ETC, is looking for volunteers for help with the Disney Half Marathon with will be run on Sunday November 12. Please contact Tom if you would like to help with radio communications or staffing a first aid station.

October Program:

OCARC Annual Auction

- Jim, AF6N, introduced Chip, K7JA, as the auctioneer, a position has filled many times in years past. Chip continued in the tradition of providing an entertaining and **well** run auction.
- A preliminary report from the club treasurer, Ken W6HHC, indicated sales of **$489.75** which added $224.69 **net profit** to the clubs bank account.

Business Meeting:

- There was no Business Meeting held due to time constraints.

Meeting Adjourned at 9:20 pm

Submitted by *Ron Mudry W6WG*
OCARC Secretary

OCARC
BOARD MEETING MINUTES
2017-11-04

Meeting Called to Order: 8:15 am

Roll Call:

Pres.: Tim N6GP, Present
Vice Pres. Jim AF6N, Present
Sec.: Ron W6WG, Present
Membership: Bob AF6C, Absent
Tech.: Clem W0MEC, Absent
Treasurer: Ken W6HHC, Present
Activities: Tim N6TMT, Present
Publicity, Dan N6PEQ, Absent
Directors at Large: Greg W6ATB, Present
Nicholas AF6CF, Absent

Members Present: Corey KE6YHX

Guest Present: Eve Morguelan

DIRECTOR REPORTS:

- **Vice President** – Jim, AF6N confirmed that Doug K6JEY will be the November will guest speaker and DX Engineering will be the March entertainment.
- **Secretary** – Ron, W6WG forwarded mail from the IRS to the treasurer Ken, W6HHC.
- **Membership** – Bob, AF6C reported processing a few new member applications and has updated all membership roosters.
- **Technical** – No report.
- **Treasurers Report** – Ken W6HHC handed out copies of the current Year to Date OCARC Cash Flow report and a report on the 2017 October Auction as compared to those in 2016 & 2015. The report showed a decline in the auction net profit for 2017 from the previous two years. After some discussion it was determined that with the sale of donated items earlier in the year, 2017 income was in line with passed years.
- **Activities** – Tim, N6TMT has been working on an online Net Control Schedule. At the completion of testing the schedule will be linked to the OCARC website,
- **Publicity** – No Report.
- **Directors at Large** – Greg, W6ATB reported very good band conditions on 20 meter to Europe when he was running digital (FT8).

OLD BUSINESS:

- **Newsletter Editors**
  November - Tim N6GP, December - Jim AF6N, January - Greg W6ATB.
- **Entertainment** – Guest speakers are as follows, November – Doug K6JEY Test Equipment, January – Lito KI9H All Star Network, February - ?, March – DX Engineering SKYPE Presentation.
- **Nomination Committee** – Tim N6GP, Tim N6TMT, Jim, AF6N and Ron, W6WG completed the task of putting together a slate of nominees for next year's club officers and directors. The nominees will be listed in the November RF. Prior to the election at the November General Meeting additional nominations will be taken from the membership and added to the slate of candidates.
- **Club Historian** – Corey KE6YHX distributed his current report on his progress with the Santa Ana Library and web site projects. Corey also distributed copies of the Deed of Gift to the library for the Self-browsable M-Disk DVDR of the OCARC www.w6ze.org website.
- **Christmas Banquet** – Tim, N6TMT reported the dinner prices will be the same as last year, $29.00 if paid by check of $30.00 if paid through Paypal. These prices include the cost of the dinner, tax and gratuity. Club members will be notified when the Paypal link will be activated. Members can also purchase dinner tickets at the November General Meeting.
- **Promotional Items** – Bob, AF6C will finalize the card format and has been authorized to purchase 500 business cards.
- **2018 Winter Field Day Site** – Ron, W6WG has received approval from the Ocean View School District to use the field and parking areas behind the District Office for the OCARC 2018 Winter Field Day operations site. The site is located at 17200 Pinehurst Lane Huntington Beach.

Continued next page

New Business:

- **Review of the 2017 October Auction –** See Treasurer's Report.
- **Financial Audit Committee –** Tim N6GP, Jim AF6N, Tim N6TMT, and Ken W6HHC will serve as this year's audit committee to review the OCARC 2017 finical records.

Board minutes, continued:

- **Good of the Club Award –** Send an email to Tim N6GP if you would like to nominate a deserving member to receive the 2017 "Good of the Club" award.
- **2018 Honorary Members –** Janet Margelli, Chip Margelli and Lee Evans were chosen to be 2018 OCARC Honorary Club members.

Meeting Adjourned 9:30 am

Submitted by *Ron Mudry W6WG, Secretary*
OCARC Secretary

Club Picnic Photos
Oct 7, 2017

- **Best turnout for a OCARC Picnic this decade**
- **60 contacts logged for the California QSO Party**
- **Very tough band conditions made SSB QSOs difficult**
- **Best DX was with DL3DXX in Germany**
- **Nicholas' antenna launcher works great!**

Club Picnic Photos
Oct 7, 2017
continued

Nicholas' antenna launcher at work putting wire antenna up 40 feet in the trees, as Rodger and his wife look on in amazement

(L-R) Tim N6TMT, Vijay KM6IZO, Rodger AI6WV, and Jim AF6N

OCARC Cash Flow - Year To Date

1/1/2017 through 10/24/2017

Category	1/1/2017-10/24/2017
INFLOWS	
ARRL Membership Income	95.00
Auction In	489.75
Badge Income	5.00
Dues, Family	90.00
Dues, Family (PayPal)	206.03
Dues, Future (PayPal)	86.49
Dues, Membership	742.50
Dues, Membership (PayPal)	778.13
Field Day Food Income	375.00
Opportunity Drawing -Monthly	255.00
Refreshments Income	54.00
Sale Of Equipment	1,058.00
TOTAL INFLOWS	**4,234.90**
OUTFLOWS	
ARRL Membership Expense	93.00
Auction Payout	265.06
Bank Svc Chg	50.00
Donations - Red Cross	150.00
Field Day - Flowers	53.88
Field Day - Gas	39.59
Field Day Equipment	212.04
Field Day Food Reinbursement	525.00
Field Day Rental	51.72
Meals - Board Mtg	92.72
OCARC Historian	27.45
Opportunity Drawing - Monthly	142.17
Opportunity Drwg - Christmas Radio	1,292.92
PO Box Rental	64.00
Publicity - OCARC pens & flyers	56.00
Refreshments Expense	173.10
Storage Locker	708.00
Supplies	46.62
Trifold Brochure Printing	231.12
Web Site Hosting	191.88
Web Site SSL Fee	69.99
TOTAL OUTFLOWS	**4,536.26**
OVERALL TOTAL	**-301.36**

CHECKING ACCOUNT BALANCE ≈ $5,046