RF

ORANGE COUNTY AMATEUR RADIO CLUB, INC.

VOL. LV NO. 9 P.O. BOX 3454, TUSTIN, CA 92781-3454 September 2014

The Prez Sez.....

by Nicholas AF6CF

We are now in September, and while we still wait for the final Field Day numbers from the ARRL, we have great activities with the Convention in San Diego and our own W6HHC as a speaker on Digital Amateur TV.

Speaking of speakers, do not miss this month's speaker at the General Meeting by our member W0MEC about Morse code. Next month we will have the annual Club Auction; so there you have an opportunity to clear your garage of "junk" (spouse's term) or "treasures" (our definition). Or even buy some rare object for pennies on the dollar. Chip K7JA has again promised to be our auctioneer, and we know that he will make us all to have a memorable evening. Please see page 14 for Auction Rules.

Remember that the November general meeting is also our elections night, and all the Board of Directors positions are up for grabs. Our Club has a policy that precludes any individual to stay more than two years in any given position in the Board, so this is your chance to help the Club by becoming a Director, or even President. If you feel that you can fill a seat on the Board, please contact the Elections Committee Chairman Greg W6ATB or myself to get into the candidate's list.

As usual, hope to see you all at the next General Meeting.

73 DE AF6CF

Our Next Meeting

The next OCARC General Meeting will be held on Friday, September 19th 2014 at 7 PM. The program will be featuring the history of Morse code by Clem, W0MEC and he will talk about the American Morse and Continental Code and the different sounders and even about his experiences with railroad telegraph and other devices.

The next general meeting will be on:

Friday, September 19th, 2014
@ 7:00 PM

As usual, we will be meeting in the east Red Cross Building, Room 208.
See you there!

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ORANGE COUNTY AMATEUR RADIO CLUB
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
American Red Cross
600 Parkcenter Drive
(Near Tustin Ave. & 4th St.)
Santa Ana, CA

Club Breakfast:
Second Saturday of every
month at 8:00 AM
Jagerhaus Restaurant
2525 E. Ball Road
(Ball exit off 57-Freeway)
Anaheim, CA

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

146.55 MHz Simplex FM
Wed- 8:30 PM - 9:30 PM
Bob, WB6IXN, Net Control

7.086 ± MHz CW **OCWN**
Sun- 9:00 AM – 10 AM
Ann KE6OIO, Net Control

VISIT OUR WEB SITE

http://www.w6ze.org

for up-to-the-minute club information, the latest membership rosters, special activities, back issues of RF, links to ham-related sites, vendors and manufacturers, pictures of club events and much much more.

Club Dues:
Regular Members $20
Family Members* ...$10
Teenage Members ..$10
Club Badge**……....$3

Dues run from Jan thru Dec and are prorated for new members.

*Additional members in the family of a regular member pay the family rate up to $30 per family.

**There is a $1.50 charge if you'd like to have your badge mailed to you.

Ham Space Station (ARISS) Event
at
Dorothy Grant Elementary School in Fontana, CA

by Arnie N6HC

Bev Matheson, WA6BK, is a teacher at Dorothy Grant Elementary School in Fontana, CA that has its own ham radio club, K6DGE. On August 27 2014, Bev arranged for ham radio operators to help her to allow students to talk with the International Space Station (ISS) at her school. This event was two years in the making! OCARC members Arnie N6HC and Cass W6SQC were part of the team that made this event happen.

Bev held the event to talk to an astronaut in the cafeteria of the school where hundreds of children and their parents listened to the contact. The audio feed went to every classroom in the school! What a great ham event to spark the minds of young students with magic of ham radio.

Fig01 – Teacher Bev WA6BK is holding the mike in the school cafeteria. Note the line of students waiting to ask the astronaut their question.

Fig02 - Some of the 4th & 5th graders & their parents at the event seated in the cafeteria.

Fig03 - ARRL representatives in attendance: (L-R) Marty Woll - N6VI, Dick Norton - N6AA, and Carl Gardenias - WU6D

MARK YOUR CALENDAR NOW!!

2014 ARRL
Southwestern Division Convention
Dates: September 12 - 14, 2014

The ARRL SW Division Convention sponsored by SANDARC will be held at the Sheraton Four Points hotel located on Aero Drive near the Montgomery Field airport which is the same location of the 2010 convention.

Our convention will feature tech forums, vendor exhibits, on site radio station, grand banquet, flea market and many more activities. Check this site often to get the latest news regarding our ongoing convention events.

Vendors please check with Paul Rios at kc6qls@cox.net.

Check with Ann Rios, KC6TBG at kc6tbg@cox.net if wish to conduct a Tech Forum.

See www.sandarc.net/convention2014.php for more details

Bob Evans WB6IXN gets help with new HF Antenna installation

Club members Arnie N6HC and Cass W6SQC helped OCARC long-time-member Bob Evans WB6IXN to get a new Comet HF trapped di-pole antenna (for 40M thru 10M) installed on the roof of his house. Ken W6HHC in Orange reports that Bob's signals from Santa Ana are at least twice as strong (now "arm chair copy") on the OCARC 10M net.

The completed HF antenna installation of the new Comet H-422 trapped-dipole antenna works GREAT!

Ken W6HHC will present talk on Digital-ATV at ARRL Convention in San Diego on September 13

This year, the ARRL Southwest Division Convention will be held on Friday-Sunday September 12-14 in San Diego, California. Club member Ken W6HHC will be presenting a talk entitled:

Recent Advances in Digital-ATV

The powerpoint presentation by W6HHC will be uploaded to the OCARC web site after the ARRL Convention is over.

Ken Bourne, W6HK Receives OC Sheriff Dept Gold Star Award

The Orange County Sheriff Department has awarded Ken Bourne, W6HK the Gold Star Award on August 26th. Orange County Sheriff Sandra Hutchens presented him the award at the Brad Gates building in Santa Ana. The Gold Star Award is given to individuals who exemplify the mission of the Department and go above and beyond the line of duty.

Ken W6HK receiving the Gold Star

Most of us know that Ken has served for many years as the Chief Radio Officer for Orange County RACES, which is an auxiliary communications unit of the Orange County Sheriff's Department (OCSD).

Ken's volunteer service in leadership of RACES is only the tip of the iceberg. He is also part of the OCSD Reserve Bureau's Professional Services Responder (PSR) program and a member of the High-Tech Services Reserve Unit. He also assists with the Orange County Sheriff's Museum, including maintaining its website.

Congratulations to you Ken W6HK, for your excellent service to our community and to the OC Sheriff.

Source: September RACES NetControl Newsletter (Bob McFadden KK6CUS), and the Bournes Family

From L to R - OC Sheriff Sandra Hutchens, Don Bourne KB6TVK, Sarah Bourne, Ken Bourne W6HK, Carol Bourne N6YL, Bob Bourne K6RBI and Ken's 3 grandchildren.

Heathkit of the Month #59:
by Bob Eckweiler, AF6C

TEST EQUIPMENT
Heathkit IG-72
Audio Generator.

Introduction:
The IG-72 Audio Oscillator is a recent addition to my collection of practical Heathkits. Whenever I needed an audio oscillator in the past, I got out an old, but solid-state, Knight Kit KG-688. Though the Heathkit IG-72 uses tubes, it has some handy features. First, the output level is accurately adjustable and reads out on a large trapezoidal 4-1/2" wide max. x 4" high meter. Second, frequency selection is switch selected. Two significant digits of frequency can be selected by two eleven-position rotary switches and a multiplier switch of X1 through X1,000. The IG-72 is specified for a 5% accuracy over the range of 10 cps to 100 kc with less than 0.1% distortion between 20 cps and 20 kc.

The IG-72 was introduced in 1962 selling for $41.95. It remained in production until 1977 selling then for $64.95. It was replaced by the IG-18 solid-state Audio Oscillator. The IG-72 was one of the Heathkits that was available factory wired; in 1962 the wired version cost $64.95 and in 1977 it cost $100.

The IG-72 is a restyling of an earlier kit, the AG-9A. In Chuck Penson's Book *Heathkit Test Equipment Products*, Chuck classifies the Heathkit test equipment styling into six categories. The AG-9 and AG-9A are in the **Classic I** style and the IG-72 is in the **Classic II** style.

The AG-9 Audio Generator:
In the *Heathkits for 1956* catalog the AG-9 was listed as NEW. Prior to that time Heathkit had produced several audio oscillators, some with sine and square-wave outputs. However the AG-9 was the first audio generator that featured frequency selection by switch; it was also the first to feature a meter to display the audio output level.

Figure 1: Heathkit IG-72 Audio Generator

The AG-9 sold for $34.50 over its short 1 year lifespan. It was replaced with the AG-9A. The specifications of the AG-9 are shown in table I.

The AG-9A Audio Generator:
After a year of production, Heathkit came out with an updated version carrying the suffix 'A'. at the same $34.50 price. The update involved some small circuit changes. One change is the screen resistor of the 6AU6 oscillator tube which was reduced from 150 KΩ to 120 KΩ. A second possible change involves the frequency selection resistors and possibly the rotary switch scheme. So far I've been unable to research this further.

The AG-9A (Figure 2) remained in production until 1962 finally selling for $39.95 before it was restyled into the IG-72.

The IG-72 Audio Generator:
The IG-72 was the last of the tube audio oscillators produced by Heathkit. The IG-18 solid state oscillator came on the market a few years after the IG-72. It also features two-digit switch selection of frequency, but adds a vernier frequency control. and square-wave output capability.

Figure 2: Heathkit AG-9A Audio Generator

AG-9 / AG-9A / IG-72 Specifications

Frequency:	10 cps to 100 kc. Switch selected - 5% accuracy 2 significant figures & multiplier
Output Ranges:	0 - 10V, 0 - 3V into Hi-Z (10K min.) 0 - 1V, 0 - 0.3V, 0 - 0.1V, 0 - 0.03V, 0 - 0.01V and 0 - 0.003V into 600Ω
Load:	Internal 600Ω: 0 - 1V and below. (Switch selected)
Meter:	4-1/2" 200 uA. Three scales: 0 - 10V, 0 - 3V, -12dBm - +2dBm
Distortion:	Less than 0.1% 20-20,000 cps
Tubes:	1 - 6AU6, Oscillator 1 - 6CL6, Cathode Follower 1 - 6X4, Rectifier
Power:	105-125 VAC, 50-60 cps, 40 watts.
Dimensions:	9-1/2" W x 6-1/2" H x 5" D
Weight:	8 lbs. (shipping weight)

Table I

Operation:

Like its predecessors, the IG-72 has the same seven controls on the front panel. Three are for frequency selection, two are for setting level, one is for switching in an internal 600Ω load and the last is the AC power switch. The latter two controls are slide switches and the rest rotary switches and a pot. The controls are detailed in Table II.

Operation is not difficult. You select a frequency by dialing it in to the three switches. Say you want 2.6 kc at a level of -18 dBm . Using the **FREQUENCY** switches you set the first **CYCLES** switch to 20 and the second **CYCLES** switch to 6. Then you set the **MULTIPLIER** to **X100** (2,600). That is the frequency now being output (within the 5% tolerance). To adjust the output level, you set the **OUTPUT DB / VOLTS F.S.** switch to **-10 DB 0.3** [volts]. Adjust the meter using the **OUTPUT** potentiometer until the meter reads -8 **DECIBELS** which corresponds to 0.09 volts. If the output has a load of 600Ω (A common audio line impedance just as 50Ω is a common RF line impedance) you are all set. If you are driving into a high impedance load set on the internal **600Ω LOAD** switch before adjusting the level.

IG-72 Circuit Description:

The IG-72 audio generator is composed of five separate circuits (See Figure 4). The first is the power supply. The second is the Bridged-T oscillator, and its frequency determining notch circuit. The third is a cathode follower. Also there are the attenuator and meter circuits.

The Power Supply:

At first I was surprised that the IG-72 uses a rectifier tube; selenium rectifiers were used in many Heathkit of the time. However the power supply puts out a high voltage at a moderate current draw so the 6X5 rectifier tube was the best solution prior to readily available silicon diodes. The power supply uses the 6X5 tube as a full wave rectifier producing 410 volts after a capacitor input LC filter. Filament voltage for the three tubes are provided by a 6.3 volt winding on the power transformer.

The Cathode Follower Circuit:

Perhaps discussing the cathode follower circuit is out of order at this time. However it provides two functions. First it drives the output from the oscillator, at a high level and low impedance, through the attenuator circuit to the out-

AG-9 / AG-9A / IG-72 Controls

Top Row From Left to Right

[FREQUENCY] **MULTIPLIER** Switch (4-pos. rotary)
X1, X10, X100, X1000

(Meter) **0 - 3 Volts R.M.S. scale**
0 - 10 Volts R.M.S. scale
-12 dB - +2 DECIBELS (1 mW into 600Ω)

[OUTPUT] (potentiometer) no nomenclature.

Second Row From Left to Right

POWER **OFF - ON** Switch (2-position slide)

600Ω LOAD **INT - EXT** Switch (2-position slide)

Bottom Row From Left to Right

[FREQUENCY] **CYCLES** (11 position rotary switch)
0, 10, 20, 30 ,40 50, 60, 70, 80, 90, 100

[FREQUENCY] **CYCLES** (11 position rotary switch)
0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

[OUTPUT] **DB / VOLTS F.S.** Switch (8-pos. rotary0

-50	.003	[600Ω LOAD]
-40	.01	[600Ω LOAD]
-30	.03	[600Ω LOAD]
-20	.01	[600Ω LOAD]
-10	.3	[600Ω LOAD]
0	1	[600Ω LOAD]
+10	3	[HI Z]
+20	10	[HI Z]

(output) (Dual red / black 5-way binding posts)

Bold nomenclature is actual front panel nomenclature. Items in red brackets are a single nomenclature connected by red lines. Items in parentheses are for clarity.

Table II

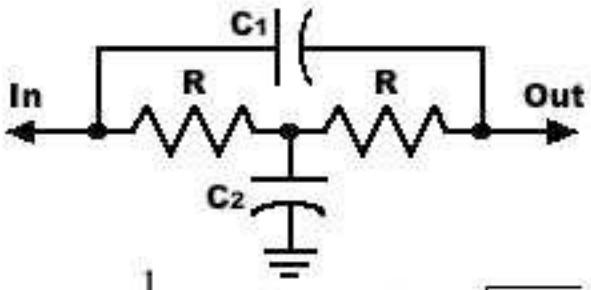
put terminals. It also provides in-phase feedback to the oscillator section at a low impedance to maintain oscillation. This is a high power section and consumes most of the power used in the IG-72. A large 5,000Ω 20 watt load resistor acts as the load for the cathode follower and dissipates close to 10 watts.

The cathode follower consists of A 6CL6 pentode. Its plate is at 410V being connected directly to the output of the power supply and its load consists of the 5 KΩ 20 watt resistor. A small 47 Ω resistor provides some cathode isolation. The grid of the 6CL6 is driven directly from the plate of the 6AU6 producing a low impedance representation of the oscillator's plate voltage at its cathode from which the oscillator feedback and output are taken.

The Oscillator Circuit:

A 6AU6 tube does duty as a bridged-T oscillator assisted by the 6CL6 cathode follower which we just discussed. Positive feedback is fed to the cathode of the 6AU6 from the cathode follower. This feedback is also fed to the grid of the 6AU6 after passing through a bridged-T notch network (Figure 3). This feedback, which is degenerative, prevents oscillation except at the notch frequency.

The regenerative feedback from the cathode follower to the oscillator's cathode is first fed through a voltage divider consisting of a tungsten lamp and an internally adjustable resistive **OSCILLATOR CONTROL**. This divider sets the feedback level to a point where oscillation is reliable. The tungsten lamp acts to stabilize the output level of the oscillator. Should the level increase, the lamp's resistance increases reducing the regenerative feedback and lowering the output level. The oscillator output is fed through the 5 KΩ front panel **OUTPUT** control to the attenuator and meter circuits.



$$F = \frac{1}{2\pi RC} \quad \text{where: } C = \sqrt{C_1 C_2}$$

Capacitor Shunted Bridged-T Notch Network

Figure 3

The Oscillator Frequency Sub--circuit:
The frequency of oscillator operation is determined by the notch circuit, whose equation is given in figure 3. The frequency selection scheme uses some clever switching to reduce the number of components required. Each decade requires two capacitors (C1 and C2 in figure 3), for a total of eight; The IG-27 uses just five. Also, each of the **CYCLES** switches uses eight resistors instead of twenty (The 'R's in figure 3). This saves a total of 27 components, 12 of which would be precision resistors and three of which would be semi-precision capacitors.

The five capacitors used for the four decades are; 0.5, 0.05, 0.005 μF, 500 and 50 pF. They are used in adjacent pairs, resulting in a C of 0.159, 0.0159, 0.00159 μF and 159 pF for the four decades. The orders of magnitude of the number 159 are important in electronics as 0.159 is approximately $1/(2\pi)$. Thus, from figure 3, the frequency for the four decades are (R is in KΩ): 1,000/R, 10,000/R, 100,000/R and 1,000,000/R. Note that the frequency is inversely proportional to R, thus if R is halved, the frequency doubles.

The two values of R in figure 3 are always identical, and are determined by the resistances set by the two CYCLES switches. Since two 'R' resistors are needed for the circuit of figure 3, each CYCLES switch actually contains two identical 'R' circuits that switch simultaneously. Each R in figure 3 is the value of the resistances of one set of the two CYCLES switches in parallel.

The resistance of the tens decade CYCLES switch varies from 100 KΩ down to 10 KΩ and the resistance of the ones decade varies from 1 MΩ down to 100 KΩ. Each switch, in its zero position, is open.

As mentioned earlier, the frequency is inversely proportional to R. With the ones decade CYCLES switch at zero and out of the picture, and the MULTIPLIER switch set to X1 an R of 100 KΩ produces a frequency of 10 cps. Half of that (50 KΩ) produces 20 cps, one third produces 30 cps, etc. All the values of the tens decade CYCLES switch are given in Table III. These 10 values for R can be made by the clever switching of four resistors also as shown in table III.

The ones decade CYCLES switch operates similarly except it uses the closest 5% resistance values to 1 MΩ, 500 KΩ, 333 KΩ and 250 KΩ (1 MΩ, 510 KΩ, 330 KΩ and 240 KΩ). Since these resistors are at least an order of magnitude larger than the 1% resistors they shunt, they don't need higher precision.

The Meter Circuit:
The meter circuit measures the voltage at the wiper of the **OUTPUT** control. The AC signal is rectified by crystal diodes in a half-bridge configuration. A third crystal diode is used to compensate for the crystal non-linearity. The meter itself is 200 μA full-scale with an internal resistance of 1.4KΩ. Meter calibration is set by an internal **METER CONTROL** potentiometer.

Tens Decade CYCLE Switch Resistors

Pos.	R	Resistors used for R
10	100.0 KΩ	R1
20	50.0 KΩ	R2
30	33.33 KΩ	R3
40	25.0 KΩ	R4
50	20.0 KΩ	R1 || R4
60	16.67 KΩ	R2 || R4
70	14.29 KΩ	R3 || R4
80	12.50 KΩ	R1 || R3 || R4
90	11.11 KΩ	R2 || R3 || R4
100	10.0 KΩ	R1 || R2 || R3 || R4

The symbol || means 'in parallel with'

This is how Heathkit was able to create the ten needed resistors using just four 1% precision resistors, R1 through R4 and some clever switching.

Table III

The meter has three scales. Two are voltage ranges of 0 to 10 and 0 to 3, and one is a dB scale of -12 to + 2 dBm. The scales are aligned so that each change of the attenuator results in a 10 dB change. Zero dBm is defined (and noted on the meter face) as 1 milliwatt into a 600 Ω load. This corresponds to 0.776 volts. Thus +10 dB corresponds to 2.45 volts and on the three meter scales 0, 2.45, and 7.76 align on the -12 to +2 dB scale, the 0 to 3V scale and the 30 to 10V scale respectively.

To read voltage use the scale and multiplier listed on the selected attenuator switch position. To read dBm use the dB scale and then add or subtract the dB listed on the selected attenuator switch position. As an example, say the attenuator is in the **-30 0.03 dB/V** position and the meter reads 1.4 on the 3 volt scale, 4.4 on the 10 volt scale and -5 on the dB scale. Since the attenuator is on the 0.03 volt position you can ignore the 10V scale and read the voltage on the 3V scale as 0.014 volts. Using the dB scale you add the -5 dB reading with the -30 attenuator position resulting in a reading of -35 dBm.

The Attenuator Circuit:
The attenuator has eight positions. Each step results in a change of 10 dB of attenuation, which is equivalent to a change in voltage by a factor of 3.16. These steps are created by a ladder network of voltage divider resistors.

The 10V and 3V outputs do not have the power to drive a 600Ω load and thus are designed to run into a high impedance of 10KΩ or more. The remaining six attenuator positions are designed to operate into a load of 600 ohms. This can either be an external load or, if running into a high impedance, an internal 600Ω load can be switched in. This load resistor, which is disabled in the 10 and 1 volt positions, actually is a 560Ω resistor.

Accuracy of the level output depends upon the amount of attenuation and how well the output impedance matches the required output. At ten and three volts (the first two attenuator positions) the meter reading will be accurate if the impedance the generator is seeing is greater than 10 KΩ. On the remaining attenuator positions use the internal terminator if operating into an impedance of around 5 KΩ or more for best accuracy.

Conclusion:
I haven't had much experience using the IG-72 since I just acquired it. However, I was able to hook it up to a frequency counter and scope. The frequency readout was, in all cases, within specification (often well within!). The sine-wave output looked clean with no noticeable distortion, though I have no way to verify the 0.1% distortion specification. I'm looking forward to using it for some real experimenting soon.

73, from AF6C

SIDEBAR:

Why KC and CPS?

You way wonder why I'm using kc for kilo-cycles-*per-second* and cps for cycles-per-second instead of the more modern and correct kHz for kilo-Hertz and Hz for Hertz? the reason is for authenticity. These are the terms in use when the kit was first released and the manual printed in 1962. I've tried to do this throughout the series of Heathkit articles I've written, though I've probably erred somewhere!

Bob, AF6C

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

Thanks - AF6C

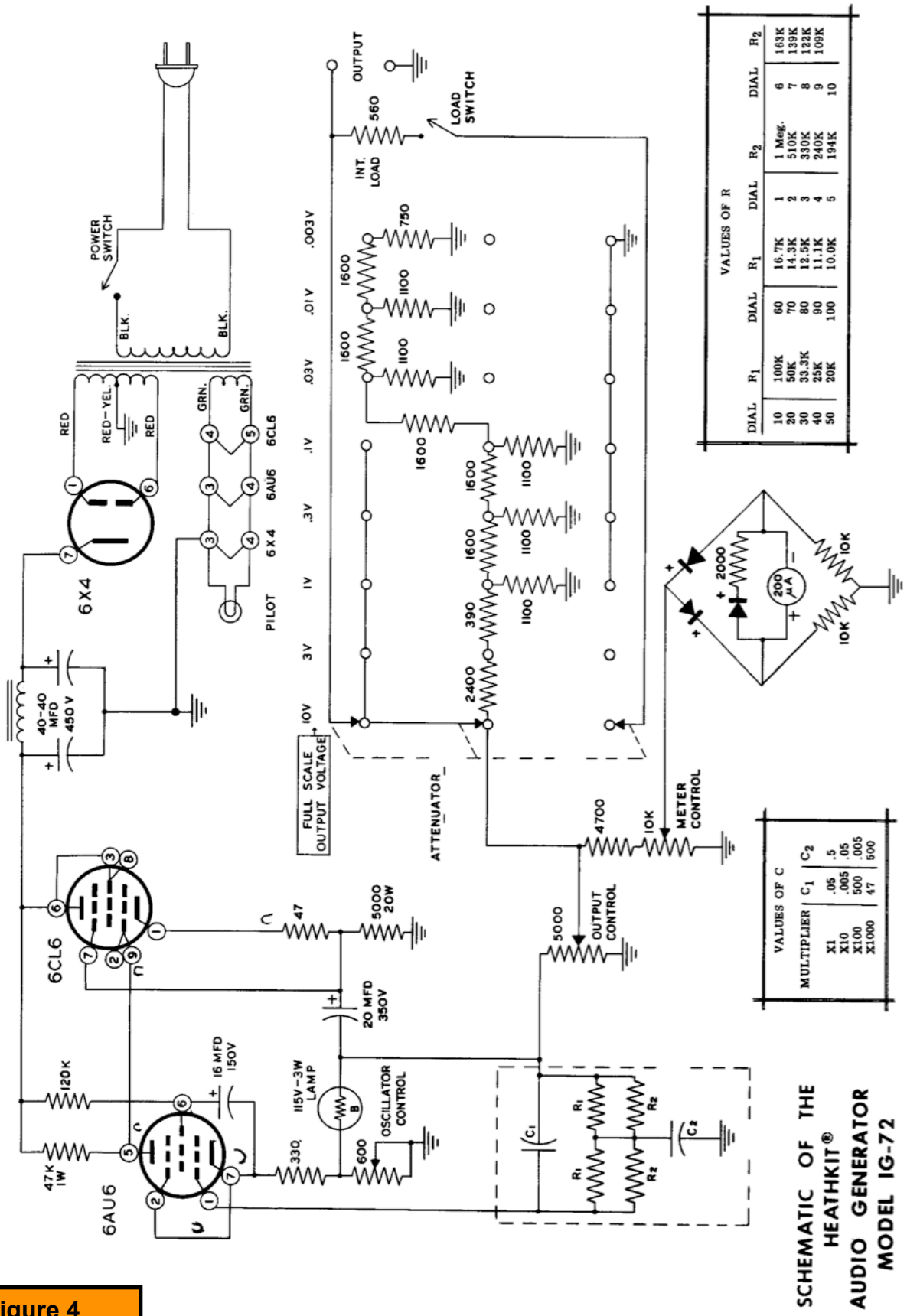

SCHEMATIC OF THE
HEATHKIT®
AUDIO GENERATOR
MODEL IG-72
VALUES OF R
VALUES OF C
OUTPUT
LOAD SWITCH
INT. LOAD
POWER SWITCH
METER CONTROL
OUTPUT CONTROL
OSCILLATOR CONTROL
ATTENUATOR
FULL SCALE OUTPUT VOLTAGE
6X4
6CL6
6AU6
PILOT
20 MFD 350V
40-40 MFD 450 V
115V-3W LAMP
16 MFD 150V

Figure 4

Western Amateur Radio Association

NOW OFFERING
AMATEUR RADIO VE TESTING SESSIONS

Contact V.E. George T. Jacob Jr. N6VNI

Phone Numbers: Home Phone: 562/691-7898 Cell Phone: 562/544-7373
Email: jac2247@gmail.com Or N6VNI@arrl.net

Sponsoring Club: N6ME Western Amateur Radio Association,
Fullerton, Ca. "WARA"
Test site location:
La Habra Community Center.
101 W. La Habra Blvd.
La Habra, Ca. 90631

Date and Times - Third Thursday of every month, @ 6 P.M. unless otherwise noted.
Pre-Registration is requested and preferred. Walk-ins are welcome.

2014 TESTING SESSIONS

Thursday, September 18th 2014 6p.m.
Thursday, October 16th 2014 6p.m.
Thursday, November 20th 2014 6p.m.

On Exam Day Bring the Following Items

1. A legal photo ID (driver's license, passport) or Two forms of non-photo ID; e.g., birth certificate, social security card, library card, utility bill or other business correspondence with name of the examinee as it appears on the Form 605 and current mailing address.
2. Your Social Security Number (SSN) or FCC-issued Federal Registration Number (FRN).
3. If applicable, the original and a photocopy of your current Amateur Radio license and any Certificates of Successful Completion of Examination (CSCE) you may have from previous exam session. (Photocopies will not be returned.)
4. Two number two pencils with erasers, and a pen.
5. A calculator with memory erased and formulas cleared (no iPhones, iPads, etc.).
6. Test Fee: $15.00 (cash or check).

If you fail an element and wish to retake it, we are required to charge an additional test fee. If you pass an element, we typically offer and encourage you to take the next element. We do not charge an additional test fee for this and it gives you the opportunity to see what the next exam element is like!

AUCTION

OCARC RADIO AUCTION

Friday October 17, 2014 7PM

www.w6ze.org

Auction Rules

The OCARC Annual Auction will take place on **Friday evening, October 17th, 2014, at 7:00 PM** at the American Red Cross facility located at 600 N. Parkcenter Drive, Santa Ana. The room will open at 6:00 PM to allow registration, set-up and viewing. All buyers and sellers are welcome. The following rules for the auction will be in effect:

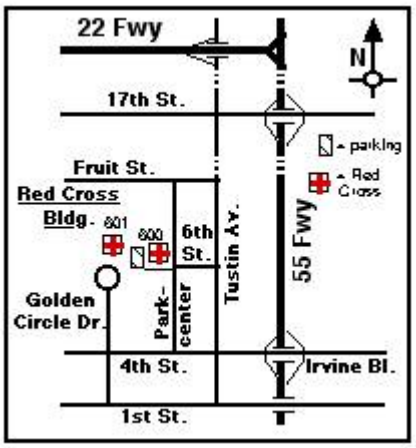
1. Only ham radio or electronic equipment / items will be auctioned (i.e.: no fishing equipment, etc)
2. Buyers and Sellers must register at the door with the OCARC Treasurer**.**
   There is NO registration fee.
3. Sellers should number each item in their lot. A tag should indicate the minimum bid they expect.
4. Only 3 items from a Sellers lot will be auctioned during each turn. After auction 3 items, the auctioneer will move on to the next lot. After the first 3 items from every lot have been offered for bidding, the auctioneer will start the second round of auctioning with the next 3 items in Lot #1.
5. Auction bidding will take place as follows:

(a) $0.00-to-$5.00 bidding will take place in $0.50 increments.
(b) Over-$5.00-to-$50.00 bidding will take place in $1.00 increments.
(c) Over-$50.00-to-$100.00 bidding will take place in $5.00 increments.
(d) Over-$100.00 bidding will be in $10.00 increments.

6. Rules 4 and 5 may be changed at the auctioneer's discretion to expedite the auction.
7. Payments for purchased items are due at the end of the auction and shall be by cash or check with the appropriate ID. No two-party checks or credit cards are allowed. Disbursements to the Sellers will be by OCARC check, only. Sellers will be charged 10% of the selling price for items sold by OCARC.

A special table will be set up for donated items. The proceeds of donated items will go to OCARC

The American Red Cross
George M. Chitty Building
600 Parkcenter Drive
Santa Ana, CA.
Second Floor, Room 208*
(Enter from the West Side.)
Note: The door locks after 7 PM. If no one is there to let you in call W6ZE on the TALK-IN freq 146.55 MHz Simplex
* Room is subject to change.



OCARC Board Meeting Minutes For August 09 2014

The OCARC Board meeting was held at the JägerHaus Restaurant, 2525 East Ball Road, Anaheim, and called to order by President NicholasAF6CF on Saturday, August 9, 2014 at 8:15 am. All directors except Paul – W6GMU and Doug – W6FKX were in attendance.

DIRECTOR REPORTS

Treas –Ken - W6HHC – The club continues to have about $400 more received in than spent. Greg – W6ATB will be acting Treasurer at next General meeting and Board meeting.

Tech - Bob – AF6C- mentioned that there is some nice equipment available for sale on club website. Board meeting will be moved to 1st Saturday in September due to the ARRL Southwestern District Convention being held the 2nd weekend in September.

No other Directors reports presented.

Old Business:

1.) **Newsletter Editors**: Sept – AF6CF, Oct-AF6C, Nov-W6ATB, Dec-W6HHC, Jan-N6TMT.

2.) **General Meeting Entertainment**, Aug –Sidewalk EME, Sept – Clem – W0MEC with "History of Morse Code", October – Auction, November - TBD.

3.) **FD 2014: Chairpersons and Doc status report.**–The FD planning status report document will be updated during the next month to reflect additional details learned from this year's FD.

4.) **Coffee mugs distribution report–** Activities chair not at meeting.

5.) **Online interactive membership form –** Bob – AF6C will send the latest test link to Board members for final testing before going "live".

6.) **2015 Field Day Site Selection –** FD 2015 is June 27th and 28th. FD site liaison agreed that the field was in good shape when we left on Sunday so whatever trash issues occurred happened after we left, yet somehow trash that we left did create a problem. Tim and Nicholas will approach school district regarding reserving for next year and that will clarify our standing with the district.

7.) **Board Monthly Planner Document –** Bob will be sending out some slight changes in the planning document.

8.) **Website upkeep** - help will be requested of the membership to see if anyone can assist Ken with upkeep of the site.

9.) **Equipment repairs.** Bent tower section will be scrapped. Atlee – N2CNC will repair the weak base plate at no cost to the club.

New Business

1.) **Election Committee Chairperson. –**GregW6ATB– has agreed to head up the committee to find a slate of new officers for 2015.

2.) **Club activates. –** Dan N6PEQis willing to have a social gathering at his home the Saturday before Halloween.

3.) **Auctioneer for October.-**Chip - K7JA is willing to do this job again this year.

Adjourned at 9:47 am Respectfully submitted by: Tim Millard N6TMT, Secretary 2014.

OCARC General Meeting Minutes For August 15, 2014

The OCARC General Meeting was held at the Red Cross Complex on August 15th 2014. The meeting was called to order at 7:03 pm. There were 2 visitors.
The evening's featured presenter was Dr. Doug Miller – K6JEY with Sidewalk EME. Doug has been an amateur since 1957 and started experiment with Earth-Moon-Earth on 2 meters in 1990. Over the years he refined his techniques and formed a group of fellow amateur that have fun bouncing signals off the moon.

Fig 1 - 2 meter EME on the sidewalk

Doug discovered that some of his early assumptions about what was possible were sometimes wrong. This was particularly true when they found that a simple 2M antenna could hear some of the stronger signals bouncing off the moon and did not need a complex tracking system.

In addition to work on 2M, Doug and his happy crew have found working on 1296MHz can be very satisfying. For more on Doug's work see http://www.nitehawk.com/k6jey/

Fig. 2 - Doug – K6JEY and Helen – KI6LQV in front of one of their dishes.

After the break there was a brief business meeting. All officers were present except as follows: Tom – W6ETC, Paul – W6GMU, Ken – W6HHC.
Announcements: Currently on the club website there are a number of items for sale - http://www.w6ze.org/FOR-SALE/For-Sale-Portfolio.html
We had 3 new members join this evening.
Clem – W0MEC will present to us about the "Telegraph" for the September meeting.
The election committee chair – Greg- W6ATB is working on a slate of members to stand for election as next year's board members.
We discussed the idea of have our club take part in a mini DXpedition to one of the nearby offshore islands.The islands offer the opportunity of operating from rare grids. One location is CM93 in the Channel Islands and the other is DM02 on San Clemente Island.

Meeting adjourned at 9:23pm.

Respectfully submitted by:

Tim Millard, N6TMT, Secretary 2014.

OCARC Board Meeting Minutes
For September 6, 2014

The OCARC Board meeting was held at the JägerHaus Restaurant, 2525 East Ball Road, Anaheim, and called to order by President NicholasAF6CF on Saturday, September6, 2014 at 8:15 am. All directors except Ken – W6HHC and Tom – W6ETC were in attendance.

DIRECTOR REPORTS

Press – no report – has been out of town for an extended period of time.
VP – delivered six of the ordered coffee mugs to their owners.
Treas – acting Treasurer, Greg W6ATB – received two new membership payments at last General meeting.
Sec. – no mail at the PO Box.
Membership – Doug recalls hearing from someone inquiring about his or her membership application. He will look up that person's name and report back so that status can be determined.
Pub. – More flyers delivered to HRO. Will be delivering Auction Flyer's to HRO soon.

No other Directors reports presented.

Old Business:

1.) Newsletter Editors: Sept – AF6CF, Oct-AF6C, Nov-W6ATB, Dec-W6HHC, Jan-N6TMT, Feb-W6FKX

2.) General Meeting Entertainment, Sept – Clem – W0MEC with "History of Morse Code", October – Auction, November–Dennis Kidder – W6DQ – "History of Receivers – Part 2.

3.) FD 2014: Chairpersons and Doc status report.–The FD planning document is moving along. A 12 page copy was handed around the table. Need input from the various Captains to improve the details on their duties.

4.) Online interactive membership form – Bob – AF6C completed and has made the form active for all.

5.) 2015 Field Day Site Selection – FD 2015 is June 27th and 28th. Tim G. and Paul will be getting a site reservation in within the next month.

6.) Board Monthly Planner Document – Bob sent out some slight changes. Will send the email to board again the latest version.

7.) Website upkeep –Tom – W6ETC has volunteered his skills.

8.) October Auction Prep. Chip agreed to be auctioneer again. Ken, Bob and Robbie will track bids and process payments. Nicholas will distribute flyers at swap meets he will be attending and see if there is a place to distribute at the District Convention.

9.) Elections Committee Chairperson Report– Greg – W6ATB will have a list of nominees by the next Board meeting. Greg does not want to approach anyone by "cold calling" so will be sending out personal letters/emails and trying to ask people in person if they would serve.

New Business

4.) Club activates. – Dan N6PEQhas rethought having a gathering at his home. Doug suggested we could organize a trip to USS Iowa in San Pedro. They have a radio room with amateur equipment and anyone with their license can take a seat at the radio.

Adjourned at 9:10 am Respectfully submitted by: Tim Millard N6TMT, Secretary 2014.

OCARC Member is part of project team presented with 2014 GRANT DIXON Award in Europe

Every two years the British Amateur TV Club (BATC) presents an award for the most innovative and significant contribution to ham radio ATV. The GRANT DIXON AWARD is named after G8CGK who was the first Chairman of the BATC organization, was involved in the earliest days of commercial television engineering, and was an avid experimenter and builder in ATV. The award was presented at the CAT14 convention that was held Sept 6 and 7 in Basingstoke, England.

At the CAT14 convention, the BATC presented the GRANT DIXON AWARD to the DATV-Express Project Team that had designed and are now selling low-cost the DATV-Express exciter/transmitter for Digital ATV. Members of the project Team are:

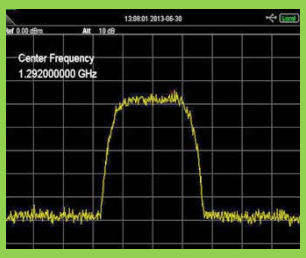
- Charles Brain G4GUO – Ferring, England - Software design and mathematics
- Art Towslee WA8RMC – Columbus, OH - Electronics design and manufacturing manager
- Tom Gould WB6P – Portland OR - Schematic-Capture and PCB layout
- Ken Konechy W6HHC – Orange, CA - Project manager and Publications

BATC President, Peter G3PYB, presents Charles G4GUO (R) with Award on behalf of entire DATV-Express Project Team
(courtesy of Frank MØAEU)

As Ken W6HHC likes to point out, none of the project team members have ever met another team member "in person". All project discussions and efforts are conducted by simple e-mail or SKYPE sessions…..the internet is amazing!

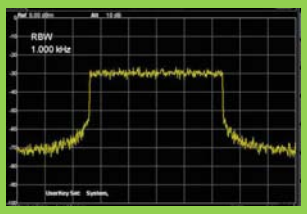
Digital Amateur TeleVision Exciter/Transmitter

Now available from



DATV-Express

- A more affordable DATV exciter can now be ordered
- Fully assembled and tested PCBA
- DVB-S protocol for DATV (using QPSK modulation)
- Can operate all ham bands from 70 MHz-to-2450 MHz
- RF output level up to 10 dBm (min) all bands (DVB-S)
- Software Defined Radio (SDR) architecture allows many variations of IQ modulations
- “Software-Defined” allows new features to be added over the next few years, without changing the hardware board
- As extra bonus, the team has been able to get the board to transmit DVB-T 2K mode, however we cannot guarantee the performance of that protocol. Caveat Emptor!
- Requires PC running Ubuntu linux (see User Guide)
- Price is US$300 + shipping – order using PayPal



For more details and ordering
www.DATV-Express.com

Register on the web site to be able to see the PURCHASE page