



RF



ORANGE COUNTY AMATEUR RADIO CLUB, INC.

VOL. LXI NO. 03

P.O. BOX 3454, TUSTIN, CA 92781

March 2020

The Prez Sez.....

By Dan KI6X



**MARCH MEETING
CANCELLED**
(details on Page 3)

We are well into 2020 and Field Day is creeping (well storming) in on us. We are looking for an overall "leader" to coordinate the band captains who do the most work. Tim, N6GP, will assist anyone. Over the next month we need to determine what size of effort we are going to have and start gathering the band captains. Please consider supporting the club in these roles.

The Board did decide to keep the auctions in October so start gathering your items you would like to auction for this October. Also help get the word out. As it gets closer, we will generate flyers to be handed out (at swapmeets,

gatherings, etc.). Keep the auction in mind. We want another great auction like we had in January.

Remember to also promote the club. One idea I have had was to leave club business cards on cars with ham license plates. If you would like a couple club business cards, let us know. Bob, AF6C, has a couple hundred. If they work in advertising, we would be happy to order more.

That brings up dues, which keep the club running (see 2019 financial audit report in this "RF"). Dues for 2020 are due no later than this month. If you were a member in 2019, you are considered an expired (former) member on April 1. We don't want to lose anyone so please renew. You can mail your check to our PO Box, or renew on-line at www.w6ze.org "Member Renewal" on left bar. The on-line form even allows PayPal payments even if you do not have a PayPal account. Costs us 3.5% but makes it easy for our members. The Membership Chairman asks you to go on-line and fill out the form even if paying by mail. There is a place to mark where you are paying and helps with the club record keeping.

Dan, KI6X, President

NEXT MEETING

March 2020

**CANCELLED
DUE
TO
CORONAVIRUS
(COVID-19)**

**All OCARC Nets
Remain Active!**

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**2020 Board of Directors:****President:**

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2020 Club Appointments:**W6ZE Club License Trustee:**

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(West Orange Co.)
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Monthly Events:**General Meeting time & location:****MARCH MEETING CANCELLED**

Normally Held third Friday of the month at 7PM, located at
The American Red Cross
600 Parkcenter Drive
Santa Ana, CA

(Near Tustin Ave. & 4th St.)

For more information see below.

Club Breakfast (Board Mtg) info:

Held the First Saturday* of the month at 8am
Marie Callender's Restaurant
307 E. Katella Ave
Orange, CA 92867
*Unless otherwise advised

Club Nets (Listen for W6ZE):

10M: 28.375 ± MHz SSB

Wed- 7:30 PM - 8:30 PM
Net Control: Corey, KE6YHX

2M: 146.55 MHz Simplex FM

Wed- 8:30 PM - 9:00 PM
Net Control: Corey, KE6YHX

75M 3.883 MHz LSB

Wed ~9:15 PM
Follows right after end of 2M Net
Net Control: Corey, KE6YHX,
Follows right after end of 2M Net
Corey, KE6YHX, Net Control

OCARC 2020 DUES**Membership period is:**

1 January to 31 December

Individual New or Renewal:	\$30.
Family New or Renewal:	\$45.
Teen New or Renewal:	\$15.

New Member Dues are prorated quarterly and includes a badge:
Additional Badges: • \$ 3.
Use one of our interactive online forms to calculate current prices, join the club and/or order badges:

Online Forms / Dues & Badges

• \$3. plus mailing costs if applicable
Dues are subject to change without notice

MARCH MEETING IS CANCELLED

Out of abundance of caution, we cancelled the March 20th meeting. With all the cancellations of events, meetings, and recommendations not to attend large groups, we cancelled the March meeting. The Red Cross was still open but attendance would have probably been down and we wanted to make a decision with enough time to get the word out. Also, we want to show appreciation to our speakers with a reasonable audience.

As the meeting has been cancelled, we are still active as a club and time keeps moving on. I want to point out some things that I would have pointed out at the meeting.

- Welcome to new members. I look forward to seeing you at a meeting. I try to ask during the introductions for those that are at their first meeting since becoming a member to mention that fact. We also like to welcome our guests.
- Dues for current members are due this month. You get dropped from the membership roster in April if you do not renew by then. Easiest way at this time is on-line via PayPal (no account needed) via our website. You can also fill the form out on-line and mail in a check. There will not be an in-person chance to pay dues until April. See our website www.w6ze.org and on the left side "Member Renewal". New members there too
- Field Day 2020 needs to get the planning started. We are in need of a person to head up the Band Captains. Remember the Band Captains do most of the work. They have their station(s) to assemble. Tim, N6GP, last year's FD Leader is willing to help but needs to step back a bit this year. Also think about being a Band Captain. We do not know the size of our FD this year but always need Band Captains. They make sure their station is ready with shelter, power, antennas, radios, operators, etc. Always a fun time.
- Other Club Business is throughout this "RF" newsletter: 2019 Audit Report, Minutes of meetings, future activities, etc. Read through. We thank the Editor this month (Tim, N6GP) for all the revisions this last week.

Respectfully,

Dan Violette, KI6X
OCARC President

RadioActivity

March 2020

Upcoming Activities:

MARCH

- **Russian DX Contest:** 1200 UTC Saturday March 21 through 1200 UTC Sunday March 22
- ***CQ WW WPX / SSB:** 0000 UTC Saturday March 28 through 2359 UTC Sunday March 29

APRIL

- **North American SSB Sprint Contest:** 0000 to 0400 UTC Sunday April 5
- **Mississippi QSO Party:** 1400 UTC April 4 to 0200 UTC Sunday April 5

* Indicates club entries are accepted

** Indicates team entries are accepted

Note: When submitting logs for ARRL Contests indicate your club affiliation as "Orange County ARC"

State QSO Parties

- **Virginia QSO Party:** 1400 UTC Saturday March 21 to 0400 UTC Sunday March 22 and 1200 to 2400 Sunday March 22
- **Georgia QSO Party:** 1800 UTC Sunday April 13 to 2359 UTC Monday April 14
- **Michigan QSO Party:** 1600 UTC Saturday April 20 to 0400 UTC April 21
- **Nebraska QSO Party:** 1300 UTC Saturday April 4 to 0100 UTC Sunday April 5 and 1300 to 2200 Sunday April 5
- **Missouri QSO Party:** 1400 UTC Saturday April 4 to 0400 UTC Sunday April 5 and 1400 to 2200 Sunday April 5
- **Mississippi QSO Party:** 1400 UTC April 4 to 0200 UTC Sunday April 5
- **Louisiana QSO Party:** 1400 UTC April 4 to 0200 UTC Sunday April 5
- **New Mexico QSO Party:** 1400 UTC April 11 to 0200 UTC Sunday April 12
- **Georgia QSO Party:** 1800 UTC April 11 to 0359 UTC Sunday April 12 and 1400 UTC to 2359 Sunday April 12
- **North Dakota QSO Party:** 1800 UTC April 11 to 1800 UTC Sunday April 12

Ongoing Activities:

- **Super QP Challenge:** Year Long Event
0000 UTC Jan. 1 to 2400 UTC Dec. 31

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.
- **CWops** Every Wednesday 1300 UTC to 1400 UTC 1900 UTC to 2000 UTC and Thursday 0300 UTC to 0400 UTC

Send an email to Ron W6WG, w6wg@w6ze.org to have your favorite activity or your recent RadioActivity listed in next month's column.

Feb. Quiz Answers

Match Callsign and Country

HU1DL El Salvador

4E3X Philippines

4U1WB USA (World Bank, Wash DC)

4A5E Mexico

J42L Greece

Heathkit of the Month #99: by Bob Eckweiler, AF6C



AMATEUR RADIO - SWL

Heathkit HD-20 100 KC Crystal Calibrator

Introduction:

Hams have it so good today. It's easy to know your operating frequency, often to within a few cps [Hz]. It wasn't always that way. Operating within a band required skill and some form of standard. When the FCC introduced the Novice license in 1951, they wanted to be sure the new inexperienced hams stayed within their sub-bands, so they required novices to use crystal control for their transmissions.

Many general coverage communications receivers of the time have main tuning and bandspread tuning knobs. **Figure 2** shows the bandspread dial of a typical 1950s receiver. To use the bandspread scales the main tuning has to be accurately set for proper bandspread calibration. Higher priced radios often included, or offered as an accessory, a crystal calibrator. Less expensive 50's, 60's and later receivers did not have any internal means of calibration, and novices relied on their crystal controlled transmitter to spot their frequency,

The Crystal Calibrator:

A crystal calibrator is a frequency standard that produces strong harmonics. The most



Figure 1: Heathkit HD-20 100 kc Crystal Calibrator. Photo courtesy of Richard Post - KB8TAD

common standard frequency is 100 kc. The crystal may be easily calibrated by zero-beating it to one of the WWV HF transmission frequencies. When it is turned on and its output is coupled loosely to the antenna input of a radio, an accurate marker carrier appears every 100 kc. The markers are useable across the HF band and often up into the VHF region. Ones built into a radio are coupled to the antenna input through a small capacitor. External ones can be coupled similarly to the antenna terminals or by placing a wire near the antenna lead.

The Heathkit HD-20 Crystal Calibrator:

Heathkit saw a stand-alone crystal calibrator as a likely strong market, and developed the Heathkit HD-20. (**Figure 1**). It was first



Figure 2: Typical 50's bandspread dial. This one is from a National Radio NC-88 / NC-98.

Here is a link to the index of Heathkit of the Month (HotM) articles:

http://www.w6ze.org/Heathkit/Heathkit_Index.html

introduced in 1960 for \$14.95, and sold well over its 16 year production run. The HD-20 finally disappeared from the catalog in mid 1975. At the end of its run the HD-20 still sold at the initial \$14.95 price in the U.S.

The HD-20 features a simple circuit. It uses one transistor and runs on a 9-V battery. Its overall measurements are 2½" wide x 4½" high x 2⅝" deep and it weighs 9 oz. It has just one control, the power switch. Early HD-20s came with a chrome knob similar to the ones used on the "Indian Tribe"¹ series of amateur radio gear such as the MT-1 and RX-1. Output is via a Heathkit 5-way² red binding post atop the unit.

The HD-20 uses a 9V battery, (see **Figure 3**), common at the time, that is no longer easily obtainable, NEDA # 1600. Heath supplied a Burgess battery³ (Heath P/N 418-6) as part of the early kits. **Table I** lists equivalent batteries from various companies of the period. By late 1962 the battery was no longer included



Figure 3: The NEDA 1600D (Burgess P6M) battery believed to be supplied with the early HD-20 kits. A round NEDA 1600 (Burgess P6) fits as well.

Mfr.	Part #	NEDA #
Burgess *	P6M	1600D **
Burgess	P6	1600
Eveready	226	1600
Mallory	M1600	1600
Ray-O-Vac	1600	1600
RCA	VS300	1600

* This battery was supplied with early HD-20 kits.

** Same size as NEDA 1600 but with a squarish sides along the circumference.

Table I: Compatible Batteries for the HD-20

with the kit; but a note at the bottom of the parts list read:

A 9-volt (NEDA type No. 1600) battery should be purchased at this time for use in the completed kit.

Later in the production of the HD-20 the chrome metal knob (462-60) was replaced with the common gray plastic knob (462-19). Both of these changes were likely done to keep the price at the initial \$14.95. **Table II** shows the HD-20 specifications.

HD-20 Crystal Calibrator Ckt. & Adjustment:

The schematic printed in the original manual dated 3/18/60 had an error as shown in **Figure 4A**. The correct schematic, from a later manual is shown in **Figure 4B**.

Frequency Coverage:	100 kc to >54 mc, in harmonics of 100kc.
Crystal:	
Type	Quartz, fundamental frequency.
Frequency	100 kc ± 0.005%.
Pin Spacing	0.486".
Pin Size	0.050".
Transistor:	2N409 GePNP.
Battery:	9-volts (NEMA1600/1600D).
Battery Life:	6 mo. normal intermittent service
Switch:	OFF-ON
Dimensions (overall):	2½" wide x 4½" high x 2⅝" deep
Net / Shipping Weight:	9 oz / 1 lb.

Table II: HD-20 Crystal Calibrator Specifications

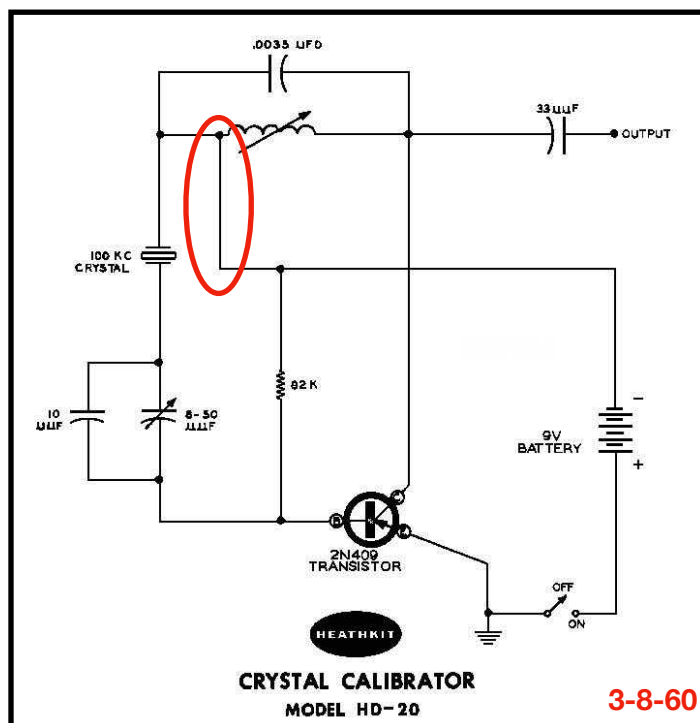


Figure 4A: Incorrect schematic in the early manual. (March 8, 1960) The wire shown connected to the crystal end of the coil should go to a tap on the coil.

The circuit is a simple crystal oscillator using a germanium PNP (GePNP) transistor, the 2N409. Negative 9-V power is supplied from the battery. The only control on the device is the **OFF-ON** switch which connects battery power to the circuit. Once ON, 9 volts is applied to the collector thru the coil tap and to the base through the 82 KΩ resistor. The transistor begins to conduct causing a pulse to appear between the coil tap and the crystal, exciting the crystal. Output from the crystal is coupled to the base and amplified. A portion of the amplified signal is coupled via the coil to the crystal causing the circuit to oscillate. Since the crystal acts as a very high 'Q' tuned circuit the oscillations occur at the crystal frequency (100 kc). The coil is resonant at the crystal frequency due to the parallel 0.0035 µf capacitor. The coil is adjustable and is set for maximum output and proper starting. A capacitance in series with the crystal, consisting of a 10 µf capacitor in parallel with an 8 - 50 µf trimmer, allows

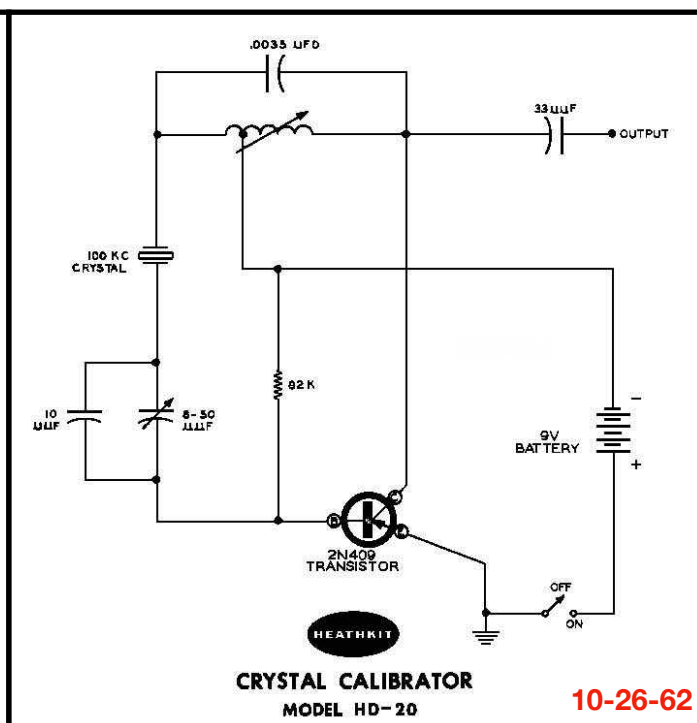


Figure 4B: Corrected schematic on a later manual (October 26, 1962) showing coil tap and the correct connection.

the crystal to be netted precisely to 100 kc. This is usually done by zero-beating with one of the WWV standard frequencies using a communications receiver.

A crystal oscillator can produce a very nice sine wave; however, in this device you want strong harmonics and a pure sine wave lacks harmonics. Thus the 82 KΩ bias resistor was chosen to make the transistor operate in a non-linear fashion creating strong harmonics well into the low VHF range.

To preserve battery life and unwanted 'birdies' in the receiver, the HD-20 should be turned on only when being used and turned off immediately after use. The device draws 3.5 mA typically when in use.

HD-20 Comments:

Heathkit had a winner with this accessory. Everyone with a shortwave receiver lacking a calibrator could use this device, and due to its portability one HD-20 could suffice for a

Material:	Germanium
Polarity:	PNP
Max. Collector Power Diss.:	0.08 watts
Max. Collector Base V [Vcb]:	13 volts
Max. Collector Current:	15 mA
Max. Operating Junction Temp:	85 °C
Transition Frequency [ft]:	3 MHz
Collector Capacitance::	20 pF
Gain [hFE]:	50
Case:	TO-40

Table III: 2N409 Specifications

group of receivers. Many HD-20 calibrators are still in use today; some a lot have been modified to take today's standard 9-volt battery. Some have been modified to run off of external power. Be careful using the shack's 12VDC power as the the 9V cannot share the same ground⁴.

While the 2N409 transistor, which is socketed, may be hard to find today, many other general purpose GeNPN transistors can be substituted⁴. The socket lets you try them easily. The basic specifications for the 2N409 are shown in **Table III**. You may even try a silicon PNP transistor, though you will have to play with the base bias resistor to restore the rich harmonics.

The crystal (404-43), crystal socket (434-74), crystal clip (260-29), and trimmer capacitor (31-27) parts are common with the Heathkit HRA-10-1 crystal calibrator.

General:

I'd like to thank Richard Post - KB8TAD for allowing me use his photo of the HD-20. You can find this photo and many others, along with lots of radio related links on his website: <https://people.ohio.edu/posr/bapix/>.

This is the 99th HOM article. Next month is April and also HOM #100. In keeping tradition with the "Fool's" month of April I try to

find an unusual kit to write on. There was the HeathCraft F2587K/M candlestick (my favorite), the GU-1800 garbage compactor, the GT-18/GT-101 motorbikes, the GDP-5457 flashlight, the very expensive HS-3860 laptop, and the GU-1810 log splitter. Once I even made up a kit. This April will be no exception. I have an idea, and, if I can collect enough information to make the article worthwhile, I will proceed. Otherwise the 100th HOM might not appear until May.

73, from AF6C



Notes:

1. Over about a two-year period from 1958 to 1960 Heath named much of its amateur equipment after native American tribes, nine in all, starting with the Apache TX-1 transmitter and Mohawk RX-1 receiver and ending with the GC-1 Mohican.
2. The Heath 5-way binding post works with a wire, spade lug, pin plug banana plug or alligator clip. A set of five red and five black sold for \$4 in the 1953/54 winter flyer. These began appearing on new Heathkits in late 1952.
3. The battery shown in the HD-20 manual (Pictorial 4) is definitely a Burgess P6M which is not round but rectangular with rounded corners and measures the same from rounded corner to rounded corner as the totally round P6 diameter. Both batteries fit the same holders but NEDA gave the P6M the variant NEDA number of 1600D instead of 1600. There is also a 1600M which is a mercury 8.4 volt 1600 size battery.
4. The NTE equivalent is NTE126. The ECG equivalent is ECG126.

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If you are getting rid of any old Heathkit Catalogs, please pass them along for my research.

Thanks - AF6C

GENERAL MEETING MINUTES

2020-02-21

The OCARC General Meeting was held at the Red Cross Complex in Santa Ana on February 21, 2020.

The meeting was called to order at 7:00pm by Dan KI6X

There were a total of 28 members and visitors were in attendance. There was a quorum of officers, with all directors were present with the exception of the Secretary Ken W6HHC and Technical Director Bob AF6C.

February Program:

Tim N6TMT introduced the presenter for the evening who was our very own Arnie N6HC.

Arnie is a well-traveled DXpadition participant having operated from a number of exotic locations. The subject of his presentation was his latest adventure with The Pitcairn Island DXpedition team. Arnie's talk was very interesting in that it not only covered the "radio" portion of the trip, but was also a history lesson and travel log all rolled in one excellent presentation. You can get more information on the VP6R activation on the group's website "pitcairndx.com".

At 8:30pm a 15 minute intermission the followed presentation.

Business:

Roll Call of the officers and directors was made by the acting secretary.

Officer and Director Reports:

Tim N6TMT, vice president, spoke of the speakers he has arranged for upcoming General Meeting presentations.

Greg W6ATB, treasurer, is finalizing the annual audit report.

Corey KE6YHX, membership, introduced new member Peter Bergstrom K6PB which brought the membership to 111

Dan KI6X, president, asked for a volunteer for the position of Field Day Chairman for this year's 2020 Field Day operation. The board hopes to have the bylaws revisions ready for presentation to the membership at the March General Meeting.

Good of the Club:

Tim N6GP made an announcement of the upcoming South Orkney Island DXpedition VP8PJ starting operations Sunday February 23 and continuing to March 6.

Meeting Adjourned at 8:45 pm.

After the meeting Jim AF6N conducted the monthly raffle.

Submitted by: Ron W6WG, Director at Large

OCARC BOARD MEETING MINUTES 2020-03-07

The OCARC Board meeting was held at the Marie Calendar's Restaurant at 307 E Katella Ave. in Orange on Saturday March 07, 2020 at the 8:00 AM. In attendance were 10 members. All of the directors, except Vijay KM6IZO were present for a Board quorum.

Director Reports:

- **Membership** – Corey KE6YHX reported that the club has 54 members who have paid their 2020 membership.
- **Treasury** - Greg W6ATB reported that the club had a net income of \$361, Year-to-Date. See Newsletter Page 12 for a cash flow of the club's finances.

Old Business:

• Newspaper Editors

Mar – Tim N6GP **Apr** – Nicholas AF6CF
May – Jim AF6N **June** – Greg W6ATB

• General Meeting Programs

Mar – HF Portable Operation by Nicholas AF6CF
April – End-fed one-half-wave antennas – Terrence AI6ZV
May - ??
June - meeting subject will be Field Day, but the speaker is yet to be selected.
Sept – Test Equipment by Doug Millar K6JEY.

• By-Laws Update Committee

No progress.

• Financial Audit Committee

The OCARC treasurer, Greg W6ATB, reviewed the audit report of 2019 finances and the committee members signed the report without further changes. The good news is that the club's finances increased by \$479 by the end of 2019. See Newsletter Page 11 for a copy of the final 2019 audit report.

• Update to OCARC Trifold Brochure

There is no further action at this time since we have plenty of printed club brochures..

• Donation to Red Cross

In recognition of providing the OCARC with a great meeting place, Dan KI6X has created a certificate that will be presented to the Red Cross along with a check for \$250.00 to show the club's appreciation for the use of their facilities.

• Next Radio Auction

The board voted to hold the next club Radio Auction in October of 2020.

• Summer Field Day

Tim N6GP reported that we have obtained permission for use of the Walter Knott School grounds in Buena Park for the June FD. Atlee N2CNC will correct the alignment on the 50-foot tower base.

We still have no "chairman" for FD.

New Business:

• Storage Locker expenses

Club treasurer Greg W6ATB pointed out that the rent for the club's "Storage Closet" in Placentia is now running \$1193 per year (up 18% from 2018). Tim N6TMT reported that his mother in YL is willing to rent "one car space" in her garage for \$500/year. The club will move our stored equipment to the new location when June FD is completed.

• Budget

Even though the audit report showed we were for "in the black" for 2019, the board discussed that there are two other areas where we can reduce costs.

- (1) The Christmas Dinner radio gifts.
- (2) Using the "donation can" to help defray the FD expenses.

• Coronavirus (COVID-19)

There was a lot of discussion about what the OCARC should do and when about the possibility of a server Coronavirus epidemic in Orange County. The board approved the following motion: **"The club President and Vice President have the authority to decide to cancel club meetings because of the Coronavirus danger if warranted."**

Submitted by Ken W6HHC, OCARC Secretary

OCARC Financial Audit Report 2019
12/31/2019 - revision 5

INFLOWS

Antenna Kit INCOME	\$	60.00
ARRL FD 2019 T-shirts	\$	79.40
ARRL Membership Dues	\$	49.00
Badge Income	\$	19.57
Christmas - Opportunity Drawing 2019	\$	288.00
Christmas Dinner 2019	\$	261.00
Christmas Dinner 2019 (PayPal)	\$	635.08
Dues, Family (PayPal) 2020	\$	86.11
Dues, Family 2019	\$	120.00
Dues, Membership (PayPal) 2019	\$	1,023.32
Dues, Membership (PayPal) 2020	\$	353.24
Dues, Membership 2019	\$	892.50
Dues, Membership 2020	\$	150.00
Food Snacks Donations	\$	51.00
Opportunity Drawing -Monthly	\$	314.00
Outstanding Deposit Adj	\$	966.00
Refreshments Income	\$	71.00
Rodrigo's Dinner Meeting	\$	523.00

TOTAL INFLOWS \$ **5,942.22**

OUTFLOWS

Antenna Kits	\$	101.14
ARRL FD 2019 T-shirts Expense	\$	79.40
ARRL Membership Expense	\$	34.00
Badges Expense	\$	97.06
Christmas Dinner - Ladies Gifts	\$	82.73
Christmas Dinner 2019 Meal Expenses	\$	747.60
Christmas Drawing Prizes	\$	532.21
Christmas Gift Certificates	\$	100.00
Field Day - Flowers	\$	71.00
Field Day - Generator Costs	\$	80.31
Field Day - Generator Rental	\$	85.00
Field Day Equipment	\$	40.80
Field Day Food	\$	17.58
Field Day Winter - Tent rental	\$	140.00
Field Day Winter - Software	\$	8.99
Guest Speaker Meal - Exp	\$	78.00
LIABILITY INSURANCE 2020	\$	300.00
New Bank Checks (Refill)	\$	47.16
OCARC Equipment Repairs	\$	270.00
OCARC Historian	\$	91.51
Opportunity Drwg - Monthly Exp	\$	275.41
Misc Expenses Adjustment	\$	42.49
PO Box Rental	\$	80.00
Refreshments Expense	\$	135.08
Rodrigo's Dinner Meeting Exp	\$	560.20
Storage Locker	\$	1,193.00
Web Site Hosting	\$	101.94
Web Site SSL Fee	\$	69.99

TOTAL OUTFLOWS \$ **5,462.60**
QUICKEN NET CHANGE \$ **479.62**

Assets - Beginning Balance

Wells Fargo Checking as of 12/31/2018	\$	5,427.56
Cash Box	\$	96.00
Outstanding Checks from 2018 (5)	\$	(1,387.80)
Total Beginning Net Balance:	\$	4,135.76

Assets - Ending Balance

WF Checking Statement as of 12/31/2019	\$	3,581.76
Cash Box	\$	223.00
PayPal	\$	1,110.62
Outstanding checks (1)	\$	(300.00)
Total Ending Net Balance:	\$	4,615.38

Total Beginning Balance:	\$	4,135.76
Total Ending Net Balance:	\$	4,615.38
Asset Net Change for the Year 2019	\$	479.62

Audit Acceptance:

Greg Bohning

Greg Bohning **W6ATB**, Treasurer (years 2019 & 2020)

Timothy Millard

Timothy Millard **N6TMT**, V. P. (years 2019 & 2020)

Ken Konechy

Ken Konechy **W6HHC**, Secretary (years 2019 & 2020)

Bob Eckweiler

Bob Eckweiler **AF6C**, Technical (years 2019 & 2020)

Date signed:

MARCH 07, 2020

OCARC Cash Flow - Year To Date

1/1/2020 through 3/11/2020

Category	1/1/2020- 3/11/2020
INFLOWS	
Auction In, Jan 2020	1,696.25
Cash Box Deposit	140.00
Donation - Michael K6GTE	30.00
Donation - N6GP	20.00
Dues, Membership (PayPal) 2020	317.13
Dues, Membership 2020	390.00
Refunds Received	15.53
TOTAL INFLOWS	2,608.91
OUTFLOWS	
Auction Payout, Jan 2020	1,359.23
Field Day Winter - Tent Rental	130.00
OCARC Historian	29.29
Opportunity Drwg - Monthly Exp	256.70
Refreshments Expense	32.65
Storage Locker	285.00
Supplies	15.85
Trifold Brochure Printing	21.55
Web Site Hosting	101.94
TOTAL OUTFLOWS	2,232.21
OVERALL TOTAL	376.70

COAR RACES plans Communication Support for the Orange Police 2020 B2V Running Team

by Ken W6HHC

Each spring, law-enforcement running teams (from around the world) have entered in a competitive foot-relay-race through the desert. This race, known as “Baker-to-Vegas” (and aka B2V), is a 120 mile long race, that starts outside Baker (CA), runs through the desert to Shoshone, then runs through Pahrump, NV and finishes at the Rio Hotel in Las Vegas. This year there will be about 292 different running teams. The runners of the Orange Police Department have been supported for many years with communications by hams belonging to COAR (City of Orange Amateur Radio) RACES and OCARC members. This year, the B2V event is scheduled to begin on Saturday, April 04, with runners reaching the finish line on Sunday April 05. COAR is planning to set-up five Communications Centers along the race course, as well as providing communications and APRS in a “follow vehicle” for the Orange PD running team.



Many members of COAR RACES and other communications volunteers take a group photo during one of the Orange PD Baker-2-Vegas Communications planning meetings. There are ten OCARC members assisting COAR during B2V this year.

(photo by Fran KJ6UJS and Toni KN6CHX)

BREAKING NEWS

The Baker to Vegas race has been postponed until Fall

2020 OCARC DUES ARE NOW DUE



**PAY DUES ONLINE
OR IN PERSON**

by W6ETC

MiniTiouner-Express

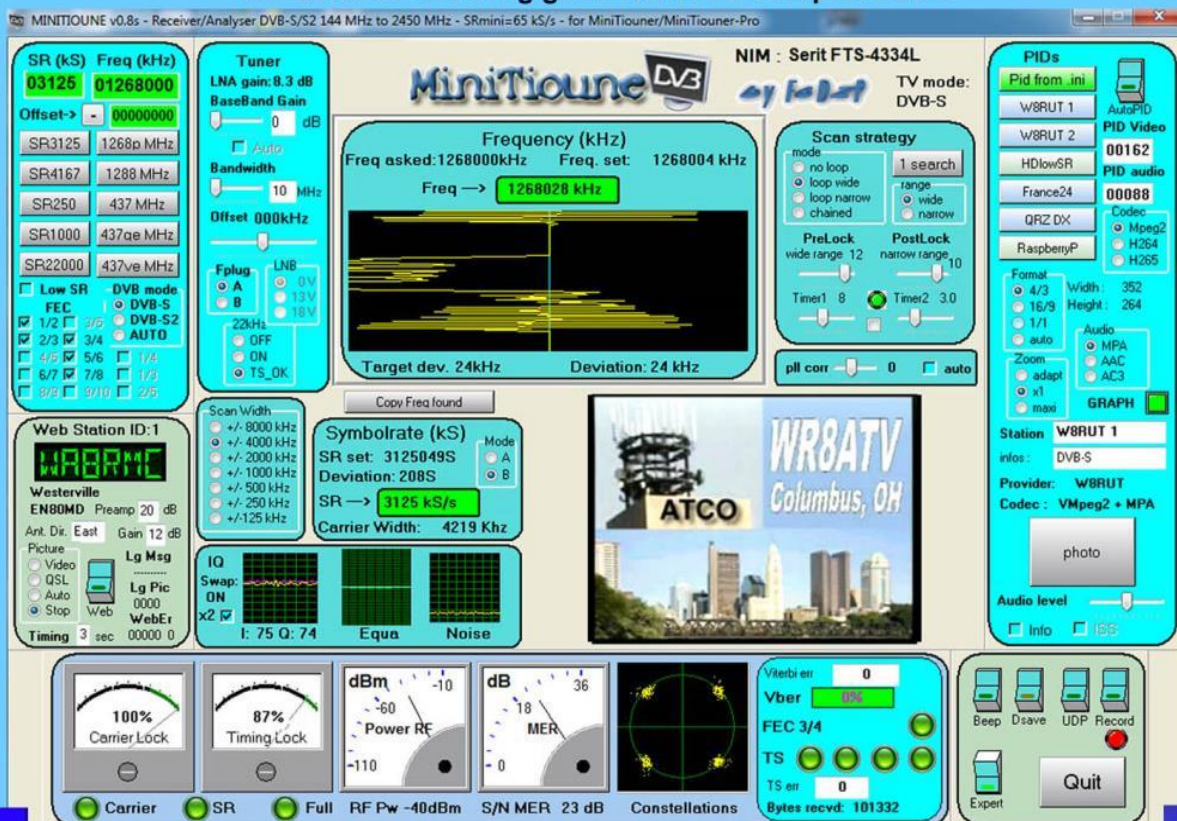
Digital Amateur Television DVB-S/S2 Receiver / Analyzer



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- Operates with Windows PC using free MiniTioune software from Jean-Pierre F6DZP
- Smaller than a stack of 2 decks of cards (picture above is full size)
- Two independent simultaneous RF inputs with internal preamps
- High sensitivity -100dBm @1288MHz – at 1/2 FEC
- Fully assembled/tested in aluminum enclosure
- Covers 144-2420MHz (ideal for Space Station DATV reception)
- Symbol rates from 75 KSymb/s to >20 MSymbols/sec
- Uses external 8-24VDC supply or +5V from USB-3 port (with small modification)
- Real time signal modulation constellation & dBm signal strength display
- Price: US \$75 + shipping – order with PayPal

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(MiniTioune display above is the ATCO 1268MHz DVB-S repeater signal at WA8RMC QTH 15 miles away).