ORANGE COUNTY AMATEUR RADIO CLUB INC.

VOL. LXVI NO. 4 BOX 3454, TUSTIN, CA 92781 APRIL FOOLs' 2025

The Prez Sez.

By Dan KI6X

Well, we are past the first quarter of the year and I think that is enough for me and the club so I can resign the Presidency. OK, my limit of an April Fool's joke (or you are disappointed it is a joke!). Some April Fool's jokes are very clever, some are mean, some are ho-hum (like mine). This month I also included an additional picture of me and my 6M antenna that my wife took last month. This happens to be the one that was not printed in the last RF since the "lightning hit" was not the picture I included.

OFFICIAL

APRIL FOOLs' EDITION

We have started the serious part of the Field Day planning. Ron, W6WG, has graciously agreed to act as the leader this year (again, thanks) but remember the planning team is much larger than one. We have band/mode captains that should be doing most of the work, and the operators that agree to come in for a time at the key/mic. Then there is plenty of support staff that help set-up, tear-down, food, publicity, etc. We are a village when it comes to FD.

Remember that our next two General Meetings are moved to the 4th Fridays (April 25, May 23) for different reasons.

I have some space to fill here so will thank some behind-the-scenes people. I thank Corey, KE6YHX, for handling the snacks and opportunity drawings (when we have them which will be about every other month). I do not have to do anything with that, they just happen thanks to Corey. I also

[See: *Prez Sez* on page 32]

April General Meeting
APRIL 25th [SPECIAL DATE]
Dennis Kidder- W6DQ

Presents:
A Talk on Radio Astronomy
7:00 PM at the
American Red Cross
Orange County Chapter
600 Parkcenter Drive
Santa Ana, CA
Room 208

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Monthly Events

Membership Meetings*
Time: 7:00 PM
Date: 3rd Friday of the Month
Orange County Red Cross,
600 N Parkcenter Dr, Santa Ana
(Room 208) * Except December

Board Meetings
First Saturday of each Month
8:15 AM Click for Details

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
Tue @ 8:00 PM
Net Control: Corey, KE6YHX

Associated Nets

Catalina Amateur Repeater Association (CARA)
147.090 MHz (+600 kHz) No PL
Monday - Friday
9:00AM & 9:00PM
Prg. Director. Tom W6ETC
COME JOIN US

OCARC 2025 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[1]	$3

Use one of our our interactive online forms to calculate current prices, join, renew, or order badges:

Online Forms / Dues & Badges

[1] $3 or less + mailing. See form.

- 25 Years Ago in RF Newsletter - April 2000 [Y2K]:

ORANGE COUNTY AMATEUR RADIO CLUB
VOLUME XLI NO. 4 P.O. BOX 3454,TUSTIN,CA.92781 April 2000
Web Site Http://www.w6ze.org

Decisions, decisions, decisions! It seems as if Club year Y2K is fraught with them. Last year we hadn't a clue as to where our field day site was to be and this year it appears that we have a plethora of Orange County locations; at least tentative ones and one in the bag if we so decide.

The one in the bag is the northwest corner of Garden Grove Park which includes real toilet facilities and a covered area with picnic tables. All this at a cost of $250. This may seem expensive, but factor in the cost of our usual two outhouses.

We have a possibility for some of the Marine facilities in Irvine, being looked into by **Chris Breller, KJ6ZH.** We should know by the next board meeting. Another possible is a piece of County property that is adjacent to the Santa Ana River near the Orange Crush. This is being spearheaded by **Charles West, KB6TWA.**

The decision is to be made at the April regular meeting. After the board meeting, April 1st, we will caravan to the different sites including one that **Phil Anderson, N7PA** and **Frank Smith, WA6VKZ,** have a possibility of obtaining. We must nail this decision down by the end of April or risk losing the Garden Grove site. A risk I think we cannot afford.

Our next decision was, where to hold our breakfast board meetings. As most of you know, **Al Toering, N6TEZ,** gave me the lead of the Hometown Buffet on 17th St. in Santa Ana. We met there and I was able to talk to the manager and set our reservations through November, including the revised date of May 13 instead of the 6th. This was done to accommodate the **"Not so DX-pedition"** sponsored by **Art Dillon, KE6WOX** and myself.

The PREZ SEZ

Art and I heard all of the complaints about eliminating the **Not so DX-peditions** from those who claimed *not to be able to go.* Well here's another, and we expect you to participate. They were fun, even the time only two of us went, but its a lot more fun with a big or bigger group of members and guests.

If you plan on going, Please see **Art, KE6WOX** at the April meeting or call him at **714-997-2078.** I hope to see you all there!

73 Larry, K6LDC

The OCARC Officers in Y2K were:

President:	*Larry Hoffman* - K6LDC
V President:	*Bob Buss* - KD6BWH
Secretary:	*Bud Barkhurst* - WA6VPP
Treasurer:	Bob Eckweiler AF6C
Activities:	*Lowell Burnett* - KQ6JD
Membership:	*Chris Winter* - W6KFW
Publicity:	Ken Konechy - W6HHC
Technical:	Larry Beilin - K6VDP
Member at Large:	Jim Winn - KE6UCH
Member at Large:	Chris Breller - KJ6ZH

(*Silent Keys* are shown in italics).

In April of 2000, with all the disasters Y2K was wreaking on the world [not], president *Larry Hoffman K6LDC* and staff were frantically looking for a spot to hold Field Day. A team composed of *K6LDC*, *KD6BWH*, K6VDP, KE6UCH and KJ6ZH explored three different sites. One spot available was a park in Garden Grove. In the April RF that site came to fruition and was announced in an article in the newsletter. The article had to include a disclaimer: "*(This is NOT an April Fool Piece)*" The park is now a dog park. During, and for awhile after WWII this site was **Haster Farm Naval Outlying Landing Field (NOLF 11005).** Later it became a civilian airfield until closing around the end of the 1950s. Nothing remains of the airfield now, but for 24 hours OCARC sent the first FD radio signals there since the turn of the century.

While FD was being planned, RF also announced our Club Breakfast site was moving from the Aztec Café to Hometown Buffet - $5.89 plus tax and tip!)

President *Larry Hoffman* and Art Dillon -- KE6WOX announced another Not So DX-Pedition for May 5th thru 7th near Aguanga, CA.

The Board minutes in the April RF also announced a flurry of members upgrading their license including Jim - KE6UCH, Cory -- KE6WIU and *Bob - KD6BWH* (to General class - 13 WPM code) and *Bob Evans - WB6IXN* to Extra class - 20 WPM code). Club membership in April was reported at 42.

Art Goddard - W6XD was the Guest speaker scheduled for the April Meeting: "Sri Lanka DX-Pedition".

On page 6 was an interesting article on the change in FCC rules, relaxing rules on business use of Ham radio, like ordering a pizza over an auto patch, or using a radio to provide talking to a hamlets or convention - Interesting reading still today!

Check out some of our other RF Newsletters for Y2K!

April Speaker Spotlight – Dennis Kidder, W6DQ Amateur Radio Astronomy

Dennis Kidder, W6DQ has been called a “renaissance man of amateur radio, and we are lucky to have him via Zoom this month as our speaker.

Dennis was first licensed over 50 years ago as WN6NIA and WA6NIA. Later he changed his call to W6DQ in honor of his high school Elmer. He is also an avid collector of Collins Radios.

He spent nearly 45 years in System Engineering. His career spanned many fields - from building and operating large scale sound systems, computer systems used to publish newspapers and control communications satellites, 4 years as the Chief Telecom Engineer during the construction of the New Hong Kong International Airport, and finally, air defense radar systems and networked radio communications systems used by the military.

Dennis has wowed our club in the past with topics on some of his amazing activities in radio like: doing EME on a 40 Meter Dish in Owens Valley (1.2 and 10 GHz), as well as his effort to painstakingly dismantle a Collins 821A-1 250 KW Shortwave Transmitter and control room from the decommissioned Delano Voice of America site, and transport it to its new home at the Antique Wireless Association museum in Bloomfield NY.

In this talk, Dennis will delve into the topic of Radio Astronomy, and will show what kind of experiments you can do as an amateur scientist with low cost equipment that you can buy from eBay or Amazon.

RadioActivity
April 2025

Upcoming Activities:

APRIL

- **ARRL Rookie Roundup SSB:** Sunday April 13, 1800 UTC through 2359 UTC.
- **10-10 International Spring Contest/Digital:** 0001 UTC Saturday April 26 through 2359 UTC Sunday April 27

MAY

- **7TH Call Area QSO Party:** 1300 UTC Saturday May 3 through 0700 UTC Sunday May 4
- **10-10 International Spring Contest/CW:** 0001 UTC Saturday May 4 through 2359 UTC Sunday May 5
- **New England QSO Party: :** 2000 UTC Saturday May 3 to 0500 UTC Sunday May 4 and 1300 to 2400 UTC Sunday May 4
- ***CQ World Wide WPX Contest/CW:** 0000 UTC Saturday May 24 through 2359 UTC Sunday May 25

* 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:

- **Georgia QSO Party: :** 1800 UTC Saturday April 12 to 0359 UTC Sunday April 13 and 1400 to 2359 UTC Sunday April 13
- **New Mexico QSO Party:** 1400 UTC Saturday April 12 to 0200 UTC Sunday April 13
- **North Dakota QSO Party:** 1800 UTC Saturday April 12 to 1800 UTC Sunday April 13
- **Nebraska QSO Party:** 1100 to 2259 UTC Saturday April 19
- **Michigan QSO Party:** 1600 UTC Saturday April 19 to 0400 UTC Sunday April 20
- **Florida QSO Party:** 1600 UTC Saturday April 26 to 0159 UTC Sunday April 27 and 1200 to 2159 UTC Sunday April 27
- **Indiana QSO Party:** 1500 UTC Saturday May 3 to 0300 UTC Sunday May 4
- **Delaware QSO Party:** 1700 UTC Saturday May 3 to 2359 UTC Sunday May 4
- **Arkansas QSO Party:** 1400 UTC Saturday May 17 to 0200 UTC Sunday May 18

Repeating Activities:

- **Phone Fray** Every Tuesday night at 0230Z to 0300Z **LINK**
- **SKCC** Weekend Sprintathon (Straight Key CW) on the first weekend of the month after the 6TH of the month. 1200 Sat. to 2359Z Sunday. **LINK**
- **SKCC** Sprint (Straight Key CW) 0000Z to 0200Z on the 4th Tuesday night (USA) of the month. **LINK**
- **CWops** Every Wednesday 1300 UTC to 1400 UTC 1900 UTC to 2000 UTC and Thursday 0300 UTC to 0400 UTC **LINK**
- **ICWC Medium Speed Test:** (CW, 25WPM Max.) Every Monday 1300 UTC to 1400 UTC, 1900 UTC to 2000 UTC, and Tuesday 0300 UTC to 0400 UTC. **LINK**
- **K1USN Slow Speed Test:** (CW, 20WPM Max.) Every Friday 2000 UTC to 2100 UTC
  Every Sunday night at 0000 UTC to 0100 UTC Monday. **LINK**

OCARC Club Nets:

- **10 Meter Net:** Every Wednesday night at 7:30 pm to 8:30 pm Local Time. SSB 28.375 MHz
- **2 Meter Net:** Every Wednesday night at 8:30 pm to 9:30 pm Local Time. FM Simplex 146.55 MHz

Other Nets:

- **Net-AT-9:** Wellness & Support
  Monday thru Friday 9:00 am and 9:00 pm Local Time 147.090 MHz (+600 MHz) No PL

Other Links:

- ARRL Contest Calendar
- VOACAP Online for Ham Radio

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

The following story has been sitting around for over 20 years but has never been published, only shared among some friends. It was recently updated and a suggestion was made that it be published in RF. The story is in three parts and Part I is presented in this issue.

If you enjoy it and want the story to continue in two future issues, please respond with an email to rf_feedback@w6ze.org. If enough positive comments are received Part II will appear in a future issue. If not:
– well the experiment is dead.

Currently there are three stories written, each in three parts. The third was never finished, but could be.

The Beginning of a Friendship

A Mike and Carol Adventure (#1)

[Part I of III] ***"Gilbey's Park"***

Mike turned off the radio and made a final entry into his log. He had logged a few new DX countries during his morning's operating. Today was the first day of summer vacation, and he hoped to work a lot of DX over the summer months. It was still early as he made his way downstairs and poured out a bowl of cereal. During breakfast he heard what sounded like a truck stop nearby. As he ate, the truck continued to idle. When he finished breakfast, Mike went outside to investigate the noise.

A moving van had backed into the driveway of the old Winston estate, which bordered on his parent's property, and the moving men were unloading furniture. Lanny Winston had died the previous year, and the house had been empty since. It was the oldest house in the neighborhood, a Tudor style mansion that occupied four acres. Winston evidently spent a lot of time and money on home improvements, turning it into one of the most up-to-date houses around. Neighboring houses that built up around it over the years rarely sat on more than a half acre. When Winston died, neighbors were worried that the house might be torn down and another eight, or possibly more, houses would be developed on the property. Evidently that wouldn't happen; someone had bought the place, and Mike and his family were getting new neighbors.

Mike had known his old neighbor only slightly and didn't like him. At an early age, Mike was warned to never call him Lanny; he went by "Sparks". Sparks had retired from a large electronics company that did a lot of business with the Government. He was reputed to have been a genius, but was also a loner. Being interested in electronics, Mike had tried to establish a friendship with Mr. Winston a few years ago, but Sparks wasn't very friendly and ranted on about how he didn't like radio amateurs; how they were always interfering with his equipment, and how Mike's big antenna degraded his property values. Mike hoped his new neighbors would be more tolerant of his hobby.

As he was watching the moving men, a shiny new luxury car pulled up, and a man and woman got out from the front doors. Mike, however, was paying more attention to the young girl getting out of the back. She was about his age and wore jeans and an Apple sweatshirt. Her blonde hair was tied in a pony-

tail; Mike suddenly thought he was going to like the new neighbors. He was tempted to go over and say hello, but the trio went straight into the house. Mike noticed that the moving men were also removing furniture from the house and stacking it on the lawn. Many of the pieces looked like antiques. Had the house been sold with Mr. Winston's furniture still inside? Mike went back to his house and found his parents at the breakfast table. He gave them the news that people were moving into the old Winston estate.

This fall Mike would be a Junior at Roslyn high school. His class had been assigned a lot of summer reading for the next year, and he had promised himself to get an early start and read at least one hour each day. He sat down with the first book on the list and began reading. The book must have interested him, for when he reached the end of the sixth chapter he realized he had been reading for almost two hours. He put the book down and went outside to see how the moving was going next door.

The big van was almost empty as the men carried a large sofa into the house. The young girl was following them with some boxes from the car; one of the boxes was marked Heathkit! Mike wandered over, and when the girl came out for another box he said, "Hi, I'm Mike. I live next door."

The young girl looked at him, at the house next door and up at the beam antenna that was still cranked up to 60' from the morning's DXing. "Hi, I'm Carol", she replied. "What's that monstrosity in your backyard? You're not one of those crazy radio hams are you?" She then picked up another box and took it directly inside, saying as she walked away, "Talk to you later, I've got to get this inside."

Mike was dumbfounded. He dropped his head and went back home. "NO! Not another ham radio hating neighbor!" he said to himself.

The next few days were uneventful. The movers had packed up the old furniture they had stacked on the lawn and taken it to storage. This he had learned from his parents who had visited the neighbors and seemed to like them. The new neighbors were relatives of old Mr. Winston and their daughter took after Sparks with an interest in electronics. Carol had an older brother who was in his freshman year at MIT.

Mike remained heartbroken about how Carol had brushed him off with her anti-ham radio comment, so he was surprised when the doorbell rang early one evening and it turned out to be Carol. As soon as he opened the door she said, "Hi Mike. I'm sorry I made that comment about your hobby. My uncle Winston never liked hams since one of his ham coworkers played a nasty trick on him and made him look like a fool in front of the other employees. There was a time I was interested in ham radio but Uncle Winston wouldn't allow it. I guess some of his attitude rubbed off on me."

"That's okay; apology accepted," stammered Mike. "What can I do for you?"

"Well," said Carol, "I need to put up an antenna for a project I'm working on and could use your help."

[See: Gilbey Park on page 18]

Heathkit of the Month #128: [That's $(2)^{+7}$]

by Bob Eckweiler, AF6C

HEATHKIT®

AUTOMOTIVE (Ham Related)

Heathkit GD-18 (And GDA-18-1, GDA-18-2) Electronic Siren and PA.

Introduction:

Recently I was given a batch of old Heathkit specification sheets. Heath distributed these sheets for advertising, and they offered a good overview of the product covered, often including a useable (though sometimes preliminary) schematic. While looking these over I came across two for the GD-18 Electronic Siren and PA (Public Address system). This unit, mounted under or atop the dash in a vehicle and, in conjunction with one of two types of speakers, has three functions: One: A dual-mode vehicle siren (wail and yelp) like police cars and emergency vehicles use; Two: A PA system where the driver could make announcements to people and vehicles nearby; and Three: The ability to connect the vehicle radio to the PA system and monitor radio traffic while outside the vehicle (Something that might be useful for hams).

The Heathkit GD-18:

I had trouble grasping what would be the market for the GD-18[1]? Yet, Heath saw a market, and it must have been a profitable one. The GD-18 sold from 1970 until the fall of 1983. It was then replaced by an updated GD-1810. The GD-1810 continued in production into 1988,

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

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

1. Notes begin on page 17

Figure 1: The gimbal bracket mounted Heathkit GD-18 Electronic Siren can mount under or above the dashboard. It is used in conjunction with one of two available speakers.

over a year after Heath dropped all its automotive line, except for the GD-1810 and CI-1080 Exhaust Gas Analyzer [2]. The specifications for the GD-18 are given in **Table I.**

The GD-18 was announced in the spring 1970 catalog (800-02) with a full page ad and the "New through Heath Research" emblem. It initially sold for $54.95. Two speakers were available for it; the GDA-18-1, an assembled exterior horn speaker that could be mounted on the top of the vehicle; or the GDA-18-2, a concealed speaker kit that could be mounted behind the grille of the vehicle. Each speaker initially cost $49.95. However, Heath offered package deals: The GD-18A was the GD-18 with the GDA-18-1 external horn speaker included, and the GD-18B was the GD-18 with the GDA-18-2 concealed speaker included. Either package cost $99.95.

Starting in the 1974 Christmas catalog, both the GD-18 and GD-18-2 were also available in a factory assembled version, designated the WD-5130 and WDA-5130-2 respectively. Since the GDA-18-1 sold only fully assembled, it wasn't given a new designation. The WDA-5130-2 speak-

er was discontinued in 1981 and the WDA-5130 was discontinued in early 1983.

Table II shows the prices for the GD-18 family from it's introduction until it was discontinued near the end of Heath's kit business. Since not all catalogs are available to the author, some items might have changed price or been introduced in a prior missing catalog.

The GD-18 Controls & Connections:
There are four controls on the front of the GD-18, plus the PTT switch on the microphone. Two (set-and-forget) screwdriver-adjustable controls are accessible through holes in the bottom of the cabinet.

The front panel (**Figure 2**) is edge lit plastic for easy day or night visibility of the control functions. From left-to-right are the PA/Radio **GAIN** control and integrated **OFF**-on switch (OFF is full-ccw); a **MANUAL** pushbutton switch that activates the siren when in PA mode; and a four position **FUNCTION** switch - (in cw order from the 7:30 position) **RADIO**, **PA**, **WAIL** and **YELP**. Settings involving the siren are all marked in red, while PA and radio functions are in white.

The two adjustments can be accessed by holes in the bottom of the unit using a ⅛-inch blade screwdriver. Be careful as these are rather delicate PC board 90°-mounted controls. Below the GAIN control is the **RADIO LEVEL INPUT ADJUST**, and below the FUNCTION control is the **SIREN PITCH ADJUST** control.

The rear panel layout, shown in **Figure 3**, holds from left to right, a fuse holder, a two prong power connector, and the two output transistors Q12 and Q13. Below the transistors is a six-screw terminal strip.

The fuse holder takes a 7-ampere slow-blow fuse [3]. The power connector

GD-18 Siren SPECIFICATIONS

Output Power	
Siren:	55 watts, normal intermittent duty.
PA / Radio:	20 watts continuous.
Siren Wail	
Frequency Range:	~ 550 Hz to 1300 Hz (Pitch control at center).
Sweep Rate:	~ Six seconds per cycle.
Siren Yelp	
Sweep Rate:	~ ⅓ second per cycle.
Radio Input	
Sensitivity:	0.3 V rms min. for rated output.
Speaker Req'm't	16 Ω, 75 watt (nominal), weather-proof, horn loaded driver, (Heath GDA-18-1 or GDA-18-2).
Power Req'm't	
Voltage:	12 to 15 VDC, pos. or neg. ground.
Current:	5.5 amp. max, > 1.25 amp idle.
GD-18 Measurements	
Dimensions:	7⅝" deep x 8⅜" wide x 2⅞" high, (less gimbal bracket).
Net Weight:	4 ¾ lbs. GD-18 only.
Finish:	Gunmetal Gray, wrinkle finish.

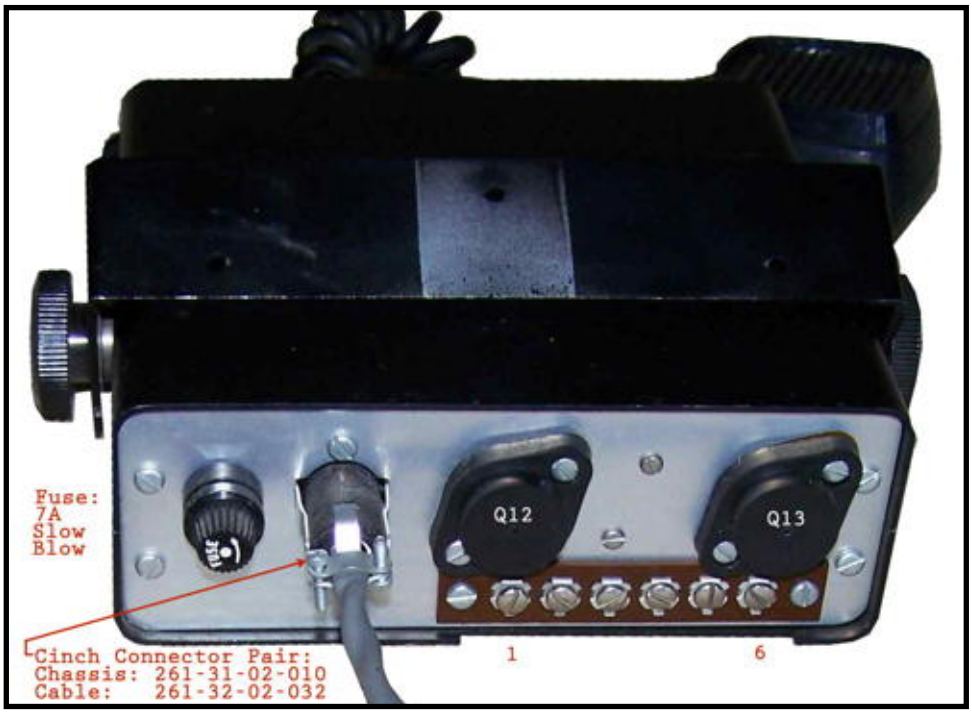
TABLE I

FIGURE 2

	Heathkit GD-18 / GD-1810 and Accessories Prices									
Year	Cat.	Pg	GD-18	WD-5130	GDA-18-1	GDA-18-2	WDA-5130-2	GD-18A	GD-18B	GD-1810
1970	800/3	30	$54.95	n/a	$49.95	$49.95	n/a	$99.95	$99.95	n/a
1973	810/72	15	$59.95	n/a	$49.95	$49.95	n/a	$104.95	$104.95	n/a
1975	806	14	$64.95	$89.95	$62.95	$62.95	$74.95	$119.95	$119.95	n/a
1976	813	18	$64.95	$89.95	$64.95	$64.95	$79.95	$121.95	$121.95	n/a
1977	818	85	$64.95	$99.95	$64.95	$64.95	$84.97	$121.95	$121.95	n/a
1978	842	79	$64.95	$99.95	$67.95	$67.95	$84.97	$121.95	$121.95	n/a
1979	847	17	$69.95	$129.95	$79.95	$79.95	$99.95	$129.95	$129.95	n/a
1980	851	19	$74.95	$129.95	$89.95	$89.98	$109.95	$144.90	$144.90	n/a
1981	855	45	$79.95	$134.95	$99.95	$99.95	NLA	$159.90	$159.90	n/a
1982	859	21	$89.95	$134.95	$99.95	$99.95	NLA	$169.90	$169.90	n/a
1983	863	20	NLA	NLA	$99.95	$99.95	NLA	NLA	NLA	$109.95
1984	867	54	NLA	NLA	$99.95	$99.95	NLA	NLA	NLA	$99.95
1987	208	18	NLA	NLA	$109.95	$109.95	NLA	NLA	NLA	$109.95
1988	211	27	NLA	NLA	NLA	$109.95	NLA	NLA	NLA	$109.95

TABLE II

is a Cinch-Jones, two-prong, chassis mount, male connector (Heath Part #432-31). A mating female cable connector (#432-30) was supplied with the kit. Figure 3 gives the Cinch Jones part numbers for these connectors. The wide blade/slot is the negative terminal and the narrow blade/slot is the positive terminal. The two power transistors are mounted on the rear panel to provide a heatsink. They mount in sockets and are insulated by covers. The connections to the screw terminal strip are shown in **Figure 4**. The connection to the speaker are terminals 1 and 2. Both are isolated from ground, so the speaker can be connected without polarity worries. One feature of the GD-18 is that it can be used in vehicles with either a



negative or positive vehicle ground. With this in mind, the siren may be activated by a remote switch, such as the car horn button [4], a foot switch [5] or any connection that can connect the correct terminal to vehicle ground. Terminal 3 is used with vehicles with a negative ground electrical system, and Terminal 4 is used with vehicles with a positive ground electrical system. In either case the unused terminal should remain isolated. Terminals 5 and 6 are for the radio audio. They can be connected in parallel with the wires to the radio speaker. Terminal 5 is the input terminal, and terminal 6 is an "isolated" common input connected to the siren common through a 10 µF 150 V electrolytic isolation capacitor.

The GD-18 Accessory Speakers (Horns):

Heath sold two speakers for use with the GD-18 siren. The GDA-18-1 horn speaker **(Figure 5)** that mounts atop the vehicle, or on a fender. This speaker came completely assembled; it is not a kit. Specifications for the GDA-18-1 are given in **Table IIIA**. The other speaker **(Figure 6)** is the GDA-18-2 and comes as a kit. It is designed to be mounted, concealed, under the hood, behind the grille. The kit comes with a pair of mounting brackets Specifications for the GDA-18-2 are given in **Table IIIB**.

Figure 5: The GDA-18-1 Fully Assembled External speaker for the GD-18 Siren. The speaker usually mounts on the top of a vehicle.

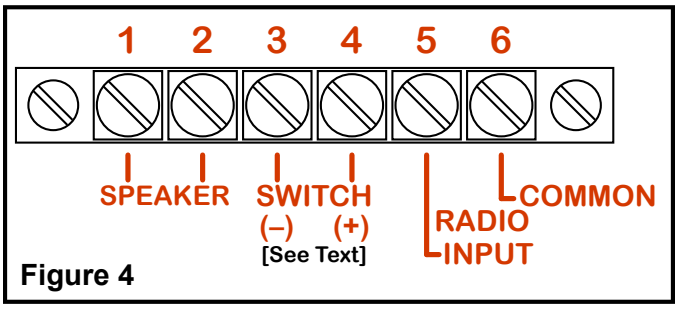


Figure 4

The GD-18 and GDA-18-2 Kit Assembly:

The GD-18's single circuit board is assembled first. It holds most of the components for the GD-18 Siren, including the GAIN pot (which is mounted to the board using a control spacer), the FUNCTION switch, the two set-and-forget trim-pots and the lamp that edge lights the front panel. All the components that mount on the board are installed except the two driver transistors (Q10 and Q11) which will mount later.

The rear panel 'backplate' is assembled next. It holds Q12 and Q13, both socketed, the fuse

GDA-18 1 SIREN HORN SPEAKER SPECIFICATIONS

Mounting:	External on Vehicle.
Assembly:	Fully Assembled.
Impedance:	16 Ω nominal.
Frequency Range:	275 to 8000 Hz.
Sound Level:	128 dB (measured 4' on axis, at rated power).
Dispersion:	100 Degrees.
Peak Power Rating:	75 Watts.
Dimensions:	8 ¾" Dia. x 8 ⅞" High x 8 ⅞ Long.
Mounting Base:	Sandcast aluminum for vandal-proof, concealed connections
Finish:	Alodine* corrosion proofed and painted with special gray melamine enamel
Net Weight:	7 lbs.

*™Amchen Products, Incorporated

TABLE IIIA

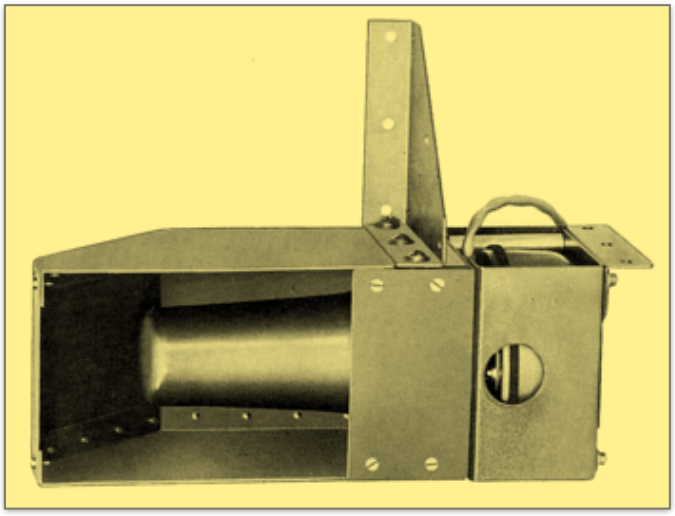


Figure 6: The GDA-18-2 concealed speaker kit for the GD-18 Siren. This speaker can be mounted using none, one or two of the supplied brackets. (Two bracket mounting configuration is shown) The speaker is mounted behind the grille, using one of numerous configurations discussed in the manual.

GDA-18 2 GRILLE SIREN SPEAKER SPECIFICATIONS

Mounting:	Concealed behind grille.
Assembly:	Requires assembly.
Impedance:	16 Ω nominal.
Frequency Range:	300 to 3000 Hz.
Sound Level:	Dependent on mounting position.
Dispersion:	Dependent on mounting position.
Peak Power Rating:	75 watts.
Dimensions:	4 ½" square by 12 ¼ long (excluding mounting brackets).
Finish:	Driver and center section Alodine* corrosion proofed and painted with special gray melamine enamel.
	Sheet metal parts corrosion treated and painted with gunmetal-gray baked enamel.
Net Weight:	8 lbs.
	*™Amchen Products, Incorporated

TABLE IIIB

holder, power connector and the six-screw terminal strip. The two temperature compensating diodes D3 and D4 mount in-between the power transistors in clamps that hold them firmly against the backplate. A 3-lug solder terminal strip, mounted with one of the clamps, provides tie points for the diode leads, the 5 watt emitter resistor (R44) for the transistors and two capacitors (C8 and C21) that need to be near the screw terminal strip.

A short eight-conductor cable is then used to connect the circuit board to the backplate.

The cabinet bottom is prepared next. Stick-on rubber feet are added as are grommets for the trimmer adjustment holes. Then the side plates are added, along with the hardware to mount the gimbal bracket. A foam square to support the circuit board is added to the bottom panel.

Front-plate assembly is then started. The end of the microphone cable is prepared, the front-plate is mounted to the side plates of the cabinet bottom assembly, and the microphone cable is attached to the front panel with a cable strain relief. A twisted pair of wires are added to the MANUAL pushbutton switch. The circuit board is laid horizontally in the cabinet bottom, foil-side up. The wires from the pushbutton and the microphone cable are then soldered to the circuit board. The pushbutton is then mounted to the front-plate.

Next, the output transformer is mounted to the cabinet bottom, and its leads are soldered to the backplate and circuit board. A heatsink is prepared by mounting the two driver transistors (Q10 and Q11) to it using insulating hardware. The assembly is then placed in the holes provided on the circuit board, but not soldered yet. The complete circuit board is now mounted to the front-plate, using control hardware. The driver heatsink is bolted to the cabinet bottom (**Figure 7**), and the driver transistors are then aligned and soldered to the circuit board.

The plastic front panel is installed next by removing the existing control hardware, placing

the panel over the shafts and then carefully replacing the hardware so as not to damage the plastic panel. The front panel knobs are added. Then the backplate is attached to the side panels, and the 8-conductor cable between the backplate and circuit board is neatly secured with two cable clamps. This completes the assembly of the GD-18 except for the top cover which remains off during initial tests.

With the GD-18 put aside temporarily, the power cable for it is assembled.

GDA-18-2 Speaker Kit Assembly:
The assembly of the concealed speaker is mechanical, except for the speaker cable. Initially, one end of the speaker cable supplied with the kit (#16 gauge 2-conductor) is prepared and connected to the speaker driver. Then the enclosure assembly is screwed together using sheet metal screws. The manual then recommends the other parts and brackets be taken to the car, configured to each of the mounting configurations in turn, selecting the one that fits best. The speaker is then mechanically built to that configuration, and the correct drill template is selected from the manual and used to drill the mounting holes in the vehicle. Once installed, the speaker wire is routed to the GD-18 Siren and then lugs are soldered to the end of the speaker cable and connected to the GD-18 rear terminal strip.

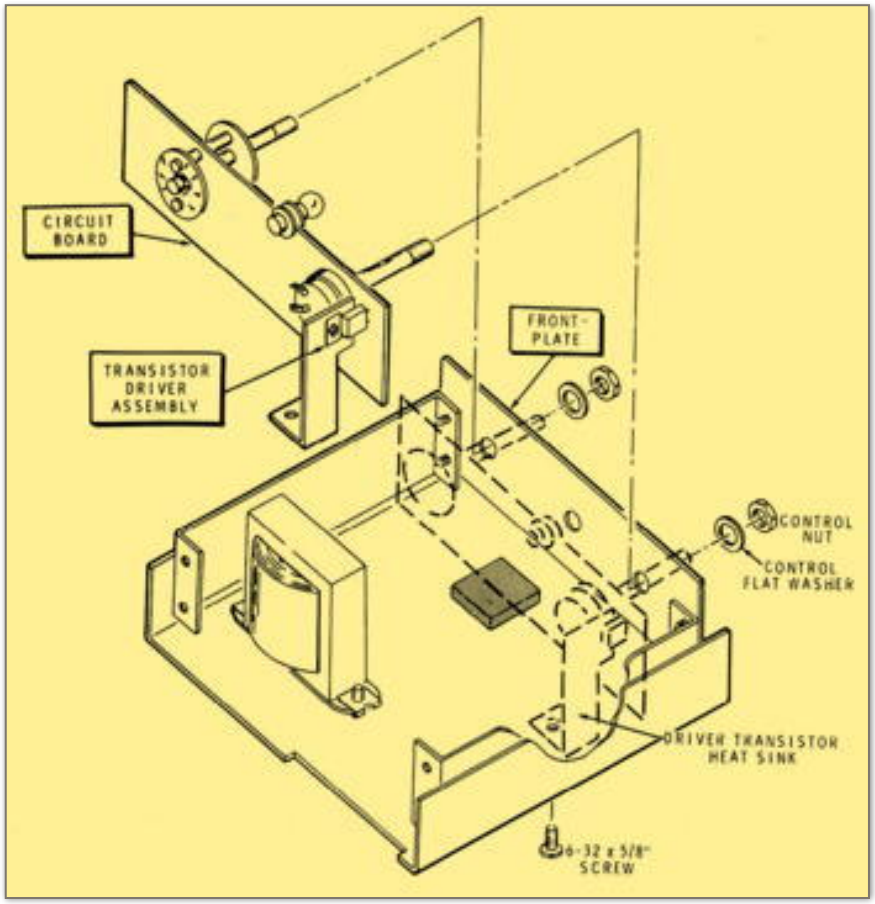


Figure 7: Installation of the circuit board with driver heatsink.

GD-18 Circuit Description:
Figure 8 is a block diagram of the GD-18. It can be broken down into the 5 Blocks shown:

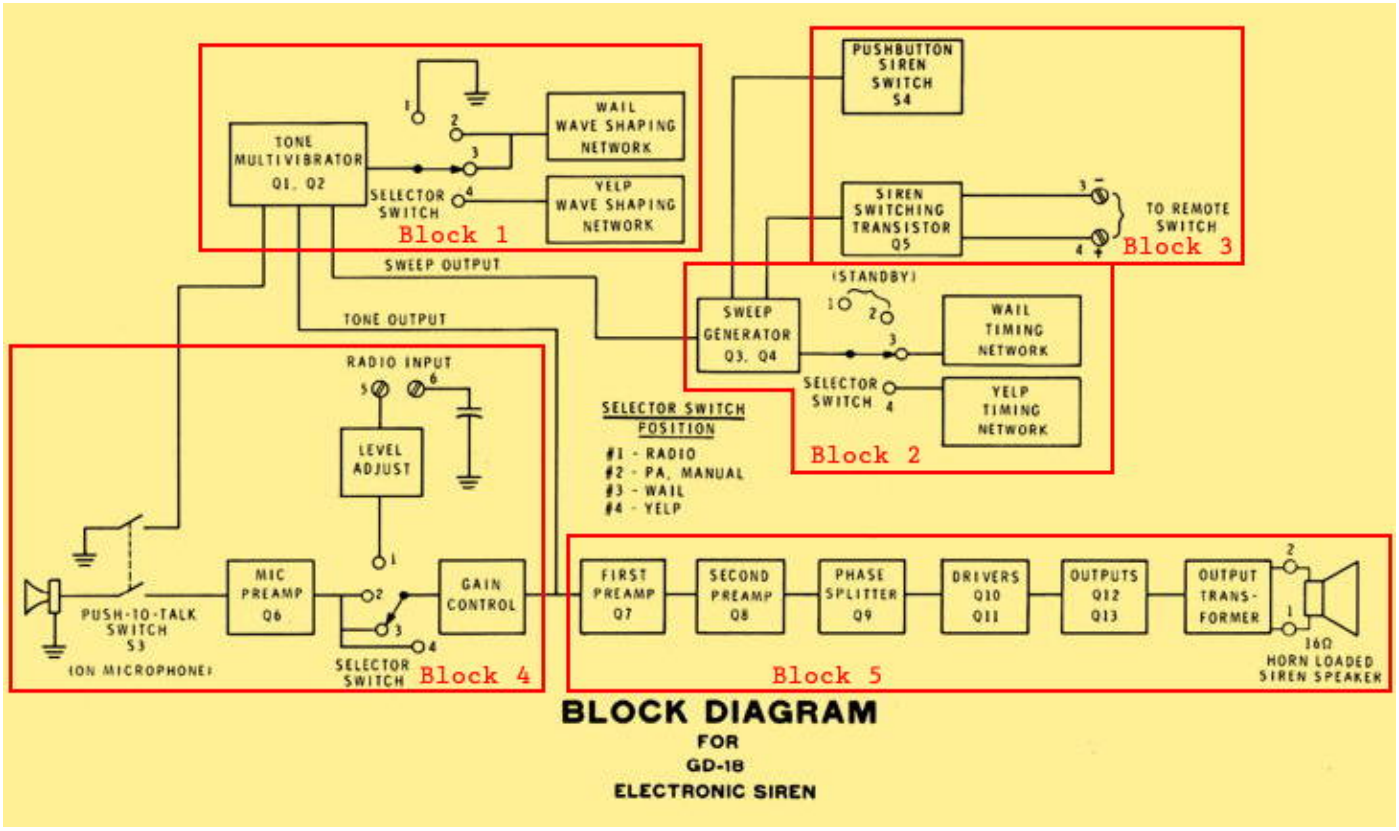
1. **Tone Multivibrator** for wail and yelp sounds.
2. **Sweep Generator** for wail and yelp timing.
3. **Siren Switching Circuits.** for local and remote activation.
4. **Mic Preamp and Radio Input Circuit.**
5. **Audio Amplifier** that drives the speaker.

These sections are outlined and numbered in the block diagram. A schematic is too large to include, but an easily readable one is available online (Scroll right on page 4):

https://www.w6ze.org/Heathkit/HeathSpecSheets/AUT/GD-18%20[596-1189-06]%201970.pdf

Table IV Lists the GD-18 semiconductors and their purpose. Q10 and Q11 were changed early on to the Texas Instruments TIP31B.

Tone Multivibrator (Block 1):
Zener diode D5 and R20 make-up a simple 9V voltage regulator that powers the tone multivibrator and sweep generator circuits, and isolates them from vehicle power fluctuations.



Q1 and Q2 make up a simple multivibrator that creates the basic tone used in the siren. Collector voltage is supplied through R11 and R12. R12 is adjustable to set the center tone for the multivibrator. Bias for both Q1 and Q2 is provided at the junction of R6 and R7. When the SELECTOR switch is in the RADIO position, or the mic PTT is pressed, or Q4 is cutoff, no bias is provided to the multivibrator and it is off. When bias is provided, the multivibrator will produce a tone at a frequency dependent upon the bias voltage. Output from the multivibrator is connected to the input of the first preamplifier Q6, through R1 and C1.

Sweep Generator (Block 2):

The sweep generator modulates the multivibrator tone to give it the unique wailing or yelp sounds. Q3 and Q4 are the active components. When the FUNCTION switch is in the PA or RADIO positions, R17 shunts R18 lowering the emitter resistance of Q3 substantially, turning on Q3. Q3, in turn, turns off Q4. As mentioned earlier, this prevents the multivibrator from running; it also prevents the sweep generator from operating.

When the FUNCTION switch is moved to the WAIL position resistor R17 no longer shunts the emitter resistor of Q3, and it turns off, causing Q4 to turn on and C5 to begin charging up. As it charges, the voltage at the junction R6 and R7 begins to increase bias to the tone multivibrator, turning it on and increasing the tone frequency as the C5 charges. At the same time, C7 begins to charge through R18. As C7 charges its voltage rises and the emitter voltage across R18 decreases [6]. When the voltage goes low enough, Q3 turns on, turning off Q4 which starts C7 discharging, raising the emitter voltage. Q5 also starts discharging reducing the bias and lowering the tone. This continues until Q3 turns off, completing the cycle. The voltage created across C5, as it charges and discharges, varies the frequency of the tone oscillator. C7 sets the sweep cycle rate.

When the FUNCTION switch is in the YELP position, C5 and C7 are replaced by C4 and C6, changing tone and timing and creating the faster YELP sound.

Siren Switching Circuit (Block 3):
When the FUNCTION switch is in the PA position the siren may be activated by either the MANUAL pushbutton (S4) or by an external switch wired to the proper SIREN SWITCH terminal on the six-screw-terminal strip on the back of the unit [7].

Pressing the MANUAL pushbutton applies a voltage to the base of Q4 turning it on and activating the siren.

On a vehicle with a positive ground electrical system, a remote switch that connects terminal #4 to ground will also apply a positive voltage to the base of Q4 turning it on and activating the siren.

On a vehicle with a negative ground electrical system, a remote switch that connects terminal #3 to ground will turn on Q5 which will apply a positive voltage to the base of Q4 turning it on and activating the siren.

Mic. Preamp & Radio Input Circuit (Block 4):
When the FUNCTION switch is in any position except RADIO, and the mic button is pressed, the mic is connected through C9 to Q6 and the mic red wire is grounded, removing the bias on the multivibrator, silencing the siren immediately if it is running. The audio from the mic is amplified by the mic preamp (Q6), and sent to the GAIN control. C10 and C11 reduce the preamp gain at the higher frequencies to help prevent acoustic feedback.

Audio from the vehicle's 2-way radio is connected to the rear terminal strip of the GD-18. The hot audio lead is at terminal #5 and the neutral lead is at terminal #6. Terminal #6 is connected to common in the GD-18 through a 10 µF electrolytic capacitor for DC isolation (needed on positive ground vehicles). The hot audio is attenuated by C13 and C14 and the RADIO INPUT LEVEL ADJUST pot.

When the FUNCTION switch is in the RADIO position, audio from the radio replaces audio from the mic, allowing it to be played through the amplifier and siren speaker.

GD-18 SEMICONDUCTORS

Q1	2N3393	Tone Multivibrator
Q2	2N3393	Tone Multivibrator
Q3	2N3393	Sweep Generator
Q4	2N3393	Sweep Generator
Q5	X29A829	Negative Ground Remote Switch
Q6	2N3393	Microphone Preamplifier
Q7	2N3393	First Preamplifier
Q8	2N3393	Second Preamplifier
Q9	2N3393	Phase Splitter
Q10	2N5294/TIP31B	Driver Follower
Q11	2N5294/TIP31B	Driver Follower
Q12	MHT9210	Power Amplifier
Q13	MHT9210	Power Amplifier
D1	1N4149	Bias & Negative Clipping
D2	1N4149	Bias & Negative Clipping
D3	1N3754	Temp. Compensating bias
D4	1N3754	Temp. Compensating bias
D5	VR9.1	Voltage Regulator for Q1 through Q4
D6	1N4149	Protection for Q5

SEMICONDUCTOR INFORMATION

2N3393	(417-118) NPN Si Gen. Purpose	Fairchild
	V_{CEO} 25V, I_C 500 mA, P_D 625 mW, ß$_{MIN}$ 80	
X29A829	(417-201) PNP Si Gen. Purpose	G.E.
	V_{CEO} 50V, I_C 500 mA, P_D 330 mW, ß$_{MIN}$ 120	
	Substitutes: 2N3906, D29A4 (T.I.)	
2N5294	(417-175) NPN Si Med. Power,	NJ Semi.
	V_{CEO} 40V, I_C 4 A, P_D 36 W, ß$_{MIN}$ 25, 1.2 MHz	
TIP-31	(417-852) NPN Si Med Power,	T.I.
	V_{CEO} 40V, I_C 3 A, P_D 40 W, ß$_{MIN}$ 75, 3 MHz	
MHT9210	(417-162) NPN Hi Power, TO-5,	Solatron
	V_{CEO} 30V, I_C 15 A, P_D 115 W, ß$_{MIN}$ 20	
	Substitute: 2N3055	

TABLE IV

Audio Amplifier Circuit (Block 5):
Output from the GAIN control connects to two stages of pre-amplification by Q7 and Q8. The siren tone from Q1 bypasses the gain control and is coupled directly to the base of Q7. The collector of Q8 is directly coupled to Q9, the phase splitter. The siren signal is higher voltage than the audio and gets clipped into a square wave. during amplification. The signals at the collector and emitter of Q9 are basically identical, except they are 180° out of phase with each other. Q10 and Q11 drivers are wired as emitter followers and provide current gain to drive the output transistors Q12 and Q13. Bias for the driver and output stage is through R41 and is regulated by D3 and D4. D1, D2, R39 and R40 distribute the bias. R44 provides additional emitter bias. Diodes D3 and D4 are located in proximity to Q12 and Q13 to also provide thermal stability by changing the bias in relation to the temperature.

Some Heathkit humor forwarded to me by John - K7KF

Q12 and Q13 drive T1 and provide 16 Ω output to the speaker.

Comments:
For the past several years, in honor of April Fools' Day, the April subject is often one of the more unusual Heathkits sold. My favorite is the HeathCraft candlesticks [8]. This year, when I saw the GD-18 Electronic Siren, it was chosen. Little information was available other than the specification sheet and what could be gleamed out of the catalogs. It was going to be a short article, but a parts list was needed so an email went out. Within a day I had parts lists from the −10 and −15 manual editions as well as a full pdf of the −10 manual [9]. So much for a short article.

While laws vary by state, one has to doubt a siren can be legally used in a private vehicle by a common citizen. And further, It is hard to believe police departments, and fire and ambulance companies would be purchasing kit sirens. Initially, factory assembled models were not available. Having lived in restriction heavy California for 60 years I couldn't grasp who was buying these kits. Retired Heathkit Executive Vice President, and General Manager Chas Gilmore - W8IAI kindly replied to my query:

Bob,

At the time the market was to volunteer fire and police auxiliary. I believe in mostly rural areas where volunteers made up significant portions of departments. They had authorization to use sirens and light bars on their personal vehicles when responding to an emergency. If they had such equipment, it was at their own expense (I think some departments would reimburse - partially or fully in some cases). I'm not sure when this practice was discontinued. They were good products in the 1970s and discontinued by the late 1980s.

Chas

Having lived in suburbia most of my life; I forgot about rural volunteer fire departments and police auxiliaries. Googling "sirens in private California vehicles", revealed no definitive answer on the legality in the State. The search results quickly diverged to commercial entities that serve the whole country. However, states with a lot of rural areas, evidently allow sirens and lights on civilian vehicles associated with sanctioned volunteer services.

In numerous states the law doesn't allow a vehicle to use its siren unless it is also showing flashing lights. The later GD-1810 had an accessory light relay for this purpose: The GDA-1558-1 Emergency Lighting Relay ($4.95).

There is a YouTube video[10] that shows the GD-18 in action on the bench. The siren sounds as good as one on any California emergency vehicle.

New Heath Spec. Sheet Site:
Check out the Heathkit Specification Sheet page[11] on the W6ZE website. It currently contains 157 sheets in 15 categories. More are being added as time allows. It is still in beta, but is quite useable. Most of the schematics are very readable when enlarged.

73, from AF6C

Notes:

1. More on the use of this product in the comments section of the article.
2. See HotM #123: https://www.w6ze.org/Heathkit/Heathkit_123_CI1080.pdf
3. GD-18 Fuse: OEM part #421-9 **Buss** MDX-7 (125 V),
   or substitute **Littelfuse** 3AG 313 007 (250 V)
4. Detailed wiring instructions are included in the manual for both positive and negative ground vehicles.
5. ibid.
6. This description is different than the one presented in the Circuit Description section of the -10 manual.
7. The MANUAL button, when pressed, will cause the tone to rise continually as long as it is held, up to its limit. When the button is released the tone will lower until it stops. If the button is pushed again while it is lowering, it will start to rise again.
8. See HotM #123: https://www.w6ze.org/Heathkit/Heathkit_039_F2587K.pdf
9. The following people contributed to this article:
   Chas Gilmore - W8IAI, Steve Gladstein - N8FH,
   Chuck Penson - WA6ZZE, Santos e Silva,
   Dan Viloette - KI6X
10. https://www.youtube.com/watch?v=63vED485Eq4
11. https://www.w6ze.org/Heathkit/HeathSpecSheetsIndex.html

Heathkit®

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

Thanks - AF6C

[*Gilbey Park* from page 7]

"What kind of antenna is it?"

"It's a crossed dual-feed dipole for 150 MHz, so it's not very large, less than a yard square. I have the antenna all assembled and lots of feed-line. I just need to figure out how to mount it on the roof at least 10 feet above the peak," Carol replied.

Impressed with Carol's understanding of antennas, Mike asked, "What kind of project requires such an antenna? That frequency is in the business band."

Coyly, Carol replied, "If you help me with the antenna I'll give you a demonstration when I have it all working, which is easier than explaining."

They agreed to meet behind Carol's house the next day at noon, and as soon as Carol left, Mike could only think of two things. One was Carol's blue eyes, and the other was: What was at 150 MHz? He went up to his bedroom shack, turned on his scanner and set it to 150 MHz. With the squelch open he heard only static. He closed the squelch and sat down to read while monitoring for a signal on that frequency. He monitored that evening and into the night but heard nothing. The only time the squelch opened was in conjunction with lightning flashes when a small thunderstorm passed nearby.

At noon the next day Mike and Carol met behind her house. The nighttime storm left the air hot and muggy. Carol showed him the antenna. It looked like a horizontal 'X' with 2 inch thick elements about 17 inches long. There was an insulated hub in the center with three 'N' connectors and a wing nut on a bolt. At the base of the antenna hub was an opening and screw holes to hold it to a mast. A thin vertical whip came out of the center top of the hub. Carol had a few sections of 5 and 10 foot steel TV masts, guy fittings, Phillystran guy cable, and three lengths of coaxial cable carefully coiled nearby, atop a heavy duty tarpaulin. Mike noted that the coax was an expensive, high-quality brand.

"Before we start," she said, "I want you to know a little bit about this antenna. The wing nut is for a ground wire for lightning protection. The horizontal elements are two inches thick to increase the bandwidth and minimize phase-shift errors. You'll also notice that the two dipoles are identical and exactly 90° apart. All the mounting hardware is as symmetrical as possible so that the effect on both dipoles is the same. My goal is to have two identically radiating dipoles at right angles. The pigtail coax between the dipole and connector are as identical as I can make them and the feed-lines from the two horizontal antennas are cut identical in length too. The only difference between the two dipoles, other than their orientation is that this one element has a red cap on the end instead of black. That element needs to point to true north as closely as we can get it. The vertical antenna is fed separately and is not as critical to my design."

"Is this some kind of direction finding antenna?" Mike asked seriously. Carol just smiled and said nothing.

They decided to mount the antenna on 20' of mast off a vent pipe near the roof line. Non-conducting Phillystran guys supported the mast

at the 15' level. With Mike's rooftop antenna experience, the antenna was soon up. Three lengths of coax and a ground wire were dressed down the side of the house; the coax was put through a basement window. Both Mike and Carol were sweaty from the work by then, and Mike decide to invite Carol over for some lemonade and a dip in the backyard pool.

Carol hastily declined. "I want to start setting up my experiment in the basement. Come by tomorrow afternoon for a demonstration". Whence she walked up to him and gave him a peck on the cheek, turned and escorted him to the door. Mike felt disappointed, after all his work, to be left so abruptly. Still, he had enjoyed helping her, and the kiss, though brief, was a pleasant surprise. That evening he again monitored 150 MHz. This time he set the monitor to scan between 148 to 152 MHz. He heard nothing but the local taxi cab company's dispatch.

The next afternoon Mike went next door. Carol's mother sent him down in the basement to where Carol was working. In the basement he got a real shock as he walked by a storage room that was literally packed with expensive modern test equipment and all kinds of storage bins evidently full of electronic parts.

Carol had come out of her work area to greet him and commented, "That's all Uncle Winston's stuff. Dad wanted to send it to storage, but I asked if I could go through it first. There's some neat equipment there." She said all this in a disappointed tone.

"What's the matter, Carol?" Mike asked, reading her disappointment.

"Oh, it's my experiment. I've got some kind of interference, and I can't figure out where it's coming from. Come into the lab and see for yourself."

"I hope it's not coming from a ham!" Mike said jokingly. Carol's response was just silence.

She took him back into her "lab". On the workbench was a circuit board containing numerous components and two long shielded enclosures. A bench-top power supply was powering the board. And two of the feed-lines, from the antenna they had installed the previous day, snaked out from the casement window, each connecting to one end of the separate shielded enclosures. The vertical antenna lead connected directly to the circuit board. Leads from the circuit board went to a MacBook computer, and on the screen of the computer was a circle with its circumference marked from 0° to 360°. A steady green line extended from the middle of the circle almost to the outer edge at the 300° mark. As Mike looked closer he noticed the length of the line varying slightly.

"On the circuit board are two superheterodyne receivers tuned to 150 MHz," Carol explained. "They share a common crystal heterodyne oscillator, and I've constructed and adjusted the receivers so that they are as identical as possible. They seemed to work perfectly until I connected the antennas.

"Just listen to this," Carol exclaimed as she turned the volume up on a little audio amplifier that was also wired to the circuit board. A continuous beeping sound came from the speaker. It sounded like a series of never ending dashes occurring at about two per second. "It's an AM modulated carrier. I measured the tone of the

dashes at 400 Hz. The receiver is set right on 150 MHz and that signal shouldn't be there. My receivers have 10.7 MHz IFs, and I checked all the image frequencies; none of them show a signal like that. What is this signal? It's quite strong and must be close by."

Mike admitted the signal was a mystery to him, and promised to investigate. "I hear nothing on 150 MHz on my receiver at home". Then he added, "But you never told me what this setup is supposed to do?"

"It's a storm tracker. I'm building it for the local TV station," Carol explained. "They're too small to afford Doppler radar like the big city stations. I plan to build and install multiple systems like this one around the County. They will be linked via the Internet. Right now my program can handle up to three inputs and plot them on a computer map of the County. I hope to get up to six stations set up around the County after I feel that everything is working right. The vertical antenna provides a sense signal to eliminate the 180° ambiguity. Later, I hope to modify the software and see if I can determine the path of the lightning and whether it's a ground strike or cloud-to-cloud lightning."

That evening Mike listened on the various receivers he owned, searching for the unknown signal. One frequency he wanted to check was 75 MHz or half of the 150 MHz frequency Carol was using. However, 75 MHz was within a small 4 MHz wide government band between TV channels 4 and 5, and was not a frequency that was easily received. He thought about using his TV, but it had digital tuning. He finally went to bed and pondered over the problem awhile before falling asleep.

He dreamed of Carol. They were at the lake where his parents vacationed every summer, and they were sunbathing on the diving float in the middle of the lake with his portable GE transistor radio next to them blaring away. But there was something wrong with this dream. Coming from the radio was not the sound of the local rock station he enjoyed so much; instead it was the audio from a TV soap opera!

Mike waked with a start. Of course! His old GE transistor radio received not only AM and FM but also the VHF TV band. He got out of bed and dug in his closet until he found the radio. After a slight delay to install the batteries, he turned the radio on, pulled out the antenna and began tuning between channels 4 and 5. He was almost immediately greeted with the same loud 400 Hz dashes heard in Carol's lab. He had found the source! Mike thought of telephoning Carol but it was almost three in the morning; besides he didn't know Carol's phone number. As he went back to bed he asked himself some questions: "What is the origin and purpose of this strange signal, and why is Carol's weather-tracker picking it up?" Mike was determined to discover the answer to both questions.

The next morning he took the transistor radio over to Carol's. Her Mom again sent him down into the cellar and he quietly walked into the lab. Carol was hard at work and didn't notice Mike enter. "I've found the source of your interference!" Mike announced. Carol jumped.

"You startled me." Carol replied after a few gasps of breath, "Really, what is it?" Then she realized she was still in her nightgown and quickly slipped on her robe, not seeming the

least disturbed, and proceeded to question him on the source of interference.

Instead of answering, Mike turned on the little GE radio and the loud dashes filled the room. “The source is at 75 MHz; but I have no idea what it is or where it’s coming from.”

“I wonder why my equipment is picking it up?” Carol said. “The RF amplifier gain is set low on purpose to prevent overloading from close lightning strikes, so I can’t believe the signal is overloading the first stage and creating harmonics; yet that must be the case. I wonder how strong and how close the source of that signal is?”

“Let’s track it down,” suggested Mike, not realizing how much trouble those four words would bring them.

Carol said she had promised to go to the mall with her mom that morning, but perhaps they could look for the source that afternoon.

“It’s a date,” replied Mike. “I’ll fix up some sort of a direction finding antenna while you’re shopping.”

It didn’t take Mike long to put together a dipole consisting of two collapsable whip antennas mounted horizontally to a scrap of phenolic with a wood dowel covered with black tape for a handle. A toroid balun coupled the antenna to a short length of coax and the transistor radio. Mike went outside to try it out. The signal came in strongly and changed in strength as he turned the antenna. He had to pause as a commercial jetliner passed nearby on its way to the County Airport about seven miles to the south. When the jet noise quieted, he adjusted the antenna for the deepest null. The signal was coming from either directly east or directly west. Eagerly he waited for Carol’s return.

It was early evening when Carol got back from shopping. She apologized for being so late, and they decided to wait until after dinner to conduct their search.

About 7:30 PM they met outside Mike’s house. It was nearing summer solstice and they knew they had almost 90 minutes left Until darkness came. Mike told Carol about his preliminary bearing, and she suggested that they start looking towards the west since that was the direction her tracker had indicated for the interference. The evening was balmy as they started to go north on their bicycles. After about a mile they stopped and Mike took another bearing. It had changed significantly and the signal appeared to be coming from the south southwest.

“Wherever the signal is coming from, it must be close by,” remarked Carol, as Mike aligned the antenna up with a pocket compass he had brought along.

Mike produced a map he had gotten from the town’s Chamber of Commerce. He had already plotted an east-west line on it from his previous bearing. Now he carefully plotted the new bearing. The lines on the map intersected near the west end of Gilbey’s Park, just a few blocks west of where they lived. Carol suggested they take one more bearing so they rode to the west about a mile and took a third bearing. When Mike plotted the third bearing on the map it intersected very close to where the other two lines crossed. Mike was elated, but when he looked at Carol, he detected some unhappiness in her face. “Let’s head to Gilbey’s Park

and see what we can find," Mike said. Carol only nodded in agreement. It was obvious something was suddenly bothering her.

Dusk was turning into nighttime when they reached the park. Most of the park visitors had left, and the remaining few were loading up their cars. Gilbey's Park officially closed at 9 PM in the summer, though there was no gate that locked, and anyone could enter the park at any time. Fortunately, the neighborhood was a quiet one, and there was rarely trouble or vandalism on the park grounds. Mike took out the antenna and set it up. Soon he was tracking the signal with Carol following close behind. they tracked the signal to the west side of the park. It seemed to be coming from directly behind a tall hedge that traveled the full length of the western edge of the park

The park was totally void of cars and people now, except for a lone vehicle in the lot. The glow of a cigarette could be seen in the vehicle. "It must be someone having a last smoke before going home where smoking probably isn't allowed," commented Mike.

"Check this out," remarked Carol. She had found a break in the hedge and a narrow path that must have been made recently.

Mike folded up the antenna and they entered the shrubs along the path. After about ten feet they entered a small clearing. The way to the west was blocked by a chain-link fence; this was as far as they could go. Carol reached into her backpack and brought out a powerful flashlight. "I was afraid we'd be out after dark," she commented.

Part of the fence shined brightly in the beam of the flashlight. It was evident that the fence had been breached at this point and was recently repaired. Carol shined the light along the fence. The fence, topped with three strands of barbed wire, surrounded a clearing about 50 feet on a side. Both Carol and Mike, however, were looking at what was in the middle of the clearing. A red-orange painted antenna in the shape of two yagis pointing up in a 'Y' configuration sat on a short structure above a small building painted in a checkerboard pattern of the same red-orange and white paints; the building was no bigger than a small garden shed. They had found the source of their interference.

"I wonder what it does?" Mike asked, but Carol didn't hear him. Overhead, a jetliner was passing on its approach to the County Airport and it covered up Mike's words. It also covered up the sound of someone making their way into the hedge.

When the plane had passed, Carol said, "It's gotten totally dark. Let's go home."

"Okay," Mike agreed, but as they turned around to head back out through the hedge, the flashlight beam revealed a man standing there. He was a big man with a mean looking face and was very muscular. He was wearing a blue wind-breaker and dark blue pants. None of that mattered at the moment though, because mean as he looked, in his hand was a meaner looking automatic pistol!

[End of part I]

To Be Continued (Maybe)

Bob's TechTalk

Number 56: JIS SCREWDRIVERS:
(TechTalk #131)
by: Bob Eckweiler - AF6C

INTRODUCTION:
Have you ever worked on a Japanese radio, camera or other instrument, even maybe a bike or vehicle, and noticed your Phillips head screwdriver didn't quite fit right? The reason is because that isn't a Phillips head screw! If you look at the head of the screw you might notice a dimple or sometimes an 'X' on the head of the screw. **(See Figure 1)** This distinguishes the screw as a Japanese Industrial Standards (JIS) screw. If you use a Phillips head screwdriver on a JIS screw you chance damaging the screw head. Your driver will tend to "cam-out" when you apply excessive torque.

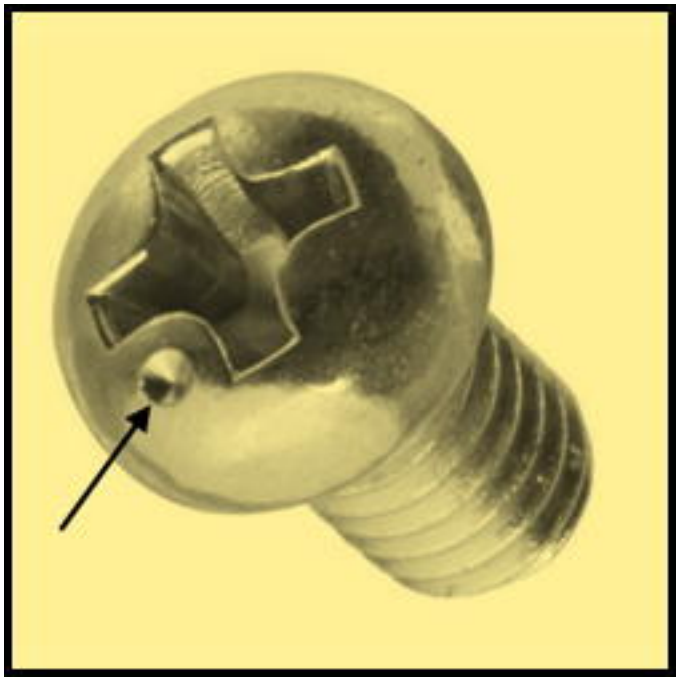


Figure 1: JIS screws are often identified by a dimple on the face of the fastener. Sometimes the dimple is replaced with an 'x'.

JIS screwdrivers come with different tip sizes, just like Phillips screwdrivers. The most common sizes are PH0, PH1, PH2 and PH3. There are also PH00 and PH000 which are for very tiny screws, such as those used in watches. PH is sometimes replaced with a '#' character. PH1 is for M2, M2.2, & M2.5 metric screws, PH2 is for M3, M3.5, M4, M4.5 & M5 metric screws and PH3 is for M6 & M8 metric screws.

Figure 2 shows a JIS screwdriver tip along side of a Phillips head screwdriver tip. A few of the obvious differences are:

The end of the JIS is blunt instead of rounded.

The angled sides are shorter and straight instead of being rounded.

Less noticeable are features on the screw head. The slots are more vertical with slightly less width.

Both have the same cone angle.

The advantage of the JIS screw, when used with the correct tool is that the problem of "cam-ing out" is highly reduced.

While Phillips head screwdrivers are a bad fit for JIS screws, the opposite is not

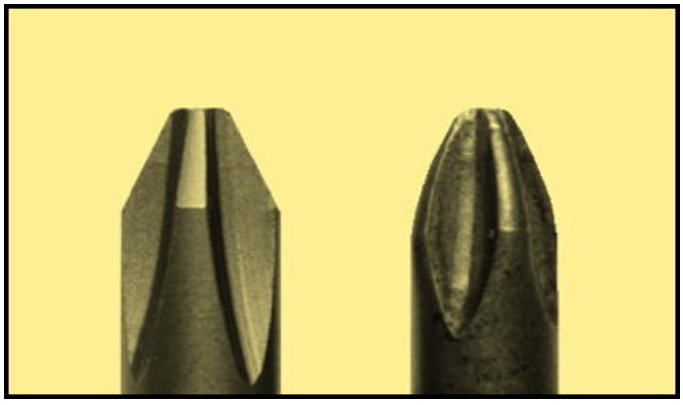


Figure 2: JIS screwdriver tip is on the left and a Phillips head screwdriver tip is on the right'.

true. The proper sized JIS screwdriver will engage loosely and at full depth with a Phillips head screw and not damage the screw head.

JIS screwdrivers are not very common. A check of Harbor Freight a few months ago drew a blank. However, recently they started selling an 87 piece Electronics Repair Kit for $37.99 that includes four JIS bits. (Quinn sku 59258). A Google search of ACE Hardware and Home Depot using "JIS Screwdriver" turned up thousands of screwdrivers of all types. None that I looked at were JIS (No way could I look at them all!). Lowe's search actually produced just one, a 58 piece ¼" screwdriver bit set that included #000 - #1 JIS bits. (Item # 2536240 by MaxxHaul $23.76).

A look on Amazon resulted in numerous choices; these sets are rather expensive compared to more common screwdriver sets. A three screwdriver set from Riftwild (JIS #1, #2 and #3) runs $56; a similar set from Gofast Innovations runs $50.

Two less expensive sets, that have gotten good reviews, are from AB Tools ($26.72). It's a four screwdriver set which includes:

1 x Japanese Screwdriver JIS PH2 - total length 110mm (screwdriver shaft excluding the handle total length - 38mm)

1 x Japanese Screwdriver JIS PH1 - total length 190mm (screwdriver shaft excluding the handle total length - 75mm)

1 x Japanese Screwdriver JIS PH2 - total length 220mm (screwdriver shaft excluding the handle total length - 100mm)

1 x Japanese Screwdriver JIS PH3 - total length 280mm (screwdriver shaft excluding the handle total length - 150mm)

And from Vessel (Armor Grip - UPC: 840921124825 $19.97 **Figure 3**) which includes:

1 x Japanese Screwdriver JIS PH0 (screwdriver shaft excluding the handle total length - 75mm)

1 x Japanese Screwdriver JIS PH1 (screwdriver shaft excluding the handle total length - 75mm)

1 x Japanese Screwdriver JIS PH2 (screwdriver shaft excluding the handle total length - 100 mm)

1 x Japanese Screwdriver JIS PH3 (screwdriver shaft excluding the handle total length - 150 mm)

The larger screws are used on many Japanese bicycles, motorbikes and vehicles. Honda uses them, probably others too.

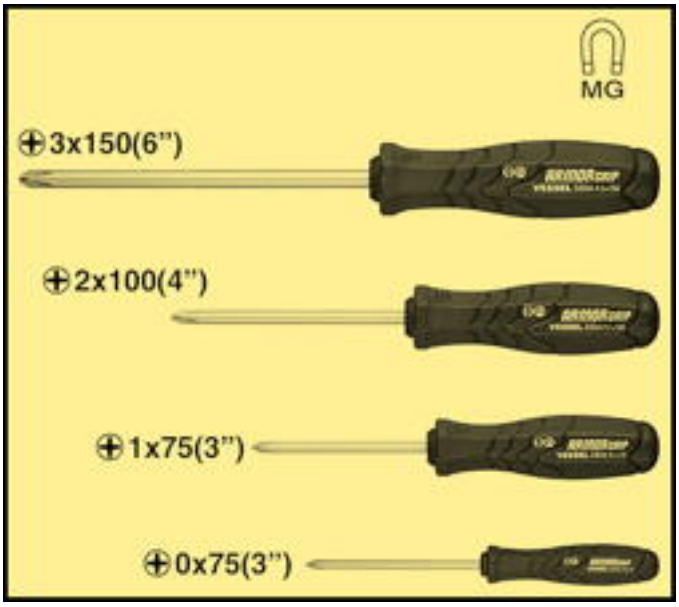


Figure 3: The Armor Grip JIS screwdriver set from Vessel. Available on Amazon (~$20.)

73, from AF6C

Willie Peloquin N8WP SK
Dec. 7, 1964 - Jan. 4, 2023

Willie Peloquin, N8WP, former OCARC President (2006 & 2008) passed away on January 4, 2023 in Dallas, Texas. News of his death only reached our club late this winter. He was 56.

Willie, originally from Warwick, Rhode Island, joined our club in 2004. He is first mentioned in RF as a visitor to the July 2004 board meeting along with his wife Cheryl, KG6KTT. Willie quickly became a very active member and served as the club vice president in 2005 under Ken - W6HHC. In 2006 Willie took over the presidency, and Cheryl became our Treasurer.

In July of 2008, Willie, again president, announced at the board meeting that his contract with Boeing ended and he was moving back to the east coast to start a new job. He had hopes to return quickly when a new Boeing contract came through. He knew he'd miss our 2009 Field Day, but hoped to be back for 2010. However that never happened. Willie worked near Boston for a couple of years before taking a job in Annapolis, MD. Around 2011 he and Cheryl separated, and Cheryl moved to Washington, and then to her home town of Grants Pass, OR.

Willie remarried just a month before his death. The cause of death was not given, though, in lieu of flowers the family requested donation to the American Liver Foundation. Interment was in St. Ann Cemetery, Cranston, RI.

William Peloquin Obituary West Warwick, RI

? PUZZLER ?

The Polynomial Puzzle

Can you simplify the following polynomial?

$$(x + a)(x - b)(x + c)\ldots(x - z)$$

where $a\ldots m$ are odd integers between 1 and 49 and $n\ldots z$ are even integers between 52 and 100. Integers may be used more than once.

Note that the sign alternates with each term.

Hint: You don't have to be a mathematician to simplify this equation; it just takes a little examination and thought!

Send your answer to rf_feedback@w6ze.org When you answer, please also vote on whether you want the story, starting on page 6, to continue.

Answer will be published in a future issue of RF Newsletter.

? PUZZLER ?

OUTSTANDING CLUB BADGES

They're not outstanding because they're better than other OCARC club badges. They're outstanding because they have not been picked up by their owner.

Here is a list of recently ordered badges still in the possession of the "Little Olde Badge Maker":

Date Made	Call	Name	Pd.2025
03/05/25	KN6WPB	THOM	
03/05/25	KN6SPO	JOHN	
03/05/25	N6MG	MILTON	
03/05/25	K6MKL*	MICHAEL	
03/05/25	W6VNI*	CAROLYN	
03/05/25	W6TMG	TODD	
02/15/25	W6HHC	KEN	
01/16/25	AK6KT	MICHAEL	
11/14/24	KG6TIM	TIM	
11/14/24	KN6GEZ	JASON	
11/14/24	KO6GEN	CIRIACO	
07/19/24	KF6RES	MIKE	
04/18/24	WJ6K	ERIK	
03/14/24	N6JBW	JOHN	
02/14/24	KN6QDV	DON	
07/07/23	KE7GMK	TIM	
01/19/23	KN6OIN	ADNAN	

* Nicholas to give these badges out at the next WARA club meeting.

Here is a list of older badges that have not been picked up. Many belong to people whose license has expired or they have moved out of the area. As time permits, badge owners are being contacted about disposition

Early 2019:
KK6RZS Gordon.

2018;
KM6PZY Prakash, KM6VWQ Charles.

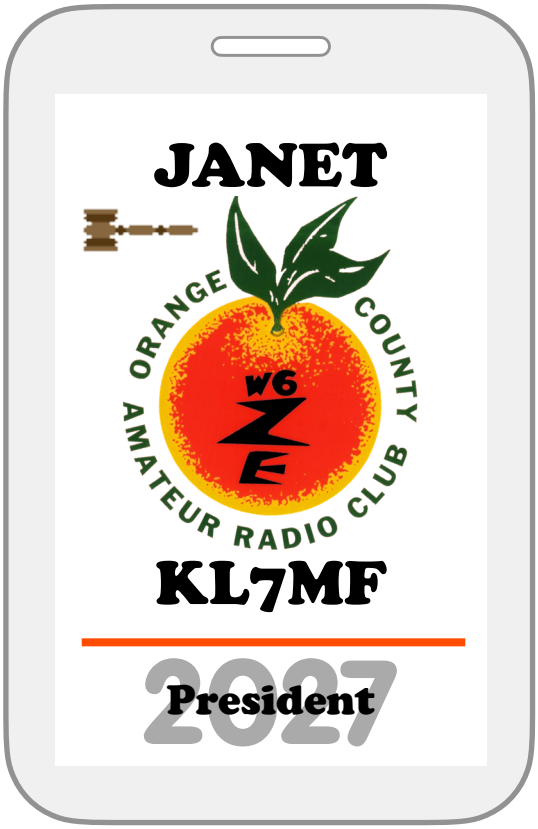
2017
KØTZ Stephen, KM6BED Brad,
W7MYC Russell.

2015
KK6ULJ Frank.

2014
K6ACJ Bill.

2013
N6NVB Steve - Holding, may return.

Anyone wanting their badge mailed to them (less clip) can send an SASE envelope to AF6C.



OCARC Board Meeting Minutes

APRIL 5, 2025

The OCARC board meeting was held at the Streamliner Lounge, 186 N. Atchison St. Orange and was called to order by Vice-President Tim Goeppinger, N6GP. A quorum of Board members were present.

Directors Reports

-Treasurer Report: Tim N6TMT reports income is $2,009, outflows of $714 Dues collected by Pay Pal was $450. Checks collected and donations were $1,413. Overall assets are good.

-Membership Report: Ron W6WG reports we have 100 members with 3 Honorary members, renewal period has ended, reminders of yearly dues had been sent out.

-Activities Report: Corey KE6YHX reports he will be providing snacks, water, etc., he will also provide an opportunity drawing at the next meeting as well. Corey also reports that at his Emergency Services meeting he may have a potential new member interested and gave him info to contact our club.

-Publicity Report: None

-VE sessions for amateur radio licensing continue prior to our monthly club meetings under the guidance of Ken W6KOS.

Club Monthly Planner Review

Tim N6TMT will work on the Treasurer File IRS Form 990-N and CA FTB 199N online which is due in May.

Old Business

Newsletter Editors Report
April: Bob AF6C
May: Tim N6TMT
June: AJ W6OTO

Speakers/Entertainment

April: Dennis K. W6DQ

May: Discone @ Titan Missile Museum will present 2 shorts talks via zoom

June: TBD

Ron W6WG has agreed to be the summer field day chairman, he will confirm the site in Huntington Beach. Discussion was held about plan B in case of summer storms, also discussed the insurance rider as we currently have a $1,000,000 policy in place.

New Business

None

Good of the Club

Arnie N6HC and Tim N6GP went to Cal State Fullerton and gave a Morse Code demo which the students seemed to really enjoy.

Joyce Rodman - KN6UKJ
OCARC Secretary

Late Breaking News: Wayne Overbeck - N6NB Silent Key.

The ham world lost a legendary advocate on Saturday April12th 2025
If you haven't read Wayne's article in last month's issue of RF you may want to now.
Wayne was the holder of numerous VHF and UHF distance records.
For details and plans for a service monitor www.w6ze.org

OCARC General Meeting Minutes

March 21, 2025

The meeting began with the Pledge of Allegiance.

Everyone in attendance took a moment to introduce themselves.

Tim N6GP Vice-President introduced tonight's speaker, Michael Rickey - AF6FB who presented a very interesting and informative program on Meshtastic networking systems for amateur radio. He brought several devices for show and tell and answered many questions on their availability and productivity. *[Editor - check the next two pages for links from this talk]*

After a short break the meeting continued with club business.

Business Meeting

A quorum of board members were in attendance.

Tim N6GP VP reports next month's speaker will be Dennis Kidder, W6DQ, who is a retired system engineer out of the aerospace industry, he has worked on many things including satellites, telecommunication systems.

Corey KE6YHX Activities reports it was a successful opportunity drawing and plans to have a drawing hopefully every 2 months. Corey continues to bring water, coffee and snacks to our meetings. 25 members were in attendance tonight.

Ron W6WG Membership reports we have 114 members, 85 are fully paid for this year, Ron will send out reminder emails to those who have not paid dues yet.

Janet KL7MF Director at Large reminded all members of changes in our meeting schedules as next general meetings will be held April 25, and May 23.

Ask Elmer questions were posed and answered with our members giving support and guidance to those new amateur hams in attendance.

A motion was made to approve Bob Eckweiler - AF6C what he needs for badge supplies. Seconded and passed.

Planning for summer Field Day was discussed. Also discussed was our Special Services Club which is up for renewal and includes our offering of VE testing now.

Good of the Club

Ken Simpson W6KOS continues to offer VE testing prior to our monthly general club meetings. Two passed and became technicians tonight.

Show and Tell

None. Dan KI6X President discussed doing a show and tell and encouraged members to bring in their devices.

Good of the Club

Ken Simpson W6KOS continues to offer VE testing prior to our general club meetings, 2 potential members passed and became technicians tonight.

8:45 Motion to adjourn made, seconded and passed. Submitted by:

Joyce Rodman - KN6UKJ
OCARC Secretary

Meshtastic Links from March Program - Michael Rickey AF6FB

Meshtastic

meshtastic.org

SoCal Mesh

socalmesh.org

Meshtastic Flash

flasher.meshtastic.org

Mashtastic Web

client.meshtastic.org

MeshMap

meshmap.net

MeshSense

affirmatech.com/meshsense

Cont.

Meshtastic Links from March Program - Continued

TC2-BBS

github.com/TheCommsChannel/TC2-BBS-mesh

Meshtastic - Invitation to Join

discord.com/invite/ktMKGBnBs

SoCal Mesh - Invitation to Join

discord.gg/cMY3vRs9Yw

LoRa

lora-alliance.org

Alley Cat Cases

www.printables.com/@AlleyCat

Rockland *(look for Meshtastic in the top menu)*

store.rokland.com

Cont. on Page 32

CASH FLOW - First Quarter

January 1, 2024 through March 31, 2025

Category	Amount
INFLOWS	
Badge Income	$6.00
Dontation(s)	$57.00
Dues, Membership (PayPal) 2025	1,413.00
Dues, Membership 2025	450.00
Opportunity Drawing	65.00
Refreshment Income	18.00
TOTAL INFLOWS	$2,009.00
OUTFLOWS	
Activities Supplies	$240.14
PayPal Fee	73.02
Brochure Printing	265.80
Software License (Quicken)	59.88
Web Site Hosting	75.00
TOTAL OUTFLOWS	$713.84
OVERALL TOTAL	$1,295.16

[*Prez Sez* from page 1]

thank Bob, AF6C, for the many hours he spends each week on the W6ZE website. It is a lot of work just with the regular updates. As always, if you see a section that needs updating let us know. If anyone wants to write up new text for any section (i.e., Emergency Communications), let us know. Editing the website is one thing, generating the information is another large effort that we could use help. Other things that happen behind the scenes and I am appreciative of is Tim, N6GP, planning the speakers, and the other officers doing their duties without me having to do much there. Please thank them when you see them.

Dan Violette, KI6X
President

Next RF Deadline is: MAY 7th.

Meshtastic Links - Cont.

Atlavox *(Pre-built radios)*

atlavox.com/collections/atlavox

Michael Rickey AF6AB
af6ab@arrl.net
http://mrickey.com

The ORANGE COUNTY AMATEUR RADIO CLUB, INC.
RF - VOLUME LXVI ISSUE 4 - APRIL 2025
P.O. BOX 3454
TUSTIN, CA 92781-3454

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