RF

ORANGE COUNTY AMATEUR RADIO CLUB, INC.

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The Prez Sez...
By Dan KI6X

We have started the big push to get ready for Field Day which is the last weekend in June. Keep your eyes out for emails on help needs, etc. We always need operators along with set-up and tear-down help. It is always a fun time for all involved no matter your level of participation you are able to do.

Regarding our April Zoom General Meeting, we must have forgotten most of what it takes to run a Zoom meeting since it had been a long while. I think we have redundancy planned for this month's meeting, which will again have our speaker attending via Zoom. I really do want to encourage you to attend in person to enjoy the discussions that go on with other members and the ability to meet with each other. It looks like we will need to have a few future speakers via Zoom, since they are not local. We will still create a Zoom link that will get sent out to all members, but again, hopefully you can attend in person if able.

As always, please contact any of the Officers listed on the next page if you have comments, questions, suggestions, etc. The OCARC Board members are your representatives and we need membership feedback on what they would like. Also, please mention the club to your friends. We have a great website, enjoyable meetings, some fun activities outside the meetings, have license testing before the general meetings, etc. You may not have noticed but we stayed at over 100 members after the membership renewal grace period ended, which is a record we think for the club. We hope that this is an indication we are doing something right!

We are on a tight schedule for this newsletter so I am not going to create a new picture. The one included is me operating at last year's Field Day.

Dan Violette, KI6X
President

NEXT GENERAL MEETING

Christian Claborne N1CLC

Presents
"Summits-on-the-Air"

May 15th, 2026, at 7pm
at the
American Red Cross
Orange County Chapter
Santa Ana, Room 208

NEXT BOARD MEETING

Saturday, May 30th, 2026

See www.w6ze.org for more info

In This Issue

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Monthly Events

Membership Meetings*
Time: 7:00 PM
When: 3rd Friday of each Month
Red Cross Orange County, Room 208
600 N Parkcenter Dr, Santa Ana
(Replaced by the Christmas Party in December.)

Board Meetings
First Saturday of each Month
Board will handle Club business now IN-PERSON.

Club Nets (Listen for W6ZE)

10M ~ 28.375 MHz SSB
Wed- 7:30 PM - 8:30 PM
Net Control: Corey, KE6YHX
Alternate Net Control: AJ, KN6WNO

2M ~ 146.55 MHz Simplex FM
Wed- 8:30 PM - 9:00 PM
Net Control: Corey, KE6YHX
Alternate Net Control: AJ, KN6WNO
Echolink Node: KK6TRC-L

75M ~ 3.883 MHz LSB
Tue @ 8:00 PM
Net Control: Corey, KE6YHX

Other Nets

Catalina Amateur Repeater Association (CARA)
147.090 MHz (+0.600 MHz) No PL
Monday - Friday
9:00AM & 9:00PM
Prg. Director. Tom W6ETC
COME JOIN US

OCARC 2026 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 interactive online forms to calculate current prices, join, renew, or order badges:

https://www.w6ze.org/FormsShortcut.html

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

May Speaker Spotlight
Christian Claborne, N1CLC

Summits On The Air (SOTA)

This month we are pleased to have Christian Claborne back to give us an introduction to SOTA - what it is, why to do it, and how to do it.
Chris Claborne, N1CLC, operates mostly from mountaintops doing Summits On The Air (SOTA), and is the W6 (California) SOTA Association manager. Since he started SOTA in October of 2017, he has activated over 817 summits in Southern California, Arizona, New Mexico and several other states. Years ago, he was an Army Medic and a certified EMT, and as a private pilot, steeped in the “safety culture” of aviation. Last year he wrote a series of 10 articles on the subject of SOTA Safety.

N1CLC’s BLOG (HamNinja.com) and his YouTube channel cover SOTA, and other Ham Radio interests. Chris also built and manages the W6 Association web site www.W6SOTA.org to support California SOTA operators and the SOTA community.
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2026 Field Day Plans

Where ??? Spring View MS at 16662 Trudy Lane, Huntington Beach, CA

When ??? June 27 & 28 (Setup is on June 26 and everyone is invited)

Class 5A

HF Bands 2m, 10m, 15m, 20m, and 40m

Modes SSB, CW, FT8, FM, SAT

Tower s, Masts and Antennas

- **Tower #1 – 50' tower with Tri-bander and 2 ele. 40m Wire Yagi**
- **Tower #2 – 50' tower with Tri-bander**
- **Military Mast – 2m Vertical**
- **Masts (3) – 40m Wire Yagi**

Tent #1

- **Station #1 CW 10m & 20m**
- **Station #2 CW 15m & 40m**
- **Station #3 FT8 on bands not used by Stations #1 or #2**

Tent #2

- **Station #4 SSB 10m, 15m, 40m**
- **Station #5 SSB 20m**
- **GOTA 2m FM and SSB bands not used by Stations #4**

Satellite

- **2m/440 Yagi**

Please email Ron W6WG at w6wg@w6ze.org if you have any questions or suggestions.

RadioActivity
May/June 2026

Upcoming Activities:

MAY

- **His Maj. King of Spain Contest, CW:** 1200 UTC Saturday May 15 through 1200 UTC Sunday May 16
- **CQ WW WPX Contest, CW** 0000Z, Saturday May 30 through 2359Z, May 31.

JUNE

- **ARRL Intl Digital Contest** 1800 UTC Saturday June 6 through 2400 UTC Sunday June 7
- **ARRL June VHF Contest:** 1800 UTC Saturday June15 through 0259 UTC Monday June 17
- **ARRL Field Day:** 1800 UTC Saturday June 27 through 1800 UTC Sunday June 28

State QSO Parties:

- **Arkansas QSO Party:** 1400 UTC Saturday May 16 to 0200 UTC Sunday May 17
- **Kentucky QSO Party:** 1300 UTC Saturday June 6 to 0100 UTC Sunday June 7
- **Atlantic Canada QSO Party:** 1400 UTC Sunday June 7 to 0100 UTC Monday June 8
- **West Virginia QSO Party:** 1600 UTC Saturday June 20 to 0400 UTC Sunday June 21

Repeating Activities:

- **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
- **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
- **K1USN Slow Speed Test:** (CW, 20WPM Max.) Every Friday 2000 UTC to 2100 UTC
  Every Sunday night at 0000 UTC to 0100 UTC Monday

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 Links:

- ARRL Contest Calendar
- WA7BNM 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.*

OCARC Past President Jim Roberts, N6XTJ Silent Key.

James L. Roberts - N6XTJ passed away on June 9th 2025 while visiting his hometown for a Beaumont High school reunion. Cause of death was not given. The news of his passing recently reached the OCARC.

At the time of his death, Jim was retired and living in Ojai, in Ventura County. There he was active in the OVARC (Ojai Valley Amateur Radio Club) and the Ojai Valley Gun Club. Jim was a former Forensic Investigator for the LA sheriff's department, and later the Ventura County sheriff's department. Jim lived in Glendale, Long Beach, and later in Ojai.

Jim first joined OCARC in September of 1990 after moving from Glendale. He was an avid field day participant with the club and often 40 meter band captain. Jim also contributed articles to the RF newsletter, including a four-part article on packet radio starting in the October 1992 issue. In 1994 Jim was elected vice president of OCARC under president Chris Breller KJ6ZH. In 1995 he moved into the president's chair and Bob AF6C was Veep under Jim.

Shortly after his presidency, Jim changed jobs and went to work for the Ventura Co. Sheriff's Dept. He moved

to Ojai, but kept his membership with the club until 2005. Jim attended our club's 75th anniversary reunion held at the Red Cross in 2008. The photo shows Jim addressing club members.

When not investigating crime scenes, or on his ham radio, Jim enjoyed bike riding, photography, his gun club activities and helping others. He remained involved with the Southern California Firearms Study Group and the Association of Firearm and Tool Mark Examiners.

An obituary appeared in the Ventura County Star (VC Star) newspaper.

A special thanks to Wayne - W6OEU of the OVARC for filling in many of the details.

Heathkit of the Month #132:
by Bob Eckweiler, AF6C

AMATEUR RADIO - SWL

Heathkit HR-10(B)
Basic Amateur Band Receiver.

Introduction:
By the time Heath had announced the HR-10 (**Figure 1**) in the Fall - Winter (1961 - 1962) catalog (**Figure 2**), it had also released 52 other significant amateur products. The first ham product was the GD-1 Grid Dip Meter released in September of 1952. **Table I**[1] lists those kits. Interestingly, one of the five kits released in that catalog was a replacement for the GD-1B, an updated version of the first ham kit, the GD-1. The replacement was the solid state HM-10 "Tunnel Dipper" meter which uses a tunnel diode oscillator, making it battery powered and very portable.

The HR-10 is an HF ham-band only receiver. It covers the full 80/75, 40, 20, 15[2] and 10 meter bands. It was designed to be a companion receiver for the recently released DX-60 transmitter, which replaced the DX-40, and it matches the DX-60 style. The HR-10 originally sold for $82.95 (the same price the DX-60 sold for at the time). By the time it was replaced with the HR-10B in early summer of 1967, its price had been reduced to $75.00.

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 20.

FIGURE 1: Heathkit HR-10 Basic Amateur Band Receiver (B model shown)

The HR-10 filled a receiver gap for Heathkit. At that point the choice of a Heathkit receiver came down to the aged AR-3, the expensive ($300) advanced RX-1 Mohawk, or the MR-1 mobile receiver ($130), which needed either a home-built power supply or the HP-20 Utility Power Supply, which brought the cost up to $160. While the HR-10 is styled for the DX-60, it works with all the low-cost Heathkit HF transmitters (DX-20, HX-11, DX-35 and DX-40).

The HR-10 Receiver:
This receiver is basic, yet it has some features not found in similar class receivers. Though it is single conversion, it has a rather high intermediate frequency (IF) of 1,681 kHz. This offers superior image rejection (See **Sidebar**) over single conversion receivers with a 455 kHz IF frequency, at the cost of poorer selectivity. However, Heath over came the selectivity issue by adding a half crystal-lattice filter at the input to the IF. This filter results in a selectivity of 3 kHz @ 6 dB down, and 9 kHz at 40 dB down.

The HR-10 uses seven vacuum tubes, and while that seems minimal, the use of multi-section vacuum tubes makes it effectively a twelve tube receiver. **Table II** lists the tube types and their functions, and **Figure 3** is a block diagram of the receiver.

The radio has an octal tube socket on the top of the chassis for the optional HRA-10-1 100 kHz crystal

A new HAM-BAND RECEIVER
designed to match the DX-60

- Amateur band coverage only (80 through 10 meters) for high stability & tuning accuracy
- Tunes SSB, AM and CW
- Large, slide-rule tuning dial—over 6" of bandspread
- Tunable RF stage for extra sensitivity
- Prebuilt, preset coil /bandswitch assembly
- Lattice-type crystal filter for high selectivity

Kit HR-10

$82.95

Expected Shipping Date: December 30, 1961

This handsomely-styled amateur receiver is a perfect match for the DX-60 Transmitter (opposite page), providing complete high-performance station receiver facilities at low cost!

The HR-10 is designed for amateur band coverage only on 80 through 10 meters, for maximum accuracy and stability. Each band is separately calibrated on a large, easy-to-read slide-rule dial. The tuning dial is illuminated and provides over 6" of bandspread for precise frequency settings. A carefully-designed diode detector, plus BFO, tunes AM or CW and SSB signals. The 7-tube superheterodyne circuit features an RF stage for added sensitivity and employs a half-lattice crystal filter for excellent selectivity characteristics . . . a necessity with today's crowded band conditions. Two IF amplifiers operating at 1680 kc provide good image rejection. Other features include: "S" meter to aid in tuning and determining relative strength of received signals; a 3-gang tuning capacitor to assure proper tracking of all circuits rather than "Broad Banding"; a front panel dial calibration control and provision for a plug-in 100 kc crystal calibrator (see HRA-10-1 below) to provide accurate dial calibration at any 100 kc point across the band. Other panel controls consist of: antenna trimmer, bandswitch, tuning, BFO tuning, RF gain, AF gain w /AC on-off switch, xtal. calibration on /off, STBY /RCV, BFO on /off, AVC on /off, and automatic noise limiter on /off. An accessory socket is provided on the rear chassis apron for receiver muting, etc., and a speaker jack is provided for use with any 8 ohm PM speaker. 21 lbs.

Kit HR-10 . . . NO MONEY DOWN, $9 mo. **$82.95**
Kit HRA-10-1, Plug-in 100 kc Crystal Calibrator, 1 lb. **$8.95**

FIGURE 2: Fall-1961 - Winter 1962 Catalog Ad introducing the Heathkit HR10 Basic Amateur Band Receiver.

calibrator. It's surprising this option is often not found with second-hand HR-10s. The crystal calibrator is almost mandatory for day-to-day operations. The receiver **CAL. RESET** control allows the user to easily calibrate the radio dial to the neatest 100 kHz mark for better accuracy.

Controls on the HR-10(B)[3] are easily accessible and give the user the options needed during a QSO. The main tuning control is flywheel weighted for a smooth feel. **TABLE III** lists the controls and indicators. As usual, text printed in bold caps in the table are as they appear on the front panel.

The rear panel, from left to right as viewed from the rear, has the **ANT**enna jack (RCA-type, though many have been changed to an SO-239 UHF connector), the "Blue & White" series label, the S-**METER ZERO ADJ**. control (10 KΩ, screwdriver slot), octal accessory socket which utilizes two of its eight pins - pin-6 **MUTING**, and pin-1 **GND**, line cord with strain relief and **SP**ea**K**e**R. 8Ω** jack (RCA-type).

Table IV gives the specifications from manual [595-500-1] for the HR-10. They are identical to the specifications for the HR-10B.

GD-1	Grid Dip Meter	Fall	1952
AT-1	Amateur HF CW Transmitter	Spr	1953
GD-1A	Grid Dip Meter	Spe	1953
AR-2	Communications Receiver	Sum	1953
AC-1	Antenna Coupler	Sum	1953
AM-1	Impedance Meter	Fall	1953
VF-1	HF VFO	Fall	1954
GD-1B	Grid Dip Meter	Win	1954
DX-100	Phone & CW HF Transmitter	Win	1955
AR-3	Communications Receiver	Fall	1955
QF-1	'Q'-Multiplier	Fall	1955
DX-35	Phone & CW HF Transmitter	Win	1956
DX-20	Amateur HF CW Transmitter	Fall	1956
PM-1	RF Power Meter	Spr	1957
CA-1	Conelrad Alarm	Fall	1957
B-1	Balun Coil	Fall	1957
DX-40	Phone & CW HF Transmitter	Fall	1957
AM-2	Reflected Power Meter	Fall	1957
VX-1	Voice Control Unit	Fall	1957
RX-1	Amateur Band Receiver	Spr	1958
TX-1	Phone & CW HF Transmitter	Spr	1958
AK-5	Matching Speaker for RX-1	Sum	1958
SB-10	SSB Adapter for TX-1	Sum	1958
DX-100B	Amateur HF Transmitter	Sum	1958
VHF-1	Amateur VHF Transmitter	Fall	1958
MT-1	Mobile Ham Transmitter	Spr	1959
MR-1	Mobile Ham Receiver	Spr	1959
MP-1	Mobile Power Supply	Spr	1959
AK-6	Mobile Base Mount	Spr	1959
AK-7	Mobile Speaker	Spr	1959
PM-2	Power Meter Kit	Spr	1959
XC-6	6-Meter Converter for RX-1	Spr	1959
CO-1	Code Practice Oscillator	Spr	1959
KS-1	Kilowatt Power Supply	Sum	1959
KL-1	Kilowatt Linear Amplifier	Fall	1959
XC-2	2-Meter Converter	Fall	1959
UT-1	Utility Power Supply	Fall	1959
HW-19	10-Meter Transceiver	Fall	1960
HW-29	6-Meter Transceiver	Fall	1960
HW-30	2-Meter Transceiver	Fall	1960
HD-20	100 KC Crystal Calibrator	Fall	1960
HP-10	Transistor Mobile Power Supply	Fall	1960
DX-60	Phone & CW HF Transmitter	May	1961
HW-10	6-Meter Transmitter - Receiver	May	1961
HW-20	2-Meter Transmitter - Receiver	May	1961
HA-10	HF Linear Amplifier	May	1961
HD-19	Hybrid Phone Patch	May	1961
GP-11	Vibrator Power Supply	July	1961
HX-11	Amateur HF CW Transmitter	Fall	1961
HG-10	HF VFO	Fall	1961
HD-11	'Q'-Multiplier	Fall	1961
HM-10	Tunnel "Dipper" Meter	Fall	1961
HR-10	**Basic Amateur HF Receiver**	**Fall**	**1961**

TABLE I - Amateur Radio Heathkits (1952 Thru 1961)

HR-10 VACUUM TUBE LINE-UP

ID	TUBE	TUBE TYPE	FUNCTION
V1	6BZ6	Pentode	RF Amplifier
V2A	½ 6EA8	Pentode	Mixer
V2B	½ 6EA8	Triode	Heterodyne Oscillator
V3	6BA6	Pentode	1st IF Amplifier
V4A	½ 6EA8	Pentode	2nd IF Amplifier
V4B	½ 6EA8	Triode	BFO (Oscillator)
V5A	⅓ 6BJ7	Diode	AM Detector
V5B	⅓ 6BJ7	Diode	AVC Rectifier
V5C	⅓ 6BJ7	Diode	ANL Clipper
V6A	½ 6EB8	Triode	1st Audio Amplifier
V6B	½ 6EB6	Pentode	Audio Output
V7	6X4	Dual Diode	Full-Wave Rectifier

TABLE II

The HR-10B Receiver:

The HR-10 was sold as a companion to the DX-60 and DX-60A transmitters. When Heathkit released the DX-60B with its crinkle green finish, it released the HR-10B receiver update, skipping any 'A' version. Other than paint there is only one circuit modification. This change is minor and might even have been done prior to HR-10B. It involves R20 a 47 KΩ resistor which is across the output of the second IF transformer (T2 terminals 2 and 4). This resistor was removed. The purpose of this resistor was to broaden slightly the bandwidth of T2 by lowering its 'Q'. Evidently, Heath found this was not necessary.

Over the lifetime of the HR-10B one other manufacturing change was made. The power

HR-10/HR-10B Front Panel Controls & Indicators

Upper Row (L to R):	
S-Meter:	2 mA f.s. 850 Ω S: **0**, **3**, **6**, **9**, dB over 9: **20**, **40**, **60**
Ruler Freq.Dial**:**	
80Meters:	**3.5**, **3.6**, **3.7**, **3.8, 3.9**, **4.0**
40Meters:	**7.0**, **7.1**, **7.2**, **7.3**
20Meters:	**14.0**, **14.1**, **14.2**, **14.3,** (14.35)
15Meters:	**21.0**, **21.1**, **21.2**, **21.3**, **21.4**, **21.5**
Tic marks for above:	Medium 50 kHz, minor 10 kHz
10Meters:	**28.0**, **28.5**, **29.0**, **29.5**, (29,7)
Tic marks for above:	Medium 100 kHz, minor 20 kHz
CAL.RESET: **OFF - CAL.**:	Variable capacitor 21 µµf Slide switch (red) SPST (below)
ANT. TRIM: **STBY. - REC.**:	Variable capacitor 21 µµf Slide switch (red) SPST (below)
Lower Row (L to R):	
PHONES:	¼" phone jack (500Ω)
OFF -AF GAIN:	500 KΩ control w/ SPST switch
OFF - ANL:	Slide switch (red) SPST
RF GAIN:	10 KΩ control
OFF - AVC:	Slide switch (red) DPDT
BFO TUNE:	Variable capacitor 21 µµf Markings each 30° from 9 o'clock CW: • • • ▲ • • •
OFF - BFO:	Slide switch (red) SPST
BAND:	Rotary Switch 5P5T
MAIN TUNING:	Variable capacitor, 3-gang 15 µµ*f*, 15 µµ*f*, 15 µµ*f*

TABLE III

transformer (T6) was upgraded for 120/240 volt operation. (Part # 54-122 was replaced with part #54-122-24). This required replacing the 3-lug terminal strip (#431-10) at location BC with a 4-lug terminal strip (#431-40). The extra lug is needed to wire the transformer primary for 240 VAC.

The HR-10(B) Circuit Description:

Schematics of the HR-10 and HR-10B are available online[4]. The basic single conversion superheterodyne circuit has been covered in earlier articles. A very basic description is given here:

A basic superheterodyne communications receiver is made up of ten sections, some are optional: RF amplifier (optional); (HO) heterodyne oscillator; mixer; (IF) intermediate frequency amplifiers; (BFO) beat frequency oscillator (optional); detector; (AVC) automatic volume control; automatic noise limiter (optional) (ANL); audio amplifiers and power supply.

The optional RF amplifier is tuned to the desired frequency and helps increase image rejection. The heterodyne oscillator produces a signal that is a given frequency above or below the received frequency; when tuning the receiver the HO tracks the received frequency keeping their difference in frequency constant. The mixer, whose input is also tuned to track the received frequency, mixes the HO signal and the received signal; the result is an IF sig-

HR-10 / HR-10B SPECIFICATIONS

Frequency Coverage –			
80/75 Meters:	3.5 MHz	to	4.0 MHz
40 Meters:	7.0 MHz	to	7.3 MHz
20 Meters:	14.0 MHz	to	14.35 MHz
15 Meters:	21.0 MHz	to	21.5 MHz
10 Meters:	28.0 MHz	to	29.7 MHz
Intermediate Freq. (IF):	1681.0 kHz		
Sensitivity:	1 µV for 10 dB (S+N) / N.		
Selectivity:	3 kHz @ -6dB, 9 kHz @ -40dB		
Image Rejection:	40 dB or better		
Input Impedance:	50 to 75 Ω, coaxial		
Audio Out Impedance:	8 Ω spkr. or 500 Ω phones		
Panel Controls:	See **Table III**		
Tube Complement:	See **Table II**		
Power Requirements:	117 VAC, 50/60 Hz, 30 watts		
Cabinet Size:	13-¾" W x 11-½" D x 6-½" H		
Net Weight:	18 lbs.		
Shipping Weight:	21 lbs (HR-10 only)		

TABLE IV

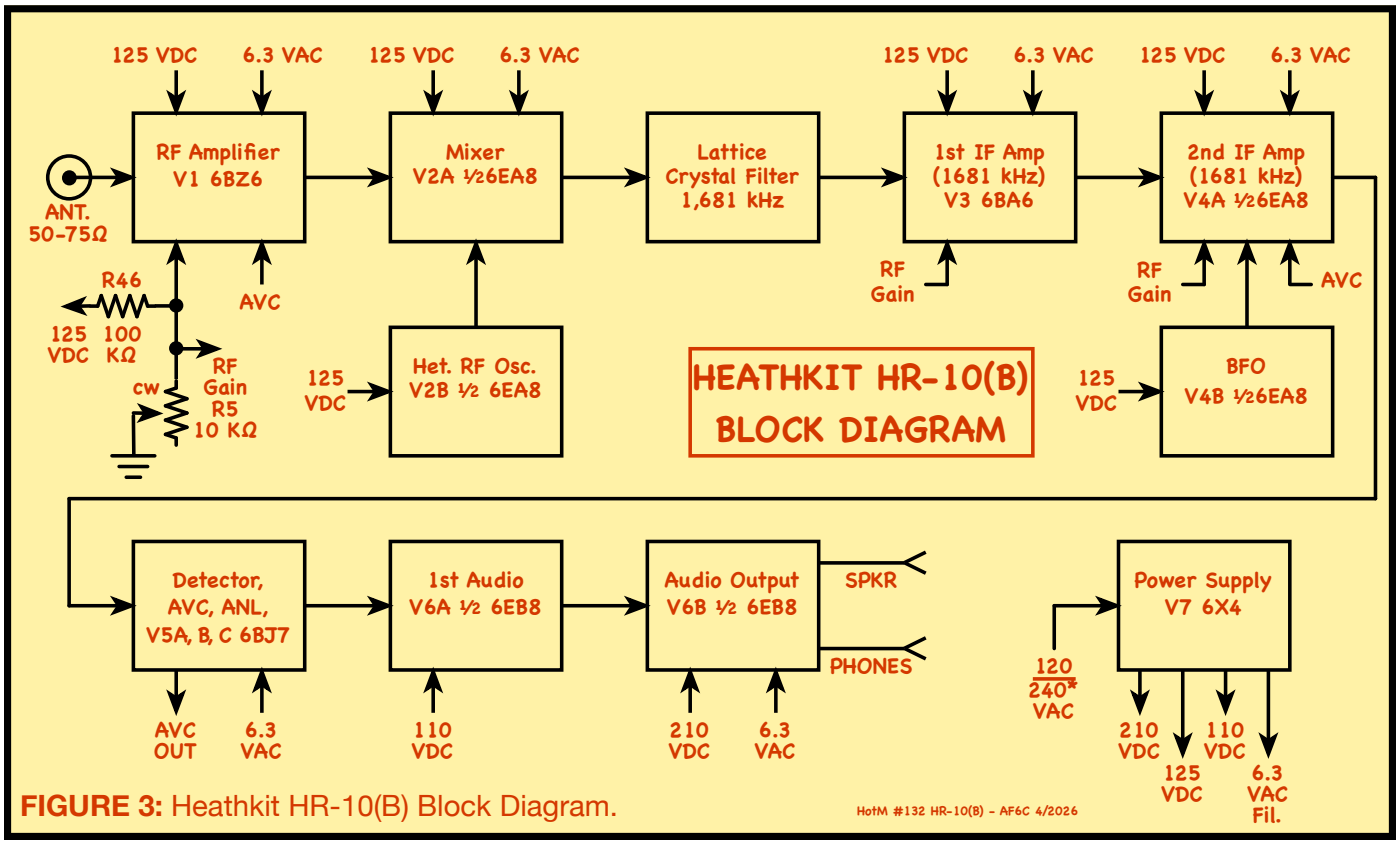


FIGURE 3: Heathkit HR-10(B) Block Diagram.

nal that is the difference between the HO and received signal. The IF frequency is usually quite low to improve selectivity; since it is a fixed frequency it can be amplified and coupled with fixed tuned circuits. If the receiver is designed to receive CW or SSB it has the optional BFO that can usually be tuned across the IF frequency; a beat note between the BFO and IF signal, when properly tuned will make the CW signal intelligible as a tone heard as CW. The BFO can also be tuned to replace the missing SSB carrier and makes the SSB signal intelligible. The AVC adjusts the gain of some earlier stages to tend to keep signals of different strengths appear to be near the same level. Finally, the audio section amplifies the audio to drive earphones or a speaker. The power supply section provides power to the other sections.

The HR-10(B) RF Amplifier (V1)

An RF amplifier stage (V1) provides decent sensitivity of 1.0 μV for 10 dB signal-plus-noise to noise ratio. An **ANT**enna **TRIM**mer control allows peaking the signal for different impedance antennas. The RF amplifier input is tuned, as is the input to the mixer. Both tuned circuits track each other as the **MAIN TUNING** knob is turned. The RF amplifier gain is controlled by an AVC voltage, and also by the manual **RF GAIN** control (R5).

The HR-10(B) Heterodyne Oscillator (V2B)

The HR-10(B) has an IF of 1,681 kHz. The Heterodyne Oscillator (HO) produces a CW signal that tracks the received signal with the MAIN TUNING knob, but is 1,681 kHz higher in frequency. On 15 and 10 meters the HO produces a signal whose second harmonic is used. **TABLE V** lists the band and HO frequencies.

The HR-10(B) Mixer (V2A)

Both the output of the RF amplifier and the

BAND	RECEIVE FREQ. MHz LOW	HIGH	HET. OSC. MHz LOW	HIGH
80/75M	3.5	4.00	5.1810	5.6810
40M	7.0	7.30	8.6810	8.9810
20M	14.0	14.35	15.6810	16.0310
15M	21.0	21.50	11.3405*	11.5655*
10M	28.0	29.70	14.8405*	15.6905*

Table V: Receive Frequencies & Associated Heterodyne Oscillator Frequencies
* The second harmonic of this freq. is used.

heterodyne oscillator are coupled to the control grid of the mixer via C18 and C19 respectively. This stage is biased to produce non-linear amplification. The result is four significant signals appear at the plate[5] - the two original signals, the sum of the two signals and the difference between the two signals. Only the difference frequency makes it through the crystal filter, which is set to the frequency of the IF.

The HR-10(B) Half-Lattice Crystal Filter

The output of the mixer is coupled to a simple two-crystal half-lattice filter. This filter provides better selectivity than could be established only with a standard IF of 1,681 kHz.

The HR-10(B) 1st IF Amplifier V3

A pentode 6BA6 provides initial IF gain. R15 sets the load impedance needed for the output of the lattice filter. This stage runs without any AVC action, but its gain can be reduced by decreasing the RF GAIN control. This stage is coupled through T2 to the second IF stage.

The HR-10(B) 2nd IF Amplifier V4A

The pentode section of a 6EA8 provides additional IF amplification. In the early HR-10 receivers a 47 KΩ is used across the secondary of T2. This resistor reduces the 'Q' of the secondary increasing bandwidth. This resistor, shown on the HR-10 schematic was no longer used on the HR-10B. Whether this change occurred when the model changed or before, has not been discovered. It appears in manual 595-500 (HR-10), but not in manual 595-885, which is the early HR-10B manual dated 4-21-67. The gain of the second IF is controlled by the AVC, as well as the manual RF GAIN control. Output of the second RF stage is coupled through T3 to the detector.

Figure 4: A larger view of the HR-10B front panel. Note that the 15 meter scale goes to 21.50 MHz though the band ends at 21.45. The AM/SSB frequencies are marked by a thickened white bottom line.

The HR-10(B) BFO - V4B

The triode stage of V4 is a simple Hartley beat frequency oscillator (BFO) that tunes across the IF bandwidth centered on 1,681 kHz. The BFO can be turned on by the **OFF - BFO** slide switch and tuned by the **BFO TUNE** control. When on, the oscillator will beat with a CW signal in the IF producing an audio tone. The tone frequency is the difference between the IF frequency of the CW signal and the BFO signal. The tone may be changed by adjusting the BFO TUNE control. SSB reception is achieved by tuning for maximum signal and then adjusting the BFO to where it replaces the missing carrier of the received SSB signal. This is either to the left or right of center depending on the sideband in use.

The HR-10(B) Detector- V5A

The HR-10(B) receiver does not have a more advanced "product detector" that is superior for CW and SSB reception. Instead the IF amplifier output is coupled to the plate (lug 2) of V5A, one section of a 6BJ7 triple diode. The cathode (lug 1) of this diode section has a load resistance composed of R28, R29 and R30, across which the audio voltage is developed. Any IF frequency components remaining are removed by C32. The audio then is filtered by a low-pass filter composed of R31 and C33, which has a cutoff around 4 kHz, passing normal voice communications frequencies. The audio is coupled through C35 to the volume control and on to the 1st audio amplifier.

The HR-10(B) AVC- V5B

A small amount of the IF is coupled via C34 and rectified by V5B (lugs 8 and 9). the resulting negative voltage is developed across R27. R26 and C29 set the AVC delay time which is fixed on this receiver. When the **OFF - AVC** slide switch is in the AVC position this negative DC voltage is applied to the control grids of the RF amplifier, V1 and the 2nd IF amplifier, V4A, causing their gain to automatically be reduced when a strong signal is being received. When the OFF - AVC switch is in the OFF position the AVC line is grounded and the S-Meter, which relies on the AVC voltage being connected, is disabled.

The HR-10(B) ANL- V5C

Diode section V5C and associated circuitry make up a simple self-adjusting shunt-type automatic noise limiter (ANL). This type circuit is useful only for noise reduction during AM reception. The DX-35, DX-40 and DX-60 series all transmitted on AM as well as CW. The ANL is activated by the **OFF- ANL** slide switch.

The HR-10(B) RF Gain & Standby/Muting

(Refer to **FIGURE 5**) In the full CW position, the wiper of the RF GAIN control R5 is at ground potential when the **STBY - REC** switch is in REC and the external contacts pin-6 (MUTING) and pin-1 (GND) on the octal accessory socket are connected together. With the

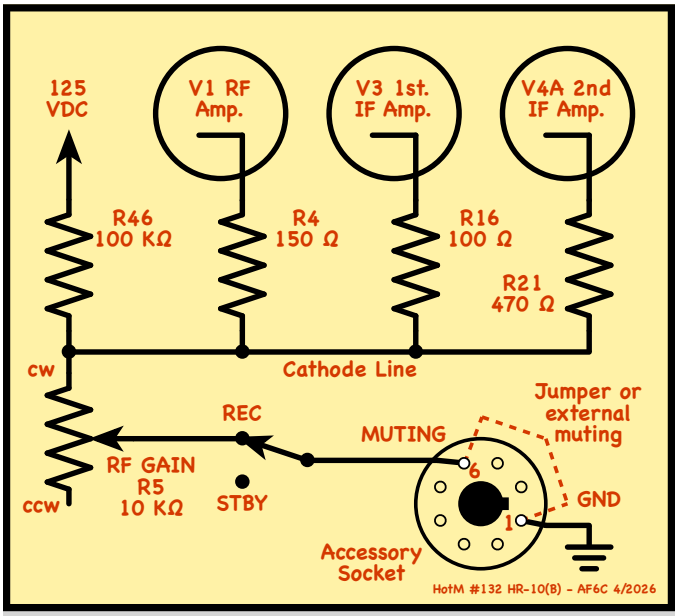


Figure 5: HR-10(B) RF Gain and Muting circuit.

wiper at ground potential the cathode of the RF amplifier and the 1st and 2nd IF amplifiers are effectively grounded through their cathode resistors R4, R16 and R21 respectively, and the gain of those stages are at maximum as currently set by the AVC circuit, if enabled.

As the RF GAIN is turned counter-clockwise R46 and R5 make a voltage divider, and the voltage on the cathode line of the three controlled stages increases from zero to about +11 volts. This voltage raises the voltage of the cathodes, making the control grids more negative and reducing the gain of those stages, manually controlling the gain of the receiver.

Should the STBY - REC switch be placed in STBY, or the external mute connection between pins 6 (MUTING) and 1 GND of the octal accessory socket be opened, it will cause R46 to raise the voltage on the cathode line to over 100 volts fully cutting off the RF amplifier and both IF amplifiers, muting the receiver.

The HR-10(B) Main Tuning (C6)

A three-section MAIN TUNING variable capacitor performs the tuning. One section (C6A), in conjunction with the ANT. TRIM control tunes the input to the RF stage. The second section (C6B) tunes the mixer input, and the third section (C6C), in conjunction with the CAL RESET control tunes the heterodyne oscillator. Each section of C6 (#26-84) is 15 $\mu\mu f$. When the receiver is properly aligned, these three sections track one another with minor adjustments available via the ANT. TRIM and CAL RESET controls. On 80 - 20 meters the HO tracks 1,681 kHz high, and on 15 - 10 meters the second harmonic tracks 1,681 kHz high.

Figure 6 shows the main tuning scale of the HR-10B. Markings are each 10 kHz except on 10 meters they are each 20 kHz. The HR-10 is similar.

The HR-10(B) Audio Circuits (V6)

The 1st audio stage uses the triode section (V6B) of a 6EB8 dual section vacuum tube. It is a simple audio circuit lacking cathode bypass to improve linearity. V6B drives the control grid of V6A through C38. V6A runs class A drawing about 20 mA of plate current. Its screen grid is powered directly by the 125 volt power source. T4 converts the 7.5 KΩ plate load of V6B to 8Ω to drive a speaker and 500 Ω to drive earphones. R34, a 1500 Ω 2-watt resistor is across the 500 Ω transformer output to protect the output stage in case there is no phone or speaker load. The speaker output is automatically disconnected when phones are plugged into the PHONE jack on the front of the receiver.

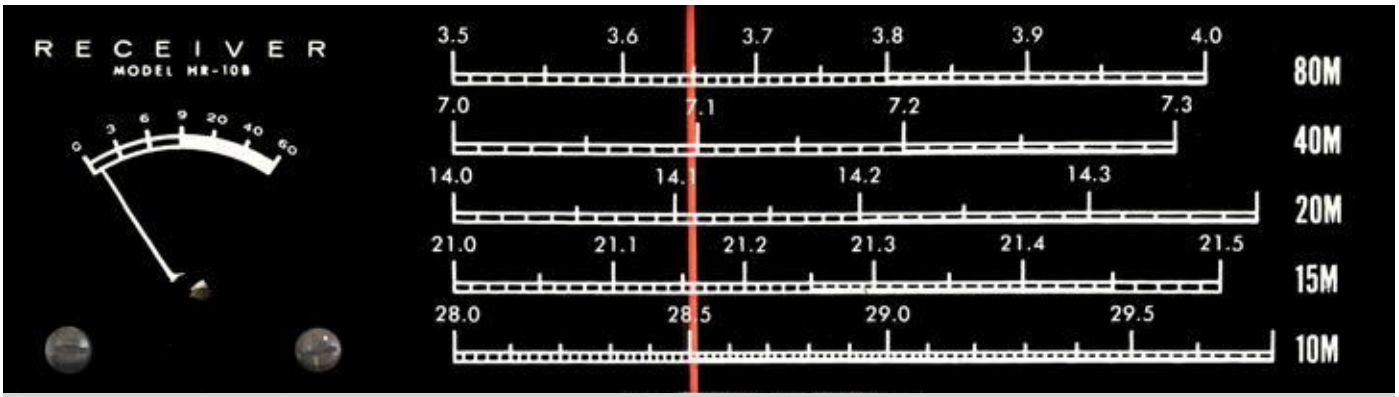


Figure 6: HR-10B S-Meter and Tuning Scale. note that 15 M extends an extra 50 kHz to 21.5 MHz.

The HR-10(B) Power Supply (V7)

The HR-10(B) is totally void of any solid-state devices. Heath decided to use a 6X4 vacuum tube rectifier (V7) in lieu of rectifier diodes. Whether this was for cost-savings or because Heath had a large inventory of 6X4 tubes, is unknown. The companion DX-60 uses silicon rectifier diodes in its power supply. Power is provided by T6 (54-122 - 410 VCT @ 63 mA, 6.3 VAC @ 4 A). Output from the full-wave rectifier tube is filtered by C57 producing about 210 volts which runs the audio output tube V6B. The 210 VDC is further filtered by R44 and C56 producing about 125 VDC that powers most of the radio's circuits. The 125 volts is again filtered to produce 110 VDC at a small current to power the 1st audio amplifier (V6A). The extra filtering provides highly filtered power to the stage most susceptible to power supply hum.

Sometime before 1970 Heath replaced the power transformer with one that had a dual 120 volt primary so it could run on 120 VAC with the primary winding in parallel and on 240 VAC with the primaries is series. Filament and pilot lamps draw is under 3.5 A leaving a good safety margin over 10%[6]. The power supply is internally fused with a ½ amp 3AG slow-blow fuse.

The HR-10(B) Operation:

Operation of the receiver is fairly simple. The **BAND** switch is set to the desired band; the STBY - REC switch is set to REC; the CAL switch is set to OFF.

To receive AM signals set the BFO switch to OFF, the RF GAIN fully clockwise, the **AF GAIN** to a comfortable level, and tune in the signal, using the MAIN TUNING knob, for maximum S-meter reading, peaking the ANT. TRIM as needed. Should the signal be so strong it is

RECEIVER IMAGE REJECTION

Imagine a receiver with a very common 455 kHz IF. When receiving a signal on 14,010 kHz. The heterodyne oscillator (HO) can either be 455 kHz above or below the received frequency. Let's assume the HO is above the received frequency which means it is at 14,465 kHz. The desired signal out of the mixer is the difference between the two frequencies or 455 kHz.

However, assume there is also a strong signal at 15,000 kHz (WWV). If it reaches the input to the mixer it will mix with the 14,465 kHz, (HO) and also appear at 455 kHz. This unwanted signal is called the image. If there is no RF amplifier stage the image can only be rejected by the mixer tuning circuit. If there is an RF amplifier, its tuned input circuit also helps attenuate the image signal. The difference between the two signals is 910 kHz so the RF amplifier and mixer must have a high 'Q' which can cause other problems.

Another way to improve image rejection is to raise the frequency of the IF. The HR-10(B) uses 1,681 kHz which increases the difference between the desired signal and a possible unwanted image signal to 3,362 kHz increasing the effectiveness of the RF and mixer tuned circuits.

However, increasing the IF creates a new problem. The lower the IF the more effective tuned LC circuits are at improving selectivity between adjacent signals. Heathkit solved this problem by adding a half-lattice crystal filter to the IF. It surely raised the cost of the receiver, but provided a significant improvement for that cost.

More expensive receivers often use two or even three IF frequencies. The first a high one for good image rejection and then (a) lower one(s) for good selectivity. Image rejection is less of a problem on the lower bands; some use single conversion (1 IF) on the bands below 10,000 kHz and double conversion (2 IFs) above that.

More expensive receivers also can use mechanical or crystal filters that might cost ⅓ to ¾ of the price of the HR-10(B) to improve selectivity. The SB-300 series uses a wide-band (8,395 to 8,895 kHz) first IF and a 3,395 kHz second IF with selectable crystal filters.

HotM 132 - HR-10B - AF6C

overloading the receiver turn the RF GAIN control counter-clockwise until the overload is eliminated. Readjust the AF GAIN control as needed.

To receive CW signals set the BFO switch to BFO, and the AVC switch to OFF, set the AF GAIN control to the 3-o'clock position and use the RF GAIN control to adjust the audio level. Use the BFO TUNE control to adjust the pitch of the received CW signal.

To receive single-sideband (SSB) signals set the BFO switch to BFO, the AVC switch to ON, the AF GAIN control to the 3-o'clock position and use the RF GAIN control to adjust the audio level. Set the BFO TUNE control to 10 o'clock to receive upper side band (USB) or to 2 o'clock to receive lower sideband (LSB). Adjust the MAIN TUNING control and BFO TUNE slightly for the most intelligible audio. If you cannot tune the signal in, try tuning for the other sideband by repositioning the BFO TUNE control to the other side.

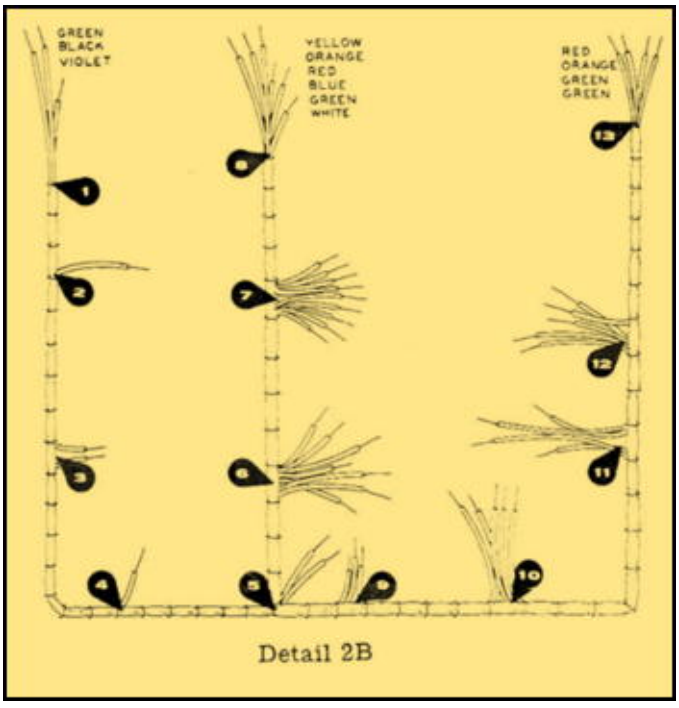


Figure 7: Factory provided wiring harness #134-40

If your HR-10(B) receiver is equipped with the HRA-10-1 Crystal Calibrator, you can determine the frequency of the received signal more accurately. First, tune to the nearest 100 kHz marking on the dial face. If the BFO switch is OFF turn it to BFO. Set the BFO TUNE to 12 o'clock. You should hear a tone from the receiver. Adjust the CAL RESET control for zero beat with the calibrator signal. Now tune back to the station you were receiving and read the frequency from the dial.

The HR-10(B) Assembly:

Assembly and alignment is simplified by the receiver being shipped with a "preassembled front end" (Part # 110-8) that includes the band-switch, 3 resistors, 17 silver mica capacitors, five ceramic temperature compensating capacitors, a bypass capacitor, an RF choke and three coils for each of the five bands (15 coils total), but not the main tuning capacitor, tubes, tube socket or most of the tube socket wiring. The coils in this assembly are factory adjusted to be close to their adjusted position. Since the circuitry and components added in assembly and wiring differences are unknown, there is still need for alignment - but you'll be starting close to the final adjustments. **Table VI** lists the components that are part of the preassembled front end.

Be aware that the coils are mislabeled on the *Replacement Parts Price List for the Preassembled Front End* on page 39 of manual [595-945-01] and possibly other early manuals. The list in manual [595-945-03] is correct.

The HR-10(B) uses no printed circuit boards, it is all point-to-point wiring. The layout is mostly spacious making assembly easy. A wiring harness keeps connections neat and helps prevent errors.

Electronic Parts List for the Preassembled HR-10(B) Front End (#110-8)

ID	Part #	Description	Section Band	Section	ID	Part #	Description	Section Band	Section
R1	1-41	10 Ω 1/2W Resistor	N/A	Ant.	C54	21-65	25 μμƒ Tubular Ceramic N750 Cap	10 M	H.O.
R9	1-44	2.2 KΩ 1/2W Resistor	N/A	Mix.	C61	21-66	50 μμƒ Tubular Ceramic N750 Cap	15 M	H.O.
R45	1-44	2.2 KΩ 1/2W Resistor	80 M	Mix.	C66	21-65	25 μμƒ Tubular Ceramic N750 Cap	80 M	H.O.
C1	20-100	30 μμƒ Silver Mica Capacitor	80 M	Ant.	C67	21-7	33 μμƒ Disc Ceramic N750 Capacitor	40 M	H.O.
C2	20-102	100 μμƒ Silver Mica Capacitor	40 M	Ant.	C68	21-66	50 μμƒ Tubular Ceramic N750 Cap	20 M	H.O.
C3	20-105	180 μμƒ Silver Mica Capacitor	20 M	Ant.	L1	40-414	Antenna Coil - 0.385 μH	10 M	Ant.
C4	20-111	230 μμƒ Silver Mica Capacitor	15 M	Ant.	L2	40-415	Antenna Coil - 0.270 μH	15 M	Ant.
C5	20-78	56 μμƒ Silver Mica Capacitor	10 M	Ant.	L3	40-416	Antenna Coil - 0.635 μH	20 M	Ant.
C7	20-100	30 μμƒ Silver Mica Capacitor	N/A	Ant.	L4	40-417	Antenna Coil - 3.20 μH	40 M	Ant.
C11	20-102	100 μμƒ Silver Mica Capacitor	10 M	Mix.	L5	40-418	Antenna Coil - 25.0 μH	80 M	Ant.
C12	20-114	270 μμƒ Silver Mica Capacitor	15 M	Mix.	L6	40-419	Mixer Coil - 0.287 μH	10 M	Mix.
C13	20-111	230 μμƒ Silver Mica Capacitor	20 M	Mix.	L7	40-420	Mixer Coil - 0.245 μH	15 M	Mix.
C14	21-27	0.005 Disc Ceramic Bypass Cap	N/A	Mix.	L8	40-421	Mixer Coil - 0.523 μH	20 M	Mix.
C15	20-102	100 μμƒ Silver Mica Capacitor	40 M	Mix.	L9	40-422	Mixer Coil - 3.70 μH	40 M	Mix.
C16	20-99	22 μμƒ Silver Mica Capacitor	80 M	Mix.	L10	40-423	Mixer Coil - 28.1 μH	80 M	Mix.
C44	20-100	30 μμƒ Silver Mica Capacitor	N/A	H.O.	L11	40-424	Heterodyne Oscillator Coil -0.900 μH	10 M	H.O.
C46	20-117	90 μμƒ Silver Mica Capacitor	10 M	H.O.	L12	40-425	Heterodyne Oscillator Coil - 0.640 μH	15 M	H.O.
C47	20-126	255 μμƒ Silver Mica Capacitor	15 M	H.O.	L13	40-426	Heterodyne Oscillator Coil - 0.374 μH	20 M	H.O.
C48	20-126	255 μμƒ Silver Mica Capacitor	20 M	H.O.	L14	40-427	Heterodyne Oscillator Coil - 1.52 μH	40 M	H.O.
C49	20-103	150 μμƒ Silver Mica Capacitor	40 M	H.O.	L15	40-428	Heterodyne Oscillator Coil - 11.3 μH	80 M	H.O.
C50	20-77	24 μμƒ Silver Mica Capacitor	80 M	H.O.	PC-2	45-43	RF Choke - 6 Turns on 470 Ω Resistor	N/A	H.O.
		TABLE VI							Σ

Assembly begins with a lot of parts, tube sockets, terminal strips, variable capacitors, the three-section electrolytic capacitor being mounted on the chassis. Focus then turns to assembling the front panel. Switches, dial plate, dial pointer, S-meter, and pulleys for the dial string, are added; and the front panel is attached to the chassis and held in place by installing the front controls.

Next, the audio and power transformers are mounted and their leads connected to the proper location. The wiring harness **(Figure 7)**, which comes manufactured, is then laid out inside the chassis and its leads are attached per the manual. various wires are run from point to point and a few special cables are prepared and installed. In the process, V7 is wired completely. These steps begin the soldering.

Components are then installed and soldered under the chassis starting around V5, then V6, V4, V3, the rear panel, V2 and finally V1.

At this point the preassembled front end is installed under the chassis, along with the main tuning shaft and its inertia weight. Connections are made between the preassembled front end and: V1 lugs 1 and 5; terminal strip R lug 4 (125 volt point); V2 lugs 8 and 9; the antenna connector on the rear panel (coaxial cable) and each of the three sections of the MAIN TUNING variable capacitor (C6A, B, C).

Once the "preassembled front end" is installed, the space around V1 and V2 gets quite tight. So any major servicing in that area probably involves removing the assembly. Luckily that doesn't appear to be too hard, but it might require restringing the dreaded dial-cord?

The two-wire line cord is wired in. The chassis top wiring is completed. The dial cord is strung, and shaft extensions, knobs, the fuse, the pilot lamps, the filter crystals and the tubes are installed.

The HR-10(B) Checkout:

An initial resistance check between the filter C55 (the 110 VDC buss) and ground is measured. It should be greater than 30 KΩ after approximately 30 seconds; this assures there are no major shorts in the B+ wiring. The controls are then set (TABLE VII), a speaker is connected, and the radio is plugged in. The AF GAIN should then be turned from OFF to the 12 o'clock position. Observe that the pilot lights come on, as do the tube filaments. After the filaments warm up, a rushing noise should be heard from the speaker. If these tests are met, alignment is next.

Checkout Control Settings:

AF GAIN	OFF
RF GAIN	Maximun clockwise
BFO TUNE	12 o'clock
BAND Switch	80 meters
MAIN TUNING	3.5 mc.
ANL	OFF
AVC	OFF
BFO	OFF
CAL	OFF
STBY - REC	REC

TABLE VII

The HR-10(B) Alignment:

Alignment requires a VTVM that measures AC voltage and an amplitude modulated RF signal generator. Step-by-step alignment instructions from the manual are available on the W6ZE website[7].

First the IF stages are aligned. The HO is temporally disabled with a jumper. The signal generator is set to around 1,681 kHz and peaked to the pass-band of the crystal filter. The slugs in T1, T2 and T3 are then adjusted in a special order. After each set of adjustments to the transformers the signal generator is re-peaked, and the transformers are readjusted. This is repeated until no improvement is noticed.

Next, the BFO is switched to ON, the BFO TUNE is set to 12 o'clock and the BFO aligned to zero-beat with the peaked signal generator.

Finally the RF front-end circuits are aligned, starting at 80 meters and proceeding to 10 meters. First the signal generator is set to the low end of the band, and the 80 meter oscillator coil (L11) is adjusted for maximum signal. Then the signal generator is reset to approximately the middle of the band and the dial is set to correspond. Now the CAL RESET control, antenna (L6) and mixer (L7) coils are peaked. This is repeated for each band.

Once alignment is complete, final assembly is performed. The feet, bottom plate and cabinet

are attached and the blue series sticker is attached to the rear panel.

Comments:

Recently an HR-10B was obtained from a club member; it had been passed on to him from someone who had had it passed on to them. The original builder is unknown. Receiving the radio was motivation for this article. Plans were to fix it up and pass it along to a friend. The article had been started before the radio was fully examined. The radio externally looked in reasonable shape with the cabinet needing painting and the S-meter needle needing straightening.

When the bottom plate was removed to take some photos, (it was held on using only two of the six screw holes – always a bad sign) the first thing noticed was the fuse was incorrect. Instead of the specified 3AG ½-amp 250 V slow-blow fuse[8], there was an SFE 20-amp 32 V fuse[9]. It had been powered up earlier, the pilot lamps lit and, after warming up, a hiss was heard from an external speaker. Looking over the underside, a number of cold-soldered joints were found. The wiring harness was not down along the chassis, but floating in most places. What really stood out were the disk ceramic coupling and bypass capacitors. The leads of most of these were almost their full uncut length, and many stuck up an inch or two above the tube socket. (Figure 8).

Figure 8: Above is the first IF's socket (V3) showing the installation of the bypass capacitors standing up with very long leads. Just about all the other bypass capacitors are installed likewise throughout the radio. Even at the critical mixer and RF Amplifier stages.

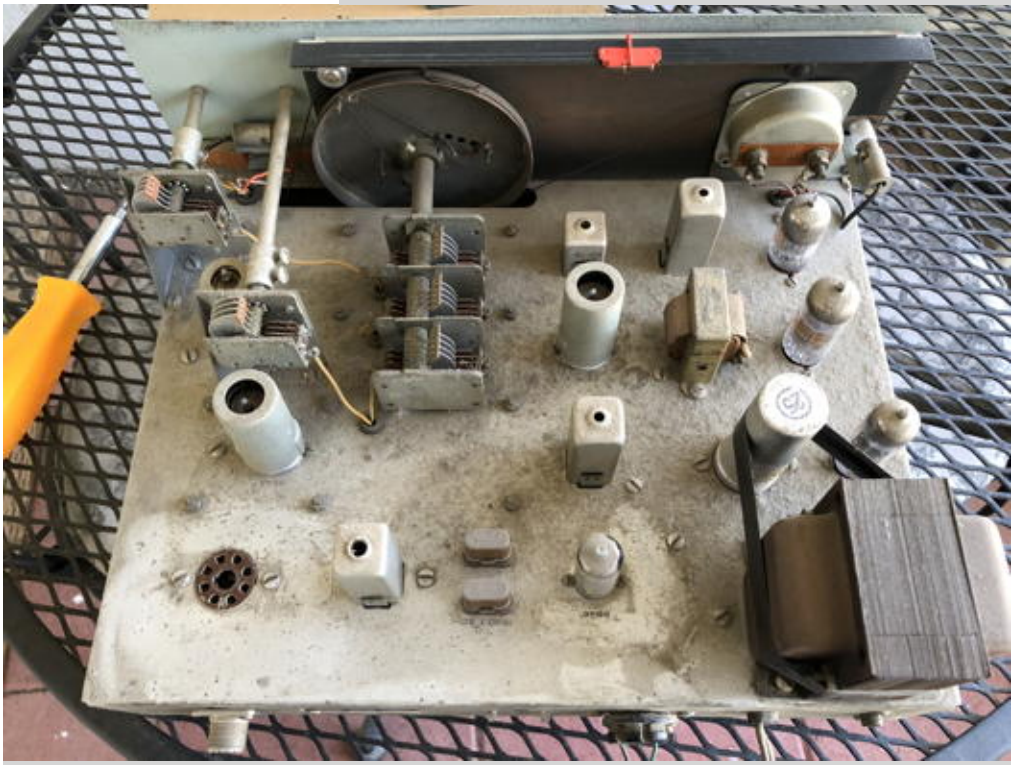


Figure 9: Removing the cabinet revealed a lot of dust that needed to be removed. The reason for the tape around the filter capacitor and transformer is, as yet, unknown.

This can easily cause instability in the RF and IF stages.

Next the cabinet was removed. Someone had taped a piece of cardboard across the back opening and that should have helped keep some dust out. It didn't! (See **Figure 9**). Most of the dust was removed easily with a brush, which is promising.

This looks like a *'down to the bare chassis'* restoration job. At least, most of the 0.005 μf ceramic bypass capacitors can be saved with adequate lead length remaining. The front panel is in reasonable shape, the chassis bottom is quite clean, the chassis top should be able to be cleaned reasonably and the difficult to replace parts seem all intact and appear to be working, so it should be a doable project. Free time will be the biggest constraint.

Notes:

1. These dates are compiled from the author's incomplete catalog file and may have some small discrepancies.
2. The 15 meter ham band is 21.00 to 21.45 MHz. The HR-10(B) covers an additional 50 kHz, 21.00 to 21.50 MHz.
3. When the 'B' is in parentheses it refers to both the HR-10 and HR-10B receivers.
4. The schematic for the HR-10 and HR-10B, as well as the alignment instructions can be found here: https://www.w6ze.org/Heathkit/HR-10/HR10.html
5. Many other mixer products also appear at lower strengths. These may show up as "birdies" when tuning. Proper selection of the IF frequency reduces the problem.
6. 5% when the optional HRA-10-1 Crystal Calibrator is installed
7. Refer to note 4 above.
8. Proper fuses are Buss MDL-½ or Littelfuse 313.500.
9. Fuse type SFE are automotive fuses.They are only good for 32 volts. At 120/240 VAC they can continue arcing after they blow. A FIRE HAZARD!

Notes: HotM #132 HR-10B

There are a few Heathkits on the agenda to write on: An IO-4550 Dual trace oscilloscope that is mostly restored and beautiful, but needed some "unobtainium" parts, which I finally have a break-thru on; and an IM-5238 AC VTVM. that is in great shape. I do have a few other obligations, so there may not be an article next month.

73, from AF6C

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

Thanks - AF6C

? PUZZLER ?

PUZZLER Winners:

There was just one reply to last month's simple puzzler. Only Fried –- WA6WZO attempted an answer, and after clarification that these were "knock-out contests", one person must win and the other must lose, he provided the solution. To give others a chance, the answer will be delayed until we get a few more responses. In the meantime keep an eye out on the road for Fried driving his "new" red Corvette.

The Puzzler

? PUZZLER ?

New OCARC Members
2026

JANUARY

KJ6ZEY Chris Chubbuck AA6RC Morgan Fine KK6OYR Gregorio Valdivia
K6QQP Randy Poth N6IRN Sepehr Sahraian KM6RTE Scott MacGillivray KO6LJY
Josh Berk

FEBRUARY

KO6DUT Debra Campbell

MARCH

KO6MZU Bijan Ghofranian KO6MMM Brian Langley

Introductions:

Brian Langley, KO6MMM grew up in Paso Robles, CA, before attending San Diego State, where he obtained a degree in Accounting. After becoming an Accountant, he quickly realized he hated it, and started working with his brother, building and maintaining computer networks. He has since spent the last 25 years as a Network Administrator, living in San Clemente, CA. Brian hikes, backpacks and rides motorcycles on and off-road, which is really what sparked his interest in learning about radios. He also trains Brazilian Jiu Jitsu and lifts weights for health. Brian first touched a transceiver in 2026, so he has zero practical experience and hopes to enjoy learning about radio for years to come.

OCARC Membership Director
Ron W6WG, membership@w6ze.org

General Meeting Minutes
April 17, 2026

General meeting held at the American Red Cross, 600 N Park Center Dr, Santa Ana, CA, was called to order at 7:03PM by President, Dan KI6X. After the Pledge of Allegiance, the Zoom presentation from Patrick Bolan of Geochron was started without further delay. Some difficulties in the Zoom interface were encountered, but Patrick gave us a thorough accounting of the history of the mechanical and digital versions of this clock. He shared his motorcycle trip across the 48 contiguous states visiting Geochron owners, and went into detail about the various live layers and animations that could be added to the digital version, including not just ham radio maps, but weather, commercial aviation, satellite imagery, live earthquake tracking, astronomy, and more. After a question and answer period, the presentation ended at 7:50PM and introductions followed. 23 members were physically present and 5 were on Zoom with one having to leave after experiencing connection difficulties. A break was called at 7:55PM.

Meeting resumed at 8:15PM with roll call; all Board members present except for Vice-President, Tim N6GP, and Director-at-Large, AJ W6OTO.

Since Vice-President Tim N6GP was not present, President Dan KI6X reminded the club that next month's program would be Chris, N1CLC, and his SOTA operations, also a Zoom presentation. Our June meeting will concentrate heavily on Field Day.

Treasurer, Tim N6TMT, found the elusive discrepancy in the cash deposits when he discovered the amount involved was entered twice, once when he was advised of the amount, and again when the amount was actually received. Books are now balanced.
Membership Chairman, Ron W6WG, advises the club now has 105 members (including 3 honorary) after the grace period for renewals ended.
Activities Director, Corey KE6YHX, reported as Managing RF Editor that an updated email list was now in effect for all current members.

Director-at-Large, Dave N3BKV, reported continuing testing of the remote station by board members. He and Ron W6WG are still working on the guidelines, which will include pictures. Ron W6WG mentioned the first contact he made while testing was with Slovenia (OM prefix).

ASK THE ELMER:
Bijan KO6MZU, looking for help programming his new Baofeng radio. Charlie KM6KCK, passed along the Ham Radio for Dummies old version courtesy of the Orange County Library to Bijan, who will pass it on when he's done with it.

SHOW AND TELL:
Dan KI6X brought in a like-new Baofeng UV5R radio free to a good home. Also a Daiwa CN101L pwr/SWR meter for $50, immediately grabbed up by Milt N6MG.
Phil KO6ION, announced a Wildfire Prevention Symposium on Saturday, May 2nd at the Quail Hill Community Center in Irvine; a breakfast and meeting of local agencies, community leaders and OC Fire Watch partners committed to wildfire prevention. May is Wildfire Prevention Awareness Month.

GOOD OF THE CLUB:
Bijan KO6MZU, advised he attended a seminar by some businessmen on data sending in the THz range and wondered if anyone was aware of equipment that operated that high. Discussion continued about high-speed traders using HF to buy/sell stocks since it appears faster than wire or optical, and the use of spectrum for such.

Ken W6KOS, team leader of the VE testing group, reported 3 people tested tonight before the meeting, resulting in 1 technician, 1 general (who took both tech and general tests), and 1 who will be coming back next month to retest.

FIELD DAY
Ron W6WG, started discussion on Field Day, mentioning that Dan KI6X had outlined what was needed for volunteers for daily coordinators in the RF. A Friday coordinator is still needed, which will include making sure the truck from Debbie W7UOX is available, enough volunteers are available to pick up all the FD gear at storage, tents arrive, set up begins, and guard the tents at night. Dan KI6X will handle Saturday's duties, and Harold W6HAR will oversee Sunday. Bob AA6PW's antenna needs to be picked up ahead of time. Confirmed CW station captain will be Dana K6NR, and the CW tent will include Charlie W6KK, Bill W1HIJ, and others who usually help out with that mode. The CW tent will include 2 CW stations and digital. The sideband tent will include 2 SSB stations, GOTA, and perhaps VHF/UHF and satellite unless a smaller, separate tent is set up for the latter two. Sunday truck back to storage will be handled by Randy K6QQP.

A report on the Contesters and DXers Convention in Santa Maria was given by Janet KL7MF and John KF6I, who both attended. A successful social gathering with seminars all day Friday and Saturday at the Historic Santa Maria Inn, a lovely dinner Saturday night with Adrian KO8SCA presenting the recently completed 3Y0K Bouvet DXpedition, and Sunday breakfast by K1ZM on JT5DX and VY2ZM.

Tom AK6GR, mentioned he collects old quartz crystals, especially antiques, if anyone has any older equipment that might still have crystals installed. Discussion continued on how Novice operation used to be crystal controlled and some of the consequences thereof.

A last-minute reminder to get tickets in for the opportunity drawing to follow the club meeting, with prizes that include a doorbell camera, 2 posn switch, Li-ion AAA batteries, waterproof scale, and 4 x 4aH Bioenno batteries.
With no further business being heard, meeting was adjourned at 8:50PM.

Submitted by Janet Margelli, KL7MF, OCARC Secretary

Board Meeting Minutes
May 2, 2026

Meeting held at the Streamliner Lounge, 186 Atchison Street, Orange, CA, and called to order by President, Dan KI6X at 8:17AM. All Board members present except for Technical Advisor, Joe KM6SVV, and Director-at-Large, AJ W6OTO. One visitor in attendance: Daphne W6VLN.

No reports provided by Vice-President, Secretary, or Director-at-Large. Treasurer, Tim N6TMT, reports receiving Field Day brochures from ARRL. April cash flow will be available by publication time of the RF, at which time the audit will also be fully documented.

Activities Director, Corey KE6YHX, reports $87 was collected at the last opportunity drawing, and $86 was spent on future drawing prizes of mini pocket binoculars, a 24 pack of AAA batteries, a 4-pack of USB A>C adapters, and a solar powered weather radio.

Publicity Director, Michael KO6FAR, will add our Field Day location to the ARRL site, and will be sending out emails to make sure our FD shirt picture is distributed. He will also contact the OC Register and Huntington Beach News to solicit coverage of the FD event.

Membership Manager, Ron W6WG, advises membership currently steady at 105.

MONTHLY PLANNER REVIEW:

Noted to start publicizing Field Day, and to start planning the annual Christmas Party. Activities Director, Corey KE6YHX, usually starts this process in June.

OLD BUSINESS:

Newsletter Editors: May, Tim N6GP; June, Tim N6TMT. President, Dan KI6X, will be sending an email to the editor group who are not board members to fill in editorship after June.

Entertainment: May meeting presentation will be Christian N1CLC, and his SOTA operations by Zoom. June will concentrate on Field Day, but may also be able to work in an OC Firewatch talk. Suggestions made to consider moonbounce or a satellite presentation in future.

OCARC Remote Station: Tom AK6GR has been testing the station fairly regularly. Almost 6 hours of total operation in April checking the various bands. Discussion followed on how to dispense passwords. Dave N3BKV mentioned the I-Share Radio group and their deal with Flex and how they handle access to remotes, including a charge for use. It was suggested we announce progress at the General Meeting and consider how to do the roll-out. Dave N3BKV offered to do a demo, and is working on describing how to use a hand key and FT8 on the remote.

Meeting temporarily paused at 8:42AM and resumed at 9:08AM after breakfast.

Field Day 2026: Ron W6WG sent out email reminders to key people re Field Day. Confirmed Rick N6NH will be handling food. Dana K6NR will head up the CW tent with W6KK, KF6I, W1HIJ and others. Corey KE6YHX will copy the Field Day bulletin probably from home. Dave N3BKV can collect logs after Sunday shut-down for Tim N6GP to compile later. Dan KI6X has a Winkeyer and paddle if needed. CW tent will be using N1MM and the SSB tent will use N3FJP. Dave N3BKV will be operating satellite and will be working on networking the SSB tent. Harold W6HAR will oversee VHF/UHF and will be present Friday and Saturday nights on site. Any 6m operation will go to digital. Probable operation in Class 5. Ron W6WG might not be back in time for the general meeting, so Dan KI6X may head up Field Day discussion.

NEW BUSINESS: Ron W6WG suggested we pick a Saturday to gather at Nicholas' storage facility and sort through items for club use or auction.

Discussion of a suggestion that the General Meetings also included a Ham Radio Sales portion, whereby 1 to 3 items could be brought in to sell at a set price to keep the size of the auction down and perhaps a more reasonable price might be had. Will be mentioned at the general meeting and possibly start in July.

GOOD OF THE CLUB: Dave N3BKV is probably moving to Burbank, so may not be attending many general meetings in person.

Corey KE6YHX reports as archivist that the Disneyland presentation papers for now will be kept in the W6ZE archives. Corey will also be acting Secretary at the May General Meeting.

Next Board Meeting is earlier than usual and will be May 30, 2026.

With no further business, meeting was adjourned at 9:08AM.

Submitted by OCARC Secretary, Janet Margelli, KL7MF

VE Report
April 2026

On Friday April 17, 2026, we had three candidates who took tests. There was one Technician only test, one Technician plus General test and one General only test. The new Technician was **John Shandy(** KO6NIG). The candidate who passed both his Technician and General tests was **Kenneth Nguyen(** KO6NIK).

As promised in last month's VE report new Extra Dave Janisch previously KN6HEE is now KN6H. Congratulations Dave! Now all he has to do is remember to drop the two Es when giving his call! Congratulations to the two passing candidates from the VE exam team.

Ken Simpson W6KOS
Team Lead

OCARC Cash Flow
Ending April 30, 2026

Cash Flow	1/1/2026-4/30/2026
INFLOWS	
Badge Income	5.00
Dues 2026	645.00
Dues, PayPal 2026	1410.00
Opp Drwg Income	100.00
Refreshments Income	109.37
TOTAL INFLOWS	2,269.37
OUTFLOWS	
Lazer Pointer	35.55
PayPal Fees	65.72
Prizes	305.88
Refreshments Expense	160.73
Software License	77.88
Speakers Meal Reimburse	49.06
Website	115.40
WFD Food	130.00
WFD Gift	22.00
WFD Propane	77.65
WFD Tent Rental	220.00
TOTAL OUTFLOWS	1259.87
OVERALL TOTAL	1,009.50

OCARC 2025 Audit Report

Cash Flows

INFLOWS	
Auction Income	1,637.50
Badge	6.00
Bank Account Interest	228.25
Christ Dinner 2025	945.00
Donations	
General	29.00
Kei Yamachika Trust	53.00
VE Testing Tablets	200.00
Dues, 2025 Cash or Check	645.00
Dues, 2025 PayPal	1,806.75
Dues, 2026 Cash or Check	232.50
Dues, 2026 Cash or Check	480.00
One Time Adjustment	67.50
Opportunity Drawing	792.00
Refreshments Income	174.00
TOTAL INFLOWS	**7,296.50**
OUTFLOWS	
Activite Director Supplies	87.22
Auction Payouts	973.80
Auction Flyers	59.26
Award - Lifetime Achievement	72.72
Badge Expense	158.17
Christmas Dinner Rest Bill	1,388.31
Field Day - Equip	26.92
Field Day - Flowers	36.50
Field Day - Oil	7.51
Field Day - Propane	55.14
Field Day Rental - Tent	325.00
Insurance	300.00
P.O. Box Rent	188.00
PayPal Fees	153.20
Printing Brochures	265.80
Gift to Red Cross - US Flag & stand	255.65
Prizes	1,259.99
Refreshments Expense	357.77
Software License	59.88
Speakers Meal Reimburse	29.29
Storage	650.00
Tablets - VE Testing	289.30
Website	403.10
Zoom	159.90
TOTAL OUTFLOWS	7,562.43
OVERALL TOTAL	**-265.93**

Beginning Balance:	**12,249.73**
(Plus) InFlow:	**7,296.50**
(Minus) OutFlow	**7,562.43**
Accounting Adj.	**-70.5**
(Equals) Ending Balance.	**11,913.30**

Audit Acceptance

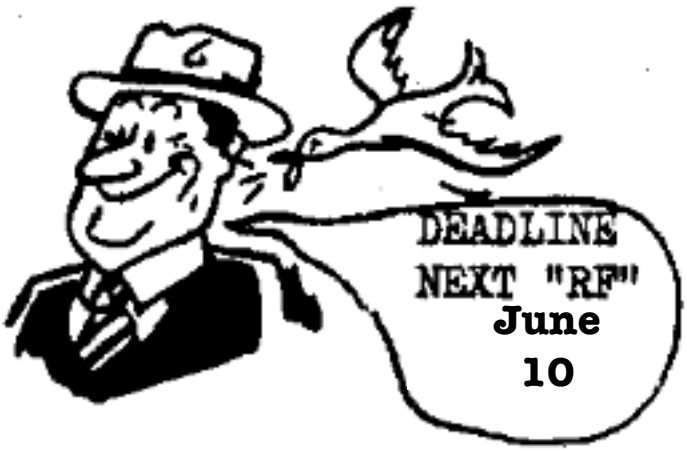
Bob Eckweiler AF6C

Tim Millard N6TMT

Tim Goeppinger N6GP

Date Signed:

May 8th, 2026



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