



RF



ORANGE COUNTY AMATEUR RADIO CLUB, INC.

VOL. LXII NO. 03

P.O. BOX 3454, TUSTIN, CA 92781

March 2021

The Prez Sez...

By Nicholas AF6CF



Hello! We are in March already, and we have great news for all the Club members. Wink, Wink, here comes WinLink ... This month's speaker will talk about an interesting radio mode called Winlink, so make sure you show up at the Zoom General meeting.

Summer Field Day preparations are under way, with conversations about two prospective sites. We have two highly qualified individuals as co-chairmen for this year effort, N6GP and W6WG.

Several FD positions will have to be filled with Band and Food captains. All are still open, so hurry up to volunteer. As soon as the FD Site is secured, we will know the plan, as this year we will implement a Covid-19 protocol to keep everybody safe. My prediction is that as always, we will have a great time, propagation or not. I am sure the two co-chairs Tim and Ron will be doing a terrific work organizing the event, and even training us, the not-so-skilled operators. We will have plenty of time to do so, as the Baker to Vegas race, Visalia DX Convention and most other radio related events are sadly cancelled. However, we strive to make our Club one of the most active in the region. We hope to be busy this year with all this and more activities. I look forward to an eyeball contact with you all at the next General Meeting.

NEXT MEETING

March 19th, 2021

Join us Via ZOOM at 7:00PM!
Current OCARC members
will receive an EMAIL with
instructions. Early check-in
available 6:30 PM(+)

Scott MacGillivray

KM6RTE

with

Introduction to WinLink

SPECIAL NOTICE:

During the COVID-19
pandemic ALL OCARC Nets
will Remain Active!

See page 2.

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Monthly Events:**General Meeting time & location:****REGULAR MEETINGS***

***See ZOOM announcement pg.1**

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

Club Breakfast (Board Mtg) info:

First Saturday** each month 8 AM
Marie Callender's Restaurant
307 E. Katella Ave
Orange, CA 92867

**** Board will handle Club business by ZOOM at this time**

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

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

75M 3.883 MHz LSB

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



Wellness & Support Net

Outside Nets: CARA REPEATER

147.090 MHz (+0.600 MHz) No PL

Monday - Friday
9:00AM and 9:00PM

NCO & Prg. Director. Tom W6ETC
NCO: Jeff: KK6TRC, Don W6ZZW,
Chris KF6LEX

OCARC 2021 DUES

**Membership period is:
1 January to 31 December**

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

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

Online Forms / Dues & Badges

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

Heathkit of the Month #105:**by Bob Eckweiler, AF6C***Heathkit***AMATEUR RADIO - SWL****Heathkit KS-1****HV KW PLATE POWER SUPPLY.****Introduction:**

The Heathkit SB-200/201 and SB-220/221 (HotM #33 & #49 respectively) were very popular linear RF amplifiers in their day. They still remain popular and most still remain in use. However, Heathkit's foray into the high-power RF amplifier field, began back in 1959 with the introduction of the KL-1 Chippewa HF Kilowatt Amplifier. This amplifier will be discussed in detail in an upcoming HotM article. The 61 lb. Chippewa is a full KW amplifier that operates both as a linear amplifier on AM and SSB and a Class C amplifier on CW. The power input to its pair of Eimac 4-400A tubes is 2,000 watts PEP on SSB and 1,000 watts on AM (linear) and CW. The Chippewa has a built-in bias power supply and also supplies all the filament current needed for the tubes. However the HV for the plates and screens must be provided externally. The Chippewa requires 3,000 V at 500 ma (1 amp peak). To supply this power Heathkit developed the 95 lb. KS-1 power supply (**Figure 1**). The open frame construction of the KS-1 on a 3" high steel chassis, while well shielded to prevent contact with a dangerous high-voltage points, is designed to be located out-of-sight and not take up desk space.

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

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



Figure 1: Heathkit KS-1 3,000 V Power Supply with its open frame construction. Rectifier tubes (A pair of 866A's) are in meshed cage at front left.

While designed to provide plate and screen power to the Heathkit amplifier, the KS-1 can also be used to power home-brew amplifiers of the sixties, and probably many people saw the KS-1 as an inexpensive alternative to a home constructed power supply. The KS-1 can supply either 3,000 VDC or 1,500 VDC, each at 500 ma (1 amp peak) by simple wiring changes. Heath recommends the power supply be run off 230 VAC but is also capable of running off the lower 115 VAC from a dedicated 20 ampere circuit.

The KS-1 was introduced a few months before the KL-1 in 1959. It sold for \$169.95. In the May 1961 Heathkit catalog supplement the KS-1 and its companion the KL-1 were offered in a closeout special. (**Figure 2**) The close out price of the KS-1 was dropped to \$129.95. The KL-1 was again featured in the April 1962 catalog closeout section without the KS-1 which had evidently been sold-out.

The KS-1 (as well as the KL-1) were not sold for very long and are considered rare today.

Figure 1 was obtained from the specification

sheet as no decent photo of a KS-1 could be found.

About the time the KL-1/KS-1 came out, Collins Radio started selling the 30L1 linear. While not a full 2 KW PEP amplifier it was tiny compared to the Heath amplifier and had a built-in power supply. The Collins design was based on an IVS (intermittent voice service) power supply¹ that takes into consideration the low duty factor of SSB and CW.

There is no question that the design of the KL-1/KS-1 was very conservative and overkill. Heath evidently realized this and had already started on its own IVS powered amplifier replacement - the HA-10 Warrior.

The KS-1 Power Supply:

The reason the KS-1 sold out before the KL-1 is likely because many were bought by home brewers. There is no question that this is a rugged, over-designed power supply, and probably a home-brewer could not purchase the individual components in 1961 dollars for the price Heath was selling it for in close-out.

The specifications for the KS-1 are given in **Table I**. Note that no duty factor is mentioned in the specifications or manual so the power supply could be expected run all day at the specified 1,500 maximum output rating.

The KS-1 Controls and Connections:

The The KS-1 power supply has no switches or controls, external or internal. The front of the chassis is adorned only with the raised plastic *Heathkit* signature emblem and a "Danger High Voltage" decal. Control of the power supply is accomplished in the KL-1 Chippewa amplifier via a six-wire cable. For those using the power supply with a home-brew amplifier Heath provides the needed wiring diagram for the control circuit. The control circuit consists of two **OFF/ON** switch-

HEATHKIT KS-1 SPECIFICATIONS

Maximum DC Power Output:	1,500 watts
Nominal DC Voltage Output:	1,500 or 3,000 volts*
Maximum DC Current Output:	Average: 500 ma Peal: 1,000 ma
Regulation:	
180 - 600 ma (Typical linear amplifier)	8%
0 - 300 ma (typical Class C amplifier)	10%
0 - 500 ma	15%
Ripple:	Less than 1%
Duty Cycle:	Not Given
Tube Complement:	Two 866A mercury vapor rectifiers
Recommended Ambient Temp.:	50° - 100° F
Line Power Requirements:	115 V. - 20 amperes 230 V. 10 amperes
Line AC frequency:	50 / 60 cycles per second
Chassis Size:	17 ¾" W x 12" H x 13" D
Net Weight:	95 lbs.
Shipping weight:	105 lbs. (freight)
* 1,500 volt operation uses 115 volt or only one of the 230 .	

TABLE I

es, **POWER** and **HV** and three indicator lights, **POWER**, **READY** and **HV**. The **READY** light is controlled by the time delay relay and comes on after an allotted 60 second warm-up time.

The rear panel connections, from left to right as viewed from the rear, are: The HV connector, **GROUND** stud with wing-nut, octal **CONTROL** socket, 3-wire line cord with strain relief, **FUSE B** socket and **FUSE A** socket. The two fuse sockets take the standard screw-in fuses of yesteryear (**Figure 4**), and the HV connector mounted on the chassis is a UG-496/U² HN-coaxial connector. The mating male cable connector is the UG-59A/U³.

CLOSE-OUT SALE

No danger of early obsolescence as these "ham" items will not be replaced with new kits.

**WAS \$169.95
NOW \$129.95**

KILOWATT POWER SUPPLY

Powers a complete DC kilowatt linear amplifier or plate modulated kilowatt phone rig. Oil-filled, hermetically sealed plate transformer and swinging choke. 60-second time delay relay. Max. DC power output 1500 watts; 3000 or 1500 v., average 500 ma, peak 1000 ma. 17 3/4" W x 12" H x 13" D. 105 lbs.

Kit KS-1...\$13 dn., \$11 mo. **\$129.95**

**WAS \$399.95
NOW \$319.95**

FULL GALLON LINEAR AMPLIFIER

SPECIFICATIONS (KL-1)—Driving power required: CLASS AB-1 (tuned grid) 10 watts peak (Max.) (swamped grid) 60 watts; CLASS C (tuned grid) 40 watts (max.); **Power input:** CLASS AB-1 (SSB-voice modulation) 2000 watts PEP; CLASS AB-1 (AM linear) 1000 watts; CLASS C (CW) 1000 watts. **Power output:** CLASS AB-1 (SSB-voice modulation) 1100 watts PEP; CLASS AB-1 (AM linear) 300 watts; CLASS C (CW) 750 watts. **Output impedance:** 50 to 72 ohms unbalanced. **Band coverage:** 80, 40, 30, 15, 10 meters. **Panel metering:** grid current, screen current, plate voltage (selectable). Final plate current (continuous). **Final tubes:** (2) 4-400A. **Power requirements:** AC power (supply primary circuit) 250 watts, 115 volt, 50-60 cycles, DC 3000 volts, 450 ma. **Dimensions:** 19 1/2" W. x 11 1/2" H. x 10" D.

Kit KL-1...\$32 dn., \$27 mo. **\$319.95**

Figure 2: Close out ad from the May 1961 supplement Heathkit catalog for the KS-1 and KL-1. In the same ad Heathkit announced the HA-10 Warrior 1 KW linear amplifier for \$229 with built-in power supply.

Figure 3 (Right): Top layout of the KS-1 power supply showing major component locations and part numbers. The 17 3/4 inch width allows the power supply to be mounted in a 19" 'relay rack' if desired. One can imagine a 12 1/4 or 14" high rack panel with brackets attached to the front of the KS-1 and the power supply neatly mounted to it. One could move the Heathkit emblem and front High Voltage warning decal to the new front panel and add a window to show the glow of the rectifier tubes. (Drawing is not to scale).

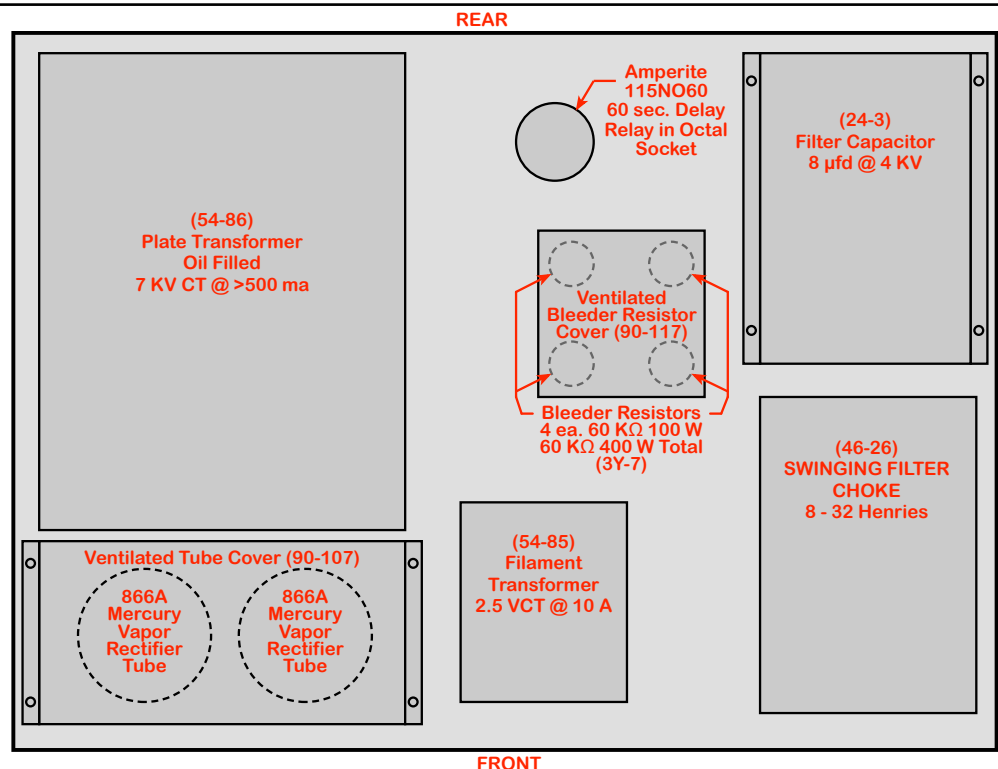




Figure 4: Old style screw-in fuse as used in the KS-1. Two 15 A fuses are required for 230 volt operation and one 25 A fuse is required for 115 volt operation.

The KS-1 Major Components:

Figure 3 shows a top-view layout of the major components of the KS-1

The Plate Transformer

The heart of this power supply is the plate transformer. It is an oil filled hermetically sealed unit rated at 7,000 volts center tapped and capable of at least 500 ma. The manufacturer and specifications are not given in the parts list or other available information.

The Rectifier Tubes

The rectifier tubes are a pair of 866A mercury vapor tubes. These bring back memories. In use they provide a brilliant blue glow, dependent on current draw, that is so impressive that hams in the fifties and sixties actually located the tubes near the front of their home-brew power supply's front panel and cut an opening filled with a sheet of glass (often backed with a shielding screen) so they could monitor the glow which brightened with each press of the key and danced with each syllable of their voice.

The 866A has some quirks that a user should be aware of. First, the tubes need to be warmed up prior to the high voltage being applied. This is done in the KS-1 with a 60 second delay timer that prevents the high voltage from turning on until the filaments

are warmed up. There is another requirement that is mentioned in the manual. If the tubes are new, have not been used for along time or have been laying on their side in storage, (In use the tube must be positioned vertically with the base down) it is recommended the tubes be excited with filament voltage only for a period of 20 to 30 minutes to fully vaporize the mercury and make sure there is no residuals on the cathode that can cause flash-over and resultant damage to the tubes.

The rectifier tubes are mounted on a sub-chassis below the main chassis to keep their height low and provide some cooling room under the ventilated tube cover.

Filament Transformer

A 2.5 volt filament transformer provides 10 amps of filament current to the two 866A rectifier tubes (5 amps each). It is designed to handle high peak voltages and is center-tapped, which is where the HV is taken from to go to the filter.

Swinging Choke

The KS-1 uses a single stage choke input filter for regulation and ripple filtering. The choke is a swinging choke in that its inductance is high with low current draw and low with high current draw.

Of importance in a choke input filter is the "critical" inductance of the choke itself. If the choke's inductance is below the critical value the filter will act as a capacitive input filter. At low currents the voltage will rise significantly, up to 1.4 times the secondary value. This puts a burden on the filter capacitor due to an over voltage condition. At high currents it puts a burden on the transformer and rectifier tubes due to the higher peak current drawn. At the same time regulation and ripple filtering suffer.

The KS-1 uses a swinging choke that is rated at 32 henrys at low current and 8 henrys at high current. The equation for critical inductance is:

$$L_h = \frac{E_{out}}{I}$$

where L_h is the critical inductance of the choke in henrys, E is the output of the supply in volts, and I is the current in mA being drawn through the choke. Solving the equation shows the minimum required current being drawn must be a bit under 95 mA. The bleeder resistors draw just over half of that (50 mA) and the rest is assumed to be the idling current of the device the power supply is supplying. At the high end 8 H is more than enough to meet the critical inductance. Notice it would not be good to leave the power supply on with no load for long periods.

Not too long after the KS-1 was released Heathkit changed the choke in a special Notice. Heath stated: *"The KS-1 filter choke (#46-26) has been modified to improve its performance and now features ceramic insulated terminals instead of wire leads..."*. The modification announced two new versions of the #46-26 choke with different layouts of the new ceramic terminals. the new chassis were drilled to accommodate either. Electrical changes to the choke, if any, were not mentioned. This note is available online⁴.

Filter Capacitor

A high voltage (4KV) 8 μ f oil filled hermetically sealed capacitor is used after the choke to reduce ripple and provide further voltage regulation. The two capacitor terminals are ceramic feed throughs and the capacitor mounts using two hooked brackets that fit over the top lip of the capacitor and bolt to the chassis. This is a non-electrolytic capacitor.

Bleeder Resistor Array

The bleeder array consists of four 60 K Ω re-

sistors – two pairs of parallel resistors in series. Each resistor is rated at 100 watts. The total resistance is 60 K Ω at 400 watts. At 3,000 volts the array draws 50 mA (150 watts) with each resistor dissipating 37.5 watts. Bleeder resistors help keep the choke input filter above the critical inductance, but they also play a major safety factor; they discharge the HV filter capacitor in a short time. Otherwise the capacitor can hold a lethal charge for a long time; this is especially true for oil capacitors which have low leakage rates. While Heathkit could have profited by using 50 watt resistors, in foresight they must have realized that if one resistor fails, its shunted mate would have to dissipate 67 watts which would have quickly caused that resistor to fail too. Dead hams don't buy Heathkits!

115 VAC Mains Operation:

While it is recommended that the KS-1 be operated from 230 VAC mains, the supply can be wired to operate from 115 VAC and still supply the full 3,000 V at the rated current. This may require a separate circuit since the power supply will draw up to a full 20 amps.

If the KS-1 is wired to produce 1,500 volts at 500 mA the 115 VAC current requirement drops to 10 A. When wired for 230 VAC and using the 1,500 volts output, the power sup-



Figure 5: Screw-in receptacle recommended to replace FUSE B for 115 volt operation. The receptacle may be used as a switched AC outlet.

ply draws its power from only one leg of the 230 volt line (effectively 115 volts).

Modification for use with 115 VAC involves removing FUSE B and connecting a 14 gauge jumper between lug one of FUSE B socket and pin 3 of the octal CONTROL socket. After this modification is made the power supply will provide 1,500 VDC at 500 mA. (See **Figure 6**). To achieve 3,000 volts @ 500 mA the two primary windings must be rewired so the windings are in parallel. (Terminals 1 and 3 wired together and terminals 2 and 4 wired together). (See **Figure 7**).

When wired for 115 VAC mains no fuse should be placed in FUSE socket B. Instead Heath recommends one purchase a socket outlet (**Figure 5**) and install that in FUSE socket B. The power cord may still be wired and connected to 230 VAC but current will only be drawn from one leg of the 230 volt line. In that case the socket outlet may be used as a “convenience” 115 VAC outlet. If wired to a 115 VAC line a jumper can be installed as shown in **Figures 6 & 7** to activate the socket outlet; just be aware the available current will be limited due to the heavy draw by the KS-1. It is recommended that this jumper be placed external to the KS-1 as part of the power 115 VAC power cord so it won't be overlooked if the power supply get converted back to 230 VAC operation. **Table II** shows the fuse choices for the KS-1.

Circuit Description:

Figure 8 shows the KS-1 power supply schematic as wired for 230 VAC and 3,000 VDC output operation. The schematic also shows the wiring of a typical control circuit – this one is the circuit in the KL-1 Chippewa amplifier. Note that the amplifier gets the 115 volts AC needed to power the filaments and bias supply in the amplifier from the CONTROL socket.

HEATHKIT KS-1 FUSE INFORMATION

Mains Voltage	Output Voltage	Fuse A	Fuse B
230 V	3,000 V	15 A	15 A
230 V*	1,500 V	15 A	n/A**
115 V	3,000 V	25 A	N/A**
115 V	1,500 V	15 A	N/A**

* Draws power from only one side of the 230 VAC line.

** **NEVER PUT A FUSE IN FUSE SOCKET B WHEN THE KS-1 IS WIRED FOR 115 VAC or 1,500 VDC.**
Instead, place a screw-in receptacle in the socket.

TABLE II

Primary Circuit

Power is applied to the control circuit whenever the KL-1 is plugged in, hot 115 volts through pin 1 and neutral through pin 3 of the control socket. When the control circuit POWER switch is closed, the 115 VAC power is applied to the amplifier and the POWER lamp illuminates. Power is also applied through pin-2 of the control socket to the KS-1 filament transformer and to one contact of the time delay relay. Power is also applied to the filament of the time delay relay, initializing the timer.

After a nominal 60 seconds, the delay relay closes; power is connected to one side of the plate relay and to pin-5 of the control socket. In the control circuit the READY light illuminates. When the HV switch is closed neutral is applied to the other side of the plate relay through pin 4, activating it and the HV lamp. The plate relay applies power to the primary of the plate transformer.

Secondary Circuit

The secondary of the plate transformer produces a-voltage of 7,000 volts center tapped. The two 866A rectifier tubes (discussed previously) are wired as a full wave rectifier. The

Figure 6 (To the right): shows the wiring for running the KS-1 from 115 VAC with 1,500 VDC output. The dashed jumper shown in the lower right allows the screw-in receptacle to be powered. If the power cord is wired to 230 VAC per drawing 8 the jumper should not be used and the receptacle will be powered by the other leg of the 220 VAC.

resulting DC voltage is taken from the center tap of the filament transformer secondary and filtered by the swinging choke and 8 μf capacitor. The output is connected to the HV connector on the back of the chassis. A bleeder resistor array sits across the output voltage and ground to act as a minimum load as well as assuring for safety that the capacitors are rapidly discharged after the power is turned off. **Figure 9** shows an under chassis view.

Final Comments

The KS-1 is a very well designed power supply. In the 40's and 50's it would have been an example of conservative engineering. But, with the emergence of SSB, resulting in the steep decline of AM, one has to wonder if the KS-1 was initially designed for AM? The power supply could easily provide plate power to an AM Class C 1-KW amplifier and still have enough power left to easily drive a 500 watt AM modulator.

A major change in technology for HV power supplies was the development of

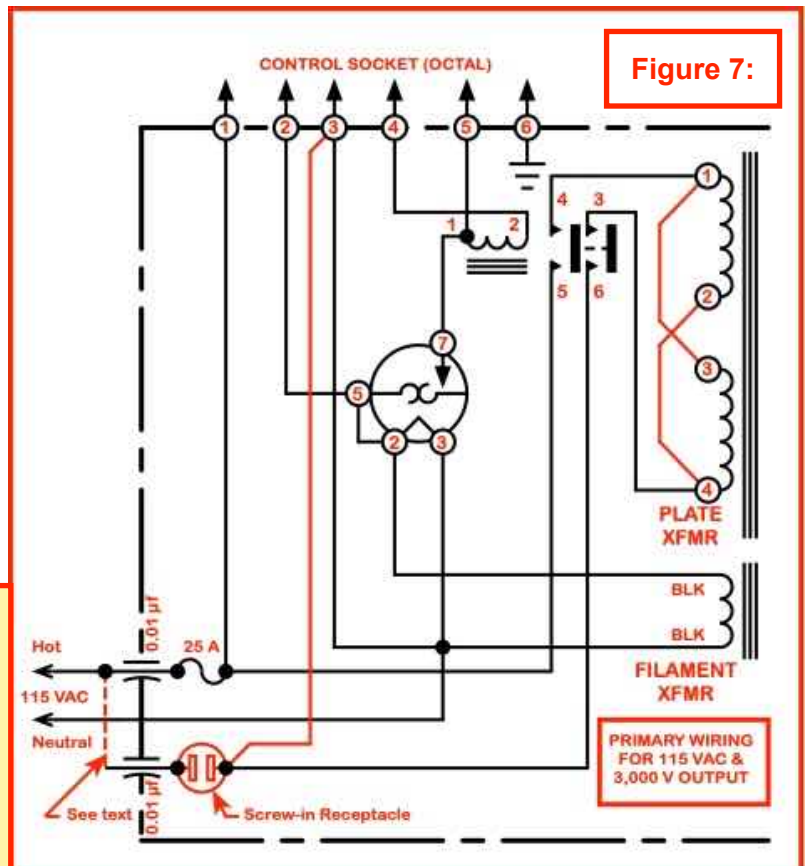
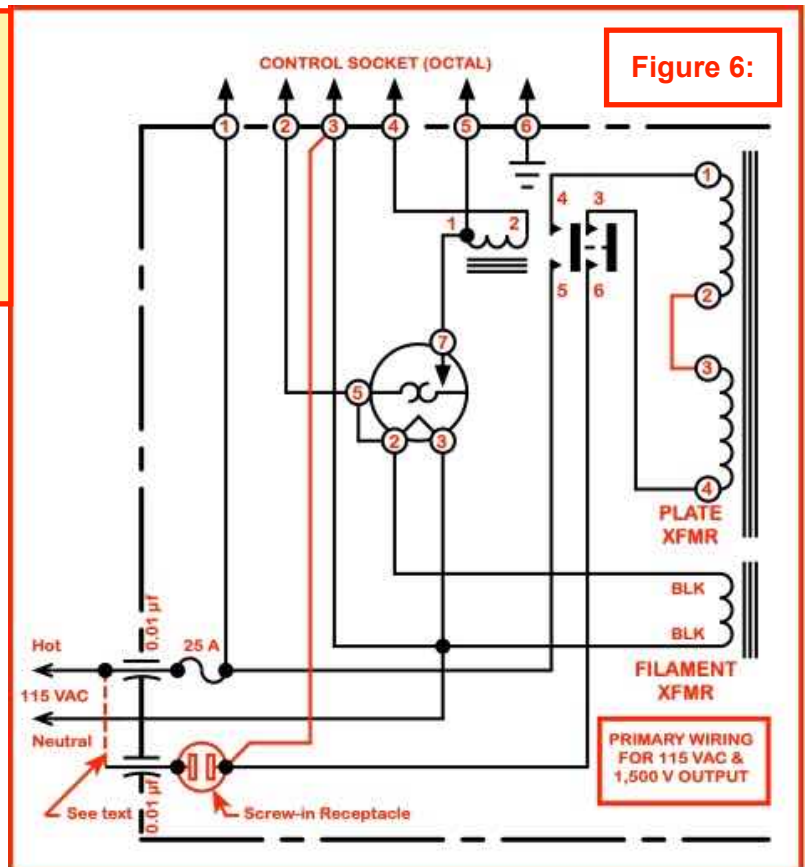


Figure 7 (To the right): shows the wiring for running the KS-1 from 115 VAC with 3,000 VDC output. The dashed jumper shown in the lower right allows the screw-in receptacle to be powered. If 230 VAC power is available there is no reason to run the KS-1 off 115 VAC though it is possible mentioned in the Figure 6 caption.

the silicon rectifier diode. Not long after the development of the KS-1 the pair of 866A tubes and 25 watt filament transformer, along with tube sockets, extra needed space, additional heat, etc. could be replaced by a string of solid-state diodes costing just pennies.

Next month is April, and with it we will once again be looking at one of Heath's more unusual kits. A lot depends on whether I can get a manual for the kit I'm thinking about featuring. You'll just have to wait until next month to find out the kit I'm thinking of. But here's a clue; it's based on a song by *The Who*!

Errata:

In HotM #30 (**SB-Line - Overview**) in the discussion of older and newer style filters, it was stated: “

“The later filters are narrower, but the mounting and terminals are reported to be the same so you should be able to use the smaller filter in an older radio but not the other way around without modification.”

The mounting and terminals are different, so while the new filters will fit size-wise, new holes must be drilled in the chassis to accommodate the relocated mounting studs and terminals. Thanks to Chuck Penson WA7ZZE for pointing that out

73, from AF6C

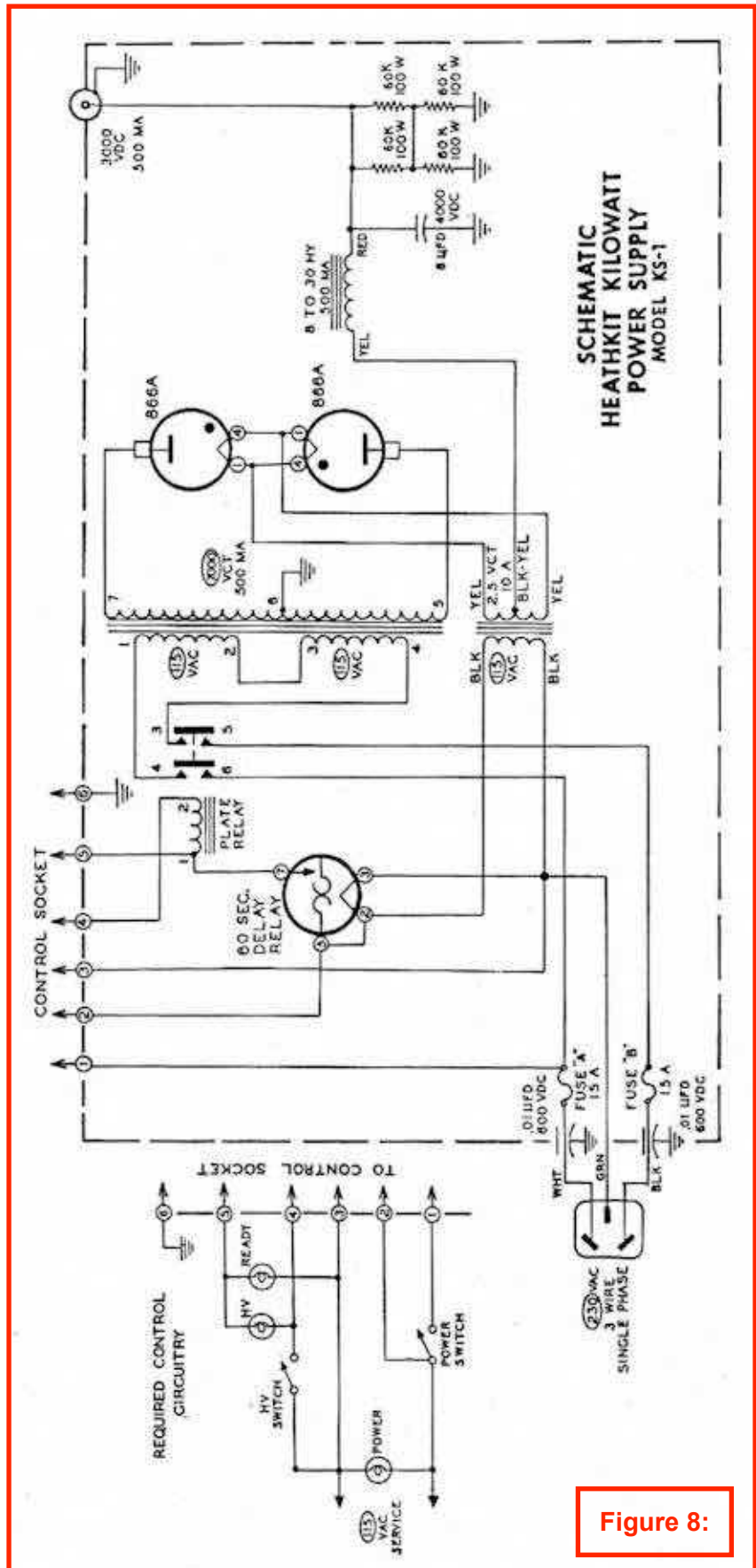
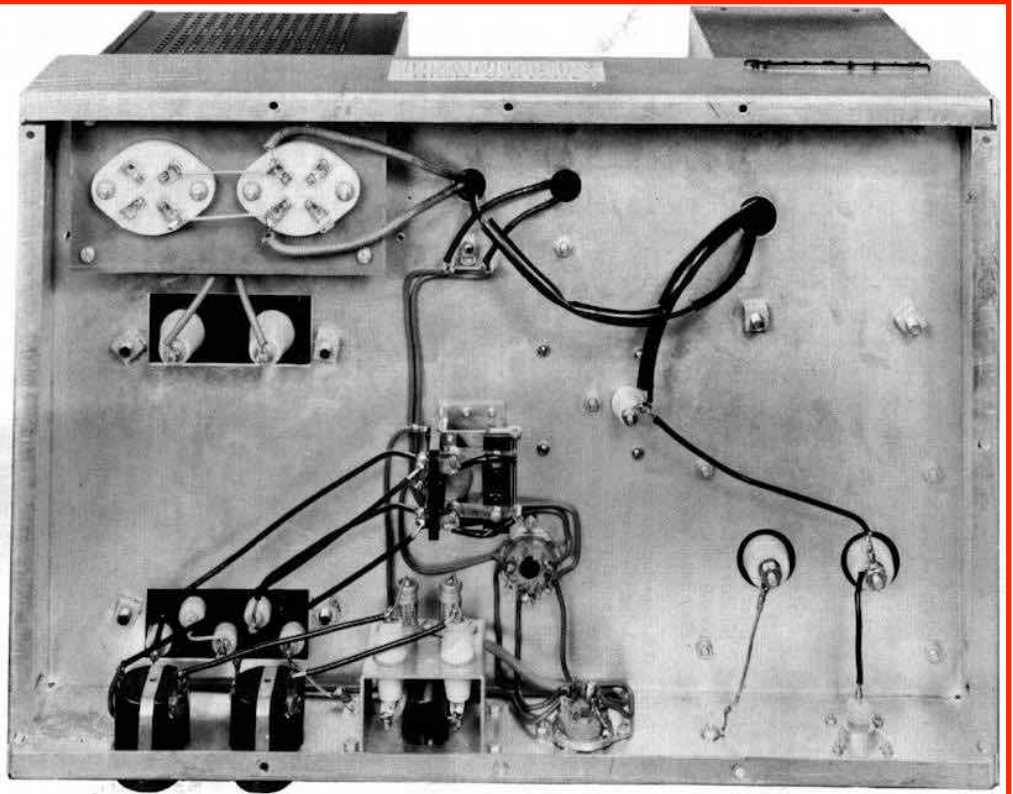


Figure 8:

Figure 9: An underside view of the KS-1 Power Supply. On the upper left are the two sockets for the 866A rectifier tubes. Directly below them are the porcelain feed-throughs from the plate transformer secondary that go to the tube plate caps. In the center is the plate relay and to its lower left is the time delay relay. The feed through just right of center goes to the bleeder resistor assembly. The two feed throughs near the lower right are the filter capacitor. Along the bottom lip are the two fuse sockets, AC power feed-through caps, the octal control socket and on the right is the HV connector.



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

Thanks - AF6C

Notes:

1. Radio Handbook (21st Ed.) Bill Orr W6SAI Section 23-7 "Solid State Supplies for SSB".
2. UG-496/U Female chassis mount, Amphenol 82-92, (Heath 436-15)
3. UG-59A/U Male cable connector, Amphenol 82-38, (Heath 438-21)
4. Heath KS-1 Special Notice is available at <http://www.w6ze.org/Heathkit/TN/KS1Choke.pdf>

Longtime Member Bob Tegel - KD6XO SK

Near the deadline for this month's RF the club got word that Bob Tegel, KD6XO had passed away. Bob was a longtime member, joining the club in the late seventies and holding numerous board positions. He remained active in the club, participating in Field Days and organizing club members to participate in the California Classic Carriage events to provide scoring and safety communications over the large course. Bob left the club after the 2011 year. He leaves his wife Barbara who often attended our Christmas party and his daughter Pier, KK6MGS. More next month.

OCARC Three-Peat of the Winter Field Day Championship Is In the Works? by Tim Goeppinger, N6GP

The March 1st deadline for submitting Winter Field Day logs has now passed, and the processing of the record 2200+ logs has begun. Using history as a guide, we should know the official results in a couple of months. I will take a look at some preliminary results from our club that was harvested from the www.3830scores.com site, or from the ones emailed to me. We cobbled together a team of 9 members to contribute toward our aggregate score, and I am hoping there were more logs submitted that I am unaware of.

Preliminary OCARC WFD 2021 Scores

Call	Class	CW	Phone	Dig	Mults	Initial Score	Bonus	Score
K7JA	1H	402	726	32	50	159400	1500	160900
N6HC	1H	239	570	16	17	36720	0	36720
N6GP	1H	108	21	48	25	16650	1500	18150
KI6X	1H	31	15	14	27	5670	0	5670
W6WG	1H	63	67	19	11	5082	0	5082
K6GTE	1O	77	9	0	10	3260	1500	4760
W6FKX	1O	0	33	0	1	66	4500	4566
AF6N	1H	94	9	0	11	4334	0	4334
AF6C	1H	0	35	0	3	210	0	210
Total								240392

Our superstar was Chip K7JA, who earned 50 multipliers by working just about all the bands from 160m all the way to 122 GHz. He was everywhere on the bands and made over 1100 contacts! Whoa! Wayne N6NB found Chip on 2m and they worked each other just about all bands and modes from there up to 122 GHz. This is over a 13 mile path from Garden Grove to Wayne's QTH on Barrett Hill near East Orange. On his own, Chip beat our record W6ZE score of 2020 of 156,782 points! Congratulations Chip!

Conditions were tough that weekend on the HF bands, making it tough for the more modest stations like mine. I heard Arnie N6HC CQing and working stations at an extremely fast rate. 900 QSOs is impressive! It was fun working Jim AF6N and Dan KI6X for many band mode multipliers. This is the name of the game! Ron W6WG operated his very capable Kern County station remotely for a good score, but the lack of locals out there prevented him from generating many multipliers.

I heard Bob AF6C calling stations around the bands, but I could never meet up with him on the bands for a QSO.

Doug W6FKX spent the weekend out at the Rainbow Basin Natural area about 10 miles north of Barstow. He operated out of his truck using his Yaesu FT-891 with a Hamstick for 20m and an ATAS antenna for 40m. His 100W solar panel kept his battery charged. Doug captured the most bonus points (4500) for being outside, on emergency power, and away from home. Mike K6GTE was our other Outside station braving the weather, and he was heard all over the HF bands as well.

We will keep a watchful eye on the Winterfieldday.com site when they post the scores. We are hoping for that 3-peat! Congratulations of all for a great job in WFD! With many of us getting vaccinated, we hope to return to normalcy next January, and operate all together as W6ZE outside! That will be something to look forward to!



UPCOMING ACTIVITIES

MARCH

- **Russian DX Contest:** 1200 UTC Saturday March 20 through 1200 UTC Sunday March 21
- ***CQ WW WPX / SSB:** 0000 UTC Saturday March 27 through 2359 UTC Sunday March 28

APRIL

- **North American SSB Sprint Contest:** 0000 to 0400 UTC Sunday April 5
- **ARRL Rookie Roundup, SSB:** 1800UTC to 2359 UTC April 18
- **10-10 Int. Spring Contest, Digital:** 0001 UTC April 24 to 2359 UTC April 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:

- **Oklahoma QSO Party:** 1500 UTC Saturday March 13 to 0200 UTC Sunday March 14 and 1500 UTC to 2100 UTC Sunday March 14
- **Idaho QSO Party:** 1900 UTC Saturday March 13 to 1900 UTC Sunday March 14
- **Wisconsin QSO Party:** 1800 UTC Sunday March 14 to 0100 UTC Monday March 15
- **Virginia QSO Party:** 1400 UTC Saturday March 20 to 0400 UTC Sunday March 21 and 1200 to 2400 Sunday March 21
- **Louisiana QSO Party:** 1400 UTC April 3 to 0200 UTC Sunday April 4
- **Mississippi QSO Party:** 1400 UTC April 3 to 0200 UTC Sunday April 4
- **Nebraska QSO Party:** 1300 UTC Saturday April 10 to 0100 UTC Sunday April 11 and 1300 to 2200 Sunday April 11
- **New Mexico QSO Party:** 1400 UTC April 11 to 0200 UTC Sunday April 11
- **Georgia QSO Party:** 1600 UTC April 10 to 0400 UTC Sunday April 11
- **North Dakota QSO Party:** 1800 UTC Saturday April 10 to 1800 UTC April 11

Repeating Activities:

- **Phone Fry:** Every Tuesday night at 0230Z to 0300Z
- **SKCC:** Weekend Sprintathon (Straight Key CW) on the first weekend of the month after the 6TH of the month. 1200 Sat. to 2359Z Sunday.
- **SKCC:** Sprint (Straight Key CW) 0000Z to 0200Z on the 4th Tuesday night (USA) of the month.
- **CWops:** Every Wednesday 1300 UTC to 1400 UTC 1900 UTC to 2000 UTC and Thursday 0300 UTC to 0400 UTC
- **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** Net Control: Corey, KE6YHX
- **2 Meter Net:** Every Wednesday night at 8:30 pm to 9:30 pm Local Time. FM Simplex 146.55 MHz

Other Nets:

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

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

IN THE NEWS

ARRL to Extend Field Day Rule Waivers from 2020, Add Class D and E Power Limit

The COVID-19 pandemic-modified **ARRL Field Day** rules from 2020 will continue this June (2021) with the addition of a power limit imposed on Class D (Home Stations) and Class E (Home Stations-Emergency Power) participants.

For more information go to the following link.

<http://www.arrl.org/news/arrl-to-extend-field-day-rule-waivers-from-2020-add-class-d-and-e-power-limit>

OCARC BOARD MEETING MINUTES 2021-03-06

Due to the COVID-19 restrictions on physical gatherings, the February Board Meeting was via Zoom on Saturday, March 6, 2021. The meeting was called to order by our president Nicholas AF6CF at 8:19 AM PST. All ten (10) directors were present for a quorum, and there were no visitors. There were fourteen (14) topics brought to the Board this morning, and two (2) motions carried, including adjournment.



•Director Reports

-Treasurer Report: Ken W6HHC has Quicken up to date for 2021. The OCARC has a lot of inflows, and few outflows, balancing to \$901.13. Ken reported some difficulties with settings for PayPal reporting, making some lists incomplete.

-Secretary Report: Corey KE6YHX reports, the edits to the February General Meeting Minutes are made.

-Membership Chairman Report: Bob AF6C reports there are 124 members. Of those, 69 have renewed, and four (4) are honorary members. Bob AF6C will send notifications to members who have not paid 2021 dues. The renewal grace period continues until the end of March.

•Old Business

•Review of Financial Audit Committee Report: Ken W6HHC reports the Audit Report for 2020 has been published in the February RF Newsletter. Bob AF6C discusses the need for monthly bookkeeping. A motion to approve the Financial Audit Committee Report was made by Steve N1BKB and seconded by Dan KI6X. The motion carried by a show of hands at 8:43 AM PST.

•Updated Newsletter Editors:

2020 April: Nicholas AF6CF

2020 May: Jim AF6N

2020 June: Greg W6ATB

2020 July: Tom W6ETC

2020 August: Jim AF6N

2020 September: Dan Ki6X
2020 October: Greg W6ATB
2020 November: Corey KE6YHX
2020 December: Bob AF6C
2021 January: Tim G. N6GP
2021 February: Tom W6ETC

2021 March: Tim M. N6TMT
2021 April: Steve N1BKB
2021 May: Corey KE6YHX
2021 June: Greg W6ATB

•**General Meeting Programs:**

March: Scott MacGillivray KM6RTE on "Introduction to Winlink"
April: Lance Collister W7GJ on "DXpeditioning with 6 Meter EME"
May: Marty Woll N6VI on "DXpedition to Mauritius Island 3B8"
June: --tentative--

•**Hybrid Meetings:** The Board discusses various contacts with the American Red Cross. Vice president Tim G. N6GP will take it as an action item to contact the ARC.

•**Winter Field Day 2021:** Winter Field Day Chairman Ron W6WG turns it over to Tim G. N6GP to report. Tim reports he made the score spreadsheet last night. For the OCARC this year, Chip K7JA single-handedly beat our last-year's score with over 160,000 points. He and the OCARC made contacts on bands up to 122GHz. Dan Ki6X worked on filling-in the lower-band contacts for the multipliers.

•**ARRL Field Day 2021:** Ron W6WG talked to our Ocean View School District contact, and the reservation looks good. Tim G. N6GP spoke with our Walter-Knott contact, and was told to check back in a month or so. We should make a COVID-19 protocol, says Ron, and the Board agrees. It will be a task for the Field Day Chairmen, says Nicholas. The ARRL has not yet released the 2021 Field Day Rules. Tom suggests a live scoreboard for Field Day. Inter-club cooperation is also discussed. Tim G. N6GP is asked if he will be FD co-chair, and agrees to the position. Ron W6WG volunteers as FD chairman for home stations.

•**Net Activity Report:** Corey KE6YHX reports the Coronavirus Nets have no Net Control during the General Meetings, making the continuity somewhat unreliable. Participation continues for the most part. Corey will make an effort to announce upcoming General Meetings, and the suspension of conflicting Friday night Nets.

•**Club Web Site Status PHP Version:** Bob AF6C and Ken W6HHC updated the PHP version on our web site for the coming year. Bob reports everything seems to work okay. The plan is to be ready to update to PHP v8 after March.

•**New Business**

•**Donations:**

Nicholas AF6CF suggests we appoint a single Board member as a point-of-contact, and that member appoint helpers for transportation, storage, disposal, etc. The SKs would want the equipment to go to other Hams, says Nicholas.

-Tegel SK:

Bob AF6C and Dan KI6X report the pictures for the Tegel SK donation differ significantly. Steve N1BKB has a closer look at the equipment, including model numbers. Transport needs to be arranged, and a trailer can be rented. The tower apparently has a custom box for the rotator, and a tilt-over feature, say Bob and Steve. An inspection is in order, after COVID shots, say Bob and Steve.

-Glidewell SK:

Nicholas reports the equipment is easy to remove, and the family would like to donate it to the Club. A pickup truck may be needed, and Steve volunteers with his SUV. Tom W6ETC has a pickup, if needed. Most of the Board members will be good-to-go in about a week.

Nicholas concludes, it is our duty to take care of SK equipment donations, members or not.

•Good of the Club

-Corey KE6YHX reports a member on one of the Nets requests a page on our web site dedicated to Ham Radio transceiver repair. There were several suggestions, including directing repair questions to our technical chairman, or to a major vendor. Corey stresses the need for something on our web site to catch the attention of Hams in need of repairs.

-As an additional item, Tom W6ETC proposes a simultaneous Zoom session and Net-at-Nine, directed for OCARC discussion, once a week, or once a month.

•Adjournment

A motion to adjourn was made, seconded, and carried at 9:57 AM PST.

Respectfully submitted by Corey KE6YHX, OCARC Secretary.

**OCARC GENERAL MEETING
MINUTES
2021-02-15**

Due to the restrictions on social gatherings with the pandemic, the February General Meeting was via Zoom on February 19, 2021. The meeting was called to order by our president Nicholas Haban AF6CF, at 7:00 PM PST. There were thirty-two (32) members, guests and visitors present, including our speaker.

•Pledge of Allegiance

The meeting begins with the Pledge of Allegiance.

•Meeting Presentation



Our vice president Tim Goeppinger N6GP introduces our guest speaker, Icom America Sales Representative Will Jourdain AA4WJ, who gives a very intriguing presentation on the Icom IC-705 QRP Portable Transceiver.



At the end of the presentation, Tim N6GP thanks Will AA4WJ for an excellent presentation on the innovative IC-705. Mr. Jourdain thanks us for the opportunity

to come back, and for one of the best Q&A sessions he has had. He wishes us a great evening and 73. The members wish him 73 as well.

•Business Meeting

The Business Meeting was called to order by our president Nicholas AF6CF at 8:05 PM PST.

•Director Reports

-Treasurer Report: Treasurer Ken W6HHC reports on the 2020 Finances Audit Committee Report. At the end of 2020, assets amount \$4,760. We did not spend as much in 2020 as we normally would, but we had extra-ordinary expenses, such as a donation to the American Red Cross to thank them for allowing us the use of their facility for our meetings for the past 25 years.

-Membership Report: Bob AF6C reports renewals and new members are approaching 70 members. The Chrome web browser seems to be having problems with submitting club dues.

-Vice President Report: Tim N6GP reports:

•General Meeting Programs

March: Scott MacGillivray KM6RTE on "Introduction to Winlink"

April: Lance Collister W7GJ on "DXpeditioning with 6 Meter EME"

May: Marty Woll N6VI on "DXpedition to Mauritius Island 3B8"

-Activities Report: Ron W6WG reports on last month's Winter Field Day. Tim N6GP is writing a report on this topic. Tim needs some more score reports for the March RF. There is a weekly activity, Slow-Speed CW, held by K1USN.com, on Sunday evenings from 4 PM to 5 PM PT, and Friday afternoons from 12 noon to 1 PM PT. The CW is a maximum of 20 WPM, and is excellent practice for new CW OPs and contesting. Please refer to the Radioactivity column in the March RF for the Club Nets and other activities.

-Director-at-Large Report: Tim M. N6TMT reports the solutions to the Zoom technical difficulties are working.

-Historian Report: Corey KE6YHX has backed-up the www.w6ze.org web site from Monday, January 11, 2021, to M-Disc. Uncompressed, the 8,334 files total 2.64GB. The ZIP archive is 2.37GB in size.

•Discussion

Many members have their COVID-19 vaccine, and hopefully the pandemic will soon be over.

•Ask The Elmer

-Loren KE7RXD asks about impedance. He asks if we can conceptualize it as the relationship between AC voltage and AC current. Bob AF6C explains impedance, reactance, capacitance, and inductance, and their relationship to phase-shift in an antenna and feed-line.

Loren thanks Bob and Ken for the explanation, and Nicholas further clarifies. There are some technical tomes Bob recommends: *Reflections 2*, and the *Aerials* series, published by World Radio. Edward KM6FPA has some references for Loren as well.

-Edward KM6FPA has a question also. He tried the Catalina repeater, and looked at the Club Net info. He asks if the Club Nets are simplex. Corey, Net Control, comes back with a yes. Corey and the other members encourage Edward to participate in the Nets.

-Doug W6FKX asks Tim N6GP how the Winter Field Day logs are submitted --to the Winter Field Day organization or to the team leader? Tim says the short answer is "both." There is an email address for submitting a Cabrillo log, and there is a special header for it, Tim tells us.

•Show and Tell

Nicholas AF6CF shows us an Elmer Award he received from the ARRL Mentor Program.

•Adjournment

The Motion to Adjourn was made by Tim Goeppinger N6GP, in memory of SK Art Goddard W6XD, ARRL Southwestern Division Director, who passed away on Saturday, February 13, 2021. The motion was carried at 9:05 PM PST.

Respectfully submitted by Corey KE6YHX OCARC Secretary.

**2021 OCARC DUES
ARE COMING DUE**

**MEMBERSHIP RENEWALS
GO TO WWW.W6ZE.ORG
SELECT MEMBER RENEWAL**

by W6ETC

OCARC Cash Flow

1/1/2021 through 2/28/2021

3/1/2021

Page 1

1/1/2021-
2/28/2021

Category

INFLOWS

Badge Income	1.64
Dues, Family (PayPal)	43.39
Dues, Membership	180.00
Dues, Membership (PayPal)	806.34
Dues, Membership (Paypal) 2022	57.66
TOTAL INFLOWS	1,089.03

OUTFLOWS

Web Site Hosting - PayPal	38.00
ZOOM subscription	149.90
TOTAL OUTFLOWS	187.90

OVERALL TOTAL	901.13
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MiniTiouner-Express

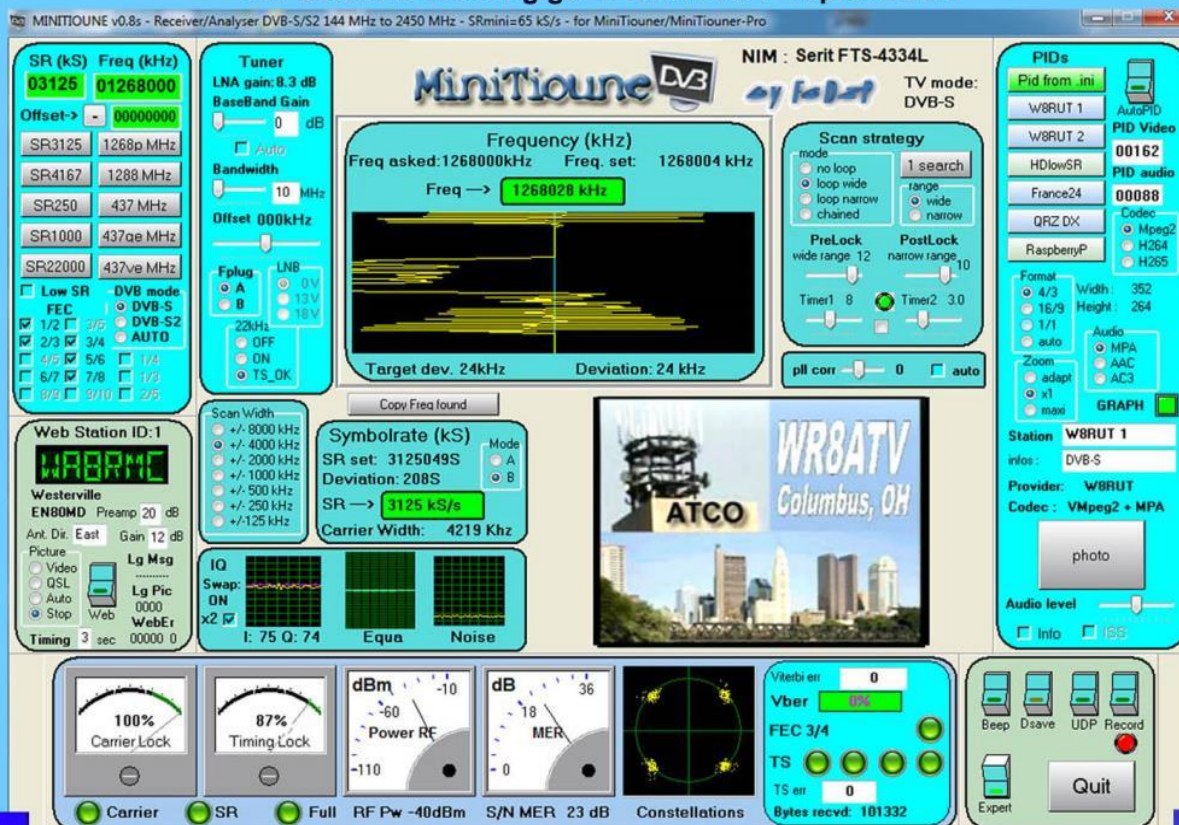
Digital Amateur Television DVB-S/S2 Receiver / Analyzer



Available at DATV-Express.com

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

For details & ordering go to www.DATV-Express.com



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