

**R****F**

ORANGE COUNTY AMATEUR RADIO CLUB

VOL. XXIX NO. 1

P. O. BOX 3454, TUSTIN CA 92681

JANUARY 1988

**JANUARY PROGRAM****NOTE! NOTE! NOTE! NOTE! NOTE! NOTE! NOTE! NOTE! NOTE! NOTE!**

At Press Time the January Program had not been finalized yet. Our new Vice President, Mark, has been busy lining up some new programs for the 1988 year. When the January program is finalized you will hear about it on the Club Nets. If you have any ideas for what you'd like to see as a Club Program, be sure to suggest them to Mark.

On the depressing side of the news; this was cut out of the Sunday LA TIMES:

Ham Radio Operators' High Cancer Rate Poses a Puzzle

TACOMA, Wash. — Amateur radio operators in Washington and California appear to die at abnormally high rates from several forms of cancer, suggesting a possible link between cancer and electromagnetic fields, according to data collected by a state epidemiologist.

Others cautioned that evidence of such a link has been inconsistent and that other factors may be involved.

Dr. Samuel Milham Jr. of the Washington Department of Social and Health Services studied the deaths of 2,485 Washington and California ham operators between 1979 and 1984.

He reported in the American Journal of Epidemiology that 29 leukemia deaths would be expected in a group of people that size, but he found 36 deaths. Statistically, he expected to find 72 lymphatic and blood-forming organ cancers, but found 89. And he expected to find 67.6 deaths from prostate cancer, but found 78.

'Excess Mortality'

The study "indicates that amateur radio operator licensees in Washington state and California have significant excess mortality due to acute myeloid leukemia, multiple myeloma and perhaps certain types of malignant lymphoma," Milham reported.

Leonard Sagan, program manager for radiation studies at the Electric Power Research Institute in Palo Alto, Calif., warned that studies like Milham's can be misinterpreted. Milham's findings could be simple associations that have nothing to do with cancer causes among people who work with electricity, he said.

Sagan said his own research hasn't shown whether electricity causes cancer. But he predicted that if it does, it's rare.

"I think it would be unfortunate for people with children to become overly concerned about this," he said. "Evidence is weak and inconsistent and in a few years we will have better evidence."

1988 CLUB BOARD of DIRECTORS

President	Ken Konechy	W6HHC	541-6249
Vice President	Ron Toering	KB6EZP	971-5180
Secretary	Mark Stanford	N6QMW	991-7398
Treasurer	Frank Smith	WA6VKZ	730-7142
Activities	John Roberts	WA6LAB	540-7368
Membership	Chris Breller	KA6IMP	544-3640
Public Relations	Lu Hurlbut	K1Y2G	832-8386
T.V.I. Chairman	Kei Yamachika	W6NGO	538-8942
Member at Large	Jim Talcott	N6JSV	838-5395
Member at Large	Will Galusha	WB6GDZ	897-3376

CLUB APPOINTMENTS

Club Historian	Bob Evans	WB6IXN	543-9111
W6ZE Trustee	Bob Eckweiler	AF6C	639-5074
R.F. Editor (Jan.) ..	Bob Eckweiler	AF6C	639-5074
Teen Representative ..	(open)		

CLUB FUNCTIONS

MONTHLY MEETING: 3rd Friday of each month, 7:30PM at:
MERCURY SAVINGS & LOAN
Jan 15th 1988 1095 Irvine Blvd. (4th St. becomes Irvine)
Tustin, CA. Talk-in on 146.55 MHz

Feb 19th
Mar 18th (Take the 4th St. exit of the 55 FREEWAY
and head east. Continue about two blocks
past Newport Blvd. It's on the left.)

CLUB BREAKFAST: 1st. Saturday of each month, 8:00AM at:
LE GRAND CAFE
Feb 6th 2525 N. Grand Avenue
Santa Ana, CA. (714) 997-5393

Jan 5th (1-1/2 blocks south of the 22 Freeway)

CLUB NETS

BAND	MODE	DAY of WEEK	LOCAL TIME	FREQ MHz	OPERATOR
2 Meters	FM	Wednesday	2100 hrs.	146.550	W6HHC
15 Meters	SSB	Wednesday	2000 hrs.	21.375*	WB6IXN
15 Meters	CW	Thursday	2000 hrs.	21.175*	KB6NAX
(Listen for W6ZE, net control)				*Plus or minus QRM	

The PREZ SEZ

I would like to take this opportunity to wish all of the club members and their families a very happy and prosperous year in 1988. In looking back to 1987, our past president, Jim/N6JSV, did an outstanding job of keeping our radio club growing with new and interesting activities for new members and for old members. I think that 1988 is year that the OCARC can use to focus on four areas to build an unshakable foundation for even further growth. These four areas are:

- 1) Establish wide spread involvement in emergency preparedness.
- 2) Provide informative and entertaining speakers for meetings.
- 3) Bring in new members through classes and contacts.
- 4) Improve our financial stability thru our efforts with ARRL Convention this summer.

Preparing for emergency communications is a topic that is important to the OCARC and to Orange County. I strongly believe that providing communications during emergencies is:

- A) A skill that HAM Radio is uniquely qualified to provide.
- B) A partial justification for the existence of HAM Radio.

But HAM operators don't become trained to know how to operate effectively in an emergency without training and without an organization that allows HAM's to operate as a "team". One of our members, Frank Smith / WA6VKZ, has been appointed emergency communications manager for AREA 3 Orange County AMATEUR RADIO EMERGENCY SERVICES (ARES). I would like to see most of the members of the OCARC get involved and trained in Frank's ARES organization. The team of HAM's in Frank's AREA 3 organization is small and just getting started. We would like to invite you to join us and grow your skills. A good first step is to give Frank a call (730-7142) or check into the ARES net on Monday evenings at 6:30 PM on 146.580 (simplex).

All clubs need the participation of all members (not just the Board Members) to create interesting activities and projects. The OCARC needs your help. Please volunteer to help find interesting programs or to make a project move from an idea to a reality. A special need for the OCARC now is a new editor for our club newspaper, the "RF". Our past editor, BOB/WA6IXN, is retiring after several years of outstanding efforts. I need somebody to take on this valuable task. Being editor can be a fun job. It doesn't mean days of heavy typing, most of the job is really organizing articles that you are given or find and then doing a "cut-and-paste". Why don't YOU try it for a two month trial period.....it can be fun.

de Ken, W6HHC

WANTED :

Used, recent vintage low-band TRANSCEIVER (5 years or less old)
Contact: Paul Bailey; WA5CJP, (714) 587-4607

VEC LICENSE UPGRADING:

If you're planning to upgrade, or have recently upgraded your ham license be sure you read the following information. It is edited from a handout that you should receive when taking your test. You may want to have knowledge of this information prior to arriving at the test session:

"If you upgraded your license today and you have a license pending from the FCC, your Form 610 application will be sent to the ARRL/VEC office and held there without action until you forward a copy of your pending license (FCC requirement). When the pending license arrives, make a photocopy of the signed ticket and send it to:

ARRL/VEC, ATTN: Maria Somma,
225 Main St., Newington, CT 06111

At today's session, the administering VE Team will issue you a Certificate of Successful Completion of Examination (CSCE) for the elements passed and showing the license class to which you upgraded. With this original CSCE, you may immediately begin operating with your newly earned privileges, provided that you already hold a currently valid Amateur Radio license. You must not operate as the control operator under and circumstances if you are still waiting for your initial ticket to arrive from the FCC.

Finally, the FCC is taking up to 10 weeks to issue licenses. Do not delay mailing the photocopy of the pending license, as the FCC does not process applications according to the date of the session.

-- ARRL/VEC"

TO ALL ARES / RACES E.C.s

The Bilingual Communications Support Group is now being organized, with the approval of the A.R.R.L. officials and the Section Emergency Coordinator. The purpose of this group is to have an available pool of trained bilingual operators to be used in the event of emergencies in which local E.C.'s will have a need for translators on site. Their function will be to translate between non-English speaking evacuees and emergency relief personnel or other emergency officials or operators in any disaster or emergency.

All licensed operators fluent in and foreign language, are invited to join, regardless of their participation in any other emergency group. For information contact George Di Martino, KI6MD (714) 951-7130, or write to P.O. Box 3103 Mission Viejo, CA 92690.

de KI6MD E.C. BCSG ARES

LOCAL A.R.E.S. NET:

There is a local A.R.E.S. net meeting on two meters. The time is Mondays at 18:30 local time (6:30 PM). The frequency is 146.58 MHz. Listen for E.C. Frank Smith, WA6VKZ, as net control. All active Orange A.R.E.S. members are invited and encouraged to check-in. The net usually last for less than a half hour, for those who want to make the R.A.C.E.S. net at 19:05 PM.

ORANGE COUNTY AMATEUR RADIO CLUB

K.A.K.

FINANCIAL REPORT 1987

12/12/87

BEGINNING BALANCE:	CHECKING	\$68.76	
	SAVINGS	\$282.54	
	GENERATOR FUND	(\$10.00)	INCLUDED IN CHECKING ACCNT
	TOTAL	\$351.30	

INCOME:

DUES (1987)	\$321.00
DUES (1988)	\$36.00
RAFFLE INCOME	\$410.00
NOVICE CLASS	\$176.00
AUCTION PROFITS	\$134.15
COFFEE KITTY	\$47.97
ARRL RENEWAL COMMISSIONS	\$29.00
BADGE SALES	\$18.00
FIELD DAY KITTY	\$13.05
INTEREST-SAVINGS	\$15.39
INTEREST-CHECKING	\$8.80
TOTAL INCOME	\$1,209.36

EXPENSES:

RAFFLE EXPENSES	\$359.86
INSURANCE (1988)	\$255.00
RF POSTAGE	\$157.26
FIELD DAY FOOD	\$107.82
NOVICE CLASS EXPENSES	\$105.63
REFRESHMENT SUPPLIES	\$30.29
MAILBOX RENTAL	\$22.00
CHRISTMAS PARTY	\$15.86
O.C. FAIR HANDOUTS	\$13.78
PROGRAM SPEAKER EXPENSES	\$9.88
OCCARO DUES (1987 & 1988)	\$6.00
OCARC BADGE COSTS	\$5.56
TOTAL EXPENSES	\$1,088.94

YEAR END BALANCE:	CHECKING	\$177.69	
	SAVINGS	\$294.03	
	GENERATOR FUND	(\$10.00)	INCLUDED IN CHECKING ACCNT
	TOTAL	\$471.72	

APPROVED:

James W. H. 1/2/88 *Jim T. H. 1/2/88* *Allen C. Bullen*
N6CJS *KAGIMP*

THE THEVENIN'S EQUIVALENT

In Figure 1, what is the current flowing thru resistor R5? This may seem like one of those hard Ohm's law puzzles that sometimes appear in magazines. The problem, however, is easy to solve without a lot of mathematics; all that's needed is a simple understanding of Ohm's Law and Thevenin's Theorem.

Hams are required to be familiar with Ohm's law, but many have not heard of Thevenin's Theorem. It states that...

any circuit connected between two terminals can be replaced with a Thevenin voltage, V_{th} , in series with a Thevenin resistance, R_{th} , connected between the same two terminals.

The meaning of this will become clearer as we proceed. Don't give up yet!

Before continuing, let's look again at the circuit in Figure 1. It is often called a Wheatstone Bridge and is an important circuit in instrumentation and other areas of electronics. The SWR bridge and balanced modulator in a SSB rig often use a variation of the Wheatstone bridge principle. Instrumentation transducers that measure pressure, load, acceleration, vibration etc. commonly rely on the Wheatstone principle. In a future article we'll delve further into the Wheatstone bridge.

To solve our problem in Figure 1, first let's redraw the circuit as shown in Figure 2. Resistors at odd angles can add to the confusion so get rid of them if you can. At the same time draw separate voltage sources. Now, note that R1 and R2 and a voltage source represent a circuit connected between two terminals A and B; and likewise R3 and R4 between terminals C and D.

Remember, Thevenin's Theorem says we can replace each of the circuits, shown within a box in Figure 2, with a Thevenin voltage and Thevenin resistance in series (shown in Figure 3). Now, if we just knew the values of the Thevenin equivalents the problem would be very simple to solve.

To calculate the Thevenin equivalents follow these simple steps:

- A. Isolate the Thevenin circuit at its two terminals.
- B. Calculate the voltage across the isolated terminals using Ohm's voltage divider law. This is the equivalent Thevenin Voltage, V_{th}

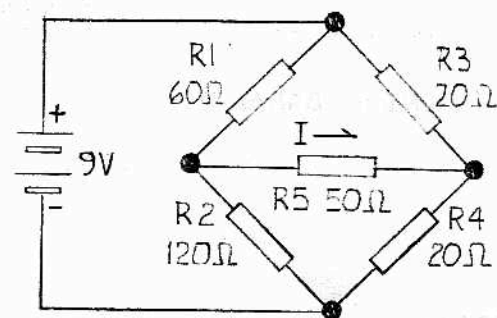


FIGURE 1

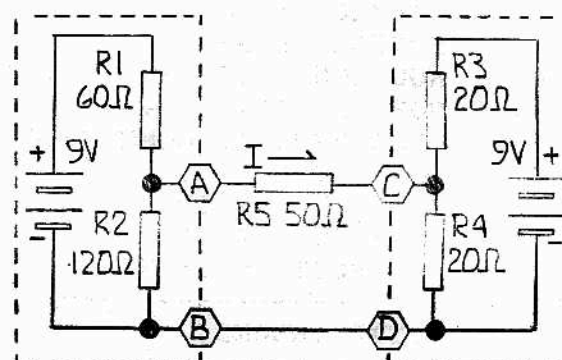


FIGURE 2

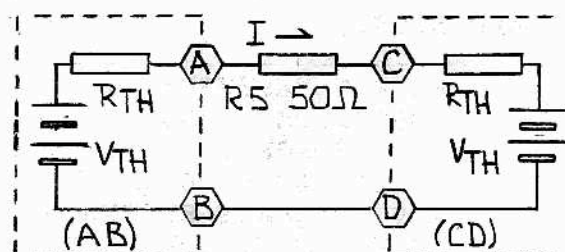


FIGURE 3

Continued...

THEVENIN's EQUIVALENT Continued...

- C. Replace voltage source(s) with short circuits. Then solve for the resistance across the two isolated terminals. This is the equivalent Thevenin Resistance, R_{th} .

The solution is much easier to do than write about, so let's solve for the Thevenin's equivalent between terminals A and B. First, isolate the circuit at its terminals (Figure 4a.). Then, from Ohm's voltage divider law (shown for reference in Figure 5), solve for the voltage at the terminals:

$$V_{th}(AB) = 120 / (60 + 120) \times 9 \text{ Volts} \\ = 6 \text{ Volts}$$

Finally, replace the voltage source with a 'short' (Figure 4b.) and solve for the resistance between terminals A and B. In this case, just solve for two resistors in parallel:

$$R_{th}(AB) = (60 \times 120) / (60 + 120) \text{ Ohms} \\ = 40 \text{ Ohms}$$

In a similar fashion the Thevenin equivalent between terminals B and C can be solved. (Figures 4c. and 4d.):

$$V_{th}(CD) = 20 / (20 + 20) \times 9 \text{ Volts} \\ = 4.5 \text{ Volts}$$

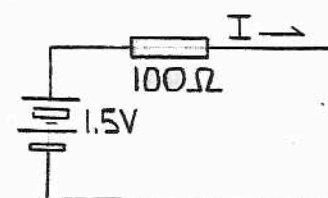
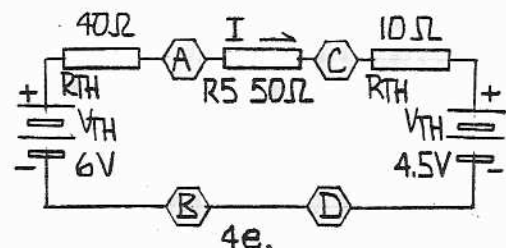
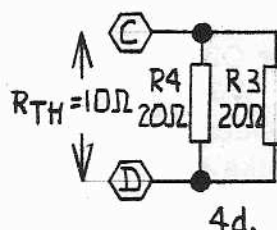
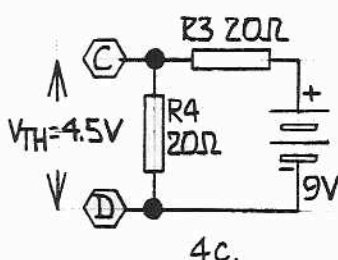
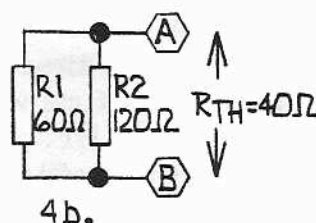
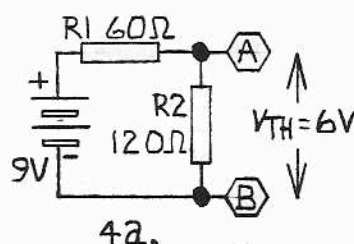
$$R_{th}(CD) = (20 \times 20) / (20 + 20) \text{ Ohms} \\ = 10 \text{ Ohms}$$

Now the circuit can be shown by Figure 4e. and simplified to Figure 4f. The resulting current through R_5 is (from Ohm's Law):

$$I = 1.5 \text{ Volts} / (100) \text{ Ohms} = 15 \text{ ma.}$$

Thevenin's Theorem can be a big help when solving some of those difficult circuit problems hams often come across.

de AF6C



Cont. Page 10...

*** ON THE NETS ***

12/2 15m phone net - W6ZE/IXN checks in LAB. John will be out of town for the next 2 weeks. IXN & JSV both have clogged sewers in the QTH! No one else checks in, so we pull the switch & 'back to the sewer'! 12/2 2m phone net - W6ZE/IMP checks in JSV, QMW, GDZ, & ??? (IXN has sewer interruption!) JSV tells net abt he & EZS's recent trip to Texas over Thanksgiving. The upcoming Club breakfast, along with the Christmas party. HHC is out of town again!

12/9 15m phone net - W6ZE/IXN checks in DK, VCT, YZG, IMP, & ULU. VCT gives IXN a run-down on property (prices, etc.) & fishing in the Havasu City region, & YZG has a quiet Thanksgiving with his daughter. Lu visits his brother in Palm Desert & enjoys the windmill farms along the way. ULU hosts his family for Thanksgiving, but today, he saws a wet Xmas tree stump & dislocates his back! IMP gives ULU some possible reasons for the letter/number errors on his Commodore 64 when receiving messages from Marine Corps MARS. Business will take DK to Hiroshima, JA, & he won't be back until Dec. 24. Ken wishes all a Merry Christmas! IMP experiences success in downloading bulletin boards, programs, etc., on packet. ULU will not rpt in on 2m; he's 15 ft. short on his 2m lead-in! 12/9 2m phone net - JSV talks with BPX while AF6C calls W6ZE/HHC on the twisted pair! HHC checks in JSV, BPX, AF6C, RE, IMP, YZG, SDU, & QMW. JSV just gets home from fighting Xmas traffic; & HHC walks in from the Xmas concert at S.A.H.S. RE is still nursing a sore back & unplugs a clogged sewer. BPX & IMP both rise early in the morning, but BPX doesn't have to 'brave' the freeway traffic! YZG thanks JSV for the 'We The People' award info., & IMP erases a disc of important data! (join the crowd, Chris!) QMW announces that Rich Grigg, TTQ, has upgraded to Extra! Congrats, Rich! AF6C inquires about new shopping center in Santa Ana. HHC & XYL, Diane, have been there. HHC reminds all OP's about the Christmas Party, & asks QMW to sign a signature card at Mercury Savings & Loan.

12/10 15m CW net - DK is on his way to Hiroshima, JA, & IXN/W6ZE checks in WA6RND. John will take off for Utah day after Xmas, WX permitting. IXN begins study of General Ledger program for church computer. RND asks about Arden, NAX. (IXN gets Xmas card from Arden. He's presently on 2m at the new QTH!) John plans retirement for next year, & he spends Thanksgiving in Bishop, CA. 12/16 15m phone net - W6ZE/IXN checks in VQL, SDU, IMP, VCT, YZG, & UL. VQL works back to N.J. for about 1 hr/day on 15m. IMP reports snow at IBR's QTH in Moreno Valley. SDU, Foster, reports in for 1st time on net, but 73's early due to high SWR! IMP & NONE have a 'leak in the corner'! Ofcourse, YZG offers Chris appropriate solutions...HI! Lu 'breaks 1' to handle a phone salesman, & UL was dry 'inside' while he kept the rain 'outside' all day. Bob, UL, is an electronics consultant & owns his own company. VCT worked in the rain all day & got wet head & foot! Glenn has KLM air coils in the ant; he has a wee bit of SWR tonight. IXN set a pail under the leak in his garage! VQL's rain gauge showed .9 in. of rain at 5 pm! 12/16 2m phone net - W6ZE/HHC checks in IMP, YZG, BPX, QMW, RE, & SDU. High winds weaken 3 posts in HHC's fence, tilting it to a new angle! YZG defends 220 MHz bands, noting successful CONDOR net on west coast... & Lu is glad to be in the 'rains of CA' rather than the 'snows of New England'! BPX turns his beam broadside of beam 90 deg. from wind direction to ride out high winds & XYL, Blanche's medical tests are all OK. QMW had a great time working a 10m contest last weekend with 75 contacts! & Mark's XYL finally concedes to an HT! IMP tells net of ham group in Moreno Valley, & the feeling of goodwill between hams & local officials. RE plays Westlink tapes. SDU tells net about high SWR on 15m, & Foster will attend the Christmas Party. 12/17 15m CW net - No formal net..IXN & QMW rancher about Mark's new HT. IXN is getting a cold or flu!...and QMW wants a 60 ft. tower & beam from Santa for Christmas! 12/23 15m phone net - IXN & family meet with NONE & IMP at the QTH of JSV & EZS for Christmas goodies & a song fest. IXN & IMP invade JSV's shack to call the net for check-in. W6ZE/IXN checks in JSV; IMP; RND; W6VXT, Jack, 10 mi. South of Carson City, NV.; KA6RPF, George, Vallejo, CA; & KB6?X?, in Modesto. RND will be leaving for Utah after Christmas, & it looks as if 15m DX is arriving at night, OP's! 12/23 2m net - IMP, IXN, & JSV, plus guests of JSV, rush to the shack at 9:00 pm just in time to hear W6ZE/HHC call for check-ins. ATU, IXN, IMP, JSV, BPX, QMW, EZP, & RE all respond. ATU requests info. on the CONDOR net, & asks for help installing a 'PL' in his 200 MHz hand-

(On The Nets..cont'd:) held. HHC offers technical assistance & IXN offers info. on the CONDOR net. MQW checks out early, & BPX reminds all that it is 40 deg. outside with a chill SNA. wind blowing (PA wx for IXN & HHC)! EJP gives HHC some reminders abt installing PL's in HT's, & IMP jogs all our memories abt the clogged holiday freeways, as he & Jane prepare to go to IBR's QTH in Moreno Valley tomorrow. RE joins us late & plays the westlink tape...his daughter & grandson just walked in from Palo Alto! 12/24 15m CW net - IXN & RND greet each other on Christmas eve. IXN has a scratchy throat & RND gets a gift certificate for a 2m amp from the XYL. Expect to hear John on 2m with 30W soon! 12/30 15m phone net - IXN throws the switch...no power in the rig! No net! IXN calls IMP & learns that the rig won't go on if the PPT lock on the mike was depressed while dusting the equipment! Problem solved. 12/30 2m phone net - W6ZE/HHC checks in IMP, BPX, RE, SDU, QMW, AF6C, ULU, & YZG. IMP was on packet to the wee hours of the morning!...& BPX is going to the New Year's parade tomorrow. RE plays the Westlink tape, and HHC, AF6C & NGO do a ring job on the Club generator. We'll see SDU at the Club breakfast Sat., and AF6C had been reading & fell asleep before net last wk. Santa brought ULU a MODEM for Xmas, but failed to leave complete instructions! Now Lloyd needs help adapting it to his C64! YZG got a new callbook & wishes all a HNY! QMW works a Gateway to the east coast on the 146.745 rpt! And IMP & JSV make up an audit team to examine HHC's books. 12/31 15m CW net - W6ZE/DK gets bk from a business trip to Hiroshima, JA. He checks in IXN, who makes Ken happy with the announcement of a new 626 Mazda for Christmas! But DK has some detective work ahead of him as he fights an invasion of the Tennessee Valley Indians at his QTH!!

JANUARY BOARD MINUTES

The January 2, 1988 meeting was called to order at 3:56 AM in the Le Grand Cafe, Santa Ana by our new President W6HHC. All Board members were present except N6JSV and WA6LAB.

Ken, W6HHC restated the fact that an Editor for RF is needed. If no one permanent is found, then volunteers for a one or two month period are necessary. AF6C will be doing RF in January. W6HHC volunteered for February, WA6VKZ for March and, KA6IMP and none, Jane, for April. WB6IXN will continue to furnish Net Notes and KA6EJP will do an article on the program for the upcoming meeting. Volunteers are also needed to do the photo copying for the RF. This saves the club about \$40.00 a month in costs. The copying is covered thru April; volunteers are needed after that.

W6COJ queried the board on what will be done to get new members into the club. KA6IMP will print flyers and distribute them at Ham Radio Outlet and some of the local Radio Shack stores. W6HHC suggested that KA6IMP post notices on some of the local Packet PBBS's. A discussion was also held about a possible repeat of the highly successful Novice/Tech class that was held in May of last year. WA6VKZ brought up the point that a Packet Radio net and a Novice 10 meter net would be beneficial to the club. WA6VKZ will contact the local 6 meter club to see if it would be possible to participate in their 10 meter phone net. Due to the fact that Packet does not support nets well, it was decided not to pursue a Packet net at this point.

W6HHC, as Chairman of the HAMCON Security Committee, still needs volunteers for security duty at the convention. WA6VKZ, KA6IMP, KA6EJP and N6QMW volunteered their services. More people are urgently needed. If you would like to lend a hand, contact Ken, W6HHC.

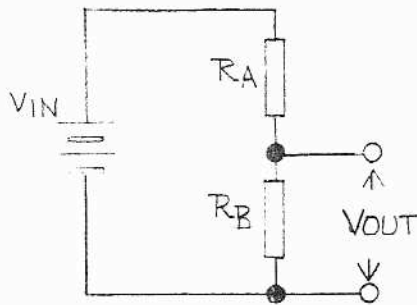
Meeting was adjourned at 10:21 am.

Respectfully submitted,
Mark Stanford, N6QMW, Secretary.

XX

THEVENIN'S THEOREM Cont...

TIME TO PAY YOUR 1988 DUES!



$$V_{out} = V_{in} \times R_b / (R_a + R_b)$$

Ohm's VOLTAGE DIVIDER Law

FIGURE 5

The 1987 fiscal year has ended for the OCARC. Page 5 contains our balance sheet for the 1987 year. As you may note, our 1988 liability insurance has increased, but the club is not planning to raise the dues! We need your help to meet our obligations by rejoining and getting your dues in as early as possible.

Dues are just \$12 for the year with a substantial discount for additional family members. This is the best bargain in Amateur Radio.

SUPPORT YOUR RADIO CLUB

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THE ORANGE COUNTY AMATEUR RADIO CLUB

P.O. BOX 3454

TUSTIN, CA 92681



FIRST CLASS