VOL. IX No. 8

PRES: Dave, W6COJ
V. PRES: Jerry, WA6KOF
SECRETARY: Dave, WB6RVM
TREAS: Ralph, W6WRJ

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Jim, WB6GPK
Bill, WB6CQR

ACTIVITIES: Jack, WB6UC
PUBL. REL.: Bob, WB6IXN
MEMBERSHIP: Dave, W6GPR
TVI: Ted, K6LJA

MONTHLY MEETINGS

Monthly meetings are held on the 3rd Friday of each month at the Lincoln Savings and Loan Bldg., 17th & Bristol, Santa Ana. The next meeting will be held on Friday, August 16, at 7:30 p.m., at the same location.

PROGRAM

AUCTION... AUCTION... AUCTION... AUCTION... AUCTION...

Come one! Come all! Our famous CQR, Bill Hall, will be the presiding auctioneer. Let's bring some valuable gear this year! It will be helpful if the following ground rules are followed:

1. Bring useful merchandise. (No junk please!) Items other than radio equipment is perfectly acceptable.

2. Tag or label everything you bring with your handle and/or call and state the minimum price you will accept for it.

3. Club is to receive 10% of all sales. Please bring cash for bidding.

In fact, start the XYL rummaging through the house right now while you concentrate on the shack!!! See you at the meeting with the goodies!!!

LAST MEETING

The meeting was called to order at 2000 hr. The group was welcomed by WB6KOQ, host for Northrup Recreation Club. The meeting was conducted by WA6KOF, who introduced OARC officers. Pres. WB6JFE introduced the officers of the Anaheim Club. Bill Hall, CQR, displayed the Heart Fund Plaque awarded to the Orange Section ARRC. Dave, RVM, announced participation by ARRC in the coming CIF Tennis Matches. SCM, Roy Maxson, introduced W6WK, John Griggs, who discussed recent ARRL minutes of the board. A question and answer period followed. DEY, Max, spoke on the possible reorganization of the Orange County Council. Jerry, RQN, presented the Orange County Award to Dan, WB6RYE. The meeting adjourned for eyeball QSOs and coffee at 2254 hrs.

Respectfully submitted, Dave, RVM, Secretary.
Below, you will find described, a TAPE RECORDER DECODER, submitted to "RF" by our own Randy Hoffman, WB6WQN:
(How abt some of you homebrew addicts submitting some more technical articles for "RF"?  Please remember to make drawings with BLACK ink or draw lines dark with a No. 2 pencil. Please present explanations typewritten if possible.)

Tnx, Randy!

**TAPE RECORDER DECODER**

![Diagram of TAPE RECORDER DECODER]

Q1- For maximum sensitivity, a high gain transistor such as a 2N447A (gain of 200) shd be used. But any transistor of reasonable gain is OK. (2N338, 2N3641, 2N3843, etc.). A PNP transistor can be used as easily by reversing polarity at battery and C3. (2N1307, 2N404, 2N408, 2N1025 (gain of 100, costs .60¢), etc. Not critical.

C1- .001 to .005 rf bypass (mf or mmf? Call Randy)

C2-.1 to .25 disc ceramic, mylar, electrolytic - at least 6 V breakdown voltage.

L1-.5 Henry choke (toroid is best becuz of small size, low losses), value is not critical and can be replaced with a 68 to 100 ohm resistor, though performance is degraded slightly when demodulating low frequencies.

C3- 1 mf to 2 mf electrolytic or other capacitor - breakdown voltage at least 3 volts

T1- Miniature transistor audio output transformer, primary 8 ohms (to match tape recorder output); secondary 500 to 1000 ohms.

D1-D4- 1N34s or equivalent. Just about any small signal germanium diode will work.

K1- Reed relay - 3 to 6 volt coil. A 10 watt reed relay with coil can be bought at Lafayette Radio in Buena Park for $2, or a range of relays, with and without coils can be obtained at R. V. Weatherford in Anaheim.

B Battery- 3 to 6V.

The tape recorder decoder can be very useful and is easy to duplicate. It converts an audio signal to D.C. to key a relay. Code can be recorded on a tape recorder, then played back through the decoder thus keying a transmitter, monitor both. Works just dandy for a "CQ" tape or a "CQ Field Day" tape. CQ can also be recorded from a receiver and played back keying your transmitter, letting a fellow amateur hear his own fist! A delayed test transmission with a timer can also be arranged, allowing you to check signal quality from a friend's shack.

(Next page, please)
None of the part values are critical. The volume control setting on playback and record will have to be adjusted to obtain the best results. Playback volume should be as low as possible to prevent background noise from causing odd clicks, or overloading from causing mushy characters.

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The PROGRAM for SEPT. MEETING will feature a HOMEBREW CONTEST with judges, prizes...the works!!!
Your entry must be something that you have built!
Now, OCARC members, here is a chance for everyone to get into the act!
Build something now for the September contest!!!

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OBNR 177 dtd 11 July 68: The Indonesian Government has begun the issuance of amateur licenses with the prefix YB. However, United States and Canadian amateurs still should avoid working Indonesian stations until official word has been received from ITU Geneva that Indonesia has withdrawn its objections to international communications by its amateurs. When the country is withdrawn from the banned list, there will be a further bulletin from WLAW. A full list of banned countries, including Indonesia, appears on page 82 of July QST AR

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OBNR 178 dtd 18 July 68: The FCC has adopted rules providing for slow scan television in the high frequency & very high frequency amateur bands. Effective Aug 30, slow scan TV is permitted in the Extra Class and Advanced Class voice portions of the 80 meter and higher bands, with bandwidths no greater than a properly operated SSB voice signal. On six meters and above, bandwidths equal to a double sideband standard amplitude modulated signal will be permitted.

Nov. 1967, Feb. 1968 and the forthcoming Sept. 1968 issues of QST contain additional information on the rulemaking AR

***FIELD DAY REPORT***

From the shack of UDC comes the following FD report:

Field Day Call Used (Indicate Portable). W6ZU F .P.D. Location. CALIF...

Entry Class (Check Only One)

☑️ A. Club or Non-Club Group Portable

Number of Transmitters In Simultaneous Operation

☑️ 5

The number of people participation at this Station--- 30 ---

Check Power Source: ☑️ Generator ☐ Commercial Mains ☐ Battery ☐ Other

Description of Power Source (Generator Type, etc.) GASOLINE or SURPLUS MILITARY

(Page 4, please)
<table>
<thead>
<tr>
<th>Band</th>
<th>NRQSOS</th>
<th>Independence of Mains Multiplier</th>
<th>D.C. Input Multiplier</th>
<th>Score</th>
<th>Transmitter</th>
<th>D.C. Input</th>
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<tr>
<td>80CW</td>
<td>10</td>
<td>x3 3.0</td>
<td>x2</td>
<td>60</td>
<td>GALAXY Mk.2</td>
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<td>62</td>
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<td>RANGER</td>
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<td>WRLD DUNEDAN</td>
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<td>93</td>
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<td>200w</td>
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<td>20PH</td>
<td>328</td>
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<td>17.6</td>
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<tr>
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<td>25.8</td>
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<td></td>
<td></td>
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<td>68</td>
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<td>x3</td>
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<td>2PH</td>
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<td>12.0</td>
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</table>

100% Emergency Power (200 points per transmitter class)

This certifies that the Station whose call appears above was operated in accordance with the current FIELD DAY RULES (See May QST) and that, to the best of my knowledge, the points and score as set forth in the above summary are correct and true.

DATE: 7-16-68

Signature/Call Club President

Tnx Loggers Park

"Come on, Ed, I'll show you how to make an oscilloscope out of your TV set."

NOT IN VAIN

To talk with God
No breath is lost —
Talk on!

To walk with God
No strength is lost —
Walk on!

To wait on God
No time is lost —
Wait on!

(Anonymous)
Frm LeTournneau "Now!"

Deadline next "RF"
Sept. 11
The 11th annual Jamboree-on-the-air is scheduled from 0001 hrs GMT on Oct 19 to 2359 hrs GMT, Oct. 20. Scouts or Scout Units can participate through ham stations. Write to ARRL for the name of the radio club in your area. A participation certificate will be sent to hams, scouts, etc., who send a report to the Boys' Life Radio Club, New Brunswick, N.J. 08903. For more details, see the Sept. Scouting Magazine and Boys' Life. *** Radio stations WB6LZP, WB5MTB, WB6LVB, and WA7G0D, in conjunction with other stations, are forming a world scout net meeting at 1800 GMT on 21.360 Mhz. each Saturday. All scout stations are invited to participate.

American English: Gone to 'Pot'?

Psychadelic Tremens
by Jane Goodsell via Readers' Digest.

Remember when HIPPIE meant big in the hips, And a TRIP involved travel in cars, planes and ships? When POT was a vessel for cooking things in, And HOOKED was what Grandmother's rug might have been? When FIX was a verb that meant mend or repair, And BE-IN meant simply existing somewhere? When NEAT meant well organized, tidy and clean, And GRASS was a ground-cover, normally green? When light and not people were SWITCHED on and off, And the PILL might have been what you took for a cough? When CAMP meant to quarter outdoors in a tent, And POP was what the weasel went? When GROOVY meant furrowed with channels and hollows, And BIRDS were winged creatures, like robins and swallows? When FUZZ was a substance that's fluffy like lint, And BREAD came from bakeries, not from the mint? When SQUARE meant a 90-degree angled form, And COOL was a temperature not quite warm? When ROLL meant a bun, and ROCK was a stone, And HANG-UP was something you did to a phone? When CHICKEN meant poultry, and BAG meant a sack, And JUNK trashy cast-offs and old brick-a-brac? When JAM was preserves that you spread on your bread, And CRAZY meant balmy, not right in the head? When CAT was a feline, a kitten grown up, And TEA was a liquid you drank from a cup? When a SWINGER was someone who swung in a swing, And a PAID was a soft sort of cussing thing? When WAY OUT meant distant and far, far away, And a man couldn't sue you for calling him GAY? When DIG meant to shove and spade in the dirt, And PUT-ON was what you would do with a shirt? When TOUGH described meat too unyielding to chew, And MAKING A SCENE was a rude thing to do? Words once so sensible, sober and serious Are making the FREAK SCENE like PSYCHDELIRIOUS. It's GROOVY, MAN, GROOVY, but English it's not; Methinks that the language has gone all to POT.

Confucius say: To drive a nail without smashing fingers, hold hammer with both hands. Keep this in mind, girls!

In the next is S.U.E. of RF, you will find a montage of the joint OCARC-Anaheim Clubs Picnic, and, a picture of OCARC members who participated in Field Day 1968.
We are deeply indebted to Jack Shaw, W6BYN, for his continued services in this department.
These pictures can be framed and hung in your shack. They make a great conversation piece for the visiting OM. Also, they hold many a fond memory for one to ponder over as the years roll by. Ted, WJA, has hung many of these pictures in his shack. Why don't you try it!!!
(TNX YWNY!!! - Frm all OCARC members)

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CONT'D

AWARDS

Oregon Counties Award is sponsored by the Oregon Chapter, QRP Amateur Radio Club. Basic award issued as follows: Oregon stations need 25 confirmed counties. W/VE stations need 18 confirmed counties. DX stations need 12 confirmed counties. Endorsement seals available for 25, 30 and 36 counties. Endorsements also given for AOMB/M. All GCR rules apply and if the signatures of two other amateurs cannot be obtained, the applicant must secure notarization or his application will be rejected. Any applicant must furnish QSL cards upon request of the Award Custodian. Basic award cost is $40 and the endorsement seals are fee for an s.a.e. Data on active stations in the various counties is also available for an s.a.e. There is no amateur activities in Jefferson county at this time. Custodian, R. Peschka, K7QXG, 2580 S.W. 195th., Aloha, Oregon 97006.
This meets Bill Foley’s definition of a copyrighted article in that it was copied from articles that were written by others. Most of us are using a SWR meter, home brew, kit or commercial instrument to tell us how well our feed lines match our antennas at the feed point. Perhaps we are too accurate if we were to say that we always measure the match or improve or worsen it by any adjustment that we make at the antenna, because under some circumstances our SWR does not tell us how bad the match is.

These instruments are usually of the reflectometer type and are essentially a short section of transmission line with a pickup wire parallel to the center conductor of the shield. This wire is coupled both inductively and capacitively to the line. Current flowing in the line is coupled by the inductive coupling and voltage across the line is sampled by the capacity coupling. These samples are added and their amplitude relationships adjusted so that forward components remain but the reflected components null. If you are using a kit this has been taken care of by the instructions in the construction manual. If a load resistance, diode detector, a sensitive meter and a sensitivity adjustment potentiometer are connected as shown in the sketch we have an RF voltmeter, the pickup wire acting as the RF source. The meter will indicate the forward component in the line. The condenser shown in a filter to smooth the rectified AC.

If a second bridge which is a mirror image of the first is included it will measure the reflected components when the phase reversal occurs. The meter and sensitivity control is usually switched from one bridge to the other but two meters and two controls may be used.

If you are interested in how well your two bridges match you can insert the instrument in a line between a transmitter and a load, either a dummy or an antenna (some reflected reading is desirable) and tune the transmitter on the highest frequency band to be used with the SWR. With the switch in the forward position, adjust for full scale on the meter, switch to reflected and note the meter reading. Reverse the instrument in the line and without tuning the transmitter or changing the switch adjust the sensitivity control for full scale. Now switch to the forward position and the meter should read the same as it did in the reflected position in the first case. If the readings differ the two bridges are not identical and there is some error. Since this is a highly accurate instrument small differences can be tolerated.

There are some errors inherent in the reflectometer type SWR, some too small to worry about and some that need to be taken into account. There is possible also to introduce error in readings by misuse of the meter. One error is the capacitance of the meter. This is a DC meter and has a linear scale. Unless you have paid much more than the average price for your instrument the meter is 5 percent meter. If the meter is a 100 microammeter it may give a reading that is 5 microammeters high or five microammeters below the indicated reading. If the sensitivity is set for full scale in the forward position and reads half scale in the reflected position a SWR of 1.5 to 3 is indicated, however, due to the inaccuracy of the meter the actual ratio may lie between 1.3 and 1.6.

If a SWR of 1/2 is indicated the actual ratio may lie between 1 and 1.8. Another source of error in the meter instruments arises from the non-linearity of the diode detectors. All of the instruments that I have seen (except the one in the Johnson Rotor Box) are calibrated as though the diodes were linear detectors. Actually the response is too much to be a square law detector and a square law detector and varies some with transmitter power and frequency. An experimental curve with an instrument using 1N69 diodes showed a SWR of 1.3/3.8 with a reflected indication of half scale but as calibrated as a linear detector would have indicated a SWR of 1.3/3. These errors do not actually render the instrument any less useful but it may point out that we may have at various times reported findings that are questionable due to the accuracy of our SWM meter instruments.

The SWR read at the transmitter end of the line always looks better than the SWR read at the antenna end of the line but unless the line is long or lossy or both this difference is small and can be ignored. The difference comes about because with the meter at the input end the forward power is read before the line losses attenuate the power and the reflected power is read after the line losses attenuate the power. This makes the SWR look better. The SWR at the antenna end and both the forward and reflected components are measured before attenuation and SWR is more nearly correct.

Losses due to standing waves if the SWR is 1 to 2 or better are quite small compared to the losses. The bestkit assembly manual for their reflectometer power meter has a graph in which line loss is plotted against additional loss due to standing waves for standing waves from 1/1.5 to 1.20. Let us assume 100 feet of RG8 with a loss of 0.94 dB at 21 MHz. With a SWR of 1/2 the additional loss would be 0.45 dB.

This article and AWARDS from Florida Signal Report. (Both cont'd on page 7).
The Handbook has a plot of power ratio versus decibels and by referring to it or to a table of logarithms we can convert this to watts loss in the line. If a transmitter delivers 100 watts output to a line which is matched at the antenna there will be a loss in the line of approximately 20 watts. With a mismatch the ratio to a SWR of 1 to 2, the loss will be 27 watts.

If the SWR at the antenna is 1 to 2, eleven percent of the power is reflected as of the 73 watts delivered to the antenna approximately 8 watts is reflected back to the line, and six of this is delivered back at the transmitter end. This loss of reflected power is the reason that the SWR at the transmitter looks better than it really is but unless the line is very long or very lossy or both this is not serious and can very well be ignored.

In fact in the case of this 100 watt transmitter and 100 foot feeder line we are talking about the total loss turns out to be 27 watts or approximately 4 1/4 dB which is a 6.5 db loss, one 6 db unit at the receiving end. You cannot get all of that 8 watt back but a matched feeder will get you 7 watts and you can get some of the 20 watts due to line loss by using a shorter line or a line with less loss.

Then you will need to get your SWR below 1 to 2 if you want to avoid line loss below 0.5 dB or you are fighting the law of diminishing returns.

The following are the sources of this material and are listed for those who would like to follow the subject in more detail:

The Radio Amateur Handbook, ARRL.
The Antenna Handbook, ARRL.
Single Sideband, Collins Radio Co., Bonny and Staff.
Accuracy of DXR Measurements, Hall, QST, Nov. 64.

d. duval

Florida Sig. Rpt & SPARC-QAP

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The National Award Hunting Club
Virginia Chapter

Ralph WAMCAT Award

CITIES AND TOWNS

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Class C: for 100 towns in 8 Counties;
Class D: for 200 towns in 11 Counties;
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The QTH on card will determine the town unless the cards states otherwise.
A copy of the applicants log must be sent to the Certificate Custodian to qualify for the certificate.

COST: $9.00.

IRC INFORMATION: IRC's accepted.
ENDORSEMENTS: None.

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