QRP Quarterly

October, 1984 - Volume XXII - Number 4

Journal of the QRP Amateur Radio Club, International

"TWO WATTS, I REPEAT ON MY SCOUTS HONOR, TWO WATTS!!"

QRP Quarterly is the official journal of the QRP Amateur Radio Club, International, Inc., and is published four times a year; January, April, July and October.
The QRP ARCI is a non-profit organization dedicated to increasing world-wide enjoyment of QRP operation and experimentation (QRP, as defined by the Club, is 5 watts output CW, and 10 watts output PEP). Current club membership is 5635, and QRP Quarterly circulation is 769.

Membership: The initial membership fee of $6.00 ($7.00 for DX) covers lifetime membership plus the first four issues of the Quarterly. Membership information is available from the Secretary/Treasurer.

QRP Subscription Renewal: Subscription renewals are $5.00 ($6.00 for DX) for four issues. Notice of expiration will be stamped on the cover of your final QRP Quarterly. The subscription renewal date appears on the mailing label following the QRP membership number, i.e. 4174-4/84 means that membership number 4174's subscription will expire with the 4th Quarterly (October) in 1984. Renewals and new member applications must be received by the 15th of the month prior to the next months publication to receive that issue, otherwise service will not begin until publication of the next Quarterly.

Technical Articles: Submit all technical articles to the Technical Editor. They should be typed, double-spaced and all circuit diagrams should be clear and include a complete list of parts and their values. The Technical Editor and the Club are not responsible for testing projects published in the Quarterly.

Letters To The Editor: Letters to the Editor, articles of general interest and announcements should be sent to the Editor. Not every letter can be published and the Editor reserves the right to edit letters to conform to space limitations. Photographs of your station, construction projects, antennas, etc. are welcome. Black and white photos are preferred.

Requests for the return of materials submitted for publication must be accompanied by a self-addressed, stamped envelope. If you write to one of the Officers and request an answer, please include a self-addressed, stamped envelope. Please include your name, call, address and a telephone number on all material submitted for publication and correspondence.

SEND RENEWAL AND NEW MEMBER APPLICATIONS TO THE SECRETARY/TREASURER

Please make your check or money order payable to QRP ARCI and include your QRP Membership Number and Call

* * * * * PLEASE DO NOT SEND CASH * * * * *

FROM THE EDITOR

Fred Bonavita - W5QJM
QRP Quarterly Editor

Once again we are able to bring our readers another expanded edition of The Quarterly, thanks in large part to a generous number of technical articles, columns and assorted material. Our 50-pager in April was enthusiastically received and has been sold out.

We are planning another jumbo issue for early next year -- probably in April -- at which time we will bring you the winners among the entries in our first design competition. We need and want more entries for this (send them to Ed Manuel, N5EM, our technical editor). Not only will all entries be eligible for that competition, but they automatically qualify for the 1985 Technical Achievement Award -- a handsome plaque. One of the frequently heard comments about the revised Quarterly is that it has more technical articles, and we want to keep it that way. But you readers and members are one of our major sources of those articles, so shower them down on us, please.

And while you are at it, brush off your favorite antenna article and send it along, too. We are thinking of a giant antenna issue of The Quarterly for some time in 1985, and contributions for that are needed. If you have some black-and-white photos (remember: we cannot use color shots), send them along, too. We always are looking for good pix of QRPers, operations, installations, gear, etc., for use on the cover.

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THE COVER

The cover of this issue was created by QRP ARCI member Lou Hannaford, WBØCZE, of Cape Griardeau, Missouri.

Lou's interest in amateur radio began as a Navy operator. He operates cw QRP with a Century 21.

He works as an engraver, which is a very demanding trade and draws cartoons as a form of relaxation. Some of his cartoons have been published in QRP column of CQ magazine.

Lou submitted several cartoons in addition to the one on the cover which we will be using whenever the situation calls for a little artwork or humor.

Thank you Lou.

Experimenter's Corner

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"....THE GREATEST REWARD OF HOMEBREWING IS EDUCATION...."

The summer weather is fading, bringing with it the usual changes in our ham radio activities. This is the time of year when many of us begin to plan the experimentation and construction projects for the winter months, laced perhaps with a smattering of QRP DX on the lower frequency bands.

The EC column this quarter differs from the earlier format. Rather than presenting tid-bit for the experimenter to ponder, I'll exercise some editorial freedom to discuss some motivational factors relating to homebrewing and experimenting.

It's worthwhile to periodically review the goals related to any activity. If an activity inadvertently changes, the basic goals have probably evolved. A redefinition and clarification of goals will allow us to be more effective in that pursuit.

I see a significant decline in both the quantity and intensity of much of the amateur radio that I have enjoyed for many years. One cannot help ask why this has occured. This is a dual observation, describing the overall status of the hobby and my personal reaction to it. I'll concentrate on the former, allowing each of you to evaluate your personal envolvement in amateur radio and QRP.

The initial attraction that brought many of us into the hobby was the excitement of communicating over large distances. The adventure, coupled with exposure to a growing technology produced a genuine thrill. The game is still fun today, but it's often rather routine. Perhaps this is to be expected when technology has evolved so much. With half of the world's population watching the Olympic Games on TV via sophisticated satellite networks, it's hard to become thrilled over a ham contact with a station a few thousand miles away, even if we do it with QRP. We must seek other virtues, different attributes of the "game" if long term enthuasiam is to be maintained.

Many of us began homebrewing when we entered the hobby. This was a natural part of amateur radio when I started in the mid 1950s. I encountered a change after a couple of years. I found myself rebuilding my gear, but now being driven by a curiosity about the circuitry rather than a need for equipment. My goals had changed. I had made a transition from a homebrewer to experimenter. I did not make the distinction between the two motivations at the time.

The times have clearly changed. Today, there is little need to resort to homebrewing to obtain equipment. Modern appliances offer outstanding performance at a modest price, especially when considered in the light of inflation. If homebrewing and experimentation are to continue, they must be justified by goals that were historically of secondary concern. What was serendipity must become a driving force.

This brings us to the major thrust of this discussion: Why should we consider spending our time and money building equipment? If we do build, what projects should we pick? How can we be most effective in these pursuits? I'll present some of my own thoughts about these questions and will try to differentiate between homebrewing and experimenting.

Cost is still a consideration for those of us working on a restricted hobby budget. I believe that one can still build a great deal of equipment with little cash outlay. Here are some hints for economical homebrewing:

1. Use the junk box extensively. Buy low-cost parts to stock your junk box rather than for specific projects.

Continued on next page...

2. Adapt your designs to available components. This will require study and learning, but that's a big part of the game.

3. Utilize the junk boxes of your friends. A community collection can be very effective.

4. If you work in the electronics industry, ask your employer about buying parts from his stock. Many are willing to do this for the personal use of employees. Most of the parts we use in our QRP projects are amazingly cheap when purchased in very large quantity.

5. Buy parts from the mail-order houses in conjunction with local friends. Many common parts are expensive when purchased in small quantities, but become very affordable if 100 are purchased. Examples are resistors, ceramic and electrolytic caps, and "popcorn" transistors (e.g., 2N3904.) I do not view either parts cost or availability as a major problem in the U. S.

A major reason to build is for the equipment performance. Much commercial equipment lacks features for specific applications. The only answer is to build your own. An example is a QRP rig aimed at portable operation; none of the appliances I've seen quite fits the bill. Even "top-of-the-line" commercial rigs lack in some areas. One CAN still do better in the home lab, although this can be time consuming and will require construction of test equipment to establish and confirm the desired performance. Single-band designs simplify construction with little compromise in learning.

"....THERE IS SATISFACTION TO BE DERIVED FROM OPERATING EQUIPMENT THAT IS REALLY YOUR OWN...."

The greatest reward of homebrewing is education. One cannot build even the most routine project without gaining an enhanced understanding of the design methods. It becomes obvious that learning has occured as you attack successive projects; each is faster and more meaningful than the previous one.

If enhanced understanding is a major goal, projects should be built with methods that allow quick results. Ugly construction (QST, August, 1981) is recommended. I find it very difficult to justify an etched board for any one-of-a-kind circuit.

A final virtue of homebrewing is the pride that comes from the effort. While something of an "ego trip," there is satisfaction to be derived from operating equipment that is really your own. An often overlooked, but similar effect, is the benefit to be derived from having experience as a user when designing equipment. One can converge on truly spectacular results when the equipment is designed by a critical user. A dramatic QRP example is the W7EL Optomized Transceiver (QST, August, 1980.)

Most of these comments pertain to the homebrewer artist. When increased understanding becomes the PRIMARY goal, the rules for picking projects change. It's no longer necessary to build complete rigs. Rather, the desired results can be obtained from measurements on an ugly breadboard.

A project often grows from a combination of motivations. An example is a home station exciter for 20 and 40 meter cw that I built a couple of years ago. I wanted excellent stability. If I had been wearing the "homebrewer's hat," I would have reviewed the handbooks and built a traditional hetrodyne vfo. The presence of the "experimenter's cap" dictated a different approach, one using a phase-locked loop. The project was very instructive, much more enlightening than one using a conventional design. It even produced a surprise, an appreciation for the simplicity of PLL methods.

One might conclude that I'm advocating a purist approach, "homebrew forever" and the like. This is not the case! Few of us have the time to pursue such idealism. Moreover, many of us work in the electronics industry; it's hard to maintain enthuasiasm for projects that are similar to those we do at work every day. One can do viable experiments with commercial equipment, experiments that lead to contribution. Equipment modifications offer one route. A good example of a contribution that includes commercial equipment is the solar power work of Roger Rose, W5LXS. (QRP Quarterly, July, 1984)

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There is one final criteria that we can (and should) use for picking projects. This is the potential for contribution. One mechanism for technical contribution is to write an article. Others include the presentation of your work at local ham clubs, and even meaningful on-the-air activities. There is little value to any research activity, be it professional or amateur, if the results are never communicated.

Technical contributions are sometimes found in surprising places. An example is the outstanding bulletin of the Northwest QRP Net by Bob Brown, N7DQZ. Bob is chasing DX with QRP, and is doing well in the pursuit. Bob's contribution comes from his work in correlating those activities with computer modeling of propagation. The results are reported, including well-written, authoritative narrative on propagation. It's not often that DXing will lead to a real contribution, even though it's great fun.

Computers have had a tremendous impact on our lives, including amateur radio. All to often, though, it seems that our applications are rather shallow. One gains the feeling that many "ham" applications represent a "solution in search of a problem." The opposite is desired. (We should all contribute to the program bank instituted by N5EM)

How can we optimize our contribution while still having as much fun as we ever did (if not a lot more)? Probably the biggest step is to adopt an attitude that allows it. Pick a technical project that needs to be done, do some experiments, and offer the results to the rest of the world.

One doesn't have to look far to find projects that need to be done. The W5LXS article mentioned above pointed out a problem needing a soultion. A rather large solar panel and storage battery were needed, even for Roger's modest QRP setup. The power "overhead" consumed by the receiver and exciter stages were probably large. One should be able to build a station requiring only 10 to 20 mA by the receiver, with perhaps 100 mA key-down current during transmit, both at 12 volts. The result could be a practical solar-powered station using an inexpensive panel.

We are always looking for simple receiver and QRP transmitter circuits that still function well. Simplicity implies predictable performance, and is not merely measured by a parts count. This an area of great potential contribution for the experimenter. Clever designs can contribute greatly to our educational goals, but only if the results are communicated.

An area that has long been of interest to me is weak-signal detection. How can we improve our receiving systems to dig further into the noises? This would be of obvious interest to the QRP gang. There may be applicable computer methods that are not in common amateur use. Here's a difficult problem that, when solved, will be of profound significance to amateur radio. As food for thought, take a look at the paper by Vic Poor, K3INO, in QST, October, 1965. Another look at this concept, implemented with modern techniques, could be interesting.

Hopefully, these thoughts will be useful in picking the projects that you will tackle in the coming months. Evaluate your goals for building, pick a compatable project that you can complete, do it, and report the results.

QRP AND THE 1984 OLYMPICS

QRP ARCI board member Bill Welsh, W6DDB, reports operating W23LS as a special callsign during the Olympics and having worked some 1,000 stations using a Ten-Tec Argonaut. Reports Bill: "I made contacts on all hf bands (except 30 meters), but my best antenna is for 20 meters and that's where most of the QRP operation took place. I have a five-element Yagi-Oda for 20 meters. I stuck near the QRP frequencies and contacted several QRP stations. We are sending specially printed QSL cards to all contacts."

IS IT TIME TO RENEW ?

Check your mailing label, if your membership number is followed by "10/84" this is your last issue. Use the subscription renewal form inside the back cover & send to the Secretary/Treasurer.

WHAT DO I THINK ?

Fred Bonavita - W5QJM
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Austin, Texas 78711

Wes Hayward raised some valid and challenging arguements in the preceding article in his discussion of homebrewing. and I urge you to go back and read his piece again. He has some interesting points about the future and direction of our hobby and of the role QRPers can, should and must take in time.

Wes and I have corresponded over the past few months on this subject, and his enthusiasm and commitment have prompted me to have some second thoughts about what I am and have been doing in Amateur Radio -- so much so, in fact, that I have sold my commercially made equipment and am going cold turkey. The signals cranked out of W5QJM these days are coming either from homebrewed gear or, in the case of my HW-8, gear that has been heavily modified by me to the point any resemblance between it and what now exists is purely coincidental and/or accidental. I even considered changing the name to protect the innocent.

We're talking true cold turkey here, gang.

All this is well and good, you may say, but what about those of us who might like to get into homebrewing and/or modifying gear but lack the old reliable Junk Box of Old or whose parts bin barely lives up to the name? What of those who do not have a Radio Shack around the corner to dash to when in need of a 100K-ohm resistor?

Well, there are a couple of approaches. First, you can call hertz Rent-a-Junk Box and have some parts lying about when another ham comes to call -- stuff casually strewn around the shack so it at least looks like you've modified your XYZ-751S/SE, right? I mean, some shacks are neat and tidy to a fault. They've never even seen a soldering iron let alone a 0.1-mFd capacitor that wasn't already surrounded by a shiny, new appliance case.

No more!

The editorial staff of The Quarterly has done a quick survey of the situation, and is prepared to give everyone at least a good starting point from which to build a junk box into a Junk Box and to have a reasonable supply of parts on hand with which to crank out a QRP-related project or do some serious experimenting. We are talking serious conscience-salving here. gang. We want you in the position of saying, as soon as you've finished Experimenter's Corner article in The Quarterly or a Doug DeMaw, W1FB, piece in QST, to realize this is what you need and -- best of all -- you have the parts at your elbow.

For instance, did you know that the most frequently called-for resistor in QRP-related homebrewing projects is 100 ohms? Or that the most popular cpaacitor is 0.1 mfd? Or that the 1N914 is the most-popular diode, that the MPF-102 and the 40673 transistors are called for more often than for others or that the FT37-43 toroid ranks at the top of the list for winding coils? Frankly, until we got to looking at projects in various publications, either did we.

We did an informal, unscientific and highly suspect survey of almost two dozen QRP-related construction articles in various publications (QST, CQ, Ham Radio, the Handbooks, etc.) to get an idea of what parts were commonly used. From that emerged a clear picture of what could be expected to be needed to build that 30-meter transmitter and/or converter that will get you on the 10.1 MHz band with little outlay of capitol. This is not the definitive list of parts, mind you, but it's at least a starting point. It can be expanded as needed. And, as said earlier, this list is based on QRP-related articles, not those dealing with more esoteric projects.

For what it's worth, here's how things stacked up in frequency of use:

Resistors: 100; 10K; 100K; 1K; 47K; 560; 10, 220, 2.2K; 470, 1Meg, 15, 22, 270, 3.3K, 33K, 56, 68, 2.7K, 56K, 6.2, 20, 33, 180, 330, 680, 750, 1.6K, 1.8K, 5.6K, 330K and2.2M.

For pots: 1K, 5K, 10K, 50K, 100K, 500K, and 1M.

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Junk Box (con't.)

Capacitors: 0.1 mfd, 0.01, .001, .2, .22, .33, .005; 100pf, 560, 27, 39, 68, 330, 10, 270, 470, 18, 47, 56, 180, 200, 212, 424, 750 and 820. The fractional values, of course, are disc ceramics; the smaller values are either silver micas or polystyrenes; and the larger values are silver micas.

As for electrolytics, the most-often specified values were 10, 220, 2.2, 22, 20, 50 and 100 mfd.

Trimmer caps in demand were 60, 8, 17, 100 and 180 pf, while 50 and 75 pf air variables were most often specified.

Among transistors, the MPF-102 and 40673 were most often demanded, as noted, followed by 2N5179, 2N2222, 2N2222A, 2N4036, 2N4416, 2N5109, 2N5485, 2N2102, 2N3553.

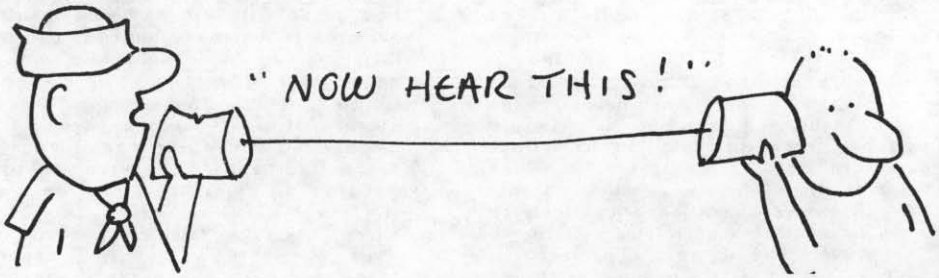
Diodes include the 1N914 and 9-volt Zeners, while the LM386 and the 741 led the list of IC's.

As for toroids: FT37-43, T36-6, T68-6, T50-2, T50-6, FT37-61, FT37-63, FT50-43, FT37-2, T68-2 T37-4 and ferrite beads were on the parts' rosters.

And for r.f. chokes, 1 mH, 10 uH, 200 uH and 10 mH were the most popular.

This will at least give you an idea of where to start collecting parts. Numerous electronic parts houses offer mail-order sales for these and similar parts, and their catalogues are yours for the asking for the most part. Shop around and get the best buys. Gang up with friends and order parts in bulk, saving yourself extra dollars.

Chris Page, G4BUE, well-known QRP contester and DX hound, says he frequently buys parts -- "bits" the Brits call them -- for homebrew projects. When he does, he advises, he doubles the order. Next time he needs a bit, chances are it's already in his bin, ready to use.



An effort to organize a QRP program, information booth and possibly a hospitality suite at the 1985 Dayton Hamvention has been launched, and President Ed Popp, K5BOT, is interested in hearing from members who would like to participate.

Chris Page, G4BUE, a member of the club's board of directors, and Colin Turner, G3VTT, who is an active QRPer on ssb, say they plan to attend the Dayton weekend as the start of a vacation tour of portions of the U.S. and will look forward to meeting others.

Tentative plans call for QRP ARCI to present a program on low-power operating in one of the 1-1/2 hour slots, man an information booth to answer questions and recruit new members or re-instate old ones and possible have an informal hospitality suite. The latter depends on availability of funds.

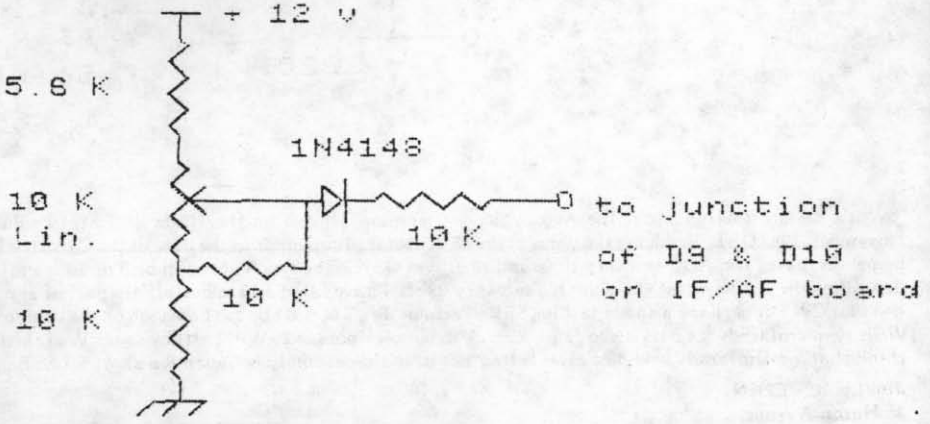
Ed wants to hear from volunteers who will help with the effort and/or coordinate QRP activities for the club at Dayton on 27-28 April, 1985. His address in on page 2 of this issue.

Meanwhile, Chris and Colin have asked to hear from QRPers who will be in the UK and would be interested in attending the RSGB National Convention at Birmingham on the weekend of April 13-14. G-QRP again will put on a display booth and try to out-do their 1984 RSGB effort, where they recruited some 200 new members in the weekend.

R.F. GAIN CONTROL FOR THE ARGOSY

An R.F. gain control is a useful addition to the Ten-Tec Argosy, especially on 40 meters. The following circuit is a modification of one suggested by Ten-Tec. Some experimenting may be needed to get a smooth control of gain. The variable control is a twin RF/AF control with concentric shafts and there is room to fit it in place of the existing AF control. It would be wise to experiment with the circuit in a "breadboard" fashion before making a permanent installation as the values of fixed resistors are critical and may vary from one installation to another.

1. Remove the top cover.



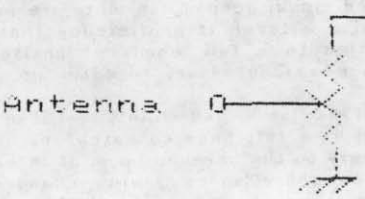
2. Attach the above circuit, using jumpers. The 12 volts can be taken from the dial lamp socket and ground attached to any point on the metal chassis. Connection to the junction of D9 and D10 on the IF/AF board is best made with a small clip, such as Radio Shack #270-370.

3. Adjust values of all fixed resistors to get the smoothest control of gain. this will be found to be at a point where there is about one-half S-point reduction in gain when the variable resistor is at its maximum gain position. Slight adjustment of the resistor values can be obtained by placing a larger value fixed resistor in parallel. Experiment!

4. Be sure to check action on all bands. The best combination of resistors is a compromise and seems to depend on the band and on the supply voltage.

5. If you find a satisfactory arrangement and decide to fit it permanently, be careful when fitting the control underneath the chassis so as not to short the connections to the "Drive" control, which is adjacent. The fixed resistors can be mounted "in line" on the connecting leads between the control and the dial light socket or the junction of D9 and D10.

An alternative form of "RF Gain" is the variable attenuator as used on the HW-8. On the whole, I think this is a better approach.



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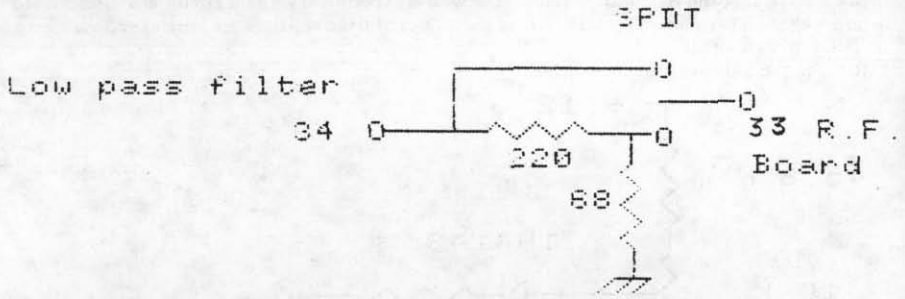
Gain Control (con't.)

Yet another possibility for reducing gain in the presence of strong signals is the installation of an attenuator. The following circuit was supplied by Ten-Tec and I installed it successfully in the rear panel of my Argosy, just above the Hi/Lo power switch. I used a Radio Shack switch #275-625 and mounted it so that the lever movement was horizontal. It is just below the level of the top cover and easy to find when I place my hand over the rear right hand corner of the Argosy. On my set the coaxial cable that went from connector 34 to connector 33 was just long enough so I could cut it and connect the switch. The small ¼ watt resistors were mounted on the switch.



While we are talking about the Argosy, let me mention a bit from the Hints and Kinks column in November, 1983 QST. Reducing the value of the 33 microfarad capacitor in the base of the Q4 on the IF/AF board decreases the AGC recovery time and improves QSK. The new value can be 5 or 10 microfarads, depending on just how fast you want the recovery to be. I have fitted a 10 microfarad capacitor and find it good for CW but perhaps a shade fast for SSB. Perhaps Ten-Tec did't do too bad a job on the compromise! With 10 microfarads it's possible to catch a break-in between dots at 20 WPM. If one uses CW exclusively, I think that 5 microfarads would be even better, but it would definitely be much too short for SSB.

Jim Lyon, VE2KN
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HW-8 MODIFICATIONS

Send your favorite HW-8 modification(s) for use in an anthology to be published later this year to Fred Bonavita, W5QJM. His address is on page 2. All modifications welcome, original or previously published.

SOMETHING IS MISSING

Bert Zitek - N5ELM
QRP Quarterly Publisher

The listing of new members is being discontinued effective with this issue in favor of utilizing that space for additional technical and general interest articles. We appreciate the new members and extend to them a warm welcome, but we think that they and the 'older' members will gain more from the additional technical material that we will be able to include in each issue.

Awards programs and recognition of individual accomplishments are important in all organizations. Everyone who attains a level of proficiency that is just a cut above the average should be entitled to a few words of praise by his peers. In the April 1984 issue a full page was necessary to catch up with the Awards Summary.

We ran out of space in the July 1984 issue and didn't get the Awards Summary published so again we are looking at a full page to catch up. For this reason we are condensing the Awards Summary to the bare minimum of information. We hope that nobody will be offended by these space saving changes. The immediate effect may not be noticeable in this issue because it is 48 pages, but when we publish another normal issue, 22 pages, the savings will be noticed.

From the President

Edmund A. Popp, K5BOT

As many of you may know, Ade Weiss' QRP DXCC Trophy currently is in debt in excess of $800. On a motion from Director Ed Lappi, WD4LOO, and voted in favor by all the directors of QRP ARCI, a donation of $100 has been made to Ade in the name of the club. This is a very worthwhile program as it is the only one that offers a trophy to anyone who accomplishes DXCC at QRP levels.

And while on the subject of awards, this issue contains the ballot for the Technical Achievement Award for 1984. Please take time to vote on the technical article you liked best. If you would like a chance at the TTA for 1985, submit a technical article to Ed Manuel, N5EM, the technical editor.

If you have enjoyed the SPRINTS, let Eugene Smith, KA5NLY, know. The SPRINTS are a testing ground for different types of contests, reporting methods, modes of operation, etc. If you have a suggestion, drop Eugene a note.

QRP topics are very popular at hamfests. Several members have reported on giving talks, and the responses they have received. The Dayton Ham-Vention in April 1985 is coming up, and QRP ARCI would like to be represented. The club won't be able to cover personal expenses, but there may be someone who is planning on going and would like to put on a program. Please let me know.

Roger Rose, W5LXS, NCS for TCN, would like to put together a slide show and script. This would be available to members who are giving talks at hamfests and club meetings. If you have slides of QRP set-ups and are willing to part with them, please send copies with descriptions and comments to Roger. He needs slides.

With autumn in the air, more of us will spend time in the shack looking for QRP contacts. But when and where do we find other QRPers? The first Sunday of the month is an informal get-together to meet other QRPers or work on various club awards. This is not a contest, and to make it a little easier, a suggested list of times and frequencies is shown below. I would also like to suggest that if a band is dead or you want to try something different, check out 10.120 MHz or 10.106 MHz half past each hour.

See you in the fall contest.

UTC	CW	SSB	NOVICE
1500-1600	14.060 MHz	14.285 MHz	
1600-1700	21.060 MHz	21.385 MHz	21.110 MHz
1700-1800	28.060 MHz	28.885 MHz	28.110 MHz
1800-1900	7.040 MHz*	7.285 MHz	7.110 MHz
1900-2000	14.060 MHz	14.285 MHz	
2000-2100	21.060 MHz	21.385 MHz	21.110 MHz
2100-2200	28.060 MHz	28.885 MHz	28.110 MHz
2200-2300	7.040 MHz	7.285 MHz	7.110 MHz
2300-0000	14.060 MHz**	14.285 MHz	
0000-0100	7.040 MHz	7.285 MHz	7.110 MHz
0100-0300	3.560 MHz	3.985 MHz	3.710 MHz

*Many foreign countries use 7030. Check both.

** Transcontinental Net

HW-9 REVIEW

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P.O. Box 894
Evanston, IL 60204

When announcing the coming of the HW-9 in the April issue of QRP Quarterly, W5QJM said that the HW-8 would be a tough act to follow. After building and using a HW-9 for two weeks, courtesy of the Chicago Heathkit store, I think it is a most worthy successor to the HW-8 and a welcome addition to the QRP market.

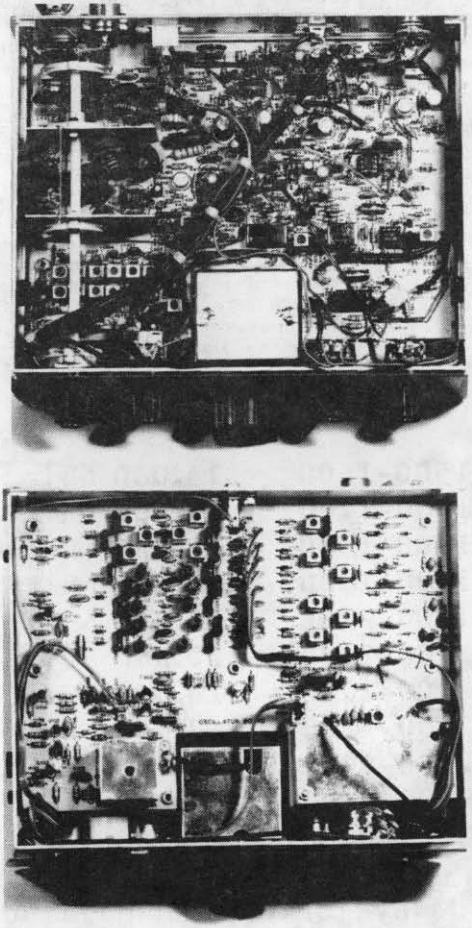
A quick run-down of the circuits will show the HW-9 to be completely different from the HW-8. In the receiver, the incoming signal goes through a low-pass filter, a bandswitched band-pass filter, and then to the doubly balanced mixer with no RF amplifier. At the 8.83 MHz i.f., the signal passes through an MPF-105 amp, the four-pole crystal filter, and the MC-1349 second i.f. amp. The AGC loop operates around the second i.f. amp, and its operation is so smooth and quick as to be unnoticeable. The product detector is an MC-1496 active audio filter/preamp and a final stage audio.

In the transmitter, a pair of MRF-237's in parallel is used as the final. They are rated for at least 90% of full output with an SWR of 2:1; protected with a zener diode. Output on the review unit was between 3.6 and 5.1 with a 12-volt supply, and comments from locals showed the keying to be very clean.

Assembling the HW-9 took me five long evenings. The kit is not easy, but an experienced builder should have no problems. A most welcome innovation from Heathkit was the mounting of all resistors, diodes and glass ceramic caps on long tape strips, lined up in the order that they are installed on the boards.

This is a tremendous timesaver. Mechanically, the HW-9 is very solid and well laid out. The case is the same as the HW-8, and the chassis is similar, with the addition of an aluminum plate across the middle to which the two circuit boards are mounted. The VFO tuning capacitor is completely enclosed and bolted to a two-piece metal shield, which is bolted to the front chassis. This gives excellent mechanical stability, but the review unit had trouble with the friction clutch on the vernier drive slipping. It worked fine before I had it all bolted together, but no amount of fiddling with it would make it work when it was assembled. Hopefully this is an isolated problem. There was not enough time to obtain another part from the factory.

Here's the business end of things in the HW-9 transceiver. Note the enclosure for the VFO. A glimpse inside the HW-9 shows what the author means when he says it's "completely different from the HW-8."
--Photo by Bill Rumski



All the components are mounted on the two circuit boards, the oscillator board, and the transmit/receive (T/R) board. The oscillator board is not crowded, but has all the parts laid out neatly, and has solid metal shields over the VFO and BFO circuits. The T/R board is quite dense with many parts mounted vertically. The two boards are mounted back-to-back on either side of the aluminum plate in the middle of the chassis, making it rather difficult to replace parts. Aside from the VFO drive, the only problem during construction was in winding and installing transformers T-401 and T-404. The instructions say to wind them identically, but the holes drilled in the board are mirror images of each other. I rewound T-401 to match the holes.

On the air, the HW-9 performs very well. Tuning is in USB. The receiver sounds very clean, and the audio is excellent. The audio filter does not ring in the narrow position, and I experienced no problems with receiver overload of distortion. The fact that each oscillator circuit is well shielded and has its own buffer stage and band pass filter helps. I did extensive A-B testing with my Argosy, which has the 250 Hz crystal and the MFJ-721 audio filter. In most cases, signals were copied equally well on both rigs. The HW-9 has a much nicer audio and is slightly less bothered by atmospheric and man-made noises. Weak signals that were unreadable on the HW-9 could be copied on the Argosy using the narrow position on the audio filter (110 Hz, 80 Hz). Most operation was on 20, 30, and 40 meters.

I have only two minor complaints about the HW-9's operation. The RIT, which has a range of +/- 1 kHz, has most of its range in a very narrow arc around the center detent. The QSK circuit is not as good as the Ten Tec. Each initial key down produces a sharp click in the headphones, and there is a slight delay between key up and audio recovery.

Product reviews always seem to end with a paragraph telling how the reviewer hooked up his new unit and immediately performed great feats of DXing, contesting, or whatever previously unheard of and thought to be impossible. These testimonials are pretty worthless, but I find them amusing; so if you will indulge me for a few more lines . . . .

I completed the HW-9 at 2:30 A.M. and hurriedly fired up on 40 meters. I answered a VE7 who was calling CQ. He gave me a 339, and never did get my call right.

QRP ARCI AWARDS SUMMARY

The following awards were issued during the second quarter of 1984:

QNI - W5QJM, WB2IPX

QRP-25 - WD6DMY

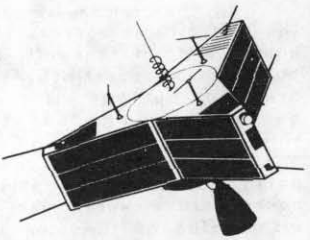
WAC-QRP - K4KJP, WA9FWD, VE3JFH

KM/W - VK4ZSH/P, WA9FWD(2), W1XH, N0DSG, KH6JOI, K2JT, KA2KMU, VK2ERJ, JA9MJR, JA4CTL, AI2T(2), K4KJP, KW9N, KF4JU, JH7BDS, WD6DMY, JA7IFI, GM4JJG(2), JA4REP, VE3JFH(3). Numbers in parenthesis indicate multiple awards issued.

WAS-QRP - N7DGZ, KA7PMP, NX6M, WA9FWO

Congratulations to everyone for your outstanding achievements!

QRP SATELLITE OPERATING ON A BUDGET



Some of you are still wondering why The QRP Quarterly should be running a series on satellite communications. Let me explain my thinking.

As I mentioned in the last Quarterly, we are in the downward side of the sunspot cycle. During the next few years, the conditions on 20, 15 and 10 meters will get progressively worse. The low bands, 160 through 30 meters, will fare better but will become more and more congested with the search for DX by the QRO operators. These bands will continue to be a source of fun to the QRP gang and we will continue to be successful. There is no doubt it will be tougher, though, and there is no doubt that many of us will have difficulty erecting efficient antennas for these bands.

As an option, chasing DX on the satellite insulates the QRP operator from the changing and fickle ionosphere. if you read the excerpt from Amateur Satellite Report in the last Quarterly, you are aware of the excellent possibilities available with the club's 5 watt power limit. Since the use of QRP is also highly beneficial to the life of the satellites, and provides all users with a better operating environment, AMSAT is strongly in favor of QRP. What better situation for QRP ARCI ? Not only can we take advantage of the satellite for better communications, but we can demonstrate, once again, that less can be better.

In this installment I would like to establish the parameters that will guide us through the assembly of a minimal, low-cost satellite station. In the beginning, i will not spend much time on the actual mechanics of satellite operating. Plenty has been written on that subject and I will provide a list of articles you may refer to. We will concentrate on the actual station equipment. Here is a list of goals and assumptions.

1. Most of us have some HF gear. We will assume the availability of at least a 20 or 15 meter transceiver for use as a receiver. An HW-7 or 8 or homebrew DC rig will do nicely.

2. Most current satellite operation is on Mode B, that is, the amateur transmits 435.025 to 435.175 Mhz. and receives 145.975 to 145.825 Mhz. This will be our primary mode.

3. This series will concentrate on homebrew gear that can be assembled for the least possible cost, consistent with good performance. I will mention commercial options as we progress through the various phases for those who do not wish to build.

4. There will be many areas where one can get more complex in their implemention. One is in the area of antennas. I will present a system that can be upgraded, but can be initially used without even rotators. Obviously, some compromises will be made. The intent is to get the QRPer on the air. If you like what you find, you can always upgrade your system later.

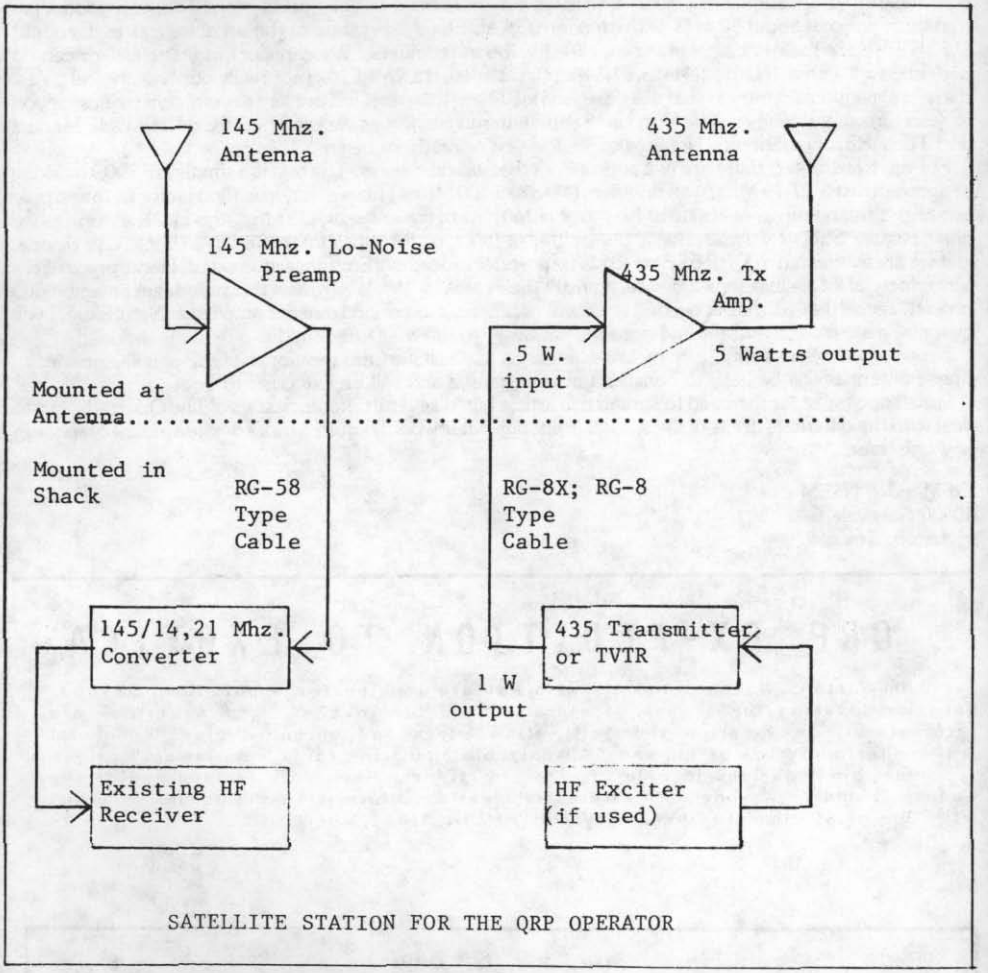
5. In terms of cost, the idea is to do it for as little as possible. I feel that this project should be possible for less than $200. Many will be able to do it for less. Much will depend on your junk-box.

With that introduction, let's start with the 2 meter receiving system.

For the 2 meter receiving system, I will be using a down-converter to the existing HF receiver or transceiver. The selection of IF frequency is a matter of preference. We could select 14, 21 or 28 Mhz. 28 Mhz. is probably the most common but many QRPers with HW series rigs do not have this band. I have elected to go with 14 Mhz., through a few simple changes will allow you to use 21 Mhz. which would be a better choice. I have occasional problems with breakthrough at the IF. This problem is minor with proper shielding, but would be even less with one of the higher bands. I am avoiding 28 Mhz. for another reason; I plan to use a homebrew rig on that band for the transmitter. This will allow simultaneous transmission and reception, a distinct benefit on the satellite. Obviously, if we use the same frequency for the Tx and Rx IFs, this would not be possible.

The segment we need to cover, specifically, is 145.825 to 145.975 or, in more general terms 145.8 to 146.0 Mhz. because this is the international satellite allocation. I have selected conversion frequencies to place 145.800 Mhz. at 14.0 Mhz. If your rig tunes above 14.200 Mhz. (corresponding to 146.00) you can use local FM signals as beacons for tune up. (There are those who would suggest that is all they are good for.)

In order to get maximum performance for a minimum of cost, our system will employ a preamplifier mounted at the antenna. Those familiar with vhf operating know how much loss is caused by coaxial cable at frequencies above 144 Mhz. By employing an antenna mounted preamp, we eliminate the need for expensive cable. My system uses inexpensive, foil-shielded, 75 ohm catv cable. You could use RG-59, RG-58 or RG-8X. The point is that you can use what you have or can get cheap without paying any penalty in your ability to hear weak signals. We will feed the power for the preamp up the coax so no other receive cables will be required. One thing worth mentioning, though. Try to get cable that is well shielded. This will reduce any problem you may have later with strong signals on your IF frequency.



SATELLITE STATION FOR THE QRP OPERATOR

Referring to the block diagram, the receiving system consists of a mast mounted preamp and a receiving converter. If you are interested in buying commercial equipment I would recommend the Hamtronics Model CA144 or CA 145, with the correct crystal ordered to place the segment desired at the IF frequency desired. The standard IF is 28 Mhz. but these converters can be modified easily to other frequencies. This converter, without case is only $39. Another $10 gets you a box and connectors. Write to Hamtronics, 65 Moul Road, Hilton, NY 14468, for a catalog.

Continued on next page...

Another possibility for the converter is to build one of the Rochester converters, published in The ARRL Handbook for the last several years. I am using one of these with a 14 Mhz. IF and it works just fine. One word of caution, though. The tuned circuits in this converter do not use variable coils or capacitors. The circuit is tuned by pulling or squeezing the coil turns. I found that a much better method is to find some small variable capacitors (Mouser Catalog, for starters) and use them to tune the circuits. This converter can be built for about $25 or less, depending on your junk-box. Check with Circuit Board Specialists, P.O. Box 969, Pueblo, CO 81002 for circuit boards and kits.

Next quarter, I will describe, in detail, a high performance converter, using a double balanced mixer, that can be built for about the same as either of the previously mentioned circuits.

For a preamp, I cannot see purchasing one when there is so little to building one. There are many good circuits around for almost any VHF transistor you may have in your parts box. Today, a good VHF transistor will cost about $2 to $3, with a modern GAAS-FET, giving state-of-the-art noise figures, for about $12. These are the devices of preference for the moon-bouncers. We can elect to first-class, or can do perfectly well with a 3N201, 2N4416, 2N5486, 40673 or even an MPF102 (not really our first choice). Yes, there are many, many others that will do a good job. Next quarter, I will present several schematics for you to select from, but many will be found in the amateur magazines, as well as The RSGB VHF-UHF Manual and The ARRL Handbook. No need to wait, if you're ready to begin.

For the transmitter, there are two approaches that will do the job. The first is a simple HF VXO working at approximately 27.19 Mhz. with doublers (4) to 435.100 Mhz. This is a multiplication factor of 16 and only requires a tuning range of about 10 Khz to give 160 Khz of coverage at 435 Mhz. this is OK as long as we don't require SSB. I will describe a transmitter of this type for those interested in a simple CW device.

If we are interested in QRP SSB on 435, a transverter is needed. For those interested, Hamtronics offers a commercial kit for just such a device. consult their catalog. While a transverter may seem an ambitious project, recall that all that is needed is a local oscillator, mixer and transmit amplifier. Next issue, I will describe a simple transverter and note the similarity to the VXO transmitter already mentioned.

Finally, I will discuss simple, homebrew antennas that will perform well for the QRP satellite operator. These antennas will be easy to construct in your garage and will be low cost, to boot.

I must apologize for the need to spread this article out in several different issues of The Quarterly, but to deal with the differents areas of the subject in enough detail would require an inordinate amount of space in any one issue.

Ed Manuel, N5EM
10430 Sagevale,
Houston, Texas 77089

QRP DX-PEDITION TO EXOTICA

Jim Fitton, W1FMR, and his wife Pat are looking for a potential DX-and-vacation location for a week of operating and fun in 1985. Jim says they are interested in a location that will allow wires and antennas plus "congenial QRPers for a mixture of fun and QRP-portable operating for a week or so."

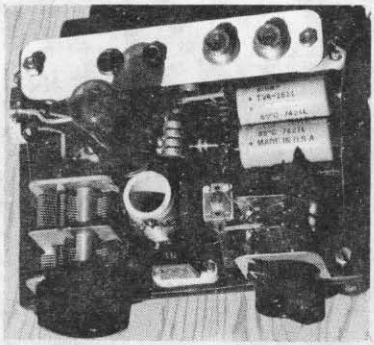
Possible locations include the Cayman Islands, Barbados, Ireland and/or the Canary Islands. Anyone with interests, ideas or information should get in touch with Jim at 60 Hamilton Ave., Haverhill, Mass. 01830, soon.

A SWAP MEET SPECIAL
ANTIQUE 40 METER RIG

Antoine Galindo, AC6G
10941 Allen Drive,
Garden Grove, California 92640

This rig is built around the obsolete 117N7GT tube. i was lucky to find three of them in their original wrapping for one dollar each at the last swap meet. It is actually two tubes in the same envelope; one section is a half-wave rectifier and the other, a tetrode. The nice part of it is that the filament requires 117 volts and, for that matter, can be connected directly to the AC outlet.

If you intend to build this little transmitter, I will recommend that you follow, very closely, the filament and B+ circuits. make sure that the hot side, the neutral and ground of the AC line are connected as shown. Also, with a VOM check the polarities at your AC wall plug; they could be reversed. I replaced every old AC plug in my shack with the more modern 3 prong type. So far, I haven't blown any fuses or breakers.



Topside view of transmitter

The cost of this rig was less than $10. Most of the parts were gathered at the swap meet. The variable capacitor came from an old dead tube-type broadcast receiver. I mounted everything on a 7½" x 6" x ½" piece of plywood that I got free for the asking at the local lumberyard.

After deciding how and where the parts would be installed on the board, the various holes were drilled; I smoothed it out with sandpaper, applied wood stain and, later on, some varnish. Four little drawer knobs are used as legs. The fuse holder is mounted underneath the board and the legs are long enough to keep it away from the operating table. The octal socket is mounted on two stand-offs.

The coil is wound on a 1" diameter by 1.25" long cermaic form. The turns are held together by applying some cement. If you can't duplicate this coil, you can use any other form; plastic pill box, plastic film can, PVC tube, wood form, etc. The dimensions don't have to be the same either. Remembering that the best simple coils have a length/diameter ratio of 1:1 to 1:1.5, you can use the formula:

$$N = \sqrt{\frac{L\,(9R + 10B}{R}}$$

Where; N = Number of turns, L = Inductance in microhenrys, R = Radius of the form in inches, and B = Length of the form in inches.

Let's say, for example, that the only available form is ¾" diameter and 1" long. The length/diameter ratio is 1 / .75 = 1.333. The inductance needed in our circuit is 2 microhenrys. The radius of the form is .75" / 2 = 0.375". The number of turns will be:

$$\sqrt{\frac{2\,\{\,(9 \times 0.375) + (10 \times 1)\,\}}{0.375}} = 14 \text{ turns (rounded off)}$$

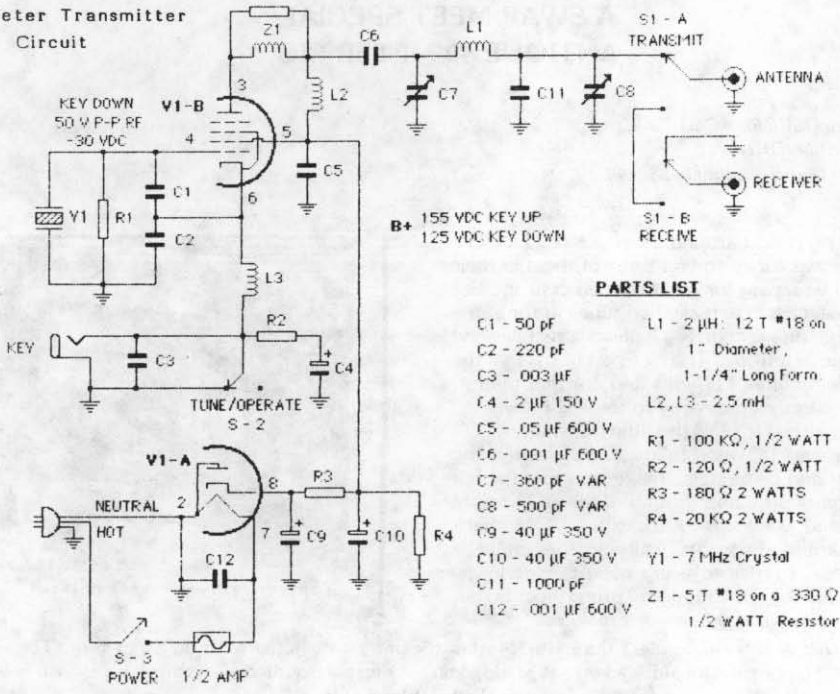
Use copper wire, bare or enamel, number 18, 20 or 22. The larger the wire, the higher the Q.

S1 is a 4 section, 4 position (off, on-receive, transmit, tune) rotary switch (4P4T) of unknown origin. You may have to use separate switches for the different functions.

Using a dunny load and a VSWR bridge, adjust C7 and C8 for maximum output with key down. Listening on your receiver, adjust C1 for best keying. Repeat the adjustments of C7 and C8. If on the air your signal sounds chirpy, slightly detune C7. (Decrease capacitance, in my case.)

Continued on next page...

40-Meter Transmitter Circuit



PARTS LIST

C1 - 50 pF
C2 - 220 pF
C3 - 003 µF
C4 - 2 µF 150 V
C5 - 05 µF 600 V
C6 - 001 µF 600 V
C7 - 360 pF VAR
C8 - 500 pF VAR
C9 - 40 µF 350 V
C10 - 40 µF 350 V
C11 - 1000 pF
C12 - 001 µF 600 V

L1 - 2 µH: 12 T #18 on 1" Diameter, 1-1/4" Long Form
L2, L3 - 2.5 mH

R1 - 100 KΩ, 1/2 WATT
R2 - 120 Ω, 1/2 WATT
R3 - 180 Ω 2 WATTS
R4 - 20 KΩ 2 WATTS

Y1 - 7 MHz Crystal

Z1 - 5 T #18 on a 330 Ω 1/2 WATT Resistor

40-Meter Rig (con't.)

The circuit works and uses a minimum number of parts. The first day on the air I worked several stations and, late in the evening, Florida (449), and Texas (569). The power output is roughly 2 watts and, all stations worked gave me good signal reports. I checked for TVI with a portable B/W TV using an indoor antenna. Only channel 2 showed a faint case of interference. The TV set was sitting next to the transmitter and the problem cleared up when it was moved away.

One work of caution is in order. If you feel you are a clumsy operator and are afraid of getting zapped, build the whole thing in an enclosed, aluminum chassis. I chose the breadboard style for nostalgia reasons.

A 117L7 tube could be used in place of th 117N7 as long as you follow the different pin-out configuration.

Technical Editor's note: If you plan to build this rig, please pay heed to Tony's cautions. Those of us who haven't used voltages higher than 13.6 in the past few years may have forgotten how to deal with life-threatening voltage levels. Particularly in light of the transformerless design, I would urge everyone to be extremely careful.

This circuit was published because it, in my opinion, is very typical of what QRP is all about; it uses what is on hand, it uses a minimum of parts to do the job and it did not cost it's builder a great deal. I hope you find it interesting and, if you should happen to hace a 117N7GT lying around, may even find time to throw one together.

QRP ARCI DESIGN COMPETITION

Details were published in the January and April 1984 Quarterlys. December 31, 1984 is the deadline for submitting entries to the technical editor, Ed Manuel, N5EM, his address is on page 2.

HOOTOWL SPRINT RESULTS

Eugene Smith - KA5NLY
QRP ARCI Contest Chairman

The first QRP ARCI Sprint contest, the Hootowl, held on May 30, 1984 is now history, and your contest chairman received 20 logs for scoring.

The winner, turning in by far the highest score, was Fred Turpin, K6MDJ, who turned in a score of 21,216. Fred was running 1.75 watts out of an Argosy and into a skelton cone; he used an auto battery to provide power for his "Field Day" station on top of a 5,500 foot peak.

Bob Brown, N7DGZ, came in second with a score of 15,720 earned while running 4 watts from his battery powered Argosy into a trap dipole, while Chris Brakhage, WB5FKC, scored third overall and first among the 7 milliwatters entered. Chris utilized a battery powered Ten Tec Delta modified for an output of 900 mw and an inverted vee and ground-plane for antennas.

The scores for the Hootowl Sprint are as follows:

Place	Score	Callsign	QTH	Place	Score	Callsign	QTH
1	21,216	K6MDJ	CA	10	4,032	WD9EGW	OR
2	15,720	N7DGZ	WA	11	3,204	W6RCP	CA
3	13,650	*WB5FKC	TX	12	3,051	K4KJP	FL
4	11,880	AA2U	NY	13	2,560	K5BOT	TX
5	10,080	KV7X	WA	14	2,340	*WA6DKY	CA
6	8,360	KA7PMP	ID	15	1,896	WD6DMY	CA
7	7,020	*W3TS	PA	16	1,044	AH6EK	HI
8	5,250	*KH6CP	HI	17	408	W2JEK	NJ
9	4,500	*KN1H	NH	18	400	*W6SIY	CA

* - Milliwatt entries Checklogs: KA5NLY, KH6JOI

Station information was provided with 17 of the 20 logs received showing that 10 stations used battery power, with 3 of these providing solar power for recharging.

The following rigs were reported:

Ten Tec Argonaut - 7 Heathkit HW-7/8 - 2 Ten Tec Argosy - 2
Ten Tec Omni - 2 Ten Tec Delta - 2 Icom 730/740 - 2
Yaesu FT-7 - 1

Virtually every type of antenna known to man was used in this Sprint (some stations utilized 2 types and one used three):

Dipole - 8 Inverted Vee - 5 Vertical - 3 Yagi - 2 Delta Loop - 2
Skelton Cone - 1 Zepp - 1 Sloper - 1 Inverted L - 1 Long Wire - 1

SOAPBOX:

"....short time period does not provide similar conditions for stations outside N/S America .... perhaps they could use East or West coast time period .... most stations not on air when we are on!" KH6CP

"....need enough lead time to get Sprints publicized in CQ QST." KN1H

"....'Hootowl' is a misnomer - contest was 2 hours too early." KV7X

"....4 hour window made it enjoyable without tiring side-effects of regular contests .... interesting how many QRP stations that did not know about the sprint .... hope we have more sprints" WB5FKC

"....activity was somewhat sparse and QRM ruff .... let's do it again and get the word out through QST, CQ, etc." WD9EGW

"....Ham radio has never been so much fun for me as it has been since going QRP about two years ago .... looking for more QRP contests." WA6DKY

"....didn't hear any signals until about 2025 hrs local .... no signals at all on 15 & 20 .... only ran for a couple of hours." K5BOT

"....I used '5w' for the contest exchange ....(but) found it to be about 130 mw after the contest! I broke the 1 QSO/Hr barrier..." W6SIY

"....had lots of fun and hope to do it again." WD6DMY

We are taking more out so we can put more in. The contest listings will not include 'full' details on any contest or QSO party that is listed in one of the major magazines. Instead just the name, date and the publication where more details can be found will be listed.

We will, of course, continue to give full details on all QRP ARCI contests and QSO parties, and those that we learn about from our QRP friends in other parts of the world that don't make the listings in one of the major magazines.

If you have any feelings on this policy, pro or con, please let us know. Your input, comments and thoughts are important.

October 13 - 14, 1984
QRP ARCI Fall Contest
Details in this issue, page 21

October 13 - 14, 1984
Pennsylvania QSO Party - QRP Section
See QST, September 1984

October 21, 1984
RSGB 21 MHz CW Contest - QRP Section
No other details available

October 27 - 28, 1984
CQ World-Wide DX Contest - QRP Section
See CQ, September 1984

November 1 - 7, 1984
HA - QRP Contest
Details in this issue, page 27

November 17 - 18, 1984
VK Versus the World
Details in this issue, page 26

November 24 - 25, 1984
CQ world-Wide DX Contest - QRP Section
See CQ, September 1984

December 1 - 2, 1984
TOPS CW Contest - QRP Section
Details in this issue, page 27

December 26 - January 1, 1984
G-QRP Club Winter Sports Activity
Details in this issue, page 27

NOVICE SPRINT RESULTS

Eugene Smith - KA5NLY
QRP ARCI Contest Chairman

The turnout for the August 3rd Novice Sprint was pretty slight with only 13 members appearing in the five logs submitted; what happened to the logs from those eight missing stations? Cross-checking was simple, as everyone worked each other for the most part, and half of the non-reporting stations appeared on more than one log!

Bob Perry, KA2RWL, of Buffalo, NY was the winner, followed by Tom Perry, KA2KGP, of the same city. By running less than two watts, they picked up the power multiplier of 8 which provided them a commanding lead over the rest of the "pack" (all running five watts).

The scores were as follows:

KA2RWL	2116
KA2KGP	1440
W1FMR	270
KA5NLY	64
KA9JKK	40

The number of QSO's reported ranged from two to nine and all reported contacts were on 40 meters. No logs were received from several stations which had written to the contest chairman requesting a Novice contest! (?)

VK VERSUS THE WORLD

Sponsored by the CW OPERATORS QRP CLUB, this contest is directed to all CW enthuasists WORLD WIDE who elect to tackle that extra challenge. Contestants may work DX or OWN COUNTRY for scoring. QRO stations are invited to participate, but must submit contest logs with QRP STATIONS ONLY, to qualify for the QO section of the contest. QRP stations must sign QRP for identification.

0000Z November 17 to 2400Z November 18, 1984
MODE: CW only. CONTEST CALL: CQ QRP BANDS: 160 to 10 meters. (not WARC)

SECTIONS: QRP: Single Operator: Multiband or Singleband.
QRP: Multi Operator: Multiband or Singleband.
QRO: Single Operator: Multiband or Singleband.

PERIOD CATEGORIES: Full Period, 48-hours; Half Period, any 24-hour consecutive period within the 48 hours allowed for the contest.

EXCHANGE: ALL STATIONS, SIX DIGITS comprising RST followed by serial number, commencing with 001 up to 999, then commencing again.

SCORING: QRP STATIONS i.e.a indicated output power into antenna NOT EXCEEDING FIVE WATTS, each contact whall score points based on the following:

Up to 1 watt.....6 Points
Over 1 watt - 2 watts.....5 Points
Over 2 watts - 3 watts.....4 Points
Over 3 watts - 4 watts.....3 Points
Over 4 watts - 5 watts.....2 Points
QRO Stations Over 5 watts output into antenna, 1 point per contact, QRO/QRP contacts only allowed.

MULTIPLIERS: Every contact in a different IARU Zone counts as a multiplier on each band.

BONUS SCORE: Field stations using Battery/Solar/Wind/Hand Generated power (Motor Generators excluded): Multiply the grand total score by 1.5. (Station to be erected **NOT BEFORE** the day prior to contest date.)

CONDITIONS: Stations may be contacted once only on each band, in each 24 hour period. Separate lof sheets required for each band. Each logged QSO to show Date/Time (GMT) ...STATION WORKED...EXCHANGE (Sent/Received)...MULTIPLIER...POWER OUTPUT...POINTS CLAIMED. GRAND TOTAL SCORE equals Total points from all bands times Total multipliers from all bands (X Bonus Score). All entries must have a Front Summary Sheet showing...Calculation of grand total score: Name and address: Call sign: Signature and Declaration..."I certify that all entries in my contest log sheets are true and honest". Entrants are requested to include a brief description of station equipment, and any comments/suggestions. Field stations are requested to include a brief description of operations/location/conditions, etc.

CERTIFICATES: To the QRP Single Operator and Multi Operator in each Country with the highest grand total score in each section. To the QRO Operator in each Country with the highest grand total score in each section.
To the highest scoring CW OPERATORS QRP CLUB member in each section. Entries to be addressed to:

Contest Manager
P.O. Box 109
Mt. Druitt, N.S.W. 2770, Australia

CLOSING DATE: Contest Manager must have entries by February 26, 1985.

QRP ARCI FALL CONTEST

Dates: 1200 UTC Saturday, Oct. 13 to 2400 UTC Sunday, Oct 14, 1984.
Participants may operate a maximum of 24 hours.

Mode: Only one mode of operation - CW or SSB may be used, the operator must select which mode he desires to use, and stick with it!
Note: Stations desiring to compete for the Triple Crowns of QRP must work SSB in this contest! (except for Novice/Technicians)

Exchanges: Members give RS(T), state/province/country and QRP ARCI membership number. Non-members give RS(T), s/p/c and power output.
Stations may be worked once per band for QSO points. For example, a station may be worked on both 40 meters and 15 meters and receive QSO credit for each contact.
Each member contact counts 5 points, regardless of location.
Non-member contacts count 2 points if in the same continent.
Non-member contacts count 4 points if in a different continent.

Multipliers: 4 to 5 watts output CW or 8 to 10 watts output PEP X 2
3 to 4 watts output CW or 6 to 8 watts output PEP X 4
2 to 3 watts output CW or 4 to 6 watts output PEP X 6
1 to 2 watts output CW or 2 to 4 watts output PEP X 8
Less than 1 watt output CW or 2 watts output PEP X 10
More than 5 watts output CW or 10 watts output PEP will be counted as check logs only.
The highest power used for any contact, any band, will determine multiplier.

Bonus Multipliers: Natural power (solar, wind, etc. - with or without storage) X 2. With storage, storage cells must be charged by the natural power source for 8 ot the 48 hours preceeding the contest. Battery Power X 1.5. No other source of power may be used at any time during the contest to qualify for these multipliers.

Scoring: QSO points (total all bands) times total number of s/p/c (a s/p/c may be worked on more than one band) times power multiplier times bonus multiplier (if any) equals claimed score. Send a large s.a.s.e. or IRC's to contest chairman for scoring summary sheet in advance of the contest.

Calling Method: CQ CQ QRP DE (call sign) or CQ QRP Contest From etc.

Awards: Certificates to highest-scoring station in each s/p/c with two or more entries. All SSB entries are automatically considered for Triple Crowns off QRP Award. Separate scoring each mode.
In addition, Adrian Weiss, WØRSP, is sponsoring a special Milliwatt certificate to the highest scoring station in the less than 1 watt category, providing that there are two or more entries in the category.

Logs: Separate log sheets for each band is suggested for ease of scoring. Send full log data plus separate worksheet showing details and time off the air. No log copies will be returned. All entrants desiring results and scores please include a large s.a.s.e. with one ounce of U.S. postage or IRC's. It is a condition of entry that the decision of the QRP ARCI contest chairman is final in case of dispute.

Deadline: Logs must be received by November 12, 1984. Logs received after this date or, missing information will be used as check logs.

Send All Material To:
QRP ARCI Contest Chairman
Eugene Smith, KA5NLY
8201 Chatham Drive
Little Rock, Arkansas 72207

OCTOBER 1984

Mon.	Tues.	Wed.	Thur.	Fri.	Saturday	Sunday
1	2 SEN	3 GSN-GLN	4	5	6 GLN-NWN-NEN-SWN	7 FIRST SUNDAY QSO PARTY TCN
8	9 SEN	10 GSN-GLN	11	12	13 QRP ARCI Fall Contest GLN-NWN-NEN-SWN	14 TCN
15	16 SEN	17 GSN-GLN	18	19	20 GLN-NWN-NEN-SWN	21 RSGB 21 MHz Contest TCN
22	23 SEN	24 GSN-GLN	25	26	27 CQ WW DX Contest GLN-NWN-NEN-SWN	28 TCN
29	30 SEN	31 GSN-GLN				

NOVEMBER 1984

Mon.	Tues.	Wed.	Thur.	Fri.	Saturday	Sunday
			1 HA-QRP Contest	2	3 GLN-NWN-NEN-SWN	4 FIRST SUNDAY QSO PARTY TCN
5	6 HA-QRP Contest SEN	7 GSN-GLN	8	9	10 GLN-NWN-NEN-SWN	11 TCN
12	13 SEN	14 GSN-GLN	15	16	17 VK Versus The World GLN-NWN-NEN-SWN	18 TCN
19	20 SEN	21 GSN-GLN	22	23	24 CQ WW DX Contest GLN-NWN-NEN-SWN	25 TCN
26	27 SEN	28 GSN-GLN	29	30		

DECEMBER 1984

Mon.	Tues.	Wed.	Thur.	Fri.	Saturday	Sunday
					1 TOPS Contest GLN-NWN-NEN-SWN	2 FIRST SUNDAY QSO PARTY TCN
3	4 SEN	5 GSN-GLN	6	7	8 GLN-NWN-NEN-SWN	9 TCN
10	11 SEN	12 GSN-GLN	13	14	15 GLN-NWN-NEN-SWN	16 TCN
17	18 SEN	19 GSN-GLN	20	21	22 GLN-NWN-NEN-SWN	23 TCN
24 31	25 SEN	26 G-QRP Winter Sports Activity GSN-GLN	27	28	29	30

The nets are listed on the above calendar on the day on which they occur local time. Below is the offical listing in UTC. All net frequencies are +/- QRM.

*Transcontinental Net	14060	W5LXS	Sunday	2300 UTC
Southwest Net - 80	3560	WD6DMY	Monday	0500 UTC
Southeast Net	7030	K3TKS	Wednesday	0100 UTC
Gulf States Net	3560	W5QJM	Thursday	0200 UTC
Great Lakes Net	3560	K5VOL	Thursday	0200 UTC
Northeast Net	7040	W1FMR	Saturday	1300 UTC
Southwest Net	7030	W6RCP	Saturday	1600 UTC
Northwest Net	7040	N7DGZ	Saturday	1800 UTC

*Weekends of major contests TCN will meet one hour later, Monday 0001 UTC
First Sunday QSO Parties - 1500 UTC to 0300 UTC - See page 11 for frequencies.

G-QRP Club Winter Sports Activity
December 26 to January 1, 1985 (each day)
Times and Frequencies:

0900 - 1000	14060
1000 - 1100	21060/28060
1100 - 1200	7030
1200 - 1300	3560
1300 - 1400	10106*
1400 - 1500	3560
1500 - 1730	21060/28060
1730 - 2000	14060
2000 - 2100	7030/10106*
2100 - 2200	3560
2200 - 2300	14060

*This is an activity, not a contest so QSO's on 30-meters are premitted.

HA-QRP Contest
November 1, 0000Z hrs. to November 7, 2400Z hrs., 1984. Freq: 3.5 to 3.6 MHz.,
CW only. Call: CQ Test QRP. Exchange: Call, RST, QTH, Name. Score: Own country - 1 point, other countries - 2 points. Multiplier: sum of points times number of DXCC countries worked. Categories: Single Oper., and Multi Oper.
Power: PA of tx to have less than 5 watts input power. Logs to contain date and time of contact, callsign, QTH and name of operator worked and type of active element used for PA. Entries to: Radiotechnika Szerkesztosege, Budapest, Pf. 603, H-1374, Hungary, postmarked not later than Nov. 21. Awards: all contestants receive a certificate, and the top entry from each country a year's free subscription to Radiotechnika.

TOPS CW Contest
December 1 - 2, 1984. This contest now has a QRP section, up to 5 watts input. 3.5 MHz only and the rules will be the same as for QRO stations. Logs to SM3VE by January 31, 1985. Watch major publications for additional details.

1984 TECHNICAL ACHIEVEMENT AWARD BALLOT

PLEASE DO IT TODAY !

OFFICIAL BALLOT

1984 TECHNICAL ACHIEVEMENT AWARD

MY SELECTION FOR THE TECHNICAL ACHIEVEMENT AWARD

IS ARTICLE #____.

SEND THIS BALLOT TO:

DEADLINE FOR RECEIPT OF BALLOTS IS NOVEMBER 15, 1984

1984 TECHNICAL ACHIEVEMENT AWARD

Following is a list of the technical articles which have appeared in the QRP Quarterly during 1984. Pick your favorite, sorry only one, and write the number predeecing it on the tear-out ballot. Send the ballot to the Secretary/Treasurer.

The deadline for receipt of ballots is November 15, 1984, so please do it today!

January
- 1 - General Purpose Power Amplifier/Multi Band Transmitter 30-Meter Receiver - Wes Hayward, W7ZOI

April
- 2 - VFO Design and Construction - Wes Hayward, W7ZOI
- 3 - 80-Meter One-Tube Transmitter - C.F. Rockey, W9SCH
- 4 - Anti-Motorboating for the HW-8 - Tim Groat, KRØU
- 5 - QRP Antenna Tuner - Bob Truhlar, W9LNQ
- 6 - Keying shaping Modifications for the HW-8 - Tim Groat, KRØU
- 7 - HW-8 Net Netter - Jim Fitton, W1FMR
- 8 - 30-Meters for the HW-8 - Howell Ching, KH6IJS
- 9 - Improving the Argonaut 515 - Jack Russell, K2RS
- 10 - The Bobtail Curtain - Jim Fitton, W1FMR
- 11 - The Skelton Cone Antenna - John McNeil, WA2KSM
- 12 - A Delta Loop Antenna - Billy Vahldick, K5LKT
- 13 - Using the Hustler Portable - Wayne Sayles, N9AKM

July
- 14 - Bare Bones Solar Power - Roger Rose, W5LXS
- 15 - Measuring Power - Wes Hayward, W7ZOI
- 16 - Multi-Band Sloper - Jim Lyon, VE2KN

October
- 17 - R.F. Gain Control for the Argosy - Jim Lyon, VE2KN
- 18 - QRP Satellite Operating on a Budget - Ed Manuel, N5EM
- 19 - Antique 40-Meter Rig - Antoine Galindo, AC6G
- 20 - Four Watts for the HW-8 - Howell Ching, KH6IJS
- 21 - Making the Apple II into a Ham - Joy George, KG6DO
- 22 - Quick and Easy / 30-Meters - Fred Bonavita, W5QJM
- 23 - HW-8 Drive Control & Fine Tuning - John Collins, KN1H
- 24 - Quiet Antenna for 30-Meters - Ed Lappi, WD4LOO
- 25 - The Laim 30-Meter Transceiver - Ha Jo Brandt, DJ1ZH

FOUR WATTS FOR THE HW-8

Howell Ching - KH6IJS
228 Pule Place
Wailuku, Hawaii 96793

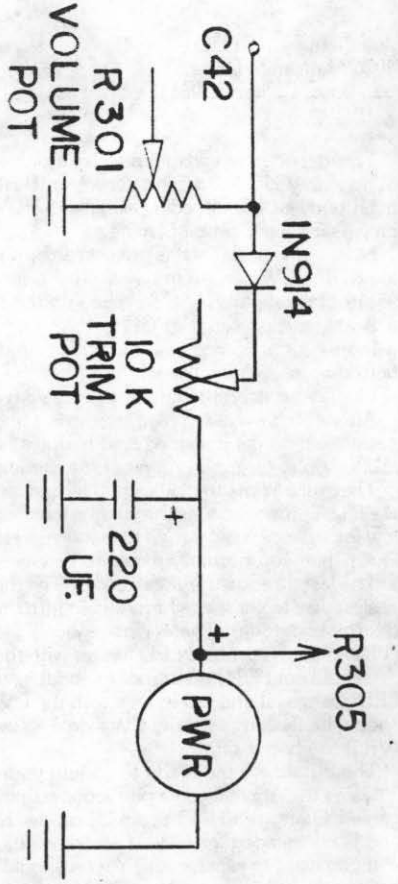
One may ask, "Why more power from a QRP rig?" The reasons for my search for more power were twofold; first, is the declining sunspots and the worsening band conditions, the second is that much of my QRPing is done mobile from my fishing campsite on the beach using a Hustler mobile antenna mounted on the right rear of my Toyota Landcruiser. Every milliwatt of power helps in this kind of set-up.

After checking the specifications of numerous transistors I found that the Sylvania ECG 488 showed great promise. I simply replaced Q9 (2N4427) with the ECG 488 and retuned L13 through L16 and L95, 99, 103 and 106.

Now I get as much as 2.0 watts output on 15 meters and between 3-3.7 watts on 20, 30 and 40 meters using a 12.5 volt power supply. In excess of 4 watts were obtained on some bands using 13.5 volts. All power measurements were made using a dummy load and a Bird wattmeter.

I had already modified my HW-8 per WB7OVJ's article in the November 1979 QST, page 57 entitled "An S-Meter for the HW-8". This mod may not be necessary to handle the higher powers.

OVJ's article stipulated using a 33 uf. capacitor and fixed resistors to dampen the S-Meter movement. I used a 220 uf. electrolytic and a trim pot as follows.



I have been operating both of my HW-8 rigs with the new ECG 488 finals for nearly five months and have had no problems, whatsoever.

C U QRP/mobile from the beach! Aloha.

Listed below is an advertisement of equipment for sale by a member. Ads will be accepted for The Quarterly, from members, providing they are received by the first of the month preceeding the month of publication.

Ads will be published on a space available basis, and will be edited if necessary to conform to space limitations.

If you have equipment for sale that is related to Amateur Radio, and would like to list it in the January 1985 Quarterly, please send it to the publisher by December 1, 1984.

For Sale: Ten-Tec Argonaut 509. All original, $200. Contact Terry Young, 129 Sotir Street, Ft. Walton Beach, Florida 32548.

MAKING THE APPLE II INTO A HAM

Joy George, KG6DO
4076 Manzanita Drive,
San Jose, California 95117

This decoder was inspired by an article in July, 1982, 73 magazine by jim Hyde, WB4TYL and Meyer Minchen, AG5G titled "The Very, Very Best CW Filter", while C. H. Galfo, WB4JMD is responsible for the main body of the decoder, along with the software (the decoder circuit came with the program). The universal keying circuit is mine.

Most of the parts for this project can be purchased at Radio Shack or the local parts house. The program for RTTY/CW can be purchased by writing to C. Galfo Systems, 6252 Camino Verde, San Jose, CA. 95119. Include an SASE to speed up the reply.

If you have passed the FCC test to obtain a Ham license you should be able to put this decoder together without a lot of instruction. This exact circuit is working great in my shack. I do realize there are probably better ways of doing the job, but I haven't seen anyone share it without wanting an arm and a leg.

I have also used the circuit to receive RTTY with very little difficulty.

After you have assembled the project and given it the smoke test (the chips are amazingly rugged), the easiest way to get it aligned is with a logic probe. If you do not have one I highly recommend getting one. *(Editor note: Or look up one of the many circuits published in the last few years and build your own.)*

There are 5 pots to play with. The first is the bandpass (VR1); turn it to the least resistance (which opens the filter). the second is the volumn for the monitor output (VR2); adjust to suit your hearing level using a low-impedance head-set. The bandpass stage also amplifies the incoming audio, so keep the rig's audio lower than you normally would to receive by ear.

The last three are for the decoder. The third pot (VR3) is for the center frequency of the active filter. The easiest way to get the right tone is to turn on your rig and find a long winded CW station, then zero beat it. (Normal sidetone). That is close enough. Now put the logic probe on pin 7 of the LM1458 and slowly adjust (VR3) until the probe's LED flashes with the CW signal. Now put the probe on pin 6 of the 7413; turn the threshold pot (VR4) resistance to about ¼, then start adjusting the DC Balance (VR4) until the logic probe LED flashes HI and LO in time with the CW signal. At this point, the LED that is tied to pin 8 of the 7413 should be flashing with the CW signal. Now find a signal that is quite weak and adjust the threshold pot (VR5) to chop it off.

The output is now ready to go into your computer to be read and interpreted by the software.

Using the Apple II game port, connect pin 8 of the 7413 to pin 4 of the game port. The pins of the Apple game I/O are: send RTTY, pin 15; receive RTTY, pin 2; T/R keying, pin 14 (this is to key the rig for RTTY and is not needed for CW); CW transmit, pin 13; CW receive, pin 4; and ground, pin 8.

If you want to receive RTTY, you should use a TU Modem like the Flesher TU-170. The circuit shown here can be used to receive RTTY but will not send RTTY, it is designed for CW.

This circuit should work on other computers that have software that looks at a serial port and can interpret the incoming Hi/Lo strings.

I am also using the bandpass filter in my HW-8, which I will discuss in a future article.

Schematic on next page

Decoder Parts List

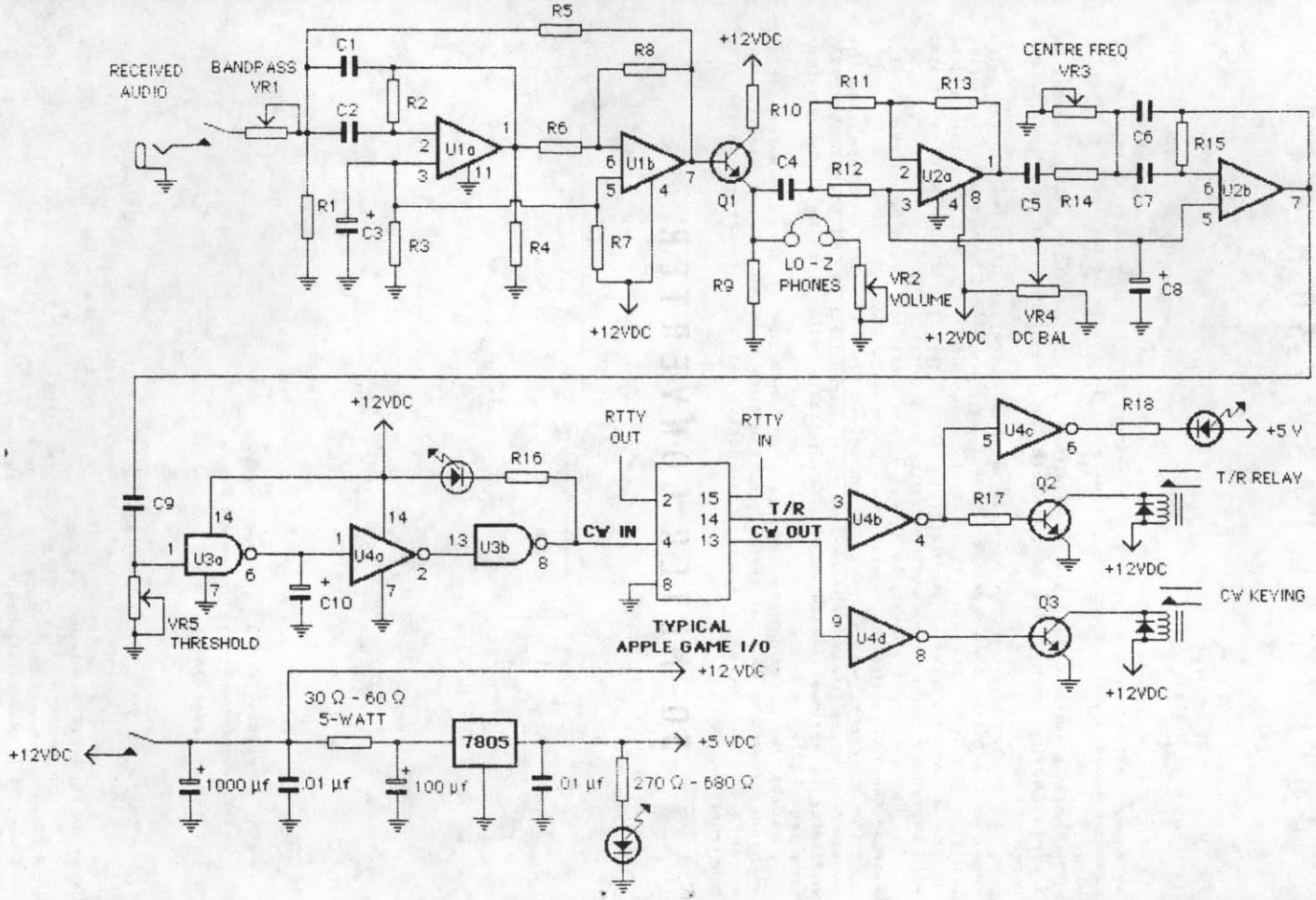
C1 - .1 uF
C2 - .1 uF
C3 - 10 uF
C4 - .22 uF
C5 - .02 uF
C6 - .0068 uF
C7 - .0068 uF
C8 - 10 uF
C9 - .47 uF
C10 - 100 uF

Q1, Q2, Q3 - 2N2222

R1 - 100 Ohm
R2 - 56 K
R3 - 68 K
R4 - 5.6 K
R5 - 100 K
R6 - 56 K
R7 - 100 K
R8 - 180 K
R9 - 18 K
R10 - 100 Ohm
R11 - 10 K
R12 - 22 K
R13 - 1 M
R14 - 220 K
R15 - 470 K
R16 - 470 Ohm
R17 - 1 K
R18 - 470 Ohm

U1 - LM324
U2 - LM1458
U3 - 7413
U4 - 7404

VR1 - 100 K
VR2 - 500 Ohm
VR3 - 2 K
VR4 - 10 K
VR5 - 500 Ohm


RECEIVED AUDIO
BANDPASS VR1
C1
C2
R1
R2
R3
C3
R4
R5
R6
R7
R8
U1a
U1b
+12VDC
R10
Q1
C4
R9
LO - Z PHONES
VR2 VOLUME
VR4 DC BAL
R11
R12
R13
CENTRE FREQ VR3
U2a
U2b
C5
R14
C6
R15
C7
C8
+12VDC
+12VDC
+12VDC
C9
R16
U3a
U4a
U3b
C10
VR5 THRESHOLD
RTTY OUT
RTTY IN
CW IN
T/R
CW OUT
TYPICAL APPLE GAME I/O
U4b
U4c
U4d
R17
R18
+5 V
Q2
Q3
T/R RELAY
CW KEYING
+12VDC
+12VDC
+12 VDC
30 Ω - 60 Ω 5-WATT
7805
+5 VDC
+12VDC
1000 µf
.01 µf
100 µf
.01 µf
270 Ω - 680 Ω

QUICK AND EASY / 30 METERS

Fred Bonavita - W5QJM
P.O. Box 12072, Capitol Station
Austin, Texas 78711

Here is an interesting combination of transmitter and converter providing an easy, inexpensive and quick way of getting on 10.1 Mhz., particularly if you have an Argonaut, HW-8 or other transceiver incapable of hitting the 30-meter band.

There is nothing elaborate about either circuit, and both are variations on a theme, having been published elsewhere for other bands but modified for use here.

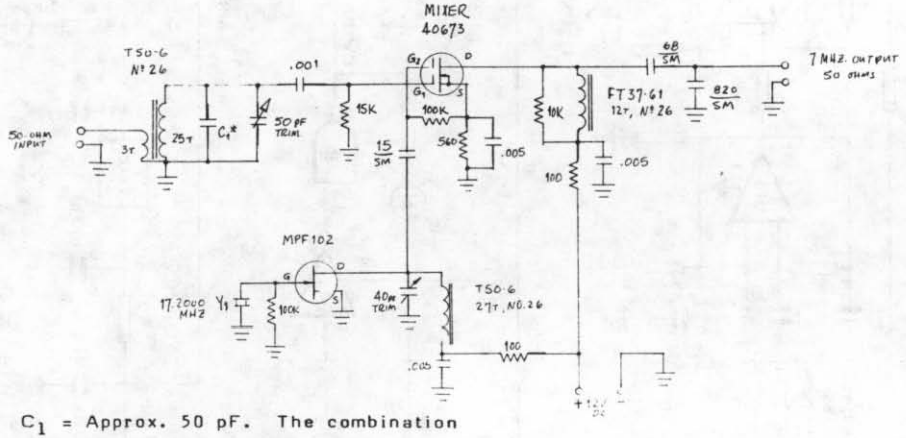
The transmitter section basically is the Universal QRP Transmitter (also known as the Little Joe) developed by Wes Hayward, W7ZOI, and published originally in QST for September 1981. It has been modified to hit 30 meters and to include a variable crystal oscillator (VXO) to give the stability of a crystal with the added convenience and flexibility of a VFO.

It has an output slightly in excess of one watt and could be milked for 1.5 watts. The VXO shifts the crystal about 3 kHz each way.

The converter was adapted for 30 meters from the unit accompanying the famous Mini Mizer Dream Receiver, which appeared first in QST (September 1976) and later in various Handbooks plus Solid State Design for the Radio Amateur (see page 108).

Except for altering the frequency of coverage of the converter, it is unchanged from the original design, and the output remains on 40 meters. The account in SSD gives a clear explanation of the converter design and construction.

30-METER CONVERTER



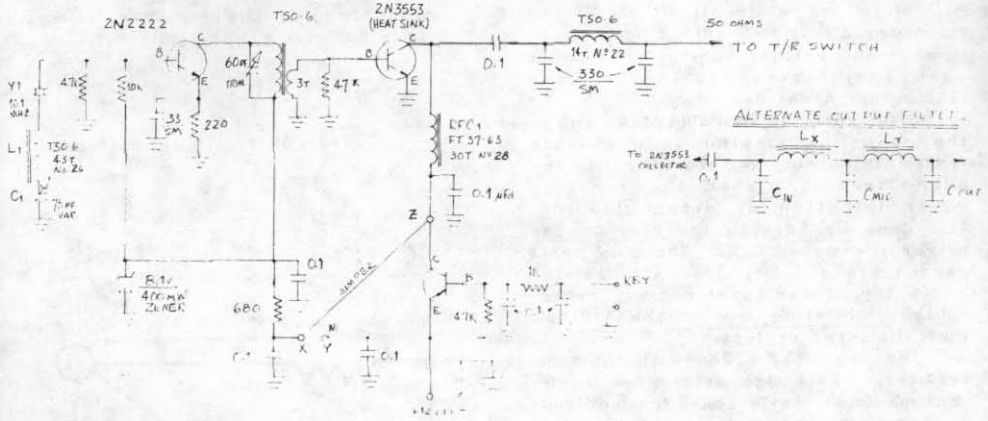
C_1 = Approx. 50 pF. The combination of C_1 and the 50 pF trimmer should total at least 94 pF.

In keeping with the original design of the transmitter, this unit has a pi-section output filter, although an alternative design for an M-section filter is shown. There is ample room on the p-c board to install the M-section filter, using a stand-off insulator for support.

The pi-section filter, however, is within the FCC's requirements for attenuation of harmonics, spurs and unwanted signals. The first harmonic is -34 dB from the fundamental, the second harmonic is -32 dB and the third is -44 dB, with others at least -60 dB or more.

With 12 volts applied, this rig pumped out 1.02 watts, and at 13.5 volts, its output was 1.17 watts. Measurements were on a Tektronix 'scope into a Bird, 50-ohm dummy load. And on 30 meters, a watt can do a lot.

30-METER TRANSMITTER



*This resistor might not be needed. If power output is too low, try a smaller value or remove it entirely.

C_{IN}, C_{OUT} = 330 pF, SM or POLY
C_{MID} = 660 pF, SM or POLY
L_X, L_Y = T50-6, 14T, #22

C_1 = Approx. 50 pF. The combination of C_1 and the 50 pF trimmer should total at least 94 pF.

There are two sources for printed-circuit boards for the transmitter and one for the converter. Our friends at Circuit Board Specialists (P.O. Box 969, Pueblo, Colorado 81002) have boards for both. You must specify you want the converter board for the Mini Mizer Dream Receiver, September 1976 QST ($3.50). For the transmitter, ask for the board for the QRP transmitter that appeared in September 1981 QST ($3.75). If your order totals less than $10, send another $1 for postage, and ask for a copy of their latest catalog of kits. It's well worth having.

A second source for transmitter boards is Communications Designs, Inc., 1105 Lehr Street, West Memphis, Arkansas 72301. These folks have undrilled boards for $2 each (plus 40 cents postage), while the supply lasts. They are getting out of the p-c board business, but they also have some boards for other ham radio projects, so ask for a catalog of what stock remains.

All crystals came from Jan Crystals (P.O. Box 06017, Fort Myers, Florida 33906) and cost around $6 each.

Since this combination of transmitter and converter was intended for use with rigs lacking 10.1 Mhz. capabilities, I opted to package everything in a small aluminum box I got from a surplus electronics emporium. The size is not critical, and in that configuration, I can use it with more than one rig.

Not shown in the diagram is 12-volt, DPDT reed relay which switches the antenna and mutes the converter. any type of transmit-receive switching is acceptable here and is left up to the builder. The reed relay is controlled by the 2N4036 dc switch.

OK, gang, there it is. This arrangement employs the old, reliable KISS principle. (You translate it.) Special thanks go to Ed Popp, K5BOT, and Leo Delaney, KC5EV, who served as consultants, arbitrators, advisors, engineers, technicians and bartenders at various stages of this project and without whose help it might have gone a lot faster but wouldn't have been nearly as much fun.

HW-8 MODIFICATIONS

John T. Collins - KN1H
10 Walnut Street
Newport, New Hampshire 03773

Here are a couple of modifications for the HW-8 including a drive control and a finer-tuning front panel knob that makes zeroing in on a station much easier.

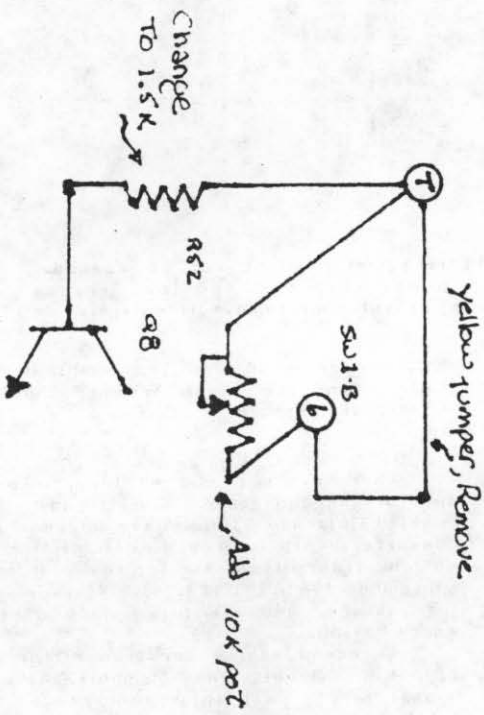
The variable drive control allows the transmitter's output to be changed from full output to zero output without affecting either the receiver mixer injection or output loading. It's done by varying the bias on the driver transistor, Q8. The only parts needed are a 1.5K, 1/4-watt resistor and a 10K linear taper pot -- preferrably a miniature one of the 5/8th - inch diameter or less.

Replace R52 (22K) with the 1.5K resistor. This was determined to be the maximum resistance for minimum output. Next, remove the yellow jumper wire from point T on the circuit board to pin 6 of the 15-meter bandswitch. The 10K pot will be wired in its place (see schematic). A larger value pot could be used, but it was found the 10K pot gave the best resolution. More than 10K will not give any greater drive or output. control is quite smooth, with zero output occuring near the "top" of the pot.

The new drive control can be mounted on the front panel just below the meter (hence, the need for a small-diameter pot). This provides the shortest lead lengths between point T and the 15-meter bandswitch. I did not try any other locations, but I suspect instability would occur with long leads, as there is rf as well as d.c. at this point.

A final note on this mod: Try juggling the component values. The bias requirements for Q8 likely will vary from rig to rig. Another HW-8 might require the full 22K of resistance to work properly.

Drive Control Modification



Jackson Brothers Drive Modification

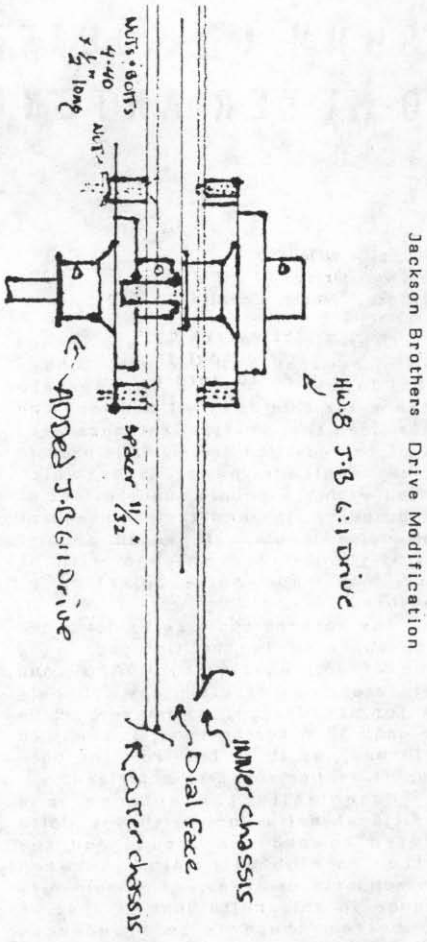
My favorite HW-8 mod is the addition of a second Jackson Brothers 6:1 vernier drive to the front panel. This reduces the frequency change per knob revolution to 15 kHz from the original 90 kHz. After operating with this modification, I could never return to the old 15 kHz-at-a-twitch routine. The only drawback is that the new drive is somewhat unsightly on the front panel, but I overcame this problem with a 2-inch diameter knob from the junkbox. And a larger knob makes the HW-8 feel more like a "real" radio.

the new drive is somewhat unsightly on the front panel, but I overcame this problem with a 2-inch diameter knob from the junkbox. And a larger knob makes the HW-8 feel more like a "real" radio.

The extra drive was purchased from Heath two years ago for $7. (Note: Jackson Bros. drives also are available from Radiokit; check their ads in the radio magazines for an address and catalog information-Editor.) Installation of the drive is straightforward, if care is taken in drilling the holes in the front panel.

First trim all but 5/16ths of an inch of the original drive shaft so the new one will fit as close to the front panel as possible. Using the new drive as a template, mark, drill and countersink (from the back) two holes in the front panel for mounting the new drive. Mount it using 4-40 X 1/2-inch flathead bolts and nuts and 11/32nd-inch spacers. If all is right, the new drive will slide right onto the shaft of the original one when the front panel is reinstalled. Just tighten the setscrews and install the knob and you're ready to enjoy the extra-slow tuning rate.

I hope my crude drawing is of some assistance; the only problem I can forsee in duplicating this mod is in misaligning the two drives. I suggest marking the front panel for drilling while it is still fastened to the radio so the two drives are coupled when the marks are made.



Orton L. Duggan, Jr. - W4EQE
3049 Sunset Lane
Cocoa, Florida 32922

Kinky Hint: A masonry-cutting disc in a table saw is a fine way to cut circuit board stock, Plexiglass, aluminum sheet and the like. It does a fast smooth job, and the cut material is thrown off the disc, not piling up as happens when a regular saw blade is used.

SHHH ! QUIET 30 METER ANTENNA

Ed Lappi - WD4LOO
203 Lynn Drive
Carrboro, North Carolina 27510

Ever since 30 meters was opened up for general amateur use, I have been looking for an appropriate antenna for this band. I had long ago determined that vertical antennas were out of the question for my QTH because of high-voltage power lines which passed within a couple hundred feet of the property line and their subsequent high noise levels. I needed a horizontally polarized antenna with as much man-made noise rejection as possible.

The antenna about to be described first appeared in the October, 1983 issue of 73 magazine by K9AZG, and therefore I cannot claim any originality for its design. However, it is one good 30 meter antenna, is cheap to build and, as it is fed from the bottom, it is horizontally polarized.

Essentially the antenna is a traditional delta loop with the delta pointed toward the ground and the flattop as high as possible between two supports or trees. The main difference in this delta loop is that at the bottom there is an impedance-transforming system for balanced-to-unbalanced conversion so that the delta loop can be fed with coax and still retain a balanced radiation pattern and the highest possible efficiency.

The impedance-transforming system consists of a quarter-wave length of 75 ohm RG-59/U coaxial cable wound into a coil on a homemade form (see Figures 1 & 2) serving also as the feedpoint insulator and anchor for the feedline.

Construction details: The coil form can be made from masonite, waterproof plywood or plexiglass at 1/4-inch thick. If made from plywood or masonite, it can be further weatherproofed by spraying or brushing on a coat of polyurethane before assembly. Cut to dimensions shown in Figure 1, assemble by sliding one-half of form onto slot on other half of form to form an X-shaped coil form.

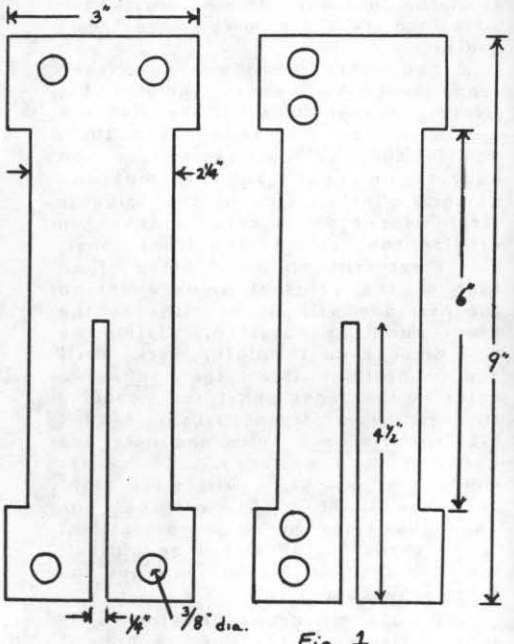


Fig. 1

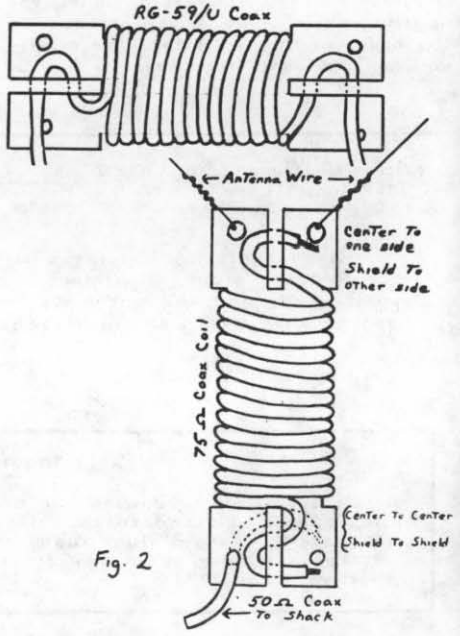


Fig. 2

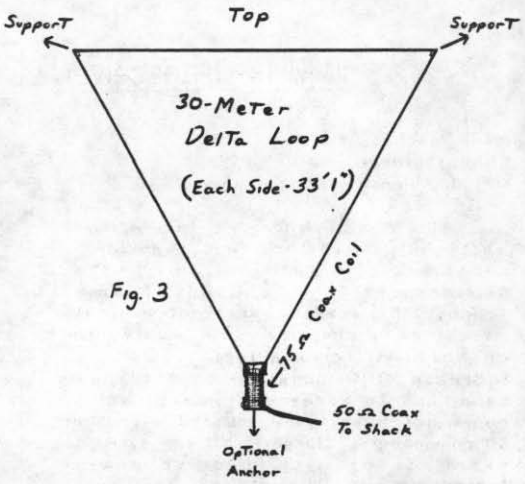


Fig. 3

Cut the quarter-wave, impedance-matching transformer to length by using formula 234 divided by frequency of interest times the velocity factor. For my antenna this worked out to (234/10.125) X 0.75 = 17 feet, 4 inches.

Weave one end of this RG-59/U into one top hole of the form and out again through hole directly below. Leave about 3 inches sticking out for connections. Now close-wind the coax onto the form keeping it tight. You will find that the coax just fits on the form with the dimensions shown with enough left over for weaving through the bottom pair of holes.

The choice of antenna wire is left to you. K9AZG used #14 house wire, and I used #18 copper-coated steel wire. Cut the wire to length using 1005 divided by 10.125 Mhz. = 99 feet, 3 inches. Fix two insulators onto this wire, one at 33 feet, 1 inch and the other at 66 feet 2 inches. These insulators allow suspending the flattop from two trees or other supports.

Finish your antenna by feeding the apex-end wires of the delta loop into the corner holes at one end of the form. Twist each wire around itself to anchor it, strip back 3/4-inch of insulation and solder one wire to the center conductor of the coax coil and the other wire to the shield.

Lastly, push one end of your 50-ohm feedline (any length to reach the shack) into one of the corner holes at the bottom end of the coil form, then through the other hole, pull it tight to anchor it, leaving enough to make connection. Solder the center wire to center wire of coil and shield to shield. Now tape or cover all connections with sealer to weatherproof antenna connections.

Like any other antenna, the-higher-the-better rule applies to this one also. So raise your flattop as high as you possibly can. If you do not like the coil form swinging in the breeze, you may tie a small nylon cord to the coil form and the other end to a brick on the ground or to a stake driven into the ground.

Conclusions: As stated by K9AZG in his original article, this antenna has a 1-to-1 SWR across the 30 meter band, and I am able to hear many stations that are lost in the noise when trying to use a vertical. For the money invested it has turned out to be an excellent antenna for this exciting band.

Orton L. Duggan, Jr. - W4EQE
3049 Sunset Lane
Cocoa, Florida 32922

Kinky Hint: For "ugly board construction," Ron Wiesen, WD8PNL, and I have developed a technique for isolated pads and buss strips. Cut p.c. board into strips an eight of an inch wide. These strips can then be cut to needed lengths with diagonal cutters and glued to the main board using so-called "Super Glue" to attach them where needed. The glue is rated up to 300 degrees, F., so the pads can be soldered to as soon as the glue dries. Spray clean the boards with clear acrylic before starting your construction project. You can solder through the acrylic.

10 MHz - Transceiver

Hans-Joachim Brandt - DJ1ZB
Lohensteinstr. 7 B,
D 8000 Muenchen 60 Germany

This is a 10 Mhz. VXO-DR-PA, two watts output, with direct conversion receiver. After designing the "Twinnyset" for the G3RJV Twenty Trophy, the author would not keep it merely as a curosity. He wanted to convert it to a 10 Mhz. rig to increase QRP activity on this new band, and to add some features which could not have been realized with the 40 components: larger VXO range, RIT, aerial tuner with relative power indication and CW monitor. This work resulted in the Laim Transceiver, which now is operated by DK5RY, first from HBO during the Activity Weekend of 11/12, September 1982. Laim, to be pronounced like Harry Lime in the well known Orson Wells motion picture, is the quarter of Munich in which DL7MAM and DJ1ZB are living.

Receiver Section - No changes were made on the basic receiver circuit (SBL-1 diode ring mixer and CA 3035 AF Amplifier), because sensitivity and freedom from AM feed-through were sufficient even for working other QRP stations. Just the output capacitor of the RC audio low pass filter was increased to a 0.47 uF to improve CW selectivity.

The main problem of this receiver was to shield the high gain AF against the RF generated in the VXO on the same PCB. One metal shield had to be added around the CA 3035, and another below the PCB. Because of these reasons, the details of the original PCB are not given here. For future designs it is recommended to use a separate PCB for the AF amplifier (preferably beginning with the second section of the RC low-pass filter), enclosed in an extra metal box. This PCB may include the 4093 CW monitor.

Fighting Receiver Hum - On this occasion, some remarks on the hum problem in DC receivers will be necessary. When the receiver oscillator is not operating, hum in the receiver is caused by either a poorly regulated supply or by AC currents or fields coupled directly into the AF amplifier. These problems should be cured first. It should be possible to turn the volume control to maximum sensitivity without any sign of amplifier instability. When oscillator and mixer are operating, hum is caused by oscillator radiation. The radiated oscillator power will be received by the electrical installation of the house and will be AC modulated in the rectifier diodes of other electronic equipment. This modulated RF is radiated back to the rectifier and causes an annoying hum, which makes weak signal reception impossible (and a high gain AF amplifier in the receiver impracticable).

There are three ways to cure this hum problem:

1. Operate the receiver in the field only, far from AC power lines, on a battery supply.

2. Bypass all rectifier diodes in your house with 4.7 nF ceramic disc capacitors of sufficient voltage rating (can you reach them all?).

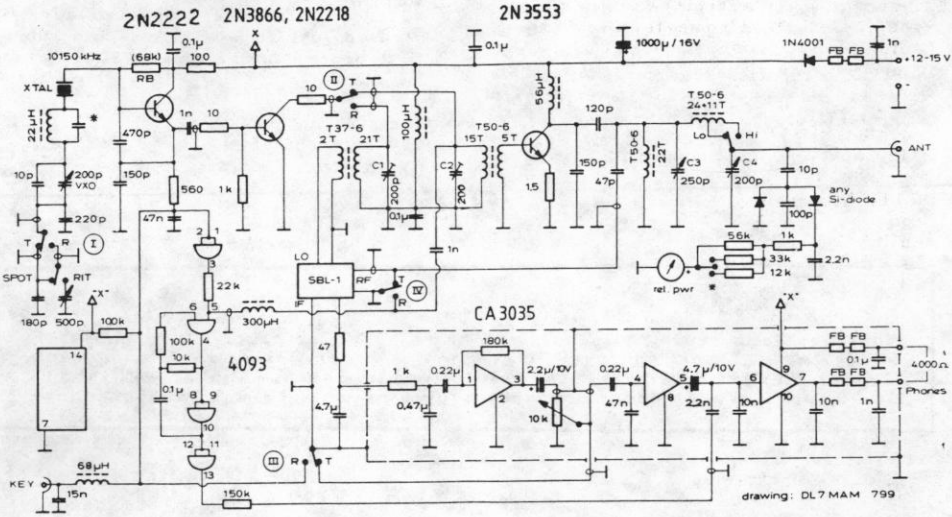
3. Reduce oscillator radiation as far as possible!

To realize #3, especially when employing a diode ring mixer with a high oscillator power, a DC receiver whould be housed in a metal case. Whem experimenting on such a receiver with the case open, in most cases, some hum will be present. Oscillator leakage via the aerial input is sufficiently low, due to the symmetrical design of the diode ring mixer, but other leads leaving the metal case such as supply voltage, headphone cord and the cable to the key, may radiate much better! In the case of the Laim Transceiver, an LC filter was necessary directly at the key jack, and a 0.1 uF ceramic disc capacitor had to be placed from the positive headphone terminal to ground. Wiring all internal AF and DC leads with shielded cable will reduce oscillator radiation and residual hum during receive even further.

Transmitter Section - VXO and PA are similar to those shown in the author's 10 Mhz. transmitter (SPRAT, Summer 1982). The VXO is covering the whole band, with the exception of the last 5 Khz., which had to be sacrificed for the RIT. The PA tank can be switched to match coaxially fed aerials (LO) and high impedance longwires (HI). The relative power indication has three fixed sensitivity steps using a miniature toggle switch

with a center-off position. By sensing the DC potential at the key jack, the CW monitoring tone is generated in a 4093 CMOS oscillator and fed into the AF amplifier of the receiver.

VXO and RIT - This is the first VXO on which the author has tried RIT. Because the RF voltages on the crystal oscillator are rather high, capacitance diodes cannot be used for this purpose. Therefore, a variable capacitor and switches operating in the RF circuit are necessary. But as the RIT circuit is shunted by a 220 pF capacitor, the switches and the RIT capacitor may be mounted at convenient



locations on the front panel. Connections are made by coaxial cables, the capacity of which merely adds to the 220 pF capacitor. The SPOT capacitor of 180 pF, representing the center position of the RIT is about one-third of the maximum RIT capacity due to the non-linear relationship between capacity and VXO frequency. Also, the frequency pull of the RIT is dependent on the settings of the VXO capacitor, being just sufficient at the upper band edge (10145 Khz.) but more than necessary at the lower end (10100 Khz.).

Transmit / Recieve Switch - A four section miniature toggle switch has been used to change from transmit to receive. Section 1 allows the RIT to be active in the receive position only. Section 2 connects the driver output to the PA in transmit and to the mixer in receive. Section 3 is to shortcircuit the receiver AF during transmit (to produce a clean CW monitor tone) and operates the VXO continously in the receive position. Finally, Section 4 closes the mixer input in the transmit mode and has two functions during receive. It directly detunes the PA input circuit (to bypass aerial energy which may leak into the oscillator path of the mixer) and, via the 330 uH choke, it prevents the CMOS circuit from generating a continuous tone.

Tuning the Laim - First, the VXO pulling range is optimized by trimming the small capacitor across the 22 uH coil (consisting of two twisted insulated wires, maximum 1-2 pF). Then the transmitter is tuned for maximum power power output (C2, C3 and C4) to dummy load and the VXO bias resistor RB is varied for almost equal power output (about 2 watts) within the tuning range of the VXO.

For tuning the mixer input resonant circuit (C1) the transmitter is operated near the lower band edge (10100 Khz.) and the frequency checked in a separate receiver (zero beat). Then the Laim is switched to receive, in the SPOT mode, and the oscillator signal will be heard in the receiver with a differing beat note, due to different loading of the driver output. By tuning C1 the beat note can be readjusted to zero beat. Switching to transmit again will show that there is no difference between transmit and receive frequency. In practical operation a received station is spotted by tuning the VXO to zero beat, then retuning to either side, depending on the QRM situation.

Dear Editor;

I hope you can use this article in the QRP Quarterly to show other members what is possible with QRP on the UHF bands. I am still "in shock" about being able to work so far on 432 MhZ. I have worked Miss., La., and Texas from here in the past with this station along with Ala., Ga., and South Florida - all very gratifying with 3 watts to an IC-402.

"The fall ARRL VHF/UHF contest in early September had some very interesting propagation to coincide with the increase in activity on the higher frequency bands.

I was extremely lucky with QRP on 432 MhZ when WB4NMA/portable in North Carolina was worked on SSB with 5 X 7 and 5 X 5 reports exchanged. WB4NMA's contest effort was located in grid square EM-85.

W2SZ/1, on Mt. Greylock in western Mass. was also heard, a 569, and worked CW with the same 3 watts and a single Quagi antenna. This contest station was 3,337 miles away from Ft. Walton Beach in grid square FN-32. I believe no one has ever worked this kind of distance with only 3 watts on 70 CM. A pair of "superstations" running UHF Kilo-watts and 4 or 8 stacked beams would indeed be overjoyed to cover this kind of distance. Even then, it would be an extremely rare accomplishment.

When mother nature is very kind, a lot of listening in new beam directions can really pay off. Of course these are both new states for me on 432 MhZ - and I was suprised and pleased just to work Pensacola when I first became active on UHF. Ham radio is just full of rewarding suprises!."

Terry Young - K4KJP
129 Sotir Street
Ft. Walton, Florida 32548

Dear Editor:

I will be operating as W6SKQ/1 at Warwick, R.I. from approximately Dec. 23 to Jan. 7, 1985 while I am back to my old homestead for the holidays. This time period also is part of the G-QRP Winter Sports so hopefully I will be able to QSO many of the G-QRP members. By the way Warwick is in Kent County if anyone is looking for counties. Temporarily I will be using an Argonaut and random-length wire, but I will try to put something else up if conditions warrant a change in antenna plans.

Other than the above the only thing that has happened here is that I received the I.P.A. Award (Ibaraki Prefecture Award) for QSOing 10 stations in the Ibaraki Prefecture of Japan. It is a very colorful award. My other goals for the Japanese awards is to work all cities (647 of them) in Japan. So far have worked over 300 of them and do have the JCC-200 award. Of course this is all with QRP.

Bob Spidell - W6SKQ
45020 N. Camolin Avenue
Lancaster, California 93534

COLUMBUS DISCOVERED QRP ?

Michael Bryce - WB8VGE
2225 Mayflower NW
Massilon, Ohio 44646

Have you ever run into one of those times when you really would like to make a few contacts but no one could hear you? Well I'll tell you about the method I use to keep the pencils busy. I call it "The Columbus Method."

The first thing you have to do is to get interested in something other than the radio. I either sit down and type up a short article for the QRP Quarterly or get into a build-it project. Now then, turn the rig on and tune on to a open frequency. Adjust the volume to a lower-than-normal level. If you have one of those new fancy rigs with all of the filters, set the controls to the maximum bandwidth (2.6 for example). If you have a "no-tune-up" rig, so much the better. If not, then make all the adjustments needed to get on the air. Adjust the antenna tuner if needed and set the keyer to a nice speed, matching the conditions of the band in use. Speaking of bands, this method will work on all frequencies, but sometimes you have to "play it by ear" to pick the best one to try.

Now with the radio all ready to go, get busy with what ever you were doing. I'll bet you hills to navy beans that in a short time you will hear one or two things happen. The first will be the "tuner-uper." We all know about him. sometimes he will just tune and tune, and then just go away. Others will tune and then call CQ or start calling a buddy on sked. What I want is the CQ tuner-upper. If the station finally gets all ready to go, and you start to hear the CQ, then copy his call and when the station signs "K" jump right on him with a short call followed by QRP. In most cases you will get a answer (90% of the time here).

Why? Well because you were ready to go, nothing to tune or adjust, just sitting there waiting. That is why I call it the Columbus Method. You "discover and land" on your victim. While you may not have been the only station that heard the CQ you were the only one ready to start sending. All the other guys were adjusting this and that, and by the time they got going you were sending information about your QRP station. Best of all you were doing two things at the same time. If by chance your call just did not get through, fine. Just roll your chair back, pick up where you were, and start all over again listening for another station to fall into your trap.

Of course, your shack has to be set up so you can get to and from the radio in a hurry. Makes no sense to try and run up the stairs to get on frequency when you are in the basement watching tv. I have the station set up with my testing bench all in the same room. With a chair with wheels on it, I can simply "roll back and forth" from signal generator to Argosy. And with more and more computers finding their way into the shacks, placing one in the same room as the radio gear makes sense to me.

It used to be said that to improve the "QSO rate" that the need for a VFO was overwhelming. This is still true today. But even the simplest homebrew rigs support some type of frequency control. I will up-grade the times and say that to increase the QSO rate one needs (make that have to have) a memory keyer. Be it a modest one-memory job or the latest in computer design, it is without a doubt a sure way to make contacts.

Lets change the Columbus Method a bit. Lets say we have been listening for a few hours, and nothing much is happening. If you have a memory keyer, just roll the chair over and punch up a short CQ of your own! Roll back and see if anything becomes of it. It is interesting to see how many QRP operators listen and never do any calling.

I guess someone said we will never be heard! But in fact there are bunches listening out there. Just look at the contests. There are stations that come out of the woodwork. You can use the Columbus Method for chasing DX also. The same rules apply, but you really have to be quick on the key finger as a lot of dyed-in-the-wool DX types use the same method.

Continued on next page...

SPRING QSO PARTY SOAPBOX

"...had no info about the 'test before it started." SM7KWE

"...never thought I would be in a QRP test...heard stations calling QRP so I set my TR7 on 5W...much to my surprise N4BP came back & gave me a 579. From then on I was hooked." VE3KK

"...Looking forward to the next one!!" NC7O

"...tossed a dipole into the trees and got in as many hours as I could." WD4EXG

"...my first QRP contest...learned a lot, and look forward to the next one." KV4B

"...my first QRP contest...had lots of fun." WB3AAL

"...how great it was to work Australia on 1 watt...ran around the yard acting crazy until I could settle down!" N7EZG

"...very fine and active QRP party...friendly op's!" W2WSS

QRP ARCI COMPUTER AIDED DESIGN LIBRARY

The technical editor is compiling a library of programs that will assist with the design and/or analysis of circuits normally used in electronics. Send your contribution to Ed Manuel, N5EM, his address is on page 2.

Columbus (con't.)

Have you ever heard a somewhat-rare DX station calling CQ CQ CQ and never get a call? Well I have. Sometimes on the strangest band for the time of day (like 1 in the morning on 15 meters). I have worked some stations when no one would come back to them. I only have to say 73 and everyone in the world starts calling the DX station. So as you can see, the "Columbus Method" does work.

A sure-fire way to get stations in the log book is to work the contests. There is a proper way to do this. One first has to understand the contest operator's mind. Let's say you are into the Sweepstakes contest, a good size one to say the least. Now if you start to work this one, your QSO rate will be on the slim side. Why? Well because to the other guy it takes longer too dig a weak station out of the mud than to work several stronger stations. Remember we're talking points here!

So how does a one watt station even think about getting in this one? Simple, just wait. That's right: wait. When on the next day all of the stronger stations have worked each other, all that is left is the "small fish." That two-watt station counts just as much as a 1KW station does.

To prove it all one has to do is to try it! On the next big contest, jump right in on the start and keep track of the average number of QSO's per hour. Now wait till the wee morning hours when all the big guns have worked each other and drop your call. Instant pile-up (well maybe not pile-up-pile-up, but busy). You see some of the big contest operators will do almost anything to get you in the log! The bottom line is the contact points. When he hears nobody but you, no matter how weak, he'll try like mad to get you "in the log". But he just won't try if there are stronger stations calling that have not been worked as yet. It just makes sense.

One has to pick the right contest for this to work. It will only work with what I call the "big ones." Like the ARRL Sweepstakes, both CW and ssb; Field Day, and some of the other larger QSO-party types. Don't expect great results with the above when trying to work the "all-hams in Hancock County" contest. that just won't get it.

With a little practice, these will come to be some of your favorite operating habits. I know that they work here so just give them a try, and keep those pencils sharp!

CONTEST CHAIRMANS REPORT

Eugene Smith - KA5NLY
QRP ARCI Contest Chairman

This month we will discuss some problems with the April QSO party, the proposed contest exchange, QRP-25, and sprints.

The immediate complaint about our Spring QSO Party was that Easter was not the time to have it. I agree and must admit that I blew it on that one. I thought I knew how to read a calendar and yet, lo and behold, found out I had picked the holiday weekend after the announcements had been published. Mea Culpa !

Another problem concerned the scoring. Of the the 111 logs received, 21 had to be rescored (resulting in an increase in 18 scores and a decrease in three). Most of these (15) were due to undercounting of s/p/c multiplier because the entrant did not know that an s/p/c can be worked on more than one band for s/p/c credit. Other errors were overcounting s/p/c (2), math error (2), wrong power multiplier (2), and using number of QSO's rather than QSO points (1), this log made one of the other errors, also. Use of separate log Sheets for each band and computing one's score on the official Scoring Summary sheet would have prevented most of these errors. Thirty-one entrants did not use separate log sheets, and only 38 requested and utilized the Scoring Summary Sheets.

We probably will not be using the contest exchange, as proposed in recent columns, in our regular contests. It seems that although most members find the idea very useful as an exchange of valuable data, many feel that it would either kill QRP-25 or it would be impossible to explain over the air during a contest to the many people who would join in when they happened to hear the QRP activity.

The QRP-25 arguement is a very valid one; contrary to what I said in this column in January, QSL cards are not required for QRP-25, only a listing of callsigns with QRP ARCI membership numbers received in two-way QRP contacts with members is needed. Therefore, the number should remain a part of our April and October contests, as they are a primary source of contacts for QRP-25.

Having both the ARCI number and the informational exchange would be unwieldy, cause many errors, require numerous repeats, and would be impossible to explain to latecomers. So, for the time being, we will limit the proposed exchange to occasional use on sprints.

While on the subject of sprints, a short contest necessarily provides similar operating conditions over only a few adjacent time zones. If all stations outside North and South America worked four hours in their local time they would not get an opportunity to work mainland N & S America stations. Hawaii and Alaska would only get to work Pacific time zone stations for one hour before the Pacific people had to shut down - all other continental zones would be off the air before Alaska and Hawaii could even get on! Europe, Asia and other DX areas would be on at a time when no W/VE and SA stations were working the sprint.

Therefore, I attempted to correct this situation in the Summer Daze sprint by allowing Hawaii, Alaska, Asia and the South Pacific to operate in the Pacific time frame while Europe and Africa will operate in the Eastern time frame. Hopefully this change gave everyone access to all W/VE stations and left no one stranded away from most of the activity.

It is now official that the October contest will be dual mode, then beginning in 1985 we will return to our traditional Spring SSB - Fall CW contests, the basis for the Triple Crowns Award. CW and SSB operators will have various sprints so nobody has to sit a year between opportunities to operate in a contest. This past two years have been a time of experimentation with dual-mode contests in 1983 and CW this spring. I entered office and introduced sprints and the dual-mode contest in 1984. Reactions have varied widely, but there is no way to please everyone. At least, having sprints seems the best solution for everyone and avoids always changing things around with our regular contests.

In closing, look elsewhere in this issue for the results of the Hootowl and Novice sprints and the announcement of the Fall contest. I would appreciate your comments and suggestions on the sprints which will help me plan the activities for 1985.

MORE
SPRING QSO PARTY SOAPBOX

"...Enjoyed the contest...suprised at the activity, particularly 7 MHz daytime." W2DW

"...Nice contest...maybe next time as a QRP ARCI member." WØJE

"...good shakedown for antennas...now I know which ones to take down and throw away!" W1XH

"...guess I should give net QNI to the first 23 contacts since I was N.E.N. NCS...forgot contest was on and started calling net callup." K3TKS

"...figured I'd put Kansas on...from cards I've gotten, I guess that a lot of people needed it." NØCLV

"...just out of hospital after heart attack; could not stay on rig very long at a time...glad to be back on air...ham for 63 continuous years, new ARCI member." W9GJS

"...short time in contest...sick child and cows having calves!" N7DYS

"...Hey, that was a great contest!" N4RI

"...Overall I'm quite pleased, but expect to do better after the new HW-9 arrives." KRØU

"...someone has to come in last...will break 1 QSO/HR barrier next time...my first contest entry." W6SIY

"...Didn't think conditions were so good here, but I enjoyed myself." G4EBO

"...Although conditions on 28 MHz not open to U.S., both 21 & 14 MHz were first class...29 states were worked." G4BUE

"...Conditions were only marginal. QRM/QRN were fairly heavy throughout weekend." W5QJM

"...dusted off the old HW-8...not used in over 2 years...the 80 meter band was awful noisy Saturday night and Sunday morning." WD4LOO

"...Conditions bad...participation low...but, satisfied with my portable operation even with only 6 hours on the air...need a novice band Sprint." KA9NZI

"...thunderstorms all morning Saturday; had to leave the air frequently." W9PNE

"...band conditions were bad...but, a pleasure to work 11 club members...contest was a very good event." WA6DKY

"...a delta beam makes a great weather vane...I had wind...rotor broke and delta beam pointed into wind at all times." KA4LKH

"...I was suprised at what less than a watt will do." KX4V

"...I missed only 2 contacts that I heard, even running 900 mw...found calling CQ more productive than 'hunt & pounce' method." WA8MLV

"...managed 69 valid contacts in 12 hours in the milliwatt class. It was a blast!" KA4TAU

"...never cranked power this low before...now I'm excited about WAS with below 1 watt!" KA9HAO

"...tried under 1 watt class as result of Ade Weiss' QRP column in CQ magazine...entered just to try my luck...boy was I ever suprised!" WB1EEU

"...great party!...soldered together 15 meter Xmtr just before start of 'test...threw it into the fray with good results...real sense of community in this QRP contest." KB1DH

"...was suprised to hear so many club members on the air." AH6EK

"...hats off to N4RI - great 1 watt signal on several bands." K6ZH

"...wish we could recruit the non-members worked. W6RCP and I both show about 40% non-members." W5LXS

"...nobody heard on 80 or 10 meters." WA8MLV

"...37 1/2% of QSO's with non-members perhaps (they are) not aware that the QRP only rule has been abolished." W6RCP

"...Easter weekend was not a good time to have a contest!" EVERYBODY

QRP NET REPORT

Jim Holmes - W6RCP
QRP ARCI Net Director

N7DGZ, K9PNG and K5BOT volunteered to act as net control stations for Transcontinental Net during the month of August while Roger Rose, W5LXS, was away on a business trip.

There were 456 check-ins to the QRP nets during the second quarter. They came from 19 states, 2 Canadian provinces, 2 foreign countries and one from marine region 2. DX check-ins came from Hungary and Macedonia to Southeast Net and from Alaska, KL7XA, Dick Kenyon, checked into the Northwest Net.

Let's take a minute to review the procedure used for the QRP Net award. Twenty five check-ins to any one net is the eligibility requirement. After you have been notified of your eligibility by the nets manager you may send the required fee to the Awards Chairman. Two dollars is the initial fee. This covers the certificate and a gold seal designating the net. Additional seals are $1 each.

Eight club members have recently qualified for the QNI-25 award. They are- TCN: WB2IPX, N6GA, N7DGZ, N7DHA. NWN: N7DGZ, N7IS, KA7PMP. SWN: KA7PMP, KV7X.

KA7PMP, Chuck Lindsay, has recently up-graded. His new call is, NJ7M.

We will have a new QRP net joining our group very soon. Brian Greer, WD6DMY, will be net manager for QRP SWN-80. Brian would like some volunteers for alternate net control station.

W5QJM, Fred, would like to hear from members in the main GSN service area about the idea of keeping GSN on 80 meters the year around because of the poor propagation conditions prevailing on 40 meters. The final decision will be announced in the April issue of the Quarterly.

The net schedules effective after Oct. 28 when we change to Standard Time and lasting until the return to Daylight in the spring of 85 is on page 24 of this issue. Until Oct. 28 please refer to the July Quarterly for net times and frequencies.

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