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ORANGE COUNTY AMATEUR RADIO CLUB

VOL. XXXII NO. 8

P.O. BOX 3454, TUSTIN, CA 92681

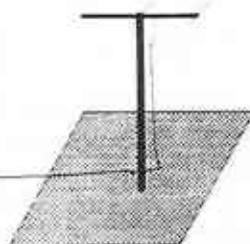
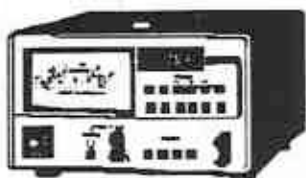
AUGUST, 1991

Our Speaker:
David
Corsiglia,
WA6TWF
on Airline
Worldwide
Communications!

... and ...

Michael Mercado, KC6VTC,
about General Care and
Radio Maintenance... also
how to describe what's
wrong with your radio
(other than "It's BROKEN!")

Friday, August 16th
7:30 PM
is the next meeting!



The Prez Sez.....
by Ken Konechy, W6HHC

The Prez said he didn't get his article done in time 'cause he was working so hard. The Prez said he would be at the meeting, though and would do better next month. The Editor decided to NOT write an article for the Prez that said that the Prez was too busy to write his article because he was studying code for his Extra class.... The Editor is being nice(?)!

NEW TIME!

Mondays 6:15pm 144.330 simplex
WB6NOA, Gordo - Code practice
and "News behind the News"

Mondays 8:00 pm 28.333
Bob, AB6CH & David, WA6TWF,
Beginner's Net, Code Practice and
Tech Talk.

We STILL are looking for one or
more OPs to act as Net Control on
the Thursday night CW net!

WB6RVM, Dave Browers of
Anaheim became a Silent Key last
week. Dave was a member of the
OCARC during the late 60s, hold-
ing the positions of Public Rela-
tions Chairman in 1967, Secretary
in 1968, and Vice-President in 1969.

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The OCARC AUCTION is coming in October ! Are you ready ...
Another raffle for a Yaesu FT470 Dual Band Handheld Radio has begun...
only 450 tickets will be sold.. Get Yours!

Are Two Better Than One?

by Earle Grandison, K6WS

Most folded dipole antennas use two close spaced parallel conductors, shorted at each end and fed in the center of one conductor. Equal and in-phase currents flow in each conductor. The current at the feedpoint is one half and the input impedance four times that of a single wire dipole. This is a good match for 300 ohm twinlead.

300 ohm twinlead became available after WWII with the introduction of television. I used both a vertical and horizontal folded dipole then with good results.

A newer type of 300 ohm twinlead is now available which is called "300 ohm ladder line." It is a low loss version of the old 300 ohm twinlead and is available from The Radio Works in Virginia for 11 cents per foot.

A 40 meter folded dipole, using "300 ohm ladder line" was constructed. This antenna is 65 feet long with a 66 foot feed line. The apex is at 43 feet with the ends at 35 feet.

Clear RTV silicon sealant seals the ends of the feedline to antenna connection.

Each side of a folded dipole looks like a shorted quarter wave matching stub. The two wires make a "fatter" dipole. As the frequency varies above and below resonance, the reactance of the quarter wave stubs varies inversely with the reactance of the dipole. These factors greatly expand the bandwidth of the antenna compared to a single wire dipole. This is desirable with the new solid state transceivers which want to see less than a 2 to 1 VSWR. Results with this antenna have been excellent.

The feedline connected through a Van-Gordon High Q 4 to 1 balun to an IC-745 transceiver showed less than 1.2 to 1 VSWR across the 40 meter band.

Connected through either a Dentron MT-2000A or a Johnson Matchbox tuner, the antenna system easily tuned to 1 to 1 VSWR on 40 meters and 30 meters, also. A 4 to 1

current balun using RG-58U and Amidon FB-73-2401 beads (pg 30 of June, 1991 QST) and the Dentron Tuner also works well with this antenna.

A memorable QSO on 40 meters with Saratoga, CA, 400 miles north running 7 watts resulted in RST 599 to 599+10 db over a 30 minute period. YB0USJ, JA8EVL and VE2DWU/Zone 2 were worked the first day on 30 meters.

Two wires might be better than one - try a folded dipole and you might agree.

FOR SALE

Kenwood TM-731A
2m-440 dual band mobile
with Duplexer and Magmount
\$625 complete
Ralph, N6ZTL (714) 654-2842

FOR SALE

Icom 02AT
2m handheld
5w & 2.5w batteries,
quick charger and
accessories
\$250
Skipper, KC6WJJ
Call (714) 639-3443

1991 CLUB BOARD of DIRECTORS

President	Ken Konechy	W6HHC	541-6249
Vice President	Mike Abreu	K6KAA	832-8503
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Member at Large	Frank Smith	WA6VKZ	454-2635
Member at Large	Chris Breller	KJ6ZH .. (213)	866-2077

CLUB APPOINTMENTS

Club Historian	Bob Evans	WB6LXN	543-9111
W6ZE Trustee	Bob Eckweiler	AF6C	639-5074
RF Editor	Nancy Bucher	N6XQR	537-8728
RF Printer	Jerry Dahlin	AA6BU	527-2779
Refreshments	Cindy Hughes	KC6OPI	971-3448

DUES

Regular Member	\$12.00	Additional Family Members	6.00 each
Teenage Members (under 20) ..	6.00	Optional Club Badge	5.00

Dues for new members are prorated quarterly from January of each year. Family members must reside at the address of a Regular Member. One RF is sent per household.

Fast Track Radio School
Presents

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in Orange County
September 13, 14, 15

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by mail.

For more information contact:

Bob Gregg, AB6CH
(714) 892-3728

On the Nets - July, 1991

by Bob Evans, WB6IXN

7/3 15m phone net - RND, XQR, & YZG chat on an informal net, as XQR brings dinner from the microwave to the rig, and RND looks around for more OPs, & XQR thinks about plans for the 4th!

7/3 2m phone net - W6ZE/IXN checks in BPX, ZH, VDP, YZG, RE, RND, XQR, TAM, ESD, OPI, ULU, AF6C, & HHC. Old age is catching up with BPX & IXN as Wyatt picks & packs beans with Blanche, & IXN has discomfort in the left leg & hip! ZH & TAM will spend a quiet 4th at the QTH & 'fireworks' at Cerritos, weekend in Moreno Valley for IBR & IBP's BD celebration. VDP tells OPs about Ray Davis, W6NT (No Talent), who was one of the Founders, & a Trustee, of the NARS Men. YZG reports OPs on the 15m net to IXN, & Lu & XYL will picnic at the neighbors tomorrow. RE & XYL will watch fireworks at Tustin H.S. tomorrow night, & Alex announces that 3rd party traffic is now OK between the U.S. & the Philippines before airing Newsline. After FD adventures in the Mts., RND will 'cool it' tomorrow, as John 73's to try for a CW Certificate on 3590 KHz! XQR will get a new generator for the shack this weekend, & Nancy works YV4DDT/ QRP CW, & also ZF2QJ, but loses a T32Z in the pileup! ESD & XYL will 'barbecue' at the daughter's QTH as Bob rests up from installing a new sprinkler system & unloading about 900 old tubes at the TRW Swapmeet! OPI will 'picnic at the park' with family tomorrow while ONZ completes a day of work! ULU returns from a vacation in the middle west & tells OPs that most of the 'old stomping grounds' have reverted back to prairie! ZH & ULU say that Loraine McCarthy will be handling ham radio operations at the Orange County Fair. AF6C motors off to the airport to pick up family, & tells OPs its time to turn in FD logs! HHC guests a former high school friend as Ken busies himself with processing FD scores!

7/10 15m phone net - With HHC not present, QE & RND meet informally. Returning from a meeting, IXN hears their 73s!

7/10 2m phone net - W6ZE/IXN checks in BPX, QE, RE, W6VO, ZH, XQR, RND, VDP, QW, ULU, COJ, KAA, & VMS. BPX & grandson paint the sides & roof of a metal shed. QE still can't hear all OPs on 2m, & RE & XYL defeat the apricots but now battle the boysenberries! But Alex still finds time to aid 2 wheel chair patients & a YL with heart trouble! RE informs OPs that OSCARS 10, 11, & 12 will pass thru lunar shadows during the solar eclipse. ZH & TAM picnic at the park, clean the garage, fireworks at Cerritos, & party at the IBR/IBP QTH over a 4-day 4th holiday! 'Fish oil on the fuschias'! XQR finally joins the 'farmers' on the Club net with her 4 tomatoes & chives! And Nancy garners a new generator for the shack! ULU tells OPs that Loraine McCarthy needs volunteers for the O.C. Fair, and RND spends a quiet 4th at home as he contemplates a new feedline for the G5RV ant. VDP has 'home' fireworks in Costa Mesa as Larry ponders the 216-220 MHz possible addition to the ham bands! QW battles the flu, solves a connector loose wire problem in the 'Omni', & works P29DX on 40m from Big Bear; sells the 440 for a new TS 850, & joins the net 'farmers' with 'water lillies in the pond'! COJ offers the Officers' Club at LTA as a possible Christmas Party site, & NGO helps Dave with a generator governor problem. KAA rushes north to a collapsed ceiling in the rental at Bakersfield on the 4th...a broken water pipe to a evaporator cooler being the culprit! VMS

brings up the rear of the net with a CW contact to Guantanamo Bay, 3D2AG in Rotuma, & tells OPs that PJ2/AA6T from the DX Packet Cluster, is working from the Netherlands Antilles! All this while painting the QTH!

7/17 15m phone net - W6ZE/HHC checks in AF6C, NGO, IXN, RND, QW, & VMS. AF6C recuperates quickly from a root canal as he plans to look over old ARRL handbooks concerning vintage radios, etc., discovered at W6OYS' shack! NGO cuts down some high bushes & enjoys sherbet as he chats with OPs. QW gets a new 850...Sounds great, Rolf! And RND enjoys a dip in Lake Shasta just before the weed killer spill! IXN confirms AF6C's query about Al Jenny, W6OYS..He was on the Club roster for 1959. And VMS tells QW that both the 850 & the Omni have FB audio!

7/17 2m phone net - W6ZE/IXN checks in ZH & TAM, RE, XQR, BPX, PFA, RND, BWZ, AF6C, N6VMS, QW, HHC, ESD, KAA, & VDP. With the beans picked, the vines pulled, & Blanche attacking oceans of cherry tomatoes, Wyatt gets his eyes checked! RE alerts OPs that OCARO needs help at the O.C. Fair, & tells us that N. Korea will be added to the ARRL DXCC list, as Alex & XYL attack the ripened boysenberries! ZH & TAM reach us, using a 220 link, from the spa, as they contemplate Jane's 20 yr high school reunion. XQR & OPs congratulate OPI on the upgrade to amateur Extra! PFA loses & regains faith in the 2m rig after rig failure, exploratory 'surgery' finds nothing wrong, and it works again! RND & OPs mix Nancy & RF contributors for another fine 'RF'. John also tells OPs about a FB trip to Reading, CA. BWZ busies himself with experimental ants, as he fights the QRN problem at the QTH! OPs compliment AF6C on successes with Postal service in distribution of 'RF'! And Bob tells OPs that he was 1st licensed in 1959, the same year that W6OYS appears on the Club roster! VMS tells OPs that new N. Korea prefix will be P5, as Bill busies himself building 'shack' furniture & working Ron, ZK1CQ, Cook Is. QW & IXN, hearing that XQR now tracks O.C. Register Animals (OCRA) for the Earthquake net (O.C. runaway cats & dogs), Rolf & Bob think Nancy's new job description ought to be 'dogcatcher'! And Rolf has been working great DX to Europe, S. Amer., & Africa! Tennessee Valley Indians have gone on the warpath from ESD's TV to the rig! Bob will now route the 'warpath' to gnd! KAA announces a new source of 6m RFI...traffic signal computers! And VDP vaguely remembers W6OYS, Al Jenny, from the NARS group.

7/24 15m phone net - W6ZE/HHC checks in AF6C, NGO, ESD, RND, IXN, XQR, KB2KVA, Ed, from Buffalo, N.Y., & Jeff, N4UTI, from Tallahassee, Fla. 15m is wide open, & Ed & Jeff take the opportunity to check in! XQR will help Ed with possible radio contact with relations in Mission Viejo. IXN took the General ticket test in Buffalo! And AF6C isn't Ed's 'banjo picker' from Long Beach! NGO hears a W8 in there, but we don't pick him out of the QRM! ESD hears ZL land OPs just below us while RND tells OPs that he used to work in Rochester, N.Y. HHC marvels over working the DX contacts off the back of the beam!

7/24 2m phone net - W6ZE/IXN checks in TAM & ZH, BPX, RE, NG7D, RND, VDP, ESD, HHC, KAA, XQR, KK6DO, & OPI. TAM brings back OP 'old memories' as Jane mentions her 2nd 10

Continued on Page 4

On the Nets - May, 1991 (Continued)

yr Highschool Reunion! And ZH takes over the mike to mention QSLs frn a KH3, Johnson Is., 9Q5TE in Zaire, & a QSO in Guatemala on 20m! And BPX is still 'cherry tomato pickin' as he & Blanche 'juice up' fer the winter! RE & XYL, knee deep in boysenberries, are jam, jelly, & juicing as fast as they can go, just barely giving Alex time to record 'Newslines' & trim a few bushes! NG7D finally gets the ceiling in the shack painted & he & IXN test John's new homebrew 15m QRP xmt. RND has his 3rd H.S. Class reunion coming up in Oct. & ESD solves rig RFI frn the TV by adding ferrite beads on each leg of the 300 ohm twin lead at the set terminals! HHC announces that all FD scores hve been sent to ARRL, wid a form ready to go to OCARO fer local clubs competition! KAA 'flies in & flies out'! What's this?..XQR knows YLs who got their ham tickets in the men's locker room at a football stadium...!! OPI gets home frn the O.C. Fair in time to check in, & Cindy spent time helping her grandmother move.

7/25 15m CW net - Net was informal..No net control as yet! IXN & RND are joined by XQR. Bob & John discuss radio controlled hobbies & Nancy joins us to tell us that FD logs were dropped off to HHC, & code tapes to Skipper fer future upgrading.

7/31 15m phone net - W6ZE/HHC checks in YZG, IXN, RND, QNU/AF6C, KVA, ZL1BMK, & NG7D. IXN & choir sing hymns at a prayer service fer a deceased nun. YZG suffers a compressed nerve in his arm, causing paralysis, & suffers severe vertigo 'without flying'. Lu & BMK give each other 5/5 sig rpts! KVA hears all OPs FB in Buffalo, NY., & RND listens to rescue operations (repeaters) fer the lost Boy Scout on San Gorgonio Mt. IXN landlines NG7D, who comes on frequency to chat wid BMK fer 50 min. plus!

7/31 2m phone net - W6ZE/IXN checks in BPX, RE, XQR, RND, ZH, TAM, AF6C, HHC, VDP, ZRB, OPI, & ESD. BPX goes to the 'aspirin clinic' to hve his shoulder twisted by the Doc!..Next Wed.'s MRI (shoulder pix) will show something now, Wyatt! RE's as he swallows a 'boysenberry' wid the coffee, tells OPs that 3X1SG & 3X1AU are acceptable fer DXCC immediately, & abt 3456 MHz & 5760 MHz contacts between N6CA at Palos Verdes City Hall, & KH6HME on 8200 ft. Mauna Kea volcano in HI! XQR attends a training class in message handling, & RND tackles painting the QTH this week. ZH is off to get more QSL card holders as QSLs arrive frn EA6, HK0, ZP5, & OH lands, & Chris & TAM contemplate Janes's 'RAC' award & prepare to host Chris' daughter fer 2 wks! AF6C will hve 4 days of travel & 3 days of work at 'places unknown'!..Hm..! House chores & the job keep HHC busy as Ken enjoys the fine skip conditions on 15m tonite! VDP gets the J-poles installed, looks fer a 6m beam, & gets Wyo. & Utah on 6m fer two more grids! Ray Davis, W6NT, SASE's Larry fer a Club application! & VDP picks up a rare QSL frn India wrked in 1989! ZRB 'flies in & flies out', & OPI gets a landline, but IXN & Cindy talk later abt ONZ's plans to upgrade..See U on the CW net, Don! ESD arrives home frn the harmonic's QTH, tells OPs of his J79FO contact in Jhabuti, Afr., ZK1WL on N. Cook Is., & hearing a ZD9 on 10m phone in Tristan De Cunha, an Is. off S. Afr.!

Minutes of OCARC General Meeting 7/19/91

Meeting called to order at 7:45PM by President Ken Konechly, W6HHC.

Officers Present: Ken, W6HHC; Mike, K6KAA; Bill, N6VMS; Tom, WA6PFA; Bob, AF6C; Larry, K6VDP; Frank, WA6VKZ; Chris, KJ6ZH. 50 members and guests were present.

Program: WA4EGT, Jeff Towle on Packet Gold Software

Field Day: Found - Drop cords, see Frank, WA6VKZ.

Programs: August - David Corsiglia, WA6TWF on Aeronautical Communications. September - National Traffic Nets. October - OCARC Auction.

Treasurer's Report: Checking Account = \$1,220.34, Savings Account = \$1,127.60.

Activities: Raffle for new Yaesu FT470 has 450 tickets to sell with 141 sold as of 7/19/91.

Outstanding Field Day: 2600+ contacts, 6200+ points.

Old Business:

- "W6ZE" stickers for QSL cards - K6VDP and W6COJ are locating a printer.

- Considering adopting CORA in Tahiti as a sister club.

New Business:

- Christmas Banquet: Officers' Club at Tustin Helicopter Station; need 50 people minimum, 150 maximum; \$13.50 + 15% tip for dinner (buffet); \$200.00 to open bar; \$50 room deposit - linen and clean up (Club voted to pay deposit amount).

- W6FXN Repeater 145.460 (Earthquake Repeater): Nancy, N6XQR - This repeater's control frequencies on 220 are being lost 8/91. They will need to buy new equipment to restore control link capability. Requested OCARC to make a donation to help keep this emergency service oriented repeater on the air. -- KK6QE suggested each member make a donation and the club add to it. Motion made and passed to donate \$100 from the Club plus the \$120 collected from members.

Good of the Club:

- California Classic: KD6XO, Bob Tegel 8/9 - 8/11/91 Rolling Hills Estates. Volunteers needed for marathon on 8/10/91.

- ARRL Bulletins - ARRL DXCC Awards, North Korea is accepted for DXCC; Afghanistan ARES Frequencies 14.180, 21.005, 21.280

- Orange County Fair: O.C. Council of Amateur Radio Clubs has a booth and needs operators to participate.

- Novice/Tech class to start 10/1/91 at Tustin Senior Center. Lasts 22 weeks, meets twice a week (Tues. & Thurs.)

- Equipment for sale (Estate)

Meeting adjourned at 10:05 PM.

Respectfully submitted, Jane Breller, KC6TAM

Minutes of OCARC Board Meeting August 3, 1991

Meeting called to order by President Ken Konechy at 8:40 AM. Officers present were Ken-W6HHC, Mike-K6KAA, Bruce-KC6DLA, Bill-N6VMS, Tom-WA6PFA, Bob-AF6C, Larry-K6VDP and Frank-WA6VKZ. There were 29 members and guests present.

Treasurer's Report - We have \$696.13 in checking after the Yaesu FT470 is purchased for the raffle.

Raffle - One hundred eighty one of the 450 tickets have been sold for a Yaesu FT470 dual band HT.

Lost Scout - Tom, WA6PFA, reported on the activities involved with the hunt for Michael Negrete (lost scout) in the San Geronimo mountains.

A motion was made by Nancy, N6XQR, and passed to send complementary copies of the RF to John Christopher, NG7D.

Frank, WA6VKZ, reported that he lost an element from his antenna following field day. He called the manufacturer, Alabama Amateur Electronics, to inquire about a replacement. Two days later they had replaced the element without cost to Frank.

Meeting was adjourned 9:25 AM.

Respectfully submitted, KC6DLA, Bruce Creager - Secretary

WANTED

Kenwood TS-940S HF Rig
Mike, WB6QBF (714) 631-2382

WANTED

Someone who can restore a Royal Typewriter
Gary, WA6VES (714) 544-4536

WANTED

Ten Tec Argonaut QRP
Clark, WA3JPG (714) 856-2131

Electronic Times Ask for Michael Mercado, KC6VTC

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RADIO BEIJING Answering Local Ham On the Air!

On September 8th and 10th in the Listener's Letterbox segment, Radio Beijing will be answering Scott Tokar's request for a report on the magicians in today's China. China is well known as the birthplace of numerous classic magic effects including the infamous Chinese Linking Rings. Scott Tokar, N6ZHV, is a professional magician as well as a member of the Orange County ARC. Broadcast Times and Frequencies North America West Coast

UTC	PDT	BAND	FREQUENCIES
00:00 - 01:00	5:00PM to 6:00PM	19&16	15285/17705 KHz
03:00 - 04:00	8:00PM to 9:00PM	19&16	15285/17705 KHz
04:00 - 05:00	9:00PM to 10:00PM	25m	11840/11685 KHz
13:00 - 15:00	6:00AM to 8:00AM	25m	11855 KHz

Special Bulletin #23 From ARRL HQ July 30, 1991

Soviet Union's Radio Magazine is sponsoring the **Stars of the Air Competition** from 2300 Zulu August 17 to 0700 Zulu August 18. Amateurs worldwide are invited to compete from their home stations while Soviet amateurs compete on site. About 25 Soviet stations will be on the air with R1AAA thru R1AZZ call signs and will be competing against each other on 7 and 14 megahertz bands only. Rules for non-on-Site stations will operate CW only on the 3.5 to 28 megahertz bands, excluding the WARC bands. The exchange is signal report and consecutive serial number. Contacts with your country count zero, with other countries in your continent, one point, and with other continents 3 points. Multipliers are DXCC countries per band. Your final score is the total QSO points times total multipliers. Entry categories are single operator, and multi-operator, single transmitter only. The contest call-up is CQ SOA. Logs, summary sheet, and multiplier list should be sent by September 15 to UW3AX, PO Box 679 107207 Moscow, USSR. Enclose 3 IRCs for a copy of the results.

RADIO SCHOOL U

"U" FOR UNDER-ONE-ROOF

- No-Code Technician Class
- General Code Class
- + Theory Review
- Advanced Theory Class

OCTOBER 11, 12, 13

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December 13, 14, 15 Orange County

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**WEEKEND GENERAL
CODE CLASS
AUGUST 17th & 18th**

Santa Ana

Only prerequisite:
Copy code at 10 wpm for
class entry

**"Dit-Dah" Dan, AA6LM
Instructor**

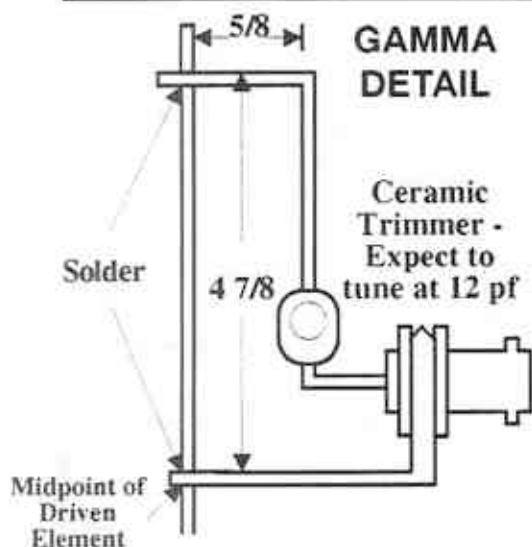
**Call Gordon West Radio
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Class space limited for
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Course Fee: \$150.00

Fred Bowen, W6CLH, Estate Sale

Item	Mfg'r	Model	Item and Description	Price
4	Kenwood	AT-200	Antenna Tuner	\$100.00
7	Yaesu	FT-209RH	2 Meter HT Transceiver	(#7,8,9)
8	Yaesu	MH-12	Speaker Mike for FT-209 HT (Less FNB-4 Battery)	\$225.00
9	Yaesu	PA-3	12V Car adapter - charger (for FT-209 HT)	
10	Butternut	HF-5B	"Butterfly" antenna (10, 12, 15, 17, & 20 You remove.)	(#10,11) \$165.00
11	Alliance	73	Antenna Rotor	
16	Diawa	CN-460M	SWR Meter (Cross needle 15/150 watt)	\$50.00
26	Isopole		440 Antenna	\$25.00
27	Drake	DL300	Dummy load	\$20.00
28	Isopole		2 meter antenna	\$25.00

Item numbers not listed have been sold.
Contact Frank Etter, KE6ZW (714) 775-3923

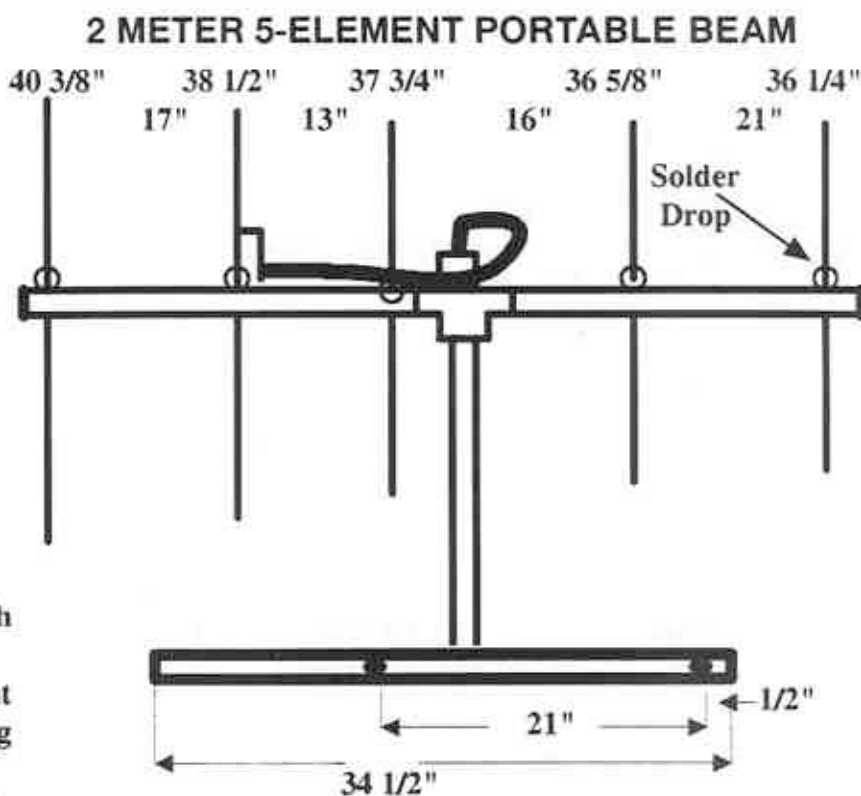


CONSTRUCTION STEPS

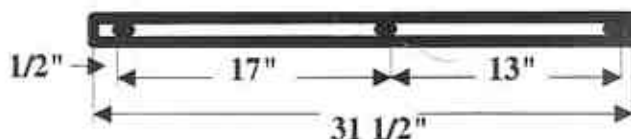
1. Cut and drill boom pieces per sketch
2. Cut elements to exact length
3. Assemble Gamma on driven element
4. Melt solder at midpoint of remaining elements
5. Assemble boom pieces to PVC cross
6. Slip elements in from top
7. Attach and route coax
8. Use 4 foot PVC piece as mast

TO COLLAPSE

1. Slip all elements out
2. Remove boom pieces



**Passed along by
Jim Edds, KA6G**



QRP Power at its Best - the Two-Fer II (Part 1) by John P. Christopher, NG7D/QRP

Hi There! At the request of several members of the OCARC, I have been asked if I would do an article for *RF* on the subject of "QRP" in Amateur Radio Communications. For some of you, it could very well change the way you view, and think about Amateur Radio Communications in the future.

"QRP" as defined by the International Telecommunications Union, means "Shall I decrease transmitter power?" or "Decrease transmitter power." In Amateur Radio Communications, "QRP Power" has widely been accepted worldwide, and by most radio clubs and organizations the last 10 to 15 years, as 5 watts RF output or less, leaving your antenna. The International Telecommunications Union has never adopted or defined a low power limit, in regards to their definition of "QRP." It has basically been Amateurs, themselves, who have adopted the power limitations to qualify as a QRP operation.

Do you think 5 watts is pretty low in RF output power? Well think again. There are quite a few Amateurs in the United States today who are regularly operating on power levels in the MILLIWATT range! I have personally worked one amateur who was using only 60 milliwatts and a three element beam. He sounded like a 100 watt station on CW, but the S-meter on my rig told another story. As remarkable as it was, this Amateur was able to work the band with only 60 milliwatts of RF output. I have also worked others who were operating Milliwatt in power, but at higher levels of 350 to 800 Milliwatts. That's still well under one watt of power, folks. In the past, I have successfully worked across the United States on two watts PEP USB on 10 meters using a little AEA DX Handy 28S handheld 10 meter receiver. It is even possible to work RTTY on 5 watts of power on 10 meters, if the band is open. A few years ago, I worked an XE2 near Cabo San Lucas on 40 meters using RTTY, and I was using 10 to 12 watts of RF output from my transmitter. Though this power level wouldn't be considered QRP, it still is considered rather low for RTTY operation on 40 meters with QSB and QRB on the band, as I experienced that day. The QSO went very smoothly considering all that was going on that day.

Over the years, I have successfully worked

Japan, Easter Island, Canada, Uruguay, Argentina, Mexico, and last October, 1990 Kigali Rwanda in the heart of Africa (booga booga), on QRP power. Yes, indeed, you certainly don't need much power to work the world when propagation is with you and the QRM is low. As of this writing, I have successfully completed QSO and confirmed 46 states out of the 50, all on less than 5 watts RF output! Like many of you, I was very skeptical at first about what you could do on QRP power. Over a period of time however, I realized that I had quite a few QSL cards in my hands, from all those operators I had worked. When cards started coming in from the Bureau from DX stations I had worked QRP, I was convinced totally.

Have I sparked an interest in QRP for some of you yet? A lot of you might wonder, how much is this QRP business going to cost me, if I decide to get into it? The simple truth is, very little to as much as \$1300 or more. The price of a new Ten Tec Argonaut II transceiver these days is \$1300. It's all band digital readout transceiver, field serviceable, light and transportable, operational on 12 to 16 volts DC, and American Made. On the other hand, you could build your own QRP CW Transceiver, for any band from 80 meters to 10 meters for less than \$75 for a fairly decent home-brewed unit, if you're good at shopping around for parts.

The schematics and pictorial of a circuit called a "TWO-FER II" QRP CW Transmitter are available. Some of you may remember me talking about this circuit on the 15 and 2 meter nets over the past three months. It is available in kit form from: OAK HILLS RESEARCH, 20879 MADISON STREET, BIG RAPIDS, MI 49307. The TWO-FER II is very small, measuring only 3 by 2 inches in size. The transmitter is capable of producing from less than 1 watt to 5 watts RF output. The technical description of this transmitter's circuit would go something like this: "An electronically switched, VXO/Crystal controlled Pierce oscillator fed into a two stage broad band RF amplifier, fed into a low pass filter stage in the final output."

A lot of fancy wording for a simple QRP transmitter, isn't it, hi hi. Since the TWO-FER II can produce up to 5 watts RF output from the RF power transistor Q3, (Motorola

2N3553) it can as well generate a lot of heat, even though the transistor is heat sunk. It still has the capabilities of burning your fingers, if it gets too hot, and you come into contact with it in handling the exposed board, so be very careful when handling it immediately after use. It is not recommended that you run the transmitter that high in RF output anyway, because it puts a strain on the transistor, and the life of the device is greatly reduced. RF output control is accomplished by several means. Either reduce C6 to 10pf, or increase R7 to 100 ohms or more, or install a 500 ohm variable potentiometer between ground and the R7 33 ohm resistor.

In regards to the VXO. Depending on what type crystals are used, will determine how far the VXO capacitor will shift the frequency. FT-243's will usually shift 1 to 2 khz or so, so don't expect a great deal of shift with them. I discovered that small 335pf transistor radio tuners make nice variable capacitor controls for this function, though compression trimmers can also be used as well in the 50 to 100 pf range. Too much capacitance causes the oscillator to quit functioning I found out. Because of space limitations in *RF*, I will not get into coil and choke winding data for the various bands for this unit, but the information is readily available through myself (NG7D) or Oak Hills Research in their kits.

One of the interesting things about the TWO-FER II is the fact that no matter what band it's designed for, the circuit basically remains the same, no big changes are required. To switch bands with the TWO-FER II, you change the Crystal, as well as the low pass filter stage of L1 and C11 and C12 capacitors, as well as change the L2 winding and C13 capacitor. It may not be necessary to change L2 and C13 if you are capturing sufficient signal from the transmit antenna into your receiver during non-transmit periods. Reception via the TWO-FER II is accomplished via QSK pick off circuit on the board at L2. I use the center connection of my coaxial connector on my TS-430S receiver to accomplish transceiver operation with the TWO-FER II, though it is designed to work with just about any communications receiver that can handle CW and SSB reception.

PART 2 NEXT MONTH

CLUB FUNCTIONS

MONTHLY MEETING:	3rd Friday of each month, 7:30PM at REPUBLIC FEDERAL SAVINGS BANK
August 16th	2400 E. Seventeenth Street, Santa Ana, CA
September 20th	First building west of the 55 Freeway on Seventeenth St.
	Next to the Denny's Restaurant (see below) on the South side of the street.
October 18th	NEW LOCATION STARTED WITH THE APRIL, 1991 MEETING
CLUB BREAKFAST:	1st Saturday of each month, 8:00AM at DENNY'S Restaurant
September 7th	2314 E. Seventeenth Street Santa Ana, CA (714) 543-0872
October 5th	(Second bldg. west of the 55 Freeway)

CLUB NETS

BAND	MODE	DAY	LOCAL TIME	FREQ MHz	SPLIT	PL	OPERATOR
2 Meters	FM	Wed	2030 hrs.	146.550	splx	na	WB6IXN
15 Meters	SSB	Wed	2000 hrs.	21.375*	splx	na	W6HHC
15 Meters	CW	Thu	2000 hrs.	21.175*	splx	na	?????
(Listen for W6ZE, net control) *Plus or minus QRM							

ARES DISTRICT NETS

2 Meters	FM	Mon	1900 hrs.	145.220	-600	1A	N6HQI 1
2 Meters	FM	Mon	~1915 hrs.	145.340	-600	4Z	K6KAA 2
2 Meters	FM	Mon	1930 hrs.	noted	splx	na	noted 3

1 - ARES Info net.

2 - ARES District 3 net starts after info net is completed (Usually about 1915 hrs).

3 - City Nets: Orange - 146.535 WB6FCP; Tustin - 146.505 KK6QE; Santa Ana - 147.585 W6HHC

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