

THE

PROPAGATOR

The Monthly Newsletter of the South Orange Amateur Radio Association

July 2012

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Meeting

July 16,
2012

7:00 PM

N.P.

Murray
Center

Veterans
Way
Mission Viejo

Do it Yourself (DIY) Ham Radio

TOPIC – DIY, What is happening in the Orange Section and other special areas and what will you do in the first 5 hours after a disaster.

Carl Gardenias WU6D has been the Orange Section Manager for the ARRL since 2003. Carl has been an active ham since 1969 licensed as WN6RMN. He is very active in motivating, encouraging and mentoring the Amateur community through public awareness of our hobby as well as our ability to assist as communicators during a disaster or a public event. Carl is a member of the Salvation Army as a Community Partnership Liaison for the Sierra Del Mar Division. He also volunteers his time as chair/co-chair for The International DX Convention in Visalia,

CA, every other year since 1996. He developed and continues to encourage and support amateurs who continually volunteer their time with the Amateur Radio Expo started in 2005. Carl is still very active today with Amateur Radio Expo. Carl enjoys operating DX and talking locally on 2m. He shares a ham shack with his wife Cathy K6VC.



QST de AD6OI

As I write this I'm sitting and looking out the window at my sister's house outside of Redding watching a doe, a buck, and two fawns feeding on the lawn in the front yard and not a radio tower in sight...

Field Day was a rousing success on all fronts. We made almost as many contacts as last year despite not having any propagation on 10M and up. Setting up on Friday helped reduce the stress greatly and made the whole weekend a lot more fun. My thanks to all who participated with special thanks to Jason W6NRD and to Vern W6VDV who together directed the show. Also thanks to Sean AJ6B, Pierrette K6PTR, Brian NJ6N, Charley WA6RUZ, Horst KD7JHR, Lou KG6FCT, and especially our president Tom AE6SH. There are many others who deserve special thanks actually

too many to list here so please accept my thanks for your help and participation on Field Day.

This Month's speaker will be Carl Gardenias, WU6D. Please think of suggestions you want for future speakers.

Lastly, our summer picnic will be Sunday August 5 in Dana Point. Please bring a side dish (Salad, Dessert, etc,) The club will provide hot dogs, hamburgers (veggie for Brian and any other vegetarians) and soft drinks (no alcohol please).

Thanks,
Heiko
AD6OI





HF World Championship
July 14-15

HRO Ham Jam
July 21

SOARA T-Hunt
July 29

SOARA Picnic
August 5

Pacificon
Oct. 12-14



VEC License Exams

Next session:
7/16
(5:30pm), before the General Meeting
Contact Sean [AJ6B](#) for info.

Walk-ins ok.

Extra | General | Technician Exams

SOARA Picnic - Sunday 8/5

Please join us on Sunday, 8/5, for the SOARA Annual Picnic, which returns to Dana Point Harbor again this year.

This location is a reasonable distance from the cliffs above Dana Point, which should make HF operating fun. Also, being closer to the sea breezes and away from the beach will make for a nice break from the expected August crowds & temperatures!

The park is near the statue of Richard Henry Dana and is located on Dana Drive at the end of Island Way. See you there!



Ham Jam - Saturday 7/21

Bring yourselves, your radios, your questions, and your friends and family who are interested in ham radio to the Ham Jam at Ham Radio Outlet on Saturday, July 21, 2012.

Store hours are from 10AM-5:30PM, and at various times during those hours there will be scheduled "classes" on the basic workings of VHF/UHF handhelds and mobiles by someone representing Wouxun, Yaesu, Kenwood, and Icom.

Come meet Gordon West, WB6NOA, and learn about all aspects of ham radio from the master himself. Want to test to become a new ham? We will be able to take up to 15 prospective new hams for a Technician test session in HRO's back room, so please call in advance to make sure we have space for you: 714-533-7373 and ask for Janet.

Tour one of the OC Red Cross Emergency Vehicles that will be on site, and learn about volunteering and helping with disaster relief and communications.

Learn about AMSAT and satellite communications with Clint Bradford, K6LCS. We hope for one decent satellite pass and perhaps a quick listen to the [International Space Station](#) that day.

All clubs are welcome to bring a card table and set up in front of the store with any club related literature that might appeal to new members.

Bring an appetite, as hot dogs, chips, and sodas will be available, proceeds going to the lovely young ladies who will be selling them.

Three prize drawings throughout the day, at noon, 2PM, and 4PM only.

Because of the limited parking in our center and restricted parking at the front of the building, if you're planning on spending much of the day, please consider parking along the side of the building, in the back, or down the residential area behind us in consideration of our neighboring tenants.

Let's have some HAM RADIO FUN!

Kind 73 de, Janet Margelli, KL7MF
Manager, Ham Radio Outlet, 933 N. Euclid St., Anaheim, CA 92801



Propagation de K7RA

Solar activity rose moderately this week. Average daily sunspot numbers were up nearly 3 points to 120.9, and average daily solar flux rose over 28 points to 166.8. There was quite a bit of geomagnetic activity, the most happening on July 9, when the mid-latitude A index reached 29, planetary A index was 30, and Alaska's college A index was 60. That day I stopped in to visit K7SS on my way back from a trip to Oregon, and a check of the bands showed HF conditions were quite difficult. Sunspot group 1520 was directly facing Earth on July 12 at 1653 UTC when it spewed out an X.14 class solar flare... This could be bad news for operators in the IARU HF World Championship and other operating events this weekend.

<http://www.arri.org/w1aw-bulletins-archive/>

Field Day Results 2012

Here are some results of our entry this year.

Total number of CW contacts: 747 (1494 points)

Total number of Phone contacts: 1142 (1142 points)

Total QSO Points = 2636

Score = 2636 X 2 = 5272 (2x for < 150 watts)

Bonus points = 1550

Total: **6822**

Contacts by band: 80m:129, 40m:371, 20m:512, 15m:763, 10m:3, 6m:46, 2m:31

This is not as high as last year when our total entry was 7180. It is not clear how this will affect our relative standing among other clubs in our category. (We generally do quite well.) Propagation was mixed this year, but 15 meters had a much better opening than was expected and took the bulk of our phone contacts. The CW station commanded the 20 meter antenna and was very effective. Thanks to Tak, W6SI, Dana, K6NR, and other CW operators for their outstanding contributions and for Brian, NJ6N, & Spencer's, NG6K, tireless work to keep the network up!

The average solar flux and sunspot numbers were quite low, at around 84/13 for Saturday and 85/24 for Sunday, respectively, so the opening on 15 was definitely a

pleasant surprise.

The SOARA website has more pictures [here](#).

If there are any additional FD pictures, please send them to webmaster@soara.org. Thank you.

As before, it will not be until about the end of the year when we will find out our relative standing.





From Membership

Welcome to our newest members who joined SOARA at Field Day:

Randy Benicky, N6PRL an extra from Rancho Santa Margarita

Lee Anne Benicky, KI6VUH, a general from Rancho Santa Margarita

Rich Bianchini, KJ6TNG, a technician from Irvine

Kevin Fitzgerald, K6RYW, a technician from Tustin

Mike Klett, KJ6JMU, a technician from Lake Forest

Carole McIver, KJ6JMT, a technician from Laguna Hills

Randy Miller, KC8WSD, a technician from Laguna Hills

Steven Soo, AG6NX, an extra from Laguna Hills

Al Sterling, KG6ML, an advanced from Mission Viejo

Welcome to all!!

Horst Zitzmann, KD7JHR
Marie Zitzmann, KD7JHS



The view from near the T

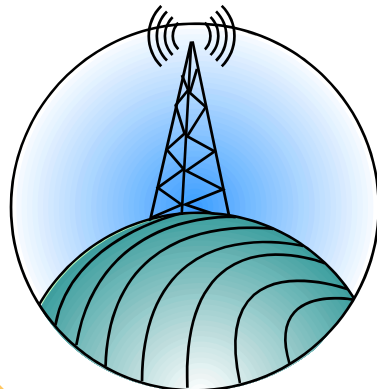
As you can see, conditions were great.

do so anyway... We had a very pleasant picnic below the pines after the hunt was done and enjoyed catching up on Field Day happenings. There was even ice cream to be enjoyed.

Thank you to all who hunted this month, we had a great group!

Please note that due to the annual SOARA picnic:

The next T-Hunt will be a week early on 7/29/12



Norm, KJ6SON, with his T-Hunting gear.
Yes, that's a Yagi on a motorcycle!

Richard, K6RBS & Mike, NM6X, found a very pleasant spot for the hunters to find this month., at Pines Park in Dana Point. Unfortunately, most of the hunters didn't start very close, with many of us starting in the northern part of the hunt zone. That didn't deter Sean, AJ6B and Michie, KD6CAT from finding it first, despite probably having the longest drive! No hiking or bush crawling was needed, though a few hunters decided to



Raffle Report

The raffle that was held June 18, 2012 yielded \$198 for SOARA. 26 \$5 tickets were sold leaving 49 more tickets to be sold before the automatic tuner can be raffled off. I will continue to sell tickets at the July meeting.

The specs for the tuner are outlined in the HRO catalog. It will handle 600 watts on SSB and CW from 1.8MHz to 30MHz and 250Watts up to 54MHz

As previously stated, the \$1 prizes consisted as a cordless screwdriver, a set of two LED flashlights, an ARRL publication "Hints and Kinks", and a repeater directory. A Yaesu baseball cap was also offered.

The \$1 prizes for the July general meeting will probably be similar what was offered in the June meeting.

WB6WXO@SOARA.org

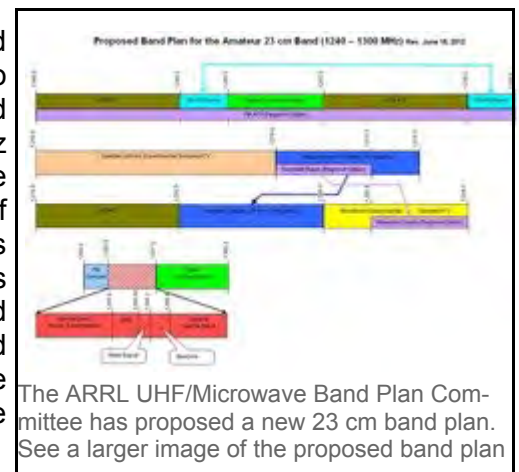
Contests

- This week:
 - July 14 -- FISTS Summer Sprint
 - July 14-15 -- IARU HF World Championship
 - July 15 -- CQC Great Colorado Gold Rush
 - July 19 -- NAQCC Straight Key/Bug Sprint
- Next week:
 - July 20 -- NCCC Sprint
 - July 21 -- Russian Radio Team Championship; Feld Hell Sprint
 - July 21-22 -- North American QSO Party (RTTY); DMC RTTY Contest; CQ Worldwide VHF Contest
 - July 22 -- RSGB Low Power Contest

On the Air:

ARRL UHF/Microwave Band Plan Committee Seeks Comments on Proposed 23 cm Band Plan

Last winter, the ARRL UHF/Microwave Band Plan Committee asked the Amateur Radio community about current, planned and projected uses of the amateur bands between 902 MHz and 3.5 GHz. The excellent level of response provided us with the basis to complete drafts of the 9 cm, 13 cm and 33 cm revised band plans for ARRL Board approval. The Committee has now prepared for your consideration a draft band plan for 23 cm (1240-1300 MHz), the final band on its assigned list. Please look over the accompanying draft and let us know if you have any major concerns. Read more [here](#).



The ARRL UHF/Microwave Band Plan Committee has proposed a new 23 cm band plan. See a larger image of the proposed band plan

ARRL Spectrum Defense Matters

In this issue, ARRL Chief Executive Officer David Sumner, K1ZZ, and ARRL Chief Technology Officer Brennan Price, N4QX, report on the many exciting events that occurred at the 2012 World Radiocommunication Conference this past February in Geneva. As you will read, ARRL staff and volunteers were exceedingly involved in all aspects of WRC, working vigorously on behalf of Amateur Radio and hams on all levels. To read this report, click here now.

<http://www.arrl.org/spectrum-defense-matters-newsletter>

Year 2012	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.
General Meeting 7:00 PM	23	27	19	16	21	18	16	20	17	15	19	—
Program	Ham Jeopardy	T32C DXPed Report	K6IRD		Spring Auction	Field Day Prep	DIY				Fall Auction	—
VEC Testing	23	27	19	16	21	Field Day	16	20	17	15	19	—
SOARA Saturdays	28	Mar 3	24	—	26	—	21	25	22	20	24	—
SOARA T-Hunt	8	12	4	1	6	3	1	7/29	2	7	4	2
Board Meeting	30	Mar 5	26	23	28	25	23	27	24	22	26	—
Special Events	Palm Springs 28	ARRL Yuma 17-18			Dayton 18-20	Field Day		Picnic		Pacificon 12-14		Holiday Party
ARRL Field Day						23-24						
SOARA Picnic								5				
Holiday Party												1

SOARA meets at the Mission Viejo Community Center, 26932 Veterans Way, Mission Viejo, the third Monday of every month at 7:00 PM. For the months of January and February the third Monday is a holiday and the meeting is held on the fourth Monday.

License Exams: Amateur License Exams are given prior to SOARA meetings. Exams are from 5:30 to 7:00 PM. Prior registration is not required and walk-in applicants are welcome. For further information, email Sean Reigle, AJ6B, at aj6b@soara.org.

Contacting SOARA: Questions about SOARA?
Postal mail: P.O. Box 2545, Mission Viejo, CA 92690.
Send e-mail to: info@soara.org, or leave a message at 949-249-1373.

Web Site: SOARA maintains a web site with current club information. The URL is: <http://www.soara.org/>

Repeaters: The Laguna Beach, San Clemente, and Trabuco repeaters are open. The Santiago Peak repeaters are closed. For details or questions on the repeaters contact the Repeater director, KG6GI.

- 2m — 147.645 — (110.9) Laguna Beach
- 2m — 146.025 + (110.9) San Clemente
- 2m — 145.240 — (110.9) Trabuco
- D-Star 2m — 146.115 + (K6SOA C) Laguna Beach
- 220 — 224.100 — (110.9) Laguna Beach
- 220 — 224.640 — (123.0) Santiago Peak. (C)
- D-Star 440 — 445.660 — (K6SOA B) Laguna Beach
- 440 — 447.180 — (131.8) Santiago Peak. (C)
- D-Star 1.2G — 1282.600 — (K6SOA A) Laguna Beach

Nets: UHF/VHF (447.180, 147.645 & 224.640): Tuesdays 8:00 PM
D-Star (146.115 C module): Wednesdays 8:00pm
40 meter HF (7.200 MHz +/- for QRM), Sundays 8:00 AM.

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SOARA COMMITTEES

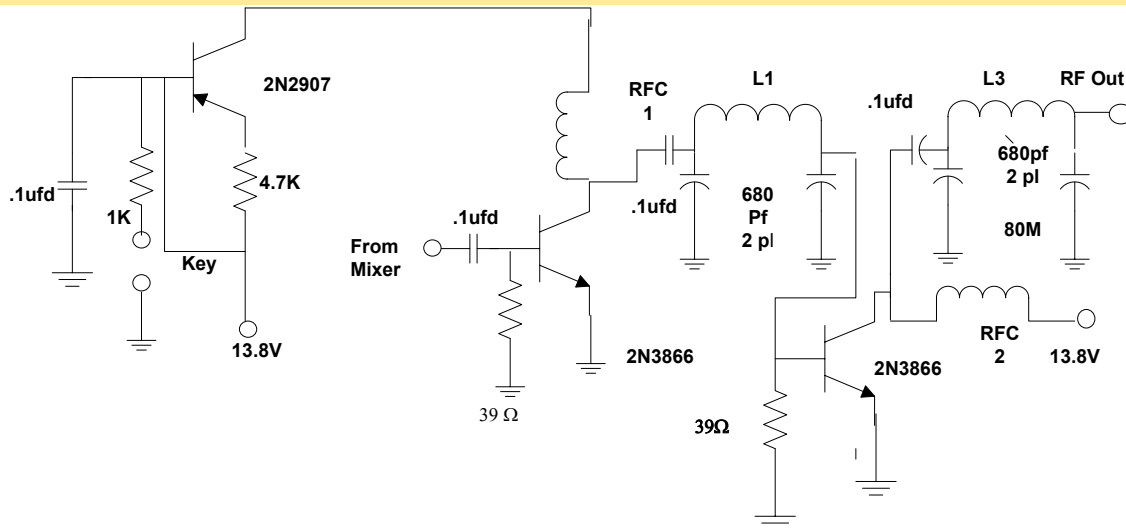
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Ham Radio 101 - Ham Radio Building Blocks

Bi Polar Transistor Output Stage

Hal Silverman WB6WXO

In this presentation, I used two 2N3866s and achieved an output power of 1Watt. My other constraint is to use 13.8V as delivered from a 4Amp Astron power supply. This would also be a CW transmitter with an output power of 1Watt on 80M.



There are as many output designs as there are designers. The circuit presented here is basically from the 1990 ARRL QRP handbook. That design uses a 2N3553. That device was no longer available when I started this project. However, I found some on the internet for a reasonable price.

Figure 1
Final Design
Schematic

L1 & L3 = 21 Turns of 22ga on
Amidon Core T50-2

RFC 1 and RFC 2
.100 mH

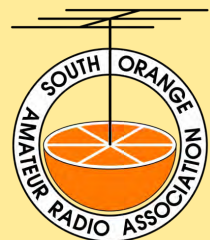
Radio Building Blocks
80M QRP
Output
Final Design BJT
June 26, 2012
Rev B

The design is based upon the 1.5W CW crystal controlled transmitter. The design is found in the "ARRL QRP Classics" Dated

1990. While this publication has been supplanted by later versions, this issue has many circuits that can be duplicated. The basic circuit is found on Page 10 figure 5. The basic circuit has been copied and is figure 1. The output tank circuit for 80/75 M is exactly as presented in the QRP article in the QRP Classic Handbook.

The RF power out was closer to 800mW across the band. I wanted to achieve 1W from 3.5MHz to 4.0MHz band. I did some quick calculations on reactance of a 100 micro henry choke that is in my parts bin, and found that at 3.6MHz the reactance is approximately 5000 ohms, that would probably be enough reactance to keep the RF out of the DC path.

After several tries, I achieved a one watt output from 3.5MHz to 4.0MHz. I found that the RFCs used in earlier revisions were too high a DC resistance. The DC voltage drop across those chokes was about 2.5V. That would put the voltage on the collector closer to 11.3 Volts DC.



The DC resistance of the .100 mH chokes was only 1 or 2 ohms as measured on my ohmmeter. This took Vc to approximately 13.5V DC.

Continued on the next page...

Ham Radio Building Blocks (continued)

In this design as with the handbook design, the 2N2907 is used to key the rest of the transmitter on CW. When the key is closed (or grounded), the base is put at ground potential. This will allow the transistor to conductor putting V_c on the collector of Q2 (2N3866)

As I mentioned before, the tank circuit is right out of the QRP handbook. Subsequent output circuits will have the ability to switch between either switch from 80M to 20M. In the next building block version, I plan to use a set of variable capacitors .

The output power into a 50 Ohm load is 1W on 80M. I raised the applied voltage (V_{cc}) to 15.0 volts, the output power has been raised to 1.2W into a 50 ohm load.



Figure 3: Power Meter Reading 1W Output 3.6MHz

Another handbook design is to use a FET. The ones that I have chosen allows for a higher V_{DD} . I should be able to operate the circuit at 28VDD. The output pi circuit will be the same as the bipolar transistor design. The output power should be between 2 and 5 watts. I also plan to use an improved output tank circuit to achieve a cleaner sine wave output.



If there is any one that desires to build this project, let me know at WB6WXO@SOARA.org and I will furnish a complete parts list, schematic, and where to purchase the parts.

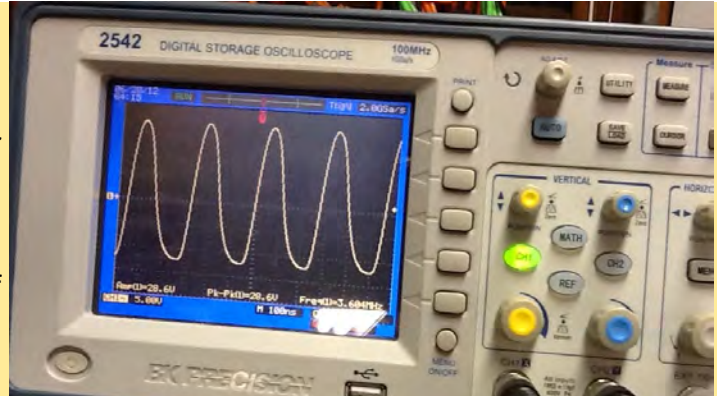


Figure 2: Oscilloscope View 75/80M Output into 50 Ohm Load

The waveform as shown in figure 2 is not exactly what I wanted to achieve, but for this version, the performance should be able to make contact on 80M.

ARRL has published articles using a set of rectangles on a copper clad board. The easy way to do this is to score the copper side of the copper clad board. Then take a sharp utility knife to remove the copper and put some space between rectangles.

A second way is to take black tape and put tape squares on the copper clad board. Then the board is etched using ferric chloride. That is the next step in this process.



Figure 4: Frequency Display from HP 8640B