

Big Island Amateur Radio Club



Newsletter – December 2011

Christmas Party

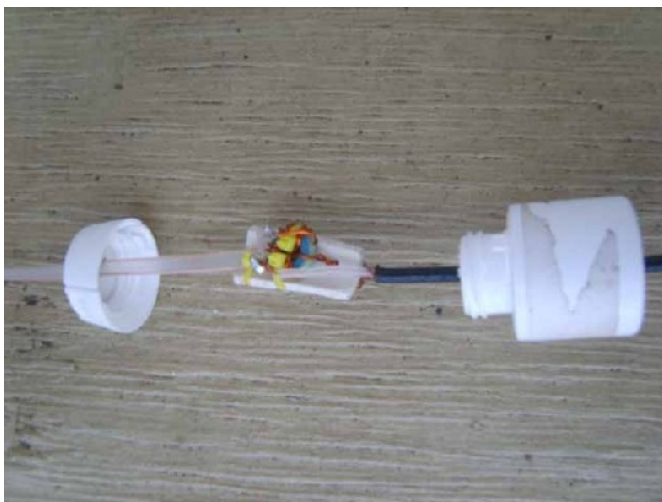
The BIARC Christmas dinner will be held on December 10th at 2PM at the Keaau Community Hall. The club will be supplying the turkey, ham and all dinner ware. We are requesting, if you can, to bring a tube of toothpaste or new toothbrush to include in our package to Ulithi Atoll. We will be having the new officers and directors sworn in at the dinner. Anyone with ideas for any entertainment please let us know. Any questions please call Barbara at 982-9126 or Milt at 965-6471



A ship in a bottle Balun

NH6AH "Green construction" of 4 to 1 Balun transformer for a G5RV antenna.

The idea of "Green Construction" or the recycle of existing items into a new function provides a creative

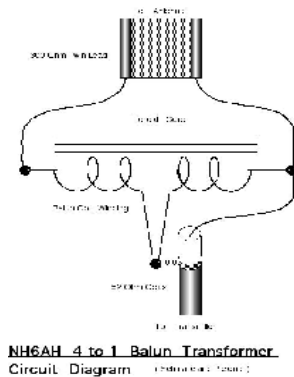


avenue to build a new device and save some cash. Hams know all about salvage and reuse since a lot of

old equipment becomes available. Recycled here is a "Advil" plastic pill bottle with the new top design which is a special kid-proof squeeze type top. This houses the balun transformer like "a ship inside a bottle".

The bottle is waterproof and a white solar resistant color. The ferrite toroid core was salvaged from an old PC computer mother board. Any ferrite core on any old circuit board may be salvaged and become a recycled component. Ferrite cores rarely go bad over time like other electrical parts. The ARRL Handbook, Table 7, "Powdered-Iron Toroid Cores - Magnetic Properties" provides the information one needs to be creative with their future use.

The G5RV multi-band antenna, as shown in the ARRL Antenna Book, 20th edition, page 7-7 covers 3.5 to 30 MHz. The G5RV antenna uses a balanced 300 ohm twin lead matching section and the transition to unbalanced coaxial 52 ohm feed line requires a simple 4 to 1 balun transformer. The construction of the balun is based on the circuit shown in the ARRL Antenna Book, 20th edition, page 26-28. Notice the blue color of the toroid core as shown in the photograph. I chose it more for size than frequency range, since it was large enough to easily insert the 18 gauge wire winding. I removed the original wire on the core first. The blue core's ideal range was 1 to 2 MHz which was close enough for 80 meters for the low end frequency range of the transformer. I was able to wind 9 double wire turns of 18 gauge enamel copper wire on the core to form the balun transformer circuit.



The circuit board is made from a section of white PVC water pipe cut to fit inside the plastic pill bottle. The circuit board is structural for the cable and twin-lead so there is no stress on the plastic bottle. Holes (1/8 in) are drilled into the plastic board section to provide anchor holes for strap ties and wire connections. The 22'-9" long 300 ohm twin-lead feed line and the balun toroid are attached with yellow plastic strap ties to the circuit board. The RG58U coax cable comes through a hole in the bottle bottom with a rubber grommet. The 300 ohm twin-lead is inserted through a slot type hole cut in the bottle top. The special Kid-proof squeeze type bottle top requires only one turn which makes it easy on the twist of the 300 ohm feed line to screw the top closed. The line is sealed at the bottle top slot with a bit of clear "Permatex" RTV Silicone adhesive sealant once the board assembly is put into the bottle completely.

The antenna center insulator is constructed with another half section of the PVC water pipe. Each leg of the dipole is 51 feet long and made of the 18 gauge enamel copper wire and the ends are connected to mono filament 60 pound test fishing line. The antenna is designed for 100 watts of power. The small gauge wire and mono filament line are almost invisible when strung up in the air. Invisibility was a design requirement of supreme political importance since it is located near a highly visible entrance of the Hilo Medical Center.

The prototype is in use at the Hilo Medical Center for the "Health-Comm" emergency net which operates on 3.888 MHz, 5371.5 MHz, and 7.080 MHz. The antenna is omnidirectional and also works well for DX on all bands with a low angle of radiation. On the air tests indicate the antenna works with a SWR of less than 2 to 1 on all bands from 80 to 10 meters, including low SWR on 60, 17, and 12 meters as well. Other stations on the net last month commented on my good signal. The station was only running 60 watts SSB on battery power. In the new antenna location the receiver noise level is low and we could hear all stations.

This type of "green construction" of balun transformers will provide some construction clues for other antenna

projects which may use a balun transformer. Building your own antenna and related items is always a rewarding experience. Sometimes antenna projects don't work well at first, but that may lead to discovery of why. Tuning adjustment and patience are often required for success in creating a good working antenna. Experience is a great teacher and leads to the true satisfaction of accomplishment. Many thanks to those who encouraged yours truly to publish this article. Aloha and 73, Robert, NH6AH.



Ulithi Atoll

Ulithi Atoll is located in the Federated States of Micronesia formerly known as the Caroline Islands of the western Pacific about 103 miles east of Yap at about N9d 58m, E139d 40m. It is made up of 40 islets surrounding a lagoon about 22 miles long and 15 miles wide. There are four inhabited island within Ulithi Atoll. They are Falalop, Asor, Mogmog and Federali.



John Bush KH6DLK (also V63JB) of Hilo has made two trips to the island of Federali to set up a ham radio station and a computer system in the elementary school there and has been instructing them on how to use them. John became aware on his first trip that the islanders are lacking many things that we take for granted. One was basic school supplies such as pencils, pens, erasers, white board markers etc and the 21 children in the elementary school didn't brush their teeth. So on his second trip to Federali he took a supply of tooth brushes and toothpaste and instructed the children on the proper way to brush their teeth. John has asked if possibly the club could help out, especially in getting some toothpaste as they are beginning to run out of the supply he took down. I thought it might be nice if we could try to bring a tube of toothpaste to our Christmas dinner on December 10th. (John is planning

on going back to Federai in February or March). He will be doing a program for BIARC in January. If you were at lunch on November 18 you got a preview of some of the pictures he will be showing.

A few weeks ago, while John was still on Federai, Richard AH7G had a contact with John V63JB from Federai Island. There was a group that he was instructing to get their ham radio licenses. There were nightly schedules set up so that some of the people from Federai could talk on the radio under John's supervision. As time progressed some of our other hams got involved in trying to set up phone patches etc: Milt AH6I, Pete KH7HI, Greg WH7FC and Scotty KH6AVF. When John returned to the Big Island he found out that three of the men (William, Albert and Martin) had passed their ham radio test and been awarded their call signs (V63YWR, V63YAH and V63YMY). A call was put through to Federai on the radio to tell the men about their call signs. Since that evening there have been nightly schedules set up as they have been trying to straighten out a computer problem and to provide practice for the new hams in using the equipment. The men have done an exceptional job of communicating on the radio.

We are certainly looking forward to John's program at our January meeting. After seeing some of John's pictures it made me very aware of how much we have to be thankful for living on this Big Island. Hope that many of you can attend this program.
Barbara Darling NH7FY



Kulani Repeater Site Inspected

The vandalism and theft of solar panels and batteries at the Hualalai repeater site has made it clear that it is wise to document the repeater installations maintained by BIARC. Members of the repeater committee visited the Kulani repeater site and Bob AH6J took pictures of the installation.



VHF repeater and controller at Kulani

Mystery Object Identified



BIARC member Mel Kernahan has positively identified the mystery object for sale at the hamfest: it's a thing you hang your underwear on to dry. Are there any other guesses?



QCWA Meeting held in Paradise Park

Lloyd KH6LC recently hosted a lunch meeting of the Quarter Century Wireless Association at his home in Paradise Park. Many BIARC members were in attendance. If you hold a current amateur radio license and you held an amateur radio license 25 years ago or more you are eligible to join QCWA. It is not necessary for you to have been continuously licensed for twenty-five years. You may join anytime during the year you qualify. Check www.qcwa.org for information.



Bob AH6J, Joe KO4RR, and Vicki N4WV at QCWA



Hamfest Panorama

Big Island Amateur Radio Club

P.O. Box 1938

Hilo, HI 96721

www.biarc.net

Officers

President	Tom Thornton AH6ZZ	754-7412
Vice President	Milt Nodacker AH6I	965-6471
Treasurer	Lloyd Cabral KH6LC	966-7782
Secretary	David Broyles KH7SO	854-0362

Two Year Directors

Beau Mills NH7WV	968-1271
Richard Fetchen KH6WE	982-7426
Paul Agamata WH6FM	
Elizabeth Yoes WH7CU	965-5429
Chuck Epperson AH6SC	966-4698
Rick Gardner WH6LU	

One Year Directors

Richard Darling AH7G	982-9126
Ron Phillips AH6HN	982-6513
Rick Frazier AH7H	985-9169
Bob Schneider AH6J	966-8146
Peter Yoes KH7HI	965-5429

Standing Committees

Service/Awards	Ron Phillips	AH6HN
Education	Vacant	
Emergency	Paul Ducasse	WH7BR
Equipment	Lloyd Cabral	KH6LC
Health&Welfare	Barbara Darling	NH7FY
Hospitality	Barbara Darling	NH7FY
Newsletter	Curt Knight	AH6RE
Programs	Milt Nodacker	AH6I
Repeater	Paul Agamata	WH6FM
Webmaster	Curt Knight	AH6RE

Special Committees

Improvement	Ron Phillips	AH6HN
Field Day	Robert Oliver	NH6AH
Hamfest	Bob Schneider	AH6J
co-chair	John Buck	KH7T
QSL Bureau	Barbara Darling	NH7FY

Meetings and Get-Togethers

Membership meetings – Second Saturday of each month at 2PM at the Kea'au Community Center

Board Meetings – will be held every other month 1 hour prior to the general membership meeting at the same location as the general meeting (January, March, May, July, September, November).

Friday Lunches – A group meets for lunch every Friday at 11:30 at Hokulani's Steak House in the mall at Kea'au near the Post Office.

East Hawai'i Net

The East Hawai'i Net meets on Monday, Wednesday, and Friday mornings at 8AM HST on the 146.76 MHz repeater.

BIWARN accessible Repeaters

Repeaters in bold font are BIWARN/MCDA linked. When operating over a link, remember to leave extra time in each transmission for the link to be established. The number in parentheses is the tone access frequency.

145.29-	HOVE-Ka'u WH6FC (100)
146.66-	HOVE (100)
146.68-	Kea'au limited area KH6EJ
146.76-	Kulani KH6EJ
146.82-	Mauna Loa ARES KH6EJ
146.88-	Pepe'ekeo KH6EJ (may be linked)
146.92-	Ka'u PD KH6EJ
146.94-	Haleakala Maui KH6RS (110.9)
147.02+	Haleakala Maui RACES AH6JA
147.04+	Mauna Loa RACES AH6JA
147.16+	Kona (Hualalai) WH6DEW (100)
147.32+	Waimea Hospital NH7HI (100)
147.38+	Waimea East KH7T experimental
442.35+	Ka'anapali Maui (136.5)
442.5+	Kea'au KH6EJ
443.40+	Ocean View KH7MS (77.0)
443.40+	Kona KH7MS (100.0)
443.65+	Ocean View Hub
444.225+	Haleakala Maui KH6RS (110.9)
444.45+	Parker Ranch KH6EJ (88.5)
444.9+	Hilo WH6FM WIN system (100)
444.775+	Hilo WH6FM XO system (123)

Big Island Amateur Radio Club Regular Club Meeting of November 12, 2011

The regular club meeting was called to order by club vice-president Milt Nodacker AH6I at 2:03 p.m. at the club's usual meeting place, the Kea'au Community Center. Twenty-eight hams were present, plus two young future hams. After introductions, Milt presented the program. Because he was only able to cover half of the material, he has offered to do a second program at a later meeting. His subject was noncommunications use of the electromagnetic spectrum. His second program will discuss aviation uses of the spectrum. Hams may have experienced some of these noncommunications uses, but as what we consider to be interference with legitimate communications.

One of the most common and obvious is the microwave oven, patented by Raytheon in 1945 but not common in homes until the 1970s. Early devices, huge and hugely expensive, were used commercially only. The most commonly used frequency is 2450 MHz, which happened to be the same frequency as earlier weather radar. This is because this frequency is particularly well absorbed by water.

Radio diathermy is used to heat body tissues as part of medical treatments. Unlike the microwave oven that boils our reheated coffee to overflowing, this heating is intended to be quite controlled as to both location and intensity of heating.

Locator beacons used for fishing are particularly notorious among hams. Generally in the 1.6 to 4.0 MHz range, their one-watt of transmitting power dumped into a dummy load antenna can sound like the million watts that is obscuring the station some ham is trying to reach.

Aviation "guard" (emergency) frequencies for both emergency communications and locator beacons (usually activated only after the crash, when other communications understandably stop) are 121.5 MHz (civil and most military aircraft) and 243.0 MHz (military). The newer digital locator beacons for downed aircraft transmit at 406.025 MHz, and include aircraft ID and GPS positions. No more trying to DF (direction find) nondirectional beacon signals. Digital beacons are available to satellite reception. Absent GPS location, the satellites can DF using doppler frequency shifts, as the satellite passes the beacon. Do not expect to survive such an emergency. The marine ship/boat equivalent is called EPIRB and uses the same frequency.

There are four weather radars on the Big Island, including two of the NEXRAD (new generation) radars that have doppler capabilities that can monitor wind movements within clouds. The newer NEXRAD radars

have moved somewhat off the 2450 MHz frequency formerly standard for weather radar.

LORAN, formerly used for both ship and aircraft navigation, was located at Upolu Pt, until 1992. Omega, a global navigation system, was invented in 1943 and was in active operation at Haiku ("stairway to heaven") on O'ahu until 1997. Those with good hearing could hear the output frequency of 16.8 Khz, produced using an alternator rather than an oscillator. Satellite-based GPS, replacement for LORAN and Omega, operates at 1575.42 and 1227.6 MHz.

The Coast Guard supplements GPS with a network of 86 DGPS transmitters to correct for GPS errors. Three of these are in Hawaii, two on the Big Island (Pahoa and Upolu Pt.). For correct time, one can monitor WWVH-HI.

For those hams who wish to draw royal attention from the FCC, try operating within one mile of the FCC Monitoring Station on O'ahu. The site is located on the west side of Pearl Harbor, in Waipahu. If you find that your name is glowing in lights.....

After adjourning for seven minutes for refreshments, the meeting resumed for business after 12 minutes. Minutes for the September meeting, printed in the bulletin, were approved as printed. The treasurer reported a balance of \$2,653 in the checking account.

Richard Darling AH7G then discussed John Bush's (KH6DLK) recent ventures onto Federai, an island within the atoll of Ulithi, in the Federated Republic of Micronesia 100 miles from Pohnpei. Federai is an isolated island of 68 persons, 21 of whom are enrolled in elementary and secondary schools. John, a resident of Hilo, is formerly a resident of Volcano. Federai has no access to the Internet, cable television, cell phones, or wired phone service. Communications is strictly by radio.

It is one thing to be isolated from access to the Internet. It is quite another to be isolated from toothbrushes. Until John arrived, the schoolchildren had never brushed their teeth. John is soliciting donations of toothbrushes and especially toothpaste.

The local ARES VHF net meets at 7 p.m. Saturday on the BIWARN net, Kulani 146.76- and linked repeaters. The net is awarding points for participation, with each point being good for a ticket that goes into "the hat" for a raffle. The net is giving away a two meter power amplifier in January.

There will be an amateur licensing exam at the Orchidland LDS Church at 6:30 on December 13, although the date may slip by one week. The exam will

be to test Milt Nodacker's LDS general licensing class, which may take an additional week to complete due to an unexpectedly large number of technical questions by prospective license examinees. John Buck KH7T announced that he has a stock of license manuals, all available at cost. Hawaii County Civil Defense has 22 CERT (Civil Emergency Response Team) members who want to participate in a licensing class in Kona.

Ten hams participated in the October 3 SET (Simulated Emergency Test). It was mentioned that the SET should include some digital networking, although there was no agreement as to exactly which digital protocol should be used.

There was no Repeater Committee report. However, it was noted that the linked Naalehu repeater still has no VHF transmission, and that the Hualalai repeater is still nonoperational due to theft of its photovoltaic power system.

Barbara Darling NH7FY reported that the QSL Bureau received 3,990 cards in October, for a total of 25,050 cards thus far for 2011. For Health and Welfare, Barbara reported that Ron Phillips AH6HN is not doing well, and that Doris Carlson KH6ER is now in Life Care Center Rm 218 with congestive heart failure and on oxygen. Husband Wilbur Carlson KH7E is still living at home, although not doing well.

Election of club officers for 2012 was held. The slate was elected by unanimous acclamation, the motion having been made by the enthusiastically-outgoing secretary. Officers will be:

President: Barbara Darling NH7FY
Vice-president Doug Wilson WH6DTD
Secretary Bob Schneider AH6J
Treasurer Milt Nodacker AH6I
Two Year Directors:
Paul Ducasse WH7BR
Steven Jacquier WH6DPM
Richard Darling AH7G
Darryl Koon AH6TQ

Two Year Directors who will remain for their second year:

Paul Agamata WH6FM
Chuck Epperson AH6SC
Richard Fetchen KH6WE
Rick Gardner WH6LU
Beau Mills NH7WV
Elizabeth Yoes WH7CU

Under Old Business, Robert Oliver NH6AH reported that a new G5RV antenna has been installed at the Hilo Medical Center, and that the antenna can hear on 80, 60, and 40. There is always a need for additional radio operators for the hospital to serve in the

event of an emergency.

Under New Business, the need for an accounting program for the club treasurer was discussed. Previously, the club had voted to pay up to \$200 for a copy of Quickbooks. However, treasurer Curt Knight AH6RE had been able to use one for free. It was suggested that a free version with limited capabilities may prove adequate for club needs. Curt will report in December.

The BIARC Christmas party will be held on Saturday, December 10 at 2:00 p.m. in lieu of the usual December meeting, at the Kea'au Community Center. The line dancing and lauhala groups will have the space occupied until 2:00. The party is pot luck, with the club providing the turkey.

I will check on purchasing new club T-shirts from Creative Arts.

The meeting was adjourned at 3:53.

Respectfully submitted,
Dave Broyles KH7SO, outgoing secretary



Engineer at Work



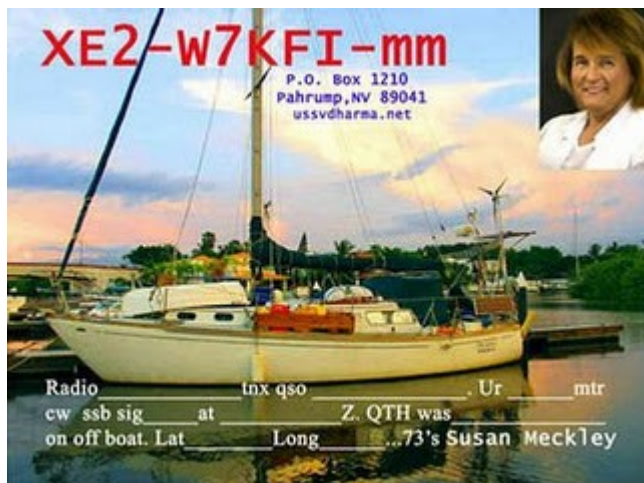
John KH7T working on a radio for Eddie WH7DG



Susan Meckley W7KFI in the News

Rumor has it that Susan Meckley W7KFI plans to leave Honolulu on her boat USSV Dharma on about January 15 to visit Johnston Island (KH3). The trip should take a week or less, and she will set up shop in a tent on the pier with a 43 foot vertical on the sand near the water. Operation will be on all bands 40 through 6 meters

mostly on CW and SSB using her K3. She plans to spend a week on the island. If she is delayed, her permit is good through February. QSL via KH6CG.



Susan W7KFI and the USSV Dharma



Johnston Island (Google Earth)