

The KEY

The Newsletter of the Contoocook Valley Radio Club

<http://www.qsl.net/k1bke>

Volume 14, Number 3

June, 2002

NH QSO Party Final Finals

Al Marin, K1CYJ

Way back in February, do you recall that there was a New Hampshire QSO Party? Yes, the party took place and seven club members combined their efforts to work a total of 238,669 points. That was good enough to take the first place honors this year. Last year we fell short but this year, thanks to Dale Clement, AF1T, Gerry Hull, W1VE, John Moore, N1FOJ, Michel Murphy, WA1VKO, Lee Scott, AA1YN, Shawn Upton, KB1CKT and yours truly, the club won yet another trophy. Dale came in first in Merrimack County, Gerry, first in Hillsborough County, and Mike first in Rockingham County. Our closest competitor came in with 118,629 points. For all the results of the 2002 NH QSO party, please go to <http://www.nhradio.org>.

Programs

June 11: Field Day Plans — This month's meeting will be held at the Pembroke Fire Department

July 9: To be announced.

The KEY is published every other month at the beginning of the even numbered months. The deadline for articles and submissions is the fourth Tuesday (coinciding with the usual business meeting schedule) of the preceding month.

2002 Field Day

Jerry Blanchard, K1BBQ

The final plans for 2002 Field Day were discussed at the May 28th business meeting. These plans will be presented to the club members at the regular June 11th club meeting.

Field Day 2002 starts at 1800 UTC on Saturday, June 22 and runs through 2100 UTC June 23, it will be held at the usual site in Henniker, see the club web page for directions.

Field Day is a fun activity, it is one of the major club events of the year. Field Day is a time when club members get together for a "show and tell" exhibition to demonstrate their ability in simulated emergency situations to the public and officials in government and various agencies. It is the thrill of the "non-contest contest" where members find themselves meeting the various challenges to help their club run a successful Field Day operation. All 112 club members are encouraged to come and enjoy the fun with visitors and the other members of our club. We are looking forward to seeing all of the members there. Listed below are the FD committee members who have been working to put this event together for the club.

Field Day Committee

Chairman - Jerry/KBBQ

Safety Officer - Rob/K1CFI

Public Relations - Jim/KB1EJY

Reception - Louise/K1LAS & Sonia/K1BBQ xyl

Mess Sargent - Dave/N1KTP & crew: Kristi/KB1EPM, Sandra/AF1T yl, Larry/N1PHV

Power Grid Chief - Skip/N1PHZ & Glen/N1GAQ

Continued on page 2

NTS Traffic Manager - Don/N1ZIH
VHF Talk-In - Frenchy/K1DFQ
Photography - Joe/N1ZID

Band Captains

80 Meters - Al/NS10
40 Meters - Gerry/W1VE
20 Meters - John/N1FOJ
15 Meters - Dale/AF1T
10 Meters - Dan/KB1GSA
VHF - Steve/N1JHJ
Satellite - Al/K1CYJ
GOTA -

Non-Traditional Modes

APRS/Packet - Larry/N1PHV

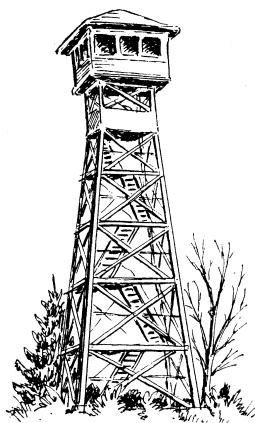
Fire Tower Summer Conference

Sponsored by Forest Fire Lookout Association, Inc.

July 12-14, 2002, at Fox State Forest, Hillsborough, NH

Dale Clement, AF1T

We are honored to have the Eastern National Conference in our area this year. There will be displays, a Saturday evening program, a tentative Saturday barbeque (to benefit the Craney Hill tower), and self-guided tours to local fire towers. Thirteen NH fire towers have been listed on the national Historic Lookout Register! Planning of events has not been finalized, so you may call me at 428-3840 for further details. I feel that ham radio operators should have a special interest in the preservation of sites that are excellent portable radio locations. Note that the conference weekend also coincides with the Hillsborough Balloon Festival.



Craney Hill Lookout Tower

CARES CORNER

Rob Farley, K1CFI

**Emergency Coordinator
Capital Area ARES**

The Capital Area ARES group has undergone some changes and we have been very busy this first half of 2002. As this is my first chance to update you in the Key, I will try to fill you in on what we have done. First, I would like to pay special tribute to Tom Matisko, N1SKZ, who was my predecessor as the EC for Capital Area ARES. On January 1, 2002, Tom handed the reigns over to me and took on other statewide ARES responsibilities. During this transition, Tom has been very helpful and supportive. I appreciate his hard work during his tour of duty as EC, which has made my job a lot easier.

CARES continues to have very good turnouts during the weekly training nets. We are grateful to the owner's and operators of the K1BKE repeater for allowing us to use their equipment for our events. Our nets are Monday nights at 8:00 pm. At the close of 2001, we hit an annual high of twenty-one check-ins for the training net. We appreciate everyone's contribution to the nets.

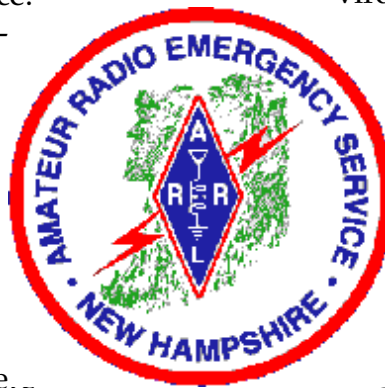
As the transition started to unfold, two new AEC appointments were made to bolster the CARES leadership. Dick Blanchard, WA1VVX, was appointed to AEC, in charge of training and Al Marin, K1CYJ was appointed to AEC, in charge of Operations, the post that I held prior to moving up. Dick has since had to step down and the AEC-Training position is still open. I appreciate Dick's contribution during his short term. His in-depth knowledge of Net Control Station duties helped inspire new hams to learn and become NCS operators. His insight into training has also inspired many hams in our group to come forward with great training ideas. Al Marin, K1CYJ, has brought on some real depth to our leadership team. His experience and organizational skills have really helped the group.

With the mild winter that we experienced, CARES was not pressed into service as a result of

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any severe weather. We were activated twice in March for large fires in Concord. On March 14th, fire struck a three-story apartment building on Loudon Road in April, which sent all the occupants of that building and a neighboring building scurrying out into the winter air. A shelter was established by the Red Cross at a nearby church and CARES was activated. Five units responded in various modes to support the Red Cross. About a week later another fire struck an apartment complex in North Concord during a bad snowstorm. Again CARES was activated. Units were staged at ARC headquarters in Concord, but no shelters were opened and units were cleared. Units responding for CARES did a great job in providing this valuable service.

CARES has been busy with Public Service Events as well. In addition to the talk-in for the Club Hamfest in Henniker, CARES units were used at the Hosstrader's Hamfest in Hopkinton in early May. A mobile command post was donated by a Pembroke resident for the weekend and six separate frequencies were used for the operation. The talk-in for Hosstraders starts early and at times requires two or more operators. Through an agreement with the event organizers, the equipment was moved into position on the fairgrounds Thursday evening. Two tripod masts were erected for the operation. The main activity occurred on the "Approach" frequency, which was the club repeater. This was used to handle the outer perimeter of traffic assisting motorists with directions on I-393, Rte 4, I-93, onto I-89. Once at Exit 7, hams were instructed to move to a simplex frequency to free up the approach frequency for other "shoppers" headed to Hopkinton. A business band UHF rig was installed in the command post by event organizers to provide the vital link between their staff and the command post. CARES provided assistance to approximately 110 hams making their way to the hamfest. As far as we know, they all made it home safely and there are no antenna festooned vehicles still roaming aimlessly



around the Route 103 area.

By the time you receive this edition we will have completed our next big Public Service Event. During the first weekend in June, hundreds of firefighters will descend upon Bear Brook State Park in Allenstown for their annual Forest Fire Warden training session. The weeklong session will provide valuable and necessary training for wildland firefighters from all over New England. The Concord chapter of the Red Cross is providing the food and water for the firefighters for the entire weekend. I am sure the cooks will be busy cooking and preparing hundreds of pounds of food for the firefighters. CARES will be providing the communications for the Red Cross. Due to the unique nature of the wildland training environment, the firefighters will work, eat

and sleep in the woods. The food will be prepared at a site remotely from the training area and trucked in. CARES will have a voice and data link between the preparation area and the serving area to keep the cooks informed on how hungry the troops are. In addition there will be a communications link established for the ARC liaison position at the Wildland Command Post. I hope to be able to provide you with a report on how it went in the next issue of the Key.

Lastly, I would like to express my sincerest gratitude to the leadership staff of CARES. AEC-Logistics, Jerry Blanchard, K1BBQ and AEC-Ops, Al Marin, K1CYJ have been terrific to work with. I also want to thank the entire CARES group for their dedication to serving others. I have been in public service all my life and for me, serving others is what I do, day-in and day-out. So working for CARES comes naturally. However, I have never seen a better bunch of dedicated professionals than I have had the pleasure to work with in the Capital Area ARES group. Our group is growing and we are getting more resourceful with every new member. I look forward to working with this fine group of volunteers. Stay safe.

73 de K1CFI

Field Day Operations – The GOTA Station

Lee Scott, AA1YN

New for this year is the GOTA Station (**Get On The Air**). Any Class A group with two or more stations is eligible to have an additional GOTA station without changing the classification. It is the replacement for the Novice/Tech station and is intended to get hams who have not been generally active to get back into operating. Even if you have an Extra Class license but have not been active, this is an incentive to get you back on the air and have some fun. If we can make 400 contacts, we not only get the 400 QSO points but also get a bonus 100 points.

The GOTA station is also a good way of introducing a prospective ham to the hobby and Field Day event. If you know of someone who is contemplating becoming a ham and would like to give contesting a try, here's their chance. As long as there is a station controller present, they can operate.

So I'm making a call to all the club members who do generally not participate in the Field Day event and have not been on the air or any Novice or Technician to join us. We need your help. The GOTA Station will operate under my call sign **AA1YN** at the Field Day Site in Henniker. I will be there to aid and log for all the operators so all you have to do is show up and make some contacts. If you haven't been to a Field Day operation in some years or have not participated in club activities for a while, now is the time. We need your help to make the 100-point bonus and that takes 400 contacts with this station. We can operate on all the contest frequencies with full privileges of an Extra Class license. Come see the club Field Day setup and re-acquaint yourself with the club. I've been a member of the club for a year now and I don't think I've met but 30 of the members so there are some 70 or so members who should visit the Field Day site and say hi.

From the ARRL website:

*The old Novice/Technician station from previous years has been replaced by a **GET ON THE AIR (GOTA) station**. The GOTA station will allow Novice, Technicians, and generally inactive hams a chance to GET ON THE AIR to help the group's Field Day effort. Non-licensed persons may also participate in the GOTA station, under the direct supervision of an appropriate control operator. Please review Field Day Rule 4.1.1. for information on the new GOTA station. You may complete up to **400 QSOs** to your group's score with the GOTA station. In addition, any group that meets the 400 QSO goal from the GOTA station will also gain an **additional 100-point bonus**. This is the only change that affects Field Day scoring.*

A Simple NiCAD Charger

Shawn Upton, KB1CKT

I recently picked up two older HT's, neither of which had the proper battery recharger. The battery packs had no battery charging circuitry, like the battery packs of today. These two batteries required 50mA, at up to 18V. The solution was pretty easy, but let me explain a few things about batteries and battery charging in general.

Disclaimer: Improper charging—and improper discharging—of batteries can be harmful to your health! Batteries can explode under high charge/discharge rates, exposing you and your surroundings to battery acid. Be advised!

Batteries are typically rated by voltage and capacity, the capacity of the battery being rated in mA/hour or A/hour. This capacity rating is the theoretical "life" of the battery—at that particular current, the battery will be exhausted after an hour. I.e., a 1700mA/hr 9.6V NiMH battery, connected to a 5.65-ohm load (9.6V / 1.7A), will be dead after an hour.

Now, this is a theoretical number. Not all batteries can be run this hard. Alkaline AA batteries are rated at upwards of 2700mA/hr, but at

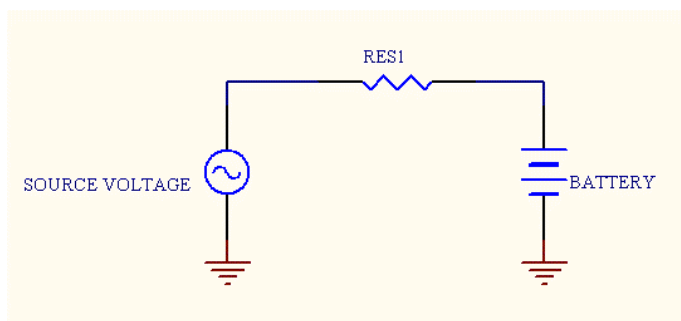
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NiCAD Charger - Continued from page 4

a discharge rate of 100mA or so. NiCAD and NiMH batteries are much better alternatives to alkaline when it comes to running your HT. If you want long life, and long shelf life (shelf life refers to how long the battery can be stored, before it is significantly discharged), get a 4A/hr sealed lead acid (SLA) battery from Radio Shack or elsewhere, and use that for your HT. Modify a spare dry cell case so that it can be connected to the SLA through a 4 or 5 foot cable, and put the SLA into a fanny pack. Your radio will last for days with this setup, even on high power. As a side note, don't use any other batteries in the dry cell case (you can hollow out a bad NiCAD pack if you want to), don't use thin gauge wire, make sure it's highly flexible wire, use a standard ARES connector on the battery pack (this way, you can make a cigarette lighter adapter and use this setup in the car too), and make sure the connections are sealed and reinforced (so they don't break at the worst time possible).

You may have seen a term called C/10, when reading about charging batteries. C/10 means the capacity of the battery, divided by ten. This is typically the max charging current that a battery can take, with the following observations: 1) this current can be applied for a day or two without damage to the battery 2) no complex circuitry needs to be used to pulse the current into the battery, as is done in a fast charger 3) it will take 10 hours to charge the battery at this rate.

Now, the battery packs I just got were in the 500mA/hr range, hence the charging current of 50mA. Now, in order to get current into a battery, the charging source has to be at a higher potential than the battery—otherwise the battery will discharge. A simple way to charge a battery is shown below:



In this circuit, if the battery voltage is, say, 12V, and you have a 15V supply, and you want to charge at, say, 50mA, then $(15 - 12) / 0.05 = 60$ ohms. As long as 1) the power supply doesn't change voltage at this current (sometimes they droop under load, especially if you are using a cheap one), and 2) the battery doesn't change its voltage while charging (which they do, but sometimes you can ignore this, as it isn't very much), then this will work. A 62-ohm resistor will work here.

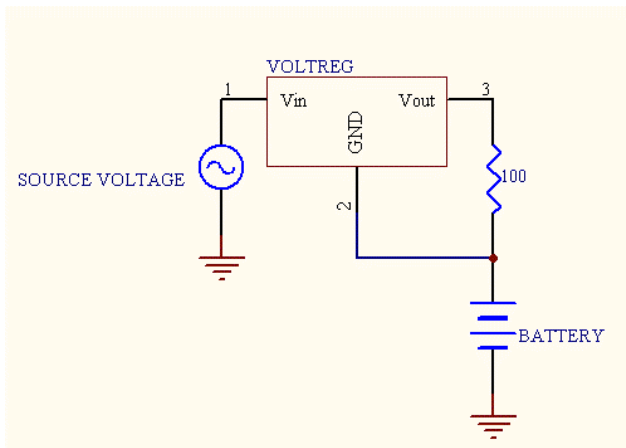
However, pay attention here! The charging resistor will get warm. Using $I^2 \cdot R$, $.05^2 \cdot 60 = 0.15W$. A standard $\frac{1}{4}$ watt resistor will work in the case, but if the charging voltage was higher, or the charging current was higher, then the resistor will dissipate more heat. Builder beware.

Now, this circuit works pretty well, in a pinch. But, it has to be analyzed each time if the charger or the battery changes. So, what can we do to make a universal, cheap charger?

Well, what we want is a current source, set at 50mA of current, and a supply voltage of upwards of 20 volts. Dig around in your junk bin, see if you can find an 18V or 20V or even 24V 100mA wall cube. The current rating only has to exceed 75mA or so (it's better to have more current than necessary, even though we won't use it). I had one of those universal adapters that with a flip of the switch would go from 3.3V to 13.8V. Except, no matter where you put the switch, it would put out 17V. Hmm... Not only that, it had several plugs on it for plugging into various things.

But how will we limit the current? I dug around in my junk bin, and found an old part—the 7805 voltage regulator. Apply over 7 volts to it, and it will put out a well-regulated 5 volts. These devices are all over the place; don't spend more than 75 cents on one, if that much. Let's hook this up:

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Now, the regulator will always regulate 5 volts across pins 2 and 3. So, if we have 100 ohms across these two pins, 50mA will flow. An instant current source. As long as the source voltage is at least 7 volts higher than the battery voltage, this circuit will work. I.e., if you need to charge a 9.6V battery, use a voltage source of at least 17 volts. A SLA will need upwards of 20V.

There are two details that I have not yet dealt with—the quiescent current of the 7805, and power dissipation (heat). What is quiescent current? This is the current that the 7805 uses when it is doing nothing, or something. It is the current that is shunted from the input pin to the ground pin. In our case, this current will add into our charge current. A 7805 typically has 6mA of quiescent current. For our cheapo case, we could ignore it, and just charge at 56mA of current. If not, then what we want is 44mA from the regulator, which is $(5V / 0.044A) = 114$ ohms or so. 110 ohm resistor would work here, except $(0.044 * 0.044 * 110) = 213mW$, which is rather close to a $\frac{1}{4}$ watt. Use a couple of 220-ohm resistors in parallel.

With an 18-volt source, charging a 9.6-volt battery, there is a drop of 3.4V across the 7805 ($18 - 5 - 9.6 = 3.4$, which more than the 2V necessary for the 7805 to work). At 50mA, this is pretty negligible, only 170mW, so no heatsink should be necessary.

On the unit that I built, I used a 1N4001 di-

ode inline to the 7805, just in case. The wall cube I had can change the polarity of the output; plus, now I know that this circuit won't discharge a battery accidentally. And, you can use this charger as a trickle charger for the aforementioned SLA, or for charging 4.8V, 7.2V, or 9.6V NiCAD or NiMH battery packs. Good luck!

Second Precision Emergency Automated Position Reporting system test set ARLB031

The Air Force Research Lab, Rome (New York) Research Site, is conducting an experiment using Amateur Radio operators as an auxiliary line of defense against aircraft disasters. The Precision Emergency Automated Position Reporting System (PEAPRS) test is being carried out in conjunction with the annual Team Patriot exercise. The ARRL is co-sponsoring the test.

The first of two aircraft flights this week occurred June 4, and second will take place on or before June 8. The aircraft will transmit an APRS distress message on 144.39 MHz, using the call sign WA2ZXS. Amateurs receiving the message are requested to e-mail peaprs@rl.af.mil detailing the time, characteristics of the message received and the method they used for reception—whether direct, via digipeater, via wide relay, the Internet or other means.

Those lacking e-mail capability may participate by calling their observation info into the PEAPRS Command Center at 315-330-7444.

The exercise will attempt to measure the timeliness and accuracy of the amateur reports received. Participating amateurs will qualify for a special certificate from ARRL recognizing their efforts.

2002 VHF/UHF/SHF Calendar

Dale Clement, AF1T

June 8-10: ARRL VHF QSO Party* - 1800 UTC Sat. to 0300 UTC Mon. (Rules May, 2002, QST)

June 15-16: SMIRK Contest - 6 meters 0000 UTC Sat. to 2400 UTC Sun. (Information <http://www.smirk.org>)

June 22-23: ARRL Field Day - 1800 UTC Sat. to 2100 UTC Sun. (Rules May, 2002, QST)

July 14: Very good EME conditions

July 20: 10-GHz test - Clinic and barbeque, Enfield, CT (Sponsored by Northeast Weak-Signal Group)

July 20-21: CQ Worldwide VHF contest* - 1800 UTC Sat. to 1800 UTC Sun. (Rules Spring, 2002, CQ VHF)

August 3-4: ARRL VHF Contest - 1800 UTC Sat. to 1800 UTC Sun. (Rules July, 2002, QST)

August 12-13: Perseids Meteor Shower

August 17-18: ARRL Cumulative 10-GHz Contest - 6 AM local time Sat. to 12 Midnight local time Sun. (Rules July, 2002, QST)

September 14-15: ARRL VHF QSO Party* - 1800 UTC Sat. to 1300 UTC Sun. (Rules August, 2002, QST)

September 21-11: ARRL Cumulative 10-GHz contest (Same times and rules as in August)

Oct. - Nov.: ARRL International EME Competition (Rules September, 2002, QST)

President's Notes

I would like to thank Rob, K1CFI, for the donation of a hot dog cooker to the club. If anyone wishes to view this donation, please come to Field Day and thank Rob for his generous contribution. No doubt it will be greatly used this year!

CVRC Calendar of Events

June 11 - Regular Monthly Meeting

June 23-24 - Field Day Weekend

June 25 - Steering Committee Meeting

July 9 - Regular Monthly Meeting

August 13 - Regular Monthly Meeting

September 10 - Regular Monthly Meeting

September 24 - Steering Committee Meeting

October 4-5 - Hosstraders Flea Market

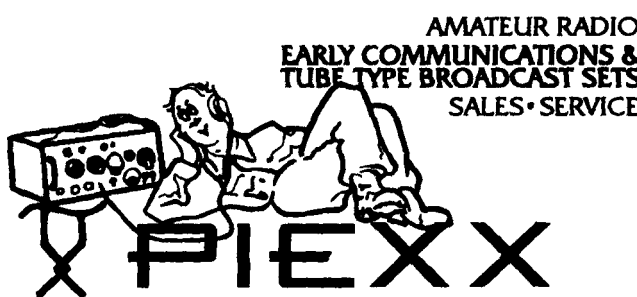
October 8 - Regular Monthly Meeting

October 22 - Steering Committee Meeting

November 12 - Regular Monthly Meeting

November 26 - Steering Committee Meeting

December 10 - Christmas Party

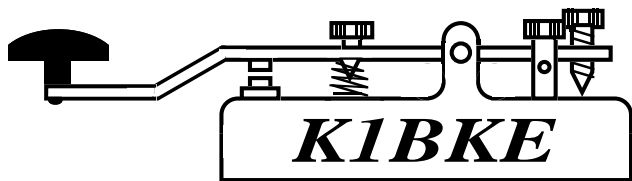


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CVRC CLUB CALL: K1BKE

CVRC operates:

K1BKE/Rptr 146.295 / 146.895
 K1BKE:CENTNH 145.57 Packet Node

CVRC OFFICERS

Shawn Upton, KB1CKT	President	
Larry Damour, N1PHV	Vice-President	529-2884
Skip Doughty, N1PHZ	Treasurer	746-3894
Don Curtis, N1ZIH	Secretary	224-1697
Jack Sheehy, W1JS	Trustee of club call	529-5635
	K1BKE Repeater trustee	
Lindsay Collins, K1JY	Packet node trustee	495-3983

ACTIVITIES & COMMITTEES

Flea Market	Jock Irvine, N1JI	225-4248
Programs	Dale Clement, AF1T	428-3840
V.E. Sessions	Dexter Howe, KY1M	938-2955
License Classes	Bob Hadley, K1DWI	783-9294
Field Day	OPEN	
ARES	Rob Farley, K1CFI	
Outgoing QSLs	John Moore, N1FOJ	746-4817
Public Service	Steve Ingham, N1HXO	746-6412
Historian	Louise French, K1LAS	428-7253
Membership	Dave Connors, N1KTP	456-3787
	Scott Clay, N1ZGO	746-4543

The KEY:

Editor	Jock Irvine, N1JI	225-4248
Advertising	Tom Matisko, N1SKZ	464-4095
Circulation	Don Curtis, N1ZIH	224-1697
Contributors:	K1BBQ, K1CYJ, K1CFI, KB1CKT, AF1T, AA1YN	

Send Amateur Radio news to N1JI at 5 Celtic Street, Concord, NH 03301, or e-mail n1ji@arrl.net.

Contoocook Valley Radio Club
P.O. Box 88
Henniker, NH 03242