

The ARCLITE

Volume 27, Issue 6

GARC Information Hotline 972 272-4499

June 1999

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From the Prez....

It's June and it's been a busy month so far.

You know that if it's June, Field Day can not be far behind. Now that Ham Com is a fond memory, perhaps we can concentrate on a few of the other events that are coming up. June and July have to be our busiest times of the year. A major activity every weekend.

First, I would like to tell everyone that our club vice president Clay Orchard, KC5MXN, had surgery last week and got through his surgery fine. By the time you receive this, he should be back home. A few cards, phone calls, and letters would be nice. We are glad you're back, Clay. Get better before the 4th of July activities, please.

Kids' Day, an event meant to interest the youngsters in Amateur Radio was held at the ECC on June 19. We will have a complete report at the next regular meeting, but thanks to Bob Jones W5BJ, and Randy Dunning KC5QHH for arranging and running this event. In this 6-hour event, the kids have a brief QSO and exchange name, state, and favorite color. Thanks also to the people who helped provide the snacks and cookies.

Field Day: Field Day will be held this year at Bradfield Park, Mapsco location 19 A subgrid T (see the map on page 3). Mark Durbin has arranged for the necessary permit and we can stay overnight. Our location will be between the Softball Field and the pool. Remember to bring your swimsuits this year as well as sunblock and mosquito repellent. We will have our usual picnic dinner on Saturday night. This is a family affair, so bring them all so we can say hello. See complete article for maps and times and directions.

(Continued on page 2)



June 28, 1999

"Alternative Power Sources"

By Randy Dunning, KC5QHH

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From the Prez (Continued)*(Continued from page 1)*

Clay Orchard, KC5MXN, is heading up the Garland Star Spangled Fourth celebration. He is looking for volunteers. The number of shifts he has to fill for all the activities is still full of holes. I know that lots of you are beginning to plan your family vacations but if you can give Clay a couple of hours over that weekend please give him a call. His phone number is in the roster.

That's all for now and hope to see you all at one of the events

73's de Gerry WD4BIS

**Monday Night Info Net
Control Operators**

May	John Dake, KD5CTS
June	Ed Hubbuch, KC5GGZ
July	Randy Dunning, KC5QHH
August	Mark Durbin, KC5GNG
September	Don Duncan, KC5GLM
October	Kay Duncan, KC5JWB
November	Any of the Schroeder family: Jim: KCBSU Sharon: KC5ZGK James: KC5EOR Jennilyn: KC5YZK Jacob: AC5NA Joseph: KD5EWQ
December	Theda, KC5QZZ

GARC General Information**Repeaters:**

The GARC operates two open repeaters for its members and for all local or visiting Amateur Radio Operators: Two meters: **146.66 (-)** and 70 Cmeters: **442.70 (+)**

Voice Mail:

For late-breaking news or to leave the club a message, call our 24-hour voice-mail line at **(972) 272-4499**.

Information Net:

GARC Information Net: held every Monday at 7:30PM on 146.66 (except for meeting nights and holidays). The net features current events, "swap shop", and a technical information exchange. All area hams are encouraged to check in. All members are encouraged to volunteer to be net control for this net. Contact the GARC communications officer, Mark Durbin (*Mark.Durbin@wcom.com*), if you are interested.

Internet:

Information on the GARC can also be found on the world wide web address below:

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

The web site includes a map to the monthly meetings, classes, and links to local public services events and other items of interest to the hams in the Garland area.

Newsletter:

The Arclite is published monthly for the members of the Garland Amateur Radio Club. The contents of this newsletter are copyrighted the date of publication, but may be reprinted without

permission in any Amateur Radio Publication provided proper credit is given and the motive is the Advancement of Amateur Radio and Not For Profit.

The deadline for Arclite materials is the 2nd Monday of each month. If you have any informative or educational articles that you would like to see included in this newsletter, or if you have items to be included in the GARC calendar, please send it to the Arclite editor.

Arclite Editor
1027-B West Austin St.
Garland, TX 75040

or emailed to the Arclite Editor at
janet11@ibm.net

Membership:

Membership forms are available at the GARC monthly meetings and on the GARC web site. Once the membership form and dues are submitted, new members are voted in at the next GARC monthly meeting.

The GARC membership roster is distributed to GARC members only and is included most months with the Arclite. It is not to be used for any commercial purposes.

To submit changes to the GARC roster (such as change of address, updated phone numbers, license upgrade, etc), send them to the GARC secretary, TJ Hoover (KC5ZTJ) at *tj@hisword.net*



GARC Field Day, June 26-27

I hope everyone is getting ready for Field Day. Here is a map and the directions on how to get there. Please come out and join in the fun.

We will be having our barbecue for dinner Saturday and we also have a pool this year. Actually the pool is a public pool at Bradfield Park, but if you are interested I have included the hours of operation and prices. Please come by and join in the fun. Field Day is a very important exercise in emergency communications, but we also try to make it fun.

Park Information:

Pool hours for Saturday: 1:00PM to 6:00PM
 Pool hours for Sunday: 1:00PM to 6:00PM
Recreation Center: Saturday 9:00AM to 5:00PM

Directions from the ECC:

⇒ Turn right out of the parking lot.

- ⇒ Turn right on Newman, first road to the right.
- ⇒ Turn right on Walnut St.
- ⇒ Turn left on West Walnut Circle.
- ⇒ Turn left onto Hwy 78, Lavon Hwy.
- ⇒ Turn right onto Castle Rd.
- ⇒ Go straight through the Mars Rd. stop sign. After stopping)
- ⇒ Look to your right after the softball fields and we will be in the pool parking lot at the west end.

Mark Durbin
 KC5GNG



Map to GARC Field Day Site

A Day in the Kids' Class

By Mary Crenshaw, KD5EQR

In order for us to study for the written tests, hams have to read lengthy books on theory and regulations. Kids who want to get their license will have to study hard in order to pass the test. To help make the studying a little easier and fun, Karen Dunning, W4YHN, organized a Kids' Class for the children in our club. This is the second year that Karen has organized a Kids' Class.

The children in the class have very much in common. Besides being interested in Amateur Radio, their parents are the amateurs who got them interested in ham radio. The kids in this class range from 9-19 years of age.

The Novice class was five days long, four hours each day. The main purpose of this class was to pass the Novice (Element 2) test. The three main topics covered were **How Radios Work, What you can do, and FCC Rules and Regulations** using a combination of flip charts, flannel graphs, hands-on practice, and games.

Most of the lessons had an activity to make it more fun for the kids. For example, one particular lesson was about the difference between using a repeater and line of sight. Karen threw a small stuffed animal to a kid to illustrate how a line of sight signal travels. To illustrate how a repeater works, she named a certain kid "the repeater" and he had to throw it to the other person.

Another time, she used an analogy comparing the polarization of a directional antenna to a tennis racquet. The length of the antenna should be facing the radio signal like the broad side of a tennis racquet has to be facing the ball.

What most people don't realize is how much work is involved in the preparations. There were dozens of large flip charts to be made. These covered lists of regulations and questions, charts, and pictures. There were also many cloth cutouts for the flannel graph. These had pictures of ionospheric regions, the setup for a radio station, the symbols for

switches, and others. Karen did a lot of work designing and setting up this class.

At the beginning of this article, I said that studying should be fun and interesting for the kids. And not to my surprise, the kids agreed that Karen made this very fun and easy. Brandon Hoover (age 11) said "She's very nice and she makes it easy and fun, like the pictures on the flannel graph." Comments like that is what makes all the hard work and effort worthwhile.



Kids' Class: Students, Instructors, and Assistants. Left to right, first row: Karen Dunning W4YHN, Joseph Schroeder KD5EWQ, Mary Crenshaw KD5EQR. Second row: TJ Hoover KC5ZTJ, Brandon Hoover, Elizabeth Bissati, Carrissa Walker, Corryn Marshall-Lunday, Joshua Marshall. Third row: Jacob Schroeder AC5NA, Carol Holley, David Shapiro, Anea Marshall, Donya Lunday.

On behalf of the GARC Kids' Class, **Thanks Karen!!**

Mary Crenshaw, KD5EQR
(age 15)



Things to Do

Garland Area Public Service Events

from John Galvin, N5TIM (<http://www.qsl.net/n5tim/>)

Ongoing Events

Garland Siren Test - Monthly - The Garland early warning sirens are tested by the city the first Wednesday of each month at noon, weather permitting. Tests are generally conducted on the GARC repeater at 146.660Mhz with 600Khz negative offset. Amateur radio operators wishing to help with these siren tests should contact Bob Jones, W5BJ (boj1@airmail.net) if interested in helping out.

Sachse Siren Test - Saturdays - The early warning sirens located in Sachse are normally tested by the city each Saturday at noon, weather permitting. Participants are requested to be on site in Sachse by 11:45am and on frequency which is normally the GARC repeater at 146.660Mhz with 600Khz negative offset.

RACES participation credit is given towards fulfilling the yearly public service requirements. Amateur radio operators wishing to help with these siren tests should contact Doug Yates, AA5BP at 972-530-1850 (home phone with voice mail).

Upcoming Events

MADD Mothers Bike Ride - May 29 - The Ride is around Lake Ray Roberts with start and finish at the State park. The ride starts at 8:00am is over by 1:00PM. Amateurs need to be in place by 7:30am. No park entrance fee charged, BAR-B-Q Lunch, Live band, activities and much more. Contact James Dye, N5JZ (N5jz@aol.com), to sign on for this event.

Mesquite Balloon Festival - June 25-27 - The fourteenth annual Balloon Festival at Pashall Park in Mesquite, Texas. About 35 communicators are needed for this event. Contact Pamela Green, KB5WOG, (stauros@onramp.net) to sign-up for this event.

4th of July in Garland - July 2-4 - The annual City of Garland, Texas Fourth of July celebration in old downtown. Amateurs are needed during the following times and days. Friday, July 2nd, from 3:30pm to midnight. Saturday, July 3rd, from 7:00am to midnight. Sunday, July 4th, from 9:30am to midnight. Events include a parade. Contact Clay Orchard, KC5MXN (mcorch@juno.com) to sign up for this event.

Walk to cure Diabetes - Septmeber 25, 1999 - The JDF walk at White Rock Lake. This annual event starts at Winfrey Point and goes half way around the lake and back. A blast for all. Details soon!

The Dallas Airshow - September 11-12, 1999 - It's on this year. Just got the confirmation. Would like suggestions of a better way to allocate operating periods. Also will take sign ups. Contact John Galvin, N5TIM with infomation or to sign up.

Reports on Past Events

March of Dimes Walk - April 24 - Annual walk at White Rock Lake to benefit the March of Dimes. THIS year the weather cooperated and we have only a few minor injuries to walkers. The MOD staff had high praises for the team and we are requested back next year. The following amateur radio operators supported this event; KC5GGZ, KA5ZWY, WT5Q, W5BJ, KB5ZAK, KC5TFQ, WA9WCC, KF9AS, K8DNE, KC5GNG, WA5LD, KC5WYE, KC5WRS, KD5DAT, N5YDX, KC5FEZ, KB5PYS, KA5SOT, KC5QBC, N8QVT, K5HW, N5LZX, N5TIM and KC5INW with the ambulance crew. Please direct any follow up to John Galvin, N5TIM.

NSCI Earth Day April 22 - The Neighborhood Service Council, Inc. Earth Day Celebration at Cottonwood Park in North Dallas to view exhibits sponsored by civic organizations and businesses. Doug Kilgore, KD5OUG, dougekilgore@home.com was the coordinator for this evnt.

MS Walk - April 18 - Annual walk in the Park-cities, Dallas, Texas. Another successful event with the support of Amateur Radio. The following amateurs provided communications for the event; KC5GGZ, N5TIM, KC5JWB, KC5GLM, KC5NFQ, KC5TFQ, AC5AX, KC5INV, KD5EWT, W5BJ, KB5ZDG, KC6LNP, KC5HTN, KC5MXN and AC5DT. Please contact John Galvin, N5TIM with any follow-up.

MS Walk - April 18 - New walk for the MS Society in Plano, Texas. Coordinators for this even were Roger Risinger, K5WWG and John Sanders, AB5ZR.



June 1999

Sun	Mon	Tue	Wed	Thu	Fri	Sat
20 8pm: Dallas RACES training net	21 7:30pm GARC Information Net	22 Class: Technician Theory	23	27 7:30pm Garland VE Testing Session 9pm: Garland RACES training net	25 Event: Mosquite Balloon Festival	26 Event: Field Day Classes: Many Event: Mosquite Balloon Festival Noon: Sachse Siren Test
27 Event: Field Day Event: Mosquite Balloon Festival	28 7:30pm GARC Monthly Meeting	29 Class: Technician Theory	30			

July 1999

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1 9pm: Garland RACES training net	2 Event: July 4 in Garland	3 Event: July 4 in Garland Noon: Sachse Siren Test
4 Event: July 4 in Garland 8pm: Dallas RACES training net	5 7:30pm GARC Information Net	6 Class: Technician Theory	7 Noon: Garland Siren Test	8 9pm: Garland RACES training net	9	10 Noon: Sachse Siren Test
11	12 7:30pm GARC Information Net Kid's Class: Tech	13 Kid's Class: Tech Class: Technician Theory	14 Kid's Class: Tech	15 9pm: Garland RACES training net Kid's Class: Tech	16 Kid's Class: Tech	17 Noon: Sachse Siren Test
18 8pm: Dallas RACES training net	19 7:30pm GARC Information Net	20 Class: Technician Theory	21	27 7:30pm Garland VE Testing Session 9pm: Garland RACES training net	23	24 Noon: Sachse Siren Test
25	26 7:30pm Monthly GARC Meeting	27	28	29 9pm: Garland RACES training net	30	31 Class: Home Brew Noon: Sachse Siren Test



LARGE CAPACITY BATTERIES

by Mike WA5TKC

We all have large batteries we use everyday like those in our cars and trucks. There are several types of these large capacity batteries and this article is to help explain the required maintenance for these batteries to get the longest possible life form each type. There are also things like tractors, boats, motorcycles, and other devices that use batteries but are stored for long periods of time without being used. The care of these types are also covered in this article.

There are four types of batteries that fall in the category of large capacity and they are shown below: The most effective way to extend the useful life of your batteries is to ensure that they remain fully charged between uses. An uncharged battery will slowly lose its ability to retain a charge through the process of sulfation. This loss of capacity can become permanent if the battery remains in a discharged or undercharged state for an extended period. Sulfation, in fact, is the primary cause of battery failure. It is very common for us that have Tractors,

Battery Selection	Description
Regular	Normal "flooded batteries with removable caps for adding water
Gel Batteries	Non-Removable caps
Calcium Batteries	with lead-calcium plate construction such as ACDELCO, and Voyager brands
Maintenance Free Batteries	with non-removable caps. User cannot add water to cells

Note that "Deep-Cycle" is not one of the your choices. This is because any of the battery types listed can also be of the deep-cycle variety. This does not change the information that follows.

etc. to leave them sit for long periods of time. Now you know why those boat, and motorcycle batteries tend to not last very long.

The second leading cause of battery failure is overcharging. Forcing even a small amount of excess current into your batteries for an extended time will damage the batteries through accelerated plate corrosion and heating. Unfortunately, many battery charging and maintenance devices are not designed to be left safely attached to your batteries for more than a day or two at a time. We all have done this.. "I'll just leave the charger on the battery all year". Unless you have a good three mode charger this is just as bad as leaving it unattended.

So why not just put a full charge on the battery and store it until it is needed again? When left unattended, all batteries lose charge from internal chemical processes at a rate of 1-2% of the battery's rated amp hour capacity per day. Therefore, even if the battery is stored fully charged, it soon loses enough of its charge to be susceptible to Sulfation. A "GOOD" battery charger has three modes of operation.

Mode 1 - Bulk Mode: The charger is in current-limit and delivers its maximum rated current to the battery. It is in this mode that the battery receives most of its recharge. When the battery voltage rises to approximately 14.7V (for a 12V system), the battery is at a 75% to 90% recharge level and the charger switches to absorption mode.

Mode 2 - Absorption Mode: The charger is in a constant-voltage mode delivering approximately 14.7V to the battery. The charger measures the amount of charging current being delivered to the battery. When the charging current drops to approximately 10% of the chargers maximum-current rating, the battery is 100% recharged and the charger switches to float mode. It is because of the absorption mode that this type of charger should not be used as a power supply

Mode 3 - Float Mode: The charger is in constant-voltage mode at a lower voltage than in absorption mode (approx. 13.8V for a 12V system). This allows the battery to draw just enough current to make up for its internal leakage current. When the charger is in this mode, the battery may remain connected to the charger for all of the battery's service life with no damage to the battery.

Be sure to check electrolyte levels every couple of months...

(Continued on page 8)

LARGE CAPACITY BATTERIES (Continued)

(Continued from page 7)

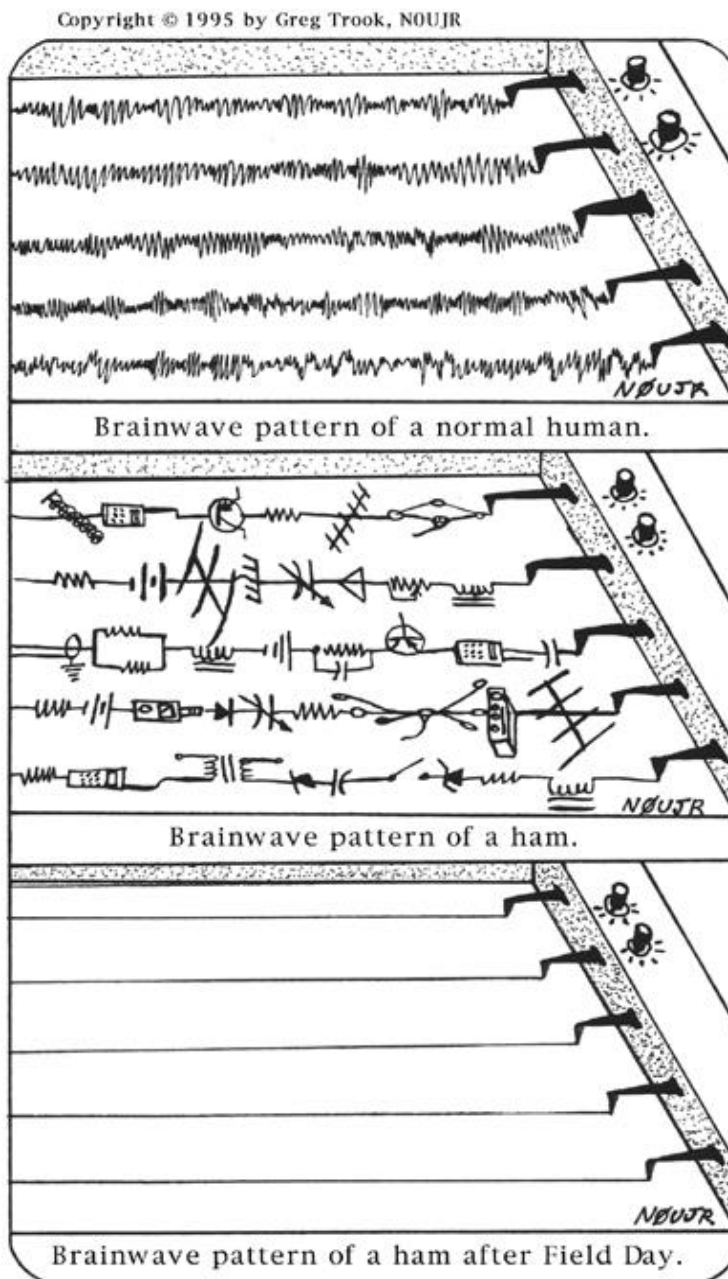
EQUALIZATION:

There is also a maintenance function that you can perform on large capacity batteries called Equalizing. **(NOTE THAT GEL CELL BATTERIES DO NOT NEED THIS AND WILL BE DMAGED OR DESTROYED BY TRYING!!)**

Be Sure and check the electrolyte levels before and after you equalize as this function consumes electrolyte. Equalizations occurs under a rapid charge rate such as what would be supplied by a typical automotive charger.

This is done by forcing the voltage as high as 17 volts and charging at a high current rate. This will ensure that all the individual cells (6 of them in a 12 volt battery) receive equal charges. This however will also reduce the life of your battery and should only be done when the capacity of the battery seems to have been decreased. This may not be required at all if the batteries are maintained by a good three stage charger. The disadvantage of using a 3 stage charger is if you use a device that draws current from the battery while the charger is connected. This will cause the battery charger to think the battery needs charging and revert to mode one. This is not a problem for some devices such as motorcycles, boats, tractors, etc. since they will be disconnected prior to use. Some devices such as emergency radio power could be used with the charger still connected. This is not suggested!! A simple disconnect device either automatically or manually disconnects the charger will help the charger not to be confused, and will assure that radio or other device will not see the increase in voltage due to the battery charger coming on line.

By: Mike WA5TKC



Training

1999 GARC Training Schedule

The Garland Amateur Radio Club's training program has the following classes underway or scheduled. Call Karen, W4YHN, or Randy, KC5QHH, Dunning at 972 495-9654 to verify times, locations, or to sign up for a class.

Theory Classes

Technician Theory

January: Tuesdays, Jan 26, Feb 2, 9, 16, and 23. 7:00 to 8:30pm at the ECC. Garland VE testing on February 25.

June: Tuesdays, June 22, 29, July 6, 13, 20. 7:00 to 8:30pm at the ECC. Garland VE testing

Kid's Classes

Novice in June: June 14 through 18, 10:00am to 2:00pm. Bring sack lunch. Location: Dunning's (call for directions). Garland VE testing on June 24.

Technician in July: July 12 through 16, 10:00am to 2:00pm. Bring sack lunch.

General Theory

May: Tuesdays, May 4, 11, 18, 25, 7:00 to 8:30pm at the ECC. Garland VE testing on May 28.

Advanced Theory

September: Thursdays, September 16, 23, 30, October 7, 14, 21 at 7:00 to 8:30pm at the ECC. Garland VE testing on October 28.

Morse Code Classes

5 WPM

March: Tuesdays, March 2, 9, 16, 23, 30, April 6, 13, 20, 7:30 to 8:30pm at the ECC. Garland VE testing on April 22.

September: Tuesdays, September 7, 14, 21, 28, October 5, 12, 19, 26, 7:30 to 8:30pm at the ECC. Garland VE testing on October 28.

Specialty Classes

These are practical, often hands-on, fun classes. The dates are subject to change to accommodate public service events

ECC Operations: Feb 6. (Bob Jones, W5BJ)

ECC Operations: April 17, (Bob Jones, W5BJ)

Home Brew: May 15

Soldering PL259 connectors – KB5NSI

Making Molex 12 volt connector – WD4BIS

Making standard audio connector – KC5GLM

Field Day Operations: Saturday, June 19th, instructor TBD

Getting Started in Packet Radio - CQ Video at Field Day, June 26th

Getting Started in Amateur Satellites - CQ Video at Field Day, June 26th

Getting Started in DXing - CQ Video at Field Day, June 26th

Home Brew: July 31

Soldering PL259 connectors – KB5NSI

Making Molex 12 volt connector – WD4BIS

Making standard audio connector – KC5GLM

Home Brew for Kids: Circuit Board Project – August – KD5OUG

Home Brew: Micro-controller (PIC) Project – August – WD4BIS/KC5QHH

ECC Operations: November 6. (Bob Jones, W5BJ)

Repeater Operation and Maintenance – TBD – KC5GNG



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Things to Do

Selected ARRL Contests and Special Events (from <http://www.arrl.org/>)

June 26-27: Field Day

Charlottesville, VA: Albemarle Amateur Radio Club, K4C, **1800Z June 26 to 1800Z June 27, Classic Boatanchor Field Day.** 3.880 7.290 14.286. QSL. Paul Dean, WB9HGZ, 4300 Sylvan Lane, Charlottesville, VA 22911.

Philadelphia, PA: Holmesburg Amateur Radio Club, W3P, **1800Z June 26 to 1800Z July 4, Welcome America/Independence Day celebration,** 7.240 14.240 146.685. Certificate. Holmesburg ARC, PO Box 6253, Philadelphia, PA 19136.

Charlton, MA: Melha Shriners Radio Club, W1GLM, **1500-1900Z June 27,** Massachusetts Masons Grand Masters Fair at the Masonic Home. 3.860 7.225 14.255 28.365. QSL. Melha Radio Club, 24 Allen Ct, Hampden, MA 01036.

July, 1999:

Great Circus Train: W9R, **0000Z July 2 to 0000Z July 5, operating from the Great Circus Train.** 7.240 14.240 21.340 145.55. Certificate. James Romelfanger, K9ZZ, 4121/2 Ash St, Baraboo, WI 53913.

San Francisco, CA: Historic Tall Ship American Pride, N6A, **0700Z July 2 to 0700Z July 17 for the 1999 California Gold Rush Race to Long Beach and San Diego.** 7.049 7.249 14.049 14.249. Certificate. WB6SCV, 550 West Sixth St, No.11, Tustin, CA 92780-4335.

DeSmet, SD: Huron Amateur Radio Club/Lake Area Radio Club, WØNOZ, **1700Z July 3 to 0100Z July 5 commemorating Laura Ingalls Wilder,** author of Little House on the Prairie. 7.265 14.265 28.465 50.165. Certificate. Huron Amateur Radio Club, PO Box 205, Huron, SD 57350.

Thompson, OH: Lake County Amateur Radio Association, N8GB, **1400Z July 4 to 0100Z July 5 celebrating Independence Day.** 7.246 28.455. Certificate. George R. Bair, 386 Cedarbrook Dr, Painesville, OH 44077.

Austin, TX: Naturist Amateur Radio Club, NU5DE, **0000Z July 5 to 2400Z July 11, during the 24th Annual North American Nude Awareness Celebration.** 7.265 14.265 21.365 28.465. Certificate. Naturist Amateur Radio Club, PO Box 200812, Austin, TX 78720.

Barrien Springs, MI: Holiday Hams Chapter 435 HRRVC, N8N, **1200Z July 7 to 2400Z July 17, operating from the 35th Annual Holiday Rambler RV Club International Rally.** 14.085 14.250 21.085 21.350. QSL. Roy Maull, N8YYS, 151 Old River Rd, Williamstown, WV 26187.

Winnipeg, MB: Winnipeg Senior Citizens Radio Club, VX4PAG, **0000Z July 9 to 0000Z Aug 8, operating from the Pan American Games.** QSL. VX4PAG, 598 St Mary's Rd, Winnipeg, BM R2M 3L5 Canada.



GARC Meeting Minutes, May 31, 1999

Meeting was called to order by president Gerry Crenshaw at 7:30.

The meeting started off with Pledge of Allegiance and visitor introductions.

A motion was made by Kaye Duncan KC5JWB to approve the minutes as printed in the Arclite. and Bill Reynolds K8DNE seconded the motion.

Clay Orchard KC5MXN stated that he still needs volunteers for Star Spangled 4th.

Bill Reynolds K8DNE talked about HamCom and said he still needs volunteers to help with the testing.

Just a reminder that Kid's Day and Field Day

are both coming up soon. Kid's Day is on the 19th and Field Day is June 26th and the 27th.

President Gerry Crenshaw wanted everyone who was not at this past meeting to call him to get the new auto patch codes.

Randy Dunning KC5QHH said he needs a volunteer for the upcoming Tech class.

The ending bank balance at the meeting was \$3,181.94.

Submitted by
T.J. Hoover KC5ZTJ
Secretary

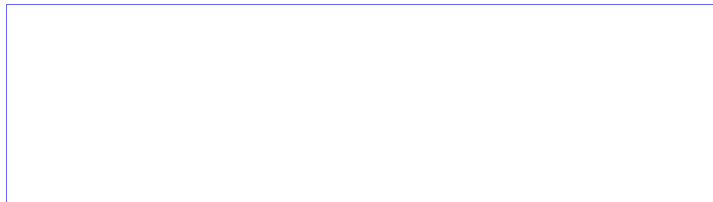


Results of Kid's Day – June 19, 1999

The Kid's Day event is sponsored by the Boring ARC to help introduce kids to a hobby they may enjoy too, and to encourage parents and grandparents (and aunts and uncles) to spend some time with the kids encouraging them to contact others on the air while they act as control operator in the background. This is the second Kid's Day event with GARC participation.



Garland Amateur Radio Club
Emergency Communications Center (ECC)
1027 B West Austin Street
Garland, TX 75040



Please Rush!!!

In This Issue...

See info on Field Day, June 26-27, on Page 3