

NOARS LOG

Volume 40, Issue 3

Welcome to *NOARS* Country

March, 2004



Club FM Repeaters

UHF: 449.800/444.800 MHz

VHF: 146.100/146.700 MHz

6 meters 51.16/51.66 + 91.5

Joined with M2M parent repeater output

144.550/145.150 MHz

Home of BART the DX ALERT

2004 EXECUTIVE OFFICERS

President: Ted Shook, W8TAS

Vice President: Clark Beckman, N8PZD

Secretary: DeeDee Ohman, KA8VTS

Treasurer: Tom Porter, W8KYZ

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NOARS STANDING COMMITTEES:

A.R.R.L. VE: Tom Porter W8KYZ

DX Member: Tedd Mirgliotta KB8NW

Banquet: Gary Gargus N8DIU

Property Manager: Ned Jones WD8CSP

U.S.S. Cod: Ted Jones KA8WMX, Don
Winner WD8RZG

K8KRG WEEKLY ON-THE-AIR

REPEATER NETS

WD8IQJ – KC8YJW – W8ADV

W8KYS – K8PJS – Looking

NOARS Net Wednesday 9:00 P.M.

NOARS Tech Net Thursday 8:00 P.M.

146.700 – 444.800

In this issue;

New Members 2004

Upcoming Hamfests and Events - VE exam locations

Power supply part 2 of 3 – Dayton Updates

Hawaii antenna bill – Peggy Sue gets her ticket

Where's the DX? - Swap -N- Shop

Messages from the front table - Autumn 2003

Upcoming hamfests and events

March 21st Toledo – Maumee, OH – Brian WD8MXR – 419-385-5624

March 28th Lake County– Madison High School – Robert K8BL – 440-951-0283

April 18 Cuyahoga Falls – <http://www.cfarc.org> – Ted Sarah, W8TTS 330-688-2013

Apr 25 Athens <http://www.ac-ara.org> – Drew McDaniel, W8MHV 740-592-2106

Apr 25 Twenty Over Nine Radio Club – Don Stoddard, KI8SS 330-793-7072

May 14-16 Dayton Hamvention <http://www.hamvention.org/> Gary Des Combes,
N8EMO - 937-276-6930 or 937-276-6934

When and where was baseball's first All Star Game played?
Answer on page 7

VE Exams – basic instructions;

For VE Exams the candidate must bring the original and copy of the current license and CSCE forms (if applicable), identification, and the correct exams fee monies. It is always a good idea to check with the VE examiner in the case of poor weather cancellation or any special needs. The 605 form can be obtained on-line at arri.org/arrivec/ncvec605.pdf, have this filled out ahead of time and make your test less stress.

Elyria, 3d Sunday each month at American Red Cross, 2929 West River Rd, Elyria OH 44035 – Testing begins at 1 PM, walk-ins allowed, park in rear, use rear door. Contact Charles S. Hall, 216-433-3036

Akron, 2nd Saturday odd months at Summit Co. American Red Cross, 501 W Market St, Akron OH 44303 – testing at 3 PM, walk-ins allowed. Contact Bruce M. Ferry, 330-929-2766

Canton, Stark Co. Sheriff Office EOC, 4500 Atlantic Blvd NE, Canton OH 44705
Testing at 9 AM walk-ins allowed. Contact Gary L. Kline, 330-837-2927

Wickliffe AES, 1st Saturday even months at 28940 Euclid Avenue, Wickliffe OH 44092 Testing begins at 12 PM – Walk-ins are welcome, contact Scott Farnham, 440-256-0320 – do not call AES direct.

Independence Town Hall, 6652 Brecksville Rd, Independence OH 44131 – test dates March 9, May 4, July 13, September 14, November 9, 2003 – Doors open at 9 AM, pre-registration is appreciated, walk-ins taken. Contact Gary Dewey, 216-642-8705

Roll Call will return in the next issue

BARF 80 has retired

Since it's inception to the radio community in the greater Cleveland area the telephone BBS provided information about dx activities and a whole lot more. However faxing DX info can still be done.

The Ohio/Penn DX Bulletin now has a new FAX number. Contributors can now send/fax their DX information to the following number:

1-419-828-7791

(F A X only!)

SPECIAL NOTE

BY EDITOR:

If you are having a problem receiving bounced mail by sending mail to me via "kb8nw@barf80.nshore.org", please send mail to me via "kb8nw@arri.net"
TNX de Tedd KB8NW

The minutes of the meeting will return next month

HAMVENTION PLANNING, PREPARATIONS GOING FULL TILT

Hamvention <<http://www.hamvention.org>> General Chairman Gary Des Combes, N8EMO, reports all is going smoothly as the 2004 show approaches. Hamvention will take place Friday through Sunday, May 14-16, at Hara Arena in Trotwood, near Dayton, Ohio. The theme for the 53rd Hamvention is "The Year of the Contact."

"Things are going well, and my team is outstanding," Des Combes said in summing up Hamvention's preparations to date. "I really am fortunate to have the best volunteers in the world."

Des Combes says all forum slots have been filled, and about two-thirds of the inside exhibit spaces have been spoken for--which, he points out, is ahead of last year. Des Combes says advanced ticket sales and flea market signups appear to be strong. "We are compiling data now, but demand is very high," he said. Hamvention has another mailing in the works in an effort to attract additional exhibitors. Des Combes also notes that the Hamvention Web site has been upgraded and now provides for on-line, credit card ticket purchases.

Under the banner of its Great Lakes Division, the ARRL will offer a Hamvention forum, "How Grassroots Action Gets Lawmakers' Reaction," on Friday, May 14, 12:15 PM. Moderated by ARRL Great Lakes Division Vice Director Dick Mondro, W8FQT, the forum will feature an introduction by ARRL Great Lakes Division Director Jim Weaver, K8JE, and participation by ARRL General Counsel Chris Imlay, W3KD, who will discuss "How to Influence Congressional Representatives," ARRL New England Division Vice Director Mike Raisbeck, K1TWF, on "Getting State Legislators to Work with Us" and ARRL President Jim Haynie, W5JBP, who's titled his remarks "ARRL: Tighten that Cinch, and Go Do It!"

The annual ARRL Forum gets under way at 8:30 AM on Saturday, May 15. Check the Hamvention Web site <<http://www.hamvention.org>> for additional details.

The North Coast Contesters are pleased to announce The 12th Annual Dayton Contest Dinner on Saturday night, May 15th, at 6:30 PM at the Crowne Plaza Hotel at 5th and Jefferson St. Tickets are on sale now and seating is limited to 300. As always, new members of the CQ Contesting Hall of Fame will be announced by HOF member Bob Cox, K3EST. The price is 33.00 USD per person. All dinner ticket orders are handled exclusively by Craig Clark, K1QX at: Radioware and Radio Bookstore, PO Box 209, Rindge, NH 03461 (full contact information at <http://www.radio-ware.com>). The deadline for orders is May 6.

BOOK REVIEW (by Tedd, KB8NW)

Reading "THE COMPLETE DX'ER" (3rd Edition), I would have to say that this is the "Complete Package" for a new DXer, as well as for an older DXer (to polish up their DXing skills). Author Bob Locher, W9KNI, has put together a text book diary (an Elmer in a book) on how to achieve good DXing skills and what is needed to work DX. Individuals who bought Bob's 1st and 2nd Editions (published 1983 and 1989) may want to add this updated 3rd Edition. Bob was inspired to come out with a 3rd Edition due to the major changes in DXing (InterNet, PacketCluster, etc.), and his new found interest in QRP operations (after building an Elecraft K2 QRP transceiver). The book deals with "How to Listen" (going through the bands or listening to pile-ups), "What is Needed" (or not needed -- the bare essentials), QSLing, and "What Equipment and Accessories are Needed" to get the job done. These are just a few items in the book. Early in the book, Bob brings out the importance of good listening skills. Probably a skill many newer DXers do not have or older DXers lost with the age of the DXClusters. This 223 page book is worth reading and have in a DXer's library. The book lists for 19.95 USD (plus shipping). For more reviews and details on purchasing the book, go to the Web page at:

<http://idiompress.com/books-complete-dxer.html>

PEGGY SUE GETS LICENSED

During the recent Buddy Holly W5B commemorative special event operation, Peggy Sue Gerron-Rackham was perhaps the most prominent of the W5B guest operators. The namesake of Holly's 1957 "rockabilly" hit "Peggy Sue"--who went to high school with Holly and later married the drummer in his band, The Crickets--says participating in the W5B event sharpened her desire to get her ham license. That happened this week when the FCC granted her the call sign KE5AKW. She now plans to apply for a vanity call sign. "Out of all the Buddy Holly events that I have attended in my life," she said after the W5B special event. "This event will always stand out in my memory." As rock n' roll history has it, Holly originally titled the song "Cindy Lou," but Crickets drummer Jerry Allison convinced the singer to change the tune's name to "Peggy Sue" just before the recording session. Gerron, who still goes by that name, says that story is "close" to the truth but not entirely accurate. After Holly's death, Gerron toured with The Crickets when the band got back together. Holly's follow-up song "Peggy Sue Got Married" inspired a 1986 movie starring Kathleen Turner. Over the years, Gerron has made public appearances all over the country--including on "Oprah," VH1, the Oxygen Network, as well as network TV, and has worked as a speaker, columnist, back-up singer and talk radio co-host (her show was called "Rave On"). Getting on the air during the W5B special event, however, turned out to be very "special" for her. "You can do TV specials, and you can be interviewed by the very best DJs," she said, but there is nothing like the feeling of putting your finger down and transmitting your call sign and having somebody answer back." The Buddy Holly special event--January 29 through February 2 in Holly's home town of Lubbock, Texas--marked the 45th anniversary of the entertainer's untimely death in a February 3, 1959, plane crash in Iowa. The mishap also claimed the lives of early rock n' rollers Ritchie Valens and JP "The Big Bopper" Richardson. The Lubbock Amateur Contest Club's W5LCC provided the site for the special event station. Some area hams still remember Holly as a classmate at Lubbock High School. Bryan Edwards, W5KFT, who obtained the W5B call sign, reports W5B logged more than 1000 contacts. The special event generated a lot of interest in talking to Peggy Sue, and she obliged as many as possible. A few shared personal recollections of Holly and his music. "This is not planned conversation," Gerron said of Amateur Radio. "It's one person communicating with another. Is anybody out there? You bet they are! Keep rockin'!" Other operators during the W5B special event included Doug Hutton, W5JUV, Terry Bajuk, KE5BL, Dennis Brush, WA5CBG, Joey Johnston, KC5MVZ, Eddie Petmecky, KC5OBX, Davis Plunkett, K5DLP, Rick Roy, KB5KYJ, and Tom Tucker, KB5UOP.--thanks to Mike Gruber, W1MG, who provided information for this article.

Taken from ARRL news

DXCC NEWS – Bill Moore, NC1L, ARRL DXCC Manager, wants to remind everyone that the deadline to be shown in the next DXCC Honor Roll list is March 31, 2004. Submissions must be postmarked March 31, 2004, for your submission to count for this listing. The DXCC Honor Roll list will appear in August 2004 QST. There are 335 entities on the DXCC list, and you must be within the numerical top 10 DXCC entities to qualify.

The current minimum requirement for Honor Roll is 326 current entities.

Bill Moore, NC1L, ARRL DXCC Manager, also states that the following operations are approved for DXCC credit:

Juan de Nova/Europa - TO4E and TO4WW (from November 25, 2003 to December 21, 2003)

Iraq - YI/N2OBM - Starting January 2004, YI9ABL - Starting December 2003, YI3Q - Starting January 2004,

YI9YMA - Starting January 2004, YI9ZF - Starting January 2004

From the repair bench; Power supply as a foot warmer – part 2 of 3

What is this Passing stuff really do in here? - Let's look a bit at what the pass transistors do. The key thing here is current carrying capacity and heat dissipation. In our example, lets say or power supply uses the common 2N3055 NPN power transistor. This transistor can pass up to 15 amps of collector current. Note that it is not wise to run any device at its maximum rating. Thus for a 25 amp power supply you would want to have more than two 2N3055's in parallel. For the last supply I built, I used four. If you used higher current rated transistors, you could get by with less of them. If you simply placed the multiple pass transistors in parallel, slight differences in gain between them would cause unbalanced current flow. The highest gain transistors would hog most of the current flow and most likely fail. To balance the current small value resistors called "Emitter Ballast Resistors" are added in series with the emitter lead of each transistor. These can be between .01 to .1 ohms and should be of at least a five watt dissipation.

How Hot is Hot? - The next and most serious issue is heat dissipation. Or just where does all the energy go? In this example think of the pass transistors as simply big variable resistors, for this is what they are really doing. A little simple math shows the problem. For our example, we have an unregulated voltage of 20 volts and the load is 15 amps. Ohm's Law shows us that: 20 volts minus 13.8 volts = 6.2 volts drop across the pass transistors. 6.2 volts X 15 amps = 93 watts of heat to be dissipated! This means you need a LARGE heat sink to dissipate this amount of heat. A quick look at some data sheets shows that the heat sink would be around 5" wide, 3" high with eight fins and 12" long! The size alone of the heat sink has a great deal to do with the rating of a power supply. Our popular Astrons for example are rated being able to supply only half of the current continuously that their specified for! That is, a 20 amp Astron can in reality supply only ten amps continuously. The trick is that in normal amateur operation the draw of current from the supply is intermittent. Astron assumes that you will be drawing current no more than 50% of the time and then for not over a few minutes. This gives time for the heat sink (and pass transistors) to cool down. When using any power supply for continuous operation it pays to derate it from its specified output current by 50% and place a cooling fan on it! Don't forget that the power transformer and rectifier block need additional cooling to. On my Astron I arranged the fan so some air is blown into the case to cool the internal components as well.

Here is really good news - There are two kinds of power supplies, those that have burnt up, and those that will. There are some things you can do to extend the life of your Astron or other power supply. First and most important, Keep it COOL! Reread what I just said about heat dissipation, duty cycle and adding a cooling fan. The power supply is not the place for notebooks, pizza boxes, coffee cups and antenna tuning notes. Heat causes the majority of power supply failures! Next be sure there is a MOV (Metal Oxide Varistor) across the 120VAC power coming into the supply. Adding two additional ones from each side of the power line to ground is not such a bad idea either. This will help protect the supply from voltage spikes (lightning) coming in on the power line. Keep in mind that lighting damage can come from induction as well. Good grounding and lead dress is your best protection. If your power supply uses a 723 IC, add a 1K resistor in series with the voltage adjustment pot wiper, for some reason this simple modification prevents many failures of the 723. At the same time place a 0.1 mFD capacitor across the positive and negative terminals of the rectifier block.

Stay tuned until next month, we will discuss more math and finish the supply exam.

* Hawaii Amateur Radio antenna bills advance: Two Amateur Radio antenna bills under consideration in the Hawaii State Legislature soon will move from a House to a Senate committee, according to their sponsor, Rep Ken Hiraki. House bills 2773 and 2774 would provide for Amateur Radio antennas in housing developments, condominiums and subdivisions governed by covenants, conditions and restrictions (CC&Rs). HB 2773 would allow condominium apartment owners who are licensed Amateur Radio operators to install antennas on their apartment units. HB 2774 would permit the installation of amateur radio equipment in subdivisions. Following a March 1 hearing in the Hawaii House Committee on Consumer Protection and Commerce, committee members amended the bills to have an effective date of 2099, unanimously approved them and advanced them for consideration by a Senate committee. The 2099 effective date will permit additional time for the committees to amend the bills and integrate them with other CC&R-related legislation. The ARRL submitted written testimony on behalf of the measures (see "ARRL Submits Testimony Supporting Hawaii Antenna Bills" <<http://www.arrl.org/news/stories/2004/02/27/4/>>).

Taken from ARRL news 03/05/04

Where's the DX? - Taken from Tedd KB8NW OPDX bulletin – www.papays.com/

AT0, INDIA – Did you work AT0D this past weekend? This was Ram, VU3DJQ. He informed OPDX that he has permission to operate as AT0D (or possible AT0DJQ) during contests. Look out for him between now and the end of March. Operations will be on 20 meters only. QSLs go to EA7FTR.

EU-108. Look for Jim, MM0BQI, to sign MM0BQI/P from the uninhabited Treshnish Islands off the west coast of Scotland, scheduled for the first week in May. EU-108 is currently number 32 on the list of most wanted European IOTAs. The operation will take place from the island of Lunga, the largest in the Treshnish group. (Islands Of Scotland Award reference NH07). Activity will be on all bands 80-6 meters, SSB, CW, RTTY, using IC706g and IC7400 transceivers. Antennas will be Butternut verticals and wire dipoles. QSL via the bureau or direct to: Jim Martin, MM0BQI, 3 Lismore Avenue, Edinburgh, EH8 7DW, SCOTLAND. All surplus money from direct QSLs will be donated to the Hebridean Trust, who owns and works to preserve the islands and whose permission to land and operate is gratefully acknowledged. For up-to-date information, see the Web page at: <http://www.qsl.net/mm0bqi/eu108> (coming soon) Also, E-mail Jim at: mm0bqi@theRSGB.net

HS, THAILAND – Champ, E21EIC (XW1IC, 9M2/E21EIC), informs OPDX that the PTD has renewed the 80/160m license in Thailand for all HS hams during the contest ONLY. The license will be expire on December 31, 2004. Their frequency table is: 160m - 1800-1825 kHz - 80m - 3500-3505 kHz and 3524-3536 kHz Champ also mentioned that Chai, HS1NGR, will be active on 3536 kHz (SSB only) and QSX 3795 kHz every weekend around 1700-2000z. QSL via CBA.

C56, THE GAMBIA (Update to OPDX.658

Jan, PA9JJ, will be active as C56JJ from Banjul, March 29th to April 5th. Remember that most of his activity will be on 80/40 meters and the WARC bands SSB. However, he may be on some other bands and do some CW. There will be an online log after his return on his home page at: <http://www.qsl.net/pa9jj>

KP4, PUERTO RICO – Alfredo, WP3C, will be active as KP4AH in the CQ WPX SSB Contest (March 27-28th) as a Single-Op/Single-Band (10m)/Low-Power entry. QSL KP4AH via direct.

YA, AFGHANISTAN – Masa, JG1OWV, informs OPDX that Afghanistan hams are now planning to operate club station YA0J for the upcoming CQ WPX SSB Contest (March 27-28th). Their activity will be limited, and they will try to be on as much as possible within their work schedules. This will be the first Multi-Operator entry from that country.

The DX Magazine has announced the results of its annual "Most Wanted Survey" . Here are the top 10 Most Wanted:

1) Scarborough Reef (BS7) ; 2) Andaman & Nicobar Islands (VU4) ; 3) North Korea (P5); 4) Lakshadweep Islands (VU7) ; 5) Peter I Island (3Y) ; 6) Yemen (7O) ; 7) Juan de Nova & Europa (FR/J & FR/E) ; 8) Navassa Island (KP1); 9) Desecheo Island (KP5) ; 10) Aves Island (YV0) - This survey was taken by Carl Smith, Editor of QRZ DX and The DX Magazine. For more information on these publications, please visit the Web page at: <http://www.dxpub.com>

<http://www.hornucopia.com/contestcal/contestcal.html> - Who said they wanted to sharpen their skills??

RSGB 80m Club Championship, SSB 2000Z-2130Z, Mar 18 10-10 Int.
Mobile Contest 0001Z-2359Z, Mar 20
BARTG Spring RTTY Contest 0200Z, Mar 20 to 0200Z, Mar 22 SARL
VHF/UHF Contest 1000Z, Mar 20 to 1000Z, Mar 21
Russian DX Contest 1200Z, Mar 20 to 1200Z, Mar 21
AGCW VHF/UHF Contest 1600Z-1900Z, Mar 20 and 1900Z-2100Z, Mar 20
CLARA and Family HF Contest 1700Z, Mar 20 to 1700Z, Mar 21
Virginia QSO Party 1800Z, Mar 20 to 0200Z, Mar 22
UBA Spring Contest, 6m 0700Z-1100Z, Mar 21
9K 15-Meter Contest 1200Z-1600Z, Mar 21

(Continued on page 7)

Swap n Shop

For Sale; Ted W8TAS 440-365-8041

I have used tower 4 sale: two at 40 foot (down) & 1 at 30 foot standing.

Also: 60 ft of Riverview tower (Down_ TH7DXX beam & 40 meter beam (short) see Tom K8PV or call Wellington, Oh

For Sale; Jim Henderson 440-774-1275

BK Model 2160 60 MHz Oscilloscope includes Dual Trace and time base, 2 new probes, manuals and schematics – asking \$350.00

For Sale: Jack Hubbard NI8N 419-499-1308

Mosley TA-33, rebuilt last year, \$ 100, located in Milan, on ground, elements are assembled.

6 element 10 mtr yagi assembled on ground, location Dayton – \$50.00

Clear-speech base unit for \$ 90.00.

Jack, ni8n@accnorwalk.com.

For Sale; Pat Willemin KB8AK PH 440-324-4575
40 meter beam by Cushcraft 402-CD Down \$250.00

For Sale; Bob Super N8HDE 440-458-5864 – also
N8HDE@YAHOO.COM

Kenwood TS-700SP All mode 2 mtr transciever with
Shure desk mike

TEN-TEC 2 mtr Model 1220 hand held mike

2 Mtr 4 Element beam

2 Mtr Cushcraft 11 element Boomer antenna

Listings e-mailed to electro7@apk.net must include your call sign in the message. NOARS Log editor, Virden “Clark” Beckman N8PZD

The first All Star game was held at the Chicago Century of Progress Exposition in 1933 was played in Comiskey Park.

(Continued from page 6)

Spring QRP Homebrewer Sprint 0000Z-0400Z, Mar 22

CQ WW WPX Contest, SSB 0000Z, Mar 27 to 2359Z, Mar 28

Spring Break RTTY Sprint 1800Z-2400Z, Mar 27

UBA Spring Contest, 2m 0600Z-1000Z, Mar 28

SARL 80m QSO Party 1700Z-2000Z, Apr 1

Kids Roundup 1400Z, Apr 3 to 2200Z, Apr 4 SP

DX Contest 1500Z, Apr 3 to 1500Z, Apr 4

EA RTTY Contest 1600Z, Apr 3 to 1600Z, Apr 4

Missouri QSO Party 1800Z, Apr 3 to 0500Z, Apr 4 and 1800Z-2400Z, Apr 4

QCWA QSO Party 1800Z, Apr 3 to 1800Z, Apr 4

RSGB RoPoCo 1 0700Z-0900Z, Apr 4

144 MHz Spring Sprint 1900 local -2300 local , Apr 5

JIDX CW Contest 0700Z, Apr 10 to 1300Z, Apr 11

ARCI Spring QSO Party 1200Z, Apr 10 to 2400Z, Apr 11

EU Spring Sprint, SSB 1500Z-1859Z, Apr 10

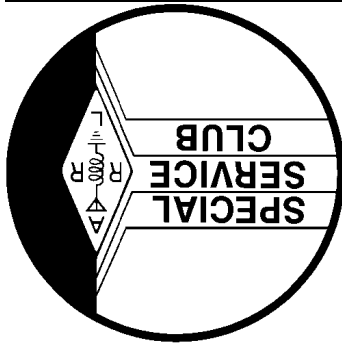
UBA Spring Contest, SSB 0600Z-1000Z, Apr 11

SARL Hamnet 40m Simulated Emerg Contest 1200Z-1400Z, Apr 11

Low Power Spring Sprint 1400Z-2000Z, Apr 12

222 MHz Spring Sprint 1900 local -2300 local , Apr 13

So let us know how you are doing at these contests, NOARS would like to get some entries in these contests. You do not all have to operate from the same location for a club entry, you can sit in your flannel jammies at home and nobody will care, just



Amateur Radio Home of the U.S.S. Cod

Northern Ohio Amateur Radio Society
P. O. Box 432
Elyria, OH 44036-0432



The **NORTHERN OHIO AMATEUR RADIO SOCIETY** is a Public Service Organization, with the purpose of education and the furtherance of the art.

Meetings are held on the Third Monday of each Month except December at **Gargus Catering Hall, 1969 N. Ridge Rd., Lorain, Ohio** at 7:30 P.M. The **NOARS 2 METER NET** is held each **Wednesday at 9:00 P.M.** on the **146.700/444.800** repeaters in Elyria, Ohio, located atop the E.S.T. Bank Building. The **NOARS TECHNICAL NET** is held each **Thursday at 8:00 P.M.** on **146.700/444.800**. Visit **NOARS** on the Internet at <http://www.apk.net/noars/>

The **NOARS** club station donated by manufacturers aboard the **WW II** submarine **U.S.S. Cod** in the port of Cleveland is open from Memorial Day to Labor day. The station is open to all **NOARS** members and their guests daily from 11 AM until 5 PM.

If this is your first copy of the **NOARS LOG** why not become a member and receive it monthly? Membership is open to anyone interested in communications, whether a licensed amateur or not. Dues are \$10.00 US per year for a licensed amateur, \$5.00 for an associate member, and \$2.00 for family members. Checks are to be made payable to **NOARS** and mailed to **NOARS MEMBERSHIP, PO Box 432, Elyria, OH 44036-0432**, please include your call sign. Please fill in the email location to improve contact with our members.

Please Indicate _ NEW_ RENEWAL _INTEREST IN HOBBY _ CHANGES * PHONE (____) _____
Name _____ CALLSIGN _____ CLASS _____ ARRL ___ Y/N
Address _____ City _____ ST ___ ZIP _____
E-mail address _____ May we send you the PDF newsletter? ___ Yes