

NORTH SHORE ARC

Box 171, Oshawa, ON, Canada, L1H 7L1
www.osha.igs.net/~Isolomon/nsarc.htm

VOLUME 4, NUMBER 7 & 8

JULY/AUGUST, 1998

Summer fun antenna projects!

Upcoming Flea Markets

August 15	Brantford ARC
September 5	Lindsay ARC
September 12	Kingston Walter, VE3FJC

Executive Members

President	Peter, VA3PWH
Vice President	Alan, VA3ALN
Secretary	Jean Paul, VE3JPT
Treasurer	Ries, VE3UEA
Program Co-ordinator	Mike, VE3VCY

Newsletter Staff

Publisher	Glen, VE3LIZ
Editor	Laird, VE3LKS

Submit articles or info to Laird buy one of the following:

e-mail: ve3lks@rac.ca
isolomon@osha.igs.net
packet: ve3lks@bbsbbs
direct: ve3lks-1 on ve3ush

September Meeting

NSARC meetings are held the second Tuesday of every month at 19:30 in the Red Cross offices. This is located on the second floor of the Oshawa Centre. Take the elevator by Sears (north end of the Oshawa Centre) to the second floor and follow the signs.

No program info as of publishing deadline.

Lions Club Walk-A-Dog-A-Thon!

CQ Volunteers ... CQ Volunteers ...

The 4th Annual Lions Club Walk-A-Dog-A-Thon will take place on Saturday, October 3/98 in Newcastle. The NSARC has once again been asked to provide communication services for this charity event. I would like to hear from anyone who would be interested in helping out. This will be the third year our club has helped out and the Lions Club folks have always been very pleased with our past efforts!

For those of you that may not be familiar with the event, it is a walk-a-thon where the people take their dogs for a walk bringing in pledges for how much or all of the route they complete. The first year raised \$6000, the second year raised \$10,000 with last year reaching just over the \$13,000 mark! This money goes to the LIONS CLUB'S CANINE VISION TRAINING SCHOOL in Oakville where they train the "seeing eye" dogs. I have been told that it costs \$6500 to train one dog.

The NSARC's responsibilities are to provide communications from various checkpoints around the course which is about 10km in total length. The event lasts around 3 to 4 hours and our members are usually treated to a hot dog (no pun intended) and a soft drink at the conclusion of the event. Remember, it takes place in Newcastle so the countryside is beautiful!

This is a very worthwhile event and all NSARC members (licensed or not) are welcome to attend and help out. If you wish, you may even bring your dog(s) and walk the route yourself, carrying a handheld if you like. We use a VHF simplex frequency.

Please let me know if you would like to help out. I can be reached by E-mail at "heagle@sympatico.ca", "ve3epy@rac.ca", at the meetings, or by phone at 905-686-1512.

I look forward to hearing from you!

Gary, VE3EPY

P.S. --- Martha, as promised, I left out any reference to the QSO you had with the goat last year. (folks ... see Nov97 bulletin for details)

From the Editor...

I sure hope you all had fun out at Field Day this year. I made it out on Sunday morning and had fun working stations on 10m and watching Jean Paul VE3JPT play with his No. 19 Set, complete with authentic helmet with radio attached to the side. Jean Paul was able to make a contact on the 19 Set all the way from Enniskillen to Oshawa! Not bad for a WWII tank radio! Another highlight was working Peter on 2m. He had a unique identifier which we are trying to determine if it qualifies as a multiplier for Field Day. He was 1a with the call VA3PWH/outhouse...complete with QRM! We all jumped in to participate in hope of receiving that coveted Worked All Outhouses award and were glad to get this rare contact. It is still unclear as to whether he was in the mens or ladies outhouse but I

am sure that the QSL card, beautifully designed on 2-ply, will have all those details.

Need something to do this summer? Well, Farney VE3BHQ and Les VA3LTB have submitted some fun antenna projects to tackle. Both of these antennas I am in need of so I know that I will be making a trip to one of those great antenna supply stores (Canadian Tire or Home Depot) in the near future. Thanks fellows for the great projects!

So, who likes camping? We have all heard of IOTA and the Canadian Islands programs so what about starting a new program - Parks. It could be set up so that you can work Provincial, State, and National Parks. I think that this would be a fun and large numbers of Hams could be involved, not just a few as the island programs sometimes have to be because of logistics. If anyone is interested please let me know and I will start the ball rolling and get in contact with parks to see if they would be willing for us to set up equipment in the campgrounds. Who knows, they may like the idea...anything for marketing! This would be an event where the whole family would come along and we would just get side tracked with radio for a few hours at a time while we enjoy all that the parks have to offer.

Well, I had better get down to Home Depot before it closes to pick up the antenna parts. Until the next meeting...72 de VE3LKS.

Laird, VE3LKS

E-Mail Addresses

I would like to compile a listing of members e-mail addresses that would appear in a future issue of the newsletter. This would be great for yet another means of communicating with each other...much along the same lines as our membership list. Please send them to me at: ve3lks@rac.ca

Old Modems Wanted Dead or Alive!

(preferably alive!)

I would like to hear from anyone who has some old modems lying around that you are not planning to use. The "dumber" the better. By this I mean that the old style that do not have any "AT" command functions to them would be the best. The speed of the modem is not critical, as long as it will do 300 bits per second. (i.e. Bell 103 compatible) One of the types that is usable is the one where you placed the phone receiver into the rubber suction cups and then made the connection at 300 bps.

These modems will be used in a project at the VE3OSH and VE3NAA repeater sites.

Please have a look through those junk boxes! If you have anything you'd like to sell (cheap!) or better yet, donate to a good cause (the repeater!), then I'd be very happy to hear from you.

Please contact me either by E-mail at "heagle@sympatico.ca", "ve3epy@rac.ca", at the meetings, or by phone at 905-686-1512.

Thanks and 73 from

Gary, VE3EPY

Swap Shop

Roy, (905) 983-5411

Kenwood TS 450 SAT, Mic and manual \$120.

John, VE3VGI, (705) 939-1946

Kenwood AT 200 Antenna Tuner \$130.

Gord, VE3UIB, (905) 571 7068

Stripline Filter for 2 meters \$25. Arrow 144 meg. 3 element beam, portable beam \$75. R/S HTX 202 144 meg. handie, manual and charger, battery case \$180. Kantron:cs KPC-3 Plus,

TNC. manuals \$150. Diawa 4 pos. Ant. Switch \$85.

Josef, VE3FVH, (905) 655-3009

KLM 13 El. 2m. Ant. \$50, Balun 2K 1:1 50 ohms \$10, Kenwood Phone Patch, model PC-1 \$90. Jaybeam MBM 88/70 cm \$60. M2 2MCP14 2m. Crossed Yagi \$150. Kenpro KR-500 elevation rotor & control \$300. Kenpro KR-400 Azimuth rotor & control \$300. Microwave Modules 432 MHz -100 watt linear \$300. IC271 2m.all mode transceiver, P/S, mike and manual \$750. IC471 70cm all mode transceiver, P/S, mike and manual \$750. Landwehr 2m Pre-amp, mast mount \$210. TE-Systems 70cm 100 watt linear & Preamp. \$450. L.L. Grace Kansas City Tracker and Tuner. Package includes PC interface card , interface connector and software \$450.

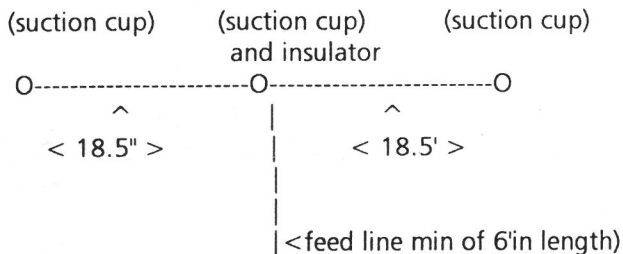
Mike, VE3DKW, (905) 723-7674

The next list is from the estate of VE3AEQ Glen. Cushcraft 2 m. 19 element beam \$80, Cushcraft 432 mhz. 24 element yagi \$35. 2 pcs Heathkit Cantenna Dummy Load \$20 each. Large Qty. Assorted Test Equipment, call for info....100ft Andrews 7/8 Heliac with Two connectors \$150. 903 meg. loop yagi 33 element \$25. Variac 10 amp.. \$20. 3480 Volt centre tapped transformer 25 cycle \$25.

Send all listings to VE3FJC, Walter at (905) 263-2338, by packet at VA3BBS, or by phone at VE3OSH 2 meter repeater.

SUCTION CUP DIPOLE FOR TWO-METER'S

submitted by Les, VA3LTB



Need a simple antenna that will enable good 2 meter FM communications into and out of today's brick, concrete and steel buildings? Like most projects, this one is cheap and easy to make. It is a dipole antenna cut for 2 meters, approximately 37 inches long. Remember, the same formula that works for the HF bands also works for higher frequencies, but it requires two attachments, strings etc, to hold it. This project dispenses with the strings and such by using soft rubber or plastic suction cups, the type used to hold stuffed animals to the inside of car windows.

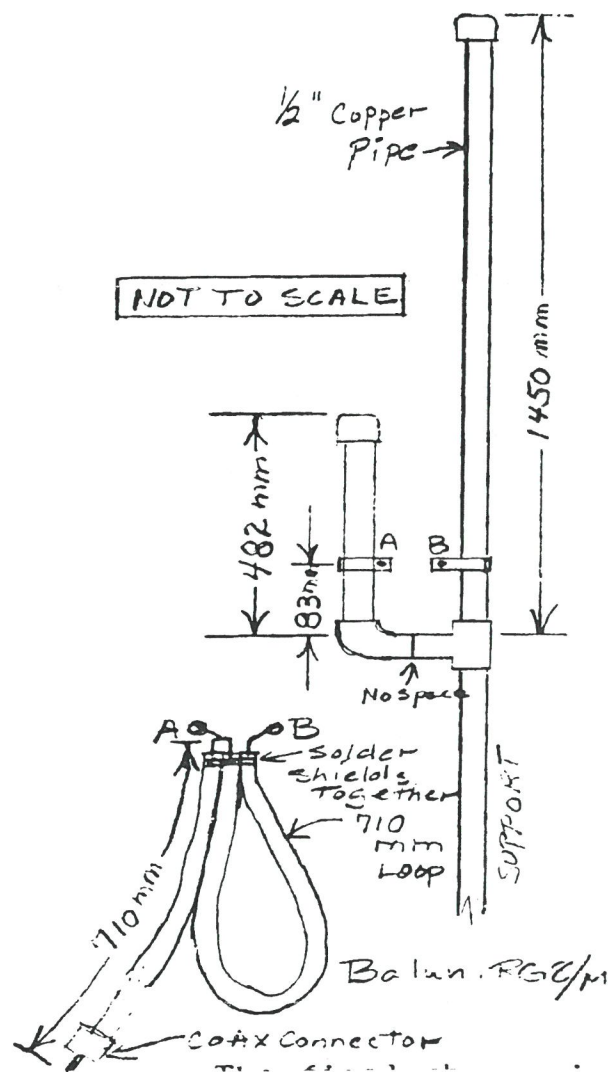
Today, most modern buildings have an ample number of windows, many of which cannot be opened. By simply attaching a small suction cup to the end of each leg of the dipole, as well as to the centre coax feedline connection, you can stick the antenna to the inside of any window in any position or polarization. And if the window happens to be on the top floor, so much the better! Just think of the wide coverage you can get from such a location on a very low amount of power. By using a short run of coax, you can set up an effective communications centre at a comfortable distance from the window. We concede that the dipole doesn't give any gain, but you should also remember that the rubber ducky itself is only 7% efficient. Vertical antennas all need an effective ground plane in order to perform well, but the dipole inherently has its own, by design. This whole antenna and feedline can easily be coiled and stored inside a small plastic bag, making it easy to carry around with you in case you need it.

Parts list:

- One piece of plastic or other insulator used for centre point
- Three suction cups (you can find these at any hardware store)
- Two piece of small gauge coated wire (#16 or #18 gauge wire - any hardware store)
- One piece of coax - minimum 6 ft long

Cheap, Indestructible J-pole Two Metre Antenna

by Farncomb Le Gresley
VE3BHQ



This is an edited reprint of an article which was published in the February, 1985, N.S.A.R.C. bulletin. A properly designed and constructed 2 metre J-pole antenna is a very simple, inexpensive, inconspicuous and effective omni directional antenna. More than a dozen of these antennas have been constructed and all of them functioned as predicted.

The J-pole consists of a shorted $\frac{1}{4} \lambda$ section of balanced transmission line and a $\frac{1}{2} \lambda$ radiating element. The $\frac{1}{2} \lambda$ section is a very effective radiator which, being coupled at a high impedance point, does not require ground plane elements as does a $\frac{1}{4} \lambda$ radiator. Since 50 Ω coax cannot be used to feed a high impedance voltage loop the coax is connected to the matching section of balanced transmission line at the 200 Ω point using a 4:1 impedance matching balun. If this does not make sense I would suggest reviewing your basic knowledge of antenna and transmission line theory in the Radio Amateur's Handbook.

In order for the matching section to work properly the parallel conductors must be close together. This is accomplished by orienting the "T" fitting with its straight through section in the vertical plane with the $\frac{3}{4}$ wavelength element in the top of the "T", and the support pipe in the bottom of the "T", as shown in the diagram. The elbow must be coupled

as closely as possible to the right angle side of the "T". This reduces the impedance of the $\frac{1}{4} \lambda$ wave matching section and improves the resonant frequency characteristics of the antenna and also makes the feedline matching much less critical.

The $\frac{1}{4} \lambda$ matching section is actually a $\frac{1}{4} \lambda$ wave section of balanced transmission line. This requires a balun to go from the 50 Ω unbalanced coaxial transmission line to the matching section. In order to make matching easier and less critical a four to one balun should be used to step up the 50 Ω impedance of the coaxial line to 200 Ω . If RG8/M Mini-Foam line from Radio Shack is used the dimensions shown for the balun should be accurate. The RG8/M which I used had a velocity factor which was about 6% less than the velocity factor stated in the RG8/M specifications, thus it might be wise to check the length of a $\frac{1}{2} \lambda$ section of coax by shorting both ends and checking the resonant

frequency with a grid dip meter. Be sure to listen with a receiver to be sure that the GDO calibration is accurate. If the length is ok it should resonate at 146 MHz. In order to make final adjustment easy and accurate the balun may be fed with a $\frac{1}{2}$ wavelength of RG8/M, or multiple of $\frac{1}{2}$ wavelength, as shown in the diagram. This allows the SWR bridge to be connected at a point which has the same impedance as the antenna feed point.

Tuning the antenna is now a very easy operation. The feed point dimensions shown in the diagram should work fine, however, it would be wise to check this with a GOOD SWR bridge. Most inexpensive and homebrew SWR bridges are liars at two metres! Use a Jones Micromatch or a Bird if you can obtain one. Connect the SWR bridge to the end of the $\frac{1}{2} \lambda$ section of coaxial transmission line and adjust the position of the feed point clamps for 1.0:1 SWR at 146 MHz. The adjustment is not critical and in fact very broad. Now check the SWR at 144 MHz and 148 MHz. After adjustments are complete use coaxial connector sealant to seal the feed points and the copper feed straps.

My J-pole antenna has an SWR of 1.0:1 measured with a Jones Micromatch, from 144 MHz to 148 MHz! It has the broadest frequency response of any antenna which I have ever constructed! I had no convenient means of determining how far below and above the two metre band the antenna would tune, however, it appears that with suitable changes in dimensions it would be a very simple and inexpensive solution for a Marine VHF antenna on the top of a boat mast.

For over a decade, I have been very pleased with this antenna and it is so non-critical in adjustment that if the dimensions shown in the diagram are followed it should work splendidly without any additional adjustment. Have some fun making an antenna, and at the same time, save enough money for a couple of amateur radio magazine subscriptions!

TABLE OF ALLOCATION OF INTERNATIONAL CALL SIGN SERIES

As Issued by the International Telecommunications Union and Others

AAA-ALZ	United States of America	TIA-TIZ	Costa Rica	6AA-6BZ	Egypt
AMA-AOZ	Spain	TJA-TJZ	Cameroon	6CA-6CZ	Syria
APA-ASZ	Pakistan	TKA-TKZ	France	6DA-6JZ	Mexico
ATA-AWZ	India	TLA-TLZ	Central African Republic	6KA-6NZ	Rep. of Korea (South)
AXA-AXZ	Australia	TMA-TMZ	France	6OA-6OZ	Somalia
AYA-AZZ	Argentina	TNA-TNZ	Congo	6PA-6SZ	Pakistan
BAA-BZZ	China	TOA-TQZ	France	6TA-6UZ	Sudan
CAA-CEZ	Chile	TRA-TRZ	Gabon	6VA-6WZ	Senegal
CFA-CKZ	Canada	TSA-TSZ	Tunisia	6XA-6XZ	Madagascar
CLA-CMZ	Cuba	TTA-TTZ	Chad	6YA-6YZ	Jamaica
CNA-CNZ	Morocco	TUA-TUZ	Ivory Coast	6ZA-6ZZ	Liberia
COA-COZ	Cuba	TVA-TXZ	France	7AA-7IZ	Indonesia
CPA-CPZ	Bolivia	TYA-TYZ	Benin	7JA-7NZ	Japan
CQA-CUZ	Portugal	TZA-TZZ	Mali	7OA-7OZ	South Yemen
CVA-CXZ	Uruguay	UAA-UQZ	Union of Soviet Socialist Rep.	7PA-7PZ	Lesotho
CYA-CZZ	Canada	URA-UTZ	Ukrainian Soviet Socialist Rep.	7QA-7QZ	Malawi
DAA-DRZ	Fed. Rep. of Germany (West)	UUA-UZZ	Union of Soviet Socialist Rep.	7RA-7RZ	Algeria
DSA-DTZ	South Korea	VAA-VGZ	Canada	7SA-7SZ	Sweden
DUA-DZZ	Philippines	VHA-VNZ	Australia	7TA-7YZ	Algeria
EAA-EHZ	Spain	VOA-VOZ	Canada	7ZA-7ZZ	Saudi Arabia
EIA-EJZ	Ireland	VPA-VSZ	Great Britain & No. Ireland	8AA-8IZ	Indonesia
EKA-EKZ	Union of Soviet Socialist Rep.	VTA-VWZ	India	8JA-8NZ	Japan
ELA-ELZ	Liberia	VXA-VYZ	Canada	8OA-8OZ	Botswana
EMA-EOZ	Union of Soviet Socialist Rep.	VZA-VZZ	Australia	8PA-8PZ	Barbados
EPA-EQZ	Iran	WAA-WZZ	United States of America	8QA-8QZ	Maldives Is.
ERA-ESZ	Union of Soviet Socialist Rep.	XAA-XIZ	Mexico	8RA-8RZ	Guyana
ETA-ETZ	Ethiopia	XJA-XOZ	Canada	8SA-8SZ	Sweden
EUA-EWZ	Byelorussian SSR	XPA-XPZ	Denmark	8TA-8YZ	India
EXA-EZZ	Union of Soviet Socialist Rep.	XQA-XRZ	Chile	8ZA-8ZZ	Saudi Arabia
FAA-FZZ	France	XSA-XSZ	China	9BA-9DZ	Iran
GAA-GZZ	Great Britain & No. Ireland	XTA-XTZ	Voltaic Republic	9EA-9FZ	Ethiopia
HAA-HAZ	Hungary	XUA-XUZ	Cambodia	9GA-9GZ	Ghana
HBA-HBZ	Switzerland	XVA-XVZ	Vietnam	9HA-9HZ	Malta
HCA-HDZ	Ecuador	XWA-XWZ	Laos	9IA-9JZ	Zambia
HEA-HEZ	Switzerland	XXA-XXZ	Portugal	9KA-9KZ	Kuwait
HFA-HFZ	Poland	XYA-XZZ	Burma	9LA-9LZ	Sierra Leone
HGA-HGZ	Hungary	YAA-YAZ	Afghanistan	9MA-9MZ	Malaysia
HHA-HHZ	Haiti	YBA-YHZ	Indonesia	9NA-9NZ	Nepal
HIA-HIZ	Dominican Republic	YIA-YIZ	Iraq	9OA-9TZ	Zaire
HJA-HKZ	Colombia	YJA-YJZ	Vanuatu	9UA-9UZ	Burundi
HLA-HLZ	Rep. of Korea (South)	YKA-YKZ	Syria	9VA-9VZ	Singapore
HMA-HMZ	Dem. People's Rep. of Korea (North)	YLA-YLZ	Union of Soviet Socialist Rep.	9WA-9WZ	Malaysia
HNA-HNZ	Iraq	YMA-YMZ	Turkey	9XA-9XZ	Rwanda
HOA-HPZ	Panama	YNA-YNZ	Nicaragua	9YA-9ZZ	Trinidad and Tobago
HQA-HRZ	Honduras	YOA-YZZ	Romania	A2A-A2Z	Botswana
HSA-HSZ	Thailand	YSA-YSZ	El Salvador	A3A-A3Z	Tonga
HTA-HTZ	Nicaragua	YTA-YUZ	Yugoslavia	A4A-A4Z	Oman
HUA-HUZ	El Salvador	YVA-YYZ	Venezuela	A5A-A5Z	Bhutan
HVA-HVZ	Vatican City State	YZA-YZZ	Yugoslavia	A6A-A6Z	United Arab Emirates
HWA-HYZ	France	ZAA-ZAZ	Albania	A7A-A7Z	Qatar
HZA-HZZ	Saudi Arabia	ZBA-ZBZ	Great Britain & No. Ireland	A8A-A8Z	Liberia
IAA-IZZ	Italy	ZCA-ZCZ	Great Britain & No. Ireland	A9A-A9Z	Bahrain
JAA-JSZ	Japan	ZDA-ZDZ	New Zealand	C2A-C2Z	Nauru
JTA-JVZ	Mongolia	ZEA-ZEZ	Great Britain & No. Ireland	C3A-C3Z	Andorra
JWA-JXZ	Norway	ZFA-ZFZ	Paraguay	C4A-C4Z	Cyprus
JYA-JYZ	Jordan	ZGA-ZGZ	Great Britain & No. Ireland	C5A-C5Z	The Gambia
JZA-JZZ	Indonesia	ZHA-ZHZ	South Africa-Namibia	C6A-C6Z	Bahamas
KAA-KZZ	United States of America	ZIA-ZIZ	Brazil	C7A-C7Z	World Meteorological Organization
LAA-LNZ	Norway	ZJA-ZJZ	Great Britain & No. Ireland	C8A-C9Z	Mozambique
LOA-LWZ	Argentina	3AA-3AZ	Monaco	D2A-D3Z	Angola
LXA-LXZ	Luxembourg	3BA-3BZ	Mauritius	D4A-D4Z	Cape Verde
LYA-LYZ	Union of Soviet Socialist Rep.	3CA-3CZ	Equatorial Guinea	D5A-D5Z	Liberia
LZA-LZZ	Bulgaria	3DA-3DM	Swaziland	D6A-D6Z	Comoros
MAA-MZZ	Great Britain & No. Ireland	3DN-3DZ	Fiji	D7A-D9Z	South Korea
NAA-NZZ	United States of America	3EA-3FZ	Panama	H2A-H2Z	Cyprus
OAA-OCZ	Peru	3GA-3GZ	Chile	H3A-H3Z	Panama
ODA-ODZ	Lebanon	3HA-3UZ	China	H4A-H4Z	Solomon Is
OEA-OEZ	Austria	3VA-3VZ	Tunisia	H6A-H7Z	Nicaragua
OFA-OJZ	Finland	3WA-3WZ	Vietnam	H8A-H9Z	Panama
OKA-OMZ	Czechoslovakia	3XA-3XZ	Guinea	J2A-J2Z	Djibouti
ONA-OTZ	Belgium	3YA-3YZ	Norway	J3A-J3Z	Grenada
OUA-OZZ	Denmark	3ZA-3ZZ	Poland	J4A-J4Z	Greece
PAA-PIZ	Netherlands	4AA-4CZ	Mexico	J5A-J5Z	Guinea Bissau
PJA-PJZ	Netherlands Antilles	4DA-4IZ	Philippines	J6A-J6Z	St. Lucia
PKA-POZ	Indonesia	4JA-4LZ	Union of Soviet Socialist Rep.	J7A-J7Z	Dominica
PPA-PYZ	Brazil	4MA-4MZ	Venezuela	J8A-J8Z	St. Vincent and the Grenadines
PZA-PZZ	Surinam	4NA-4OZ	Yugoslavia	L2A-L9Z	Argentina
QAA-QZZ	Q Signals	4PA-4SZ	Sri Lanka	P2A-P2Z	Papua New Guinea
RAA-RZZ	Union of Soviet Socialist Rep.	4TA-4TZ	Peru	P3A-P3Z	Cyprus
SAA-SMZ	Sweden	4UA-4UZ	United Nations	P4A-P4Z	Netherlands Antilles
SNA-SRZ	Poland	4VA-4VZ	Haiti	P5A-P9Z	Dem. People's Rep. of Korea (North)
SSA-SSM	Egypt	4WA-4WZ	North Yemen	S2A-S3Z	Bangladesh
SSN-STZ	Sudan	4XA-4XZ	Israel	S6A-S6Z	Singapore
SUA-SUZ	Egypt	4YA-4YZ	Intl. Civil Aviation Org.	S7A-S7Z	Seychelles
SVA-SZZ	Greece	4ZA-4ZZ	Israel	S9A-S9Z	Sao Tome & Principe
TAA-TCZ	Turkey	5AA-5AZ	Libya	T2A-T2Z	Tuvalu
TDA-TDZ	Guatemala	5BA-5BZ	Cyprus	T3A-T3Z	Kiribati
TEA-TEZ	Costa Rica	5CA-5CZ	Morocco	T4A-T4Z	Cuba
TFA-TFZ	Iceland	5HA-5IZ	Tanzania	T5A-T5Z	Somalia
TGA-TGZ	Guatemala	5JA-5KZ	Colombia	T6A-T6Z	Afghanistan
THA-THZ	France	5LA-5MZ	Liberia	T7A-T7Z	San Marino
		5NA-5OZ	Nigeria	V2A-V2Z	Antigua
		5PA-5QZ	Denmark	V3A-V3Z	Belize
		5RA-5SZ	Madagascar	V4A-V4Z	St. Christopher and Nevis
		5TA-5TZ	Mauritania	V8A-V8Z	Brunei
		5UA-5UZ	Niger	Y2A-Y9Z	German Dem. Republic (East)
		5VA-5VZ	Togo	Z2A-ZZZ	Zimbabwe
		5WA-5WZ	Western Samoa		
		5XA-5XZ	Uganda		
		5YA-5ZZ	Kenya		

6TH ANNUAL AMATEUR RADIO

FLEA MARKET

SATURDAY SEPTEMBER 5 1998

LINDSAY FAIRGROUNDS

ACROSS FROM K-MART NEXT TO THE HOSPITAL

TALK-IN

VE3LNZ - 147.195+

and 52

SEE MAP ON REVERSE

9:00 A.M. TO 2:00 P.M.

Vendors at 7:00 A.M.

**FREE VENDOR BREAKFAST
DRAW PRIZES!**

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\$10.00 COMMERCIAL

\$10.00 NON-COMMERCIAL

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ADMISSION AFTER 9:00 AM ONLY

*2 Table
Minimum*

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To reserve or for further information please contact:

VICTORIA-HALIBURTON AMATEUR

RADIO ASSOCIATION

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LINDSAY, ONTARIO

K9V 5N3

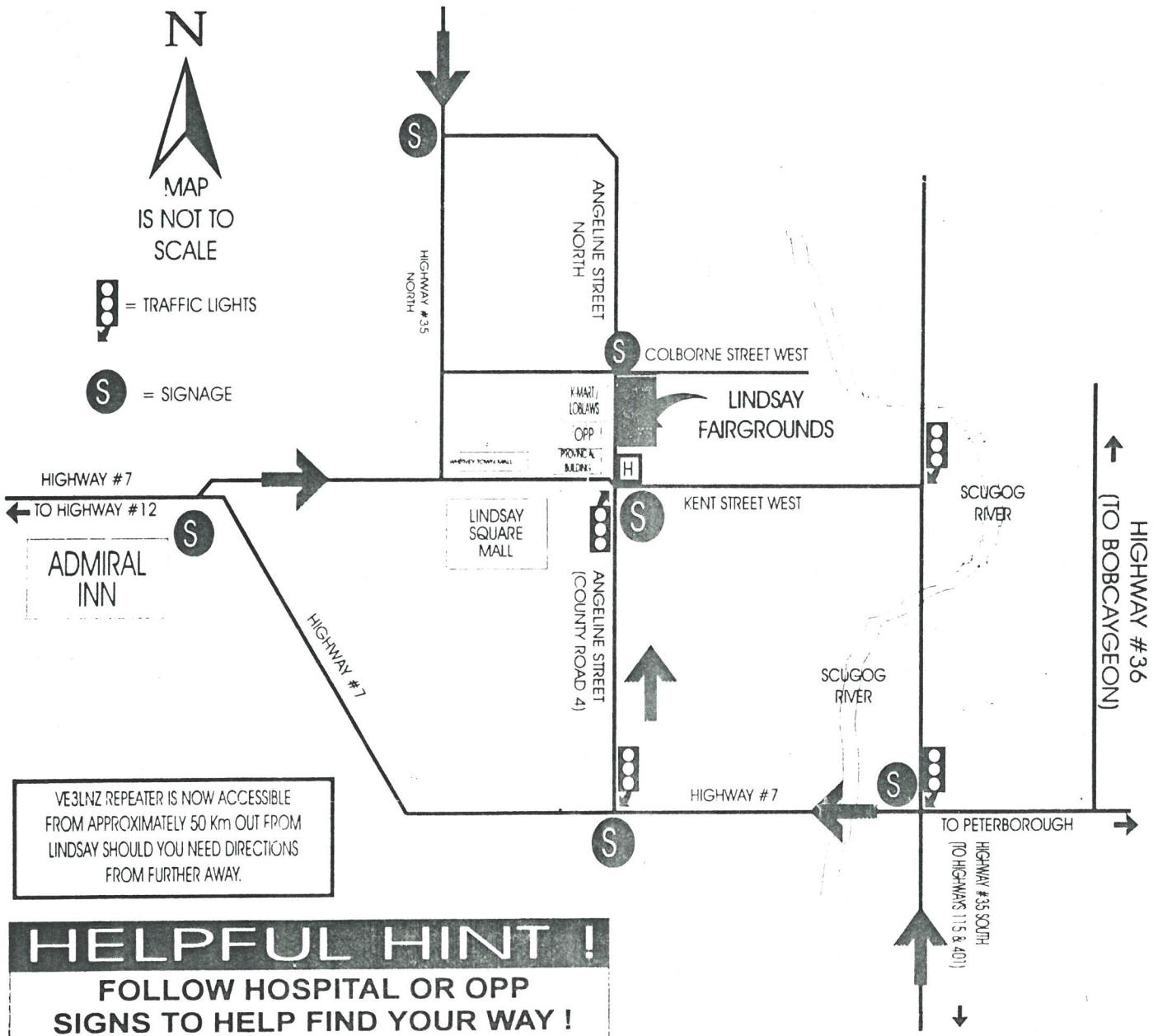
For or Ken VE3KFK 705-324-2955 (Evenings, Weekends)

E-mail: kkelly@lindsaycomp.on.ca

Anne-VE3KWI - 705-324-0638

ve3kwi@rac.ca

IN-TOWN DIRECTIONS TO THE LINDSAY FLEA MARKET



WATCH FOR THE BRIGHT ORANGE SIGNS TALK-IN ON VE3LNZ 147.195+ and 146.520