

SVARC GAP

SEAWAY VALLEY AMATEUR RADIO CLUB
P.O. BOX 462, CORNWALL, ONTARIO K6H 5T2

VOLUME 2, NUMBER 2, - MARCH / APRIL, 1994

DUMMY LOAD

Welcome to the second installment of this article. I am hoping to keep this column as informative as possible. First I would like to take the time to thank all of the club members that donated so much time, to make the UHF repeater project a great success. Special thanks go out to the following for their generous donations of equipment to help us complete the system.

Peter Purdy VE3NVP "Seaway Communications"
Eric Meth VE3EI "IES Communications"

Now lets please take a minute to also thank those who gave so much of their time to do all the needed modifications and work to the two repeaters to make them work, and work so well !!! They are:

Graham MacDonald VE3IGM
Bob MacSween VE3KCP
Doug Pearson VE3HTR
Dave Wells VE3SJM
Ed Halliwell VE3FHI

IN THIS ISSUE

- UHF Repeater On The Air!
- Upcoming Hamfests
- SVARC Executive
- SCUBA Club Ice Dive Report
- Scanner News

And lets not forget to offer a special thanks to all the XYL's who tolerated their counterparts to be away from home for so many nights. I also participated in this project, and found it to be both enjoyable and educational. I would have figured that this type of project could have drawn more involvement from the club members. But I guess I can not expect everyone to show interest in such an event. Now with the UHF project behind us and completed, we now have a clear path ahead for our next goal.

"What is to be our next goal" you ask? Well, that will depend greatly on YOU!!! I am only the representative of this organization, and not the dictator!!! The membership is what makes the club what it is. So I would strongly suggest that you the member start thinking about a direction this club should take. Some suggestions have been brought to my attention and I will at this time share them with you to think about. They are as follows.

1- A bus trip to an exotic hamfest, i.e. Dayton, Rochester, Newmarket ...

2- Special HF operations from a rare DX spot in the world. i.e. Sable Island.

3- Purchase radio operating apparatus. i.e. HF rig(s), VHF gear, packet TNC's...

4- Summer Picnic, fun for the whole family. Will promote the hobby amongst family members too !!!

5- Fishing derby.

With a membership base the size of our club, and as long as fund raising activities such as Hamfest continue to exist, I can not see any reason why this club could not sponsor an event like the ones listed above or similar. I feel it is time that this club start giving back to the Amateur radio community. After all, how long have the amateurs of this area been giving to the club? *(continued on page 2)*

Please don't misunderstand me, I am not against repeater projects. But I feel we, as a whole can do much more with the resources we have available to us. So I plead with each and every one of the membership to make that special effort to come up with ideas and forward them to any member of the executive. I am available during the last net of each month or I can be reached on packet radio via BBSIGM. Or you can call me at 938-0132 and leave a message on the answering machine. I am here to serve you and not you to serve me. I guess I am trying to say that I want what is best for you !!!

Regards,
Marc R. Tessier
VE3TES

UPCOMING EVENTS

"Hello, here is a list of the activities or events being sponsored by other clubs in the area."

The Peel Amateur Radio Club presents:
"HAM-EX 94"
Date--Saturday March 19, 1994
Time--8:00am to 1:00pm
(doors open at 7:00am for vendors)
Place-Century Gardens Recreation Center,
Brampton, Ontario
Cost--General Admission--\$5.00
Vendors-\$15.00/Table
(booked prior to Feb.15, 1994)
-\$20.00/Table (booked after Feb.15, 1994)
1 Free admission with every vendor table
purchased
Book early and save !!!
Booking\Info: Call Peter Taylor VE3VDN
@ (905) 453-6096 or
Doug Behl VE3XDB @ (905) 459-8568
FAX to (905) 846-5531
Talk-In---146.880 - Offset

* * *

The Laval Amateur Radio Club presents:
"Hamfest 94!"
Date--Saturday April 9, 1994
Time--9:00am for the general public and 6:30am
for the vendors.
Place-Polyvalente Ste-Therese, Ste-Therese
Quebec <30Km N. of Montreal.>
Cost--General Admission--\$3.00
Vendors \$10.00 per table + 1 free admission
Booking / Info: Mike VE2RTV@VE2CRL or
Jacques VE2AVO @ (514) 661-6017
Talk-In---VE2REL--147.315 + Offset

The Ottawa Valley Mobile Radio Club presents:
1994 Fleamarket
Date--Saturday May 14, 1994
Time--8:00am for vendors, 9:00am for the public
Place-St. Laurent Arena, 716 Morin Ave. Ottawa,
Cost--General Admission FREE !!!
Vendors-Commercial \$20.00 each table
Non-Commercial \$10.00 each table
Booking / Info:Mr.Ken Barry VE3KJB
454 Wolfdale Crescent
Ottawa, ON K1N 1N4 (613) 746-4823
Talk-In---VE3TWO--147.300 + Offset

Regards,
Marc R. Tessier VE3TES

S.V.A.R.C. EXECUTIVE

The following individuals comprise the Seaway Valley Amateur Radio Club Executive Committee:

- President:	- Marc Tessier VE3TES
- Vice President:	- Tim Smith VE3HCB
- Secretary:	- ***VACANT***
- Treasurer:	- Andy Rugg VE2EM
- Past President:	- Doug Pearson VE3HTR
- Net Manager:	- ***VACANT***
- Newsletter Editor:	- ***VACANT***
- Technical Director:	- Eric Meth VE3EI
- Training Director:	- Bob MacSween VE3KCP

Joanne Battah VE3UYA has also agreed to assist us by acting as Recording Secretary for the executive meetings, at least until a permanent Secretary can be found. If you are interested in any of the vacant positions, please contact any of the present or past executive members, or see us at any meeting.

Executive meetings are open to all members and are generally held on the last Monday of each month, at the Miss Cornwall Restaurant, Brookdale Mall, Cornwall, at 8:00 PM. **General** membership meetings are held one week later, on the first Monday of each month, at 7:30 PM. The location is currently the Stormont, Dundas and Glengarry Highlanders Armouries, Fourth Street East, between Marlborough St. and McConnell Ave., Cornwall (across from the Bob Turner Arena).

* * *

Until a Newsletter Editor can be found, the SVARC Gap will be produced on a bimonthly basis by Doug Pearson VE3HTR. Submissions are always welcome, and may be sent to the club address (see page 1) or via packet: VE3HTR @VE3IGM.

NEW MAILING LABEL FORMAT

Hello, we the executive are trying to streamline operations. What we are attempting is a method of keeping track of membership as well as the due date for dues. One suggestion was made by Andy Rugg VA3TEE to include the date of your memberships expiration on the mailing labels. This would help us to keep the records straight. An example and explanation of the new format has been included down below. If for some reason you do not agree with the information printed on your mailing label, please feel free to approach any member of the executive and correct us as you see fit. After all we are human and we do make mistakes to !!!

Here is a sample of the new format of mailing label:

TESSIER Marc R. VE3TES <exp.Jan. 01 1995>
29 Gloucester Street South Unit 113
Cornwall, Ontario K6H 3V7

The first line is the most important line. It tells us that Marc R. Tessier is VE3TES and that his membership expires on Jan. 01 1995. The reason for the date of Jan. 01 1995 is simple, the fiscal year ends Dec. 31 of each year. And as decided in the bylaws the memberships are due no later than 45 days after the end of the fiscal year. This would mean that after the date stated you will have a minimum of 45 days to renew your membership. This year we have decided to extend that deadline until the first meeting in April. All the other lines need no explanation as that is the mailing address of the member stated in the first line. Again if there is an error on our part, whether it be in the mailing address or the date that your renewal falls on feel free to point it out to any member of the executive.

Thanks for your cooperation.

Marc R. Tessier
President of the S.V.A.R.C.

BIRTH ANNOUNCEMENT

"On behalf of the Seaway Valley Amateur Radio Club I would like to congratulate Jim Devine VE3ZPT, and his wife Erika on the arrival of the latest addition to the Devine clan. Kathleen Eileen Devine was born on November 11, 1993 and weighed 8lb and 6oz. The youngster is doing well and has already heard her first contact. Who knows, maybe in a few short years I will be testing Cornwall's youngest ham!!!"

* * *

"Patricia Tessier VA3TES and Pamala Vining VE3PLV both have something in common. These amateurs are 'showing' the impending glow of motherhood!"

"Each mother assures me that their baby is due sometime in the middle of July. The proud fathers are also amateurs. Marc Tessier VE3TES is our President and John Vining VE3XJV is a well known amateur in the Cornwall area. With all these amateurs in the maternity ward, I can only assume that there will be a Hamfest. On behalf of the Seaway Valley Amateur Radio Club, I extend best wishes to both families."

73 de Bob MacSween VE3KCP

MORSE CODE COURSE

Congratulations are in order for Joanne Battah VE3UYA, Michael Salhany VE3MQS and Wayne Salhany VE3WQS, who recently qualified at the 12 WPM level on the Fall 93 Morse Code Course. This is in addition to Al Pond VE3FIG, Hermanna Noorthoek VE3UNV and Elaine Fortin VE3UXZ, as announced in the last issue of the SVARC Gap. Instructors were John Wood VE3WJF, Bob MacSween VE3KCP and Richard Lemay VE3SPD.

ICE DIVE REPORT

It is a most bizarre ritual. They assemble at the edge of the frozen St. Lawrence River, and proceed as a group out onto the ice. According to legend, the remains of a shipwreck are here. At the magical place, they use chain saws and other implements to cut a triangular hole, ten feet on a side. (Perhaps there is a mystical significance to this shape or dimension!) Then a number of the more hearty (or foolhardy?) members of this cult, donning strange clothing and complex apparatus, leap through the hole into the frigid water and vanish beneath its surface!

Thus begins the Seaway Valley Divers SCUBA Club's annual ice dive. This year the Seaway Valley Amateur Radio Club provided the communications for this event. Seven SVARC members turned out and provided communications between the dive site, the Boy Scout Camp building (just west of LocWeld on Hwy. 2) and the 4x4 pickup used to ferry divers between the two. Present were VE3UYA Joanne, VE3UXZ Elaine, VE3WGM Gail, VE3IGM Graham, VE3OJN Mel, VE3KCP Bob and VE3HTR Doug. VE3UNV Hermanna was also present, but primarily as a SCUBA diver / divemaster. The organizers have already asked if we will help them again next year.

MEMBERSHIP RENEWAL

Dues are due! This year's dues are unchanged at \$25.00 and can either be mailed in or given to any member of the executive. If you haven't paid your 1994 membership dues, this is the last newsletter you will receive, and your speed dial number may not work after April. As of March 1, 1994, the following individuals are paid up for the year:

-----	Richard J.	ABELL
-----	Ida	CARTLEDGE
-----	Margaret	HAMILTON
-----	Trevor	OUDEKIRK
-----	John	ROWDEN
VA3MJW	Michael J.	WELSH
VA3TEE	Andy	RUGG
VE2GBK	Yves	GRENIER
VE3AFT	Alex	HAMILTON
VE3AWO	Ralph	DIXON
VE3CYP	Christopher	MILLER
VE3DJK	Rees	POWELL
VE3EI	Eric	METH
VE3EZH	Elizibeth	HALLIWELL
VE3FHI	Ed	HALLIWELL
VE3FIG	Alphege	POND
VE3HCB	Timothy	SMITH
VE3HDN	Don	HALLBERG
VE3HEI	Evan	HALLIWELL
VE3HRB	Herb A.	GILLINGHAM
VE3HTR	Doug	PEARSON
VE3HYB	Michael	BERTHIAUME
VE3JCZ	Patrick J.	CREAMER
VE3KCP	Bob	MACSWEEN
VE3MQS	Michael	SALHANY
VE3MQU	James R.	McQUINN
VE3NVP	Peter	PURDY
VE3OAE	Jack	GIRARD
VE3OLB	Leonard	BOILEAU
VE3RWY	Bill	YAKAMOVICH
VE3TES	Marc	TESSIER
VE3THQ	Andre	DESGROSEILLERS
VE3TMI	Paul	LACELLE
VE3UNB	Neil	DIXON
VE3UNV	Hermannna	NOORTHOEK
VE3UXZ	Elaine	FORTIN
VE3UYA	Joanne	BATTAH
VE3UYC	Richard	MEISNER
VE3UYD	Francis	RYAN
VE3VIA	Jacques	d'AVIGNON
VE3WQS	Wayne	SALHANY
VE3XAM	John	HARWOOD
VE3XDT	Don	TOBIASEN
VE3YDI	Diane	DUMOULIN
VE3ZBR	Robert	BRANCHARD
VE3ZCD	Carolyn	BRANCHARD
VE3ZLU	Stephen	GALLINGER
VE7XFF	Michael	FORBES
VE7???	William J.	DIPSASQUALE

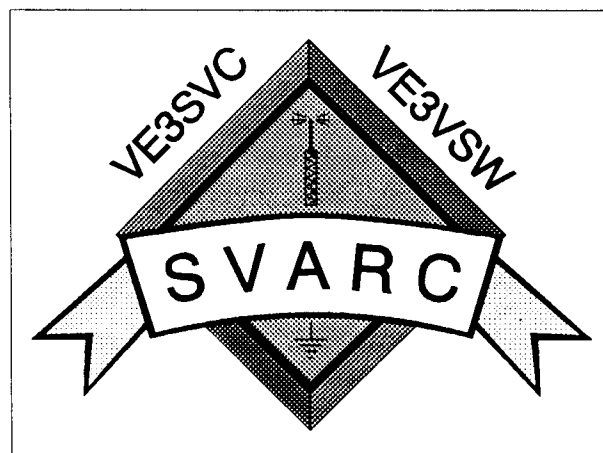
VE3SVC UHF REPEATER

The UHF repeater was installed at the Hotel Dieu Hospital site during the last week of January, 1994. Within a week the transmitter began fluctuating in power output. Technical investigations are ongoing and hopefully the remaining problems will be resolved by the time you read this,

The two repeaters will be normally linked together, so signals received on either VHF or UHF will be retransmitted on both bands. The two repeaters may be unlinked by entering the "#8" command on the DTMF pad, but this must be done on UHF. The UHF repeater then operates totally independently of the VHF repeater. Users are asked to re-establish the link afterwards by entering the "*65" command, again via UHF. The design of the MCC RC-1000 Repeater Controller does not permit control from the VHF side.

The reason for leaving the two repeaters linked is to enable UHF users to gain access the auto patch on the VHF repeater. It is an effective way to share one telephone line (courtesy of the Hotel Dieu Hospital) between two repeaters. Operation of the auto patch will be unchanged, that is "" to turn the patch on, and "#" to turn it off after use. No speed dial numbers will change until April 94.

Please note that the link code is *65, not *18 as originally proposed and announced. The RC-1000 Controller used on the UHF repeater also includes an autopatch (not used in our application), and *18 is pre-defined as a control code for it. So another sequence had to be devised for the Link-On code. *65 seemed almost as easy to remember as *18 ("Link up the "65" machine.) Sometimes, the best laid plans ...



SCANNER NEWS

Welcome to the second installment of the SVARC Gap Scanner News. This column focuses on frequencies above 30 MHz. and outside the Amateur bands. Please pass along any information of this sort which you think would be of interest to the members. Packet is one of the best ways: VE3HTR @VE3IGM. (BBSIGM)

* * *

So, as promised, what is on the tower at St. Andrews West now that the OPP have abandoned this superb site ? The answer is: not very much! The tower on the East side of Hwy 138, just South of the village of St. Andrews West is approximately 150 feet tall. It enjoys a commanding view of our area and is arguably the best site in the vicinity of Cornwall . It was built about 35 years ago, when the Ontario Provincial Police established what was then a revolutionary, state of the art, province wide communications system on 42 MHz. (VHF Low). It was remotely controlled from the District 11 headquarters at Long Sault, and could (usually) maintain contact with mobiles and detachments which reported to Long Sault.

At the top of the tower, at the 150 foot level, is a quarter wave ground plane antenna for 42.060 MHz., the old system's main transmit frequency. (It used to listen on the same frequency for other detachments and on 42.220 for mobiles.) A 160 foot length of 1 1/2 inch Heliac coaxial cable connects the antenna to a low band cavity filter in the equipment shelter on the ground. Cavities are enormous at 42 MHz.; this one is 8 inches in diameter and taller than a man! The output of this filter is attached to ... **Nothing!** That's right, it's been abandoned. What a waste!

Just below the top of the tower, on the North face, are a pair of folded dipole elements resonant to 46 MHz. This gives a shaped pattern with a null to the South. Another Heliac cable connects this array to a Motorola repeater operated by the Ontario Ministry of Natural Resources. This transmits on 46.920 MHz. and receives on 46.420 MHz., with a CTCSS tone of 110.9 Hz. It also has a telephone line attached, which appears to be for an autopatch. The call sign is XMI 540.

ONMR has previously operated on 46.640, 46.700, 46.720 and 46.740 MHz. from this site, but none of these exist at this time. So you can delete those old listings!

At the 100 foot level on the south face is a 20 foot long aluminum pipe which was part of a Sinclair

two element folded dipole array resonant to 155 MHz. This provided the RCMP with a shaped coverage pattern favoring East - West along the St. Lawrence River and Hwy. 401.

This was used on both 155.385 and 155.865 MHz.. as XJE 624. When the RCMP abandoned VHF in favor of the former amateur UHF band 420 - 430 MHz., the antenna was left behind, along with more than 100 feet of 1/2 inch Heliac feeding it.

If you look on the South face today, you will see a bright orange cube mounted on that same aluminum pipe. This is a full wave backfire array (sort of like a corner reflector, but with a flat, solid reflector) resonant to the 1020 - 1100 MHz. band. It has a gain of 13 dBi and a beam width of 32 degrees, and is covered in front by a fiberglass panel or "Radome". A careful observer might notice that it is pointed in the general direction of the Transport Canada Training Institute in Cornwall.

The antenna is connected to a piece of equipment called a Position Adjustable Range Reference Orientation Transponder, or "PARROT". This has a receiver on 1030 MHz., listening for an interrogation from Transport Canada's Secondary Surveillance Radar ("SSR"). If it receives an interrogation that it thinks occurred while the Radar's antenna was pointed directly at it, the PARROT transmitter replies on 1090 MHz. with a pulse coded response, at a 100 Watt peak power level. This is just like a transponder on an airplane, except the PARROT has its own special reply code (1275) and can delay its reply so that it appears to be more than 100 nautical miles away.

The purpose of the PARROT is to provide a known Radar target in a specific location on the Radar display. Any apparent change in the PARROT's location is an indication that the Radar may be faulty, and casts doubt on the accuracy of all the aircraft targets displayed. Another function is the automatic plotting of the Radar's antenna pattern while it is rotating, using the PARROT's consistent transmit signal level as a reference.

When the OPP and RCMP abandoned the site, OMNR was left as site manager. Transport Canada only gained access as it is also a government agency. ONMR is not willing to allow amateurs to use this extraordinary site, after a bad experience with an amateur group in Northern Ontario. This is unfortunate, but because of this policy, placing an amateur repeater at the St. Andrews site seems to be an impossible dream.

* * *

Next issue: The Ont. Govt. Avonmore site.

ONTARIO POLICE COMMISSION / ONTARIO PROVINCIAL POLICE TEN CODE SIGNALS

10-1	Receiving poorly	10-36	Correct time
10-2	Receiving well	10-38	Investigation Alert
10-3	Stop transmitting	10-45	Death or Fatality
10-4	Acknowledgment	10-50	Accident (F, PI, PD)
10-5	Relay	10-51	Tow truck needed
10-6	Busy - standby unless urgent	10-52	Ambulance needed
10-7	Out of service	10-60	Subject is negative
10-8	In service	10-61	Subject has record, not wanted
10-9	Repeat	10-62	Subject possibly wanted
10-10	Request to use common channel	10-63	Subject positive hit
10-13	Weather and road conditions	10-64	Proceed with caution
10-16	Pick-up prisoner at	10-65	Assist re a 10-64 individual
10-18	Complete assignment quickly	10-66	Subject in Observation category
10-19	Return to your station	10-67	Subject in Parolee category
10-20	What is your location?	10-68	Subject in Charged category
10-21	Call by telephone	10-78	Need assistance
10-26	Detaining subject, expedite	10-90	Bank alarm
10-28	Check vehicle registration	10-92	Person in custody
10-29	Check records for wanted	10-93	Blockade, set up roadblock
10-30	Improper use of radio	10-95	Person believed dangerous
10-33	Emergency	10-100	Bomb threat
10-35	Major crime alert		

I E S COMMUNICATIONS

**500 12TH STREET WEST. CORNWALL, ON K6J 3E4
TELEPHONE 613-930-2615, FAX: 613-930-4838**

EASTERN ONTARIO'S NEWEST AMATEUR RADIO DEALER

ERIC METH VE3EI

- o MIDLAND AMATEUR RADIO PRODUCTS
- o PACCOMM PACKET RADIO SYSTEMS
- o SINCLABS AMATEUR RADIO PRODUCTS
- o LARSEN ANTENNA PRODUCTS
- o TEXPRO AMATEUR RADIO PRODUCTS

SALES - SERVICE - ACCESSORIES

WE SERVICE ALL AMATEUR RADIO PRODUCTS

WE ARE ALSO PREPARED TO QUOTE ON AMATEUR RADIO
REPEATER SYSTEMS, PACKET NODES, AND OTHER
SPECIALIZED RADIO SYSTEMS !!!!!



Seaway Communications Co.
 3481 Rosedale Ave., Cornwall, Ont. K6K 1V5
 Phone Orders: Tues-Wed-Thurs: 7 pm - 9 pm
 Showroom Hours: Wednesday Only: 7 pm - 9 pm
 Phone: (613) 938-3896 24 Hr. Fax: (613) 938-9723



Order Options: 1) Mail Order, 2) By Phone (see hours above), 3) By Fax (please include address, Credit Card number, expiry date).
Shipping Charges: Shipping Charges apply to all orders, any amount. Ontario & Quebec: Add \$7.00. All other Provinces: Add \$10.00
 All shipments fully insured. We ship Monday to Friday by UPS & Parcel Post. Most orders shipped within 24 hours.
Ontario Residents: Please add 7% GST plus 8% Ontario Sales Tax (total 15%) to your total order, including Shipping charges.
All Other Provinces: Please add 7% GST to your total order including shipping. Visa / MasterCard: Please add 2% COD: Add \$6.00.

Prices in effect Feb. 01, 1994. We stock all items listed. Need a current pricelist? Call our 24 hr pricelist line (613) 938-3896

Alpha-Delta

HF Limited Space Antennas (fully assembled)

DX-B	Limited Space 160/80/40/30m DX Sloper, 60'.....	119
DX-CC	No-Trap 80-40-20-15-10m Dipole or Vee, 82'.....	159
DX-DD	No-Trap 80-40m Dipole or Inverted Vee, 82'.....	129
DX-EE	No-Trap 40-20-15-10m Dipole or Vee, 40'.....	149

Astron Power Supplies

Commercial quality, over-current and over-voltage protected.

RS-12A	12 Amps ICS, 9 Amps continuous.....	149
RS-20A	20 Amps ICS, 16 Amps continuous.....	179
RS-35A	35 Amps ICS, 25 Amps continuous.....	289
RS-20M	RS-20A with Volt and Amp Meters.....	219
RS-35M	RS-35A with Volt and Amp Meters.....	329
RS-50M	50 Amps ICS, 37 Amps continuous, V&A meters..	449

BayPac

BP-1	BayPac Packet modem, radio cable & software....	85
------	---	----

Bencher

BY-1	Iambic Keyer Paddles, Heavy Black Base.....	99
BY-2	Iambic Keyer Paddles, Heavy Chrome Base.....	120
RJ-1	New design hand key, fully adjustable, black base	95
RJ-2	New hand key, fully adjustable, chrome base.....	110
YA-1	5kw pep (-80dB) Low Pass Filter.....	69
ZA-1A	Premium non-ferrite 5kw 1:1 balun, 3.5-30MHz....	45

Books

Books marked with * are not subject to Ontario Sales Tax

Callbooks

CB2	Both 1994 Callbooks	69
DXCB	1994 DX Callbook.....	39
NACB	1994 North American Callbook, includes "VE".....	39

ARRL Publications

AB-16th*	New Edition Antenna Book (over 700 pages).....	27
Gateway*	Your Gateway to Packet Radio - 2nd Edition.....	16
Handbook*	1994 Radio Amateur Handbook (Hard Cover).....	30
HFNH*	W1FB's Help for New Hams.....	15
LPAR*	Low-Profile Amateur Radio.....	12
OM*	New Operating Manual.....	25
Packet*	Your Packet Companion.....	12
QRP*	Your QRP Companion - Low power operating.....	9
RD	1993/94 Repeater Directory for North America....	8
RTTY*	Your RTTY / AMTOR Companion.....	12
SEH II*	Satellite Experimenter's Handbook, 2nd Ed.....	28

Radio Publications Handbooks

ANTENNA*	The Radio Amateur Antenna Handbook (Orn).....	15
BEAM*	Beam Antenna Handbook by Orr/Cowan.....	15
QUAD*	All About Cubical Quad Antennas by Bill Orr.....	15
VERTICAL*	All About Vertical Antennas by Orr/Cowan.....	15
VHF*	All About VHF Amateur Radio by Bill Orr W6SAI...	15
WIRE*	Low-Cost Wire Antennas for Radio Amateurs.....	15

Miscellaneous Books

PASSPORT	1994 Passport to World Band Radio.....	20
RTM-6A*	RadioTech Mods #6A - Kenwood, Icom, Scanners.	29
RTM-6B*	RadioTech Mods #6B - Alinco, Yaesu, Standard...	29

Cushcraft

HF Multiband Antennas

AP-8A	10-80m Vertical (includes WARC Bands).....	299
A3S	10,15,20m 3 element Beam, 14' boom, 8dB gain.	499
A3WS	3 element 18 & 24 MHz Beam, 14' boom, 8dB....	419
A4S	10,15,20m 4 element Beam, 18' boom, 8.5dB....	599
R-5	10/12/15/17/20m 1/2 wave no-radial Vertical.....	409
R-7	7 Band (10-40m) 1/2 wave no-radial Vertical.....	529

VHF FM/SSB "Boomer" Antennas

124WB	4 element 2m beam, 4' boom, 10.2 dB gain.....	85
13B2	13 element 2m beam, 15' boom, 15.8 dB gain....	159

Ringo Rangers & VHF / UHF Verticals

AR-270	2M/440MHz Vertical, 3.7/5.5 dB gain, 3.75'.....	99
ARX-270/U	2M/440 fiberglass vertical, 9.0/12.0dB, 16.5'....	299
ARX-2B	134-184 MHz Ringo Ranger II, 7 dB Omni gain....	79

FM VHF / UHF Beam Antennas

A148-3S	3 element 2m Beam, end mount, 7.8dB gain, s/s..	55
A148-10S	10 element 2m Beam, 13.2dB gain, 12.0' boom....	99
A449-6	6 element 440 MHz Beam, 10.2 dB, 35" boom....	69
A449-11	11 element 440 MHz Beam, 13.2 dB, 5' boom.....	99

Gas Discharge Lightning Arresters

LAC-4	200w arrester, 500 MHz, <100Ns resp, SO-239..	49
LAC-4H	2000w arrester, 500 MHz, <100Ns resp, SO-239	59

Daiwa

Cross Needle SWR / Power Meters

CN-101L	Swr/power meter, 1.8-150 MHz, 15/150/1500w..	149
CN-103L	Swr/power meter, 140-625 MHz, 20/200w	159
CN-410M	Compact 3.5-150 MHz, 50/150w, backlit.....	129
CN-460M	Compact 140-450 MHz, 50/150w, backlit.....	129

Coax Switches, Duplexers

CS-201	2 position cavity-type coax switch, 600MHz.....	39
CS-401	4 position cavity-type coax switch, 800MHz.....	150
DX-10D	2M/440 Duplexer, SO-239/PL-259/259.....	50
DX-10N	2M/440 Duplexer, SO-239/PL-259/N.....	55

VHF All-Mode Linear Amplifiers

LA-2035R	144-148MHz, 3 in / 30 out, 15dB preamp.....	199
----------	---	-----

Diamond

Base VHF / UHF Antennas

D-130J	Top-rated 25-1300 MHz discone antenna.....	129
X-50	Dual band 2m/440 Vertical, 4.5/7.2dB, 5'8"	155
X-200	Dual band 2m/440 Vertical, 6.0/8.0dB, 8'2".....	215
X-510MA	Dual band 2m/440 Vertical, 8.3/11.7dB, 17'1"....	295

Duplexers

MX-72D	2M/440 Duplexer, SO-239/PL-259/259.....	60
MX-72H	2M/440 Duplexer, SO-239/PL-259/259.....	66
MX-72N	2M/440 Duplexer, SO-239/PL-259/N.....	70

Miscellaneous

RH-77B	2M/440 high gain rubber duck, 15", flexible.....	39
--------	--	----

Drake

R8	Communications Receiver 100kHz-30MHz.....	1279
VHF Conv	Adde 33-55 plus 108-174MHz to Drake R8.....	289
Software	PC software to control R8 via RS-232 port.....	89

Heil

PROSET-4	Pro boom headset w/HC-4 element (specify rig)....	185
PROSET-5	Pro boom headset w/HC-5 element (specify rig)....	185
BM-10-4	Boom headset w/ HC-4 element (specify rig)	125
BM-10-5	Boom headset w/ HC-5 element (specify rig)	125
FS-1	Heavy duty footswitch for hands-free PTT.....	35
HC-4	HEIL DX "Dream Machine" microphone element...	40
HC-5	HEIL full-range microphone element.....	40

Kantronics

KAM Plus	New KAM, 128k, Pactor, enhanced mbx/cw/rtty..	479
KPC-3	Compact packet controller, includes software.....	169
Hostmaster II+	New PC software for KAM, incl Pactor support....	99
KAM Enh	Version 6.1 Upgrade for 5.0 KAM, incl Pactor.....	129
KPC-3 Upgr	Version 5.1 Upgrade for KPC-3.....	25

Larsen

Complete Antennas - Black Coils

KG-144-PL	144-148 MHz On-glass, 2.4dB gain, complete.....	69
KG-2/70-PL	Dual band On-glass 2m/440, 2.5/4.5dB gain.....	99
NMO-150MM	Mag mount, 5/8 coil & whip for 2m.....	75
NMO-150TLM	Trunk lid mount, 5/8 coil & whip for 2m.....	75
NMO-2/70MM	Mag mount, dual band coil & whip, 2m/440.....	89
NMO-2/70TLM	Trunk lid mount, dual band coil & whip, 2m/440..	89
NMO-2/70-K	3/4" hole mount, dual band coil & whip 2m/440...	75

Mounts Only

NMO-MM-R	Mag mount NMO series, 12' coax & PL-259.....	35
NMO-TLM-B	Black NMO trunk lid mount, 18' coax & PL-259....	35
NMO-K	3/4" Hole mount NMO series, 17' coax, PL-259...	18
TMB-34B	Black trunk gutter mount bracket, 3/4" hole.....	8

Coils Only

NMO-150BCO	138-174 MHz 5/8 wave coil for NMO mounts.....	30
NMO-2/70BCO	Dual band 2m/70cm coil for NMO mounts.....	35

Whips Only

NMO-QB	1/4 wave black whip and NMO base	19
W-2/70	Whip for dual band antennas, 2M/70cm.....	25
W-490	49" whip for all Larsen 5/8 wave coils.....	13
W-490B	49" whip for all Larsen 5/8 wave coils -black.....	18

HT Antennas

KD4-148-HQ	1/4 wave 2m high performance Kuldock, BNC.....	25
KD4-2/70	Quality 2m/440 rubber duck, BNC.....	30
KD14-2M-HW	High quality 2m 1/2 wave collapsible antenna.....	35

Lowe

HF-150	Compact 30KHz-30MHz am/ssb/cw receiver.....	729
AK-150	HF-150 Accessory kit - antennas, nicads, strap....	95
KPAD-1	Optional keypad for direct frequency entry.....	95

MFJ

Antenna Tuners

MFJ-901B	200w basic antenna tuner, no meters.....	80
MFJ-941E	300w Versa-tuner, meter/balun/antenna switch....	149
MFJ-945D	300w mobile tuner, "x" needle meter.....	125
MFJ-948	300w Versatuner, meter/antenna sw/balun.....	175
MFJ-949E	300w tuner, meter/ant. sw/balun/dummy load....	195

Interfaces & Software

MFJ-1278B	All-mode controller, now includes Pactor.....	429
MFJ-1270C	Vhf/Hf packet only controller, RS-232/TTL.....	185
MFJ-1284	PC starter pack, software & cable	39
MFJ-1289	MULTI-COM program for PC, software & cable....	89

Keyers

MFJ-401B	Compact iambic (Curtis chip) keyer.....	69
MFJ-490	Menu driven memory keyer/Bencher paddle.....	239
MFJ-490X	Menu driven mem keyer only, fits on Bencher....	159
MFJ-492	Menu driven memory keyer only.....	139
MFJ-492X	Menu driven memory keyer with 8k memory.....	159
MFJ-557	Hand key w/ practice oscillator, heavy base.....	39

Coax Switches

MFJ-1701	6 position rectangular coax switch.....	49
MFJ-1702B	2 position cavity-type coax switch.....	35
MFJ-1704	4 position cavity switch w/ lightning arrestor....	89

SWR Analyzers

MFJ-209	1.8-170 MHz SWR Analyzer.....	149
MFJ-249	1.8-170 MHz swr analyzer w/frequency counter...	269
MFJ-28	Padded carrying case/strap for above analyzers...	29

Miscellaneous

MFJ-260B	300w 0-150MHz dry dummy load.....	42
MFJ-264	1.5kw Hf/Vhf/Uhf dry dummy load.....	85
MFJ-704	1.5kw low pass filter.....	59
MFJ-812B	Compact vhf swr/wattmeter.....	45

Optoelectronics LCD Frequency Counters

OE-3300	1MHz-2.8GHz LCD compact counter, nicads.....	199
OE-M1	10Hz-3GHz multi-function LCD bargraph counter..	339
CC-12	Deluxe padded carrying case for OE-3300.....	19
CC-30	Deluxe padded carrying case for OE-M1.....	25
TA-100	100-800MHz telescoping whip, BNC.....	19

RF Concepts VHF/UHF Amplifiers

RFC 2-23	2m amplifier, 2w in - 30w out.....	199
VHF 1-60	2m HT amp, 1w in, 60w out, autosw for 440.....	339
RFC 2-315	2m 10-40w in, 60-170w out (30 in= 150 out)....	419
RFC 2/70G	Dualband 2m 5 in/30 out, 440 5 in/20 out.....	379
RFC 4-110	70cm 10w in - 100w out (430-450 MHz)	509
RFC 4-310	70cm 30w in - 100w out (430-450 MHz)	509

Sangean

ATS-803A	Digital swl portable, am/fm/ssb/cw.....	199
----------	---	-----

Unadilla

Baluns

W2AU 1:1	1.8-40 MHz 1:1 Big Signal Balun, 50-75 Ohm.....	29
W2AU 4:1	1.8-40 MHz 4:1 Big Signal Balun, 50-75 Ohm.....	29
W2DU-HF	Current type 1:1 Balun, 1.8-30 MHz, 5kw.....	39

Dipole Kits, Traps & Insulators

Dipole Kit	80/40m trap dipole kit, kw, complete, 105'.....	125
Traps	K40 Reyco 40m Antenna Traps - kw - (pair).....	65
End Insulator	Quality 4" ribbed Cyclocac end insulators (each)...	4
Insulator	Antenna center insulator, SO-239.....	15

Antenna Wire

AW-75	75 Ft. length #14 stranded antenna wire.....	12
AW-150	150 Ft. length #14 stranded antenna wire.....	22

Uniden Bearcat Scanners

BC-700A	50ch 29-956MHz base/mobile, Turbo scan.....	279
BC-890XLT	200ch 29-956MHz base/mobile, Turbo scan.....	459
BC-002	CTCSS Optional board for BC-890XLT.....	95

Van Gorden

G5RV	10-80m antenna, 102', assembled, incl coax.....	89
1:1 Balun	3-40 MHz Balun, SO-239.....	25
450 Ohm	450 Ohm quality Ladderline, 100ft roll.....	25
Dog Bone	Antenna end insulators (each).....	1.50

Vibroplex

iambic-D	iambic deluxe paddles, heavy chrome base.....	185
iambic-S	iambic standard paddles, grey (topaz) base.....	135
Vibrokeyer-S	Standard single paddle for keyers, topaz base.....	135
Vibrokeyer-D	Deluxe single paddle for keyers, chrome base.....	185

Miscellaneous

Coax & Cables

RG-213/U	50 Ohm 95% braid coax, NCV jacket (ft).....	.69
RG-8X	50 Ohm coax, superflex jacket, 95% braid (ft)....	.39
9913	BELDEN 9913, double shield, NCV jacket.....	1.19
4XL	9913-type, double shield, 50 ohm, flex, NCV (ft)..	1.19
450 Ohm	Ladderline, "window" type, poly cover (ft.).....	.25
R-1 ROTOR	8 conductor rotor cable, 2-18, 6-22 ga, (ft).....	.45
R-2 ROTOR	8 cond hvy duty rotor cable, 2-18, 6-18 ga., (ft)..	.79

Antenna Wire

COPPERWELD	14 gauge, 7 strand Copperweld antenna wire (ft).	.18
------------	--	-----

Connectors & Adaptors

PL-259	PL-259, phenolic, USA.....	2.50
PL-259A	Amphenol, phenolic, (83-1SP-1050).....	3.00
PL-259ST	PL-259, silver/teflon, USA.....	3.00
REDUCER-5B	Reducer for RG-5B coax (UG-175).....	.75
REDUCER-8X	Reducer for RG-59, RG-8X, etc. (UG-176).....	.75
N CONN	N connector for RG-213, etc. (UG-21B/U)	10.00
N(M) / 239	N male to SO-239 adapter (UG-146).....	9.00
N(F) / 259	N female to PL-259 adapter.....	9.00
BARREL	Uhf double female adapter (PL-258).....	4.00
DBL MALE	Uhf double male adapter.....	4.00
ELBOW	Uhf right angle adapter (M-359).....	5.00
TEE	Uhf tee (female-male-female) (M-358).....	5.00
SO-239	Amphenol 4 hole chassis mount	3.00
BNC / 239	BNC to SO-239 adapter for handhelds (UG-265)..	5.00
BNC / 259	BNC (female) to PL-259 adapter (UG-273).....	5.00

Miscellaneous

MIC PLUG	6 or 8 pin microphone plug (specify).....	8.00
MIC JACK	6 or 8 pin chassis mount mic jack (specify).....	8.00
COAX SEAL	Connector sealant tape, flexible 1/2" x 5'.....	4.00