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ABOUT THE COVER

From left to right, John Ohnmacht, VE3JO, Bill Pilgrim, VE3GKC, and Jim De Zorzi, VE3ZK, display the 430- and 1240-MHz antennas custom-manufactured for the new VE3TVL ATV repeater in London, Ontario. ■

It Seems to Us.../Il nous semble...

Bouvet Blues

Last month we ran a letter complaining about the lack of gentlemanly (ladies will please excuse the gender-specific reference) conduct on 14.145 MHz during the Bouvet Island DXpedition. NW2I assumed that because the whistling, swearing and bullying was in the "foreign phone band", and it was in English, Canadians were to blame.

We're not saying that Canadians weren't in there, but if they were, they certainly went to great lengths to disguise their identity, substituting "huh" for "eh" and speaking in a southern drawl. We think it was mostly Americans.

The goings-on have prompted more than NW2I's letter. Many amateurs have stopped us at local hamfests to comment on the Bouvet Island DXpedition, and CANAD-X President George Gorsline, VE3FIU, who recently became CRRL Ontario South director, even whipped off a letter for us to take to the ARRL Board meeting in January. (The CRRL president or his designate is still invited to ARRL Board meetings, even though CRRL is now totally independent of ARRL. In turn, CRRL invites the ARRL president to CRRL Board meetings.) Unfortunately, the letter was slowed in the mail and we did not have it to take down. A copy was sent to Garth Hamilton, VE3HO, the CRRL rep on the ARRL DX Advisory Committee. He penned a reply which we found of great interest. First, George's letter. Note that George is speaking for CANAD-X and not for CRRL:

"To the ARRL Board of Directors: CANAD-X members are deeply concerned about the amount of deliberate interference and other attempts to disrupt the Bouvet Island DXpedition. In addition to destroying the fun and challenge of 'working a rare one', there is a strong feeling that tape recordings of this behavior at the next WARC could cost all amateurs their privileges.

"As DXCC is an ARRL program, ARRL must act. Failure to do so will be perceived as acceptance of this behavior. In the WARC context, what government would support Amateur Radio if it cannot be self-regulating? Resources to enforce regulations are scarce and pressure from commercial interests for additional spectrum is strong.

"We ask the ARRL Board to direct the DXCC desk to invoke the rules regarding misconduct and disqualify any amateur who is identified as a source of this intentional interference. Identifying those individuals to the general amateur population, and as appropriate, to regulatory agencies

won't make the problem go away, but it will demonstrate a resolve to continue the tradition of self-regulation.

"This request is not made lightly. The potential for further deviant behavior and legal entanglement is quite real. There is also the equally real threat to our continued access to spectrum, a difficult political objective even when one's record is clean. I urge you, on behalf of our members and many others, to send a strong message to the Amateur Radio community at large, that these destructive actions will not be tolerated."

Here is part of Garth's response. Note that Garth is speaking as CRRL rep on the ARRL DX Advisory Committee, not for the DX Advisory Committee or for ARRL:

"We understand the cause of your concern, but we do not think that what you propose is practical. We do not think that very much of the QRM originated with the DXers or at least DXers for whom loss of DXCC privileges would be meaningful. To print the names of offenders without sufficient evidence to defend one's self in a court of law is libel. If you have the evidence to defend your charge in court, then you have enough to get the authorities to remove individual's operating privileges. This would be a far more satisfactory solution to the problem.

"Your letter does not address the real cause of the problem. Whatever window a DX station decides to use will, in all likelihood, contain at least one net and several QSOs. How would you feel if all of a sudden, the frequency you are using was full of stations calling someone else? Too many of our community seem to forget there are other users of the bands. We demand a clear station for the DXpedition station. We even try moving stations that are close to the frequency. We call over anyone trying to hold a QSO inside the listening window whether they were there first or not. And yet we wonder why we are having these problems."

Who is right? The debate rages on. Whatever, two things are for sure. First, we could all stand to display a little more courtesy on the bands. Second, despite CRRL Past President Tom Atkins' gracious reply to NW2I, expressing the feeling that there was probably little that the authorities could or would be willing to do, in the US, the FCC did come through. 240 US stations were issued citations for operating phone out of US phone bands—mostly on 20 metres—on January 2-13 during the Bouvet Island DXpedition. —Harry MacLean, VE3GRO ■

All letters are considered carefully. Letters are edited and may be condensed in order to have more information and readers' views presented. The publishers of *QST Canada* assume no responsibility for statements made by correspondents.

THE NEW ORGANIZATION

Most amateurs who responded to our request for comments on forming a single Canadian Amateur Radio organization shared our enthusiasm and were very positive about the idea. But not all. The following letter, from a well known and well respected Ontario amateur, is offered as food for thought.

I am taking the liberty of responding to your request for input on the formation of a single Canadian Amateur Radio organization. I have been an amateur for 20 years. I am very active in public service, having served for two years as Ontario STM. I continue to serve as NCS on OPN

and as NM of GBN. I was a member of ARRL for a good year before acquiring my licence. I am also a member of CARF and CRRL. I joined CARF because I felt I ought to as a Canadian amateur, but I belong to CRRL because I really feel I must be a member. Frankly, I was disappointed when CRRL separated from ARRL, although I am pleased that a close relationship has been maintained. I used to be so pleased to be a member of a truly international organization in an age of growing internationalism. I felt it stood solidly for the brotherhood of our hobby. I do, however, remain firmly committed to CRRL. I am also committed to rejoining CARF when renewal times arrives.

I have one deep and abiding concern about the merger talks. If anything is done that damages our unique relationship with ARRL, you can count me *out* of both organizations. I will simply apply for non-national membership in ARRL and forget about our "Canadian identity crisis". To lose, in any way, access to the wisdom and resources of ARRL is too high a price to pay. What on earth is this need to have a single name? The DOC has shown its commitment to Amateur Radio very clearly. Can we not continue with both groups with no need for conflict? Is it not possible for working groups to address areas of mutual concern? For my part, I do not like the idea of merger at all. I fear a move to merger would be a first step in what would thereafter become a rapid schism with ARRL that I am not willing to see happen.

I appreciate the workload you and the other people at CRRL Headquarters carry. Keep up the good work, but please don't cave in to sloppy Canadian nationalism. We are a special country, widely accepted and widely accepting of others. That is our strength. I fear that we are becoming parochial, starting to stare at our collective navels, and by default, losing the vision that we are one country that stands for healing in a broken world. —George Neeson, VE3BDM, Brockville, Ontario ■

The Canadian Radio Relay League, Inc La Ligue Canadienne de la Radio Amateur, Inc



The Canadian Radio Relay League (CRRRL) is a noncommercial association of radio amateurs organized for the promotion of Amateur Radio communications and experimentation, for the establishment of networks to provide communications in the event of disasters or other emergencies, for the advancement of the radio art and the public welfare, for the representation of radio amateurs in legislative and other matters, and for the maintenance of fraternalism and a high standard of conduct.

CRRRL is incorporated under the Canada Corporations Act. Its affairs are governed by a seven-member Board of Directors elected every two years by the CRRRL general membership. CRRRL is noncommercial, and no one who could gain financially by the shaping of its affairs is eligible for membership on its Board.

CRRRL is the Canadian member-society of the International Amateur Radio Union (IARU). "Of, by and for the Canadian Radio Amateur", CRRRL numbers within its ranks the vast majority of active amateurs in the nation and has a proud history of achievement in amateur affairs.

A bona fide interest in Amateur Radio is the only essential requirement for membership. An Amateur Radio licence is not required, although full voting membership is granted only to licensed amateurs in Canada.

Membership inquiries and general correspondence should be directed to CRRRL Headquarters, Box 7009, Station E, London, ON N5Y 4J9 (519) 660-1200.

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*Voting member, CRRRL Board of Directors

Calendar



Attention: Deadline for items is the 1st of the second month preceding the month of publication. For example, information would have to reach *QST Canada* by January 1 to be included in a March issue.

Ajax, ON: Durham Region Amateur Radio and Computer Fleamarket, Saturday, April 7, at Pickering High School, Church St, Pickering Village, Ajax. Sponsored by South Pickering ARC and North Shore ARC. Opens 9 a.m., vendor setup at 7:30 a.m. Admission \$4, Tables \$10 plus admission. Contact Ron Brown, VE3WZ, Box 53, Pickering, ON L1V 2R2, Tel (416) 675-7314.

Bramalea, ON: Fleamarket, Saturday, March 3, at North Peel Secondary School, 1305 Williams Pkwy. Sponsored by Peel ARC. Opens 9 a.m., vendor setup at 7:30 a.m. Admission: \$3. Tables: \$5 plus admission. Commercial tables: \$10 plus admission. Contact James McMurray, VE3BDI, 20 Hillbank Trail, Bramalea, ON L6S 1P6, Tel (416) 458-0505.

1990 Bermuda Contest: 0001 UTC March 18 to 2400 UTC March 19, actual operation not to exceed 36 hours. Open to amateurs in Canada, the US, the UK, West Germany and Bermuda. Winners are brought to Bermuda to receive their trophies. Full details in this month's *QST Canada*.

1990 CLARA AC/DC Contest: CW portion: 1700 UTC March 20 to 0500 UTC March 21. Phone portion: 1700 UTC March 27 to 0500 UTC March 28. All licensed amateurs may participate. Full details in this month's *QST Canada*. ■

Bermuda Radio Week '89

The fun is picking up the trophy.

By Garry Hammond, VE3XN
5 McLaren Ave
Listowel, On N4W 3K1

Ordinary people (non-amateurs) just look at you in disbelief when you tell them. Non-contest- and non-DX-oriented amateurs give you the same look and ask the same question. "You mean you won a trip to Bermuda just by playing with your radio set?"

"Yes, I did," I reply.

Even though the Bermuda Radio Society (BRS) has run its gem of a contest for thirty-one years, you have to keep thinking that the Bermuda Contest is one of the best kept secrets in Amateur Radio. When you win most Amateur Radio contests, you usually get a certificate. Depending on the sponsor, you may receive a trophy or plaque. The Bermuda Contest offers these too, but with a big difference. If you are the top Canadian, American, British or West German in the contest, you will receive a telephone call inviting you to Bermuda during Radio Week to pick up your trophy. BRS supplies a pewter tankard and an official tie—and the Bermuda Tourist Association provides you with a week's accommodation and an airline ticket to get you to Bermuda and back.

But there is more to it than just a trip to VP9. Anyone can go to a travel agent and buy a ticket to the island. I hope the following abridged personal diary will enlighten you about how much there is to winning this particular contest.

VE3XN's Diary of Bermuda Radio Week '89

Sunday, October 15: An enjoyable three-hour non-stop Air Canada 767 flight to the Islands. VP9ID meets me at the airport, loads my luggage, taxis me to Stonington Beach Hotel and presents me with Reciprocal Operating Permit No. 491 for VE3XN/VP9. I settle in and meet the other contest winners: N2NT, DK8FD, G4OSY and VP9LR for eyeball QSOs, our first taste of "dark and stormy" drinks, and multi-helpings of the famous Sunday evening Norwood Dining Room buffet. Next, a late social evening at the Elbow Beach Surf Club with drummer and lead singer VP9ID and his four-piece band providing the entertainment.

Monday, October 16: Local bus and walking tour of St George's and Fort St Catherine's at the east end of the island. Champagne party with hotel guests and William Mulder, general manager of the hotel. VP9KG and VP9KR chauffeur me to an evening cocktail party for thirty



Amateur Radio friends and their spouses, all at the home of Elsie and John Young, VP9HL. VE3XN/VP9 QRV to QSO keeners including VK6RU, W1NU, VO1MP and others looking for a new VP9 contact for the VP9-100, -200, -300 or -400 plaques.

Tuesday, October 17: Local bus and walking, sightseeing and shopping in the capital city, Hamilton. Operating /VP9 on 15 metres. Afternoon tea, fancy sandwiches and sweets at the hotel. An evening with the winners: dinner at the Hog Penny restaurant and entertainment at Rum Runners.

Wednesday, October 18: Press conference at the Mid-Ocean Weekly newspaper arranged by VP9IM. VP9ID chauffeurs us around to visit local artistic arrays of aluminum aerials. Afternoon photo session for the Mid-Ocean Weekly newspaper. Operating VE3XN/VP9 on 10 and 15 metres. Dinner with N2NT and Bonnie, Andy's ebullient XYL, at the M. R.

Above, from left to right: Warm smiles from the 1989 Bermuda Contest winners' circle: Garry, VE3XN, a geography teacher; Alex, DK8FD, a chemical technician; Andy, N2NT, an NBC field engineer; Tony, VP9LR, a retired cable and wireless operator, and seated at his Ten-Tec HF transceiver, Dave, G4OSY, a self-employed electronics technician. (VE3XN photo)

Onions restaurant. RSB's Annual General Meeting: an excellent opportunity to meet the local amateur population and hear president VP9IM's year-in-review report. Social visit to the home of VP9HK.

Thursday, October 19: Morning cruise on the Looking Glass boat to the western part of the islands. Bangers and Mash lunch at Ye Olde Clock and Feather restaurant. Marvel at the stalactites and stalagmites at Crystal Caves. Informal cocktail party and CQ WW discussion with contest winners at the home of VP9AD. Late Italian buffet dinner at La Trattoria restaurant with winners, VP9AD, VP9IJ and G4CNY. Allan and Judy drive me back to the hotel to operate /VP9 on 20 metres. Younger winners go on to more lively entertainment, hi.

Friday, October 20: Morning tour of Bermuda Aquarium and Zoo. Afternoon bus and hiking tour to, up and down the Gibb's Hill Lighthouse. (The lighthouse keeper, a YL, turns out to be the niece of Albert Lightbourne, VP9HE.) VP9KL and VP9KQ van us to the Annual Banquet and Awards Presentation at Riddell's Bay Golf Club House. About seventy amateurs and friends enjoy eyeball QSOs, cocktails, a delicious Beef Wellington dinner, entertaining commentary by VP9ID, VP9HK and others, and the awards presentations: a very FB evening! Finally, a late night winners' farewell party at the Stonington Beach Hotel.

March/mars 1990 3

Everyone agrees. It has been an FB week.

Saturday, October 21: Thank hotel staff. Finalize packing and checkout. Sad farewells to new friends G4OSY, DK8FD, N2WT and Bonnie. Lunch at VP9HK's due to a seven-hour flight delay. Time to do those extras: visit VP9BS, meet the governor and first lady of Bermuda, and operate VP9BS during JOTA, the Scouts' Jamboree-on-the-Air; make a social visit to VP9LR; visit the Mount St Agnes Academy (a private school) Carnival with VP9ID, and buy some crafts from Glen, VP9JG's XYL; operate /VP9 on 20 metres from VP9ID's Devonshire QTH before Glen drives me to the airport. Have an FB conversation with VP9HK and XYL who are also flying to VE-land. Return via Air Canada to Toronto.

Did I miss telling you anything? Certainly! Food, drink and taxis are expensive, but the island's natural beauty is lovely and free. As Fodor's '90 *Travel Guide* says, "Bermuda is a quality resort island. Although it is one of the smallest countries in the world, it ranks sixth among the world's richest..." That would be after A61, 9K2, A71, HB9 and SM.

Bermuda is informal by day, but elegant and formal at night. You should expect to wear a jacket and a tie to restaurants. Since 1977, the Bermuda dollar has been linked to the US dollar, so don't bother taking Canadian money. There are no rental cars in Bermuda, but you do have your choice of bicycles, buses, horse-drawn carriages, ferries, taxis,

How Can You Win the Bermuda Contest?

1. Know that the dates of the 32nd Bermuda Contest are 1990 March 17-18.
2. Have a positive attitude towards winning. Remember that Andy, N2NT, achieved US top score without a beam antenna. He used a variety of wires on a city lot!
3. Explain to your girlfriend, XYL or OM how the Bermuda Tourist Board pays your return air fare and accommodations for you to pick up your trophy. (You might even invite them to accompany you if you win!)
4. Let your family and friends know that they will not see you that weekend. Put a "Do Not Disturb" sign on the door of your shack.
5. Let your neighbours know your plans if you tend to cause RFI or TVI. Promise them souvenirs if you win. Disconnect the phone in case they forget, hi.
6. Have food and snacks prepared ahead of time. If you're on a diet, just cut out pictures of your favourite dishes.
7. Forget alcoholic drinks. Save the "Dark and Stormy" ones for VP9.
8. Get to know as many VP9s as you can. Check into their 14.275-MHz Sunday morning net.
9. Do not miss any VP9 multipliers in the contest! Work every one you hear and respectfully ask them to QSY to other bands and modes at mutually agreeable times. 20% of Bermuda amateurs are XYL/OM teams. Ask them if they're part of a team.
10. Often VP9s will answer your CQ instead of putting out one of their own. Call "CQ Contest" often. Listen too, but remember you cannot win this contest by listening alone.
11. Don't forget CW.
12. If you are using a computer for logging purposes, have a game or two handy to take up the slack when your QSO rate runs below ten per hour.
13. Know the rules! They're printed below.
14. Don't let others who are in the contest intimidate you in any way. Do not divulge the specifics of your contest success or failure until after the contest.
15. Check your log carefully for dupes, accuracy and completeness. Send it by registered mail to the address in the rules below so it will arrive at RSB by June 1.

walking or hitching a ride with an amateur friend. And you will have lots of time—to enjoy the pool, the beaches, the friendly people and the delightful warm though somewhat humid weather.

On behalf of 104 past Bermuda Con-

test winners, I invite you to give the 1990 Bermuda Contest, March 17-18, a try. I think you'll thank me if you do. My personal thanks to Gus, VO1MP, the 1988 Canadian winner, for his encouragement to go for it! ■

Rules: 1990 Bermuda Contest

1. The contest is open to all licensed amateurs from the following countries: Canada, United States of America, United Kingdom, West Germany, and Bermuda.
2. Contest Period: 0001 UTC March 17 to 2400 UTC March 18, 1990 (48 hours). Actual operation is not to exceed 36 hours. Off periods are to be clearly logged. Each off period is not to be less than three consecutive hours.
3. Eligibility: All stations must be single-operator only, and must be operated from the owner's private residence or property. Top winners for the 1985-1989 contest will be eligible for the area awards only.
4. Bands: 3.5, 7, 14, 21 and 28 MHz. No crossband or crossmode contacts permitted. Phone and CW may be used on any band.
5. Exchanges: All contestants exchange RS (CW exchange RST) and the following: Canadian stations—province; US stations—state, UK stations—county, West German stations—DOK number, Bermuda stations—parish. Canadian and US stations contact UK, West German and

4 QST Canada

- Bermuda stations only. UK and West German stations contact Canadian, US and Bermuda stations only. Bermuda stations contact Canadian, US, UK and West German stations only.
6. Scoring: Each completed contact on each band counts five points. A phone contact and a CW contact on the same band count for score only if the contacts are at least thirty minutes apart. A *multiplier may be counted only once per band*. For stations outside of Bermuda, the multiplier is the total number of Bermuda stations worked on all bands. The same Bermuda station can be worked on all bands.
7. Awards: The top scorer in each province, state, county, DOK area or parish will receive a printed certificate, provided at least 100 contacts were made. The top scorer in Canada, the US, UK and West Germany and Bermuda will receive a trophy which will be presented at the Radio Society of Bermuda's Annual Banquet in October, 1990. Round trip air transportation and accommodations will

- be provided free to overseas winners to enable them to receive their awards.
8. Logs: Logs must be legible. All dates and times must be in UTC. A separate log sheet must be used for each band and mode. All contestants must compute their scores and check for duplicate contacts. Duplicate sheets must be submitted for bands with more than 200 contacts. Each sheet must be clearly marked with the contestant's callsign, band and date. All contestants must sign a statement that they have observed the rules of the contest and the terms of their licence. A penalty of three points will be deducted for every duplicate contact for which points were claimed. Excess duplicate contacts may result in disqualification.
9. Decisions of the Contest Committee are Final: All logs must be received by the Contest Committee, Radio Society of Bermuda, Box HM 275, Hamilton, Bermuda HM AX, by 1100 UTC, 1990 June 01. Enclose an SAE and IRCs for if acknowledgement of receipt of log is required. ■

Testing the Integrity of PL-259 Connectors

A common problem, an effective solution.

By John White, VE7AAL
344 Oxford Drive
Port Moody, BC V3H 1T2

Much has been written on methods of attaching the popular PL-259 "UHF connector" to RG-8-type coax. Making the solder connection from the centre conductor to the connector pin is easy. That which is not so easy is making the connection from the coax braid to the connector shell. This is difficult because of a) the large thermal mass of the braid and shell, and b) the insulating air space between the braid and the shell which impedes the flow of heat and solder. This is usually the topic of PL-259 articles: how to make the best connection. (I prefer Ralph Hirsch, K1RH's method of connection; see pp 48-49, 1988 August QST.) But that is not the purpose of this article which will discuss how to check that a reliable connection has indeed been made.

The two obvious tests for connection integrity are a) visual inspections of the solder holes on the connector body to see that the solder has flowed and filled the holes, and b) an ohmmeter check to ensure that there are no short circuits between the centre conductor and the braid, and that there is end-to-end continuity for both the braid and the centre conductor.

In spite of having made many connections over the years, unstable effects have been encountered from time to time, especially during VSWR and power measurements. The problem invariably has been the result of a cold solder intermittent braid-to-shell connection which was not revealed by the other two tests.

In order to overcome the annoying situation of having to repair installed connectors, usually outside at a most inopportune time, a very simple third test was devised to distinguish a poor joint. This test eliminates the need for the ohmmeter test.

Refer to Figure 1 which shows an HF receiver connected to a 50-ohm dummy load. If the coax cable, connectors and load are properly fabricated, the receiver will not be able to pick up a signal because the centre conductor of the coax is entirely shielded by the braid and the equipment is shielded by its metallic enclosure. In my station, I have a TS-940 connected through an SB-614 monitor

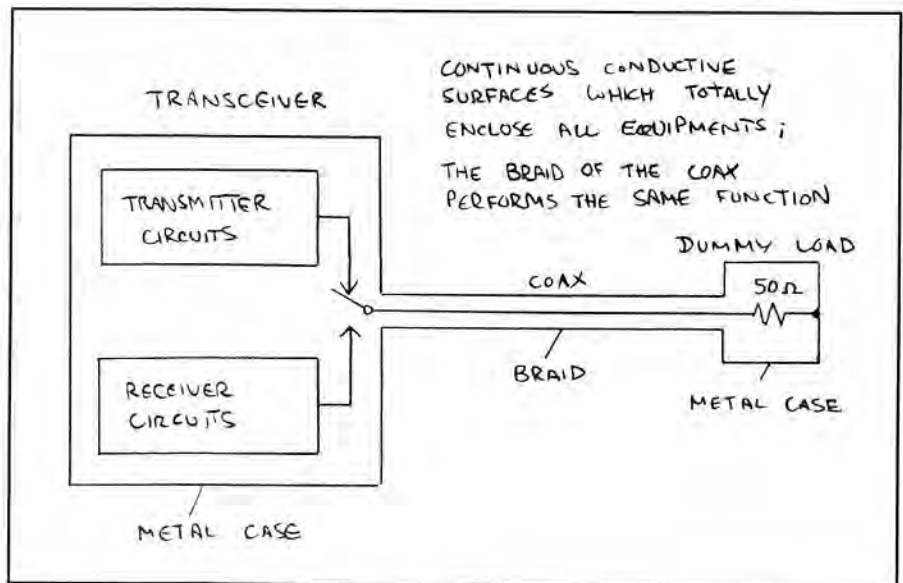


Figure 1—When the connections are good, the system is totally shielded.

scope, a Yaesu YS-60 SWR meter, an SB-220 linear, a Kenwood low-pass filter, a Delta-4 antenna switch and a Heathkit HN-31 Cantenna. The measured sensitivity of the TS-940 is about 22 nanovolts for an audible detectable signal. When the antenna switch is in dummy load position, there are no detectable signals. This indicates that the shielding integrity of the system (≈ 100 dB) is as it should be, with silence achieved even for a relatively complicated system.

The test should now be apparent. Insert a "newly connectorized cable" into the system at some convenient point as per Figure 2, and see if signals are detectable. My technique is to turn the antenna switch to the 20-metre antenna position and tune in a strong station ($> S9 + 20$ dB), and then turn back to the dummy load position and listen for silence. If it is not quiet except for internally generated receiver noise, then the cable-connector is faulty. If it passes this test, I torque the outside of the cable-connector combination to try to rotate the cable inside the connector. This will check the mechanical stability of the connection.

What difference does all this make? To

understand the detrimental effect of an open-circuited braid connection, use the old analogy of "electricity is like water flowing through a pipe". The signal energy is contained in the fields between the outside of the centre conductor and the inside of the outer conductor, just as water flows on the inside of the pipe. *None of the desired signal flows on the outside of the coax.* In the case of transmitted power, a break in the coax ("pipe") will allow RF ("water") to flow on the outside. This can manifest itself as RF in the shack, obvious from "RF bites", or as a badly distorted radiation pattern as radiation from the coax combines with radiation from the antenna. In the receive situation, a breach in the coax will allow the ingress of signals picked up by the antenna action of the braid. These will be in addition to the desired signals picked up by the antenna. The phasing of the desired signals with the undesired signals may be subtractive, resulting in receiving impairment. Also, recall that the antenna is a selective device that rejects out-of-band signals. One does not wish to lose this feature. Last but not least, a proper connection will reduce impedance discontinuities and enhance forward power.

VE3TVL ATV Repeater, London, Ontario

By Jim DeZorzi, VE3ZK

The London ATV Group recently established VE3TVL, the first ATV repeater in southwestern Ontario.

The repeater is a crossband device. It uses a PC Electronics ATVR-4 receiver on 439.25 MHz, a PC Electronics RTX-23 transmitter on 1253.25-MHz, and a VOR-2 and a VDG-1 WB8ELK identifier board. The 2316PA power amplifier by Downeast Microwave delivers 18 watts of crisp, clean video into a Lindsay TZU-A vertically-mounted horizontally-polarized 8.2 dB-gain antenna. The receiver is connected to a Lindsay TZU antenna of the original design in use at a number of other ATV repeaters. The audio link is on 145.670-MHz FM.

VE3TVL is the first 1253-MHz ATV repeater to use the new 1255-MHz version of the popular TZU antenna.

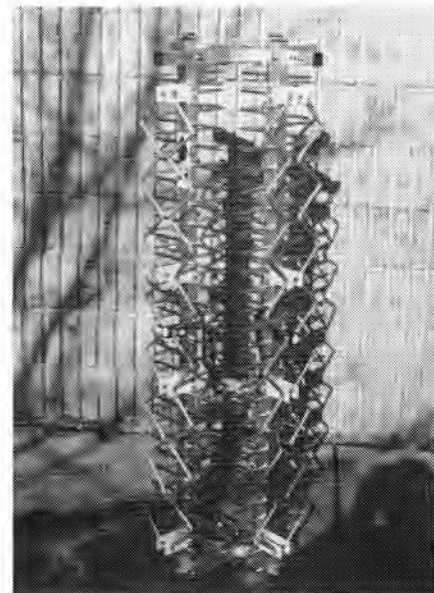
To receive the repeater, users—there are 21 at present—use PC Electronics TVC12-G down-converters coupled to Tonna 20624 23-element antennas with 18.1 dB gain. They use TC70-1's and a variety of antennas to transmit to it.

Why did the group go to the extra

expense of using horizontal polarization at the repeater site? Since all users already had horizontally polarized 439-MHz antennas and they still wanted to work 439.25-MHz DX, they chose horizontal polarization for the repeater. Why a crossband repeater? Unlike most US amateurs, Canadian amateurs cannot go below 434 MHz with their video. This allows Canadian ATV enthusiasts only one channel in the 430–450-MHz band. Of course, you need two for a repeater. Video is not yet permitted on 902–928 MHz, and so, we were forced into the 1250-MHz band for the other half of our repeater pair.

VE3TVL was funded by a New Horizons grant. These are provided by the federal government to assist senior citizens develop interesting activities. The grant funded not only the repeater, but an ATV station, a VHF station and an HF station. All of the equipment is located in the Western Counties Wing of Parkwood Hospital, where the London Seniors Amateur Radio Club provide volunteer service, giving veterans of the armed forces an opportunity to communicate with

friends and acquaintances around the world.



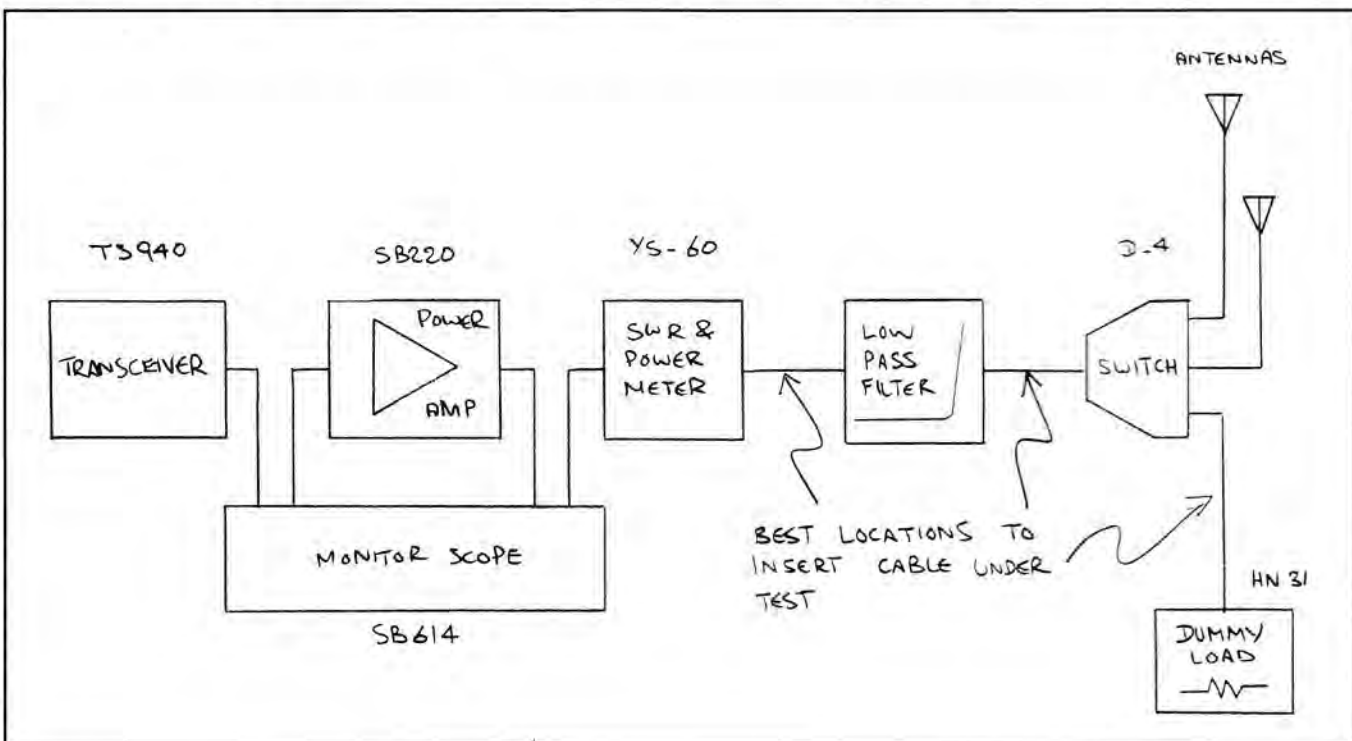
The Lindsay TZU-A 1255-MHz antenna. ■

As a closing note, it has been my experience that PL-259s, are acceptable for use at HF, marginal at 144 MHz, but, in spite of their "UHF" designation, totally

unacceptable at higher frequencies because of impedance discontinuities resulting in VSWR of at least 1.5: 1. At our station, this problem first showed up

with VHF-UHF OSCAR operation, and convinced us to do a complete conversion to "N-type" connectors which have proven vastly superior.

Figure 2—Possible locations for the cable-connectors under test. Good connections ensure good weak-signal reception, maximum power out. ■



Marconi Museum Opens

By Jack Columbus, VE1XT

Last summer, Canadians in general and radio enthusiasts in particular were given an opportunity to become more familiar with this country's scientific achievements. On July 20, 1989, the new Marconi Museum was officially opened in Glace Bay, Nova Scotia.

The museum, operated by Parks Canada, is a fitting tribute to the "Wizard of Wireless", Guglielmo Marconi. On December 21, 1901, Signor Marconi accomplished what no one had ever done before, and what many at the time had considered impossible: spanning the Atlantic Ocean by wireless. It was on that day that the first west-to-east transatlantic message was passed. Originating point of the message: Table Head, Glace Bay, Nova Scotia, now the site of the Marconi Museum.

Today, of the original station, only the concrete foundations of the giant wooden towers remain. It is hoped that replicas of the towers will be built on the site as a further addition to the museum complex.

Sydney Amateur Radio Club played a key role in the design of the museum. Club representatives spent countless hours with government officials, discussing the construction and layout of the exhibits. The club now operates a station, VE1VAS, from the museum. The suffix recalls the call letters of the Marconi station in Glace Bay: VAS.

On opening day, contacts were made with stations in Cornwall, England, and Massachusetts, sites of Marconi stations in the early part of this century. The Marconi Museum was officially opened by Premier John Buchanan of Nova Scotia, and Signor Marconi's daughter, Gioia Marconi Bragga of New York.

Heading east this summer? Why not come to Glace Bay, Nova Scotia? You'll enjoy a visit to the Marconi Museum.



Top: Exterior view of the new Marconi Museum, Glace Bay, Nova Scotia. (All photos courtesy VE1XT)

Immediately above: A bust of Marconi on the cairn at the entrance to the museum.

Right, top: The rock cliffs of Table Head, topped by the Marconi station, VAS

Right, centre: Jack, VE1XT, surveys the concrete foundations of the original transmitter building.

Right, bottom: The Wireless Hall of Fame—photos and biographies of great names in radio.



Left: VE1XT at VE1VAS. ■

KENWOOD



TS-940, TS-680S, TS-440, TS-140



TM-721A, TM-231A
TR-751A

TH-205AT, TH-215A
TH-415A, TH-75A



TH-25AT, TH-45AT

LEASE TO OWN

1. TRYLON 48' TOWER, 12-FOOT MAST AND MAST BEARING, HYGAIN HAM IV ROTOR PLUS 100' 8-WIRE CABLE, HYGAIN TH3JR 10, 15, 20-METRE ANTENNA, BN-86 BALUN, FOUR PL259 CONNECTORS AND 100' RG 213u ANTENNA WIRE...

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TOTAL PRICE—\$3900, CASH PRICE—\$3650

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42-MONTH LEASE—\$127.76 PER MONTH

(B) WITH ICOM IC-735 AND PS-55 POWER SUPPLY

TOTAL PRICE—\$4200, CASH PRICE—\$3950

36-MONTH LEASE—\$153.55 PER MONTH

42-MONTH LEASE—\$137.54 PER MONTH

2. TRYLON 48' TOWER, 12' MAST AND MAST BEARING, HYGAIN HAM IV ROTOR PLUS 100' 8-WIRE CABLE, HYGAIN EXPLORER-14 10, 15, 20-METRE ANTENNA, BN-86 BALUN, SIX PL259 CONNECTORS, 200' RG 213u ANTENNA WIRE...

(A) WITH ICOM IC-761 TRANSCIEVER AND ICOM IC-275H ALL-MODE

TOTAL PRICE—\$8778, CASH PRICE—\$8550

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(B) WITH ICOM IC-751A, PS-30 POWER SUPPLY AND ICOM IC-275H

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AEA PK-232, PK-87



1278

MFJ 1270B, 1274, 1278

Licence Fees Up

As part of a general increase in licence fees, DOC has raised the fee for Amateur Radio station licenses by some 10%. New station licences will cost \$29, up from \$26, and renewal station licences will cost \$22, up from \$20. These increases take effect this year and will be reflected in the station licence renewal notices that will be mailed out shortly.

CRRL NOTES

□ CRRL Vice President Harry MacLean, VE3GRO, acting as an observer, attended the ARRL Board meeting held in Hartford, Connecticut, on January 19–20. Of interest to Canadian amateurs, ARRL remains hopeful that they will not lose the 220–222-MHz portion of the US 220–225-MHz band. ARRL increased its annual membership dues by \$US 5 a year. This is the first ARRL dues increase in nearly nine years. It will not affect CRRL members who receive *QST* through CRRL.

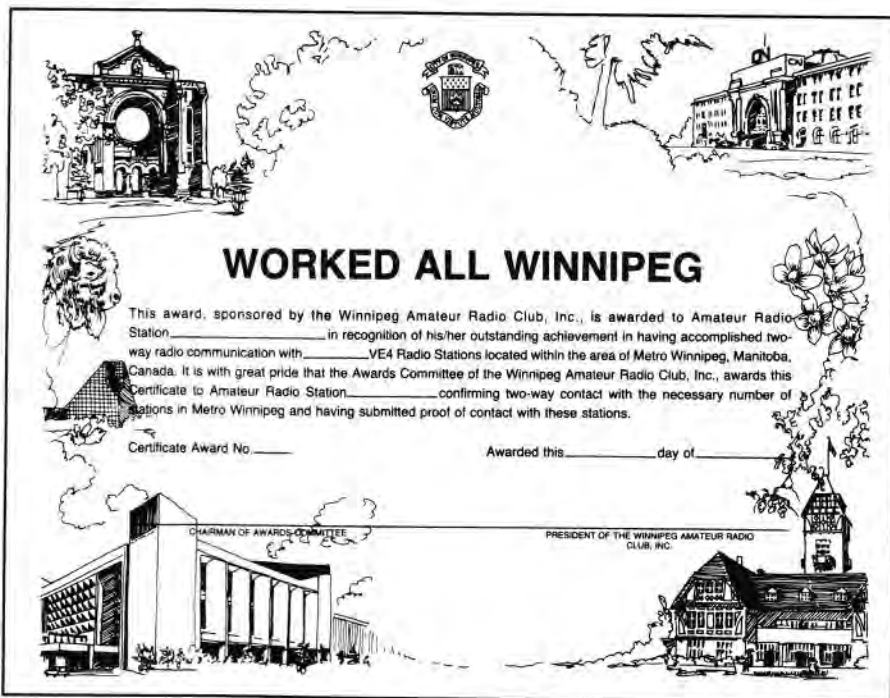
□ Garth Hamilton, CRRL representative on the ARRL DX Advisory Committee (DXAC), reports that 1989 was a busy year, with votes on several new DXCC countries and a recommendation that contacts on WARC bands count for DXCC credit. This recommendation was approved at the recent ARRL Board meeting.

SATELLITE LAUNCH SUCCESSFUL

Early January 22, two new UoSATS and four new Microsats were launched from Kourou, New Guinea. They are now in orbit around the earth. UoSATS 14 and 15 are for experiments and research. The Microsats, OSCARs 16–19, are for more general use. PACSAT, LUSAT, and WEBERSAT, with downlinks in the 437-MHz range, have store-and-forward packet radio capability. DOVE which will be programmed to transmit a message of peace, has a 2-metre downlink on 145.825 MHz FM. At press time, DOVE was sending telemetry at 1200-bps FM packet. All six satellites are essentially in the same sun synchronous orbit, resulting in two or three passes each evening at approximately 10 p.m. local time.

SOUTH OF THE BORDER

□ The US FCC has issued over 240 notices of violation to US amateur stations for transmitting outside of US phone bands. Amateur stations were cited under Section 97.305C of Part 97 of the Rules, for January 2–13 operations related to the Bouvet Island DXpedition. Most of the violations were on the 20-metre band.



The Worked All Winnipeg Award: Check the text for details on how to qualify.

□ Still south of the border, the FCC has told key US amateurs who use 20 metres for international phone patching nets and bulletin transmissions to work up a plan to prevent future complaints, or be the ones blamed by the Amateur Radio community for restrictive regulations that could ban certain kinds of nets, phone patching and all bulletin transmissions. FCC has asked that the plan be submitted by 1990 July 1.

NOTES FROM ALL OVER

□ 1990 is the 200th anniversary of Bounty mutineers landing on Pitcairn Island. To celebrate this event, Pitcairn amateurs, several of whom are descendants of the mutineers, will use the special callsign VR200PI followed by a slash and their personal callsign suffixes (e.g. VR200PI/TC). Amateurs who contact Pitcairn stations during 1990 are eligible to receive a special certificate.

□ Australia's volunteer examining system is now in place. Australian amateurs hope this change will alleviate slow growth in their Amateur Service—about one-half percent a year.

□ This year, to celebrate 500 years of Linz, Austria, amateurs in that city are sponsoring a Linz-500 Diploma. Look for OE5 stations ending in slash-500 (e.g. OE5XXX /500) on all HF bands and ask for details.

□ ICOM has installed a toll-free literature request hot line for its retail customers. Call 1-800-999-9877 and give your name, address and literature request—which will be mailed to you on the next business day.

□ Two notes from the Ottawa area: Amateurs at Ottawa's Carleton University are operating packet radio at 56,000 bits per second. Ottawa ARC's ten-metre beacon, VE3TEN on 28.175 MHz, is once again operational.

WORKED ALL WINNIPEG AWARD

Winnipeg Amateur Radio Club (WARC) sponsors the "Worked All Winnipeg Award" (see the photo above). Here are the rules: Stations in Manitoba, including Winnipeg, must work 25 Winnipeg stations. Stations outside of Manitoba but still in North America must work 15 Winnipeg stations. Stations outside of North America must work 10 Winnipeg stations. To receive your attractive certificate, send log data, certified by two amateurs and yourself, along with \$2 or six IRCs, to Worked All Winnipeg Award, Box 352, Winnipeg, Manitoba R3C 2H6.

A REMINDER...

February was CRRL membership month. Join, renew or extend your membership now. You'll be helping yourself and Canadian Amateur Radio. ■

KENWOOD

NEWS RELEASE

Kenwood Electronics Canada, Inc.
Box 1075, 959 Gana Court
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For Immediate Release

Subject: Kenwood TS-950S Digital HF Transceiver

For more information, contact:
Lloyd Le Blanc, National Sales and Marketing Manager
Elry Cobeng, Customer Service Representative

The new TS-950S is designed for serious contesting and DXing. Kenwood engineering has now moved the high performance HF envelope using sophisticated digital techniques. The new TS-950SD is the first Amateur Radio transceiver to utilize Digital Signal Processing (DSP) techniques, a high-voltage final amplifier (50 volts), dual fluorescent tube digital display and digital bar meter with peak-hold function. The transceiver comes fully equipped with CW, SSB and AM IF filters.

YG-455CN-1	250 Hz CW filter
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■ Digital Signal Processor

- a. Digital processing improves spurious response and unwanted sideband suppression.
- b. Digital processing delivers flat and clean quality sound with wide frequency response. The user may select any of four possible audio levels on the DSP unit.
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- d. Synchronized with SSB IF slope tuning, a digital AF filter provides sharp characteristics for optimum filter response.

■ Dual Frequency Receive Function

The TS-950S is capable of receiving two frequencies simultaneously.

■ 150-watt High Power, Heavy Duty Cycle Design

High-voltage (50 VDC) power transistors are used in the 150-watt final section and are mounted on a large die-cast aluminium heat sink.

■ Built-In Microprocessor-Controlled Automatic Antenna Tuner

The microprocessor has been pre-programmed to quickly tune for minimum SWR assuring maximum operator convenience. The tuner settings can be stored in memory.

■ Outstanding Receiver Performance and Sensitivity

a. Superior receiver dynamic range with Kenwood's new Dyna-Mix™ high-sensitivity direct mixing system. The intermodulation dynamic range (IMD range) is 105 dB. with an overall intercept point of +20 dBm, and a noise floor level of -140 dBm.

b. Multi-Drive Band Pass Filter (BPF) circuitry: fifteen band pass filters are available in the receiver front end.

■ Superior Interference Reduction

The TS-950SD includes all of the famous Kenwood interference reducing controls: SSB IF SLOPE TUNING, CW VBT (Variable Bandwidth Tuning), CW AF TUNE, IF NOTCH FILTER, Dual-mode NOISE BLANKER ("pulse" or "woodpecker") with level control, four-step RF ATTENUATOR (10, 20 or 30 dB), switchable AGC (OFF/SLOW /MED/FAST), and an all-mode SQUELCH circuit.

■ Superior Frequency Stability

The built-in TCXO provides superior frequency stability for the dual VFOs. The reference frequency is 20 MHz and is accurate to plus or minus 0.5 ppm between -10° C and +50° C.

■ Built-in Keyer

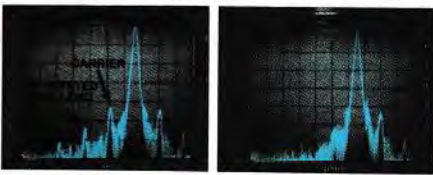
■ Easy-to-Operate Microprocessor-Managed Frequency Control

- a. Direct band-access key
- b. Easy-to-operate illuminated-keyboard frequency selection
- c. MCH (Memory Channel)/VFO CH (VFO Channel) control
- d. 100 memory channels. All store independent transmit and receive frequencies, mode and filter data, auto-tuner data and tone frequency. Ten memory channels are used to establish upper and lower limits for the programmable band marker.

See your authorized Kenwood dealer for more details!



Digital Signal Processing



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"DX-clusive" HF Transceiver



The new TS-950SD is the first Amateur Radio transceiver to utilize Digital Signal Processing (DSP), a high voltage final amplifier, dual fluorescent tube digital display and digital meter with a peak-hold function.

- **Digital Signal Processor.** DSP is a state-of-the-art technique that maximizes your transmitted RF energy. Your signal stands out because it is much more pure than your competition! You can even tailor your transmitted CW or voice signal waveshape!
- **Dual Frequency Receive Function.** The TS-950SD can receive two frequencies simultaneously. The sub-receiver has independent controls for frequency step size, noise blanker, and AF gain and its own digital display!
- **New! Digital AF filter.** Synchronized with SSB IF slope tuning, the digital AF filter provides sharp characteristics for optimum filter response.
- **New high voltage final amplifier.** 50V power transistors are used in the 150W final section, resulting in minimum distortion and higher efficiency. Full-power key-down time exceeds one hour.
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- **Kenwood interference reduction circuits.** SSB Slope Tuning, CW VBT (Variable Bandwidth Tuning), CW AF tune, IF notch filter, dual-mode noise blanker with level control, 4-step RF attenuator (10, 20, or 30 dB), switchable AGC circuit, and all-mode squelch.
 - **Built-in TCXO for highest stability.**
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Canadian Amateur Licensing Manual	\$18.75	\$17.00	100	\$1.50	<input type="checkbox"/>
Canadian Amateur Question Bank	10.00	9.00	112	.75	<input type="checkbox"/>
Canadian Amateur Regulations Book	10.00	9.00	190	.75	<input type="checkbox"/>
Canadian Amateur Code Tapes (OT)	38.00	34.25	200	2.50	<input type="checkbox"/>
Canadian Advanced Question Bank	10.00	9.00	116	.75	<input type="checkbox"/>
Banque de questions première	10.00	9.00	113	.75	<input type="checkbox"/>
Banque de questions supérieur	10.00	9.00	117	.75	<input type="checkbox"/>
First Steps in Radio, W1FB	8.00	7.25	470	.75	<input type="checkbox"/>
Premier pas en radio, W1FB	8.00	7.25	F900	.75	<input type="checkbox"/>
Operating an Amateur Radio Station	1.25	1.25	300	1.25	<input type="checkbox"/>

CRRL INSIGNIA

	(OT)				
Lapel Pins	3.00	3.00	130	.75	<input type="checkbox"/>
Large Cloth Diamond (5")	3.00	3.00	141	.75	<input type="checkbox"/>
Small Cloth Diamond (3")	2.00	2.00	151	.75	<input type="checkbox"/>
ARES Circular Patch (4")	4.00	4.00	161	.75	<input type="checkbox"/>
Set of 3 CRRL Logo Decals	1.00	1.00	180	.75	<input type="checkbox"/>

OTHER

Fifty Years of ARRL	5.75	5.25	460	.75	<input type="checkbox"/>
From Spark to Space	25.00	22.50	465	1.00	<input type="checkbox"/>
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Morse Code - The Essential Language	8.00	7.25	610	.75	<input type="checkbox"/>
Night Signals (adventure)	6.00	5.50	856	.75	<input type="checkbox"/>
Tompkins Adventures (6 books)	30.00	27.00	855	1.50	<input type="checkbox"/>
200 Metres and Down	10.00	9.00	560	.75	<input type="checkbox"/>

OPERATING AIDS

1990 North American Callbook (OT)	35.00	31.50	721	2.00	<input type="checkbox"/>
1990 International Callbook (OT)	37.50	33.75	711	2.00	<input type="checkbox"/>
Chicken Junction Directory (OT)	15.00	13.50	780	1.50	<input type="checkbox"/>
Log Book (OT)	3.50	3.00	121	.75	<input type="checkbox"/>
Super Log Book (OT)	5.75	5.00	125	.75	<input type="checkbox"/>
Radiogram Forms (pad) (OT)	2.00	1.75	170	.75	<input type="checkbox"/>
Grid Locator for North America (OT)	2.00	1.50	800	.75	<input type="checkbox"/>
DXCC Countries List (OT)	2.00	1.50	812	.75	<input type="checkbox"/>
1989 Net Directory (OT)	2.00	1.50	823	1.50	<input type="checkbox"/>
ARRL World Map (OT)	14.00	12.50	840	2.50	<input type="checkbox"/>
Callbook Prefix Map of the World (OT)	8.50	7.75	RA10	*3.50	<input type="checkbox"/>
Callbook Prefix Map of N America (OT)	8.50	7.75	RA11	*3.50	<input type="checkbox"/>
Callbook Great Circle Map of World (OT)	8.50	7.75	RA12	*3.50	<input type="checkbox"/>
Callbook <i>folded</i> Map of the World (OT)	6.50	6.00	RA10F	1.00	<input type="checkbox"/>

ANTENNA BOOKS

	Non-Member	Member	Stock#	Postage	✓
ARRL Antenna Book	\$22.50	\$20.50	411	\$1.50	<input type="checkbox"/>
RSGB HF Antennas for All Locations	19.00	17.00	330	1.00	<input type="checkbox"/>
Antenna Compendium #1	12.50	11.75	420	1.00	<input type="checkbox"/>
Antenna Compendium #2	15.00	13.50	421	1.00	<input type="checkbox"/>
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Novice Antenna Notebook, W1FB	10.00	9.00	425	.75	<input type="checkbox"/>
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All About Vertical Antennas	13.75	12.50	RP120	1.00	<input type="checkbox"/>
Simple, Low-Cost Wire Antennas	15.00	13.50	RP140	1.00	<input type="checkbox"/>
Transmission Line Transformers	12.50	11.25	880	.75	<input type="checkbox"/>

OPERATING

Operating Manual	19.00	17.00	522	1.50	<input type="checkbox"/>
Complete DXer	15.75	14.25	440	.75	<input type="checkbox"/>
Low Band DX	12.00	11.00	890	.75	<input type="checkbox"/>
Low Band DX Software (available for many computers; send SASE for prices)					

TECHNICAL

1990 ARRL Handbook	29.00	26.00	495	2.00	<input type="checkbox"/>
ARRL Electronics Data Book	15.00	13.50	516	.75	<input type="checkbox"/>
Radio Frequency Interference	5.75	5.25	532	.75	<input type="checkbox"/>
Solid State Design	15.00	13.50	551	1.00	<input type="checkbox"/>
Hints and Kinks, 12th edition	6.25	5.75	512	.75	<input type="checkbox"/>
QRP Notebook, W1FB	6.25	5.75	590	.75	<input type="checkbox"/>
Transmitter Hunting	21.25	19.00	390	1.00	<input type="checkbox"/>

VHF-UHF

All About VHF Amateur Radio	15.00	13.50	RP130	1.00	<input type="checkbox"/>
Satellite Anthology	6.25	5.75	700	.75	<input type="checkbox"/>
Satellite Experimenter's Handbook	12.50	11.25	540	.75	<input type="checkbox"/>

PACKET AND COMPUTERS

AX.25 Packet Protocol	12.75	11.50	430	.75	<input type="checkbox"/>
Computer Network Conference #7	12.50	10.00	602	1.00	<input type="checkbox"/>
Computer Network Conference #8	15.00	13.50	603	1.00	<input type="checkbox"/>
Gateway to Packet Radio	14.00	12.50	900	.75	<input type="checkbox"/>

***Callbook Maps—A Special Note:** Callbook maps (rolled versions only) ordered together can be shipped together. Add \$3.50 postage only once on orders of two and three Callbook maps.

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The CRRL Field Organization Forum

REPORTS FOR MONTH 1989

Alberta: SM/STM/DEC: Bill Gillespie, VE6ABC; ASM: VE6AMM; SEC/TC: VE6AFO; OO: VE6TY. Northern Alberta Radio Club completed another year providing communications for Bantam Hockey, this year, using five arenas and many radio operator shifts. Three years of activity enabled officials to keep up-to-date scores in all arenas at the same time. In late January, the Alberta Public Safety Services will conduct another emergency site managers' course using Amateur Radio to assist in communications. Band conditions on 80 metres have been very bad this past week. As a result, I was not able to obtain net totals from ATN, the CW traffic net.

British Columbia: SM: Ernie Savage, VE7FB. Our BCEN Manager, Ferdi, VE7EUJ, has retired as NM. He served from June, 1986, to December, 1989. We all say thanks for all his work with the net. As of January 1, Bill, VE7DOL, is net manager, and Angela, VE7ANG, assistant net manager. Ferdi's last report, the December totals, are the best for some time, thanks to Christmas QTCs. Jim, VE7JN, of the British Columbia Phone Net reports December check-ins of 5074. Em, VE7AMI, is home recovering from heart surgery. Vancouver ARC Christmas party with all the Chinese food you could eat, was enjoyed by 30 boys and girls. Surrey ARC Christmas party was also a good affair. Herb, VE7ZK, one of BC's oldest holders of an Official Relay Station appointment, suffered a stroke a year ago. Doctors see no recovery yet, so we won't be hearing his commercial "fist" on the DX and traffic bands. As we start into the new year, we want to thank you for all your letters and club reports. Best of the 1990s to you and yours.

Manitoba: SM: Jack Adams, VE4JA; ASM: VE4IX; SEC: VE4TM; ATC: VE4ADP; NMs: VE4LB, VE4IX, VE4TE. Here it is, January 2, 1990, and we're another year older. The past decade has brought many new things to our lives, and you can be sure that this new decade will also bring new experiences and changes. As far as Amateur Radio is concerned, it is going to be interesting to say the least, with new regs, etc. As a self-policing group, we will have our hands full for a while, especially in helping those who are new to Amateur Radio communications. A few kind words of wisdom will go a long way; coaching new people will be most rewarding if we do it diplomatically and sincerely. We will also see much more activity on VHF and UHF bands. I take this opportunity to thank my Section appointees for their help over the past year. To those who take the time to handle traffic or serve as NCS: your time and effort are much appreciated. To all net managers: thank you for your good work.

Maritimes-Newfoundland: SM: Carl Anderson, VE1UU; ASM: Ned Mulrooney, VO1MN; STM: Mel Lever, VE1VX; BM: Brent Taylor, VE1APG; EC (NB) Brian Upton, VE1ZJ. A short report due to year-end holidays! Dartmouth Amateur Radio Club executive for 1990 includes Don Dunnington, VE1AMJ, president; Wayne Mills, VE1AGU, vice-president; Malcom Duncan, VE1BZA, secretary; John Brady, treasurer; Bob Brown, VE1BFX,

Reports invited: CRRL Section Managers (SMs) and their Section-level assistants coordinate traffic handling, emergency communications and bulletin service across Canada. Your SM (name and address appears on page 2 of this *QST Canada*) welcomes reports of individual and club activities for publication in this column. Activities do not have to be related to the CRRL Field Organization or to CRRL.

member-at-large and technical chairman.

Ontario: SM: Larry Thivierge, VE3GT; BM: VE3GSA; SEC: VE3GV; STM: VE3CYR; TC: VE3EGO. Scarborough Amateur Radio Club (SARC) will be honouring the Ontario Trilliums who will be celebrating their 25th anniversary in May by combining SARC's annual spring banquet with the Trilliums' anniversary celebration on May 12. Prizes are being solicited and VE3AUR has volunteered to collect them. More information later. John, VE3OTH is new editor of the SAR-Communicator, newsletter for Sudbury (not Scarborough!) Amateur Radio Club. It's a very professional looking bulletin. John advises that work on a digipeater for the Sudbury area is coming along quite nicely. However, the big test will come when it is finally installed at the Big Nickle site. The Shuttle Amateur Radio Experiment (SAREX) will have a big year in 1990. On April 26, STS-35, Columbia, will be launched, followed by STS-37, Atlantis, on June 4. Amateur operation will include voice, packet, and slow-scan and fast-scan television. Conway (3D2) and Banaba (T33) have been added to the DXCC countries list. This year marks the 40th anniversary of the "old Oakville do" VHF-UHF meetings, and Toronto VHF Society, VE3ONT, will be commemorating the event in June. The Toronto Interference Committee (TIC) is a newly formed group dedicated to the prevention of ever-increasing unauthorized interference to the amateur bands, particularly the 2-metre band. VE3PXS is a TIC representative. Publishers of the World Radio-TV Handbook have bought all outstanding shares of the *Radio Amateur Callbook* which has been publishing listings of radio amateurs worldwide since the 1920s. It is expected that they will continue to publish the *Callbook*. VE3OAF is new EC for the Eastern Counties and Cornwall, replacing VE3MPF who has retired. Regrettably, I report that VE3CRT and VE3GKN have become Silent Keys. Fifty-two members of Kitchener-Waterloo ARC's Coffee Club and guests attended an annual luncheon where Fred Hammond, VE3HC, was presented with the Welsman Trophy. New amateurs in the Section include VE3RBO, VE3WOS, and her OM, VE3WOT. It's not too early to begin Field Day planning. I hope to have year-end traffic totals next month.

Quebec: SM: Harold Moreau, VE2BP; STM: VE2EDO; SEC: VE2LYC; BM: VE2ALE. Bruce, VE2QO, is now CRRL president and Pat, VE2EDO, is new Quebec director. Congratulations to both. Bienvenu à Richard, VE2NM (ex-VE2BVV), qui est maintenant actif, après 20 ans de silence. Avec regret, je dois vous annoncer le décès de Claude, VE2AJD.

Saskatchewan: Bruce Rattray, VE5RC. It looks as if everyone survived another deep

freeze just before Christmas. Boy, it was cold! VE5ZN's rotor froze, so he had to go outside and rotate his house. My rotor also froze, so I had to link through OSCAR 10 to my 20-acre antenna farm in Arizona. VE5TH painted his rotor black to absorb the sun's rays, but got carried away and now has a black tower, a black house, and a black RECOMM jacket. Congratulations to Bob, VE5DSC, for obtaining his Amateur certificate, and a big welcome to new Amateur Radio operator Bernie Cobb, VE5SWR, of Regina. FB, OMs! 1990 public service events begin in February with the Klondike Derby—always a fun event. If you're interested, give Clay, VE5AAA, a call. The Regina 28/88 repeater is back on the air at its new QTH with antenna at 230 feet and 240 watts ERP. Many thanks to VE5s BE, BW, DX, EE, FAR, GHC, RGR, SC and TP. Stan, VE5SC, eliminated pickup of local CBC "cultural music" with his patented "45/22 method", that is, he placed the equipment cabinet at a 45-degree angle and opened the door at a 22-degree angle, putting the CBC signals out of phase. Well done, Stan! Many thanks to Gord, VE5GF, for his volunteer work past and present: Section Manager, Section Bulletin Manager, Technical Coordinator and trustee of VE5QST. Gord and his family will soon be moving to Edmonton where he is planting the seeds for a great antenna farm and super contest station. Did anyone out there work Bouvet? 73. ■

Silent Keys

Conducted By Ray Staines, VE3ZJ

It is with deep regret that we record the passing of these amateurs:

VE2DWN, Rod l'Ecuyer, Franklin Centre, PQ
VE3CMI, Lorne Morehouse, Richmond Hill, ON
VE3EPG, A. "Mac" Graham, Windsor, ON
VE3OQC, Reg Wheeler, Meaford, ON
VE3UK, Jeff Edmunds, Nepean, ON
VE3XV, Boyd Paget, Sundridge, ON
VE5DR, J. "Mort" Kendall, Saskatoon, SK
VE7AAU, Alf Jank, Vancouver, BC
VE7CV, Neil Rutherford, Abbotsford, BC
VE7OE, Tom E. Hart, Vancouver, BC
VE7SS, Fred Keller, Richmond, BC

Note: Silent Key reports sent to *QST Canada* must include name, address and call sign of reporter in order to be listed. To avoid unfortunate errors, reports are confirmed only through acknowledgement from the family of the deceased. Thus, those who report a Silent Key may not receive an acknowledgement from *QST Canada*. ■

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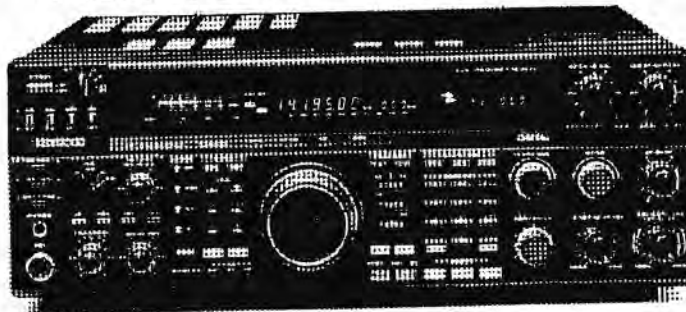
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Hobbytronique Inc.

An Effective Impedance Meter

I first saw this idea in the 1949 edition of the ARRL's *Hints and Kinks for the Radio Amateur*. It was a useful instrument 40 years ago and it's still a useful instrument today. My XYL, Anne, says it's too bad she can't say the same for me.

Applications

This handy gadget can measure the impedance of chokes, transformers, large capacitors and the like. Although its accuracy is not perfect, it is close enough to make it a welcome addition to any ham shack.

Principle of Operation

The principle of operation can be understood through Fig 1. Voltage E1 is measured across a known resistance, R1. Voltage E2 is measured across unknown impedance X. Using the formula

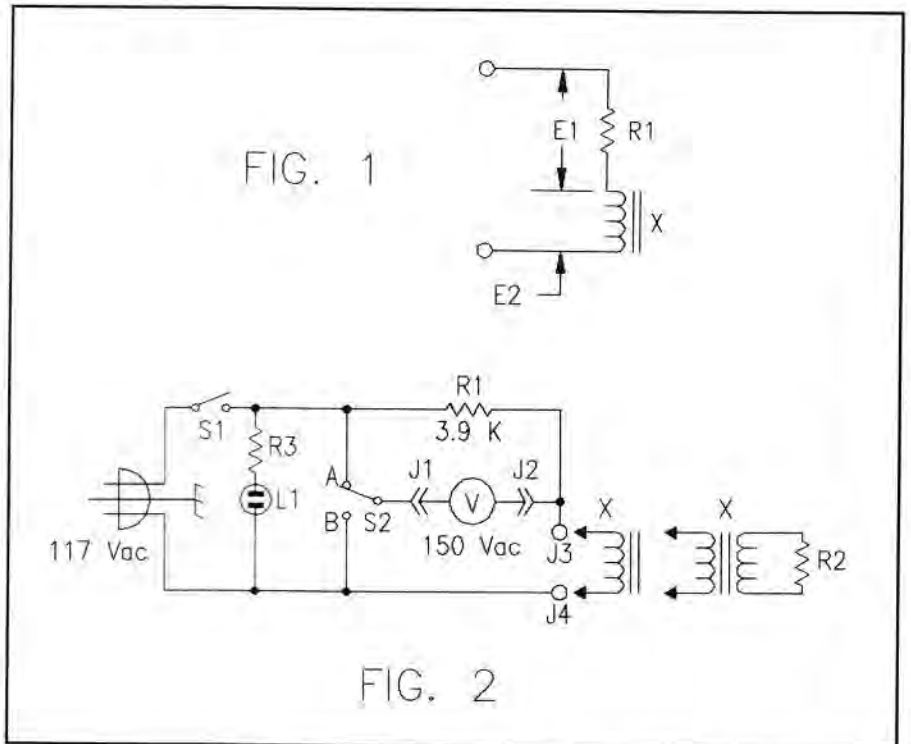
$$Z_X = \frac{R1 \times E2}{E1}$$

you calculate the approximate impedance (in ohms) of unknown impedance X.

When measuring transformers, the winding(s) not under test must be loaded with a resistance equal to the value of the winding (R2 in Fig 2). For example, an 8-ohm voice coil winding of an audio output transformer under test must be loaded with an 8-ohm resistor if a reasonably accurate primary impedance reading is to be obtained. Note that R1 limits the current flowing through X to a maximum of about 30 mA.

Construction Notes

The unit can be built into any small utility box. L1 is a neon indicator lamp. L1, S1 and R3 can be a combined ac switch and pilot light such as Radio Shack 275-8056



or 275-8057A. Ac meter V can be your shack's VOM switched to read 150 Vac. J1 and J2 are tip jacks to suit the probes of your VOM. J3 and J4 are multi-purpose binding posts like Radio Shack 274-661. R1 is a standard 3.9-kΩ 1/2-W resistor.

Operation

Nothing could be simpler. Plug in an unknown impedance into J3 and J4, take a voltage reading with S2 in positions A and B, and then calculate the unknown impedance X on your pocket calculator as

follows: impedance X in ohms = 3900 multiplied by reading B divided by reading A. Write the formula on a label and stick it on your unit.

Dedicated amateurs will use this device to measure the impedance of light bulbs, heating pads, stove elements, hair dryers, screen doors, bed springs and other impedimenta. (Look up "impedimenta" in your dictionary. If any of your impedimenta approaches 50 ohms, please let us know. Perhaps we can make an antenna out of it!) ■

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The 23-cm Band

Continuing with our bandplan discussions, I present the CRRL 23-cm bandplan. You may be surprised at the number of television channels available at 23 cm. ATV has lots of room to grow here, not like on 70 cm which can support only one channel in our congested urban areas where interference is a problem. We have 60 MHz of spectrum in our 23 cm band, about the same as for all our other bands 50-928 MHz put together. That's a lot of megahertz to work with and there is room for very secure FM repeater links, high-rate packet, TV, satellite links, CW and SSB moonbounce, terrestrial DXing and even FM mobile. Propagation isn't bad on this band. Just look at the DX Barry, VE4MA, has worked! Personally, I can attest to the fact that 2 watts will easily work out 50 miles on FM and well beyond that on SSB and CW, even from a poor location like mine. You can also play some interesting tricks with 23-cm signals, like using tall buildings as passive reflectors to bounce the signals around. Dedicated single-channel FM repeaters may not be the most efficient way to go on this band. Linear translators might be better. Just think how many QSOs a mountain-top translator could handle, all modes, just like a fixed OSCAR satellite. 23-cm equipment is available, including commercially made ATV units, FM repeaters, transverters, loop yagis and GaAsFet preamps—you name it. Will we soon see large groups of amateurs populating this band? That remains to be seen, but some of us are there already, waiting for the rest of you.

INFORMATION FOR THE NOVICE

This month I begin a new section that I hope will provide useful information for those of you new to the bands above 50 MHz, or to those who want to make the move up.

Probably the most confusing aspect of VHFing is deciding which band to get started on. At the recent CARF-DOC Symposium, I made the point that the 144 MHz band has been "oversold" in the past, resulting in overcrowding, some illegal operation, and intermod problems. However, this band does offer a lot of activity to encourage the newcomer. So I will advise that 2 metres is still a great band to get started on, with DXing on SSB and CW. The bottom end of the band, 144.0-144.1 MHz, is allocated to CW only and is used worldwide for moonbounce operation, with stations assigned to a specific frequency. The 144.1-144.3-MHz subband is assigned to narrow-band operation including CW, SSB, ACSSB and FAX. The calling frequency for DX is 144.2 MHz. I would suggest using 144.25 MHz for local ragchews, and 144.1 MHz for CW DXing.

The antenna is probably the single most important part of your station. I suggest that

CRRL 23-cm Band Plan

AMATEUR STATUS: SECONDARY

MHz	UTILIZATION
1240-1246	ATV CHANNEL 1
1246-1248	000NB FM LINKS, DIGITAL, DUPLEXED TO 1258 MHz
1248-1252	HIGH RATE DATA (≥ 4800 baud)
1252-1258	ATV CHANNEL 2
1258-1260	000NB FM LINKS, DIGITAL, DUPLEXED TO 1246 MHz
1260-1270	SATELLITE UPLINKS (PRIMARY)
1260-1270	WIDEBAND EXPERIMENTS (SECONDARY)
1270-1276	+++FM REPEATER INPUTS (25-kHz SPACING)
1276-1282	ATV CHANNEL 3
1282-1288	+++FM REPEATER OUTPUTS (25-kHz SPACING)
1288-1294	WIDEBAND EXPERIMENTAL
1294-1295	NB FM SIMPLEX, DIGITAL (1)
1294.5	NATIONAL FM CALLING FREQUENCY
1295-1295.8	SSTV, FAX, ACSSB EXPERIMENTAL
1295.8-1296	RESERVED FOR EME/CW/SSB EXPANSION
1296-1296.05	EME EXCLUSIVE
1296.1	NATIONAL CW/SSB CALLING FREQUENCY
1296.4-1296.6	CROSSBAND LINEAR TRANSLATOR INPUT
1296.6-1296.8	CROSSBAND LINEAR TRANSLATOR OUTPUT
1296.8-1297	EXPERIMENTAL BEACONS
1297-1299	HIGH RATE DATA (≥4800 baud)
1299-1300	DIGITAL (≤ 2400 baud) (2)

Footnotes:

- (1) 25-kHz channelling, 1294.025-1294.175 MHz
- (2) 100-kHz channelling, 1299.05-1299.95 MHz crossband duplexed to 430.55-430.95 MHz as required

you follow these guidelines for antennas in any VHF-UHF band:

1. Get the antenna as high as possible and in the clear. A good height is 50 feet, but of course higher is better. But don't give up if you can't do this. I know several VHFers who have done very well over the years with antennas at only 30 or 40 feet.

2. Select the type of antenna that meets your needs. You could put up a single long-boom yagi, an array of shorter yagis (i.e. two stacked one above the other, a four-bay array, or more). If you want to work moonbounce on a consistent basis, an array is necessary. However, you can still work some of the big stations that use eight yagis or more with two short yagis during moonrise or moonset. Several manufacturers make good quality yagis including AEA, Cushcraft, Rutland Arrays (1703 Warren St, New Cumberland, PA 17070), Hygain, and a number of others.

3. Coax is important. For runs under 50 feet, you can use RG-8X for a start. Longer runs will require lower-loss coax like Belden 9914, and Type N connectors. To minimize losses, use hardlines like Andrews Heliax. Heliax can be found at reasonable prices at fleamarkets around the country.

The receiver is another key element, and unfortunately with today's equipment, the choices can be confusing. It has been our experience that modern commercial transceivers are not the greatest for sniffing out weak signals, due in part to poor mixer designs, PLL phase noise, lack of low-noise front ends, and a need for the radio to work over the entire 2-metre

band. The best choice is still a transverter which has been specifically designed to overcome these weaknesses. Modern designs use GaAsFet front ends, double-balanced mixers and post-amplifiers using power devices. These exhibit extremely good strong-signal handling characteristics. "Transverter" is jargon for "transmit/receive converter" and it can be hooked up to your HF transceiver, converting 144-148 MHz down to, say, 26-30 MHz. The HF radio operates as a tuneable IF, permitting you to take advantage of all the features on that rig. Transverters are available from SSB Electronics, (distributed by Transverters Unlimited and SSB Electronics USA), Microwave Modules (distributed by Spectrum International, Down East Microwave, Hamtronics, and others). Older transverters are available on the used market. If you operate in a part of the country where the 2-metre band is not crowded you will do well even with older MOSFET front ends and mixer designs.

Power amplifiers run the gamut from solid state 50-watt output units to those beautifully designed kW rigs using 3CX800s or 8877s. Generally 100-150 watts output is adequate to work all kinds of DX on modes like aurora, meteor scatter and tropo. You will even have a respectable signal in contests and crack a few pile ups as well. Good quality MOSFET power amps are available from Falcon Communications in California. MOSFETs are rugged, exhibit none of the thermal problems of bipolar devices, and provide a higher degree of linearity. In other words they are cleaner. Henry Radio make a line of tube-type rock crushers

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that work well. If you are willing to take up the challenge and put out some effort, build a tube-type final using the modern triodes or the older 4CX250's. Dick, VE3FAC, can supply design information for an SASE. Any way you go, you'll be happy.

Sometimes there is a problem finding parts, or getting advice and moral support. We'll discuss this another time. Remember that VHFing is rewarding and fun. However, you do have to do a bit of planning and put out some effort to get the most out of it. But with a well designed setup, you will have a ball on CW and SSB, and also be effective on FM, a big plus in emergencies when repeaters may go down and you are forced to use simplex.

ACTIVITY REPORTS

50 MHz: HOT TIMES ON SIX METRES, FIRST DXCC'S ACHIEVED! A WORD OF CAUTION: PLEASE AVOID OPERATING BETWEEN 50.100 AND 50.125 MHz. RAGCHEWS SHOULD TAKE PLACE ABOVE 50.125 MHz TO AVOID QRM TO WEAK DX.

The F2 season is off and rolling along in fine shape in most parts of our fair land. November 10 found the band open strongly to Europe, and Tony, VE3QF, called me at work and forced me to listen as he worked GJ4ICD (Jersey, IN89), G14 and a number of other G stations. November 11 will be remembered as one of the best days so far with the band being open at 1300 UTC here in Ontario. Among the stations worked by VE3DSS running QRP were 8P6JW, DL3ZM/YV5, 9Y4VU, CT1DKQ, F6IMM, F6DBI, GJ4ICD, G3FXB, G4HFO, G4CVI, F6HRP and FD1NWK. Congratulations to Mike, VE3FGU, for his contact with OH5NQ. Other stations heard included SM and LA stations working into North America via the grey line path.

November 12 found DX very early with the FY7THF beacon being heard at 1300 UTC and strong backscatter to the south from stations in Texas. Contacts included HC5K, HK4EB and HK3AVR. Unfortunately, I had to run the kilowatt to break through the US QRM, and ask DX stations to listen specifically for Canadians. Despite calls to specific call districts including "VE only", many Americans exhibited their "rotten radio" practice of continuing to call. What ever happened to the good manners of VHFers? Unfortunately solar instability flattened the band and things closed down from here. Meanwhile VY1AU was reported working into Colorado and the southern states, and Doug, VE5UF, worked into Japan again and even had a QSO with KG6DX in Guam.

November 13 found the band open from VE6JW to HH7PV and Japan where Jack worked 76 JA's starting at 2324 UTC. (Whew! Jack says ya gotta talk fast, hi!)

November 14 brought a brief revival of 50-MHz activity with the FY7 beacon again making its appearance and running over S9 for an hour and a half. The only contact made, however, was a brief one to DL3ZM/YV5 as flare activity sent the MUF plunging. The flux was sitting at 244 with an A index on 14, down from 41 the day before, and the K trending down to 1. Len, VE3BGH, apparently worked a KL7 that evening around 2100 UTC.

November 15 was an interesting day, starting off with reception of the Namibia ZS3VHF beacon on 50.017 MHz peaking S9 plus at 1245 UTC! Despite continual CQs by VE3DSS while trying to get ready for work, no ZS stations were QRV. I wonder where else those F2 signals of mine were propagating to. Still, the band opened nicely to Europe, and I had to drag my feet to stay in the shack and pick up three new countries: G14GPC (IO64),

GW4HXO (IO71) and PA0HIL (JO21) before trotting off to the salt mines. Others, including VE3QF and VE3EMS, were heard working numerous stations in Britain and France. However, nothing was heard any further afield, and a major solar flare at 1526 UTC spelled the end of DX from here. Meanwhile, Don VE2DFO (FN25), was working into Europe. He worked KG6DX in Guam, two hours after sunset. And Jack, VE6JW, in 47 minutes, worked another 64 JA's! More on Jack and his crew's activities next time.

November 16 turned out interesting for Don, VE2DFO, who worked LA4EQ on 50.4-MHz FM, and Jim, W6JKV/CT3 on Madeira, despite the fact that Jim was only using a dipole while they madly worked to rebuild their severely damaged 6-metre beam. (They succeeded, lucky for us all). That evening the Japanese were working into the west coast and the midwest. There were even reports of them being heard on the east coast. VE2DFO reported working JA1RFF and KG6DX in Guam. All this with the solar flux at 214, the A index at 6 and the K index at 2.

November 17 was quiet due to solar flare activity. However, the flares brought out the aurora borealis and the buzz sessions that we all love so much. Out west Doug, VE5UF, and Jack, VE6JW, were busy working transauroral E into Quebec and the Atlantic region. Result: contacts into Newfoundland and two new grids for Doug. Incidentally, Jack sent me some photos of the Aurora EME Group's 6-metre moonbounce array. It's a four-bay array of the AEA (M2) 2.5-wavelength long-boom yagis, fully steerable in azimuth and elevation. It's a behemoth, and it should work well.

The weekend of November 18-19 will go down in 6-metre history as Dave, K8WKZ, worked country 100 on Saturday. Bob, VE1YX, followed on Sunday by working D44BC on Cape Verde Island! Congratulations to both, and special congratulations to VE1YX, the "first Canadian 50-MHz DXCC".

Still with this weekend, despite the aurora on Friday, the band opened early from Toronto and among the new ones for VE3DSS were PJ9EE (Bonaire), V47SIX (St Kitts), PZ1AP (Surinam) and G3GJQ/5N0 (Nigeria). Later in the day, the band opened to the west coast and W6's were working into VO1, VE1, VE2 and VE3.

The morning of November 19 brought a solid band opening from Europe to most of eastern Canada. Heard working the DX: numerous VE1s, VE2DFO, VE2DUB, VE3RM, VE3CPU, VE3EMS, VE3FAC, VE3FAS and many others. Don, VE2DFO, reported working three GD stations on the Isle of Man, and heard ZD8MB on Ascension Island, and a J2. Don's country total stands at 87. Those next thirteen will be tough.

VE3DSS fired up from the main station with the kW and Boomer, and worked over 70 stations during the F-layer session. Interestingly enough, the direct great circle path stayed closed due to the flare activity so all DX into Europe was via scattering off a hot spot somewhere between North America and Africa. Contacts into Europe included stations from all over the UK, G13PDN in Ireland, Charlie, EI5FK in Northern Ireland, France and the Netherlands, as well as ON1ZAA in Turku, Finland, for a new one. On the direct path, the band opened at 1430 UTC to ZS3E and ZS3KC in Coss, and later to W6JKV/CT3 (IM12) for a new country. The band closed at about 1700 UTC except for W6JKV/CT3 who was in until 1800 UTC. Incidentally, while running the pile up, Ted, G4UPS, called me and we made our first direct QSO on 50 MHz. We had previously worked on crossband (6/10

metres) back in 1980. We also had a "near miss" when he was on Ascension as ZD8TC. At 2145 UTC, KL7NO was heard ragchewing with a W9. VE3EMS and VE3FAS worked KL7IKV and VE3DSS managed a QSO with KL7HB (BO49).

Monday, November 20 found conditions still very favourable, and Vic, VE3LNX (FN03), worked numerous stations in the UK, Netherlands, and France. Unfortunately, Vic found the path to Africa quiet except for W6JKV/CT3. VE3CPU's country total now stands at 35.

During the following week, the band continued to offer up some big surprises for those lucky enough to be home to work it. Vic, VE3LNX, completed 200 QSOs with Europeans during the week, and managed to pick up many new grid squares. VE3BQN called in to say that he had worked TF3EJ and TF6MM on November 22—two new countries—as did Vic and some of the others. Later in the day, VE3DSS, worked AI, KL7NO near Fairbanks (BP54), and heard Bob, VY1AU, working W8s and W9s. Conditions continued to improve during the remainder of the week, and on Saturday, November 25, Vic, VE3LNX, and Mike, VE3FGU, both worked KG6DX in Guam.

The following morning, Sunday, November 26, started out in lacklustre fashion with a mild opening to Europe, followed by F2 to the coast with Sid, VE7AKI, and his 579 CW signal, and to Hawaii at 1900 UTC. Of course I was on and looking for KG6DX, at 2300 UTC with the kW, but didn't hear him. Instead I found myself listening to the most extensive opening to Japan ever witnessed by stations in North America. VE7XF advised me that not only were the Japanese stations 40-over at his QTH, but that the VE3's and other eastern stations were the same off the back of his antenna! Needless to say, we managed to work our first JA with a CW contact to JA1RJU. Meanwhile Vic, VE3LNX, was completing a SSB contact with a JA, making himself eligible for the IARU "Worked All Continents" award, welcome to the 6-metre WAC club, Vic. Also heard but not worked: JA1BK on SSB and CW, JA7LIW, JA2EBY, JA0AAL. Again, QRM from Americans was deafening, and at times we heard them calling when we knew they were not even hearing Japanese stations. Sad but true. Meanwhile, the west coast stations were working not only Japan, but Korea as well with HL9TG active on CW and SSB. Look for him on 50.005-MHz CW. Also heard in the fray: VE3ASO, VE3BGH, VE3CPU and others. All this with the solar flux of 238, an A index of 5 and a K index of 3 as solar flares from days earlier died out. Incidentally, VK3OT heard W6JKV/CT3 at 1304 UTC, but could not get Jim's attention. We also learned that SM7BAE of moonbounce fame is QRV on 6 metres with ten watts and a 3-element yagi. Look for him and many other Swedish station by the time you read this.

November 25 was a good day at VE3ASO (FN25), as Dennis managed a QSO with KD7P/KH4.

Conditions took a nose dive in December with the flux bottoming out at 160 towards the end of the first week. It certainly was quiet at VE3DSS/V2 during that week, and all that was heard with my mighty 2-element yagi and VE3LNX's IC-502 was KP2A on backscatter. The new decade found Joe, VE3CPU/J8, busy working DX far and wide from St Vincent.

We've run out of space, and we haven't even said anything about 144 MHz and above. Our editor assures us he'll find a bit of room in April *QST Canada* so we can finish this column. See you next month. ■

Nanaimo ARES

Recently, members of the Nanaimo Amateur Radio Group (NARG) participated in a field exercise to determine the effective coverage of their 2-metre transceivers. Group members travelled south from Nanaimo to Ladysmith, Yellow Point, Cinnabar Valley Extension, South Wellington Extension and Nanaimo Lakes. Other groups travelled north to Lantzville, Nanoose, Parksville and Coombs, and west to Brannen Lake. The main control station, under the supervision of Al, VE7BEQ, was located in the Nanaimo main fire hall. Other monitoring stations were located at the Moose Hall in Chase River, at the new fire hall on Labeaux Road, and in the College Heights area.

Ian Heatherington of the Nanaimo Search and Rescue Group was an interested observer in the exercise. Wilf, VE7US, coordinator for NARG, participated and recorded the results for review at a later date. The information developed will be most useful in planning for effective communications in event of an emergency.

Several Nanaimo amateurs were able to provide emergency communications for last year's earthquake in San Francisco. Ian Heatherington contacted Wilf, VE7US, and requested assistance in determining the welfare of several people in the quake area for concerned Nanaimo residents who were unable to make contact by telephone. James, VE7DFY, also handled a number of welfare messages with the disaster area. Thanks were received from many for their assistance. Cecil, VE7FDJ, relayed a number of messages between San Francisco and Santa Cruz when radio contact in those areas was knocked out by a big solar flare which affected radio communications in a major way for several days just after the earthquake. Bill, VE7JY, conducted a seminar for Nanaimo amateurs to review the experience gained from handling traffic for the earthquake disaster.

MAYDAY CALLS

Lorne Bowers, VE1AII, was the key control station involved in the rescue of Bert Wilson, VE3OBH, when Bert was badly burned on his yacht, *Sadir*, in the middle of the Atlantic last July. Those who monitored the operation will recall Lorne's professional handling of communications with the crippled yacht. Further evidence of his professional approach is apparent in this list of steps to be taken on hearing a MAYDAY or emergency call.

1. Respond promptly with your call letters.

2. When the call comes back from the person(s) in difficulty, only the station called (this station becomes the control station) should answer. No one else who heard the MAYDAY call should try to contact.

3. When the contact has been made

with the control station, other operators who can copy should try to keep the frequency clear of all other traffic.

4. The control station should try to determine the location of the emergency and establish the situation that led up to it.

5. Having learned the above, the con-

Field Organization Reports December 1989

CRRL Section Emergency Coordinator Reports

Reports were received from the following SECs (DECs and ECs reporting to SECs are listed in brackets) denoting a total ARES membership of 877.

Reporting	ARES Members
VE3GV (VE3s DAN, EFX, FOB, GNV, ITL, ITT, JJA, KBU, KXB, LRV, LKI, LPM, MB, TNL)	576
VE6AFO	245
VE7FB	56

CRRL Section Traffic Manager Reports

Call	Orig	Rcvd	Sent	Divd	Total
VE1DLC	0	18	5	10	33
VE1BKM	0	16	16	0	32
VE1ALU	3	10	8	4	25
VE1IH	2	5	7	0	14
VE1AC	0	1	1	0	2
VE2BP	6	21	14	27	65
VE2WH	1	17	6	18	42
VE2ALE	0	10	2	0	12
VE3KK	425	131	475	73	1104
VE3ORN	58	306	271	85	720
VE3CYR	8	329	330	8	675
VE3GSQ	10	271	239	3	523
VE3EUI	1	96	102	1	200
VE3GNW	0	82	103	0	185
VE3GT	0	73	102	0	175
VE3SB	0	58	53	9	120
VE3BDM	0	76	38	3	117
VE3DVE	0	46	50	2	98
VE3IN	5	57	6	14	82
VE3NVJ	2	28	18	15	63
VE3DCX	1	17	23	0	41
VE3MNI	1	16	14	3	34
VE3KCZ	0	16	7	10	33
VE3MCO	3	11	7	9	30
VE3LPM	0	9	10	4	23
VE3AJN	0	9	12	0	21
VE3BAJ	0	3	12	2	17
VE3FGU	0	3	5	0	8
VE3WM	1	6	1	0	8
VE3WV	0	2	4	1	7
VE4JA	25	47	32	34	138
VE4JR	2	60	60	10	132
VE4TE	0	3	30	3	36
VE4LB	0	25	6	1	33
VE4STU	0	20	10	2	32
VE6GUS	-	-	-	-	33
VE6MGS	-	-	-	-	22
VE6ABC	-	-	-	-	8
VE6QW	-	-	-	-	7
VE6AKY	-	-	-	-	6
VE7EJU	4	213	207	2	426
VE7BNI	42	138	157	80	417
VE7ANG	21	114	139	9	238
VE7FRZ	20	47	66	0	133
VE7XA	6	29	69	12	116
VE7CCJ	22	26	12	2	62
VE7CDF	1	32	23	5	61
VE7BCL	3	28	4	20	55
VE7FB	3	27	13	10	53
VE7BZI	6	13	6	13	38
VE7BCF	0	8	13	0	21

Call	Orig	Rcvd	Sent	Divd	Total
VE7EGM	2	3	6	2	17
VE7OM	5	2	6	2	15
VE7ESA	0	2	2	0	4

National Traffic System

Net (Mgr)	Sess	QNI	QTC
APN (VE1BKM)	29	110	89
KTN (VE3AJN)	13	89	35
OLN (VE3POJ)	30	452	77
OPN (VE3IN)	31	621	434
OQN-1 (VE3GSQ)	29	112	107
OQN-D (VE3ORN)	31	163	526
OQN-E (VE3CYR)	31	149	215
OQN-L (VE3GSQ)	25	46	129
MTN (VE4IX)	31	280	50
MEPN (VE4LB)	31	1514	35
MWX (VE4TE)	31	475	25
APSN (VE6AKY)	31	1875	47
BCEN (VE7EJU)	31	752	459

Brass Pounders' League

This listing is available to amateurs who report to their SM a traffic total of 500 or a sum of originations and delivery points of 100 or more for any calendar month. All messages must be handled on amateur frequencies, using standard ARRL-CRRL form, within 48 hours of receipt.

BPL: VE3KK, VE3ORN, VE3CYR, VE3GSQ

Public Service Honour Roll

This listing is available to amateurs whose public service performance during the month indicated qualifies for 60 or more points in the following nine categories (as reported to their SM). Please note maximum points for each category: (1) Checking into CW nets, 1 point each, max 30; (2) Checking into phone/RTTY nets, 1 point each, max 30; (3) NCS CW nets, 3 points each, max 12; (4) NCS phone/RTTY nets, 3 points each, max 12; (5) Performing assigned NTS liaison, 3 points each, max 12; (6) Delivering a formal message to a third party, 1 point each, no max; (7) Handling an emergency message, 5 points each, no max; (8) Serving as an EC or NM for an entire month, 5 points max; (9) Participating in a public-service event, 5 points each, no max. Amateurs who qualify for Public Service Honour Roll 12 consecutive months, or 18 months out of a 24-month period, will be awarded a special certificate from CRRL Headquarters.

PSHR: VE3ORN (174), VE3KK (127), VE3GNW (106), VE3BDM (99), VE3CYR (94), VE3GSQ (62)

Service and Specialized Nets

Independent Net Managers: Your monthly reports are welcomed. Send to CRRL, Box 7009, Station E, London, ON N5Y 4J9.

Net (Mgr)	Sess	QNI	QTC
ARES CANADA (VE3GV)	5	111	3
ARES ONTARIO (VE3GV)	1	4	0
CRRL ONTARIO (VE3FOV)	31	12259	0
TRANS-PROVINCIAL (VE3EUI)	31	7672	0
MJARC (VE5MML)	30	326	0
SWX (VE5EX)	31	964	0
SATN (VE5AGM)	16	102	8
ARG(VE5EE)	30	597	0
ARES SASK'WAN	5	137	0
ARES ALBERTA	5	161	3

trol station should then advise the appropriate authorities. For a sea rescue, this would be the nearest coast guard station; for aeronautical, it would be the nearest flight control or air force station; for a highway accident it would be nearest RCMP or provincial police station.

6. During the time that the authorities are being contacted, another operator who can copy the distress call should make contact and keep the person in the emergency occupied until the control station returns to the air.

Remember, it is the responsibility of each operator on the rescue frequency to:

- keep the frequency clear of all traffic not connected with the emergency,
- avoid contacting the emergency station unless requested to do so by the rescue control station, and
- relay any transmissions back to the control station if the control station cannot copy.

IDENTIFIERS

The Amateur Radio Society of Dryden has developed a nifty communications vest for its members. The colour is blaze orange. The vests have each owner's call sign, the club logo, an ARES patch, a pocket for paper and pen, and a pouch for a handheld transceiver. For more information, write to Stan Grenda, c/o Lloyd

Montgomery, VE3JJY. Sounds like exactly what is needed to identify us to other emergency response groups and to the general public!

CANWARN

Our congratulations to the Windsor, Ontario, gang who are now completing their second year of operation of their CANWARN weather network. Theirs is actually Canada's first weather network. It is manned by volunteers who are trained as weather watchers. When the net is in operation, their NCS summarizes the volunteers' reports and passes the summary to the Environment Canada weather office in Windsor. A valuable service at the west end of Ontario's "tornado alley".

The only other weather net we are aware of is CANWARN Eastern which began operation last February. This net, which covers five counties in eastern Ontario, averages fifteen check-ins a day. At the conclusion of this net, the NCS forwards the summarized reports to CFB Trenton before 0900. This net was described in last June's Public Service column.

PUBLIC SERVICE NOTES

□ Under EC Bill Hardie, VE3EFX, the Bruce County ARES group provided communications for two public service events last fall. In September, six members kept track of the annual Terry Fox run using 2-metre repeaters VE3TIV. In October, seven of the members, braving rain, hail, thunder and lightning, provided communications for the Ontario Red Cross Country Championships. Using 146.52-MHz simplex, they kept race officials informed of progress, and also reported injuries to the first-aid post.

□ Further west, in Dryden, Ontario, Lloyd Montgomery, VE3JJY, reports that the Dryden Amateur Radio fraternity once again controlled that town's annual Christmas parade. They have provided this service every year since 1983. —Bob Boyd, VE3SV

ARES is a branch of the CRRL Field Organization, although you do not have to be a CRRL member to take part. For more information on ARES or how to form an ARES group, contact your CRRL Section Emergency Coordinator or CRRL Section Manager, address on page 2 of this QST Canada.

It is hoped that this column, which also appears in The Canadian Amateur, will serve as an ongoing source of news and information about ARES activities across Canada. ARES members, particularly ECs, are invited to send information on what they are doing and developments they would like to share. We will pull this together for future columns with the objective of increasing our ability to serve, should disaster strike.

Rules: 1990 CLARA AC/DC Contest

All licensed radio amateurs and short-wave listeners, men and women, are invited to participate in the annual Canadian Ladies' Amateur Radio Association (CLARA) AC/DC Contest.

When: CW portion: 1700 UTC, March 20 to 0500 UTC March 21. Phone portion: 1700 UTC, March 27 to 0500 UTC, March 28.

Suggested Frequencies: CW: 3.690, 7.035, 14.035 and 21.035 MHz. phone: 7.070, 14.120, 21.300 and 28.488 MHz.

Operation: Each station may be worked once on each of the HF bands, either phone or CW. No net, list or cross-mode contacts.

Exchange: Name, serial number starting with 001, RS(T), QTH and if a CLARA or CLARA family member.

Scoring: Phone contact with a CLARA member: 2 points. CW contact with a CLARA member: 5 points. Phone contact with a non-member: 1 point. CW contact with a non-member: 2 points.

Awards: Highest scoring CLARA member: trophy. Highest scoring non-member: trophy. Highest score from each DX country: certificate. Highest score from an SWL: certificate. Prize to be awarded to CLARA family member whose call sign appears most often in logs submitted, whether or not that family member has actually entered the contest.

Logs: Date, time (UTC), band, mode, call sign worked, report and serial number sent, report and serial number received, name and QTH of operator worked, and points claimed. All logs must be signed by the operator and show the operator's address. Indicate total claimed score in the log. No logs will be returned.

Send logs to CLARA Net Manager Jeanne Gordon, VE2JZ, 5 Wood Crescent, Beaconsfield, PQ H9W 1C5, no later than 1990 April 20.



Look for VE7YL in the AC/DC Contest.

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 * UHF High Band Territory
 ** UHF Low Band Territory

Mode F3E (FM)

Operating Voltage 7.2 VDC (standard), 6.3-16 VDC

Current Drain Transmit HI: Less than 1.4 A (VHF) 1.5 A (UHF)
 (P=5 W) LO: Less than 0.6 A (VHF/UHF)
 Receive (no input signal): 45 mA (VHF) 50 mA (UHF) approx.
 12 mA (VHF) 13 mA (UHF) approx. (at automatic battery saving operation)
 3 mA approx. (at auto power-off mode)

Grounding Negative

Operating Temperature -20°C-+50°C

Microphone Impedance 2 kΩ

Antenna Impedance 50 Ω

Dimensions 58 (2.28) W x 179 (7.05) H x 29.5 (1.16) D mm (inch)
 (Projections not included)

Weight 520 g (1.15 lbs) (with PB-6, hand strap and antenna)

TRANSMITTER

RF Output Power HI: More than 5 W (13.8 VDC) 5 W (with PB-8) 3 W
 (VHF with BT-6) 2.5 W (UHF with BT-6)
 1.5 W (with PB-5, 6, 7) approx. LO: 0.5 W approx.

Modulation Reactance Modulation

Spurious Radiation Less than -60 dB

Modulation Distortion Less than 3% (300-3000 Hz)

Frequency Tolerance Less than ±10 ppm (-10°C-+50°C)

Maximum Frequency Deviation ±5 kHz

RECEIVER

Circuitry Double Conversion Superheterodyne

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 UHF: 1st IF 59.525 MHz, 2nd IF 455 kHz

Sensitivity 12 dB SINAD less than 0.18 μV

Selectivity More than 12 kHz (-6 dB) Less than 26 kHz (-40 dB)

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BT-6	AA Manganese/alkaline battery case	29.00
DC-1	DC adapter	39.00
HMC-2	Headset with VOX/PTT	72.00
PB-5	7.2VDC 200mAh NiCd battery pack	69.00
PB-7	7.2VDC 1100mAh NiCd battery pack	109.00
PB-8	12VDC 600mAh NiCd battery pack	109.00
PG-3E	Filtered cigar lighter cord	32.00
PG-2V	DC cable	5.00
RA-5	2m/70cm 2-band telescoping antenna	35.00
SC-22	Soft case for PB-5 & PB-6	29.00
SC-23	Soft case for PB-7, PB-8, PB-9	29.00
SMC-32	Speaker microphone mini	79.00
SMC-31	Speaker microphone	79.00
TSU-6	CTCSS unit	99.00

ICOM

IC-228A/H 2-Meter Mobiles

Now Available

IC-448A 440MHz Mobile



THE BEST THINGS COME IN SMALL PACKAGES

Meet the master of 2-meter FM mobiles! ICOM's easy-to-operate IC-228A/H answers your requests for custom big rig performance and maximum frequency coverage in a compact unit designed to fit today's autos. Operate odd split and subaudible-tone accessed repeaters, monitor NOAA weather and enjoy incomparable ICOM quality with every call!

DUPLEX INDICATOR

Indicates plus or minus duplex.

PRIORITY WATCH

Monitor any channel for calls while continuing operation on another frequency.

TUNING STEP INDICATOR

Programmable tuning steps of 5kHz, 10kHz, 15kHz, 20kHz or 25kHz.

45 OR 25 WATTS

The IC-228H delivers 45 watts; the IC-228A 25 watts. Both include selectable low power.

SRF INDICATOR

Shows signal strength when receiving, and relative output power selection when transmitting.

SUBAUDIBLE TONES/BEEPER

Includes all subaudible tones built-in. TONE appears when the tone encoder is turned on. SQL lights when the optional UT-40 pocket beep function is activated (silently monitors for calls with your pre-programmed tone).

WIDE BAND COVERAGE

Full reception of 138-174MHz including public service and NOAA weather bands. Transmit range of 140-150MHz includes MARS and CAP frequencies.

20 MEMORIES

Each memory stores any Tx offset and subaudible tone.

MEMORY LOCKOUT

Lights when a memory channel is programmed as a skip channel.

- Wideband Coverage 138-174MHz Rx
- 20 Memories with Memory Channel Lock-Out
- 45/25 Watts
- Color Keyed LCD
- Band and Memory Scanning from Supplied DTMF Mic
- Call Channel
- Optional Beeper
- Priority Watch



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