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THE CROWSNEST

The Official Bulletin of the

OTTAWA AMATEUR RADIO CLUB

Box 8873, Ottawa, Ont. K1G 3J2

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AMSAT

THE GROUNDWAVE - OFFICIAL BULLETIN OF THE OTTAWA AMATEUR RADIO CLUB - JANUARY 1976

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DEADLINE FOR COPY for the February issue of THE GROUNDWAVE will be January 17 for articles of length and January 24 for short paragraphs and announcements. Address all correspondence to: Carl Everson, VE3BYX, Box #4, Osgoode, Ontario, K0A 2W0.

THE NEXT REGULAR MEETING of the OARC will be held at the National Research Council, 100 Sussex Drive, Ottawa, on Wednesday January 7, 1976, at 2000 hours. The main item on the program will be the general election of officers for 1976. The ominating Committee have proposed a slate of officers as reported elsewhere in this issue and further nominations will be accepted from the floor at the January meeting in accordance with the constitution. A short talk on a subject of interest to all Amateurs is planned but details are not finalized as yet.

THE OARC EXECUTIVE MEETS REGULARLY in the Board Room of CFRA, 150 Isabella St., Ottawa, on the first Tuesday following the regular OARC meeting, at 2000 hours.

MAUREEN NEILL, VE3FZY, spends her working day around the Civic Hospital and has offered to visit any Amateur confined there. Call her at 725-4581, or after 5:30 PM at 233-9941, if you know of any Amateur who might appreciate a visit.

CODE AND THEORY CLASSES leading to an Amateur Radio Operator'c Certificate are being planned to begin around January 20, 1975. Anyone interested in taking this course given by Gerry King, VE3GK, should contact the Continuing Education Department, Algonquin College, Woodroffe Avenue Campus at 725-7277. The present class of 35 will have written the DOC exam by the time you read this. We welcome them to the Amateur fraternity and commend Gerry on the fine job he is doing.

RENEW YOUR ARRL MEMBERSHIP THROUGH THE OARC - you save time, postage, MO fees, etc. and the Club also benefits. See Hank, VE3BR, at any of the meetings.

1976 MEMBERSHIP FORMS appear inside the back cover of this issue. Remember that the OARC has a family membership plan whereas a second or more member from a family-household may join at a reduced rate but only one copy per month of THE GROUNDWAVE will be sent. This is not reflected on the current forms. See Vic, VE3DEP, for details.

THE SABLE AND ST. PAUL ISLAND DX'PEDITION which took place during the World-Wide DX Contest will hold a debriefing and slide presentation at the Ontario Science Center in Toronto on Saturday January 24, 1976. The gathering will be held in the Main Auditorium at 7:45 PM and a question and answer period will follow. Everyone is welcome to attend. This will be a good opportunity for anyone interested in this type of operation to get first-hand information both on the problems of Operators trying to work the stations and also on the physical problems of setting up and operation of a DX'pedition.

SONNY, ex-VE3BTS and sometime VE4QI is now operating as VE1VT from Upper Lawrence Town, RR #1, Dartmouth, N.S. Good luck to the ex-Big Tall Soldier in his endeavours on Civvy Street.

SEAT-BELTS ARE MANDATORY in Ontario after January 1, 1976. If your car does not have belts or if you wish to show your individuality by defying the law and living your own life, then wear a soft felt hat.-----

-----it will protect your ears as your head goes through the windshield!!!

MINUTES OF THE PREVIOUS MEETING - The meeting was called to order at 2020 hours by President Ron, VE3AUM. Visitors, Gerry Tretick, VE3HVL, and Verna Moorecroft, were welcomed to the meeting.

Moved by Gord, VE3DY, seconded by Gerry, VE3CNJ, that the minutes of the previous meeting be adopted as published in THE GROUNDWAVE. Carried.

The Membership Chairman, Vic, VE3DEP, reported that 67 full and 7 associate memberships for 1976 have been received to date.

The GROUNDWAVE Editor, Carl, VE3BYX, reported that articles and news were scarce and all contributions would be welcome.

The Emergency Communications Chairman, Larry, VE3CRX, reported that plans are underway for the Ski Marathon Exercise the last week-end in February. Volunteers for building converter boards for a data system planned for this exercise may be required if the prototypes now under construction prove successful.

Gerry, VE3GK reported that his Beginners Class of 35 students are to write their Dept. of Communications exam on December 15 and 16, and that the next class is slated to begin around January 20. All interested parties must register at the Woodroffe Campus of Algonquin College.

George, VE3BNO, reported that ticket sales for the dinner and dance to celebrate the successful operation of the RSO Convention Committee were slow. Tickets would be available after the meeting at a cost of $3.50 each.

It was reported that Vern, VE3PY, is being plagued with interference to his operations. Any volunteers willing to help track down the cause of this interference would be greatly appreciated.

The Repeater Chairman, George, VE3BNO, reported that the two-meter repeater is being winterized and thoroughly checked over before winter conditions make access to the site much more inconvenient.

It was reported that certain Convention helpers were unable to take in the Convention Banquet because of their duties and it was felt that they should be reimbursed accordingly. Convention Chairman, George, VE3BNO, asked to have the names passed to him so that this could be done.

The main speaker for the evening was Sid Sheard, VE3BCL, station manager for CHU, the National Research Council's time and frequency standard station. Sid gave a very interesting talk and slide presentation on the station, past and present, and was suitably thanked by Larry, VE3CRX.

Edie, VE3HRH, then presented a slide presentation of Convention Scenes which brought back not-so-distant memories for all of us. Other pictures of the Convention were also on display at the front of the auditorium.

The Nominations Committee Chairman, Larry, VE3GRJ, reported that a tentative slate of officers has been drawn up as follows: President, Larry Bradley, VE3CRX; Vice-President, Penny Robinson, VE3ERO; Secretary, Maureen Neill, VE3FZY; Treasurer. Cy Chapman, VE3CVK;
Directors, Ron Belleville, VE3AUM; George Roach, VE3BNO; Bud Punchard, VE3UD; Glen Holt, VE3GWY; Hugh Lines, VE3DWL; Rick Van Gastel, VE3HVA; and that it was hoped to add further names to the list before the January Election meeting. Members were reminded that the next meeting would be the General Election of officers.

Moved by Bud, VE3UD, seconded by Larry, VE3CRX, that the OARC make a donation of 100 dollars to AMSAT (Canadian division). Carried.

Doug, VE3CDC, reported that the CARF Canadian Regulations Handbook is now off the press and that anyone who had ordered copies could pick them up from him and that others could also purchase copies while the supply lasts at a cost of $4.00.

It was reported that the Dept. of Communications were holding meetings the following Monday, Tuesday, and Wednesday in connection with the upcoming World Administrative Radio Conference scheduled for 1979, and that a separate workshop was being held concerning AMSAT allocations of frequency.

It was reported that Minister for Transportation and Communications and Amateurs had met in Toronto to discuss Call-letter Licence Plates for Amateurs.

The meeting was opened to discussion on the disposal of the surplus arising from the RSO Convention activities. (Continued on page 2)

MINUTES OF THE PREVIOUS MEETING (Continued from page 1)

George, VE3BNO, suggested updating VE2CRA to Solid-State for both the 2-meter and 450 MHz repeaters.

Gerry, VE3GK, suggested furnishing a waiting-room and equipping a smalllaboratory on the fourth floor of the Children's Hospital. An approximate cost here would 1200-2000 dollars.

Penny, VE3ERO, suggested the purchase of a pair of 2-meter hand-held transcievers for the use of Amateurs confined to hospitals, or for any other worth-while cause or operation.

It was suggested that anyone with other suggestions bring them to future meetings and that a full discussion will be generated to decide this matter.

Moved by Bernie, VE3SH, seconded by Ralph, VE2BMH, that the meeting adjourn, Carried. The meeting adjourned at 2222 hours for coffee and rag-chew.

Maureen Neill, Secretary.

NATURAL RADAR - We marvel at the versatile and ingenious uses to which man has put radar, but it comes as something of a shock to learn that bats apply the radar principle much more efficiently.

Bats emit shrill squeaks at about 50 kHz. This is well above the range of human hearing but bats can easily hear at these frequencies. Ounce for ounce, the guidance system of bats is a billion times more efficient than any radar or sonar contrived by man.

In experiments where bats had their eyes taped up, this did not stop them from flying accurately. But when their ears OR their mouths were taped, they were at a loss. Bats depend on the amount of resonance in the echo of their squeaks to warn them of obstacles present.

In another experiment, bats were placed in a totally dark room strewn with a maze of fine wires. Loud-speakers blasted away at the same frequencies used in the bats' detection system. The bats were undeterred by this "jamming" and had no trouble avoiding the wires in their flight paths. This feat is equivalent to humans being able to talk in whispers right next to several multi-jet airplanes!

IT SEEMS THAT WE HAVE TO READ THE MARCOGRAM to get the Ottawa news!!! Here are a couple of items from the November issue, both concerning the Canadian Girl Watcher.

'Charlie Wendel, VE3CGW, had a nasty accident on Oct. 23. Charlie went to get a paper and decided to ride his bicycle instead of taking his car, as it was only a block away. A car being chased by police swerved and hit Charlie who was knocked out. He was taken to hospital but, being Charlie, and a tough nut to crack, after X-Rays and a day in the hospital, he was taken back home apparently OK except for some bruises. The bicycle was a total wreck.'

'The Senior Citizen's Radio Club, organized and sponsored by Charlie Wendel, VE3CGW, held it's first official meeting on November 5 at the QTH of Charlie, It was a big success with 26 people attending. The DOC have granted a Club License with the call VE3SCR (Senior Citizen's Radio). The tentative arrangements are that Charlie's station and rig will be the Club station and members can use it when they gain their license.'

Keep up the good work Charlie, and how about letting THE GROUNDWAVE know about your progress? And a word of appreciation also to Walter, VE2TD, for the fine job he is doing as Editor of the MARCOGRAM. We look forward to its interesting and informative content each month.

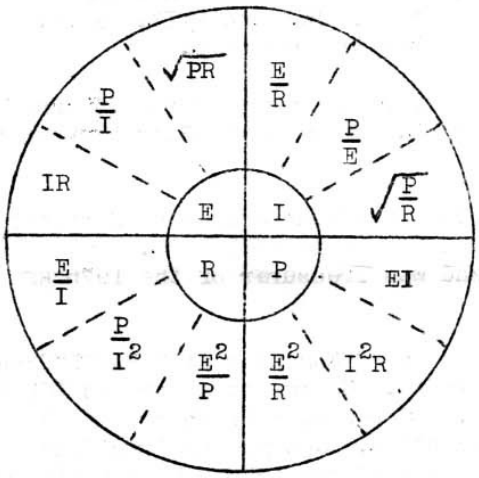
AN INTERNATIONAL MOBILE NET is operated by the Amateur Radio Mobile Society (England) on 14320 kHz at 1330 UTC each Saturday. The net control call is G4AMS and all mobiles are welcome to call in. Mobile International Calling Frequencies are 14110, 14310, 21210, 21370, 28550, and 29550 kHz. The Canadian Representative of ARMS is Dr. Arthur Leith, 885, 39th Ave., Lachine, Quebec. (VE3BR)

THE FCC RECENTLY AMENDED ITS RULES which govern how CB radio can be used. Some of the amendments seemingly legalize practices which previously were banned to prevent use of CB as a "hobby". One amendment eliminates the restriction on inter-station contacts. Another requires call-signs only at the beginning and end of conversations, nicknames may be used as 'supplementary identification'. (If you can't beat 'em, join 'em! - Ed.)

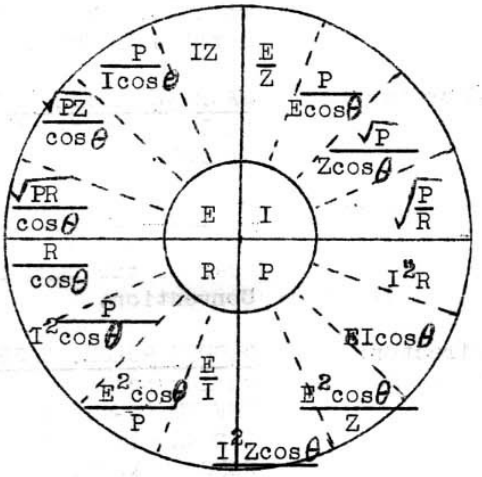
OHM'S LAW IS ONE OF THE FUNDAMENTALS required when preparing for an Amateur Examination. The basic equation set down by Georg Ohm, a German physicist, is the well-known $I=E/R$ indicating that current flow is directly proportional to the electric pressure applied and inversely proportional to the opposition encountered by the electron flow. In itself, this is very straightforward, but when we want to take into account the power relationship as well ($P=EI$) and apply the results to AC as well as DC circuits, life then becomes a little more complex.

In AC circuits, impedance, Z, is used instead of resistance because the presence of inductance and/or capacitance changes the phase angle between the voltage and the current (unless, of course, the inductance and capacitance have reactances which are equal) and this phase angle, θ, must also be taken into account to obtain the 'true power' consumed in the circuit, $P=EI\cos\theta$, in contrast to the 'apparent power', $P=EI$.

So-called "Ohm's Law Wheels" can be prepared to represent the various equations and two of these are shown below. The central circle, of course, is equivalent to the "equal sign" in the equation. We hope this representation will be of some help to both newcomers and oldtimers in the world of Amateur Radio.



Ohm's Law Wheel for DC where
I is the current in amperes
E is the voltage in volts
R is the resistance in ohms
P is the power in watts



Ohm's Law Wheel for AC where
I is the current in amperes
E is the voltage in volts (RMS)
Z is the impedance in ohms
θ is the phase angle in either radians or degrees
$\cos\theta$ is the cosine of the phase angle taken from mathematical tables
P is the power in watts

AMSAT'S EDUCATIONAL BULLETINS which have been transmitted via OSCAR VI since September, will be continued throughout the current school year on the mornings of even-numbered days. These bulletins, transmitted by official bulletin stations, will be heard on or about 29.5 MHz and are intended to give school children exposure to live satellite operation with a minimum of equipment, and to give school principals a means of demonstrating satellite technology on a live circuit. Current OSCAR orbit information is:-
OSCAR VI : Jan. 1, 1976; Orbit #14681; Equator crossing (S-N) 77 deg.; Time 0145 GMT.
OSCAR VII: Jan. 1, 1976; Orbit # 5153; Equator crossing (S-N) 53 deg.; Time 0012 GMT.
and may be updated as per the September issue of THE GROUNDWAVE.

A WONDERFUL NEW BABY FOOD has just come on the market. It's half orange juice and half garlic. It not only makes the baby healthier - BUT EASIER TO FIND IN THE DARK!

THE NOMINATING COMMITTEE have been hard at work. This month is election month and they have proposed at least one name for each elected office of the OARC. The OARC Constitution provides that any further nominations must be supported by the signatures of five full members of the club, bear the signature of the nominee, and be delivered to the Secretary of the OARC, or to any member of the Executive prior to the publication of the January issue of THE GROUNDWAVE in order that the names may be published. (deadline

The slate of nominations proposed by the Nominating Committee for the year 1976 is as follows:-

For President: LARRY BRADLEY, VE3CRX, a Systems Programmer with the National Research Council who has been an Amateur since 1961 and now holds an Advanced Certificate. Larry is 33 years of age, and is married with three children. Larry is active on 80 through 10 meters CW and SSB, and also on 2M and 70 CM FM. He has recently become involved in VHF RTTY and was Vice-President of the OARC in 1975.

For Vice-President: PENNY ROBINSON, VE3ERO, who was first licensed in 1973 and now holds an Advanced Certificate. She is a member of Trilliums, CLARA, ARRL, RSO, and CARF, and has acted as an ONTARS Net Control station. She is interested in HF, VHF, and RTTY. Penny is married to Dave, VE3BTY, and has two children.

For Secretary: MAUREEN NEILL, VE3FZY, who was first licensed in 1963 and is employed at the Civic Hospital. Maureen was Secretary of the OARC in 1975.

For Treasurer: CY CHAPMAN, VE3CVK, who holds an Advanced Amateur Certificate and is interested in HF CW and SSB as well as VHF FM. Cy was Treasurer of the OARC in 1975 and was Treasurer of the 1975 RSO Convention.

For Director: (Three to be elected)

GEORGE ROACH, VE3BNO, who is Chief Engineer at CFRA/CFMO and holds an Advanced Amateur Certificate. George is active on OSCAR CW and VHF FM (2-meter and 70-cm), and has been in charge of the repeater VE2CRA almost since its inception. George was President of the OARC in 1973, and Director in 1974 and 1975. He was also Chairman of the 1975 RSO Convention Committee.

BUD PUNCHARD, VE3UD, who is a retired Assistant Vice-President of Northern Electric and has held an Amateur License since 1933. Bud is active on HF SSB and VHF FM and served as Director of the OARC in 1974 and 1975. He has also given some very interesting talks to the OARC on antenna experimentation and on antique radio equipment. Bud was Chairman of the Programs and Technical Forums of the 1975 RSO Convention.

HUGH LINES, VE3DWL, who is a recent new-comer to the Ottawa area and is extremely active on VHF RTTY and FM. Hugh is a member of the Canadian Armed Forces.

RICK VAN GASTEL, VE3HVA, who is a recent arrival on the Amateur scene. Rick holds an Advanced Certificate and was active in helping at the RSO Convention in many capacities.

GLEN HOLT, VE3GWY, who is 19 years of age and holds an Advanced Certificate. Glen has been very active at the OARC Field Day operations for the last 3 years.

(Continued on page 5)

NOMINATIONS (CONTINUED FROM PAGE 4)

For Director: (Continued)

RON BELLEVILLE, VE3AUM, who is presently employed with the RCMP Telecommunications Branch and is extremely active on HF SSB. Ron has participated in many emergency communications situations and has been interviewed many times by the Press concerning Amateur Radio in these situations. Ron was President of the OARC in 1975 and was chief 'whipper' (slave-driver) throughout the 1975 RSO Convention.

The Chairman of the Nominating Committee, Larry, VE3GRJ, is leaving for Martinique and a two-week 'rest cure' from the ordeal of having coerced the above members to run for office. Dave Parks, VE3GSA, will fill in for him at the election meeting. The Editor is thinking of taking a two-week 'rest cure' from the ordeal of getting in touch with Larry to obtain the above information in time for this issue of THE GROUNDWAVE. Larry's secretary is great at taking information but not very good at giving it out. Better put on a long-playing tape while you're away Larry!

ARE YOU OPERATING 'PORTABLE' OR 'MOBILE' when using a hand-held unit while sitting on a bench in the park? -in your own back-yard? -in your car in your own drive-way? I have heard many discussions on this subject and many, many interpretations of the words 'portable' and 'mobile'. The regulations are fairly explicit, however, and very clearly interpreted in the new CARF Radio Regulations Handbook just off the press but will very likely be at variance with most people's interpretation of the meaning of the words 'portable' and 'mobile'. The word 'portable' conjures up the image of something being carried on one's person, something light and easily moved - not so says the DOC. A 'portable' setup is one which can be moved and operated from a temporary fixed location. Thus a half-ton rack-mounted WWII monster at your summer cottage qualifies for 'portable' operation but a hand-held in the park does not! Now what about 'mobile' operation? We have come to think of a mobile unit as one mounted in an automobile. It's much more than that says the DOC. It's every other kind of permissible operation except 'portable' or main fixed (base) operation. According to the CARF Handbook, "A comparatively broad interpretation is placed on the term 'motor vehicle' to include anything that moves on the land surface, e.g. automobile, motorcycle, bicycle...or even hand-carried 'walkie-talkies'. Thus you are 'mobile' if using a hand-held while skating on the canal, or up a friends tower doing some repair work for him - you are 'mobile' while leisurely lolling beside your neighbour's pool while your XYL yells at you to get home and get the grass cut (She may not think you are very mobile but you can assure her that you legally are!). Remember that you are 'portable' only if operating your equipment from a temporary fixed location and the interpretation should be clear.

The CARF Radio Regulations Handbook has a wealth of similar interpretations and other information and has been long-needed on the Canadian scene. The price of $4.00 is a small price to pay for the rules of our hobby and is a must for every Canadian Ham Shack unless you're willing to wade through the pages and pages of the Radio Act to pick out the passages relevant to Amateur Radio. Copies may be ordered from CARF, Box #356, Kingston, Ontario, K7L 4W2, or locally from Doug Burrill at 733-7108. (VE3BYY)

I WAS A CB'ER! I am now an Amateur Radio Operator, -and d..n proud of it! I have met many great hams who have been generous with their time, and very helpful, but I still have many CB friends who are envious of the new world that has been opened up to me. There are many good CB'ers who are looking for a little encouragement and a helping hand. Why not invite a CB'er over to your shack? From little acorns giant oak trees grow. We should not lower our standards, but bring others up. Don Slater, VE3BID/XM49008

HAPPY BIRTHDAY ONTARS! January 8, 1976 marks the fourth birthday of ONTARS, the Ontario Amateur Radio Service Net. The net was established to provide a 'contact' resource to Amateurs in Ontario and operates from 0700 to 1800 daily. From the initial organization by Bruce Garveth, VE3BC, and cries of 'it will never last', ONTARS moves into yet another year of successful operation and practical contribution to our hobby.(TOA)

SELECTING AND INSTALLING TWO-WAY MOBILE ANTENNAS - Optimum performance of any two-way radio system depends upon several factors. Receiver sensitivity and output power are important but a most important factor is the antenna system, what type, how and where it is mounted, and how well it is tuned. Output power is of little consequence if half of it is lost in the co-ax and the remainder largely wasted in an inefficient, improperly tuned, or poorly mounted antenna. Received signals are also degraded accordingly if the antenna system is sub-standard. This is particularly true when using low-power units.

Figure 1 shows general radiation patterns for quarter-wave whips installed in various vehicle locations. A center-of-the-roof installation (Fig. 1-A) gives a more or less omni-directional pattern. Mounting it on the left-rear fender (Fig. 1-B) introduces a major lobe diagonally across the vehicle body. A right front fender mount would give a similar pattern. A rear-deck-center mount would give a lobe directly ahead of the vehicle. In these cases, not only do we have a directional pattern, but some loss of signal is caused by the antenna's proximity to the vehicle body above the mount. This could cause tuning problems as well, in 'close' situations, but would probably be more noticeable on the low bands than at VHF.

Antenna gain can be realized by installing a pair of co-phased or parallel-fed antennas. This can produce a fore-and-aft, or side-to-side pattern depending upon the spacing and phasing. This is not too advantageous for VHF repeater operation but could be of use in long distance travel if consistently approaching or departing directly toward or away from repeater locations. We see this installation being used more and more in GRS installations where the desired pattern is along the highway in front and behind the vehicle. Fig. 1-C is representative of an ideal installation of this type.

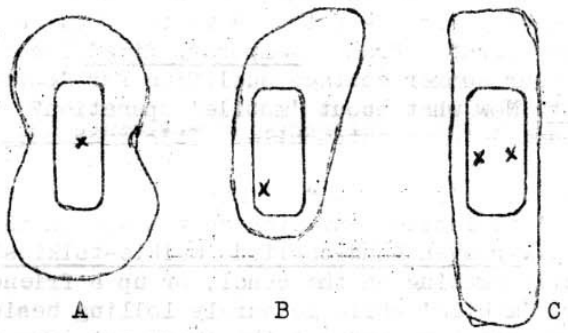


Figure 1 Radiation Patterns

A: Center-of-roof Mounting

B: Left-rear (or right-front) Fender Mounting

C: Phased-pair Mounting

(Patterns not to scale and are meant only to show the 'best' direction for each installation)

The subject of quarter-wave vs. 5/8-wave VHF antennas is always good for a heated discussion and is a subject all its own. HF antennas must compromise with a loading coil or other matching device. All things considered, it appears that the longer the antenna, the lower the angle of radiation, and thus the greater radiation horizontally where it is needed for ground-wave coverage. A compromise is thus needed between the length of antenna and the ease of matching it to the rig.

With the possible exception of heavy-duty bumper mounts for HF antennas, clamp-on mounts simply do not have the physical stability of the permanent mount, whether they be the trunk-lid lip mount, the gutter-clamp, the magnetic-mount, or whatever. This means that the system is subject to variation in actual electrical contact and 'grounding' at the antenna base, but also that they are subject to removal or damage from vibration of vandalism. A 'hung-on' system, with cables running exposed, is also much less pleasing to the eye than a properly installed permanent mount. The usual comment that drilling a hole in the vehicle will somehow make it less valuable might have been a valid objection at one time but there are now so many on the road with 'two-way' that no-one really cares any more. Filling and repairing a hole is a very minor repair job but exposed co-ax in conjunction with wind, vibration, and dust can literally chafe paint off a large area and do more damage than a drilled hole. Such mounts are still indicated in some instances, however, and the onus is then to select one not likely to receive or cause damage. Bargain-priced mounts are usually not bargains. (Continued on page 7)

SELECTING MOBILE ANTENNAS (Continued from page 6) Selecting coaxial cable is not much of a problem. RG-8 Low-loss foam co-ax is preferred and assures that the output power is fed efficiently to the antenna. Where the antenna mount will not accept this large cable, RG-58 Low-loss foam is next best. Only in cases where physical damage is a factor is the solid dielectric preferred for its greater resistance to physical damage by crushing etc. Use the lowest loss available taking into consideration the physical requirements.

Look before you drill! (Ask VE3GGQ about that nice shiny chrome plug in his fender - Ed.) It's embarrassing to find a reinforcing member right in the middle of your hole. A roof-top location may have a double-thickness of metal with tarpaper in between. Always tighten each part securely before adding the next pieces. Otherwise you run the risk of turning the whole assembly and breaking the co-ax. Coaxial connections should always be clean and tight. Cables should be run carefully and situations avoided where pinching or cutting could result.

Most commercial antennas require little or no tuning but the SWR should always be checked and optimized. Home-brew jobs may require more careful adjustment. Be sure that all doors, hood and trunk-lid are closed as this could affect the antenna performance.

The decision of antenna and mount for an installation can be difficult and a compromise at best. Remember the primary objectives, performance, reliability, appearance. In the end it could be the XYL who prefers that nice neat little 19-inch whip to a 9-foot top-loaded 75-meter bumper-mount who makes the decision in spite of your preference for SSB. (Note: This article was prepared on a balmy autumn day in September but was held over until the mercury reached -30 Celsius and conditions were more conducive for working on mobile installations, antenna installations, etc. I hope you appreciate its timeliness. - Ed.)-

SOME INTERESTING FIGURES concerning Radio Frequency Interference were published in the Commons Debates for Dec. 4, 1975, and were supplied to me by George, VE3DMC. Question #3253 asked by Mr. Bruno Friesen, PC, Surrey White Rock(BC) enquired:-

1. By province and territory, how many complaints were received by the D.O.C. regarding radio frequency interference in 1970, 1971, 1972, 1973, 1974, 1975?
2. How many complaints were registered by (a) licensed radio operators (b) other citizens?
3. How many complaints by licensed operators reported some retaliatory measure taken by other citizens to (a) jam their operations (b) destroy equipment?
4. In what percentage of the complaints was the (a) equipment of the amateur radio operator (b) manufacturer of the receiving equipment found to be at fault?
5. How many persons are employed by the D.O.C. to handle such complaints?

In the interests of space, we reprint the figures for 1970 and 1975 only. Figures in brackets are my own calculations.

	Atlantic Region				Que.	Cnt.	Central Region				Pac. Reg.		
Year	Nfld	N.S.	PEI.	N.B.	Reg.	Reg.	Man.	Sask.	Alta.	NWT.	B.C.	Y.T.	(Tot.)
1. Total Complaints													
1970	66	789	-	429	2300	8693	695	45	1205	9	1405	60	(15696)
1975	564	1086	168	1448	4688	17000	1032	80	2000	30	1850	344	(30290)
2. Complaints registered by licensed operators (a)													
1970	6	79	-	43	14	695	255	14	255	7	21	2	(1391)
1975	56	118	16	144	64	1360	411	26	411	12	124	1	(2743)
2.(b). Complaints registered by other citizens													
1970	60	710	-	386	2286	7998	440	31	950	2	1384	58	(14305)
1975	508	968	152	1304	4624	15640	621	54	1589	18	1726	343	(27547)
(Percentage of total complaints registered by licensed operators)(in 1975)													
(	9.9	10.9	9.5	9.9	1.4	8.0	39.8	32.5	20.5	40.0	6.7	0.3	)
3. (a) Retaliatory action - jam operations													
1970	-	-	-	-	2	150	9	-	10	-	1	-	(172)
1975	-	-	-	-	2	223	70	-	67	-	1	-	(363)
3. (b) Retaliatory action - destroy equipment													
1970	-	-	-	-	-	10	1	-	9	-	-	-	(20)
1975	-	-	-	-	-	53	3	-	25	-	2	-	(83)

(Continued on page 8)

[illegible]

See! I told you there would be more on this subject this month! - Ed.

ANSWER TO LAST MONTH'S SUPER/DUPER AMATEUR CROSSWORD

REACTANCE FREQUENCY
E M A K A Y O L A
SUPERREGENERATION G
I R M E A ORI
SUPPRESSOR TR R U
T S NUCLEUS
ATTENUATION A U
N U S V I LIMITER
C B SS B TO F G
ELECTROLYTIC I IM GE
A N N R
STRATOSPHERE V P R L
E P E F E U L I
IONOSPHERE TR T G
M E T T S OM H
PACK R Z CHIRP U T
U Y E G O TEN
L CARF STATIONS U I
S L A C I N SA N
ELECTROMAGNETIC LAG

NOT DRAWN TO SCALE!

MULTI-2000 OWNERS BEWARE! Ham Radio reports that the original version of this rig as imported by ITC has an offending spur at plus/minus 16.9 MHz from the signal frequency which gives interference in the aircraft band. Mike Staal of KLM reports that later versions bearing the KLM nameplate have had this problem corrected, and are being constantly checked to ensure that they meet published specs. All early Multi-2000s should, however, be checked out with proper instrumentation to ensure that they are 'clean'. Mike has some helpful suggestions for owners of earlier models who experience trouble in this respect. You can contact him at KLM, 1-408-779-7363.

EVERY PROBLEM, when solved,
IS SIMPLE!

SOME INTERESTING FIGURES (Continued from page 7)

Year	Nfld	N.S.	PEI	N.B.	Que.	Ont.	Man.	Sask.	Alta.	NWT.	B.C.	Y.T.
4. (a) Amateur radio equipment at fault in percent	5	5	5	5	20.	53	63	40	57	63	24	
4. (b) Receiving equipment at fault in percent	35-45	35-45	35-45	35-45	80	47	37	60	43	37	76	-
(Percentage of total (?) complaints the fault of amateur radio OR receiving equipment)	40-50	40-50	40-50	40-50	100	100	100	100	100	100	100	-

In every range of interest except 3b, the figures approximately doubled from 1970 to 1975. However, reports by licensed operators that other citizens had taken some retaliatory action to destroy equipment increased OVER 4 TIMES during this period - so be on your guard, the opposition is becoming more aggressive!

In 1975, 30290 complaints were handled by 125 persons (the answer to query #5). Considering a year as 365 days minus 52 saturdays, 52 sundays, 11 stat holidays, and 15 days annual leave, or 235 working days, this works out to a little more than one complaint handled per person per day.

Question 4 is rather ambiguous as it refers to 'the complaints', supposedly the total complaints received, and then to 'amateur radio operator' which supposedly eliminates GRS, 2-way, commercial, and other operators. Thus the figures in 4a and 4b may or may not represent a percentage of the total number of complaints received. I find it hard to believe that no GRS, commercial 2-way or other transmitting equipment was found to be at fault. It's a good job I have run out of space, I might have gone on for pages! Take a look at my percentage calculations following 2b, I find this very interesting. The variation from region to region is such as to indicate something - I don't know what! Ed.

MEMBERSHIP FORM (1976)

Please enclose a cheque - five (5) dollars payable to -
OTTAWA AMATEUR RADIO CLUB
P.O. BOX 8873
OTTAWA ONT. K1G 3J2
Att. Membership Chairman

NAME: _____ _____ CALL: _____
(first) (last)

ADDRESS: _____

CITY: _____

POSTAL CODE: _____ PHONE NO: HOME- _____

OFFICE- _____

Class of license: Amateur _____ Advanced Ameteur _____

Activities: Bands:

SSB _____ _____
AM _____ _____
VHF-FM _____ _____
CW _____ _____
RTTY _____ _____
SSTV _____ _____
VHF _____ _____

I am a:	MEMBER	APPOINTEE	OFFICIAL
ARRL	_____	_____	_____
RSO	_____	_____	_____
CARF	_____	_____	_____
RAQI	_____	_____	_____

I have a gas/diesel generator YES _____ NO _____

I have a 2-meter hand-carried portable YES _____ NO _____

What are your main interests in Amateur Radio? HF _____
VHF _____
OTHERS _____

What would you like to see the club do different next year?