



the canadian amateur

February 1977

Number 2

CARF checks tariff problem

At the request of the Radio Society of Ontario, an affiliate member of your Federation, steps are being taken by CARF to try once again to have the federal government remove the tariff (usually 15%) imposed on imported Amateur radio equipment.

The project requires considerable effort to be spent in research and the development of a brief to the federal government. Federation officials in Ottawa have already held preliminary conversations with the officials concerned to learn the best channels of approach to the responsible department.

Following the FCC legislation on the restriction on sales of RF linear amplifiers, the DOC has advised the Federation that it is also proposing amendments to the Radio Act to control the sales of linears.

In addition, the control of sales of such equipment will be extended to the sale of emergency locator transmitters (ELT). These operate on 121.5 and 243 MHz and were originally designed to locate downed aircraft but are being sold indiscriminately "to hunter, snowmobilers, survey camp crews and others operating in remote areas". The number of accidental triggerings and false alarms has "increased alarmingly" with large expenditures of money and resources by search and rescue organizations, to say nothing of the interference with aero or marine distress operations.

The news release continues "...an increasing number of GRS licensees are purchasing external radio frequency power amplifiers...in order to extend and conduct radio communications that are

Continued on Page Nine

DOC proposes amendments to the Radio Act to control the sales of linears



DOC acts on Linear Amplifiers



the canadian amateur

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From the Front Office

EXECUTIVE MEETING

The National Executive held their quarterly meeting in Kingston, Ont. on Jan. 15, 1977. The main topic of discussion was the Treasurer's report, including the budget recommendations for 1977.

In brief, the Treasurer, Bernie Burdsall VE3NB, reported that the income of the Federation for 1976 was \$38,000, expenditures were \$28,000, bank balance at end 1975 was \$2,000, giving the bank balance at end of 1976 as \$12,000. (All figures are rounded off). This healthy financial position was due, in part, to the steady growth of membership (over 800 in 1976), the sale of CARF publications, and the number of multiple year memberships taken out. Additional assets included \$4,000 in outstanding invoices and publications on hand.

As is normal business practice, estimated revenue for 1977 was based on zero growth and sale of existing publications and amounted to \$20,000. This figure was used as the operating capital for the year and expenditures and budgets were based on this amount. These included the editing, publishing and circulation of The Canadian Amateur, Directors' expenses, Committee expenses, Convention and meeting expenses, National QSL Bureau expenses, honorariums to various officials and to the Kingston Old Timers Amateur Radio Association (who staff the CARF HQ Office).

As a matter of interest - the total revenue of CARF from 1967 to end 1975 was less than the 1976 revenue.

Other items dealt with were publicity campaigns to acquaint the public with Amateur radio, to increase membership, the work of the WARC 79 Committee, the National QSL Bureau, the Publications Committee, and the DOC Liaison Committee. The matter of tariffs imposed on Amateur equipment was discussed and plans made for a major submission to the Minister of Finance. The General Manager of CARF was directed to obtain a supply of CARF Logo self-adhesive emblems and to arrange for the supply of CARF name/call badges.

The next meeting of your executive is scheduled for April 2 in Ottawa.

The Canadian Amateur is the official monthly publication of the Canadian Amateur Radio Federation, Inc. It is distributed to members and is available to others for \$7.00 per year. The Federation is incorporated and operates under a federal charter, with the following objectives:

1. To act as a coordinating body for Amateur radio organizations in Canada;
2. To act as a liaison agency between its members and other Amateur organizations in Canada and other countries;
3. To act as a liaison and advisory agency between its members and the Department of Communications;
4. To promote the interests of Amateur radio operators through a program of technical and general educations in Amateur matters.

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Correspondence should be addressed to the Editor, The Canadian Amateur, Box 356, Kingston, Ont. K7L 4W2.

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DOC News

Your favorite government department publishes a slick paper, arty quarterly devoted to communications, both technological and sociological, entitled 'In Search'. What it is in search of we are not quite sure, but it does have interesting articles on the state of the telecommunications art and some looks into its future. One of the articles in the recent issue dealt with mental telepathy but the DOC editorial staff was not quite tuned in to the author's sense of humor. In a fantasy featuring outer-space telepathic communication, he named an invading planet 'Llareggub' ... and that ain't Welsh.

How many Amateur courses?

Your Federation would like to inform DOC as to how many courses are being offered in Canada which lead to Amateur certificates of proficiency. Individual members and affiliate clubs and groups could make this possible by dropping a line to CARF, Box 356, Kingston, Ont. K7L 4W2 and letting us know what courses are being offered in their areas and whether they are club courses, credit courses tied in with high school or community college electronics studies or night school adult education or extension courses.

Notice for Food Lovers

Marg McKinley, VE3EQE, and Penny Robinson, VE3ERO, members of the Ottawa Amateur Radio Club, are putting a cookbook together for the Canadian Ladies' Amateur Radio Association (CLARA) and will welcome recipes from all sources. Please send your favourite recipes to: Marg McKinley, VE3EQE, 1659 Queensdale Ave., Ottawa, Ont., K1T 1J4, before Jan. 15, 1977. Put call letters of the cook or spouse, and your name on the recipes.

The book will be available at the CLARA Mini-Convention to be held in Toronto at the ARRL Convention in June. (VE3ERO)

Tower troubles again

The proclivity for municipal governments to remain ignorant of the fact that the Federal government claims jurisdiction over transmitting stations ... and that includes the antenna towers or structures ... is again causing headaches to Amateurs in such widely dispersed locations as Montreal area and the North West Territories. If you have trouble with the authorities over your antenna structure, write to your Federation, giving full details and the current state of the legislation, etc. will be made known to you.

Other troubles on horizon

With little regard for the jurisdiction of the Federal government over radio and its interference problems, a hapless GRS operator, although operating a rig that was cleaned up to DOC recommendations, was fined in a small claims court in Quebec for "inadvertent jamm-ing of regular radio and TV shows and the appearance of a 'strange voice' which (the GRS operator) admitted was his -- on his neighbors' radio and TV sets" to quote the Montreal Gazette.

The operator had to pay \$25 to each of four complainants, although he could have been nicked for \$400 to each of them. (\$400 is the highest claim treated in these courts, for which there is no appeal.) The case seems such an obvious disregard for the Radio Act and of such potential mischief to GRS and Amateur operators that the honorary legal counsel for your Federation, Charles Grove VE3CT, is co-operating with the honorary legal counsel for the Radio Society of Ontario, Ted Hamer, and for the American Radio Relay League's Canadian Division, in a full investigation of the case. Brunt of the work is being undertaken by Bob Benson, the League's honorary counsel, as he is located in Montreal.

In case you didn't get the joke on the DOC magazine 'In Search' noted on Page 3, try the planet's name backwards!



Canadian Repeater Advisory
Group

With your regular CRAG editor away for three weeks, news and updates will wait until the March issue. Meanwhile, we publish the Canadian Repeater Directory which is up-to-date as of Jan. 15.

Big news south of the border is that the FCC is leaning toward our way of doing things. In a move to further "deregulate" their almost stifling Amateur repeater regulations, they have proposed doing away with most of the formal direct regulation of Amateur repeaters by the FCC.

Notable for Canadians is a move to allow greater flexibility for US Amateurs in their choice of frequencies for repeater use, inasmuch as many of the repeater councils and their frequency co-ordinating activities are international in scope.

A new 450 repeater is in the works for Ottawa ... call is VE3YOW. Anyone familiar with air travel will recognize the international designation for Ottawa. The club, the 'Boat Anchor Amateur

Radio Federation, Inc.' reflects both the equipment and the sponsor's interest in the sea. VE3AHN Jim Fathers is now planning a five year ocean cruise in a tri-maran. The acronym for the club may have something to do with sea travel as well. (BAARF!)

IMPORTANT: If you are contemplating setting up a repeater, you can write to the Canadian Repeater Advisory Group (CRAG), Box 356, Kingston, Ont. K7L 4W2 for information on how to contact your area repeater council for advice on frequency pairs and how to avoid problems with DOC in your licensing. Copies of the DOC guidelines for repeater operation are available from CRAG or your local DOC office.

A drastic solution to bootleggers, kooks, jammers and freeloaders was implemented on the West Coast recently when a large number of Southern California repeaters shut down for some weeks. Inputs on some are being monitored for emergencies. Repeaters will eventually resume operation with more efficient control over the lunatic fringe.

For repeater directory, see page 5.

QSL en francais

CARF QSL cards are now available with a French text. Send 25 cents to CARF QSL, Box 356, Kingston for a sample booklet.

Nfld. Note

Our Newfoundland director at large, Nate Penney VO1NP tells us that his XYL now has her licence ... VO1NB ... 'One New Broom'!

Special Prefix

DOC has announced the allocation of the call prefix CJ as an alternative to VE for Canadian-Japanese Amateurs. Good until the end of this year, the prefix commemorates the arrival of the first Japanese immigrants to Canada.

Postal Code

The Federation asks that the postal code, K7L 4W2, be used in all correspondence with Box 356, Kingston, Ont.

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The World at a Touch

Something called TOSC has opened some new doors in amateur radio for the Amateurs of VE3SBH.

That's the station at Toronto's Sunnybrook Medical Centre - the former veterans' hospital that's now a part of the University of Toronto.

The Sunnybrook Amateur Radio Club is six years old now. It started with four residents who took their courses and passed their exams right in the hospital, and it now has more than 10 certificated Amateurs, and several more interested listeners.

In the beginning, operation of an Amateur station had its problems for some of the men in the club; particularly those who were severely handicapped. They needed help to get the station on the air, tune it up and keep it operating.

TOSC - or Touch Operated Selector Control - came on the scene in the summer of 1974. And that was a turning point for the handicapped ops.

With just a slight head-movement, operators of VE3SBH who are paralyzed

can now turn on their rig and its accessory equipment; tune across the bands; operate push-to-talk; log their contacts on a tape recorder; and even control the lights and the telephone in the shack.

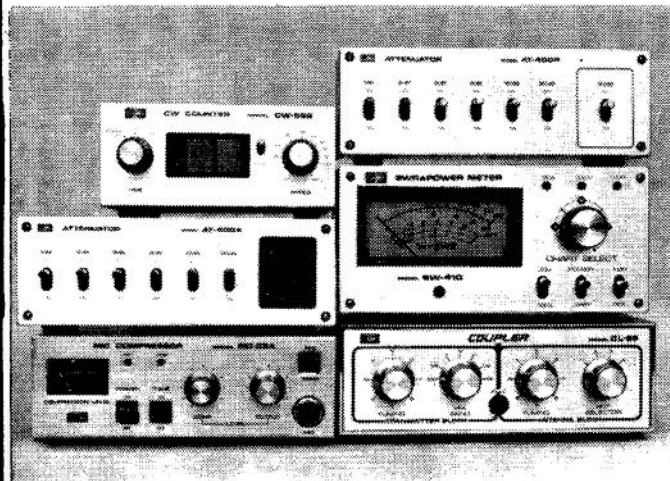
Larry Allen, VE3FXQ was the sponsor of VE3SBH when TOSC was introduced. He says it became "the missing bridge; the link which would play a great role for them in their Amateur career, as well as the therapy of more independence."

Like many other gadgets that find their way into the hamshacks of the nation, TOSC was not originally designed for a communications application.

The unit was designed and developed, by Bud Cairns, an Etobicoke man who is a paraplegic.

It arrived at Sunnybrook when the people who distributed the unit asked Wally Judd, a patient who also happens to be one of the SHARC gang, if he would mind trying out the unit in his hospital room.

To Wally Judd, VE3HQJ, who can



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- 4) DAIWA CW Counter
CW-599 \$ 86.15
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move only his head, the TOSC unit offered him a high degree of independence in his daily life. He could now do such things as turn on his lights, use his telephone, show his favorite slides, control the TV and radio.

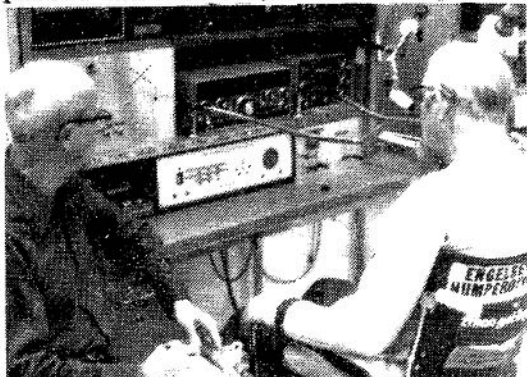
But Wally (who was a signaller with the 1st Canadian Parachute Battalion), and Larry also sensed great possibilities for TOSC in the SHARC shack - and together they developed the necessary modifications that made it a vital piece of the station's equipment.

Amateur radio at Sunnybrook got its start in 1971.

Doree (Butler) Pettifer, VE3EUV was a staff member at the time and had been restricted to a wheelchair herself at one time. Doree knew the therapeutic value of ham radio, and she became an enthusiastic advocate of the hobby for the patients at Sunnybrook.

Members of The Ontario Trilliums, and the Metro Amateur Radio Club contributed their time and talent, and the first code classes were held in July, 1971.

Eight months later, four patients had passed their exams, and the Sunnybrook



Allan Laird VE3IKQ with Denis Herlihy at the mike at VE3SBH. The TOSC unit appears next to Denis' cheek. The circuitry is housed in the cassis with the speaker grille, on the desk. Below, the gang at VE3SBH.



Amateur Radio Club got on the air.

The first instructors were Jean Evans VE3DGG, Louise Konyar VE3AUZ and Jean's OM and their son, Dave VE3BAR and David, VE3CZL.

Officials at Sunnybrook are sold on amateur radio as occupational therapy. Jean says she's been told by the hospital's former director of nurses that of all the hobbies and activities she had seen, ham radio had shown the greatest benefit for those involved.

The hamshack at Sunnybrook has also become a resource for other Amateurs in the Toronto area. The VE3SBH ops have opened their regular licence classes to other handicapped people outside the hospital and already, the results of that effort are showing up too.

Three residents from Toronto's Riverdale Hospital got their training at SHARC classes - and they're now on the air with their own club station, VE3RDH.

(Editors Note: Ron is one half of a CBC team in Ottawa - he writes radio news and Bob Knapp, VE3CDG reads it over CBO).

-VE3FMW, Ron Adams

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The Canadian DXer

Peter Driessen, VE7BBQ

SUNSPOTS

Good news, for all Deserving DXers—the sunspot minimum is past!

A sharp rise in average sunspot number is expected in the next few years. We can all look forward to steadily improving conditions on the higher frequencies (20-15-10 M). Seasonal variations will still be present however, so DXing will be at its best in the spring and fall. The days of 20 metres open for DX 24 hours a day and worldwide 10 m DX will be here again!

PARTIAL QSL MANAGER LIST:

(West Coast DX Bulletin, Dec. 21/76)

9Y4A	- W2AYJ	VP2MT	- JA1KSO
CT4AT	- W1YRC	KC4AAC	- K7ODK
7P8BC	- WA9SMM	ZD8AA	- WA4TLB
VP2LDU	- JA1KSO	3A0FY	- F9UW
9J2NL	- IT9AF	VP2EEQ	- W6KG

PREFIX/COUNTRY LIST

A Radio Amateur Prefix/Country list is available from Geoff Watts, 62 Belmore Rd., Norwich, England NR7 OPU. This list gives country, DXCC status, normal prefix, special prefixes used, obsolete prefixes, CQ zone and ITU zone. A good bargain for \$1.00 or 5 IRCs.

Note that this DX column cannot possibly provide the sort of up to date information available from the Weekly DX newsletters. The contents of the column will be governed largely by the response of you, the reader. Let me have your ideas! (Send to this writer, c/o CARF).

NEW DXCC COUNTRIES

D6A and FH8 QSLs may be submitted to ARRL for DXCC credit starting Mar. 1, 1977, for QSOs made after July 6, 1975. The current DXCC total is now 319 current countries, 363 all time total # countries, 44 deleted countries. (See Dec. TCA for explanation of DXCC awards).

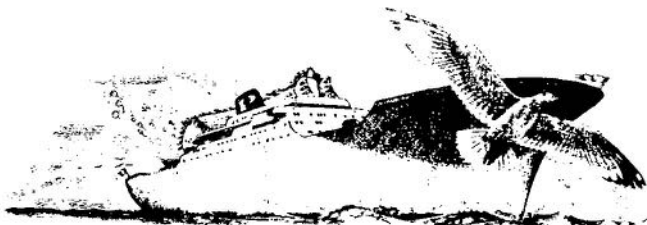
THE ART OF QSLING

Working a new country is only half the battle, you will need his QSL to

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WORLD WIDE TRAVEL SERVICE

300 Wilson Ave., Downsview (Toronto), Ont. M3H 1S8



prove it. Several different methods are used to exchange QSLs.

1. Outgoing QSL Bureau - These bureaux are normally used for answering QSLs received via the bureau or (if desired) to send out cards to common DX stations. As published in TCA, there are three outgoing QSL bureaux in Canada (CARF, ARRL and CANAD-X), any one of which will send out cards to the QSL bureaux in DX countries. The CARF outgoing bureau service is available free to members. (Sort your cards by countries and send to Box 66, Islington, Ont. M9A 4X1. Put membership number in the lower left hand corner of your envelope.)

2. Direct - This method can be used when the DX station specifies his home address for QSLs. Normally one sends cards direct only if it is a new country. The common DX can go via the outgoing bureau since this is much cheaper than direct air mail.

3. Via QSL manager - Many DX stations have a QSL manager who takes care of sending out QSL cards so that the DX station can spend his time operating instead of filling out hundreds of QSL cards. The DX station will tell you to QSL via his manager if he does not want cards sent direct. Some DX stations in remote corners of the globe have spotty mail service, and for these stations a QSL manager is a necessity.

When sending a card to a DX station, either direct or through his QSL manager, remember to include a self addressed, stamped envelope with stamps of that country (not Canadian stamps) or IRCs. Don't expect the DX station or his manager to pay for sending back his card.

A list of QSL address information compiled by K5DB and published in the West Coast DX Bulletin for Jan. 4, 1977, has been reprinted by your Federation and is available to members from CARF Inc., Box 356, Kingston, Ont. K7L 4W2.

Linear Amplifier

Continued from Page 1

essentially of a recreational nature. Additionally, the Department is concerned that interference caused to legitimate users in adjoining and distant communities is and will become even more detrimental to the orderly and efficient use of the electromagnetic spectrum in Canada".

Along with a proposed method of control of sales, another amendment which is of good news to those plagued with machine or appliances interference is also in the same notice.

Here is the complete text of the proposed changes:

1. Sections 3 and 4 of the Radio Interference Regulations are revoked and the following substituted therefore:

"3. (1) Subject to subsection (2) and sections 19 and 20 no person shall sell, offer for sale or use any machinery, apparatus or equipment that causes interference to radio reception unless

- (a) it has been suppressed; or
- (b) where limits for radio noise have been prescribed by these Regulations, it does not produce radio noise in excess of those limits.

(2) Where means of suppressing any

machinery, apparatus or equipment that causes interference to radio reception cannot be incorporated until it is installed in the place where it is to be used, the machinery, apparatus or equipment may be sold or offered for sale if it bears thereon a permanent label in a conspicuous place indicating that its use is prohibited until means of suppression have been applied sufficient to ensure that

- (a) it does not cause interference to radio reception; or
- (b) where limits for radio noise have been prescribed by these Regulations, it does not produce radio noise in excess of those limits.

TESTING

4. (1) Every manufacturer or importer who sells or offers for sale any machinery, apparatus or equipment for which limits of radio noise have been prescribed by these Regulations shall ensure that the machinery, apparatus or equipment has been tested in accordance with these Regulations.

(2) A record of the test referred to in subsection (1) shall be retained by the manufacturer or importer for a period of

at least five years and made available for examination on the request of the Director General, Telecommunication Regulatory Service of the Department.”

2. The said Regulations are further amended by adding thereto the following headings and sections:

“External Radio Frequency Power Amplifiers

19. (1) No person shall use or cause to be used an external radio frequency power amplifier to boost the radio frequency output of a station performing a General Radio Service in a band of frequencies allocated for the use of such stations.

(2) No person shall sell an external radio frequency power amplifier unless he completes the form set out in Part I of Schedule IV and obtains from the purchaser a declaration in the form set out in Part II of that Schedule.

(3) For the purposes of this section and section 21, “external radio frequency power amplifier” means a radio frequency that, when used in conjunction with a radio transmitting apparatus, is capable of increasing or boosting the output power of that apparatus.

Search and Rescue Radio Apparatus

20. (1) No person shall use or cause to be used any radio apparatus that is capable of transmitting on one or both of the frequencies 121.5 MHz and 243.0 MHz and designed by the manufacturer to be used for search and rescue purposes unless it is used to mark the location of a downed aircraft or a sunken ship.

(2) No person shall sell a radio apparatus described in subsection (1) unless he completes Part I of Schedule IV and he obtains from the purchaser a declaration in the form set out in Part II of that Schedule.

Information to be Forwarded

21. Where a person sells an external radio frequency power amplifier or a radio apparatus described in subsection 20 (1), he shall, within ten days of the sale thereof, forward to the Department, addressed to the Director, Operations Branch, Ottawa, Ontario,

(a) the completed form set out in Part I of Schedule IV, and

(b) the completed declaration of the purchaser in the form set out in Part II of the Schedule required by section 19 or 20, as the case may be.”



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HAMTRADERS INC.

Part II

I, name of purchaser hereby declare that I have read sections 19 and 20 of the Radio Interference Regulations and understand that a person who uses or causes to be used a machine, apparatus or equipment described in Part I

(a) to boost the radio frequency output of a station performing a General Radio Service in a band of frequencies allocated for the use of such stations or

(b) for a purpose other than to mark the location of a downed aircraft or sunken ship,

violates section 19 or 20 of the Regulations, as the case may be, and is thereby liable upon summary conviction to a fine not exceeding one thousand dollars and costs or to imprisonment for a term not exceeding six months pursuant to section 6 of the Radio Act.

Date _____
Signature of Purchaser _____
Telephone No. _____
Address _____

SCHEDULE IV

Radio Interference Regulations

Part I

Description of machine, apparatus or equipment

Name of machine, apparatus or equipment sold _____

Date of Sale _____

Manufacturer _____

Model No. _____ Serial No. _____

Rated Output Power _____

Date _____

Signature of Vendor _____

Telephone No. _____

Address _____

Amendments are one thing, but enforcement is another. The FCC has tried to restrict the sales of amplifiers only to those authorized to have them and

has stirred up manufacturers and sales organizations to the extent that they are trying, in the USA, "to establish 'industry regulations' for the proper use of amplifiers, develop marketing techniques to keep them out of the hands of illegal users and work closely with the FCC to assure enforcement of the rules" regarding the sale of linears, according to HR Report.

While there are no known manufacturers of linears for Amateur use in Canada, there are plenty of sales outlets with no demonstrated ethics about selling them. Maybe they had better look at the USA for ideas before, hopefully, there are tough laws about the sale of these power boosters.

The DOC proposal is being officially made known in the Canada Gazette and is asking members who have comments to write them in to CARF, Box 356, Kingston, Ont., K71 4W2.

The closing date for comment is March 17 for DOC, so CARF needs them by March 8 (to account for mailing time, etc.), leaving little time for our membership to comment but it is important that individuals and clubs try to get some feedback to your Federation for its presentation to the DOC. Interested parties are quite free to write direct to DOC but a consolidated input from your Federation could bear considerable weight. If you do write direct to DOC, a copy of your letter to the Federation would be appreciated.

EDITORIAL

Better late than never

'BANG!'

That was the sound of a large barn door being closed in Ottawa.

The DOC, spurred on by the ever-growing problem of interference from the General Radio Service to essential gov-

Accessories

YP-150



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Measuring Equipment



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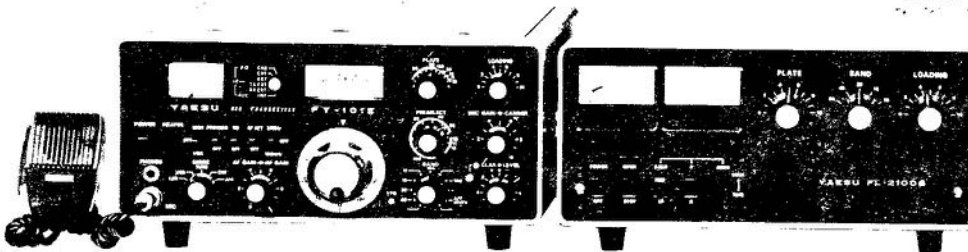


YD-844



YD-846

FT-101E Accessories



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FL-2100B

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ernment and commercial radio systems has at last taken a step in the right direction in its notice of intent to amend the Radio Act in order to restrict the sale of linear amplifiers. (The details are set out in this issue of The Canadian Amateur).

Announced in a letter to your Federation dated Jan. 17, this measure is coming on the scene too late to prevent the present chaos prevailing in the GRS, which sports illegal transmitters, illegal amplifiers, illegal procedures and various and sundry other illegal operations, much to the detriment of those who need the service for legitimate purposes.

In our opinion, this amendment will be as useless in cleaning up the situation as the rest of the Radio Act has been -- unless the political leadership of the DOC and its top management show some fortitude in enforcing the proposed amendment and the rest of the Radio Act and the Regulations.

If this had been done in the past, if the GRS had not been treated as a free-for-all communication facility for people to do their thing* with radio and if the radio spectrum had been, in the case of the GRS, treated as the highly technical and finite resource that it is, there would be no need for such amendments to the Radio Act.

Illegal operation of unlicensed stations by unqualified members of the general public who have the necessary dough to buy Amateur transmitters or GRS operators who can buy so-called

CB equipment with the ten metre Amateur band built into it are a source of interference not only to Amateurs but to those essential services already mentioned.

While the clock is one minute to midnight (or one minute past?) in this whole sorry mess of permissiveness on the radio waves, another measure (although it may be too little, too late) would be for DOC to go the next fifty miles and restrict the sale of any equipment that is capable of transmitting on the Amateur bands to persons authorized to own Amateur stations. This your Federation proposed some years ago, before the problem became as acute as it is today. It was again proposed to DOC last October.

The DOC reply, dated Dec. 15, has given some room for optimism but time is a-wastin'. The smell of smoke and the sound of fiddle playing, to resurrect another metaphor, is somewhat evident in the DOC reply that "The Federation's views on the need for legislation to control the sale of radio transmitting equipment have been made known to our policy and regulatory group for consideration in the development of regulations under the proposed Telecommunications Act."

Great stuff -- but when ?

(*The Edmonton Journal classified the current social phenomena of unlimited GRS set sales as "an expensive parallel to the hula hoop craze"!

Radio Act -- Simplified

As every Amateur should know, the control of radio in Canada comes under the Radio Act, but like any legislation the Act and the Regulations made thereunder are difficult to follow in many parts. This article has been written by a former DOC official to simplify the main points pertinent to Amateur operations and points out some parts which are unique -- and some which are anachronistic.

To start off, 'radio' is defined in Sec 2(1) of the Act as "any transmission emission or reception of signs, signals, writing, images, sounds or intelligence

of any nature by means of electromagnetic waves of frequencies lower than 3,000 Gigacycles per second (i.e. 3,000 Gigahertz or GHz in modern terms) propagated in space without artificial guide".

The term radio therefore covers all aspects of the science relating to electromagnetic radiation from heart pacers to garage door openers and radio communications equipment from the handie-talkies to satellites and world-wide point to point circuits; it covers communications with ships and aircraft microwave circuits, radio and TV broadcasting, navigational aids for ships and

NEW **DRAKE** **SSR-1** RECEIVER



- Synthesized
- General Coverage
- Low Cost
- All Solid State
- Built-in AC Power Supply
- Selectable Sidebands
- Excellent Performance

PRELIMINARY SPECIFICATIONS:

- Coverage: 500 kHz to 30 MHz
- Frequency can be read accurately to better than 5 kHz
- Sensitivity typically .5 microvolts for 10 dB S + N/N SSB and better than 2 microvolts for 10 dB S + N/N AM
- Selectable sidebands
- Built-in power supply: 117/234 VAC \pm 20%
- If the AC power source fails the unit switches automatically to an internal battery pack which uses eight D-cells (not supplied).
- For reduced current drain on DC operation the dials do not light up unless a red pushbutton on the front panel is depressed.

The performance, versatility, size and low cost of the SSR-1 make it ideal for use as a stand-by amateur or novice-amateur receiver, short wave receiver, CB monitor receiver, or general purpose laboratory receiver.

For more information on this and other Drake products, please contact:

WSI SALES COMPANY
Barlow Wadley Short Wave Radios
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aircraft and intercommunication systems in mines.

Under Sec. 6 of the Radio Act, the Governor-in-Council can make regulations respecting the following (which are contained in the General Radio Regulations, Part I);

- the fees for radio station licences and for examinations for radio operator certificates of proficiency;

- the sale of "any machinery, apparatus or equipment liable to cause interference to radio reception";

- the qualifications of persons who may be issued licences for radio stations, and those who may be employed as operators at radio stations; and

- the censorship and control of radio signals and messages in times of national or other emergency.

It is interesting to note that while there are regulations for the control of the sale of equipment liable to cause interference to the reception of radio signals (see GRR, Part I, Secs. 17 through 21) there is no legislation controlling the sale of radio equipment.

Under Sec. 7 of the Radio Act, the Minister is authorized to do a number of things of interest to Amateurs, among which is the power to:

- classify radio stations and prescribe the technical characteristics and manner of installation of radio apparatus, frequencies and power to be used and the nature of service to be rendered (except Qions);

- prescribe the general conditions and restrictions applicable to each class of licence;

- to carry out and make effective the terms of any international agreement, convention or treaty respecting telecommunications to which Canada is a party;

- to make and enforce regulations concerning the erection, construction and repair of antenna for radio stations;

- to prescribe the classes of radio operator certificates of proficiency and to qualify persons as operators of radio stations;

- to prescribe the examinations for persons desiring to obtain radio operator certificates of proficiency;

- to effectively carry out the provisions of the Radio Act.

Of all these responsibilities, perhaps

the last is the most important, for if it is not conscientiously carried out, then all other aspects of the Radio Act come to nought.

Sec. 3 of the Radio Act says, in part, that except for certain stated provisions no person shall

- (a) establish a radio station or

- (b) install, operate or have in his possession a radio apparatus at any place in Canada or on board any (Canadian) (c) ship or vessel, (d) aircraft registered in Canada, or (e) spacecraft under (Canadian) direction or control... except under and in accordance with a licence ... issued by the Minister under this Act."

Certain exemptions to licensing are prescribed by the Minister in the General Radio Regulations Part II, Sec. 6 and pertain to specified classes of use such as RF operated type-approved garage door openers, paging systems, burglar alarms, internal mine communications, one-way auditory speech training, telemetering, etc.

Thus, unless specifically exempted, all radio stations must be licensed.

Sec. 11 of the Radio Act, which stipulates the penalties for conviction of unlicensed radio stations reads:

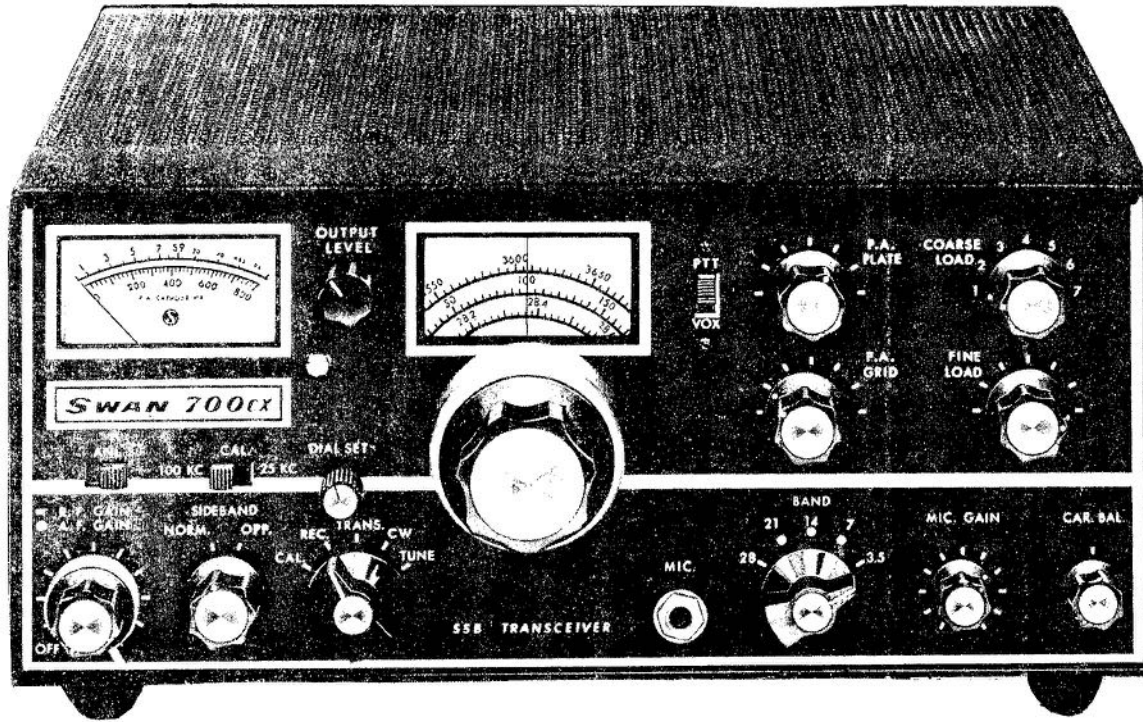
"Any person who establishes a radio station or installs, operates or has in his possession a radio apparatus in violation of this Act is liable on summary conviction to a fine not exceeding \$2500 or to imprisonment for a term not exceeding 12 months, and in the case of any conviction under this section the radio apparatus to which the offense relates may be forfeited to Her Majesty by order of the Minister for such disposal as the Minister may direct."

When trying to apply this legislation in practice, officers of the Department may in the event of an unlicensed station take initial steps to obtain and execute a search warrant and seize unlicensed radio apparatus, the accused cannot be brought before a court until the Minister of Communications, in person, has signed a 'Prosecution Order'. Only the Minister may sign such an order.

Without such an order, no further enforcement action is possible and any equipment seized must be returned. This same procedure applies in cases where a Search Warrant has been obtained and executed and the equipment seized by officers of other law enforcement agen-

700CX TRANSCEIVER

700 WATTS PEAK ENVELOPE POWER
 FULL COVERAGE 80-40-20-15-10
 RUGGED AS A 'COLLINS' RIG
 DUAL RATIO PLANETARY TUNING
 IF FILTER-2.7 Khz BW-1.7 SF
 SOLID STATE STABLE VFO
 100 Khz/25 Khz CALIBRATOR
 Pi NETWORK OUTPUT
 GRID BLOCK KEYING
 CW SIDETONE BUILT IN
 0.5 microvolt sensitivity
 AMPLIFIED ALC
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 AUTOMATIC NOISE LIMITER
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 300-3000 Khz audio bandpass
 VX-2 VOX AVAILABLE-plugs in
 PORTABLE/MOBILE @ 17.25 lbs



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cies, i.e. federal, provincial or municipal police forces.

In some instances it is possible to lay charges for a breach of the GRRs for which a Minister's Order is not required, but in the event of successful prosecution the equipment concerned cannot be forfeited because it is only for convictions under Sec. 11 of the Radio Act that forfeiture may be obtained and then only after the Minister - not the Court - has so ordered.

When requesting a Prosecution Order from the Minister, a full report outlining the circumstances which led to the obtaining and execution of the search warrant, the evidence obtained and an appreciation of its apparent effectiveness must be prepared. Before actual submission to the Minister over the signature of the Deputy Minister, it is closely scrutinized and concurred in by the Legal Branch of the Department.

These procedures are all heavily weighted in favor of the accused since the Minister's Order in no way condemns the accused; it only makes it possible to place the charges before a court of Law. Conversely, however, should the Minister decline to sign such an Order, this lack of action in effect finds the accused innocent, thus making the Minister the judge and jury.

The reason behind the need for a Minister's Order before prosecution action can start has been lost in the mists of time. It is known that the wording has not been substantially changed since the first version of what is now the Radio Act was approved and published in 1912, and that that wording was apparently lifted from legislation in effect 65 years ago in the United Kingdom. It can be surmised that the government of the day did not wish to see any over-zealous officer discourage experimentation into the art of the new and largely unknown capabilities of a new and promising form of communications. At that time, there was only a handful of radio stations in Canada, and thus there was no great problem in control of this fledgling means of communication.

Likewise, the requirement of a Forfeiture Order by the Minister leaves the severity of the punishment largely in the Minister's hands. It can also lead to delicate situations where the presiding judge or magistrate mistakenly orders

the forfeiture of the equipment and it then becomes necessary to inform him (often by the Radio Inspector responsible for the case) that such action is the prerogative of the Minister and not of the Court.

Charges, of course, may be laid for contravention of other sections of the Radio Act and various sections of the GRRs, but in the case of conviction are not as effective since the equipment involved cannot be forfeited and thus the accused is left with it to continue his illegal practices. However, often this is the only channel left, especially to other law enforcement agencies concerned with the unlawful interception and use of their communications. Such charges under Sec. 9(2) of the Radio Act do not require a Minister's Order before court action may begin.

Sec. 9(2) of the Radio Act concerns the unauthorized use or divulging of radiocommunications and reads as follows: "Except as provided in regulations made by the Minister under this Act, every person who, having become acquainted with any radiocommunication transmitted otherwise than by a broadcasting undertaking, makes use of such communication or divulges it to any person is guilty of an offense and is liable on summary conviction to a fine not exceeding \$2,500 or to imprisonment for a term not exceeding 12 months or to both."

It is under this section that charges are often laid, because of the difficulty in obtaining a Minister's Order for Prosecution, for the interception and use of police communications. It is by no means as effective as a charge under Sec. 3 of the Act for an unlicensed radio station, besides being more difficult to obtain appropriate evidence.

In order to have adequate control of radio in Canada it appears that two important amendments to current legislation are desirable, if not mandatory:

-to dispense with the need for a Minister's Order for Prosecution, so leaving the judgement of a case completely to the Courts;

-to enact legislation to control the sale of radio equipment other than that to be used exclusively for the reception of signals from a broadcasting undertaking.

(VE3ZS)

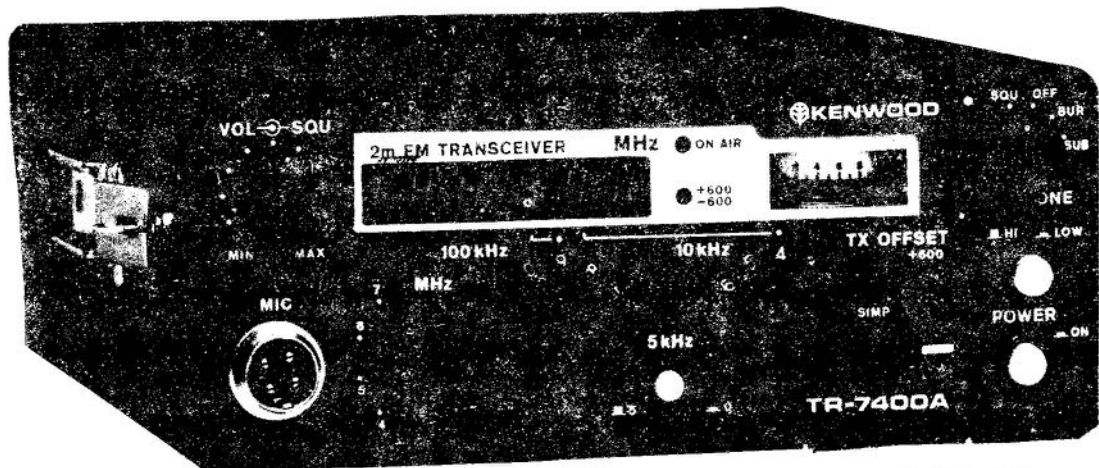
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INTRODUCTORY
PRICE**

\$499⁰⁰

ANNOUNCING AN EXCITING NEW 2-METER TRANSCEIVER FROM KENWOOD

**AVAILABLE
JAN. 1977**

\$499⁰⁰



Featuring Kenwood's New and Unique **CONTINUOUS TONE CODED SQUELCH SYSTEM** **4 MHz BAND COVERAGE** **25 WATT OUTPUT** **FULLY SYNTHESIZED**

UNIQUE SQUELCH SYSTEM

The TR-7400A may be used on your favorite repeater, no matter what type of squelch system is used. The continuous tone coded squelch (CTCS) may be used for both transmit and receive or for transmit only. Tone burst operation may also be used.

SYNTHESIZED, 800 CHANNELS

The phase-locked loop (PLL) frequency synthesizer in the TR-7400A divides the 4 MHz bandwidth into 400 channels at intervals of 10 KHz. The frequency may be offset 5 KHz higher with the push of a button, thus providing 800 discrete channels.

REPEATER OFFSET

A convenient front panel switch offsets the transmit frequency of the TR-7400A up or down 600 KHz for standard repeater operation. This offset circuit uses digital technology to provide a highly stable offset frequency without spurious response. A dual color LED

indicates the direction of offset from the displayed receive frequency.

OUTSTANDING RECEIVER PERFORMANCE

Large-sized helical resonators with high Q minimize undesirable interference from outside the 2-meter band. The large helical resonators, 2-pole 10.7 MHz monolithic crystal filter, and MOSFET front-end circuitry combine to give outstanding receiver performance.

TONE PAD CAPABILITY

A jack is provided to allow convenient connection of a tone pad to the TR-7400A.

FINAL PROTECTION CIRCUIT

The final transistor in the TR-7400A is protected from antenna impedance mismatch. Excessive reflected power reduces the amount of drive to the final transistor rather than turning off the final stage. This practical feature allows continued safe operation at a reduced power level whether the antenna system becomes opened or shorted.

From: **GLENWOOD TRADING COMPANY LTD.**

278 East 1st St., North Vancouver, B.C. V7L 7B3

WARC

Comparative Recommendations

With the DOC frequency recommendations for the Canadian position for the International Telecommunications Union frequency allocation conference (the 1979 World Administrative Radio Conference, WARC '79) due this spring, it may be interesting to look at the recommendations made to date by your Federation, the ARRL's Canadian division and the US Federal Communications Commission.

The DOC proposals will be published here when they are made public.

BAND M or Cm	PRESENT ALLOCATION	CARF	ARRL CDN DIV	UNOFFICIAL FCC
30,000 M	--	0-10 kHz shared	0-10 kHz shared	--
1,500 M	--	10 kHz exclusive between 160-200 kHz	10 kHz exclusive between 160-200 kHz	160-190 kHz delete fixed
160 M	1800-2000 kHz shared	1800-2000 kHz exclusive when LORAN "A" phased out	1800-2000 kHz exclusive	1750-1800 kHz Amateur primary shared 1800-1900 kHz exclusive 1900-2000 kHz delete Amateur
80 M	3500-4000 kHz exclusive Canada -otherwise shared	3500-4000 kHz exclusive world- wide	3500-4000 kHz shared	3500-3900 kHz Amateur exclusive 3900-4000 kHz shared
40 M	7000-7100 kHz exclusive w.w. 7100-7300 kHz exclusive Reg. 2, unavailable Reg. 1 and 3	7000-7325 kHz exclusive Reg. 2, shared Reg. 1 & 3 - strong protest broadcast	6800-7300 kHz 7100-7300 kHz unavailable Reg. 1 and 3	6950-7100 kHz Amateur and Amateur Satellite exclusive 7100-7300 kHz exclusive Reg. 2
29 M	--	10100-10400 kHz exclusive world- wide	10100-10600 kHz exclusive world- wide	--
20 M	14000-14350 kHz exclusive world- wide	14000-14500 kHz exclusive world- wide	14000-14500 kHz exclusive world- wide	13950-14400 kHz exclusive world- wide
16 M	--	18100-18500 kHz exclusive world- wide	18100-18600 kHz exclusive world- wide	--
15 M	21000-21450 kHz exclusive world- wide	21000-21450 kHz exclusive world- wide	21000-21500 kHz exclusive world- wide	20700-21000 kHz Amateur and Amateur Satellite exclusive 21000-21200 kHz Amateur
12 M	--	--	24000-24500 kHz exclusive world- wide	--
10 M	28000-29700 kHz exclusive world- wide	28000-29700 kHz exclusive world- wide	28000-29700 kHz exclusive world- wide	28000-29700 kHz exclusive world- wide
6 M	50-54 MHz shared Reg. 2 & 3, unavailable Reg. 1	50-54 MHz shared Reg. 2 & 3	50-54 MHz exclusive world- wide	50-54 MHz shared Reg. 2 & 3,
2 M	144-146 MHz exclusive world- wide 146-148 MHz exclusive Reg. 2 and 3, unavailable Reg. 1	144-148 MHz exclusive world- wide	144-148 MHz exclusive world- wide	144-146 MHz exclusive world-wide 146-148 MHz exclusive Reg. 2 and 3, unavailable Reg. 1



\$775⁰⁰

144 MHz ALL-MODE TRANSCEIVER

TS-700A

FEATURES:

- SSB (upper & lower), FM, AM, CW
- Completely Solid State
- AC/DC Built-In Power Supply
- 4 MHz Band coverage 144-148MHz
- Repeater 600 KHZ Split
- Zero Centre Discriminator Meter
- TX/RX Capability on 22 Channels with 11 Crystals
- Complete with Microphone and Built-In Speaker

Specifications of TS-700A

Frequency range	144MHz-148MHz
Mode	SSB(A), FM(F), CW(A), AM(A)
RF power output	SSB...more than 20 watts DC input FM & CW...more than 10 watts output AM...more than 3 watts output
RF output impedance	50 ohms (unbalanced)
Carrier suppression	Better than 40 dB
Sidelobe suppression	Better than 40 dB
Spurious radiation	Less than -60 dB
Maximum frequency deviation (FM)	±2.5kHz
Repeater frequency shift width	600kHz
Time burst time	0.5 - 10 sec
Modulation	SSB-balanced modulation FM-variable reactance frequency shift AM-low power modulation
Microphone type	500 ohm dynamic microphone
M response of transmitter	400Hz-2.6kHz (-9dB)
H frequencies	SSB (CW & AM) - 10.7MHz FM - 1st IF - 10.7MHz, 2nd IF - 455kHz
Receiver sensitivity	SSB & CW - 0.25µV input for 10dB S/N FM - 3µV input for 40dB S/N AM - 1µV input for 40dB S/N Less than 0.4µV
20dB noise spacing	Better than 60 dB
Image rejection	Better than 60 dB
H rejection bandwidth	SSB (CW & AM) More than 2.4kHz (at -6dB) FM More than 12kHz (at -6dB)
Selectivity	SSB (CW & AM) Less than 4.8kHz (at -60dB) FM Less than 24kHz (at -50dB)
Receiver M output	More than 2 watts (at 10% distortion, 8 ohm load)
Receiver M output impedance	8 ohms
Frequency stability	Within ±2kHz during one hour after one minute of warm-up and within 150Hz during any 30 minutes thereafter
Squelch sensitivity	0.25µV
Power consumption	Transmitting: Maximum 95 watts (20-220V AC) 4 amperes (14.8V DC) Receiving (100 signal): 45W (20-220V AC) 0.8 amperes (DC 14.8V)
Power requirements	120-220V AC (50-60Hz), 12-16V DC (Standard DC voltage - 13.8V DC)
No. of semiconductors used	Transistors - 6 (3 JFETs, 1 FET) - 3 diodes - 100
Dimensions	Width 278mm (10.9 in.) Height 124mm (4.9 in.) Depth 120mm (4.7 in.)
Weight	11kg (24 lbs)
Equipment provided	500 ohm dynamic microphone (1.2 ampere and 3 ampere types) one each, extension speaker plug (1), auxiliary feet (2), pin type plugs (2), AC cord (1), DC cable (1)

First With The Finest!

CANADA'S LARGEST SELECTION OF AMATEUR RADIO EQUIPMENT

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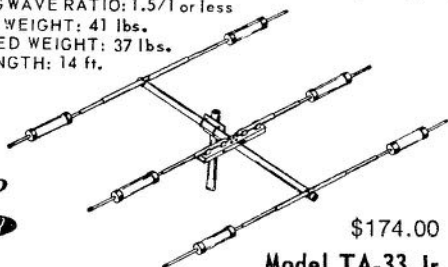
BAND M or cm	PRESENT ALLOCATION	CARF	ARRL CDN DIV	UNOFFICIAL FCC
1 $\frac{1}{4}$ M	220-225 MHz exclusive Canada, otherwise shared	220-223 MHz shared 223-225 MHz excl. world-wide	220-225 MHz excl. world-wide	220-225 MHz Amateur and Amateur Satellite
70 cm	420-450 MHz shared world-wide	420-430 MHz shared 430-440 MHz excl. 440-450 MHz shared	420-450 MHz excl. world-wide	420-450 MHz shared add 435-438 MHz Amateur Satellite shared - secondary
33 cm	--	--	902-928 MHz shared	902-928 MHz shared
27 cm	1215-1300 MHz shared world- wide	1215-1275 MHz shared 1275-1290 MHz exclusive world- wide 1290-1300 MHz Amateur Satellite exclusive world- wide	1215-1300 MHz shared world- wide	1215-1290 MHz shared world- wide 1290-1300 MHz Amateur Satellite shared-secondary
13 cm	2300-2450 MHz shared world- wide	2300-2310 MHz exclusive world- wide 2310-2450 MHz shared	2300-2450 MHz shared world- wide	2300-2310 MHz shared 2310-2320 MHz Amateur Satellite shared-secondary 2320-2450 MHz shared
9 cm	3300-3500 MHz shared world- wide	3300-3500 MHz with one 10 MHz exclusive world- wide slot-other wise shared	3300-3500 MHz shared world- wide	3300-3400 MHz shared 3400-3410 MHz Amateur Satellite shared 3410-3500 MHz shared
5 cm	5650-5925 MHz shared world- wide	5650-5925 MHz shared with one 20 MHz slot excl. world-wide	5650-5925 MHz shared world- wide	5650-5670 MHz Amateur Satellite shared-secondary 5670-5925 Mhz shared
3 cm	10.0-10.5 GHz shared world- wide	10.0-10.5 GHz shared with one 25 MHz slot excl. world-wide	10.0-10.5 GHz shared world- wide	10.0-10.5 GHz shared world-wide
1.24 cm	24.0-24.05 GHz exclusive world- wide 24.05-24.25 GHz shared	24.0-24.05 GHz exclusive world- wide 24.05 - 24.25 GHz shared	24.0-24.25 GHz shared	24.0-24.05 GHz exclusive world- wide 24.05-24.25 GHz shared
6 mm	--	48-50 GHz shared	48-50 GHz	--
4 mm	--	71-76 GHz shared	71-76 GHz	71-76 GHz Amateur & Amateur Satellite shared-secondary
1.8 mm	--	165-170 GHz shared	165-170 GHz	165-170 GHz Amateur and Amateur Satellite shared-secondary
1.25 mm	--	240-250 GHz shared	240-250 GHz	--
1 mm down	--	300 GHz and up shared	300 GHz and up	--

MOSLEY ANTENNAS

Model TA-33 for 10, 15, and 20 meters \$238

The Mosley TA-33 three element beam provides outstanding 10, 15, and 20 meter performance. Exceptionally broadband - gives excellent results over full Ham bandwidth. Exclusive Mosley trap design offers resonant frequency stability under all weather conditions. Element center sections are of double thickness aluminum to reduce sag. Boom requires no bracing. Heavy duty universal mounting plate fits masts up to 1 1/2 inch O.D. Antenna handles full KW AM/CW or 2 KW P.E.P. SSB input. Feed with one coax line, RG-8/U recommended. The TA-33 may also be used on 40 meters with TA-40 KR conversion. Complete with Hdw.

FORWARD GAIN: Up to 8 db. TURNING RADIUS: 15.5 ft.
 FRONT-TO-BACK: 20 db. or better WIND LOAD: 114 pounds.
 MAX. ELEMENT LENGTH: 28 ft. WIND SURFACE: 5.7sq. ft.
 STANDING WAVE RATIO: 1.5/1 or less
 SHIPPING WEIGHT: 41 lbs.
 ASSEMBLED WEIGHT: 37 lbs.
 BOOM LENGTH: 14 ft.



\$174.00

Model TA-33 Jr.

Mosley TA-33 Jr. has quality and performance found in the TA-33. Rated to 300 watts AM and CW, - 1000 watts P.E.P. on SSB. Complete with Hdw. The Junior may be converted to MP-33 with higher power rating with MPK-3 Kit. Shipping weight 28 lbs. Assembled weight 20 lbs.

The Classic 33 10, 15, and 20 meters

Beam designed to provide the extra gain for working hard-to-reach DX. Incorporates exclusive Mosley "Weather-Proved" traps with resonant frequency stability. Features new boom to element clamping and balanced radiation. Hardware is stainless steel. Feed with 52 ohm RG-8/U coax. Fits up to two inch mast. Use with most heavy-duty rotors. 1 KW AM/CW or 2 KW P.E.P. SSB input.

FORWARD GAIN: Full 8 db. compared to reference dipole or 10.1 db. over isotropic source.

FRONT-TO-BACK: 20 db. or better on 15 and 20; 15 db. on 10 meters.

STANDING WAVE RATIO: 1.5/1 or better.

MAXIMUM ELEMENT LENGTH: 27 ft.

ASSEMBLED WEIGHT: 42 lbs.

BOOM LENGTH: 18 ft.

SHIPPING WEIGHT: 47 lbs.

TURNING RADIUS: 16 ft.

WIND LOAD (80 MPH

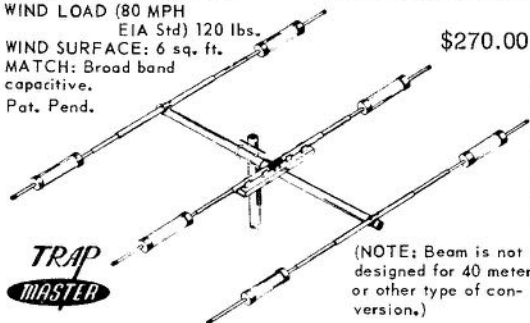
EIA Std) 120 lbs.

WIND SURFACE: 6 sq. ft.

MATCH: Broad band

capacitive.

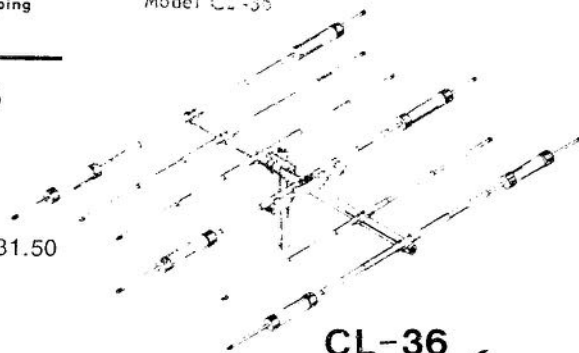
Pat. Pend.



\$270.00

(NOTE: Beam is not designed for 40 meter or other type of conversion.)

CLASSIC-36...10, 15 & 20 Meters Model CL-36



CL-36 / \$360

Mosley 2 Metre Antennas

D12 Diplomat 5/8 ground plane \$35.50

BASE ANTENNA

MY-144-9 E1. 14dB 2KW Yagi \$49.50

MY-144-5 E1 10dB 2KW Yagi \$39.50

MM-144 5/8 mobile C/W spring and base \$31.50

HF Vertical Antennas

RV-4C 40 - 10 mtr, 2 KW \$77.25

RV-8C 80 mtr conversion \$45.25

80 - 10 Mobile antenna available

Hy-Gain 18ABT/WB 10-80 MTR \$138.95

PL-259 connectors for coax 2 for \$1.75

Doz. \$9.00

Coax Lightning Arrestors \$ 5.50

R.S.O. Low Pass Filters \$31.50

6 digit LED clock kit 12/24 hr.

Kit includes .4 in. readouts

1-MM5314 clock chip, 13 transistors

diodes, resistors, molax pins,

power supply, etc. and case

\$31.50 postpaid

KENWOOD TRANSCEIVERS

TS520 80-10 meter SSB CW

110/220 AC or 12 VDC

power required **799.**

TR-7200G 22CH Mobile 2 meter

with 52/52 installed **230.**

All orders over \$350.00 shipped prepaid in Canada except VE8 land and Labrador

Prices subject to change

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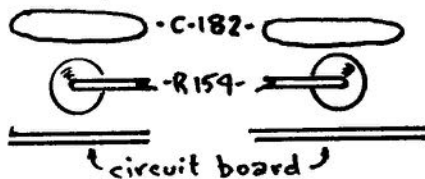
VE3BPM

Improving the Heathkit HW-202

I have had the Heath HW-202 for about three years now and I am very pleased with it. However, I am disappointed with the methods suggested to net the receiver frequency. The three methods suggested in the Instruction manual (page 87) are all compromises due to the fact that there is no means to meter the quadrature detector.

Method 1, using a frequency counter to place the 45 MHz crystal on frequency, does not take into account the fact that the 10.245 MHz crystal may be off frequency. Method 2, using the facilities of a commercial two-way radio shop, has the same disadvantage as method 1 plus the fact that most Amateurs do not have access to this type of equipment. Method 3, adjusting L-101 for least audio distortion, is a last-ditch method at best.

By simply changing the physical position of just one resistor (R-159) in the receiver, the output of the quadrature detector (IC-102) can be metered like a normal FM discriminator. Remove R-159 from the receiver PC board and turn it around 180 degrees so that the resistor body is on the right (when the PC board is viewed component side up from the back - see the board layout on page 128 of the Instruction manual) and re-solder in place. This now allows a test connection to be made to the other (previously hidden) end of R-159. (See fig. 1 below).



After the change has been made, the output of IC-102 (pins 1 and 2) can now be metered by connecting the meter leads to the tops of resistors R-159 and R-157. The output of the quadrature detector (ACROSS pins 1 and 2, NOT TO GROUND) will be zero volts when an incoming signal is on frequency. Correct receiver alignment procedure, after R-159 has been changed, is as follows:

1. Connect the leads of a VOM* or VTVM to the tops of resistors R-159 and

by Hugh Lines VE3DWL

R-157 (see the board layout on pg. 128 of the instruction manual).

2. Inject an accurate 455 kHz signal into pin 2 of T-104, and adjust T-105 for a meter reading of zero.

3. Inject a signal at the operating frequency into the antenna connector and adjust the appropriate oscillator coil (L-101 to L-106) for a meter reading of zero.

This method is just as easy as any of the others, does not require a frequency counter or other fancy test equipment, and is much more accurate. It adjusts the quadrature detector as well as the receiver oscillators. I will be glad to answer any questions on this mod either on the air or on the landline.

(* for best results, 20,000 ohms per volt meter is recommended...Ed.)

BANNED COUNTRIES LIST

Iraq, Khmer Republic**, Libya, Pakistan, Somalia, Turkey, Viet-Nam*, Peoples Democratic Republic of Yemen.

*-Stations XV5AA, XV5AB and XV5AC were authorized to exchange communications with Amateurs of other countries by the former Saigon regime.

**-Station XU1AA has been authorized to exchange communications with Amateurs of other countries.

THIRD PARTY TRAFFIC AGREEMENTS
Bolivia, Chile, Costa Rica, Dominican Republic, Guyana, Honduras, El Salvador, Israel, Nicaragua, Peru, Trinidad, Tobago, U.S.A. (Territories and Possessions) and Venezuela, Guatemala and Uruguay.

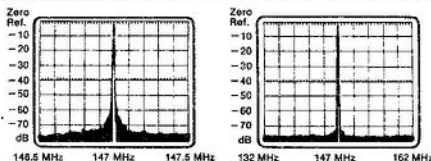
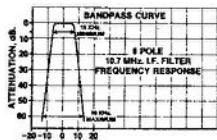
RECIPROCAL LICENCING AGREEMENTS
Belgium, Brazil, Dominica, Dominican Republic, France, Ecuador, Federal Republic of Germany, Guatemala, Israel, Peru, Luxembourg, Netherlands, Norway, Nicaragua, Poland, Portugal, Republic of Panama, Senegal, Sweden, Switzerland, U.S.A., Uruguay, Venezuela, Denmark, Iceland and Finland.

Note: All Commonwealth countries are eligible for reciprocal operating privileges to Canadian Amateurs.

The one you've been waiting for!



Shown with optional Micoder™



Actual spectrum analyzer photos of the HW-2036 transmitter output operating at 147 MHz.

An 8-pole IF crystal filter greatly reduces adjacent channel interference.

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