ICO-0863 5

POPULAR COMMUNICATIONS

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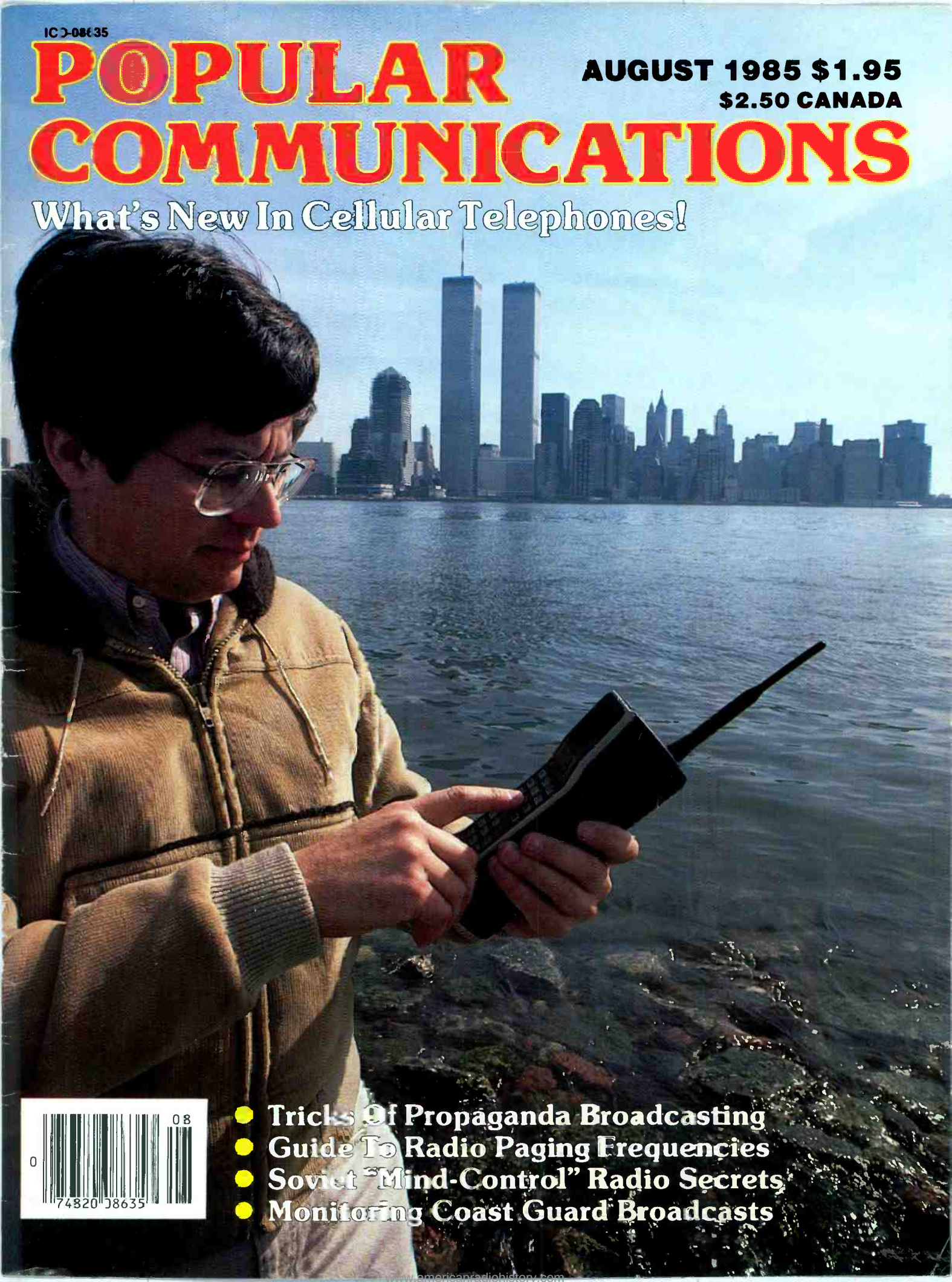
$2.50 CANADA

What's New In Cellular Telephones!



- Tricks Of Propaganda Broadcasting
- Guide To Radio Paging Frequencies
- Soviet "Mind-Control" Radio Secrets
- Monitoring Coast Guard Broadcasts

KENWOOD

...pacesetter in amateur radio

Scan the World.

R-2000

Kenwood's R-2000 receiver has opened the doors to a new world in the 150-kHz to 30-MHz HF bands, with microprocessor controlled operating features and an UP conversion PLL circuit for maximum flexibility and to enhance the excitement of listening to stations from east to west, and from pole to pole. An optional VC-10 VHF converter, for 118 to 174-MHz, allows access to police, aviation, marine, commercial, and two meter Amateur frequencies. With dual digital VFO's, ten memories that store frequency, band and mode information, memory scan, programmable band scan, fluorescent tube digital display, and dual 24-hour clock with timer, this outstanding radio has the versatility needed to reach out and catch those distant and elusive stations in the most remote areas of the world.

The R-2000 receives in the USB, LSB, CW, AM, and FM modes, and its ten memories allow moving from band to band without concern for mode of operation. The programmable band scan feature permits scanning over operator selected limits, reducing scan cycle time. Memory scan allows the operator to scan all, or only specific memories. Lithium battery memory backup (Estimated 5 year life) is built-in.

With the sensitive R-2000, only the best in selectivity will do. It has three built-in IF filters, with NARROW/WIDE selector switch, and an optional 500-Hz narrow CW filter is available. A noise blanker, and an all-mode squelch circuit further enhance the operators control of his listening environment. An AGC switch, and an RF attenuator switch allow selection of the best signal-to-noise ratio. It has a large, front mounted speaker, a tone control, an "S" meter, high and low impedance antenna terminals, and operates on 100/120/220/240 VAC, or on 13.8 VDC, with an optional DCK-1 DC cable kit. Other features include a record output jack, an audible "beeper," a carrying handle, a headphone jack, and an external speaker jack.

The R-2000 places the world at your finger tips.

R-2000 optional accessories: VC-10 VHF converter • HS-4, HS-5, and HS-6 headphones • DCK-1 DC cable kit • YG-455C 500-Hz CW filter.

CIRCLE 71 ON READER SERVICE CARD

R-1000 High performance receiver • 200 kHz – 30 MHz • digital display/clock/timer • 3 IF filters • PLL UP conversion • noise blanker • RF step attenuator • 120-240 VAC (Optional 13.8 VDC).

R-600 General coverage receiver • 150 kHz – 30 MHz • digital display • 2 IF filters • PLL UP conversion • noise blanker • RF attenuator • front speaker • 100-240 VAC (Optional 13.8 VDC).

More information on these products is available from authorized dealers of Trio-Kenwood Communications, 1111 West Walnut Street, Compton, California 90220.

Specifications and prices are subject to change without notice or obligation.

From Test to Toys

Plastic MMIC gain blocks. Avantek 4-Pac amplifiers. $1.80 each*.

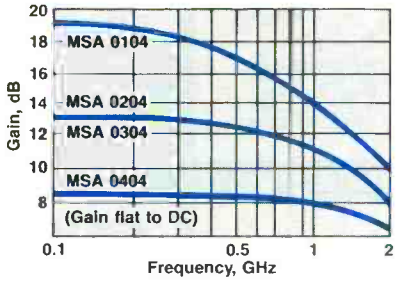
Avantek's series of MODAMP™ silicon monolithic microwave integrated circuit amplifiers are ready to drop into your 50-ohm circuit, with no design problems — virtually no concern for what comes before or after. These MMICs are unconditionally stable and provide cascadable gain blocks at any frequency up to 2 GHz.

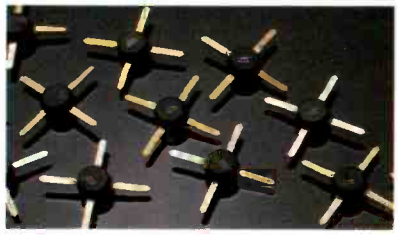
4-Pacs are small (140 mil) plastic packages suitable for PC board or stripline applications in products ranging from instrumentation to toys, from fiber optic systems to mobile communications. They're simple to use and readily available.

Available in volume.

Avantek 4-Pac MODAMP MMICs are available today from your nearest distributor. Prices start at $2.75 and go to $1.80 in 10,000 piece quantities. Don't forget — because of their very wide operating range, the same amplifier can work from DC through video all the way up to 2 GHz. And you can stack them like building blocks to add whatever gain you need. Avantek innovation — designed to make your design job easier.

Gain vs. Frequency





*price in 10,000 piece quantities.

Avantek MODAMP MMICs are the most universal low-cost RF amplifiers available. Try some today. Contact your nearest Avantek distributor or call us for complete details.

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Spirit Electronics
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Call 800-USA-SCAN or outside U.S.A. 313-973-8888

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Bearcat® 260-H

8-Band, 16 Channel, Mobile scanner

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SAVE $25.00
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10-Band, 20 Channel, AC/DC scanner

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Now only $424.00 plus $7.00 shipping.

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COUPON COUPON COUPON

SAVE $20.00
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Regular Price $199.00

Now only $179.00 plus $7.00 shipping.

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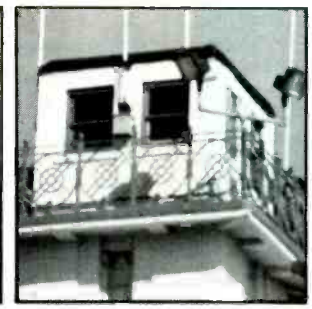
POPULAR COMMUNICATIONS

JULY 1985 **VOL. 3, NO.11**


20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60

FEATURES

This month's cover: *Cellular mobile telephones travel the world, as shown by Luis Velez. Photo by Larry Mulvehill, WP2ZPI.*

DEPARTMENTS

BEAMING IN

BY TOM KNEITEL, K2AES

AN EDITORIAL

A Voice To Be Heard

An interesting situation is brewing in the halls of the Voice of America. Basically, and in a nutshell, there is strong sentiment being expressed by insiders that, in addition to beaming its message around the world, the VOA should also commence broadcasts to the United States itself!

If such a policy were to be instituted, it would establish (for the first time) a federal broadcasting network for the purpose of bringing regularly scheduled government editorials and newscasts to Americans.

One possible problem with this concept is that the USIA, which runs the VOA, is specifically denied the authority to propagate information within the United States. This prohibition not only covers the VOA, but also USIA magazines, TV programs, and films. These materials are freely sent out around the world (even to Eastern Europe and the USSR), but not a snippet has been directed to the folks at home. The fact is the VOA has, in the past, so scrupulously followed this policy that it has reacted negatively to reception reports sent to the VOA by American listeners, going so far as to refuse to send QSL cards to the taxpayers who support the station.

The admonition against the USIA disseminating information directly to Americans was chiseled into granite in the Smith-Mundt Act (1948), which Congress enacted in order to create the USIA. Recall that in 1948 the world was still reeling from the recent memory of Josef Goebbels and his Nazi propaganda ministry. The Smith-Mundt Act took great care to avoid any possibility that something like that could ever happen here at some point in the future.

It is worth noting, of course, that the USIA rankles at the word "propaganda" when it is applied to its activities. Despite the fact that the dictionary does not ascribe a negative connotation to this word, it is a definite no-no with USIA staffers. They prefer to describe the USIA as a voice of truth, as opposed to a propaganda agency. I have never fully appreciated this odd game of semantics since propaganda does not necessarily have to consist of lies, and (as a matter of fact) the VOA has been known to fudge the truth from time to time.

Of course, despite the fact that VOA programs are beamed away from American ears, the shortwave bands are nevertheless filled with VOA signals that can be easily monitored by Americans. I mention this because it is one of the reasons expressed in order to support local VOA broadcasts. Edwin J. Feulner, Jr., who is the Chairman of the U.S. Advisory Commission on Public

(Continued on page 70)

A VOA QSL letter from the "early days."

ADDRESS OFFICIAL COMMUNICATIONS TO THE SECRETARY OF STATE WASHINGTON 25, D. C.

DEPARTMENT OF STATE
WASHINGTON

November 18, 1947

Dear Mr. Kneitel:

This letter will verify your report of reception of the Department's transmitter, Manila one, at 1100 on September 2, 1947.

This transmitter is now on a regular schedule relaying programs of the VOUSA and is beamed on Asia. The present schedule of operation on 11840 KCs is from 0930 to 1505 GMT.

We would appreciate any further reports you may have concerning reception of this transmitter.

Very truly yours,

W. P. Harmon

William Harmon, Radio Engineer
Facilities Planning Branch
International Broadcasting Division

CLASSIC TUBE LAMP COLLECTION

#357A: World War II era
W.E. Transmitting Triode.
Lamp is 19" high.

#5J29 Type: World War II Radar Tube
classified as 'secret'.
Lamp is 17" high.

#808: Circa 1934 Transmitting Triode
Lamp is 17" high.

A unique, limited edition, of strikingly beautiful desk and table lamps, crafted from rare, old, genuine radio transmitting tubes.

In the pioneer broadcasting days of the 1920's and 1930's, these tubes powered the commercial and amateur radio transmitters that linked the nation and the world. Today, these same tubes are considered by many to be some of the most beautiful industrial artifacts ever created.

For many years, the A.B.C. Guild has collected whatever quantities of these old tubes that were available. Each is carefully inspected, cleaned, and painstakingly surface-restored. The bases are constructed of solid acrylic and polished to a jewel-like clear lustre which compliment the clean, sweeping lines of the glass tube. The final result is a functional lamp of great beauty as well as a valuable genuine collectible from a long-gone age.

The Classic Tube Lamp in your home or office becomes an attractive heirloom with inherent investment potential. The "high-tech" design of both the tube and the attractive acrylic base is in keeping with today's design trends and makes the lamp a unique, decorative focal point of any room.

For the hobbyist, ham, computer enthusiast, or anyone with ties to the electronic industry, these lamps have an extra meaning and importance. For the homeowner or decorator who seeks accessories of classical beauty, they make a one-of-a-kind impact wherever they are used and must be seen to be truly appreciated.

The available quantity of each of the lamp styles is extremely limited. Each lamp is numbered as one of a limited edition series and comes with individual certification papers that summarize the history, manufacturer, and establish authenticity of the tube in your lamp.

A MAGNIFICENT FUNCTIONAL ACCESSORY ANYWHERE!

- In the home,
- Reception office, conference room, private office,
- Recreation room,
- Workshop, den, hobby room.

This is the ideal, unusual gift, award, or retirement presentation.

GUARANTEE
If not completely satisfied-
your money refunded in full!

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I would like to order the following Classic Tube Lamps(s):

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_____#808 lamp for $54.00 each
_____#5J29 lamp for $33.00 each
Shipping and handling $3.50
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R-600

- Digital Display
- AM - SSB - CW
- 150 kHz - 30 MHz
- Noise Blanker

Save $120

Sale $279.95 + $7 UPS

Free Extended 6 Month Warranty!

R-1000

All R600 features, plus . . .

- High Accuracy Dial
- Higher Stability
- Clock & Relay for Recorder Control

Save $140

Sale $359.95 + $7 UPS

Free Extended 6 Month Warranty!

R-2000

All R1000 features, plus . . .

- 10 Channel Memory
- 24 Hour Clock Timer
- Memory Scan and Back Up
- Programmable Band Scan
- Optional VC-10 VHF Converter $134.95

Save $160

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Free Extended 6 Month Warranty!

This is a Limited Time Offer. Hurry, You May Never See Prices This Low Again!

ICOM IC-R71A

WORLD CLASS RECEIVER

ICOM introduces the **IC-R71A** 100KHz-30MHz superior-grade general coverage receiver with innovative features including keyboard frequency entry and wireless remote control (optional).

This easy-to-use and versatile receiver is ideal for anyone wanting to listen in to world-wide communications. Demanding no previous shortwave receiver experience, the **IC-R71A** will accommodate an SWL (shortwave listener), Ham (amateur radio operator), maritime operator or commercial operator.

With 32 programmable memory channels, SSB/AM/RTTY/CW/FM (optional), dual VFO's, scanning, selectable AGC and noise blanker, the **IC-R71A's** versatility is unmatched by any other commercial grade unit in its price range.

Utilizing ICOM's DFM (Direct Feed Mixer), the **IC-R71A** is virtually immune to interference from strong adjacent signals, and has a 100dB dynamic range.

ICOM introduces a unique feature to shortwave receivers . . . direct keyboard entry for simplified operation. Precise frequencies can be selected by pushing the digit keys in sequence of frequency. The frequency will be automatically entered without changing the main tuning control. Memory channels may be called up by pressing the VFO/M (memory) switch, then keying in the memory channel number from 1 to 32.

Thirty-two tunable memories offer instant recall of your favorite frequency. Each memory stores frequency, operating mode, and a backup battery maintains the memories for up to five years.

Specifications.

• **Frequency Coverage:** 0.1 MHz-30.0 MHz • **Frequency Control:** CPU based 10 Hz step Digital PLL synthesizer with dual VFO system. Direct frequency entry through keyboard or RC-11 remote unit. • **Memories:** 32 tunable memories store frequency and mode. • **Scanning:** Memory and band scan with auto-stop. • **Frequency Readout:** 6 digit 100 Hz fluorescent readout.

ICOM R71A OPTIONS

CK-70	12 Volt DC Kit	**$9.95**
CR-64	High Stability Osc.	**$56.00**
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FL-32	CW filter, 500Hz 9MHz	**$59.50**
FL-44	2.4KHz 455KHz SSB Crystal Filter	**$159.00**
FL63	CW filter 250Hz 9MHz	**$48.50**
RC-11	Remote Control	**$59.95**

INSTALLATION . . . options can be installed by a skilled user/owner. ***EEB*** will do it for you!

• 1-3 options.....**$35** • 4 and up.....**$45**

ICOM IC-R71A with full factory warranty but without ***EEB's*** extra service/no installed options

SALE $649

EEB—EXCLUSIVE OPTIONS.

• **24 hour bench test,** realignment for optimum performance and 90 day extended warranty (prerequisite for any other installed option).....**$40**

• **Mechanical 2.4KHz filter**—replaces stock ceramic filter—improves SSB, ECSS, AM narrow selectivity.....**$95**

• **Front end upgrade**—Improves dynamic range (plus), pre-amp enable below 1600KHz.....**$35**

• **4KHz filter** replaces stock 6KHz wide filter. Improves AM selectivity.....**$50**

SONY ICF-2010

- 150 kHz to 30 MHz AM,CW,SSB
- 76 MHz to 108 MHz FM
- 116 MHz to 136 MHz AM Air Band
- 32 Programmable Memories
- 4 Event Timer
- Synchronous Detector
- Wide/Narrow Bandwidth

"This is one of the finest receivers available today under $500"

List $349.95 EEB Sale $289.95 + $6 UPS

Plus Free Set of DURACELL Batteries (2 AA, 3 D)

SONY ICF 2002

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- Memories
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- Scan
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- Sale $219.95

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SONY ICF 4910

- Ultra small pocket size
- AM, FM, 7 SW most popular bands—13, 16, 19, 25, 31, 41, 49 meters
- Safety lock
- Batteries (2) AA
- Optional AC power
- Sale $99.95

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DXer's Dream

Full page in 1985 WRTV inside front cover for details

- Covers all International & Tropical Bands
- S Meter, Safety Off Lock

SAVE $60.00 SPECIAL SALE $69.95

A special EEB purchase makes this price possible

Hurry, limited quantity at this price

Optional AC wall adapter $11.95 add $4.00 UPS

NEW! Sony ICF 2010 $289.95

Sony ICF 2002	$219.95
Sony ICF 4910	$99.95
Panasonic B300	$199.95
Panasonic B600	$429.95
Panasonic RF9	$79.95
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- Languages and Target Areas
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- No SWL'er should be without one

Special $19.50 postpaid U.S.

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SWL-TEXT is the software and CP-1 is the interface that when combined with your Commodore C64™ and communications receiver, will give you everything you could ask for in a CW/RTTY intercept station!

- Automatically determines RTTY speed and indicates if ASCII or Baudot
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Uninterrupted Frequency Coverage
100 kHz to 1400 MHz
with Optional Converters

- A professionally created scanner for the serious listener
- Wide frequency coverage 26 to 520 MHz (with optional converters 100 kHz to 1400 MHz)
- Continuous coverage. You'll hear everything.
- Birdie-Free, no internal 'signals' to interfere with scanning
- 20 Channel memory, AM-FM Mode memory, Priority memory
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- Four low-noise front end converters for optimum performance
- 12 Volt DC operation (120 Volt AC power supply optional)
- Check JIL's ad in this issue for further details

Sale Price $549.95 List $739.90
P-1A Power Supply $34.95
Optional converters in stock call

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$499.95 + $8 UPS

YAESU FRG-8800

THE ALL NEW
8800 IS HERE.
IT'S FANTASTIC
$539.95
Introductory Price

The FRG-7700 was a great receiver. Now the new generation FRG8800 takes you a step forward.

- CAT computer compatible
- All mode AM - SSB - CW - FM
- 12 memories - scan- RIT
- Green LCD display
- Keyboard frequency entry
- 150 kHz to 30 MHz
- Dual 24 hour clock timer recorder control
- Optional FRV8800 VHF converter 118-174 MHz $99

EEB Exclusive Options

1. 24 hour bench test and complete realignment for optimum performance including double-extended warranty $40
2. 4 kHz ceramic filter replaces 6 kHz AM Wide ceramic filter Installed $50
3. 2.4 kHz mechanical filter replaces SSB ceramic filter Installed $95

SHARP CLOSEOUT SPECIAL

FV-610 $119.95 + $4.00 UPS

- Digital read-out
- Clock
- AM, FM - 13,16,19,25,31,41,49 meter bands and longwave 150-285 kHz

FV-310 Same basic radio without digital readout **$79.95** + $4.00 UPS

New YAESU FRG9600

A premium VHF/UHF scanning communications receiver.

The 9600 is no typical scanner. And it's easy to see why.

You won't miss any local action with continuous coverage from 60 to 905 MHz.

You have more operating modes to listen in on: upper or lower sideband, CW, AM wide or narrow, and FM wide or narrow.

You can even watch television programs by plugging in a video monitor into the optional video output.

Scan in steps of 5, 10, 12½, 25 and 100 KHz. Store any frequency and related operating mode into any of the 99 memories. Scan the memories. Or in between them. Or simply "dial up" any frequency with the frequency entry pad.

Plus there's much more, including a 24-hour clock, multiplexed output, LCD readout, signal strength graph, and an AC power adapter.

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MAILBAG LETTERS TO THE EDITOR

The most interesting questions we receive will be answered here in each issue. Address your questions to: Tom Kneitel, Editor, Popular Communications magazine, 76 North Broadway, Hicksville, NY 11801.

We Like This Guy!

The covers don't bother me, and I have enjoyed every single issue of *POP'COMM* since the first one you published. I don't see how you put so much interesting information into each issue. This isn't to say that I have no concerns about *POP'COMM*. My main concern (and I'm quite serious) is that you're going to run out of material and those of us who are "hooked" on the magazine won't get our regular monthly "fix."

M. H. Coles
St. Louis, MO

You can rest assured that reader response to the magazine has been so enthusiastic that we have a continuing influx of material available to present. In fact, we could easily fill two issues a month without any difficulty at all. Your concern is appreciated! — Editor

A Shifty Idea

I've heard rumors about the VHF aero emergency frequency being changed. Are these rumors true? If so, what will they replace 121.5 MHz with?

Skip Bradford
Anniston, AL

NASA and the NOAA would like to replace the current generation of Emergency Locator Transmitters (ELT's) with all devices oriented towards satellite operation, according to the Aircraft Owners and Pilots Association (AOPA). The proposed new ELT's would operate on 406.0 MHz instead of 121.5 MHz and offer an identification code unique to each ELT and will do away with most of the false alarms. These would also be more accurate, or so says those who would like to see the new idea put into practice. The AOPA, speaking on behalf of the majority of the nation's private pilots, does not support this proposal and does not view it as a substantial improvement over the existing ELT system. Any possible shift in ELT frequencies would be a long way off and, nevertheless, would probably not change the emergency-use status of 121.5 or 243.0 MHz. — Editor

Not Tube Bad For A Start

I recently purchased (at a flea market) a Western Electric type WE 300A vacuum tube. It is in its original box and appears to be in mint condition. I paid $5 for this tube and now that I've got it, I'm wondering if it serves any practical purpose.

George Yem
Los Angeles, CA

It's an antique radio tube and the best thing it can do for you is turn a profit. There's a thriving market in antique radio sets and the tubes/parts required to restore them. A type 300A tube in its original carton is worth anywhere between $50 and $75 to people who collect this material. You might check out a publication called the Antique Radio Classified *($15 per year) where antique radio equipment and parts are bought, sold, and traded. The address is 9951 Sunrise Blvd., #R-9, Cleveland, OH 44133. — Editor*

Commercial-Free Radio Fan

One of my favorite broadcasters is station KUT in Austin, Texas. KUT is a non-commercial station operating on 90.5 MHz and it has made me wonder about such broadcasters. Are non-commercial stations limited to the FM band or are they also allowed on the AM band? Where can I get a listing of non-commercial broadcasters around the nation?

"Buck" Jones
Rollingwood, TX

The commercial value of AM frequencies combined with the costs involved in setting up an AM station have made the FM band especially appealing to such stations. Nevertheless, there aren't any FCC regulations prohibiting non-commercial broadcasters in the AM band and, in fact, there are some actually operating there. Examples would be WVMR in Dunmore, West Virginia on 1370 kHz; KSKO in McGrath, Alaska on 870 kHz; and WNYC in New York City on 830 kHz. Non-commercial broadcasters are included in standard reference publications such as White's Radio Log, Vane Jones' North American Radio-TV Station Guide, *and* The FM Atlas. *You can get a free listing of the 200 National Public Radio (NPR) affiliated stations by writing to: NPR, 2025 M Street, N.W., Washington, DC 20036. By the way, there are about 1,170 non-commercial broadcasters in the United States. The majority of these stations operate in the 88.1 to 91.9 MHz segment of the FM band. — Editor*

Heavy On The Jam

Someone told me that if I installed an electronic device called the AN/ULT in my car, the vehicle would become virtually invisible to radar speedmeters. Can this possibly be true? If so, please tell about it in *POP'COMM* and say where to get one.

P. N. Lefevere
Portland, ME

It may well be true that an AN/ULT could do this for your vehicle, but I hope you're not driving a small car — and you've got a long extension cord! The AN/ULT-T2 is a military 8500-9600 MHz low power jammer intended for training purposes. It weighs 110 lbs. and requires 117 volts AC (50 to 400 Hz) to get it working. A similar unit, known as the AN/ULT-T4 operates in the 1220 to 1350 MHz band. These units can be manually tuned and modulated by a sine or square wave, pulse, noise, or modulation from an external source. Besides the weight and power source problems you might have with one of these in your car, they have a transmitting range of only 50 feet, and (of course) such jamming signals would be effective only on radar speedmeters which happened to be operating in these frequency ranges. Also, it's illegal to do what you suggest, in any case. Both versions of the AN/ULT can, however, be purchased on the surplus market. Fair Radio Sales (P.O. Box 1105, Lima, OH 45802) stocks them in the $80 to $85 price range. While one of these things mounted 'neath your dashboard would certainly look impressive to your friends, the AN/ULT is best used for microwave experimentation or for cannibalizing into assorted components (such as the klystron tubes they contain). — Editor

Gatsby, Schmatzby!

I not only enjoyed your comments on the off-the-wall radio association (June issue, Beaming In), I felt that your observations were most appropriate. And that's one of the things I like best about *POP'COMM*. Wasn't it F. Scott Fitzgerald who said, "You don't write because you want to say something, you write because you've got something to say."?

M. L. Raymond, Sr.
Blue Springs, MO

I thought he said, "Pass the scotch."

All That Glitters

Is there anything in Ft. Knox (KY) other than gold bullion? Can the operations at Ft. Knox be monitored on a scanner?

Courtney Wills
Louisville, KY

Yes, there's plenty at Ft. Knox other than gold bullion. For one thing, there's the Army Armor School and the Army Armor Center, plus a lot of guards, walls, and surveillance equipment. From your question, I get the impression that you're really more interested in knowing what else might be inside the vaults other than the bullion. Inside the depository vaults, room has been set aside for the storage of platinum and industrial diamonds. There's also a stock of thousands of pounds of opium and morphine with a street value of several billions of dollars (these are set aside for medicinal purposes). The Bureau of Engraving & Printing and The Bureau of The Mint also use the vaults for storing their master plates for printing currency, and the stamping dyes for making coins. Plug 411.675 MHz into your scanner and you may hear some of the security operations. — Editor PC

Overkill

I recently purchased a transmitter for $50. It has a nameplate describing it as a type AN/CRT-3. This is a used unit which requires two tubes. I was told that if I can find the tubes that this transmitter requires I can use it as an emergency rig for my 24 foot boat. Please advise how to get this going.

M.W. Mortenson
Marina del Rey, CA

The AN/CRT-3/T-74 (a/k/a BC-778) is a 40-year-old emergency military transmitter better known as "The Gibson Girl." When you grind the set's hand-crank it sends out approximately 2 watts on either of two frequencies, 500 kHz and 8364 kHz (some early models operate on 500/8280 kHz—but 8280 kHz is no longer in use as an emergency frequency). The antenna is a long wire held aloft by a kite or helium filled balloon. The set sends out an SOS when cranked, but it can also be hand keyed to transmit any other desired messages.

The transmitter requires 12SC7 and 12A6 tubes (1 of each type). A type 1634 can be substituted for the 12SC7, while a 12V6 or 5659 can be used in place of the 12A6 if the original tube types can't be located. These units (complete and in working condition) are priced at about $40 and are still carried in lifeboats with other survival gear on some ocean-going vessels.

While it might be fun to modify and get one of these fired up for 40 meter ham band QRP (low power) use, if you've got a small boat you'll find that a two-way FM capability for operation on VHF marine Channel 16 (156.80 MHz) will be of far more value to you in an emergency than this ancient mariner. A distress call sent out on 500 Hz normally means that a large ocean going vessel has a problem. Such signals call into service a rather awesome search and rescue operation by the Coast Guard. The reaction of the Coast Guard to their deployment of many choppers and large cutters to aid a 24 ft. boat that has run out of fuel or ended up on an offshore sandbar is a concept too horrible to contemplate. —Editor

Not So Solid, Jackson!

When shopping for wire to be used for a longwire receiving antenna, I noticed that wire of suitable size comes in solid and stranded versions. Does it make any difference which is used?

N. T. Jackson
Chillicothe, OH

RF current flows on the surface of conductors and RF resistance may be decreased by increasing the surface area. With the same amount of metal, stranded wire has a greater surface than solid wire. Enamel insulation also increases the surface by separating the strands. —Editor

Power Politics By Broadcasting

International Broadcasting As A Propaganda Weapon

BY TOM KNEITEL, K2AES, EDITOR

Tune across the shortwave bands and your ears are filled with the sounds of dozens of broadcasters attempting to convince you to agree with their politics. Likewise, they may also be gently (or not so gently) suggesting that you disagree with the policies or politics of another broadcaster whose transmissions can be tuned in just down the band. Our own Voice of America may well soon be using the standard broadcasting band to serve up homegrown broadcast propaganda to mold the minds of American audiences.

Like it or not, such broadcasts fall under the category of psychological warfare—*psywar* it's called. In this type of warfare, the ammo consists of words that are fired out through long range electronic cannons called broadcast transmitters. If you've got a communications receiver, that makes *you* the target! Today the art of psywar is assisted by computers and audience surveys calculated to help the combatants know if their aim is true. But it wasn't always quite so scientific.

Psywar via broadcasting got off to a slow start in the early 1920's and was followed by about 15 years of bumbling and stumbling before it came into its own. It reached its first plateau of refinement in the early 1940's under the auspices of Nazi Germany's Minister of Propaganda, Dr. Josef Goebbels. It was Goebbels who laid out the basic groundwork for broadcast psywar, methods that are still in use by many nations of the world.

The techniques developed by Goebbels have been explained at length, but little has been revealed about the very earliest days of broadcast propaganda when the formulas hadn't yet been devised and things were rather hit and miss.

The Early Days

In the earliest days of broadcast psywar, the programming did not, as today, address itself to broad political ideologies. Instead, radio wars broke out over isolated and specific issues, such as when Radio Berlin had it out with the Eiffel Tower broadcaster during the 1923 invasion of the Ruhr.

In 1926, Moscow had a radio war with Rumania over Bessarabia, and in the years preceeding Hitler's rise to power (1933), the Soviets had already begun sending revolutionary appeals to German workers.

Italy's "Il Duce," Benito Mussolini. His early propaganda broadcasts to the Middle East twisted the tail of the British Lion.

By 1931, Japan had started to experiment with propaganda broadcasts to enemy troops and civilians at the time of the Manchurian invasion. When the war ended, Japan distributed free receivers to the Manchurians and broadcasting continued with the purpose of instilling new loyalties in the Manchurians and simultaneously cutting them off from Chinese influence.

Adolf Hitler saw the potential of broadcast propaganda as soon as he took power. Shortwave broadcasts were used to reach distant points, while the broadcast band was used to attract listeners in nearby nations. It was Hitler's radio propaganda campaign that helped to acclimate the residents of the Saar basin for German re-entry in 1935.

Hitler's next radio propaganda triumph was accomplished in Austria. In that instance, a combination of straight propaganda combined with military threats and political intrigue, aided by secret agents, won a supposed 99.75% of the Austrian vote looking toward Austria's incorporation into Germany.

Getting Into Gear

By 1938, broadcast propaganda generated by European nations was widespread. Each day more than 40 so-called "newscasts" were being beamed to North America. These programs were in English and made appealing by the addition of fine music and stirring drama; moreover, the bulk of the programming was transmitted at North America's peak listening hours. The purpose of these broadcasts was to align or disalign public opinion.

To listeners in North America, the most inflammatory broadcasts came from Germany, Italy, and the USSR, with the Spanish factions and Tokyo not far behind. Germany's efforts were the most polished and effective, and listeners were kept well aware of the Austrian "situation."

Italy's Efforts

Il Duce, as the Italian leader, Benito Mussolini, was known, was broadcasting numerous attacks against the British in the Middle East. His syrupy protestations that he was the true champion of Islam had a genuine effect in Palestine and even in India. This was the gadfly that stung the British lion into the broadcasting conflict.

In response to Mussolini's broadcasts, Britain launched a new million dollar superstation at Daventry in order to enter the international radio wars. Britain broadcast in five languages. This compared to Germany in six languages, Italy in 18, and the Soviets in no less than 57!

Commencing on 1 January 1938, Britain began bombarding the Middle East with

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Antenna System: LW, MW: Built-in Ferrite Bar Antenna; FM, Air, SW: Telescopic Antenna

Inputs: DC-In 4.5V, External antenna input (minijack x 2)

Outputs: Earphone (minijack); Record output (minijack)

Speaker: 4-inch dynamic

Power Requirements: Batteries "D" x 3 (4.5V) (optional); "AA" x 2 (3V) (optional) for programmable clock/timer; AC 120 Volts, 60 Hz with AC Adaptor (supplied); DC-12 Volts with DCC-127A Car Battery Cord (optional)

Dimensions: 6¼" H x 11⅜" W x 2⅛" D

Weight: 3 lbs, 12 oz (with batteries inserted)

Color: Black

Supplied Accessories: AC Adaptor; Earphone, Shoulder Strap, Long Wire External Antenna, External Antenna Connector (x 2); Short Wave Handbook

Optional Accessories: DCC-127A Car Battery Cord; AN-1 Active Antenna

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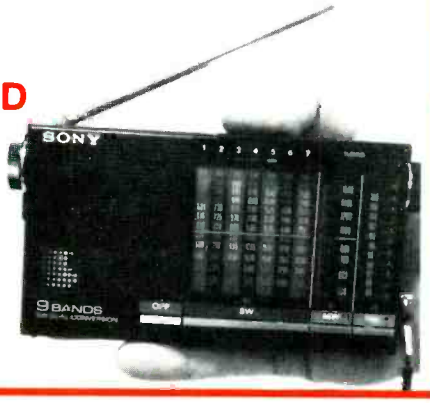

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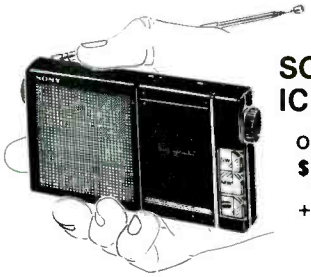

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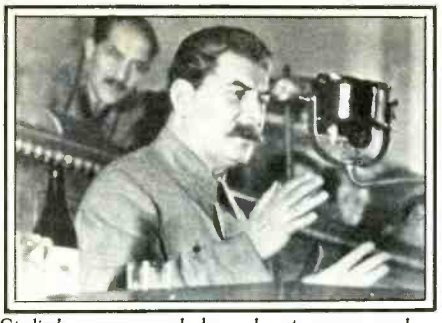
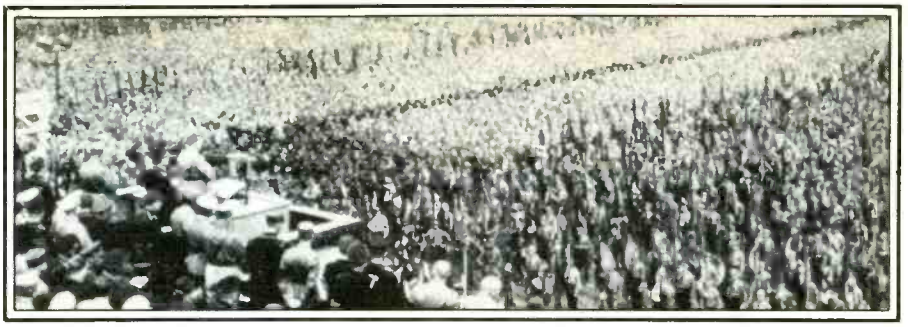


Stalin's propaganda broadcasts were crudely blunt and deathly boring.



Hitler's worldwide broadcasts also had a vast local audience within Germany.

propaganda structured around a rather intellectual soft-sell approach. This counterblast to Il Duce's voice fell somewhat flat. The Bedouins, it turned out, preferred Rome's seductive Arab singers from Bari. They said that Mussolini's Arabic sounded more genuine, too.

Britain's insistence that Arab nations were flourishing under Empire mandate was less than convincing. The residents of those areas responded, "If Great Britain wants to serve the Arabs, let her serve them by settling all of the problems of Palestine."

The Italo-British broadcasting war in the Middle East contributed materially to a flap within England that almost cost Foreign Minister Eden his political neck. When it was all over, Mussolini's approach proved superior and Britain's efforts accomplished little of value. If anything, Britain's broadcasts came near to shivering a few timbers of the Empire.

Italy, of course, had learned some of the tricks of the broadcast propaganda trade during the Italo-Ethiopian War (1935 and 1936) when, as the aggressor, it nevertheless managed to turn its victim nation into a world class laughing stock. Britain had been on shortwave for years, but was inexperienced at the psywar game. But, she learned her lesson well, and when it came time to have a radio war with Nazi Germany, it was a different story altogether!

The Nazi Broadcast Machine

Germany's propaganda broadcasting system was the most intricately planned and produced. The focal point of Hitler's operations was at Zeesen, 20 miles south of Berlin. There, a dozen transmission towers continually sent intensive propaganda to the Americas, Africa, Asia, and Australia. And, of couse, Hitler did not overlook the potentials of getting his messages through locally to German citizens—and listen they most definitely did, to his every word!

Fears of persecution by the secret police earned Adolf an audience of 75% of the total population of Germany every time he stepped up to the podium. A closer look at the German system reveals that they had copied one of Japan's techniques from the old Manchurian days.

Hilter had ordered all manufacturers to build a standard 3-tube no-frills "peoples" receiver, cheap enough so that all could afford it, yet sufficiently insensitive so that it couldn't easily receive stations from distant areas. That was to prevent monitoring of foreign broadcasts, especially those from the USSR—and later, from Britain.

Germany's exported propaganda was in high gear. Broadcasts in support of Franco's forces in Spain were intensive. Germany also embarked on a propaganda war directed at the Czechs prior to fomenting the Munich crisis of 1938—laying down a barrage of terror and propaganda that was unrelenting even after the crisis was temporarily resolved. It did not end until the Czechs surrendered completely the following year. By the time the German troops were ready to enter Prague, Czech Radio (along with the government) had capitulated, heralding the German occupation at five-minute intervals and warning the citizens not to resist.

Most Americans seemed quite content with being devoted to Jack Benny, Bing Crosby, and Edgar Bergen. But Germany was also attempting to capture its own audience here via numerous broadcasts beamed from Zeesen.

As the shortwave broadcasts began to proliferate, they did start to attract a regular audience. These were not simply DX fans who were interested only in a QSL and then tuned away to search for new stations. The audience consisted of nightly listeners interested in the programming. The programming was backed up with a flood of newsletters and printed program guides mailed to members of the American public.

Listeners were organized, in America as well as the rest of the world. Pro-Nazi organizations had regular "listening parties" at which communal attention to the German broadcasts was the evening's main event. Of course, in the 1930's there were many Americans of German origin who were genuinely interested in hearing these broadcasts because of family and emotional ties to the "Old Country."

One of the most effective propaganda programs was the Mail Box. Letters and contributions were carefully selected in order to be given an on-the-air reply that could be slanted towards a pro-Nazi viewpoint. The Mail Box programs were broadcast at various hours and personal messages were exchanged between friends and relatives in Germany.

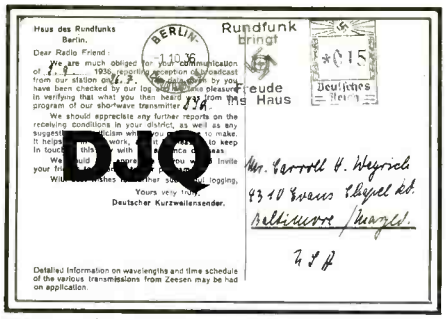
American tourists were also invited to come to the broadcasting studios to utter

The German dictator loved to hear himself speak and made certain that the entire world had an opportunity to hear his almost endless stream of speeches.

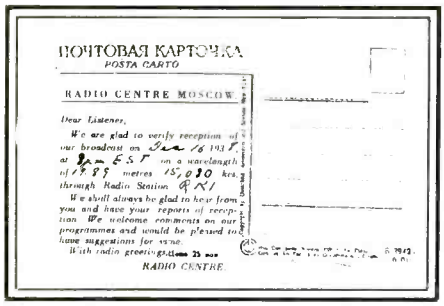
some kind words to the folks about how Germany was doing so many wonderful things for its citizens.

The news broadcasts from Germany were of particular irritation to the British. Not only did the Germans use announcers with the same Oxford accents as the BBC, but they followed the BBC broadcasts on frequencies just a shade away from those used by the BBC. Thus, at 7:40 p.m. EST, England came on the air using 11750 kHz. When the BBC signed off at 8:15, Germany popped up on 11770 kHz and offered a pro-Nazi version of the day's events. Germany's popular newscaster, "Scotty," sounded as British as John Bull himself, although in actuality he was Karl Schotte—born in and a devoted citizen of Germany! This confused a number of listeners into thinking that they were still tuned to London.

The British were less than amused and the strategy sparked debate on the floor of the House of Commons. Britain then launched an all-out effort to reach Europeans in their native tongues. The BBC European Service eventually went out in 16 languages. The German reaction was violent. The German people were cautioned against listening to the "false" foreign radio propaganda maligning the German leaders. Harsh penalties



DX'ers of the 1930's weren't particularly interested in the contents of the programs, but they had a bonanza when it came to QSL cards, as European broadcasters were anxious to purvey goodwill. They sent out QSL cards galore, along with gifts, flags, booklets, photos, and other materials. This 1936 German QSL was received by American DX'er Carroll Weyrich of Baltimore, Maryland.



Moscow's station RKI was on regularly with English language propaganda directed at North America. Here's one of their 1938 QSL's, which is courtesy Miss Eileen Hofmaster of Ohio.

In 1938, one of Berlin's leading English language service announcers was known to his audiences as "Scotty." His flawless Oxford accent gave the impression he was British. Not all listeners realized that "Scotty" was an anglicized nickname based upon his real name, Karl Schotte. He was 100 percent German! Autographed photos he sent to listeners were signed only "Scotty."

Political Complexion Of English Language Newscasts Monitored In The U.S. (1937 to 1939)

Rightist

R. Nacional, Salamanca, Spain		10370 kHz
CSW	Lisbon, Portugal	9940 kHz
DJB	Berlin, Germany	15200 kHz
DJD	Berlin, Germany	11770 kHz
DJL	Berlin, Germany	15110 kHz
EA9AH	Tetuan, Morocco	14050 kHz
EAJ43	Tenerife, Canary Islands	10370 kHz
JDY	Tokyo, Japan	9925 kHz
JIB	Tokyo, Japan	10535 kHz
JZJ	Tokyo, Japan	11800 kHz
JZK	Tokyo, Japan	15160 kHz
2RO4	Rome, Italy	11810 kHz

The above broadcasts represented Facist, Nazi, Japanese, and Spanish Rebel philosophies.

Independent

CJRO	Winnipeg, Canada	6150 kHz
CJRX	Winnipeg, Canada	11720 kHz
GSB	London, England	9510 kHz
GSC	London, England	9580 kHz
GSD	London, England	11750 kHz
GSF	London, England	15140 kHz
GSG	London, England	17790 kHz
GSH	London, England	21470 kHz
GSI	London, England	15260 kHz
GSO	London, England	15180 kHz
GSP	London, England	15310 kHz
HBL	Geneva, Switzerland	9595 kHz
HBP	Geneva, Switzerland	7797 kHz
HP5A	Panama City, Panama	11700 kHz
HP5J	Panama City, Panama	9607 kHz
HVJ	Vatican City	15120 kHz
OLR4A	Prague, Czechoslovakia	11840 kHz
TFJ	Reykjavik, Iceland	12235 kHz
TPA3	Paris, France	11885 kHz
TPA4	Paris, France	11714 kHz
VK3LR	Lyndhurst, Australia	9580 kHz
VK3ME	Melbourne, Australia	9500 kHz

The above broadcast represented the British Empire, Little Entente, French, League of Nations, and Vatican viewpoints.

Leftist

EAR	Madrid, Spain	9488 kHz
RAN	Moscow, USSR	9600 kHz
RKI	Moscow, USSR	15080 kHz
RV-59	Moscow, USSR	6000 kHz
XGOX	Nanking, China	9800 kHz

The above broadcasts represented Communist, Loyalist Spanish, and Chinese views. Some of the transmissions from Lisbon and Paris also fit into this category.

were imposed for listening and for spreading the "lies" heard on such broadcasts.

Germany was quite proud of its leading position in propaganda broadcasting, and jealously guarded its status against challengers, even if they were friends of Germany. One such challenge was perceived when Mussolini staged a 15th anniversary celebration of his "March on Rome." The entire hoopla was sent out over Rome's shortwave transmitters and then rebroadcast several times at prime listening hours in America. Il Duce spoke at great length and was supported by anthems, marches, blaring bands and the vocal acclaim of hundreds of thousands in what became an orgy of self-congratulation. The last raucous notes had no more than reached the airwaves when the German stations broadcast ecstatic compliments to Mussolini along with a spirited and equally loud pageant celebrating Germany's part in the affair.

Soviet Efforts

Moscow had been doing propaganda broadcasting since the late 1920's, and by the mid-1930's they had an hour-long English transmission four days a week on 175 kHz and 6000 kHz. Broadcasts were also in German, French, Czech, Spanish, Dutch, and other languages. Two hours, however, were exclusively directed at German listeners in a continuing effort to convince workers to revolt against Hitler.

Stalin, naturally, was the hero. Hitler and Mussolini were the main targets of all of these broadcasts, although Moscow always took the time to attack the policies of many other nations.

These broadcasts lacked any subtlety at all and made their point with the finesse of a sledge hammer. Listeners were told, with monotonous repetition, "The rotten foreign capitalists, the Fascist, reactionary, chauvinistic dictatorships are exploiting the workers of the world. In Germany, in Italy, in the Spain of Franco, in Bulgaria the working people have no rights of any kind."

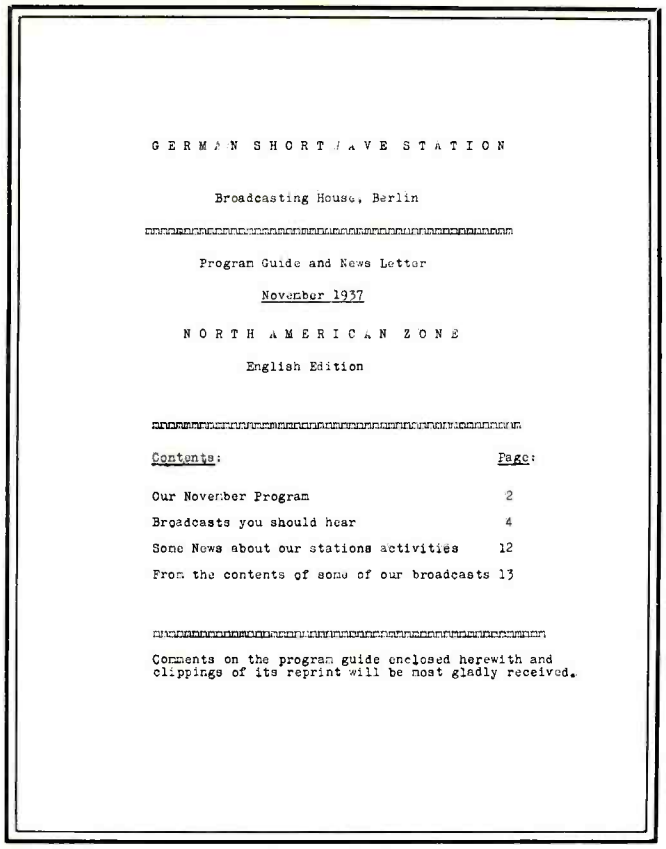
Listeners were given relentless lectures on the most intricately boring details of the Bolshevik lifestyle and assured that Moscow was on the side of oppressed peoples, pointing out how the USSR provided its citizens with "the most liberal constitution in the world." It was not mentioned, however, that elections in the USSR did not offer an especially large variety in the way of candidates or political parties from which to select.

The Moscow newscasts were padded out with long and dull readings from the Marxist prophets, a policy fascinating to the Soviets but probably of minimal interest to most others.

The Spanish Situation

Spain was a striking example of early broadcast propaganda in wartime. The loyalist government had the advantage because their transmitters in Madrid, Barcelona, and Valencia were more imposing than those of Generalissimo Franco's rebels during the destructive three-year civil war (1936 to 1939), in which some one million people died. During the war, radio was the only means of communication over much of the nation.

Broadcasts from both the Loyalist and Rebel sides were so exaggerated that it was



GERMAN SHORT WAVE STATION

Broadcasting House, Berlin

Program Guide and News Letter

November 1937

NORTH AMERICAN ZONE

English Edition

Contents: Page:

Our November Program 2

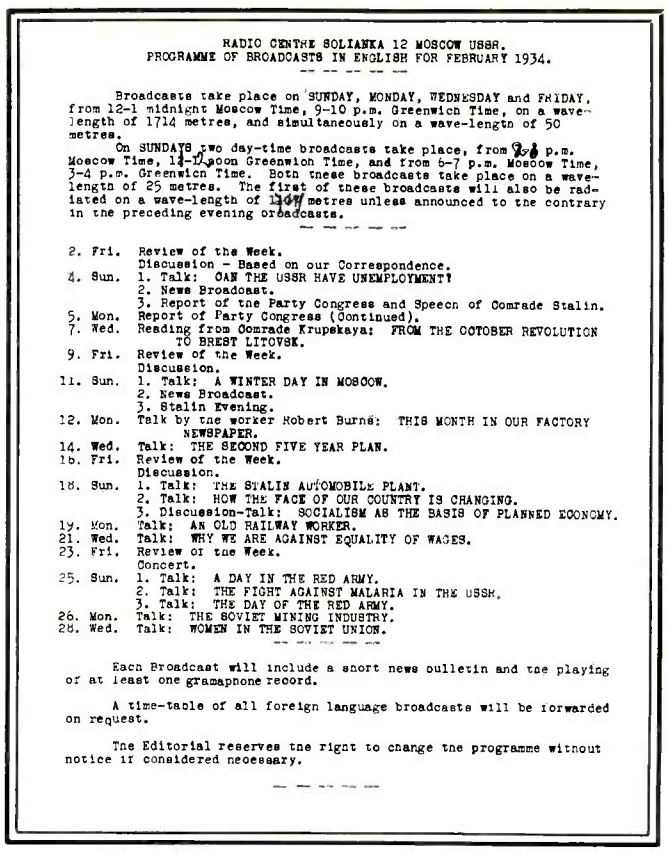
Broadcasts you should hear 4

Some News about our stations activities 12

From the contents of some of our broadcasts 13

Comments on the program guide enclosed herewith and clippings of its reprint will be most gladly received.

The Berlin/Zeesen station's monthly English language newsletter contained information on a special Thanksgiving Day program. (Courtesy Will Jensby, WØEOM/6)



RADIO CENTRE SOLIANKA 12 MOSCOW USSR.
PROGRAMME OF BROADCASTS IN ENGLISH FOR FEBRUARY 1934.

Broadcasts take place on SUNDAY, MONDAY, WEDNESDAY and FRIDAY, from 12-1 midnight Moscow Time, 9-10 p.m. Greenwich Time, on a wave-length of 1714 metres, and simultaneously on a wave-length of 50 metres.

On SUNDAYS two day-time broadcasts take place, from 9-10 p.m. Moscow Time, 12-1 noon Greenwich Time, and from 6-7 p.m. Moscow Time, 3-4 p.m. Greenwich Time. Both these broadcasts take place on a wave-length of 25 metres. The first of these broadcasts will also be radiated on a wave-length of 1607 metres unless announced to the contrary in the preceding evening broadcasts.

2. Fri. Review of the Week.
Discussion - Based on our Correspondence.
4. Sun. 1. Talk: CAN THE USSR HAVE UNEMPLOYMENT?
2. News Broadcast.
3. Report of the Party Congress and Speech of Comrade Stalin.
5. Mon. Report of Party Congress (Continued).
7. Wed. Reading from Comrade Krupskaya: FROM THE OCTOBER REVOLUTION TO BREST LITOVSK.
9. Fri. Review of the Week.
Discussion.
11. Sun. 1. Talk: A WINTER DAY IN MOSCOW.
2. News Broadcast.
3. Stalin Evening.
12. Mon. Talk by the worker Robert Burns: THIS MONTH IN OUR FACTORY NEWSPAPER.
14. Wed. Talk: THE SECOND FIVE YEAR PLAN.
16. Fri. Review of the Week.
Discussion.
18. Sun. 1. Talk: THE STALIN AUTOMOBILE PLANT.
2. Talk: HOW THE FACE OF OUR COUNTRY IS CHANGING.
3. Discussion-Talk: SOCIALISM AS THE BASIS OF PLANNED ECONOMY.
19. Mon. Talk: AN OLD RAILWAY WORKER.
21. Wed. Talk: WHY WE ARE AGAINST EQUALITY OF WAGES.
23. Fri. Review of the Week.
Concert.
25. Sun. 1. Talk: A DAY IN THE RED ARMY.
2. Talk: THE FIGHT AGAINST MALARIA IN THE USSR.
3. Talk: THE DAY OF THE RED ARMY.
26. Mon. Talk: THE SOVIET MINING INDUSTRY.
28. Wed. Talk: WOMEN IN THE SOVIET UNION.

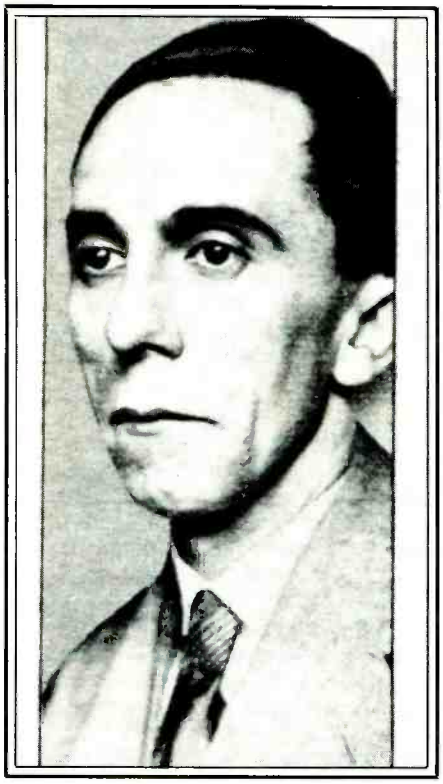
Each Broadcast will include a short news bulletin and the playing of at least one gramaphone record.

A time-table of all foreign language broadcasts will be forwarded on request.

The Editorial reserves the right to change the programme without notice if considered necessary.

Moscow's English language broadcasts were filled with Marxist texts and descriptions of the Bolshevik life. (Courtesy Will Jensby, WØEOM/6)

Hitler's propaganda chief, Josef Goebbels, built his reputation and techniques on the trial and error broadcast propaganda efforts of the 1930's. His basic techniques are still used throughout the world.



virtually impossible to separate fact from fantasy. This was further complicated by broadcasts from European nations rooting for one side or the other. Italy and Germany supported Francisco Franco. The USSR and France backed the Loyalist cause.

Advised by German and Italian propaganda specialists, Franco employed threats, sadism, vituperation, and braggadocio in his radio propaganda campaigns. From the transmitter of the Rebels would come the message, "Believe *us*, this is the *real* truth! Don't believe what Madrid says. Our armies are advancing on all sides. We have captured 12,000 prisoners . . ."

Suddenly, the Loyalist government's jamming from Madrid would swallow up the signal.

The Spanish Civil War even produced a "Radio General." He was Queipo de Llano, commander of a Rebel garrison. He was at the microphone so steadily that he had practically no time to command. His language was so salty that it had as much shock value as it did propaganda potential. His specialty was to offer bizarre revelations concerning the private lives of the Madrid cabinet chiefs. Nobody knew the accuracy of his stories, but it made little difference. In this 1930's version of *Dallas* and *Dynasty*, his audiences couldn't get enough.

Because of their lack of formidable transmitters, the Rebels eventually took to relaying their broadcasts to North America by way of Salamanca to Teutan (Morocco) and Tenerife (Canary Islands). Their basic message was for the world to "try to know the new Spain; the Spain of Franco."

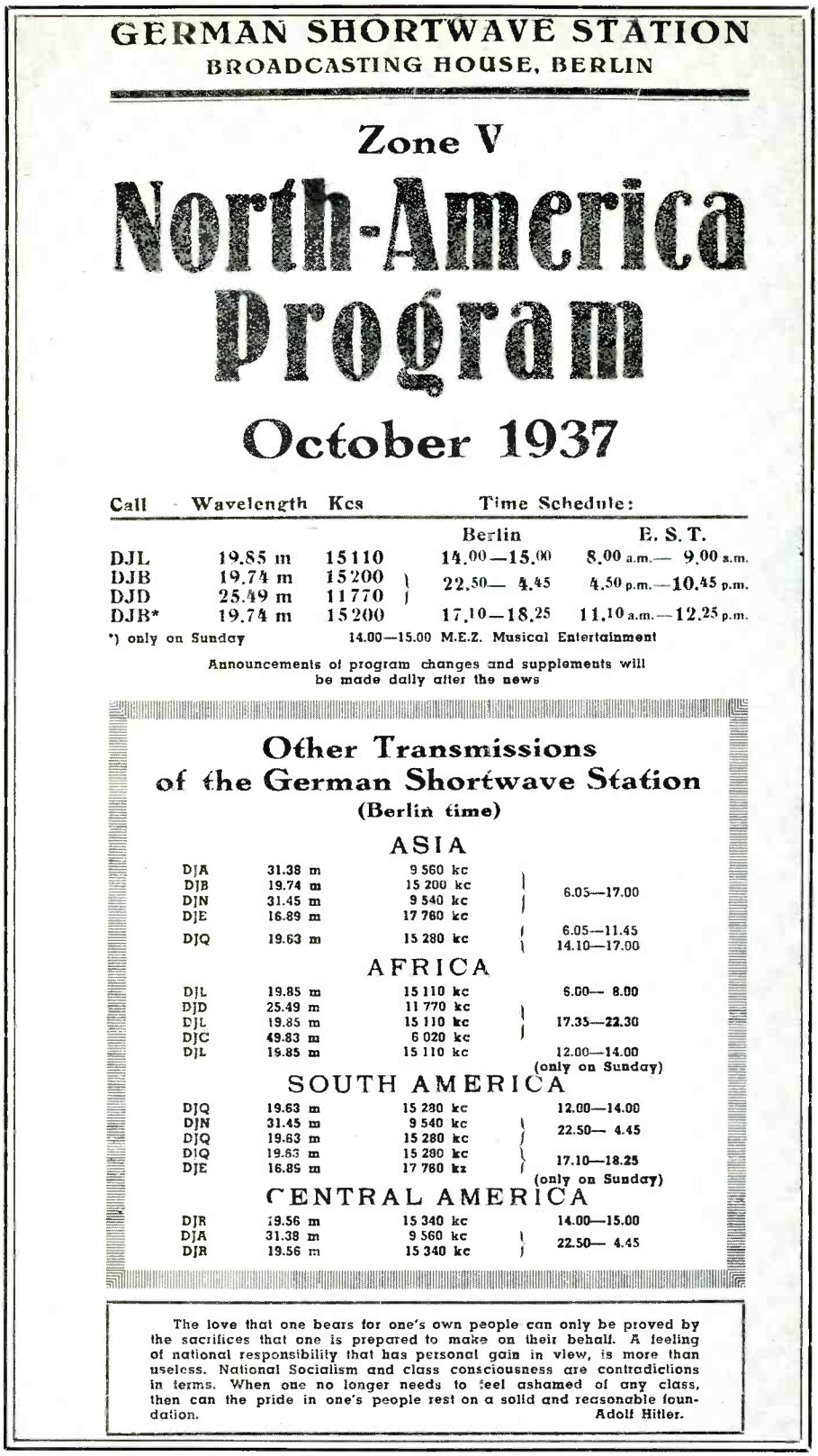
A weary Spanish republic, split from within by Communist machinations and left without support from friendly democracies, finally succumbed. The use of broadcasting in the Spanish War was complex and a study unto itself.

What About The U.S.A.?

So far as the United States was concerned, we took no official part in international broadcasting, and listeners here were left to sort through the barrage of words and come to their own conclusions.

Private groups such as CBS, NBC, Westinghouse, Crosley, World Wide Broadcasting Foundation, and General Electric were involved in regular private shortwave broadcasting; but even as late as Pearl Harbor, there were only 13 international broadcasting transmitters in the United States. Until 1940 the U.S. Army gave little attention to psychological warfare, and between 1925 and 1935 there was not even a single full time officer assigned to study the subject.

The reasons for this reflected the nation's isolationist attitudes during those years, and our failure to use international broadcasting more fully was simply a reflection of the general political outlook. Business interests in radio were also unenthusiastic about government intervention in broadcasting for



GERMAN SHORTWAVE STATION
BROADCASTING HOUSE, BERLIN

Zone V

North-America Program

October 1937

Call	Wavelength	Kcs	Time Schedule: Berlin	E. S. T.
DJL	19.85 m	15110	14.00—15.00	8.00 a.m.— 9.00 a.m.
DJB	19.74 m	15200	22.50— 4.45	4.50 p.m.—10.45 p.m.
DJD	25.49 m	11770		
DJB*	19.74 m	15200	17.10—18.25	11.10 a.m.—12.25 p.m.

*) only on Sunday 14.00—15.00 M.E.Z. Musical Entertainment

Announcements of program changes and supplements will be made daily after the news

Other Transmissions of the German Shortwave Station
(Berlin time)

ASIA

DJA	31.38 m	9 560 kc	6.05—17.00
DJB	19.74 m	15 200 kc	
DJN	31.45 m	9 540 kc	
DJE	16.89 m	17 760 kc	
DJQ	19.63 m	15 280 kc	6.05—11.45, 14.10—17.00

AFRICA

DJL	19.85 m	15 110 kc	6.00— 8.00
DJD	25.49 m	11 770 kc	17.35—22.30
DJL	19.85 m	15 110 kc	
DJC	49.83 m	6 020 kc	
DJL	19.85 m	15 110 kc	12.00—14.00 (only on Sunday)

SOUTH AMERICA

DJQ	19.63 m	15 280 kc	12.00—14.00
DJN	31.45 m	9 540 kc	22.50— 4.45
DJQ	19.63 m	15 280 kc	
DJQ	19.63 m	15 280 kc	17.10—18.25 (only on Sunday)
DJE	16.89 m	17 760 kz	

CENTRAL AMERICA

DJR	19.56 m	15 340 kc	14.00—15.00
DJA	31.38 m	9 560 kc	22.50— 4.45
DJR	19.56 m	15 340 kc	

The love that one bears for one's own people can only be proved by the sacrifices that one is prepared to make on their behalf. A feeling of national responsibility that has personal gain in view, is more than useless. National Socialism and class consciousness are contradictions in terms. When one no longer needs to feel ashamed of any class, then can the pride in one's people rest on a solid and reasonable foundation.
Adolf Hitler.

Berlin sent out program information to everybody on their large American mailing list. (Courtesy Will Jensby, WØEOM/6)

fear that a precedent would be established for a state-run domestic broadcast network. Commercial broadcasters had previously experimented with shortwave relays of their regular locally-oriented programming, but backed away from the concept when they found that there was little profit to be realized from those efforts.

With the attack on Pearl Harbor, our government changed its thinking on international broadcasting. The Office of War Information (OWI) was established to channel government information here and abroad. The overseas branch of the OWI at that time was charged with waging the "strategy of truth" and was called the Voice of America.

The United States had joined the international propaganda broadcasting wars. Today, the government is again mulling over the possibilities of establishing a domestic broadcasting arm of The Voice of America.

Our Voice of America is, today, only one voice in a chorus of international broadcasters all using techniques of persuasion that date back into the era prior to World War II. These stations are hoping that *you* will sample their wares and become convinced that their words are not only accurate and true, but also tell of political philosophies you will hopefully endorse.

Additional Reading

Propaganda by Shortwave, H. L. Childs and J. B. Whitton, Princeton University Press, 1942.

Who Gets the Air?, F. A. Rankin, National Association of Broadcasters, 1949.

Overseas Information Service of the United States Government, C. A. H. Thomson, Washington DC, 1948.

Psychological Warfare in World War Two, P. Linebarger, Infantry Journal LX (1947).

Peoples Speaking to Peoples, L. White and R. D. Leigh, Chicago, 1946.

British Broadcasting, T. O. Beachcroft, London, 1946.

Persuade or Perish, W. Carroll, Boston, 1948.

Secret Missions, E. M. Zacharias, New York, 1946. PC

KGB ID badge. (Courtesy Tom Kneitel)

Soviet "Mind-Control" Radio

Secret KGB Experiments Add A New Dimension To Microwaves

BY HARRY CAUL, KIL9XL

The notorious KGB (Komitet Gosudarstvennol Bezopasnosti, formerly known as the Cheka, NKVD, NKGB, and the MGB), from its inception, has been an organization of awesome power. This one Soviet agency is the equivalent of all of the U.S. Government security and intelligence services combined, including the FBI, CIA, NSA, Secret Service, and State Department Security.

A recent American intelligence report claims that the Soviets, via the efforts of the KGB, have made great strides in mind control weaponry. This is something our government has been watching for quite some time now. The latest report says the "remote monitoring of brain wave activities" could well be why the Soviets have been beaming strange microwave signals at the American Embassy in Moscow for decades.

The Nature Of The Signals

The microwave bombardment was realized in the 1960's and, with the exception of a "silent period" between 1976 and 1979, has continued to the present. These signals are on wavelength between 1 mm. and 50 cm. The level of this radiation has generally been limited to less than 20 microwatts. While this may not appear to be very high, it must be viewed in light of the fact that the established Soviet health threshold is 10 microwatts (this is all still below the U.S. safety standard of 10 milliwatts).

By American standards, these signals are far below the level where there would be any cause for health concern. Indeed, the level of the signals is probably below those encountered by some people in the U.S during the normal course of their work. Once this is realized, it is time to speculate upon why our government has been concerned about apparently harmless microwave levels, and why the Soviets are bombarding the Embassy with radiation levels at almost twice the strength they feel are safe.

To be sure, American Embassy personnel in Moscow had been complaining about headaches and other illnesses at about the same time the microwave bombardment started. Our government, on one level, tended to dismiss any connection between the microwaves and the illnesses. On another level, we permitted embassy employees to obtain transfers to other Dept. of State facilities for reasons of health, and some of those employees were also given financial compensation for their health problems.

The microwave bombardment, in the opinion of some observers, was somewhat connected with Soviet attempts to eavesdrop on embassy personnel. This was the concept of our Ambassador although, to be sure, he was a high level diplomat who wasn't especially well-versed in electronics. The technique used for this eavesdropping was explained in the July 1983 *POP'COMM* ("How The Russians Eavesdropped On Our Embassy," by Tom Kneitel). That explanation clearly knocks the Ambassador's theories out of the picture.

The New York Times speculated that the microwaves were employed to jam American VHF monitoring equipment tuned in on the mobile telephone calls of Soviet officials. This theory isn't very convincing.

Basically, the energy levels and frequencies, as well as the signal patterns and regularity of the signals, does not lend strong support to theories that the microwaves have any role in communications jamming or in room bugging.

Assuming that the Soviets were intentionally aiming the microwaves at the embassy and its personnel, the potentials become far more ominous and sophisticated.

It's All In The Mind

As far back as the early 1930's the Soviets were conducting their experiments related to the effects of electromagnetic radiation on living organisms.

In the November 1932 issue of *Radio News*, Vladimir Michinov commented extensively on "the biological and psychological effects of the transmission of high-frequency radio waves that are already known to the physicist, the biochemist, the physician and the psychologist." He discussed experiments with guinea pigs, frogs, and chickens and how they had beamed a signal into a chicken that caused "coagulation of the brain cells."

Michinov went on to note that "ultra short waves are an added danger" because they "are known to have a much more intensive biological action than . . . the . . . wavelengths of the broadcasting bands." (It should be pointed out that Dr. E. F. W. Alexanderson, noted General Electric Company scientist, wrote in the same issue

May 26, 1960: In the United Nations, U.S. Ambassador Henry Cabot Lodge shows a secret listening device the Russians planted in the Great Seal they have our Moscow embassy.

The Taokarev 7.62 mm automatic, an old KGB standby.

that any possible dangers are offset by beneficial uses of X-rays; he did concede, however, that an NBC technician received burns from the ring on his finger while working on a 100 MHz transmitter.)

Soviet researchers of the 1930's discovered that exposure to signals at certain frequencies caused loss of appetite, dizziness, emotional problems, irritability, depression, reduced intellectual capacity, hallucinations, headaches, nervous tension, mood swings, anxiety, loss of appetite, and other symptoms. These are similar to the complaints of the embassy personnel.

As pointed out in the October 1983 *POP'COMM* ("Uncle Tommy's Handy Guide To The Death Ray," by Tom Kneitel), the Soviets only recently announced that for the past 20 years they have been using a device known as The Lida. The Soviets describe it as a "distant pulse apparatus" that generates "radio waves that simulate the brain's own electromagnetic current and produce a trance-like state." Citing medical uses for The Lida, the Soviets reported that after only two or three minutes of exposure to signals from the device, a laboratory cat went into a trance-like state and remained oblivious to its surroundings for a full 20 minutes after The Lida was shut down.

Some of the more recent Soviet experiments with microwaves indicate that behavior modification occurs because the blood-brain barrier is changed. Using signals sent through implanted electrodes carrying a 30 microwatt signal, modified behavior was observed in laboratory animals.

Microwaves, being able to excite the brain, have opened the door to experiments related to inserting information into the signals that contain new or modified intelligence or ideas, which cancel out intelligence. There is also the potential for intelligence gathering by means of monitoring brain activity.

While the brain can be affected by microwaves, the brainwaves themselves are low energy signals at extremely low frequencies between 1 and 22 Hz.

So-called Delta waves (1 to 3 Hz) are generated during deep sleep. Theta waves (4 to 7 Hz) relate to mood. Alpha waves (8 to 12 Hz) correlate with a relaxed state, while Beta waves are generated during concentration. Of course, these waves have harmonics at higher frequencies.

Some of the known experiments include one by the Soviets at .01 to 5 Hz, which modified human EEG's. An American researcher supposedly did the same with generating Alpha and Theta waves.

Muscular coordination impulses are in the 20 to 50 Hz range, while the nerve fibers in the brain are resonant at 1 kHz.

The question is how microwaves of certain frequencies and densities might interact with the human organism, and how they might be used for mind-control, mind-reading, or other exotic purposes. It does seem that they're experimenting with something along these lines deep within the KGB, and our government is aware of the project. The implications are overwhelming. PC

The Cellular Product Parade

Many New CMT Innovations On The Way!

Three-In-One Cellular Telephone

In a joint venture, Magnum Ltd. and Mitsubishi International Corporation are introducing the Magnum-Roamx™ System III portable cellular telephone.

Using a combination of Mitsubishi's built-in "hands-free" technology and Magnum's innovations in cellular "briefcase-portable" technology, the System III phone has made telephone communications available everywhere—from the office to the golf course. It has a two-hour talk time capacity, with standby capacity and two-and-a-half hours.

According to Gregory G. Stergar, national marketing director for Magnum, Ltd. (the manufacturer of the System III), Magnum's portable cellular phone responds to consumer's needs for a high-powered and reliable portable system.

"This could be the most advanced personal communications system available today," says Stergar, "because it is the only three-in-one phone system around. It is a car phone, a briefcase phone, and a portable phone, all in one. It can be used in multi-purpose fashion by just about anyone."

The System III is available immediately through the Magnum-Roamx dealer network and selected Mitsubishi dealers. Its versatility made the venture between Magnum and Mitsubishi attractive to both parties.

"The executive will take this uniquely-styled communications system from vehicle to vehicle, meeting to meeting, and city to city," says William P. Finnegan, general manager of Mitsubishi International's Communication Equipment Sales Division. "The phone's modular design conveniently fits in a luxurious briefcase, plugs into the cellular telephone hookup in a car, or becomes a shoulder portable phone on the golf course or the boat."

The suggested retail price is $2995.

The System III has a fully-automatic regulated recharging network that prevents overcharging. Moreover, with the system plugged into a car's cigarette lighter, the internal power pack will be charged while simultaneously providing unlimited power off the car's 12-volt battery. RF Power Output is a full 3 watts.

Magnum, Ltd., developers of the Magnum-Roamx System III phone, is based in Bethesda, MD. For information, contact: Glenn Schrader, Distribution Sales Manager, Mitsubishi International Corporation, 879 Supreme Drive, Bensenville, IL 60601.

The three-in-one System III portable cellular telephone by Magnum/ Roamx.

*Available in three packages to automatically provide the power and features of the finest mobile cellular telephones, as well as the flexibility and convenience of a portable, the GE*MINI is General Electric's newest cellular product.*

*GE*MINI Cellular Portable*

General Electric announced its first cellular portable telephone series, the GE*MINI, packaged in a slim, 1.88 pound hi-tech design, boasting the twin capabilities of mobile or portable hand-held operation.

The unit is designed to function as a vehicular cellular mobile, complete with a booster amplifier to provide a potent 3-watt signal, or as a hand-held personal portable operating independently at a reasonable 600 milliwatts.

"We may have truly designed the ultimate cellular telephone in the GE*MINI," says John Berti, GE's cellular product manager. "In its portable configuration, we've got a full featured cellular telephone which will fit in an inside suitcoat pocket—and yet the accessory system allows vehicular operation with all the features people have come to expect from the GE-STAR mobile phone."

The GE*MINI cellular phone measures a mere 8.23 inches in height, is 3.27 inches wide, and has a depth of 1.32 inches. An innovative side mounting battery with a quick clip bayonet mount allows a complete battery change in seconds.

The GE*MINI features include 30 number (up to 15 digits each) memory storage and recall for speed-dialing, last number redial, scratchpad, built-in A/B switching, memory features for volume settings, a backlit LCD window, and textured surfaces for non-slip comfort.

The portable will be offered in three separate packages: The GE*MINI Portable package includes the portable unit, a 16-hour desk top charger and a spare battery. The GE*MINI Convertible package includes the GE*MINI portable unit, a remote handset and cradle, the 12-volt vehicular charger, and a pedestal mount. The third package, called the VersaMobile, includes the portable transceiver, a remote handset and cradle, a 12-volt vehicular charger, a 3-watt space saving power booster amp, a hands free speaker/microphone, and a pedestal mount.

"This product is a natural for anyone required to spend a good deal of time in and out of a vehicle yet who needs to remain in

touch," says Berti. Target markets include contractors, architects, investigators, security services, stadium officials, and facilities operations such as airports or large manufacturing complexes.

"The extreme portability of the GE*MINI should be a boon to frequent travelers and business executives who can tuck the unit into a pocket or a briefcae and roam in any city with cellular service," Berti says confidently. "We've also seen a strong market interest from people who want to pursue leisure activities yet need an 'in touch' capability, such as when boating, playing golf or just working around the yard."

"We've worked very hard to offer a portable with the best standby/transmit battery life in the industry," he concluded. Standby capability exceeds 8 hours on a full battery charge.

Additional information regarding the GE*MINI Cellular Portable is available by calling, toll-free, 1-800-GE-12345. In Virginia, call (804) 528-7021. Or write General Electric Company, Mobile Communications Division, Dept. GE*MINI, Lynchburg, VA 24502.

New Teflon-Clad Antennas

Two new mobile antenna models designed for cellular applications have been introduced by The Antenna Specialists Co. The new antennas feature black Teflon S-coated whips and adapters, harmonizing with current trends in automotive trim design and providing additional protection for high-corrosion localities. Model ASPD1860 is the Teflon S-coated version of the company's Model ASPD1850 standard roof mount.

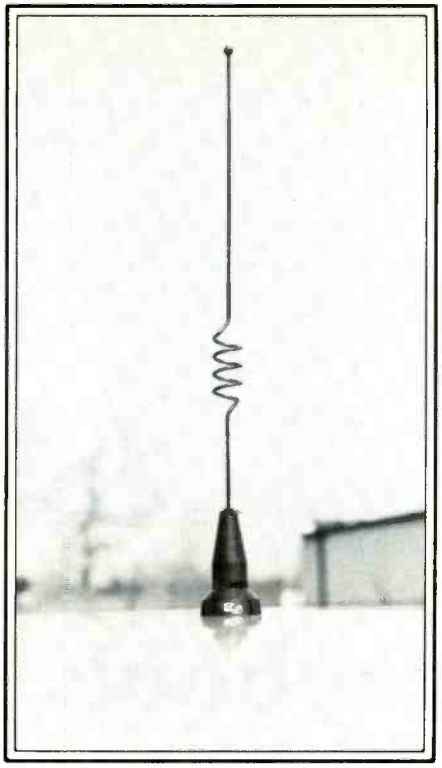
The 3 dB gain antenna is furnished with a positive male/female RF connection at the antenna base, particularly critical for cellular and other full duplex voice communication systems. Also supplied is 17 feet of A/S low-loss PRO-FLEX™ cable, with crimp connectors. Model ASPRD911 is the black Teflon S-coated deck-mounted, elevated-feed antenna. The stanchion assembly and base also are black.

Exhibiting 3 dB gain, the antenna covers the entire cellular spectrum without cutting or tuning. It requires no ground plane and, therefore, is especially appropriate for vehicles with fiberglass bodies, convertibles, etc. The antenna terminates with a female N connector and is supplied less cable. For further information, contact: Marketing Department, The Antenna Specialists Co., 12435 Euclid Avenue, Cleveland, OH 44106.

Suitcase Cellular Telephone

A telephone is always within arms reach with Audiovox's new suitcase cellular telephone. The new unit is marketed through the company's AudioTel mobile cellular telephone division. It is available in a choice of three durable briefcases.

The CMT-1200 unit contains Audiovox's CMT-1000 cellular phone and portable accessories in a Samsonite Survivor briefcase. It retails for $2,250. The CMT-1300 portable unit includes the same telephone and accessories in a silver Halliburton case for $2,695; and the CMT-1350, which includes a CMT-1000 in a black Halliburton case, retails for $2,895. All three units have a 3-digit combination lock for security and full length piano-type hinges for rigidity.



The Antenna Specialists ASPD1860 cellular roof antenna.

The CMT-1200 unit from Audiovox contains the CMT-1000 cellular phone and portable accessories in a Samsonite Survivor briefcase.

The CMT-1000 cellular telephone has two features unique to AudioTel; a five year warranty covering parts and labor and a two mode electronic message recorder that either records numbers or leaves a call forwarding number.

In addition to a 4 amp, hour NiCad battery, the suitcase unit includes a lightweight AC charger with status indicators for easy recharging through a standard 110V AC outlet.

The AudioTel suitcase phone uses two antennas; a ¼ wave flexible type with TNC connector and a custom folded ⅝ wave antenna with a 10-inch height. The folded ⅝ wave antenna effectively doubles the output power of ¼ wave antennas. In addition, an outside vehicle antenna can be connected for higher power, clarity, and reception in automobiles.

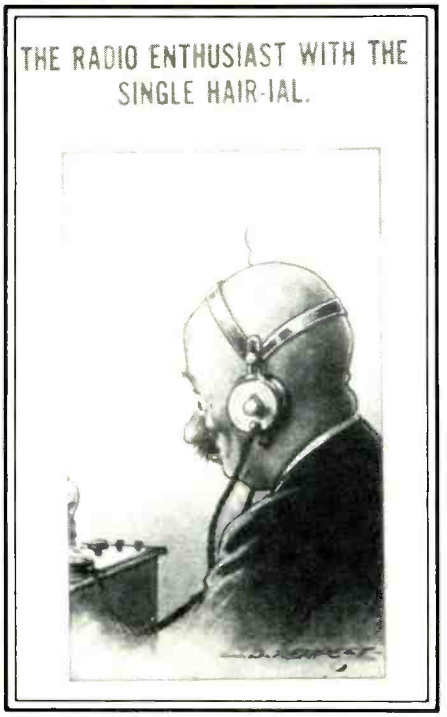
The cellular suitcase phone can be operated in a car through the unit's heavy duty molded cigarette lighter plug that trickle charges the cellular phone from the car battery as it is used.

Options for the new cellular unit include a heavy duty "D" ring strap attachment for shoulder carrying ($25) and an AC power supply that allows operation on household current ($60). An easy to understand user's manual is provided with each phone.

For more information, contact AudioTel, 150 Marcus Blvd., Hauppauge, NY 11787. PC

WGI was operational from 1922 to 1926.

One of the many comic postcards radio fans exchanged in the 1920's.



Radio Scrapbook

A Gentle Look Into History

BY ALICE BRANNIGAN

This month we lead off with very rare peeks into the workings of two short-lived and virtually forgotten broadcasters of the early 1920's. Those were the days when radio broadcasting was relatively new and little more than a curiosity to the general public. It was easy and inexpensive to put a station on the air as long as it was intended for local reception. Moreover, there were many who wanted the prestige of owning their own broadcasting stations. As a result, there were small stations in theatres, stores, residences, hotels, radio repair shops, schools, churches, newspapers, etc.

Such stations often came into existence and went into limbo within very brief periods of time. Either they were bought up by other stations or else they faded because their owners lost interest in broadcasting or found that keeping the station going was more costly and time consuming than they had bargained for. WGI and KDZE were two such stations; they were scarcely around long enough to leave their footprints in the sands of broadcasting history.

WGI, late of Medford Hillside, Massachusetts, went on the air in 1922 using a 100-watt transmitter on 832.8 kHz. Like many early broadcasters, WGI was owned by a company in some way connected with the manufacture of radio equipment. In this case it was a well-established company known as the American Radio and Research Corporation, H.J. Power, vice president and general manager. With a sales office at 21 Park Row in New York City, the company described itself as "manufacturers of reliable radio apparatus of the highest grade . . . radio research engineers equipped with exceptional laboratory facilities for radio testing and experimental work. American Radio equipment has met with success wherever used." These statements were probably true because WGI was heard by listeners in Kansas, Texas, and Cuba.

WGI eventually shifted from 832.8 kHz to 1150 kHz, and was also operated under the callsign WARC, in addition to WGI. The station operated for several hours per day and even had a "woman's club" feature. By 1926 the station left the air forever.

Another almost-forgotten broadcaster with an obscure and brief existence was KDZE in Seattle, Washington. This was a 100-watt broadcaster that popped up in 1922 on 832.8 kHz. Shortly after opening for operation, KDZE was purchased by the Rhodes Department Store, which promptly converted one of their street-level display windows into a broadcasting studio so that the public could watch KDZE broadcasting.

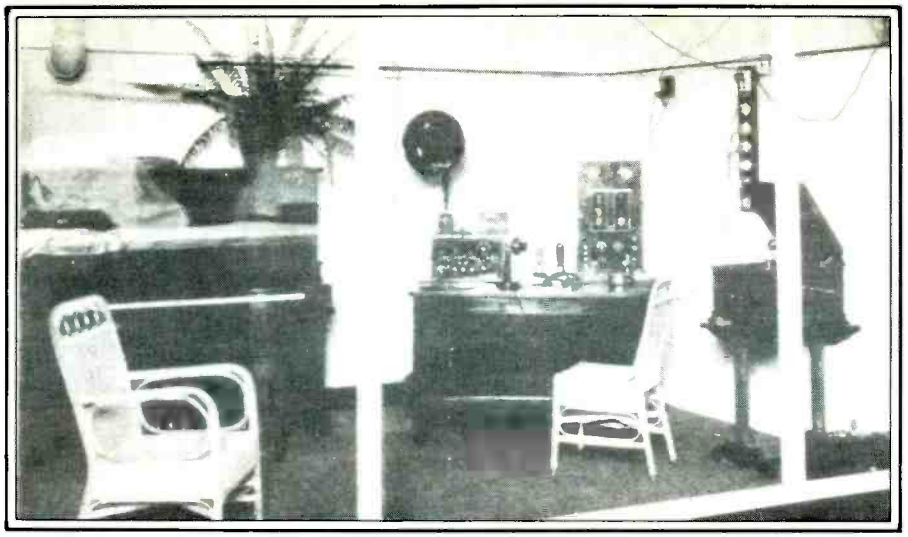
By 1924 the station had moved to a new frequency, 1110 kHz. Listings of late 1925 didn't carry information on KDZE, so it appears that, like WGI, it had an extremely short run at glory.

In our view of KDZE (which may well be the only photo every taken of this station), the glass-walled store window is depicted. An upright piano is at the left of the desk while a hand-crank phonograph is at the far right. Two wicker chairs provide the creature comforts. The KDZE transmitter displays its two large "bottles," and there are a sufficient number of wires strung all over the place to impress all concerned.

POP'COMM reader J. Ellenbogen of California sent us a great comic postcard from the early days of broadcasting. This card is typical of numerous cartoons relating to the "newfangled" radio equipment people were installing in their homes. They could be used to give a pleasant ribbing to a friend who had just purchased a new receiver, and were also a pleasant way of letting others know that you wanted to flaunt the fact that you just purchased a set. Eventually there were so many people with radios in their homes that the direction of the humor changed a bit. Then the cards began making fun of radio—the equipment breakdowns, static, interference, etc. We have some of these cards on hand and will run them in future issues as space permits.

Next, let's talk about station WPHT in Cambridge, Ohio. You may never have heard WPHT unless you were a fan of tuning past the high frequency end of the standard broadcasting band (which was established at 1500 kHz for many years). That's because WPHT was the callsign given to the Cambridge, Ohio post of the Ohio State Patrol. Between 1500 kHz (later 1600 kHz) and 2490 kHz there was a rich harvest of DX consisting of police and fire dispatchers that might be heard throughout North America.

WPHT appears to have first come on the air in late 1935, when the Ohio State Patrol expanded its communications system and switched frequencies from 1596 kHz to 1638 kHz. At that time WPHT was running



Station KDZE, located in the window of a Seattle department store.

400 watts. In 1936, WPHT moved, along with other OSP stations, to 1682 kHz. By the mid-1940's, WPHT was again shifted upwards in frequency, this time to 1730 kHz and the VHF low-band frequency of 39.10 MHz was added. That status was in effect in 1950 when the FCC cancelled the callsign WPHT and dubbed the Cambridge OSP post as KQB359. The callsign change came about when the FCC had run out of 4-letter format callsigns. The FCC decided that only broadcasters and ocean-going ships would henceforth be entitled to have 4-letter format callsigns; all other stations would have to give up such calls and accept new identifications in alpha-numeric formats. Hence KQB359 came into being.

Our view of WPHT/KQB359 is via an undated picture postcard revealing a two-story red (brick?) building adorned with numerous yellow awnings. A flag flies from a pole on the front lawn. My guess is as good as yours as to why a police station became the subject for a scene on a picture postcard. It is hardly something you'd pick off the rack at Stuckeys on your vacation to drop a quick message to Cousin Henry in Albuquerque!

Note that at the rear of the building is a self-supported, top-loaded tower. By the 1950's, this 220 ft. tower was fed by 500 ohm line from the station's 1200 watt (input) transmitter. The approximate power output was 300 watts, enough to generate a signal that could be heard throughout North America. A QSL from this station dated 1954 indicates that the Chief Operator at that time was H.S. Rusk.

Although the Cambridge office of the OSP is still in operation, the old 1730 kHz frequency is history, as is the VHF low band frequency of 39.10 MHz. Currently, the station retains the callsign KQB359 and is also assigned the call letters KSL843. These stations now operate on the following frequencies: 39.46, 42.42, 44.94, 45.02, 45.10, 45.20, 154.68, 154.935, and 155.37 MHz.

"Dear Cousin Henry, how are things in Albuquerque? This postcard shows where Matilda and I are spending the weekend. The Studebaker is running just fine and we found out that it could do 95 MPH. So did the Ohio State Patrol. Please wire $500 immediately. Regards, Seymour."

Back in the days when shortwave broadcasters didn't all feel the need to run megawatts in order to be heard, there were quite a number of small stations making a name for themselves. One such station was La Voz del Yaque, also known as HI1A in the Dominican Republic.

Our 1937 QSL from HI1A notes that the station ran only 50 watts while operating on its frequency of 6185 kHz when it was heard throughout the Americas, in Europe, India, and Japan! Not bad! At that time the station was on the air every day from noon to 2 p.m. (local time, which was EST – 20 minutes). Only two years earlier, when HI1A operated on 6272 kHz, it used 7.5 watts, and yet its familiar musical theme song of "Anchors Aweigh" was heard by a large number of devoted listeners.

In a 1934 letter from HI1A's studios in the Dominican Republic, Raphael Western, the station's owner, told a listener: "My station is located in Santiago de los Caballeros, a city in the inland of the island . . . Its power is 7.5 watts, transmitting every day from noon to 1:30 p.m. and 7:30 to 9:30 p.m. EST, and special programs every Sunday morning at 1 a.m. for shortwave listeners. It was constructed by its owner. Our air trademark is *La Voz del Yaque*. We usually have an exciting and varied program. Lots of dance music, featuring the Merengue, Bolero, Danzon, Criolla, Son, Rumba, and band concerts from Duarte Park by the Municipal Band." Thanks to a friend of this column, who wishes to remain anonymous, for the QSL and letter regarding HI1A.

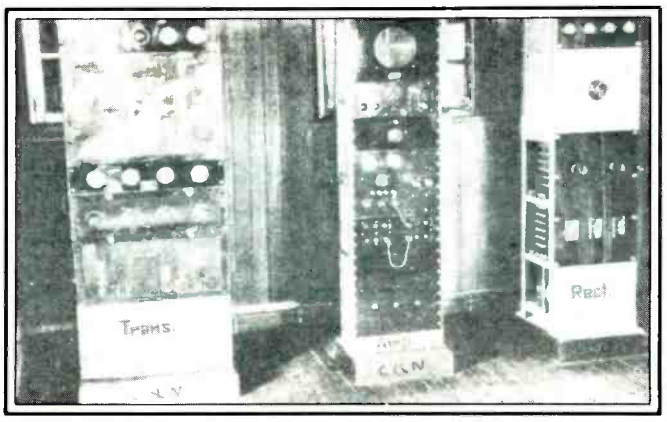
In 1922 or '23, The Dakota Radio Apparatus Company of Yankton, South Dakota established station WNAX on 1230 kHz. By 1927 the station had been sold to the Gurney Seed and Nursery Company, which changed the frequency of the 1,000 watt station to 570 kHz. While a 1 kW station today is nothing too unusual, in 1927 it stood out amongst a backdrop of stations running between 10 and 500 watts.

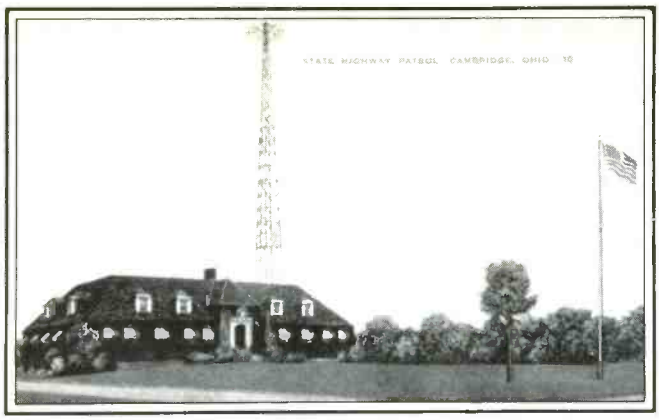
By the 1940's WNAX had been resold to the WNAX Broadcasting Company, had jumped up to 5,000 watts, and was still on 570 kHz (even though most American broadcasters had been reassigned to new frequencies in 1939).

Our view of the WNAX building at 2nd and Capitol Streets in Yankton is how it looked in 1962. The postcard claims that WNAX has "America's highest radio tower" (undoubtedly a reference to altitude above sea level rather than the height of the antenna structure itself).

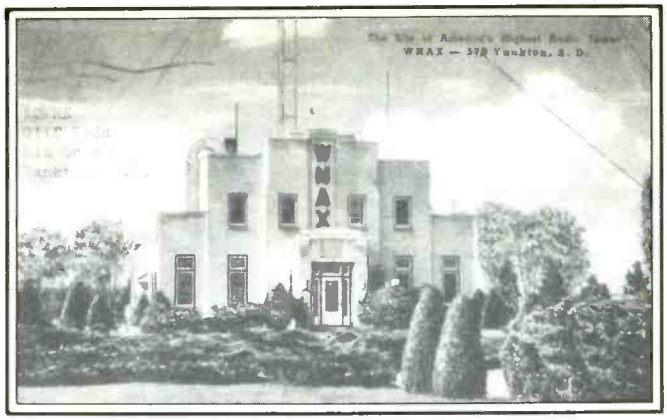
QSL from 50-watt shortwave broadcaster HI1A of 1937.

A rare station in a rare nation, CQN in Macao.





WPHT, the Cambridge post of the Ohio State Patrol, ended up on 1730 kHz with the callsign KQB359 before shifting all operations to the VHF bands.



WNAX has stayed on 570 kHz for 58 years!

The WNAX building looks to have a stucco facade. Located on a well-landscaped plot, the callsign appears in large letters above the main entrance. The antenna is on the roof.

As an interesting sidelight, the WNAX postcard shown here was used as a ham QSL card! In 1962 it was sent by Clif Todd, KØFRE, long WNAX's chief engineer, in order to confirm a contact on the 40-meter band. For the record, Clif ran 100 watts into a dipole. His kHz inhaler was a National NC-303. How we came into its possession is a long story.

One of the world's nations you probably have never monitored is a strange little place called Macao. Presently there are only a couple of hams authorized there (CR9 prefix), and one of them is there only once in a while. There are a few AM and FM broadcasters, but nothing in the way of a shortwave broadcaster.

Macao (you say it "Muh KOW") was settled in 1557 by the Portuguese. It consists of the city of Macao, located on a small peninsula attached to the southeast coast of the Peoples Republic of China. There are also three small islands. Being 40 miles west of Hong Kong, Macao is 6 square miles in size.

Of the population (262,000), 90% are Chinese and 10% are Portuguese. While there are magnificent high-rise hotels and condos, much of Macao consists of quaint old houses lining cobblestone streets as might be found in an ancient Portuguese village.

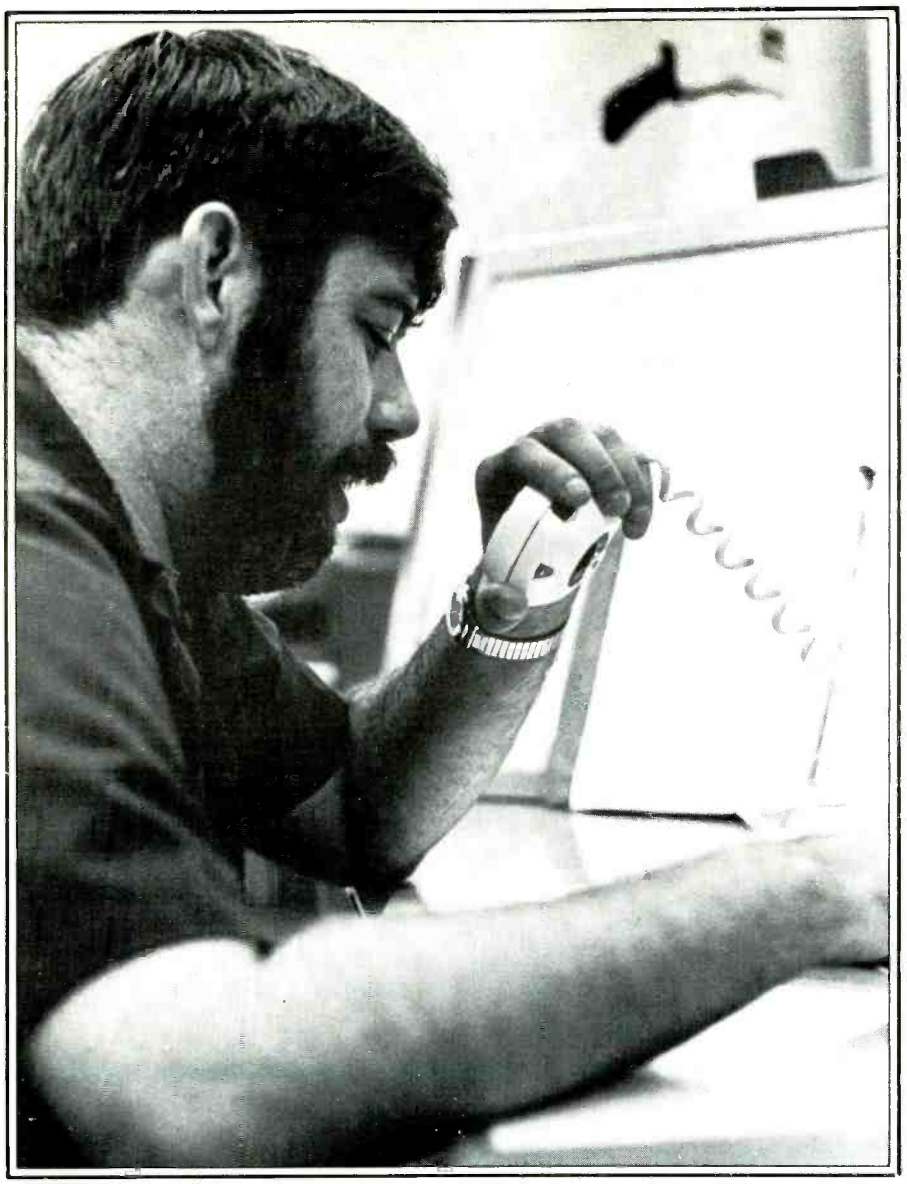
While Portuguese is the official language, Cantonese is generally in use. The economy is mostly clothing and tourism. By virtue of a Sino-Portuguese treaty (1887), Macao remains a Portuguese-administered territory, but the PRC is the dominant political power since it may veto any local laws or policies. The PRC tolerates Macao's existence since the little area purchases virtually all of its food and drinking water (as well as one third of its other imports) from the PRC.

Alice tries her hand at a mobile phone call while rooting out radio history.

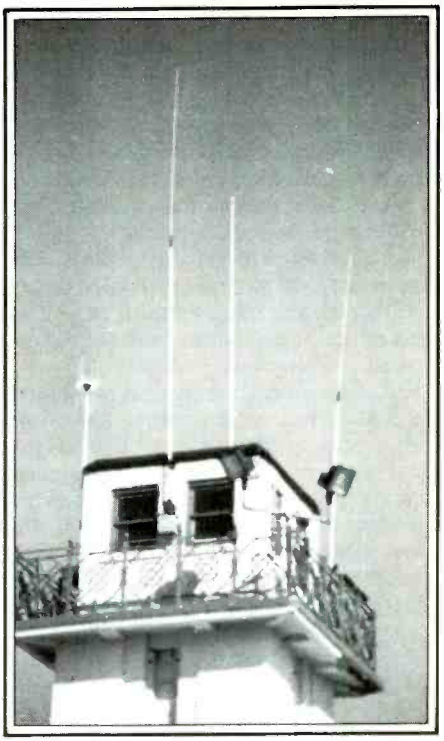
Fifty years ago, Macao could be heard on the international shortwave broadcast bands. It's true; read it and weep! If you had a receiver handy in the mid-1930's, you could have tuned to 6073 kHz Monday through Friday from 0800 to 1000 GMT and taken a run at hearing station CQN. This 500 watt broadcaster was operated by the postmaster general and was widely heard.

Our look at this station's transmitting plant shows (left to right) the transmitter, amplifier, and power supply. Now don't you wish CQN was still on the air so you could add this rarely reported nation to your "countries heard" list?

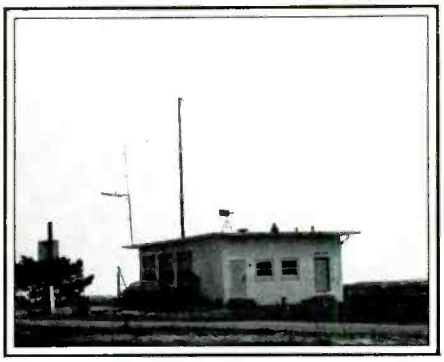
That's the way it was! PC



Many Coast Guard stations transmit scheduled broadcasts in order to present weather and navigation information to marines.



Transmitting antennas atop the Short Beach, New York Coast Guard station.



The transmitter building at the East Moriches, New York Coast Guard station.

Monitoring Coast Guard Broadcasts

Here's Your Chance To Add To Your DX'ploits!

BY JAN MAYJAC, KLA5ES

Maybe you're not interested in weather broadcasts or notices to mariners; even so, you shouldn't pass up the chance to log some stations you've probably never heard previously. That's because the former popularity of the 2 MHz marine frequencies has diminished to the point where many monitors haven't devoted much time to those regions of the spectrum. It's true that the 2 MHz band has fallen upon hard times, but there's still DX to be heard there, most importantly scheduled broadcasts from the U.S. Coast Guard.

Coast Guard broadcasts using SSB mode take place on 2670 kHz, in addition to other HF frequencies, as well as on the VHF FM frequency of 157.10 MHz. These broadcasts are for the purposes of advising mariners of the weather outlook as well as the current status of navigation hazards (including icebergs in waters where they are normally encountered).

Of course, 2670 kHz isn't a frequency where you can hear any distant transmissions

during the daylight hours—it's really a spot for listening during the hours of darkness when the signal absorbing D and E layers of the ionosphere call it quits for a few hours.

DX on 2 MHz is best during the period between October and March, but nights always bring through something worth monitoring no matter what time of the year it is. The 2670 kHz frequency is especially good because, in addition to the scheduled broadcasts to be heard there, unscheduled emergency broadcasts are monitored, as well as two-way communications between Coast Guard shore stations and cutters.

The shore stations seem to run between 2 and 3 kW into omni-directional antennas. Their signals on 2 MHz are not intended for cross-continent reception. These transmissions are geared to be useful to mariners located within a few hundred miles of the shore station making the broadcasts. So, any stations you can hear more than 200 miles off into the distance can be classified as worthy of taking upon yourself a feeling of minor accomplishment. Stations even further into the distance (and you'll hear plenty of them) should really make you happy that you spent time at the dials instead of watching reruns of *The Tonight Show*.

Another facet of monitoring the broadcasts on 2670 kHz is contained within the word *broadcasts*. Weather and notices to mariners are broadcasts in the classical sense of the term. Indeed, they are intended for reception by the general public, therefore there shouldn't be any question of whether one might try to verify (QSL) the stations making such transmissions. Moreover, stations of the U.S. Coast Guard have an excellent track record for being "listener friendly," especially when it comes to their broadcasts (maybe not so friendly toward those who have attempted to QSL reception of the Coast Guard's enforcement operations).

In order to make your DX'ing on the Coast Guard's broadcast frequencies as enjoyable as possible, we have included here a listing of most of the scheduled voice transmissions, along with information on HF frequencies in addition to 2 MHz, plus the mailing addresses of the stations involved. Reception reports relating to the broadcasts may be sent to the "Communications Officer In Charge" at the address indicated. A prepared reply card should be included, which the operator can fill in, sign, and return to you. A few of the major Coast Guard stations have been known to furnish their own "real" QSL cards!

Other 2 MHz frequencies that offer up U.S.C.G. communications include: 2082.5, 2093, 2103.5, 2182, 2203, 2261, 2638, 2667, 2738, and 2830 kHz. In the Great Lakes area, there is activity on 2003 kHz in addition to other frequencies given.

The Canadian Coast Guard also has regularly scheduled voice broadcasts over their large HF communications network. In many instances, these broadcasts also go out on VHF-FM over 161.65 and 161.90 MHz. A listing of the Canadian Coast Guard's broadcast schedules is also given here. As you can

U.S. Coast Guard Voice Broadcasts

Callsign	Address	kHz	GMT
NMA	U.S. Coast Guard Base MacArthur Causeway Miami Beach, FL 33139	2670	0350, 1550
NMA21	U.S. Coast Guard Station 600 Eighth Ave., S.E. St. Petersburg, FL 33701	2670	1420
NMB	U.S. Coast Guard Base 196 Tradd St. Charleston, SC 29401	2670	0420, 1620
NMC	U.S. Coast Guard Comm. Sta. P.O. Box 560 Pt. Reyes, CA 94956	2670 4428.7 8765.4 13113.2 17307.3	0203, 1403 0430, 1030 0430, 1030, 1630, 2230 0430, 1030, 1630, 2230 1630, 2230
NMC6	U.S. Coast Guard Station Monterey, CA 93940	2670	0350, 1533
NMF	U.S. Coast Guard Comm. Sta. 427 Commercial St. Boston, MA 02109	2670	1040, 1640
NMG	U.S. Coast Guard Radio Sta. 4640 Urquhart St. New Orleans, LA 70117	2670	0550, 1035, 1235, 1635, 1750, 2235
NMK	U.S. Coast Guard Sta. Cape May, NJ 08204	2670	0020, 1220
NMN	U. S. Coast Guard Comm. Sta. 4000 Coast Guard Blvd. Portsmouth, VA 23703	2670 4428.7 6506.4 8765.4 13113.2 17307.3	1905 0400, 0530, 1000 0400, 0530, 1000, 1130, 1600, 2200, 2330 0400, 0530, 1000, 1130, 1600, 2200, 2330 1130, 1600, 1730, 2200, 2330 1730
NMN37	U.S.C.G. Ft. Macon Base P.O. Box 237 Atlantic Beach, NC 28512	2670	0103, 1240

Canadian Coast Guard HF Voice Broadcasts

Location	Call	Times	kHz
Alert Bay, NWT	VAF	H + 20 even	1630
Bull Harbour, BC	VAG	H + 40 even	1630
Canso, NS	VAX	H + 38 even	2598
Cardinal, Ont.	VDQ	H + 45 odd	2598
Cartwright, Lab.	VOK	H + 36 odd	2598
Charlottetown, PEI	VCA	H + 44 odd	2582
Churchill, Man.	VAP	H + 55 odd	2582
Comfort Cove, Nfld.	VOO	H + 34 odd	2598
Comox, BC	VAC	H + 33 even	1630
Coral Harbour, NWT	VFU	H + 50 odd	2582
Frobisher Bay, NWT	VFF	H + 40 odd	2582, 4376
Goose Bay, Nfld.	VFZ	H + 36 even	2582, 2598
Grindstone, Que.	VCN	H + 40 odd	2598
Halifax, NS	VCS	H + 33 odd	2598, 4410.1, 8787.1, 13138, 17242.2
Inoucdjouac, Que.	VAL	H + 35 odd	2582
Killinek, NWT	VAW	H + 10 odd	2582
Mont Joli, Que.	VCF	H + 20 even	2514
Montreal, Que.	VFN	H + 05 even	2582
Port Burwell, Ont.	VBF	H + 45 even	2598
Poste de la Baleine, Que.	VAV	H + 40 odd	2582
Prince Rupert, BC	VAJ	H + 40 odd	1630
Quebec, Que.	VCC	H + 10 even	2582
Riviere du Renard, Que.	VCG	H + 50 even	2582, 2598

NMN70	U.S. Coast Guard Station Chincoteague, VA 23336	2670	0233, 1403
NMN80	U.S.C.G. Hampton Roads Base P.O. Box 6082 Portsmouth, VA 23703	2670	0203, 1333
NMO	U.S. Coast Guard Comm. Sta. Wahiawe, HI 96786	2670	0545, 0903, 1145, 1745, 2103
		6506.4	0545, 1145
		8765.4	0545, 1145, 1745, 2345
		13113.2	1745, 2345
NMQ	U.S.C.G. Long Beach Radio Pt. Vincente Palos Verdes Peninsula, CA 90274	2670	0440, 1303, 2103
NMR	U.S. Coast Guard Base San Juan, PR 00903	2670	0305, 1505
NMW	U.S.C.G. Astoria Radio Sta. Rt. 1 Box 950 Warrenton, OR 97146	2670	1203, 1733
NMY41	U.S.C.G. Shinnecock St. Hampton Bays, NY 11946	2670	0020, 1220
NOE	U.S. Coast Guard Air Station 2000 Connecticut Ave. North Bend, OR 97459	2670	1215
NOJ	U.S. Coast Guard Comm. Sta. Kodiak, AK 99619	4125	0703, 1903
NOQ	U.S.C.G. Air Station Mobile, AL 36608	2670	1020, 1220, 1620, 2220
NOQ7	U.S. Coast Guard Station Panama City, FL 32401	2670	1005, 1205, 1605, 2205
NOW	U.S. Coast Guard Air Station Port Angeles, WA 98362	2670	0545, 1745
NOY	U.S. Coast Guard Base Galveston, TX 77550	2670	1050, 1250, 1650, 2250
NOY8	U.S. Coast Guard Air Station Corpus Christi, TX 78419	2670	1640, 2240
NRV	U.S. Coast Guard Radio Sta. Guam FPO San Francisco 96630	2670	1005, 2205

Riviere du Loup, Que.	VCD	H + 50 odd	2598
Sanspit, BC	VAH	H + 03 even	1630
Sarnia, Ont.	VBE	H + 05 even	2598
Saulte Ste. Marie, Ont.	VBB	H + 35 odd	2598
Sept Iles, Que.	VCK	H + 40 even	2582
Stephenville, Nfld.	VOJ	H + 38 odd	2598
Sydney, NS	VCO	H + 34 even	2598
S. Anthony, Nfld.	VCM	H + 42 odd	2598
S. John, NB	VAR	H + 36 even	2598
S. John's, Nfld.	VON	H + 40 odd	2598
S. Lawrence, Nfld.	VCP	H + 42 odd	2598
Thunder Bay, Ont.	VBA	H + 45 odd	2598
Tofino, BC	VAE	H + 33 odd	1630
Toronto, Ont.	VBG	H + 35 even	2598
Vancouver, BC	VAI	H + 10 even	1630, 4385.3, 8737.5, 13119.4, 17254.6, 22654.9
Victoria, BC	VAK	H + 03 odd	1630
Wiarton, Ont.	VBC	H + 15 odd	2598
Yarmouth, NS	VAU	H + 33 even	2598

Times shown indicate the number of minutes past odd or even hours. Thus "H + 35 odd" means 35 minutes after odd-numbered hours (0135, 0335, 0535, etc.), while "H + 05 even" means 0005, 0205, 0405, etc.

Some of the antennas in use at the famous Fire Island Coast Guard base.

see from the Canadian and U.S. Coast Guard schedules, reports of the demise of the 2 MHz band may have been premature!

Best bet for listeners is to "park" the receiver on one specific frequency for an evening and see what comes through. You'd be surprised what that will produce for you. You'll see how broadcasts from within a widespread geographic region are scheduled in an interwoven pattern so as not to cause interference with one another while still offering the mariner the convenience of hearing several successive reports within the same general time period.

There are plenty of stations to hear, and the chance to snag "ute" stations while they're making actual "broadcasts" is too great to ignore. So what are you waiting for?

Starting A New Page

Radio Paging Is The Poor Man's Cellular Telephone

BY BILL HARGRAVES, KCA6WR

Often overlooked in the hustle and bustle of the personal communications explosion is one-way paging by radio. Yet lots of folks are walking around with little black boxes in their pockets and on their belts. Doctors, attorneys, media people, plumbers, electricians, farmers, appliance repair technicians, teachers, and many others who travel within a specific area as part of their work have long known the usefulness of radio pagers.

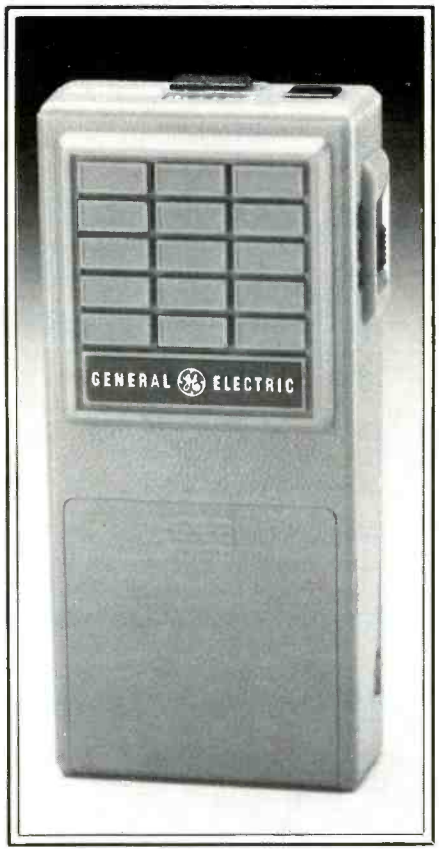
Within seconds, and at relatively low cost, they can be altered to the fact that someone is attempting to communicate with them. To those whose time means money, the benefits are enormous.

Families have now discovered the advantages of radio paging. Mom can tell little Jimmy it's time to come home for supper, or maybe she can tell big Jimmy that the day's fishing trip is over and it's time to start up the outboard and head home. Of course, Dad can use radio paging to suggest to Mom that it's time to put away the golf clubs and come home to mow the lawn. The uses are limitless, and for less than $100 and a small monthly service charge from a local paging service, you can buy your own pocket pager and be in on the action.

Several types of paging are available. With one type, persons who want to contact you call your exclusive pager telephone number and your unit goes "beep" and displays (via LCD's) the telephone number of the calling party. In fact, it will retain that number in its memory until you return the call by landline phone and erase the number from the pager (which can store several numbers).

Another type of pager will respond to two different types of calls—routine and urgent. This is especially handy for medical personnel and members of fire departments and rescue teams. Those wishing to communicate with the pager owner are supplied with two different telephone numbers. A call to one number causes the pager to "beep," indicating a routine message; a call to the other number causes the device to "buzz," the alert signal for an urgent message.

Some pagers signal the unit's owner with a distinctive sound followed by the voice of an actual dispatcher sending a brief message. Although the message may well be "Call your office," it could be "Deliver 200 gallons of fuel oil to 375 Main Street," thus saving the pager owner a landline call to his office to get the message.



General Electric's BEACON™ Monitor Pager, a unit designed to receive selective two-tone paging calls or, at the flip of a switch, monitor all messages on a given channel. The BEACON is available in low band, high band, and UHF frequencies; boasts high/low volume settings; and weighs one third less than the leading competing product.

Other pagers may even print out complete messages (via LCD's) and store them for later retrieval at the owner's convenience. Such units are almost like micro-miniature RTTY receivers. A typical message over such a unit might go to an attorney to advise "YOUR APPOINTMENT WITH MR. JONES CHANGED FROM 3 PM to 4:30 PM," or to a typewriter repair technician advising, "XYZ COMPANY, 644 MIDWAY AVENUE, SMITH-CORONA ELECTRIC KEYBOARD JAMMED."

Actually, there are many variations to the radio paging theme, and these are only a few of the services that can be obtained.

The heart of the concept is the base station that sends out the messages to a given pocket pager. These base stations may be operated by individual businesses or hospitals in order to communicate with their own personnel, or they may be operated by common carrier companies that contract to handle messages for a large number of companies and individuals for a monthly fee.

The signals for the radio pagers can take place on many frequencies between the VHF low band and the 900 MHz UHF band. Depending upon the type of paging service provided, the signals monitored by a scanner owner might consist of a series of varied tones, or the tones followed by a voice reading of a message. Radio Common Carriers operating between 152.03 and 152.21 MHz, and between 454.025 and 454.35 MHz often intermix the radio paging with two-way mobile telephone calls or message services they provide.

A listing of all of the one-way Radio Paging frequencies now in use is shown in our chart. Note that some of the Special Emergency frequencies are shown with the word "alerting." While radio paging frequencies are usually set aside only for paging purposes, in the instance of the Special Emergency service, some regular two-way communications frequencies may also be used for a type of paging called "alerting."

Alerting is a special form of paging that can be used by rescue and ambulance squads. Since many of these groups are volunteer staffed and have small budgets, allowing alerting of emergency personnel on regular two-way communications frequencies relieves those agencies of the financial burden to purchase separate paging equipment operating on different channels.

Alerting permits these squads to send an alerting tone and a short message to their personnel to advise them of an emergency situation. These transmissions are usually intermittent and of a short duration with two-way communications to follow. In any event, alerting is a secondary communications function on these frequencies.

Ultimately, the need for people to always

Radio Paging And Alerting Frequencies

MHz	Radio Service(s)
33.02	Special Emergency (alerting)
33.04	Special Emergency (alerting)
33.06	Special Emergency (alerting)
33.08	Special Emergency (alerting)
33.10	Special Emergency (alerting)
35.22	Radio Common Carriers
35.58	Radio Common Carriers
35.64	Special Emergency
35.68	Special Emergency
37.90	Special Emergency (alerting)
37.94	Special Emergency (alerting)
37.98	Special Emergency (alerting)
43.22	Radio Common Carriers
43.58	Radio Common Carriers
43.64	Special Emergency
43.68	Special Emergency
45.92	Special Emergency (alerting)
45.96	Special Emergency (alerting)
46.00	Special Emergency (alerting)
46.04	Special Emergency (alerting)
47.42	Red Cross (alerting)
47.46	Special Emergency (alerting)
47.50	Special Emergency (alerting)
47.54	Special Emergency (alerting)
47.58	Special Emergency (alerting)
47.62	Special Emergency (alerting)
47.66	Special Emergency (alerting)
152.0075	Special Emergency
152.03	Radio Common Carrier (+2-way)
152.06	Radio Common Carrier (+2-way)
152.09	Radio Common Carrier (+2-way)
152.12	Radio Common Carrier (+2-way)
152.15	Radio Common Carrier (+2-way)
152.18	Radio Common Carrier (+2-way)
152.21	Radio Common Carrier (+2-way)
152.24	Radio Common Carrier
152.48	Business Radio Service
152.84	Telephone Companies
154.625	Business Radio Service
155.16	Special Emergency (alerting)
155.175	Special Emergency (alerting)
155.205	Special Emergency (alerting)
155.205	Special Emergency (alerting)
155.22	Special Emergency (alerting)
155.235	Special Emergency (alerting)
155.265	Special Emergency (alerting)
155.28	Special Emergency (alerting)
155.295	Special Emergency (alerting)
155.325	Special Emergency (alerting)
155.34	Special Emergency (alerting)
155.355	Special Emergency (alerting)
155.385	Special Emergency (alerting)
155.40	Special Emergency (alerting)
157.45	Special Emergency
157.74	Business Radio Service
158.10	Telephone Companies
158.46	Business Radio Service
158.70	Radio Common Carriers
163.25	Special Emergency
454.025	Radio Common Carrier (+2-way)
454.05	Radio Common Carrier (+2-way)
454.075	Radio Common Carrier (+2-way)
454.10	Radio Common Carrier (+2-way)
454.125	Radio Common Carrier (+2-way)
454.15	Radio Common Carrier (+2-way)
454.175	Radio Common Carrier (+2-way)
454.20	Radio Common Carrier (+2-way)
454.225	Radio Common Carrier (+2-way)
454.25	Radio Common Carrier (+2-way)
454.275	Radio Common Carrier (+2-way)
454.30	Radio Common Carrier (+2-way)
454.325	Radio Common Carrier (+2-way)
454.35	Radio Common Carrier (+2-way)
462.75	Business Radio Service
462.775	Business Radio Service
462.80	Business Radio Service
462.825	Business Radio Service
462.85	Business Radio Service
462.875	Business Radio Service
462.90	Business Radio Service
462.925	Business Radio Service
929.00	Private Carrier and Non-commercial Private (40 channels space at 25 kHz intervals between 929.00 and 930.00 MHz)

"be in touch" caused somewhat of a shortage of available paging frequencies. The FCC then allocated 929.00 to 930.00 MHz for radio paging. Originally, the allocations were set up for 20 of these channels to be used for non-commercial purposes and 20 for use by private carrier paging systems (PCPS), with provisions for future interpool sharing.

These arrangements were later modified to the current arrangement, which calls for 30 non-commercial channels for PCPS use. Presently the FCC is planning to transfer 10 channels from the non-commercial group to the PCPS group in order to bring it back to its original 20/20 balance. This is being done because the demand for PCPS licenses has been much greater than for non-commercial licenses. Since the 929.00 MHz band was created for radio paging (in 1982), more than 600 PCPS licenses have been issued versus fewer than 30 non-commercial paging licenses.

Commercial paging services for two-tone beepers can be obtained for (generally) less than $19 per month. Today, with tone paging, voice message services, alpha-numeric display features, etc., you can get pagers that beep, talk, or display messages.

And, if you aren't really interested in being reached by your boss, spouse, patients, clients, customers, or whatever, you can just punch some of the paging frequencies into your scanner and listen in on the messages being sent to other folks. That's free, and while some frequencies in your area may offer up only odd-sounding tones that represent data being transmitted to pagers, you'll undoubtedly be able to locate those channels in your area that are used for voice paging (sometimes in combination with alerting or data signals).

And, by the way, some of the messages are a lot more "personal" than you might imagine would be sent out for the world to monitor. And some of them are just plain hilarious or curiously freaky. One of the most unusual ones heard in recent weeks went along the lines of, "MR. SCHULTZ SAYS THAT UNLESS YOU RETURN FROM YOUR LUNCH HOUR WITHIN 15 MINUTES YOUR EMPLOYMENT WILL BE TERMINATED."

That about says it all! PC

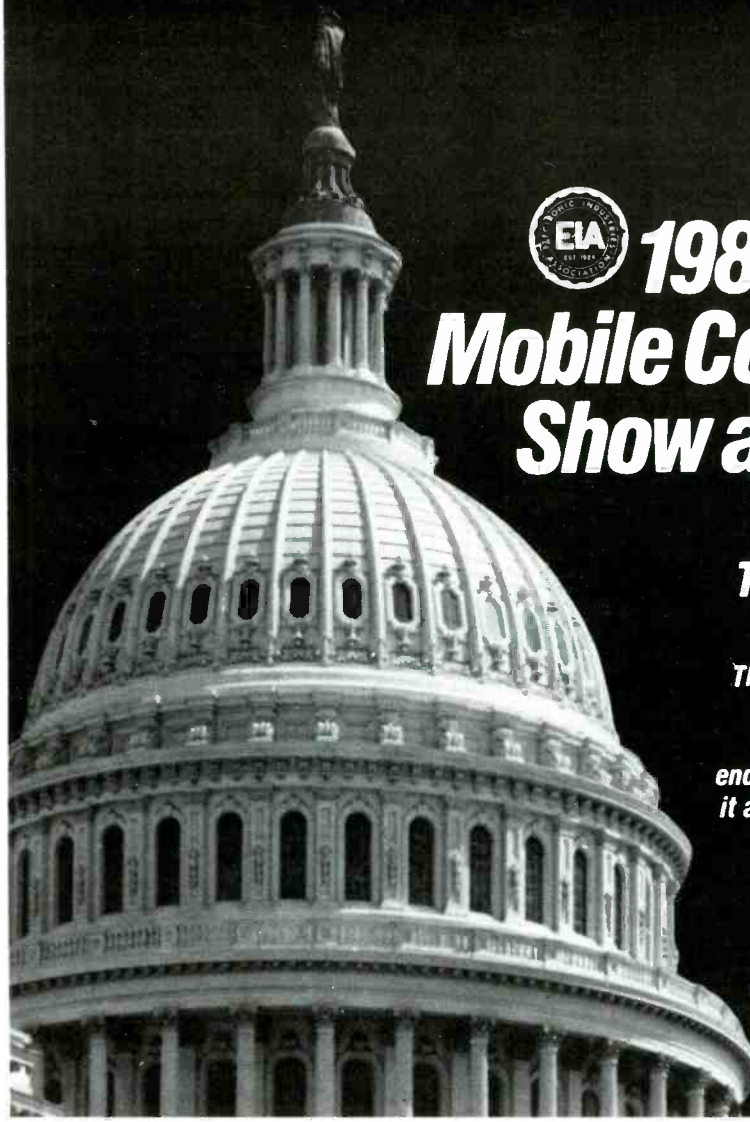
SCANNER FREQUENCY ROSTER

Pan American World Airways

AL	Mobile	WQH851	460.85
AK	Fairbanks	KLW919	151.745
CA	Los Angeles	KMK311	151.685
		KOI455	460.65
		KQZ410	464.675
	San Francisco	KMK936	151.685
		KSK596	460.65
		KET750	460.80
FL	Jacksonville	KET748	460.85
	Miami	KUR559	460.775
		KDL321	460.85
		KJS971	460.675
		KD5775	33.14
	Orlando	KUT340	460.85
	Pensacola	WQH830	460.85
	Tampa	KQZ411	460.85
HI	Honolulu	KUA437	461.40
MD	Baltimore	KXI372	460.65
MA	Boston	KCQ517	460.65
		KWS981	464.475
MI	Romulus	KRC450	460.65
NJ	Newark	KKD685	460.85
		KQU967	460.65
	Rockleigh	KEI283	158.40
	Teterboro	KRG368	464.575
NY	Jamaica (JFK)	KEH717	462.85
		KEJ681	464.00
		KGK743	464.00
		KFD295	460.85
		KLO569	460.65
		KSK800	464.875
	New York (La Guardia)	KKM757	460.875
OR	Portland	KTN669	151.685
PA	Philadelphia	KLF415	460.65
PR	San Juan	KRG374	460.65
SM	Tutuila Island	KQX785	151.745
TX	Houston	KFN781	460.775
		WXF493	464.575
US	(all areas)	KM6095	460.85
VA	Arlington	KFM782	460.85
	Chantilly	KKG421	460.65
WA	Seattle	KVD249	151.685
		WSI835	460.65

United Parcel Service

AR	Little Rock	WQD705	160.02
CA	all areas	KA54504	467.75
		KW6960	457.5125, 457.5625, 457.6125, 460.0375, 460.0125, 461.0625, 461.1375, 461.1875, 461.2375, 461.3875, 461.4375, 463.3125, 463.4375, 463.4875, 463.5375, 463.5875, 463.6625, 463.7125, 463.8625, 463.9125, 464.0625, 464.1375, 464.2375, 464.4375, 464.4875, 464.5375, 464.6625, 464.7375, 464.7875, 464.8625, 464.9125, 464.9625, 465.9125, 464.9625, 466.0125, 466.0625, 466.8875, 466.9375, 466.9875, 467.0375, 467.0875, 467.7625, 467.8125, 467.8625, 467.9125, 468.5625, 468.6125, 468.6625, 468.7125, 468.7625, 468.8125, 468.8625, 468.9125, 468.9625, 469.0125, 469.0625, 469.1125, 469.1625, 469.2125
FL	all areas	KA54505	154.57
	Jacksonville	KSU923	151.685
		WQN472	159.75
IL	Bedford Park	KYT808	160.20
	Chicago	KYT808	160.20
	Clarendon Hts.	KXC641	154.57
	New Berlin	KYT808	160.20
	Northbrook	KYT808	160.20
IN	all areas	KA36909	154.57
IA	Davenport	KKS618	159.525
MD	Arbutus	KTC418	151.655
	Landover	KWP614	151.655
MA	all areas	KK5839	42.98
MN	all areas	KA77513	464.2375, 465.5625
NE	all areas	KA51484	42.98
NY	Maspeth	KSN854	463.475
OK	all areas	KA52095	154.60
PA	Harrisburg	WZM702	159.765
SD	Sioux Falls	KMD882	151.745
TX	all areas	KA53237	468.8375
	Dallas	WYJ760	154.625
US	all areas	KA30020	151.625
		KA30137	154.57
		KA64049	151.625
		KE3393	154.57
		KE3396	154.60
		KJ9552	154.57
		KO7732	42.98
VA	all areas	KA64903	154.60



1985 International Mobile Communications Show and Conference

Thursday, Sept. 26–Saturday, Sept. 28, 1985
Washington Convention Center, Washington, DC

The only show for the industry, by the industry!

The mobile communications industry is booming. New products, new technologies, new players enter every day. As a dealer, distributor or end-user, your job demands that you keep up with it all. The 1985 EIA Mobile Communications Show is the best place to do that.

- *YOU'LL SEE a world of products–antennas, cellular equipment, digital equipment, paging systems, radio telephones, scramblers, scanners, sub-assemblies, and more.*
- *YOU'LL MEET with over 100 major suppliers–exhibitors like Antenna Specialists, Astro Net, AT&T, Audiovox, Cellular One, E.F. Johnson, Ericsson, King Radio, Midland, Motorola, NEC, Pactel, Stephens, Telemobile and others.*
- *YOU'LL LEARN from experts at Conferences covering technical matters, legislation, cost and profit performance, market projections and export. Panelists will include leading manufacturers, government decision makers, engineers, dealers and end users.*
- *YOU'LL VISIT an Advertising and Promotion Center highlighting innovative ways to bring mobile communications products to market; and an Antique Exhibit showing important developments in the history of this dynamic industry.*
- *YOU'LL ENJOY the special spouse/family program featuring VIP tours of Washington landmarks.*
- *YOU'LL MEET key buyers and decision-makers from government agencies attracted to the Show through their close contacts with the industry and EIA.*

☐ ***I am interested in attending.*** *Please send me pre-registration forms for my free admission badge to exhibits.*

☐ ***I am interested in the conference program,*** *which I understand will cost only $15 to attend if I pre-register. Please send me the forms.*

Name
Company
Address
City ______ State ______ Zip ______
Phone Number ___ – ___ – ____

I am a ☐ Dealer ☐ Distributor ☐ End-User ☐ Manufacturer ☐ Other

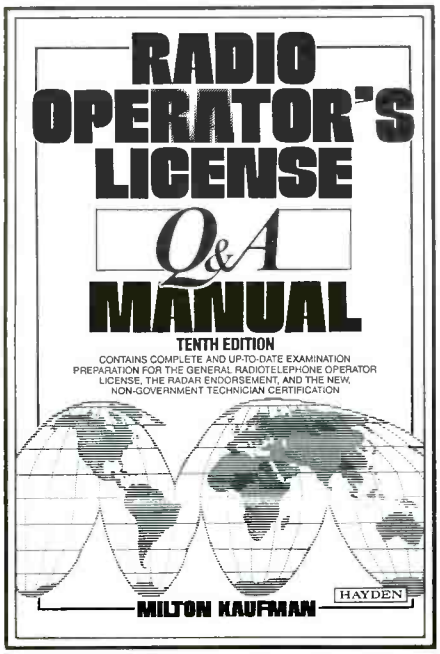
Mail To:
EIA International Mobile Communications Show & Conference,
Electronic Industries Association
2001 Eye Street, N.W.
Washington, DC 20006

12

BOOKS YOU'LL LIKE!

Radio Operator's Q&A Manual

The new 10th Edition of the *Radio Operator's License Q&A Manual* has just been issued. This large 530-page illustrated volume contains complete and up-to-date exam preparation for the general radiotelephone operator license, the radar endorsement, and the new non-government technician certification.

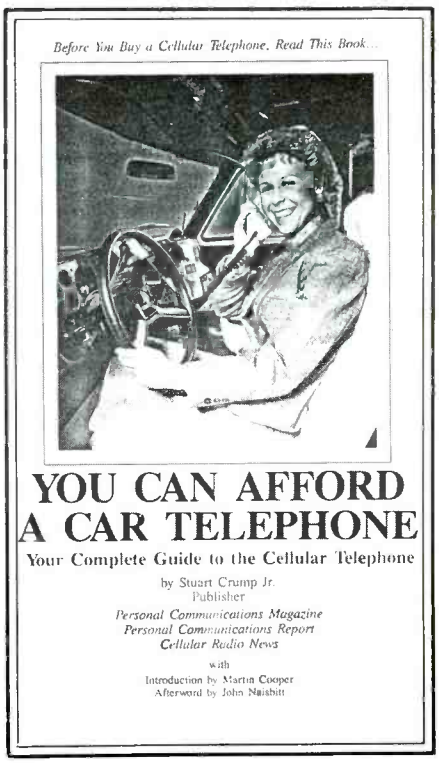


The new 1984 FCC rules and regulations have been included in this revised edition, along with critical state-of-the-art information needed to pass the technician certification exams given by various non-government certifying organizations.

The method of presentation is simple and easy to follow. Every question is followed by a clear, concise answer and, in most instances, by discussions that enable the reader to acquire a thorough knowledge of specific topics. Each element concludes with an FCC-type practice exam (with answers at the back of the book—no peeking, please!).

Some of the new topics covered are: PLL, frequency synthesis, digital-logic circuits, operational amplifiers, test equipment, RF interference, active filters, modulators and mixers, receiver sensitivity, and much more.

The *Radio Operator's License Q&A Manual*, by Milton Kaufman, is published by the Hayden Book Company of Hasbrouck Heights, NJ. It is available from book dealers in all areas.



Cellular Telephones

Stuart Crump's new book entitled *You Can Afford A Car Telephone: Your Complete Guide to the Cellular Telephone* has arrived. Here's a down-to-earth look at a topic that has caught the public's fancy—mobile telephone service at reasonable cost.

Crump's 139-page illustrated book tackles the subject head-on and is a complete consumer guide, offering in-depth information on the services available, cost involved (including hidden costs), how cellular works, selecting and buying equipment, equipment security, installation, portables and hand-helds, the cellular future, message privacy, and much more. There's even a great chapter on various status aspects of having a Cellular Mobile Phone and how to use a CMP for giving a little taste of one-upmanship to your come-on-strong friends.

Written in an easy-to-read, non-technical style, Crump's book is packed with worthwhile information for anybody thinking about the possibilities of a cellular phone. We recommend it very highly.

You Can Afford A Car Telephone by Stuart Crump, Jr., is $6.95 from FutureComm Publications, Inc., 4005 Williamsburg Court, Fairfax, VA 22032.

Navy "SEAL" Combat Manual

This is "it," the "Restricted" handbook for U.S. Navy SEAL (special warfare) combat teams. These men have earned the reputation of being amongst our toughest; they have to be since they're specialists in so many different areas, working their masterful arts from land, sea, and air.

This massive (8½" × 11" size) 240-page illustrated book contains hard-to-find information SEAL specialized communications techniques, including detailed data on radio procedures, equipment, and antenna systems used. It contains tons of other information on electronics, weapons systems, demolition, intelligence gathering, survival, etc. It is a book with an amazing amount of information on everything you'd want to know about communications and other aspects of this spectacular and elite fighting unit.

The *U.S. Navy SEAL Combat Manual* is available from CRB Research, P.O. Box 56, Commack, NY 11725. The book is $15.95 plus $1.50 postage/handling to addresses in USA/Canada/APO/FPO. Canadians please submit payment by Postal Money Order drawn in U.S. funds. PC

LISTENING POST

BY GERRY L. DEXTER

WHAT'S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

As mentioned last month, Radio Earth's broadcasts over Radio Clarin in the Dominican Republic have been terminated. Radio Earth cites poor propagation; interference from Moscow, Vatican, and Baghdad; and Radio Clarin's inability to change its frequency (due to the Dominican Republic's broadcasting laws) as reasons for stopping the broadcasts.

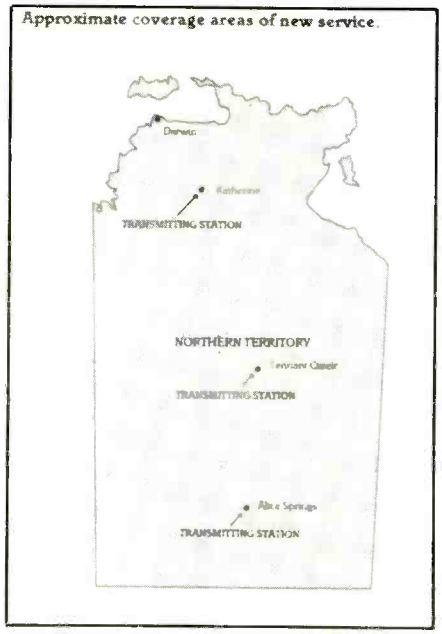
At this writing, Radio Earth was still seeking another facility over which to air its programming and expected to announce something definite "very soon."

Plans for Radio Earth to have its own radio station are going forward. They project a late 1985 or early 1986 start for the station, which is seen as a 50 kilowatt outlet to be beamed to North and Latin America from one of four locations under consideration in Florida and the Caribbean. In addition to carrying the hour-long Radio Earth broadcasts, the new station would be available to others who wish to program on shortwave.

Radio Earth has announced plans to sell stock in its new operation so that it will eventually become a "listener owned" broadcaster. Full details on how this is to work will have been announced at the Association of North American Radio Clubs convention last month in Milwaukee. We wish Jeff White and the Radio Earth staff the best of luck and hope to hear them on shortwave again soon. And, we'll keep you advised of further Radio Earth developments.

There's a new dance in Brazil called the "49 meter band shuffle." That country has announced plans to redistribute the frequencies of most of the 49 meter band Brazilian stations. Few (if any) switches have been made yet, but they may be expected at any time, though perhaps not in one full swoop. When completed, here's what the new line-up will look like:

5.955 Radio Gazeta, Sao Paulo
5.965 Radio Rio Grande do Sul, Porto Alegre
5.970 Radio Itatiaia, Belo Horizonte
5.975 Cerara Radio Clube, Fortaleza
5.980 Radio Guaruja, Floinapolis
5.990 Radio MEC, Rio de Janeiro
6.000 Radio Guaiba, Porto Alegre
6.000 Radio Cultura de Bahia, Salvador
6.010 Radio Inconfidencia, Belo Horizonte
6.020 Radio Educadora da Bahia, Salvador
6.020 Radio Gaucha, Porto Alegre
6.030 Radio Tupi, Rio de Janeiro
6.040 Radio Club Paranaense, Curitiba
6.050 Radio Guarani, Belo Horizonte
6.060 Radio Universo, Curitiba
6.070 Radio Capital, Rio de Janeiro
6.080 Radio Journal do Comercio, Recife
6.080 Radio Cultura, Foz do Iguazu
6.090 Radio Bandeirantes, Sao Paulo
6.105 Radio Globo, Rio de Janeiro



Transmitter locations for the new ABC Northern Territories Shortwave service.

6.120 Radio Globo, Sao Paulo
6.135 Radio Aparecida, Aparecida
6.150 Radio Record, Sao Paulo
6.165 Radio Cultura, Sao Paulo
6.175 Radio Nacional, Brasilia

There are three new 50 kilowatt stations coming on the air in Australia that should present something of a challenge for DX'ers to log. The ABC is instituting a new shortwave service for the Northern Territory which will be transmitted from stations at Alice Springs, Tennant Creek, and Katherine. The stations will relay Northern Territory medium wave outlets as well as airing some special programming of their own as a service to people in the remote areas of the territory.

The new transmitters will use "vertical incidence" transmission, which involves a narrower angle beam (more straight up and down) than that used for long distance international broadcasting, so the coverage area will be a lot smaller and that will present DX'ers with a bigger challenge. The new service will be introduced some time this year and is expected to cost $3.8 million, Australian. Frequencies will be in the 120, 60, and 31 meter bands.

KVOH, the new shortwaver from California, had hoped to get on the air by April 7, but has now encountered still more delays and, at last report, was expecting it to be another two months beyond the April date. If they come close to the new target date, then this schedule should be applicable: 9.525 from 1400 to 1600, 17.755 from 1600 to 2200, 15.115 from 2200 to 0000, 11.930 from 0000 to 0400, 9.525 from 0400 to 0600, and 6.005 from 0600 to 0800. All programs will be in English. Reception reports go to KVOH, High Adventure Broadcasting Network, P.O. Box 7466, Van Nuys, California 91409.

Willard Durmeyer Jr.'s shack in Jackson, Michigan does double duty as ham station and monitoring post.

Mailbag

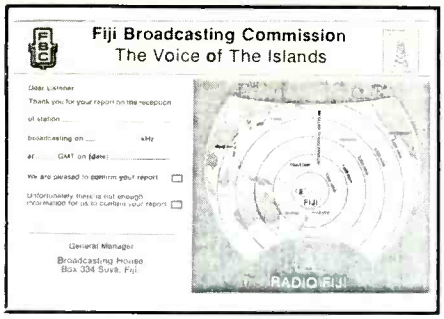
In our mail this month . . .

Mike Masino of Hattiesburg, Mississippi tells us that he received a blank QSL card from the Fiji Broadcasting Commission after writing them for their program schedule. Fiji has, of course, been off shortwave for many years. We're including a picture of the QSL so you can see what you're missing.

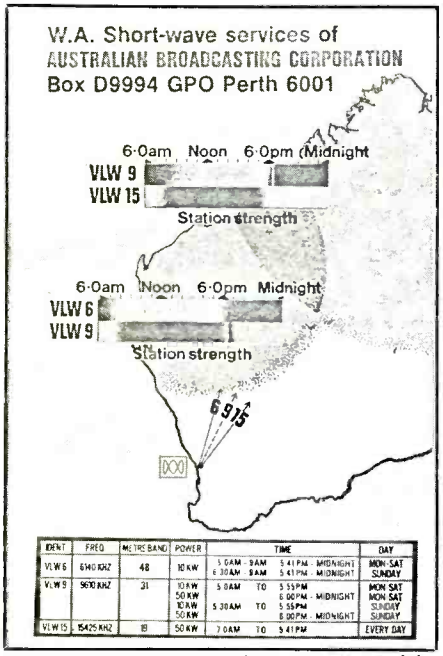
Larry Beaty II and some other Tennessee listeners are forming the Tennessee DX Club and would like to hear from radio monitors in that state. Send a self addressed, stamped envelope to Larry at P.O. Box 479, Jamestown, TN 38556. By the way, we're happy to help do our part to get local groups started or growing. If you'd like your group or your plans for a group mentioned, just write and let us know.

Jim Kobus, who holds ham call N7DIJ, sends us a picture of his shack and listening post. He does his listening on an FRG-7700 and has been an SWL since his pre-teen days. He lives in Ferndale, Washington and is an announcer for KARI-550 kHz.

Navyman Bob Dodt, Jr., sends a copy of a mimeo reply he got in response to a reception report to GBC in Ghana. The letter notes the transmission Bob heard (on 4.915) was intended for reception within the local area and that the "administration" has "desisted from sending QSL cards to monitores (sic) outside the zonal area," a reference to Zone 46 as defined by the International Telecommunications Union. On



If you could QSL Fiji on shortwave, here's what their QSL would look like.



This QSL is used to confirm reception of the current Australian regional stations.

the other hand, the reply includes a line about "finding your reception useful" and a phrase about it being "very interesting that you could receive this transmission." That would seem to confirm the reception though in an oblique fashion, so why no QSL cards outside the intended reception area is hard to figure.

Phil Scribani of Ridgewood, New York needs a schematic diagram for the Zenith Trans Oceanic model R600 (which Phil says dates back to the 1930's). If you can help, write to Phil at 1828 Summerfield Street, Ridgewood, NY 11385.

Several copies of QSL cards were sent by Willard Dermeyer, Jr. of Jackson, Michigan, for which he has our thanks. Willard operates with a Kenwood R-1000 receiver and has a Kenwood TS-830S transceiver as seen in his shack photo. He holds ham call KZ8I and is a member of Army MARS (with call letters AAT5B). He's a member of several station clubs, too, and has been listening for about ten years.

A couple of unidentified stations are plaguing David Demsey in Augusta, Maine. One is on 6.155 at 1615 in English, which he thinks may be from the Pacific area. We don't spot an answer to that one, particularly at 11:15 a.m. local time in Maine, when the band should be pretty well dead. Dave says the other is in French and signs on at 1653 GMT on 17.680. On that, our guess would be RTBF in Belgium.

Chris Anderson of Friendsville, Pennsylvania wants to know how he can find a good source for IDs on 150 to 400 kHz beacons. You might try the Longwave Club of America. Send $1 for info to LWCA, 45 Wildflower Road, Levittown, PA 19057.

R. Behm of Bensalem, Pennsylvania sends the latest Radio Australia schedules, including the data on the new ABC service discussed earlier, for which we are grateful. Mr. Behm says he passed by the new Darwin station when he was in Australia and notes it's in full operation.

We have another good selection of reports to pass your way this month, but some of them just couldn't be used. Please double space your reports so we can navigate the scissors when cutting and sorting the tips. Use only one side of the sheet and put your name and state abbreviation after each item. It saves a lot of time.

Listening Reports

Here's what's on. All times are in GMT.

Albania Radio Tirana on 7.300 in English at 0340. (Anderson, PA) English to Europe on 9.480 at 2211. (Pastrick, PA) 9.760 at 0000-0025 in English. (Batman, LA)

Radio Gjirokaster, 5.020 in parallel with 5.057 at 0425 in unknown language, good signal. (Westphal, NY) Music and ID at 0410, both frequencies. (Gagnon, QUE)

Algeria Radio Algiers International Service in English from 2000 sign on on 17.745 and announcing parallel 15.160, 9.640, 9.510 plus medium and longwave. (Alpert, NY)

Angola Radio Nacional, 5.366 variable in Portuguese at 0405 sign on with national anthem, chants, ID. (Hickerson, AR)

Antarctica Radio Nacional Archangel San Gabriel, Argentine Antarctica, in Spanish 2345-0040 sign off on 15.473.8. (Hickerson, AR)

Antigua BBC relay with world service at 0200 on 6.175. (McDonough, PA)

Argentina RAE on 15.345 at 0030-0050 in Portuguese, barely heard under Radio Havana. (Cobb, ME)

Ascension Island BBC Atlantic Relay on 15.260 at 2037 with "Science in Action." (Goetsch, OH) 6.005 at 0315-0330 sign off in English. (Batman, LA)

Australia Radio Australia, 9.580 in English at 1355. (Pastrick, PA) 6.060 from Shepparton at 1157 with interval signal and sign on at 1200 and news. (Goetsch, OH) 6.060 in parallel with 9.770 and 11.800 at 1200. (Culbertson, WA) 11.720 at 0730 in English. (Gagnon, QUE) 7.215 with play-by-play cricket at 0830. (Alpert, NY)

Austria Austrian Radio, 5.945 at 0330 with news. (Anderson, PA) 6.000 at 0350, woman with talk in English. (Shute, FL)

Belgium BRT with "Brussels Calling" at 0030 past 0100 on 5.910. (Batman, LA)

RTBF on 11.780 at 1800 to 2105, parallel 9.990 in French. (Gagnon, QUE)

Belize Radio Belize 3.285 at 0320 in English. (Salmi, MA) Country music program at 0430. (Culbertson, WA)

Bolivia Radio Panamericana, 6.105 from 0230 to 0400, frequent mentions of Bolivia but seldom has station IDs. Obscured by RFE sign on at 0400. (Batman, LA)

Botswana Radio Botswana 4.820 with sign on at 0400 and usually good. (Batman, LA) QRM'd by HRVC but positive ID with farm animals IS. (Westphal, NY) 7.255 reggae-style music at 0422, features at 0430. (Alpert, NY)

Brazil Emissora Rural, Santarem, 4.765 at 0045. (McDonough, PA)

Radio Nacional, Tabatinga, 4.815 heard at 0230 with songs, ID, frequencies, in Portuguese. (Salmi, MA)

Radio Nacional Amazonia, 11.780 at 1135 with time checks, IDs, chatter, and vocal selections. (Cobb, ME)

Radio Cultura do Para, Belem, 5.045 at 0150 in Portuguese, asking for reception reports in Portuguese, German, or English. (Batman, LA)

Bulgaria Radio Sofia to West Africa in English on 11.735 from 1850 to 1930. (Batman, LA)

Cameroon Yaounde—4.850 and Garoua—5.010 in parallel with news in English 0530-0555. (Westphal, NY)

Canada Radio Canada International in English from 0000 to past 0100 on 5.960 and 9.755, excellent. (Batman, LA) 5.960 in English at 0104. (Pastrick, PA)

CFCX Montreal (CFCF relay) on 6.005 at 1259 with sports, ID, commercial, and news. (Goetsch, OH)

Canary Islands Radio Exterior de Espana relay at 2245 with continuous pops until ID and news in Spanish at 2300. (Batman, LA) Frequency? 15.365? 11.815? (Editor)

Cape Verde Islands Radio Voz de Sao Vicente, 2230-0003 sign off in Portuguese, Portuguese vocals and English pop, man announcer, national anthem at sign off. (Cobb, ME)

Chad Radio Moundou, 5.288 in French at 0515, poor. (Westphal, NY) 0510 with hi-life music, French with ID, fading by 0530. (Hickerson, AR)

Central African Republic Bangui in French at 0505 on 5.035, very poor. (Westphal, NY)

Chile Radio Nacional de Chile, 15.140 at 2252 announcing earthquake victims. (Shute, FL)

China Radio Beijing, 2300 with IS and ID "Aqui Radio Beijing" on 15.180. (Alpert, NY) English at 0100 with world news on 11.860. (Shute, FL)

Fujian Front Station at 0955 on 5.770 in Chinese, time signal, identification, music. Also heard on 5.170, 5.240, 5.265, and other frequencies. (Goetsch, OH)

Clandestine A Voz de Verdade (Voice of Truth, Editor), anti-Angola on 0300 sign on to 0350 sign off in Portuguese on 4.950. Rock, several IDs, mentions of Angola. (Hickerson, AR)

Radio Venceremos, 6.564 at 0208 with modulation problems. (Shute, FL)

Radio Truth, anti-Zimbabwe, 5.015 from 0435 tune, English talks. Sign off at 0500 with interval signal. (Hickerson, AR)

La Voz de Alpha 66 (anti-Cuban) on 6.670 at 0227 in Spanish brief music, ID, and off at 0230. (Goetsch, OH)

Voice of Liberation of Iran, 15.555 in Farsi 1815-1825 sign off. (Hickerson, AR)

Colombia Radio Super (Medellin, Editor) on 4.877 at 0356 with interference from a Brazilian on 4.875. (Shute, FL)

Comoro Islands Radio Comoro, 3.330.8 at 0310 talks in Comoro, native music to fade out at 0340. (Hickerson, AR)

Costa Rica TIFC 5.055 at 0320 with "Hour of Decision." (Pastrick, PA) Religious program to 0330, then a children's program. (Culbertson, WA)

Radio Impacto, 6.150 at 1130 in Spanish with vocals, IDs. Strong. (Cobb, ME)

Radio Reloj, 4.832 in Spanish with ID, clock ticks at 0627. (Griffith, CO) 0600 with pop music, IDs "Radio Reloj, numero uno en Costa Rica." (McDonough, PA) Excellent at 0530. (Batman, LA)

Cuba Radio Havana, 6.140 at 0138 with English and Cuban music selections. (Pastrick, PA)

Radio Rebelde, 5.025, at 1125 with music, ID in Spanish. (Gagnon, QUE) From before 2030 til at least 2300. (Batman, LA)

USSR home service relay, 4.765 at 0510 and blowing away 20-30 kHz of the band. (Culbertson, WA)

Cyprus BBC relay, tentative, 6.180 at 1214, very poor. (Batman, LA)

Czechoslovakia Radio Prague, 11.990 at 1130 in English. (Cobb, ME) 5.930 at 0119 in English to North America. (Pastrick, PA)

Denmark Radio Denmark, in Danish with English ID every 15 minutes from 1300 to 1350 on 15.165. Weak but clear. (Batman, LA)

East Germany Radio Berlin International on 6.080 at 0130 in English, talks, ID, interval signal, into German at 0145. (Cobb, ME)

Ecuador HCJB in English to North and South America at 1350 on 15.115, "Morning in the Mountains." (Pastrick, PA)

Egypt Radio Cairo in English from 0200 on 9.475, Egyptian music. News at 0215. (Batman, LA)

Equatorial Guinea Radio Nacional international

service on 15.106.6 with program produced by Vatican Radio ending at 2149, followed by announcement of Boston address to write to for a cassette copy. ID 2155, music, then anthem and off at 2203. (Alpert, NY)

Falkland Islands FIBS at 0911 on 3.958 music and talk in English, positive ID at 0930, lost around 1000. (Goetsch, OH) From 0859 sign on in English, opening announcement, news, sports, pop/rock. (Cobb, ME)

France Radio France International at 1617 on 15.315 with "Paris Calling Africa." (McDonough, PA) 1641 with interference. (Shute, FL) Probably via Africa No. 1, Gabon. (Editor)

Gabon Africa Number One, 4.810 in French from 0500 at excellent level. (Batman, LA)

Ghana Ghana Broadcasting Corp. 3.366 at 0605 with news in English, time check, ID. (Cobb, ME)

Greece Voice of Greece, sign off in English at 0135 on 11.645. (Batman, LA) 9.420 (with 11.645 much stronger) at 0130, Greek music, little talk. (Culbertson, WA)

Guam KTWR, Trans World Radio, at 1334 on 9.510 with "Hour of Freedom" religious program, station ID at 1400. (Goetsch, OH)

Guatemala La Voz de Nahuala, 3.360 in Spanish at 0215. (Brumm, IL)

TGNA 3.300 with "Back to the Bible" at 0325. (Pastrick, PA) Program from San Jose First Baptist Church at 0430. (Culbertson, WA) Religious broadcast at 0407. (Griffith, CO)

Guyana GBC Channel Two service on 5.950 at 0635 in English with steel band music, IDs. (Salmi, MA)

Hungary Radio Budapest in English from 0200 to 0230 on 6.025, actually it's better when they switch to Hungarian at 0230. (Batman, LA)

Indonesia Radio Republik Indonesia at Pontianak on 3.345 in Indonesian at 1220, local programming, ID 1230 and news. (Hickerson, AR)

Iran Voice of the Islamic Republic of Iran at 2003 on 9.022 with talk about Lebanon, music, station ID 2016. Poor signal. (Goetsch, OH)

Iraq Radio Baghdad on 6.190 at 2245 with music and ID in Arabic, parallel to 9.745, 11.750, and 13.700. (Gagnon, QUE)

Israel Kol Israel on 9.440 at 0000 in English. (Anderson, PA)

Italy RAI, Rome on 9.575 at 0100 with bells sign on, ID by man who noted there'd be no news due to strike, music instead. During one song, tone arm apparently scratched across the record. Very good signal. (Goetsch, OH)

Japan Radio Japan in Russian on 9.570 at 0400, very good level. (Shute, FL)

Far East Network, on 3.910 at 1040 with IDs, 1055 and 1100, the latter followed by apparent news. (Goetsch, OH)

Kuwait Radio Kuwait at 1909 on 11.675 with "Rock On" show. Also at 2100 on 9.840. (McDonough, PA) 9.840 at 2105 music, ID, in Arabic. (Gagnon, QUE)

Lebanon King of Hope heard at 0421 on 6.215 with talks, music, ID at 0430. Weak. (Goetsch, OH)

Radio Voice of Lebanon, at 0440 on 6.548 music and talk by man and woman, ID at 0510, 0512. Weak. (Goetsch, OH) 6.549.6 at 2230 news and ID in Arabic. (Gagnon, QUE)

Lesotho Radio Lesotho, in Lesotho from 0400 on 4.800. English ID and news in English at 0430. (Batman, LA)

Libya Radio Jamahiriyah, 11.815 at 2224 in English to North America and program "Under the Shadow of the CIA." (Pastrick, PA) Country music, news at 2300. (McDonough, PA) 9.890 at 0230 in Arabic with music, ID. New frequency. (Hickerson, AR) At 2302 in parallel with 7.245. (Gagnon, QUE)

Luxembourg Radio Luxembourg, 0019 on 6.090 with old Top 40, promotionals for "Dateline" program and jingle IDs. (Goetsch, OH)

Malawi Malawai Broadcasting Corp, 3.380 at 0305 with African drums, poor, barely audible at 0325. (Westphal, NY)

Malaysia Radio Malaysia, 4.950 (Sarawak transmitter) with English at 1125, news 1130-1140, then talk. (Culbertson, WA)

Malta Radio Mediterranean on 6.110 at 2130 with news and music, in French. QRM from 2200. (Gagnon, QUE) English 2300-2330, poor. (Batman, LA)

IBRA Radio, strong with "Reality" program at 2045 tune in on 9.510. Sign off 2116 after IS and open carrier. Address announced as "P.O. Box 521, Station F, as in Father, Toronto, Ontario, N4Y 0L8." (Alpert, NY)

Mexico XEUJ Linares, 5.982 at 1110 music and ID in Spanish. (Gagnon, QUE)

Radio announcer, ham, and SWL Jim Kobus in his Ferndale, WA listening post.

XEQQ La Q de Mexico, 9.680 at 2345 to 0000 sign off, ads in Spanish, many mentions of Mexico, Mexican music, ID and off. (Hickerson, AR)

Mozambique Radio Mozambique, Maputo on 9.618 at 0355 in Portuguese. Local music, ID, IS, news. (Hickerson, AR)

Namibia South West African Broadcasting Corp. 3.295 at 0300 with pop music, English IDs at 0400. (Westphal, NY) 0350 in English with music, ID 0400. (Pastrick, PA)

Netherlands Antilles Radio Netherlands, 6.165 with telephone call-in show about new transmitter in Flevoland. 0608. (Culbertson, WA)

New Zealand Radio New Zealand International on 15.150 in English at 1830 with news, music. Destroyed by Deutsche Welle sign on at 1852. (Culbertson, WA)

Nicaragua Voice of Nicaragua, 6.015 in English at 0400. (Batman, LA) 0407 in English. (Chinakos, WA) 0100 with English news, interview with Danes working in Nicaragua. (Culbertson, WA) 1130-1150 in Spanish. (Cobb, ME)

Nigeria Voice of Nigeria good most nights at 0500 for English broadcast. ID'ing as "This news comes to you in the *World* service of the Voice of Nigeria" but IDs elsewhere in transmission as West African service. Is this world service thing new? (Alpert, NY) First I've heard of it. (Editor)

North Korea Radio Pyongyang on 9.977 at 1143 with talk, ID 1155 and "From Our Listener's Mailbag" program. (Goetsch, OH)

Northern Marianas KYOI, Saipan at 1608 on 9.665 with rock alternating between Japanese announcements and ID "Super Rock K-YOI" with the "YOI" pronounced as a word. (Goetsch, OH)

Norway Radio Norway International at 1310-1330 in English on 15.310 with travelogue type show, into Norwegian at 1330. (Cobb, ME) 0158 with English ID on 9.585, covered by heavy QRM at 0200. (Batman, LA) 9.590 at 0120, in Norwegian and with ID in English. (Anderson, PA)

Pakistan Radio Pakistan, Islamabad on 6.130 at 1200 with chanting, Urdu? ID, man with news at 1230. (Hickerson, AR)

Papua New Guinea NBC Port Morseby on 4.890 at 1230 pop and local music, English, request program, IDs. (Hickerson, NC)

Radio Manus, Lorengau, 3.315 with Pidgin at 1014, time check in English, mentions of Papua New Guinea & Manus. (Goetsch, OH)

Peru Radio Imagen, Tarapoto, 5.444 at 0358 with Latin music, Coke ad, ID, nice guitar music. (Hickerson, AR)

Poland Radio Polonia, 7.270 at 2325-2355 sign off in English, jazz and IDs, good level. (Cobb, ME)

Portugal Radio Portugal latest schedule: 0030-0100 on 6.095 to East Coast North America; 0300-0330 on 6.090 to west coast; 1600-1630 on 6.190 to Middle East; 1800-1830 on 15.250 to Africa; 2030-2100 on 7.125 to Europe. All English, all Monday-Friday only. (Batman, LA)

Romania Radio Bucharest, 0200-0230 in English on 5.990. Heavy QRM. (Batman, LA)

Rwanda Deutsche Welle Relay, Kigali, 0430-0515 in English on 7.225, from 0515 in French. (Batman, LA)

Saudi Arabia Broadcasting Service of the Kingdom of Saudi Arabia at 0210 on 7.245, music and news, Arabic. (McDonough, PA) 11.740 at 2256 music and ID in Arabic. (Gagnon, QUE)

The QSL of Trans World Radio, Bonaire, in the Netherlands Antilles.

Senegal ORTS, Dakar, French and Arabic, strong at 0600 sign on on 4.890. (Westphal, NY)

Solomon Islands SIBC at 0730 in English on 5.020, from 0745 in vernaculars with English ID and time check at 0800. (Batman, LA)

Spain Spanish Foreign Radio on 6.025 and 5.970 at 0500 sign on. (Batman, LA) At 0000 on 9.630 with news. Stronger than KDKA-Pittsburgh, only 20 miles away! (McDonough, PA) 0131 in English to North America. (Pastrick, PA) 0500 on 6.125, parallel 9.630 in English. (Westphal, NY)

South Africa Radio RSA at 0400 on 7.270 in English. (McDonough, PA) 5.980 with 0200 sign on in English. (Batman, LA) 3.230 at 0306 in English. (Salmi, MA)

SABC in English on 4.835 at 0414 with boxing. (Shute, FL) 0412 with agriculture program. (Griffith, CO)

Capital Radio, Transkei in English at 0400 on 3.930. QRM from hams. (Westphal, NY)

Swaziland Trans World Radio on 9.725 with IS, English sign on at 0400, into religious program. (Hickerson, AR) From 0525 tune on 9.725, fades fast. (Batman, LA)

Switzerland Swiss Radio International at 0200 on 6.135 with "Swiss Shortwave Merry-go-round." (McDonough, PA) On 17.830 at 1700 in Italian. (Shute, FL)

Surinam Radio Apinte, reactivated on 5.005.7 at 0340 to 0400 sign off, harmonica music, jazz, in Dutch. Off with anthem. (Hickerson, AR)

Syria Damascus on 12.085 at 2005 with news, music, ID in English. (Gagnon, QUE) Ending English news at 2105 ". . . the end of this English transmission. Until we meet again I wish you a very good night. This is Damascus." Anthem and off 2105. (Alpert, NY)

Tahiti Radio Tahiti, 0525 on 11.825, that incredible island music. Parallel 15.170. (Culbertson, WA) Music 0537, ID 0600 on 11.825. (Goetsch, OH)

Taiwan Voice of Free China, very weak on 5.805, much better 5.985 with "World of Science" and Chinese lesson 0245. (Anderson, PA) I expect 5.805 is receiver-created. (Editor)

Tanzania Radio Tanzania on 9.684 at 0422 in English with talk about women's rights in South Africa. (Shute, FL)

Togo RTV Togolaise 5.047 in French and vernaculars 2345 to 0000 sign off with IS, ID, and anthem. (Hickerson, AR)

Turkey Voice of Turkey 9.560 in English at 0418 with "Step by Step Turkey." (Shute, FL) Unknown language 0330, IS intermixed with English IDs from 0355, into English 0400. (Batman, LA)

Ukraine SSR Radio Kiev, 7.210 with mailbag program in English at 0310. (Anderson, PA) Via USSR transmitters. (Editor)

United Arab Emirates Voice of the UAE, 9.850 at 2230 sign on in Arabic. (Hickerson, AR)

UAE Radio, Dubai on 15.300 in English at 1635. (Shute, FL)

United States Voice of America in French on 7.265 at 0517 with American pops. (Shute, FL) VOA feeder in English with Jazz Hour on 7.653.3 at 0310. (Alpert, NY)

KGEI on 9.615 at 0650 in English, poor signal. (Salmi, MA)

AFRTS At 1901 on 15.345 with college basketball. (McDonough, PA) 9.241 lower sideband at 0142, weak. (Anderson, PA) 4.402.2 parallel 6.030 and 11.790, but with slight satellite delay, local evenings. Best around 0500, past 0700. Believe this is a U.S. military "Mulcast" similar to that SSB AFRTS relay occasionally observed on 9.242.5 from Wolvey, England. (Alpert, NY)

Uruguay Radio El Espectador, 11.835 from 0045 to 0110, Spanish with ads, news, IDs. (Cobb, ME)

USSR Radio Moscow, 1341 on 11.840 with World Service via Havana relay. (Pastrick, PA) 7.260 in English at 0430. (Batman, LA) 9.700 at 0341 in English. (McDonough, PA) 7.115, 7.150, 7.165, 7.195 at 0230 in English. (Anderson, PA)

Vatican City Vatican Radio, English 0600-0617 on 6.185. WRNO signs off here just as Vatican signs on. (Batman, LA) 0050-0105 on 6.015, QRM from Nicaragua. Also 2050-2105 on 9.645. (Westphal, NY) 9.645 at 2008 with interval signals. (Shute, FL)

Venezuela Radio Rumbos, 9.660 at 0445, all Spanish. (McDonough, PA) 0249 on 4.970 with ID in Spanish. (Griffith, CO)

La Voz de Carabobo, 4.780 at 2330 in Spanish, music, ID jingle. (Cobb, ME)

West Germany Voice of Germany (via Antigua) 6.040 at 0109. (Pastrick, PA)

Radio Liberty, 17.710 at 1635 in Russian. (Batman, LA)

Yemen (People's Democratic Republic) DYBS from Aden on 6.005 with 0345 sign on in Arabic. (Westphal, NY) Audible when BBC-Ascension off between 0330-0400. (Batman, LA)

Yugoslavia Radio Yugoslavia at 2000 on 9.620 in English with news and talk on the Middle East. (Pastrick, PA)

Zambia Zambia Broadcasting Service in African language from 0400 sign on on 4.910. (Batman, LA) English between 0500-0510. (Westphal, NY)

Let's hear from you next month. Your loggings, copies of QSLs, questions, clippings, schedules, and general news on shortwave broadcasting subjects are always welcome.

Thanks this time to: David Alpert, New York, NY; Patrick M. Griffith, Denver, CO; Michael Goetsch, Berea, OH; Chris Anderson, Friendsville, PA; Kevin Culbertson, Bremerton, WA; Pierre Gagnon, Dorval, QUE; Michael Chinakos, Camus, WA; David Demsey, Augusta, ME; David E. Salmi, Maynard, MA; Michelle Shute, Pensacola, FL; Willard Durmeyer, Jr., Jackson, MI; Gary Hickerson, Ft. Smith, AR; Robert Pastrick, Conway, PA; Pat McDonough, Pittsburgh, PA; Alex Batman, Baton Rouge, LA; Michael Westphal, Alden, NY; Ken A. Cobb, Portland, ME; Jerry Brumm, Chicago, IL; and those who sent material that couldn't be used.

Til next month, good listening! PC

A Challenge For Beacon Hunters

Can You Find The LOWFERS?

BY KEN CORNELL, W2IMB

The LOWFERS are there if you have the patience to dig down into the noise level and tune the 160 to 190 kHz band.

LOWFERS (short for "Low Frequency Experimental Radio Station") run their transmitting equipment under the FCC Rules Section 15, Subpart D, paragraphs 15:111 or 15:112 . . . . Most LOWFERS operate under paragraph 15:112, which permits a power input to the transmitter final amplifier of 1 watt and the use of an antenna 15 meters long.

In the beginning, some 15 years ago, scattered groups of LOWFERS (mostly radio hams looking for new fields to experiment with and, for some reason, concentrated on the east and west coasts) were in communication with each other in the 25 to 75 mile range. They used simple vacuum tube transmitters and WWII low frequency receivers or converters ahead of their communication receivers.

Today, with more efficient and sophisticated solid state transmitters and drastic improvements in receiving techniques, communication in the 300± mile range is not uncommon.

Until the past year or so, the vast majority of the "long haul" communications have been in the north/south path, leading many of us to believe that the Earth's Magnetic Lines of Force may be assisting the "flea power" radiated from our "mini-radio stations." Recently, however, since LOWFERS are becoming active in the inland states, reception reports of beacons have been reported in the 300+ mile range in the east/west path.

There is an urgent need (hobby-wise) for more listeners to help evaluate the effectiveness of the LOWFERS dedication to prove that you don't need 50,000 watts to cover a reasonable area.

All beacons run CW with a few running coherent CW. For a more local area coverage, suppressed carrier voice (SSB or DSB) shows extreme promise.

Table 1 is a list, by states, indicating the callsign used and the town or city of known operational LOWFERS at this writing. The LOWFERS disease is quite contagious, and more experimenters are planning to become active.

At this point, I would like to suggest some receiving techniques that will help you find these elusive LOWFERS:

1) Since transmissions are in CW or CCW, a receiver with a BFO (Beat Frequency Oscillator) is necessary.

2) DO NOT USE THE AVC POSITION . . . . Place the receiver in manual position with the audio gain control full on and use the RF Gain Control for volume.

3) Use Upper or Lower Sideband for best rejection of adjacent channel interference.

4) For the average all-band receiver with low frequency coverage, the use of a preamplifier (preferably regenerative) is almost a necessity since they are inclined to be sluggish in the LF range.

5) Sensitivity and Selectivity are a MUST . . . . Use the sharpest IF filter you have and also sharp audio output filters are desirable.

6) If you have a "Q" Multiplier, by all means use same.

7) The receiving antenna is also MOST IMPORTANT . . . . If you are located in the average urban or suburban neighborhood, beware the use of a long wire antenna as they can be very effective "noise collectors."

California
FPB, Felton
LAH, Los Altos Hills
PLI, N. Hollywood
YHI, Loomis
QAY, Granada Hills
BJL, Van Nuys
MEL, San Jose
Z2, San Simeon
T, Marysville
IZJ, San Gabriel
ELU, Simi Valley
PRK, Saratoga
SUK, El Dorado Hills
CW, Sylmar
WEE, San Luis Obispo
UCP, Saratoga
FPV, Granada Hills
QZL, San Jose

Connecticut
SD, East Haven
JR, West Hartford

Delaware
WJM, Wilmington

Florida
NTD, Oakland
OMG, Seminole

Indiana
TJE, Frankfort
9HDQ, Daleville

Iowa
D, De Moines

Kentucky
WMRY, Murray

Maryland
WI, Owings
KA2XAQ, Annapolis
LC, Fort Washington

Massachusetts
1KPX, Braintree
BN, West Roxbury
ADX, Westboro
BV, Beverly
1RB, Foxborough
1LM, Plymouth
JF, Stoughton
UM, Rehoboth
1ZZ, Dighton
1DW, Middleboro
1SNN, Waltham
OJ, Bolton
1A, Marshfield
JW, Lowell
X/1JHZ, Watertown

New Jersey
KEN, Pt. Pleasant Beach
CAP & M, Mahwah
TH, Colts Neck
BIL & NI, Howell
U, Vernon
HRM, Oakland
XY, Kearny
ET, Mahwah
NH, Monroeville

New Mexico
CHAS, Los Alamos
RB, Roswell

New York
KC, Rush
VP & D, Suffern
FIN, Suffern

Nevada
MRC, Mercury

North Carolina
JRH, Matthews
DIW, Dixon

Ohio
8TXT, Sandusky
KRY, Chardon
RE, Newport

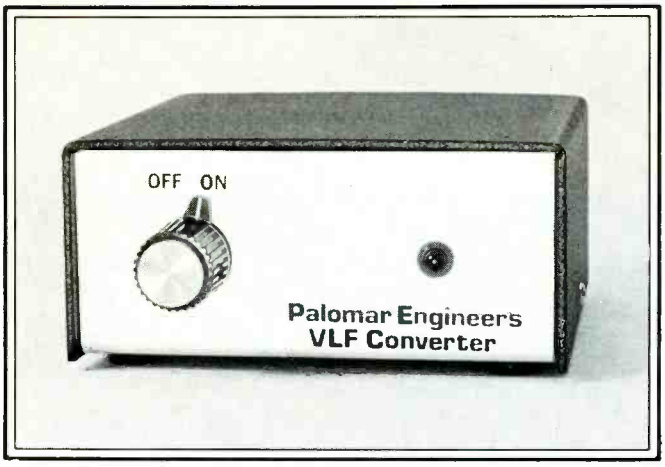
Pennsylvania
KP, Murraysville
BS, Donora
DBQ, Fort Washington

South Carolina
ABC, Hilton Head Island

Washington
7FS, Belfair

Vermont
1VT, Waitsville

Misc.
1A-MM, Maritime Mobile up and down the east coast.



This VLF converter connects to any communications receiver and lets you tune the LOWFER band.

Reception Reports And Two-Way Contacts On 160 to 190 kHz

KRY (OH) copies VP (NY) 367 miles
WI (MD) copies 1RB (MA) 369 miles
LWL (OR) copies SUK (CA) 430 miles
7FS (WA) copies SUK (CA) 608 miles
ABC (SC) copies 9HDQ (IN) 613 miles
WI (MD) copies 9HDQ (IN) 620 miles
Z2 (CA) copies 7FS (WA) 672 miles
ABC (SC) copies TH (NJ) 675 miles
MRC (NV) copies RB (NM) 687 miles
ABC (SC) copies VP (NY) 720 miles
BA (IL) copies TH (NJ) 743 miles
LWL (FL) copies TH (NJ) 929 miles
LWL (FL) copies VP (NY) 974 miles

Note: LWL stands for Longwave Listener

Two Way Contacts (Record Breakers And Tape Recorded)
TH (NJ) and 9HDQ (IN), 604 miles, 0910 GMT, 2-26-85
VP (NY) and 9HDQ (IN), 604 miles, 0959 GMT, 2-26-85

Box type of ferrite core loop antennas can be effective as they can be positioned to null out a noise source or interfering signal and favor a wanted signal. Short Active Antennas are becoming popular, as being small in size, they can be easily moved around a household to find the quietest location as to noise pick-up.

If a long wire antenna is used, it is suggested that it be used with an antenna tuner. The noise encountered on LF is not tunable like a signal and an antenna tuner can be used to help pull a weak signal out of the noise level.

For those who may wish to obtain more information on the low frequencies, consider the following:

"The Low and Medium Frequency Radio Scrapbook, 4th edition"
Simple circuits and data useable in the low and medium frequency range. Many are applicable to the lower frequency ham bands. Converters, preamplifiers, active antennas, loops, details on coils and home-brew coil winding machines, transmitters for the 160 to 190 kHz band and 510 to 1600 kHz band (non-licensed), and the FCC rules. Ten dollars per copy postpaid book rate USA c/o Ken Cornell, 225 Baltimore Ave., Point Pleasant Beach, NJ 08742.

The Longwave Club of America
Issues a monthly publication called the *LOWDOWN* containing members loggings, station ID's, technical and non-technical articles. LOWFERS listings, buy and sell ads (free to members) and a mail bag section. Dues are $10/year c/o The Longwave Club of America, 45 Wildflower Road, Levittown, PA 19057.

"Beacon Guide Updater"
Contains over 1200 beacon listings arranged in frequency sequence and cross indexed to ID's. $3.00 postpaid USA c/o Ken Stryker, 6350 North Hoyne Ave., Chicago, IL 60659.

Converters (Receiving)
LF Engineering Co., 17 Jeffry Road, East Haven, CT 06512. State of the art converter with IF outputs on 3500 to 4000 kHz or 4000 to 4500 kHz (receiver tunes 1 to 500 kHz). Palomar Engineers, 1924 West Mission Road, Escondido, CA 92025 . . . IF output 3500 to 4000 kHz. MFJ Enterprises Inc., Box 494, Mississippi State, MS 39762.

Palomar Engineers makes this LOWFER transmitter for hobbyists.

Active Antennas and Antenna Tuners
Hamtronics, Inc., 65-B Moul Rd., Hilton, NY 14468-9535. Grove Enterprises, P.O. Box 98, Brasstown, NC 28902. MFJ Enterprises, Inc., Box 494, Mississippi State, MS 39762. Arcomm, 24 Valley St., Lewistown, PA 17044. Morning Distributing, P.O. Box 717, Hialeah, FL 33011.

Audio Filters
MFJ Enterprises, Inc., Box 494, Mississippi State, MS 39762. Autek Research, Box 302, Odessa, FL 33556.

Transmitter
Palomar Engineers, 1924 West Mission Road, Escondido, CA 92025. 160 to 190 kHz transmitter. Exciter is fully assembled with built in 120 v.a.c. power supply. Final amplifier is in kit form and can be assembled in less than one hour. Uses 5 MHz crystals in a divide by 32 circuit.

Any beacon hunter that wishes a QSL or acknowledgement of their reception of a LOWFERS station can send me two SASE's with a report indicating callsign copied, the date and time, as well as relative signal strength. A description of your receiving setup and antenna would also be of interest. I will forward your report to the station operator for his/her action.

DO NOT send reports of stations that are obviously not LOWFERS, such as WGU-20 (179 kHz) and other government experimental stations. The frequencies 160 to 190 kHz are also located in the LF European AM Broadcast band and an easy station to find when conditions are good is Allious, France on 169 kHz. **PC**

SCANNER SCENE

MONITORING THE 30 TO 900 MHz "ACTION" BANDS

BY CHUCK GYSI, N2DUP

With the mailbox filling up here at Scanner Scene, we thought we'd take a look at many of the letters our faithful readers have sent in.

From Milano, Italy, we hear from Dr. Ing. Claudio Gallesi, whose amateur radio call-sign is I2JJA. He is a commercial pilot with instrument and multi-engine ratings and had a Bearcat 300 and Bearcat 100. He now has an AOR 2001 (the overseas version of the Regency MX5000) and a Sony AIR-8. One question Claudio had was the frequency coverage of the new Regency HX2000 hand-held unit. The HX2000 covers 118-136, 144-174, 440-512, and 800-950 MHz. The VHF low band (30-50 MHz) was forsaken to provide better coverage in the 800 MHz band on the HX2000. The scanner has selectable AM or FM coverage on all 20 channels. From initial reports, I hear the HX2000 works well.

Claudio also tells us about the Sony AIR-8 he bought. The AIR-8 covers 150-2194 kHz, 76-108 MHz, 108-136 MHz, and 144-174 MHz, according to Claudio. That's a lot of frequency coverage! In the 200-400 kHz band, flight service stations operate low-power transmitters providing taped weather data that is broadcast continuously. The radio has a simple keypad to enter frequencies, 10 channels per band. The AIR-8 has liquid crystal display, priority, search, a rubber antenna with BNC connector, and an external antenna jack for AM. Claudio says the scanner is very sensitive on the air band and that sensitivity is good on the other bands as well. He adds that reception is clear and undistorted with 400 mW audio output.

Claudio also sends along ideas about the types of scanners he'd like to see manufactured. He'd like a very small hand-held that would cover 25-550 MHz continuously with both narrowband and wideband coverage to receive FM broadcasts on 88-108 MHz as well as two-way communications and AM coverage on UHF to receive 225-400 MHz military aircraft communications. He'd also like to see a car radio that covers AM, FM, aircraft, and the public safety bands to eliminate the need for two or three receivers and antennas on the car. I'd go along with that, too, however, I personally like to listen to tunes on the radio or tape deck between emergency calls. Thanks for the great letter, Claudio! Glad to know we're being read abroad.

One point of Claudio's letter has got me thinking. What would *POP'COMM* readers like to see in a scanner? If you had the opportunity to design your own scanner from the ground up, what features would you want? What things would you improve or eliminate from current models on the market? Would you want more channels? CTCSS decoders? Built-in descramblers? Built-in notch filters? ACSB coverage? Better sensitivity? S-meters? I think it might make an interesting column if we were to take all of your ideas on the ultimate scanner and design the Scanner Scene scanner. My address is listed at the end of this column. Write me telling what kind of scanner you wouldn't hesitate putting down those hard-earned bucks for. Feel free to sketch what you want that ultimate scanner to look like, too. Who knows? Maybe some manufacturer will pick up on your ideas!

The shack in Dan Mulford's new home in Osgood, Indiana includes, among other equipment, a Bearcat 300; an ICOM 2AT 2-meter hand-held; and Realistic, Bearcat, and Regency crystal scanners.

Going back to the mailbag, Joe Wilson Elliott, an intelligence expert from Los Angeles, California, writes in to thank us for the "great columns" on the action bands. Thanks for the nice comments, Joe, and we hope to keep you as a reader for a long time to come.

Nichols Karbin Jr. of Pittsburgh, Pennsylvania, said he searched the 453-454 MHz band after reading the mention of "lockups" in my December 1984 column and found the Western Penitentiary state correctional facility in Pittsburgh operating on 453.325 MHz. He said the frequency seems to be low power in and around the prison and was wondering whether there were any statewide frequencies used by the Pennsylvania Bureau of Corrections. According to my records, 453.325 is used on a simplex basis at each state correctional facility in the Keystone State. However, not too long ago, the Bureau of Corrections applied to the FCC to use 158.925 for mobile use on a statewide basis. You might want to check out that frequency as well.

Nichols also pointed out that there are several antennas on the prison in Pittsburgh and was wondering what they were being used for. The prison probably is on high ground and other state agencies may be operating their transmitters from there. For starters, check out the Pennsylvania Emergency Management Agency (45.16, old frequency; and 453.525, new statewide repeater frequency) and the Liquor Control Board and Bureau of Cigarette and Beverage Taxes (158.760 repeater).

Nichols also says he has the J.I.L. SX-400 scanner with the RF-8014 RF downconverter to add 800 MHz to 1.4 GHz coverage. He says he's looking into interfacing the SX-400 to his computer if compatibility ever becomes available for the Apple IIe. He also uses a Realistic Pro-30 for mobile use. Hope we helped you out, Nichols.

Greg Pettit from San Diego, California, writes in to ask whether his Realistic Pro 2002 scanner can be modified to receive the 800 MHz band. Sorry, Greg, but if it could, the manufacturer would have done it by now. No scanner can be modified to receive

800 MHz. However, don't let that discourage you. Hamtronics Inc. (65 Moul Road, Hilton, New York 14468-9535) manufactures an excellent 800 MHz converter that you insert between your scanner and the antenna. With the converter in line, transmissions in the 806-894 MHz band are heard in the 424-512 MHz band. The converter is sold wired and tested for $88 plus $3 shipping.

Greg also questions the term we use often in this column: out-of-band signals. Out of band refers to anything not covered in a scanner's standard frequency coverage. For instance, most scanners cover 30-50, 144-174, and 440-512 MHz. However, some scanner listeners may like to listen to federal government communications in the 418 MHz band. Because these frequencies are not in the general coverage of most scanners, some listeners may refer to this as out of band. However, with some trick keyboard entries, it still may be possible to hear the 418 MHz band in some scanners.

Greg also advises that he uses a 102-inch CB whip on his car for a scanner antenna and reports that it works quite well. Quite frankly, if you like to listen to a lot of VHF low band activity (30-50 MHz), the CB antenna will work at an optimum level. Because the CB frequencies are in the 27 MHz range, the antenna is cut for the lower frequencies and will help pull in those mobiles and distant base stations. I personally used to use a CB base antenna to monitor VHF low band and always found it to work better than most scanner antennas when trying to pull in mobile signals on low band. The CB antenna won't work better, however, on VHF high band or UHF; you'll be better off with an antenna cut to those frequencies.

Dan Mulford, KA9DZM, from Osgood, Indiana, writes in to say he is in a great listening area—between Indianapolis, Cincinnati, and Louisville. Dan says he's been an SWL since he was 10 (in 1963) and also likes monitoring and ham radio now.

N. Sykes of Coatesville, Pennsylvania, asks whether there is any scanner capable of monitoring the audio of TV Channel 65 (WRBV, a pay-TV station in Vineland, New Jersey). Channel 65's audio is in 781.75 MHz and the only receiver we know of at present is the J.I.L. SX-400 scanner with the RF-5080 downconverter to receive the 500-800 MHz band. I say a portable TV is cheaper.

Let's hear from you here at *POP'COMM*. We invite your comments, questions, frequencies, and photographs. Write to: Chuck Gysi, N2DUP, Scanner Scene, Popular Communications, 76 North Broadway, Hicksville, NY 11801-2909. PC

May We Recommend . . .

A reception report to a privately owned (non-government operated) shortwave broadcaster has a better chance of earning you a QSL card if you enclose an International Reply Coupon (IRC) with your report. These are sold at most Post Offices.

The Longwave Club of America, 45 Wildflower Rd., Levittown, PA 19057. Here's a club for those rugged enthusiasts interested in knowing what's happening below 540 kHz! Their monthly publication, *The Lowdown*, not only covers listings of stations operating between 10 and 540 kHz, but also has interesting coverage of the 1750 Meter (no license) low power communications band as conducted by Ken Cornell (W2IMB—well known "Lowfer" authority. Membership includes mailing of the publication by First Class Mail and costs $10 per year

Please send all reader inquiries directly.

PRODUCTS

REVIEW OF NEW AND INTERESTING PRODUCTS

High-Performance Receiver Products

The FRG-8800 is a deluxe HF receiver covering 150 kHz through 29.99 MHz. Direct frequency entry is provided via the front panel keyboard, which also controls scanning functions and storage/recall of the memory channels. The innovative green LCD information display provides frequency, mode, and signal strength information. Selectable AGC, all mode squelch, two 24-hour clocks, and recording capability (including on/off timer switching) make for maximum operating flexibility. The FRG-8800 is designed for easy interface to a personal computer for expanded operating control, and the FRV-8800 VHF Converter option expands coverage to include 118-174 MHz, with front panel frequency entry and display.

The FRG-9600 is a high-tech VHF/UHF multimode receiver covering 60 through 905 MHz continuously, with direct keyboard frequency entry and 100 memory channels. Capable of AM, FM, and SSB reception (SSB through 460 MHz), the FRG-9600 comes equipped with both wide and narrow bandwidths on AM and FM, plus a total of seven different tuning steps from 100 Hz through 100 kHz, depending on the mode and typical operating requirements for the service being received. A variety of scanning features are included, with extra performance offered via the audio scan stop function which will prevent stopping on inactive "carrier-only" channels. Computer interface capability, 24-hour clock/timer, and multiplexed output are among the features provided that allow the sophisticated listener tremendous expansion possibilities. An optional NTSC video will also permit monitoring of TV signals. The FRG-9600 is ready for operation from either 12 Volts DC or 117 Volts AC.

For further information, contact Yaesu Electronics Corporation, P.O. Box 49, Paramount, CA 90723, or circle number 104 on the reader service card. Dealer inquiries are invited.

Sixty Channel Voice Communications Recorder

Dictaphone Corporation introduced a 60-channel version of its popular Veritrac™ voice communications recording system. This model is the largest capacity multichannel recording system in the voice communications industry.

"The new 60-channel Veritrac system has the capacity of simultaneously recording 60 channels of telephone and radio messages," said Gordon F. Moore, Vice President of Dictaphone's Special Markets Division. "This new model is particularly suited to high volume voice communication center applications in public safety, security services, radio stations, air traffic control, financial services and telemarketing."

The 60-channel Veritrac recorder is a reel-to-reel single or dual transport unit that provides up to 51.2 hours of unattended recording. It uses 1" wide magnetic tape, which is recorded or played back at 15/32 inches per second. Options include a time/date encoding system with Safe Scan™ continuous monitoring program, real time slave displays, remote control time/date system, remote status and alarm panel, and voice activation.

Prices of the 60-channel Veritrac voice communications recording system start at $24,490.

Veritrac voice communications recording systems are manufactured in the United States and marketed worldwide by Dictaphone Corporation, Special Markets Division, 120 Old Post Road, Rye, New York 10580. For more information, contact them directly or circle number 105 on the reader service card. Dictaphone is a Pitney Bowes Company.

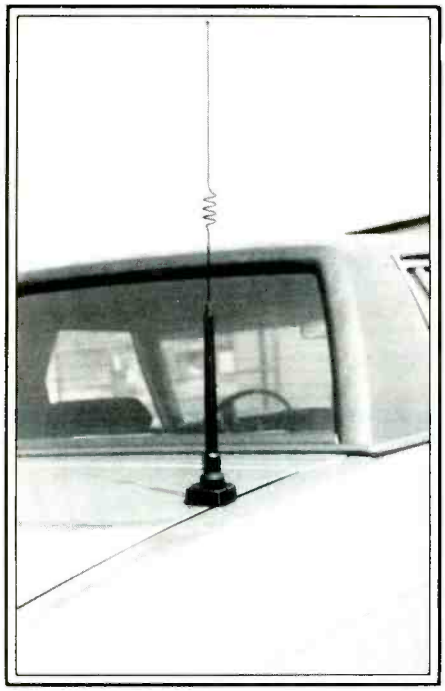
Airband Transceiver

A new airband transceiver, the AT-920, has been announced by Telex Communications, Inc. The company stated that the AT-920 combines all of the operating features and conveniences of hand-held VHF transceivers available to date. The new frequency synthesized unit receives all 200 NAV channels on 108.000-117.950 MHz and operates as a two-way transceiver on the 720 COM channels from 118.000-136.000 MHz. The keyboard can be locked to prevent accidental frequency change. The push-to-talk key can also be locked to avoid accidental transmissions.

Up to ten selected frequencies may be stored in memory for quick recall. Five of these memory stored frequencies can be programmed for duplex operation to permit transmission over one channel while receiving on another. Selective scanning monitors either all frequencies or only those stored in memory. An LCD readout always shows the frequency selected as well as the operating mode. The LCD display can be lighted for viewing in the dark. Unique to the AT-920 is a noise-blanker circuit which reduces possible interference from pulsating noises such as unshielded engine ignition.

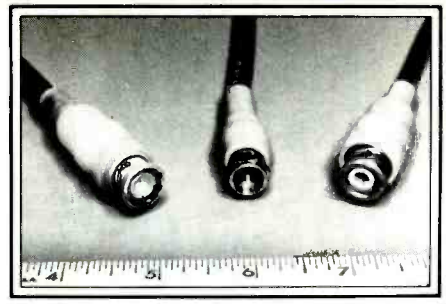
The AT-920 operates anywhere on a rechargeable NiCad battery. An AC battery charger is included with the radio and a spare battery pack, for quick battery changes, is also available. The radio features a high/low power switch. For most communications, the low setting can be used to conserve battery power and increase operating time between charges.

The AT-920 also includes aviation headphone and microphone jacks so standard headset can be used without adaptors. A heavy-duty leatherette case is available as an option. Telex announced the AT-920 at a suggested list price of $695. The radio is available through FBO's and avionics shops.



Feed Antenna For Cellular Applications

The Antenna Specialists Co. has introduced "no holes" antenna for special vehicle applications in the cellular telephone frequencies. Designated Model ASPD912, the new antenna is a 3 dB gain, elevated-feed design featuring A/S' "QUICK-GRIP"™ trunk lip mount. The mount permits simple installation in a matter of minutes, with no hole drilling required and connecting cable completely concealed. Requiring no ground plane, the antenna provides excellent omnidirectional performance when mounted on the lip of the trunk lid. It also permits the shortest possible run to the cellular telephone transceiver; RG-58/U cable furnished. For further information, contact: Marketing Department, The Antenna Specialists Co., 12435 Euclid Avenue, Cleveland, OH 44106, or circle number 103 on the reader service card.



Wet Weather Boot

No more sticky tape, no more messy rubber products! Kilo-Tec announces a new custom weather boot for use with RG-58, RG-59, and RG-8X. Simply slip the weather boot over the coaxial cable before soldering on the connector, then slide the boot over the connector for a good weather seal.

The boots are manufactured with a flexible vinyl material that resists moisture and break down from the sun's rays. The boots are designed to keep the connections clean and dry.

There are three new boots: Model KTBNC-59 for (F) BNC/RG-59 & RG-8X, Model KTBNC-58 for (F) BNC/RG-58, and Model KTBF-59 for (M) Type F/RG-59 & RG-8X.

Also available are various models for PL-259 and type N. Boots for TNC are available on special order.

Ask your dealer or Kilo-Tec, P.O. Box 1001, Oak View, CA 93022, (805) 646-9645, or circle number 101 on the reader service card.

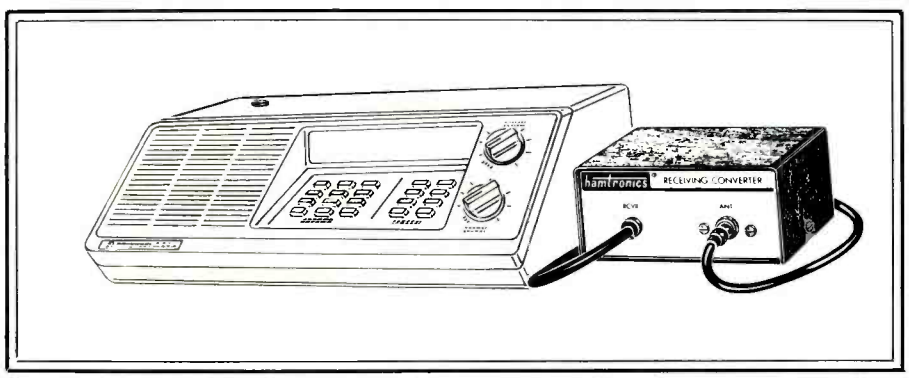
Custom weather boots can be made for other types of cables and connectors. Contact Kilo-Tec for a quote on your special requirements.

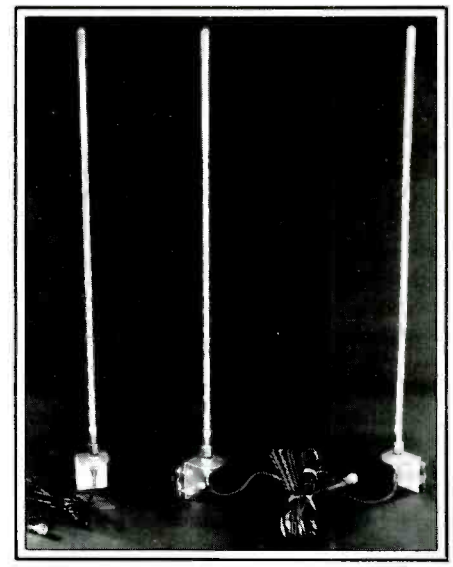
900 MHz Scanner Converter

Hamtronics, Inc. has now announced a new converter for scanner radios to cover the 900 MHz land mobile band. The CVR-900 is an adaptation of the very popular CVR-806, which covers the 806-896 MHz band. The new 900 MHz converter allows coverage of new services now being assigned or proposed for the 880-960 MHz range. including additional land mobile services, such as police and fire departments, government and non-government fixed stations, industrial, scientific, and medical services, and the proposed 902-928 MHz amateur band. Also included are proposed new cellular telephone and paging services, and broadcast studio-transmitter links.

The new CVR-900 Scanner Converter operates by converting all the frequencies in the 880-960 MHz band down to the UHF band of 430-510 MHz. To make the conversion in dial frequency on your scanner or other UHF receiver, you would simply subtract 450.000 MHz from the frequency you want to listen to. The unit is equipped with Motorola type connectors, so it can be simply installed in the coax line from the antenna to the scanner. DC power for the converter is supplied by many of the scanners, and an AC adapter is available for other installations. The price of the CVR-900 is only $88 plus $3 for S&H. Other converters are available for the 72-76, 135-144, 240-270, 400-420, and 806-896 MHz bands at the same price.

For a complete catalog, including information on scanner antennas, preamps, interference filters, and converters, please send $1 to Hamtronics, Inc., 65-F Moul Rd., Hilton, NY 14468-9535, or circle number 107 on the reader service card.





Mirror Mount CB Antennas

The Antenna Specialists Co. has introduced two new CB antennas for application on trucks, vans, and other vehicles requiring mounting on hollywood mirrors or other tubular structures. The rugged, stainless steel mounts may be utilized in three different configurations: on the vertical mirror support, the horizontal bar, or on any flat surface. Whips are 47" long and constructed of sturdy white fiberglass with a red safety tip. Model M-621 "ROADMATCHER™," for single-antenna application, is provided with 10 feet of RG-58/U cable with PL-259 connectors on both ends. Model M-622 is a dual-mount version and is provided complete with cable harness terminating in PL-259 connectors on all ends. For information, contact: Marketing Department, The Antenna Specialists Co., 12435 Euclid Avenue, Cleveland, OH 44106, or circle number 102 on the reader service card.

BROADCAST TOPIX

DX, NEWS AND VIEWS OF AM AND FM BROADCASTING

BY MARK MANUCY, W3GMG

Well, here we are right in the middle of the dog days of static time. What's a DXer to do with so much static? We could build antennas, but then we can't really test them, due to the static. We could build a preamp, but that would just amplify the static. Hmmmm. Why don't we prop up in front of the a/c with a cool glass of _____ (you fill in the blank) and read some back issues of *POP'COMM!* That's the best idea I've had all day! We can contemplate what we'll do next month when it's cooler and the static isn't so bad.

Now I'm not a weatherman, or a propagation forecaster, but I can't help but wonder about the weather. It sure has been weird (to say the least) this year. There were 60° days in January, snow in April after three weeks of 60°+, then a couple of days when the temperature reached the mid-80s. Today it's blowing a gale, and—wait a minute—it's turning into a calm and bright sunshine filled day . . . but only for ten minutes. Then it's back to rain! What is this going to mean? I have a feeling that, as you read this, we are apt to be experiencing some mean thunderstorms. Maybe this month we can watch all the radio and TV stations pull their towers down to avoid being struck by lightning! Just kidding!

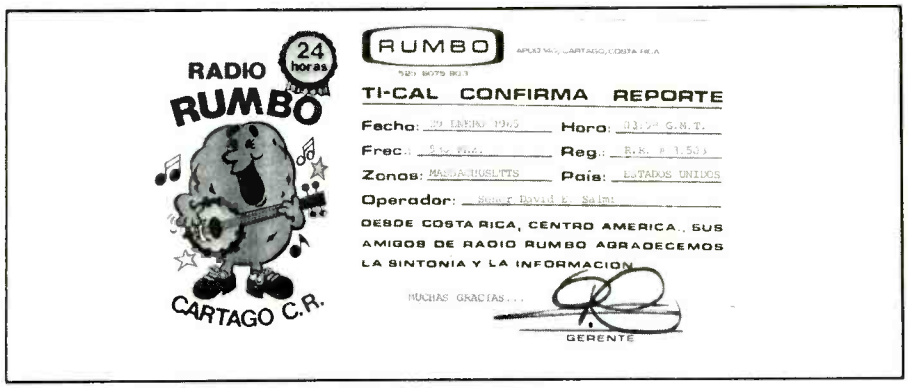
Loops

The response to the loop antennas was beyond my wildest thoughts! I was swamped with early requests for antenna plans. I think you folks are as crazy about antennas as I am. I have put together at least two more types of loops. Both are shielded; one is a ferrite rod type and the other is a metal frame box type loop. So as not to dominate the column too many months on antennas, the plans for these antennas will not be in the column for several more months. I realize that not everyone is interested in antennas. These two antennas will be more expensive to build than the other ones. The ferrite rod is $12.50 alone, and this antenna will require an amplifier (at long last!). Many have been asking for an amplifier circuit, so I have finally put one together, which I will show in the October or November issue in time for the DX season. Again, for those who are ready for more antennas now, I'll send the plans post-haste. For $5.50, you'll get plans for two new and different loops and the preamp. If you missed the original loops plans earlier this year, reprints are $5.50 for three box loops. Ask for the "original loop plans." If you just want the preamp, state this and send payment for $2.50. The address is at the end of the column.

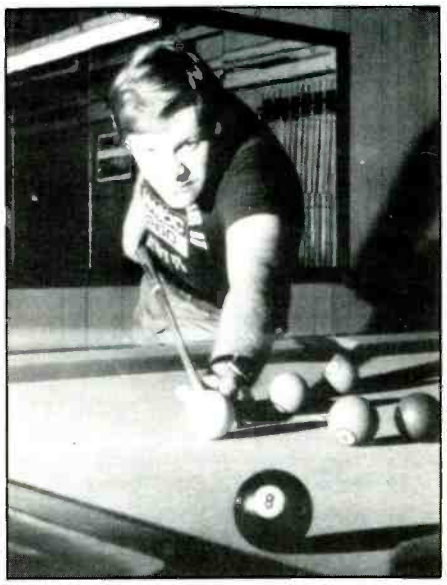
Hidden Call Letters

How many times have you listened to a station that was loud and clear and not been sure of the call letters? Here's another trick some broadcasters are performing; it's the FM/AM reverse! Back prior to FM Stereo, many stations would fluff over the FM's identity. Even on the hour they might forget to mention W . . . -FM. Now that the FM audience is greater than the AM audience, the shoe is on the other foot. Not long ago a station changed its FM call letters to get away from the "old" stigma they portray. The co-owned AM is a daytimer and was simulcast from the FM. Interestingly enough, they did not change the call letters of the AM station. I kept wondering about this since I never heard an ID for the AM station on the FM station, even though I knew they were probably still simulcasting. Why would they not change the call letters on the AM station or try to hide its existence? That will remain a mystery for a while, but here's what to look for: The AM station does get a correct FCC ID once an hour as required. The station will always be playing a record coming up to the hour and, as the record is ending, a taped ID will play only on the AM station announcing the proper call and city. Then, as the record ends, the "live" announcer will give the FM station call letters and city that will be broadcast on both stations.

Although FM may have been a stepchild of years gone by, this type of action is a low blow to AM Broadcasting protocol. FM's were never treated this lowly.



From the log of Senor David E. Salmi.



Ever wonder what DJ's do in their spare time? But Ed, I thought the 8 ball went in last!

Receivers

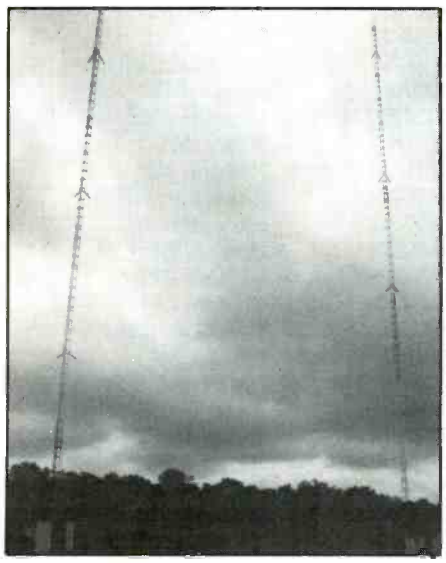
I'll finish talking about receivers this month. In the past two columns I have covered sensitivity, selectivity, RF Gain, BFO, ANL, NB, AVC, and ATT. I also mentioned the PBT, IF Shift and Notch—pay attention, there will be a test later!

RIT: Not very many receivers will have an RIT control. This stands for Receiver Incremental Tuning. I guess the older term for this was Bandspread Tuning, however, the RIT will only cover 8 to 10 kHz at most, whereas a bandspread might cover 500-600 kHz or more. With the new digitally tuned radios, the tuning is not smooth; that is, it jumps a preset amount each time the knob is turned. This may be as little as 10 Hz or as much as 1 kHz for each division. The RIT allows one to tune the increments between these divisions whether they be 10 Hz or 10 kHz. Some of the newer, more expensive radios display the amount the RIT control is moved from the center frequency (where the main tuning control is set). On a transceiver the XIT would move the transmit frequency in the same manner as the RIT. The RIT may also be called a "fine tuning" control. Working in conjunction with the tuning control are switches to set the amount of each division the tuning knob represents. These may be buttons or a switch. The steps on the R-70 are 10 Hz, 100 Hz, and 1 kHz. Some receivers may be preset to 1 kHz (or more) and use an RIT to tune in between the 1 kHz divisions.

Squelch: A squelch control may be used

Table 1

Station	Freq.	PWR D/N	Location				
These are new C-Quam Stereo stations							
KLAC*	570	5/5	Los Angeles, CA	WOW*	590	5/5	Omaha, NE
KUTY	1470	5/.5	Palmdale, CA	WTOF	900	.5/.5	Canton, OH
WRDW	1480	5/5	Augusta, GA	WWST	960	1/0	Wooster, OH
KWSL	1470	5/5	Sioux City, IA	KVET	1300	5/1	Austin, TX
WNOE*	1060	50/5	New Orleans, LA	WMZQ	1390	5/5	Arlington, VA
KEEL*	710	50/5	Shreveport, LA	WRAD*	1460	5/.5	Radford, VA
KRMD	1340	1/1	Shreveport, LA	WYNE	1150	5/5	Appleton, WI
WWIN	1400	1/1	Baltimore, MD	WRPQ*	740	.25/0	Baraboo, WI
WCCO	830	50/50	Minneapolis, MN	WOGO*	680	.25/0	Cornell, WI
WJKX	1460	.5/0	Pascagoula, MS	WNAM	1280	5/1	Neenah, WI



WLIM's two transmitting towers. Lens distortion makes it look as if they're not quite vertical. At one time there was a third tower but that one was razed several years ago. (Photo by Tony Earll)

to eliminate background noise when tuning between stations. This control works especially well with FM and sideband transmissions.

VFO: The VFO used to be a term reserved for the transmitter. It stands for Variable Frequency Oscillator, which was used for controlling the frequency of a transmitter. However, when the transmitter and receiver were combined into a single box called a transceiver, suddenly the VFO controlled both units. Today, many receivers have two VFO's, usually labelled A and B. This allows one to search one band with one VFO, say A, and by pushing B another range is right at hand. I found this to be very convenient when traveling with my R-70. The broadcast band is split into two ranges at 1000 kHz. I would use VFO A to tune 530-1000 kHz and VFO B to tune 1000-1610 kHz. In this manner, two stations may be compared very quickly. Many new receivers have memory buttons that are preset VFO's, so you can check up to 32 stations just by pushing buttons. You'll need a computer to keep track of which one is where!

AGC: The AGC of today was the AVC of yesterday. AGC stands for Automatic Gain Control and we have a choice of fast, slow, and off. Some receivers will have a variable control. Generally speaking, the fast is used for code, AM, and RTTY. The slow position will be used with SB reception. For an extremely difficult situation, it might be best to turn the AGC off and use the manual (RF or IF) gain controls.

PRE: A PRE is a PREamp, which is used to boost the signal level of a weak signal. The PRE control may be mounted in conjunction with an Off and ATT (attenuator) switch. If a signal is too strong, the PRE may become overloaded and cause multiple signals across the dial. At this point the PRE is turned Off, and if the problem still exists, the ATT is turned on. Then if the problem persists, it is probably not the receiver but something to do with the antenna.

By the way, those of you who have ICOM R-70 receivers that have not been modified for the PRE switch to work below 1600 kHz can get information on this mod and the bandwidth modification from me for $2.50.

AM Stereo

A complete list of all of the AM Stereo stations in the U.S. will be printed in *POP'COMM* before long. The Canadian stations will follow shortly after that. For those who wrote Broadcast Topix for issue #1 of the AM Stereo stations, an update is listed in Table 1 to make you current with issue #2. Issue #2 will be in *POP'COMM*. There are some stations that are already changing from the system they have been using to the C-Quam system. They are marked by *. The others are new on the air.

As you can see, as listed in Table 1, seven stations that were previously using another system have changed to the C-Quam. This is the first time I've seen this happen. If you

Call Letter Changes

Old	New	Location	Old	New	Location
AM Stations			**FM Stations**		
WBAM	WLWI	Montgomery, AL	new	KNCQ	Redding, CA
KBOT	KYXZ	Cabot, AR	new	WJNF	Marianna, FL
KIBS	KBOV	Bishop, CA	new	WGLV	Micanopy, FL
KUNA	KLTW	San Luis, CA	new	WSOS	St. Augustine, FL
new	KRCK	Burbank, CA	KUUB	KLTB	Boise, ID
WWWQ	WKSD	Panama City, FL	WAGO	WCKG	Elmwood Park, IL
new	WLVJ	Royal Palm Bch, FL	KLSS	KLSS-FM	Mason City, IA
WIZY	WEAM	Columbus, GA	KABI-FM	KSAJ-FM	Abilene, KS
WKBX	WBMQ	Savannah, GA	new	KLSP	Angola, LA
WRBN	WVIJ	Warner Robins, GA	WXCS	WARX	Hagerstown, MD
KSMN	KLSS	Mason City, IA	new	KDAL-FM	Duluth, MN
KXRK	KTSS	Davenport, IA	new	WPRL	Lorman, MS
KLIB	KILS	Liberal, KS	new	WVRD	Belzoni, MS
KABI	KSAJ	Abilene, KS	KWFC	KXUS	Springfield, MO
WCCL	WYHT	Jackson, MS	KQRR	KQRK	Ronan, MT
KYNN	KEDS	Omaha, NE	KIVE	KGLE-FM	Glendive, MT
KLAV	KEZD	Las Vegas, NV	KNOG	KNMC	Havre, MT
WCRV	WSRR	Washington, NJ	WHBI	WNWK	Newark, NJ
new	KNXX	Albuquerque, NM	WHFM	WZKC	Rochester, NY
WAVI	WDAO	Dayton, OH	WBUY	WKOQ	Lexington, NC
WNYN	WTOF	Canton, OH	WCOM-FM	WKSW	Urbana, OH
new	WWII	Shiremanstown, PA	WDAO	WWSN	Dayton, OH
WINH	WVBX	Georgetown, SC	WTOF	WTOF-FM	Canton, OH
WJRB	WLRQ	Madison, TN	new	KVAZ	Henryetta, OK
new	KKJB	Marion, TX	new	WBNE	Benton, PA
KHOS	KBIL	San Angelo, TX	WYEF	WFRM-FM	Coudersport, PA
new	WDUF	Duffield, VA	WRXZ	WIFI	Kane, PA
WEEL	WDCT	Fairfax, VA	WYZZ	WMGS	Wilkes-Barre, PA
WFBZ	WMYM	Minocqua, WI	new	WAVF	Hanahan, SC
WERU	WMAD	Sun Prairie, WI	new	WGCQ	Parris Is, SC
new	WOIZ	Guayanilla, PR	WJKZ	WLRQ-FM	Franklin, TN
			KBIL	KBIL-FM	San Angelo, TX
FM Stations			KVRN-FM	KHOS	Sonora, TX
WLWI	WLWI-FM	Montgomery, AL	WNHV-FM	WKXE-FM	White Rvr Jct, VT
WHTB	WEYY-FM	Talladega, AL	new	WPOT	Colonial Bch, VA
WQUS	WLTB	Birmingham, AL	WNST-FM	WAEZ-FM	Milton, WV
KIOQ-FM	KIBS	Bishop, CA	WMAD	WMAD-FM	Sun Prairie, WI
KJLU	KKRV	Kernville, CA			

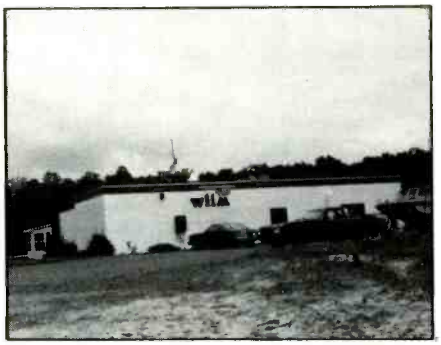
would like to have the complete list in pamphlet form, it is $2.50 postpaid from me.

Mail Call

In February a reader asked about Beercan broadcasts. The first responses are starting to arrive. From Whiskey Mike comes word that the Beercan broadcasts were discontinued in late 1980, however, there are some AFB's still receiving HF forecasts longline, but they are no longer put on the air.

Willard Dermyer writes from Jackson, Michigan and has a good idea, which we'll try to incorporate. Since it appears many readers do not have access to broadcast station addresses, each month when I list stations to listen for, I'll give their address for QSLs. David Salmi also sends the meaning of the SINPO to the stations he requests QSLs from in case they are not familiar with SINPO. One of his cards is shown with this column.

There have been quite a few peope writing in to tell me they have purchased the Sony SRF A-100 AM Stereo portable. A. C. Burnside listens to a lot of AM Stereo near Los Angeles and enjoys his Sony quite a bit. I have had a couple of complaints about the FM section of the radio, and, as I mentioned in the column, the FM is only mediocre—especially in the city. It is easily overloaded on the FM band and is not a DX radio unless you're out a ways from strong signals. On AM, it's great!



Here's the way things look at WLIM (ex-WPAC), Patchogue, New York, 1580 kHz, 10 kW. (Photo by Tony Earll)

Michael Baranich from Warren, Ohio was tuning around the high end of the BC band and came across his first Mexico station, XERF on 1570 kHz.

Steve Jones sent me a clipping from the *Commercial Appeal* in Memphis that discusses the expansion of the FM band. This docket (80-90) of the FCC is very involved and is changing too rapidly right now to make much sense, Steve. However, in a few months I'll give you the whole scoop. The band itself will not be expanded, they are just going to squeeze more stations into what is already being used.

And speaking of FM, Steve Anderson says Easter Sunday was the best DX day since January on the coast of California. He logged a couple of FMers and TV's he'd been waiting to catch. He wants to pass on the local channels as a good place to get "surprises" in DXing. He says not to always expect to hear the close-in stations on these frequencies. He logged five new ones on 1490 kHz the other night.

Station Updates

Call	Location	Freq	Pwr	Ant
AM				
WSBR	Boca Raton, FL	740	2.5/.5	DA-2
WTSK	Tuscaloosa, AL	790	5/0	O
WSST	Largo, FL	820	50/1	DA-N
WPIK	Flomaton, AL	990	2.5/0	O
WBDX	White Bluff, TN	1030	10/1	DA-N
KTNC	Falls City, NE	1230	1/1	O
KJOP	Lemoore, CA	1240	1/1	DA-D
WUNO	San Juan, PR	1320	5/5	O
KENU	Enumclaw, WA	1330	.5/.5	DA-N
WEXL	Royal Oak, MI	1340	1/1	DA-D
WKSN	Jamestown, NY	1340	1/.5	O
KCOG	Centerville, IA	1400	1/1	DA-1
KJMB	Blythe, CA	1450	1/1	DA-2
KOBO	Yuba City, CA	1450	1/.5	O
KGHO	Hoquiam, WA	1490	1/.25	O
FM				
KFXE	Pine Bluff, AR	92.3	N/C	982′
WXTU	Philadelphia, PA	92.5	16	900′
WZOU	Boston, MA	94.5	11.6	N/C
KDNT-FM	Gainesville, TX	94.5	N/C	1111′
WKSQ	Ellsworth, ME	94.5	11.5	1027′
KJYK	Tucson, AZ	94.9	96.5	1952′
WLLT	Fairfield, OH	94.9	31	N/C
WJKC	Christiansted, VI	95.1	N/C	817′
KLDR-FM	Delta, CO	95.1	100	969′
WBIL-FM	Tuskegee, AL	95.9	3	318′
WWMR-FM	Rumford, ME	96.3	62.5	N/C
KLSF	Amarillo, TX	96.9	N/C	599′
KWTX-FM	Waco, TX	97.5	100	N/C
WZNE	Clearwater, FL	97.9	N/C	984′
WROR	Boston, MA	98.5	8.1	N/C
WHTZ	Newark, NJ	100.3	7	1240′
WCUP	Tifton, GA	100.3	100	1005′
KRQK	Lompoc, CA	100.9	.3	1033′
WXBM-FM	Milton, FL	102.7	N/C	1328′
WTCR	Huntington, WV	103.3	49.6	492′
WXKW	Allentown, PA	104.1	50	458′
WBKJ	Kosciusko, MS	105.1	25	305′
KKGO	Los Angeles, CA	105.1	N/C	2854′
WAXY-FM	Ft. Lauderdale, FL	105.9	100	1022′
KOTB	Evanston, WY	106.3	N/C	1523′
KBHV	Spanish Fork, UT	106.3	7.1	2758′
WQLR	Kalamazoo, MI	106.5	13.7	900′
WLTF	Cleveland, OH	106.5	11	N/C
KMJM	St. Louis, MO	107.7	N/C	1019′
KXOA-FM	Sacramento, CA	107.9	N/C	402′

Key: D = Daytime N = Nighttime DA = Directional Antenna DA1 = Same Pattern Day & Night DA2 = Different Pattern/PowerDay/Night O = Omni Antenna Day and/or Night.

Kelley Fuss wrote to be sure of the "local" channels, or as one might say, "the small watt channels." They are in order from bottom to top: 1230, 1240, 1340, 1400, 1450, and 1490 kHz. In a few years, the FCC will open the 1600 to 1700 kHz range and, the way things are looking now, these frequencies will also be of the lower power stations (less than 5 kw), so that is something we can look forward to.

Well, that about wraps it for this month, but before I go, let's see about a couple of stations to listen for through the August static. KCBS is in San Francisco at 740 kHz. The address: One Embarcadero Center, zip 94111. The Chief Engineer is Howard Immekus. An easy catch will be WLS in Chicago. They are at 890 kHz and the address is 360 N. Michigan Ave., zip 60601. The Chief is Al Resnick. The reason I mention WLS is as I sit here finishing the column, I'm listening to WLS. They are celebrating their 25th anniversary (of their current programming). All the jocks from the sixties are having a round table discussion and taking phone calls. One caller asked when the station went on the air and no one knew for several minutes, when all of a sudden someone said WLS went on the air April 12, 1924, 61 years ago! Everyone laughed and instantly broke into "Happy Birthday." My address is P.O. Box 5624, Baltimore, MD 21210. Hope to hear from you this month, and, send a picture! PC

SATELLITE VIEW

INSIDE THE WORLD OF TVRO EARTH STATIONS

BY FRANK BAYLIN

How Small Can Our Dish Be?

My customers never fail to ask how long they must wait before they will be able to purchase and use 2 or 3 foot dishes to receive all the quality satellite programming with crisp, clear pictures. Will we be able to use much smaller dishes in the near future?

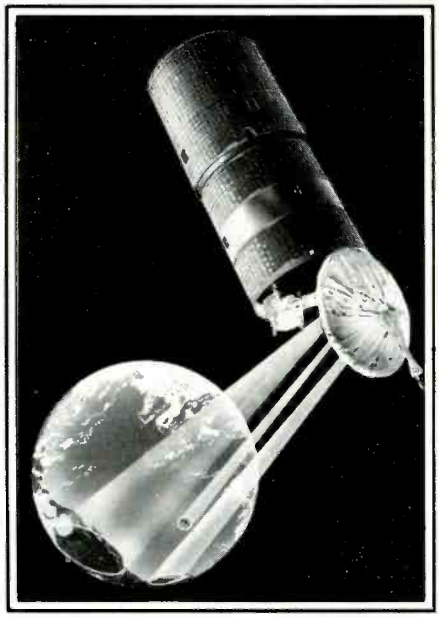
Required dish diameter is determined by four factors: satellite power levels, antenna gain and quality, antenna/feed design, and the frequency of microwaves used for broadcasting. The weakest link in the satellite-to-earth-station chain will set the minimum dish size needed for a given quality picture. Of course, picture quality is a very subjective decision. But such considerations can be the substance of an entire, separate article.

Satellite power is measured by a quantity called EIRP or, more technically, *effective isotropic radiated power*. This power is defined as that measured leaving the satellite downlink antennas before the waves spread out on their trip to the earth below and before any atmospheric absorption occurs. EIRP levels displayed by footprint maps are available for each and every satellite encircling the earth. Typically, domestic communication relays blanket the continental United States with a leam that is stronger in central regions and weaker at the peripheral areas, therefore, larger dishes are required in Portland or Miami than in Kansas City. South Americans wishing to view U.S. television often use antennas as large as 30 or more feet in diameter because they are in such weak footprint areas.

Modern day satellites are getting increasingly more powerful. As a result, smaller dishes are becoming more effective.

Satellite gain is determined by dish surface area as well as surface accuracy. The larger an antenna, the higher the gain (all other factors being the same); the better the surface accuracy, the higher the gain. Feedhorn design and low noise amplifier (LNA) noise temperature are also critical determinants of earth station performance and ultimately of required dish size. (Remember that the feedhorn collects microwaves focused by an antenna and directs them into the LNA, the first active electronic component of an earth station.) A feedhorn that is well matched to its partner will see as much of the dish surface as possible and ignore unwanted "spillover" from the surrounding terrain or unwanted signals from other sources or even adjacent satellites.

All of these factors taken together with LNA noise temperature will determine a quantity called G/T (gain to noise temperature ratio). A minimum G/T is required to drive a satellite receiver at a certain level of performance.



Galaxy Satellite: The three Galaxy satellites, built by Hughes Aircraft Company, offer communication services to business users. Each satellite has 24 transponders, all of which are available for purchase for the lifetime of the vehicle. (Photo courtesy Hughes Aircraft Company)

The overall antenna/feed design determines how well the system targets one region of space and ignores signals coming from unwanted sources. This performance is measured by the beamwidth characterized by quantities called the main lobe and side lobes, respectively. The main lobe "sees" the desired signal; sidelobes see interference and noise. Side lobes can be reduced by increasing antenna size. An antenna that is too small will have a larger beamwidth and side lobes capable of seeing satellites adjacent to the desired one; ghosts may be received along with the desired TV picture.

In 1983 the FCC did decide to reduce the spacing between satellites to 2 degrees. This decision is slowly being implemented as more satellites are being launched. This regulatory organization is, however, following a wise course in interweaving polarizations between satellites. So, for example, Channel 1 on a satellite could have horizontally polarized signals, while the same channel on an adjacent vehicle would be vertically polarized. A receiver tuned to Channel 1 will not see the adjacent satellite as well as if both polarizations were identical.

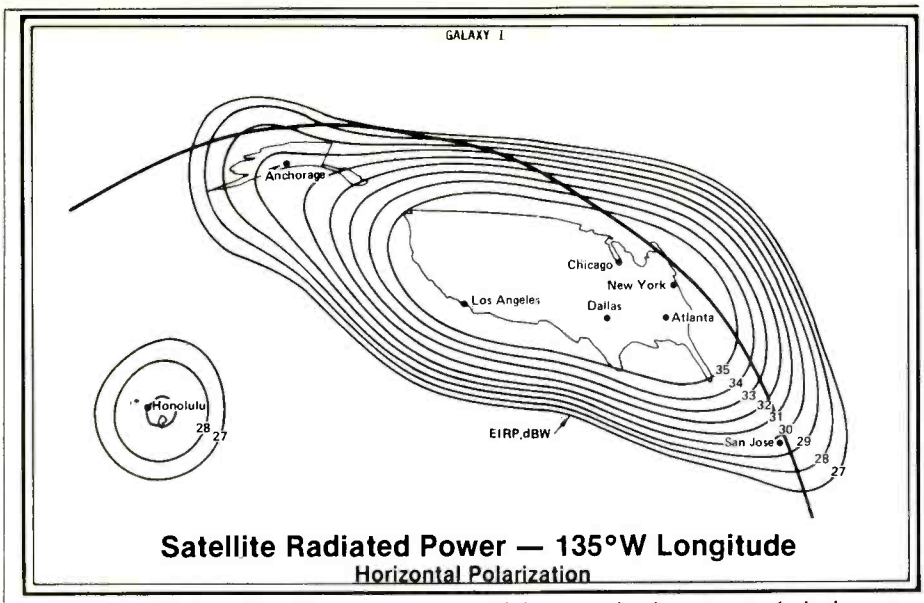
All of these factors taken together determine an acceptable dish size for a given desired level of performance. In Colorado, for example, a 9-foot dish mated with a 90° LNA delivers a very acceptable picture on all satellites. In the same geographic area, a 6-footer with a 75° LNA receives good pictures from most satellites, but a severe rainstorm will visibly degrade picture quality. A 6-footer with a rather rough surface will not pass the side lobe test when satellites are spaced more closely together. Nevertheless, today, 4-foot dishes are being marketed as systems capable of adequately seeing all of the channels relayed by more powerful satellites.

As in all decisions regarding technical equipment, both cost and performance must be weighed before purchase decisions are made. Two or three years ago, a 75° LNA was prohibitively expensive. Today, LNA costs have dropped to the point where 6-footers are realistic purchases. However, now LNA cost/performance is not considered the technical limit as much as beamwidth and side lobe characteristics.

There is another alternative to reducing dish size. Higher frequency broadcasts using microwaves in the 14 GigaHertz range (called Ku-band) overcomes many of these limitations. At higher frequencies satellites can relay higher powers in more easily focused beams. Also, antenna gain increases and beamwidth decreases as frequency increases. A two-foot dish (almost platter size) having excellent surface accuracy is adequate for today's Ku-band broadcasts.

Relaying messages from space at Ku-band frequencies have taken the name *direct broadcast systems* or DBS. More conventional C-band (or 4 GigaHertz) broadcasts are also direct broadcast systems, but are differentiated by being called home systems or C-band systems. DBS technologies are becoming powerful factors in Europe, Canada, Japan, and other countries, but free market forces in the U.S. have, at least for the time being, chosen C-band methods. Today, over one million such systems are in place in the United States.

However, there are other ways to skin a cat. Companies such as Equatorial Communications (see Satellite View, March 1985) have given their data messages a "signature." Therefore, even when using C-band frequencies, small 2-foot dishes (which may see as many as seven satellites simultaneously) "read" only one message—the intended message—at a time. Related methods may be used for video broadcasts in the future, but such use would require altering the form of uplinked broadcasts.



Galaxy I Footprint: The 12 transponders with horizontal polarization include the state of Hawaii, in addition to the continental United States. (Photo courtesy Hughes Communication, Inc.)

However, given the great capital investments, new technologies will only gradually evolve in the marketplace and will not be suddenly "invented."

What, then, do I tell my customers when asked the familiar question? The answer is simply a question. What television picture quality do you require and when will you purchase a system? These subjective answers determine my guidelines to aid their decisions.

Frank Baylin has written *Satellites Today—The Complete Guide to Satellite Television*, available for $9.95; and *The Complete Home Satellite TV Installation Guide* (published July 1985), is available for $29.95. Both are from F. Baylin, Suite C, 1905 Mariposa, Boulder, CO 80302. PC

CIRCLE 29 ON READER SERVICE CARD

ON THE LINE

BY GORDON WEST, WB6NOA

NEW AND EXCITING TELEPHONE TECHNOLOGY

Metering Out Your Phone Line

When was the last time those little phone wires gave you a zap? Or have you ever wondered whether or not polarity was important on the green and yellow wires—or is it the green and red wires that we connect to? Why do the new phones have two wires and the phone service gives us four wires? Hopefully this article will help you figure out some of those voltages and wires that come out of your friendly telephone jack.

Let's first start with the color of the wires. The red wire is called the "ring" wire, but the word "ring" really doesn't have anything to do with your phone ringing. Ring refers to the metal ring around the old-fashioned telephone plugs back in the days of corded switchboards. The red wire is usually considered the negative wire.

The green wire may usually be considered positive, and we call this wire "tip." It gets its name from the tip of the phone jack that was used back in the old days. Those old jacks contained three elements—the tip, the ring, and the long sleeve. Green is tip, and red is ring.

When hooking up a new phone, the red and the green wires are the primary pair that you will be working with. New telephone apparatus contain full-wave bridge rectifier circuits so that polarity may not be that important. While we would always recommend red to red and green to green, some phones may work equally well if the polarity is reversed. Some touchtone phones won't dial at all—and if that's the case, simply reverse the red and green wires and you should be on the air.

On older push-button telephone equipment, such as the Western Electric 2500 series, polarity would be important for the push buttons to develop tones. Newer telephones with push buttons all appear to be polarity insensitive.

The yellow wire for most single-line household phones may be connected to the earth ground system. Except for party lines, the yellow wire is normally not used in interconnecting new telephone equipment to a phone jack.

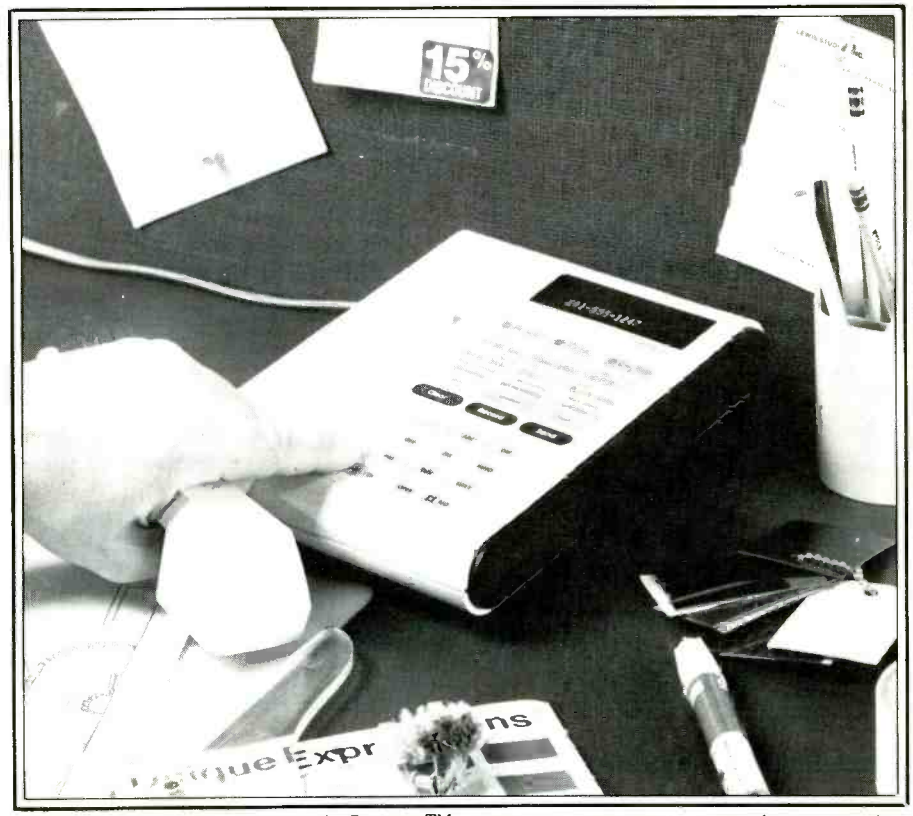
The black wire is also not used, except for older style "Princess" phones where an AC voltage on the yellow and black wire is necessary to illuminate the keypad or rotary dial. Some houses with two lines have the second line on the black and yellow. Yellow should be positive.

The normal voltage present between the green and red wires is 48 volts DC when the telephone is on hook. As soon as you remove the telephone from the cradle and a dial tone is heard, the voltage normally drops down to 9 volts or lower, but always greater than 2 volts. The voltage drop is dependent on the amount of wire in between your telephone setup and the distant terminal switching unit down the street. Number 22 wire could develop as much as 5000 ohms resistance if the terminal unit is three miles away.

When the phone is on the hook, chances are you might begin to feel a little tingle between the red and green wires at a 48 volt potential. When the phone is off the hook, 9 volts could hardly be felt. However, when the telephone rings, the voltage may be as great as 150 volts, and this is what will usually give you a shock. If you plan to be working on your telephone jack, take the phone off the hook. That will drop the voltage as well as prevent someone from ringing in.

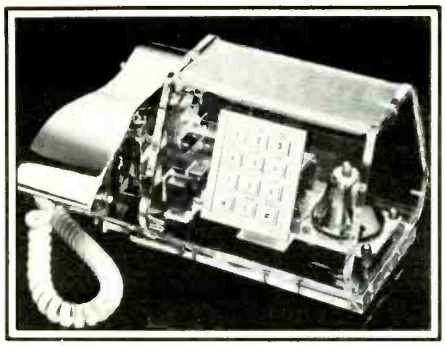
The telephone ringing is an AC signal, usually 20 Hz. If a party line phone system is involved, they may use different ringing frequencies to selectively call different telephones on the same line.

The phone company will give you enough ringing power to handle up to five telephones in parallel if each phone has the normal ring equivalent number of one.



AT&T's Consumer Products' Genesis™ telesystem represents a revolution in telephone communications.

AT&T's weathertight outdoor jack lets homeowners install a telephone extension on their porch, patio, deck, or anywhere outside the home without having to worry about damage due to weather.



The "Clear Talk" telephone is an original see-through table model of clear acrylic with chrome receiver and goldtone face plate. The inner workings, including a brass bell, are delightfully visible. Part of a collection of Designer telephones by TeleConcepts.

Some of the newer electronic phones that give you a buzzing audio sound for a ring may draw less than one ring equivalent number—usually in the order of 0.5 to 0.8. The ringer equivalent number is noted on the base of your new telephone. Some older telephones that use mechanical ringers will require more than one ringer equivalent number—sometimes as high as 3.0.

What all this means is that you cannot tack on more phones than you have ringer equivalent numbers for. If you have seven phones, and each phone has a ringer equivalent number of one, you may overload the system and none of them will ring.

The amount of current that a telephone may consume when off the hook and ringing is dependent on the distance of your phone from the exchange. Typical current is around 35 milliamps. Each time you pick up another phone, the voltage drops, the current stays about the same, and the audio decreases. The typical impedance of most telephones is around 600 ohms. If it is higher, you get echo on the line from the impedance mismatch.

This now brings up the subject of telephone eavesdropping. Sure, it's easy to hear when someone else picks up the line—the audio of the calling party immediately drops. You don't need any anti-bugging equipment to detect someone else on the other line.

However, modern wiretapping equipment using field effect transistor sensitive circuits will go completely unnoticed when switched in and out of your phone line during a phone call. The input to these devices is in the order of 10 meg (10 million) ohms, and you won't be able to hear any change in audio levels. This means someone with a court order might be able to eavesdrop on your telephone system without ever being detected.

Telephone bug detection devices would be hard-pressed to determine whether or not a bug was already installed on your phone line. They would certainly sound off if someone picked up the other line, but with a very sophisticated type of high impedance input tapping equipment, your normal telephone bug detector would scarcely see any change in line voltage.

The Federal Communications Commission requires that all telephone equipment to be connected to phone lines must be tested to FCC specifications, known as Part 68, and registered with a full lab report. You will find the registration number somewhere on the bottom of the telephone equipment. This even includes answering devices and dialers, as well as cordless telephone transponders. The label will also include the ringer equivalent number, too.

Every now and then worldwide travelers may bring home a piece of foreign telephone equipment. Many times this equipment won't work as well on our phone lines here in the United States because of different standards. The bell may tinkle when someone dials on another extension or go dead if someone picks up another extension while you're talking. This is why you should only consider those foreign-type telephones when offered by domestic suppliers.

Take the futuristic foreign-appearing phones from Telequest, Inc., 4514 Van Owen Street, Burbank, California 91505. Julian Macassey, well-known telephone expert and amateur radio satellite communicator, comments,

"The U.S. telephone customer has come to expect a class and quality of service not available outside the U.S. and Canada. Tone dialing service, custom calling, and itemized phone bills are obvious examples.

"To the American subscriber, two or three people on extensions talking to Grandma is accepted and normal. U.S. phones are designed to perform with a minimum of three phones off hook. In some countries, this is illegal or 'technically impossible.'

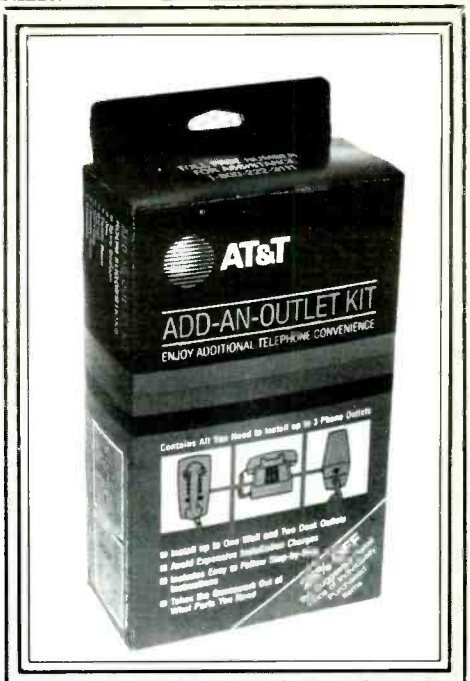
"They are also designed so that if one extension is dialing, the other extensions won't have their bells tinkling away.

"A phone designed for the U.S. consumer should be able to do all these things as well as take having the handset dropped from 5 feet onto a concrete floor.

"It is hard to check these things in a store, but before buying a phone, ask the store clerk to let you plug it into a phone line to see if it dials and performs the way you would like it to. You wouldn't buy a car or a stereo without trying it. A phone is a vital piece of equipment! Try before you buy, especially if it is a feature phone," Mr. Macassey further states.

The nice part of this entire telephone business is that now you are permitted to add your telephone system on your own. Just make sure and use only type-accepted equipment as well as good procedures when dealing with those high voltages in the phone line. Remember, voltage spikes as high as 300 volts can grab you during pulse dialing.

A good sensitive volt ohmmeter should provide you with all the necessary information on the quality of your phone line as well as some basic steps on troubleshooting a circuit that just doesn't seem to ring out.



AT&T's new Add-An-Outlet Installation Kit supplies homeowners with the parts and step-by-step instructions to install up to three telephone extensions.

New Kit Contains Parts For Installing Telephone Outlets

For the homeowner who wants to know everything about installing a telephone outlet and wants to have the parts to do the job right, AT&T has introduced the "Add-An-Outlet Installation Kit."

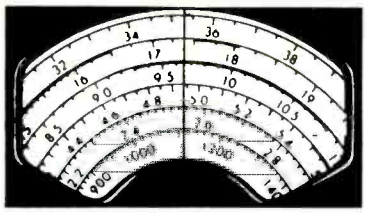
This unique kit contains all the parts needed to install up to three telephone outlets with easy-to-understand, step-by-step instructions. In many cases, an outlet can be installed in less than half-an-hour.

If you have at least one other phone in your home, you can install an outlet by using the existing phone wiring. The AT&T Add-An-Outlet Installation Kit comes with everything needed, including jacks for wall and table phones, telephone wire, adapters, screws, clips, staples, and a handy tool for stripping wire.

The only thing that the kit doesn't include is the telephones, which can be purchased along with the kit at any AT&T Phone Center or a store that carries AT&T products.

The AT&T Add-An-Outlet Installation Kit has a suggested retail price of $24.95. It is part of the full line of new AT&T Do-It-Yourself Products now available. Like all AT&T Do-It-Yourself wiring and accessories, parts in the kit are made to professional standards of quality and designed for years of continued use. Instructions in the kit are the most complete in the industry and are backed up by AT&T's 24-hour-a-day toll free number to answer any questions concerning phones or phone installation.

For further information and for the free booklet "Do-it-Yourself and Save," visit any AT&T Phone Center or write Mr. E. Crossan, AT&T Consumer Products, 5 Wood Hollow Road, Parsippany, NJ 07054.



COMMUNICATIONS CONFIDENTIAL

BY MIKE CHABAK

YOUR GUIDE TO SHORTWAVE "UTILITY" STATIONS

Whether you're an avid utility monitor or just now taking the plunge, sooner or later you will get the irresistible urge to "verify in writing" some of the stations you hear. Utility QSLing is a fascinating endeavor wherein you can obtain verifications from ships, aircraft, and land stations residing in locations that range from the exotic; to the remote; to just down the block. In the process, you'll be sending off reception reports to stations that are of a private, commercial, military, or governmental nature. You can even obtain QSLs that are literally out of this world (orbiting satellites).

The dyed-in-the-wool ute QSLer knows all about the joys and frustrations connected with this enterprise, so I'll address this to those of you new to the ranks of the utilities, or those who have yet to attempt to QSL.

Cozy listening post of Bill Grovesteen, KA1KAC in Massachusetts.

Bill Grovesteen's antenna system.

Many of you started SWLing via monitoring the international shortwave broadcast stations. If so, and if you did QSL some of those stations, you know what constitutes a proper reception report. Unfortunately, the utilities play by a somewhat different set of rules, and if you apply what you've learned in SWBC QSLing, you will end up tearing your hair out.

The prime difference between ISWBC and utilities is that *all utility radio activities are considered private communications*. Shortwave broadcast transmissions are programming specifically directed and intended for a listening audience, much like the television programs you watch. Utilities are basically business in nature, and the only way to monitor them is akin to wiretapping someone's private telephone line. In other words, if you monitor utility transmissions, you are nothing more than an unauthorized eavesdropper and audio peeping tom.

This means that you *cannot* divulge/repeat anything of that comm exchange, not even to the station that was one of the involved parties. To do so violates both international and federal communication regulations pertaining to the confidentiality of private communications. If you violate these regulations, you won't be fined or sent to jail, but the utility station you are QSLing will not be able to confirm your reception report. To do so under those circumstances means that they would likewise violate the law.

Some of you new to the utilities might be confused. How can you QSL a utility station if you cannot tell them what you heard in order to prove that you heard them? SWBC QSLers know for a fact that the more specific details of the program content you supply, the better your chances of obtaining a verification. Apply this approach to the utilities and you can kiss your QSL goodbye.

The way around this contradiction is for the utility buff to utilize buzzwords that denote the nature of the communications, but not its contest. The following is a hypothetical example using ZME3 Raoul Island (Kermadec Islands):

Raoul calls up Wellington (New Zealand, and once they establish comms, passes their latest weather data. Afterwards, John on Raoul places a telephone call to #7781015, to Mary (his girlfriend) in Christchurch. John tells Mary how glad he was to receive the birthday gift she sent him. They discuss their plans to get married once his assignment to Raoul is finished. After our lovers engage in some romantic chit-chat, the telephone call is completed. John then places another phone call to his parents in Southbridge, advising them of the upcoming wedding plans. After more chit-chat, this call is completed. John then rag chews with Wellington, then signs off.

If you wanted to QSL ZME3 Raoul, you would use the following time line/buzzword approach:

0525-0527—call up to ZLX59 Wellington
0527-0530—5 figure metro to Wellington
0532-0615—phone patch via Wellington
0617-0629—phone patch via Wellington
0629-0634—working Wellington
0635—sign off

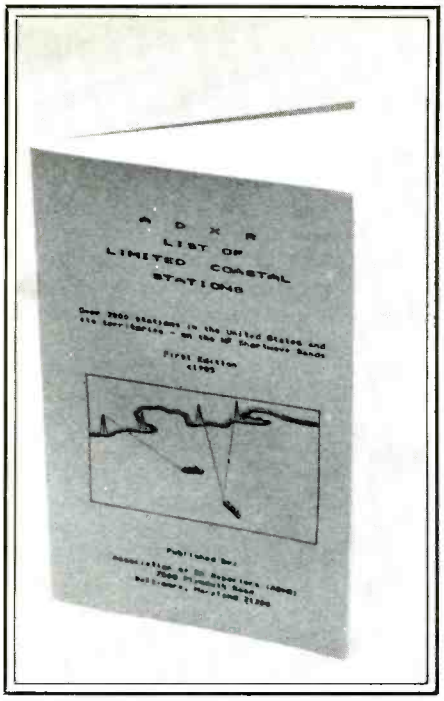
Of course you would prologue this with the basic data of day, time (to GMT standards), frequency, transmission mode, language, gender, and so on. When Raoul receives your reception report, it is a simple matter to check it against their radio logbook entries. In essence you have given them all the data necessary for Raoul to cross check and confirm without violating the confidentiality of their communications.

This time line/buzzword approach is the accepted method for filing reception reports to a utility type station. Adhere to this and you vastly improve your chances of obtaining a verification.

That's the good news, now the bad. Spanning VLF through HF, there are several hundred thousand potential utility stations of all types. Whether they will verify depends on many factors. Some governmental agency and military stations will not do so for security reasons. Other stations adhere to the letter of the law, that *all* utility communications are private, therefore they will not verify. Some stations would gladly have verified, but you failed to supply a prepared form card or letter and the return postage. In some instances, station personnel have too busy a workload to take the time to read and verify, while some individuals who receive your report simply are not in the mood to read and fill out your QSL. Then there could be those who through personal prejudices or by acting in accordance with government policy, are anti "this or that," and you happen, by no fault of your own, to be in the ranks of what they consider "this or that." If none of these obstacles apply, the ute QSLer can face the ultimate frustration: lack of a mailing address.

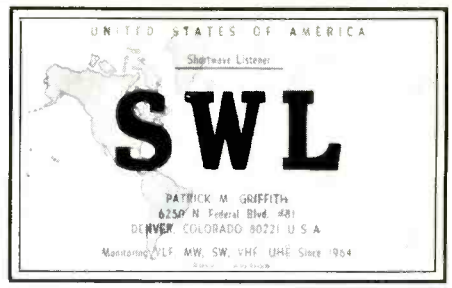
Prepared Form/Postage

Utility communications are basically business in nature. As such they are not intended nor designed to entertain you like the SW broadcast gender. To be quite honest, ute stations don't give a damn if you can hear



The ADXR List Of Limited Coastal Stations.

This isn't the showroom at an electronics store. It is the DX shack of Roger Briankopf of California.



This is Pat Griffith's attractive SWL card.

them or not, for their primary concern is only that those they are communicating with can hear them. You are an unauthorized eavesdropper, listening in on communications that are none of your business. Some stations adhere to this and will slam the door in your face if you try to QSL them. Don't think that these stations are stuck up or rude. How would you like to receive a reception report from someone who's been monitoring your personal telephone calls?

But in most cases, logic prevails. The airways can be monitored by anyone, anywhere, at any time. As long as the monitor follows the reporting rules, most ute stations will be inclined to verify, policy permitting.

Since ute stations are not seeking your attention, the bulk of them have no official type QSL card/letter. As such, they also do not have a fund set aside for postage. It therefore falls on you to supply both a prepared form and return postage. You want something from them even though they are under no obligation to supply it, so use your common sense.

A typical PFC is based on the 4″ × 6″ index card. On one side is your name and address. If the station is within your country, or reachable via APO/FPO, then affix the current postcard postage rate. If outside your country and not reachable via APO/FPO, then include one or two IRCs. International Reply Coupons are available from most major post offices.

The other side contains the data categories you seek for confirmation. This includes date, time, frequency, transmission mode, station name/call letters, location, and signature. Of course, if the station is a ship or aircraft, then you use the appropriate categories. You can ask for any data you wish, providing that you have the space on the card. If a PFC cramps your style, then you can use a PFL (form letter). In this instance, separately include return postage, or if appropriate, an SASE. Type or write in the data categories, but leave their spaces blank and allow the station to fill in the data.

By including a prepared form and return postage, this assures you that, if your report can be verified, you have supplied the means for them to do so. Some stations have their own QSL card/letter. If you'd prefer their's (that is, if they have one), then include in your report a notation to discard your's in favor of their's. How you set up your PFC/PFL depends on what data you seek. If you have widespread utility interests, you will end up having basic but differing setups for land, sea, and air stations. I cannot stress how important it is for you to include a prepared form and return postage. If nothing else, it is a gesture of courtesy. On the other hand, it can be the ultimate factor in receiving or losing a confirmation.

Language

Although English is widely spoken and understood throughout the world, written English is not. Because of the nature of utility reception report data, it often dispenses with involved text and can be basically cryptic. One, therefore, doesn't need to know another written language in order to pick out dates, times, frequencies, and so on. Even buzzwords or their abbreviations are commonly understood. So, it is very possible that your English report/PFC won't be readable as such, but the station will still be able to verify your report.

Sending a report in the language of that country or one that is a common secondary language is, of course, an asset. For example: France—its possessions and many of its former colonies have an annoying habit of preferring reports/PFCs in French. If you would like to be able to assemble utility oriented reports in French, Spanish, German, or Portuguese, the *Speedx Reference Guide to the Utilities* has a section devoted to a wide-ranging setup specifically designed for utility reporting usage.

QSLing The USAF And Friends

The United States Air Force, the Air Force Reserve, and the Air National Guard offer an interesting hunting ground for the military QSL buff. In some instances a novice military buff can succeed, while in others, only the experienced military tactical buff has any chance. Let's look at this.

SAC The Strategic Air Command is *untouchable*. They are involved with nuclear deterrence and, as such, SAC considers *all* of its communications classified. No element of SAC—be it bomber, tanker, recon, airborne command post, missile silo, or ground comm station—will verify *under any circumstances*. All of their comms utilize tactical callsigns, and even if you could determine a specific station, it won't help one bit.

By the way, SAC uses ever-changing callsigns. These are valid only for a particular mission, and once used, go back into the grab bag of usable tac calls. The main ground stations normally use the same call for upwards of 24 hours. From a monitoring aspect, categorizing the callsigns is a pure waste of time. You could hear the same callsign or prefix used several times over the course of time, but in each instance, a different station was using it. This ever-changing tactical callsign is for communication security purposes. There is no law forbidding you to listen in to them, but don't be foolish enough to try and QSL them.

AFCC Up until a few years ago, the Air Force Communications Command (then known as the AFCS—Air Force Communications Service, handled all military aircraft enroute flights. Fifteen ground stations, using the suffix "Airways," performed worldwide air traffic control duties for both U.S. and foreign military flights. This was recently changed, and now commercial ATC stations handle this aspect.

The AFCC stations can still be heard, but now in the capacity of the USAF GCCS (Global Command & Control System). They currently provide only radio checks and phone patches for military aircraft, and all but four re-broadcast the SAC Skyking messages.

All of these stations can be successfully QSLed, but one area to stay clear of is the Skyking re-broadcast. These are coded messages from SAC HQ to its nuclear forces, and as such are classified. Never attempt to QSL an AFCC/GCCS station running this transmission. If it is part of a series of comms you monitored, don't indicate any reference to it in your comms breakdown portion. The 15 AFCC stations that you will be able to normally hear are: Al-

brook, Panama; Andersen, Guam; Ascension (Island); Clark, Philippines; Croughton, England; Elmendorf, Alaska; Hickam, Hawaii; Incirlik, Turkey; Lajes, Azores; Loring, Maine; MacDill, Florida; McClellan, California; Scott, Illinois; Thule, Greenland; and Yokota, Japan. There is a 16th station, Andrews AFB Maryland, but it is primarily involved with U.S. government VIP flight operations.

If you are interested in these ground comm stations, here is a list of their most used frequencies:

- Albrook: 5710, 6683, 8993, 11176, 15015, 18019
- Andersen: 6738, 8967, 11176, 13201, 18002
- Ascension: 6750, 6753, 8993, 11176, 13244, 15015
- Clark: 6738, 8993, 11176, 13201, 18002, 18019, 23227
- Croughton: 3067, 5703, 6750, 9011, 11176, 13201, 15036
- Elmendorf: 5710, 6738, 8989, 11176, 11226, 13201
- Hickam: 3144, 6738, 8964, 11179, 13201, 18002
- Incirlik: 6738, 11176, 13215, 15015
- Lajes: 3081, 4746, 6750, 8967, 11226, 13244
- Loring: backup for Scott and MacDill
- MacDill: 4746, 5688, 6750, 8989, 8993, 11179, 11246, 13244, 18019
- McClellan: 4746, 6738, 8989, 11239, 15031, 18002
- Scott: 6727, 9014, 11182, 15015
- Thule: 5710, 6738, 8967, 11228, 13201
- Yokota: 4746, 5710, 6738, 8967, 11236, 13201, 18002

It goes without saying that the higher HF freqs are used during daytime conditions at the AFCC station's location; the same applies for the lower HF freqs.

TAC The Tactical Air Command is comprised of fighters, interceptors, and ground attack aircraft. None of these aircraft have HF capability, none except the F-111 and fighters specifically configured for reconnaissance. Other exceptions are the AWACS E-3 Sentry aircraft and military transport aircraft that have been configured for electronic missions (having EC or RC prefix). "EDGY" is often used by the AWACS on training flights. They can verify, but the other TAC electronic combat aircraft are more difficult, if not impossible, to verify. All use tactical callsigns, many of which are in static use. The problem for you is to determine who belongs to which tac call.

MAC The Military Airlift Command is composed of several divisions. You have all heard aircraft IDing with the call "MAC" followed by five digits. These are the C-130 Hercules, C-141 Starlifter, and C-5 Galaxy types. Even though they are routinely heard, it is almost impossible to verify a MAC aircraft—the reason being the nature of their movements.

Take, for example, MAC 70165, a C-141 assigned to the 438th MAW (Military Airlift Wing) at McGuire AFB, New Jersey. You would think that if you monitored MAC

Scott Alper at his listening post in Norristown, Pennsylvania.

70165, you could simply send them a report via the 438th at McGuire. It doesn't work out that way. Say MAC 70165 departs McGuire with a cargo for Hickam. Upon arrival, its crew has used up their allotted flight hours and has to stand down. But once unloaded, 70165 is scheduled to fly cargo to Yokota. Since its original crew is standing down, a C-141 rated crew, now available at Hickam, is assigned to take it. This could be one from the other five USAF C-141 MAW units, or from one of the 13 Air Force Reserve MAS (Military Airlift Squadron) units. In all, MAC 70165 can be flown by a crew from one of six bases and among its six MAW or 13 MAS units. So 70165 flies to Yokota with a crew from the 63rd MAW (Norton AFB); MAC 70165 could fly many cargo runs, literally flying around the world, eventually ending up back at McGuire. In the process, 70165 could have been flown by X-number of different C-141 rated crews. As each radio man keeps his own radio log, you now see the problem. If you sent a report via the 438th, and it happened that 70165 was, at the time you monitored it, being flown by a 63rd MAW crew, McGuire would have no means to verify your report. Because of this fact, QSLing the far ranging MAC aircraft is virtually impossible.

Some MAC aircraft fly local missions, but most often use tactical callsigns (such as BUFFY 58). But here you have to be experienced in the miltac field to determine the correct identity of the aircraft and its homebase even before you can attempt to send off a QSL. All in all, attempting to QSL MAC aircraft is a most frustrating endeavor, to say the least.

Another division of MAC is the WRS (Weather Reconnaissance Squadron) service. WRS aircraft offer a good opportunity to obtain verifications by virtue of the fact that they come from only four different units and use a static callsign prefix, as listed here.

- 54th WRS at Andersen AFB Guam (SWAN callsign prefix—WC-130 aircraft)
- 53rd WRS at Keesler AFB Mississippi (GULL callsign—WC-130 aircraft)
- 815th WRS at Keesler AFB (TEAL callsign—WC-130 aircraft, AF Reserve)
- 41st RWRW at McClellan AFB California (LARK callsign—WC-135 aircraft)

The only one you would have any problems with is LARK. They fly mainly military weather recon, and can come under security restrictions. RWRW represents Rescue & Weather Reconnaissance Wing.

The one rub in QSLing WX recon aircraft is that the two numbers following the callsign do not denote a specific aircraft. So GULL 11, 35, or 48 could end up being the same exact aircraft flown by a different crew or assigned mission. Nevertheless, WRS aircraft are among the easiest Air Force aircraft to successfully QSL.

Another division is the Air Force Aerospace Rescue and Recovery Service (ARRS). These ID (both fixed wing and helicopters) as "Air Force Rescue," followed by the 5-digit tail code when on an actual (search & rescue) mission. When in training or other non-mission flights, the fixed wing HC-130 types ID as "KING" plus two numbers, and the helos by "JOLLY" plus two numbers. These numbers are the actual designators for a specific aircraft. Although the KING/JOLLY calls are static, and their following numerical reference denotes a specific aircraft (and the same applies for Air Force Rescue #####), the problem for you is to link a specific callsign to a particular ARRS base. ARRS units are stationed at 13 different bases, representing both regular Air Force and Air Force reserve units.

Tedious monitoring often will get you there. Aircraft's departure/destination points, who it phone patches to, and other related monitoring data, will allow you to build up a list of aircraft callsigns versus home bases. For instance, KING 79 is also AIR FORCE RESCUE 50978. It is an HC-130 from the 303rd ARRS (AF Reserve) at March AFB California.

The most active USAF ARRS unit is at Kirtland AFB, New Mexico. Its job is to train ARRS crews. The unit has the designation of the 1550th ATTW (Aircrew Training & Test Wing). Although training is their main goal, Kirtland based ARRS aircraft to engage in SAR missons. Once you get over the hurdle of IDing aircraft to base, you will find that ARRS aircraft readily verify.

SAM Standing for Special Air Mission, this MAC unit (89th MAW) is assigned the task of transporting the top brass of both the military and government. They do so in a variety of aircraft, all configured with the VIP interior. Aircraft ID as "SAM" followed by 5-digits. The most famous of these is SAM 27000, for when the president of the United States is aboard, its ID becomes AIR FORCE ONE. The vice president's aircraft is AIR FORCE TWO (SAM 26000). All SAM mission aircraft use Andrews AFB Maryland as their primary ground radio link. Although heard quite often, SAM aircraft rarely, if ever, verify. AF1 has been know to reply with a very courteous letter describing the aircraft, its communications gear, and other interesting items. The only thing not mentioned is that the letter confirms reception. I know of only one ute monitor who has a veri

Carl of Castro Valley, CA listens from here.

from Air Force One, and this was due to his connections. Even Andrews can be a tough nut to veri when involved in SAM comms. It is not surprising that Andrews and the SAM fleet don't verify. Most of their missions are of a diplomatic nature, or supporting the movements of our president. As such there are security restrictions, and unfortunately, radio comms is one of them.

There are other VIP aircraft that fly military brass. They do not use a SAM prefix, but other static callsigns. They have been known to verify on occasion. All in all, VIP SAM missions will be most improbable to verify.

Space Launches All space shuttle comms are handled by the USAF. The space shuttle itself has no HF capability, so the communications you normally hear during these missions involve the support units. Cape Radio (Patrick AFB, Florida) is the most common. ARIA aircraft (Advanced Range Instrumentation Aircraft) participate in shuttle and satellite launches. They provide downrange telemetry relay and tracking. These are EC-135N or the new EC-18B from the 4950th Test Wing at Wright-Patterson AFB, Ohio. They do verify, providing the mission was not security restricted. Vandenberg AFB California is the west coast launching complex. Until the space shuttle facilities are operational there, Vandenberg's involvement in launches is all military. For this they use the tac call "ABNORMAL 10." They do not verify. Even Cape Radio is a tough one, as are other stations in the network.

Even with this basic look at USAF aspects, QSLing is not an easy task. Some of the stations are simple to confirm, but most require experience and in-depth miltac expertise on the part of the monitor. Research via publications is mandatory, and tedious monitoring to acquire hard data is a necessity.

In many respects it's a challenge, but it can pay off. Some miltac buffs don't QSL, for they know the long odds. Instead they add to their baseline knowledge, and in many instances can correctly ferret out the facts, which to most others are unfathomable.

The mere fact that any USAF (or for that matter any U.S. military) station will verify is a testimony to our type of social order. In many other western democracies they have far more restrictive QSLing policies when it comes to their own military activities. Be thankful that you can get what you can.

Audio Filters

After reviewing last month's column, I realized that I may have given audio filters some bad press. They are a very useful tool to aid in digging out a station when it is being run over by some type of audio interference. Basically, an audio filter narrows the respective audio frequency range, much like cutting the fat off of a piece of meat.

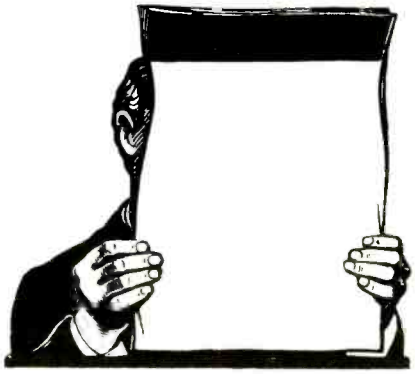
The more sophisticated filters employ variably tuned filters and other aids to downgrade or eliminate unwanted frequency tones. Basically, all have a broadband filter that has a 300 to 3000 Hz (Hertz) range—or, if you prefer, cps (cycles per second). As such, any tones below 300 cps or above 3000 cps will be filtered out. The next filter is a variable low cut-off type that filters up to 500 Hz. The other is the high cut off filter, which can range down to 1500 Hz.

Audio interference can take many forms. The station's own transmitter could inject a low pitch hum or a high pitch squeal. Modulation might not be up to snuff, producing audio distortion. Signals on adjacent frequencies can splash over in the form of vocal or pulse (CW/RTTY) type QRM. Even your own rig can produce a low pitch hum, often quite apparent with your headset on. Downgrading or eliminating such interference, while in the process usually beneficial in shaping up the signal you are interested in, is what the audio filter does.

The more sophisticated audio filters, with their variably tuned filters, require practice in order to properly manipulate out the unwanted audio tones. Once you master the beast, it can turn hopelessly jammed or muddled comms into that which is readable. I like sophistication, but I also crave simplicity. Checking around, I've found a filter that is simple to use, but admittedly at the cost of sacrificing versatility. It probably won't appeal to the pro, but for the average radio monitor with a limited budget, this audio filter might be just what you require.

The unit is the Laboelectron SF-0330 currently offered by Gilfer Associates. It has four preset filters that are push-button activated. The broadband filter is 300 to 3300 Hz. Its low cut-off filter is 500 Hz, and the high cut-off filters are 1500 and 2200 Hz. Just plug it into your rig's external speaker jack and your headset into the SF-0330. It also has a built-in speaker for non-headset use, and runs off of a 12 volt AC adapter or 9 volt battery.

With none of the filters activated (by-pass mode), you receive the signal just like it comes in. Push button the 300/3300 Hz filter activates the unit. If the signal still needs cleaning up, depress any one of the other three. In combination you can reduce the audio to a 1000 Hz bandwidth (500 to 1500 Hz). Simplicity—but admittedly at the cost of versatility, yet it does a surprisingly good



The Clandestine Confidential Newsletter

A new publication devoted to clandestine stations and programs, *The Clandestine Confidential Newsletter* is designed to keep you up to date on this intriguing aspect of shortwave listening and DXing.

C-C-N will be published six times a year, beginning with the February, 1984 issue. It will contain the latest frequency and schedule information, monitoring data, background information, addresses, and features on new and old stations.

C-C-N will serve as a continuing updater to the new book *Clandestine Confidential,* being published by Universal Electronics.

Subscriptions to *C-C-N* are $10.00 per year in North America, $13.00 overseas, payable in cash, check or money order.

Also available: *List of Clandestines By Time* and *List of Clandestines By Frequency* for $3.95 each.

To subscribe, send your remittance to:

C-C-N,
Gerry L. Dexter,
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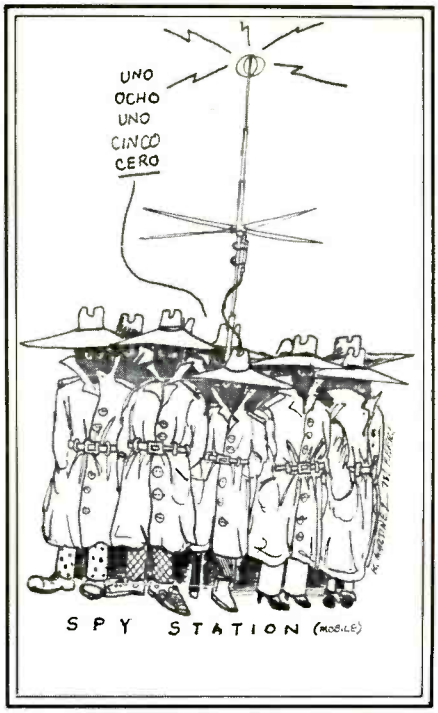


*Ralph Martinez decided that this is the way a mobile spy station might look. (Cartoon courtesy of A*C*E)*

job of downgrading or eliminating audio interference when tuned to SSB, CW, and RTTY stations. The only annoying characteristics is that you'll hear an audible click whenever you push one of its filter buttons. I'm not endorsing the Laboelectron SF-0330, but for those of you seeking a simple and relatively inexpensive no frills audio filter, this one fits the bill. If you're interested, drop Gilfer Associates a note to receive their product catalog.

Odd Marine Stations

Maritime mobile buffs have noticed something odd when they tune in to the simplex mode marine band frequencies. Heard are stations with some very downright unfamiliar call letters. We are familiar with the likes of WOO, WOM, KFS, WNU, WLO, KPH, and so on, but what about KKQ, KXC713, WLX, WRD607, KED, KVR416? These and many others are part of a group labeled "Limited Coastal Stations." They are company stations involving steamship lines, towing, fishing fleets, oceanographic institutes, oil drilling rigs, pilot organizations, and the like. These base stations can be heard working their vessels out in the open ocean, along the coast, navigating inland waterways and lakes. Most of the comms are business related, but with anything else, chit-chat abounds.

Until recently, most of these call letter types could not be pinpointed. ADXR (Association of DX Reporters) has published a booklet titled *ADXR List of Limited Coastal Stations*. The booklet is in two sections, depicting over 2000 stations. The first list is alphabetically by city name, call letters, and state. The other is a cross reference that has an alphabetized list of call letters, city and state. The booklet doesn't give company/owner of record data or addresses, but at least now you can geographically pinpoint the location of these odd call letter U.S. marine stations. The booklet is inexpensive and worth having if you're a maritime buff. Check with ADXR for particulars, or order from: Association of DX Reporters, 7008 Plymouth Road, Baltimore, MD 21208.

Intercepts

Welcome to the Intercepts section. Ute monitors are invited to send their SSB/AM/CW loggings to Jim Taggart, Intercepts Editor, Popular Communications magazine, 76 North Broadway, Hicksville, NY 11801.

Intercept loggings should be in ascending frequency order (that is lowest frequency first), and contain information on time (in GMT), mode, callsign, location, type of traffic intercepted and any other comments or observations of interest. And stand by for exciting news at the end of this month's Intercept section!

16: GBR, Rugby, UK, time signals and frequency standard at 0256. (Mike Gardner, Mansfield, OH)
20.5: UTR3, Gorki, USSR, frequency standard at 0000. (Gardner, OH)
123: Unknown station with CW transmission of "VVV ZKN 223" at 0030. (Gardner, OH)
179: WGU20, FEMA time station at 0230. (D. Burns, Warminster, PA)
347: "GX" beacon with 10 groups per minute repeated at 6 second intervals at 0300. (P. M. Griffith, Denver, CO)
1783: "Pip" every 2 seconds, very clear at 0130. (George Osier, Norfolk, NY)
2772: USAF Communications Command Station CUW (Lajes AFB?) testing in USB for receiver adjustment at 0110. (Burns, PA)
2831: "Serangale" in USB working another station and talking about "Tobeckwi Island." Anybody know what or where? (Osier, NY)
3220: Czech language numbers station with YL announcer, AM mode, numbers in groups of 5. Interesting use of the German word for "null" used in place of the digit zero. Heavy use of the word "pozor," meaning "attention." (Felix Stein, Feeding Hills, MA)
3485: New York Radio's Terminal Forecast in SSB after 0340. (Mike Limbert, Niles, MI)
4045: SS/YL in AM at 0200. (Burns, PA)
4405: Oscar Lima Peru at 0403. (A. Nonymous, Kankakee, IL)
4722: RAF Volmet (weather broadcast) in USB at 0200. (Burns, PA)
5013: WUB4, Army Engineers in Baltimore, MD. Net control with lake elevations, gate settings. Other stations at Whidbey Point and Unadilla River at 1313. (Osier, NY)
5212: WGY912, FEMA to "Legislature" with a "routine communications check" and the contacting "3550" at 0224. (Osier, NY)
5391: CGD226, Alma, Quebec in USB with phone patch at 0036 for the Canadian Nickel Company. Language sounded like Russian! (Osier, NY)
5440: "SBM DE 1FR" in CW at 0314. (Don Schimmel, Vienna, VA)
5747: VOA feeder in LSB at 0000. (Griffith, CO)
6434.5: CLQ, Havana (Cojimar), Cuba in CW at 0406. (Schimmel, VA)
6494: RIW DE EZZN—unknown station calling Khiva Naval Radio (USSR) in CW at 0014. (Schimmel, VA)
6498: "Captain Black" in conversation regarding sea condition, enough fuel for "trip down to Keys," etc. in USB at 0450. (Shirley Lieb, Oak Park, IL)
6521.9: WFE, Houston, TX in USB at 1419. Western Geophysical Company of America working their own ships for morning reports. (Darryl Symington, Holland, OH)
6595: Five or six people passing numbers and coded traffic in SSB from 2400 to 0300. From several different stations/locations. (Mark W. Winderstorm, Houston, TX)

6683: SAM-500 military aircraft working Andrews AFB and Crown (White House) in LSB with a phone patch to Alaska. This frequency was called Channel 44 Lower. (Griffith, CO)
6735: AWACS aircraft with phone patches in USB at 0222. This is Charlie Two frequency. (Burns, PA)
6738: RAF "Archetecht" with weather in USB at 0230. (Burns, PA)
6753: Canadian Military aero station at Trenton, Ont. with weather at 0135. (Griffith, CO)
6761: Various military with ID's: Roaring Wood, Semi Pro, Bar Candy, Ply 109, Read 04, Overrule, and Nox in USB with Skybird and Skyking traffic at 0600. (Griffith, CO)
6796: 5 Tango calling Foxtrot 3 for radio check, then switching to Foxtrot 6 frequency in USB at 2337. (Burns, PA)
6910: SS/OM 5-digit number groups in AM at 0441. Each group repeated once. (Chris Anderson, Friendville, PA)
7375: Unusual numbers transmission in Yiddish. From the pronunciation of "zwo" for the number two, one is reminded of WWII communications of the German forces to replace the word "zwei" which can be mistaken for "drei" (3). Germany used numbers transmissions during WWII which were said to be messages for U-boats. (Stein, MA)
7446: Kilo Papa 1 repeated by YL at 0200. (C. K. Redding, Middletown, RI). Also noted as Kilo Papa Alpha Two in AM at 0316. (Anderson, PA)
7528: SS/YL 5-digit numbers in AM at 0300. Started off with "Atencion 419, 70." (Lieb, IL)
7885: SS/YL 5-digit groups at 0735. Why does the signal usually remain on the air long after the numbers have ended? (Bruce Garrett, Rockville, MD)
8262: November Alpha at 0806 contacting vessels and asking them to switch over to 6518.8 kHz. (A. Nonymous, IL)
8449: VRT, Hamilton, Bermuda in CW at 2207 with V marker announcing QSX 8363.2 to 8364.8 kHz. (Jerry Brumm, Chicago, IL)
8473: PKE, Amboina Radio, Indonesia, calling CQ in CW at 0920. Nice catch! (Phill Hardstaff, Victoria, Australia)
8484: XIE calling CQ in CW at 1020 (this is undoubtedly XSE in Qinhuangdao PRC). Also monitored here at 1055 was JOR calling CQ in CW. (Hardstaff, Australia)
8569: XFM, Manzinillo Colimas, Mexico with CW marker calling CQ at 0214. (Darrell Lingenfeld III, Woodridge, VA)
8608: HPN60, Canal Radio, Panama, calling CQ in CW at 0310 giving other frequencies at 4240, 6467, and 12873.5 kHz. (Brumm, IL)
8891: Cambridge Bay Aeradio, NWT, Canada in USB at 2354 working Italia 433 aircraft sending position report, USB at 2354. (Symington, OH)
9024: Deer Hunter 04 working Chophouse at 0015 in USB. Switched over to 11007 kHz. (Burns, PA)
9026: SS/OM in USB at 0420 announcing traffic for Asuncion (Paraguay), Buenos Aires, Sau Paulo, etc. then into numbered messages. (Lieb, IL)
10000: JJY, Tokyo, Japan with time signals at 0629 caught between WWV/WWVH ID's. Time pips then CW ID followed by YL ID in Japanese. (Conrad R. Durocher, Dickinson, TX)
11176: ABA236, in USB at 1823 working Croughton Air Base in England with traffic for Torreon (Spain) Metro. (Symington, OH)
11182: Sentry 32 aircraft asking Scott AFB for phone patch to Raymond 24 (Tinker AFB). USB at 1713. (Burns, PA)
11200: RAF weather in USB at 1628. (Burns, PA)
11204: Belize Flight Watch, Brazil, to Ascot 2070 with radio check in USB at 2318. (Burns, PA)
11214: Sentry 62 aircraft with routine traffic for Raymond 24 in USB at 2311. (Burns, PA)
11249: Air Force 2 enroute Brasilia, Brazil, for inauguration ceremonies. In contact with Crown and Andrews AFB, LSB at 2210. (Burns, PA)
12093: Electronics tones followed by YL with heavy accent repeating "Bravo Juliet" 4 times followed by German numbers. (Lingenfield, VA)
13316.5: CLA, Havana (Cojimar), Cuba in CW at 1949. (Schimmel, VA)
13345: Strong dead carrier at 1415. Eventually an electric organ heard faintly in the background but music consisted only of a few notes here and there as if practicing. Signal slowly drifted and by 1500 it was at 13339 kHz. At 1600 the music stopped and the signal started to fade. At 1730 it was gone. (Garrett, MD)
13450: "62 DE 27" and "26 DE OA" in CW between 1300 and 1330 on different days. (Schimmel, VA)
13974: NNN0KMR, USN Palmor Station, Antarctica in USB at 2308 working stateside MARS stations. (Symington, OH)
14534.6: Multiple tones at 1730. Up and down the scale, almost musical with a few short data bursts thrown in for good measure! (Garrett, MD)
16424.5: "5L GRRS" in CW at 1719 with cut number SS traffic. (Schimmel, VA)
16889.5: No callsign used at 1749 with CW traffic related to fishing boat operations and weather. (Schimmel, VA)
17612.5: CLN573, Havana, Cuba in CW at 1343 calling UJY2, Kaliningrad, USSR. (Schimmel, VA)

A wonderful batch of intercepts this month. Here's some really good news for reporters to the Intercepts portion of Communications Confidential. As many of you know, when Mike Chabak took over the text portion of this column, I agreed to take on the Intercepts portion—but only on an interim basis. Commencing with the November issue, the Intercepts portion of the column will be conducted by ace ute DX'er Don Schimmel! Intercept reports will still be sent to the *POP'COMM* offices, as before. More about Don in forthcoming issues! PC

SURVIVAL

ESTABLISHING SURVIVALIST COMMUNICATIONS SYSTEMS

BY R. L. SLATTERY

Say It Once, Say It Right!

There are some basic rules of the road to keep in mind when you're participating in a voice communications network. These rules enhance the flow of information for the benefit of all concerned.

For instance, you're expected to listen on the frequency to make certain it's available before you transmit; you're expected to take instruction from the station designated at the Net Control Station; you're supposed to keep all transmissions as brief and to the point as possible; you are expected to speak slowly and distinctly, in natural phrases (as opposed to word-by-word).

In order to aid the efficient flow of traffic over the airwaves, certain brevity codes have been developed for use in communications. For instance, non-voice systems might utilize the Q-codes (QRX, QSA, QSL, etc.) or other similar word-saving devices that have very specific meanings.

In voice communications, there are also communications shortcuts (even though hams, SSB CB'ers, and others are often into adapting the Q-codes to such purposes).

Those who have monitored military communications systems have noted that there are a series of phrases in use over voice circuits that are intended to increase traffic handling efficiency. These are *procedure words*, better known as *prowords*. Unfortunately, they aren't sufficiently well known or understood outside of the military to have become widely used elsewhere. So, whether you've wondered what they're saying when you monitor a military station, or if you want to put prowords into use in your system, here are examples of prowords:

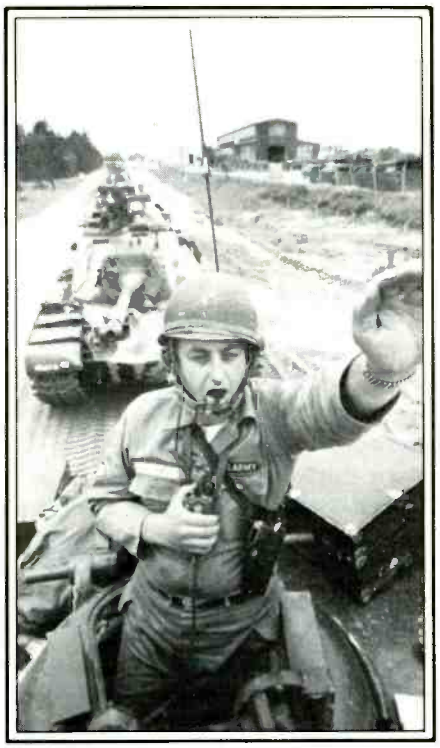
ALL AFTER: I refer to the portion of the message that follows:_____.

ALL BEFORE: I refer to the portion of the message that precedes:_____.

BREAK: I hereby indicate the separation of the text from other portions of the message. Or: I completed the text of the message; signature follows. Also, this proword is the interruption sign when the receiving operator wishes to request retransmission of a portion of a message (for use only in systems having "break-in" operation, such as VOX).

CORRECTION: An error has been made in this transmission (or the message specified). The correct version is: _____. That which follows is a corrected version in answer to your request for a verification.

DISREGARD THIS TRANSMISSION: This transmission is in error. (Don't use this to cancel any message that has been completely transmitted and for which receipt or acknowledgement has been received.)



Prowords have a high readability under combat and other intense noise situations. (Photo courtesy U.S. Army)

DO NOT ANSWER: Stations called are not to answer this call receipt for this message, or otherwise to transmit in connection with this transmission. When this proword is used, the transmission should be ended with the proword "OUT."

EXECUTE: Carry out the purpose if the message or signal to which this applies upon receipt of the proword "EXECUTE."

EXECUTE TO FOLLOW: Action on the message or signal which will follow is to be carried out upon receipt of the proword "Execute."

EXEMPT: The callsigns or ID's immediately following are exempt from the collective call.

FIGURES: Numerals or numbers follow.

FLASH: Precedence FLASH.

FROM: The originator of this message is indicated by the address designation immediately following.

IMMEDIATE: Precedence IMMEDIATE.

INFO: The addressee designations immediately following are addressed for information.

I READ BACK: The following is in response to your instructions to read back.

I SAY AGAIN: I am repeating transmission (or portion) indicated.

I SPELL: I shall spell the next word phonetically.

I VERIFY: The following message (or portion) has been verified at your request and is repeated. Used in response to the proword "VERIFY."

MESSAGE FOLLOWS: A message that requires recording is about to follow.

NUMBER: Station serial number.

OUT: This is the end of my transmission and no answer is required or expected.

OVER: This is the end of my transmission to you and a response is necessary. Go ahead.

PRIORITY: Precedence PRIORITY.

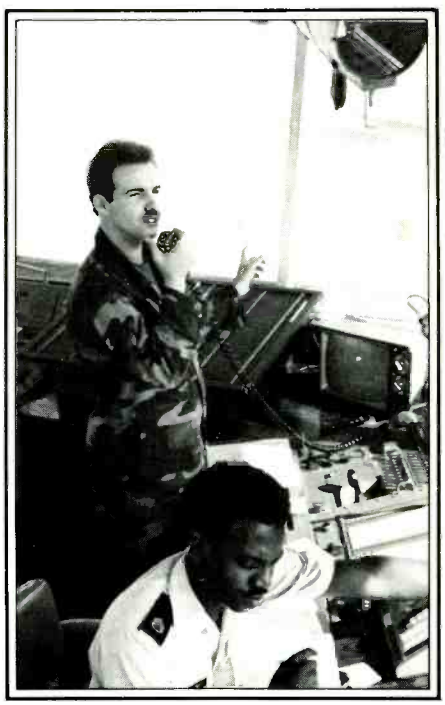
READ BACK: Repeat this entire transmission back to me exactly as received.

RELAY TO: Transmit this message to all addresses or to the address designations immediately following.

ROGER: I have received your last transmission satisfactorily.

ROUTINE: Precedence ROUTINE.

SAY AGAIN: Repeat all of your last transmission, followed by identification information means "Repeat:_____."



Air traffic control communications are centered around the use of prowords. (Photo courtesy U.S. Army)

SILENCE: Cease transmission immediately (and until instructed to resume).

SILENCE LIFTED: Resume normal transmission. Silence can be lifted only by station imposing it (normally the net control station, or by higher authority).

SPEAK SLOWER: Your transmission is at too fast a speed. Reduce speed of transmission.

THAT IS CORRECT: You are correct, or what you have transmitted is correct.

THIS IS: This transmission is from the station whose callsign or identification immediately follows.

TIME: That which follows is the time (or date/time group) of the message.

TO: The addresses whose designations immediately follow are to take action on this message.

UNKNOWN STATION: The identity of the station with whom I am attempting to establish communication is unknown.

VERIFY: Verify entire message (or portion indicated) with the originator and send correct version.

WAIT: I must pause for a few seconds.

WAIT OUT: I must pause for more than a few seconds.

WILCO: I have received your message, understand it, and will comply. To be used only by the addressee. Since the meaning of ROGER is included in that of WILCO, the two prowords are never used together.

WORD AFTER: I refer to the word following:_____.

WORD BEFORE: I refer to the word that precedes:_____.

WORDS TWICE: Communication is difficult. Transmit(ting) each phase or code group twice. Proword may be used as an order, request, or as information.

WRONG: Your last transmission is incorrect. The correct version is:_____.

You should be able to recognize some of these if you've done much shortwave monitoring—as in "SKYKING, SKYKING DO NOT ANSWER" on the USAF SAC's frequencies. And, have you ever heard a boat owner ask the Coast Guard for a "radio check" on VHF-FM Channel 16 (156.80 MHz)? The Coast Guard op's response to such a request is a curt reminder that Channel 16 is to be used only for calling or emergency messages and not for "radio checks." That information ends with the proword "OUT," which means, bluntly, "We don't want to hear about your radio check on this frequency, take it to another channel."

Wouldn't it sound so much better to use the proword "RELAY TO" than the tiresome request for a "10-5"? And wouldn't it be better to simply ask someone to "WAIT" rather than request that they QRX? The only person who should have to "cure eggs" is a chicken farmer! Personally, I find it very annoying to be speaking with someone (on the air or in person) when they interrupt their message to ask "QSL?" My response to such a request in CW code is the voice proword "I VERIFY" following by the request that he/she learn correct procedure.

And you can quickly see how Hollywood and TV have, for years, taught the erroneous pseudo-prowords "ROGER WILCO" and the self-contradictory "OVER AND OUT."

Suffice it to say that the use of the proword "THAT IS CORRECT" is an improvement over "That's a big 10-4, Goodbuddy!"

These prowords were developed by the military for the purposes of making it easier to exchange messages under difficult conditions, such as combat action combined with less-than-ideal radio conditions (noise, interference, jamming, damaged or malfunctioning equipment, almost out-of-range, etc.). In fact, I took these prowords from U.S. Army Field Manual #FM 24-18, Field Radio Techniques.

If you're a federal frequency fan, use this list to aid you in understanding what you're hearing. If you've got a two-way communications system, consider replacing 10-codes, Q-codes, and various miscellaneous perversions and adaptations of those codes in favor of "the real thing." PC

WASHINGTON PULSE

FCC ACTIONS AFFECTING COMMUNICATIONS

New Experimental Stations

The Commission, by its Office of Science and Technology, Frequency Liaison Branch, took the following action:

KE2XPI, Federal Express Corporation, Memphis, Tennessee. Experimental research station to operate on various frequencies and various frequency bands between 149.179-149.2648 MHz to 1) using ATS-3 satellite, collect message traffic statistics for use in determining the capacity of later LMSS Systems; 2) Identify applicant's requirements for an operational LMSS System.

KF2XJP, Racal Marine, Inc., Cranford, New Jersey and 5 mile radius in inland and coastal waters.

KI2XHI, Racal Marine, Inc., Palm Coast, Florida and 5 mile radius in Atlantic Ocean waters. Reinstated above station to operate on various and discrete freq. bands 2.0-22 MHz and 156-157 MHz bands to test equipment for use under Parts 81 and 83 of FCC Rules.

KK2XGV, Wilcox Electric, Inc., Kansas City, Missouri.

KK2XGW, Wilcox Electric, Inc., Kansas City, Missouri.

Reinstated above stations to operate on 5060.7 MHz for development of MLS equipment.

KO2XEF, The Singer Company, Mobile-50 mile radius of Warren, Michigan and Schiller Park, Illinois. Experimental developmental station to operate on 320.00 MHz for development of Part 15 device that activates locks.

KO2XHJ, Ecatek, Inc., Mobile within continental U.S. Experimental developmental station to operate on 1-1000 MHz for studies of RF interference susceptibility of applicants products and 11300-40000 MHz for trial emission tests on microwave transmission of composite and audio signals and for demonstration to customers.

KO2XIU, Martin Marietta Corp., Orlando, Florida. Experimental research station to operate on 2261.5 and 2216.5 MHz to test air defense anti-systems (ADATS) telemetry transmitter.

KQ2XAM, Nakia-Kinex, Mobile in Tampa, Florida. Experimental developmental station to operate on 825-845 MHz to test cellular telephone equipment.

KQ2XAN, Energy Incorporated, Idaho Falls, Idaho. Experimental research station to operate on various frequency bands between 54-108; 138-220; 420-906 MHz to investigate a computer systems susceptibility to RF interference with this frequency range.

KQ2XAO, Litton Guidance And Control Systems, mobile in plant area in Woodland Hills, California. Experimental research station to operate on various discrete frequencies between 30 and 49.10 MHz to perform system design and integration for an onboard inertial electronics suite for a modified M-109 self-propelled Howitzer.

KQ2XAP, Gulf & Western, Folcroft and Swarthmore, Pennsylvania. Experimental developmental station to operate on 168 MHz for tests in developing remote control cable and net systems to arrest jet aircraft.

KQ2XAQ, Epic Systems, Inc., Wake Forest, North Carolina and 50 mile radius. Experimental developmental station to operate on 48.56-49.5, 72-76, 467.95-468.175, 928-952 MHz to develop and test new designs and equipment of telemetry radios for use in the Medical Emergency Services.

Narrowband Authorized For Private Land Mobile

The Commission authorized narrowband technologies for base and mobile communications in the Private Land Mobile Radio Services (PLMRS).

The change was proposed in a rulemaking notice adopted March 15, 1984.

Recognizing the utility of narrowband technologies in the private land mobile services, the Commission has amended its rules to permit 5 kHz narrowband channels to be established between existing FM channel assignments. Specifically, it has offset the center of the first narrowband channel 2.5 kHz from the center of the FM emission and has established narrowband channel centers every 5 kHz referenced to the 2.5 kHz offset.

The Commission said that while the narrowband channels were a reflection of its experience with amplitude compandored single sideband (ACSB) operations, it would authorize under this channelization plan any technology meeting the new technical standards. In all private radio services except the Business Radio Service, the new channeling plan results in three narrowband channels being created between every two existing FM channels. In the Business Radio Service six narrowband channels will be created between each pair of FM channels.

Additionally, the Commission said it will require frequency coordination of all narrowband channels to ensure sufficient geographic separation between stations to eliminate interference. It noted there are four private land mobile radio services where there has been no frequency coordinator. Without coordination, it said, the potential for seriously degrading the quality of service presently afforded FM users is too great to begin authorizing narrowband systems in these services. Therefore, it said, until this matter is resolved in PR Docket 83-737, it would not authorize narrowband assignments on a regular basis in these services: Special Emergency, Relay Press, Business and Motion Picture Radio. Although the FCC has provided mileage separation guidelines, specific separations which might be required between narrowband and FM systems will be left up to the individual coordinator.

Under the new rules, licensees have the option of satisfying their communications requirements by continuing to use FM equipment, converting their FM assignment to one or more narrowband channels or supplementing their present communication system with a narrowband system.

Environmental Rules To Provide For Evaluation Of Human Exposure To RF Radiation

The FCC amended its environmental rules to provide for the evaluation of human exposure to radiofrequency (RF) radiation emitted by FCC regulated facilities and operations. The action is part of an ongoing proceeding originating in 1979 with a Notice of Inquiry and resulting in a 1982 Notice of Proposed Rulemaking.

In amending the rules, the FCC noted that under the National Environmental Policy Act of 1969 (NEPA), it is required to consider whether its actions in licensing and authorizing facilities and operations significantly affect "the quality of the human environment." Human exposure to RF radiation is one of several issues it must consider in evaluating potential environmental impact. Previously, there were no explicit RF radiation guidelines for use in environmental processing under the FCC's NEPA rules.

Effective October 1, 1985, Section 1.1305 of the FCC's rules will contain a provision addressing human exposure to RF radiation. FCC actions granting construction permits, licenses, or renewals, or authorizing modifications in existing facilities, will be treated as "major" actions if the facility or operation in question would expose workers or the general public to levels of RF radiation exceeding identified health and safety guidelines issued by the American National Standards Institute.

Under Commission rules, designation of an action as "major" would require an applicant to submit a factual "narrative statement" dealing with the environmental effect that led to the designation. The requirement for such a designation normally would be determined by an applicant and, when appropriate, indicated on applicable FCC forms. The Commission's staff would then

determine whether to prepare an environmental impact statement which would have to be considered in deciding whether to grant the application.

The provisions of the new rule will apply to the following: (1) radio and television broadcast stations licensed or authorized under Part 73; (2) experimental broadcast stations and low-power TV stations authorized under Part 74 (Subparts A and G); (3) transmitting satellite-earth stations authorized under Part 25; and, (4) experimental radio stations authorized under Part 5.

Guidelines on evaluating compliance with the rule will be provided in a technical bulletin, available in August or September of this year, now being developed by the Office of Science and Technology.

In addition, the Commission has issued a companion two-part Further Notice of Proposed Rulemaking to add shipboard-satellite earth terminals authorized under Part 83, Subpart AA, to the category of facilities to which the new rule will apply.

It also has proposed to exclude categorically from consideration under this rule other FCC regulated telecommunications facilities and operations because of a lack of evidence that they would affect the environment significantly with respect to human exposure to RF radiation. Examples of facilities being proposed for exclusion are land-mobile transmitters and microwave point-to-point relay links.

Jury Verdict In Forfeiture Case—Eugene Sykes W400

On February 15, 1985, a jury in the U.S. District Court for the Southern District of Florida returned a verdict against Eugene C. Sykes in the case of U.S.A. vs. Eugene C. Sykes. The U.S. had brought suit against Sykes to collect a forfeiture of $550 imposed by the Commission for his overpower operation in the Amateur Novice bands.

Sykes, W400, an Extra Class Amateur, was caught operating on a Novice frequency with excessive power by Commission personnel on May 27, 1982. The Commission monitored him because of complaints that he had been causing malicious interference to another Amateur operator. Engineers from the Miami field office and the Ft. Lauderdale monitoring station found that Sykes was operating with more than 540 watts power on a frequency limited to 250 watts. As a result, the Commission imposed a $550 forfeiture for his willful violation of Section 97.67 of the Amateur Rules. Sykes refused to pay, and the Commission referred the matter to the U.S. Attorney for the Southern District of Florida to file suit to collect the forfeiture.

The trial in the Sykes case was held in Miami on February 13 and 15, 1985, with U.S. District Judge Lenore Nesbitt presiding over the jury trial. Assistant U.S. Attorney Jonathan Goodman presented the government's case. Judge Nesbitt will determine the amount, including any court costs which Sykes will have to pay. PC

Additional 800 MHz Frequencies Available

The FCC released a Public Notice announcing a modification to the agreement between the United States and Mexico to utilize 12.5 kHz offset frequencies in the 816-821/861-866 MHz bands, thus making an additional 100 channels available for United States private land mobile use in the common border area. Formal ratification of the modification to the Agreement is subject to an exchange of diplomatic notes between the two governments.

The 100 offset channels in the 816-821/861-866 MHz bands will be divided among the four service categories essentially in the same proportion as previously allocated in PR Docket 79-191.

Category	No. of Additional Channels
Public Safety	30
Industrial/Land Transportation	20
Business	20
SMRS	30
	Total 100

The additional channels that will be available for each category of users are indicated in the following tables. The channel numbers indicated in the tables below differ from those given in the December 28, 1984 Public Notice, where the channel numbers were those utilized in the trunked frequency table in Part 90, Subpart M, Section 90.362(a)(3). The channel numbers listed below are in accordance with the latest channel designations utilized in Sections 90.613 and 90.619(a) of the Rules for U.S./Mexico border area use. The 30 additional channels for the SMRS category will be added to the existing 80 SMRS channels, thus providing 110 channels, or 22 five-channel groups. All licensees on the additional channels may commence operations immediately, but the authorizations will be conditioned to reflect the fact that the grant is subject to formal ratification of the agreement between the two countries.

Additional Channels Available

Table 1—Public Safety Category—30 Channels

Offset group number	*Offset channel numbers*
401	401-441-481-521-561
403	403-443-483-523-563
405	405-445-485-525-565
407	407-447-487-527-567
409	409-449-489-529-569
411	411-451-491-531-571

Table 2—Industrial/Land Transportation Category—20 channels

Offset group number	*Offset channel numbers*
413	413-453-493-533-573
415	415-455-495-535-575
417	417-457-497-537-577
419	419-459-499-539-579

Table 3—Business Category—20 channels

Offset group number	*Offset channel numbers*
421	421-461-501-541-581
423	423-463-503-543-583
425	425-465-505-545-585
427	427-467-507-547-587

Table 4—SMRS Category—30 channels

Offset group number	*Offset channel number*
429	429-469-509-549-589
431	431-471-511-551-591
433	433-473-513-553-593
435	435-475-515-555-595
437	437-477-517-557-597
439	439-479-519-559-599

RADAR REFLECTIONS

RADAR DETECTORS AND THEIR USE

BY JANICE LEE

Police "Clocking" County Deputies

Pryor, Oklahoma police are apparently "clocking" Mayes County sheriff's deputies as they enter and exit town, according to an exchange between the two departments, even when they are on emergency runs.

Sheriff H. W. Chief Jordan, to assure the exchange goes no further, has written a letter to Pryor Police Chief Wiley Backwater, Mayor Carl Curry, and the city council stating his department's position.

The letter was precipitated by remarks transmitted by Pryor Police Sgt. Mike Coatney on the two-way radio system between Coatney and Undersheriff Glen Parker in the Pryor police department later that day.

"That's the fifth time I've caught him (speeding on radar)," Coatney radioed to another officer, referring to a sheriff's deputy traveling down Highway 69 in the Pryor city limits. "He was doing 49 in a 35. I'm going to the sheriff and get it stopped today."

Jordan feels the information requested by Coatney is "a courtesy" and he intends to have his deputies comply.

"But there are things about this that upset me," Jordan said. "First, I feel the request should have come from the Chief or his assistant, not one of the officers. That's courtesy and chain of command.

"Second, if they're going to clock my deputies, they better start clocking all enforcement officers, including some of their own who have been seen speeding by citizens.

"Third, if they want to know when we go through town, I'd appreciate if their officers and detectives would let us know when they are going to be in the county areas. We get calls asking us, what are the Pryor police doing snooping around outside the city limits?

"Personally, I feel this while matter is uncalled-for and just an attempt by certain officers to stir up trouble," Jordan said.

Winamac, Indiana Police Won't Use Radar

A radar gun purchased by local residents for use by town and county police officers will not be used by Winamac Police.

Winamac's Town Board moved recently not to use the gun, following an appearance at the meeting by Police Chief Mike Buchanan.

Buchanan said the radar gun was used for six weeks last fall by his department and resulted in one arrest and more than 20 warning tickets. When asked if the town has a speed problem, Buchanan said other than two problem periods, there are virtually no speeders in Winamac. He said the only two exceptions are during periods after school and when local factories are changing shifts.

Buchanan said he thought the speed gun was a helpful tool for catching speeders, but added that he doesn't think the department's main duty is to catch speeders. Buchanan said he does not object to sheriff's deputies using the radar gun inside the town's jurisdiction.

After a half hour discussion on the matter, Board President Mark Davis said, "As it stands now, the radar gun is out."

Radar Blues

The following letter appeared on February 15, 1985 in the *Foster's Democrat* newspaper in Dover, New Hampshire. It was addressed as an open letter to Co. Paul O'Leary of the New Hampshire State Police.

I do not write letters. In 30 years I do not recall writing a letter to anyone, for any reason, so I hope you will understand that I am sorely vexed.

I feel like a virgin who has just been raped—by the State Police of New Hampshire.

I feel there is something terriby wrong with a system where an innocent person can be tried and convicted by an electronic device—moving radar.

Monday, January 15, I was going to work in Newington. About one mile from the Dover Point toll, I saw a police car coming from the opposite direction. I looked at my speedometer and it read 62 mph so I felt I was okay and continued on my way. After I paid my toll, I looked in my mirror and saw the patrol car with all lights blazing. I thought to myself, "I guess 62 was too fast this time." But when the trooper accused me of traveling 78 mph I couldn't believe it.

I told her that I had checked my speed when I saw her and that I was going 62 mph but she said, "Yes, but you had slowed down. I looked in on you before you saw me."

I can only say that the last time I ever went over 70 mph was back in 1957 on the Massachusetts Turnpike. In 27 years as a bus driver I had only one speeding ticket I can recall, and that was in Rye, NY on Route 1. I have driven in Maine, New Hampshire, Massachusetts, Connecticut, New York and New Jersey, and had no problems; so I hope you can appreciate, I am not in the habit of speeding and have a very low opinion of those who do.

To me, the most outrageous part of all is the feeling of helplessness because there is no one to turn to for a fair hearing. I called my lawyer and was told, "If they got you on radar pay up and forget it." So who can I turn to for justice?

It is bad enough that I have to pay the fine, but what really burns me is the effect it will have on my insurance rates.

I don't expect you to recall the ticket but I hope you will be aware of this flaw in either your people or your machinery. Russia can't be much more of a threat to its people than New Hampshire State Police and operators who are wrong and can't admit it, and judges who won't believe the truth when they hear it: "Oh, sure, I've heard that before—that's what they all say."

As you can see, I am, to be honest, outraged that such an injustice can take place in this state and there is no way to repair the damage to my, if you will, integrity. I can not envision a time when I would drive a car 78 mph and it just outrages me that there is no place to turn for justice.

I realize you will probably read this, laugh, and file it in your circular files, but I had to get it off my chest. It is like a thorn in my side.

By the way, I have a million-mile safety award from the Trailways Bus System and my last safety award was for about 1,250,000 miles, so I think you can see that I am not a menance to public safety.

Laurence K. Brown, Sr.
Stafford

Ohio Police Chief Scoffs At Accreditation Move

A national accreditation program for law-enforcement agencies that wants to evaluate every department in the country won't reach that goal unless Columbus secedes from the union!

Police Chief Dwight Joseph has rejected the program because, he says, it is expensive, offers no benefits and could lead to a national police force. He said the federal government could eventually back such a program and then withhold federal money from cities that don't meet standards set by the Commission on Accreditation for Law Enforcement Agencies.

"It's a long, involved and expensive process," Joseph said. "They send you a bunch of forms and you end up doing all the work.

"All they do is the reviewing process. Then they decide where money has to be spent to meet their standards. Maybe we don't have to meet those standards to be an effective police department.

They're saying standards have to be the same all over the country, and I believe the situation varies for each city. We don't want a national police force. That doesn't sound like a democracy to me."

"You don't get anything out of it except a piece of paper that says you're certified."

The non-profit organization was founded in 1983 in Fairfax, Virginia. It has the support of several law-enforcement organizations, including the International Association of Chiefs of Police and the National Sheriff's Association.

Joseph said he asked Patrol Lt. Charles Cahill, then with the police Research and Development Bureau, to study requirements of the organization.

Cahill said the division met about 91 percent of the organization's 944 requirements, but there are some that Columbus could never meet.

"One of the requirements is regular psychological testing for recruits and sworn officers," Cahill said. "Well, there's case law in Ohio that says you can't do that."

Fuzzbusters® Are Legal In Ohio, That's If You Can Keep Them!

Protect your Fuzzbuster!

Thieves have been stealing radar detectors throughout Ohio and outraged owners have been calling police to try and recover their equipment.

Right now Columbus police are investigating a rash of thefts—70 radar detectors reported stolen in one 10-day period. The detectors are easily taken out of cars, and many owners leave them in plain sight.

"They are a hot item right now," said Lt. Thomas Pullen of the Columbus Police Burglary Squad. "They (the thieves) see a wire hanging down from the dashboard or the visor and simply break into the car and grab what they want in a few seconds. The radar units are easy picking for them."

Thefts are especially frequent in hotel and shopping mall parking lots, Pullen said.

"All the thieves do is walk through those lots looking for the telltale signs of a detector in the car," Pullen said. "And many times the cars are left open and unlocked by their owners, who have made no attempt at all of concealing their property. "They are just inviting thieves to take it," he added.

The radar detectors are easily sold to "fences" (blackmarket buyers of stolen property), who then sell them to other people at lower than retail prices, Pullen said.

Janice Lee is the Editor of Monday, A.M., *the newsletter of Electrolert, Inc.*

RTTY

BY ROBERT MARGOLIS

THE EXCITING WORLD OF RADIOTELETYPE MONITORING

Beginning this month, a change in direction is being made in the RTTY column. You have a new captain steering the ship and he is relying upon you readers to man the oars and to become active participants in the makeup of these pages.

In the months ahead, we will be exploring in depth the fascinating world that revolves about RTTY. To be featured are agencies that rely upon RTTY to send all types of messages, from weather to propaganda. These agencies are run by press services, governments, weather stations, military personnel, airports, sea vessels, and covert operators.

Technical aspects of RTTY operations will *not* be discussed here. There are several books in print that are devoted to that topic and can be found in many public libraries. Instead, emphasis will be made on printing receptions of RTTY stations received by you and me.

These loggings need not be confined to shortwave radio. RTTY reception from various satellites also is being requested. However, please do not submit loggings of amateur (hams) RTTY stations.

Another form of radio transmissions using print—the facsimile machine—also will be featured here. Readers with facsimile printouts of weather maps, photographs, or news copy are encouraged to submit them to this column, as long as such material is not copyright protected.

One small request, though. In an attempt to make this column as interesting as possible, try your best for good RTTY DX. Greater emphasis will be placed on the unusual or hard-to-get RTTY station than on one such as Miami, Florida weather station WBR70, which can be found on various frequencies and be received easily 24 hours a day. Remember, while you may be monitoring WBR70 and getting a printout of its weather data, another RTTY enthusiast, at the same time, could be monitoring another frequency and reading a declaration of war being made by one country to another.

Don't forget to scour low frequencies for RTTY stations. They're also there. For instance, this columnist has logged CFH, Halifax Meteo Station, Canada at 375/100R on 121.5 kHz.

POP'COMM readers living outside North America also are being asked to share their loggings with their fellow readers. It's quite interesting to see what can be logged from across the Atlantic and Pacific Oceans or the Rio Grande River.

Many abbreviations will be used in printing your loggings. Some of these abbreviations, which you should save for future reference, are of various press services around the world. These are listed in Table 1.

Loggings

From this columnist's log book:

4230: NODL, US Coast Guard Cutter *Firebush,* sending a message via NMC, Coast Guard, San Francisco, CA, to CINCPACFLT, Pearl Harbor, HI, 170/100R, at 0500. CINCPACFLT is an abbreviation for Commander-in-Chief, Pacific Fleet.

4244.9: NMA, US Coast Guard, Miami, FL, sending a message to NODS, Coast Guard Cutter *Salvia,* 170/100R, at 0122.

4630.5: C5KMC, unknown location, with a test tape of RYs and SGs, and a message in Spanish detailing submarine sonar specs, 250/100R, at 0222.

4785.5: DHJ85, Grengel Meteo Station, West Germany, sending coded weather, 425/66N, at 0615.

4997: LPAZ, Lisbon Aero, Portugal, with RYs, 425/66N, at 0643.

5393.5: ELRB, Monrovia Aero, Liberia, with RYs, 425/66N, at 0320.

5460: WWV45, USIA, Tangier, Morocco, with news in Arabic, 425/100N, at 0324.

6775: XTU, Ouagadougou Aero, Burkina Faso (formerly Upper Volta), with RYs, 425/66R, at 0647.

6820: OLW2, PTT, Prague, Czechoslovakia, sending RYs/QRA test tape, 425/66N, at 0647.

7306: LRO36, TELAM, Buenos Aires, Argentina, with news in Spanish, 850/66R, at 0329.

7395: RPFN, Monsanto Naval Radio, Portugal, with traffic in Spanish to RPTI, Ponta Delgada Naval Radio, Azores, 850/66R, at 0325.

7422.5: GYU, the British Navy at Gibraltar, with a test tape of RYIs and foxes, 850/66R, at 0019.

7530: NMN, US Coast Guard, Portsmouth, VA, telling ZRH, Capetown Naval Radio, South Africa to "PSE STOP SENDING TEST TAPE WE ARE QRV FOR YOUR TFC," 850/100R, at 0136.

7585: 6VY41, Dakar Aero, Senegal, sending coded weather data at 0030 for DIAP, Abidjan, Ivory Coast; DXXX, Lome, Togo;

Table 1

AA, Anadolu Ajansi	Ankara, Turkey
ADN, Allgemeiner Deutscher Nachrichtendienst	Berlin, East Germany
AFP, Agence France-Presse	Paris, France
AGERPRESS, Agentia Romana de Presa	Bucarest, Romania
ANGOP, Agencia Angola Press	Luanda, Angola
ANSA, Agenzia Nazionale Stampa Associata	Rome, Italy
AP, Associated Press	New York City, NY USA
APN, Agentstwo Petschato Novosti	Moscow, USSR
APS, Algerie Presse Service	Algiers, Algeria
ATA, Agence Telegraphique Albanaise	Tirana, Albania
BTA, Bulgarska Telegrafitscheka Agentzia	Sofia, Bulgaria
CTK, Ceskoslovenska Tiskova Kancelar	Prague, Czechoslovakia
DIPLO, Service de Presse Diplomatique	Paris, France
DPA, Deutsche Presse-Agentur	Hamburg, West Germany
DyN, Diario y Noticias	Buenos Aires, Argentina
GNA, Gulf News Agency	Manama, Bahrain
INA, Iraqi News Agency	Baghdad, Iraq
INFOIND, Indian Information Agency	Delhi, India
INFORMEX, Agencia Noticiosa Informaciones Mexicanos	Mexico City, Mexico
JANA, Jamahiriyah Arab News Agency	Tripoli, Libya
JIJI, The Jiji Press	Tokyo, Japan
KCNA, Korean Central News Agency	Pyongyang, North Korea
KUNA, Kuwait News Agency	Safat, Kuwait
KYODO, Kyodo Tsushin News Service	Tokyo, Japan
MAP, Maghreb Arabe Presse	Tangier, Morocco
MENA, Middle East News Agency	Cairo, Egypt
MTI, Magyar Tavirati Iroda	Budapest, Hungary
PAP, Polish Press Agency	Warsaw, Poland
PL, Prensa Latina	Havana, Cuba
SANA, Syrian Arab News Agency	Damascus, Syria
SUNA, Sudan National News Agency	Khartoum, Sudan
TANJUG, Telegrafska Agencija Nova Jugoslavija	Belgrade, Yugoslavia
TAP, Tunis Afrique Presse	Tunis, Tunisia
TASS, Telegrafnoie Agenstvo Sovietskavo Soyusa	Moscow, USSR
VNA, Vietnam News Agency	Hanoi, Vietnam

DRRN, Niamey, Niger; and DHHH, Ouagadougou, Burkina Faso, 425/66R. At 0256, weather data was sent for 61600, Saint-Louis, Senegal (78 and sunny); 61630, Matam, Senegal (89 and partly cloudy); and 61641, Dakar, Senegal (67 and sunny).

7954.3: DyN, Buenos Aires, Argentina, with news in Spanish, 850/100R, at 0107.

7655: FIT75, Paris Police Department, France, with SITOR traffic in French at 0335.

8155: CLN220, PTT, Havana, Cuba, with test tape of RYs, foxes and QRAs, 425/66N, at 0644.

8465: 72JKL, Madrid Naval Radio, Spain, with RYs and SGs, 850/100R, at 0552.

9154: D4B, Sal Aero, Cape Verde, with RYs, 850/66N, at 0328.

9430: ZAT, ATA, Tirana, Albania, with news in English, 475/66N, at 1500.

9900: RFLIA, French military, Fort de France, Martinique, sending a lengthy test tape to RFLIG, the French Navy at Cayenne, French Guiana, 850/66R, at 0752.

10032: DOVF, unknown location in Central or South America, trying to contact "Delta Tres Foxtrot," 850/66N, at 0311. At 0330, "Delta Tres Foxtrot" sent "rutina" military traffic in Spanish to "Charlie Tres Alpha."

10118.5: OEM60, Vienna Meteo, Austria, with coded weather for EICK, Cork, Ireland; EINN, Shannon, Ireland; LPPO, Santa Maria, Azores; LFBD, Bordeaux, France; and LEMD, Madrid, Spain; 425/133R, at 2200.

10137: TNL97, Brazzaville Aero, Congo, with coded weather, 575/66N, at 2147.

10165: RPT31, TASS, Tashkent, USSR, with RYs, 425/66R, at 1400.

10278.8: YZA9, TANJUG, Belgrade, Yugoslavia, with news in French, 425/66R, at 1740.

10524: HMM41, KCNA, Pyongyang, North Korea, with news in French, 425/66R, at 1305.

10570: RXA7, Alma Ata Meteo, USSR, with coded weather for these USSR cities at 1234: Barshatas, Zajsan, Bol'soe Narymskoe and Bhaty. Was 425/66N.

10675: REM51, TASS, Nikolayev, USSR, with news in French, 425/66R, at 1802.

10720: LRB72, Buenos Aires Meteo, Argentina, with coded weather data for 85154, Trinidad, Bolivia; 85223, Cochabamba, Bolivia; and 85201, La Paz, Bolivia; 850/66R, at 0356.

11453: IMB33, Rome Meteo, Italy, with coded weather for 16560, Cagliari, Italy; 16242, Roma, Italy; 16066, Milano, Italy; 16206, Grosseto, Italy; 16400, Ustica, Italy; and 16453, Gela, Italy; 850/66N, at 2117.

11500.5: RFLIG-French Navy, Cayenne, French Guiana, with "non protege" (unclassified) messages in French to RFLID, French Air Force, Pointe-a-Pitre, Guadeloupe, 850/66R, at 2100.

11502: LZH4, BTA, Sofia, Bulgaria, with news in English, 425/66N, at 1437. Transmission ended at 1438 and the frequency was changed to 6960 kHz. PC

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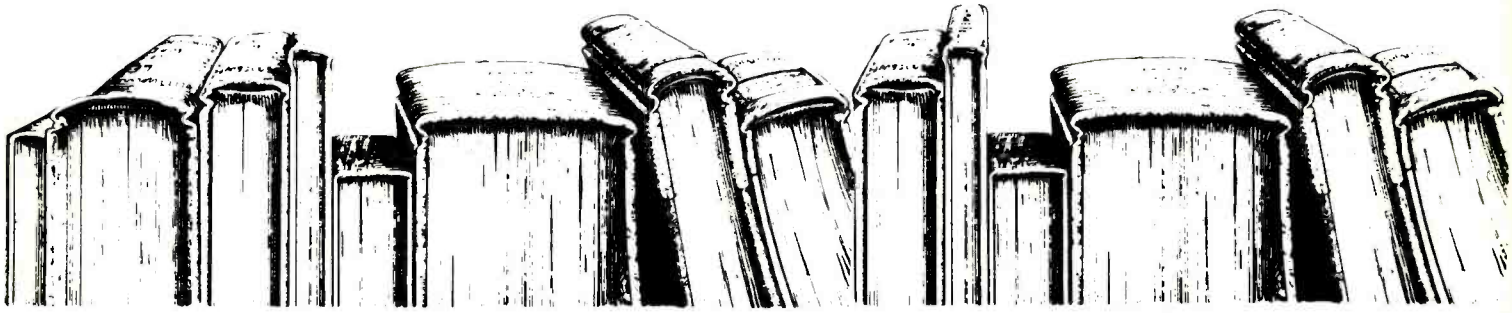

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Beaming In (from page 4)

Diplomacy, which watches over the USIA, believes that if he can hear the VOA on his shortwave receiver, then there isn't any reason why he shouldn't be permitted to hear it on his car's radio.

Feulner went on to observe that if the VOA was to broadcast locally in the area of Washington, DC, it would be competing with about 50 or 60 other broadcasters, a statistic which enumerates the approximate number of Washington area broadcasters that will be up in arms if and when this comes to pass.

Feulner and other members of the Advisory Committee, mind you, aren't pushing hard for the proposal at this time. Right now it's really no more than a matter of running it up the flagpole to see if anybody salutes. Obviously, at some point in the progression of this idea, Congress is going to have to change the basic law regulating the functions of the USIA, and that seems to be a few miles down the road.

There's no doubt, Fuelner notes, that had such a concept been set forth during the Carter years he wouldn't have been favorable towards the idea.

There are no answers right now as to the way a domestic version of the VOA might operate. Questions arise as to whether new all-VOA AM and/or FM stations would take to the air or if the VOA would seek to purchase existing commercial stations and convert them to their own purposes. Or would the VOA seek to purchase time on existing commercial broadcasters? One wonders if the VOA station in Marathon, Florida (1180 kHz) would carry domestic programming, and if VOA transmitting sites in North Carolina, Ohio, and California might suddenly turn up on the AM broadcast band with 50 kW (or higher) power transmitters.

Feulner believes that any fears of a Nazi-style ministry of propaganda being established here may have had some significance in 1948, but today such fears should no longer exist. The question is how the public (or the broadcasting industry) and Congress will feel about this major change in the direction of the course of the USIA/VOA.

It seems to me that there is an implication in all of this that says the existing broadcast media is either incapable of or unwilling to adequately report the news or suitably express the government's opinions and policies to the American public. Of course, this is exactly what some folks have been saying right along, most especially Sen. Jesse Helms and his Fairness in Media supporters in their efforts to purchase CBS because of what they view as left-leaning news (as well as prurient prime-time shows).

In this connection, it should be noted that the U.S. Advisory Commission on Public Diplomacy consists primarily of presidentially appointed conservatives from the Democratic and Republican camps. In other words, the whole idea is fraught with political and ideological potentials.

Those who are certain to oppose all of this will undoubtedly mention long-heard complaints from certain quarters that the VOA indulges in a very simplistic "flag waving" delivery, which gets a bit corny at times.

There will certainly be questions raised about possible abuses of a domestic federal broadcasting network, especially in regard to its possible uses and misuses in relation to elections and in swaying public opinion in regard to various federal domestic and foreign policies. How well will the administration supporting such broadcasts be willing or able to police such matters? Will opponents of administration policies be given equal time on this network to express their opinions?

If this concept progresses past the "just thinking out loud" stages (where it is at present), there will probably be plenty of fireworks as both sides of the idea thrash out the pros and cons.

My First Prize

It must have been about 1947. My favorite broadcaster was station WBYN, 1430 kHz with 5 kW from Brooklyn, New York. Every day when I got out of school, I'd rush home to tune in their DJ and see if I could answer the day's "Mystery Music" question.

After months of being stumped, I was finally the first listener to call in and identify the artist. The prize consisted of an autographed photo of singer Art Lund plus two 78 RPM platters, Art Lund singing "Peg O'My Heart" and Art Mooney's band playing "Chi-baba, Chi-baba."

The day the postman brought my prize—first thing I had ever won—I couldn't get the wrappings off quickly enough. You can imagine my disappointment to find that the fragile shellac discs had become cracked in transit. Moreover, when I turned on the radio, WBYN's spot on the dial was wall-to-wall silence! Strange things were happening.

I called WBYN on the phone. Instead of the station's telephone operator, I got someone named Peter Testan who said that he was the chief engineer (and vice president) of the station. I told him my tale of woe, but his story was even worse; WBYN had gone off the air for good the day before. He was there, he said, gathering up some odds and ends and throwing out lots of junk.

Mentioning to him that I was an SWL, Testan told me that he had been a ham since 1914 and after spending a few years (1924 to 1926) as a seagoing *brasspounder*, he became chief engineer at a local broadcaster called WBBC—which later evolved (with three other stations) into WBYN. Testan said not to worry about my two cracked discs, he'd make it up to me. A week later a large box arrived. It was from Peter Testan and was filled with many records formerly of the WBYN library, plus a set of headphones, and a beautiful RCA type 77D desk mike bearing a WBYN identification plate. There were all sorts of other delights included in the amazing consolation prize Testan had sent to me.

It wasn't long before Testan called to say that he would be the CE at a new station which was to take the place of WBYN. That would be WNJR (1430 kHz) in Newark, New Jersey, and he told me when the station was going on the air so that I could get the first QSL they would be sending out.

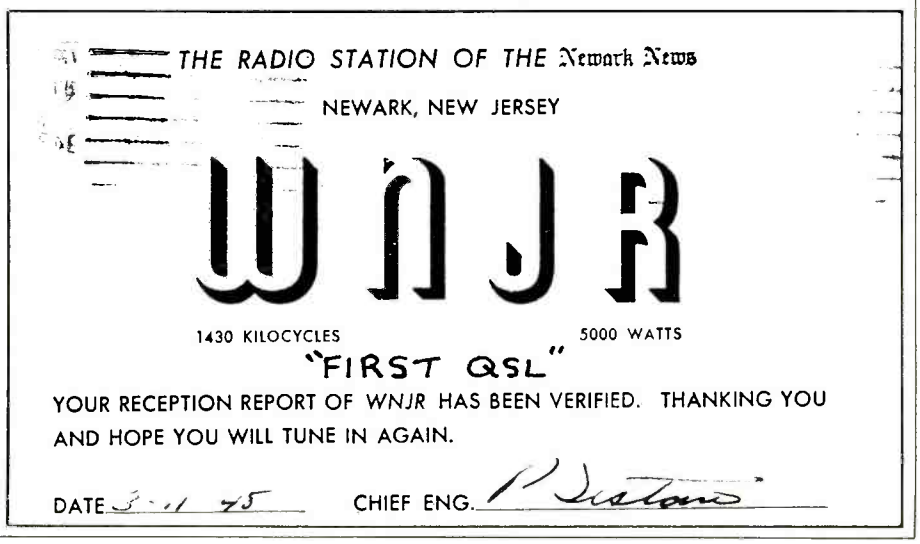
From that time, Peter and I had occasional contact. Maybe a couple of years would go by and then I'd either contact him or he'd contact me for a short hello. Peter eventually became the CE of station WVNJ in Newark, New Jersey (now WSKQ, 620 kHz) and then he retired in 1972.

In 1974 the Quarter Century Wireless Association (QCWA) honored Peter with its Golden Anniversary Award.

The last time I heard from Peter was in 1982 when he dropped me a card to wish our new magazine luck.

I was therefore saddened to learn that Peter Testan, W2HA, passed away on April 18 at age 79. Peter was a true gentleman and as I reflect back upon the man during the long period we had contact, I realize that having had the opportunity to know him was what was, after all, really my "First Prize" from WBYN. **PC**

Peter Testan sent me this QSL card from WNJR in Newark, New Jersey when it commenced broadcasting in 1948.


THE RADIO STATION OF THE Newark News

NEWARK, NEW JERSEY

WNJR

1430 KILOCYCLES 5000 WATTS

"FIRST QSL"

YOUR RECEPTION REPORT OF *WNJR* HAS BEEN VERIFIED. THANKING YOU AND HOPE YOU WILL TUNE IN AGAIN.

DATE 5-1-45 CHIEF ENG. P Testan

PIRATES DEN

FOCUS ON FREE RADIO BROADCASTING

BY DARREN LENO, WDØEWJ

Last February, Laser 558 "All Europe Radio" welcomed three new DJ's to its floating North Sea radio station. Joining Laser from the U.S.A. are veteran DJ's Liz West, Chris Carson, and Erin Kelly.

The three DJ's are broadcasting from the vessel *M.V. Communicator* moored in international waters off the coast of the United Kingdom. In Great Britain alone, more than five million listeners tune in to Laser for continuous hit music. Laser is also building a massive Pan-European audience since its 25,000 watt signal reaches nine countries in Western Europe.

Liz, Chris, and Erin are a welcome addition to the current all American male air staff now heard on Laser, which includes: Program Director David Lee Stone and air talent Charlie Wolf, Ric Harris, and Tommy Rivers. Although the three new DJ's hail from different parts of the United States, they all welcome the adventure of broadcasting to a large Pan-European audience from the North Sea.

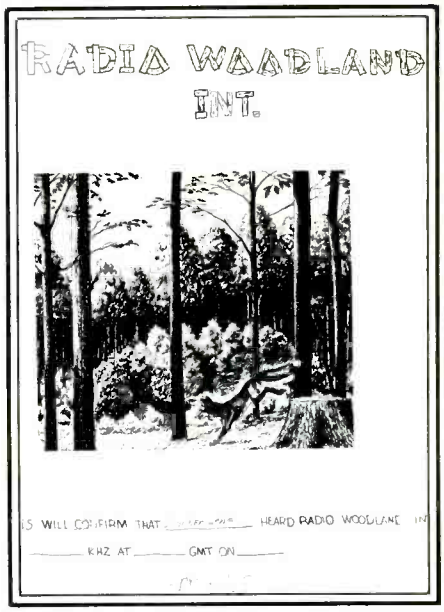
John Moss, President of Music Media International, the worldwide sales and management force for Laser 558, commented on the appointments. "Liz, Chris, and Erin offer a vitality and energy that our audience will clearly delight in. Their voices and presentation are extremely high caliber and we're proud that they've chosen Laser as a platform for their talents. Our listeners are gonna love'em."

Liz West joins Laser 558 from Palm Springs, California. Her radio background includes postings at WDIZ in Orlando, Florida and 98 Rock in Tampa, Florida. Liz is 24 with blonde hair and hazel eyes. She has studied classical ballet, paints, and while in Florida rode the thoroughbred hunter/jumper circuit.

Erin Kelly has been on the radio in the U.S. for nine years. She joins Laser Radio from WVNA in Muscle Shoals, Alabama, where she was doing an early morning show. Erin is 23 years old with blonde hair and green eyes. She is a professional photographer, plays the guitar, and writes prose and poetry. Erin holds a green belt in karate and plans to continue the discipline aboard the *Communicator*.

Chris Carson joins Laser Radio from Iowa City, Iowa. She worked in radio there for four years and most recently held the 10:00 a.m.-3:00 p.m. slot on KKRQ. Chris has blonde hair and blue eyes, and speaks fluent French and Dutch.

The Humpty Dumpty Broadcasting Corporation was first logged on Februry 3. This interesting QSL is sent to listeners who send a correct reception report to PO Box 982, Battle Creek, MI 49016.



Across The Dial

Bootlegger Radio: Don Mussell in Kentucky heard the Bootlegger on 7436 kHz at 2245 GMT. Paul Walkendorf in Michigan also heard this transmission, and reports the DJs, Kaiser and Bazaar, sounded like the comedians known as the MacKenzie Brothers. PO Box 245, Moorhead, MN 56560 was announced for listeners who wished to send reception reports.

KDNF: Don Mussell in Kentucky heard this pirate on 1210 kHz after 1400 GMT while he was driving through southern California. A phone number was announced, so Don stopped and called the station. "Steven" answered the phone and indicated KDNF was on the air every weekend with 40 watts. Readers on the west coast may wish to hunt for this one.

KRZY: Captain Crazy sounded like he was having a good time when Dale Wilson tuned him in at 2100 GMT on 7435 kHz. Dale mentions that KRZY's signal was very strong, and Beatles music was played among other rock selections.

Radio Holm: Joe Centko, Jr. heard this new pirate on 7430 kHz at 2300 GMT. A woman's voice announced "This is the first broadcast of Radio Holm." A story about Scotland, and piano music by George Winton was played, and the A*C*E computer bulletin board system was talked about. At 2335, the female host, who now had a foreign accent, announced that reception reports should be sent to PO Box 5074, Hilo, HI 94720.

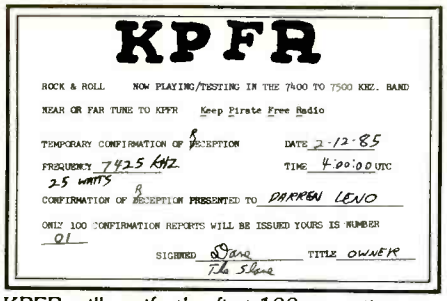
Radio North Coast Int'l: Before this station was heard on 7405 kHz at 2130 GMT, John Block heard someone on that frequency asking for Capt. Willie and saying "We are eagerly awaiting your program." Not much later, the Captain and his crew turned on their transmitter and began their "off the wall day" broadcast from their ship, the *Shpincter*. RNCI receives its mail c/o PO Box 245, Moorhead, MN 56560.

Radio Sign Wave: Fred Roberts in New York says he heard lots of gag advertisements when he tuned in RSW on 7435 kHz after 0015 GMT. One ad was a cure for listeners who suffer from spy-number addiction. The station signed off at 0052 with the song, "You Can't Catch Me."

Radio USA: Was heard on 6275 kHz between 2345 at 0000 GMT. Randy Kaeding in Michigan listened to some rock music oldies, and the "Allen Freed Show." PO Box 982, Battle Creek, MI 49016 was mentioned for reception reports.

Razorback Radio: Ken Evans heard rock music and a listener mailbag program when he tuned in this pirate on 7425 kHz at 0030 GMT. Listeners where instructed to send 3 First Class stamps with a detailed reception report to PO Box 982, Battle Creek, MI 49016, to receive a QSL card.

The Crooked Man: George Zeller in Ohio says that this new pirate is probably the "oddest" he has ever heard. George found The Crooked Man on 3433 kHz at 0412 GMT. Later that same day, Tom Brennan in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ROCK & ROLL NOW PLAYING/TESTING IN THE 7400 TO 7500 KHZ. BAND

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TEMPORARY CONFIRMATION OF RECEPTION DATE 2-12-85

FREQUENCY 7425 KHZ. TIME 4:00:00 UTC

25 WATTS

CONFIRMATION OF RECEPTION PRESENTED TO DARREN LENO

ONLY 100 CONFIRMATION REPORTS WILL BE ISSUED YOURS IS NUMBER 01

SIGNED Stan Shane TITLE OWNER

KPFR will verify the first 100 reception reports with a QSL.

Indiana heard this "weird" pirate on 7440 kHz after 1950 GMT. Creative commentary about "crooked knowledge" was heard between rock music selections.

WBPR: Also known as Pig Boy Radio, this station was heard by Ken Evans in South Carolina on 7425 kHz at 0115 until nearly 0200 GMT. Also, the modulation of the signal was low; Ken heard an announcer say that anyone who hears and reports the next two consecutive WBPR broadcasts will receive a free Pig Boy T-shirt. Their address is PO Box 982, Battle Creek, MI 49016.

WKUE: Randy Kaeding comments that this station sounded very professional, despite shaky audio, when he heard them on 7395 kHz after 2100 GMT.

WWW: Jim Buscher in Virginia reports hearing "The radio station of wayward girls," on 1620 kHz at 0530 GMT. Reception reports are going to PO Box 40554, Washington, DC 20016.

New Pirate Testing In The 40 Meter "Pirate" Band

We received a letter recently from the operators of KPFR "Midwestern Free Radio," claiming they were both testing and operating in the 7400-7500 kHz "pirate band."

The best times to look for KPFR is either on local Saturday or Sunday evenings, around 0400 GMT. Transmissions on the first week of a month were also mentioned as a possibility.

KPFR operates with 25 watts from a Hallicrafters HT-37 transmitter. An inverted "vee" antenna at 50 feet should propagate their signal well on 40 meters.

No address was given for reception reports, but it is likely one will be announced on the air.

From Europe

Podney Sixe in Cornwall, England hints that a new offshore pirate station may be in the works for Europe. Recently, a station called the Rebel Radio Network was heard on 6202 kHz at 1250 GMT with DJ John England. The announcer proceeded to outline a detailed proposal for an offshore radio station that will anchor off the British coast in "radio ship alley" with Laser and Caroline.

A specific date the station would be on the air was not mentioned. It appears John England is quite serious and specific in his proposal, which leads us to believe this was much more than just a hoax transmission.

In Conclusion

The Guide to 1984 North American Pirate Activity is available. It lists over 500 pirate transmissions by frequency, date, time, and alphabet. A fifth column shows the area of the U.S. where they were logged. The bound version is available for $6.95, or $5.25 punched for a three-ring binder. Order from Data/Radio, Dept. PC, PO Box 46199, Baton Rouge, LA 70895-6199.

The Association of Clandestine radio Enthusiasts is an organization for DXers who are serious about listening to pirate, clandestine, and spy-number transmissions. For information, send a legal-size, self-addressed stamped envelope to A*C*E, PO Box 452, Moorhead, MN 56560.

The A*C*E computer bulletin board service is available to readers equipped with a personal computer and a telephone modem. The 300/1200 baud system can be reached by dialing 913-677-1288.

On weekends, when pirate activity is all over the airwaves, the DX Newsline becomes the Pirate Hotline as listeners from all over the country call in to report their loggings. For more information on the DX Newsline, dial in at 301-953-0777, listen to a recorded message about shortwave radio, and then leave your name and address to receive more information on this service.

Thanks to all who took the time to jot down their pirate loggings and send them in this month. All readers are invited to participate in The Pirates Den by writing to me c/o Popular Communications, 76 N. Broadway, Hicksville, NY 11801. Share your loggings, tactics, thoughts, QSL cards, and other pirate tidbits with the tens of thousands of other *POP'COMM* readers who share your interests. Until next month, good listening! PC

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Approval: All ad copy is subject to Publisher's approval and may be modified to eliminate references to equipment and practices which are either illegal or otherwise not within the spirit or coverage scope of the magazine.
Closing Date: The 10th day in the third month preceding date of publication. Because the advertisers and equipment contained in Communications Shop have not been investigated, the Publisher of Popular Communications cannot vouch for the merchandise listed therein. Direct all correspondence and ad copy to: PC Communications Shop, 76 N. Broadway, Hicksville, NY 11801.

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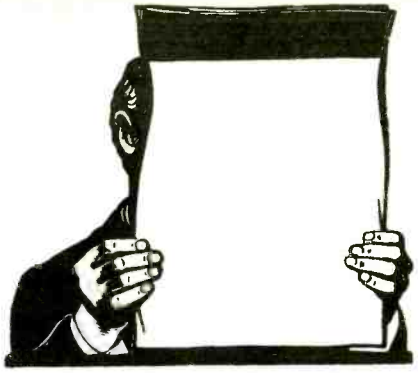

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