

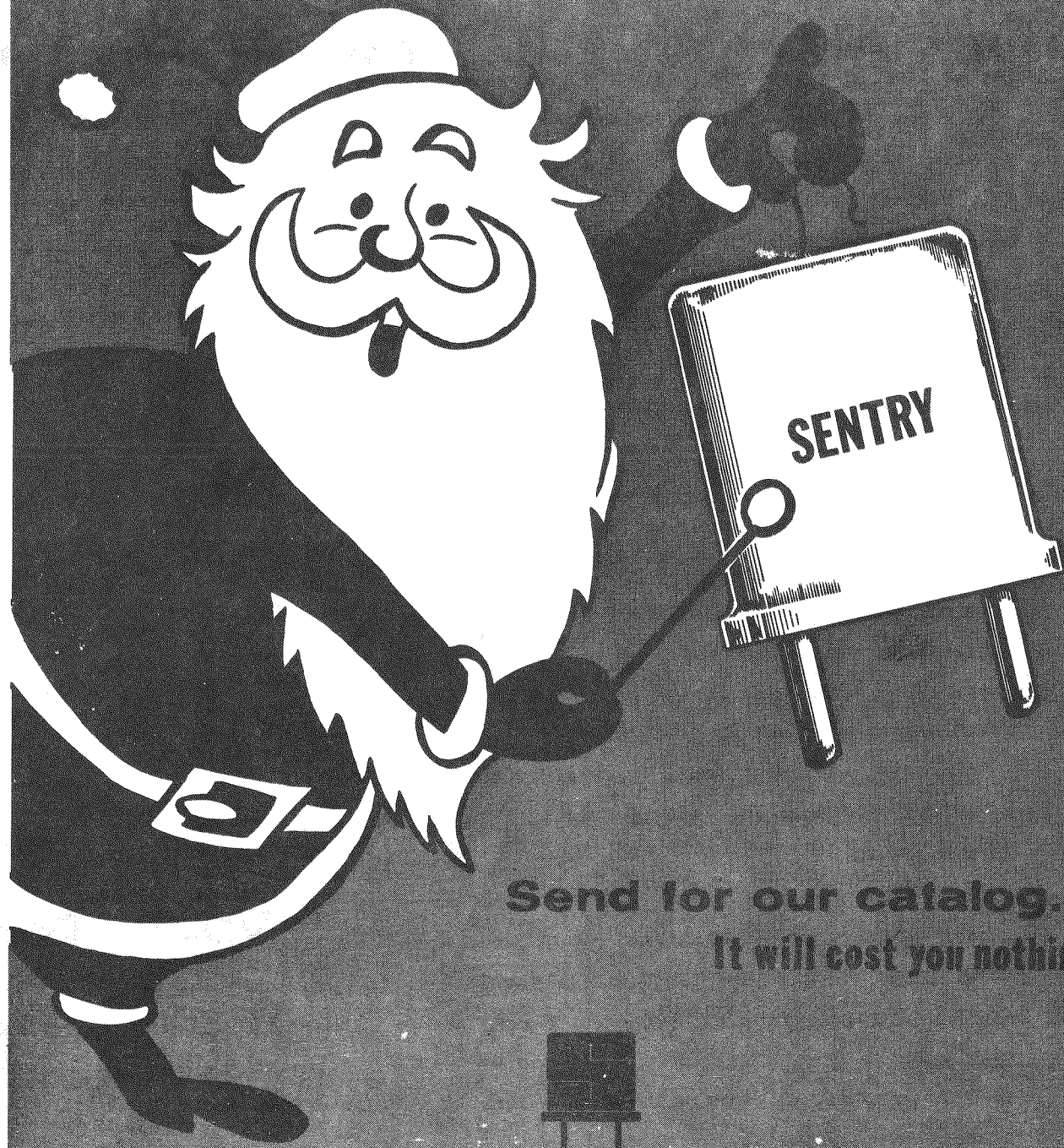
# **FM BULLETIN**

**REPORTING ON AMATEUR FM ACTIVITIES**

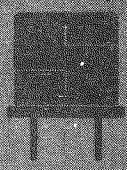
Vol.1 No.7

**AUGUST  
1967**

CHRISTMAS



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# Aug. 26 in Mich.

Well the time is here for all good FMers to come to the aid of their FM BULLETIN by showing up for the VHF & UHF F M PICNIC & SWAP & SHOP on a Special Excursion Boat to Bob-lo Island.

Starting at 9 AM in WYANDOTTE, Mi. will be the swap & shop in a large parking lot Maple & 2nd Streets.

At 11:30 AM lock up the cars and head for the boat which loads at 11:45 a few blocks from our parking site. The boat returns to the same dock at 6:30 PM. Free Parking all day.

This outing was planned with the whole family in mind and there will be plenty for them to do on the Island. Amusement Rides, and Sports Fields etc. Bring your own picnic or get your food there.

Boat tickets will be on sale at the parking lot. Adults \$1.75  
Children under 12-6 \$.80  
Children under 6 Free.

To get to the parking lot from I-75 Exit on Northline rd. (also called Ford Ave.) Jefferson Ave, right to ELM - 5 traffic lights. at ELM turn right for 2 blocks to 2nd St. then left 1 block to lot.

Call ins 146.940- 52.525- 432.9

**SPECIAL  
EXCURSION  
TO**

**BOB-LO  
ISLAND**

## CALIF. SPEAKS - UP

By-  
Ken Decker - WA6OSB

FMers can thank ARRL Board Directors Harry Engwicht, W6HC of the Pacific Div. and John Griggs, W6KW of the South Western Div. for introducing two motions at the Annual Board meeting that would benefit F M. Mr. Engwicht's motion, Item 43, suggested that the ARRL Handbook Editor include more info on FM, repeaters, RTTY, Etc. in future issues. Mr. Griggs motion, Item 57, instructed general counsel request FCC to define amateur repeater and relay stations, transmission of call signs, and repeater logging requirements. See July QST for more details.

WB6TYR reports to us of hearing W3s, 4s & 5s during an opening July 9 on 52.525 MHz. You need a transmitter to go with that recvr, John.

We dont have the antenna up at our new QTH yet so didn't get in on this one darn it. Still operating Two meters from a ground plane in the garage.

Best of luck to Fran Gifford, K6RVR, who recently opened Gifford Engineering, a new G-E mobile service station in San Diego. That new C.M.C. Frequency counter is sure impressive.

The San Diego F M repeater will be operated for awhile at WA6LAG's QTH in order to work the bugs out.

I would like information from anyone who has 4-channeled a TPL.

Where are the reports from other areas, Gang?? I know K4FSU can get some good articles from the old F M newsletter. And what's new on the repeater situation in phoenix, Ray?

# ABOUT THOSE PROPOSALS

BY Pat Devlin WA5BPS

Lots of proposals for modifications to Part 97 have been flying around recently, especially after several repeaters got their hands slapped by the FCC.

The interesting thing about it all, is that Part 97 isn't really as restrictive as one would guess after seeing page upon page of proposed rule changes.

Granted, it is, in several cases, a bit restrictive and certain modifications would be in the best interest of all involved.

For instance, the logging regulations do leave something to be desired, as do requirements for identification.

It's interesting to note that the FCC is one jump ahead of all of us in the latter case.

They just recently submitted docket number 17377 for public comment. In this docket they propose to relax all identification requirements in Part 97.87. As suggested, all references to identification at intervals less than ten minutes would be eliminated. As we interpret it, identification would be required every ten minutes for repeaters.

The ARRL has also jumped into the proposal game. The July Q.S.T. carries a suggested modification which is quite good. It, incidently, recommends three minute identification. We hope the FCC idea wins here. And we would imagine that the ARRL would go along with it.

It seems that the biggest controversy still revolves around the logging requirements. We have seen proposals for doing away with logging completely ( a great idea, but we don't seriously think that the FCC would buy it ) to proposals for stringent logging of factors not even presently required.

The synopsis of the opinions suggest that automatic amateur repeaters be exempt from requirement 97.103A, 97.103C, and 97.103H. In other words an automatic amateur repeater would still have to maintain a "technical" log showing the signature of the person in control of the repeater, call sign, power input, frequency, emission and location of the station. Only those requirements for showing the individual stations contacted, the date and time of contact and message traffic handled would be eliminated. These items would still appear in the log of the individual repeater user. Now, that doesn't seem too unreasonable does it?

We would like to see a specific definition of automatic amateur repeaters as opposed to an individual amateur "patching through" another station.

Most proposals suggest that a specific class of license be created for automatic amateur repeaters which will be available to bona fide amateur radio organizations as defined in Part 97.39. This is good, in that it insures sound and responsible management of a repeater.

As far as control provisions are concerned, there is nothing in the current rules and regulations that says that multiple control is illegal as long as there is a single trustee. Again, this seems quite reasonable. Obviously, the FCC wants a single individual who will assume overall responsibility for the operation of the system.

The above conclusions were reached in an Ad Hoc committee of the Tulsa Repeater Organization. This committee was formed specifically to study

present modification proposals and, if necessary, to make a proposal of its own.

At this time, the committee feels that no further proposals are necessary.

Several different proposals have been studied and more probably will be studied.

If any group has proposals which they are willing to share, we would greatly appreciate seeing them.

If you agree with the ARRL proposal, let them know. If not, make suggestions for changes. The same holds true for the FCC Docket 17377.

The groundwork is laid for what appears to be a fairly reasonable set of regulations, so let's give them our full support.

The FCC and ARRL appears to be fully aware of the many benefits of repeater operation and realize it's the coming thing. There is a certain amount of red tape involved to modify Part 97, but be patient, it will come.

## CINCY TOO!!!

By- Carl Morgan K8NHE

FM in Cincinnati is primarily on six meters. We use 52.525 as a general communications channel, 52.6 for an intercom between the "DX chasers", & 53.05 for the local emergency net.

Visitors to the area may contact K8SOE, K8YIF, W8SCK, K8SGK, or K8NHE on 52.525 for assistance or information. The frequency is monitored, as much as possible, from 0800 to 2300 EDST seven days a week. In addition to the six meter frequency, 146.94 has the fixed stations listed above plus W8SEG, W8UOD, and W8VBP. Two meters is relatively quiet during the day but K8SOE and K8SGK are usually monitoring and will assist, particularly if called direct.

No repeaters in the Cincinnati area as yet. We have been talking a lot, but have been infected with too much work (procrastination) and little work has been done.

If you will be entering the downtown area, K8ORW at the Ohio College of Applied Science should be active on 52.525 after the first of September.

The Cincinnati Stag Hamfest will be held this year on September 24 at Stricker's Grove, about 10 miles north of downtown. It is only a four hour drive (my route) from Detroit, and about 30 minutes from the I-75 and Galbraith Road interchange.

Dayton, Ohio, is sporting primary activity on 52.6 and some stations are operational on 52.525. Two stations are operating on 146.94 but their operation appears to be rather spotty at this time.

Speaking for myself and (I think) the Cincinnati Hams, the comments in the July issue "10-4 To You Too" are very well expressed. We have found it unnecessary to use the "10 Code" or the general call "CQ" to initiate or maintain communications.

Most of the equipment in use is Motorola. In many cases, P S units for fixed stations and 41V's, 80D's, or 140D's for mobiles. Excellent results have been had with "low" power, i.e. 15 to 50 watts mobiles & 30 to 50 watts for fixed stations.

If any of the readers know of equipment, low or high band, that is available the boys in the O.C.A.S. Amateur Radio Club would be interested. We are trying to secure equipment (on a limited budget) for a club project to update our fixed station and to make equipment available to technically minded members that cannot afford their own outlay.

That is about all from Cincinnati for now. More when things happen that may be of interest to all. If any of the readers would like more info on the Stagfest, drop me a note and I will send it to you. See you in Sept. in Cincy.....I hope!

# DETROIT'S POLICE RADIO

By- PAUL VAN WIE -- WBIDJ  
Photos by: DAN SKROBOWSKI  
WNSOTP

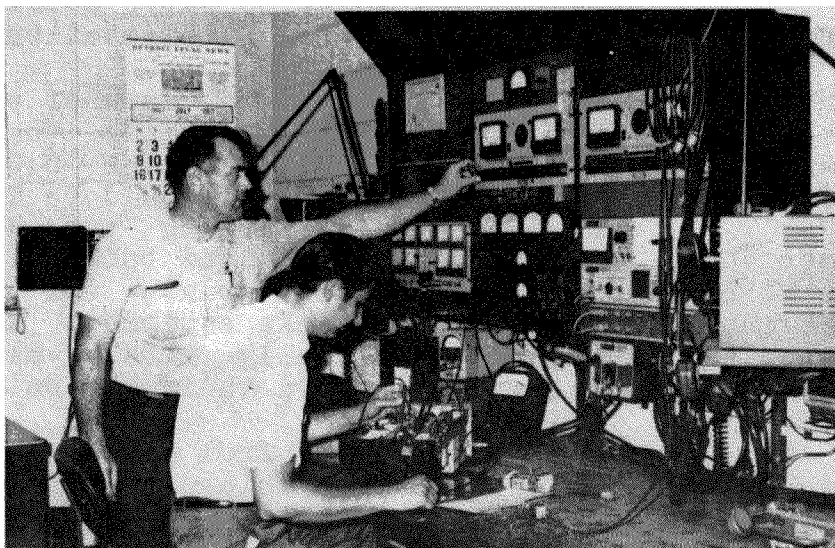


The next time you take your family or your girl friend to Belle Isle\* look to your right as you cross the MacArthur Bridge and you will see the three radio towers which mark the home of the Detroit Police Department Radio Bureau, or as it is now known, The Communication Center Technical. It's counterpart, The Communication Center Operational, is located in Police Headquarters, and it is there that the dispatchers communicate with the scout cars and put out their runs. This article, however, will

\*Belle Isle is a city park located on an island in the Detroit River between Detroit, Michigan and Windsor Ontario

deal primarily with the technical half of the Communications Division.

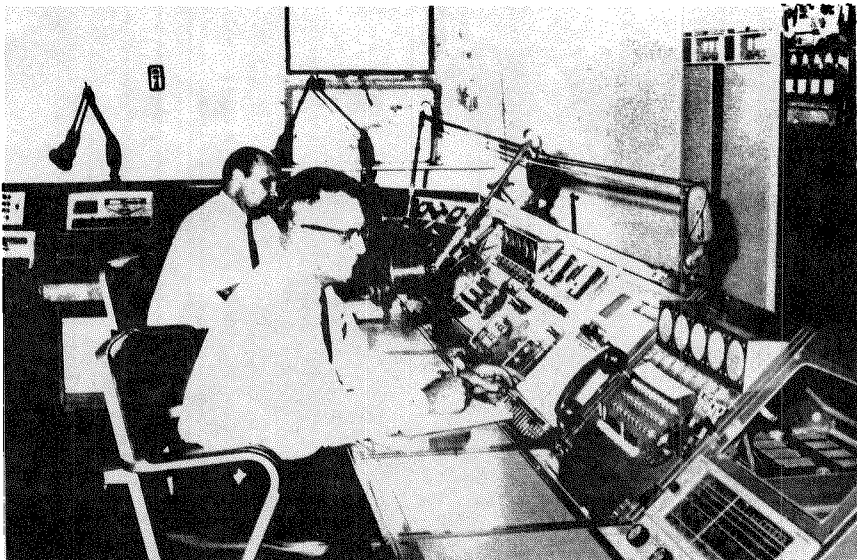
There are 39 patrolmen, 5 sergeants, and two lieutenants assigned to this bureau, most of whom, by the way, are amateurs. It is their responsibility to maintain virtually all of the radio equipment used by the City of Detroit. The various communications systems they maintain include the following: Police Department, Fire Department, Water Board, Public Lighting Commission, Local Government, Office of Civil Defense, Parks and Recreation, and the audio equipment used in our court rooms. The Radio Bureau does all



## TOP—

The author, Patrolman Paul Van Wie WBIDJ, is pictured in the Emer. Operating Room at Belle Island. EX-K7LYV & HL9TM, Paul has been a Ham for 12 yrs. Now having 5 yrs. with the Dept. and he also taught at RETS Elect. School and is now a Jr at Wayne State Univ., has kept Paul busy.

LEFT— Guy Venier K8EZV and Mike Shaheen W8NAW at the repair bench.



Sgt. Fred Hiles - WBQDP &  
Lt. Albert Blascak WBKGG

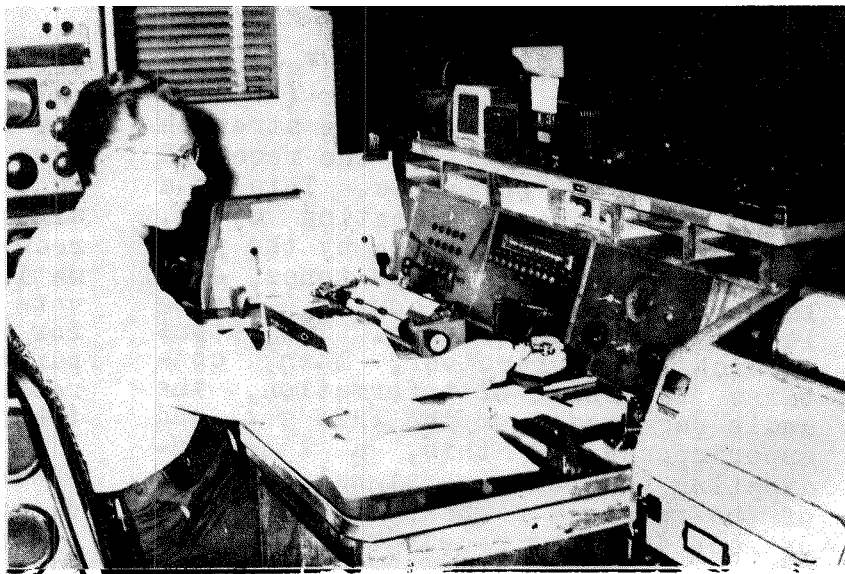
installation and repair work on all the mobile and base equipment used by these departments. This adds up to almost 2000 mobile rigs, approximately 40 base stations, and about 30 remote receivers. The department has another smaller radio station located on the west side of the city to service vehicles in that area, and even with both stations manned 24 hours a day, seven days a week, this is a lot of gear to keep going. At Belle Isle there is a radiotelegraph station for handling traffic with other police departments across the country. With the exception of the CW station, all of the city's communications systems use narrow band (5 KHz) FM and operate

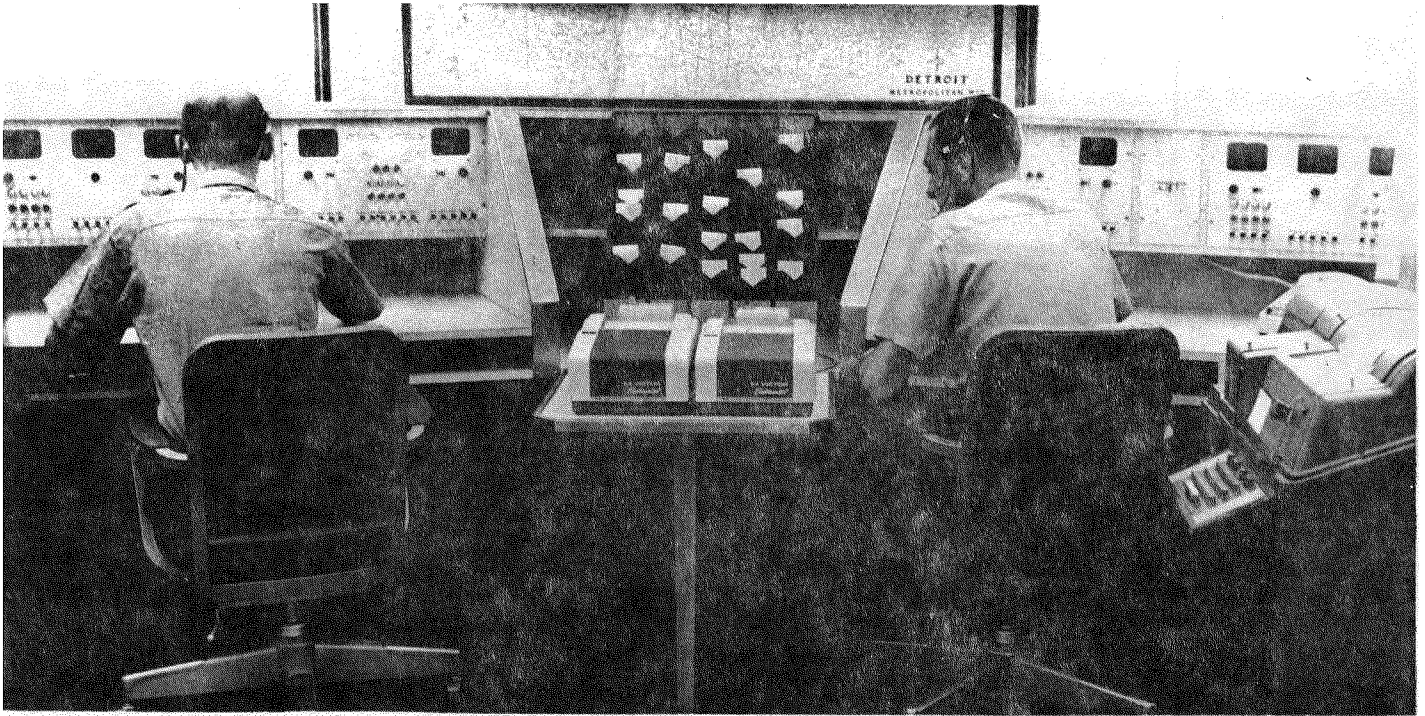
in the 30, 150, and 450 MHz public safety bands.

With the ever increasing popularity of amateur repeater stations, especially in the larger cities, a brief description of the repeater system used by the Detroit Police Department might be of interest to the readers of this magazine. The department has 400 PREP (Personalized Radio Equipped Police) sets which are used by officers in the scout cars and walking beats. Each set is a two-frequency, 450 MHz, FM transceiver, capable of 0.7 watts output on both frequencies, and receiver sensitivity on the order of 0.8 uvolts for 20 db

**RIGHT—**

In the CW Communication Room we find Ken Burke--WBJQQ. A General Class since '47, he also holds 2nd Class Radio Telephone & Telegraph Licenses. Able to copy 40+ wpm., Ken says that the nets run 20 to 25 wpm. on 2, 5, & 7 MHz. Channels.





Above are two of the eight dispatchers used in the PREP system on 450MHz

quieting. Five KHz deviation is used. The PREP sets measure 9" x 3 3/8" x 1 1/2" and weighs 2 3/4 pounds (including the rechargeable Ni-Cad. battery). A flexible quarter wave antenna is used on these sets. The transmitter and receiver frequencies are exactly 5 MHz apart with the transmit frequency above.

The city is divided into four radio districts, each with its own repeater transmitter (and standby) and several remote receivers all located in that particular district. Each district's system is independent of the others.

The remote receivers have a "encoder" which generates audio tones (150 to 160 Hz) corresponding to the strength (degree of quieting) of the received signal from the portables. This is a four level encoder indicating 0, 10, 20, and 30 db of quieting by the presence or absence of these tones, each level of quieting, of course, having its own particular tone. The output of each remote receiver, then, contains two forms of information, the audio received from the PREP set, and superimposed in this, a tone indicating the relative signal strength of the received signal. The output of each district receiver is sent by

wire to a computer, or as Motorola calls it, a Comparator. In the comparator audio and tones are separated and the tones from all the receivers are "looked at". The comparator then selects or votes the audio from the receiver whose tones indicate it has the best received signal and sends THAT audio back out to the district transmitter (along with DC control voltage to key the transmitter) to be retransmitted at approximately 80 watts and heard by all the other PREP portables in that district.

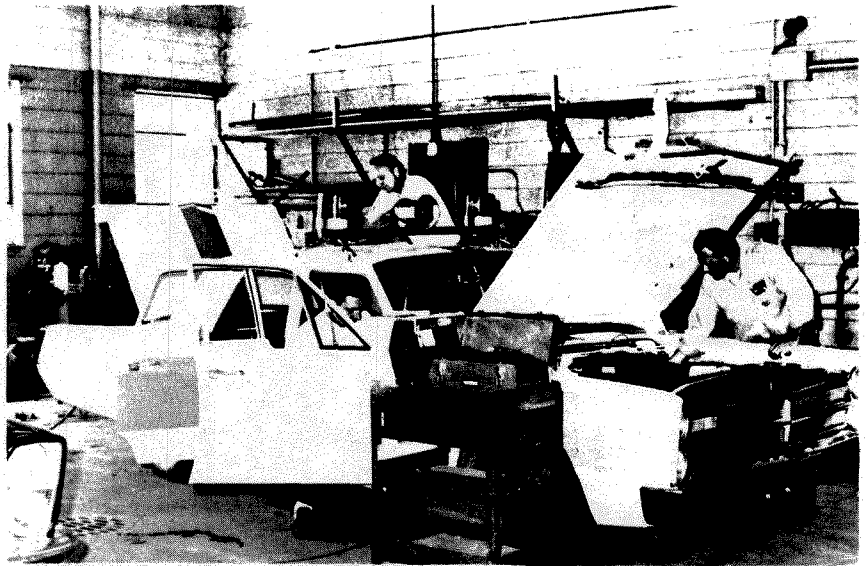
The comparator continually monitors all incoming tones from the receivers and if, due to change in location of the PREP set or for any other reason, another receiver indicates (by its tones) that it is receiving a better signal than the original selected receiver, the comparator will automatically switch over and select or vote the audio from THIS receiver for retransmission, even if the comparator has to switch "selected" receivers several times a second (which is very common).

There are lights in front of the dispatcher telling him which receivers are hearing the signal and



**RIGHT-**

The Installation Garage at B. Is. is kept busy with over 2,000 cars to work on.



also lights indicating which one of the receivers, at any given instant, has been voted. So when a PREP unit on the street transmits, the operator may see three or four "received" lights go on but only one "selected" light and the selected light may, and usually does, jump from one receiver to another as the comparator continually selects the best received signal for retransmission. The Dispatcher also has control of these receivers and can defeat any particular receiver or receivers. If a receiver develops a malfunction the operator defeats it, or shuts it off,

and the comparator continues to vote from the remaining receivers. This operation is also used to check the operation of each individual receiver to insure they are all operating properly. The dispatcher can also switch transmitters from his location and can defeat the repeat function of the system so that only he can hear the incoming signal. This would only become necessary in cases where interference or intermod are being retransmitted (violation of FCC rules) and it cannot be corrected by shutting off one or more of the remote receivers.



**LEFT-**

A few of the Service Techs. from left to right:

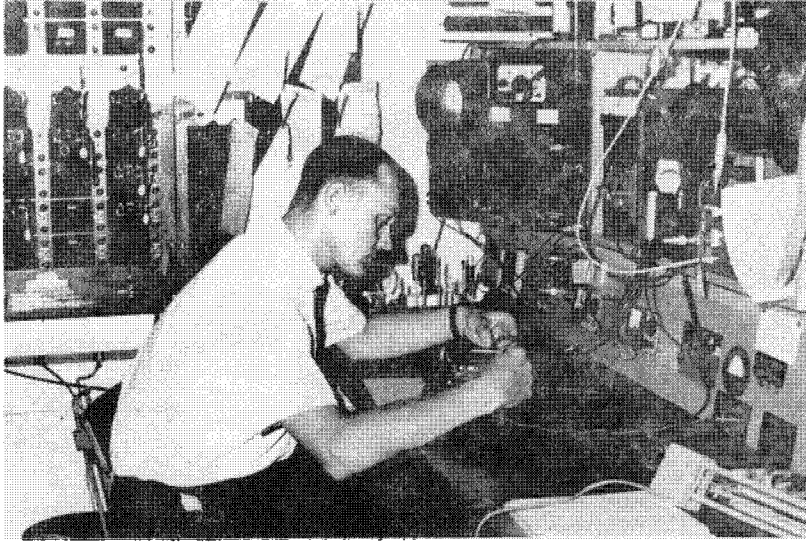
Don Scherf W8TGV

Guy Venier K8EZV

Sgt. Fred Hiles W8QDP

Lt. Al Blascak W8KGG

Mike Shaheen W8NAW



LEFT-  
Glenn Pohl K8IYZ at the PREP  
Service Bench.

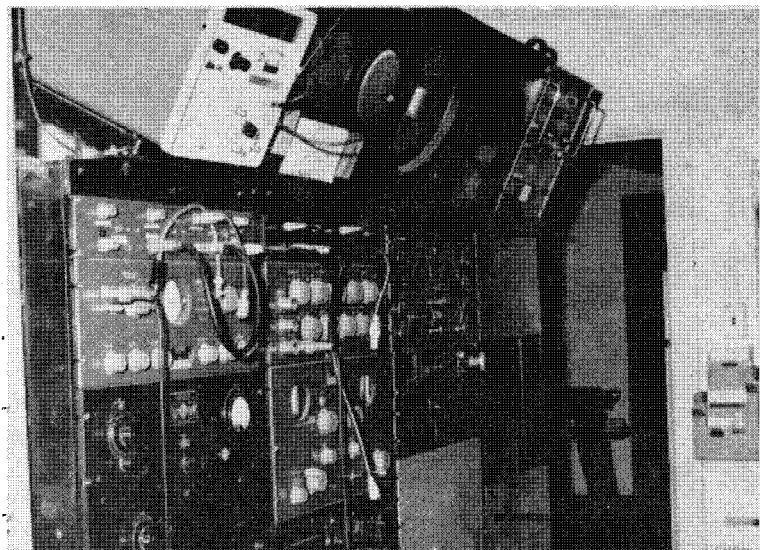
The most important point with this type of system is, of course, to insure that all the remote receiver encoders are set up exactly the same, that is, each receiver must indicate (with it's tones) the same quieting for the same received signal! If a malfunctioning encoder sends a tone to the comparator indicating a 30 db quieting signal when in reality it is only receiving a 10 db quieting signal, the comparator, which is only tone conscious, will select it over another receiver which has, say, a 20 db quieting signal, and the poorer signal will be retransmitted.

There are, of course, many other things involved in this type system, and due to the nature of this article, could not be included, but here you have the basics of the Detroit Police Departments P R E P communication system, the principles of which could very conceivably be adapted for use in the amateur bands.

\* \* \* \* \*

We would like to express our thanks to the Detroit Police Department and Commissioner Ray Girardin for their co-operation in making this article.

RIGHT-  
Freq. measuring equipment.



## TORONTO'S REPEATER TOWERS ON 1300' HILL

In the Toronto area we have about 45 stations with activity on 146.94, the calling channel and on 147.060, the working channel. Our repeater uses the call letters VE3RPT and is located on a 1300 foot hill 30 miles north east of downtown Toronto. The transmitter is a 60 watt G E unit into a 5/8 wave length vertical antenna. The Motorola receiver has a three element collinear. The repeater is put into operation by transmitting an audio signal on the input frequency 146.46. This generally consists of a short whistle or just giving out ones' call letters. After a twenty second pause while the transmitters filaments come up to full power from half power, the transmitter automatically sends its call letters in code to inform all listening that it is being put into use. This is done on the calling frequency 146.940. The transmitter will continue to transmit on this frequency provided continuous incoming signals are transmitted and the repeater is not allowed to drop off the air. However in normal operation the repeater is allowed to drop out in which case it automatically switches to out working frequency 147.060 where normal repeater operation takes place. The repeater is protected against over use or non-use by five minute timers. Several functions are controlled by a dialed 2805 cycle tone. One function is the connection of a 420 MHz link aimed at Buffalo, New York.

Information on other frequencies used in this area;

Niagara Peninsula repeater VE3NRS:  
in 146.220, out on 147.240

Buffalo repeater:  
in 146.340, out on 146.940

Toronto, Ottawa, Montreal & Syracuse:  
all have in 146.460 out 146.940  
(Toronto swiches to 147.060)

Montreal 2nd repeater:  
in 146.940 out on 147.500

W. Canadian provinces mainly use 147.33

## HAM EVENTS

### AUG.

- 26 Amateur FM Picnic Outing to Boblo Island near Detroit. Talkin- 52.525, 146.94, 4329 See Page 14 for details.

### SEPT.

- 3 12th Annual York County Hamfest-at the Adams County Fair Grounds-Abbottstown, PA Portable FM Repeater on site 146.34in-52.525 & 146.94out Start registration at 9 -12:00 AM. XYL's and children Free!!
- 8-9 Louisville Ham/ARRL Convention., Louisville, Kent.

### OCT.

- 6-7-8 3rd Annual VHF Hamfest, in East Tawas, Mich. Talkin on 52.525, 146.94, 432.9. See Page 13 for details
- 15 Ham-Boree Auction, Miami Co. Fairounds, Troy, Ohio.

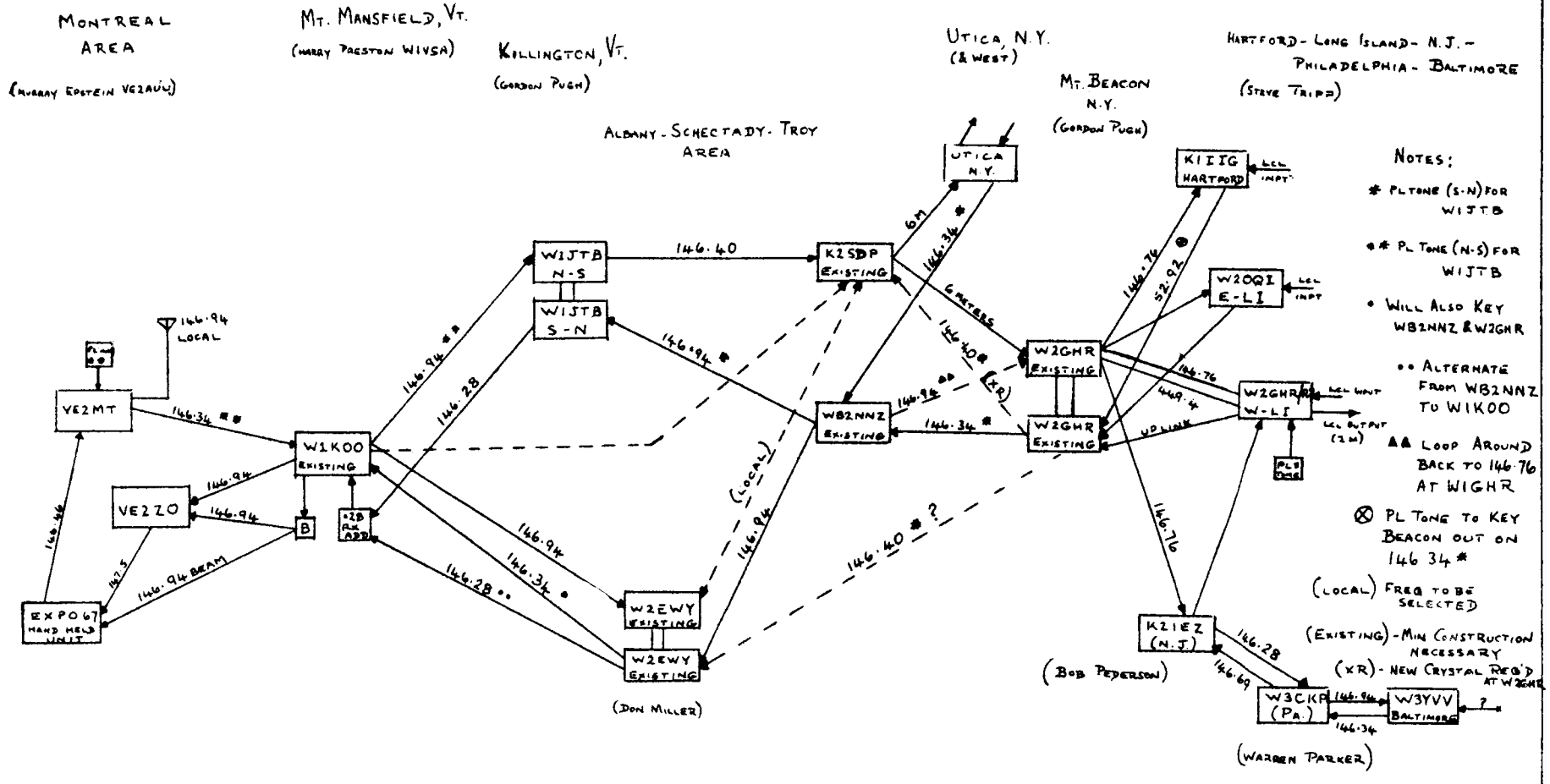
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EXPO 67	VE2MT	VE2ZO	W1K00	W1JTB	W2EWY	K2SDP	WB2NNZ	W2GHR	K2IEZ & W2QOI	W2GHR/R2	K2IEZ	W3CKP	W3YVV
POCKET UNIT	RPTR	RPTR	RPTR	RPTA/INV RPTR	RPTR 1400 FT	RPTR (CONNECT W. UTICA)	RPTR	RPTR	TERMINAL	RPTR/TERM	RPTR	RPTR	TERMINAL
Tx = 146.46	146.46 IN	146.94 IN	146.34 IN (H)	146.94 * IN	146.94 IN (N-S)	146.40 IN (N-S) (W-S)	146.34 IN	6M IN	LCL IN	250 FT	146.64 IN	146.28 IN	SEND 146.34
Rx = 147.5	146.34 OUT	147.5 OUT	146.94 OUT OMNI	146.28 OUT	146.94 IN (LCL - SDP OUT)	6M OUT (S) (W)	146.94 OUT	146.76 OUT	52.92 ⊗ OUT	LCL IN	52.56 OUT	146.94 OUT	RECEIVE 146.94
AUX RCVR ON 146.94	(ADD PL ** TONE)	650 FT	146.28 IN (V)	146.94 * * IN	146.94 * * IN (LOCAL EWY IN)	6M OUT (S) (W)	1300 FT	146.34 * OUT (OP)	MONITOR	UP LINK * OUT	146.76 IN	146.34 IN	146.94
VERTICAL	146.94 OUT	VERTICAL	146.94 OUT	146.40 OUT	146.28 OUT (N)	6M OUT (S) (W)	VERTICAL	146.40 * OUT	146.76	UP LINK * OUT	146.28 OUT	146.64 OUT	(POSSIBLE EXTENSION TO THE SOUTH)
	650 FT		DIR NORTH	146.34/28 IN	146.28 OUT (N)	146.40 * IN (S-N) (W-N)		146.94 IN		449.4 IN	300 FT	600 FT	
	VERTICAL		4300 FT HORIZONTAL	146.94/28 OUT	146.40 * IN (S-N)	1400 FT		146.76 OUT		LOCAL OUT			
				4200 FT				UPLINK IN		MONITOR	146.76		

## A CHEAPEE

BY Dave Freitag K8ZKZ

There is a cheap and easy way to monitor the 150 Mhz. public service band by making use of the highly sensitive receivers in FM communications equipment. Just connect a diode from the center conductor of the receiver antenna coaxial connector to ground, and connect a stable signal generator across the diode. The diode is a non-linear element and will mix the generator and police signals. By tuning the generator, one of the products will fall on 146.940 and open the squelch. Since the deviation run by commercial services is somewhat less than 15 Khz, you may have to turn the audio gain up a bit. So, if a police transmitter operates on 156.940 MHz, set the generator to 10 MHz, and away you go.

An advantage of this scheme is that you will still be monitoring 146.940 at the same time. This can be a nuisance if you are interested in the service band and there is a lot of local traffic on 146.94. This can be remedied by connecting a variable capacitor ( 100uuf ) across the receiver crystal. This will "rubber" the receiver off the .940 frequency retaining the high sensitivity. Good luck and good listening.

-----  
The Editor sure welcomes your letters and enjoys hearing from all the readers. Sure could use some Tech. stuff  
WA8UTB

### ATTENTION: RADIO AMATEURS

BE PROUD OF YOUR CALL & CLUB AFFILIATION  
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## VHF FEST NEARING

The Tawas Radio Club is presenting its 3rd annual Northeastern Michigan VHF Ham-Fest in East Tawas, Michigan, on October 6, 7, & 8, 1967. East Tawas is located on U. S. 23 just 65 miles north of Bay City on the shores of beautiful Lake Huron.

This event is staged yearly to help promote the use of our VHF bands in the Northern part of the state.

This year W B F M is featured. On the top floor of the Holland Hotel will be a whole room of operating FM equipment on 6. 2, and 3/4 Meters.

Situated on the shores of Lake Huron this community offers scenic beauty for those who are not directly interested in amateur radio. Various tours are available nearby such as a paddlewheel boat trip on the AuSable River, a scenic cruise in the Tawas Bay, a tour of Wurtsmith Air Force Base where you will see our Strategic Air Command in action.

For those more technically minded, there will be a gaint Swap & Shop, Banquet, Auction, Transmitter Hunts and hundreds of door prizes. This event is highlighted by the presentation of the HAM\*OF\*THE\*YEAR Award which is presented at the banquet on Saturday evening in the plush Holland Hotel. The presentation and banquet will be followed by dancing and entertainment for the completion of your evenings enjoyment.

Yes, the FM BULLETIN will be there.

### H A M S

While in the Tawas, Mich. Area Enjoy  
Yourselves & Stay at

### NEW HOLLAND HOTEL

101 Newman St., East Tawas, Mich.

Location of  
VHF Banquet

Resonable  
Rates

# 10-29 TO YOU TOO!

By -- Happy Hal-K8NUI

The question occurred to me that possibly the author of the article "10-4 TO YOU TOO" has made so many trips down to the FCC office he has memorized the room number already or could it be he has been down there concerning a CB license; I understand they use it to control an elevator at the sault mine.

I am sure no self-respecting ham would consciously use codes & ciphers on our ham channels. One question however does arise. I do not recall ever seeing any questions concerning ARRL message numbers on my ham test or Q & A manual. Could these be misconstrued as codes & ciphers or does it make them legal because a copy of their meaning is retained in the station log. If the ladder is the case then I submit the following as a list commonly used around the country on our FM ham channels. The reference of the 10 code to the CBers is a misnomer by a "misguided individual" in my opinion. The 10 code was used by law enforcement agencies long before the CB channels were created.

I would take issue regarding the CB channels. Because there are those who do not use the channels as it was intended to be used, are you going to say that all CBers are no good? The same about the use of CB at your "saultmine". As an analogy, because some "teenagers" are bad, are you going to say yours are bad also? If the answer is no then why do you put such a bad connotation with CBers? I would also bring to your attention the case where a few months ago where a CBER is credited with saving the life of a driver on Ed Hines Parkway whose car overturned and was filled-up with water. Do you think you could convince the driver that there are "NO GOOD" CBers? I don't think so! I am not a CBER or have ever been on the CB bands, but I think there is a definite place for them.

One of the sentences in his letter

read "Few self-respecting hams want to sound like CBers or be mistaken for bootleggers, so lets help them out." It would appear to me that the author is saying that a large number-of the hams who operate F M in Los Angeles, Dallas, Chicago, Gary, Detroit, Buffalo, Utica, and New York are not self-respecting. I would further question who authorized him to set forth professional ethics to be used on our ham channels.

73s - ARL 63 - 10-4

## TEN SIGNALS

- 10-1 Receiving poorly
- 10-2 Receiving well
- 10-3 Stop transmitting
- 10-4 O. K.
- 10-5 Relay
- 10-6 Busy
- 10-7 Out of Service
- 10-8 In Service
- 10-9 Repeat
- 10-10 Out of service, can receive
- 10-11 Dispatching too rapidly
- 10-12 Officials or visitors present
- 10-13 Advise weather & road cond.
- 10-15 We have passenger
- 10-16 Pick up....at.....
- 10-17 Pick up papers at.....
- 10-18 Complete present assignment  
as quickly as possible
- 10-19 Return to station
- 10-20 Location
- 10-21 Call by phone
- 10-22 Take no further action on last
- 10-23 Stand by
- 10-25 Do you have contact with....
- 10-26 Can you obtain info from.....
- 10-30 Does not conform to rules
- 10-35 Confidential Information
- 10-36 Correct time
- 10-97 Arrived at.....
- 10-98 Finished with last assignment

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IN NORTHWEST OHIO

SWAN	EICO
HALLICRAFTERS	HAMMARLUND
DRAKE	CLEGG