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# Video Communication Journal

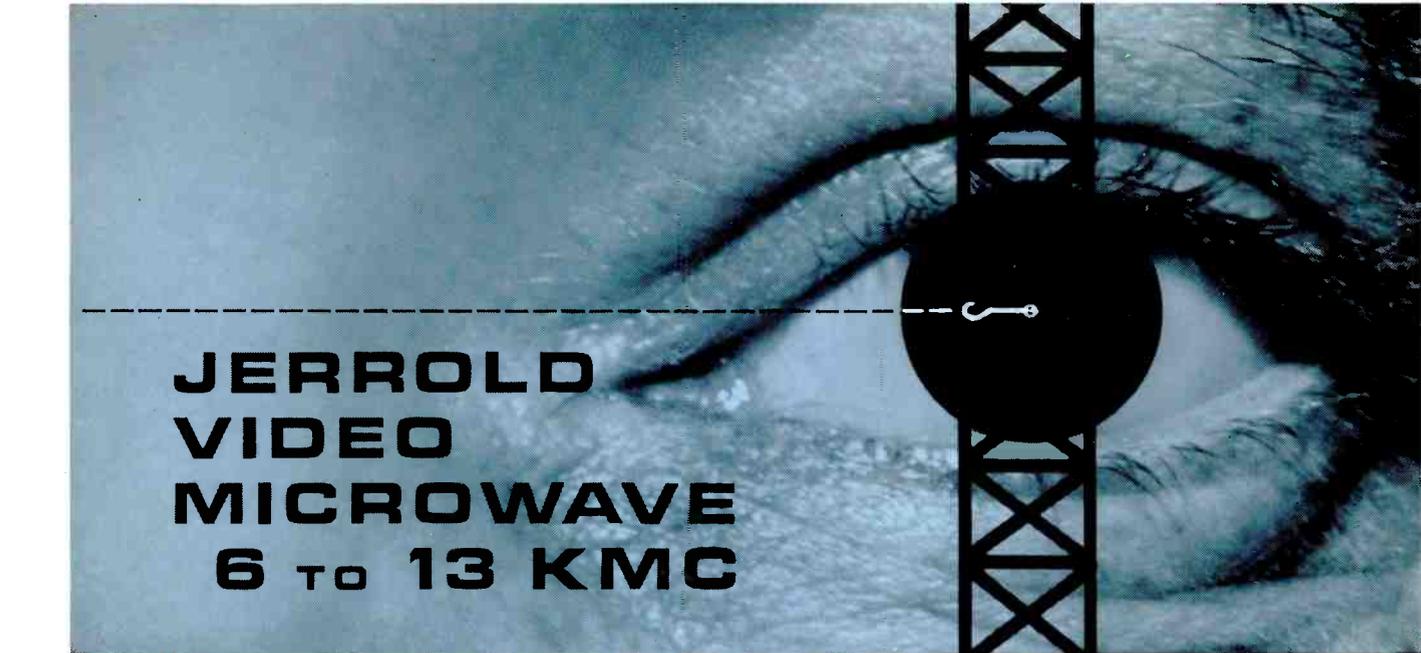


## Serving the Audio-Video

### IN THIS ISSUE

- HOW TO MAKE MONEY — Avoiding losses
- BUSINESS RADIO — An important asset
- 12 CHANNEL CATV — The practical aspects
- AVOIDING MAJOR LOSSES — Property protection

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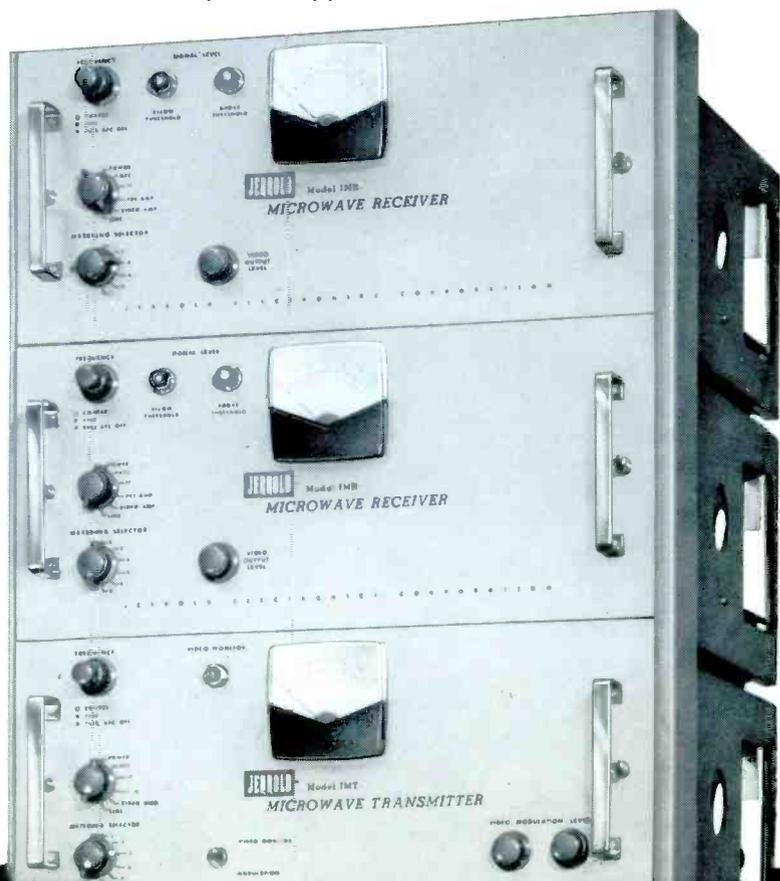
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# Channel

1

## MICROWAVE CARRIERS CHALLENGE FCC

The jurisdiction of the FCC to inquire into the business of radio licensees in the fixed (video) point-to-point service operating between points in the same state has been challenged by 20 microwave carriers serving community antenna television systems.

The filing, by the Washington communications law firm of Smith & Pepper sought a declaratory ruling to the effect that the Commission has no jurisdiction over intrastate microwave radio carriers, except under its radio licensing authority.

The FCC, it said, should "terminate further non-jurisdictional activity," and "should publicly instruct the appropriate bureaus that all regulatory actions must first be determined to be within the scope of the agency's lawfully conferred jurisdiction, and that where carrier applicants for radio frequencies to be used in connection with point-to-point communications circuits located wholly within the bounds of a single state are concerned, there is no federal regulatory jurisdiction except that reasonably necessary for radio licensing."

Looking at the radio licensing section of the Communications Act, the carriers contended that "Once that it is determined that utilization of the frequency already allocated for such use is technically feasible and will not interfere electrically with other radio operations; that the applicant is not an alien or representative of a foreign government; that the applicant possesses the proper character qualifications; that the applicant has the resources to construct the facility; that there is need for the service; and, in the case of frequencies assigned to common carrier usage, that the applicant will hold itself out to serve all who request service, the application should be granted."

The group declared that "There clearly is no authority, or need, for the far-reaching inquisitions to which carrier applicants for use of

CATV

MATV

2-WAY

UHF-TV

Microwave

intrastate radio circuits have been subjected." It emphasized that "Our position is grounded solely in the fact that Congress chose not to act in this field, and, instead, specifically withheld authority from this Commission.

"Thus," it said, "the Commission can claim no general or implied power to invade this area. The Congress has not only declined to confer the Commission with authority over these carriers, it has affirmatively spoken to prevent intrusion by the agency into the area.

### EXTENDED SENATE SESSIONS PREDICTED

The Senate Commerce communications sub-committee early in September launched what is expected to be a series of hearings on various proposed amendments to the Communications Act, with sessions on four relatively minor bills. Chairman John O. Pastore (D., R.I.), in an opening statement, predicted that the initial sessions would be the first of a series of hearings involving the FCC. He commented that "We'll be here for a long, long time this year."

Unless the nonbroadcast radio field can interest some of the members of Congress in its particular

difficulties, however, the subcommittee is not expected to concentrate on any of its problems during the extended sessions — with the exception of the community antenna TV field. Senator Pastore emphasized the subcommittee's intention to clear its decks of the backlog of communications legislation pending.

At the initial hearings, support was registered for three general or nonbroadcast measures, one providing for issuance of permits to foreign amateur radio operators to use their equipment in the United States if the U.S. has a bilateral reciprocal agreement with the other nation; one to permit special temporary authorizations in the nonbroadcast radio services for 60 days, rather than the present 30 days, when the request for the STA is submitted pending an application for regular operation; and one to require a party in interest in an FCC hearing case to announce his intention to intervene within 30 days of the publication of the hearing issues in the Federal Register.

There was no opposition indicated, or even any questioning from Senators, about the latter two measures, sponsored by the FCC, after Chairman E. William Henry read a statement in support of them. The amateur radio measure was backed by Senator Barry Goldwater (R., Ariz.) and four officials of the American Radio Relay League, with no opposition indicated, although questions were raised about which federal agency would be responsible for security screening of the foreign "hams."

The Senate group also included in the initial hearings a fourth measure, which would prevent the FCC from giving preference to members of Congress on broadcast and television station applications, introduced and supported at the session by Senator William Proxmire (D., Wisc). At the hearing session, questioning and comments by members of the subcommittee were devoted entirely to the Proxmire measure.

# VIDEO-COMMUNICATION JOURNAL

Combining Television Horizons and Communication Horizons

PUBLISHED MONTHLY BY HORIZONS PUBLICATIONS

Post Office Box 1557 • Oklahoma City 1, Oklahoma

## Editorial

Time brings all kinds of changes. Here, at Video-Communications Journal, we have undergone different phases of modernization such as enlarging the magazine, adding data processing, and adding new personnel.

Now we have another change coming up, one which involves the originator of this magazine. On September 20th, Robert B. Cooper, Jr., Publisher of Video-Communications Journal and president of Horizons Publications, Inc., resigned from his publishing duties to assume the Executive Administrator position with the newly formed American Citizens Band Association, Inc.

The new position and the new responsibility for Bob is in line with his intense personal desire to formulate within the Citizens Band two-way radio industry, a national organization for Citizens Band radio operators.

The ACBA was founded with the help of a sister-publication to Video-Communication Journal, CB Horizons magazine, in the spring of this year. In the scant few months that this new association has been in existence, it has grown by leaps and bounds to the point where it now has several thousand members.

While Bob Cooper's formal editing and publishing duties will be assumed by other members of the Horizons' team, Bob will continue to contribute editorial and feature material for use in all of the publications produced by Horizons, as time permits.

In talking with Bob recently, he said he anticipated some trips to various parts of the United States in the coming year and intended to visit many of the CATV operations while enroute. So don't be too surprised to find him at your front door one of these fine days!

RLM

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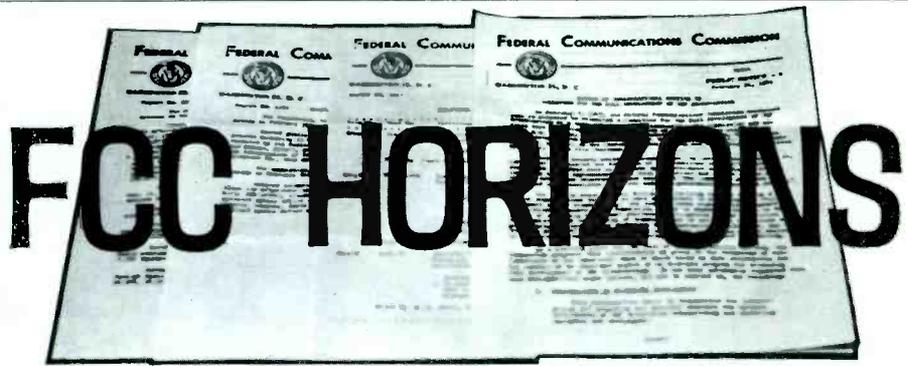
## CATV MICROWAVE ACTIONS, ACTIVITIES

**Austin's General Stores, Inc.**, has been given the go-ahead to construct a microwave relay system that will transport TV signals to a CATV system near Independence, California. The authorization was made under the conditions of Docket 14895 (non-duplication).

**West Texas Microwave Company**, Abilene, Texas, received Construction Permits for microwave stations at Aledo, Mineral Wells, Brackeen Ranch, and Breckenridge, Texas. The microwave stations will bring the TV signals of WFAA-TV, KERA-TV, Dallas, Texas and KTVT, Fort Worth, Texas into Mineral Wells for service to Community Aerial System; into Graham for service to Systems Management Company; into Breckenridge for service to Breckenridge TV Distributing Company; into Albany for service to Albany Cable System. Also, West Texas Microwave Company has applied for authority to add another microwave station at Davis, Texas.

**Mesa Microwave, Inc.**, Oklahoma City, Oklahoma, received a Construction Permit for a new microwave facility at Quanah, Texas. Purpose of the new station is to bring KGNC-TV and KFDA-TV, Amarillo, Texas, into Quanah, Texas for service to Quanah TV Company. Mesa has also been granted permission to add an audio program service over specified channels for microwave subscribers in the communities served by stations (microwave) at Pledger, and Rhodes Ranch, Texas.

**Mid-Kansas, Inc.**, Junction City, Kansas, has received a Modified License allowing an FM sub-carrier to be added to microwave stations at Clay Center, St. Mary's, Manhattan, Abilene and Junction City, Kansas. The sub-carrier is being used to transport the audio of KCMO-TV, Kansas City, Missouri to Vumore Company, Clay Center, Abilene and Concordia; to Manhattan Cable TV Services, Inc., Manhattan; Junction City Television, Inc., Junction City; and to Salina Cable TV System, Inc., Salina, Kansas.



FCC actions, applications and public notices reported in this column are a representative sampling of the latest developments which in the opinion of the staff of Video-Communications Journal are of interest to our readers. The information reported is by no means a complete tally of all FCC actions in or out of the allied fields of communications.

### TELECASTING ACTIVITIES, CHANGES

**Atlanta, Georgia and Ogden, Utah** both became recipients of a second non-commercial educational TV channel. Atlanta receives Channel 57 and Ogden, Channel 9.

The Commission has ruled that **Frontier Broadcasting Company**, licensee of **KSTF, Scottsbluff, Nebraska and KFBC, Cheyenne, Wyoming**, can construct UHF-TV translators at **Borie, Wyoming (Channels 70 and 72)**, at **Albin, Wyoming (Channels 81 and 83)**, plus two new VHF translators on **Channels 2 and 6 at Scottsbluff, Nebraska.**

The **University of Indiana** has been given permission to construct a non-commercial educa-

tional TV station. The new plant will operate on Channel 30 with an ERP of 14.4 kw (visual) and 7.8 kw (aural). This is good news for the Bloomington, Indiana area. In other actions, **Santa Barbara Educational Television** has applied for Channel 20 with an estimated ERP of 20.4 kw (visual) and 10.2 kw (aural).

In the matter of Commercial Television, **Great Lakes Television Company**, Erie, Pennsylvania, (**WSEE**) is proposing to change their ERP from 137.5 kw to 285 kw (visual) and 69 kw to 28.5 kw (aural). (CATV System Note: The resultant change in field intensity level may provide a little more signal for those using this station "off-air.") **Cascade Broadcasting Company**, Yakima, Washington (**KIMA-TV**), is proposing to lower their aural level from 52.5 kw to 10.5 kw (CATV System Note: Systems using KIMA-TV "off-air" should check to ascertain date of switch so system level may be checked).

Several filings for commercial allocations have been made recently. The following are those that have submitted applications; **Shenandoah Valley Broadcasting, Inc.**, Staunton, Virginia, Channel 36; **Platinum Coast Broadcasters, Inc.**, Gainesville, Florida, Channel 20; **Santa Rosa Enterprises**, Santa Rosa, California, Channel 50.

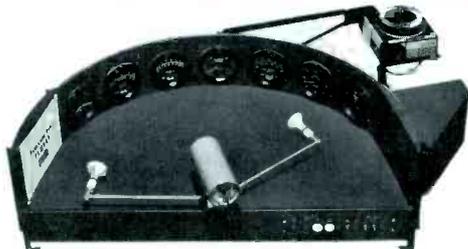
It appears that **KTVS, Sterling, Colorado**, (Channel 3), is going to be changing transmitter sites and relocate 9.7 miles east-southeast of Sterling. **KTVS** is a property of **Frontier Broadcasting Company. KLIX-TV**, a main contender in the Twin Falls, Idaho dispute involving non-duplication, has granted assignment of their license (held by The **KLIX Corporation**) to **Regional Broadcasting Corporation** who have stations **KWRV, McCook, Nebraska and WGNS, Murfreesboro, Tennessee.** The apparent consideration involved in the assignment was \$126,000.

**Pay-TV** in California has been a point of discussion recently but it appears that at least one try is scheduled to be held up as a result of Commission action on **Capitol Television Company's** application. **Capitol Television** had proposed a three year trial operation over the facilities of **KVUE**, a Channel 40 operation (now off-the-air), in **Sacramento, California.** In returning the application to the originator (**Capitol**) the Commission stated that the application was deficient on several points and could not proceed until these were clarified.

Good news for the North Dakota area, the Commission has authorized **KFYR-TV, Bismarck, Channel 5**, to change transmitter locations from 12 miles east of the city to 12 miles south of the city. Included in the authorization was a provision allowing **KFYR-TV** to increase antenna height from 500 ft. to 1,430 ft.

**WLOX-TV** has applied for permission to change locations and boost their power from 31.7 kw to 308.3 kw (visual) and 19 kw to 131 kw (aural). **WLOX** is located presently at **Biloxi, Mississippi** and operates on Channel 13.

**Oregon Television, Inc.**, operators of **KPTV, Portland, Oregon**, have been granted permission to change transmitter location and change antenna height to 1750 ft.



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## PEOPLE . . .

A new appointment was made recently by the Secode Corporation according to R. B. Rennaker, Director of Marketing. Named to the position of Manager of Dealer Sales for the Telecommunications Division of Secode is Mr. Al Marthens, well-known in distributor-dealer radio communications circles. The appointment, according to Mr. Rennaker, is primarily aimed at the development of a nation-wide distributor dealer program through which the company will market their two-way radio, selective signaling equipment. Prior to joining the Secode Corporation, Mr. Marthens was National Sales Manager for Aerotron.

The NCTA has recently announced that Jack Crosby of Del Rio, Texas, has accepted the job of Chairman of the Research Council and that George Barco, Meadville, Pennsylvania, and M. William Adler, Weston, West Virginia, will become council members. Congratulations to all three. This brings the total number of council members to ten.

From Motorola, Inc., comes the information that Robert Peth, John F. Mitchell, and Donald R. Jones, have been named to new managerial positions by the Communications Division of Motorola, Inc. According to vice-president William J. Weisz, each man has full responsibility for the design, development, production, marketing and sale of the products assigned to him.

General Electric says they have appointed A. Kenneth Guthrie, Jr., as National Manager of Mobile Radio Field Engineering for GE's Communication Products Department headquartered in Lynchburg, Virginia. Part of his new duties include the management of factory-employed communications field engineers who supervise the installation and maintenance of GE mobile two-way radio equipment throughout the nation. Mr. Guthrie, who is a member of the IEEE, has 20 years of communications experience. In another announcement from General Electric, Frank L. Harper was named as Manager for telecommunications sales at Redwood City, California and will handle sales of GE microwave, multiplex and data transmission equipment. Also, D. E. Ranniger was appointed District Representative for GE telecommunications sales in Dallas, Texas. These appointments were announced by Kent J. Worthen, National Manager of



# SYSTEM HORIZONS



Field Sales for the GE Communications Products Department.

Adler Electronics, Inc., reports that Edward Galuska has been promoted to the position of Manager of Engineering in the Industrial Products Division of the company. Mr. Galuska will be responsible for all the division's development and system engineering in the fields of UHF TV broadcasting, TV repeating, and instructional TV. He has held positions in both engineering and sales in his eight years with the company.

## PLACES . . .

Two community antenna television systems serving Norton and Appalachia, Virginia were sold recently to PGR Enterprises, Inc., which is headed by Mr. Frank Russell of Washington, D.C. The former owner of these systems was Mr. Harold C. Bailey of Pineville Kentucky. Mr. Bailey will continue to own and manage his CATV system in Pineville. Mr. Russell is well-known to all and is a former NBC vice-president.

Coming up on October 24th thru the 26th, at Lowry AFB, Denver, Colorado, will be the Fourth Armed Forces Television Conference. Discussed at the conference will be topics such as Application of CCTV in Space Industry; Graphic Techniques; Department of Defense Philosophy on Educational Television; Management Control; Programmed Learning. All interested parties are invited to attend.

In Chicago, Illinois, E. William Henry, Chairman of the Federal Communications Commission addressed the Standing Committee on Communications, 86th Annual Meeting American Bar Association. In discussing satellites and international telephone cable circuits, Mr. Henry suggested that cables will not become obsolete in the foreseeable future. He said further that the new transistorized cable, capable of carrying television, is in the immediate offing and should

result in major economics in the future.

Puerto Rico will soon see a modernized police communications system, according to Motorola Overseas Corporation which announced they had been awarded a contract in excess of one-half million dollars. Motorola's contract calls for the installation of complete two-way radio and microwave communications systems for the Puerto Rico police. The island-wide service is expected to be in service before July, 1964.

Macon, Georgia was recently the site of the 2nd Annual Georgia Association of Broadcasters TV Day. The one-day meeting, which was held at the Hotel Dempsey, included many timely topics of interest to broadcasters. Among the items discussed was CATV and ETV, conducted by Ray Carow, WALB-TV in Albany.

A recent issue of the MPATI news, which is a monthly publication of the Midwest Program on Airborne Television Instruction, has paid tribute to CATV systems for efforts in the distribution of instructional television signals.

From informed sources, it has been learned that Home Entertainment Company of America has broken relationships with Mr. Bernard M. Kahn & Company. Mr. Kahn had been handling stock transactions for Home. There was apparently a question of what happened to some funds. Home Entertainment Company of America has been planning to install a Pay-TV system in Santa Monica, California.

## THINGS . . .

The E. L. Berman Company of Menlo Park, California, is now the regional sales representative for the POLY-COMM line of amateur, business and CB communications equipment in the Northern California and Nevada area, according to Mr. John Doremus, Polytronics Laboratories. The E. L. Berman

Continued on Page 28



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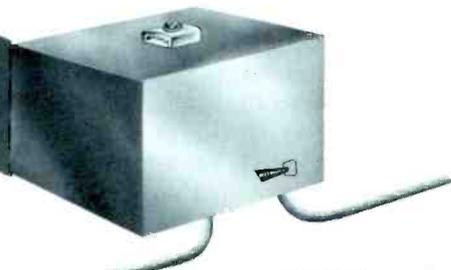
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# ***The Logic of a 12 Channel CATV System***

by  
Vic Nicholson  
Community Systems Division  
JERROLD ELECTRONICS CORPORATION

Among the reasons (besides the natural desire to make money) that motivate a man to engage in a business, is a desire to gain the respect of his fellow citizens and to make a real contribution to the entertainment facilities in his community. By providing high quality television entertainment in areas where it was either not available or was of poor quality, the CATV system operator has surely achieved these results.

Some operators have gone beyond the role of supplying only entertainment and have accepted the role of a responsible citizen in even more ways. They have provided cultural services by adding FM, high fidelity, or stereo music to their systems. They have provided public service whereby community leaders, public officials, and outstanding citizens have been presented to the people. Through closed-circuit television they have provided educational services by bringing special programs to the schools and by distributing these programs within the schools.

The 12 channel system concept permits the re-evaluation of present cable systems in terms of their future possibilities. Granted, there are few communities today with the need for using all 12 channels on the TV receiver. However, not too many years ago, individual-channel-strip systems were sold even though they were limited to handling only non-adjacent channels. With the pressure for more channels, low-band broadband systems were installed. Even these have not provided sufficient programming because of the continuing competition of new stations. The current trend to the all-band system was inevitable.

These future requirements are so important that today the only reason a purely low-band system would be installed, or an existing low-band system not converted to all-band, would be either: lack of capital; or, lack of available financing.

When installing a new system, the primary cost — that of labor — is almost the same whether it is all-band or low-band only. Likewise, all strand and cable are identical. The difference is in the number of amplifiers, amplifier locations, and head-end equipment. Finance charges, personnel, pole changes, insurance, etc., are all the same. The percentage difference in cost is about 25%.

I will return to the economic advantages of supplying more channels, but first, what would be the uses of these channels?

One might be a weather service channel. This might present a continuous picture of meters showing the temperature, humidity, wind direction and velocity and possibly barometric pressure. This channel could include background music and even a picture of a clock to show the time.

Another channel might present a color test pattern plus additional background music. This color test pattern would simplify the proper adjustment by home owners of their color TV sets. It would also greatly aid servicemen in the repair and alignment of these receivers.

A third channel might be used for presenting city council meetings, high school supporting events, public dances, or other local events as picked up by your own cameras. These closed-circuit presentations would not be on a full time basis, but only when the occasion occurs. The public is extremely interested in this type of programming, almost as much as in watching their own children doing experiments on educational television.

A most important source of new channels is Educational TV. There is in the United States, at the present time, an Eastern Educational Network organized in 1960 to provide a means of interchange of programs among ETV stations in the eastern part of the country. This EEN envisions an interconnected system of ETV stations extending from Maine to Washington, D.C.; westward through Pennsylvania, and northward from Boston to the Canadian Broadcasting Corporation at Montreal. There is no question but that CATV will provide a definite aid to ETV in the years to come.

The economic aspects of the 12 Channel System Concept are also important. Can the operator afford to provide 12 channels? Personally, I feel that he cannot afford not to provide extra channels. The cost of converting an existing low-band system to all-band, may be high. In some cases especially in large systems, it may involve obsoleting all present amplifiers, or changing the cable, or possibly even both. However, it will only hurt once and possibly for those of you in a high enough tax bracket, the government may pick up 52% of the tab via tax deductions.

A long term advantage of converting is that the system's value is about 25% higher if you ever decide to sell. This is the price differential that is being used by groups that buy and sell systems.

Another advantage is that you will likely add 10% or more subscribers that, although satisfied with their own reception, still want these new services. This 10% over a period of 5 years may well cover your entire real cost of conversion.

And finally, the increased public service is also a large factor. You will have the support of the people in the community if any problems occur. It would make it almost impossible for a competitor to enter your area, and would make other neighboring areas more anxious for these services.

The technical requirements of a 12 channel system are rigid, and the limiting factors regarding both television receivers and systems must be known. Originally, TV sets were designed only for use with non-adjacent channels and therefore, broadcasters maintained the sound carrier at only 3 db below the video carrier. CATV operators found that adjacent channel operation was possible on the low VHF band by maintaining these sound carriers 15 db below the video. However, until the present, there was no method of controlling sound levels in the high VHF spectrum that would meet the necessary temperature stability at narrow band width and not introduce color phase or amplitude distortion. Jerrold engineers have recently introduced the Channel Commander that does provide this sound control. This is done by the use of sound traps, filters, amplifiers and limiters at relatively low IF frequencies. The selectivity of the tuner of the average TV set is about 2 db poorer on the high VHF band than on the low. Therefore, it is only necessary to maintain adjacent sound carriers at 17 to 18 db down, and all-band operation is feasible.

The picture quality of high band channels is generally every bit as sharp as that of the low VHF band in a properly designed CATV system. This results from the fact that ghosts or reflections between discontinuities are attenuated on these high channels almost twice as much as on the low. This is a result of the increased cable loss on the high band.

Another plus factor in all-band operation is that channels can be fed directly "on channel" without conversion. This eliminates the creation of co-channel, beats, and other sources of interference originating in a converter and caused by undesired signals mixing with the desired. The Commander is designed so that it will not introduce co-channel in these on-channel applications. This is done by using the same oscillator both for converting the incoming signal to IF frequencies, and for reconvertng these signals back up again. This is not to say that it will remove co-channel from an off-air, but there are ways of solving this problem such as improving the antenna system or providing microwave links.

The most difficult problem at the antenna site in adjacent channel applications, is to provide clean pictures without interference. Traps are not completely satisfactory when a strong local station is amplified both through its own strip and also through adjacent amplifiers. Again the Commander solves this problem by filtering out not only the carriers but the undesired sideband energy.

After mixing up to 12 channels at the antenna site, it is necessary to deliver these signals — without any noticeable degradation — to each and every receiver connected. These channels can be cascaded through broadband amplifiers whether of distributed or cascade type, although for long systems the distributed amplifier provides better pictures. The specifications of noise figure, hum, response, etc. do not change whether 7 channels or 12 are being fed. The one limiting factor that must be taken into account is overload.

As one doubles the number of amplifiers or the number of channels (as from 6 to 12), the overload capability of each amplifier and therefore of the entire system is reduced by one half. Therefore, the output power must be reduced in each amplifier by 3 db to maintain the same system tolerance.

Transportation of high channel signals require not only automatic gain or overload control, but also control of tilt variations due to temperature. Individual antenna signal fluctuations are controlled at the antenna site; power line variations are controlled by use of Sola transformers in all trunk line amplifiers, but changes of cable attenuation due to temperature must still be compensated for. An effective method is by means of thermatic devices. These are cable equalizers that automatically change the tilt in the opposite direction to that of a given amount of cable. At the same time, the system AGC will control the average variations due to these same temperature changes.

As you can readily see, there are two major factors in converting a system — the transportation or trunk line and the feeders.

The trunk line must be designed with high quality amplifiers to minimize ghosts or reflections, hum, noise and cross modulation. There will likely be twice the number in cascade unless lower loss cable is installed. With double the number in cascade, system tolerance for signal-to-noise ratio would be reduced by 3 db.

Besides, the overload capabilities are reduced by 3 db for the double number of amplifiers and an additional 3 db for almost double the number of channels. This 6 db could well result in "windshield wiper" at the ends of the system unless proper engineering design were used. The point I'd like to emphasize is that as a system becomes larger, the "walls" of signal-to-noise ratio and overload capabilities close in and amplifiers must be used with lower gain and/or increased capabilities.

The feeder line or distribution part of a system also requires engineering. The cable loss is much higher on Channel 13 than on Channel 6 and therefore, requires either much more signal at the distribution location or many line extender amplifiers. We feel the better approach is to install a high output all-band distribution amplifier which is compatible with the trunk line amplifier. This will provide the additional gain and output capability to reduce the number of line extenders needed.

In conclusion, let me again emphasize that the doors are opening for operators to become dedicated public servants. In Vermont, all CATV operators have offered to carry the educational programs on their systems. Many are giving a cable connection free to each school. Can you afford to do less? It will cost a great deal in some cases to modify your systems. You know that this cost will be returned over a period of years. More important still, whereas in the past your function has been simply the supplying of entertainment — you will find yourself a really important adjunct to civil defense, politics, and many of the other facets of community life. —



# GIVING THE BUSINESS TO BUSINESS-BAND RADIO

## **For The Business Man**

Chances are that if you are reading this publication you are one of two breeds of individual. You either operate a business that provides a communications service, or, you operate a business that has a need for two-way communications.

If you fall into the first category, stop reading right here because what is about to be said you may not agree with.

If you are in the second category, stick with us because we are about to show you how to improve your communications problem for a minimum of cash outlay.

## **Status of Communications Today**

Two-way radio is the biggest thing to come down the communications pike since the smoke-signal

In the past decade approximately 2.7 million two-way units have been installed in the frequency range from 30 to 470 megacycles.

More recently, during the past four years, an additional 1.2 million Citizens Band transceivers have been installed in the Class D 27 megacycle service.

A great number of people, private

and municipal, clearly have found a great many uses for two-way radio.

The standard installation criteria for a two-way system in the past two years has been a double-edged measuring stick. If you wanted freedom from jabber and idle chatter (on CB), you went up to the more impressive sounding and considerably more expensive FM range between 150 and 174 or way up to 450-470 megacycles.

Up in the VHF and UHF range (as opposed to the HF range of 27 megacycle CB) one found solitude from an over-abundance of chatter, freedom from so-called skip interference (ie. interference from stations half-way across the country), freedom from the major sources of ignition and motor noise and the licensing ability to mount an antenna high and clear.

About that double-edged measuring stick.

You have had a choice, up to now. If you buy Citizens Band equipment you pay little for it (relatively speaking), pay little to keep it going, and take your chances with the 1.2 million other users by sharing

one or more of the 23 allotted channels.

If you buy Business Band FM (or the new AM) equipment, you pay for 200-300 percent more for it than CB, have a measurably higher maintenance and installation fee. But you probably also have relative freedom from other users on the channel, and little chance that skip-transmissions from other parts of the country will interrupt your operating range.

## **Now A Third Choice**

In the past six months a new third choice has come to the foreground.

It is not a perfect service, and it is not a new service. But it does offer a cross between CB and the more expensive high band (or UHF) Business Band radio, at a cost comparable to the citizens service.

We are speaking of the 27 megacycle Business Radio service.

The accompanying chart shows the frequencies available. As you can see, they lie adjacent to or right in the Citizens Service. They do not (with one exception) share any channels with the C.R.S., and they offer the following advantages to the business contemplating two-way communications:

(A) Basic mobile or base unit cost is under \$230.00 in most cases.

(B) Power to 30 watts is permitted for mobile.

(C) Power to 500 watts is permitted for base operations.

(D) It is a segment of the Business Radio Service, which assures you of relative freedom from interference from the CB hobby type users.

(E) Antenna heights to 170 feet (or higher) are permissible, thereby providing the option of much greater range than CB can offer with its 20 foot antenna restrictions.

(F) CB base and mobile antennas, and accessories, work without any modification on these channels. This means you save considerable cash investment by taking advantage of the plentiful and inexpensive CB items available.

(G) Installation is simple and straightforward, identical to CB installations.

## **The Business Radio Service**

Subpart L of the FCC Rules and Regulations have this to say, under section 11.551, about who can apply for a 27 megacycle Business Radio Service license:

(A) Any person engaged in a com-

**APPLICATION FOR RADIO STATION AUTHORIZATION IN THE SAFETY AND SPECIAL RADIO SERVICES**  
 Refer to "Instructions for Completion of FCC Form 400 (March, 1962 Revision)" and FCC Rules Pertaining to Particular Service  
**DETACH WORK SHEET, FILL OUT IN PENCIL, COMPLETE REMAINING SHEETS ON TYPEWRITER AND SUBMIT, WITH CARBONS ATTACHED, TO FEDERAL COMMUNICATIONS COMMISSION, WASHINGTON 25, D. C.**

| FCC Form 400<br>March 1962<br><br>United States of America<br>FEDERAL COMMUNICATIONS COMMISSION<br><br>Form Approved<br>Budget Bureau No. 52-R132.7<br><br>This authorization permits the use of only such transmitters as are specified under "Special Conditions" and those appearing in the Commission's "Radio Equipment List, Part C" and designated for use in the particular radio service named in Item 4(a) of this application.   | <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:70%;">                             4(a). Name of radio service<br/> <b>Business Radio Serv.</b> </td> <td style="width:30%; text-align: center;"> <b>AUTHORIZATION</b><br/>FOR COMMISSION USE ONLY                         </td> </tr> <tr> <td>                             (b). Class of station:<br/>                             Base <input checked="" type="checkbox"/> Mobile <input checked="" type="checkbox"/><br/>                             Other (specify):                         </td> <td style="text-align: center;">                             CALL SIGN<br/><br/>                             FILE NUMBER                         </td> </tr> </table> | 4(a). Name of radio service<br><b>Business Radio Serv.</b> | <b>AUTHORIZATION</b><br>FOR COMMISSION USE ONLY | (b). Class of station:<br>Base <input checked="" type="checkbox"/> Mobile <input checked="" type="checkbox"/><br>Other (specify): | CALL SIGN<br><br>FILE NUMBER                  |   |        |   |   |       |     |     |  |
|---|--|--|---|---|---|---|--------|---|---|-------|-----|-----|--|
| 4(a). Name of radio service<br><b>Business Radio Serv.</b>  | <b>AUTHORIZATION</b><br>FOR COMMISSION USE ONLY  |  |   |   |   |   |        |   |   |       |     |     |  |
| (b). Class of station:<br>Base <input checked="" type="checkbox"/> Mobile <input checked="" type="checkbox"/><br>Other (specify):   | CALL SIGN<br><br>FILE NUMBER   |  |   |   |   |   |        |   |   |       |     |     |  |
| <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th style="width:15%;">1(a). Frequency (Mc)</th> <th colspan="3" style="width:30%;">1(b). No. of transmitters</th> <th style="width:15%;">1(c). Emission</th> <th style="width:15%;">1(d). Maximum permissible power input (watts)</th> </tr> <tr> <td style="text-align: center;">27.265</td> <td style="text-align: center;">1</td> <td style="text-align: center;">5</td> <td style="text-align: center;">Other</td> <td style="text-align: center;">8A3</td> <td style="text-align: center;">180</td> </tr> </table> | 1(a). Frequency (Mc)   | 1(b). No. of transmitters                                  |   |   | 1(c). Emission                                | 1(d). Maximum permissible power input (watts) | 27.265 | 1 | 5 | Other | 8A3 | 180 | 5. If mobile units, or other class of station at temporary locations, are included in this authorization, show area of operation:<br><b>Oklahoma City, Oklahoma &amp; vicinity</b> |
| 1(a). Frequency (Mc)  | 1(b). No. of transmitters  |  |   | 1(c). Emission  | 1(d). Maximum permissible power input (watts) |   |        |   |   |       |     |     |  |
| 27.265  | 1  | 5  | Other   | 8A3   | 180   |   |        |   |   |       |     |     |  |
| 6. Location of control point(s)   |  |  |   |   |   |   |        |   |   |       |     |     |  |
| 7. Overall height above ground of tip of antenna <span style="float: right;">120 feet.</span>   |  |  |   |   |   |   |        |   |   |       |     |     |  |
| FOR COMMISSION USE ONLY<br>Antenna painting and lighting specifications:<br>Special Conditions:   |  |  |   |   |   |   |        |   |   |       |     |     |  |
| 2(a). Name (see instructions)<br><b>John Henry Doe, d/b as Cable TV Co.</b>   |  |  |   |   |   |   |        |   |   |       |     |     |  |
| (b). Mailing address (number, street, city, zone, state)<br><b>P. O. Box 1557<br/>                 Oklahoma City 1<br/>                 Oklahoma</b>  |  |  |   |   |   |   |        |   |   |       |     |     |  |
| 3. Location of transmitter(s) at a fixed location<br>Number and street (or other indication of location)<br><b>1025 N. Broadway</b>   |  |  |   |   |   |   |        |   |   |       |     |     |  |
| City <b>Oklahoma City</b> County <b>Oklahoma</b> State <b>Oklahoma</b><br>Latitude <b>35 28 45</b> N Longitude <b>97 31 65</b> W  |  |  |   |   |   |   |        |   |   |       |     |     |  |

|  |   |
|--|---|
| 8. Is applicant a representative of an alien or of a foreign government? If answer is "Yes", explain on the reverse of this page. Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>  | 16(a) Application for: (Check one)<br>New station <input checked="" type="checkbox"/> Assignment of authorization <input type="checkbox"/><br>Modification <input type="checkbox"/><br>Reinstatement of expired authorization <input type="checkbox"/> License to cover CP <input type="checkbox"/><br>(b) If for modification, state modification proposed |
| 9. State whether applicant is (Check one)<br>Individual <input type="checkbox"/> Partnership <input type="checkbox"/> Association <input type="checkbox"/> Corporation <input checked="" type="checkbox"/> Governmental Entity <input type="checkbox"/><br>(If applicant is a non-governmental corporation fill out Item 19; if an unincorporated association fill out Item 20, on the reverse side of this page.) | FOR COMMISSION USE ONLY   |
| 10. If applicant is an individual, is applicant a citizen of the United States? Yes <input type="checkbox"/> No <input type="checkbox"/><br>If applicant is a partnership, are all partners citizens of the United States? Yes <input type="checkbox"/> No <input type="checkbox"/>  | (c) If this application refers to a presently authorized station, give call sign<br>(d) Give points of communication (call signs)   |
| 11. Is communication service to be received from or rendered to another person (see instructions)? If "Yes", name of person is Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>   | (e) Are you presently authorized for any other stations in the service indicated in Item 4(a)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>  |
| 12(a) Will applicant own the radio equipment? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/><br>If answer is "No", give name of owner   | 17. If antenna will be mounted on an existing antenna structure (a) Give name of a licensee using this structure, his call sign and radio service and the current painting and lighting specifications required by the Commission for this antenna structure.   |
| (b) Will applicant have unlimited access to the equipment and will effective measures be taken to prevent use of the radio equipment by unauthorized persons? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>  | (b) If your proposed antenna will increase the height of the existing structure, give overall height above ground of the tip of the proposed antenna structure.   |
| 13. Attach functional system diagram showing details of proposed radio system and include such other supplementary data as required by specific rules.   | 18(a) Will the antenna extend more than 20 feet above the ground or natural formation, or more than 20 feet above an existing man-made structure (other than an antenna structure) on which it will be mounted? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>   |
| 14. If it is proposed to use a transmitter which does not appear on the Commission's "Radio Equipment List, Part C" or if the transmitter is listed but not designated for use in the particular radio service named in Item 4(a) of this application, describe such transmitter in detail. (See Instructions)   | (b) Give height above ground for each component of the antenna structure (antenna, pole, tower, water tower, mast, building, chimney, etc., or combination of these) <b>Tower-100', Ant. 20'</b>  |
| 15. Statement of eligibility<br><b>Applicant desires to communicate with service and installation vehicles while they are servicing CATV system in area named above.</b><br><i>(Use space on the reverse of this page)</i>   | (c) Distance and direction to nearest aircraft landing area <b>9 mi. SW</b><br>(d) Elevation of ground above mean sea level at antenna site <b>1,140</b> feet.  |

All the statements made in the application and attached exhibits (to \_\_\_\_\_, inclusive) are considered material representations, and all the exhibits are a material part hereof and are incorporated herein as if set out in full in the application.  
 The applicant certifies that he has a current copy of the Commission's Rules governing the radio service named in Item 4(a) above.  
 The applicant waives any claim to the use of any particular frequency or of the ether or against the regulatory power of the United States because of the previous use of the name, whether by license or otherwise, and requests an authorization in accordance with this application.  
 The statements in this application are true, complete, and correct to the best of my knowledge and belief and are made in good faith.

**APPLICATION MUST BE SIGNED AND DATED**

Cable TV Company 10-1-63  
 Applicant (Must agree with name as shown in Item 2(a)). (Date)

By \_\_\_\_\_ (Designate appropriate classification below)

Individual Applicant  
 Member of Applicant Partnership  
 Officer of Applicant Corporation or Officer and Member of Applicant Association  
 Official of Governmental Entity Competent under the Jurisdiction to Sign for the Applicant.

WILLFUL FALSE STATEMENTS MADE ON THIS FORM ARE PUNISHABLE BY FINE OR IMPRISONMENT. U.S. CODE, TITLE 18, SECTION 1001.

(OVER)

mercial activity.

That should cover you.

There are others who qualify, such as clergymen, hospitals, clinics, etc., but it's not likely we are dealing with this type of user in this publication.

OK — so you have a commercial activity, have a need for communications and have decided that \$400-600 FM equipment is too expensive and \$200 CB equipment doesn't offer you the privacy that you seek.

What do you get for \$200 in the Business Radio Service, and where and how do you get it?

A little later on we'll go over the results of a four week testing program conducted with the Sonar Radio Corporation BR-20 (14 watt) Business Radio Service set.

FCC form 400 is used to file for a Business Radio Service license. On form 400 (copies are available by contacting the Secretary, Federal Communications Commission, Washington 25, D.C.) you are presented with the following applicable questions:

**Question 1a** — Refers to the frequency on which you wish to operate (see table one). It is usually best to check with a local two-way shop, if there is one, about the relative use (if any) of the suggested frequencies in Table One. Chances are excellent that most of these channels have no activity or occupancy at all in your area.

**TABLE ONE**

|        |          |
|--------|----------|
| 27.245 | .....(a) |
| 27.255 | .....(a) |
| 27.265 | .....(a) |
| 27.410 | .....(b) |
| 27.430 | .....(c) |
| 27.450 | .....(c) |
| 27.470 | .....(c) |

(a) channels are limited to 30 watts input. (b) channel allows up to 500 watts input, base. (c) channels allow up to 180 watts input.

**Question 1b** — Refers to number of base units. A base unit is the unit or units operating at a fixed location, such as your office. Usually there will be just one.

**Question 1b** — Refers to the number of mobile units. The Business Radio Service also allows operation of 2/10th watt hand-held transceivers (walkie-talkies) in conjunction with your system. They are classified as mobile stations. The Commission asks that you anticipate your needs for at least 8

months in advance and you may request either more mobile or base stations (under items 1c and 1b respectively) than you immediately plan on putting into service.

**Question 1c** — Type of emission. In the 27 megacycle Business Radio Service channels, you are limited to AM (8A3) emission. Fill in 8A3.

**Question 1d** — Refers to maximum power input you intend to operate with. If you pick a 30 watt channel (see table one), this should read 30 watts. If you pick a 180 watt channel, this should read 180 watts. If you choose a 500 watt channel, this should read 500 watts. However, you are not required to operate with the (maximum) power requested. In fact, you are requested to utilize only the amount of power necessary to maintain communications in your service area, and no more.

**Question 2a** — Your name and your company's name. Your name not required if your firm is incorporated.

**Question 2b** — Your mailing address.

**Question 3** — Your actual street address including the county, and the geographic coordinates to the nearest second where the base transmitter will be located.

**Question 4a** — Fill in Business Radio Service.

**Question 4b** — Unless all units will be installed in mobiles, check both boxes (mobile and base).

**Question 5** — Describe area of operation of the mobile units, such as the name of your county, city, town, or simply state "in and around Oklahoma City, Oklahoma."

**Question 6** — Not applicable unless you plan to remotely control your base station.

**Question 7** — Asks the height of the top of the proposed base station transmitting antenna.

**Question 8** — Asks if you are an alien or represent a foreign government. It is best that you are not or do not.

**Question 9** — Asks if you are an individual, partnership, etc.

**Question 10** — Are you a citizen?

**Question 12** — Are you going to go into two-way communications for hire, or buy your two-way service from an existing two-way communications supplier?

**Question 12** — Will you own the equipment?

**Question 13** — Attachment of specific diagram not required by Business Radio Service rules and regulations.

**Question 14** — If the equipment

you propose to utilize is not FCC type approved list (most if not all equipment available commercially is, including the three units mentioned later here are), tell them all about the equipment you propose to use. This is a sticky one and it is best that you simply use type approved equipment.

**Question 15** — Very important. How will you use your proposed system? Stick to the essentials, boil it down to fit the space or forward over on the back of the form. They don't want to know all of the intricate details, simply that you have a legitimate need and do in fact qualify for the service.

**Question 16** — Check new station, and 'no' under (e).

**Question 17** — Unless you are going to mount the Business Radio Service antenna on a tower already covered under an existing license (such as microwave, amateur, etc.) leave this blank.

**Question 18a** — Unless you are going to mount the antenna (base) right on top of your existing building (not on an existing receiving antenna tower), you will need to answer this one yes.

**Question 18b** — Asks what the height of each component part of your base station antenna system will be.

**Question 18c** — How far (and which direction) is the nearest aircraft landing area?

**Question 18d** — What is your mean elevation above sea level?

**Bottom of form** — Duplicate under applicant the name entered under line 2 (a), date the application. Sign it in pen, and note the status of the person signing the application (member of applicant partnership, etc.).

**Reverse side of form** — Question 19 applies if you are non-government corporation, which you probably are. It is self explanatory and you should have no trouble.

Question 20 refers to un-incorporated associations and refers to the alien/non-alien status of its members.

#### Report On A 27.265 Mc System

This is a report on a four week trial system set up by Horizons for the purpose of ascertaining editorial information for this report.

The system consists of one base station and a mobile unit located on a single frequency, 27.265 megacycles.

The base station antenna is 52 feet overall height, hardly one of

Continued on Page 30

# How to Reduce CATV System Losses

— A staff extra —

A continuing loss that every CATV system suffers, stems from the system subscribers that won't pay their bills. Multiply this yearly loss by first one system and then by 500 systems. The staggering total would allow anybody to retire in luxury for life.

The sustained loss from non-paying subscribers is something more than just the loss of a little revenue, usually amounting to approximately a two month's bill. The loss is one that is compounded from the day the subscriber was hooked-up. Look at the costs involved. Someone had to sign-up the subscriber and set up the book work to keep track of the account. A crew had to install a tap, drop-line, matching transformer and answer the questions of the newly connected customer. But, isn't this an accepted cost of doing business? Go on now and add up the rest of the figures.

Most operators will always give a person a chance to make a delinquent bill good. Usually if a customer has not paid promptly, a second statement is sent out reminding them that the bill is overdue. In the case of the system that uses the coupon book, a statement is prepared in triplicate and a first notice is sent out when a subscriber becomes delinquent. Here is where the loss begins. It costs money to send a statement. Clerical personnel had to prepare the statement (labor cost) and there is the cost of mailing. If the subscriber still does not pay after a reasonable length of time a third notice is sent telling them that unless a remittance is received within 5-days they will be disconnected. Using the coupon system, two non-payment notices are sent before the 5-day disconnect notice.

Carrying this all the way, let's say that the last notice didn't do any good so it becomes necessary to send out a man to make the disconnect. Many systems have the person who is to make the disconnect, call on the subscriber in an attempt to collect the amount due and avoid taking them off the system. When this fails, a subscriber is lost and so is a fair sum of money.

How much can be lost on just one subscriber? **F**irst, consideration must be given to the labor costs. An employee had to make out all three of the statements and mail them. A technician had to drive to the subscriber's residence and after failing to convince them that the obligation should be paid, discon-

nected the tap. Next comes the loss due to the time delay between the statements and the disconnect. This loss will vary based on the accounting practices. It can range from 45-days to as high as 90-days. All this time the CATV system has been providing a reliable service to this delinquent subscriber. So what is the total loss? It could be as high as \$12 to \$18.00.

## **Be Firm With The Subscriber**

Stopping losses that are caused by people that just don't pay their bills is a job that falls in a broad category. Starting with the sales force, it is a part of their job to explain your policy to the subscriber during the initial contact. Also the salesman should impress upon the subscriber that you are charging a nominal fee which is so cheap compared to the value received and the cost of getting the television signal to them that it requires prompt payment on their part. If this point isn't stressed, people tend to take the line of least resistance. They are prone to feel that your service is something they don't have to have and "we can slide on this" if you haven't taken the time to make it clear that this service may not be here if it isn't paid for promptly.

It is also the responsibility of the salesman to weigh a lot of factors and determine, in his own mind, whether the subscriber looks like a good risk. His evaluation will be important although it won't eliminate all the bad risks. The salesman should keep uppermost in his mind, a thought like this, "I am selling a valuable commodity, is it going to be paid for." Besides a little personal judgement, it is always

worthwhile to take a deposit or credit information that can easily be substantiated. Asking for a credit report isn't profitable because of the costs involved and still doesn't guarantee that the service will be paid for.

## **Judging the Potential Subscriber**

A particularly good yardstick that the salesman can use to judge a potential subscriber is as follows:

- (a) How long have these people lived in the particular area?
- (b) How long have they owned their home?
- (c) How many in the family?
- (d) Are they well established in the community?

Certainly many of the above questions can be answered without resorting to direct questioning. Simple queries by the salesman will usually do the trick. He could comment to the potential subscriber, "I see you have some children." "Did you just move into this area?" These are all perfectly fair questions and no one is likely to object. This very little effort will help amazingly to cut down on the number of non-payers. It isn't a magical solution, though, since you'll run into a few bad ones now and then.

Generally speaking, if a man has pretty well settled into an area, your risk is low. Now if the salesman went into some sections of town where there are a number of renters, lower income brackets, then he must be much more alert and analyze carefully as he is selling. You just can't request credit reports on everybody due to cost. This is a volume versus loss problem and of course that again is a management headache.

## Credit Reports Cost

If you hooked up say 500 in an area and found after a six months period that maybe 20 weren't paying this would have to be attributed to getting started and the delinquent 20 should be cut off. In time the process of elimination would take care of those that are not paying. But, remember this loss is almost an expense of getting set up versus buying credit reports. But, let's assume that 20 people didn't pay and this amounted to a moderate loss of \$100. Twenty credit reports would have cost you about 20% of this figure besides your clerical time involved. This could conceivably bring your total bill to 30%. Multiply this figure by the number of subscribers and there goes a whale of a lot of money.

One of the best company policies, and this falls on the shoulders of the management staff, is to insist on deposits where doubt exists and particularly in the case of renters. A good enough salesman shouldn't have any trouble selling this idea and the deposit is going to reduce the possibility of a loss. Incidentally, the deposit requirement should be backed up by an iron-clad set of rules so that the subscriber doesn't raise a fuss when he learns that his next-door neighbor didn't have to make a deposit.

The problems that might crop up due to a deposit criteria are really small compared to the disadvantages of hooking-up without one. Look at the size of the average bill. Certainly anyone would agree that it won't merit extensive collection methods, for instance, to make a file and to follow up with just two or three contacts will cause more money to be absorbed than the amount involved.

Why has much of the emphasis up to this point been on the sales tactics?

This is a pretty simple question to answer. Your salesman is the one key man in the company who has direct contact with the subscriber and has the opportunity to judge, on your behalf, the amount of risk involved. Well informed salesman will cut your loss.

## Collecting Bad Accounts

Assuming now that you are going to have some bad accounts, what is the best way to recover or collect your money? This is generally a very disagreeable subject where there are many varying opinions. Remember, a loss is just that and extra wheel-spinning in an

effort to recover a small bill will only increase your loss. About the most accepted method of collecting a small bill with a minimum of cost is by direct mail. It won't be as effective, of course, as a personal contact or telephone work but again you are not dealing with enough money to really have an effective collection procedure.

In contacting a delinquent subscriber by direct mail in an effort to get back some of the money justly due you, after this subscriber has been disconnected, it is best to get right down to case facts and state your position. Realize, though, that most people are likely to have the impression that you aren't going to go to a lot of trouble to collect a small bill. This is the point where some strong language will be needed to convince them that you mean business. Therefore, a letter to a delinquent subscriber should say that due to non-payment and after fair notice, it was necessary to disconnect them. The letter should go on to say, since there has been no payment on the outstanding balance after they had been disconnected you are going to refer their account to a collection service or an attorney. Many people will let things get this far before they pay unless they are the habitual non-payer. Most people don't want to be turned to a collection agency or an attorney.

If one letter does not produce satisfactory results with some of the non-payers you should resort to the collection company method. This method involves the use of a second letter that tells the delinquent subscriber that he is being turned over to a collection agency immediately. If a second letter does not get the job done then this is the point at which you should stop. To go farther for such a small amount would be totally impractical.

When a delinquent account reaches this stage, you can do only one logical thing. Turn the bill over to a collection agency. This is only a salvage proposition. Generally it is going to cost you 50% to have a collection agency or attorney handle a small bill.

## Get Tough

Going back to the second letter sent to a delinquent account you might accept the fact that when it gets this far you most likely are dealing with the habitual. The habitual is just simply the man who doesn't pay any of his bills that he

doesn't absolutely have to. This is not to infer that they all will fall in this category. There will always be some hard-luck cases. Bearing in mind the habitual, the wording of the second letter will be very important. It should read like this:

"Mr. Doe, you subscribed to this service, you are working, you know the laws of this state regarding the non-payment of bills and if you don't clear this obligation by \_\_\_\_\_, necessary action will be taken to force payment of this long due balance. We expect payment by the above date. Our delinquent accounts are processed by \_\_\_\_\_ Collection Agency."

This all might sound a little bit stiff but it is the only way to effectively handle the situation.

If you do elect to handle your own collections there is one good point to remember. Good will is an important aspect when dealing with debtors. After all, you have spent many dollars in advertising and promoting your service to create good will. Making a collection or disconnecting a subscriber is always an unpleasant task to anyone but when it does become necessary, do it in a friendly, business-like manner. In fact it would be advisable to let the company employed salesman do the actual work since collecting is a sales job.

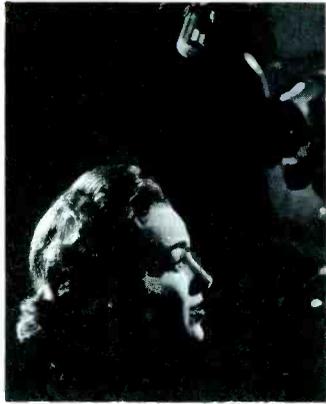
To summarize, remember it is important to:

- (a) Do a good job of selling your service. Tell the subscriber that it is important and imperative that his bill be paid promptly as shown.
- (b) Either make it a policy to obtain a deposit when initially signing up a subscriber or take a deposit when in doubt. If because of this practice a salesman loses a few sales, it would probably be those sales that you aren't going to collect on.
- (c) Waste little time trying to collect a delinquent account. Use just the two letter method and no more. From there on it becomes the job of a professional collection agency.

In the final analysis, there simply is no miracle way of collecting money. Nor, is there any way to eliminate the non-payer. Give your sales programs plenty of attention and make sure your sales staff realizes that one of the best ways to keep from losing money in the CATV business is to do a good sales job at the start.

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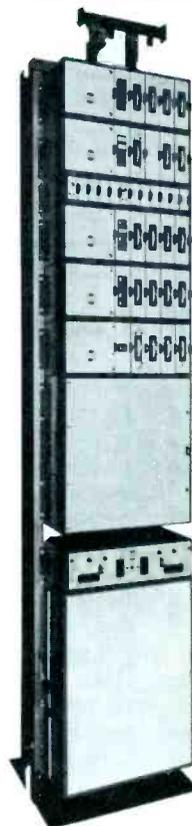
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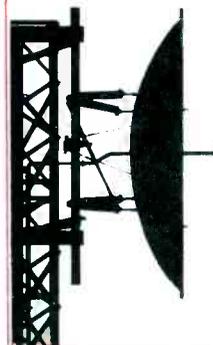
| FREQUENCY        | POWER  | IF BANDWIDTH |
|------------------|--------|--------------|
| 5925 to 8400 mc  | 100 mw | 15-25 mc     |
|                  | 1 w    | 15-25 mc     |
|                  | 5 w    | 15-25 mc     |
| 10,700-13,200 mc | 50 mw  | 15-25 mc     |
|                  | 500 mw | 15-25 mc     |



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# Non-Broadcast Interests Defeated On Instructional Television Proposal

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The FCC turned a deaf ear to petitions asking it to stay the Sept. 9 effective date of its late July action establishing a new Instructional Television Fixed Service on channels in the 2500-2690 megacycle private microwave band to transmit instructional and cultural material, mainly to schools.

The American Petroleum Institute's Central Committee on Communication Facilities had scored the Commission for its "cavalier" dismissal of "nonbroadcast interests" in its decision as to set up the new TV service in the private microwave band. The agency, in proposal rulemaking in the matter, had alternatively proposed that the new service make use of frequencies in the 1990-2110 mc band,

which is shared by television studio-transmitter-link and TV intercity relay stations.

The National Committee for Utilities Radio also strongly criticized the FCC for not selecting the latter band as the home for the new service, particularly since "the new service is in the nature of a supplement to educational television broadcasting."

Both the petroleum and power communications organizations had accompanied their petitions for a "stay" of the report and order in the case with petitions for "reconsideration" of the action, and a reversal of the decision, to preserve the 2500-2690 mc band for private microwave systems.

In its decision denying the re-

quests for a "stay," the Commission said it would take up the requests for reconsideration "subsequently," but held out little hope that it would change its mind. The agency, in fact, said it "is not likely" that the petroleum and power radio service requests for reversal will "succeed," since the petitions "have raised no matters which were not considered by the Commission at the time of the adoption of its report and order."

## KEY ISSUES

In its petition for reconsideration, the API committee declared that the "only opposition" to use of the 1990-2110 mc band for the new service "came from broadcast interests which share the band for auxiliary broadcast functions," and, "It would have been equally valid for the Commission to have opened the 1990-2110 mc band for the new service because of the opposition of the nonbroadcast interests to the use of the 2500-2690 mc band by the new service."

The Central Committee said it "wants to make it perfectly clear that it is not opposed to the creation of the new instructional television fixed service," but rather its "concern is with the frequency which the Commission has provided for licensees in this service," and because of the "adverse effect opening the 2500-2690 mc band will have on petroleum radio service licensees."

"In this regard," it said, "we object to the Commission's 'freeze' on further access by operational fixed users to the 2500-2690 mc band for at least a three-year period and, thereafter, to a possible total exclusion on a permanent basis from access to such band by operational fixed users." The committee said it views the "freeze" as "merely an interim step to the ultimate removal of all operational fixed users from this band."

Scoring the Commission's reference to the 2500-2690 mc band as being "only lightly used" by private microwave systems, the petroleum group declared that the prin-

### How New Instructional TV Service Affects CATV

Admittedly CATV is going to feel the impact of the new ETV service in the 2500 Mc band. The educator will want to take time to fully explore and evaluate the possibilities of having a "private system" and will probably balk at considering anything else for a period of time. This is only natural since considerable publicity has been given to boost the status of the new service.

For the educator, the new ETV service is bound to appear as a way to supplement an already teacher-short staff, due to cost versus the number of available channels that may be employed. Also, the educator may feel there is a distinct advantage in having an entirely school-system controlled and operated ETV system.

What can CATV then offer? Discussions with local school officials might be fruitful if cost is the subject of the meetings. Much will have to depend upon the merits of the two different services, private ETV via the airwaves or cable. An ideal service for the educator

would be one that is tied directly to the use of a private wired-system and an interconnection with a local CATV system. In this manner the educator has the flexibility he needs.

A very important point lies in the ability of the CATV system to provide ETV programming from other communities that normally cannot be received in the local area. It is recognized that the curriculum differs from area or community to community. However, there is always special programming available that is of extreme value to the student and educator and there are many subjects taught via ETV that are of universal acceptance.

The new instructional TV service should not affect a proposal to wire schools for TV distribution. The entire concept of 2500 Mc ETV is based upon a central reception point at a school and the conversion of this signal to a normal television channel that can readily be distributed to the school-rooms.

cipal reason for such light use is that the FCC has failed to set the stage properly for more intensive development by adopting rules for regular use of the band by operational fixed users, or setting "definite standards" for use of the band. The latter reference, it said, is with regard to "the types of sharing of private microwave facilities that will be allowed."

Failure of the Commission to adopt regular rules for the band, it said, "has had a very serious effect on many potential applicants for operational fixed frequencies who, in the absence of definitive Commission rules regarding private microwave, have relied on leased private line services from the common carriers, such as the Telpak service."

"If this trend continues," the committee said, it "fears that other operational fixed bands will also be targeted by other interests. Should reallocations then be made, private microwave users will face a severe spectrum shortage," and, "Once this happens, the ability of a prospective user to have a practical and realistic choice between private facilities and leased private line facilities will be either severely compromised or totally eliminated."

The Central Committee declared that it is not "logical for the new instructional television fixed service to have access to the very limited spectrum space allocated to operational fixed microwave when there is a vast amount of UHF space already allocated for television purposes which lies virtually unused. . . . The Commission has really given no valid reason why the new service could not utilize channels in the UHF-TV portion of the spectrum. . . . An analysis of the allocation of the upper UHF-TV channels . . . clearly indicates a wasteful and unrealistic utilization of this part of the spectrum."

NCUR's petition pointed out that the "primary basis" for the FCC's decision to put the new service in the 2500-2690 mc band was the agency's "belief that the new service can be implemented with the least disruption to existing operations, and that (2500-2690 mc) being a wider band" than 1990-2110 mc, "will provide opportunity for 31 television channels as opposed to 20 in the lower band, thus meeting the 'criteria' for expansion of the new service."

If the FCC will seriously consider the information it has before it, the committee said, "the Commis-

## WHY NOT USE THE 2000 MEGACYCLE BAND?

In the original proposals for the new instructional television service, it was suggested that the 1990 to 2110 Mc band be used instead of the 2500 to 2690 Mc band. The points in favor of the 1990 to 2110 Mc band included such things as: equipment was presently available for operation at these frequencies and not for the other band; various antennas were available whereas there were only parabolic antennas on the market for 2500 to 2690 Mc; the cost of the equipment was higher for the 2500 Mc band because of the necessity to use special circuits and vacuum tubes.

Development was a prime consideration in proposing the 2000 Mc band in lieu of 2500 Mc also. Little work had been done with 2500 Mc equipment other than that given to producing the best quality (and expensive) microwave-type in-

stallations. It was pointed out at the time that if educators were to use this mode of ETV they would have to have inexpensive equipment which could be produced for the 2000 Mc band. If equipment were to be manufactured for the 2500 Mc band then there would be necessary delays until some cheaper equipment (cost-wise) could be produced. It was also continually emphasized that since there was a need for the service at the time of the proposal, delays would not be in the public interest.

Still another reason that was given in the original hearing concerned the existing occupants of both the 2000 Mc and 2500 Mc band. It was brought out that STL's were now using the 2000 Mc band for television relay purposes whereas the 2500 Mc band was used by industrial groups for communications purposes.

sion will find that there is no basis in fact or reason, in the record of this proceeding, for the decision to make the 2500-2690 mc band available for use by the new educational service." The agency, itself, NCUR said, has recognized that "there are a number of technical advantages to the use of the 1990-2110 mc band for this purpose," and that the band "offers the prospect of meeting all of the reasonable requirements of educators."

The FCC's decision denying the API and NCUR requests for "stay" was taken by a 6-1 vote of the Commissioners, with Commissioner Robert T. Bartley dissenting. Mr. Bartley, the agency said, was of the opinion that the Commission should "stay" the Sept. 9 date of its decision, as a matter of independent FCC action.

The majority opinion, however, said "The criteria for judging whether a stay should be issued are (1) that petitioner show that failure to grant a stay will result in irreparable injury to the public or to petitioner's interest, and (2) that petitioner shows a reasonable likelihood of success on the merits of its petition for reconsideration," and "In their petitions to stay, neither petitioner makes any allegations of irreparable injury to the public or to its own interests."

Without referring to its three-year "freeze" imposed on new private microwave licensees as far as the 2500-2690 mc band is concerned, the Commission hedged that "a reallocation of the band from the operational fixed service to instructional television is not being enacted at this time." Existing licensees, it noted, "are permitted to continue to operate as at present and modification or expansion of existing systems will be permitted."

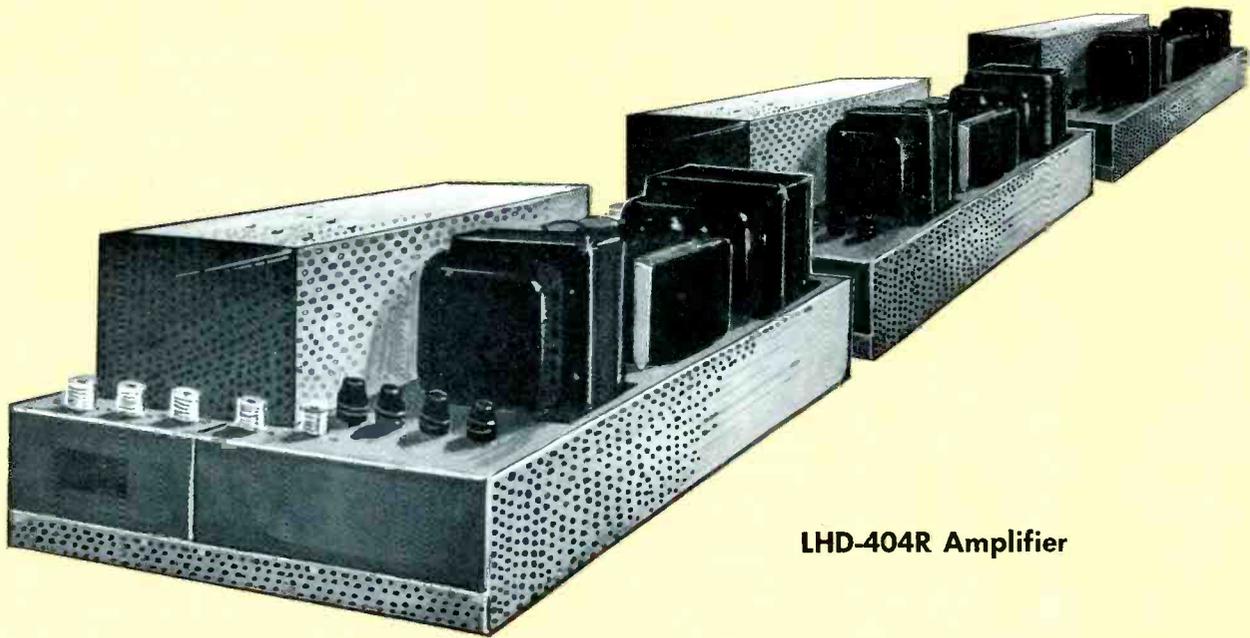
"At the present time," the FCC said, "there are no licensees in the new instructional television service, and the fact that the amended rules make provision for future licensing of stations in the new service does not furnish the basis for the issuance of a stay in the absence of a showing that either the public or petitioners' interests will be irreparably injured."

Formal pleadings in connection with the new instructional television fixed service meanwhile, have also been filed with the FCC by the Central Station Electrical Protection Association and Adler Electronics, Inc.

CSEPA asked the agency for "partial reconsideration" of its decision in the case so as to include "the members of the protective

*Continued on Page 29*

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# Subscription Television Slated For West Coast

The West Coast, primarily Los Angeles and San Francisco, may soon become the recipients of a subscription television system if the efforts of Subscription Television, Inc., are realized. Subscription Television, Inc., referred to as "STV," is backed by a number of organizations and individuals that are well known to the business world. These include Lear Siegler, Inc.; The Reuben H. Donnelley Corporation; Tolvision of America, Inc.; Los Angeles Dodgers, Inc.; National Exhibition Company, (San Francisco Giants); and William R. Staats & Co., West Coast brokerage firm.

This disclosure was made in the form of a preliminary prospectus dated August 22, 1963 which is the date the prospectus was filed with the Securities and Exchange Commission. According to the preliminary prospectus, STV intends to offer programming that is similar to that offered by some of the firms now conducting experimental Pay-TV tests. This includes movies, sporting events, special attractions and cultural features.

The transmission of the programming is reportedly going to be via coaxial cable networks that will be leased from the local telephone companies. The equipment to be used in the Pay-TV effort is a development of Skiatron Electronics and Television Corporation. The subscriber's unit (program selector) connects to the coaxial cable drop and to the antenna terminals of the television set. This selector will let the subscriber choose one of three subscription channels or music supplied by STV. Charges for the STV service are expected to include a \$10 deposit or installation fee and a minimum \$1 per week

basic fee. The STV subscriber will pay for the programs in addition to the basic fees.

There are a number of contracts already consummated, according to the preliminary prospectus, two of them involve the San Francisco Giants and the Los Angeles Dodgers. In the case of the Giants, STV is supposed to have exclusive rights to all National League regular season games played by the Giants, other than games played in Los Angeles with the Dodgers prior to July 1, 1964. Additionally, STV is expected to telecast some of the games in color. STV's agreement with the Los Angeles Dodgers is essentially the same as with the Giants. In both cases, STV has given the clubs the option to cancel if the company is not ready to begin its operation on July 1, 1964 with a minimum of 20,000 subscribers. As an alternative to cancellation, STV has taken the option to pay stiff penalty fees.

Subscription Television, Inc., formed on January 7, 1963 under Delaware law, is shooting for a figure of 20,000 subscribers in both Los Angeles and San Francisco by July 1, 1964. To accomplish this feat, STV has made arrangements with two large telephone companies in California, Pacific Telephone and Telegraph Company and General Telephone Company, for engineering evaluation of the areas involved. As reported in the preliminary prospectus, no contracts have been signed or any installation made of coaxial cable.

The promotion of the STV system is to be handled entirely by The Reuben H. Donnelley Corporation, a subsidiary of Dun & Bradstreet, Inc. Also, this company will handle the creation and operation

of the business offices for STV and according to the preliminary prospectus, will handle customer contracts, service orders, etc.

An interesting sidelight to the STV venture is the hiring of Mr. Sol Hurok for \$10,000 per month plus 1/2 of 1 percent of the program charges collected by STV.

In the registration statement filed with the Securities and Exchange Commission, STV is proposing to finance the huge project by the sale of 2,200,000 shares of Common Stock. 1,900,000 shares of stock will be made available to the public at \$12.00 per share. The remaining 300,000 shares are slated to be purchased by some of the present stockholders. The 1.9 million shares issued to the public will constitute 53.8% of the Common Stock.

The balance of the stock, constituting 46.2% will be held by The Reuben H. Donnelley Corporation, 7.1% Lear Siegler, Inc., 7.1%; William R. Staats & Co., 1.3%; Donald A. Petrie, 0.3%; National Exhibition Company, 1.5%; Los Angeles Dodgers, Inc., 2.0%; Donald D. Harrington, 2.1%; N. B. Hunt, 5.2%; Caroline Hunt Trust Estate, 1.4%; Draper, Gaither & Anderson, 0.3%; William P. Lear, 1.6%; Tolvision of America, Inc., 15.7%; R.A.L. Investment Company, 0.3%; Lansall Corporation, 0.3%. The 15.7% interest that Tolvision of America, Inc. holds will be held in escrow with The Chase Manhattan Bank. All the above percentages shown are based upon the sale of the shares described in the preliminary prospectus.

Temporarily, STV is being directed by an executive committee. Those serving on this committee are Donald A. Petrie, John J. Burke, Matthew M. Fox, Donald Royce, and James L. Stoltzfus.

A later preliminary prospectus, dated August 28, 1963, revealed that STV is negotiating with Home Entertainment Company of America, Inc. Nothing specific has been arranged, according to the prospectus of the 28th STV's interest in Home Entertainment Company of America, Inc., was based on the adaptability of the system to small communities at a lower initial cost than that of the STV system.

It was also noted that STV not only intends to operate in the Los Angeles and San Francisco areas but plans operations in other large city areas, through operating subsidiaries, providing funds can be acquired.

## THE NATIONAL CONFERENCES OF FCCA AND APCO

On July 16-19, 1963, delegates representing Forestry Conservation and Fish and Game agencies throughout the United States gathered at the Executive Inn at Dallas, Texas to listen to a number of technical papers, a report by FCC Public Safety Division Chief, John J. McCue and to make changes in the operation of the group. Also on the agenda was the election of officers for the year 1964 and a report on the activities of the Public Safety Communications Council.

Max Guiberson, State of Washington Department of Natural Resources, a past president of FCCA and presently Chairman of PSCC, explained to the members, the activities of PSCC including the recently established procedure for frequency advisement to applicants in the Local Government Radio Service.

Harvey O. Platt, Director of Communications Riverside County, Calif., and President of the Associated Public Safety Communications Officers had been invited by Forestry Conservation Communications Association President, Fred G. Waters, to attend and address the meeting. Mr. Waters of the State of Arkansas, Division of Forestry will remain as President until January 2, 1964 when he will be succeeded by R. O. Klemetti of the State of Michigan, Department of Conservation.

One of the big changes by FCCA was dropping of the year by year change of the chairmanship of the committee providing for frequency coordination. Under the reorganized procedure, Raymond M. Littlejohn, Communications Engineer, State of South Carolina Commission of Forestry was named permanent Chairman of its Radio Committee. Mr. Littlejohn is a past president of FCCA. The change was made in recognition of the need for an established and permanent office for handling frequency matters.

Also adopted at the meeting was a plan to study the usage of frequencies assigned to the Forestry-Conservation Radio Service throughout the United States, with the intent of developing means for possible relief of frequency congestion in other services on a basis of geographical sharing in areas where such use is technically feasible.

Four weeks later the National Conference of the Associated Public-Safety Communication Officers took place in Minneapolis, Minn. The Officers and Executive Committee started their deliberations on Sunday, August 11, 1963, two days prior to the official

# Our Man in Public Safety Communications

By Robert E. Brooking



opening of the Conference.

On Monday August 12, 1963, several other committees met including the recently established National Frequency Advisory Committee. This committee is composed of the Chairmen of the various Chapter Frequency Advisory Committees with William Gamble of Pittsburgh, Pa. serving as National Chairman. John J. McCue attended as a representative of the Federal Communications Commission. The first item discussed was the new procedure for the coordination of applications for frequencies in the Local Government Radio Service which became effective May 1, 1963.

There had been some misunderstandings on how the new procedure worked and Mr. McCue explained that since no one group represented all users and since Local Government frequencies were available to all users or potential users within government entities, it was necessary that all frequency advisory committees in the area affected by an application be contacted for approval. He added that there had been some complications, largely due to misunderstandings which could be solved if those present would pass the information along to the others active in frequency advisory work. In addition Mr. McCue pointed out that he would explain the new procedure to those in attendance at the national meetings of the various public safety groups.

Turning to another subject, that of getting the Commission to recognize the efforts of the Frequency Advisory Committees to limit base station transmitter powers and antenna heights, inquiries were made of Mr. McCue concerning reports that the Commission was considering changes to its rules to make this possible. Three years ago at the APCO Conference in Philadelphia a proposal had been made that Frequency Advisory Committees include limitations on antenna height and effective radiated power with their recommendations, and that the Commission recognize these recommendations by including such

conditions in the instrument of authorization. Mr. McCue replied that the Commission will shortly announce a Rule Making Proceeding to amend its rules to include transmitter power input and antenna height instead of the blanket 500 watts or 600 watts as at present. In addition a new frequency letter would be required for an increase in power, or antenna height or a change in geographical location.

Mr. McCue then added that unless new rules were added to Part 10 after October 31, 1963 a Special Emergency Radio Service applicant could obtain a frequency within 30 kc or 15 kc and 75 miles of a licensee in the Police Radio Service without any coordination. In reply to questions from committee members, Mr. McCue suggested filing a petition for necessary changes in the Rules. The Frequency Advisory Committee requested that such a petition be prepared by the Public Safety Committee for filing by the APCO Counsel.

On the morning of August 13, the Conference formally opened with a Breakfast Session. Leo Smith, Chief of the Minnesota Highway Patrol made the welcoming address. At 11:00 A.M. the Business Session began with an outline of the Conference Objectives by President Harvey Platt. President Platt then introduced Fred G. Waters, President of FCCA who told the gathering that the problems facing APCO were not unique to that organization FCCA also faces many of the same problems.

The Afternoon Session was opened with Annual Reports by the President and Secretary-Treasurer. The Treasurer's report substantiated the fact that if APCO intended to continue its present activities on behalf of the Public Safety licensees, its income must increase.

During Wednesday a number of excellent Technical Papers were presented. Mr. McCue told the general membership many of the things which had been covered in the Monday meeting with the National Frequency

*Continued on Next Page*

## Our Man in Public Safety Continued from Page 21

Advisory Committee. He also reported on the various Dockets currently pending and stated that he had hoped to have a Report and Order from the Commission of Docket 14503. However, it now appeared that this would not be available until September. He reported that the EIA card study would reveal some unused frequencies in the Police Radio Service; for example there were four 150 Mc frequencies not used anywhere in the country.

In a Technical Paper the following morning, Mr. William J. Weisz stated that the EIA card study will show channels to be vacant but it will not show that they are 15 kc splits adjacent to heavily loaded Police primary frequencies. Obviously, these frequencies are not useable in the large metropolitan areas without creating interference to existing licensees and in sparsely populated areas they are not needed. In other words, 15 kc splits cannot be used without geographical separation.



Shown here are Fred G. Waters, president of FCCA and Harvey O. Platt, president of APCO.

Election of Officers completed the morning's activities with Captain Frank Campbell, Indianapolis Police Dept., elected President; J. R. Bowers, Missouri Highway Patrol elected 1st Vice President; J. Rhett McMillian, Florida Game and Fish Commission elected 2nd Vice President and Captain Richard G. Quantz, Washington State Patrol was elected 3rd Vice President; Mr. William Gamble of Pittsburg, Pa. was elected Secretary-Treasurer and Kenneth Conroy was elected Bulletin Editor.

On Thursday afternoon the Federal Agency Forum was held with Commissioner Robert E. Lee as moderator. However, your editor would like to hold that item over for the next issue when space will permit a full review.

On Friday a number of Resolutions were passed. The most important of these was #13 increasing the National dues for individuals to six dollars per year.

By Robert E. Tall

# Our Man in Washington

**Dalton To Resign NCTA Post** — William Dalton, President and Executive Head of the National Community Television Association, will resign from that post on Oct. 1 in order to be able to pursue a new personal venture in consulting and sales for both trade and professional groups and private industry. Mr. Dalton will continue to assist NCTA in a consulting capacity.

**FCC To Visit Los Angeles** — Plans have been firmed for a visit of all seven FCC Commissioners to the Los Angeles, Calif., area, to get an across-the-board first-hand look at the state of land mobile radio frequency congestion in the Los Angeles metropolitan area — which is recognized as the most spectrum-jammed area of the country. The FCC Commissioners, following a swing around the country to inspect communication facilities at a number of Air Force locations, are to study the Los Angeles situation on Monday, Sept. 30 and Tuesday, Oct. 1.

**Public Safety Changes Proposed** — Rule changes designed to tighten up on increases in transmitter power and antenna heights, as well as on changes in station locations, have been proposed by the FCC for the police, fire, highway maintenance, forestry-conservation, and local government radio services. The "more stringent control," the agency proposed, would be accomplished by bringing such changes in radio operation by the licensees under the frequency coordination procedures of the public safety radio services involved.

The Commission said it feels that the public safety services will be able to "utilize available frequencies more efficiently" under the proposed rules. Comments on the proposals are due by Nov. 15.

The specific FCC proposals are: "(a) amendment of section 10.8 to require that in addition to applicants seeking new frequencies, all applicants requesting changes to increase power input in excess of 100% and/or antenna height, or who wish to change their station location must again comply with section 10.8(b) or (c).

"This means," the Commission said,

"that all applicants, as part of the showing required under this section, must submit information concerning the amount of power an antenna height needed. In this latter regard, it should also be noted that a change in the height of the antenna with respect to mean sea level is a key consideration. A move to a higher location may present the same interference problem as raising the height of the antenna itself. Therefore, requests for change in location or an increase in antenna height will both be examined in light of the ultimate increase in height above mean sea level which would result.

"(b) Specify on the authorization the actual input power permitted (Item 1 (d), FCC Form 400) within a tolerance of 100% rather than the maximum permissible power for that particular frequency. Thus, for example, an applicant whose proposed operation will utilize 60 watts power would be authorized to operate up to a maximum input power of 120 watts. Any input power in excess of the maximum figure would require the submission of a new FCC Form 400 for modification and a new showing under 10.8. Since the authorization already lists the base station location and the antenna height, no change need be made in this regard."

**EIA To Survey Citizens Field** — The citizens band radio equipment manufacturing industry "will be surveyed to determine the feasibility of establishing a new section within the Electronic Industries Association," EIA announced following its fall conference in New York City. A group of manufacturers, meeting under the auspices of the EIA Industrial Electronics Division, identified six areas "in which activity through EIA might benefit the industry."

These areas, it said, are: "(1) Relations with the FCC, particularly on frequency allocations, but also including type acceptance of equipment and actions on communications rules covering citizens band equipment; (2) Through the EIA Engineering Department, formulation of engineering standards including definition of mini-

mum performance characteristics for transmitters, receiver and systems; (3) Possible action on imports of citizens band equipment; (4) An educational program aimed at characterizing the industry, although still a relatively new one, as mature and disciplined; (5) Participation in marketing information activities of the EIA Marketing Services Department; and (6) Action on manufacturers' excise taxes which might be levied on the industry's products."

EIA reported that "Interest was also expressed in the feasibility of forming a section for both citizens band and amateur radio manufacturers, since many firms produce both types of equipment."

**Loevinger Speech Mentions Nonbroadcast**—FCC Commissioner Lee Loevinger, in a major address before the 1963 national convention of the Association for Education in Journalism in Lincoln, Nebr., made strong recommendations for active steps by both the FCC and the nation's broadcasters to improve the country's broadcast programming. In a relatively minor segment of his speech, Commissioner Loevinger made it clear that he is aware of the requirements of other types of radio spectrum users, which, he said, "are clamoring for more spectrum space and would like to use some of the broadcasting bands."

Mr. Loevinger actually did not discuss the possibility of switching some of the broadcast frequencies to other uses, but he did comment that, "Since broadcasting by its very nature requires the protection of an exclusive government license to operate in a part of the electronic spectrum, it seems proper to ask what public ends are served by reserving this large segment of the spectrum in the face of the clamorous competing demands for spectrum space from other services."

**Railroad Radio Service Expansion Reported**—A 260-page book of reports slated for presentation at the Oct. 9-11 annual meeting of the Communication & Signal Section of the Association of American Railroads points out, among other things, that the total of VHF radio transmitters authorized by the FCC in the railroad radio service jumped from 45,071 in May, 1962 to 49,905 in May, 1963, with the number of licensees in the service increasing from 219 to 225.

As for point-to-point microwave systems, the AAR Radio Committee reports that 14 of the nation's railroads, as of May, 1963, had a total of 5031.60 route miles of microwave facilities in an "operational status," and another 3749.5 route miles either

"authorized" or "under construction."

All but three of the railroads, it notes, use frequencies in the 6575-6875 megacycle band for their microwave facilities. One uses 952.4 mc for two route miles; one uses 1850-1990 mc for 24 route miles; and a third uses 2110-2200 mc for 13.6 route miles. Some of the 6000 mc systems, it points out, make use of 12,200-12,700 mc frequencies "one or more short spur hops."

**National Communications System Being Formed** — The National Communications System, a unified governmental communications network linking together, improving, and expanding on an evolutionary basis the communications facilities and components of the various federal agencies, is being established under terms of a memorandum from President Kennedy to the heads of all executive departments and agencies.

Establishment of the NCS culminates discussion that have been in progress for many months, particularly between representatives of the Defense Communications Agency, which is responsible for the "long-haul" communications requirements of the armed forces, and the General Services Administration, whose responsibilities include the Federal Telecommunications System, serving the civilian agencies of the government. As a result of the establishment of the NCS, some organizational changes have been directed by President Kennedy in offices dealing with communications services.

The Director of Telecommunications Management, in the Office of Emergency Planning, is to be responsible for policy direction of the development and operation of the NCS, and will also serve as a Special Assistant to the President for Telecommunications. The Secretary of Defense is designated to be Executive Agent for the NCS in order to make available the benefits of unified technical planning and operations.

One of the responsibilities of the "Executive Agent" will be to "develop operational plans and provide operational guidance with respect to all elements of the NCS, including (1) the prescription of standards and practices as to operation, maintenance, and installation; (2) the maintenance of necessary records to ensure effective utilization of the NCS; (3) the request of assignments of radio frequencies for the NCS; (4) the monitoring of frequency utilization.

**FAA Proposed Relaxations**—The Federal Aviation Agency, in a notice of proposed rulemaking, has called for

comments from interested parties by Oct. 28 on proposals which it said "would substantially relax and simplify the existing requirements for sponsors of construction or alteration to notify the Agency of their proposed structures."

Under the proposals, FAA said, "A notice would be required in five types of cases: (1) construction of more than 200 feet in height; (2) construction extending above a slope of one foot in height to 100 feet of horizontal distance from the property line of an FAA-listed airport; (3) any highway or other route for mobile objects which, with the mobile object, would exceed either of the preceding standards; (4) construction on an FAA-listed airport; or (5) construction in an instrument approach area when a notice is requested by the Agency."

While the lists specifies five classes of cases, FAA said, "the impact on the persons sponsoring construction, "including radio antennas, "would be substantially less than the current requirements. In essence, a construction proponent could determine whether a construction notice would be required by the application of the two basic criteria — 200 feet of height or the 1-to-100 Slope."

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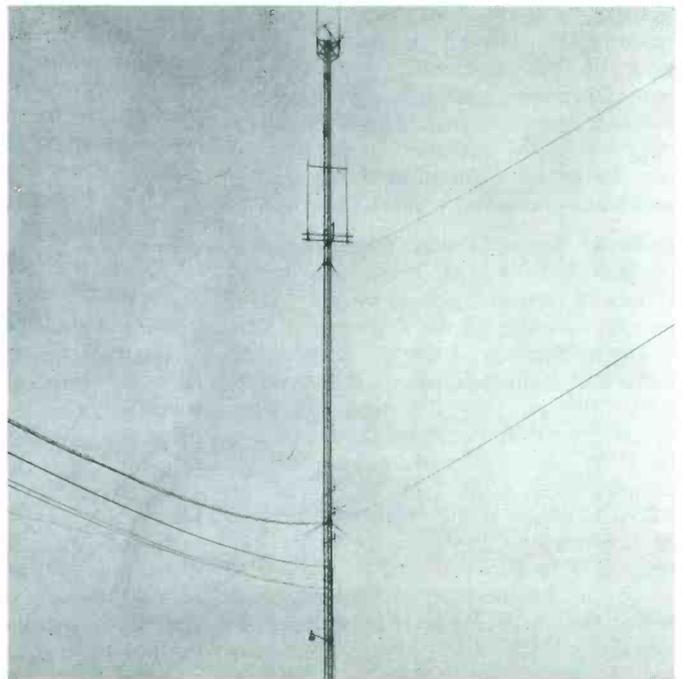
# DON'T BE PUT OUT OF BUSINESS BY . . . VANDALISM

A lonely remote radio site is an open invitation to vandalism. What has this to do with you and why should you be concerned? Recently there have been a rash of cases where radio sites were burned down, destroyed by explosives and otherwise physically damaged to the tune of several thousand dollars. Maybe it is all due to the time of year but in the words of a law enforcement officer, "the 1960's have produced a definite upswing in the number of reported cases and because of this increase we feel everybody should be made aware of this very real problem." We must agree. By going back over some of the things that time and practice have proven, we know you will find suggestions that will save you money and time in the future.

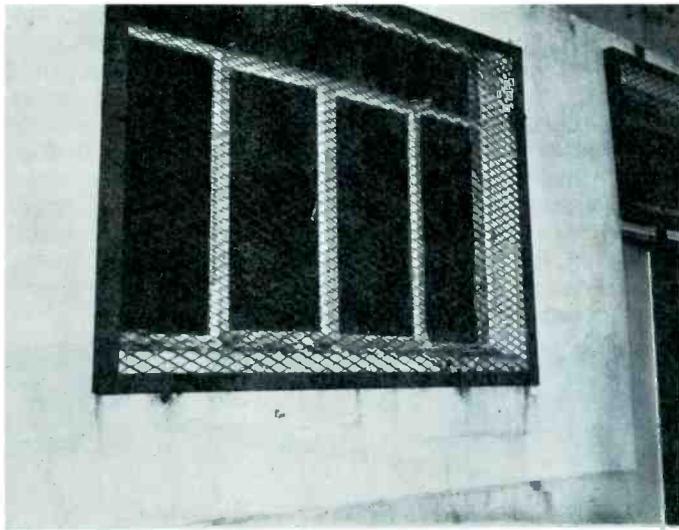
A vandal finds a remote site interesting for one obvious reason. A seldom traveled area lets him operate where he won't be caught. He also seems to enjoy the fact that most sites are difficult to get to. He will disregard locks as well as gates. These merely act as token deterrents that serve to discourage only a very few willful intruders. What gates and locks will do is keep the "lover's lane" type from reaching your site. This is an important factor because it protects you from the security standpoint. Frankly, the less people that know of a curious installation (remember radio is little understood by most) the less trouble you are likely to have.

Don't give up the ship where a gate is concerned just because you know someone will break through it. There are methods that can be used to insure that no one will get past a gate unless they climb over it (some will). Figure One illustrates a particu-

lar type of gate lock that is very difficult to saw, break, or damage. The success of this type of lock system is the placing of a lock within a cylinder that allows only slight clearance to the hand.



This is quite an impressive site to the layman. The height of that tower is about 920'. But, don't let the looks of the installation fool you. See the photo below for a closer look.



Successive visits by vandals have permanently left their mark on this building. Once a transmitting site, the building was vacated and left in fine condition. Within a very short period of time, sufficient damage was done to cost the owners a great deal of time and money to repair.

Also, the lock is far enough up in the cylinder that no form of bar or saw can be easily be used to sever the lock nor can any form of firearm be used to damage it. The second key to the success of this system is the use of a heavy railroad iron as an additional brace for the gate. This makes it impossible for anyone to drive through the gate by damaging it sufficiently to break it down.

It may sound at first like considerable expense is involved in people-proofing a gate. Don't look at it this way. If you have had a rash of break-throughs, it undoubtedly has cost some money to repair gates

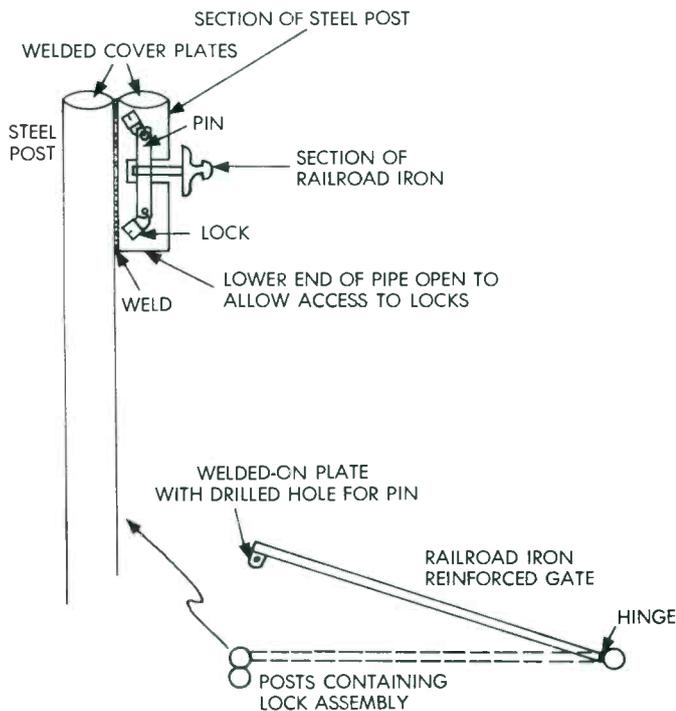


FIGURE 1

and replace locks. A good gate will eliminate most of this repair expense and more than pay for itself over a period of a year or two.

#### Access Roads

Seemingly there is little you can do to a road to discourage travel on it. But, there are one or two things that you can do to help deter traffic like having coarse gravel spread on it, particularly on a hill. Statistics prove that most of the apprehended vandals are teen-agers. Most teen-agers that are prone to this type of destruction drive pretty decrepit motor vehicles with generally very poor tires (they spend most of their money on gas or gadgets for the car). Coarse gravel is a real tire cutter and is more than liable to cause a flat on a would-be vandal's car. This does pose a little bit of a problem for those who must make legitimate trips to a hilltop site but the use of good nylon tires will keep you from becoming a victim of your own doing.

Another more drastic approach is to deliberately make the road bad enough that only rough-service vehicles can traverse it. This is admittedly a last ditch attempt that should be used only when everything else fails. To some, this isn't any problem as they might have some pretty rough sites to go to in the first place.



Fences like these around guy anchors will aid in preventing damage. Note the use of the "Danger-High Voltage" sign.

#### The Hilltop Site

If a proper gate is installed in conjunction with a treated road, there is little doubt that few will ever get up to your site. But, there will be that one or two which, if they are bent on damaging property, will cause you to expend some time and money fixing broken windows, cut guy wires, cut coax, smashed doors and maybe severely damaged equipment. Remember, the vandal doesn't know that a lock is easier to replace than an I.F. can or transformer.

There are a number of building safeguards that should be used to provide security. First of all, don't use a building that has glass windows. In fact, avoid buildings that have large openings anywhere such as windows, vents, anything someone might crawl through. If vents are needed, they should be of sturdy construction with additional bars added

across so that if the louvers are jimmied, access is still impossible. Doors should definitely be of steel construction. A wooden door is of absolutely no use and is a natural invitation to the vandal. Don't use a padlock on the building door. Use a heavy-duty built-in lock designed for this purpose.

By now, you have come to the realization that if you do make a building entry-proof, vandals will naturally look for something else of value to damage. This means look out for your coax cable. Protecting coax is not easy since it must be run underground to the base of the tower or supporting structure and thence up the structure inside a heavy pipe for some distance. This will still leave your coax vulnerable unless you also take precautions to keep people from climbing the tower. This is most difficult because anything you do here will more than likely cause you an inconvenience. Of course, if you happen to use telephone poles to support antenna arrays, half the problem is already solved (if you don't mind using pole climbers or keep a long ladder handy).

Keeping the tower fenced off is, in the practical sense, the best way to keep people off of it. There just isn't any logical way, without considerable expense, to stop people from climbing it. But, by fencing it you can create an atmosphere to indicate to possible vandals that by getting near the tower they might be electrocuted. This atmosphere is best created by using a commercial, professional looking fence with barbed wire around the top. In addition, plenty of "Danger-High Voltage" signs should be placed around the fence and on the tower. Once again remember that the vandal knows nothing (usually) about radio and chances are he will respect your "Danger-High Voltage" signs for the sake of his own skin.

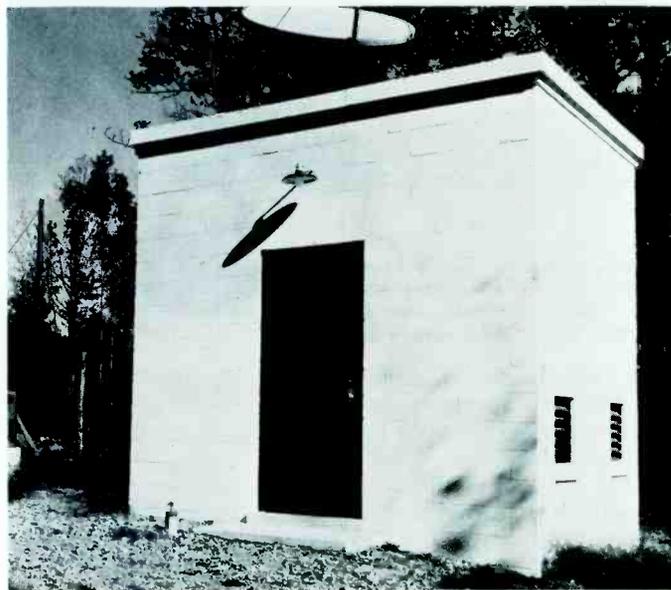
Going back to the building for a minute, don't rely on the use of high voltage signs to keep people from tampering with it. Instead, use some form of sign indicating that the equipment contained therein is licensed by the Federal Communications Commission and tampering with it will result in Federal action. This type of sign seems to be a real deterrent providing it is used in conjunction with the fenced-off tower resplendent with high voltage warning signs. This created 'atmosphere' can result in an almost vandalism free site. There is, however, one liability here that you must be ready to accept. That is, you must keep things looking ship-shape and professional such as repainting the building at intervals so it appears clean. While thinking about your building, don't try to fence it and the tower. If you wish to have both fenced, put them behind a fence together and not separately and use the "Danger-High Voltage" signs on that fence.

One very real problem at remote sites is the use of remote control lines. If it is a telephone company installation, there is nothing to worry about. But, if you use forestry service poles or power poles to bring in a private control line, take care to place the line good and high so it can't be reached. A good and shoddy installation complete with sagging line will beg to be cut. Also, if carbon blocks are used, which is a must if you have lots of lightning, place the housing for these blocks up under the eaves of the building.

#### **Tower Guy Lines**

So far we have run the gamut of what can happen and what can be done to prevent or deter vandalism.

There is one thing we have not discussed and that is tower guy wires. Probably these are the most vulnerable of all the single items at a hilltop site. If just one side is cut, think of what could happen. You not only could lose your tower and many expensive antennas but also you could incur severe damage to your equipment building. Fortunately, it is very seldom that this type of vandalism occurs but when it does and it **can** happen, you stand to really lose. To make sure you are safe and stay that way, put up a small barbed-wire topped fence around each guy point and fasten "Danger-High Voltage" signs on the fence. This is another expenditure, of course, but cheap when compared to what it could cost you.



This is a good example of a well-built equipment building. Construction is of concrete block with reinforced louvers on the side. Also notice the heavy steel door.

#### **Insurance and Insurance**

There may be some people that feel the insurance company is going to keep them free from harm (cost-wise) and this may be true. However, insurance companies are nobody's fool and they will invariably inspect the site you wish to insure and give you a rate according to their evaluation of the risk. If you use the proper means to protect your property, the insurance company is going to recognize this fact and you are going to pay a much lower rate. The insurance company shouldn't be your only concern, though, your customers should enter into the picture first and foremost. After all, that site is your bread and butter and the better the service that you are able to provide, the better your reputation. Most people don't want to spend any time trying to explain to an irate customer why they were without service for a couple of days when the blame lies upon the operator of the site for not providing the proper security.

#### **Non-Hilltop Sites**

So far, most of the mention has been of hilltop facilities. This shouldn't convey the impression that this is where most vandalism occurs. Nothing could be farther from the truth. Those sites that lie on relatively flat land can also become prey to the vandal. At this type of site, it is extremely important that the 'atmosphere' at the site be highly profes-

*Continued on Page 31*

# New Product Horizons



## CATV EQUIPMENT

**Miratel Electronics, Inc.**, 3600 Richardson Street, St. Paul, Minnesota, has announced the completion of the Instrumentation Series 14" video monitor. Both the L and the I series of the 14" monitor are available for delivery from stock. Models include cabinets, rack mounting, custom console mounting and chassis units. Prices range from \$265.00 thru \$425.00. The I series chassis contains high-voltage and low voltage regulation, underscan switch, independent size controls, plug-in line cord and is the same basic chassis used in the Atlas missile program excluding RF shielding features.

**Dynair Electronics, Inc.**, 6360 Federal Blvd., San Diego, California, offers a closed-circuit television transmitter, Model TX-1B, which converts video and audio information into RF on any standard or special television channel. The output signals from the unit may be distributed simultaneously and with complete compatibility. The vestigial-sideband characteristic is achieved through the use of a broadbanded linear amplifier following the modulated RF stage. This amplifier is utilized to remove most of the energy from the lower sideband and provides higher output of the desired signal. Technical data specifies outputs of 500,000 and 100,000 uv (visual), also, aural outputs of 250,000 and 50,000 uv maximum. Visual carrier crystal-controlled to 0.005%, aural frequency tolerance plus or minus 1 kc.

**Entron, Incorporated**, 2141 Industrial Parkway, Silver Spring, Maryland, has announced the introduction of a high gain, high output, all-band distribution amplifier, Model LHD-404R. Utilizing Entron's split-band techniques, the amplifier provides outputs for four feeder lines with an output level of plus 50 dbmv at Channel 13 with a gain of 46 db. Total feeder line lengths in excess of 1 1/2 miles can be fed from one amplifier, eliminating, in most cases, the need for line extension amplifiers. The unit features 10,000-hour tubes and high reliability Compactrons for long, trouble-free service. Regulated power supplies assure gain stability under varying line-voltage conditions. Additional information available upon request.

**Jerrold Electronics Corporation**, 15th and Lehigh Avenue, Philadelphia 32, Pennsylvania, now has a complete catalog, Catalog DS-CS-518, which describes the new Jerrold-TACO line of Paralog TV-FM antennas. This 7-page, 2-color catalog includes an explanation of the modular parasitic element concept, which, with the log-periodic design makes this line of antennas the most innovative on the market. Specifications cover both the 7 non-amplified Paralogs, with gains to 16 db, and the 4 amplified types, using Jerrold's new mast-mounted Super-Powermate, with gains up to 28 db. Also described are the Paralog FM antennas for fringe, deep fringe, and very weak signal areas, featuring a gain of up to 12 db. Included are photographs, prices, and lobe patterns. (If you missed the technical data on the "Paralogs," see September VCJ, Product Section). Jerrold has also introduced the new Indoor Super-Powermate amplifier. The unit uses

a combination of high gain-overload and low noise characteristics. The Model TA-66 uses only 2 transistors and will feed up to 4 TV sets from a single antenna. Low band gain is 7.5 db (four sets connected) for an output of 180,000 uv at



each of the four outputs and the high band gain is 5.6 db (four sets connected) for an output of 100,000 uv at each of the four outputs. Noise Figure of the TA-66 is 4.2 db low band, 8.3 db high band.

**Viking Cable Company**, 830 Monroe St., Hoboken, New Jersey, just introduced a new directional tap, Model 935, which is of a distributed design, tuned for an input VSWR of less than 1.15:1. Output and tap terminals are matched to better than 1.3:1 and isolation between them is over 30 db. A 17 db tap with 0.3 db insertion loss and a 10 db model with 0.7 db insertion loss are available with either type "F" fittings or push-on fittings for Viking 308 coaxial cable. The units are adapted for either messenger or pole mounting and are designed to drive hybrid splitters to provide up to four outputs without additional loss. Price of the Model 935 tap is \$5.00 with immediate delivery.

## COMMUNICATIONS EQUIPMENT

**Bramco, Inc.**, College & South Streets, Piqua, Ohio has introduced a new precision frequency selective filter, with a floating type internal shock mount that assures high stability under



mobile conditions. Named the RD-10 Frequency Sensing Resonant Reed Relay, the device consists of a tuned reed which vibrates as a single tine

of a tuning fork. The reed, which has a normally open relay contact, is biased by a permanent magnet. The magnetic field fluctuates when a predetermined AC signal is introduced, causing the reed to vibrate and the contact to close intermittently. This provides a switching function with a load capacity of 100 ma. at 12 VDC. Unit price is \$17.50 in 1-4 lots, \$10.50 in lots of 500. Standard models are stocked with frequencies of 100, 110.9, 123, 136.5 and 151.4 cps.

**Motorola, Inc.**, has announced the development of a fully transistorized digital selector for mobile radiotelephone communications. The new selector uses high-speed transistor switching circuits which achieve completely silent operation and maximum reliability. Designed initially for use in Motorola pushbutton radiotelephone systems, the digital selector establishes contact in areas where standard Bell 600 to 1500 cps transitional tone signaling is used. Also, the new selector may be used to replace mechanical selectors in many existing Mobile Telephone Service radios. The operation of the selector is such that it is usable with more than 59,000 code combinations. Model number of the selector is T1254A.

## MICROWAVE

**Gabriel Electronics Division**, Millis, Massachusetts, has entered into the microwave communications tower field with the introduction of a series of H-type guyed steel microwave towers



which offer a direct packaged substitute for Bell System wooden pole towers type ED-59741-30. The towers are designed in ten-foot sections which may be transported without difficulty in light vehicles and erected without special equipment or specially trained crews. Towers are available in heights of 20, 30, 40, 50, and 60 feet and will support two 10-foot antennas at the top and an additional 10-foot at the lower level. Clearance between the tower legs is 10-feet to allow radio equipment to be accommodated in a number of ways. In addition, Gabriel has introduced a new, heavy-duty series passive repeater. These new passive reflectors are made



up of two or more individual panels bolted together and secured as a unit to a rugged supporting frame. Each panel consists of an aluminum face sheet plug-welded to a rectangular corrugated backstructure which itself is framed with aluminum channel. Write for complete engineering specifications and prices.

**System Horizons**

*Continued from Page 6*

Company, which is located at 557 Willow Road, is headed by E. L. (Gene) Berman, well-known in San Francisco and Northern California electronic activities.

**Gonset, Inc.**, a well-known California firm and formerly a division of Young Spring and Wire Corporation, is now under the ownership of Altec-Lansing Corporation, a subsidiary of Ling-Temco-Vought, Inc. In making the announcement, Mr. Alvis A. Ward, president of Altec-Lansing, revealed that construction has already begun on new facilities to house the Gonset operation. Gonset, Inc., established over a quarter of a century ago, is presently situated in Burbank, California. Commenting on matters of sales policy for the new Gonset subsidiary, Ward emphasized that the marketing activity will remain essentially autonomous and he anticipates no major changes in sales or distribution policies.

**TelePrompTer** has recently entered into an agreement to sell three of its operating divisions to Defiance Industries, according to Irving B. Kahn, chairman and president of TPT and R. L. Huff-

ines, Jr., chairman of Defiance Industries. The three divisions that were sold to Defiance include the Weathers, Conley Electronics, and Audio-Visual divisions of the company. The transaction involved a potential return of in excess of one and one-half million dollars it was said. Mr. Kahn, in commenting on the transaction said although while the three divisions accounted for approximately 40% of TPT's gross revenues they represented less than 10% of the company's total assets. He also stated that TPT is going to concentrate upon expansion of its CATV holdings and related CCTV services.

**General Radiotelephone Company** has just acquired the facilities of Hazeltine Research Corporation of California it was disclosed. General Radiotelephone Company intends to incorporate this new operation with their frequency measurements equipment division in order to enlarge the capacity of this division which is engaged in the manufacture of digital frequency counters.

Stanley P. Lapin, Director of **Adler Electronics Industrial Products Division**, has made the prediction that school TV will equal the use of textbooks by 1970. This

prediction was made in an address before the 3rd Educational Television Conference at Fordham University.

**Spencer-Kennedy Laboratories, Inc.**, have reported record sales for the fiscal year ending June 30th, 1963. The record sales amounted to the sum total of 2,028,000 dollars representing a 27% increase over the sales made in 1962. Net earnings after federal income taxes amounted to \$191,000 or 86 cents per share as compared to an 80 cent per share figure in the previous fiscal year. Gains from the sale of investments before federal income taxes amounted to \$92,000 in 1963 as compared to \$127,000 in 1962. This year the company was again not involved in direct government development and production contracts and over 76% of its sales volume consisted of items manufactured for civilian customers in its own plant.

Luther Pepper of **Pepper T. V. Appliance**, in Selma, Alabama has reported that he now has 105 MA-TV subscribers and in addition he has one project underway involving trailer parks and is working on plans for the housing project at Craig AFB.

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Continued from Page 17

industry among the persons eligible" to use the 2500-2690 mc band for television transmission, and Adler petitions the Commission to switch the frequency assignment table in the band so as to bring about a six-megacycle spacing between useable channels, rather than the 36 mc spacing set forth in the FCC's report and order.

CSEPA, in its petition, pointed out that it had not participated in the rulemaking proceeding earlier because the Commission had not, in its original proposals, "made mention of the possibility that television transmissions of an industrial nature, i.e., other than the educational types proposed, would be permitted in this band alongside the instructional television uses. Similarly, the association noted, "the notice contained no indication that the restriction on intracity or local area operations on microwave frequencies below 10,000 megacycles would be eliminated to permit the operation of industrial television in such intracity or local areas."

In its decision, however, CSEPA noted, the Commission stated that "persons eligible for operational fixed stations in this band may use the band for television transmission if the technical characteristics of the equipment meet the technical standards set forth for instructional television fixed systems."

Also, CSEPA said, the Commission held that it will waive its "above-10,000 mc" private microwave limitation for "intracity or local area" stations "for operational fixed stations in the 2500-2690 mc band providing the transmitting equipment complies with the technical standards set forth for instructional television fixed stations."

"It is true," the CSEPA went on, "that members of the protective industry are eligible for microwave authorizations in the business radio service in the bands above 10,000 mc. However, these provisions are inadequate for the industry's requirements because of the existing prohibition on the use of omnidirectional antennas in the bands below 16,000 mc, in accordance with the policy decision announced in docket 11866. Because of these limitations, the Commission has made specific provisions for the use by the protective industry of the frequency bands 952-960 and 2150-2160 mc with omnidirectional antennas but only on a developmental

basis."

The association commented that "It appears from the Commission's report and order in this proceeding that the allocation of the band 2500-2690 mc for industrial television is firm and not subject to change at the expiration of the three-year period prescribed for the evaluation of the newly created instructional television fixed service. This evaluation, as we read the Commission's report and order, is to be limited to determining whether the band 2500-2690 mc is to

be allocated exclusively for instructional television and industrial television uses or is to be made available also for other point-to-point private radio uses for which the band was initially allocated.

"Thus, the re-evaluation of the allocation ordered by the Commission's decision at the expiration of the three-year period will not encompass the type of use which (CSEPA) herein requests because the protective industry is not, at the present time, eligible for use of this frequency band."

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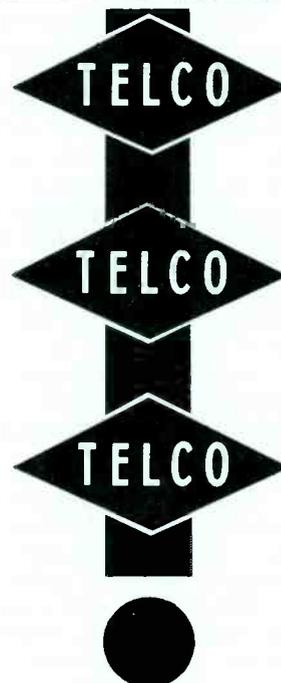
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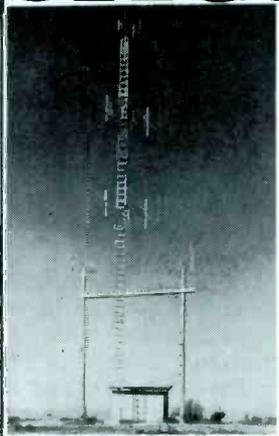
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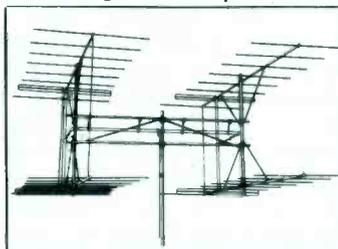


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Continued from Page 12

the taller installations around.

The units utilized in the test were Sonar BR-20 (14 watt) mobile/base transceivers.

The purpose of the tests was to collect data on the coverage radius that could be expected; compare the results against a companion CB installation, and record the occupancy of this channel in our specific area.

**Coverage**

With a 52 foot antenna (a popular CB 1/2-wave vertical, trimmed to 27.265 megacycles) the coverage radius, from a maze of downtown buildings many of which are taller than our antenna, averaged 11.1 miles in all directions. Had we been using a 120 foot tower with suitable coaxial transmission line with the same unit, our range would increased to approximately 14.5 miles (for complete quieting of the receiver) with the 14 watt units.

Coverage averaged from 30-40 percent better than the 5 watt CB sets with the 52 foot antenna.

**Channel Occupancy**

In the four week period, we heard no other local stations on our channel. When compared to CB, this is a most welcome relief.

We did try out and utilize a set of Sonar SC-1 Selective Calling units (which encode and decode your transmitters and receivers, effectively squelching out all calls not from one of your own units) which made our system truly private.

We found that the occupancy on the channels listed in table one is very low, because most of these channels were long ago vacated in favor of the high band (150 to 174 megacycle) frequencies, by most sellers of Business Radio. It remains now for the new low-cost CB type of package (the new BR-20 and others) to re-populate these frequencies. A master list of allocations of these frequencies shows that most of the channels in question have fewer than 50 licensees in the entire United States, and some less than 10!

There are some high-band channels, in congested areas around large centers of population, where up to 30-40 businesses may today be sharing a single local channel.

**Equipment Available**

Three manufacturers in the past six months have announced Busi-

ness Band equipment in the 10-20 watt category.

The Sonar Radio Corporation, 73 Wortman Avenue, Brooklyn 7, New York is the producer of the units shown in this report. The BR-20 sells for \$229.50 per unit, operates from 6 or 12 vdc and 117 vac. It has only two controls, squelch and volume. An optional selective calling attachment sells for approximately \$60.00 and it plugs directly into the rear of the BR-20.

The E. F. Johnson Company, Waseca, Minnesota produces a 10 watt transceiver package that also reduces the number of controls to a pair, squelch and volume. The 202 unit sells in the range \$185.00 to \$200.00.

This unit also offers optional selective calling, in the \$60.00 pricing category, and also the option of a plug-in telephone attachment which effectively connects your two-way radio system to the telephone system for relaying of telephone calls at the office to your mobile units, and vice-versa.

E. F. Johnson will shortly announce a 30 watt mobile amplifier unit which will raise the mobile power input of these systems to the maximum allowed on the first three channels in table 1.

General Radiotelephone Company, 3501 W. Burbank Blvd, Burbank, California has an 18 watt unit called the BB-10 which sells in the \$190.00 range. It features speech compression for additional voice power, and operates from 6,12 vdc or 117 vac.

All three units mount under the dash, and are similar in construction to the better CB units and require a minimum of service, if any.

**Conclusion**

It is our distinct impression that the 27 megacycle Business Radio Service channels listed in this report constitutes the best buy in low-cost communications today. They are relatively free from interference, do not require a large investment, are compatible with the plentiful antennas, etc., in the Citizens Service and are not encumbered by antenna height restrictions and many other problems associated with CB.

And, best of all, the equipment is simple to install and maintain, and most firms can do a very presentable job of installing the equipment themselves and never have any problems.

V CJ

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Continued from Page 26

sional especially where the site is located where it can readily be viewed by all from say a road or access way. In particularly difficult areas, lighting is extremely important. Where a site is located in a populated area, the "word" seems to get around that the site is unattended, there is no "High Voltage," and the usual rumors will circulate that add to the curiosity of the vandal. If you have provided the all-important 'atmosphere' and use satisfactory lighting, you will more than likely escape the wrath of the vandal.

#### The Consequences

Being wholly practical about vandalism is the only way to combat it. If it has never happened to you, statistics say it eventually will. In the long run, it will cost you money and time. The time element enters into the picture because you will have to explain to the insurance representatives, law enforcement agencies, and your customer just what happened. A good installation will cost also, but save you the headaches, probably net you a lower insurance rate and impress the customer. If you don't take the necessary precautions you stand to lose a lot. Vandals are the biggest cause of losses to remote sites. Seldom will you be bothered by outright burglars and thieves. A vandal will: destroy all forms of property; cut down towers; break down wooden doors; break out windows and on and on. There is no logical wherefore to a vandal. He may or may not be tops in his school class or he may be from a low income bracket family and be out of school. None of them can explain exactly why they did the things they have done. Your chances to recoup any money for your time is nil. Your chances of ever catching them is very slight. However, if it should happen, your handling of the situation will determine to a great degree as to whether it will ever happen again. This is more than true if any publicity is given to the incident. A vandal should be prosecuted to the fullest extent especially if adequate precautions have been taken and if the area is well posted.

If you happen to be in doubt about the various statistics, a quick consultation with your insurance agent will hasten your decision about people-proofing a remote site. If you are seeking case histories about the viciousness of vandalism, contact your local law enforcement agency.

#### Receiving-Only Sites

Sites that contain receiving-only apparatus are not generally protected by the regulations of the Federal Communications Commission. In this situation, it is imperative that protective measures be taken or a case of vandalism may occur which in some locales would be treated as a misdemeanor. Look at the loss you might incur here if people were cognizant of the fact that prosecution would be slight.

In essence, precaution is protection. Take any necessary steps you feel will help your own situation. In the long run you will benefit and if you keep an outage graph on your facilities, you will enjoy removing just one more cause for not maintaining a one-hundred percent reliability record.

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- Oct. 13-16 — Annual Conference of International Municipal Association. Rice Hotel. Houston.
- Oct. 15-17 — Radio Frequency Interference meeting conducted by ITT Research Institute for Army, Navy and Air Force. Chicago.
- Oct. 18 — Oklahoma-Kansas CATV Association regional meeting Texoma, Oklahoma.
- Oct. 18-19 — California Community Television Association regional meeting. Santa Barbara, California.
- Oct. 24-25 — Annual Meeting of Executive Committee of Forest Industries Radio Communications. Washington.
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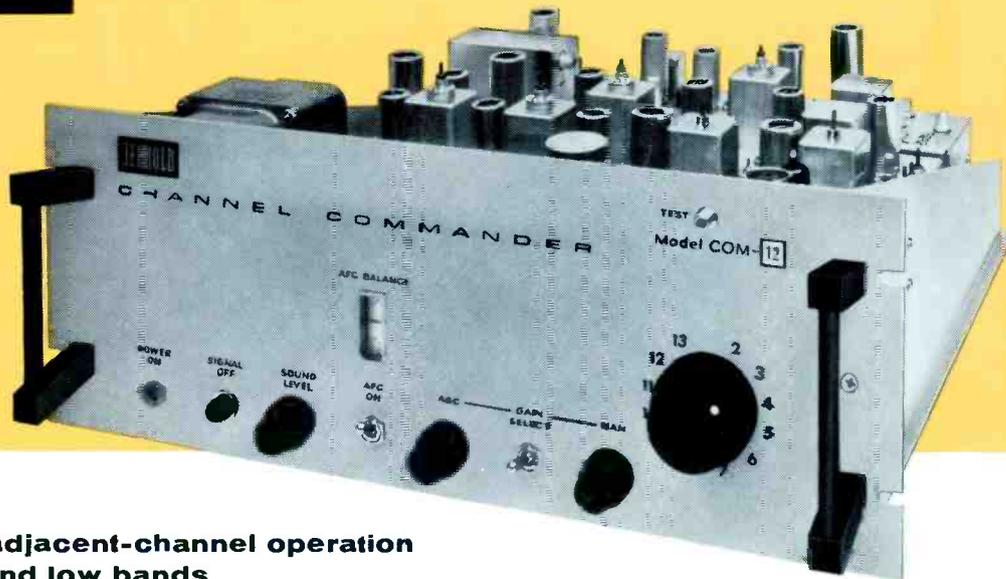
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