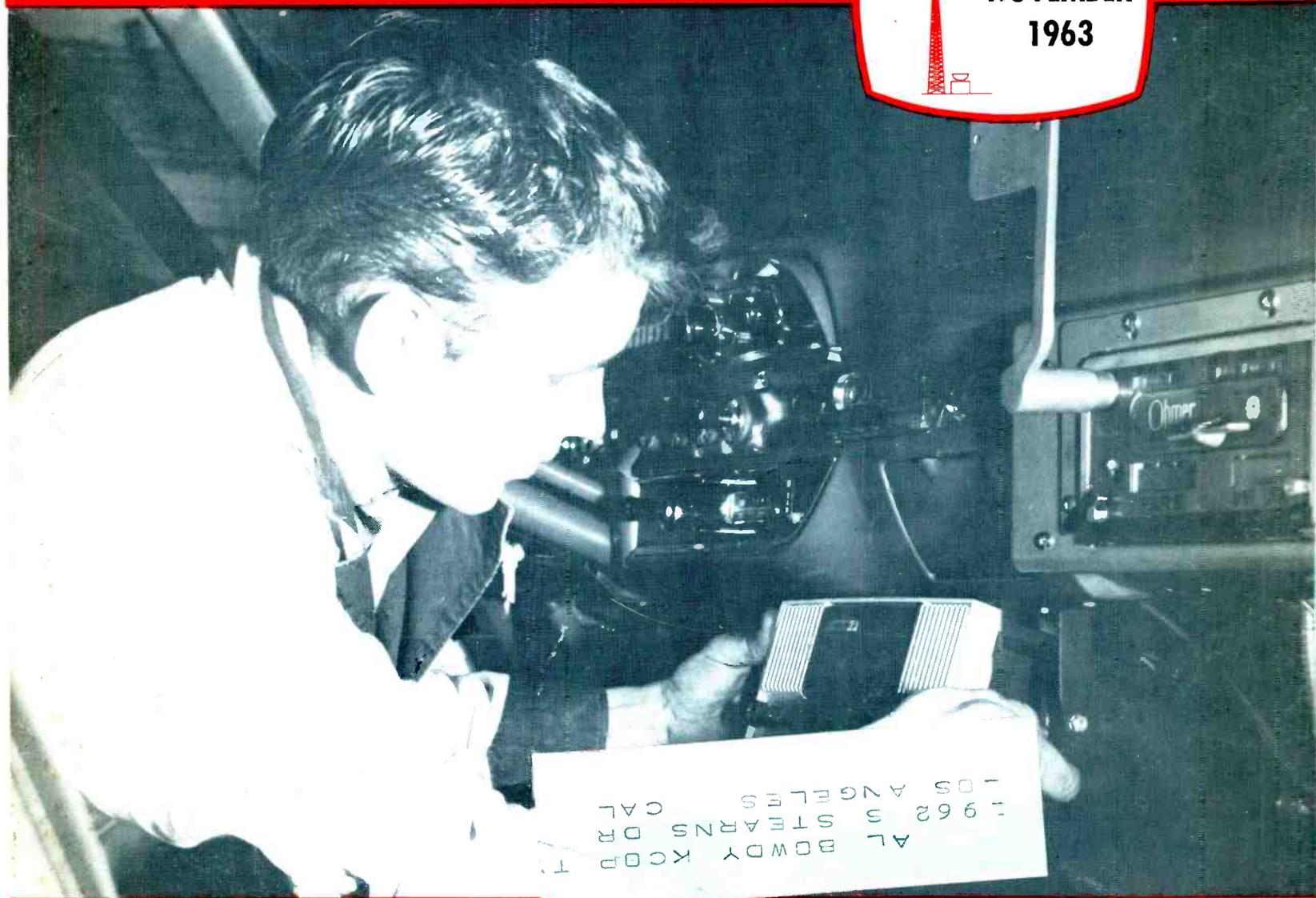


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Video Communication Journal



Serving the Audio-Video Communications Industry

IN THIS ISSUE

- THE STORY OF CATV — Its Beginning and future
- PAY TELEVISION — Are we ready for it
- TELCAN — A revolutionary new development
- ALUMINUM SHEATHED CABLE — How to install it

JERROLD VIDEO MICROWAVE 6 TO 13 KMC

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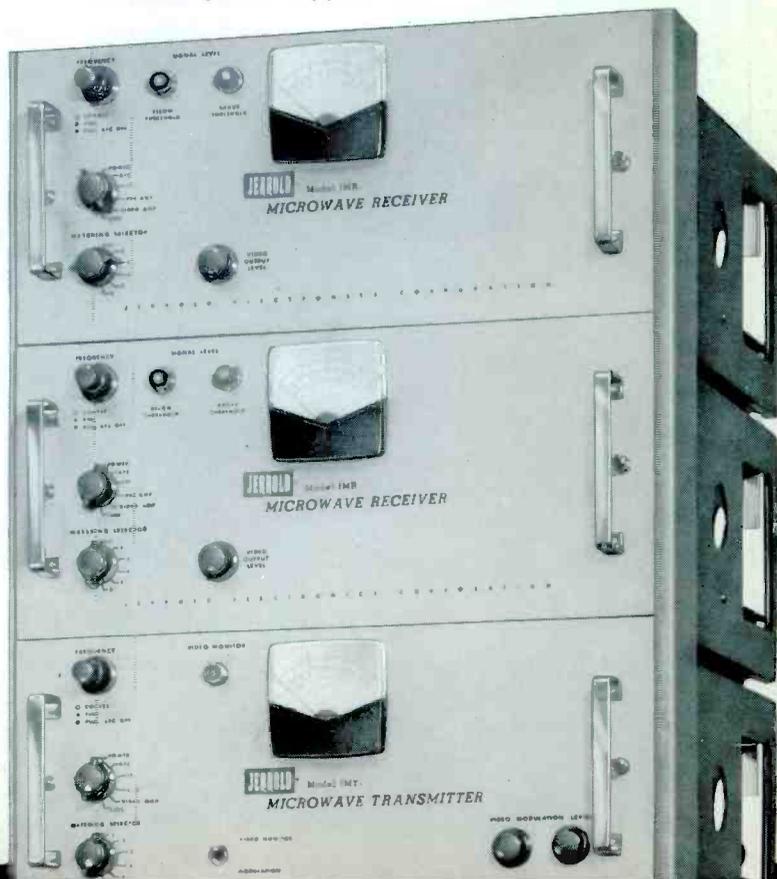
It may cost a little more at first, but Jerrold video microwave gear really pays for itself in no time. Here's why you can't afford to be without it: Front-panel metering of all tubes and circuits . . . Time-delay circuit protects klystron in event of power failure . . . Extended filament life with built-in regulating transformer . . . Only simple test equipment needed for set-up, troubleshooting, maintenance . . . Video monitor output at transmitter eliminates referring to receiver location . . . Compact modular construction saves space, reduces need for spares.

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Channel

1

H & B TO EXCHANGE STOCK WITH VIDEO INDEPENDENT THEATRES

H & B American Corporation and Video Independent Theatres, Inc., a subsidiary of RKO General, Inc., have agreed to an exchange of 1,550,000 shares of H & B common stock for all of the outstanding capital stock of Vumore Company and Mesa Microwave, Inc., community antenna and microwave relay television subsidiaries of Video Independent Theatres, Inc. Announcement of the agreement was made by David E. Bright, Chairman and President of H & B, and Thomas F. O'Neil, Chairman of RKO General and its parent, General Tire & Rubber Company.

H & B, California based, owner and operator of 24 community antenna television systems serving approximately 70,000 customers, is the largest company in the CATV field. It is presently constructing four additional community antenna systems.

As a result of the announced transaction, H & B will acquire the 27 CATV systems of Vumore with 30,000 customers. In addition, H & B will expand its microwave relay facilities through the acquisition of Mesa Microwave. The agreement also provides for up to \$2,000,000 of additional financing to be made available by Video to H & B for modernization and expansion purposes.

The transaction will be submitted to H & B's stockholders for approval at a meeting to be held in December. In addition, certain aspects of the agreement will require the approval of the Federal Communications Commission. Upon completion of the transaction, Video Independent Theatres, Inc., which had previously acquired a substantial equity interest in H&B, will hold in excess of 50% of H & B's outstanding common stock.

SAMOA TO HAVE MICROWAVE AND MASTER TV

A \$45,000 contract has been signed for microwave and master TV systems on American Samoa,

CATV

MATV

2-WAY

UHF-TV

Microwave

according to Jerry Hastings, Division Sales Manager, Jerrold Electronics Corporation. The contract, concluded with the National Association of Educational Broadcasters, calls for three microwave Studio-to-Transmitter-Links (STL's) and a series of master television antenna systems throughout the island. Equipment to be supplied includes the antenna systems, microwave receiving and transmitting units, TV distribution cable, TV receiver outlets, RF amplifiers and pre-amplifiers. NAEB says the educational TV installation has been designed to provide the American Samoans with a core of basic instruction at all educational levels.

COMMISSION TO STUDY FREQUENCY CONGESTION

Chairman E. William Henry said, on his return from Los Angeles, where the seven FCC Commissioners spent two days on a tour of non-broadcast radio facilities, that the FCC will proceed immediately to look for ways to relieve the frequency congestion now being encountered in the land mobile radio communications field.

Speaking of the trip, Chairman Henry said, "The trip was most worthwhile. All of the Commission-

ers found it to be most interesting. The tour was well organized. We had an opportunity to make on-the-spot inspections of non-broadcast radio uses and problems," and "will now proceed to see if we can move ahead to get relief in some areas."

The tour for the Commissioners was set up initially by the National Association of Manufacturers Committee on Manufacturers Radio Use and participated in by a number of other public safety and industrial organizations. Victor G. Reis, Chairman of the NAM Committee, noted that the tour "was the first time in history that the entire Commission has made such an on-the-spot inspection" of a group of its licensees, and proclaimed the Los Angeles visit a "huge success."

TV ALLOCATIONS TO CHANGE?

After being faced with the direct question of whether it is "contemplating general changes in TV allocations which would affect implementation of the all-channel TV receiver requirement," the FCC formerly declared its "intention to maintain its present TV allocation policies."

A letter from the FCC, discussing this subject, was sent to Executive Vice-President and Secretary James D. Secrest, of the Electronic Industries Association. The agency said the question had "recently come to our attention through the activities of the Committee for Full Development of All-Channel Broadcasting."

The Commission said, "We wish to advise you explicitly by this letter that the Commission has no intention of deviating from its decision to encourage full utilization of the UHF channels for TV broadcasting. We do not intend to initiate any general changes in the principles of the table of channel assignments, including mileage separation requirements, for TV stations, nor do we anticipate any change in the date after which TV broadcast receivers manufactured must be capable of receiving all TV broadcast channels."

VIDEO-COMMUNICATION JOURNAL

Combining Television Horizons and Communication Horizons

PUBLISHED MONTHLY BY HORIZONS PUBLICATIONS

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Editorial

Perhaps a lesson is to be learned from the FCC's September action establishing a new Instructional Television Fixed Service on channels in the 2500-2690 megacycle band.

In spite of serious objections on the part of many non-broadcast interests the Commission found it in its heart to turn the 190 megacycle band virtually over to the educators without a single shot being fired

The band in question has been allotted to "private microwave users." It has been used, but only a little. Those users who have been on the band have *blamed the FCC* for lack of additional occupancy, citing the fact that the FCC has never set definite standards for the band and any users up to this point have been there with full knowledge that they might one day wake up and find their band gone.

Which they did.

On the other hand, the private users who are there, or who contemplated being there one day, called the FCC as to why the Commission didn't consider "asking the educators" to share the 1990-2110 megacycle band with the broadcasters, who use this range for studio-to-transmitter and TV inter-city linkage.

The reason the Commission didn't ask the educators to share with the broadcasters should also be obvious. No-one for a minute thought the broadcasters would sit still for any sharing.

The entire proceeding becomes more misty when you consider that no manufacturer today has any equipment capable of doing a job for educators in this band, and that it will be next spring before the earliest of any equipment could possibly be ready.

Finally, there is little chance you will find an educator who remembers asking for this new fixed service. Feeling in Washington is that the entire project was hatched by a single manufacturer to create a new market for his product line. Whether this is true or not remains to be seen.

CONTENTS

FEATURES

When Pay-TV Comes to Your Town

Ira Kamen, Teleglobe Pay-TV System, Inc. 8

Installing Aluminum Solid-Sheathed Cable

George M. Acker, Aberdeen Company 12

Towers for Two-Way

Staff Extra 14

The Story of Community Antenna Television

Milt Shaw, San Francisco, California 16

Plain Talk on Service Calls

Charles Wigutow, Telesystem Service Corporation 30

A Revolutionary New Development Called . . . Telcan

Gordon J. King, European Bureau 31

DEPARTMENTS

Channel One	1	Our Man in Public Safety	26
Editorial	2	Our Man in Washington	27
FCC Horizons	4	New Product Horizons	29
System Horizons	6	Classified Section	34
Logbook			36

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ADVERTISING Video-Communication Journal accepts commercial display advertising from bonafide manufacturers and suppliers of electronics apparatus and allied services. Advertising rate card and circulation breakdown available upon request from the Advertising Director.

CIRCULATION Video-Communication Journal is circulated through United States and Foreign mails on the first day of each month to an average readership of 15,800. Circulation is to individuals and firms dealing in products and services in closed circuit and community antenna television, television broadcast, commercial and public safety two-way radio. Circulation is both paid and controlled. A detailed circulation breakdown by reader occupation is available upon request from the Advertising Director.

SUBSCRIPTION Video-Communication Journal subscription rates in the North American continent, including the possessions of the U.S.A., \$5.00 per year surface mail. Single copies of the Annual Directory Edition, \$1.00 each. Published 12 times per year. Subscriptions outside the North American continent, \$6.00 per year. Subscription remittances should be made by bank money order or check, negotiable in United States banks.

EUROPEAN BUREAU news items, subscription orders and advertising inquiries in Europe should be directed to Gordon J. King, Esq., Gordon J. King Enterprises, 6 New Road, Brixham, Devon, Great Britain.

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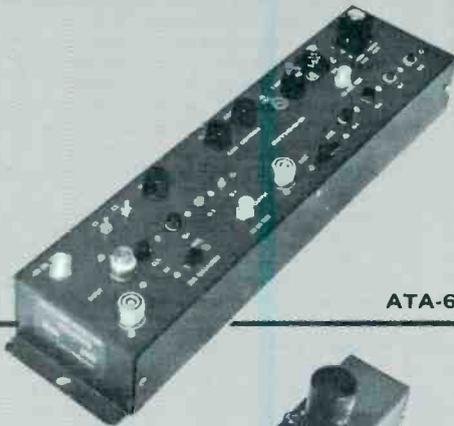
Video-Communication Journal (title registered U.S. Post Office) entered as second class postage material (as Television Horizons) December 30, 1960. Second Class Postage paid at Oklahoma City, Oklahoma. Address of Publisher in Oklahoma City is 1025 N. Broadway. All rights reserved.

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Ameco's sensational fully transistorized trunk line amplifier with AGC and *automatic tilt compensating* control. Special components used in the circuitry of the ATA-60 provide amazing temperature stability of *better* than ± 1 db through temperature range -50°F to $+160^{\circ}\text{F}$. The AGC will hold output constant within ± 1 db for a ± 8 db swing on the input. The special tilt circuit compensates automatically for cable response variations, whether due to temperature changes or differences in cable length. It is effective through a 15 db to 25 db spacing range.

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PRICE \$135.15

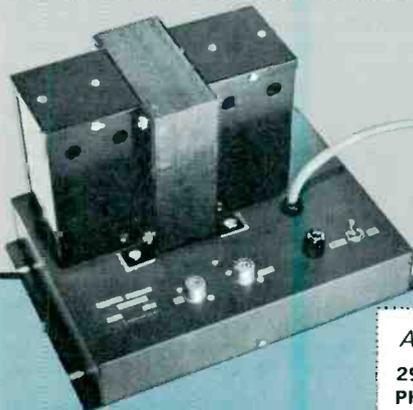


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A regulated 28V AC supply with a total of 6 Amp. capacity on two outputs, the ATPS is used to remote cable power the Ameco fully transistorized trunk line amplifiers and companion units. Capable of constant voltage output with changes of input voltage from 95V AC to 130V AC, the ATPS will power 20 various Ameco transistorized amplifiers with a power consumption of less than 300 watts. RF insertion loss is $\frac{1}{2}$ db maximum. Dimensions $8'' \times 10\frac{1}{2}'' \times 8''$ high.

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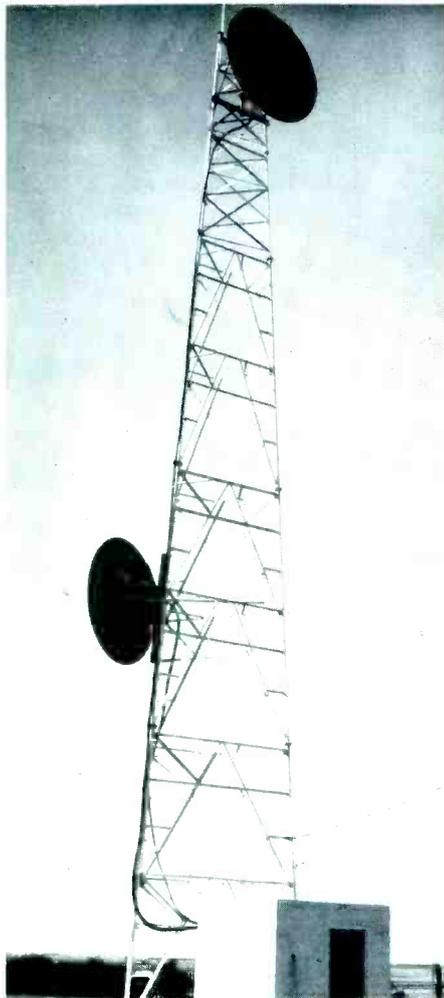
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FCC actions, applications and public notices reported in this column are a representative sampling of the latest developments which in the opinion of the staff of Video-Communications Journal are of interest to our readers. The information reported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

GENERAL ACTIVITIES

A "too-late-if-you-haven't already done something about it" item. November 1 was the deadline date for mobile radio compliance with the narrowband technical standards the FCC specified for public safety, industrial and land transportation radio service units operating in the 25-50 and 152-174 megacycle bands. Docket 11253, which set up the now famous decree, was first handed down more than 7 years ago. On November 1st, all transmitters in these services operating in the afore mentioned bands must have converted to full technical compliance with the new narrowband standards.

Basically, the standards with certain deviations indicated in the applicable rules, require:

- (1) Maximum frequency deviation of plus or minus 5 kilocycles.
- (2) Frequency stability of .002% in the 25-50 megacycle band and .00005% in the 152-174 megacycle band.
- (3) the installation of a low pass audio filter between the modulator limiter and the modulated stage in the transmitter.

The Commission has also required that the "Equipment must be of a type which is included on the Commission's current 'List of Equipment Acceptable for Licensing' except that equipment in use prior to May 16, 1955, which may continue to be used until January 1, 1965. However such equipment must be converted to meet the new narrowband standards as of this current November 1, if continued operation through January 1 of 1965 is contemplated. Any operation of this pre-1955 equipment after the 1965 date will require type acceptance of the equipment by the Commission.

Wentronics, Inc., holder of a Commission authorized business radio service (12 Kmc) point to point video microwave grant to feed programs to the CATV system in Casper, Wyoming has been told by the Commission that their "constitutional questions raised in regard to the conditioned grant to Wentronics" have been "disposed of" and, in so far as the Commission is concerned, Wentronics may proceed to build and operate the 12 Kmc system under the conditions of the grant, or simply return the grant to the Commission.

Wentronics has been exhausting every legal appeal, including the U.S. Court of Appeals, in an effort to get the Commission's "conditioned" grant reversed.

The grant to Wentronics included the now standard provision that CATV systems will promise not to duplicate the programs of local television stations with those programs brought into the system served on the 12 Kmc microwave.

In denying the latest appeal of Wentronics,

the Commission said "outstanding proposed rules on the subject clearly state that the proposed conditions are to apply to the operation of a licensee's CATV system and are not limited to the operation of the authorized facilities. The imposition of the condition in these circumstances is reasonably related to the regulation in the public interest of microwave facilities in the business radio service proposing to relay television programs to CATV systems, and as such is not contrary to the First Amendment of the Constitution nor to Section 326 of the Communications Act."

A proposal to tighten up the provisions of frequency coordination for stations in the public safety radio services, when such stations request a change in transmitter location, antenna height or operating power after their initial grant and installation, has been issued by the FCC. The Commission seeks comments by November 15th of the proposal which would place under the coordination efforts of the various frequency control and coordinating groups the additional responsibility of handling changes in station's operating parameters after the grant is solidified.

In order to accomplish these objects, the Commission proposes to:

(A) Amend 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 percent and/or to increase antenna height, and who wish to change the location of their station must again comply with frequency coordination requirements under sections 10.8 (b) or (c).

(B) Specify on the authorization the actual input power permitted (Item 1 (d) Form 400) within a tolerance of 100% rather than the maximum permissible power for that particular frequency. In other words, an applicant whose proposed operation will utilize 60 watts would be authorized to operate with a maximum power of 120 watts. Any input, however, in excess of that maximum figure would require the submission of a new FCC Form 400 for modification and a showing under section 10.8.

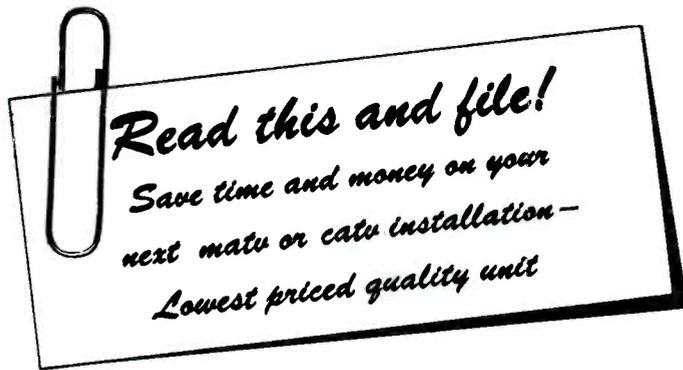
CATV MICROWAVE ACTIVITIES

The Commission, by action of its Safety and Special Services Bureau, has granted authorization in the Business Radio Service to AMECO, Inc. (KEX97) to construct a microwave relay system to relay TV programs for a CATV system. The station will be located on Pinal Peak, 8 miles south of Miami, Arizona.

The grant was made subject to the following conditions, voluntarily accepted by the applicant, pending the outcome of pending Docket 14895:

"If the CATV system operates within an area within the predicted Grade A contour of any television broadcast station in operation, or which subsequently comes into operation, the CATV system must not duplicate simultaneously or 30 days prior or subsequent thereto a program broadcast by such television station(s), provided the CATV operator has received at least 30 days advance notification from the broadcast station licensee of such broadcast.

(Continued on Page 33)



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CABLEMATCH

SET OR WALL MOUNTED TRANSFORMER FOR
 MATCHING 75 OHM COAX TO 300 OHM TV SETS

model 3334

DESCRIPTION

Every master TV or community TV system installation requires one matching transformer for every TV set in the system. Adds up to a considerable number of matching transformers — a great deal of installation time.

Most installers take the matching transformer for granted. Basically, its purpose is to match 75 ohm coax cables to the 300 ohm input of a TV set. This the Blonder-Tongue Cablematch does most efficiently, most precisely. But here the similarity between the Blonder-Tongue Cablematch and all existing matching transformers ends.

First: it is housed in a high-impact plastic case. This eliminates the grounding problem where low cost TV sets (series circuit models) present the problem of a hot chassis. Second: it uses a new type of solderless plug that will save installers many hours of installation time with coax cable. Called the Blonder-Tongue Solderless Autoplug, it ends the need to un-braid coax shielding or to solder the connector. Further, it assures a connection that will stand twisting and tugging, almost any abuse that the cable and connection will be subjected to while the set is being moved. With the Blonder-Tongue Autoplug you simply strip the wire, slide on the connector and crimp it. The special neoprene insert connects the center conductor firmly; teeth pierce the insulation to make contact with the shield. This connector is a time saver on initial installation. It also offers new convenience in easy connect and disconnect for maintenance. No detail has been overlooked in engineering the best matching transformer available today. Instead of the usual twin-lead which must be stripped for connection to the 300 ohm terminals of the TV set, the Cablematch uses heavy duty output leads with spade lugs.

You'd think that a product with so many refinements and innovations would cost more than other matching transformers. Not so. The Blonder-Tongue Cablematch is one of the lowest priced matching transformers available today.

RELATED EQUIPMENT

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- MT-11, 12, 17 or 23db.
- MTO-11, 17db inserts available for 12 and 23db.
- ST-4-75MP — 12, 16, 20, 25, 30, 40db. Back matched.

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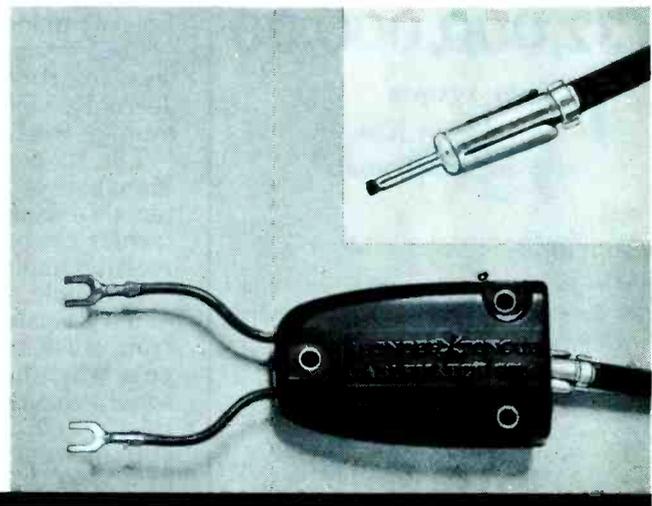
- TS-772 — 2-way splitter. Back matched.
- TS-774 — 4-way splitter.

SPECIFICATIONS

- **INPUT**—75 ohm Solderless Autoplug.
- **OUTPUT** — 300 ohm 2% inch wires with crimped on lugs.
- **MATCH**—4:1 or better.
- **UNBALANCED COMPONENT REJECTION**—18 db minimum.
- **TRANSMISSION LOSS**—1.5 db maximum (54 thru 103, 174 thru 216 mc).
- **SIZE**—2½" L x 1½" W x 15/16" H.
- **WEIGHT**—2.4 ounces.
- **CASE**—High impact polystyrene.

FEATURES

- **NO GROUNDING PROBLEM WITH HOT CHASSIS** — transformer is housed in non-breakable plastic case for complete isolation.
- **SECURE, RAPID CONNECTION TO COAX** — Blonder-Tongue solderless AUTOPLUG ends need to un-braid coax shielding or to solder. Connection is secure. Easy connect and disconnect from tapoff.
- **EASY CONNECTION TO SET** — spade lugs used to connect to 300 ohm terminals of set.
- **ECONOMICAL** — low cost, saves big money in installation time.



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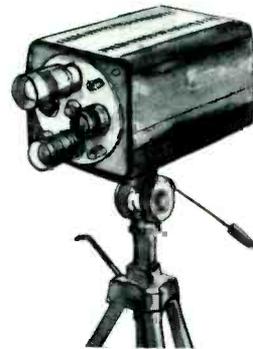
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SYSTEM HORIZONS



PEOPLE . . .

Tom Shea has been promoted to the newly created position of Closed Circuit TV Manager at Blonder-Tongue Laboratories, Inc., according to an announcement by Harry Gilbert, Vice President and general manager of the Newark, N.J. electronic firm.

Formerly eastern sales manager, Mr. Shea joined Blonder-Tongue nine years as a quality control engineer.

In his new position, Mr. Shea will have full responsibility for all industrial television products and installations.

Caywood C. Cooley, Jr., has been appointed Director of Product Planning, a newly created staff position for the Jerrold Electronics Corporation, according to an announcement from Robert H. Beisswenger, Vice President and General Manager.

Cooley and his new staff will be responsible for the planning, basic design review, recommendation, approval and field testing of new products plus competitive evaluation and field testing of new and present models.

Cooley joined Jerrold in 1950 and was instrumental in establishing Jerrold's oldest division, the Community Systems Division.

Lee R. Zennick has been named Manager of the Community Systems Division of the Jerrold Electronics Corporation, according to a recent announcement.

Zennick was previously Community Systems Division Manager from 1959 until December of last year when he left the firm for personal reasons. He has been in the CATV field for more than 12 years starting out as President of his own CATV Distribution firm, Antenna Systems of Ohio.

Zennick's responsibilities will include the sales, engineering and marketing of all of Jerrold's CATV equipment and systems, especially Jerrold "turn-key" systems which

are completely Jerrold surveyed, designed, installed and checked out for performance before being turned over to the systems manager.

Also on the Jerrold announcement list this month is the appointment of **Leonard L. Rosenfield**, promoted to Manager of Manufacturing for the Jerrold Corporation.

Mr. Rosenfield's staff will coordinate and service the manufacturing facilities of the Corporation's five subsidiaries: Analab Instrument Corporation; Harman-Kardon, Inc.; Pilot Radio Corporation; Jerrold Electronics Corporation and TACO.

PLACES . . .

The **Community Systems Division of Jerrold Electronics Corporation**, Philadelphia, Pennsylvania has announced the signing of a \$150,000 contract for a video microwave point-to-point transmission systems to supply Logansport and Peru, Indiana with 3 channels of commercial television from Chicago, Illinois, and two additional channels from Bloomington and Indianapolis, Indiana.

The contract was concluded with Microwave Communications, Inc.

Equipment to be supplied includes towers, antennas, transmitting and receiving units, buildings and the necessary supplemental installations.

A new statewide communications network for coordinating supervisory, engineering and maintenance operations has been ordered from Motorola by the State of **Vermont Highway Department**.

Equipment ordered for the new system includes seven mobile repeater stations, 10 base stations, one master control console, 100 mobile radios and two portable units.

The new network will operate on two frequencies, one channel for all calls transmitted by repeater station equipment and the second channel for all messages received by the stations.

(Continued on Page 34)

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By Ira Kamen

In Hartford, Connecticut, a husband growled "where'd we get so many neighbors all of a sudden?" In Denver, Colorado, a housewife may show a guest who arrived late, to a spot on the floor; she had simply run out of chairs.

In Etobicoke, Canada, another housewife may be passing coffee and cookies to eight guests she had somehow managed to squeeze into a 14' x 10' living room.

The new phenomenon of Pay-Television is now putting the TV households through something they'd been through before, years ago when they were the first people on the block to get a television set and all the neighbors had come to stare at Milton Berle mugging over a ten-inch screen.

Pay-TV is here—in at least these three cities, and two applications are pending before the FCC and more are in the background for over-the-air tests. CATV owners



Shown here is the Zenith Phonevision Decoder which has a "PV-TV" switch. "PV" is for decoding scrambled broadcasts, and "TV" makes the direct connection to commercial TV reception.

When Pay-TV comes to your town

are in negotiation with many Pay-TV proponents — why now — because Pay-TV libraries are being assembled for playbacks on 16mm TV projectors and Videotape equipment, and more and more sporting events are being blanked out. Pay-TV is on its way to many more, and it doesn't look as if anyone can stop it — even if they wanted to. In fact, the inside word is that even the networks, having found they can't lick it, may join it! Major corporations like RKO General, Zenith, Dun & Bradstreet, Reuben H. Donnelly, Lear-Siegler, Subscription TV, Inc., Paramount, Famous Players, Tele-globe, TECO, MacFadden-Bartell, TelePrompTer, Home Entertainment, and many others are now in the battle for this new market.

The Pay-TV systems being installed around the country in accordance with the FCC Third Report or for CATV installations comply with specifications which require an unbreakable security, an accurate arrangement for recording the program purchased by the subscribers, and an effective procedure for converting the recorded data into an integrated billing system. The system in addition must be compatible with the economics of the nation's market. Further re-

quirements insist that any proposed system function in a manner where it can grow in operation and be competitive to advertiser-sponsored TV, and also anticipates the future requirements of color and UHF as these two advancements become common to the art. The unit in the subscribers' homes should comply with all electronic specifications and have underwriters' approval.

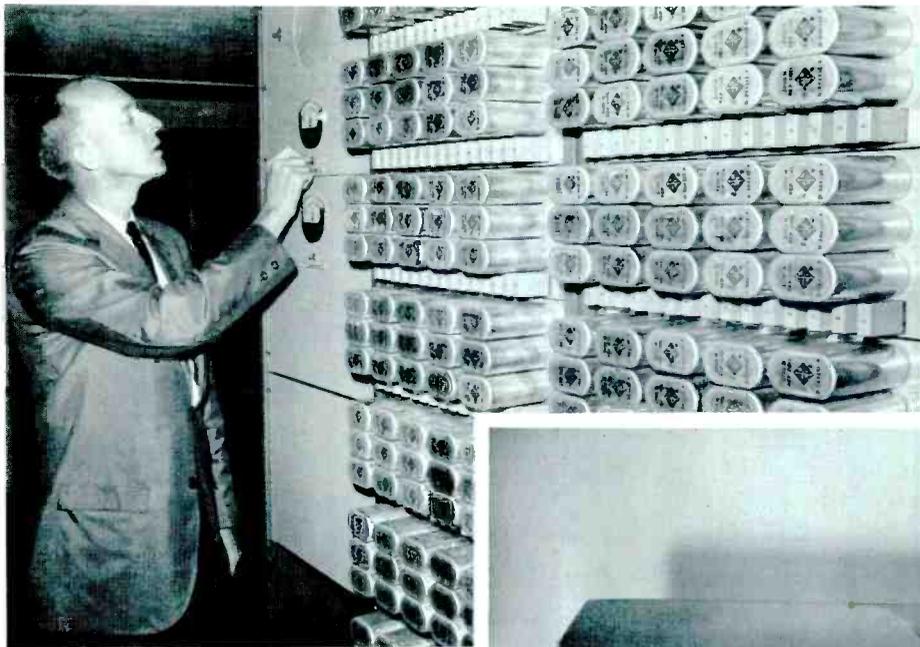
What does this mean to you? Well, it's your business — your customers pay their money and take their choice.

The people against Pay-TV have tried to claim that this system is one more way to pinch your customer's pocketbook, that they will be paying money for what they already see for free.

The people for Pay-TV — or subscription TV as they prefer to call it — claim that their system may be the best thing that ever happened to your budget. Their idea is not to replace the free TV that you already have, but to add to it a new theatre in the home. They claim that you and your family — plus the neighbors you'll probably invite in as you did when there were only a few TV sets in the neighborhood — will see events in

the living room that you would have had to go out to see before — that you'll see first-run movies, plays, night club acts, concerts, big-time sports events, etc., for less than the cost of a single ticket at the box office — and without any of the cost of baby sitters, parking, and so on.

In Hartford, the system is called Phonevision developed by Zenith with RKO General as their franchise holder. To become a subscriber costs \$10 initial fee, and there is a monthly service charge of \$3.25 to cover the maintenance of a decoder combined with a data billing system installed in your home. Your television set is modified with the decoder, so that you can unscramble the picture and the sound on the Pay-TV channel. The local servicemen employed by Zenith's franchise holder will carry a Sam's PF booklet to each installation as the set is modified in three unit locations — video, sync, and audio. A tape in the billing system shows what you have watched during the month. You add up the tape at the end of the month and then send in your monthly bill. Subsequently, a collector may visit the subscriber's home and audit the tape to see that the correct bill has been paid.

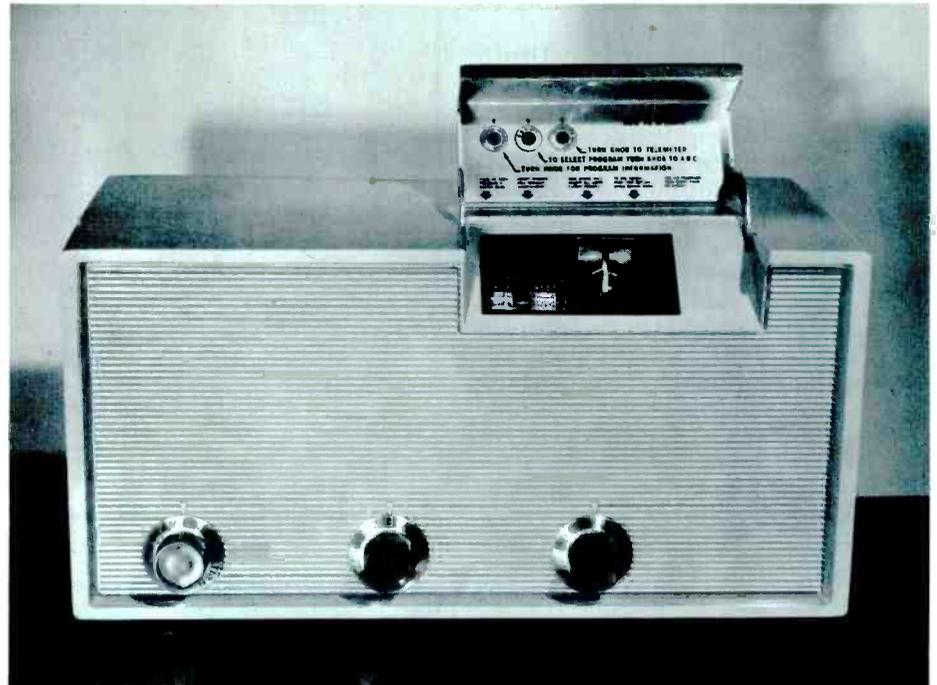


Teleglobe Pay-TV equipment forms the heart of the new Denver Pay-TV test program, now slated for fall in the mile-high city. George Price, Denver Sound Specialists tech-rep, monitors the audio program line which feeds Pay-TV customers in the Denver area.

Shown with the lid open is the Telemeter unit with the "Price" and "Credit" windows positioned on the left of the coin chute. When subscribers tune any one of Telemeter's three program channels, prices of programs offered instantly register in the "Price" window.

The unit now installed in Etobicoke, (West Toronto), called Telemeter, is a closed-circuit coin-box operated Pay-TV system owned by Paramount Pictures Corp., and Famous Players. Without going into the technicalities, this system is installed in an area by cables strung along the existing telephone poles and works well in suburban and rural areas, though it would probably be impractical in the urban areas of some cities. Installation in your home costs ten dollars. The Telemeter System allows you to tune in the Pay-TV channel barker who tells the subscriber what program material is scheduled, when, and how much. If you want to see the program, you deposit the appropriate coins in the box and in this way you get your picture and sound via a subcarrier tuner which converts the transmitted subcarrier to a useable VHF channel. The coins are collected at regular intervals by coin collectors.

In Denver, a third system — Teleglobe. Installation costs ten dollars, as in the other cities, and consists of a speaker hooked onto an audio line supplied by the telephone company — not onto your TV set or telephone. Teleglobe allows you to turn to the Pay-TV channel and you can already see a picture. The theory behind this is that if it's a movie or a play or a concert you're interested in, you'll be teased into tuning in the sound, too. This comes in over a telephone party-line which terminates in the high quality equalizing Speaker Amplifier Control Unit. This particular system bills the subscriber very much the



same way as with your telephone. Using a specially developed scanning system, the Teleglobe people can tell when you're tuned in for sound and they then send the subscriber a monthly bill. Payment is solicited through the mails. Figure 1 is a simulated subscriber bill which incorporates a monthly service charge. This service also includes all-day music like the kind you hear in restaurants who have a music service. The only time there will be a scrambled picture with Teleglobe is for sporting events — which you could presumably enjoy without sound — and for people interested in sports, they have a "sportscoder" which will be available at a nominal fee, to unscramble the picture.

The Teleglobe proponents have a broad combination of audio and/or video security systems available for both over-the-air installations and for adaption to existing CATV systems for installation over wires. All Pay-TV proponents basically

try to avoid conflict with the TV serviceman. With the exception of the system installed in Hartford, none of the systems proposed modify the TV set, and TV set service is always referred to the subscriber's serviceman. Zenith and RKO General make every effort to point service in the proper direction on customer complaints which involve TV failure. Pay-TV is a boon to the serviceman as most proponents recommend that the basic TV installation be modernized for cleaned up prior to the installation of the Pay-TV system. Subscribers who want the better entertainment available over Pay-TV may purchase new sets, install new antennas and/or arrange for set overhaul prior to making a commitment for a Pay-TV installation. The record is clear, Pay-TV will benefit the electronics industry since it will accelerate the retirement of old equipment and add many fresh dollars to the national economy.

Teleglobe, Telemeter, and Phone-

vision charge for approximately the same amount for a like event.

First-run movie: approximately \$1.00.

Nite-club show: approximately \$1.00.

Ballet: approximately \$2.00.

All reports from Pay-TV areas are favorable as the Pay-TV subscribers find that they spend an average of ten dollars a month. Compare this with a family's normal entertainment budget — and the savings in baby sitters, driving, parking, and other costs which are expensive and contribute nothing to an evening's enjoyment.

The Stanford Research Institute in their recent report on Pay-TV stated that "unless restricted by federal regulation, Pay-TV's revenue is expected to approach \$2 billion annually. Subscribing households may number 15 million, representing over 50 million people. Virtually all these households will be in urban or suburban areas. Perhaps 10 million of these families will receive their Pay-TV program via coaxial cable connected to their sets, and 5 million will own sets able to decode programs broadcast in "scrambled" form."

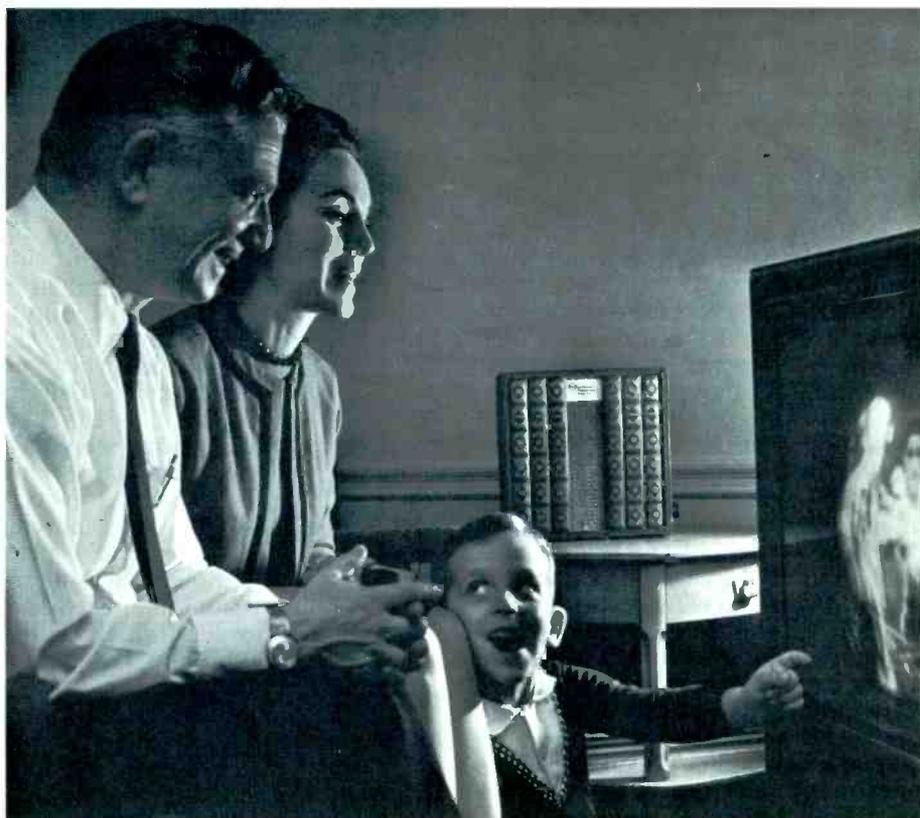
At time of this writing, there has been an announcement to the trade that Los Angeles and San Francisco are about to be wired as CATV-Pay-TV systems by Subscription Television, Inc. Subscription Television, Inc., as the new company is to be called, will have solid financial backing. Behind it are two well-established concerns: Lear-Siegler, Inc., an Los Angeles-based electronics firm with over \$100 million in assets, and Reuben H. Donnelley Corporation (a subsidiary of Dun & Bradstreet). They will put up \$6 million of initial capital, and \$22 million more will be raised through an issue of common stock, to be underwritten by William R. Staats & Co. of Los Angeles.

The CATV operator is in a captive position and will be a highly desirable associate of both over the air and coaxial cable Pay-TV proponents. When Pay-TV comes to your town, the Pay-TV proponent will come to see you, hat in hand, waiting to provide this plus entertainment to your subscribers and pay you a fee for making your lines and subscribers available. In turn the CATV operator will benefit from the fact that he will be providing this plus service to his subscriber's without their investing further than the installation they already have.

SAMPLE INVOICE

TELEGLOBE PAY-TV SYSTEM, INC.		
48 Post Avenue Denver, Colorado		
Mr. J. J. Jones 14 Elm Street Denver, Colorado	Date: 10-31-62	Customer No. 8642
<u>SERVICE:</u>	1 Fancy Loudspeaker	\$ 2.50
<u>PROGRAMS:</u>		
#1	10/06 Bing Crosby	1.50
#4	10/13 Opera — Carmen	2.00
#7	10/26 Musical — Camelot	2.25
<u>ARREARS</u>		2.60
	<u>TOTAL</u>	\$10.85

FIGURE 1



Teleglobes Speaker Amplifier Control Unit shown here contains speakers in an attractive bookcase cabinet, which brings in the audio portion of the television program.



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INSTALLING ALUMINUM SOLID SHEATHED CABLE

by George M. Acker
Aberdeen Company
Los Angeles, California

PROCEDURES FOR INSTALLING ALUMINUM SHEATHED CABLE

Methods utilized in the placement of aluminum sheathed cable are generally the same as for plastic covered cable, with certain variations to allow for the characteristics of the metal.

The greater rigidity of the aluminum sheath enables the cable to withstand rougher handling and heavier stresses than plastic covered cable, but once the cable is bent, it is difficult to re-straighten it. The cable should be handled carefully to reduce bending or kinking to a minimum as all bends must be straightened prior to lashing the cable to the messenger.

Because of the rigidity of the aluminum sheath, the sheath may buckle when the cable is bent around corners of small radius. Corners should not have a radius of less than 20-times the outside diameter of the cable.

Cable O.D.	Minimum Radius
.412	8¼ inches
.500	10 inches
.750	15 inches

Repeated bending of the cable must be avoided.

MESSENGER STRAND FOR ALUMINUM SHEATHED CABLE

The messenger strand used to support aluminum sheathed cable should be galvanized steel or aluminum coated steel. Messenger strand made from copper coated steel is unsuitable for use with aluminum sheathed cable and should not be used unless the cable has a polyethylene jacket over the aluminum sheath.

Messenger strand should be installed and guyed according to state and local code and as further interpreted by engineers for joint pole owners. The messenger strand may be tensioned to the same extent as strand used for supporting other types of cable.

LASHING ALUMINUM SHEATHED CABLE TO A MESSENGER

There are two general methods that may be employed in lashing aluminum sheathed cable to a messenger. The first method makes use of a moving trailer with reel to pay out the cable as it is taken up on a cable guide and lashed with a pull-type lashing machine, which is towed along with the cable guide by the same truck pulling the trailer. This is the preferable procedure and should be employed wherever practicable.

It is desirable to tension the cable as it is unreel from the moving reel onto the messenger through the

cable guide. Since the cable is stronger and more rigid than plastic sheathed cable, it should not be necessary to have the cable sag onto the ground between the reel and the cable guide and uniform tension can be applied at the reel to enable a smooth kinkfree operation. Tensioning of the cable will also help to straighten it. A reel brake can be made locally to provide the desired tension or one can be obtained from a supplier. The locally made brake can be a cross bar with coil springs to hold the bar against the reel flanges.

For a close fit of the cable to the messenger in the lashing operation, the cable should be straightened as it comes through the cable guide. A combination cable guide and straightener may be employed (In cases where the cable is being pulled onto temporary cable blocks, a separate straightening unit may be used with a roller guide.) When the straightener is adjusted to about ¼ inch over the cable diameter, the cable will be satisfactorily straightened without excessive tension.

The lubricant already applied at the factory is generally sufficient for the cable pulling operation. If more lubricant is needed, a light film of white mineral oil or petrolatum may be applied to the cable sheath, particularly at corners.

When the cable is paying out from a stationery reel (method number two), it is pulled into temporary supports on the messenger, preferably using cable blocks or rollers designed for such use, rather than cable rings. Because of the strength and rigidity of aluminium sheath, the cable blocks or rollers may be spaced at greater intervals on the messenger than those normally used with plastic sheathed cable. This distance can be determined locally by the amount of sagging between supports but perhaps as much as 40 to 60 feet.

This is the method normally used in off-the-road construction or where very rough terrain is being cabled. As the average length of aluminum, solid-sheath cable is 1000 to 1200 feet some linemen have found it advisable to install a complete length of cable in one continuous operation. Thus, the entire length is first supported on cable blocks or rollers.

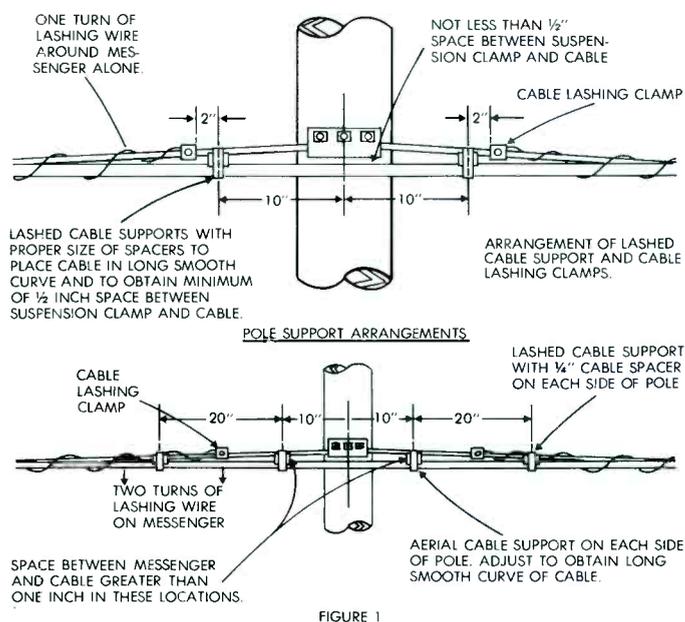
This method eliminates hanging one span at a time and keeps the cable in the air with less chance of kinks and damage. It, also, gives a more uniform and better appearing line of cable as the wavy effect can be reduced in the straightening and tensioning. Some tension can be applied to the cable when it is on rollers and as it is being lashed. For pulling or tensioning aluminum, solid-sheath cable a Kellems or Reliable grip can be used as it will not damage the cable. A convenient substitute might be a preformed clamp of the proper size.

LASHING WIRE

Stainless steel lashing wire, .045 inch in diameter should be used to minimize the possibility of galvanic action causing sheath corrosion. Both single and double lashing wires may be used for aluminum sheathed cables where multiple cables are being lashed to the same messenger. If a single lashing wire is employed, care should be taken to prevent loosening of the lashing wire in the lashing operation. The cable must be securely lashed to the messenger. The greater stiffness of aluminum as compared to plastic will create greater longitudinal forces in seasonal changes of temperature. The lashing wire must be tight enough so that the longitudinal cable movement will be restricted, minimizing the formation of cable bows or waviness. The use of two evenly spaced lashing wires will minimize the longitudinal movement, particularly on the larger cables. On steep grades, double lashing (some lashing machines lash two wires at the same time) will help hold and stabilize the cable and prevent slipping.

CABLE SUPPORTS

The preferred method of supporting the cable at poles is to terminate the lashing wire at each side of the pole with a lashing wire clamp, and fasten the cable on each side of the pole with a lashed cable support that has a stainless steel band and a plastic spacer. The cable support should not be over 10 inches from the suspension clamp bolt and should provide 1/2 inch space between the cable and the suspension clamp. (Lead spacers should not be used because galvanic action may result from the contact of the lead and aluminum). The method of terminating lashing wire at a pole and supporting the cable past the pole is shown in Figure 1.



As a further precaution to protect the cable at the pole, it is suggested that a six-inch plastic cable guard be placed over the cable at the point where the cable can rub on the pole or the suspension clamp.

At locations of cable splices, the cable is normally supported at each splice with lashed cable supports. In the case of aluminum sheathed cable, the same procedure is followed except that stainless steel straps

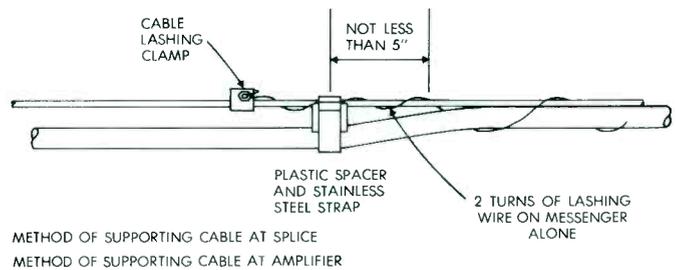


FIGURE 2

should be used. Spacers are of the plastic type.

A single support at each end of the splice, placed as shown in Figure 2, should suffice. Splice connections should be made as recommended by their manufacturers. In all splices, sufficient cable slack should be allowed. This is because thermal expansion of the copper center conductor and the aluminum sheath are not the same and this can cause trouble at the connection. Three acceptable cable arrangements are illustrated in Figure 3.

CABLE SPLICE (CONNECTOR) ARRANGEMENTS

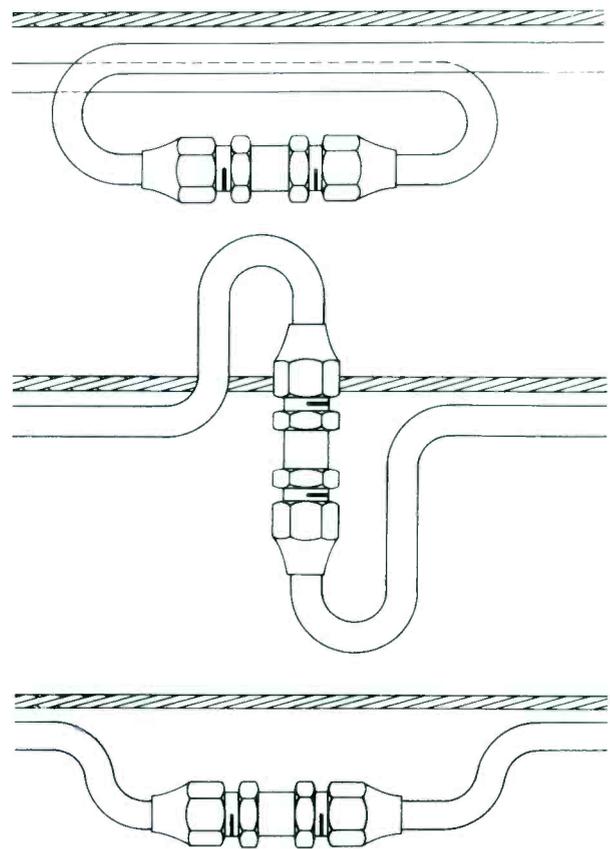


FIGURE 3

If the cable is using any of the messenger supported line amplifiers it is best to secure them to the cable and the messenger as provided by the manufacturer. A single cable support at each end of the amplifier, as shown in Figure 2, will suffice. Regardless of the type of splice or amplifier used, the cable must be arranged to provide proper radius and at the cable support, gradually and smoothly slope up to contact the messenger. Cable spacers should be carefully selected to produce this desirable arrangement and avoid abrupt bends in the cable.

Towers For 2-Way

There are two types of towers for 2-way communications. Those that stay up through all types of weather and those that don't.

Lets discuss the proper installation of your tower so you won't have to worry about those towers that don't stay up.

The most popular tower in the 2-way field is the Guyed Sectional Tower. This is evidenced by the large number of manufacturers marketing this type of tower. These triangular towers comes in varying heights per section, usually 10 or 20 foot sections. Widths of up to 18 inches are available between the vertical side support members. These towers lend themselves very easily to antenna work because of the ladder type of side construction. Usually the smaller towers are erected as a single unit by bolting the individual tower sections together on the ground and using a gin-pole for the tower raising. Your larger models are more easily erected section by section, bolting and guying as you go.

Before you choose your tower, however, you should survey for a tower site. Take into consideration: What do I want to accomplish with my 2-way? How high a tower and what kind will I need for this type of job? Will I need guy wires? Surveying your needs before hand you can save yourself many headaches and a considerable amount of money. If your tower is fairly small in height your tower can be self-supporting. If you choose a tower that must be guyed, approach the guying as an insurance policy and not just a maze of wires. Remember, you want your tower to stay up. Take into consideration your local weather conditions and guy accordingly then add one more set of guys for safety. Also remember what amount of weight your antenna will have when guying your tower.

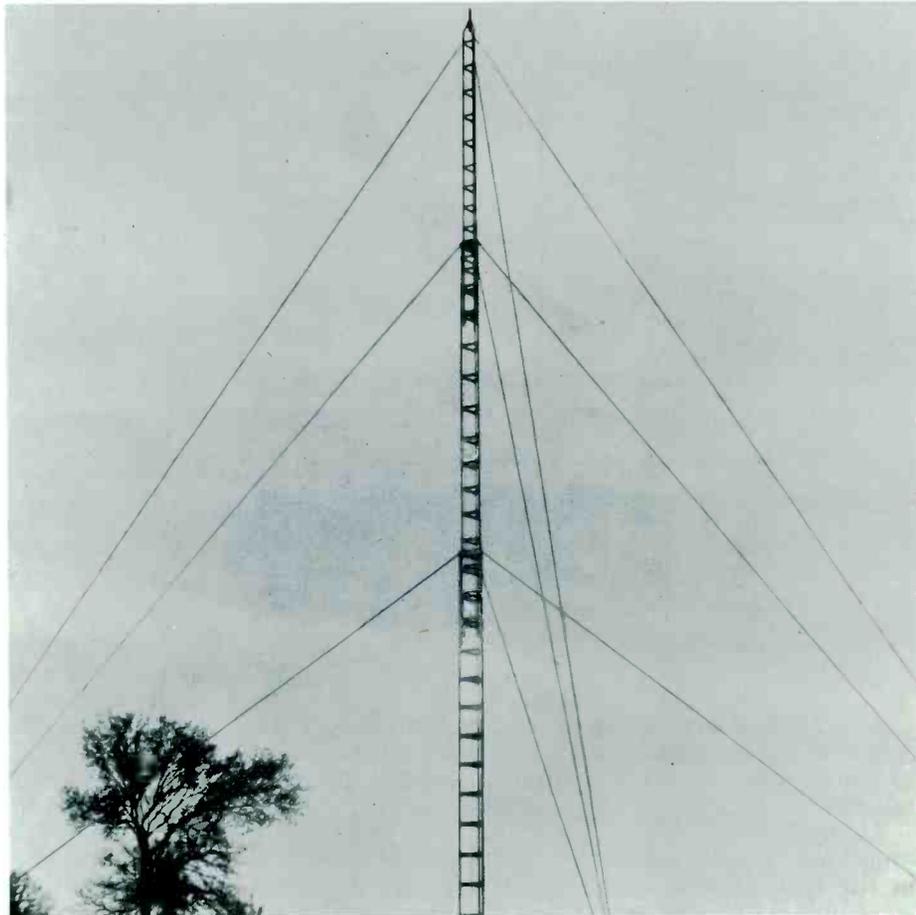
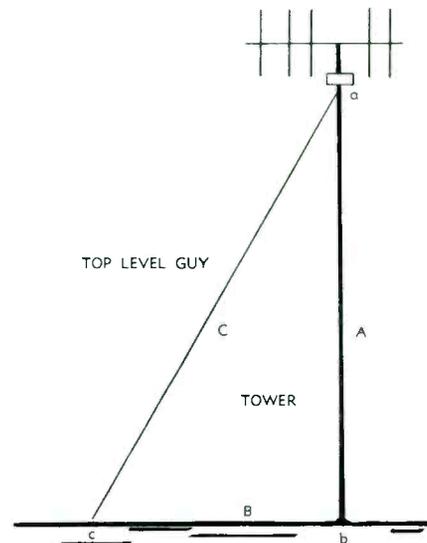
Computing the length of the guys is a very simple job involving noth-

ing more than knowing how to compute a right triangle. You know the height of the point where the guys will fasten. You also know the locations of your guy anchors. This gives you the 2 sides of a right triangle (figure 1) A, which is the height to your guy point and B, which is the distance to your guy anchor. By using the formula $C^2 = A^2 + B^2$, this will give you the length of your guy. Be sure and allow an excess to allow for the wire wrap on each end.

How many directions should the tower be guyed, If you guy from 3 directions be careful to space your guys at each level 120 degrees; if you guy in 4 directions your angle will be 90 degrees. 4 sets will give

you greater protection. Guy wire comes in various sizes. Only the strongest is good enough. For the smaller tower aircraft control cable is good, however on your larger towers heavier cable will be needed.

The guys must of course be attached to both the tower and the ground anchors. The use of U-bolt clamps made specifically for guying is recommended. You will want a size clamp that will accept two strands of wire because at this point your guys will double back.



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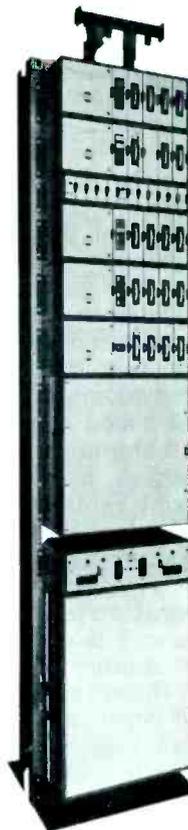
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COLLINS RADIO COMPANY, Microwave Systems Division, Dallas, Texas.

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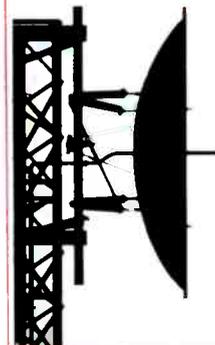
<u>FREQUENCY</u>	<u>POWER</u>	<u>IF BANDWIDTH</u>
5925 to 8400 mc	100 mw	15-25 mc
	1 w	15-25 mc
	5 w	15-25 mc
10,700-13,200 mc	50 mw	15-25 mc
	500 mw	15-25 mc



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The Story of Community Antenna Television

by Milt Shaw
San Francisco, California

Although the community antenna television industry has progressed slowly and silently, it has become a major factor today in the development of television in hundreds of small communities throughout the nation. Community antenna television, herein to be referred to as CATV, has brought television to thousands of homes beyond the normal range of television stations and thereby has helped to establish television as a national service. Subsequently, the development, growth, and improvement of CATV has almost been synonymous to that of its commercial counterpart, but to a lesser extent.

The first semblance of a community antenna television system developed in New York in 1947 when master antennas first appeared on the roofs of hotels and apartment houses to pick up television signals and send them to individually wired rooms. From this start, the community antenna television concept developed and grew until many communities were using huge master antennas to pick up television signals and bring them via coaxial cable to homes that were either out of range of television stations or located in areas where mountains obstructed the signals.

As an industry dedicated to operating in the public interest, CATV brings multi-channel television signals to 1,069,500 homes or an estimated 3.5 million viewers. However, not all of these viewers are located in small communities and rural areas. There are some CATV systems that are located in urban areas like San Francisco and Seattle where hills or mountains block normal reception.

A Beginning

The first true CATV system came into existence in 1949, in Astoria, Oregon. Astoria, like many similar communities, was beyond the range of television signals, which at that time was 50-miles at the most; the nearest station was 125 miles away in Seattle, Washington. Aware that television signals travel in a theoretically straight line from the transmitting antenna, a group of local engineers erected a single antenna on a nearby mountain to catch the television signals and pipe them down to the cities' homes by coaxial cable.

A year later, a second system emerged in the mountainous area of Pottsville, Pennsylvania. To stimulate the sale of television sets, the local dealers banded together and put up a CATV system at a cost of \$580,000. The system brought in two channels and much improved reception.

The growth of community antenna television systems then began to spread rapidly when, in 1948, the Federal Communications Commission imposed a freeze on the licensing of new television stations owing to technical problems. With the threat to restrict the new medium to a few privileged urban areas came the impetus in many towns and cities to build CATV systems capable of receiving signals from the stations that did exist. The freeze was lifted in 1952; and CATV continued to grow, developing over 1,000 systems in 47 states and the Virgin Islands.

Bringing the Signal to Town

The basic operation of a CATV system involves bringing television signals into distant towns without deterioration of the signal. The first step of prime importance is the location of adequate signals and the installation of appropriate receiving antennas. Usually the antenna and attendant tower or pole is built after the CATV engineer has searched with special electronic instruments for the location giving the most reliable signal. If the location happens to be too far away from the community, the television signals are sometimes brought to town over a leased long-distance microwave service. Where a location is relatively near the community to be served, coaxial cable is used to transport the signals.

CATV systems use specially designed receiving antennas, one for each channel, aimed precisely in the direction of the transmitting station. These are placed on high towers, sometimes built as high as 750-feet, to reach strong signals. In addition, the signals are boosted by amplifiers before they are fed into a coaxial cable for the trip to the subscriber. As these signals are carried to town by coaxial cable, it is necessary to reamplify the signals every so often to overcome losses in the cable.

Subscribers and Economics

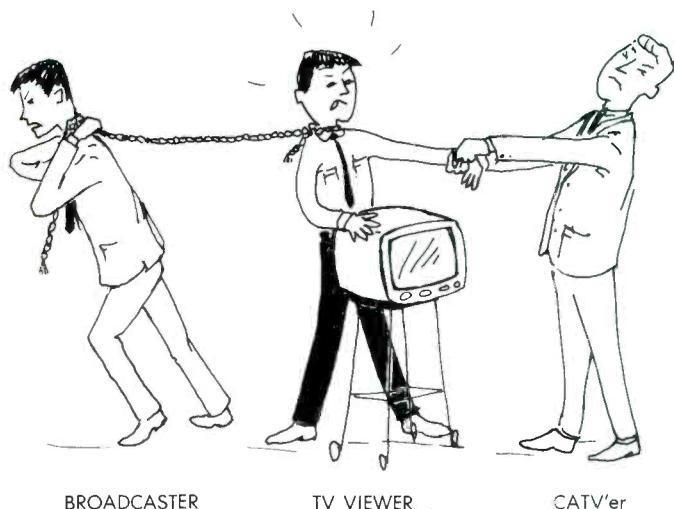
Getting a television signal to the subscriber's house is best described by comparing it to the installation of a new telephone. First, a technician surveys the home to ascertain where the small coaxial line must be run to conveniently reach the television set. Then, he must connect a "drop-line" from the house to the nearest coaxial cable line which is usually attached to electric power or utility company poles which the CATV company has obtained rights on. That is about all there is to it. For this service, the subscriber pays an installation fee which

may run from \$4 to \$200, the average being around \$30.

The usual monthly charge to the subscriber for the television programming ranges from \$2 to \$6. However, based on an average charge of \$4 per month, a subscriber pays \$48 a year for CATV. Most of the CATV systems serve as estimated 800 subscribers with only a few numbering more than 5,000. Yet, systems having 100 to 500 subscribers form the majority of the CATV industry. The average CATV system will offer four or five television signals and some may carry as many as nine. To make their service even more attractive, some even furnish FM stereo and hi-fi background music to subscribers.

CATV and the Broadcaster

In some areas CATV has been held back or suffered because of the attitude of local television broadcasters. This attitude seems to have fostered the idea that CATV has an overwhelming impact on local broadcasting facilities. On the other hand, there have been a number of broadcasters that have beheld gross advantages in the systems. Nevertheless, some broadcasters have complained that CATV systems



BROADCASTER

TV VIEWER

CATV'er

hurt their business because they provide the viewers with a choice of television channels which contain a wide variety of programs thereby reducing the chances that a local advertisement will be seen by all. Small broadcasters feel that with the element of CATV, local advertisers are somewhat reluctant to contract for time on the station. Another claim that has been made by broadcasters in small communities, primarily areas where there is only one station, is that: (1) CATV systems have refused to carry the signals of the local station; (2) local signals have been technically degraded by the CATV system; (3) the CATV system carries the same network shows and programs as the local facility thereby duplicating local efforts. Such practice is said to have had resulted in audience fall-off and a proportionate decrease in advertising revenue.

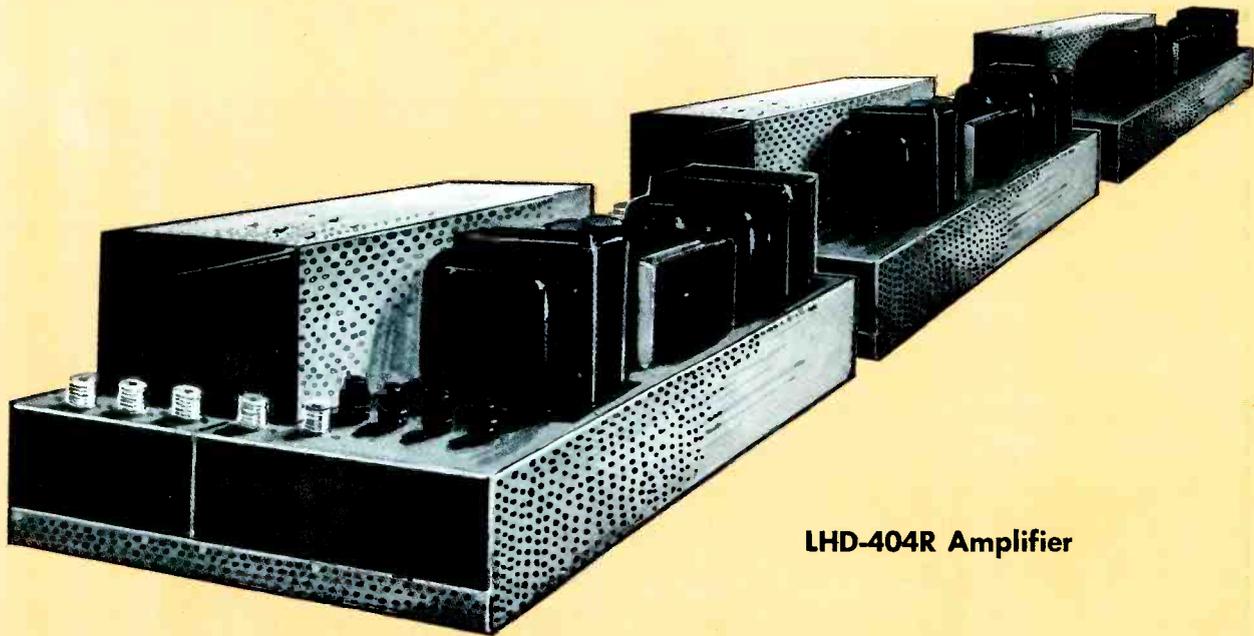
The FCC and CATV

The Federal Communications Commission holds no regulatory authority over the operation of a community antenna television system. In the past, the FCC has requested that authority be given it to regulate CATV but Congress has not yet responded



Photos Courtesy The Jerrald Corporation

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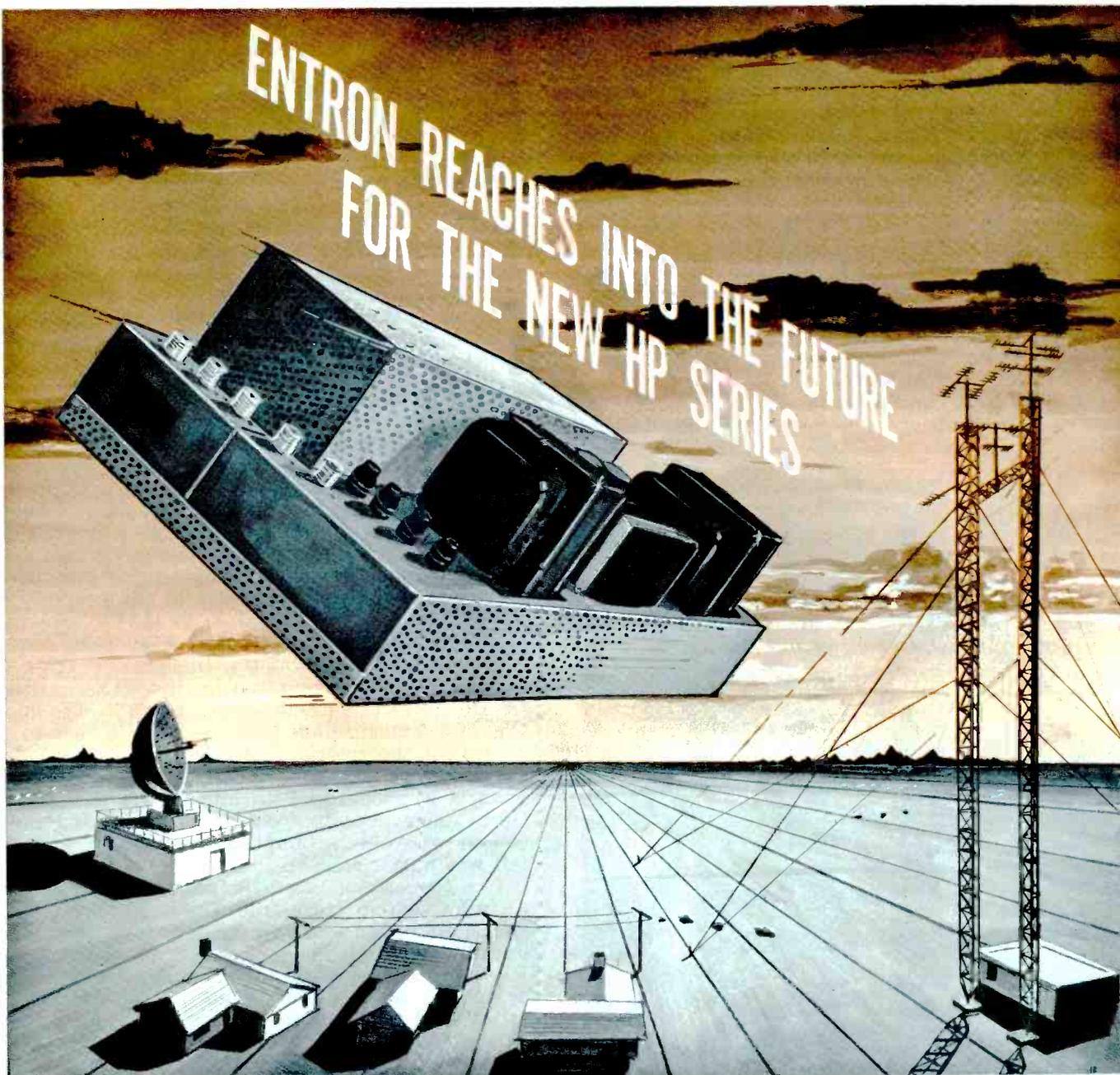
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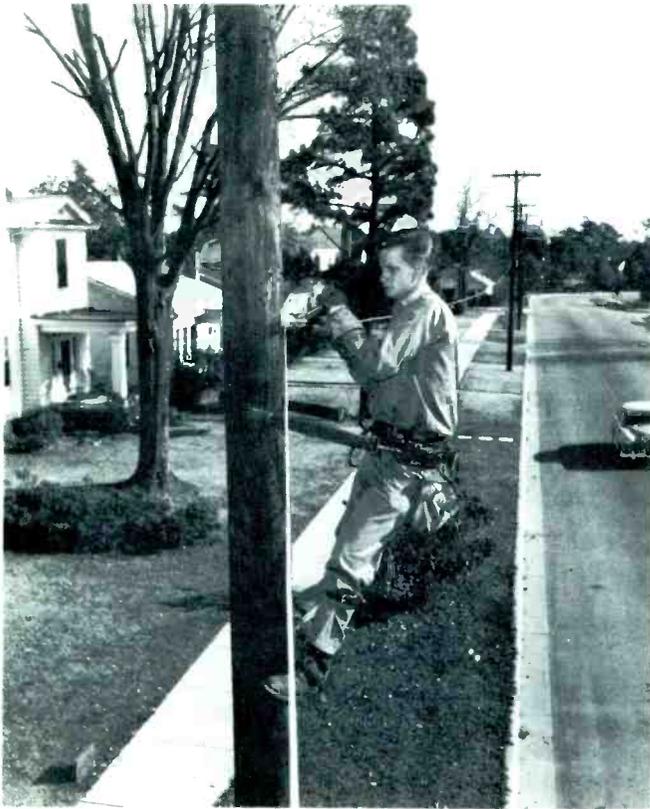
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by allowing the FCC to assume this responsibility. In spite of this, the FCC has attempted to regulate the industry by imposing non-duplication requirements and other criteria regarding the carrying of local television signals upon applicants for microwave grants where such applicants are involved in the transportation of television signals to a CATV system.

A strong backer of the FCC's theories regarding the regulation of CATV is the National Association of Broadcasters. The NAB has stated that their interest is solely in protecting the broadcaster and consequently they have suggested that the Commission regulate CATV operations to prevent duplication of local programs which they feel has created a condition of unfair competition.

The FCC first came to grips with the CATV industry as the result of its decision in the now-famous



Carter Mountain case in 1962. Through its jurisdiction over microwave common carriers, the Commission granted a protest by Joseph P. and Mildred V. Ernst, owners of KWRB-TV, Riverton, Wyoming, and denied the application of Carter Mountain Transmission Corporation for additional microwave facilities to serve CATV systems in Thermopolis, Riverton and Lander, Wyoming.

The FCC based its decision on the economic survival of KWRB-TV. An increase in Carter's facilities would render better and more efficient service to the CATV system serving a community with only one local television broadcasting station. Thus, it was claimed, the Riverton station would find it more difficult to sell its advertising due to a major split in the audience; and the demise of the local operation would therefore result.

KWRB's stand on the matter was that a grant of

the CATV application would have permitted the urban areas a wider choice of programming but would not have extended the coverage for the entire region included in KWRB-TV's contours since it would be too costly for CATV to enter the rural areas. Therefore, if KWRB were forced to cease operation, the rural people would be left without any service.

Today, there are about 40-communities whose local television stations compete for audience with a local CATV system. The National Community Television Association, a well-known spokesman in the industry, estimates that in only three or four of these communities is the situation a matter of controversy. In most cases, however, television stations enjoy the additional coverage CATV brings them.

Another Problem

CATV operators have met with further difficulty owing to circumstances arising from the procurement of a franchise. A franchise is usually granted only where the use of public property is involved. Since a CATV system must run cables along the public streets and right-of-ways the franchise functions to protect the city from damage claims resulting from violations of good engineering practice and malicious or accidental damage to the property.

The granting of franchises to CATV systems is relatively new and has recently even been required of long-established systems. In fact the grant is a legality recently recognized by the cities as needed for the protection of the public. In truth, the imposition of a franchise has been used as a means to gain control of the complicated CATV systems, in some cases. Where this has occurred, city governments have been encouraged to impose a franchise upon CATV operations by local broadcasters and theatre owners who were attempting to eliminate what they felt was unfair competition.

In a few communities, the desire for regulation of a CATV system arose from the belief that such an operation was in reality a public utility since it used lines or cables strung on poles throughout the city. However, courts of law have ruled that a CATV system is not a public utility. Also, it has been established that city governments lack the authority to regulate, in any form, the operation and rates, or set forth technical qualifications for a CATV system. In most instances, franchise arrangements have been equitable and designed along workable lines.

Possible Legislation

As the encroachment by local and state governments to regulate CATV systems has grown, the National Community Television Association has recognized the need for legislation providing for limited regulation when there is a legitimate complaint by a television station in the same community. In addition, the NCTA's Board of Directors would like to secure a uniform national regulatory policy with respect to CATV and establish a forum for resolving the CATV-Broadcast conflicts which continue to plague both industries.

The CATV industry has not readily come around to the concept of federal regulation, nor has the FCC favored the responsibility of imposing regulation over CATV operations. But, the Commission does have control over the microwave common carriers, some of which carry or provide relay services to CATV systems.

Although the FCC does not advocate general fede-

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ral regulation of CATV, it does favor legislation which would grant it powers to adjudicate disputes arising between local television stations and CATV systems that operate in the same area. A case in point is the previously mentioned Carter Mountain controversy in which the FCC denied additional microwave facilities to CATV systems in Thermopolis, Riverton and Lander, Wyoming. It concluded that the need for the service provided by the local television station to areas beyond the reach of the CATV system, outweighed the need for improved CATV service.

A Dead Proposal

A proposal to curb CATV competition was submitted before the FCC in 1961 by WSTV, Inc., Steubenville, West Virginia. The rule-making petition would have prohibited the grant of a license to a network affiliated television station who permits the distribution by wire of its programs by a CATV system which operates in a different community in which another television station broadcasting the same programs.

The purpose of the proposed rules as stated by WSTV, Inc., was to prevent large market television stations from extending their normal service areas by means of CATV systems in a way that results in the duplication of programs carried by, or which would be available from, smaller market stations in the latter's Grade A contour area. However, a television station can not legally prevent operators of community antennas from picking up their programs unless they are protected by a copyright or an exclusive license. Even though networks hold exclusive property rights to their programs, no legal action has ever been taken against CATV operators to enforce these rights. The Commission denied the petition on the grounds that it would place undue obligations on the television licensees, nor would this method of attack actually solve the problem.

Business Radio Service Becomes Popular

As the result of a study made by the FCC, in 1958, into the economic impact of CATV operations on the development of television broadcasting, the Commission looked into the matter of CATV regulation but decided it was powerless to levy restrictions on the systems and upon common carriers serving CATV systems. It further concluded that possible economic injury to a broadcaster from a common carrier, microwave-fed, CATV system is not legal grounds for refusal to authorize such facilities.

Despite the wide-spread use of point-to-point microwave common carriers in relaying television broadcasts to CATV systems, operators of the systems have shown a new interest in private microwave carriers for obvious reasons. FCC license renewal regulations require the microwave common-carrier to show at least half of their services are rendered to subscribers independent of the carrier. To forego these consequences, CATV operators have been applying for private microwave systems in Business Radio Service to relay television signals to their systems. The first such application granted by the FCC, authorized the CATV system of Wyoming, Inc., to bring the programs of two Denver, Colorado television stations (KRMA and KTVR-TV), to a CATV operation in Casper, Wyoming.

Recently the Commission has proposed to adopt rules and regulations in the Business Radio Service to

govern the authorization in that service for microwave point-to-point television signal relay facilities where the CATV system proposed to be served operates within the Grade A contour of a television station. The proposed rules would: (1) grant authorization if the CATV system, in an area served by an existing local television station, agreed not to duplicate simultaneously or 30 days before or after the broadcast of a program by the television station, provided the CATV operator has received at least 30 days advance notification from the broadcast station licensee of the date of broadcast. Further, if requested by the television station, the CATV system must carry the signal of the station without material degradation in quality; and (2) similar conditions would be imposed if there is a local television station authorized, but not constructed or operating, and also if there is a television channel assigned or subsequently assigned to the area to be served by the CATV system.

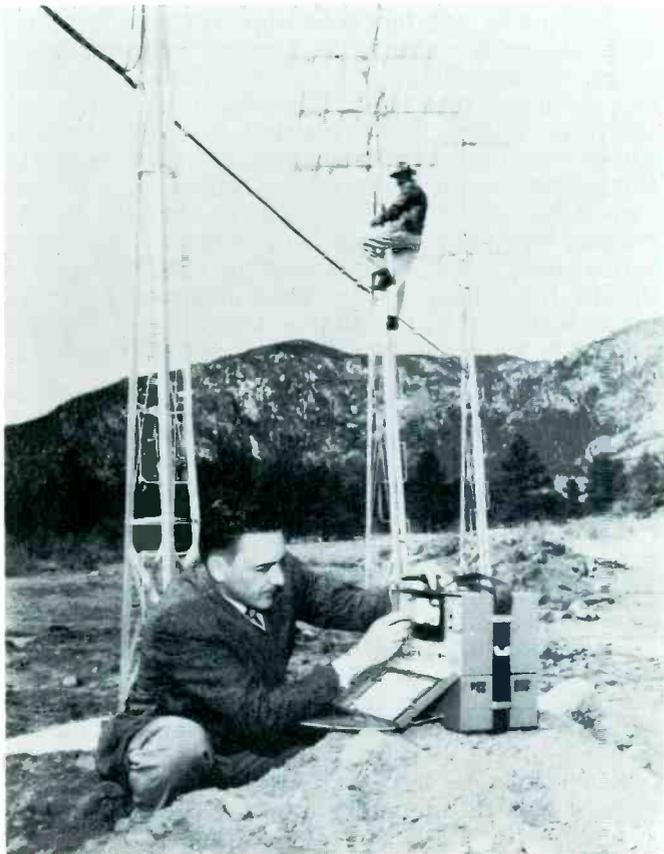
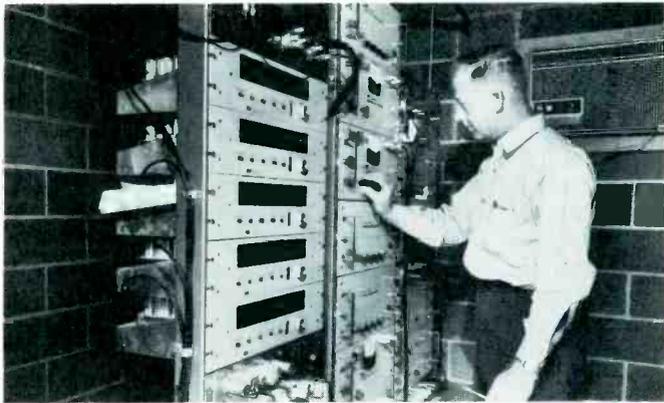
Furthermore, a freeze was placed on all applications for microwave systems in the Business Radio Service, pending the conclusion of the rulemaking, unless the applicant voluntarily accepted the proposed conditions. Feeling the freeze on the applications to be unduly broad, the Commission later revised their thinking to allow authorizations subject to the conditions that the microwave stations authorized may be used only to relay the signal of an educational television station.

In a statement made by Chairman Minow, now no longer with the Commission, dissenting in part regarding the freeze on microwave applications and speaking of the transmission of programs from educational stations, he states: ". . . I can see little or no likelihood that the importation of such programs into a community served by a television broadcasting station would seriously impair the station's ability to operate in the public interest." But although Minow did not believe the Commission could justify its requirement that the CATV operator carry the programs of any present or future local television stations as the price of a microwave authorization to import educational television programs, he does support the majority's decision — that CATV systems should generally carry the programs of local television stations.

Educational Television

One of the most important aspects of CATV is its application to the field of educational television as well as closed-circuit instruction. A large number of the CATV systems already carry local educational television programs to local schools in addition to closed-circuit signals from college television studios. Others offer free installation and service to educational institutions. A survey conducted by the National Education Association and the National Association of Educational Broadcasters showed: (1) 72 out of 78 reporting CATV systems are providing one or more ETV signals to subscribers and schools; (2) these programs come from 23 ETV stations and the Midwest Program for Airborne Television Instruction (MPATI); and (3) programs are received by 131,793 homes, 231 elementary and secondary schools, and eleven institutions of higher learning in 17 states.

A CATV system in Ithaca, New York presently carries the closed-circuit signal of Ithaca College and distributes it to 18,000 subscribers. The fully



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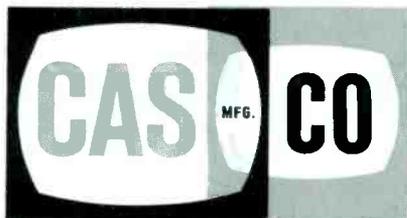
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equipped studio of the college employs its faculty and the local citizenry in providing college credit courses, cultural programs, and community affairs to the CATV audience. CATV has further allied itself to presenting community meetings and public discussions, thereby increasing opportunities for active community participation.

Although the CATV industry conceives of itself as primarily a receiving "business," the NCTA encourages its members to increase the intelligent use of television as a tool to be used by teachers and learners in professionally planned educational programs. The systems have set out to accomplish this goal through working together with local school officials and in sharing facilities costs and technical skill. Several CATV systems have contributed public services such as live studio telecasts of news, weather, sports round-ups, and panel discussions.

CATV is Big Business

Community antenna television systems have been in existence for almost as long as commercial television broadcasting, but of 50-million U.S. homes now equipped with television sets, only slightly more than one million are connected to CATV systems. Three commercial networks and 543 commercial stations share a total revenue of about \$1.3 billion a year, while 1,000 CATV systems only take in \$51.3 million, less than 4 percent of broadcasting's purse. But a more adequate indicator of CATV's potential lies in the amount of revenue received from each home served. CATV systems average \$48 per home per year, while the broadcasting industry's share is less than \$30.

With over \$450 million invested in CATV, the industry is growing in cities of 50,000 to 100,000 in population. Originally a small community undertaking, CATV now boasts of such owners as RKO-General, TelePrompTer Corp., Antennavision, Inc., General Industries (formerly National Theatres and Television Co.), Jerrold Electronics, and Daniels & Associates, Inc., a prominent CATV brokerage firm. The Daniel's firm has handled one of the largest transactions in the history of the CATV industry. It involved the sale of 18-systems in 10-states for a sum of \$10.25 million to Televents, Inc., a new organization headed by Alfred R. Stern, formerly an NBC vice-president.

In addition to the large investors, CATV system owners also include multi-hotel chain operators, television broadcasters, capital investment groups, manufacturers of distribution equipment, and local businessmen. In most circumstances, these companies are actively looking for more CATV investments. Each multi-system operator has a different reason for selling.

The future of CATV looks promising, but it is still undetermined. Nevertheless, the development of pay-TV appears to be inevitable. Incidental tests of pay-television, via CATV, were made as early as 1960 when the second Floyd Patterson-Ingemar Johansson heavy-weight championship fight (not televised commercially), was offered to CATV subscribers at a cost of \$2. The subscribers in 13 cities were asked in advance if they would like to see the fight and if so, to send \$2 for the privilege. Eighty per cent of the subscribers ordered the bout.

Contingents within the CATV industry are divided for and against pay-TV. Large systems operators

(Continued on Page 30)

Plain Talk on Service Calls

By Charles Wigutow
Telesystem Services Corporation

If you consider a customer's request for service a necessary nuisance, you are missing out on one of your best business builders. Here is a chance to cement the ties between you and your subscribers. By strengthening this relationship you help to make system salesmen out of your subscribers. Word of mouth recommendation by pleased customers, in this fashion, is about the only way to push through to near total community saturation.

An attitude of welcome to the service caller must be engendered throughout your organization. If the girl who answers the phone thinks, "There goes that pest again," it is bound to show in the way she responds. This goes for the cable technician who is routed on the complaint. A change of attitude can perform miracles.

There is no denying that some people are chronic complainers, or that a small percentage of all your customers are repeatedly responsible for a disproportionate number of service calls; and that certain individuals are compulsive complainers. Knowing this and even being assured by everybody concerned on the complaint that it is without foundation, you as manager should still be bothered with some depth, "Maybe the customer is right after all."

But even if such customers aren't right, you should still make them feel that you want them to come to you with their TV problems, and that you want to do everything possible to correct or explain these problems. Do this and you should have a valuable ambassador for your company.

How such people influence others in a community has been demonstrated by investigators of social behavior. Persuasion to some degree can be accomplished by advertising and general promotion in the mass media, newspaper, radio, direct mail, etc. But to penetrate more deeply, you require the aid of

those who are committed to your side to spread word about cable television within their immediate personal service. What kind of word will they spread about you?

There are a number of do's and don't's in handling service calls. Some that seem most obvious probably need greater emphasis because familiarity may lead to neglect. When promises are made they should be kept. A reluctance to make promises is understandable.



A man on the road cannot estimate the time an earlier call will take so that he can keep a promised schedule. Sometimes there is no other way out than to give a definite time. Ours is not a business that can always be scheduled for the most efficient use of a man's time or mileage. Keep an appointment even though it means backtracking. Should a delay be absolutely unavoidable, find some way to inform your customer. It is almost too elementary to say that a disappointed person will blame you for many other things than the immediate cause of disappointment.

Obviously the response to service requests should be prompt. The very reason you are in business is that you are catering to people who urgently want more choice of programs and better pictures. They want it enough to pay you regular-

ly. You are not in any position to dictate to your subscribers. They are entitled to their turn whenever that might be.

At the time your office closes, television is about to enter into the critical time period, prime time, when it means most to the audience. Do you have an answering service to take over your calls? Is the voice representing the cable company one you would be pleased to have in your office? Does the answering service operator know whom to reach in your organization? Have you made provisions for a technician to be on standby during the evening and weekend hours or, do you just hope that the system will keep plugging along satisfactorily?



Many CATV systems are located in towns without professional answering service. A phone recording device comes into play. You record the message. Does your office voice say something on this order "This is a recording. Please start talking at the tone. Give your request and your name and address."

I have heard commands like this too many times in sampling after-hour recorded messages to subscribers. Sometimes they have been outright challenges, "If this is an emergency and we mean emergency, then call this number . . ." Thus, all the good that might have been accomplished by the cable

(Continued on Page 33)

Our Man in Public Safety Communications

By Robert E. Brooking



THE FEDERAL AGENCY FORUM

One of the high spots of the 1963 APCO Conference was the Federal Agency Forum which was held on Thursday afternoon, August 15, with Commissioner Robert E. Lee as moderator. Public safety and law enforcement are not new to Commissioner Lee. He has considerable background with the Federal Bureau of Investigation and his father was a Chicago Policeman.

Other members of the panel included Robert M. Johnson of G.E.; Wesley Ballard of Motorola; Elmer Pothan of A.T.&T.; Byron Runyan of RCA and our good friend Robert Tall, Washington Correspondent for Video Communication Journal. All of these gentlemen are thoroughly familiar with the Washington scene.

Each of the members presented a short statement to the delegates prior to the question and answer period. Commissioner Lee stated: "I am conscious of the needs of the Land Mobile people." Another item that he mentioned was the large amount of apparently needless paper work. He proposed for Public Safety licensees, "open end licensing." If this proposal should be adopted, it would free the various States, Counties and Cities from the worries of reapplying for its Police, Fire and other Safety Radio Service licenses. Likewise the Commission would be spared a great amount of work. Commissioner Lee added: "The Commission has no reason to study a Safety licensee's use of the frequency by requiring a renewal. If the licensee has done wrong, the license could still be set for hearing and revoked if necessary."

By relieving the staff of the Commission from these duties, there would be more time to devote to more important things.

Mr. Johnson, who is primarily concerned with the land mobile radio needs of various Federal agencies, wasted no time in coming to the point. "The problem of space for land-mobile communications transcends all other considerations." He went on to explain

that systems needed for the defense of this country are held up simply because of the lack of spectrum space for them. The answer: "We must go to Congress and even the public with our story" . . . "There is one big chunk of spectrum space which must be taken from TV."

Wesley Ballard agreed that the situation of the Land Mobile Radio Services had become critical and a solution must be found.

The questions were to the point and so were the answers. For the first question, Commissioner Lee was asked for an explanation of the fact that in spite of extensive testimony presented in Docket 11997, APCO had apparently failed to convince the Commission of the needs for additional spectrum space use by the Police Radio Service or even of its essential role to our internal security. Commissioner Lee replied that not only Police but all other users of Land Mobile Radio had not done well because they are not as active a political force as they might be and the Commission is sensitive to political pressures. To illustrate the point Commissioner Lee mentioned education. The political climate right now is that "education" gets almost anything it wants. Any time a request is made of the Commission for spectrum space for "education," it is granted; no channel loading, no pages of facts, just the political climate. The most recent example of this phenomena is the recent Report and Order in Docket 14744 in which a new Educational Fixed TV Service was authorized to use the Operational Fixed Band, 2500 to 2690 Mc., although much evidence was submitted to prove that the new Service could be adequately accommodated either between 770 and 890 Mc or 1990 and 2110 Mc.

In response to questions about what we should do to correct this situation, Commissioner Lee stated that we have a new Commission and that these Commissioners are well aware of the serious problems of the non-broadcast users. He mentioned that all seven

Commissioners will be visiting Los Angeles the end of September to see for themselves just what the problems of the Land Mobile Radio Services are in the worse congested area of the United States, as far as radio spectrum. He added that Public Safety had not been the motivating force but that the National Association of Manufacturers Committee on Manufacturers' Radio Use and its Chairman, Victor Reis, of Bethlehem Steel, had been. However, various user groups, including Public Safety, will participate in the activities. Commissioner Lee concluded with the statement that the new Chairman of the FCC, Commissioner Henry has an open mind. He is willing to listen but will be more inclined toward showings of need rather than opinions, as will the other Commissioners.

To a question regarding the role of the manufacturers of two-way radio equipment in obtaining more spectrum space, Wesley Ballard of Motorola stated that while the manufacturers had been making efforts through the Land Mobile Section of EIA and would continue to do so, the necessary political force to place non-broadcast radio needs in their proper place before the Commission must come from the licensees themselves, i.e. Petroleum, Power, Truckers, and in the case of Public Safety, the States, Counties and Cities. Mr. Johnson added to this theme by stating that Land Mobile needs less organizations; that the users should consolidate, unify their viewpoint and start a program to inform Congress and the general public of the situation. He paid particular tribute to the formation of the Public Safety Communications Council as a step in the right direction, but added that we should begin working in concert with user groups outside of Public Safety.

Bob Tall was asked why the Commissioners had failed to attend the APCO Conferences. Mr. Tall's answer was very much to the point: "Why hasn't APCO invited them?" He then went on to explain that simply because a problem exists in public safety communications, we should not expect the Commission to initiate action to correct the situation. Mr. Tall added, "the Commissioners, as well as the staff personnel of the agency, have been more than anxious to express their views and participate in the meeting if they are asked to do so." Commissioner Lee expressed agreement with this statement.

Mr. Runyan was asked why RCA had not supported the Land Mobile Section of EIA in its efforts to obtain needed spectrum space for Land

Mobile Radio through reallocation of TV channels 14 & 15. He replied that RCA had been as active as others in evaluating what steps could be taken to resolve the non-broadcast frequency congestion problem. RCA agreed to asking for one channel (14) but felt that EIA was not justified in asking for two channels until such items as a better engineering approach and more judicious use of power were exhausted. Mr. Runyan used for an example, a Police Radio system in a city of a few square miles. The system, operating in the 150 Mc band, used a 250 watt transmitter with a 6 db gain antenna mounted on a tower, with the result that interference was caused to a co-channel user 110 miles away. He added that RCA would have no objection to reallocation of some of the higher UHF channels from TV service, "if the Land Mobile Radio users can show a concrete need for additional frequencies."

Commissioner Lee was asked what could be done to improve the contact between the Public Safety Radio users and the Commission. He discussed, at some length, his proposal for an industry-government committee for the Land Mobile Radio users, adding that the most important single benefit from such a committee would be the creation of a direct "pipeline" to the Commissioners. He urged APCO to get together with other Public Safety groups in support of this proposal and upon the creation of the committee to participate actively in it.

Mr. Pothén of A.T.&T. who is active in National Industry Advisory Committee told the APCO members that they and Public Safety radio in general have a responsibility to be ready as this Nation's first line communications force in case of a national emergency. He stated that in case of a nuclear attack on this country, many of our commercial wire facilities will be wiped out and although every effort has been made to provide alternate paths and systems, it may well be that the Public Safety Radio systems will be needed to provide lines of communication between Federal Officials and those Broadcast facilities that are still available so that the general public can be informed of the prevailing situation. Mr. Pothén added that while we all hope such a national emergency will never occur, we must recognize that it can happen and we must therefore be prepared to meet it.

In summing up, Mr. Tall pointed out that the fact that a problem does exist in Public Safety Radio does not mean that the Commission will automatically take action to correct the situation.

END

By Robert E. Tall



Our Man in Washington

Low-Band Splits Disbursed — More than 100 new split channel frequency assignments have been spread among the land mobile radio services for public use as of November 25, as a result of final FCC action in docket 14503, which was initially proposed about 2 years ago. The docket had been put out by the Commission originally, however, as major relief for the business, special industrial and local government radio services, and these services did not fare as well as others in the final allocation of the 25-42 megacycle split channels.

The business radio service, for which the Commission had proposed 35 additional assignments in the service-allocation of the 25-42 mc band, was dealt a sharp blow by the Commission as it came out of the proceeding with only 12 new assignments, to give it a total of 46 low band frequencies, including the five 27 mc frequencies shared by the industrial services generally and subject to no protection from ISM interference.

The special industrial service, which had similarly looked toward the 31 additional frequency assignments proposed by the Commission, was awarded 21 added frequencies, to bring its total number of assignments in the 25-50 mc band to 60, including the five 27 mc "junk" frequencies.

The local government service, for which the FCC had proposed 31 new assignments, got only 11, giving it a total of 31 low band assignments.

Most of the other radio services using the low band frequencies which had shown a need for additional assignments in the band, came out of the allocation proceedings with some relief.

Notable in the later category were the police and fire services, for which the Commission had proposed no increase in low band assignments. In the report and order, the Commission assigned the police service 34 additional frequencies, giving it a low band total of 153, and the fire service got 14 additional assignments, to take it from 39 to 53 frequencies available in the low band.

No service actually "lost" frequen-

cies. It had been proposed that the urban passenger segment of the motor carrier service would lose its low band assignments, but the Commission had a change of heart in its final decision.

Several did not gain, however, as the citizens service maintained its 28 assignments; forestry conservation held onto its 29 in the 25-42 mc band, for a total of 48 below 50 mc; and the telephone maintenance service retained its one exclusive assignment in the 25-42 mc band. The latter service, of course, also continues its access to the 27 mc junk assignments, and its exclusive assignment at 43.16 mc.

Other services receiving additional assignments as the result of the 25-42 mc split channel service allocations are the forest products service — seven new split channels; power — ten channels; petroleum — 13 splits plus exclusive use of 30.70 and 30.78 mc, which it formerly shared; highway maintenance — two new assignments; and special emergency — two new frequencies.

Low band service totals in these services now include 70 power; 86 petroleum; 65 forest products; 37 highway maintenance; and 19 special emergency. These totals include the five 27 mc junk assignments where applicable.

Narrow spectrum segments were also marked for industrial, public safety, and land transportation developmental operations.

Aside from the specific division of the new 25-42 mc frequencies among the various services, one of the major departures from the original rulemaking proposals in the docket was the abandonment of the Commission's plan to hold to a "block allocation" pattern. The outcome of the rulemaking is based on a plan of interspersation of frequencies between coordinated services, in a move to keep existing users on their present frequencies, rather than requiring many of them to shift, as had been proposed.

Filing Fee Fiasco — The FCC has set the stage for the next round in connection with its plans to start collect-

ing "fees for filing applications in most of its licensing activities" as of the first of the year, as it issued a memorandum opinion and order which it said "clarifies and makes minor changes" in its early May action adopting the fee schedule, and disposes of a total of 17 petitions which had been filed with the agency asking reconsideration of its action setting up the fee program.

The Commission's action disposing of the petitions for reconsideration thus cleared the way for opponents of the filing fee plan to attempt to gather support for a Congressional directive to the agency to call off the program, as the Senate did once before when the FCC moved too close to actually putting such a plan into effect.

Representative Walter Rogers (D., Tex.), who heads the House Interstate Commerce communications and power subcommittee, made it clear immediately that at least some members of Congress are violently opposed to the FCC's filing fee plans, as he blasted the plan the same day the petitions for reconsideration were denied in a speech on the floor of the House.

Mr. Rogers pointed out that his subcommittee plans to schedule hearings "as soon as practicable" on a bill

he introduced earlier which would 'prohibit the FCC from assessing fees or charges for services, publications, or instruments unless specifically permitted by law.' He charged that the FCC does not have the authority to institute the filing fee program, and declared that Congress should "promptly act so as to make it crystal clear that further attempts to encroach upon the powers of Congress will not be tolerated."

Questioned specifically on the subject by VIDEO COMMUNICATION JOURNAL, Mr. Rogers said his subcommittee will be calling for a hearing on his bill "just as quick as I can," but indicated that it will "probably" be "after the first of November" before the group can schedule such a hearing.

The Western Union Telegraph Co., meanwhile, in a letter to the FCC, has suggested a "credit arrangement" in connection with the filing fee program, under which the telegraph company would, once a month, send the agency a check covering the applications filed with the Commission during the preceding month.

TV Allocations Cracked By Astronomy
The first substantial crack in the FCC's armor of protection surrounding the

UHF television channels which it set up in a 1952 allocations proceeding came during October when the Commission announced that it has adopted a report and order making TV channel 37 (608-614 megacycles) available for the exclusive use of radio astronomy for the next ten years throughout the United States.

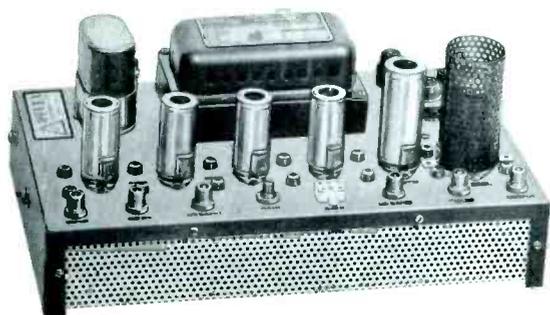
FCC proposals issued in March would have barred television broadcasting use of channel 37 within a 600-mile radius of Danville, Ill., the site of the University of Illinois' radio astronomy observatory, for a five-year period, but the nation's scientific community had contended that this would not be sufficient.

The Commission laid great stress on the fact that it is not, by its action, "reallocating" channel 37 away from broadcasting use, but at the same time announced that it is, during current Geneva international negotiations, pleading for reservation of the band on an international basis for astronomy.

By its action, the Commission indicated that its policy to encourage the fullest use of the UHF spectrum for television broadcast does not necessarily mean an 82-channel TV system, since, for at least the next ten years, it will be only an 81-channel system.

DELTA

H.B.C. HIGH BAND CASCADE \$195



FEATURES

- LOW NOISE INPUT
- EXCELLENT LINE MATCHING
- MATCHES EXISTING LO-BAND AMP STATIONS
- LOW COST TRANSISTORIZED AGC UNIT AVAILABLE

FULL DETAILS AND SPECIFICATIONS GLADLY SENT ON REQUEST.

The HBC is a completely new design of High Band/Broad Band cascable amplifier, produced expressly for operators of Low Band Systems who now face the necessity of adding High Band Channels. The HBC amplifier literally "Drops in" to any existing Low Band System that uses approximately 26 db spacing. All Low Band System operators will be quick to realise the tremendous advantage of fast conversion at moderate cost with no change in existing amplifier stations. The tilt control has a range of 6 db to match this spacing. Input and output circuitry includes a carefully designed High Pass - Low Pass filter, providing excellent line matching with minimum reflections. Both the input and output are provided with -20 db test points for combined signals. Fully regulated power supply, so necessary for constant performance in High Band operation, stabilizes both B+ and filament voltage. The special quality 10,000 hour double frame grid output tube combined with this voltage regulation ensures high quality and low intermodulation figures.



BOX 472, LEWISTOWN, PENNA. — *For All DELTA Products*

New Product Horizons



COMMUNICATIONS

Signalab Communications Sales, Box 12, Orange, New Jersey has been named exclusive manufacturer's representative for the new Auditor Monitor Receivers. These single-channel receivers are designed to provide monitor reception of VHF services in the 25-50 and 152 to 174 megacycle bands.

The units do not use transistors or printed circuits; are manufactured in the United States using U.S. components. Each set is single channel in design and includes a fine-tuning vernier adjustment for zeroing in stations that may be a little off frequency, or to compensate for receiver warm up drift.



Priced from \$34.95 to \$49.95, the units are available in several models for low and high band frequencies. Full information is available from Signalab.

Sinclair Radio Laboratories, 523 Fillmore Avenue, Tonawanda, New York recently announced a novel new approach to VHF mobile communications antennas. At first glance (and probably at second glance too), the antenna appears to be an innocent rear-view mirror in a handsome chrome container. The new antenna is heralded as a major break-through in hidden antennas for police and law enforcement agencies, as well as business users who wish the presence of two-way radio to remain a secret.



The Sinclair Model 50037 Mobile Mirror Antenna is an omnidirectional VHF antenna. The mirror-antenna combination requires no unusual installation techniques, mounting with two holes drilled into the vehicle's body much like standard auto rear-view mirrors.

The antenna itself covers the 152-174 megacycle range and is factory tuned to the exact operating frequency of the intended user with a VSWR of less than 1.5 to 1 at design frequency.

A series of testing results shows the antenna to be equal to or superior to a standard 1/4 wave vertical antenna. The testing results are available from the manufacturer upon request.

A new high-quality tamper-proof dynamic microphone designed for permanent use in permanent installations has been announced by **Shure Brothers, Inc.**, Evanston, Illinois.

The Model 561 has an attached cable and a standard 3/8-27 thread for direct mounting on a flexible gooseneck or fixed pipe.



The unit is compact (2-41/64 inches long, 1-23/64 inches diameter), and its voice-response peaked for base station installations. The unit has a low impedance permitting unusually long cable runs without adverse effects on response characteristics or levels. Frequency response is 40 to 10,000 cycles with a rising characteristic to 4,500 c.p.s. Price on the new microphone is \$32.50.

CONSUMER VIDEO PRODUCTS

The **Jerrold Electronics Corporation**, Philadelphia, Pennsylvania is showing a new space-research-oriented PARALOG line of television and FM antennas. The new antennas feature Cycloc insulators between active and passive elements for isolation from the boom and mast of the antenna; elements are snap-lock mounted for quick assembly; a square boom provides positive gripping and long life mating to the supporting mast or tower; Paralog elements provide more uniform and higher gain across either the FM or television reception frequencies. Gains available range up to 18 db (un-amplified) for the antenna series, with amplified versions available for additional gain in extreme weak signal regions.

Blonder-Tongue Labs, Inc., Newark, N.J. is showing a new 8-fold gain FM-stereo signal booster that has 18 db of gain.



The model FMB is designed to provide clearer reception in weak signal areas for FM broadcasting stations, particularly those stations who broadcast stereo programming. The need for a stereo signal booster, according to **Blonder Tongue**, is brought on by the 10 times greater noise problem, in signal ratios versus carrier ratios, that goes along with the wider band-passes required for stereo reception (and the lower levels of the stereo channels).

List price on the new amplifier is \$21.00.

LAB AND TEST EQUIPMENT

The **Analab Instrument Corporation**, a subsidiary of the **Jerrold Corporation**, has announced a new Single Frame Polaroid Camera System featuring an optional data chamber with its own optical system for placing sequence data onto the film rather than focusing the data through the main lens and shutter assembly.

The Type 3003-A or AD (optional data chamber attached) is a new product designed to work with portable or rack oscillography.

A combination frequency meter, deviation meter and signal generator has been announced by **Gertsch Products, Inc.**, of Los Angeles, Calif.

The new 8 inch high by 12 inches wide by 12 inches deep instrument features direct digital readout of all allocated channels in the 150-162 megacycle band. The unit also measures and generates all channels in the 450-486 megacycle band using 3rd harmonics. Accuracy is .0002% or 2 parts per million.

Generated outputs can be attenuated to less than 0.5 microvolts for receiver sensitivity checks. Outputs of 400 to 500 kc are available for i.f. alignment checks. As a deviation meter, the instrument measures peak FM deviation in two full scale ranges from 5 to 15 kc.



The unit operates from 117 vac, 230 vac or 12 vdc, or an optional rechargeable battery pack.

Model FM-9 is available for \$1,395.00 from the manufacturer at 3211 S. La Cienega Blvd., Los Angeles 16, California.

A new battery operated hand-carry unit for VHF-FM two-way communications has been announced by **General Electric's Communications Products Department**.

The GE Voice Commander charges on 117 VAC, and then operates from its own charged power for portable hand-carry use. Power input is from 1 to 1.5 watts. For additional information, write Section P, GE Communication Products Department, P.O. Box 4197, Lynchburg, Virginia.

Kaar Engineering Corporation, 2995 Middlefield Road, Palo Alto, California announces the availability of three RF Power Amplifiers for 450 to 470 megacycle operation.

When added to UHF transmitters, the units will raise the power output level to 35 watts. The higher power, says Kaar, will improve transmission range, system reliability and reduce dead spots in the present coverage area.

Highlight of the three models, one for base-desk top use, one for base-rack mounting use, is the third model, the 12A509 which is designed for mobile system use. The mobile model features a transistorized power supply.

KAAR RADIO COMMUNICATION PRODUCTS



#8105 Remote Control (Part of 117C903 System)

FOR WIRE LINE CONTROL OF REMOTE BASE STATION

An extremely versatile system designed to control radiotelephone station equipment through a two-wire circuit. System includes: Remote Control Unit, Switching Line Amplifier, and Desk Type Microphone. Selects from 3 channels or transmitters, amplifies and reproduces receiver audio, adjusts squelch, provides multiple remote control, and serves as intercom.

TR505/506 FM Radiotelephones

DASH-MOUNTED/TRUNK- MOUNTED UNITS

TR505 is a self-contained, dash-mounted unit. TR506 consists of dash-mounted Speaker and Control Head plus trunk-mounted radiotelephone. Output: 10 watts standard. Up to 35 watts (Base Station) with optional A509 RF Amplifier.

TR507 Repeater-Mobile Relay-Base Station

FOR MOBILE RELAY OR CONTROL LINK APPLICATIONS

Extends mobile-to-mobile coverage without separate base station by automatic retransmission of UHF signal. Features grid-controlled transmitter keying, either 19" rack mounting or 26" weatherproof cabinet, and 10-watt output which may be increased to 35 watts with optional A508 Amplifier.

For FREE DETAILS on above equipment, write:



KAAR ENGINEERING CORP.
2998 Middlefield Road • Palo Alto, California

CATV STORY

(Continued from page 24)

such as RKO-General, who has already entered the field of subscription television openly favor pay-TV in CATV's future. However, the smaller operators, like the small businessman who got CATV off the ground, oppose such a move.

The question now is not how to operate pay-TV, but whether to operate it at all. If it is to become successful it must offer a greater diversity of programming than commercial television now offers. Its success will be determined by the entertainment industry with which it will have to compete. However, as cable systems grow and the introduction of pay-television becomes apparent, theatre operators will be given an opportunity in pay-TV by working together with CATV operators on the installation of a compatible closed-circuit and over-the-air pay-TV system. The potential of such a system would increase the theatre audience capacity as well as the income from the CATV subscriber.

One final significant trend in the ownership and operation of CATV is the ever growing participation of the broadcaster in the CATV industry. As broadcasters begin to understand and participate in CATV operation, the sense of ambiguity and animosity may soon be replaced by one of mutual cooperation.

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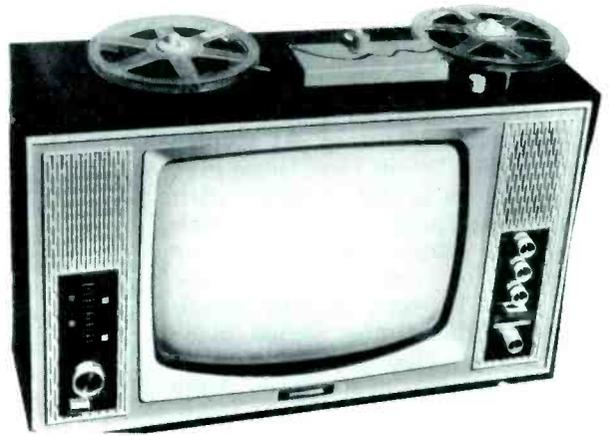
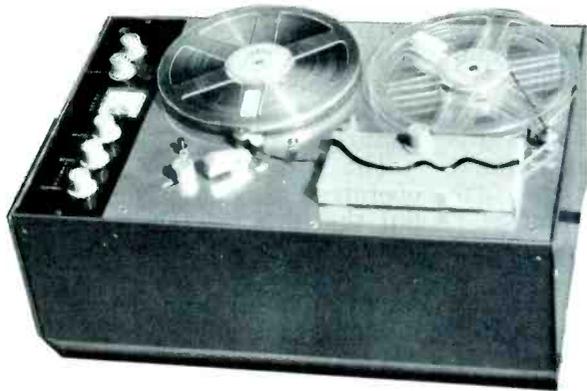
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First-Hand Report on . . . TELCAN

By Gordon J. King

This word is short for "canned television". It refers to the revolutionary video/audiotape recorder recently launched, after years of research, by the Nottingham Electronic Valve Company of East Bridgford, Nottinghamshire, England.

It is not revolutionary in as much as it is a video/audiotape recorder, for there is the Ampex machine (and others) costing in the region of 60,000 dollars, but because of its breathtakingly low price. It is designed to sell over here for about 62 British pounds, which is less than 200 American dollars!

It is no gimmick. Deliveries are geared to commence at the end of this year or very early next, either by the NEV company itself, or in a tie-up with another manufacturer.

The tape deck is no larger than an ordinary audio-only deck. Apart from its use as a separate video/audiotape recorder, NEV contemplates the device being incorporated into television sets for recording complete programs that cannot be viewed at the time of transmission. The set-up can be such that while a program on one channel is being viewed direct, the program on a different channel can

be recorded for later viewing.

TWO FORMS

The unit is, in fact, to be made in two forms: as a separate unit for use in conjunction with existing sets, and which can also be used as an ordinary recorder for sound only, for no greater cost than a sound-only recorder in the medium quality bracket; or as a "Telcan" insert built into a television set by the manufacturer. Such an addition, it is estimated, will add no more than 25 percent to the cost of the receiver.

It is said that the Telcan will eventually influence both the television and sound recorder markets. Indeed, there is every likelihood that set buyers of the future will not be satisfied with a receiver without the new recording facility while purchasers of middle-grade sound tape recorders may well be reluctant to settle for a sound-only instrument, when for the same money they can have video thrown in!

There has been world-wide interest in Telcan since it was first demonstrated in London and reviewed over the television networks. It is obvious, of course, that the instrument, which is a clean break-

through in the inexpensive video recording field, is likely to affect the whole future of domestic viewing.

Such a device also holds many potentials in the fields of commerce, industry, medicine, the arts and education.

DOMESTIC MARKET

One may well ask how a recorder which is planned to retail in the 200-dollar price bracket can ever stand a chance of doing the work of a highly specialized machine costing 60,000 dollars? The simple answer is that it is not meant to. Home movie enthusiasts do not expect their equipment to do the same as that of the professional operators . . . and so it is with Telcan. Telcan is designed essentially to meet a domestic market.

The quality, while not up to that of Ampex machines and the like, still does produce satisfactory pictures for home use with a resolution of 300 lines peak white and a bandwidth of 2 Mc/s on 405, 525 and 625 lines.

Telcan is protected by a number of patents, one of which relates to a record head with a far greater frequency range than one designed

specifically for sound recording. There are also problems of bias frequency, head packing density, tape speed and tape considered in other patents.

PLAYING TIMES

Telcan can accommodate a maximum spool size of 11", and a dual tracking system is used. At a video tape speed of 120 in./sec. these give playing times of 30 minutes with "triple tape" and 40 minutes with "quadruple tape." Facilities are available for reducing the tape speed to 60 in./sec., thereby doubling the playing times. Signal/noise ratio of the video system is 28dB average and the system rise time 0.2 microseconds. Ordinary 1/4-in. tape is used for both sound and vision.

For audio recording only, the tape speed is 7 1/2 in./sec. and the signal/noise ratio 40dB.

The video signal is extracted from the detector of the television receiver and Telcan amplifies it and arranges it so that it can be recorded on magnetic tape. A special transducer element is employed for this application. This same transducer, which has no moving parts, reforms the tape signals on replay into corresponding electrical

pulses. These are then assemblies so as to form a normal television signal which is applied to the grid of the video amplifier stage in the television set.

The deck has dimensions of 17 in. long, 9 in. wide and 2 in. deep with a 4-in. protrusion for the motor housing. The weight is 15 lbs.

Home-movie and tape recording enthusiasts are looking towards Telcan with extreme interest for it has been intimated that the firm will be in a position to market a complete outfit — standard TV set with built-in video recorder together with a camera — for less than 450 dollars and this within six months.

Next year should see domestic video recording fully established, opening up fresh fields for the professional operator and the enthusiast in such things as closed-circuit television recording techniques, editing, mixing and so forth.

DISC RECORDING OF TV SIGNALS

A little after the announcement of the video tape recorder came news of a disc-recording TV method. A British inventor, Colin Mason, claims that he has discovered a system for recording 405-or 625-line television signals on

a "pop" type record, playing about three minutes.

Video and accompanying audio signals are carried by one groove. The pickup it is said is of the mechanical type, and after electrical separation from the audio signal, the video signal is connected to the video amplifier of an ordinary television set for reproduction of the picture.

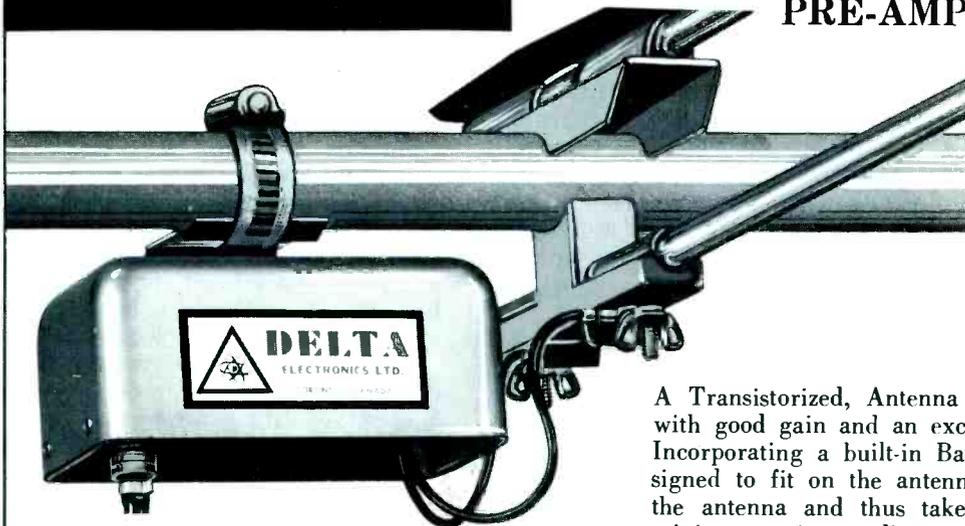
The way in which the system operates has not yet been disclosed, but the inventor says that signals above 3.5 Mc/s can be recorded. If this process is developed, more details will be given in these columns in a future issue.

CHANGE OF ADDRESS

An incorrect address on your address label or a change in address should be brought to the immediate attention of THE CIRCULATION DEPARTMENT, Horizons Publications, Inc., P.O. Box 1557, Oklahoma City 1, Oklahoma. If you plan to move, please allow six weeks for changes of address to take effect. Under new postal regulations, Horizons Publications cannot be responsible for forwarding second-class postage material.

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**NEW - LOW NOISE
TRANSISTORIZED
PRE-AMP**



GAIN PER CHANNEL

Channel 2	20.0 db.
Channel 3	19.5 db.
Channel 4	19.0 db.
Channel 5	18.5 db.
Channel 6	18.0 db.
Channel 7	18.0 db.
Channel 8	18.0 db.
Channel 9	17.5 db.
Channel 10	17.0 db.
Channel 11	16.5 db.
Channel 12	16.5 db.
Channel 13	16.0 db.

**\$32.50
COMPLETE**

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A Transistorized, Antenna mounting, Single channel Amplifier with good gain and an exceptionally low noise figure.

Incorporating a built-in Band Reject Filter, the MBT/SC is designed to fit on the antenna boom adjacent to the terminals of the antenna and thus take advantage of maximum signal and minimum noise conditions.

Flat, six megacycle bandwidth ensures utmost fidelity as a color preamplifier, or to supply head end AGC strip amplifier without additional downlead noise.

Gain as per table. Noise figure 4.5 Low Band; 6.0 High Band.

Constructed in weatherproof, one piece, anodized aluminum housing with universal mount bracket and stainless steel clip. The unit is cable powered and supplied complete with remote control unit and matching "F" connectors.

Plain Talk on Service Calls
(Continued from Page 25)

company is negated and even turned into hostility. Naturally, the first reaction by the customer would be, "What am I paying for?"

How much more pleasing to greet a caller with, "Our office is closed but we want to be available to you. For that reason we are making this recording. Please let us know after the sound of the tone the nature of your call or request and your name, address and phone number. We will be hearing this recording in a short while and we will take appropriate steps to handle this call to your satisfaction." Does this cost more or take more of your time? If you are interested in the welfare of your company you will go out of your way to see that recordings are properly monitored and handled.

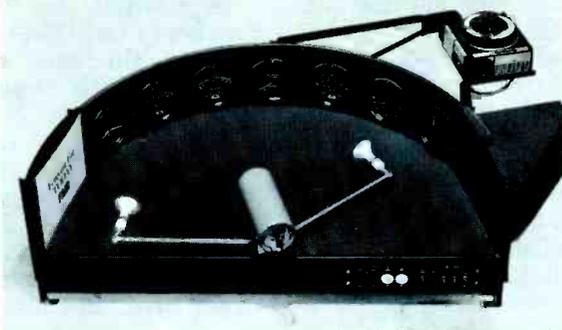
Even daytime calls meet with understandable resistance on the part of service personnel who know that no solution can come out of a personal visit to the home. Co-channel, interference or amplifier failures keep the phones buzzing. Even here, whatever time is saved in blocking a service call by explanation can be a lost opportunity to make a firmer friend. Customers who get to know your personnel do their own building of ties through the company. Of course, with breakdowns of a major scale you cannot hope to reach each individual home. However, after the system repair is made, the customer will settle back into normal complacency. During system interruptions when calls pour in by the score, a reassuring reply has been "There is nothing wrong with your television set. We are making an equipment adjustment to bring you better reception."

In the case of a long time interference to good cable reception, such as co-channel, a newspaper story either as news or paid advertising can do much to take the sting away. There are a number of model news items the manager can copy that make the explanation fascinating reading for the person on the other end who is apt to be intrigued by the scientific story of the behavior of electron waves. —

FCC Horizons
(Continued from Page 4)

Further, if requested by the television licensee, the CATV system must carry the signal of such station without material degradation in quality."

WEATHER CHANNEL is your **Profit Channel!**



TMW-2 WEATHER CHANNEL

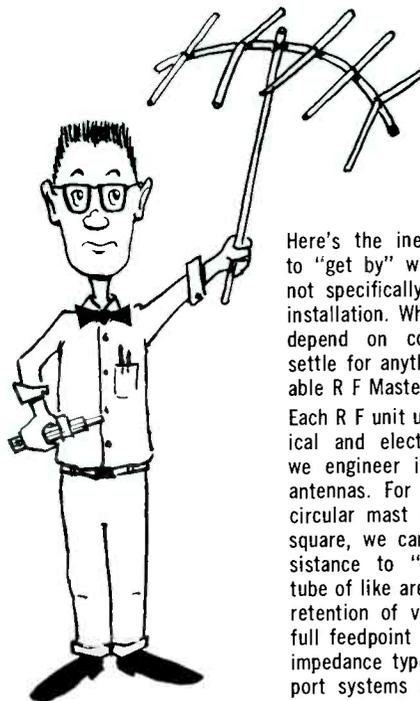
- ★ FULLY AUTOMATIC OPERATION — Ideal for head-end installation
- ★ Floor, ceiling or wall mounting without modification
- ★ GENERAL ELECTRIC transistorized camera — the industry's finest — 2:1 interlace — self-contained — ultra stable
- ★ Broadcasters Attention! Adaptor for TV station use available soon.

Write, wire or call collect for details on how to put this proven profit maker to work for you.



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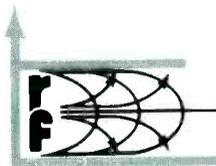


The Case of the WILTED YAGI

Here's the inevitable result of trying to "get by" with a makeshift antenna not specifically designed for a master installation. When business and income depend on continuous service, why settle for anything less than a dependable R F Master Antenna?

Each R F unit utilizes the same mechanical and electrical innovations which we engineer into our precision radar antennas. For example, by utilizing a circular mast cross section instead of square, we can offer 28% greater resistance to "wilting" than a square tube of like area. Other advantages: full retention of vibration dampeners . . . full feedpoint protection . . . constant impedance type N connectors . . . support systems specifically designed for our units.

More details? Just send your name for spec sheets, prices, etc.



RF SYSTEMS INC.

356 SOUTH AVE., WHITMAN, MASS.

A unique customer service concept for the CATV industry has been announced by AMECO, Inc., of Phoenix, Arizona. AMECO is placing a fleet of completely stocked and equipped "salesmobiles" on the road providing AMECO customers with immediate delivery on commonly used CATV system parts and with technical assistance.

AMECO will have Salesmobiles traveling in every state. Salesmo-

biles are now covering 20 states providing CATV direct-to-the-door service in nearly 1/2 of the country.

In addition to the stocking of commonly used CATV system components, the vans will carry roll-out carts with sweep gear for on the spot checkout of equipment on the road, in the field or in the CATV system's shop.

The Salesmobile program is headed up by chief of AMECO's marketing division, Mr. John Buchanan with headquarters at 6111 Harry Hines Blvd., in Dallas, Texas.

CLASSIFIED SECTION

Rates for classifieds are \$2.00 per line or fraction thereof for advertising which, in our opinion, is obviously of a non-commercial nature. A charge of \$20.00 per column inch (2 1/4" col.) is made to all commercial advertisers. We do not bill for advertising in the CLASSIFIEDS, nor can we acknowledge receipt of copy sent in. Full remittance MUST accompany all orders. NOTE: The products and services advertised in this section are not guaranteed by the publisher of Video-Communication Journal. Deadline, 1st of second preceding month (i.e. Deadline for December issue is October 1).

For Sale: Beckman/Berkeley 5571 EPUT, \$1200.00. Contact: Communications Specialists, Whitewater, Wisconsin.

WANTED: CATV Chief Technician. Must be thoroughly experienced in all phases. This is a challenging opportunity to advance for the right man. Pennsylvania systems. Salary open. Write in confidence enclosing resume, include experience, training, snapshot, salary requirements and references. Box 71, ViCom, P.O. Box 1557, Oklahoma City, Oklahoma.

SALESMEN THOROUGHLY ACQUAINTED WITH CATV INDUSTRY — CABLE AND PARTS LINE AVAILABLE WITH TERRIFIC OPPORTUNITY. EXCELLENT ARRANGEMENTS.

CONTACT ARTHUR BAUM
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IMMEDIATE EMPLOYMENT OPPORTUNITIES WITH CALIFORNIA CATV SYSTEMS

Immediate openings for experienced chief system technicians — managers, installers, office help and qualified people in all categories for seven all-band quality systems in most beautiful section of California. Must be thoroughly experienced and have mature judgement and willing to work hard for best opportunity in CATV today. Send complete information and resume first letter.

W. A. Hargan, Vice-President

**Central California
Communications Corporation**

P. O. Box 1651
Salinas, California

(All replies held in strict confidence)



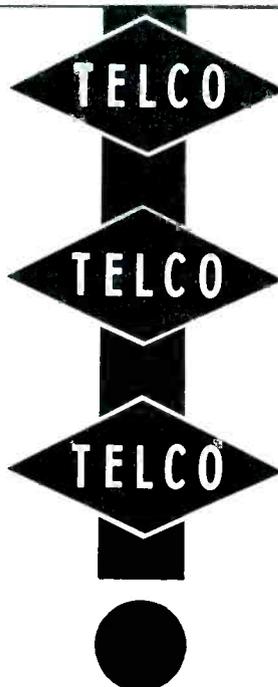
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At Telco, we sell everything to construct, modernize and maintain your CATV system. We take pride in our complete product line and rapid service. Try us for all your needs.

WRITE FOR FREE CATALOG

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STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION as required by the Act of October 23, 1962; Section 4369, United States Code.

1. Date of filing: September 30, 1963.
2. Title of publication Video-Communication Journal.
3. Frequency of issue: Monthly.
4. Location of known office of publication: 1025 N. Broadway, Oklahoma City, Oklahoma County, Oklahoma, 73102.
5. Location of the headquarters or general business offices of the publishers: 1025 N. Broadway, Oklahoma City, Oklahoma.
6. Names and addresses of publisher, editor and managing editor.
 Publisher — Horizons Publications, Inc., 1025 N. Broadway, Oklahoma City, Okla.
 Editor — Russell L. Miller
 1025 N. Broadway, Oklahoma City, Okla.
 Managing Editor — Russell L. Miller
 1025 N. Broadway, Oklahoma City, Okla.
7. The owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual must be given.)

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 Robert E. Cooper, Jr.
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9. Paragraph 7 and 8 include, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner. Names and addresses of individuals who are stockholders of a corporation which itself is a stockholder or holder of bonds, mortgages or other securities of the publishing corporation have been included in paragraphs 7 and 8 when the interests of such individuals are equivalent to 1 percent or more of the total amount of the stock or securities of the publishing corporation.

10. This item must be completed for all publications except those which do not carry advertising other than the publisher's own and which are named in sections 132.231, 132.232, and 132.233, Postal Manual (Sections 4355a, 4355b, and 4356 of Title 39, United States Code).

A. Total number of copies printed (net press run): 3744 average number of copies of each issue during the preceding 12 months. 6564 single issue nearest filing date.

B. Paid Circulation

1. To term subscribers by mail, carrier delivery or by other means: 1425 average number of copies of each issue during the preceding 12 months. 1711 single issue nearest filing date.

2. Sales through agents, news dealers, or otherwise: None

C. Free distribution (including samples) by mail, carrier delivery, or by other means: 2319 average number of copies of each issue during the preceding 12 months. 4853 single issue nearest filing date.

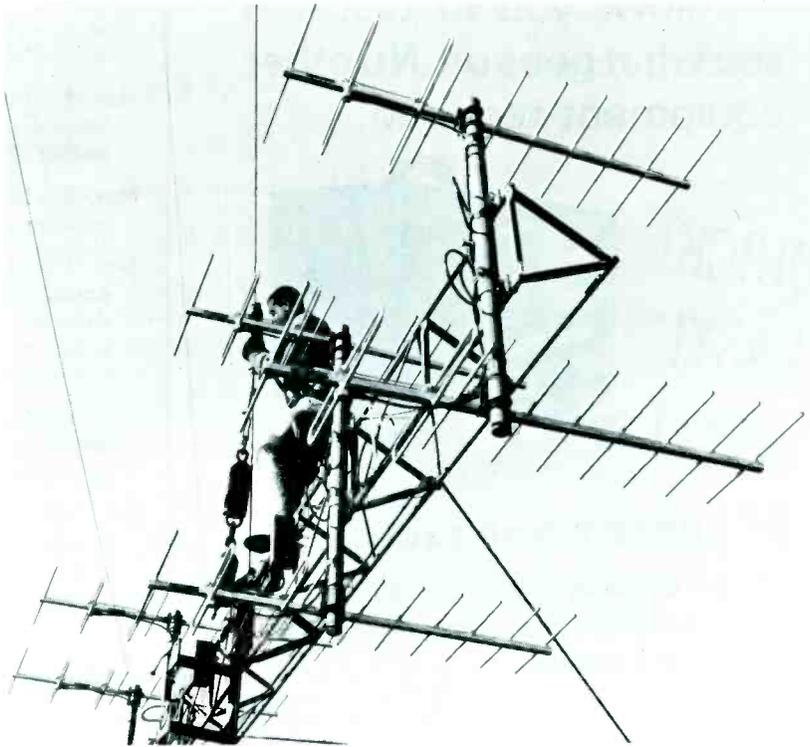
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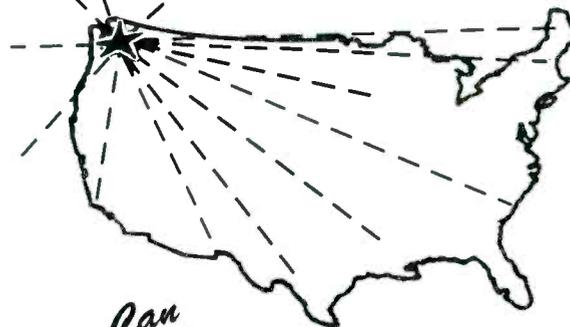
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- Nov. 1 — Fire radio systems must move off frequencies allocated to the police radio service.
- Nov. 1 — Licensees in the motor carrier service operating low-band duplex systems must adhere to frequency chart in rule section 16.252(d).
- Nov. 3 — Last date when FCC Form 505 may be used for applying for new citizens radio stations except Class A.
- Nov. 15 — Comment deadlines on FCC public safety rule proposals which would require frequency coordination procedures for 100% power increases, and changes in antenna height and station location, in police, fire, highway maintenance, forestry-conservation, and local government service.
- Dec. 1 — Comment deadline on FCC rule proposals to set up an "intruder alarm" service in Part 15 rules using ISM frequency bands at 915,2450 and 22,125 Me.
- Dec. 5-6 — Fourteenth national conference of IEEE Professional Technical Group on Vehicular Communications. Adolphus Hotel. Dallas.
- Jan. 1 — FCC-announcement date for beginning of requirement for payment of "filing fees" along with applications to Commission.

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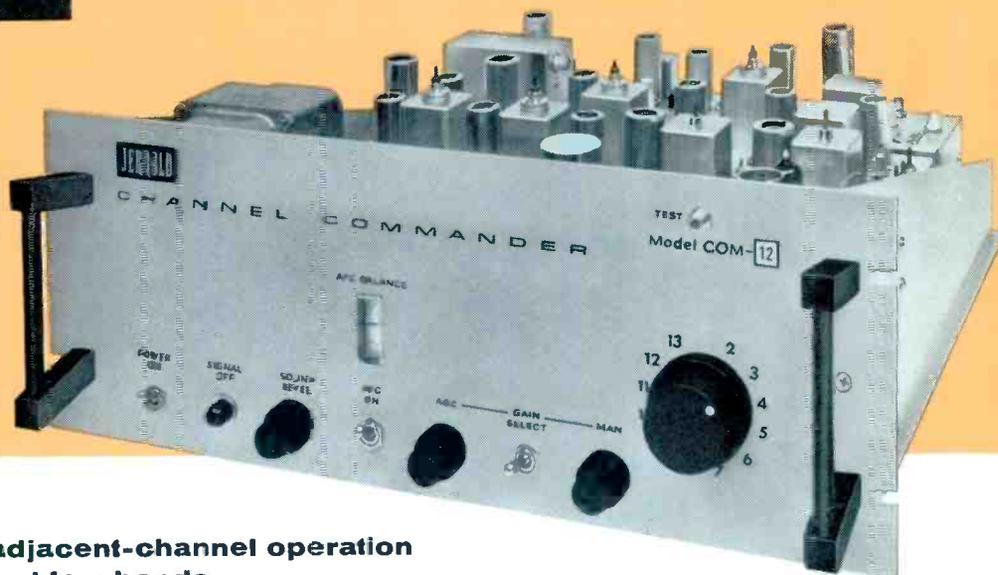
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