



September 1964

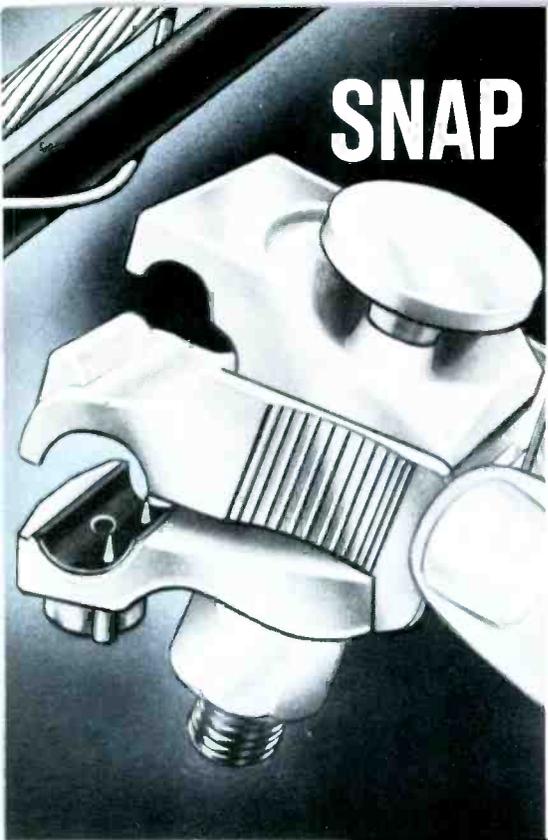
Al Dowdy KCOP-TV 104
1962 S. Stearns Dr.
Los Angeles, Cal.

TV & Communications

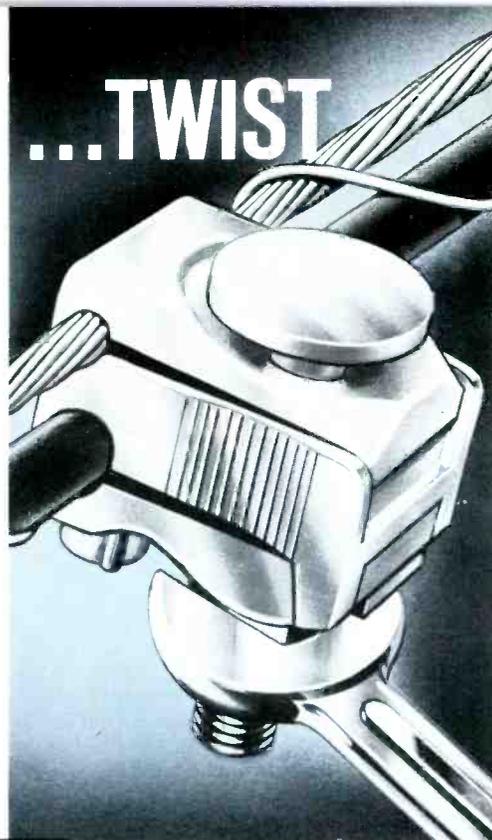
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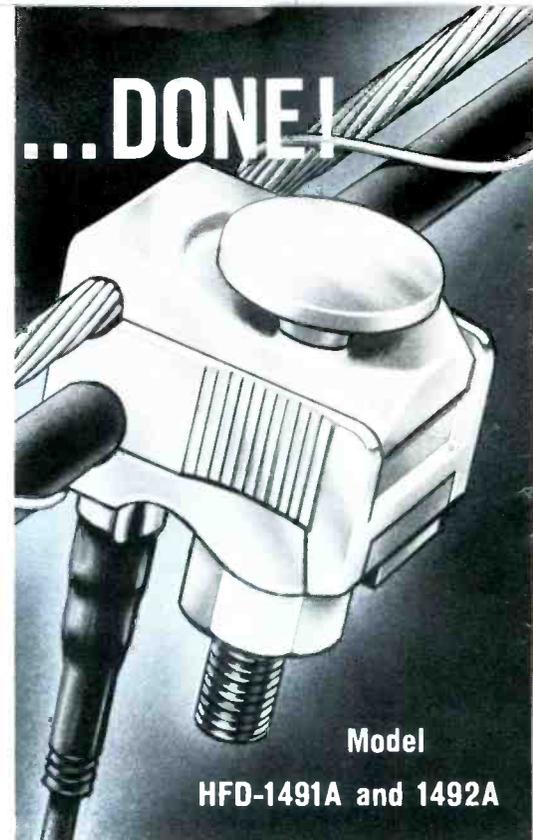




SNAP



...TWIST



...DONE!

Model
HFD-1491A and 1492A

NEW **JERROLD** "MINUTEMAN" TAP FOR SPEEDY TAP-OFF INSTALLATION

Easiest, quickest, best-performing line tap ever made . . . that's what you get with Jerrold's new HFD-1491A & 1492A Minuteman Pressure Taps—and at no increase in price.

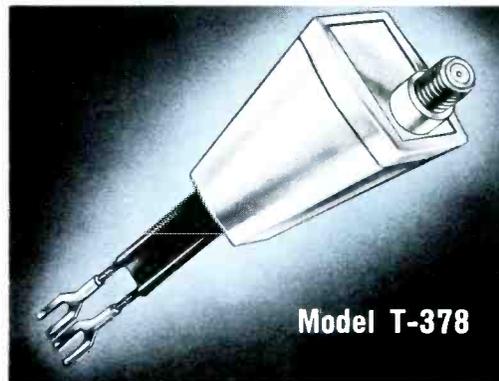
New unified assembly means no dropping or hunting for parts—the nut is swaged on to stay, yet unit opens up wide enough to quickly snap over the feeder-line cable. Pre-molded weatherproof gland is built right into recessed groove. Insert hole is pre-formed . . . no more clogged cutting tools.

NEW "MINUTEMAN" MATCHING TRANSFORMER

Here's the rugged new transformer designed to work with new Minuteman Pressure Taps to make your home installations fast and dependable. Built to take it, the Model T-378 is housed in high-impact plastic, has a big, hefty "F" fitting on one end, thick, tough 300-ohm leads on the other. The new transformer goes on in a jiffy, and features built-in isolation for both set and system. *All at no increase in price.*

New interlocking design eliminates troublesome swiveling of block sections. No going back for another unit . . . *every* unit works *every* time . . . completely weatherproof and corrosion-resistant. These features *plus* the added ease of fast installation make Minuteman Taps an *incomparable value*.

Model HFD-1491A is for single-shielded RG-11-type cables and JT-1412 aluminum-sheathed cables. HFD-1492A is for double-shielded cables.



Model T-378



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BACK MATCHED TRANSFORMER TAPS

EXCELLENT FOR COLOR

- The perfect pressure tap for color
- Eliminate reflections and ghosting due to TV set mismatch.
- Low insertion loss and minimum cable disturbance.
- Flat tap-off loss.
- Tap-off to drive matched amplifiers, hybrid splitters, etc.
- Fits our standard block

The Viking Back-matched Transformer Tap is completely compatible with all capacitive and resistive taps in the same Viking Cable Blocks. Its output is matched to 75 ohms so that it completely eliminates ghosting, smearing, and suckouts due to poorly-matched subscriber TV sets. This insures the best possible signal for all color and black-and-white TV sets.

SPECIFICATIONS

FREQUENCY RESPONSE:	8 – 220 MC	
TAP-OFF FLATNESS:	± .25 db/Band	
INSERTION LOSS:	Type	Loss
	12 db	0.75 db
	16 db	0.25 db
	20,24,30 36,40,50 db	0.10 db
BODY: SOLID BRASS, SILVER PLATED TAP OUTPUT IS AC/DC ISOLATED		
TAP V.S.W.R.:	1.2:1, max.	
OUTPUT CONNECTOR:	F Type	
DIMENSIONS:	2-1/4" x 5/8"	



515

Now Threaded for all Types of Pressure Taps.

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Joe Dickson, Construction Manager, is an "old pro" in CATV construction.

Joe has been conducting pole line surveys, determining system routings, and supervising CATV construction for over a decade.

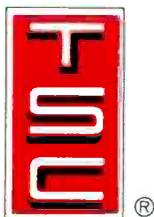
Utility companies like Joe's thoroughness and "clean" installations—and when Joe starts a job, our clients know it will get done quickly and efficiently.

"On Time" completion dates, sturdy, efficient systems, are more good reasons why it's smart to work with **Joe Dickson** and **TeleSystems Corporation**.

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CONSTRUCTION**

TeleSystems Corporation offers the finest construction services in the CATV industry. Whether you are planning an extension or a new cable television system, **you'll profit by a call to TeleSystems Corporation.**

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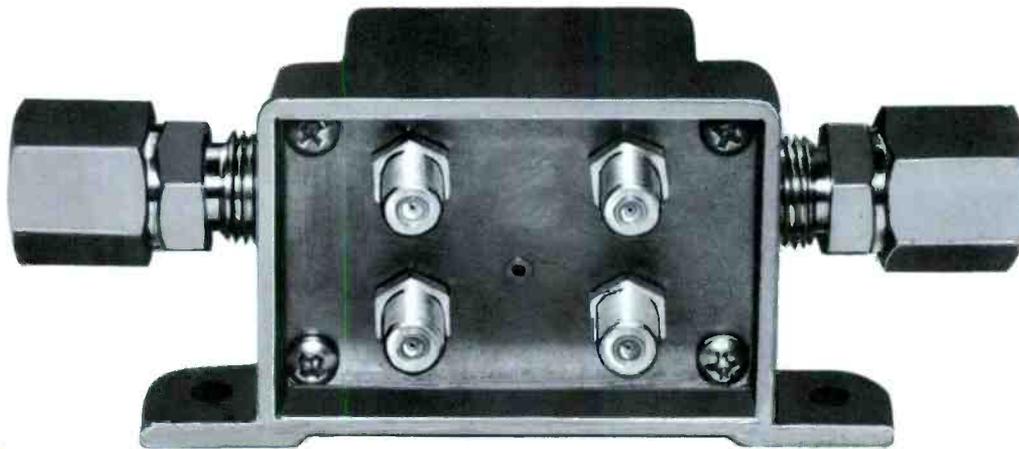
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viking



FLATTAP - DIRECTIONAL MULTI-TAP



#522

The model #522 Flattap is a flat directional tap combined with a four-way hybrid splitter. Only the desired signal coming from the amplifiers is selected by the tap and reflections from the tap lines are blocked by over 30 db.

The Flattap is designed with an ultra-flattap attenuation, insertion loss and VSWR at all terminals.

SPECIFICATIONS

Frequency response: 5 – 216 mc.

V.S.W.R.,
Line input: 1.22:1, max.
Line output: 1.3:1, max.
Taps: 1.4:1, max.

Tap attenuation, db., $\pm .5$ db	14	18	22	26	30
-----------------------------------	----	----	----	----	----

Tap flatness, db	$\pm .2$	$\pm .5$	$\pm .5$	$\pm .5$	$\pm .5$
------------------	----------	----------	----------	----------	----------

Isolation, between taps, db, min., between taps and line	25	25	25	25	25
--	----	----	----	----	----

output, db, min., 5 – 150 mc.	30	30	32	36	40
150 – 216 mc.	30	30	30	30	36

Insertion loss, db., max.	2	1.5	1.3	1.2	1.2
---------------------------	---	-----	-----	-----	-----

Dimensions: 3" x 2" x 1-5/8"

Line fittings can be furnished as follows:—

MODEL

522/F, "F" Fittings in and out — \$10.00

522/308, 308* Fittings in and out — \$10.00

522/412, 412* Fittings in and out — \$12.50

522/500, 500* Fittings in and out — \$13.50

*308 for Corrugated Copper and Strip Braid Cables

*412 for 1412 Aluminum Cable

*500 for 1500 Aluminum Cable

Unit comes with messenger mount and a bracket for pole mount.

viking



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TV & COMMUNICATIONS

Published By COMMUNICATIONS PUBLISHING CORPORATION — P.O. Box 63992, Okla. City 6, Okla.

EDITORIAL

A veteran community antenna manager was reminiscing with us recently about the early days of cable television. He mentioned the various publications that have served the CATV-CCTV industry—and suggested that many of our readers may not realize how "TV & Communications" came into being.

You might say that TV & COMMUNICATIONS has roots reaching back several years—although it was just nine exciting months (and issues) ago that "TV&C" became the "Voice of the Cable Television Industry." Six years ago I became one of the customers of an eight thousand subscriber system in the Northwest. Following this introduction to community television we journeyed to California and later joined the staff of "TV Horizons" magazine, the original "fringe area TV" monthly. That sometimes controversial publication grew in size and stature, especially after it ceased to cover translator topics. But corporate decisions led to the merging of the book into Video Communication Journal which served two-way radio along with CATV. It was shortly after these events that a disastrous fire wiped out Horizons Publications—and "VCJ" along with it..

Having tremendous confidence in the future of CATV, and being fully aware of the need for a good trade publication, we founded "TV&C" with the goal of publishing a magazine that would surpass anything previously offered in the television distribution field. Accordingly, TV & COMMUNICATIONS is dedicated to the healthy expansion of community and master antenna systems. The experience gained through association with the earlier publications was a great help. But the big difference with "TV&C" has been the wonderful reception of our Readers who recognize that Cable Television finally has a professional journal all its own!

COVER PHOTO — Supplied through the courtesy of Jerrold Electronics.

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(3) Alisal-Salinas, California	109 Miles	(28) Fayetteville, North Carolina*	158 Miles
(4) South Laguna, California	9 Miles	(29) Cave City, Kentucky*	11 Miles
(5) Hamilton, Montana	35 Miles	(30) Horse Cave, Kentucky*	8 Miles
(6) Dothan, Alabama	107 Miles	(31) Edmonton, Kentucky*	4 Miles
(7) Decatur, Alabama	100 Miles	(32) Richmond, Kentucky*	30 Miles
(8) Panama City, Florida	135 Miles	(33) Santa Cruz, California	20 Miles
(9) Salina, Kansas	110 Miles	(34) Safford, Arizona*	28 Miles
(10) Chanute, Kansas	28 Miles	(35) Ajo, Arizona	3 Miles
(11) Stratford, Texas	11 Miles	(36) El Cajon, California*	150 Miles
(12) Lampasas, Texas	18 Miles	(37) Montecito-Carpenteria, California*	200 Miles
(13) Clarksville, Texas	17 Miles	(38) Corvallis, Oregon*	37 Miles
(14) Austin, Texas*	350 Miles	(39) Eugene, Oregon*	100 Miles
(15) Ada, Oklahoma	15 Miles	(40) Pocomoke City, Maryland*	15 Miles
(16) Natchitoches, Louisiana	30 Miles	(41) Plainview, Texas*	50 Miles
(17) Spencer, West Virginia	9 Miles	(42) Grass Valley, California*	55 Miles
(18) Norwich, New York	56 Miles	(43) Tiffin-Fostoria, Ohio*	100 Miles
(19) Titusville, Pennsylvania	30 Miles	(44) Waco, Texas*	260 Miles
(20) Cooperstown, New York	25 Miles	(45) Temple, Texas*	81 Miles
(21) Manchester, Ohio	8 Miles	(46) McGregor, Texas*	12 Miles
(22) Sedona, Arizona	30 Miles	(47) Oakland, New Jersey*	8 Miles
(23) Mifflinburg, Pennsylvania	8 Miles	(48) Findlay, Ohio*	108 Miles
(24) Farwell, Texas	11 Miles	(49) Endicott-Union, New York*	78 Miles
(25) Beeville, Texas*	32 Miles	(50) Burnett, Texas*	11 Miles

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News SPECTRUM

REEVES BROADCASTING TRANSACTIONS ANNOUNCED

Reeves Broadcasting Corporation has disclosed the acquisition for cash of a community antenna television system in Opelika, Alabama. J. Drayton Hastie, President of Reeves, stated that substantial expansion and upgrading of the present system is already under way in order that all homes in the area might be served with twelve additional channels. He anticipates a potential of 5,000 subscribing homes.

It was also announced that Reeves has entered into an agreement to buy for cash the existing community antenna television system in Gadsden, Alabama. Mr. Hastie stated that the present 90 miles of distribution cable will be extended immediately, and that the number of channels offered will be more than doubled to serve a potential of 20,000 subscribing homes.

Reeves Broadcasting Corporation presently operates three CATV systems in Virginia, and has acquired franchises to build substantial systems

in three other states, details to be announced shortly. Reeves also owns and operates television stations and sound and video studios.

M-A ACQUIRES SYSTEMS

Meredith-Avco, Inc. has purchased McLendon Cablevision Company, Inc. of Jackson, Mississippi, according to Frank P. Fogarty, President of Meredith-Avco.

This acquisition includes five CATV systems either operating or nearing completion and CATV franchises in an additional eight communities all located in the six states of Kentucky, Tennessee, Missouri, Arkansas, Mississippi and Alabama. The four systems in operation are located in Madisonville, Kentucky; Magnolia, Arkansas; Brookhaven, Mississippi, and Alexander City, Alabama, with the fifth nearing completion of construction at Eldorado, Arkansas.

The CATV franchises in the eight additional communities are in Mayfield, Murray and Middlesboro, Kentucky; Union City, Ozark and

Talladega, Alabama; Arkadelphia, Arkansas, and Kennett, Missouri.

Fred R. Rutledge, executive vice president of McLendon Cablevision Company, Inc., will continue in this capacity with the new acquisition. Rutledge has managed CATV systems at Dothan, Alabama, and Ukiah, California, for H and B American and the Jerrold Corporation respectively. Headquarters for the new properties will remain at Jackson, Mississippi.

Meredith-Avco is jointly owned by Meredith Publishing Company of Des Moines and Avco Corporation of New York City, and was formed in June to acquire, build and operate community antenna television systems throughout the United States.

TELEPROMPTER EARNINGS SET RECORD

TelePrompter Corporation's new mix of television-related activities earned a record \$180,489, or 24 cents per share, during the first six months of 1964. The results, best for any six months in the history of the 14-year-old communications company, contrasted with first-half operating losses in each of the three preceding years.

Gross revenues for the company, which divested itself last September of losing and marginal manufacturing operations, were \$2,295,218.

An operating loss of \$73,370 was posted for the comparable period in 1963 on a gross of \$2,715,040. Second-quarter earnings this year were \$123,373 on revenues of \$1,388,489, as against a profit of \$7,317 and total sales of \$1,472,045 last year.

Irving B. Kahn, chairman and president, credited the improvement in first-half results to "divestment of unprofitable activities, continued growth of the CATV Division and the more efficient operation of Group Communications Division."

Mr. Kahn said results are fulfilling the projections he made at the company's annual meeting in May, when he indicated earnings for the entire year should exceed \$400,000.

ROHN ANNEXES KTV TOWER

Rohn Manufacturing Co. has announced the acquisition of KTV Tower and Communications Company of Sullivan, Illinois. The company, once known as Kuehne Tower Company, manufactured home television and amateur radio towers. The line will now be available from Rohn representatives.



NTS CONTRACTS FOR CATV SYSTEM

National Theatre Supply Company has contracted for the construction of a CATV system in Utica, New York. The system is owned by Mohawk Valley Community Antenna TV, Inc., according to J. W. Servies, NTS CATV Division Vice President. Controlling company is Mid New York Broadcasting Company, owner of WKTV,

Channel 2, Utica-Rome. President of the system will be Mr. Gordon Gray.

The photograph shows (l to r) J. W. Servies; Lawrence D. Biele, Counsel for Mohawk Valley; Mr. Gray signing the contract; E. B. Henley, Jr., Secretary, National Theatre Supply, and W. J. Turnbull, President, National Theatre Supply.

**NCTA OFFERS COMPLETE CATV
FACTS IN 200 PAGE BOOK**

The "whole story" on community antenna television is now available free of charge to NCTA members in a recently published volume entitled "The Facts About Community Antenna Television." The manual is an extensively detailed description of just what CATV is—and what it is not. Included in the well indexed content are sections on community service and CATV "Fact and Fiction." Documented endorsement of community antenna television systems by local dealers and servicemen is included, as well.

The newly published edition is sure to receive wide usage by system operators in seeking franchises and in combating any adverse factions.

Single copies are available to NCTA member systems at no cost; additional copies are available to members and to all other interested persons at \$5.00 each. To order the book contact Don Andersson, NCTA Director of Information.

STV GETS PARAMOUNT FILMS

Paramount Film Distributing Corporation has concluded an agreement that licenses a group of major film productions to Subscription Television Inc.

The agreement includes approximately 20 "highly acclaimed box office films, from major independent producers," previously distributed theatrically by the Paramount company. Among them are "Hud," "Come Blow Your Horn," "Roman Holiday" and "Breakfast as Tiffany's."

STV is now telecasting in both Los Angeles and San Francisco. Each film will be shown twice in an evening.

Paramount has previously supplied feature motion pictures to its own pay television system, Telemeter, and to the RKO General operation in Hartford, Connecticut.

The signing of the Paramount contract will bring to STV subscribers films from two leading distributing companies, Paramount and United Artists, the latter having previously announced its affiliation with STV.

**SKL ANNOUNCES SPECIAL
FINANCING; LEASE ARRANGEMENTS**

Spencer-Kennedy Laboratories last month announced completion of the public sale of 750,000, 15-year, 6½%



FOR THE "LONG SHOT," at political conventions sound men use this Electro-Voice seven-foot microphone. The unusual wide-range mike is highly directional, lending itself to picking up conversations "long distance." The networks' "pool coverage" utilized the E-V 643 in telecasting both Republican and Democratic 1964 conventions.

subordinated convertible debentures through an underwriting group headed by Coffin & Burr of Boston and New York. SKL has been a publicly held corporation since 1956. The present financing is being used to reduce bank borrowings and other current obligations, and to finance expanded business which is currently running 30% over 1963 and double the 1961 rate.

Concurrently with the present financing, SKL has arranged with Boothe Leasing Corporation to provide lease financing. Earlier this year, SKL established a financial subsidiary which, through a joint arrangement with James Talcott and a large Boston bank, offers conditional sale installment financing. Through these facilities, Spencer-Kennedy can provide more than four million dollars for customer use.

\$2 MILLION LEASE COMPLETED

Boothe Leasing Corporation, a wholly-owned subsidiary of The Greyhound Corporation and Spencer Kennedy Laboratories has completed a \$2,200,000 leasing transaction for eight CATV systems. Located in four states, the installations have a potential of 35,000 subscribers according to George W. Green of Boothe.

All of the CATV systems will be completed and in operation this month. The firm is negotiating for additional CATV systems that are presently under construction.

CATV FILM AVAILABLE FROM NCTA

The industry documentary film, "Beyond the TV Horizon," is now available for rental at \$20 per week according to Don Andersson at NCTA

Washington headquarters. The 15-minute color 16 mm film tells the story of CATV—its origin, growth and value to the community. The movie is designed especially for showings in communities where a CATV service is contemplated.

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... to depend upon your alert comprehension of the variational factors of your industry. They affect you . . . and your business (or job) every day. You need to know the facts that will prepare you for your future. You now hold in your hands the only magazine in the world which is written exclusively for the television distribution industry. You owe it to yourself to place "TV&C" at the top of your professional reading list. Make an investment in success!

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\$12 for three years.

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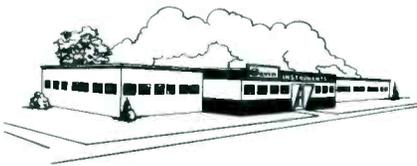
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GAVIN ADDS UHF TUNER PLANT

Gavin Instruments, Inc. has occupied an additional 26,000 sq. ft. plant, which is being equipped to produce Gavin's UHF television tuner. A company spokesman said that the demand for UHF tuners by television manufacturers here and abroad, has made it necessary to accelerate company growth.



The production of Gavin's line of UHF converters, boosters, antennas, etc., will continue at their present location.

Gavin Instruments, Inc. is a subsidiary of Advance Ross Corp.

STV SIGNS 30,000 SUBSCRIBERS

Subscription TeleVision, Inc., has passed the 30,000 mark in definite orders for installations both in San Francisco and Los Angeles, Sylvester L. (Pat) Weaver, Jr., president of STV, reported at the firm's monthly board of directors meeting.

Although the service has been in operation in Los Angeles less than two months, STV enjoys a grand total of 22,625 subscribers who are now receiving programs or will have their homes wired in the near future. The total in San Francisco is 7,376 homes.

The Los Angeles figures break down into 9,047 subscribers in those areas where wiring is either completed or will be completed by the end of 1964. Added to these home installation orders is a potential of 3,784 television sets in high-rise buildings where STV has secured the permission from owners or is in the process of working out details for service to tenants.

In Los Angeles areas where wiring cannot be consummated before the end of this year, STV has a total of 9,794 definite orders.

In the San Francisco area where wiring can be effected before the end of 1964, there are 4,639 home subscribers and a potential of 615 in high-rise buildings. A total of 2,122 television viewers in sections which cannot be equipped for operation this year have placed orders.

"Once the public had an opportunity to see for themselves the type of programming we offer them and the quality of our color via the three additional channels we give them, there was a tremendous increase in interest," Weaver states.

"Actually, only a fraction of the public has viewed our programming, which means that favorable comment by the press, radio and television people who have enjoyed our programs and the word-of-mouth from early subscribers has created an amazing desire for Subscription TeleVision."

AMECO EXECUTIVE KILLED

Victim of a sports car racing mishap was Jim Connor, 29-year-old sales executive at Ameco, Inc., Phoenix, Ariz. The accident occurred September 13 at Vacaville, California where Connor was driving in competition. Another driver died and nine other persons were injured.



Jim Connor joined Ameco six years ago as a stock room clerk. His steady progress culminated in his appointment as director of technical sales and marketing development earlier this year.

He is survived by his wife, Lorraine, and son, Steven.

BRISCOE REPLACES NOWACZEK

Wally Briscoe has been named to fill the NCTA vacancy created by the resignation of Frank Nowaczek, Bruce Merrill, NCTA Chairman, announced.

Formerly Administrative Assistant to Representative Oren Harris, Chairman of the House Interstate and Foreign Commerce Committee, Briscoe will take charge of the duties as Administrative Assistant and Office Manager for the CATV organization on October 1. Briscoe's broadcasting experience includes association with KATV, KCLA AND KOTN, all in Pine Bluff, Arkansas; KARK, Little Rock; and KXLR, North Little Rock. He has been with Rep. Harris since January 1963 and was with Mutual Life Insurance Company of New York prior to assuming those duties.

TELEPROMPTER CORP. ACQUIRES ALABAMA CATV PROPERTIES

TelePrompter Corporation announced that it has made its second and third community antenna television acquisitions within 30 days through purchase of a system serving Tuscaloosa, Ala., and a franchise at Northport, Ala.

Like the Horseheads, N.Y., system acquired last month, the Tuscaloosa facility currently serves approximately 2,000 subscribers and has the potential for substantial growth.

Irving B. Kahn, chairman and president, pointed out that expansion is a major consideration in TelePrompter's acquisition of new properties.

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Actually, there isn't much digging necessary, because we took the time to index all our items very carefully. As soon as this catalog is in your hands, you have, at your fingertips, every conceivable item necessary to build, operate, and maintain a CATV system. The highest quality, coupled with the fastest delivery service, makes TVC the leader in CATV supplies. Write today for your FREE Catalog!



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... means sharp, clear pictures without interference.



SUPERIOR
4920 CELL-O-AIR®
COAXIAL CABLE
with
"Coppergard"

*Actual case history furnished upon request.

Catalog Number "Coppergard" Shield	Attenuation (Nom. db @ 100 ft.)		Nom. Overall O. D.
	Ch. 6	Ch. 13	
4920	0.93	1.50	.480"
4930	0.74	1.15	.652"

ALSO AVAILABLE: Self-supporting IM "Fig. 8" type and Double COPPERGARD shielded types for direct-burial use.

SHIPPED IN 3M REELS

EVERY REEL SWEEP-TESTED OVER ITS FULL LENGTH

It's a fact. Cell-O-Air Coaxial Cable, with Coppergard, provides up to 20% lower attenuation; far better long-term transmission stability, and far greater radiation protection. Solid tubular Coppergard shield also eliminates the radiation leakage apertures present in all braided coaxial types. Corrugation permits hand bending to acceptable limit of 20 times diameter.

SUPERIOR'S Captive Contact Connectors Eliminate the "pullouts" that cause blank screens by making positive contact between lengths of coaxial cable. Designed to mate electrically and mechanically with #4920 and #4930 "Cell-O-Air" coaxial cable with "Coppergard" shield, Superior's connectors assure full-system compatibility.

Both cable and connectors have been designed exclusively for the CATV Industry.



ELECTRONIC WIRES

AND CABLES

MANUFACTURED BY

SUPERIOR CABLE

Superior Cable Corporation — Hickory, North Carolina

FOCUS

... On Progress

SOUTHERN CATV NAMES DIRECTOR

Promoted to Director of Operations of Southern CATV Systems, Inc. is *Robert F. Jernigan*, manager of Hattiesburg Video

Mr. Jernigan will supervise all management and operations for all Southern CATV Systems in the U. S. These systems include the system in Hattiesburg, Biloxi TV Cable System, Biloxi, Miss.; Alpena Cable TV, Alpena, Michigan; Williamsport Cable Co., Williamsport, Pa.; Bluefield TV Cable System, Bluefield, W. Va., and National CATV System, Logan, W. Va. He is president of the Southern CATV Association, an organization composed of all CATV systems in the south and a director of the Mississippi Assoc.

GREENHOW STV VICE PRESIDENT

Thomas F. Greenhow, former vice president of McCann-Erickson Advertising Agency, has been named Vice President of STV Programs Inc., by *Sylvester L. (Pat) Weaver, Jr.*, President of STV.

Greenhow was in charge of the western division, television activities for McCann-Erickson for more than eight years prior to joining the Santa Monica, California firm.

KILBRITH NAMED SYSTEM SALES REP. FOR ENTRON, INC.

Donald W. Kilbrith was named systems sales representative for Entron, Inc., manufacturers of community, master and educational TV systems, announced *Ed Shafer*, Vice President.



In this newly created position, Mr. Kilbrith will be responsible for "turn-key" negotiations with group operators and broadcasters.

Mr. Kilbrith was formerly with RCA International in Clark, New Jersey as a communications marketing specialist. He also served with RCA Portland/Seattle as manager of broadcast TV sales for Idaho, Utah, Oregon and Wyoming. He is a graduate of Northeastern University.



CATV TECHNICIANS ATTEND JERROLD SCHOOL

Thirty-one CATV system technicians from all over the country attended the recent Jerrold school in Philadelphia, Pa. The one week course covered all aspects of CATV system operation, emphasizing maintenance and trouble-shooting techniques. Test equipment, microwave, the Jerrold Channel Commander and new Jerrold transistor amplifiers were also discussed.

Response to the school was "very gratifying," according to *Vic Nicholson*, Chief Engineer of Jerrold's Community Systems Division, who conducted most of the classes.

Seated clockwise around the tables beginning with table in lefthand fore-

ground are *Walter Wolfe*, Wellesville, New York - Wellesville TV Cable Co.; *LeRoy Campbell*, Oscoda, Michigan - General Television of Michigan; *David Batafsky*, Jerrold Phila., Pa.; *Walter Kelley*, Jerrold Phila., Pa.; *Lloyd Adams*, Casper, Wyo. - Community TV Systems of Wyoming; *A. H. Bruno*, Alexandria, La. - Alpine Cable TV; *Harold Lane, Jr.*, Sayre, Pa. - Valley TV Cable Co.;

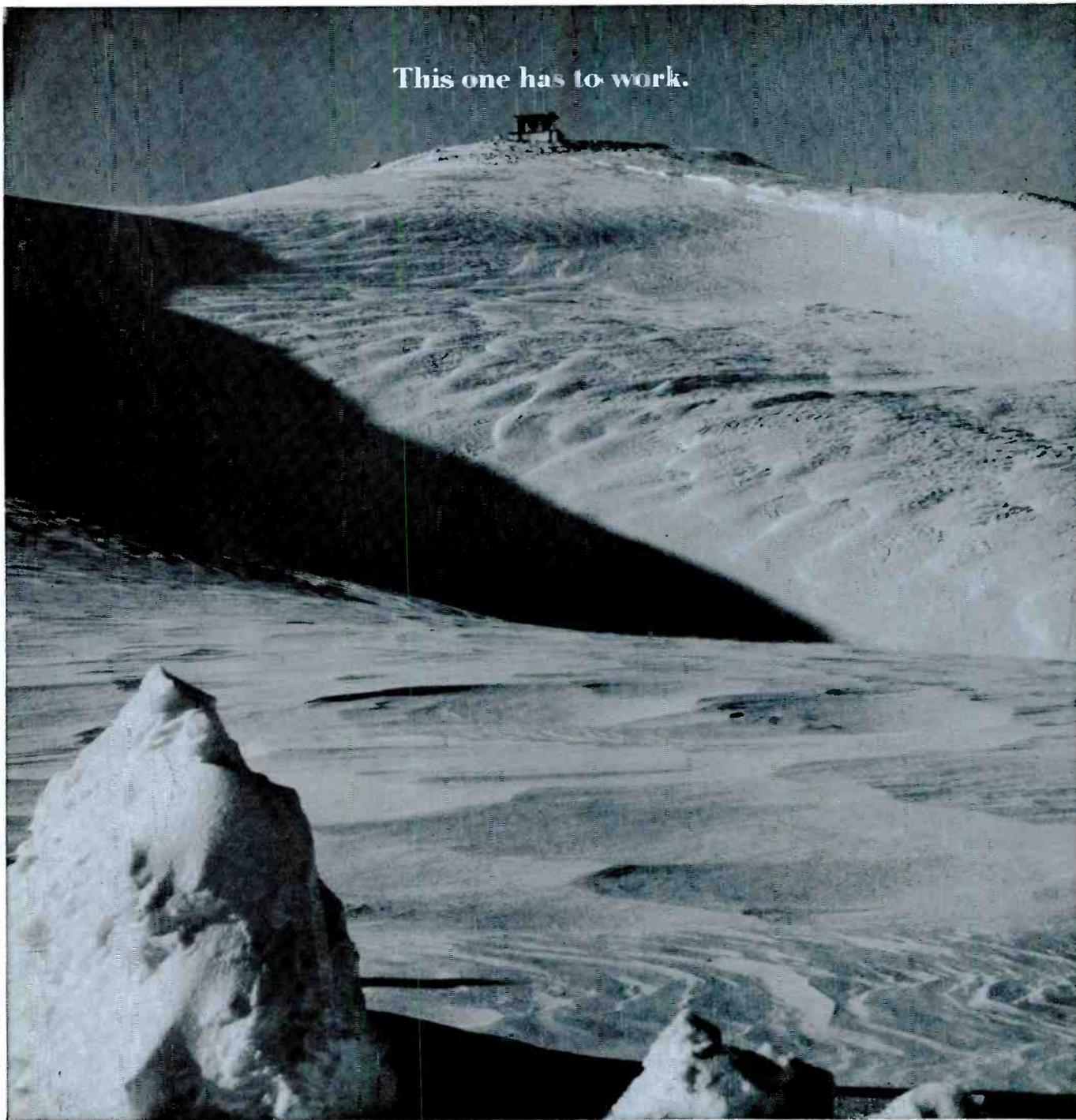
And, *Laur Baisi*, Elkins, W. Va. - Tygart Valley Cable Corp.; *Robert Piquet*, Montreal, Canada - Cable TV Limited; *Donald Evans*, Ventnor, N.J. - Evans TV; *Nolan DeMarce*, Elmwood, Wis. - Demarco TV Cable, Inc.; *Richard Bligh*, Oneonta, N.Y. - One-

onta Video Co.; *Earl Chafin*, Coalwood, W.Va. - Olga Coal Co.;

And, *Cleave Roy*, Bennington, Vt. - Better TV, Inc.; *Fred Dupree*, London, Ky. - London Community TV, Inc.; *Donald Mitcheltree*, Pitcairn, Pa. - Borough of Pitcairn; *Edgar Rosenberry*, Shippensburg, Pa. - Shippensburg Radio & TV Co.; *George Sisko*, Lansford, Pa. - Panther Valley TV Cable.;

And *Donald Hill*, Tyrone, Pa. - Susquehanna Valley TV Cable; *Paul Blanchard*, Massena, N.Y. - ANI Systems Corp.; *Ed Young*, Easton, Pa. - Clear Picture; *Earl Houseknecht*, Emmaus, Pa. - Greater TV; *Willie Carr*, Covington, Va. - Cable Vision of Virginia; *Ed Harmer*, Massena, N.Y. - IV, 2; *Lee Satterfield*, Corbin, Ky. - Southern Cable Corp.; *Floyd Moore*, Monticello, Ky. - Monticello Cable Co.;

And *Carlton Martin*, Lowville, N.Y. - Lowville Video Communication; *Paul Donahue*, Logansport, Ind. - Logansport TV Cable; *Ross Bortlett*, Oil City, Pa. - Oil City Cable TV Co.; *Jim Altman*, Ocala, Fla. - Video Corporation of Ocala; *Ken Hillard*, Galena, Ill. - Galena Cable, Inc.; *Bob Jacobi*, Dubuque, Iowa; *Wayne Oliver*, Dubuque, Iowa, and standing: *Vic Nicholson*.



This one has to work.

Here's a microwave repeater station you can't check every day. Or every week. Even every month. It has to work.



It's Collins fully transistorized U/M/G microwave equipment. No one builds a better one.

COLLINS RADIO COMPANY, Microwave Marketing, Dallas, Texas, Area Code 214,
AD 5-9511 • Collins Radio Company of Canada, Ltd., Toronto • International, Dallas

LAUNCHING A NEW CABLE SYSTEM



By CHARLES WIGUTOW
TeleSystems Corporation

There's more to opening a new cable system than making a simple announcement that you're ready to accept new customers. You might have gotten away with this in the early days when cable systems brought pictures into areas that had no television at all. But these days we are a competitive industry. Subscribers are gathered only by work and planning.

A new system should open with a bang. It should bring the happy excitement of a once-in-a-lifetime event for the town. Open House is the climax

of a publicity build-up. It should be a community holiday that will bring out families with their kids.

Enthusiasm is spread when kids are enjoying themselves. Done well, the combination kick-off dinner and the Open House is the happiest and most gainful way to start a new system—or to herald a major improvement in an old system.

Your advertising should be timed so that it doesn't start too early. Otherwise you may create a premature desire, only to have it fade into a

disillusioning feeling that the cable company is full of promises that it is unable to keep.

While system construction is taking place you should write your "progress reports." In these you can emphasize the tremendous amount of work that goes on before the first piece of hardware is fastened to a pole. And now that the drafting, engineering, clearances and permissions are accomplished facts, the actual building program is moving ahead rapidly. Building activity can be the source of a steady and interesting flow of news material. When the tower is completed, you can write of this addition to the skyline of your town. Often it will be the tallest landmark for miles around. Turning over the first shovelful of earth at the beginning of the building program is good for a posed photograph with a city official holding the shovel. (We have *never* been turned down when requesting such participation by a Mayor or City Manager.)

Spanning a bridge, or going over some unusual terrain can be the reason for a news release. A manager is hired, or a chief technician; this, too, is news. It is also news if they go to



Climaxing the kick-off dinner previewing the Peru, Indiana system, Mayor Illiff literally "opens the curtain," revealing set tuned to color program off the cable.



Attractive invitations were sent to guests, with tickets and response cards included.

another system for training, as is attendance at a convention or regional meeting.

At the right time, make a big advertising splash with a "construction offer" to those who will sign up in advance of completion of the system. From here out your advertising program should be developed so that its effect is cumulative, and literally bursts into a newspaper multiple page special section for your open house. But realize that no standard advertising package can be designed for all systems. Individual circumstances will govern in each case.

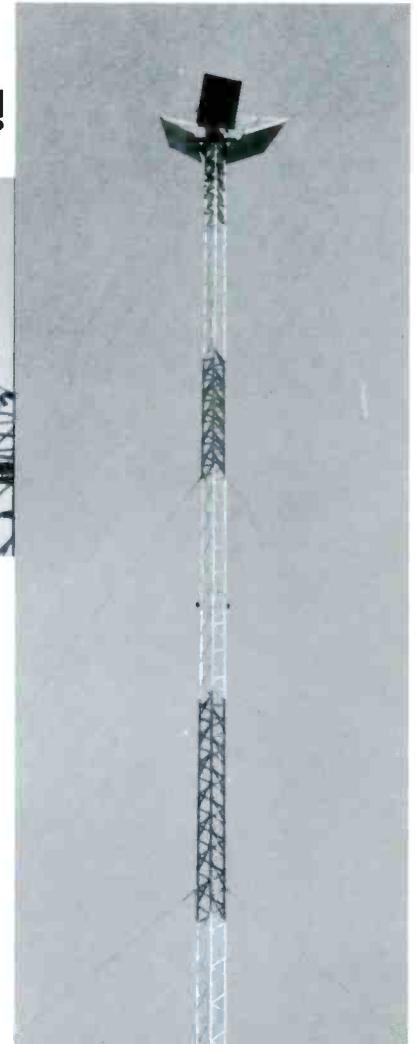
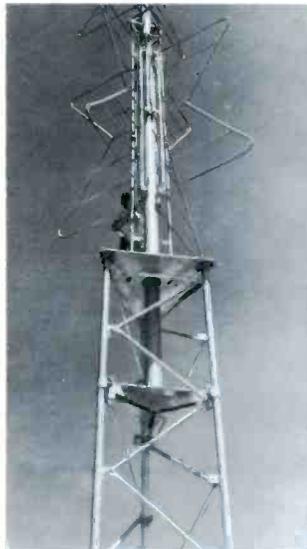
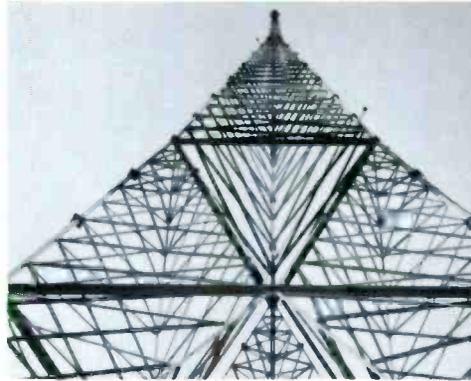


Following the dinner, manager Henderson thanked the guests for their attendance, thanked the people of Peru and the utility companies for their cooperation and patience. He introduced visiting guests and members of Hoosier Telecable staff.

The Open House edition will be a showcase for TV dealers to offer their sets in conjunction with cable service. Television stations brought into the community by cable will advertise their programming in this issue; salutes of welcome will come from local business institutions and cooperating suppliers

TV & COMMUNICATIONS

CHECK **ROHN** FOR YOUR TOWER NEEDS FIRST!



- ✓ Full line of proved communication towers to fit every need . . . includes heavy duty broadcast, CATV, and microwave.
- ✓ Tower design and engineering is tested by thousands of ROHN tower installations.
- ✓ Complete installation service available to take care of the entire job—professionally and to save you money.
- ✓ Complete line of microwave reflectors and tower lighting equipment available.
- ✓ Deal with one of the oldest and largest tower manufacturers in the U. S.—representatives world-wide.

Write—Call—Wire for Immediate Service

ROHN Manufacturing Co.

P. O. Box 2000, Peoria, Illinois

Phone AC 309-637-8416



New . . . for better TV transmission *now and later*

Here are five ways the longitudinal 5-mil corrugated copper shield in this new Brand-Rex coaxial cable increases transmission quality and retains electrical stability . . .

1. Eliminates radiation leakage.
2. Lowers attenuation up to 20% over conventional braided shields.
3. Provides greater impedance uniformity.
4. Less prone to damage from crushing or impact.
5. Boosts bend radius to 20 times the cable O.D.

**CORRUGATED
COPPER SHIELDED
COAXIAL CABLE**

Designed for use in CATV, ETV and CCTV. Dielectric is expanded polyethylene.

Catalog No.	Gauge	Nom. atten. (db/100 ft)		Nom. O.D.
		Channel 6	Channel 13	
T-193	12AWG	0.85	1.47	.490
T-179	9AWG	0.63	1.04	.650

Phone or write for full information.



DIVISION AMERICAN ENKA CORPORATION
31 Sudbury Road, Concord, Massachusetts
Phone: 617-369-9630

and contractors. Stories on cable television can be readily obtained from a vast reservoir of information available from NCTA and "TV&C," the trade publication. Backgrounds of personnel, cable system management and system building and office photos will supply the home town touch.

You will be wise to invite some television personalities to come to your open house, particularly those who act out children's programs. They will be good for photos and readable publicity items. Announcement of the presence of these guests will add drawing power to your affair.

The kick-off dinner should be held the evening before Open House. Here you will be asking prominent people in town to share in your celebration of the opening of this new service to the community. After all, cable brings some tremendous advantages to the community. These days, a system



Jim Stilwell, Marshall Henderson, Mayor Illef, and councilman Peters hold discussion at head table. Special effort should be devoted to assuring the open house attendance of prominent citizens and civic officials.

brings more television to the smaller towns than is available in the very largest of the nation's cities. The availability of more entertainment, more sources of news and information is a big forward stride for any community. It is at this dinner that the stage is set for the opening of the curtain to cable television in its first public showing. When you have the Mayor, members of the City Council, the newspaper editor and other well known members of the community at this dinner, you have assurance of being granted coverage by the local media.

The dinner should be held in the best possible taste. Availability of dining facilities will dictate the type of service, whether it be served, or buffet



Good sign work, free prizes and refreshments all help to build interest.

style. To offer liquor, or not, is a question to be settled according to the prevailing attitude. The kick-off dinner is intended to leave a pleasant memory of the affair; offense to any individual's sense of propriety is to be avoided.

The Open House should be, as the



Open House permits local merchants to display. Carpet shop display is incorporated in this TV dealer's exhibit.

teenagers would say it, a blast! The setting itself: working television sets displayed by dealers all over the place. The many varieties of programs that can be seen on the cable will be self-evident. Color programs, in many cases, the first ever seen by the children have a fascination of their own.

The television personalities who come to meet the kids, are like gods of the days of mythology coming to mingle with the mortals. Children's eyes pop open wide. They can hardly believe it, but real it is. And The Captain Videos, and the Jungle Jims have this chance to cement a whole new loyal audience.

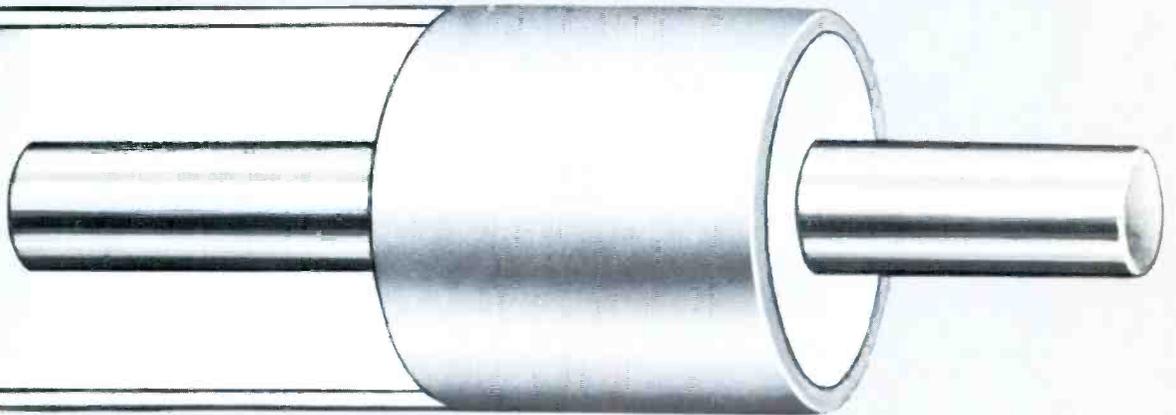
Mix the youngsters' happy sensations with lollipops, balloons, ice cream—all free, for which the parents are grateful. Mix all this with gaily decorated surroundings, banners, and

FOAMFLEX

SEMI-FLEXIBLE, ALUMINUM SHEATHED, AIR DIELECTRIC

COAXIAL CABLE

FIRST... TO MEET ALL THE NEEDS OF CATV



■ Now, the availability of 75 ohm Foamflex coaxial cable in four diameters — .412", 1/2", 3/4" and 1 5/8" — fills the needs of all-band CATV systems for rugged, high-performance cable in all required sizes. Foamflex, the original foam polyethylene dielectric cable, offers unequalled low loss for superior operation in community antenna and closed circuit television. Foamflex has a proven record in demanding applications in telemetry, missile guidance and microwave in addition to CATV.

Excellent uniformity of impedance with an average VSWR of 1.05 over all channels, and low attenuation, result in remarkably good video reception for tomorrow's color TV and auxiliary service. Surprisingly, this semiflexible, air dielectric cable is competitively priced with cables covering only the low-band frequencies.

Construction consists of a copper inner conductor, foamed polyethylene dielectric, and thin wall aluminum outer conductor providing a permanent moisture vapor barrier. Foamflex is superior on the basis of operational characteristics over long use and under extreme environmental conditions. For underground use, a Habirlene jacket can be furnished.

■ average VSWR of 1.05 on all channels ■ uniform electrical properties over wide temperature variations ■ low loss, no radiation, high phase stability ■ stable attenuation at high band frequencies ■ lighter weight for easy installation ■ modified pressure taps or multi-tap distribution may be utilized ■ long term operating life

NEW!

Send for new Foamflex CATV Bulletin CA Issue 1 with full engineering data.

PHELPS DODGE ELECTRONIC PRODUCTS
NORTH HAVEN, CONNECTICUT



colors and television sets in action. Even the mingling of people themselves adds to the festive air.

Dealers cooperate gladly. It is a special occasion, built around television, at which they can sell their wares. Indeed they do sell color sets on the spot. Color on television, because it is a creation of light—not of paint or ink, appears that much more attractive. Flowers and costumes on the screen are as dazzling as they would be in the most brilliant setting. The Open House should sell connections for you, and at the same time be a good-will builder for cable among dealers. It is not often that a holiday is declared in town for the express purpose of putting television reception on display. This, to the dealers, is what your CATV Open House amounts to.

Why do people come? They come for excitement. Something is *doing* in town. It is a place to take their children, to meet their neighbors. You should plan so that your publicity mills have been working toward one end, to bring them in. Your newspaper promotion is written to bring this about. Spot radio announcements the day before and during the event will be urging people to come for refreshments and free prizes.

A loudspeaker truck, if local regulations allow, will be broadcasting the event throughout the city streets. You might have been able to work out with the local radio station a remote broad-



WMTW's popular hostess of Teddy Bear Playhouse is surrounded by admirers at cable system Open House.

cast from the Open House itself. The radio station, if it is alert, will find plenty of opportunity to tie in with the merchants at the show. Free prizes are planned, on a lucky number basis, to bring people to the show and register there. Other prizes are set aside exclusively for new subscribers who sign up at the show. This is generally the last chance for your potential subscribers to take advantage of the special construction offer.

Of course, the success of the opening is measured by the number of subscribers who sign up. A secondary benefit is the mailing list of those names registered for prizes. A special offer can be made available to them in your next mailing. A good and well attended beginning should add many subscribers right then and there . . . and with this bring a promise of continuing fruitful results for your cable system.



Photo shows one of two connected dining rooms where guests were served an excellent smorgas bord meal at Peru Opening.

Modern 175 mile CATV system in Bengington, New York needs technician. Opportunity for advancement. Seeking well trained, well qualified men on Jerrold equipment. Prefer family man. Please write experience, age, technical training and expected compensation in first letter.

H. W. Moffat

**Empire State
Cable TV**

**178 Water Street
Bengington, New York**



PL 259 + K-GRIP Adapter
KS 89-27+RG 59 B/U Cable.
ASSEMBLED



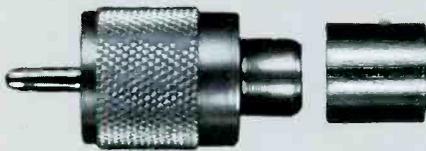
PL 259 + K-GRIP Adapter
KS 89-27+RG 59 B/U Cable.
UNASSEMBLED



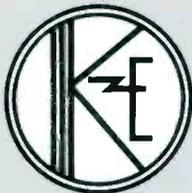
KU 59-16 (integral K-GRIP version
of PL 259) + Western Electric
724 Cable. ASSEMBLED



KU 59-16 (integral K-GRIP version
of PL 259) + Western Electric
724 Cable. UNASSEMBLED



KU 59-11 (bullet nose PL 259
integral K-GRIP)



KINGS UHF K-GRIPS

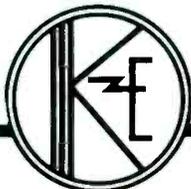
ELIMINATE UHF ASSEMBLY PROBLEMS by using K-GRIP CONNECTORS or ADAPTERS made by KINGS!

- Adapt PL 259 to all cable sizes. Can be used with your current stock of standard PL 259. See Table 1.
- Come as a built-in part of PL 259 body for all cable sizes. See Table 2. Also available with bullet nose for dip soldering.
- Can be assembled by unskilled help with a few minutes training.
- Provide economy by drastically reducing assembly time.
- Provide superior strength and reliability.

All of this, plus SO 239, finished with Kings TR-4 highly tarnish resistant silver plating (patent pending).

K-GRIP is also available for all RF Series.
For complete information send for 88 page K-GRIP HANDBOOK.

TABLE 1 K-GRIP ADAPTERS FOR STANDARD PL 259	
Similar to	
KS-89-20 UG-173/U (short)	Adapts PL 259 to Cable: RG 8, 8A, 11, 11A, 63, 63B, 213/U
KS-89-25 UG-173/U (long)	Adapts PL 259 to Cable: RG 8, 8A, 11, 11A, 63, 63B, 213/U
KS-89-21 UG-175/U (short)	Adapts PL 259 to Cable: RG 58, 58A, 58 C/U
KS-89-26 UG-175/U (long)	Adapts PL 259 to Cable: RG 58, 58A, 58 C/U
KS-89-22 UG-176/U (short)	Adapts PL 259 to Cable: RG 59, 59A, 59B, 62, 62A, 62C, 210/U
KS-89-27 UG-176/U (long)	Adapts PL 259 to Cable: RG 59, 59A, 59B, 62, 62A, 62C, 210/U
KS-89-39 (short)	Adapts PL 259 to Cable: RG 9, 9A, 9B, 214/U
TABLE 2 PL 259 with BUILT-IN (integral) K-GRIP	
KU 59-02	for use with Cables: RG 8, 8A, 11, 11A, 63, 63B, 213/U
KU 59-07	for use with Cables: RG 58, 58A, 58 C/U
KU 59-08	for use with Cables: RG 59, 59A, 59B, 62, 62A, 62C, 210/U
KU 59-11 (bullet nose)	for use with Cables: RG 8, 8A, 11, 11A, 213/U
KU 59-13 (teflon)	for use with Cables: RG 58, 58A, 58 C/U
KU 59-15	for use with Cables: RG 5, 5A, 5B, 6, 6A, 21, 21A, 143, 143A, 212, 222/U
KU 59-16	for use with Cables: Western Electric 724, 728A, Belden 8281



KINGS ELECTRONICS CO., INC.

40 MARBLEDALE ROAD, TUCKAHOE, N. Y. 10707

Future Trends in the Specification of Community Systems and Equipment

By KEN SIMONS
Jerrold Electronics Corporation

Since the first CATV Systems in this country were installed, Community Television has come a long way. The early systems had few amplifiers and served relatively small towns. Almost without exception there were no satisfactory air signals in the areas being served. Today's systems use dozens of amplifiers in cascade, extend for many miles and serve thousands of people. Very often a CATV System operates in direct competition with one or two good air signals. These facts strongly affect the technical requirements placed on the System. To compete against air signals the quality of the CATV pictures must be comparably good. To make the service attractive under these competitive conditions, the operator must provide many more channels than were needed in the earlier systems.

This growth inescapably requires improvements in the techniques used for measuring and specifying system and equipment performance. In the pioneer years it was sufficient to measure signal levels and look at pictures. Looking ahead, with large capital groups investing hundreds of thousands of dollars in CATV, we must find ways of providing more meaningful specifications.

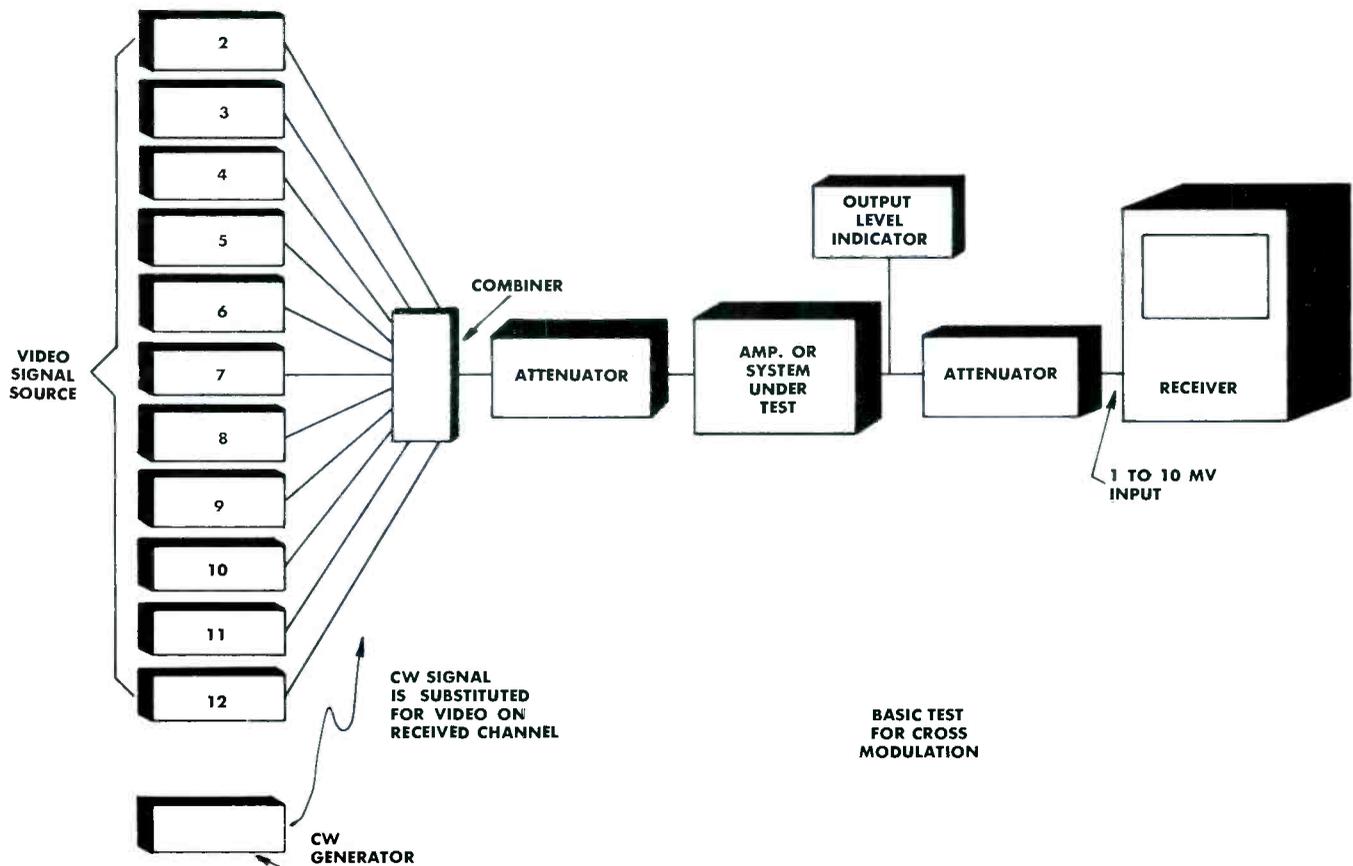
What makes a specification meaningful? It must mean

the same thing to everyone who uses it. You would have trouble knowing how much cable to order if one manufacturer used a 10 inch foot and another used a 14 inch foot, and both called them "feet." When everyone agrees on a 12 inch foot you can buy cable to fit between two points and know it will come out right.

Amplifier Output Ratings

The least meaningful specification in the CATV industry today concerns amplifier output ratings. This is decidedly a "10 inch foot" proposition. There is no common agreement on test methods, nor on distortion limits. I can't say what these test methods and distortion limits should be, but I can tell you what Jerrold's practice is, and I would like to do this in some detail in the hope that this will help towards eventual agreement on this vital point.

The output level of a CATV System is almost always limited by cross-modulation, "windshield wiper" effects due to passing many channels through single amplifiers. The basic test for cross-mod is a simple one; Figure 1 shows a block diagram of the setup. A number of clean signals at the various channel frequencies are combined and fed through the amplifier or system under test. While viewing





ALL-BAND ALL-TRANSISTORIZED LINE EXTENDER

Without a doubt, the Craftsman Electronic Products Model MD-2100 Line Extender is the **MOST RELIABLE ALL-BAND, TRANSISTORIZED LINE EXTENDER** available at the *LOWEST PRICE* on the market today!

Designed to drain heavy condensation (which may result for any length of time during power failure in cool or cold weather), the Craftsman Electronic Products Model MD-2100 Line Extender's housing gives guaranteed **ALL WEATHER DEPENDABILITY**.

Its unlimited adaptability allows its use even in hotels, motels, hospitals, apartment houses, etc.

The Craftsman Electronic Products Model MD-2100 Line Extender is also cascadable . . . and is designed for use as a line amplifier as well. In use as a main line amplifier, it functions exceptionally well in a small CATV system.

The Craftsman Electronic Products Model MD-2100 Line Extender always comes thru with flying colors when you need consistently high quality at lowest possible cost—engineered to serve you best!

features of MODEL MD-2100

- **LOW COST**—The most inexpensive line extender on the market today!
- Specially designed neoprene O-rings for waterproofing.
- All cast aluminum housing.
- Drains heavy condensation (2 drain holes).
- Cascadable.
- All-weather reliability.
- Adaptability designed-in.
- AC or DC
- Mounting versatility — mounts to pole or messenger strand.
- Input and Output Connectors available with F, UHF and .412 or .500 aluminum fittings.

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Community Antenna Equipment and Accessories



WRITE TODAY for complete catalog and price lists

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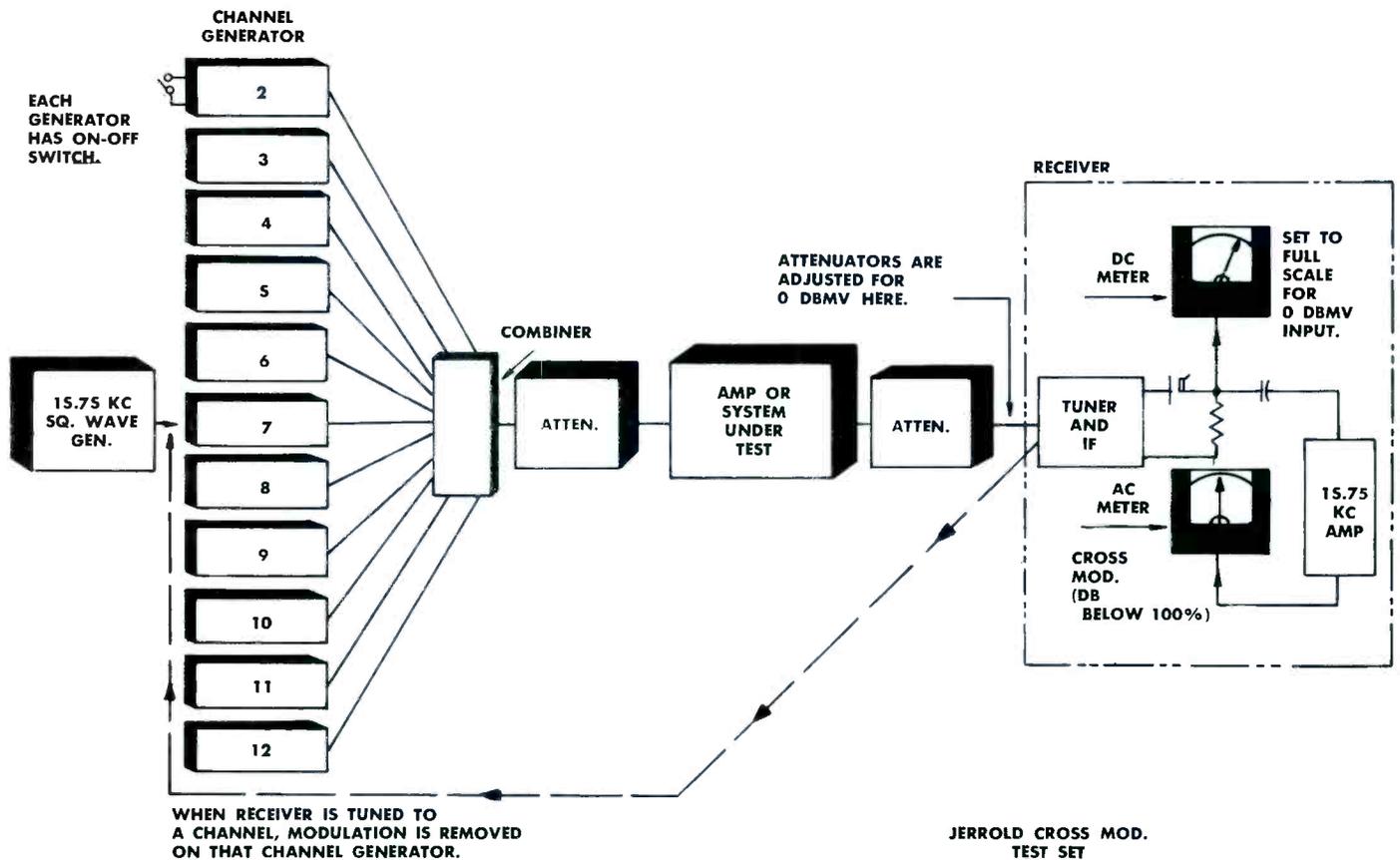


FIGURE 2

the output signal on a good television receiver, the output levels are increased until windshield wiper is just visible in the picture. The level at which this occurs can be called the maximum usable output of the system. This test gives surprisingly consistent results. If you will try it you will find it very easy to agree on the level at which overload occurs.

There is a weakness in the fact that, when viewing TV programs, windshield wiper effect can be seen much more readily on some pictures than on others. The accuracy of the test is greatly increased if a CW signal is substituted for the picture signal on the viewing channel. This provides a

white screen which does not change during the test, so more consistent and critical observations can be made. Since system characteristics are generally not the same for all channels, this test is complete only when it is made on each channel, the CW signal being substituted in turn for each of the channel signals. The maximum usable output is then that which gives barely visible interference on the worst channel.

The white screen test is the basis of all our amplifier output ratings. While it is a good basic test, it requires judgment so that it is not convenient for day-to-day use in

NOW FROM DAVCO:

THE EASIEST TO USE FSM. AVAILABLE!

Sadelco's Model FS-2

The easiest and most accurate field strength meter for CATV use. Fully transistorized battery operated. Peak reading of carriers from minus 35 db to plus 60 db. Calibrated in 1 db divisions. Two ranges covers VHF-TV/FM bands (54-108 mc and 174-216 mc).

ORDER YOUR FSM FROM DAVCO . . .
START USING IT TOMORROW!

Just \$295.00

Carrying case &
3 sets batteries
included.

DAVCO ELECTRONICS CORP.

IN CATV SINCE 1949

P.O. Drawer 861 • RI 3-3816 • Batesville, Ark. 72501



the laboratory. For laboratory measurements we have developed the cross-mod test outlined in Figure 2.

Any combination of twelve crystal controlled carriers is available. Each one is 100% modulated with 15.75 Kc square wave except when the receiver is tuned to it. The receiver includes a dc meter measuring the detector output level and a tuned 15.75 Kc amplifier with a meter to measure the ac modulation. This meter is calibrated in db below 100% modulation. This test set gives readings of relative cross-mod in db. To mean anything these readings must be related to the basic white screen test. We have conducted a great many tests during which a small group of engineers and others compared the performance of a given amplifier on the white screen test with its performance measured on the cross modulation tester. Excellent consistency is found in most cases, and the performance corresponding to certain cross-modulation numbers is shown on Figure 3.

Cross-Mod. Reading	Picture Characteristics
-57 db	No visible cross mod.
-51 db	Cross mod. barely visible on white screen
-45 db	Cross mod. barely visible on moving pictures

Figure 3

These relationships are obviously approximate. Given a cross-modulation tester and a white screen setup any given group of people could come up with numbers varying a db or so one way or the other.

All of the numbers shown represent *System* limits. They must be applied with care to individual amplifiers. With distribution amplifiers and line extenders there is no great problem, since they are normally operated at levels where cross-mod is measurable. Main line amplifiers are more difficult. In a cascaded system cross-mod doubles each time the system length is doubled; so, in a cascade of 32 amplifiers, the system cross-mod is 30 db above that due to each amplifier. Measuring distortion on an individual line amplifier at operating output level requires measurement of cross-mod more than 80 db down. Since this is difficult it is common practice to measure at higher levels and calculate the distortion at operating levels. This assumes that the

relation between output level and cross-mod follows a simple mathematical law. This is not always true.

Figure 4 shows, for example, a plot of cross-mod vs. level for two different amplifiers; a distributed amplifier (a) which shows a characteristic changing almost exactly 2 db for each db change in level (following basic theory), and another broadband amplifier (b) where the distortion reaches a minimum at a relatively high level, and then increases at lower levels. With this kind of curve cascade performance cannot be predicted from high level measurements. Since we have not yet found a way of making reliable measurements at -80 db, our present practice is to measure in the vicinity of -60 db on a cascade of at least eight amplifiers before setting specs on a line amplifier, and until a better method is proposed we recommend this as a reliable procedure.

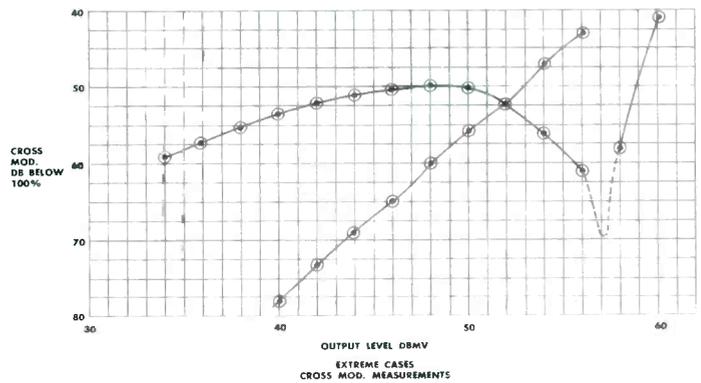


FIGURE 4

Echo

A second troublesome specification is concerned with the echo content or ghosting of the final picture due to the system. Echoes are generated in a CATV system wherever there is excessive impedance mismatch. Echo results from mismatch at the input and output terminals of amplifiers, splitters and taps, as well as from mechanical irregularities in the cable. Although system performance can be controlled reasonably well by specifying the degree of match on each piece of equipment and by controlling the cable manufacture by careful sweep-frequency tests, it is difficult to find an overall system measurement which will provide a usable echo rating.

One fact is tied down. It was established at the Bell Laboratories by careful subjective tests some years ago that, with a studio-quality picture, a video echo signal producing a second picture clearly displaced from the first, would produce a visible ghost when it was less than 40 db below the main signal.¹ Other tests established the relationship between echo delay and degree of impairment.² One factor prevents applying these results directly to the Community situation. The annoyance effect of an RF echo depends not only on its amplitude, but also on the RF phase of the echo carrier in relation to the main carrier. The greatest annoyance is produced when the RF echo is in phase (positive echo) or 180° out of phase (negative echo) with the main signal. An echo signal of the same amplitude will give less trouble when its phase is between these two extremes.

A workable compromise which leaves much to be desired is to use an "echo rating" which says that the echo content in the received picture shall be no more annoying than a single well-displaced video echo 40 db down. This

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leaves open a considerable area of discussion as to the relative annoyance value of a complex echo pattern as compared to a single echo.

There is an approach to the problem of measuring and specifying echo distortion which has been used in Europe much more widely than in this country. This is the sine-squared pulse test. A signal corresponding to a single picture element is sent through the system and its shape at the receiver is compared with its shape at the head end. Figure 5 shows comparison of a transmitted pulse (a) with a received one (b) showing the effect of close-spaced and long distance echoes. One way of specifying system performance is to require that the received pulse fall within a set of limit lines, as indicated on the figure (c).

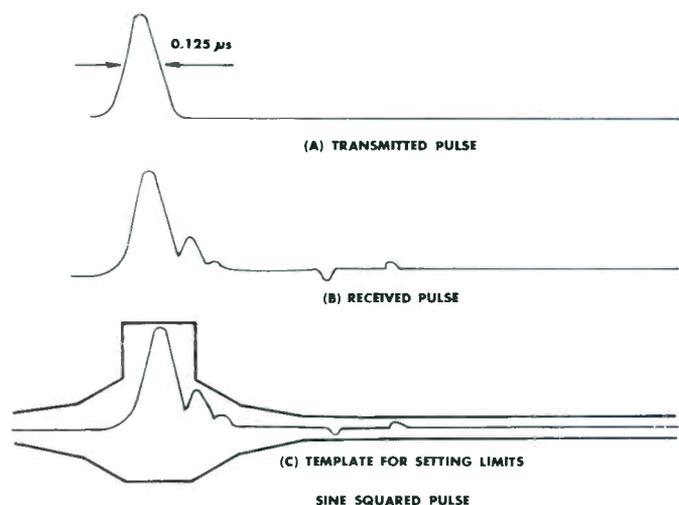


FIGURE 5

Hum Modulation

Another area of confusion concerns hum modulation. Subjective tests were carried out at the Bell Laboratories³ which show, for a studio-quality picture, that a hum signal 40 db below the video signal is barely perceptible. This 40 db specification need not be applied directly to the community situation because present-day receivers with keyed AGC circuits provide a considerable degree of protection against hum modulation. Considering this factor, our experience indicates that a 30 db limit (30 db below 100% modulation) is reasonable, but work remains to be done to evaluate the effect of receiver characteristics and establish a reasonable limit.

Conclusion

We have lived with many compromises during the growth of the CATV industry. Now that we are coming of age we will get along better if we can learn to speak the same language, to establish tests and specifications on the essentials of system performance that are clearly defined and understood by operators and manufacturers alike.

1. See "Quality Rating of TV Images," Mertz, Fowler and Christopher, Proc. I.R.E. Vol. 38 Nov. 1950 pp. 1269-1283.
2. See "Influence of Echoes on TV Transmission," Pierre Mertz, Journal of SMPTE, Vol. 60, May 1953.
3. See "Observer Reaction to Low Frequency Interference in Television Pictures," by A.D. Fowler. Proc. I.R.E. Vol. 39, pp. 1332-1336, Oct. 1951.



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The Law & CATV

Legal opinion of the recent KLIX court decision and the NCTA's views on CATV and Pay-TV were two of the major topics covered at last month's Georgia Association of Broadcasters' Southeast Radio-TV Seminar. Andrew G. Haley, Washington Attorney, examined the Ninth Circuit Court of Appeals' decision in the much-discussed "KLIX Case." Robert L'Heureux, General Counsel for the National Community Television Association, presented that organization's views of the current problems of regulating CATV.

The following articles were presented as portions of the G.A.B. "Broadcasting's Dilemma of The Decade" topic.

The KLIX Case

By Andrew G. Haley

On July 15, 1964, the United States Court of Appeals for the Ninth Circuit handed down its decision in the case of *Cablevision, Inc., and Idaho Microwave, Inc., v. KUTV, Inc., The KLIX Corporation, et al*—if you please, the "KLIX Case." Since its release the decision has been the subject of widespread interest, speculation, and, in many instances, confusion in the broadcasting industry as well as other media.

The case involved a dispute between a television broadcast station and a CATV system which operated in the same community. The television station, claiming exclusive rights by virtue of contract to the first run of network and film programs asserted that, under Idaho law, the activities of community antenna operators constituted tortious interference with its contractual rights and unfair competition since the community antenna received identical programs from other stations and distributed them for profit simultaneously with the complaining station's telecasts.

The United States District Court—the lower court—ruled for the television station on the basis that the CATV systems' activities did, under Idaho law, constitute unfair competition and contract interference. The court issued an appropriate injunction to preserve the station's exclusive first run rights.

In reversing the District Court, the Court of Appeals held **only** that the television station was not entitled to relief on the grounds asserted—that State law entitled it to a judgment on the basis of contract interference and unfair competition. **The court did not say, and I will elaborate on this point later, that television stations are without legal remedies in matters of this nature.** In fact, the court discussed at length how the station might proceed to bring action based on the copyright laws.

The KLIX Case did not involve a copyright claim but some knowledge of copyright law is essential to an understanding of the court's holding.

Our Constitution expressly bestows upon the United States Congress the power "To promote the Progress of Science and Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries." Laws adopted pursuant to Constitutional grant of authority are the "supreme law of the land" and when state law touches upon the area of the federal statutes it must give way if a conflict exists.

The copyright laws are designed to reconcile somewhat conflicting, but nevertheless compelling, policies—first, to avoid undue concentration of economic power through the prevention of monopolies; second, to insure that the public is given ready access to works of intellect; and third, to promote the arts by rewarding, in appropriate fashion, the genius of authorship. As one noted authority [Chafee] has stated:

"The general rule of law . . . [quoting Brandeis] is that the noblest of human productions—knowledge, truths ascertained, conceptions, and ideas—become after voluntary communications to others, free as the air to common use." The Constitution and Congress have made some exceptions to this general rule, by the patent and copyright laws. They have rewarded inventors and authors for their creativeness by granting them monopolies for a limited time and under carefully fixed conditions. . . ."

If an "author," in publishing his work, observes meticulously the requirements of the copyright statutes, he obtains the exclusive right to the benefits of his authorship for a period of twenty-eight years and, under certain circumstances, longer.

There are several "classes" of literary work all of which are involved to one extent or another in the KLIX decision. **First**, we have those works which have been published in accordance with the copyright laws and to which the law's protections apply. **Second**, we have those works which have never been published—and it is often difficult to determine whether a publication has in fact occurred—but which are copyrightable. To such works the label "common law copyright" is attached. **Third**, we have those works which either are not copyrightable, for any number of rea-

sons, or with respect to which a copyright has expired. Such works are commonly referred to as being in the **public domain**. **Fourth**, at least until the KLIX decision, we had a category of works which are not subject to being copyrighted but to which protections have been judicially extended, usually on the basis of some special contract or property right.

To the first two categories of works—common law and statutory copyrighted material—the author is entitled to extensive protections from unauthorized use by others. Those works which are truly in the public domain, on the other hand, may be used freely and with impunity by others subject to the qualification that the user does not deceive others into thinking that the creation represents his own work; that is, failing to give the originator appropriate credit. It is the fourth class of work about which the KLIX Case gives rise to question.

With this brief bit of background information in mind, let us proceed to an examination of the appellate court's holding in the KLIX Case. **After** the District Court had ruled in favor of the television station, but **before** the Court of Appeals reached its decision, the United States Supreme Court decided two cases which ultimately provided the basis for the appellate court's ruling in KLIX. I will refer to the two Supreme Court cases as the *Sears* and *Compco* cases—both involved patents, the law with respect to which, insofar as use by others is concerned, is closely similar to copyright law.

In the *Sears* case, the plaintiff had secured design and mechanical patents on a pole lamp. The lower court held the patents to be invalid for want of invention and thus the article was in the **public domain**. The lower court also found that a lamp made by the defendant (*Sears*) was substantially an exact copy of plaintiff's and that the two lamps were so much alike, both in appearance and in functional details, that confusion between them would be likely. On these findings the lower court held *Sears* guilty of unfair competition under state law.

The facts in the Compeco case were similar. There also, the plaintiff held patents which ultimately were declared invalid, and accordingly, the article was in the public domain. But, owing to the similarity between the defendant's and plaintiff's products, the District Court found the defendant guilty of unfair competition under state law.

The Supreme Court reversed the lower court in both the Sears and Compeco cases. It held, basically, that a state could not, through its laws of unfair competition, grant to an item a monopoly, because by virtue of its unpatentability, to do so would frustrate the policy of the federal scheme. The decisions rest on the basis that an unpatentable article, like an article on which the patent has expired, is in the public domain and may be made and sold by whoever chooses to do so. "To allow a state," the Supreme Court said, "by use of its laws of unfair competition to prevent the copying of an article which represents so slight an advance not to be patented, would be to permit the state to block off from public something which the federal law has said belongs to the public."

The court did recognize, however, the exception to free use of matters in the public domain—the element of misrepresentation or "palming off" one's property as his own. It said "Doubtless the state may, in appropriate circumstances, require that goods, whether patented or unpatented, be labeled or that other precautionary steps be taken to prevent customers from being misled as to the source."

The Ninth Circuit considered the two cases dispositive of the KLIX litigation. Quoting from the court's opinion in the KLIX Case:

"In *Compeco*, the court emphasized that the federal policy found in Art. I, §8, Cl. 8 of the Constitution and in the implementing federal statutes is to allow . . . free access to copy whatever the federal patent and copyright laws leave in the public domain." The public domain was broadly delineated in *Sears* that which is either not copyrighted, not copyrightable or on which the copyright has expired is in the public domain. Thus when an article is unprotected by a patent or copyright, state law may not forbid a person not the originator to merely copy and commercially exploit that article, for such a law would enable the originator to accomplish with the left hand of state authority what he was unable to accomplish with the right hand bearing the authority of the primary federal interest. No state intrusion of the federal field is permissible unless the law of the state meshes in purpose and effect with the announced state law but it may be exercised only insofar as consistent with the paramount federal interest. Accordingly, the Supreme Court expressly mentioned the state common-law action of unfair competition with the element of 'palming off,' an element Mr. Justice Holmes, concurring in *International News Service v. Associated Press*, referred to as . . . an infusion of fraud . . . necessary to turn a flavor into a poison . . . so as to permit . . . a remedy from the law . . . without legislation . . . as surviving its decision. . . ."

The Ninth Circuit Court of Appeals said there was no element of "palming off" present—all broadcasts are received and distributed by the community antenna without modification and accordingly there was no implied misrepresentation. The court held, therefore, that except for the "palming off" standard, anyone may freely avail himself of works in the public domain with impunity. And the court interpreted the "public domain" broadly—that which is either not

copyrighted, not copyrightable or on which the copyright has expired.

Copyrighted works are, however, another matter, but the court pointed out that no copyright claim had been presented by the local television station. I mentioned earlier that the court did not necessarily leave the television station without remedy. In fact, it demonstrated a great deal of sympathy with the plight of the television station. It did indicate, however, that if the station were to secure protections it would have to do so under the copyright laws and in order to bring such an action the copyright holder must be made a party to the suit. But in this respect, the court pointed out that the law permits the copyright holder to be joined as an involuntary party even though he does not wish to proceed with the suit.

Accordingly, insofar as the CATV system is making use of copyrighted works—statutory or common law—to which the local television station has some right, relief is available. I must also point out that the court seemed to be inviting Congress to legislate in this area when it said:

"In conclusion, we hold that unless appellees are able to demonstrate a protectible interest by virtue of the copyright laws or bring themselves within the contemplation of some other recognized exception to the policy promoting free access to all matter in the public domain, they cannot prevail. . . . Relief beyond what the copyright laws confer must be sought from Congress, not the courts."

And the court also said in a similar vein:

"Grant that the conclusion reached by the District Court would appear to be consistent with the national communications policy as formulated by the FCC. But as the District Court recognized, FCC policy is . . . not determinative of the issues of the present case. . . . *Cable Vision, Inc. v. KUTV*. And it should be emphasized that it is Congress and those whom it delegates who are charged with regulation in the public interest. Congress may, after weighing the competing interests involved, find it to be good policy to grant an additional remedy. But the courts are not charged by our constitutional system as arbiters of good policy. That function is reserved to Congress. In short, while it makes



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an appealing picture to see courts and administrative agencies hand in hand redeeming national communications policy, the fact remains that it is not the proper function of courts to do so."

The court also recognized that the activity of community antenna operators could be described as "inconsistent with a finer sense of propriety" to the extent that they "reap where they do not sow." We must conclude that the court was saying that Congress, if protections beyond those permissible under copyright law are to be extended television stations, must pass laws which will guarantee television stations their exclusive "first run" rights—the courts simply cannot do it.

Where does the KLIX Case leave us? With respect to copyrighted works and works in the public domain the answer is clear and has been discussed already. Remember, though, how broadly the court defined "public domain." It is that aspect of the case which gives rise to problems because in the past the courts have extended, by application of state law, protections to matters not subject to copyright—the fourth class of works to which I made mention earlier.

To avoid confusion, let me point out that most television programs are the subject at least of common law copyright. The scripts themselves can be copyrighted pursuant to the statutory provisions but the actual performance, owing to its transitory nature, cannot be registered as the law requires.

Common law copyright protection applies, you will recall, to unpublished matters only. "Publication" is defined as general dissemination under circumstances indicating abandonment of the right. The release of a program by the networks or television station does not, the courts have held, constitute general dissemination under circumstances indicating abandonment of the right. (*Stanley v. Columbia Broadcasting System*, 208 P.2d 9 (Cal. 1949); *Uproar Co. v. National Broadcasting Company*, 8 F. Supp. 358).

But, back to the problem area—not copyrightable but oftentimes protected materials. The two areas of real concern are news and sporting events.

There is no copyright in news. The news element—the information respecting current events contained in the literary production—is not the creation of the writer but is a report of matters that ordinarily are *publici juris*; it is the history of the day. (Let me point out though that there has recently been the suggestion that any special artistry in reporting news is subject to common law copyright. In *Jackson v. Documentaries Unlimited, Inc.*, 248 N. Y. 5.2d 809 (1964), defendants pirated news reports of the Kennedy assassination. The court held that the announcer had a common law copyright in his manner of delivery, and held for the plaintiff. The case was disposed of by a lower New York court, however, and is hardly consistent with prior decisions which extend common law copyright only to copyrightable—but unpublished—materials. An announcer's voice can hardly be registered and is, therefore, uncopyrightable.)

This does not mean that the courts have not extended some protection to those disseminating news. They have done so, under a theory of unfair competition. In fact, one notable case in point

involved a radio station broadcasting news obtained from reports in a daily newspaper. The court held that insofar as a copyright claim was asserted, jurisdiction was exclusively federal and the state court involved would not rule on it. But the court did order relief on the basis of unfair competition. The court said, quoting a noted authority, "news while fresh is protected from appropriation for gainful purposes even if the appropriation is not by rival news agency [the historic AP case], but is, for example, a radio broadcasting station." But the news cases did involve, to an extent at least, the element of "palming off."

And then we get to the sporting events. A football game, or a live description thereof, for example, cannot be copyrighted; it is simply not subject to registration. Any number of cases have recognized protectible rights in the event's promoters and authorized broadcasters. But recall the court said that noncopyrightable matters—and the description of a sporting event and the event itself fit that class—are in the public domain.

Let me review a few of the sports cases. In 1937, a New York court enjoined the unauthorized broadcast of the Joe Louis-Tommy Farr fight on the ground that NBC had acquired by contract from the promoters the exclusive right to fight reports. The defendant listened to the NBC broadcasts and relayed its own running account to the stations using its service.

The court decided the case on the basis that there was an unlawful appropriation of the exclusive property rights of the plaintiff which had been acquired by contract.

In another case, a station's employees watched Pittsburgh Pirates baseball games from buildings overlooking the ball park and broadcast play-by-play accounts of the games. The court in ordering the activity to cease did not recognize a common law copyright in the games but ruled that the activity constituted unfair competition and tortious interference with contract. In discussing the right of the Pirates to control reports of games, the court did note: "The communications of news of the ball game by the Pittsburgh Athletic Company by its licensed news agency is not a general publication and does not destroy that right."

There are many, many similar cases. But, note that in none of the cases was there a copyright involved. All, on their face, seem inconsistent with the KLIX decision. Recall, the KLIX Case said that except for misrepresentations works in the public domain may be used with impunity. I do not think the court gave adequate consideration to the fact that valuable rights derived from a proprietary interest or contract have been in the past protected, irrespective of the copyright question. In short, the court was too copyright-oriented.

Again, we can ask, "Where does the KLIX Case leave us in this respect?" The court indicated that when a copyright was involved the television stations could secure some protection. But the sports programs inevitably are not copyrightable. Does this mean that the CATV system can retransmit such programs with impunity? But there is a broader question than that involving

the rights of television stations. You will recall that the KLIX Case indicated that in matters of this nature states cannot bestow rights unavailable under federal copyright law. Does this mean now that New York Giants or Pittsburgh Pirates and other such organizations are not entitled to protections simply because they cannot secure copyrights on the sporting events?

It is principally this aspect of the holding which has given rise to so much interest on the part of persons outside the broadcasting industry. The case has widespread ramifications, indeed, if read literally.

I am relatively certain, on the basis of conversations which I have had with attorneys in the case, that the Supreme Court will be asked to review the holding. It is the belief of many that the case was decided wrongly and that the court read too much into the Sears and Compeo cases, both of which dealt with appropriation of articles clearly in the public domain. KLIX on the other hand, dealt with appropriation of items not, on the basis of copyright and past sports cases, in the public domain and as to which the television station had been given an exclusive right of one nature or another. Additionally in Sears and Compeo the states were giving a monopoly to articles which federal law said were not entitled to such status and, accordingly, state law had to "give way." No such obvious conflict exists in the KLIX Case.

I do not think we have seen the last of the KLIX Case. I think there is a distinct possibility that, when asked to do so, the Supreme Court will review it. And, let me quote you what one participant in the KLIX Case has said:

"It seems to me that the big league baseball and professional football associations, for example, would be concerned about the implications of the decision to their industries. To a substantial extent their interests arise out of contracts. They do not, themselves, create the event in which they necessarily claim exclusive rights. If common law torts are not available to protect the rights inherent in these enterprises, I would think that all forms of entertainment enterprises would be asking Congress for relief at an early date."

The KLIX Case is held in some quarters to be a major victory for CATV interests. To an extent, at least, it is a victory. The immediate "battle" was won by the CATV operator. In deciding the case, however, the court indicated clearly that the television stations could pursue their rights under the copyright laws and seemed to invite legislative protections for the stations. This, I am sure, will be done. At the same time, a substantial question exists as to whether the case was disposed of correctly. The question simply stated is "Did the Court of Appeals read too broadly the Supreme Court's decisions in Sears and Compeo?"

The KLIX Case is one which many broadcasters and CATV operators now wish had never gone to court and they wish it would simply "go away." This is scarcely possible, however, owing to the importance of District Court's decision enjoining certain activities of the CATV operators and the even greater importance of the Ninth Circuit's decision which is now the "leading case" in this area. In any event, it is a case the industry must follow closely and which has widespread ramifications.

Robert L'Heureux:

Pay-TV & CATV

There are two main ingredients to broadcasting: emitting the signal and trying to have it received by as many people as possible. CATV is just another way to insure that a large number of people view television programs and advertising. Broadcasters should, therefore, have been at the forefront of the development of CATV. Many broadcasters realize this today and are doing something about it. They are building or buying CATV systems.

It is true that the rating services have not done as much as they could to insure recognition by the advertisers of the number of viewers on CATV systems, but that is something that the broadcasters and NAB can do something about. If the rating services and those who sell advertising kept figures upon the added number of viewers via CATV systems, this would be an advantage to the broadcasters whose signals are received on CATV systems. Then a local station could take steps to have its signal received on as many CATV systems as possible and get credit for the added coverage.

There are many pitfalls to the present demands that CATV systems be regulated. For one thing there has to be a plausible reason for controlling them. The only logical one is that a CATV system should be restricted in some manner when it can be proven that it has a serious adverse economic impact on a local TV station and that this is detrimental to the public. So far, according to statistics developed by NCTA research and filed in NCTA's Comments before the FCC on April 20, 1964, there has been little or no proof of this. Economic impact is very difficult to prove and there are usually so many other factors besides CATV (such as translators in the same area, overlapping contours from other TV stations with the same programs, etc.) that this is not a practical grounds upon which to base control of CATV. A small TV station must go through a long and expensive hearing to prove its case. Then, there are dangerous precedents created for the broadcast industry. In the past the FCC has given short shrift to arguments made by one broadcaster that another broadcast station should not be allowed in the area. If the FCC develops precedents for recognizing claims of economic impact, the Courts will insist that the same considerations be applied if one broadcaster complains of potential economic impact when another broadcaster applies for a grant in the same area. If a serious case is presented to the Commission and a microwave application is involved, the Commission will grant a remedy as it did in the Carter Mountain Case.

In order to convince Congress, the broadcasters must find a better grounds

than economic impact or a claim that CATV does not carry out the ends of the Sixth Report and Order or that it is not consonant with the Table of Allocations. The Table of Allocations was based upon the availability of a certain number of frequencies or channels and a desire to develop local TV service. It was not meant to prevent the public from receiving as many TV signals or programs as they could or as they were willing to pay for.

Actually, the public will not stand for arbitrary deprivation of their right to select as many programs as it is possible for them to view. This was stressed by Senator Lee Metcalf in an address in Great Falls, Montana, on April 20, 1964. Referring to the Congressional hearings of the past on boosters and CATV systems and then proposed legislation in the Montana legislature, he said:

"I have never received so much mail in all the time I was in Congress. That was the period of the Berlin crisis, Montana was leading the nation in the rate of unemployment, but they weren't writing very much about that, when it looked as if someone was going to pull the plug on their TV set, they were really articulate and vehement. It was then that I gained profound respect for the medium. The other day I read the case of Carter Mountain Transmission System Corporation against FCC and I felt that I was right back where I started when the Bridgeport case came up. Except that Carter Mountain originated in Wyoming instead of Washington. But in the years that have intervened the CATV have carried out the mandate of the Communications Act; that TV service be given to every community and a variety of service to as many communities as possible. The fact that ABC, CBS and NBC are as widely quoted and viewed as they are is attributable to the work of your affiliates."

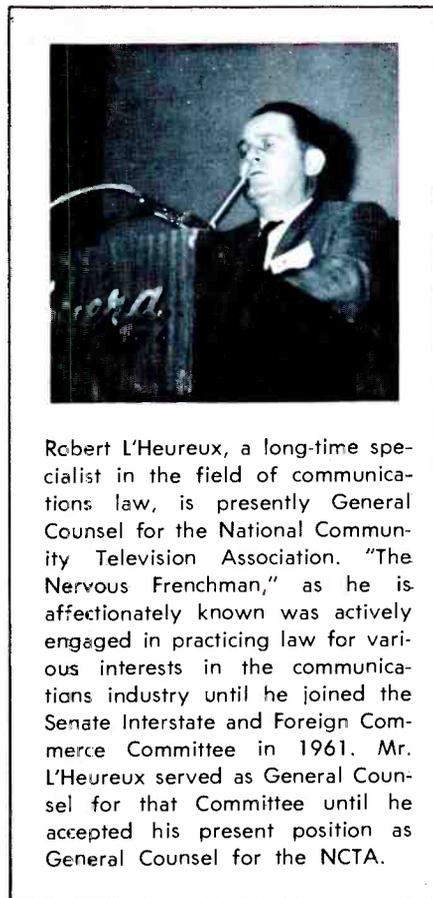
It is obvious that the allocation rules were adopted **without CATV service** in mind. CATV service was not known to the Commission at the time of the adoption of the Sixth Report and Order. If ever serious consideration is given by the Commission to the proposal that CATV systems, when served by microwave, are to be curtailed in a way to prevent the public from receiving more TV stations' signals than the number allocated to an area by the Commission under the Allocations Table, the Commission should submit this drastic proposal to Congress to determine whether it was the intent of Congress to make **second class citizens** of the less populous areas.

Under the situation faced by the Commission when the Sixth Report and Order was adopted, the Allocations Table was the only reasonable approach which the Commission could take. It was important to encourage the growth of local TV stations and there were only a relatively small number of channels available. The larger population centers were naturally expected to be able to support a large number of TV stations. However, with the advent of CATV systems, the smaller cities and towns were able to receive as many television signals as the more populous cities. **There can be no excuse for depriving the members of the public from receiving signals of their choice if they are willing to pay for the service.**

Furthermore, there is danger to the principle that there should be an arbitrary prohibition against allowing the signals of distant television stations from being received in an area where

there is a local TV station. The principle is wrong. Imagine what would happen if there were an attempt made by legislation or an ordinance to prevent the New York Times from being circulated in a particular county in order to encourage the development of local newspapers which carry local news. Today it is CATV which is the target, but tomorrow there may be a new electronic means to make TV signals receivable over much wider expanses without causing interference to the signals of other TV stations. If this should develop, broadcasters will be faced with the principle that the local TV stations are to be protected against this. Tomorrow the FCC may, following the same precedent, limit the contours of VHF television stations to protect or encourage the development of a UHF station. The principle, if applied to CATV with broadcaster support, can serve as a **dangerous precedent** to limit the development of broadcasting.

CATV control cannot be based on any other arbitrary approach, such as by the requirement that the permission of the emitting TV station be obtained by a CATV system. For one thing, most TV stations will grant permission readily in order to obtain additional coverage. This device **cannot** be used as a method of limiting the development of CATV. If there is collusion between the local TV station and the distant emitting station in order to curtail the activities of a CATV system or prevent its being built, this will violate the anti-trust laws. Furthermore, how much good has it done the broadcaster to have that power with respect to other broadcast



Robert L'Heureux, a long-time specialist in the field of communications law, is presently General Counsel for the National Community Television Association. "The Nervous Frenchman," as he is affectionately known was actively engaged in practicing law for various interests in the communications industry until he joined the Senate Interstate and Foreign Commerce Committee in 1961. Mr. L'Heureux served as General Counsel for that Committee until he accepted his present position as General Counsel for the NCTA.

stations, such as translator stations? **The FCC does not allow broadcast permission to be arbitrarily denied.**

Furthermore, Congress has already taken a position against writing such a requirement into law.

When a bill to regulate CATV systems (S. 2653), in 1960, as reported to the Senate, was being presented and explained for passage on the floor of the Senate, Senator John O. Pastore, the Chairman of the Communications Subcommittee, which had held the hearings on the bill, a strong advocate of the bill and the Senator who was designated by the Chairman of the Senate Interstate and Foreign Commerce Committee as the official spokesman for that Committee in steering its passage on the floor, stated:

"When the bill was originally introduced there was a provision in the bill, as there is a provision in the Communications Act, to the effect that once these systems were licensed they would have to get the permission of the people who are originating the signal. Now, that would have been quite unfair. That would actually be saying to these people, 'Go back and pay for something you have not been paying for up to now.' Naturally, the broadcaster who would have to be approached for permission would say, 'If you are obliged to come to me to get my permission, then I have a right to charge a fee.' The broadcaster could charge \$1,000 or could charge \$1 million if he wanted to, depending upon whether to put the CATV system out of business or to keep the system in business. 'I will tell Senators how fair the subcommittee was. We thought that was an unreasonable provision at the time we considered it, so we made an exception. We eliminated it from the bill. We have said that insofar as CATV is concerned, we will not disturb the present practice.'" (Congressional Record Daily, Senate, May 17, 1960, p. 9676.)

And again, Senator Pastore repeats the Congressional intent in the following passage:

"MR. SCHOEPEL. Question No. 2: Some of the communications to my office indicate a belief that S. 2653 would require a community antenna company to obtain permission from the television broadcaster before he could distribute the television signals. It is my understanding that no such provision appears in the bill. Will the Senator comment on this policy?"

"MR. PASTORE. Positively. That is one of the things I have emphasized. I will say to the Senator, that even I would not vote for passage of the bill if that were required, because I think it would be an invitation to destroy the CATV industry. I am not bent on destroying the industry." (Ibid., pp. 9682 and 9683.)

To the same effect, speaking of the requirement that CATV systems obtain the permission of the emitting station, Senator Gale W. McGee, a strong supporter of CATV regulation, stated:

"I was apprehensive that this position would prove a difficult one for the CATV industry and accordingly, I worked hard to have the provision which would have required a CATV operator to obtain the consent of the originating station deleted from the bill." (Hearings before the Communications Subcommittee of the Committee on Interstate and Foreign Commerce of the United States Senate—86th Congress on S. 2653, Part 2, p. 1442.)

It would seem that networks, which have a far greater impact upon the television broadcast industry than CATV systems, would not call for regulation of the CATV industry. In the debate on S. 2653 referred to above, Senator Monroney of Oklahoma, an opponent of that bill, pointed out that other factors having a greater economic impact upon broadcasting are not subject to the Commission's regulations under the Com-

TRANSISTORIZED

CATV All-Band Trunk & Distribution Combination Amplifier

Maximum output capability
exceeds by far all transistor
CATV Equipment now available



TRA - 220

\$325.00

The CAS TRA-220 transistorized CATV amplifier is designed for easy, economical mounting—NO CONNECTORS REQUIRED! The cast-aluminum housing is permanently mounted to the messenger strand and will accept any cable size from RG-59/U to 3/4" aluminum. A door that is hinged to open downward seals out dust and moisture and permits the transistorized module to be easily removed or adjusted.

A unique AUTOMATIC TEMPERATURE COMPENSATION (ATC) circuit controls the gain of the TRA-220 and compensates for cable variations due to temperature.

A built-in regulator that requires no adjustment- accepts cable-fed voltage from 20v. to 30v. a.c. and provides maximum protection from lightning and surges.

FEATURES

- COMPLETELY TRANSISTORIZED
- WIDE BANDWIDTH (40 - 220 MC)
- CABLE POWERED
- GAIN AND TILT TEMPERATURE COMPENSATED
- WEATHER PROOF STRAND MOUNTING ENCLOSURE
- FLAT STABLE RESPONSE
- TABS CONTROL FLOW OF CURRENT IN AND OUT OF AMPLIFIER
- TRANSISTORIZED CIRCUIT CUTS OPERATIONAL EXPENSE MANY TIMES OVER
- NO CONNECTORS REQUIRED
- ACCEPTS ANY CABLE FROM RG-59/U - 3/4" ALUMINUM
- DIMENSIONS - 12" X 4" X 3.5"

SPECIFICATIONS

TRUNK AMPLIFIER

GAIN 24 db plus 2 as temperature compensation.
BANDWIDTH 40 - 220 MC
INPUT V.S.W.R. 1.2
GAIN CONTROL 5 db
TILT CONTROL 4 db
RECOMMENDED INPUT LEVEL IN CASCADE.
Plus 12 db flat
RECOMMENDED OUTPUT LEVEL IN CASCADE.
Plus 34 High Band
Plus 24 Low Band*

*Figures shown are derated approximately 25 db! From maximum output capability.

TEST POINT Minus 20 db input and output
POWER SOURCE 25 - 35 volts A.C. or plus D.C.

DISTRIBUTION AMPLIFIER

USABLE OUTPUT LEVEL AFTER 4-WAY SPLIT
Plus 46 db.
GAIN CONTROL - 5 db.
TILT CONTROL - 4 db.
SINGLE OUTPUT FEEDS 2- or 4-WAY SPLITTER
SUPPLIES AC POWER TO OUTPUT FOR LINE EXTENDER OPERATION

NOTES

V.S.W.R.: An overall improvement in V.S.W.R. has been obtained by eliminating connectors and jumper cables in the trunk line.

CASCADING: High maximum output capability allows the TRA-220 to be cascaded and still maintain a safety margin from distortion.



P. O. DRAWER B • MINERAL WELLS, TEXAS • FA 5-5124

munications Act in the following exchange:

"MR. LONG of Louisiana. Does the bill violate the principle that the airways are free and are available to everyone?"

"MR. MONRONEY. I do not think it does. But it violates the principle of not having Federal regulation of cable transmission."

"Let me state the best illustration: All of us know that the mightiest force in television, which controls 90 percent of all television programs received by viewers in the United States, are the networks. They are not subject to regulation and very few Members of Congress would want them to be regulated. Why? Because the concept of the Federal Communications Act is that the networks themselves are not putting anything on the air. They use cables to carry the signals to the local stations. So they are not regulated."

"So we do not regulate—and I do not think we should—the mighty giant of television which supplies the television diet of 50 million television sets by carrying the television program signals by cable to the viewers."

"But if the quite similar CATV systems are to be regulated by means of this bill, we shall be establishing a precedent; and in that event, I do not see how we can properly regulate the smallest midget in the industry, but fail to give some consideration to regulating the mighty networks which are carrying signals by means of a similar system, and also without using the airways." (Congressional Record Daily of May 19, 1960, P. 9781.)

Another factor which should be taken into consideration is the likelihood of legislation. What are the chances of getting approval of a bill which would strictly control CATV? It has been known for years that powerful members of the House Interstate and Foreign Commerce Committee are quite cool to controlling CATV. In pressing for CATV legislation broadcasters may displease some of their best friends. For instance, Chairman Harris and Congressman Walter Rogers, the Chairman of the Communications Subcommittee, have recently conducted a vigorous and successful fight against the FCC's proposal to issue rules on the length of commercials. Broadcasters cannot expect their help on a bill to strictly regulate CATV. For instance, in Broadcasting Magazine of April 27, 1964, there is the following article:

"Rogers Gives Views On Pay-TV, CATV

"A congressman who led broadcasting's fight against FCC regulation of commercials thinks broadcasters ought to stand on their own feet in battles with community antenna television.

"... As far as CATV is concerned, Representative Rogers said, he thought broadcaster clamor for protection appeared somewhat paradoxical. Broadcasters fought vigorously to keep the FCC out of the economic aspect of their business, he said, referring to the FCC's abandonment of a rulemaking that would have set standards for the length and frequency of commercials (Broadcasting, December 30, 1963). Now, however, they seem to be asking the FCC to step right back into this economic area to protect them from CATV, he said.

"As Representative Rogers sees CATV, in most instances it is a local enterprise operating strictly in intrastate commerce. Anyone can stick an antenna into the air to catch a TV signal, he said. 'Serious constitutional questions' would be raised if Congress sought to justify bringing such CATV's under federal regulation."

Representative Rogers spoke to this Association in the same vein. There is much wisdom to the advice that broadcasters should not be seeking broader control over those whom they consider as competitors. For instance, in Advertising Age of May 11, 1964, we find the same advice from Commissioner Lee Loevinger, who is quoted as saying:

"If broadcasters would claim freedom from Government interference for themselves, they

cannot consistently or credibly call for Government interference in the operation of their competitors—as by restriction of the programs which CATV's can carry . . ."

The broadcasters' objective should be to obtain the same freedom as the newspapers one day and they will not achieve this by asking that their competitors be regulated. Instead, they should fight to be freed of as many regulations as possible, as they did in the recent and successful fight on Capitol Hill to prevent the FCC from issuing rules on the length of commercials.

The CATV industry could have made use of channels to originate programs and to carry advertising. While there have been instances of short-lived originations as an experiment, the CATV industry by and large has refused to do this. This has been based partly upon a desire not to antagonize broadcasters and other media of advertising. Let's keep it that way. If broadcasters push for legislation which will seriously restrict the activities of CATV systems, such as by requiring them not to duplicate on a delayed basis, we may well force them to make use of their unused channels to originate programs. Under the anti-trust laws, if we make out-and-out competitors of the CATV operators, they will have a right to bid for programs, films and other sources of entertainment. If we are genuinely interested in protecting the small television station, there is nothing worse we can do than to force CATV operators to resort to programming and to the sale of advertising in order to survive. Let's keep CATV in the business of providing better reception.

One of the fears of broadcasters is that CATV may become the opening door to Pay-TV. Such comments have been so widely circulated that it is time to give the lie to these claims.

If Pay-TV is successful, it will first make its gains in the large metropolitan areas in "Big City, USA," where CATV is non-existent or quite scarce. Almost universally CATV systems are small as compared to the saturation of homes apparently required by Pay-TV economics. Of almost 1300 CATV systems, only about 30 have 5,000 or more subscribers—a trifling amount in Pay-TV terms. There is no reason to believe that a successful Pay-TV entrepreneur will turn first to a CATV operator and grant him a franchise in his particular area. CATV systems now in existence would have to be completely rebuilt to adapt themselves to the only promising form of Pay-TV, which requires two-way communications.

The TV set of each CATV subscriber receives the same signals, on the same channels, in the same quality as every other set. It is rather like a party line telephone system, and as the present day CATV systems are constructed, it is not possible to deliver signals to any selected groups of sets without the same signals being receivable on every other set connected into the cable system. Thus, community antenna systems as they exist today, cannot serve as pay television systems, which by their definition must be able to provide programming on a selective basis, i.e., the set owner who pays for the program receives it, the set owner who does not pay does not receive.

If CATV systems were to become pay television systems, they would have to be re-constructed in such a manner that it would be possible to deliver signals to connected sets on a selective basis. Such signals might be carried through the cable on some frequency not compatible with any of the 12 channels generally to be found on most sets, and a "converter" would have to be attached to the set to change the incoming Pay-TV signals to one of the 12 VHF channels the television set could reproduce. But most CATV systems in the country can at best distribute the spectrum between 54 and 88 or 95 megacycles (Channels 2 - 6). The newer broad band systems are generally confined to distributing the frequencies between 54 and 216 megacycles (Channels 2 through 13), although a very few systems are reported to be able to distribute frequencies as low as four megacycles, or well below the television band.

If UHF television fails to get off the ground, and many experts believe that unfortunately it will not succeed, broadcasters may be sure that Congress and the FCC will not stand for a curtailment of channels which can be received by the public. CATV will become more important than ever as a source of multiple channel reception. If this develops, broadcasters should be in the forefront in providing the public with CATV services. Don't get caught asleep at the switch.

When our present Chairman of the Board, Mr. Bruce Merrill, was elected to this office last June, he was quoted by the press and he stated:

"In my opinion, Pay-TV would be as dangerous for CATV as it is for broadcasting." (Broadcasting, June 22, 1964, p. 49.)

In short, CATV is not the first step to Pay-TV. Most CATV operators haven't the slightest interest in Pay-TV. The few dreamers who think there may be an opportunity one day in the distant future for CATV operators to benefit from Pay-TV are forgetting the facts of life, namely that a cable system would have to be completely rebuilt at tremendous cost to accommodate itself to Pay-TV. This was very aptly proven in the excellent recent article in Broadcasting entitled "CATV Into Pay TV? Not So Easy." (Broadcasting, July 13, 1964, p. 27). Governor Collins, at the NAB Convention in April, warned that if Pay-TV gets off the ground, the broadcaster and networks will get into it too. I submit that they will be as well and perhaps more advantageously situated than the CATV operator to benefit from Pay-TV. For one thing, there are more large TV stations in the populous centers where Pay-TV will thrive, if it ever succeeds at all.

So, let us look at the facts and let us not invent a bogey-man, such as that CATV is the open door to Pay-TV. Let us realize that the ties which bring us together are much more numerous and much stronger than the factors which separate us. Let us recognize that we are partners in making available to the public the widest possible range and choice of television signals. The broadcast industry and the CATV industry will prosper through close cooperation. Both industries will suffer from antagonism and strife.

A Visit to TeleSystems Corporation



First an office, one flight up, then a large store front; now its own building. An organization that won't stand still long enough to have its picture taken.

We came away from our visit to TeleSystems with an impression of busy building activity, reminiscent of the story of Jack and the Beanstalk that just grew and grew and kept on growing.

Fred Lieberman founded TeleSystems Corporation just four years ago. The business began on even less than the traditional shoestring—because in this case it had been *borrowed!* However, it did have the solid groundwork of a newly purchased cable system, which was immediately turned into a healthy income-producing organization. This was followed by the acquisition of a second system in Burlington, Vermont, which was quickly converted from an unprofitable outlook to one of solid, profitable performance.

Having come a long way since that first “borrowed shoestring,” TeleSystems Corporation began 1964 with arrangements for a loan through Texas Capital Corporation and the Chase Manhattan Bank to the tune of \$51½ million. (Fred Lieberman notes that one way of measuring success is by the size of the loan you can negotiate!) Seriously, when responsible financial institutions recognize your worth in terms of hard cash they will put at your disposal, it must follow that you have proven yourself worthy of this trust.

Rapid corporate growth is not uncommon in America. But in the story of TeleSystems Corporation's growth, some-



Lieberman and Stilwell are shown calculating system requirements with the aid of specially prepared maps.

thing different is added. It is not only the story of a strong-willed and far-seeing person who made good. It is also one of special intuition exercised by a man in gathering into an organization an array of special talents, and then giving them the freedom to use their abilities.

The theme of individuality is set by Fred Lieberman himself. He came out of World War II into a field engineering job with Philco. Then to Jerrold where he became sales manager. In 1960, he formed TeleSystem Services Corporation. In one person, he combines engineer, businessman and sales builder. He sets a fast pace that is well emulated by those around him.

Jack Crosby, Executive Vice President, helped form TeleSystems Corporation with Fred Lieberman earlier this year. This arrangement culminated many years of friendly



Jack Crosby is shown in his Del Rio office with his capable secretary, Lyn Holman.

and profitable relationships between the two men. Crosby's easy going appearance and manners are quite a contrast to Lieberman, and the combination seems to be ideal. Crosby is a director of the NCTA, a director or officer of at least 10 companies, and has a list of civic activities that space does not permit listing.

In 1961, Lieberman convinced Jim Stilwell of the future of TeleSystems and assured him the creative freedom to develop new engineering techniques and better products for the industry. Stilwell, at that time, was an engineer with a well-earned reputation and he is now TeleSystems' Engineering Vice President.

Fred Weber, Sales Manager, formerly directed a two hundred man consumer sales force. This experience, plus a background of CATV system management, has produced “AIDA,” a sales program that has brought many cable systems thousands of new subscribers.

We have personally known him through his association with TV & Communications as Contributing Editor. He also authors the popular column “The Cable TV View,”



Fred Weber, symbolically seated in front of a chart showing sharp vertical growth of systems using his "AIDA" sales promotion plan. Fred is discussing a special sales situation with his assistant Tom Johnson (left).

syndicated to newspapers in cable TV communities. His experience includes management of cable systems in Flagstaff, Arizona and Southern New Jersey.

Glenn Scallorn, Manager of Community Systems Operations, West, is an ex-school teacher turned business administrator. Scallorn covers too much territory too often to depend on slower modes of travel. From this he went, naturally, into power line construction—then CATV. He is that long, rangy picture of a Texan come true-to-life. Joe Dickson knows line construction well and is a man that utility companies like to deal with, out of respect for his knowledge of the industry.

William F. (Bill) Karnes, has come from the field to the Glenside headquarters to work with Jim Stilwell. Bill has matured with the industry in a variety of positions of responsibility. He has been vice president of an operating cable TV company, field engineer and engineering sales manager.

The newest member of the organization, joining TeleSystems Corporation at the time this article was being



Miriam Martel, the charming and efficient center of office operations. While serving as Fred Lieberman's secretary, she is the liaison between the TeleSystems men on the road and their chief, as well as with office personnel.



Fred Lieberman, (standing) TeleSystems Corporation's president giving final approval for the Burlington, Vt. cable system's conversion to 9 channels. Jim Stilwell is shown at left with Phil Lothrop, TeleSystems' Green Mt. manager.

edited is Frank H. Nowaczek, Jr. who has been administering the NCTA since Bill Dalton resigned as President. At the same time, while ably managing NCTA activities, he was busy as Director of Research for the Association.

These are some of the people we met. What they said, and the way they went about their work, left an impression of controlled energy moving in a planned direction.



\$295
complete with
carrying case
and batteries.

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"New Model FS-2"

TV-FM

Field Strength Meter

- Glass epoxy main chassis.
- All wiring is printed on glass epoxy.
- Former ceramic coil forms replaced with smaller, shock resistant fibre glass types, or with a sub-miniature, fully encapsulated fixed inductance.
- Re-arranged variable controls and alignment points make calibration and alignment easier.
- Improved semi-conductor diodes and transistors.
- Fully transistorized, battery operated.
- Reduced battery current consumption lengthens battery life.
- Improved input and mixer circuits result in better selectivity.
- Long term stability.
- VHF-TV/FM in two ranges (54-108 Mc & 174-216 Mc)
- Peak reading, Carriers marked.
- 75 ohm, "F" Connector, Matched input.
- AGC and Temperature compensated.
- Calibrated in 1 db div. from minus 33 to plus 60 and volts from 10 microvolts to 1.0.
- Accuracy plus or minus 1.75 db or better.

This is the fastest and easiest to read Field Strength Meter available today.



TV CABLE SUPPLY CO.
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PH. 717-243-4918

formerly TELCO

Fred Weber, outlining his promotion and sales plan; Jim Stilwell, using imagination and down-to-earth rules of good engineering practices to describe developing concepts for the community antenna industry; Sam Street, TeleSystems Corporation's Advertising Manager, as the promotion visionary of the company's public relations and



Bud Feiner, Comptroller, the busiest man in TeleSystems Corporation. He's proof that one man with able assistants, such as Marian Rotenbury, can keep up with an ever mounting load of bookwork.

advertising efforts. If you have been hearing a lot about TeleSystems lately, you can probably credit both TeleSystems' unusual pace of activities and Sam Street's ability to tell the world about it. Charles Wigutow, while managing those systems from Glenside, formulating plans for TeleSystems' new Personnel Service.

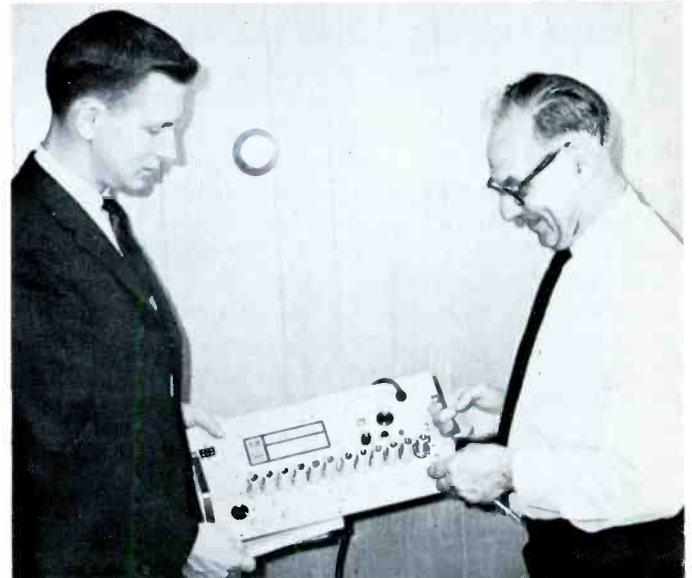
These men are on the move. Fred Lieberman flies by commercial airlines as far as they will take him on frequent schedules, but then, instead of waiting for feeder lines, will

pilot a rented plane directly and immediately to his destination.

Similarly Jack Crosby is always on the go. From Del Rio, Texas to Washington, D. C.; from Oregon to Del Rio and Chicago. Some of the TeleSystems men spend more time in the air in an average week, than do commercial airline pilots performing their jobs!

Meanwhile, back at Glenside, Pennsylvania, headquarters, the walls keep bulging outward. First a move from second floor offices to a street floor. Then doubling the space by re-doing the lower floor. And now the space is being doubled again by taking over the property adjoining present offices.

What goes on in these busy quarters? The bustling activity imparts an air of urgency. Lieberman is on the phone or the intercom. "Do it now" is substituted for "soon." It almost seems that the company has solved the problem of a man being in several places at the same time.



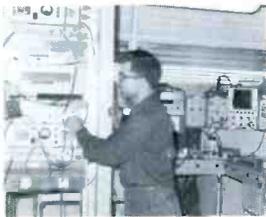
Charles Wigutow, Manager of Systems Operations and a regular contributor to "TV&C" editorial columns discusses TeleSystem's "TAD-500" amplifier with Stan Searle.

Jim Stilwell pores over polar coordinate maps of systems in the making while Alan Sutphen presides over a busy drafting room. Nobody seems to slow down at TeleSystems Corporation. Either they are on the phone or dictating or on the way to or from a plane.

And yet they seem to keep up with everything. New systems are constructed under their active guidance. Old systems increase in subscribers and profit. TeleSystems Corporation, as an organization supplying both services and products, is experiencing continuing increase in demands for its services. It manages systems for others while hiring and training new people to fit into the industry.

To us, perhaps the most refreshing characteristic of the TeleSystems organization is the individuality which every executive and staff members retains. Through a combination of individual initiative and mutual respect they comprise an effective and harmonious team. There is obviously plenty of truth in the advertising claim that "TeleSystems is People." And Fred Lieberman must be given credit for having assembled an outstanding group of people to share in the management of TeleSystems Corporation, one of the fastest growing companies in CATV. □

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You can be confident of getting the most from your investment by consulting the established specialists in All Band CATV. The knowledge gained through a decade of successful system design and operation is now available to you. We feature the best of all major equipment lines—as well as complete layout and Installation service. Call on the company that is truly "of CATV people—by CATV people—for CATV people!"

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NEW LOW-COST BUILDINGS

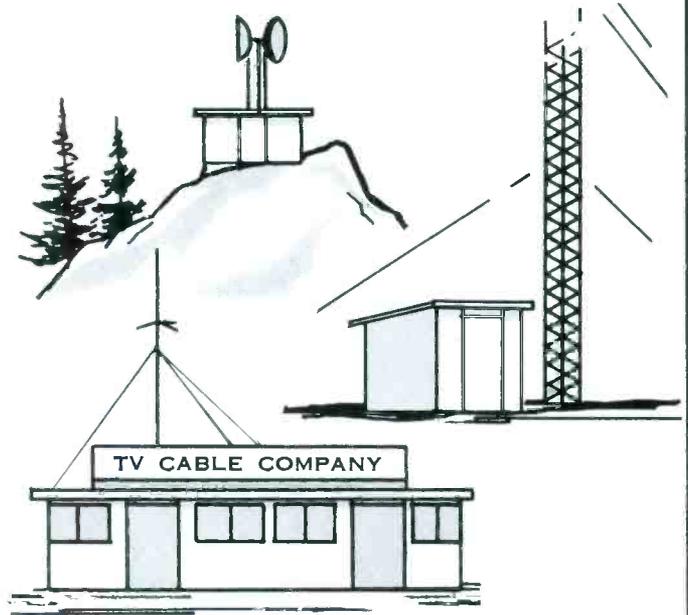
The development of Lustre-Span, a new high-strength rigid vinyl, has made it possible to produce extremely versatile pre-fabricated buildings at very low cost. Specifications of the new structures reveal their usefulness in dozens of applications, such as CATV Head-End equipment buildings, microwave relay stations, remote transmitters and commercial buildings. Modules are available as small as 4' x 4' with no limit on maximum size of structure.

Quickly erected, pre-fabricated units are constructed of rigid-vinyl corrugated panels with framework of extruded aluminum alloy. Simple, one-day erection requires only screw-driver, wrenches and drill. These lightweight buildings are secured to foundation by anchor bolts, per "South Florida Building Code." Roof will take a live load of 20 lbs./s.f. Tensile strength of vinyl walls and roof is 7,500 psi, with compressive strength of 9,400 psi.

LOW THERMAL CONDUCTIVITY

Ideal for extreme climatic conditions, the walls and roof have a thermal conductivity factor of only 1.3 BTU/s.f./hr./in. (Will not rust or rot and is not subject to insect attack or fading.) The glossy surface of the tough rigid-vinyl reflects the sun's rays, maintaining a low interior temperature.

All of these properties are equally valuable whether in a 4' x 4' transmitter shack or a 20' x 80' retail or service facility. And the savings are just as great, proportionately, in either type of application.



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Point for point, superior to seamless! Made the same way high pressure liquid tubing is made. Lengths up to one mile mean fewer splices, less chance of moisture penetration. Weld proved stronger than parent metal by ASTM Cone tests. Continuous non-destructive electronic inspection of every inch of cable guarantees highest sheath and weld integrity. Superior electrical characteristics shown by VSWR and Impedance tests. Attenuation at Channel 6, .79 DB/100 ft.; Channel 13, 1.26 DB/100 ft. Frequency response, excellent. For more data, write to Plastoid today.

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An Employment Service for Cable Television? It's here now!

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Even if cable television were experiencing only the normal pattern of growth, after fifteen years of cable TV, there would be a need for a specialized service of this kind. But community antenna systems have gone far beyond the idea of bringing television to TV deprived fringe reception areas. Concepts of the place that cable television can fill keep expanding, and so does the growth of the industry.

Where do you get the men who can keep pace with this kind of expansion? Business vision is demanded, as well as imaginative engineering. Both, of course, based on knowledge of sound principles. Such men will have grown up in the industry, and have demonstrated their ability to fill a position of greater responsibility. But the need is far greater than can be filled by those presently in cable television.

Allied occupations must be looked to, where the requirements approximate the conditions found in cable TV. With a minimum of training added to their previously successful practices the potential of these men can be properly utilized. Men like these may be available within your own areas.

We have the resources to find them for you, and if desired, train them in our efficiently managed systems. You can so be free of the uncertainties of long distance relocation.

Cable system employer: This is the kind of insurance you need—the availability of good management and technical men as you need them.

Write or Call:

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Personnel Placement Division
TeleSystems Corporation
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Glenside, Pennsylvania
(215) Turner 4-6635

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TV & COMMUNICATIONS

S WIRE GRIP Gaining in Popularity



More Cable Systems every day are switching to the S WIRE GRIP as the single standard for dead-ending all house drops. The S WIRE GRIP has proven its superiority in every way. It is . . .

STAINLESS STEEL

- For long life and reusability. The S WIRE GRIP will last indefinitely. Its non-tightening grip makes it as easily removable after many years as the day it is installed.

EASY TO INSTALL

- One-piece design gives quick and easy installation—no parts to assemble or drop to ground while installing. Sagging of house drop is simple. No extra wire is used in spiral around grip.

NON-TIGHTENING

- A gentle grip is distributed over 7 inches of cable. The grip is never tighter than required by the existing load. Extensive tests on RG59U, equivalent to years of use, showed no damage to wire.

ECONOMICAL

- The low price, long life, installation time saving, use of less cable, and easy reusability give the S WIRE GRIP the lowest over-all cost factor of any grip used.

PROVEN IN THE FIELD

- Alaskan cable systems have found the S WIRE GRIP the only drop wire grip that will stand up under severe snow, ice, and wind conditions.

S WIRE GRIP—CATALOG NO. S—\$21.00 C

If you're not familiar with the S WIRE GRIP send for your free samples. A test will convince you. (Use the coupon below to send for samples or stock order today.)

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12 CHANNELS?



NO TRICK AT ALL

The Davco Functional Design Head-End shown above delivers 16 channels of entertainment. 11 TV Channels, 2 tape channels, 1 weather channel and 2 off-air FM channels!

This recently developed head-end is only one of more than 60 that have been designed, built and delivered by Davco. . . . Many of the most experienced CATV engineers choose Functional Design by Davco; there must be a reason. And that reason is the performance, reliability and economy of Davco's Functional Design systems.

CATV Operators everywhere are depending on Davco for fast delivery of all materials and equipment for their systems. You'll find the largest, most complete inventory of CATV equipment and supplies at Davco, and you'll always receive prompt, courteous service. Reasonable prices, too!



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DAVCO ELECTRONICS

IN CATV SINCE 1949

P.O. DRAWER 861 • Phone RI 3-3816 (501) • BATESVILLE, ARKANSAS

LETTERS

Gentlemen:

We recently subscribed to TV & Communications and enjoy reading it a great deal.

Somehow we misplaced the June issue and wonder whether you have an extra copy available.

Elmo W. Reed
Director of Engineering
WEAU-TV, Ch. 13
Eau Claire, Wisconsin

• *Thanks for your interest, Elmo. A copy of our June issue is on its way to you.*

Gentlemen:

One of our mid-West representatives recently called to our attention an article in your June, 1964 issue of TV & Communications concerning an FCC suggestion that 12.575 to 12.825 Gc might be the best band for community antenna relay. I would very much like a copy of this issue.

M. V. LaPrelle
Senior Product Planner
Raytheon Company
Microwave & Power Tube
Division

• *The proposed 12700-12950 mc Community Antenna Relay Service (CAR) is outlined in a news story on page 9 of the August issue of TV & Communications. We are sending you a copy of this issue along with the June magazine.*

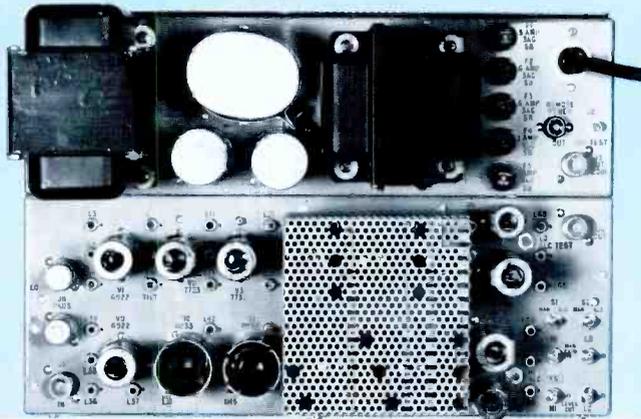
CLASSIFIED

Rate for classifieds is \$1.00 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. Deadline for receipt of copy, 1st of preceding month.

WANTED—USED JERROLD TELETRON DEMODULATORS. State price and condition to National Trans-Video, Inc., 403 So. Akard St., Dallas, Texas.

SALESMEN THOROUGHLY ACQUAINTED WITH CATV INDUSTRY—Cable and parts line available with terrific opportunity. Excellent arrangements. Territories open in Southeast and Midwest. Salary plus expenses. **WRITE DEPT. 101, TV & COMMUNICATIONS, P.O. Box 63992, Oklahoma City, Oklahoma.**

FOR THE HIGHEST POWER



entron's LHR-45 repeater amplifier is the ultimate.

This is the high gain, high output level amplifier of all future CATV systems. It has many superior characteristics compared to any other CATV repeater amplifier available. Automatic level controlled low and high bands, including full FM, are combined in the LHR in one single chassis. The LHR's high power handling ability extends the mileage of CATV systems and improves picture quality. Frequency response is flat (if aligned through cable); input and output are matched; there are separate high-low band gain and tilt controls, and input attenuators. The LHR is equipped with a regulating transformer for gain stability under varying line voltage conditions, and for the increase of tube reliability as it keeps filament and cathode temperatures constant. For complete information and specifications on this advanced amplifier, the LHR-45, write to:

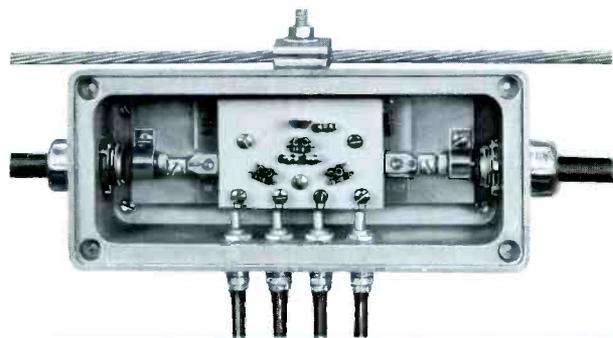
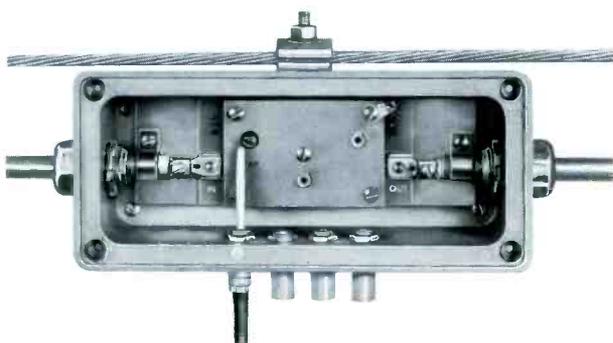
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NEW!

SKL

MULTITAPS



- WEATHER-TIGHT DIE CAST HOUSING
- ADAPTS TO VARIOUS FEEDER CABLES
- PRINTED CIRCUIT TAPS AND ADDERS
- COMPLETE — NO MATING PARTS TO BUY

SKL was the first to introduce the multiple output directional coupler line tap. Now we are proud to announce a newly engineered version of our Multitap — professional in design, proficient in performance and profitable for you in price.

Retaining the electrically superior directional coupler principle in a compact printed circuit tap and tap adder combination, SKL Multitaps are available in values of 10, 16 or 22 db tap loss. They mount easily to the messenger strand, and their adjustable input and output fittings accommodate any feeder cables from 3/8" to 1/2" O.D. Tap adder inserts serve up to four subscribers from one location with *one* low through loss.

The Multitap combines top quality with real economy. When serving four subscribers, it costs only \$3.125 per tap. Try some in your system. After you do, we think you'll want a lot more!

SPECIFICATIONS

Multitaps

TAP LOSS FREQUENCY RESPONSE: Combined with 50 to 80 feet of RG-59/U cable, no more than ± 1.5 db from average value in VHF TV bands.

IMPEDANCE: 75 ohms at all three terminals.

RETURN LOSS: 20 db min. at all three terminals.

Model	Tap Loss At 216 mc	Insertion Loss 54 - 216 mc
410	10 db	1.5 db max.
416	16 db	1.0 db max.
422	22 db	1.0 db max.

Tap Adders

FREQUENCY RESPONSE: Same as Multitap by itself.

TAP LOSS: Sum of Multitap loss and splitting loss (see below).

FEEDER LINE INSERTION LOSS: None.

IMPEDANCE: 75 ohms at all terminals.

RETURN LOSS: 16 db min. at all terminals.

	Model 402	Model 404
No. of Outputs:	2	4
Splitting Loss:	3.5 db max.	7.0 db max.
Isolation between Outputs:	23 db min.	26 db min.



SPENCER-KENNEDY LABORATORIES, INC.

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