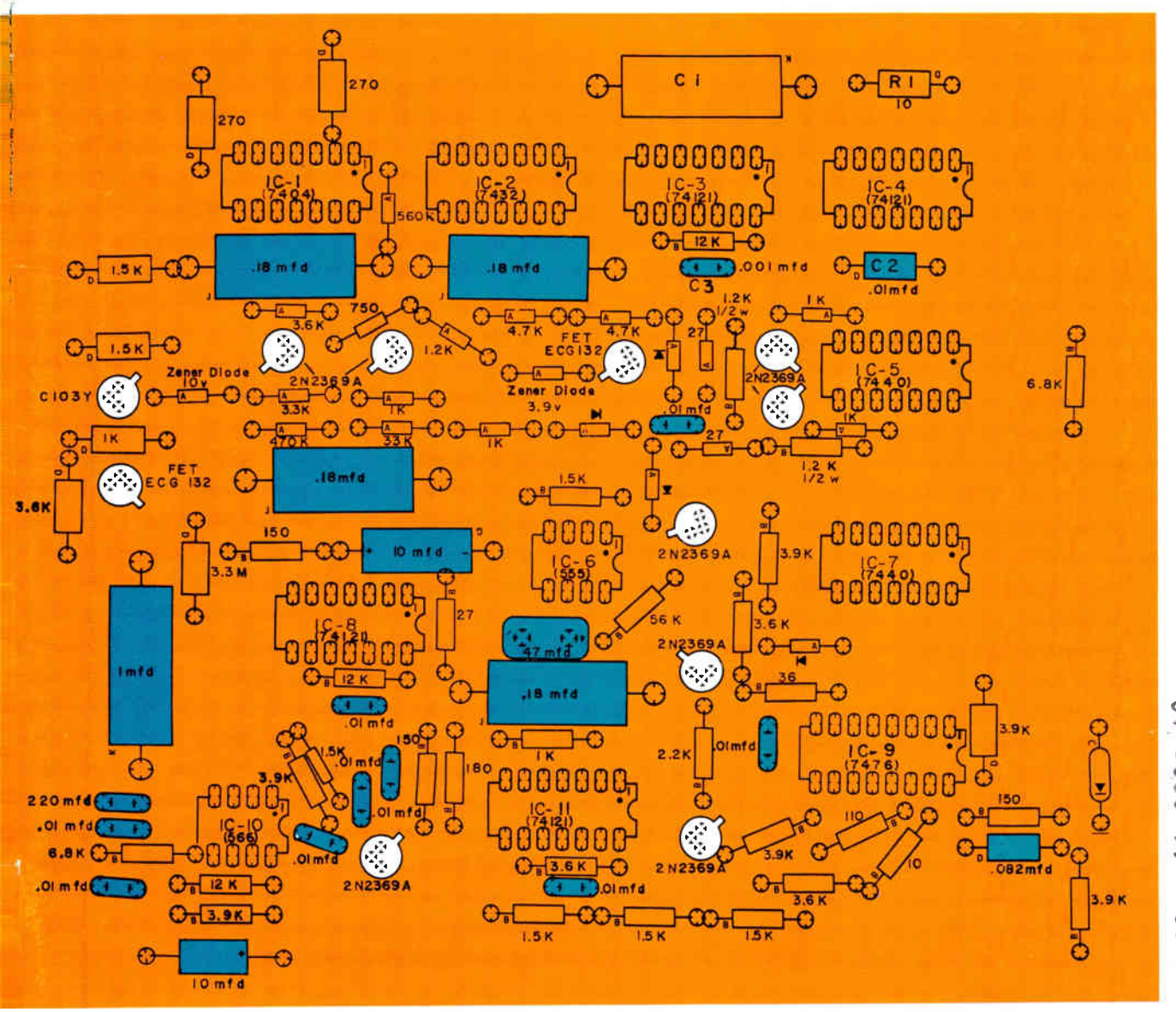
communications/engineering digest

reporting the technologies of broadband communications



august, 1
volume 3, n

The proven way to eliminate CB and ham radio interference

That's right, the RMS CA-2600F High Pass Filter Matching Transformer eliminates most CB and Ham Radio problems quickly and inexpensively. It features a high quality miniaturized printed circuit that assures you the standard of excellence you always expect from an RMS product.
The network and housing is totally shielded. The CA-2600F has a usable frequency range of 50–300 MHz, rejecting any interference from 0–50 MHz. It has a 0.7 db maximum insertion loss. The return loss is a minimum of 20 db, with a balance ratio of 25 db minimum. The CA-2600F has also become the standard of discriminating two-way cable system operators throughout the industry.
For additional information on this fine product call us collect at 212-892-1000 or write RMS Electronics, Inc./CATV Division– 50 Antin Place, Bronx, N.Y., 10462 – Telex #224652 - 24 hour service – Cable Address: "RAMONICS".
Canadian Representatives: Deskin Sales Corp.
Mexican Representatives: TV Cable de Provincia S.A., Mexico City, Mexico. Worldwide exports, excluding Puerto Rico– Roburn Agencies, Inc.– Cable Address: "ROBURNAGE" – New York. Telex #23574 "ROBR-UR".

RMS CATV DIVISION

Business
Robert Titsch/*President and Publisher*
Paul Maxwell/*Vice President*
Michael Gumb/*Controller*
Michael Borer/Business Manager

Editorial
Paul FitzPatrick/*Editor*
Toni Barnett/*Managing Editor*
Brian Lamb/*Washington Bureau Chief*
Eileen Milton/*Washington Correspondent*
Dale MacDonald/*Editorial Assistant*
Cliff Schrock/*Contributing Editor*

Production
Diane Adams/*Art Director*
L. Saiber Ehrlich, Sharon Hutton,
Pat Isenberg/*Artists*
Michelle Mason/*Composition Chief*
Lorraine Gomez/*Composition*

Circulation
John Huffman/*Circulation Director*
Bonnie Schmidt/*Asst. Circulation Director*

Advertising
Sandra Carpenter/*Customer Services*
Linda Keller/*Promotion Director*
Lyn Lamb/*Traffic Manager*

Titsch Publishing, Inc.
1139 Delaware Plaza
-or- P.O. Box 4305
Denver, Colorado 80204
(303) 573-1433

Washington Bureau
1660 L Street, N.W.
Washington, D.C. 20036
(202) 466-3346

august, 1977
volume 3, no. 8

communications/engineering digest

FEATURES

TECH REVIEW

DEPARTMENTS

COVER: This month's intricate and colorful cover is an inside view of the Nonduplication Programmer. See page 26.

comunications engineering digest is published monthly for the Society of Cable Television Engineers by Titsch Publishing, Incorporated, 1139 Delaware Plaza, Suite 200, P.O. Box 4305, Denver, CO 80204 August 1977. Subscription cost is $12 per year U.S. and possessions. $15 Canada and Mexico, $17 foreign. $1 single copy. Controlled circulation postage paid at Denver, Colorado.

THE ONLY TAP OF ITS KIND

MOISTURE SEALED & CORROSION RESISTANT

AND ONLY $7.25 (5.50*)

No other tap provides this protection:

- Baked-on, Polyurethane Finish plus a Totally Water Sealed Assembly
- Patented Non-Shearing Center Seizure Mechanism • Modular • 5-300 MHz
- Eye-level Center Seizure Connections • *With a standard irridite finish

ARVIN/CATV

ARVIN SYSTEMS, INC. An Arvin industries Subsidiary
P.O. Box 200, Lancaster, Ohio 43130 • 614/756-9222

For Delivery–Call

Cablevision Equipment Company
Garland, TX 75042
214-272-8551

Signal Vision, Inc.
El Toro, CA 92630
714-586-3196

Comm-Plex Electronics
Montreal, Quebec CANADA H4P1V4
514-341-7440

Emjay Electronics
Drexel Hill, PA 19026
215-284-6338

John Weeks & Assoc.
Lawrenceville, GA 30245
404-963-7870

First Class
Permit No. 4957
Denver, CO

Business Reply Mail
No Postage Stamp Needed if Mailed in the United States

Postage Will Be Paid By

Titsch Publishing, Inc.
P.O. Box 4305
Denver, CO 80204

First Class
Permit No. 4957
Denver, CO

Business Reply Mail
No Postage Stamp Needed if Mailed in the United States

Postage Will Be Paid By

Communications/Engineering digest
c/o Titsch Publishing, Inc.
P.O. Box 4305
Denver, CO 80204

REQUEST FOR MEMBERSHIP APPLICATION

SOCIETY OF CABLE TELEVISION ENGINEERS

Title/Position

How Long?

A/C–Tele. No.

CHECK APPLICABLE:

- ☐ Operating Company
- ☐ Manufacturer
- ☐ Service
- ☐ Consultant
- ☐ Construction
- ☐ Educational
- ☐ Government
- ☐ Other: _____

Last Name First Initial

Company Name/School Dept./Division

Company Street Address City State Zip

SCTE is a non-profit membership organization incorporated in the State of New Jersey. Dues for Senior Member and Member Grade are $20.00 per year; Associate Member is $15.00 per year; Student Member is $6.00 per year. Sustaining Memberships are available for a minimum of $100.00 per year. All but $6.00 of dues are tax deductible.

You will receive your membership application in the return mail. Do not enclose payment with this application.

All members of SCTE receive a subscription to COMMUNICATIONS/ENGINEERING DIGEST as part of their membership. The amount of $6.00 of the annual dues is applied to the subscription.

Signature Date

First Class
Permit No. 12
Lancaster, OH

Business Reply Mail
No Postage Stamp Needed if Mailed in the United States

Postage Will Be Paid By

Arvin Systems, Inc.
CATV Division
P.O. Box 200
Lancaster, OH 43130

Attention: Sales Dept. DCP-600

I'd like a subscription to c/ed

COMMUNICATIONS/ENGINEERING DIGEST (The official journal for the Society of Cable Television Engineers) at the subscription price of $12 for 12 issues. (Add $3 for Canada and Mexico; $5 for Foreign.) Make check payable to TITSCH PUBLISHING, INC.

Please circle one appropriate classification

A. CATV System Operators
B. CATV Contractors & Consultants
C. Pay TV
E. CATV Component Manufacturers, Dealers & Distributors
F. Microwave & Telephone Companies
G. TV, AM, Broadcasters
H. Educational TV Stations, Schools and Libraries
I. Closed Circuit TV Users
J. Financial Institutions, Brokers, Attorneys & Government Agencies
K. Program Producers, Program Distributors & Advertising Agencies

NAME

COMPANY

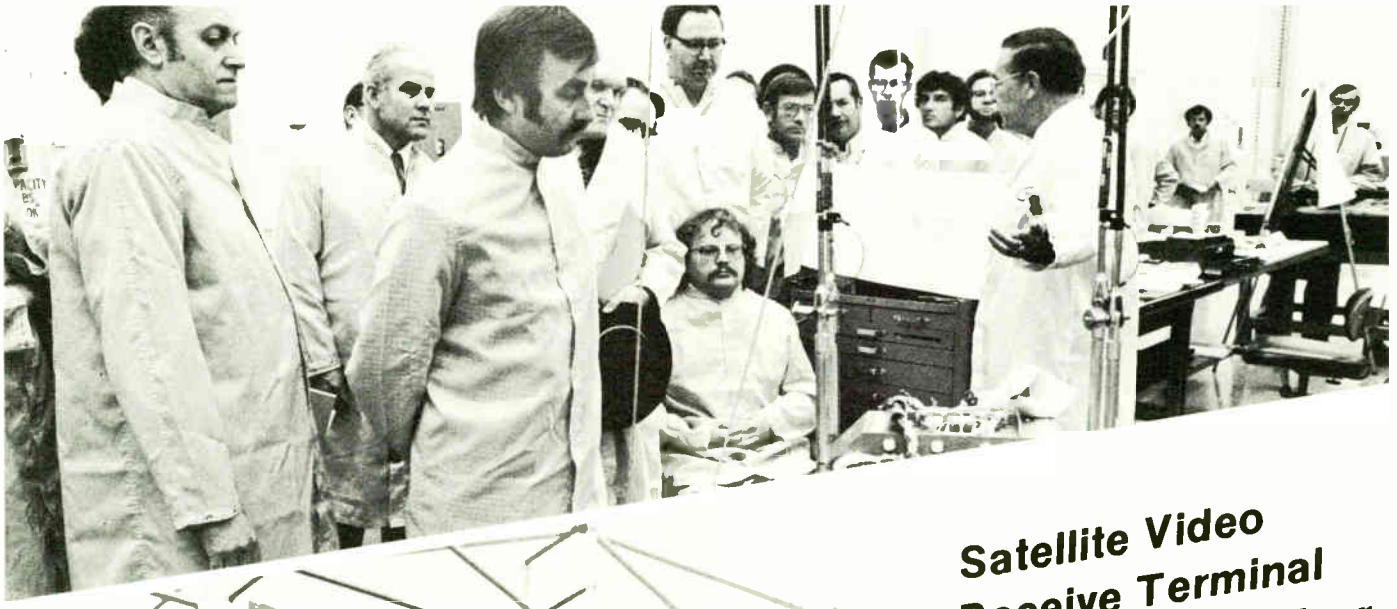
ADDRESS

CITY STATE ZIP

SIGNATURE

☐ BILL ME
☐ CHECK ENCLOSED

Colorado residents add 3½% sales tax. Domestic first class add $10.00 per year.

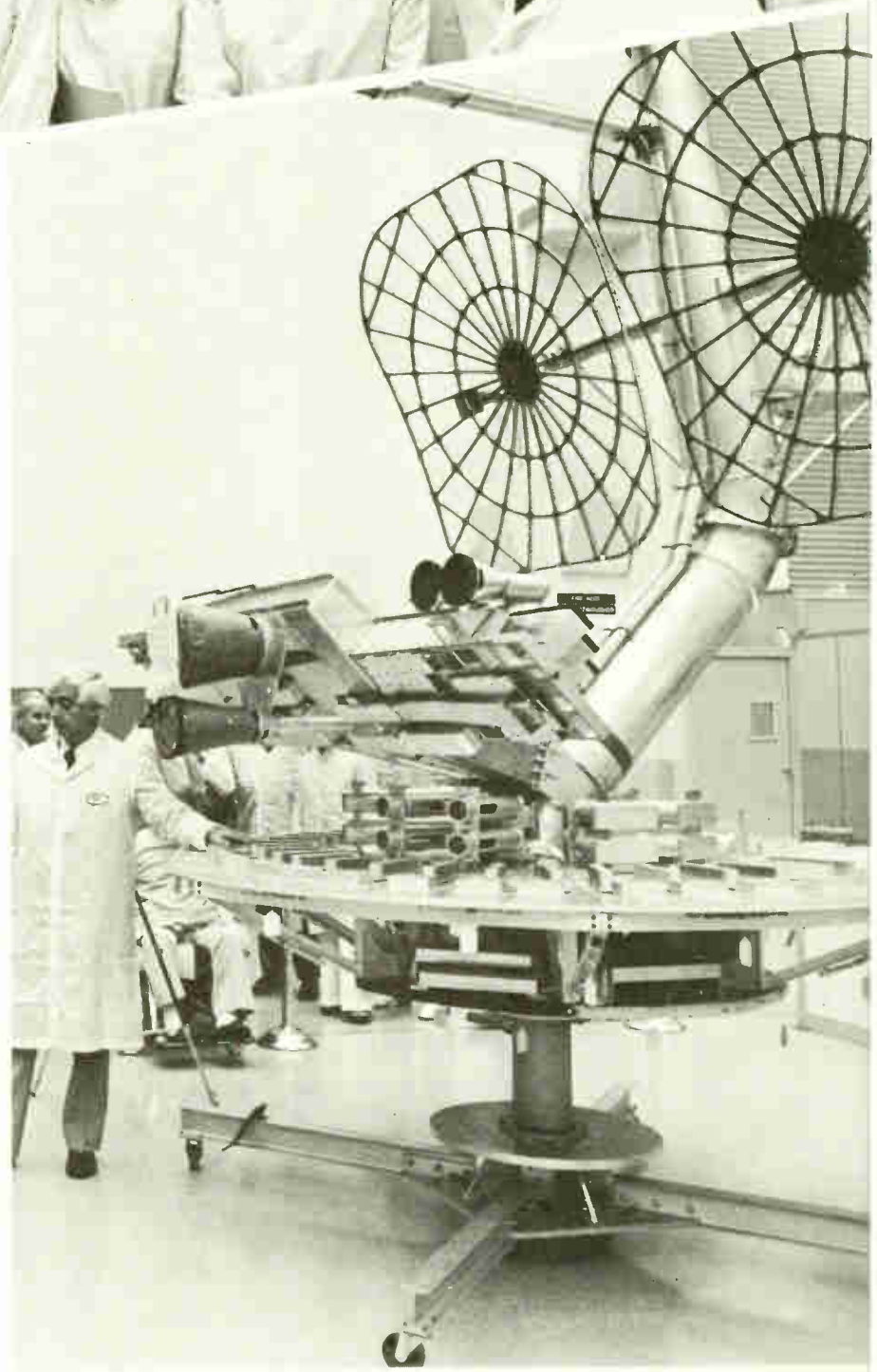


Satellite Video Receive Terminal Technology Seminar

Approximately 60 cable operators attended the recent Satellite Earth Station Technology Seminar sponsored by Hughes Microwave Communications Products for five full days of non-stop involvement in every aspect of earth station technology. The seminar, held at the Holiday Inn in Torrance, California, July 11 through 15, provided cable operators (some came from as far away as Vancouver, B.C.) an opportunity to learn the basics.

Norm Weinhouse, manager of the Satellite Earth Terminals division for Hughes, shouldered responsibility for a large portion of the program. The self-appointed "professor" delivered lectures on Satellite Video Link Theory Implementation, Low Noise Amplifiers, Interfacility Link, Reliability and Redundancy, Performance Testing, Maintenance Routines and Troubleshooting as well as the introductory "over-all view" of this burgeoning technology.

Carl Van Hecke, manager of product planning, earth station antennas for Andrew Corporation, spoke on Small Aperture Antennas and Antenna Installation. Discussion of the latter took cable operators through the step by step procedure used in erecting an Andrew antenna—from foundation to disk →



mounting—and correcting disk position. A couple of tips to the audience from Carl: "Don't send a two hundred and fifty pound tech in combat boots in to crawl around the disk (stocking feet, please) and don't paint a disk with high gloss enamel."

Dan Yost of Compucon and Harry Stemple of Comsearch were on hand to cover the area of Frequency Coordination and Site Selection. Here are some tips to prevent or screen out interference from the rear of the earth station: Consider "chicken wire," don't depend on deciduous trees and pit shielding is nice work if you can get it.

Bill Montgomery of Tektronix was on hand to discuss Proof of Performance Testing. Keith Larsen, systems engineer, and Jim Randolph, product effectiveness manager, both of Hughes, also participated in the program. Keith spoke on Satellite Video Receivers and shared the spotlight with Norm Weinhouse to cover Reliability and Redundancy and Maintenance Routines—Troubleshooting. Jim concentrated his efforts on the AML Microwave Transmissions Systems demonstrations part of Thursday's optional microwave seminar and Abe Sonnenschein carried the ball for discussion on Theory of Operation and Applications.

The wrap-up came Friday, July 15, with a tour of the Hughes Aircraft Company's Spacecraft Assembly and Test Facility.

Technical News at a Glance

. . . **Robert Goralski,** *NBC News White House Correspondent during the Kennedy and Johnson administrations, will be the keynote speaker for the* **Pennsylvania Cable Television Association's** *three-day* **Fall Meeting** *to be held in Harrisburg beginning Monday, September 26.*

. . . *The* **Society of Broadcast Engineers** *will be holding their* **regional convention** *equipment show* **at** *the* **Syracuse Hilton Inn, Syracuse, New York** *on September 30.*

. . . *The* **Society of Cable Television Engineers,** *Mid-Atlantic Appalachian Chapter,* **hosted** *a very successful* **meeting** *on July 27* **at the Newark, Delaware Holiday Inn.** *Topics included "Antennas from Transmitter to Receivers and What Happens In Between," to "Headend Equipment Design and Applications."*

. . . **FCC to finally explore relationship between cable operators and broadcasters.** *It's been a long time coming, but the FCC is undertaking an inquiry that will, in the end, either uphold or lay to rest broadcasters' long-standing argument that, left unchecked, cable growth would adversely affect over-the-air broadcasting's ability to serve the public.*

. . . **SCTE forms new chapters** *and pledges close liaison with state and regional cable groups. SCTE is renewing its pledge to provide training and management development to the technicians and engineers in the CATV industry.*

. . . **RCA Americom** *has* **announced major organization restructuring to strengthen customer service. Messrs. Boning, Christopher, Rice and Underwood** *have been* **named to new posts** *to effect this change.* *More on page 14.*

. . . **Lower forfeitures for broadcasters and cable systems** *have been* **recommended by John Summers,** *executive vice president and general manager* **of the National Association of Broadcasters.** *He recommended lower forfeitures for stations with twenty or fewer full time employees and cable systems serving 3,500 or fewer subscribers.*

. . . *The* **FCC has denied a petition by the Philadelphia public interest groups to stay its March 9 action** *which redefined a small cable system on a "headend" basis between 50 and 499 subscribers.*

. . . *The* **House communications subcommittee** *has* **re-scheduled** *the* **cable portion of** *the* **"rewrite" hearings from Sept. 19 to Oct. 17.** *The entire week has been set aside to discuss the issue.*

CCTA canadian column

Kenneth Hancock, Director Engineering

In the Canadian Columns of April and July of last year, I attempted to give the reader some background on the satellite communication system in Canada as it affected the Canadian cable television industry. Readers might recall from those articles that all domestic satellite communications in Canada are the responsibility of Telesat Canada. Telesat is a private company with provision for ownership equally distributed between the federal government of Canada, the Canadian Telecommunications Common Carriers and the general public. Currently, the public equity is not issued. The public's interest is represented by a single share held by the president of Telesat, Mr. David Gordon.

Although, in essence jointly owned by the Canadian government and Canadian telephone companies, Telesat has acted up to now as a normal, private company trading in a competitive market. This is now likely to change. Earlier this year Telesat Canada applied to the Canadian Radio-Television and Telecommunications Commission (CRTC), the regulatory body in charge of such matters, for permission to become part of the Trans-Canada Telephone System (TCTS).

I guess the first reaction of most people would be to ask what is TCTS and what is the significance of Telesat joining it. In answer to the first question, the Trans-Canada Telephone System is an organization consisting of the various provincial telephone companies of Canada together with Bell Canada, which operates in the provinces of Ontario and Quebec. Its main purpose is to enable interconnecting agreements to be arrived at, permitting very simple telephone communication throughout the whole of Canada. TCTS also produces the long distance tariffs and sets the technical standards for interconnection between the systems. Bell Canada is the majority organization in TCTS and as such, has a major say in standards, marketing policies and so on.

It is this latter point that tends to answer the second question of the significance of the proposed agreement. Under the terms of the proposed agreement for Telesat's membership in TCTS, Telesat would no longer have control of its marketing organization. All negotiations by cable companies for space on the domestic satellite system would be through TCTS, in other words, the telephone companies. The proposed agreement calls for advantageous terms for the telephone companies at the expense of possible non-telephone customers such as the cable industry.

The CRTC called a public hearing concerning the proposed agreement, and to the surprise of many (certainly to the surprise of Telesat), there were 32 major interventions against the proposed agreement.

In a nut shell, the CCTA position was that the agreement would place the Canadian cable industry firmly in the hands of the telephone industry for all long haul communications requirements. Readers may recall that at the present time, the cable industry in Canada does not use satellite facilities, partially due to the current high costs and partially due to the fact that, unlike in the United States, cable companies cannot own ground stations. These matters were also brought up at the hearing and appeared to receive sympathetic attention from the Comission.

Question: Where can PECA improve system performance?

☐ at the head end.
☐ on the pole.
☐ in the test van.
☐ at the bench.

Answer: ☑ all of the above.

Head end signal control

Control channel programming and test signal switching using our DS-2 coaxial SPDT Diode Switch and ISD-1212 Isolated Switch Drive. The DS-2 is an RF transfer switch providing high isolation, low insertion loss and self termination. The ISD-1212 interfaces with the DS-2 for IF or RF (DS-2V for video) switching operations. It is expandable and can be used with various timers and programmers. Solid state construction means fast switching time, long life, and mounting flexibility.

Sweeping the system

Our SSG-400 Simultaneous Sweep Generator provides 1-400 MHz output, flat to within ±0.25 dB.

System and regional engineers use the SRS-350 Sweep Recovery System to recover information simultaneously with carriers.

Technicians use the low-cost TRU-350 Tech Recovery Unit, featuring battery operation and compatibility with portable storage scopes.

The new TA-150 Trans-A-Drop™ Test Adaptor eliminates inaccuracies caused by the use of long test cables.

Testing and repair

Use the SSG-400 to provide calibrated output with excellent display linearity and dial accuracy. You can set it up quickly and accurately.

The SSC-1 Switching Comparator facilitates RF measurement by the comparison method.

The PA-500 Wide-Band Post Amplifier can be used to achieve the extra level you require.

Prompt Service

Need fast repair or calibration of field strength meters? We aim for 3-day turnaround time. Ask for our price list.

Put PECA equipment to work on your entire system. From the head end through the system, and at the bench. Write or call for complete data:

PECA
Professional Electronic Component Assembly, Inc.
4957 Pearson Ave., Philadelphia, Pa. 19114 / (215) 639-3545 • 824-1550

SCTE **comments**

Judith Baer, Executive Director

State/Regional CATV Associations Offered SCTE Talents

On July 15, almost 150 letters left the SCTE Washington office, along with brochures and a short questionnaire, directed to every state and regional CATV association in the United States. The letter outlined how SCTE has worked with many of these organizations in the past, staging technical programming for annual or semi-annual meetings, and inviting every state/regional association to contact SCTE for programming in the future.

Larry Dolan, Mid-State Communications, is heading an effort to develop this sort of programming for SCTE, and many other SCTE members will be involved in the program during the next few weeks.

"We've asked that the state/regional officers return the questionnaire to us by August 15, so we'll be ready for 1977 fall programming," says Dolan. "We've even supplied them with stamps and envelopes to get the information back to us."

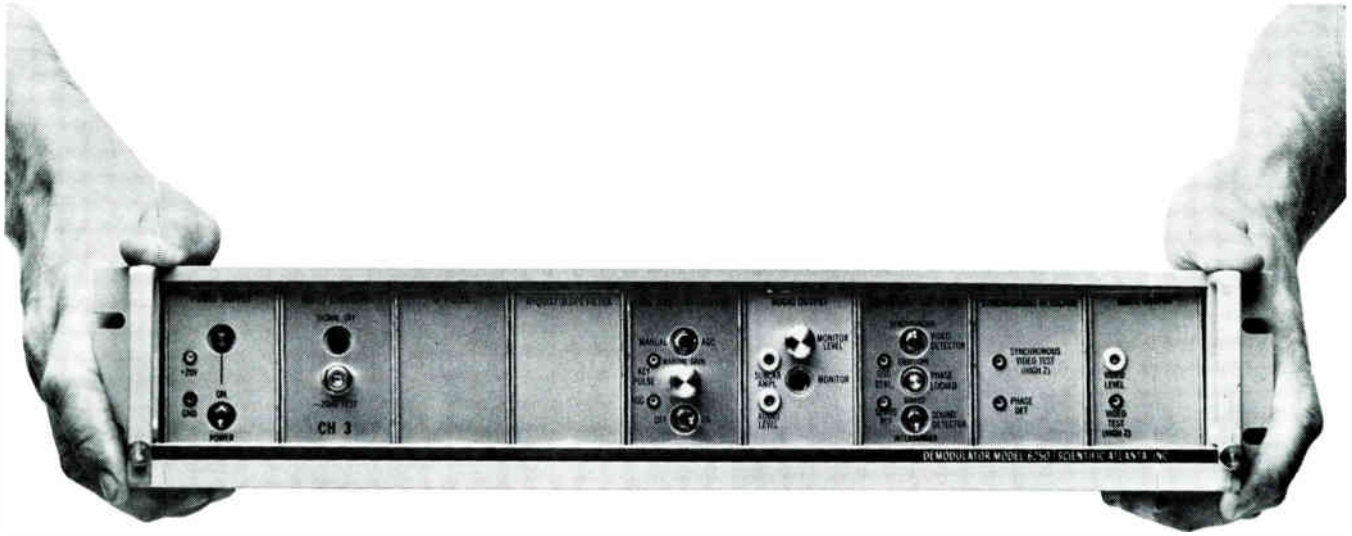
Questions include: how many meetings does the group hold each year; the average attendance; do they hold technical sessions; when's the next meeting; where will it be, and most important, can SCTE help and can we have a reduced registration fee for the technical sessions? "When this survey is completed, we'll have the most complete file in the industry on upcoming events, and we'll be starting immediately with programming where it is requested," Dolan added. "We've already got requests from three new associations in areas from one end of the country to the other."

New SCTE Sustaining Members Join

Broadband Engineering, Jupiter, FL; ComSonics, Inc., Harrisonburg, VA; Cox Cable, Inc., Atlanta, GA; Microdyne Corporation, Rockville, MD; Telcin, Inc., CA; and Viacom Communications, New York, NY are more new SCTE Sustaining Members announced in July, 1977.

Robert Bilodeau, president of the Society said, "This response to our request for support is heartening, and it shows that the CATV industry believes in SCTE and its potential. We thank each one of our Sustaining Members for their contribution to our goals and to our growth."

Judith Baer



Our new demod. $1700 and a zero chopper too.

If you've been looking for a good, basic demodulator, Scientific-Atlanta can show you one that's more than just basic for the same money.

With our classy new 6250 you get an envelope detector to closely match the characteristics of the average home television receiver, but with high video fidelity. There's a handy zero chopper built right in so you can accurately measure the depth of modulation of the transmitted signal.

And just take a look at these specs: 100 uv input sensitivity; video response ±0.5 dB to 4.18 MHz; ±2.5% differential gain and ± 1% differential phase. Audio response ±0.5 dB, 30 Hz to 15 KHz. All for no more than $1700.

The new 6250 also brings you an optional synchronous detector to provide superior transient response free of quadrature distortion.

No wonder after comparative bench tests with a unit costing $5000 more, one engineer wrote, "We are amazed at your demod's performance."

Call Harry Banks at (404) 449-2000 or any of our 8 sales and service offices for your free demonstration. We think you'll be more than impressed too.

Scientific Atlanta

United States: 3845 Pleasantdale Road, Atlanta, Ga. 30340, Telephone 404-449-2000, TWX 810-766-4912, Telex 054-2898
Canada: 678 Belmont Avenue West, Suite 103, Kitchener, Ontario, Canada N2M-1N6, Telephone 519-745-9445, Telex 069-5239
Europe: 1-7 Sunbury Cross Centre, Staines Road West, Sunbury on Thames, Middlesex TW16 7BB, England, Telephone Sunbury on Thames 89751, Telex 896015

news

RCA Americom Awarded Space Shuttle/TDRSS Communications Contract

The National Aeronautics and Space Administration has awarded to RCA American Communications, Inc. a contract for four satellite communications links to support NASA's space shuttle program and its tracking and data relay satellite system.

RCA Americom earth stations dedicated to government use will link, via the RCA satellite, the TDRSS data receiving antennas with NASA facilities that process the information.

Satellite technology will provide the high data transmission rates required for this contract service—from 224,000 bits per second to 1.544 million bits per second. Such high speeds will improve the tight ground control of the space shuttle's orbital flight tests.

Digital Synthesis Corp. And Coaxial Analysts Merge

DENVER, COLORADO—Digital Synthesis Corporation, a Denver-based firm specializing in computerized CATV system design, and Coaxial Analysts, a Denver-based firm specializing in CATV management and financial services, have announced their merger. The new company, Coaxial Analysts Inc., will use the combined talents of the merged companies to provide assistance to cable operators in all areas of operation.

Heading up the three divisions of the new corporation are: Robert C. Fanch, Financial Services Division; Ross W. McPherson, Management Services Division; and Terry L. Hulseberg, Technical Services Division.

California Microwave, Inc. Announces Prime Earth Station Contract in Oman

SUNNYVALE, CALIFORNIA—California Microwave, Inc. (CMIC-OTC) announced the receipt of a contract with the Sultanate of Oman to supply and install a satellite communications earth station. The station will transmit domestic telecommunications traffic 1000 kilometers between Muscat, the capital of Oman, and Salalah.

The turnkey contract applies California Microwave's proprietary frequency modulated-single-channel-per-carrier (FM—SCPC) equipment at both the new station at Al-Hajar, near Muscat, and at an existing station located at Salalah, which will be upgraded to accommodate the expanded service.

Installation is scheduled for completion in time for the National Day celebration in Oman in November 1977. The contract value is approximately $1.2 million.

NCTA's "Rewrite Committee" Releases Response on Cable

After weeks of preparation, NCTA's 12-member "rewrite committee," chaired by Viacom's Ralph Baruch, released its response to House communications subcommittee staffer Karen Possner's "options paper" on cable. While supporting "the constant and overriding proposition of cable 'options paper' to establish a policy of deregulation," NCTA takes particular exception with Possner on two key issues: "separations" and leased channels.

1) NCTA contends "it is inappropriate to consider common carrier—type regulation—the so-called "separations approach"—for cable to be effected at some set period of time in the future.

2) "Mandatory leased access regulation should be deferred until there is significant demonstration that it is needed. No such evidence presently exists." The 49 page response (along with 70 pages of graphs) also discloses NCTA's intention to submit "a detailed plan for the deregulation of the cable signal carriage and other content regulations."

Cable FM - A Sound Investment for CATV Systems

Cable FM (CAFM) has become an important source of increased revenue for many CATV systems because the transmission factors that make cable TV practical also affect FM. Recognition of this, plus increased consumer awareness of high fidelity reception, has led to the development of a wide variety of CAFM services and products. Premium TV and off-air TV sound simulcasting, school or community radio origination and improved stereo and quadraphonic FM reception are just a few ways innovative operators can make use of CAFM to increase subscriptions and revenues.

FCC Starts Inquiry On TV Stereo

WASHINGTON, D.C.—The Federal Communications Commission has initiated an inquiry into the use of subcarrier television transmitters. The study's purpose is to examine the possible benefits of TV stereo.

Besides the technical considerations, the commission said it must also be determined whether: "The public is interested in stereo TV, and is willing to bear the additional costs involved? Are broadcasters interested in such transmissions and would they make the necessary expenditures to make them a reality? What system proposals are feasible for implementing stereo TV? What studio-transmission techniques are available for local and network programming? Should systems lend themselves to quadraphonic sound to increase the realism of programs? And if there is a desire for TV stereo, can

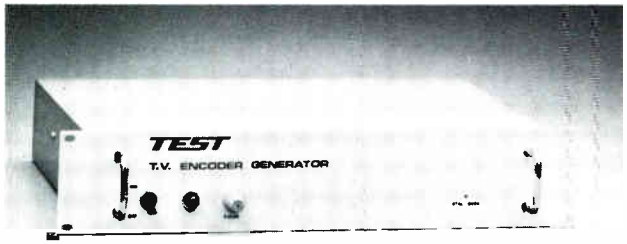
A proven PAY-TV security system that pays for itself.

Model DC

Test is proud to announce immediate delivery on all standard production items.

The TEST Scramble Guard Pay-TV System. A positive system that can be amortized in the installation fee. The system is tamper proof and impregnable to all but the most technologically sophisticated intrusion.

The DC TV Decoder is TEST's success story. In only 12 months, with over 400 systems sold, it has captured over one third of the PAY-TV market. Easy installation by the salesmen, competitive price and high quality are the reasons why.



Model ECC

The ECC TV Encoder/Generator is an integral part of the Scramble Guard System. Designed for CATV, MDS, STV and MATV, the unit is available for any VHF channel.

For additional information, contact:

TEST, Incorporated
16130 Stagg St.
Van Nuys, CA 91406
(213) 989-4535

TEST T.M.

Self-Amortizing
Scramble Guard

stereo as well as subcarriers for other uses be accommodated?

Comments were also requested on "the difficulties that might be encountered in designing and manufacturing receivers for reception of stereo television, and whether manufacturers, in the interim, would produce receivers or special television aural receivers that have output jacks for connection to external stereophonic or quadraphonic equipment."

Comments are due by August 18 and replies by August 29.

SCTE Releases Membership Figures

The Society of Cable Television Engineers, started in the late sixties by about ten CATV industry technicians and engineers, announced its June 1977 membership fugures for the first time.

SCTE's membership count was 833, including technicians, engineers, managers and manufacturers. In addition to the 833 individual memberships, SCTE has 17 corporate or "Sustaining Members" who are both operating and supplier/services companies.

New Signal Strength Prediction Methods Adopted for Cable Rules

WASHINGTON, D.C.—The FCC has adopted new signal strength predictions which permit UHF stations to be carried by cable systems in Grade B service areas.

Though the rulemaking was initiated in May 1975, the rules were stayed until this action. At that time, the FCC revised prediction methods where the cable rules make use of signal contours, and change the predicted locations of the principal community, or Grade A and Grade B signal contours of television stations. The revised rules permit cable systems within the Grade B contour of any UHF station to carry the signal of that station as a local signal. Also, the ruling grandfathered the rights of both cable systems and television stations to continue carriage of existing signals which "otherwise would be made inconsistent due to change in Grade B contours."

Grade B contours have been implemented in cable regulations since the FCC first entered the fields, and "with all their limitations, were the best indication of service area," according to the commission. However, the commission added, "these contours have presented a number of problems in cable regulation: where there are pockets of poor reception within a predicted Grade B contour or where the predictions appear to be inaccurate, and cable systems are faced with expensive testing and much uncertainty in proving the actual signal strength; and administrative problems, in that cable operators have had difficulties determining the exact extent of the predicted contours, especially where the system is on the contour fringes."

FCC rules still use contours in seven situations, including: notice requirements, broadcast-cable cross ownership; applicability of one technical standard; nonduplication protection for translator stations; carriage of duplicate signals where a translator or satellite station is involved; carriage of noncommercial educational television stations on all cable systems; and carriage of commercial stations on cable systems outside of all television markets and in smaller markets.

The commission pointed out "the concept underlying these rules is the television station's local service area and, "in the case of cable systems located outside specified zone of all television stations, it has held a station whose Grade B contour reached the community was enough of a 'local' station that its carriage should be ensured." By giving the UHF station "more local status," this amendment "might change the permissible carriage on some cable systems and might result in importation of an additional signal," the commission added.

While favoring the "commission's commitment to the development of UHF television," Chairman Richard Wiley and Commissioners Fogarty and White issued a joint statement which, in part, dissents the ruling. "This decision, we believe, twists the commission's longstanding concept of grandfathering as a permissive device to allow rather than to require the continuance of the status quo," they stated. "Moreover, it appears to contradict the larger decision, with which we agree, that mandatory carriage of UHF television signals outside of the stations' service areas for the sole purpose of promoting UHF is not appropriate."

The amendments to Part 76 of the rules become effective on August 26.

Jerrold Releases 1977-1978 MATV/CATV Tech School Schedule

HATBORO, PENNSYLVANIA—Jerrold Electronics has announced the schedule and tuition rates for its 1977-1978 MATV and CATV tech school "year." Both CATV and MATV schools, made available by Jerrold for almost 25 years, consist of 3-day "hands-on" learning sessions, to provide excellent grounding in technology as well as equipment.

The CATV school covers all technical phases of CATV systems: system design, installation, setup, etc. Len Ecker, the dean of CATV education, is the session leader; he has been conducting CATV training schools for more than 20 years. Tuition fee: $95 per student.

The MATV school, taught by Helmut Hess, covers technical aspects of MATV systems including an introduction to broadband RF cable systems. Mr. Hess draws from an unusual combination of technical and practical experience. Tuition fee: $65 per student.

The school's schedule is as follows:

CATV

Sept. 27-29, 1977	Keene, NH
Nov. 15-17	Kansas City, MO
Jan. 17-19, 1978	Atlanta, GA
May 23-25	Portland, OR

MATV

Sept. 26-28, 1977	Phila., PA
Oct. 11-13	Chicago, IL
Nov. 1-3	Atlanta, GA
Dec. 6-8	Los Angeles, CA
Jan. 10-12, 1978	Washington, D.C.
Feb. 7-9	Dallas, TX
March 14-16	Boston, MA
April 3-5	Portland, OR
May 23-25	Columbus, OH
June 6-8	Kansas City, MO

For additional information, contact Jerrold Electronics, P.O. Box 487, Byberry Road & PA Turnpike, Hatboro, PA 19040.

Southern SCTE At Southern Show

Guy Lee, president of the Southeastern Chapter of SCTE, is coordinating technical sessions for the 17th Annual Southern Cable Television Association meeting in Atlanta, Georgia, August 21-23.

Tom Olson of TOMCO in Mountain View, California, Ben Forrester and Paul Beavins of Scientific-Atlanta in Atlanta, and Larry Dolan of Mid-State Communication in Beech Grove, Indiana, are busy setting up an entire headend system for a four hour intensive session on CATV headend techniques.

The FCC Field Enforcement Monitoring Van and personnel from the Power Springs station will spend more than a day with technicians at the show. An entire afternoon has been left free in the programming to allow tours of the van; an opportunity to talk with the FCC people and to tour the exhibit area. The displays will be in table-top format.

Registration fee includes: a hospitality-buffet party Sunday evening; entrance to the headend sessions and table topics on Tuesday; free-run of the exhibits and a night out with the Atlanta Braves. Registration is $15 for the entire package. Low-cost housing and registration information is available from Judy Williams at Cox Cable, 404-393-0480.

Scientific-Atlanta Awarded Order for Utility Energy Management Products

ATLANTA, GEORGIA—Scientific-Atlanta, Inc. has received an order from Southern California Edison Company for equipment to be used by the utility company for a residential electric power load management project. The project is aimed at developing a system-wide program to aid in the national drive for energy and fuel conservation.

Tom D. Smith, division manager of Scientific-Atlanta, said that the products to be furnished are basically communications devices, connecting power producing stations with residences being served. The energy-saving program provides for signals sent from the central station when load control is required in the utility system. The signals are carried into the home by a combination of radio and carrier current which provides a unique cost effective approach. The equipment automatically reduces or curtails on a remote controlled basis the operation of high energy-using appliances.

The order from Southern California Edison is the second major order received by Scientific-Atlanta from the electric utility industry for energy management programs. Earlier the Atlanta-based communications equipment firm received an order for similar products from Georgia Power Company for a test to begin this summer.

DESIGNING A CATV SYSTEM USING THE SR-60

By F.C. Baxter
Manager of Engineering
General Electric Cablevision Corp.
Schenectady, New York

Introduction

For some time, I have been looking for medium priced calculators that could be used in both financial and engineering operations. My choice was a Texas Instruments Model SR-60 with program option - (1) one, having 1,920 program steps and 100 data memories, at a cost of about $2,000. Shortly after I received the SR-60, I started to write a CATV design program. The end result of my effort is highlighted in this article.

Basic Features

The calculator is a programmable, scientific type, with alphanumeric printing and prompting capability. The program makes frequent use of the prompting feature, so that the operator can respond to the questions or entries as they appear on the display. All pertinent data is printed on paper in order to generate a permanent copy of the design. Abbreviations are used extensively to reduce the number of program steps and make the data fit into the 20 character display.

Tap data, in my case, Magnavox taps, is included in the program. Amplifier operating levels, span footage and cable loss characteristics requires an entry.

A large design must be segmented beginning at an amplifier output port and ending with the cable end. One split can be made within a design segment. Amplifiers may be cascaded.

Program Highlights

Figure 1 shows a simplified flow chart of the program. The characters in the rectangles show the display as it appears on the calculator. The following is a list of the abbreviations I have used:

HF ATTN	- high frequency cable attenuation
LF ATTN	- low frequency cable attenuation
MIN TAP LEVEL	- minimum signal level at the tap spigot
HF OUT	- high frequency output level of amplifier
LF OUT	- low frequency output level of amplifier
HF IN	- high frequency input level to next amplifier
LF IN	- low frequency input level to next amplifier
THRU LOSS =	insertion loss of the directional coupler through leg
DC LOSS =	- tap loss of the directional coupler
NEED AMP?	- do you want to insert an amplifier?
FEET =	- span footage
CON'T W/O AMP?	- do you want to continue the design without inserting an amplifier?
THE END?	- is the design finished
SAME INPUTS?	- do you want to continue the design using the original amplifier input and output levels?
TAP?	- do you want to insert a tap?
SPLIT?	- do you want to insert a splitter?
COUPLER?	- do you want to insert a directional coupler?

Running the program is rather easy. First you enter all the input data when displayed on the calculator. Thereafter, by using the "Yes" or "No" keys, you answer the basic design questions as they are displayed. For example, if you answer "SPAN?" Yes, the program calls for a span footage entry and performs the necessary calculation. A Yes answer to "TAP?" requires you to choose one of the three tap models in memory. After making your choice, the program automatically selects the nearest tap value which meets your minimum spigot level. The program will then return to the span question. All span entries are printed. After each tap is selected, the printer records: the number of ports, the tap value, and the HF output level at the spigot. If the tap program selects the lowest tap value, the calculator will display "LAST TAP?" which must be answered. A Yes answer causes the printing of "TERM TAP" indicating that the tap is a terminating type - a No answer causes the calculator to display "NEED AMP?".

In the case of a split, the program inserts the loss and then establishes two separate legs. Either leg can be designated "A" but leg A must be designed first. At the start of each split, the printer records total cable footage to split, and the HF, as well as LF line levels prior to the split.

Should you need a directional coupler, the program will require the entry of the associated losses. Again, two legs are established but the "THRU" leg must be designated "LEG A". Here again footages and line levels prior to the coupler are printed.

If at any time during the design the high frequency input level falls below the specified level, the calculator will display "NEED AMP?". At this point, you may continue the design without an amplifier, choose to insert an amplifier, or end the design. If you were designing two legs, the program will not terminate unless Leg B is finished. If both legs are completed, the program will terminate and print a tap count and total cable footage. Figure 2 shows the flow chart for the "NEED AMP?" question.

Should you choose to insert an amplifier, the program prints the amplifier input levels and then gives you the opportunity to enter a different set of amplifier data. All new entries are printed. One user defined key is used to end the design at any time, by displaying "THE END?". A Yes answer will produce a printed summary of footage and taps and clear all data registerers. The program can be restarted by pressing the "QUE" key.

All entries are made using positive numbers. The program is based on Magnavox Taps Model 3700, with nominal insertion losses. Cable attenuation is entered in dB/100'. Calculations are limited to 6 digits, and rounded off at 2 decimal places for display. The program uses 1770 steps, 37 registers, 7 flags, 66 labels, and is recorded on 2 magnetic cards.

To date, the program has not been thoroughly field tested, so some "bugs" in the original program can be expected. Program documentation is available in limited numbers; however, requests must be made to me in writing on company letterhead.

In addition to this design program, the calculator has been used for microwave path calculations, depreciation schedules, and system budgeting and forecasting. For readers desiring a less sophisticated design program, GE has one utilizing the Texas Instruments SR-52. Details of this program can be obtained from M. Smith, GE Cablevision, Peoria, Illinois. →

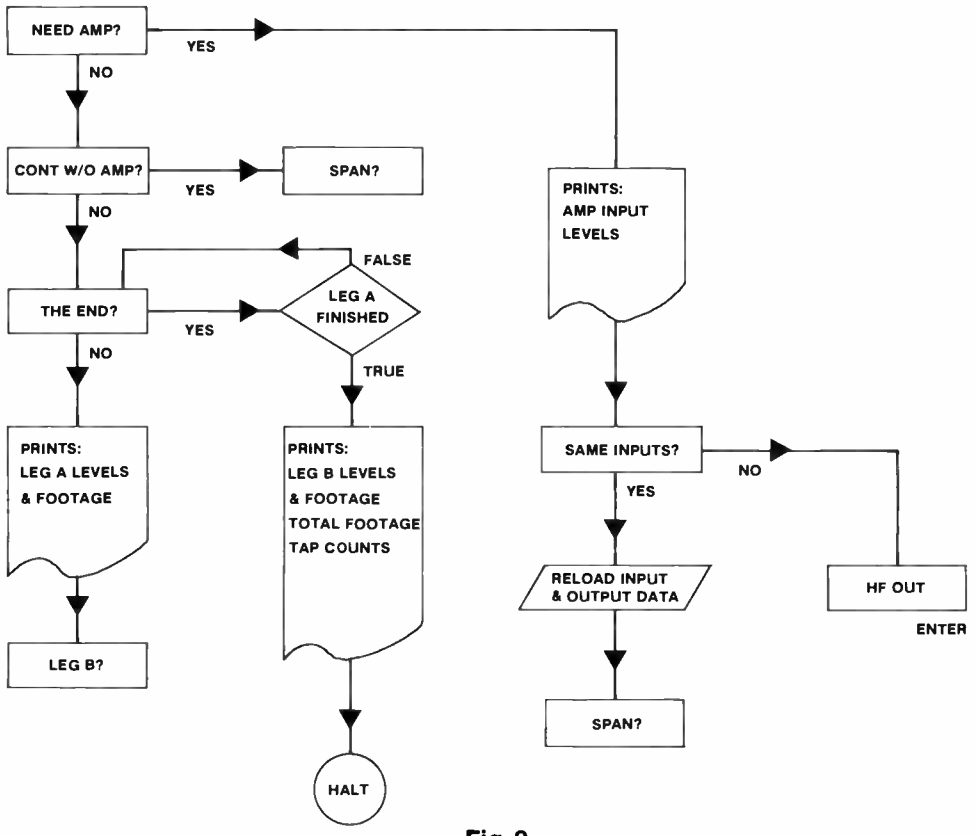


Fig 2
Simplified Flow Chart for "Need Amp" Question

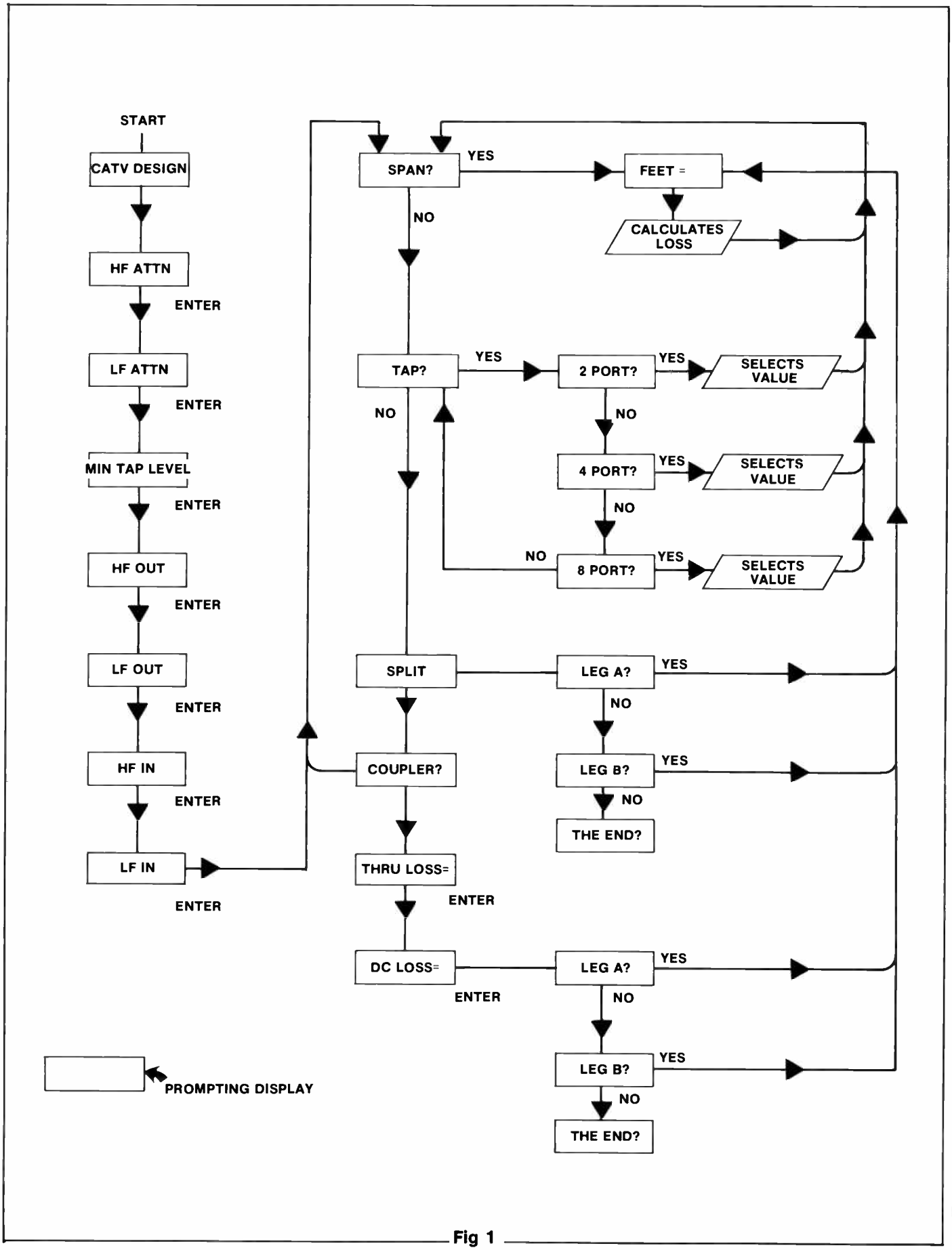


Fig 1
Simplified Flow Chart

The only high performance 4.5-metre earth station antenna available!!

New receive-only antenna

- High gain . . . 44 dBi at 4 GHz.
- Full 360° measured patterns demonstrate compliance with U.S. FCC requirements from the first side lobe to 180° . . . plus up to 15 dB improvement over – 10 dBi from 90° to 180° off boresight . . . for easier frequency coordination.
- Extremely rugged construction . . . field proven in the Alaskan environment.
- The preferred choice of CATV operators for small diameter receive-only earth terminals.

For more information contact your Andrew Sales Engineer.

ANDREW

ANDREW CORPORATION
10500 W. 153rd St., Orland Park, IL, U.S.A. 60462
Telephone: (312) 349-3300

ANDREW ANTENNA COMPANY LTD.
606 Beech St., Whitby, Ontario, Canada L1N 5S2
Telephone: (416) 668-3348

ANDREW ANTENNAS
Lochgelly, Fife, Great Britain KY5 9HG Telephone: (0592) 780561

ANDREW ANTENNAS
171 Henty St., Reservoir, Victoria, Australia 3073
Telephone: (03) 460-1544

ANDREW ANTENAS LTDA.
Av. Victor Andrew, 585, Caixa Postal 600, 18100 Sorocaba
SP–Brasil Telephone: (0152) 28900

ANTENAS Y PERITAJES
Av Reforma 455 P.B.–K México 5, D.F. México
Teléfono: (905) 525-5443

ANTENNES ANDREW S.A.R.L.
B.P. 44, 28400 Nogent-le-Rotrou, France
Téléphone: (37) 52 19 06

It happened every time I did a "measurement by comparison" check on the Test Bench. I'd hook together the most expensive gear in the lab, put the display on a scope, and there it'd be... tilt, notches and lumps! Generally about .5 to 1 dB worth.

Then I learned that Wavetek has put together a complete system for making measurements by comparison. It costs less than $1,250, plus another $545 for the 12" scope. But the best news is that Wavetek's system lets me eliminate enough RF tilt to get a correlation of 0.1 dB.

If you're interested, you really should call collect, write, or circle the reader service number, but I can tell you this much: The system has two parts, a Model 1067 Sweeper and a Model 1075 Comparator. The sweeper goes from 1 to 400 MHz with flatness better than 0.25 dB, and RF output calibrated from +57 to −13 dBmV. The comparator accepts power and timing signals from the sweeper so the known and unknown ports are always phased properly. Controls to adjust tilt for Channel A and tilt plus gain for Channel B compensate for most loss and tilt errors of the test bench cables and terminations. (That's the part I like.) There is also a function to introduce "tilt loss" and "flat loss" to simulate cable.

To sum it up, next time you're running into problems with tilt, notches and lumps... I'd lean towards Wavetek. WAVETEK Indiana Incorporated, 66 North First Ave., Beech Grove, Indiana, P.O. Box 190, Beech Grove, Indiana 46107, Tel. (317) 783-3221, TWX 810-341-3226.

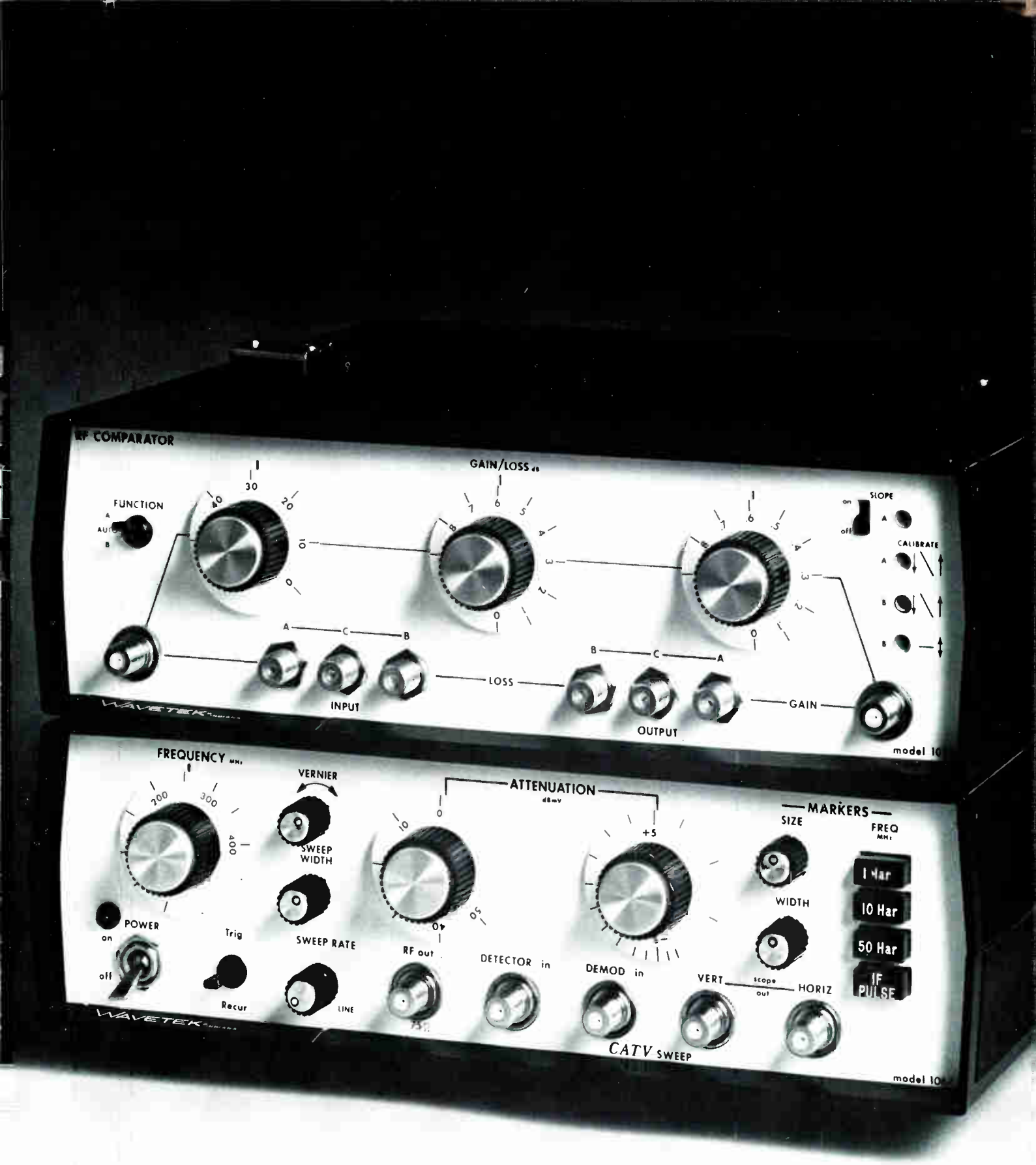
WAVETEK®

"Tilt drove me half crazy until I discovered Wavetek's new CATV sweep system."

Harvey Smith, CATV technician

Before

After


RF COMPARATOR
FUNCTION
A
AUTO
B
GAIN/LOSS dB
SLOPE
on
off
A
CALIBRATE
A
B
B
A
C
B
INPUT
LOSS
B
C
A
OUTPUT
GAIN
WAVETEK
model 10
FREQUENCY MHz
VERNIER
SWEEP WIDTH
SWEEP RATE
POWER
on
off
Trig
Recur
LINE
ATTENUATION
dBmV
RF out
DETECTOR in
DEMOD in
MARKERS
SIZE
WIDTH
FREQ MHz
1 Mar
10 Mar
50 Mar
IF PULSE
VERT
scope out
HORIZ
CATV SWEEP
WAVETEK
model 10

The Frank Hensley S
or "Is my

In Austin, Texas, out on the dusty North edge of town, is a small shop next door to a CB radio dealer/service shop. Inside the concrete block building, behind the only desk and next to the wheezing air conditioner sits the man who—according to more than one cable executive—builds "the best darn nonduplication switcher in the industry."

The man's name is Frank W. Hensley and he calls his company Cable Instruments. Frank is a crusty sort of guy who says he hasn't "got one unhappy customer, anywhere." (And, after a little checking, we believe him.) With a cigar and heavy black glasses, Frank's smile can catch you off guard. He runs his own, admittedly small, company with elan, however. And, while he appears to be a Texan, he says he doesn't know how he got to Texas and he "isn't waving any flags."

Frank is originally from Florida, where he grew up and attended the University of Florida. During World War II, he was in the Naval Air's communications and radar unit. After the war, Frank spent some 15 years with RCA (including the International Division for which he installed microwave systems in Turkey and Iran). He got into CATV when RCA assigned him to Midwest Video. He helped build systems in Victoria, Texas and Rapid City, South Dakota. For the next four years Frank worked sporadically for Midwest Video.

George Morrell, a veteran of the CATV industry, brought Frank to Austin. And, a little over five years ago, Frank built his first product: "a cheap and dirty TDR." It was a cable fault locator, at a $695 price tag, that was portable and easy to use. It wasn't long though, before Frank built his first switcher, and that product has been his mainstay since.

The manufacturing facility for Frank's products is all contained within his headquarters. Most of the assembly work is done by graduate students from the University of Texas. (Frank and UT's research facilities are close affiliates . . . "We're good friends," he says . . . Frank uses and has access to the equipment, brains and help.)

In the shop, Frank and his student-help build the cases for the products, make a lot of the circuit boards (using silk screens, etc., right in the shop), and fully design, assemble and produce just about everything for each product. It may be one of the last of the "home-quality" built product lines in the world.

Frank says his way is good because, "You're the master of it . . . it's just better than buying parts and assembling them." Besides, he suggests, "there's really nothing to that." Frank puts it best himself: "I'm just trying to enjoy myself, make a little money and produce a quality product that fills a customer's needs . . . and, a product I'm proud to put my name on."

He does that; all you need to do is call Cal Broussard at UA-Columbia's Fort Smith, Arkansas system . . . they've got seven Automated Nonduplication Programmers (Model 2-D). Or call the Sammons system managers in Johnson City or Bristol, Tennessee or Elk City, Oklahoma. Or call The Daniels Properties' managers in Waco-Temple-Killeen's Texas complex where eight of the first models were originally installed. (There are 14 there now, with 2 more on the way.) Or call Chuck Jenkins at Capitol Cable in Austin . . . he has five. Or ask about the Huntsville, Alabama experience. Huntsville started out with one, added four more, then another three.

Cable Instruments' product, the Model 2-D, has some quality features. Basically, it operates by deciding whether or not two signals are duplicates or not. If the signals duplicate, it blocks one out. Simple.

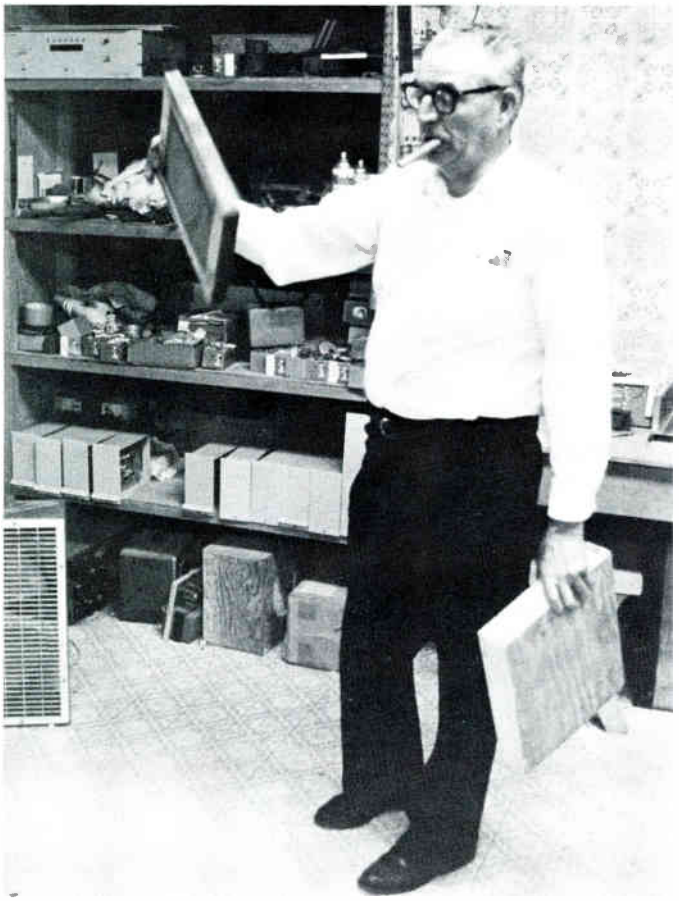
But Frank's does a bit more . . . it works automatically or can be manually overridden. It's timing clock is battery-supported in case of power failures. (Not a minor thing. It seems most power companies kill their power for a few milliseconds every once in a while. Those "blackouts" can add up to quite a bit of time over a month . . . and cause the automated programming device to be off-time.)

Still tinkering to improve the products he has, Frank plans ("pretty soon") to reformat the cable fault locator into a less expensive and even more portable unit.

All of Frank's products are pre-run for 100 hours before shipping . . . and his guarantee is solid for one full year; "if something's wrong, we fix it."

For some time now, Frank has offered a 30-day free trial period to any qualified system. That is, he'll ship you a unit and you install and use it for thirty days. If you like it, you pay; if you don't like it, you send it back. Surprisingly, no one has taken up the offer. Perhaps it's because the buyer just knows it's right; perhaps Frank hasn't

tory...
Cable Instrument ?"



made a big enough deal out of the offer yet . . . so why don't you call (if you qualify) right now and try out Model 2-D. Go ahead, pick up the phone and punch out or dial 512-836-2114. Tell him C/ED said to call.

Frank will appreciate it . . . he's one of those small companies building quality products and making them work. He's the backbone of all this free enterprise rhetoric we hear from the big oil companies. Besides, like all of us, he could use a little profit. Frank says: "I pay myself plumber's wages and keep the costs down by doing the work myself. Then, when there's a little bit left over at the end of the year . . . I try to call it profit."

Cable Instrument's Automated Nonduplication Programmer Model 2-D

Model 2-D is an automatic nonduplication programmer which monitors programs from the near TV transmitter and the distant transmitter, determining if the signals are simultaneous or not, and switches system signals in accordance with programs. Special delay and timing circuits maintain protection during local commercial periods, overtime sports events, etc., as required.

Operation of the unit consists of an easy bi-monthly check of the delay adjustment. The six digit electronic clock has standby battery power to maintain clock operation during power outages.

INPUTS

110/120 volts AC 25 watts
Video I.F. (45.75 MHz) 15 dB
±5 dB from near transmitter
Video I.F. (45.75 MHz) 15 dB
±5 dB from distant transmitter
(Audio I.F. is not used but may be present.)

OUTPUT

Single pole double throw solid-state
I.F./R.F. switch 3.5 dB insertion loss.
Better than 60 dB isolation at 45 MHz.
Single pole double throw DC relay
isolated from ground.

SIZE

7" x 19" rack mount.

The Automated Nonduplication Programmer 2-D consists of six modules, front panel and a rack mount chassis pan. All circuitry is solid state, operated at conservative voltages and temperature levels. Each unit is operated for a minimum of one hundred hours before shipment for additional quality assurance. Any service required for the first year will be performed by Cable Instrument Company at no cost. Exclusions are limited to gross abuse and/or physical damage.

The modules are:

Receiver:
Two identical modules, designated right and left receiver are used. Input is a nominal plus 15 dB, 45.75 MC. Video I.F. into each receiver. One signal from the protected station and one from the distant station. Output is a 10 us and a 30 us pulse, phase locked to vertical sync.

Control module:

Input is a 10 us pulse from the left rx and a 10 us and 30 us pulse from the right rx, as well as a pulse from the clock module at 30 minute intervals. Output is drive to the front panel indicators and from a double pole double throw relay. One half of this relay is available for **DC** switching if required.

Clock module:

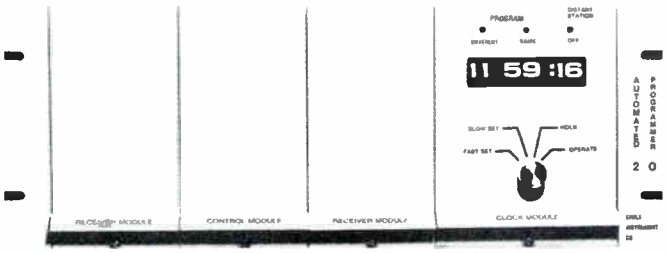
A six digit electronic clock with batteries for standby power.

Power supply:

Input 110/120 volts AC 20 W Output
plus 18 volts regulated
plus 15 volts regulated
plug 5 volts regulated
3 volts AC for control module timing

I.F. Switch module:

A solid state single pole double throw relay operated by one half of the control module relay. At 45 MC - 3.5 dB insertion loss and better than 60 dB isolation between output ports.



Cable Instrument's Model 2D Programmer.

Basic Circuit Description

Programmer circuitry may be divided into two primary functions:

1. Detection of simultaneous programs.
2. Processing this information to produce proper switching sequence.

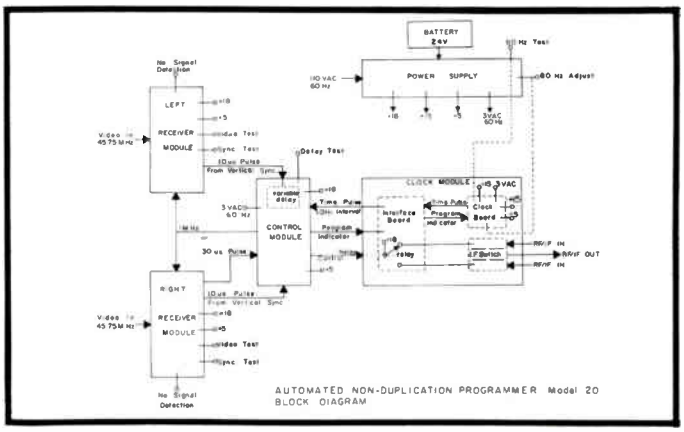
Detection:

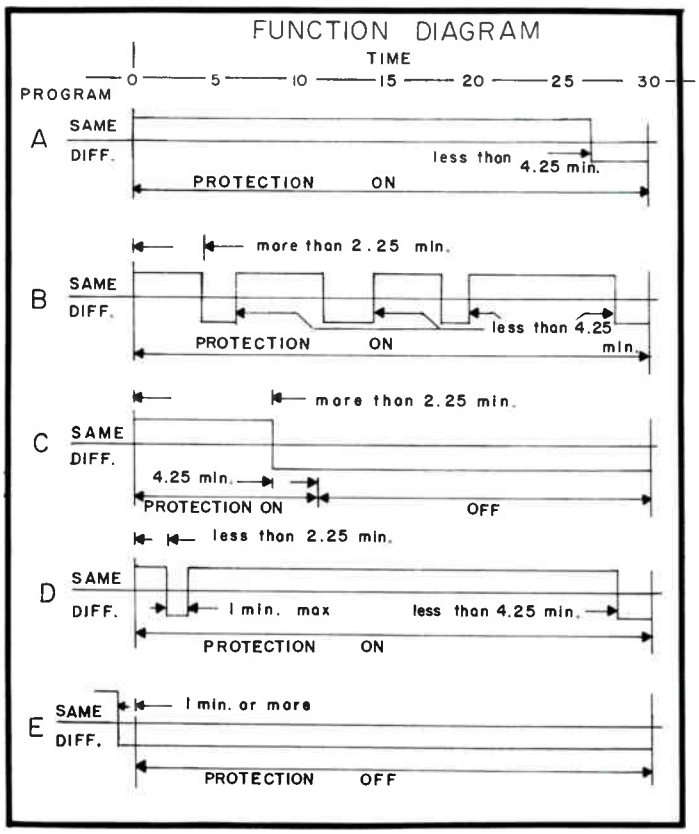
When simultaneous programs are in progress, the protected and the distant station are both operating from the same network sync generator. At the receiving location, the major difference in the two signals is a phase shift or difference in time of arrival occasioned by the difference in length of the two transmission paths. The programmer receivers produce a 10 us pulse, solidly phase locked to the vertical sync pulses in a direct measurement of this difference in path length. Applying the proper delay to the signal with the shorter path permits coincidence detection of simultaneous programs.

It may be expected that if one or both transmitters are operating on their own sync generators, they will, at times, drift through the same phase postition that the detector recognizes as a simultaneous program. A special drift circuit (disabled when rear panel switch Operate/Disable is in disable position) recognizes this condition and prevents a false detection signal.

Processing:

Processing or sequencing is accomplished by circuitry in the control module. The timing diagram illustrates the basic time intervals, and the function diagram shows switch position for various program conditions. ☐





Give them up to ten more channels to fight over.

Our new midband to UHF converters give you a low-cost route to channel expansion. The Series 4010 puts up to six and as many as ten additional channels to work for you in your system.

Whether you employ the added channels for Pay TV or additional services, you'll have more people happily arguing about what to watch.

And there are a lot of things about putting unemployed channels to work that will make you happy, too. Things like low cost and increased profit potential.

Installation is easy. You can put the converter "black box" anywhere in the subscriber's home from the basement to the attic. Hook-up is a matter of two screws and two line-cable connections. And a single converter can handle multiple sets in the same house.

Maintenance is low because there are no moving parts. The TV tuner handles all the switching so your subscriber never has to touch the converter.

The Series 4010 has good gain and noise figure to insure high picture quality on all channels—even with older model UHF tuners.

With all these features, the Series 4010 converters make for a good cost/profit picture.

And that's a picture nobody is going to argue over.

GTE Sylvania, CATV Equipment and Installation Operations, 114 S. Oregon St., El Paso, Texas 79901

GTE SYLVANIA

(Cont'd from Page 28.)

Control Module Circuit Description

The circuit is on two boards; counter board #57013 and control board #57014. The circuit diagram of both boards is on the same drawing to simplify circuit tracing.

The circuit performs two basic functions:

1) Detection of simultaneous programs.

2) With a real time pulse from the Clock Module at 30 minute intervals, the circuit produces the timing sequences.

Detection:

The left receiver receives signal from the transmitter with the shortest path from network microwave to CATV antennas. The left channel therefore arrives at the receivers in advance of the right channel signal. The left channel 10 US pulse is delayed by control circuitry until it is time coincident with the right channel 10 US pulse when programs are simultaneous (i.e. when both transmitters are operating from the same network sync source). Delay is adjustable by the delay trim pot, noted delay adjust on the rear of the control module. Delay is extended by approximately 100 US for each increment of .01 capacity added. A good quality, low temperature coefficient capacitor should be used to avoid drift problems. If the required delay exceeds 1,000 US it is recomended that C3 .001 (IC3-10 and 11) be paralleled with a .005 ceramic to increase the width of the left channel 10 US pulse for improved stability.

Circuit operation is as follows:

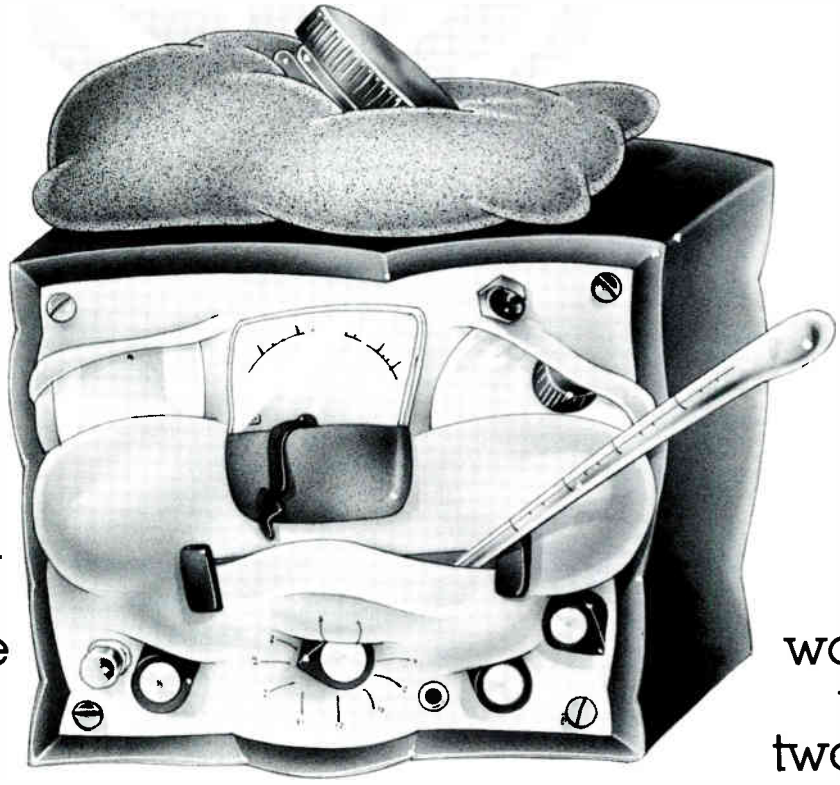
The positive going edge of the left channel 10 US pulse fires delay one shot multivibrator IC4. At the end of the delay period IC4 output pin 1 goes positive triggering one shot multivibrator IC3. IC3 output at pin 6 is a positive 10 US pulse (with C3 at .001). This 10 US positive pulse passes through IC2 (in pin 1, out pin 3) and arrives at pin 13 of IC5. IC2 is a positive or gate and is used only for the insertion of a second delay pulse when required. IC5 is a dual 4 input positive band buffer. One half is used for coincidence detection and the other half for the drift lockout circuit. When delayed left channel pulses and right channel pulses arrive at IC5-12 and 13 in coincidence, the output of this half of IC5, pin 8, is driven low for the duration of pulse coincidence. Q1 is turned off for the duration of this pulse and the gate of the source follower Q2 receives a DC voltage through the filter network and diode connected to the collector of Q1. With a positive voltage on the gate of Q2, Q3 is turned on and its collector voltage goes low. This action places IC7-13 low and through the inverter IC1 places IC7-1 high. It also drives IC1 pins 10 and 2 low, turning on front and rear panel same program indicators. At this point, detection of a true simultaneous signal has been completed.

The programmer detects simultaneous signals by measuring the difference in time of arrival of vertical sync of the two transmitters when they are operating from the same sync source. If either or both stations are operating on their own sync generators, they will, on rare occasions, drift into a position where difference in time between vertical sync will coincide with simultaneous. The drift lock out circuit prevents such false detection. The right channel supplies a 10 US and a 30 US pulse to the control module. The 30 US pulse starts 10 US before the 10 US pulse, and terminates 10 US after the 10 US pulse. Being from the same source they are time coincident, with the 10 US pulse centered timewise in relation to the 30 US pulse. If the stations are drifting toward the simultaneous detection point, the left channel 10 US pulse will become coincident with right channel 30 before it reaches right channel 10 (detection point). Coincidence between left channel 10 and right channel 30 is detected by one half of IC5, output is pin 6. Pulses from IC5-6 drive Q5, whose output produces a negative voltage on the gate of Q6 via the diodes and filter circuit. When conduction through Q6 is cut off, Q4 turns off and prevents Q3 from initiating a switch when the left and right 10 US pulses drift into coincidence. The switch shown in the base of Q4 is used to defeat this circuit when adjustments are being made. This switch, located on the rear of the control module, adjusts position shorts from the base of Q4 to the ground, operates position and restores the circuit. To prevent the lock out circuit from inhibiting true simultaneous operation, the TIC44 (200 ua gate SCR) fires before a negative voltage can build up on Q6 gate and prevents Q4 from defeating simultaneous detection.

Timing Sequence:

As noted under detection, a simultaneous signal drives IC7 pin 1 high and pin 13 low. IC7 is a dual 4 input positive band buffer. Switching cannot occur unless the output from one half or the other half of this buffer is low. When output 6 goes low the distant station is turned off after a delay of four seconds. When output 8 goes low the distant station is turned on after a four second delay. Neither event can occur unless IC7 pins 2, 4, 5, 9, 10 and 12 are all high. IC7 pins 4, 5, 9, and 10 are low for approximately sixty seconds after a program change. At all other times they are high. IC7 pins 2 and 12 go high when a clock pulse is received and normally remain high for two minutes and fifteen seconds. If a program change from same to different occurs during this interval, the interval is extended for an additional two minutes and fifteen seconds from the time of the change.

WHERE DOES IT HURT?



We'll find out. If your FSM 727 is in bad shape, send it in. We can give it new life.

FSM 727 will be repaired and on its way back to you within two weeks of receipt or we deduct 25% from the cost of repair.

Texscan provides a **Two-Week Factory Repair Service,** using original parts. And it's **Guaranteed.** Your

You'll feel better too.

Contact:
Jim Woodruff
Texscan Customer Service Department
2446 North Shadeland Ave.
Indianapolis, Indiana 46219
317-357-8781

GUARANTEE

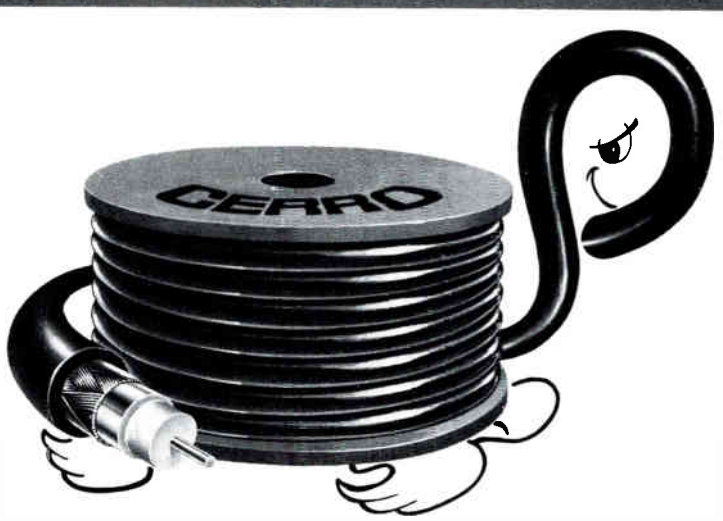
Your repaired FSM 727 will leave our shipping dock no later than two weeks after we receive it, or we will deduct 25% from the cost of repair.

Texscan

Carl N. Pehlke
President

PROOF OF PERFORMANCE CALIBRATION SPECIAL!
ALIGN AND CALIBRATE $37.50

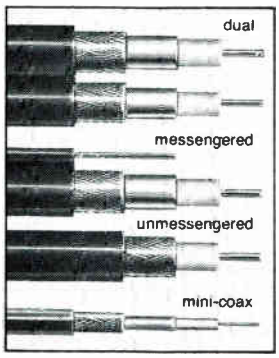
You can't disguise value.



introducing
THE INDUSTRY'S BEST
DROP CABLE

It's true! Value is hard to disguise. It always shows through.

For example. Our aluminum tape-braid cable is economical but it still delivers quality features engineers demand. Like 100% shielding. Excellent isolation. And durability. Plus the braid coverage over the tape is as high as 95%. So radiation and direct pick up are eliminated.

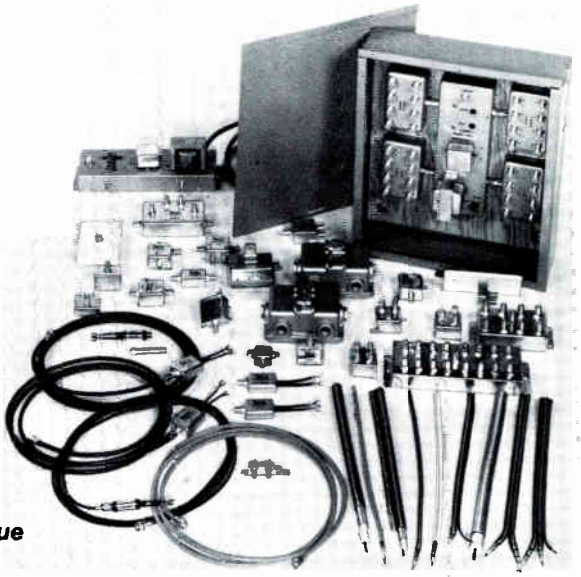


Our bonded foil-braid cables offer real value too. Because the foil is bonded to the dielectric, connectors slip on more readily without disturbing the foil. For less signal loss. Less direct pick up. And reduced installation time.

We also make copper braid drop. Plus a full range of CATV sizes, including mini-diameter. And our messengered uses .062" instead of .051" dia. messenger wire for 50% greater strength.

In fact we're the number one supplier of CATV drop cable in the world — offering a wider choice of sizes, shapes and conductor configurations.

Cerro drop cable. One of the CATV products in our line of trunk and distribution cable, drop cable, and RF devices.



Write for our comprehensive catalogue

CERROCOM

MARMON

CERRO COMMUNICATION PRODUCTS

COAXIAL CABLE/RF DEVICES

Division of Cerro-Marmon Corporation

Halls Mill Road, Freehold, New Jersey 07728 ■ (201) 462-8700

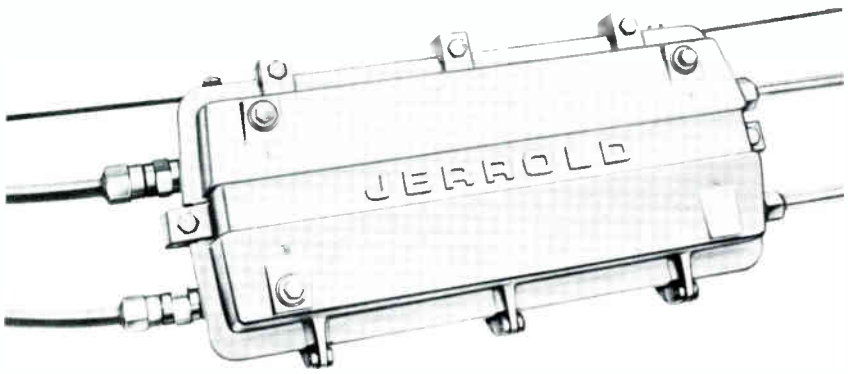
C/Ed's Tech Review

LINE AND HEADEND EQUIPMENT

Jerrold: Improved Push-Pull Mainstations

Jerrold Electronics Corp. has introduced a 35-channel mainstation, model SJA-series, designed for all CATV markets. The unit features Jerrold's Adaptive Power Control and the versatility of the Quad—a convenient amplifier circuit that provides greater cable spacing (25 dB) for new transportation or distribution systems with fewer active electronics per mile. The Quad also permits traditional cable spacing (18-21 dB) for extensions or rebuilds with fewer AGC amplifiers required.

Circle Reader Service #1

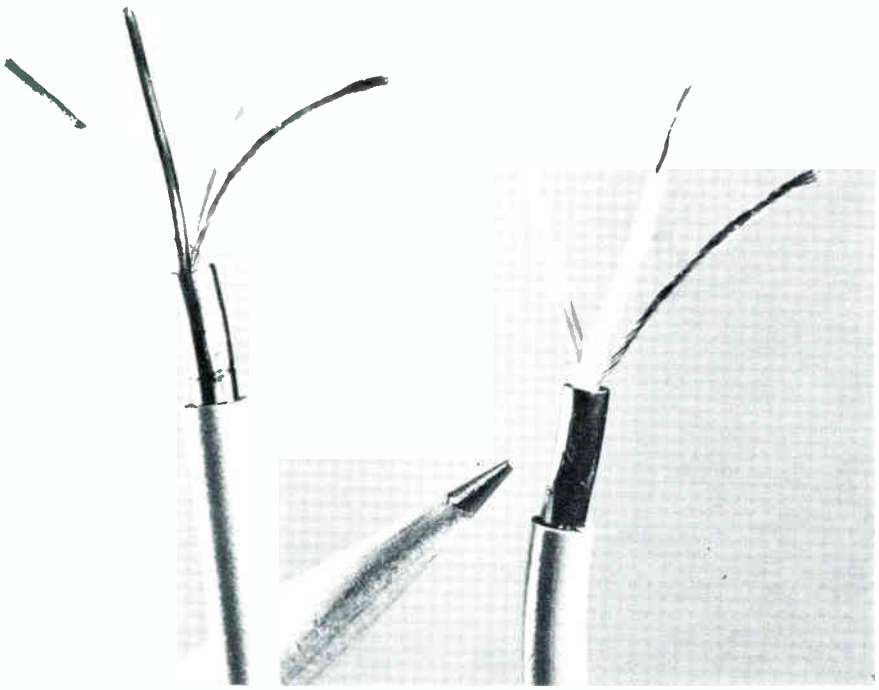


Belden: New Converter Cables

Two new converter/decoder cables for remote channel selection have been added to Belden's CATV product line.

Both the two-conductor cable (No. 9198) and three-conductor cable (No. 9199) feature stranded 26-ga. bare copper semi-conductors, polypropylene insulation, conductive polyethylene shields for 100% coverage, stranded 24-ga. drain wires and brown PVC jackets.

Circle Reader Service #2



Broadband Engineering: Offers Rebuild Kits

Mod-Kits for older types of distribution equipment are being offered by Broadband as an opportunity for CATV system operators to substantially and economically improve system specifications. The Mod-Kits require no mechanical modifications and can be expected to improve noise figures 3-4 dB at 220 MHz; cross-mod 6-10 dB; out-put capability 3-5 dB; bandwidth 30-40 MHz and overall reliability. All modifications can be done at the system by the system's technician.

Circle Reader Service #3

Microwave Assoc.: Branch Couplers

Microwave Associates is now offering a series of computer designed precision branch-guide couplers for applications in phase comparators and phased-array antenna feeds. This new series, the MA-1090, offers coupling values in the range of 0 to 20 dB.

Circle Reader Service #4

Cerro: Low Cost Distribution Amplifier

A low cost, modular multi-output distribution amplifier that can handle up to 32 subscribers has been introduced by Cerro Communication Products. This product is a compact internal distribution center for MDS

and pay TV in apartment houses, motels and homes. All components are in a single package which means a central point connect/disconnect. It's no longer necessary to enter an apartment, and there's no service interruption to subscribers when a disconnect is made.

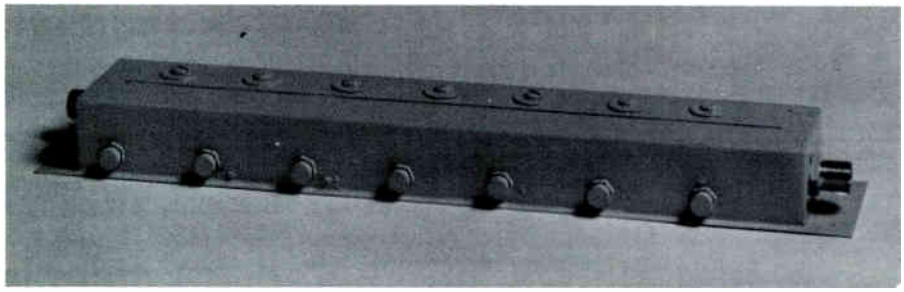
Circle Reader Service #5

LINE AND HEADEND EQUIPMENT

Microwave Filter: Bandpass Filter

Microwave Filter has introduced its new channel bandpass filter, 3303-FM, to the telecommunications market. The filter is available in 16 or 20 MHz bandwidths; the 16 MHz bandwidth model offers 30 dB rejection to channel 6 sound. Both models have less than 1 dB insertion loss across the passband, with -16 (92-108 MHz) and t20 (88-108 MHz).

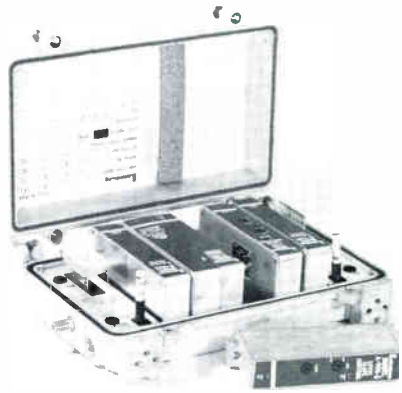
Circle Reader Service #6



Comm/Scope: Cable

Comm/Scope provides the cable industry with coaxial trunk and distribution cable in both the Gas Expanded Foam and second generation G.E. Foam.

Circle Reader Service #9



Theta Com: Amplifiers

Still going strong are Theta Com's Phoencian II Amplifiers, representing the second generation of the earlier successful Phoenician series. The amplifiers feature extra headroom, surge protection, reverse feed capability and improved cross-modulation and triple-beat.

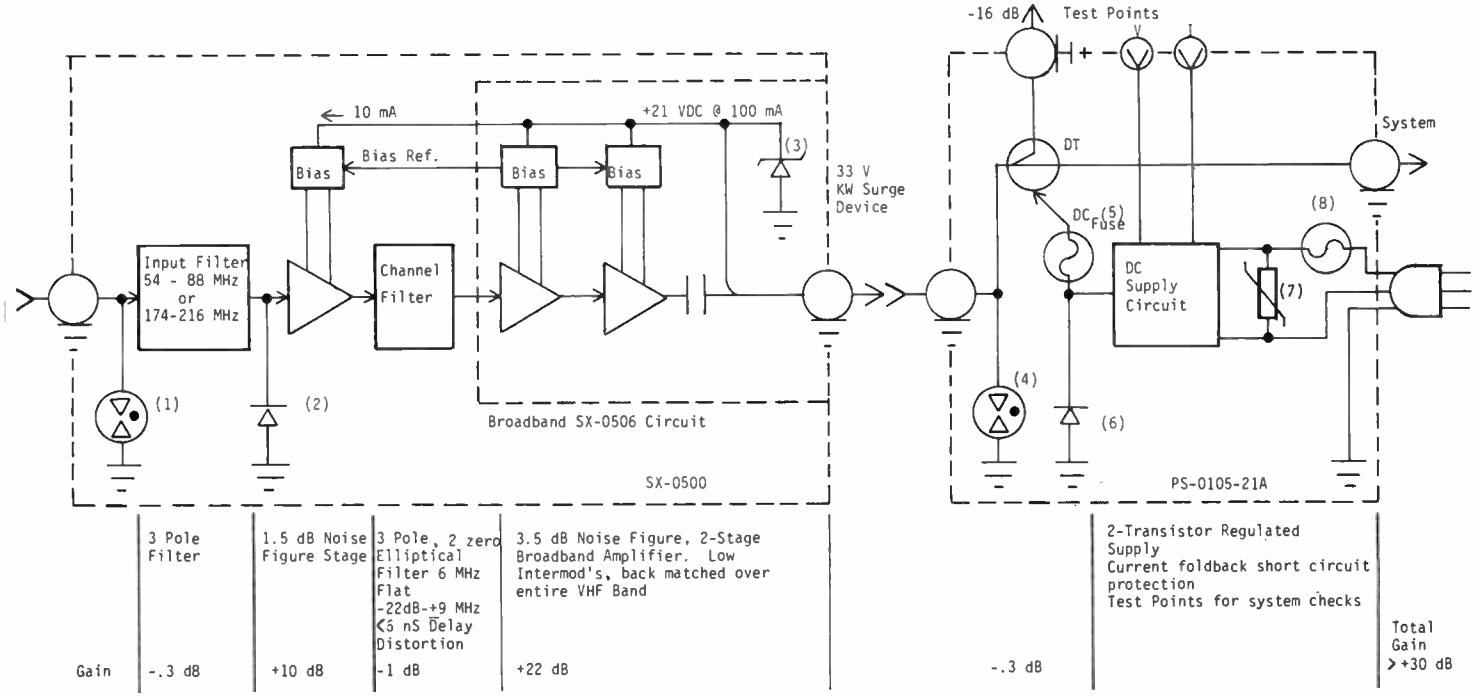
Circle Reader Service #7

Lindsay: Amplifiers

Lindsay Specialty Products has announced a new line of cable TV amplifiers. Particularly notable is their 800-series amplifier, a new hybridized line extender. This model is fully modularized, with a wide array of applications. Power consumption is reduced, thus offering a great value.

Circle Reader Service #8

The SX-0500 Is *Not Just* Another CATV Antenna Preamp!



Q-bit Corporation's SX-0500 VHF Preamplifier design goes far beyond delivering gain and a low noise figure.

Compare all these equally important operational features:

- 8 points of lightning and surge protection ••• Field-proven effective.
- Additional transistors used to bias the RF transistors results in stable and reliable operation from -50°F to +140°F. Likewise, any transistor can be changed without any realignment required.
- Selective channel filtering with low delay distortion and buffered from input/output interfaces.
- High level output stages for low intermodulation distortion.
- Test points in the power source for meaningful system tests without disturbing operations.
- Each amplifier noise figure is measured with a certified AIL noise source. This and other test data is supplied with each unit.

We do all this (including power source and mounting hardware) for only **$155.00.**

30 dB UHF single channel and broadband preamplifiers also available.

For more information on all CATV products, write or call:

Q-bit
Q-BIT CORPORATION
MELBOURNE FLORIDA

Q-BIT CORPORATION
P. O. Box 2208
Melbourne, Florida 32901
Telephone: (305) 727-1838

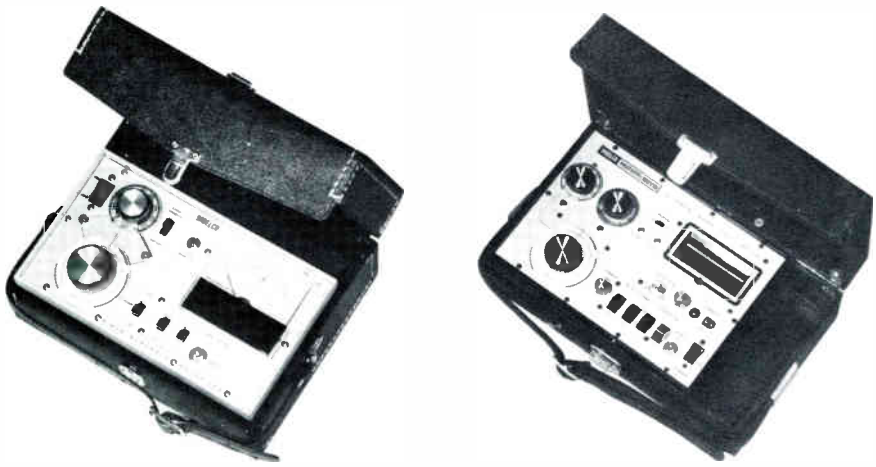
TEST EQUIPMENT

Sadelco: New SLM's

Sadelco, first in the industry with digital signal level meters, has announced the availability of the new model digit-level-100VSU. In addition to complementing Sadelco's other SLM's (models DL-100VS and DL-100VU), this digital signal level meter incorporates a TV VHF tuner, a CATV super-band tuner and a UHF tuner. The new unit also provides the user with three built-in frequency ranges.

Also new among Sadelco's SLM's is its model FS-733B, a dual range CATV VHF, plus super-band. The model FS-733B features continuous VHF tuning from 54-216 MHz and 216-300 MHz, using two separate built-in tuners. This new meter comes complete with loud speaker and also features a metal hanging-loop, located on the carrying case cover.

Circle Reader Service #10



Left: Sadelco's signal level meter, and right: the new model digit-level-100VSU.

Wavetek: Sweep Generators

Three new products are available from Wavetek this year. A 1 to 2.5 GHz sweeper, model 2002, covers the range in four bands. With a special stacking option, the unit will automatically sweep the entire range. The 2002 features exceptional flatness and is available with a 50 ohm output.

The model 3000 synthesized signal generator took the industry by surprise when Wavetek first offered it. Now, it has been improved with lower FM specs and a frequency slue control so that the frequency can be adjusted between the 1 kHz steps.

Model 3001 covers the 1 to 525 MHz frequency range and has a built-in audio modulator for AM or FM.

Built especially for cable, the combination sweeper/attenuator comparitor, model 1067/1075 is a complete bench setup for sweeping cable components. The sweeper has a built-in tilt compensator so that device flatness can be tested with a standard tilt compensation.

Circle Reader Service #11

Avantek: SLM

Avantek has provided the cable industry with a new state-of-the-art signal level meter, model SL-300. The unit is portable, extremely dependable and incorporates innovative design features providing fast and accurate readings under bench and field conditions.

The SL-300 operates over the standard 4.5 to 300 MHz CATV frequency range. The frequency of the aural or visual carrier being measured is indicated on a large three-digit LED readout with 1 MHz resolution and guaranteed ±1.0 MHz accuracy. Signal levels are displayed on a true logarithmic meter scale with equally-spaced divisions over a 20 dB range.

A completely new concept in video peak sync detectors is used in the SL-300. The design uses the sample and hold technique commonly found in complex digital instrumentation to actually hold the peak sync level without the problems of time constant or capacitor leakage of compromise peak detector designs. Thus, the meter actually indicates the peak sync level of video signals without being affected by the continuously varying video information.

Circle Reader Service #12

Katek: Programmer

Kateck Inc., of Bound Brook, NJ, has introduced a digital programmer designed to provide foot-switch control of the Wavetek model 1402A sweep generator.

Katek's JOP-3 enables the 1402A operator to more than double converter alignment speed. Katek's main business is converter repair for cable systems. The JOP-3 was developed for their own use, and is now being made available to other users of the 1402A. The programmer provides a visual display of the selected channel, allows both up and down switching, and is field programmable for any channel order, including channels A-1 and A-2.

Circle Reader Service #13

PECA: Wide Band Amplifier

The new PA-500 wide band RF post amplifier from PECA, Inc. is ideal for custom testing and measurement systems. It offers the cable operator flat, stable gain; excellent return loss; compact size and a low price.

The PA-500 uses the principal of a feedback amplifier to achieve a uniform gain vs. frequency characteristic from .1 to 500 MHz with a minimum gain of 24 dB.

Circle Reader Service #14

TEST EQUIPMENT

R & S: Demodulator

Rhode & Schwartz has announced the availability of the BARCO VSD2 demodulator in the U.S.A. This TV demodulator is used for: monitoring a remotely operated broadcast transmitter; remodulating well-defined carriers—for example, HF-wired TV networks and CATV antenna sites; accurate videotape recordings; a reliable signal source for CATV studios, etc. Frequency coverage for the VSD2 is 47-860 MHz. The unit features .1 mv sensitivity, has a separate input for UHF/VHF, 2 video and 2 sound outputs, and a video and sound level meter. It also provides monostandard multi-channel overall gain independent of the picture content. The VSD2 is a solid state and modular design with very good K rating on 2T and 12½T pulses. The AFC-action on the local oscillator provides tuning stability and a constant video output.

Circle Reader Service #15

Texscan: FSM

Texscan Corporation produces a complete line of CATV and RF test equipment. This past year it became a separate organization from Jerrold Electronics and acquired Theta-Com CATV Division.

New for this year is a replacement for the old faithful 727 field strength meter (FSM). The new 7270 uses a rotary attenuator and a new peak detector circuit. The accuracy is +1.5 dB, has a built-in speaker and a large easy-to-read meter.

Also new and innovative is the TFC-7, a tuned frequency counter for making direct frequency measurements on cable systems. This unit has a self-contained pre-selector and sync stripper as well as 4.5 MHz sound measurement capability.

Circle Reader Service #16

SECURITY/TERMINAL PRODUCTS

Vitek: Pay TV Cable Traps

Vitek Electronics now offer the CABLE TRAP, specifically designed as an inexpensive approach to combating theft of service in cable systems with pay TV.

The CABLE TRAP, which physically resembles the ordinary drop-cable, is designed for installation at the directional-tap. Its approach to solving the theft of service problem is direct since the pay channel is never allowed into the non-paying subscribers' home. The level of rejection prevents intercarrier detection of the audio in the TV receiver. The CABLE TRAPS typically run 75 dB to 90 dB at the video carrier.

Due to their unique manufacturing technique, Vitek Electronics, Inc. has developed a multi-level/multi-channel cable trap in a single package (one length of cable). This technique greatly reduces the incremental cost per level (channel).

An example of this type of multi-level/multi-channel trap could be: 5 premium channels such as channels A and H plus a block of super-band channels such as channels U, V, and W. This allows the system operator three levels of service.

Since Vitek's multi-level/multi-channel filters are made in cable, the filter cable can be separated in the field giving the system operator a great deal of versatility. Utilizing this same manufacturing technique, 4 and 5 levels of service are possible.

Circle Reader Service #17

Oak: Complete Line

Oak's complete line of traps and converters provides several choices:

Multi-Code—Varactor converter decoding specified channels for subscription pay TV.

Econo-Code—Single channel midband converter-decoder.

Toggle Switch Converter—Designed for European cable systems

Trimline II AFC Converter—Remote control, 31 or 35 channels.

Econobloc II Converter—Conversion of 11 mid-band frequencies for 23-channel capacity.

Mini-Code—Single channel low-band decoder.

SCC Single Channel Converter—Adds a mid-band channel to 12-channel system.

Gamut 26 Converter—26-channel, electromechanical set-top converter.

Circle Reader Service #18

Telcin: Remote Converter

Telcin's ROTC systems feature a keyboard with pressure keys and no mechanical switches. The converter covers 36 channels and is completely wireless. A built-in AFC circuit fine tunes each channel automaticaly.

Circle Reader Service #19

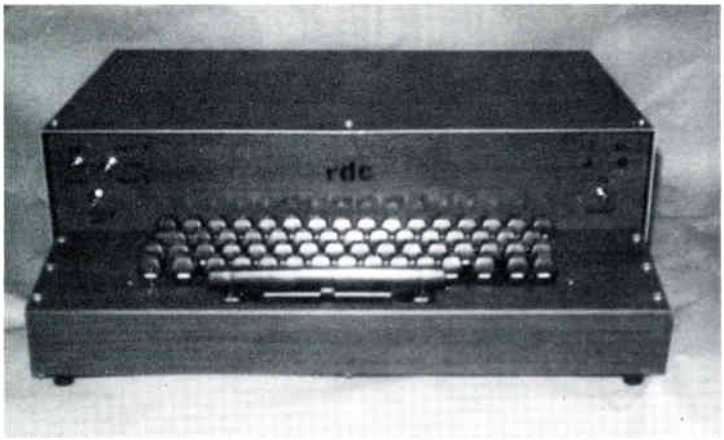
LOCAL/PAY ORIGINATION

CRC: Videocassette Programmer

The P-1000 Broadcast Videocassette Programmer is the result of months of intensive research and development by CRC Electronics, Inc. The P-1000, designed to provide professional broadcast quality automation of videotape programming, was designed specifically for Sony Type II videocassette players and recorders. This unit features accurate VCR control and clean audio and video switching.

Completely solid-state and modular in construction, the P-1000 is highly reliable and adaptable to many different formats. A stand-by battery (included) for the digital clock and control logic makes the P-1000 free from the common programmer problems due to AC power failure. The 24 hour clock and advanced logic control system of the P-1000 allow for unattended operation (if desired). The unit mounts in a standard 19" rack and is supplied with VCR interconnect cables.

Circle Reader Service #20



Cable Instrument Co.: Duplication Switcher

Cable Instrument Co. has been producing programmers to eliminate program duplication. Their new model 2D has kept the best of the old while implementing some new features to make this piece of equipment one of the smartest programmers on the market.

Nonduplication switching is loaded with headaches, such that you almost need a person full-time in your headend . . . or one of Frank Hensley's model 2D's. Just to give you an idea of the power of this device, we will list simultaneous programs by looking at the sync. When programming goes to local, a time delay prevents premature switching except during half hour program changes. A sense and release is activated after 10 seconds if a station goes off-the-air. Overrides are provided for manual control.

The new model 2D uses plug-in modules instead of the old hard wired ones, an electronic clock, and has a built-in battery to keep the clock going in case of power outages.

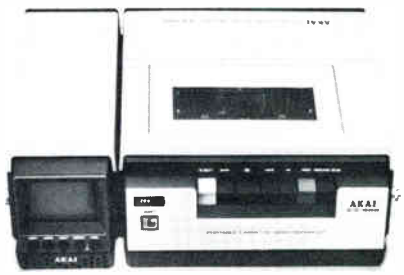
Circle Reader Service #21

Microtime: Signal Corrector

New on the market is Microtime's model 2020 Plus, a total signal corrector. The unit is designed to remedy virtually all signal distortions, making recorded video playback look like the original input signal. The 2020 Plus circuits reduce chroma and luminance noise by 6 dB, compensate for velocity and drop-out errors, increase horizontal and vertical picture detail, "crispen" chroma and reduce color errors.

To satisfy the requirements of the many new pay programming options available on video cassettes, Microtime has also introduced their model 1500 Video Picture Corrector. This model is the world's first Time Base Corrector to utilize charge coupled device technology. The 1500 features a 2H line (127 millisecond) correction window. Referencing incoming video, the 1500 provides output video corrected to RS 170 timing. Signal-to-noise performance is 48 dB with phase and gain performance of 3 degrees and 3 percent. The 1500 is both lightweight and simple to operate (having only on and off as the operating controls).

Circle Reader Service #22



Akai: B&W System

Akai American, Ltd., has a new ½-inch cassette-format black-and-white video system, the lightweight and compact VT-300.

The VT-300 is the lightest weight, least expensive, and most compact ½-inch portable system on the market. The result of Akai's research is an easy-to-operate, versatile system designed for almost any office, school, home or in-the-field application.

The camera features C-mount, 16mm lens, detachable optical view-finder and a built-in omni-directional microphone that automatically adjusts volume levels during taping. The camera also compensates for a wide range of light levels, making it possible to shoot with existing light both indoors and outdoors.

Circle Reader Service #23

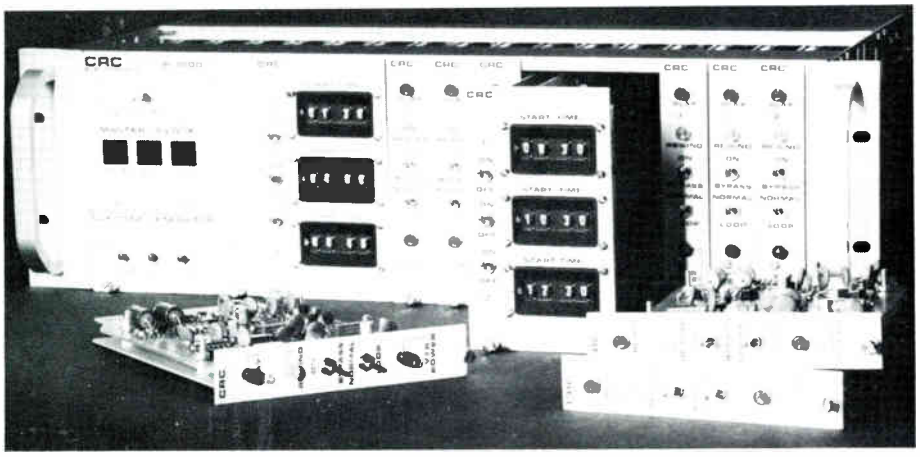
LOCAL/PAY ORIGINATION

Richey: Message Center

Richey Development Corp. is featuring a new low-cost character generator, model DMC-1, that comes complete with an RDC-11 modulator. The $850 character generator is designed for the small system operator where cost is a major factor.

The DMC-1 features two pages of memory with sixteen lines of thirty-two characters each. The unit has a sixty-three key keyboard with automatic/manual page select. Color is another standard feature. Page one will have white letters on a green background.

Circle Reader Service #24



Video Date Systems: Message Display

Video Data Systems offers a low cost Message Display, model CG-1632, for inexpensive bulletin boards. The unit features a modest memory (four or eight pages), selectable character height, display format and a full cursor control.

Video Data also introduces the Micro-System I, a versatile micro processor managed automated information system for single or multiple channel displays. This unit features easy operation, deskette memory and operator programmable display channels.

Advanced technology and design provides unparalleled flexibility for the MicroSystem I. The unit is able to create display format selecting one of three character heights, two character widths, six choices for font enchancement and any of eight standard colors on a line-by-line basis.

Circle Reader Service #25

RCA: Encoder/ Generator

The RCA model EG* TV encoder/ generator is recommended for CATV application where a phase-lockable modulator or signal processor is available.

Specifically designed for rack mounted installation in CATV, the RCA unit is available for any VHF or midband channel. In a short time, the encoder can be connected to a CATV system, providing instant security for the premium channel transmission.

All necessary electronics are contained in the RCA unit. The built-in RF amplifier provides 12 dB gain and approximately 10 dB pre-emphasis in the channel of interest. The result is a reliable encoding of the video transmission which prevents the normal reception of either video or audio information.

Circle Reader Service #26

MISCELLANEOUS

SA: 30/60 Volt Transformer

Scientific-Atlanta now offers a 30/60 volt transformer which will enable cable system operators to extend their present 30 volt system, or replace their equipment on an ongoing basis. Also, an entire system can be changed over to 60 volts without having to special order 30 volts.

SA's new 30/60 volt transformer vastly improves reliability and system performance. The switchover is easily accomplished with a screwdriver inserted into a recessed switch and moved to either the 30 or 60 volt position. The recess switch will not permit the technician to accidentally change the setting.

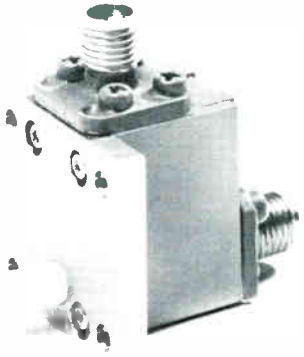
Circle Reader Service #27

Microwave Assoc.: Ferrite Circulator

Microwave Associates, Inc. has announced the introduction of a new coaxial ferrite circulator for broadband E.C.M. applications at 4.6 to 9.9 GHz.

The model MA-7L943-S001 features small compact packaging for integration into frequency multiplexer filter banks. The unit is completely magnetic and R.F.I. shielded.

Circle Reader Service #28



LRC: Sealed "F" Fitting

A sealed series of "F" style connectors has been unveiled by LRC Electronics.

The units, when properly installed on their corresponding cable, are totally moisture-proof from the jacket to the "F" connector and also to "F" female connectors. Laboratory testing has proven the seal effective at over 20 psi.

Circle Reader Service #29

MISCELLANEOUS

Blonder-Tongue: Bandpass Filter

Blonder-Tongue Laboratories, Inc. has just added a VHF single-channel bandpass filter to its CATV product line.

The primary application of the BFF-b is in cases where adjacent signals are present, since the unit provides extremely high rejection of signals outside of its bandpass.

BPF-b's are available for low-,mid- and hi-band TV channels. Circuitry consists of a high-Q, 5-stage bandpass filter and 2 phase cancellation traps.

Circle Reader Service #30

Gilbert: Surge Protector

Gilbert Engineering now offers the cable TV industry a unique problem solver. Installed into any equipment port, model G-TA/SP will provide excellent surge suppression. This new model allows the user to replace or inspect surge protectors with minimum time and effort, with no interruption of service or abuse of amplifiers.

With the surge protector removed, the vacant port allows external insertion of a test adapter to monitor input or output RF signal level and level voltage with ease and accuracy.

Circle Reader Service #31

LRC/Sealed Feed Thru Connector

LRC Electronics, Inc. announces a newly designed sealed feed thru aluminum connector. This design eliminates the need for an expensive, more complex pin style connector for moisture barrier, by providing a seal around the cable center conductor.

Designed for all 3 size cables, the connector provides a 40 psi positive seal from housing to cable. This has been added to LRC's standard feed thru connectors as an optional feature.

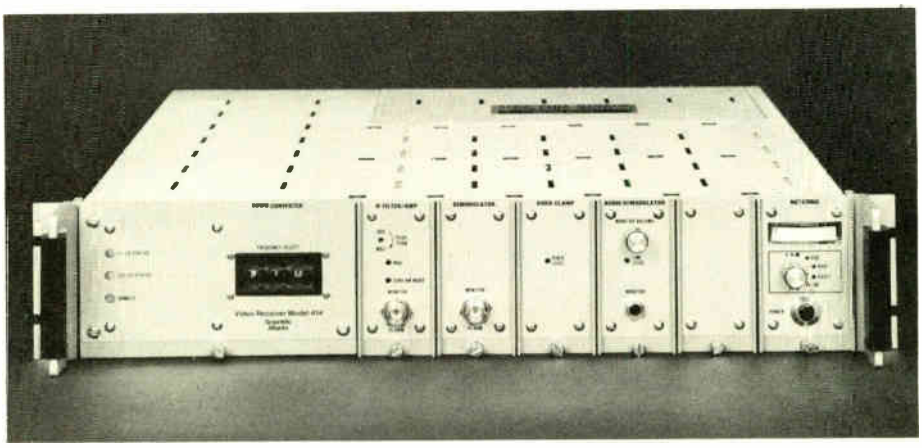
Circle Reader Service #32

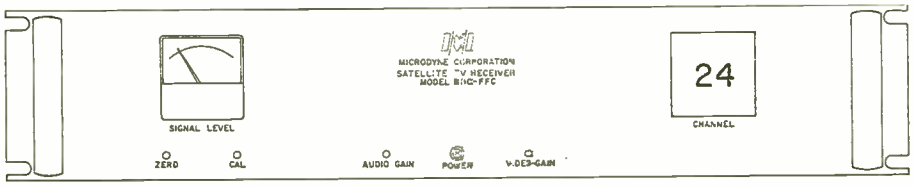
SATELLITE EARTH STATIONS

SA: Receiver

Scientific-Atlanta's video earth station now uses the 414 video receiver to process any video format satellite transmission. This new dual conversion receiver is supplied with a synthesizer controlled down-converter—eliminating the requirement for numerous in crystals. The input frequency band is 3.7-4.2 GHz, imput noise figure is 15 dB maximum and input dynamic range is 40 dB. IF bandwidth is determined by plug-in modules; and standard bandwidths from 17.5 MHz to 36 MHz are available. The frequency synthesizer provides input tuning in 2.5 MHz or 0.25 MHz increments.

Circle Reader Service #33





Microdyne: Receiver

Microdyne Corporation, a leading manufacturer of satellite TV receivers, introduces a low cost, single frequency, stand-alone receiver, model 1100-FFC. The 1100-FFC satellite TV receiver can be fixed tuned and used to receive any single wideband FM video signal with appropriate audio channels from domestic or international satellites.

A group of the 1100-FFC receivers, coupled with one Microdyne 1100-TVR(VT) satellite TV receiver, meets the needs of the cable TV industry by providing an economical means of receiving many channels from the satellite.

Circle Reader Service #34

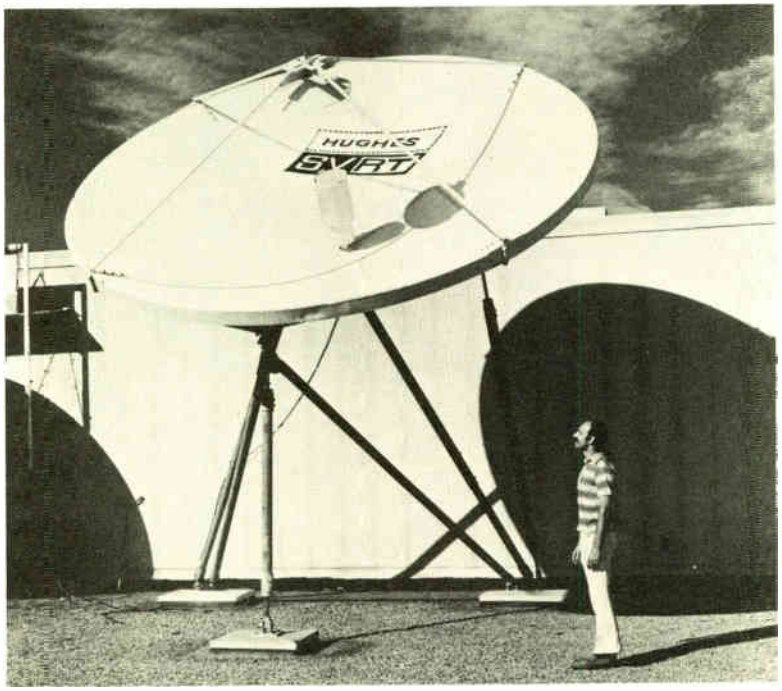
Hughes: Low Cost 4.5 Terminal

Lower cost earth terminals with smaller size antennas are key features of a new satellite video receiving terminal being offered by Hughes Aircraft Company's microwave communications products.

The completely integrated system enables the user to provide quality video and audio signals using an antenna only 4.5 meters in diameter. Hughes' dish antenna is roughly half the size of present ground station antennas.

Hughes claims the cost of the new terminal will be 1/2 to 1/3 that of the larger terminal.

Circle Reader Service #35



SATELLITE EARTH STATIONS

LNR: Parametric Amplifiers

LNR Commnications, Inc. has unveiled their new parametric amplifiers, series NC7. This new product line includes three low noise, uncooled parametric amplifiers.

Model NC7-101 is a two stage paramp with noise temperature as low as 100°K and a gain of 26 dB minimum. The amplifier measures only 14.5" x 13" x 4" including mounting flanges, and is completely self-contained.

The NC7-series of parametric amplifiers use "Go-No-Go" LED display of critical supply parameters and an external monitor connector.

Circle Reader Service #36

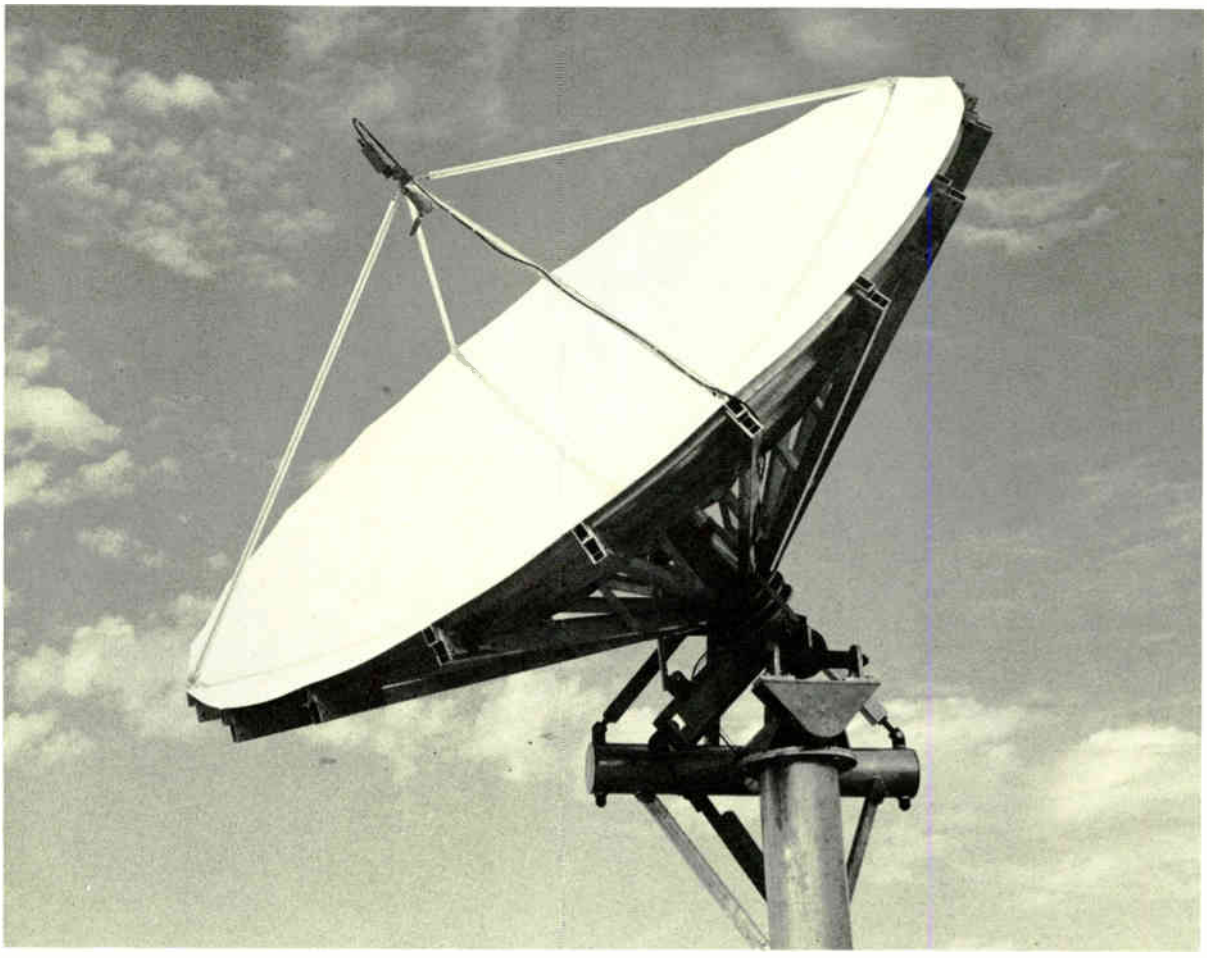
RF Systems: 5/6-Meter Dish

RF Systems, Inc. of Orlando, Florida, has a new 5- and 6-meter satellite earth terminal. Both models have 5- and 6-meter antennas designed specifically for highly efficient performance when used in low cost satellite earth terminals.

A few of the major advantages of the system are: Polar Mount, aluminum construction, low shipping weight and cube and economic installation. Another major factor is that there is no single piece that cannot be carried to a roof for a roof-top installation in a standard elevator. This feature results in a savings in crane costs.

RF Systems is the only earth terminal supplier providing the Polar Mount. The single axis movement when changing satellites is only possible with the Polar Mount. Specifications sheets are available upon request.

Circle Reader Service #37



RF Systems' 5-meter dish.

First Class
Permit No. 4957
Denver, CO

Business Reply Mail
No Postage Stamp Needed if Mailed in the United States

Postage Will Be Paid By

CableVision
c/o Titsch Publishing
P.O. Box 4305
Denver, CO 80204

TechReview's Reader Service Card

NAME

COMPANY

ADDRESS

CITY

STATE ZIP

SIGNATURE

Check for more information:

Wire Companies

Belden	☐
Cerro	☐
Comm/Scope	☐
CCS Hatfield	☐
General Cable	☐
System Wire	☐
Times Wire	☐

Please circle one appropriate classification. (Please check only one.)

A. CATV System Operations
B. CATV Contractors & Consultants
C. Pay-TV
D. CATV Investors
E. CATV Component Manufacturers, Dealers & Distributors
F. Microwave & Telephone Companies
G. TV, AM, FM, Broadcasters
H. Educational TV Stations, Schools and Libraries
I. Closed Circuit TV Users
J. Financial Institutions, Brokers, Attorneys & Government Agencies
K. Program Producers, Program Distributors & Advertising Agencies

Circle Reader Service numbers that interest you:

1	23	45	67	89
2	24	46	68	90
3	25	47	69	91
4	26	48	70	92
5	27	49	71	93
6	28	50	72	94
7	29	51	73	95
8	30	52	74	96
9	31	53	75	97
10	32	54	76	98
11	33	55	77	99
12	34	56	78	100
13	35	57	79	101
14	36	58	80	102
15	37	59	81	103
16	38	60	82	104
17	39	61	83	105
18	40	62	84	106
19	41	63	85	107
20	42	64	86	108
21	43	65	87	109
22	44	66	88	110

Aug. 1977

First Class
Permit No 4957
Denver, CO

Business Reply Mail
No Postage Stamp Needed if Mailed in the United States.

Postage Will Be Paid By

CableFile
c/o Titsch Publishing, Inc.
P.O. Box 4305
Denver, CO 80204

Please circle one appropriate classification

A. CATV System Operations
B. CATV Contractors & Consultants
C. Pay TV
D. CATV Investors
E. CATV Component Manufacturers, Dealers & Distributors
F. Microwave & Telephone Companies
G. TV, AM, FM, Broadcasters
H. Educational, TV Stations, Schools and Libraries
I. Closed Circuit TV Users
J. Financial Institutions, Brokers, Attorneys & Government Agencies
K. Program Producers, Program Distributors & Advertising Agencies

Send CableVision Now!

___ Please send information on group subscriptions.

Enclosed is my check for:
___ 3 years $51.50
___ 2 years $35.00
___ 1 year $19.50

Foreign subscribers including Canada and Mexico add $10.00 per year postage.

NAME

COMPANY

ADDRESS

CITY STATE ZIP

SIGNATURE BILL ME ☐

Colorado residents add 3½% sales tax. Domestic first class add $21.00 per year.

First Class
Permit No. 4957
Denver, CO

Business Reply Mail
No Postage Stamp Needed if Mailed in the United States

Postage Will Be Paid By

Titsch Publishing, Inc.
P.O. Box 4305
Denver, CO 80204

Wall Map

Statistical Profiles on Every Cable System

FCC Data

CableFile

Cable Call Book

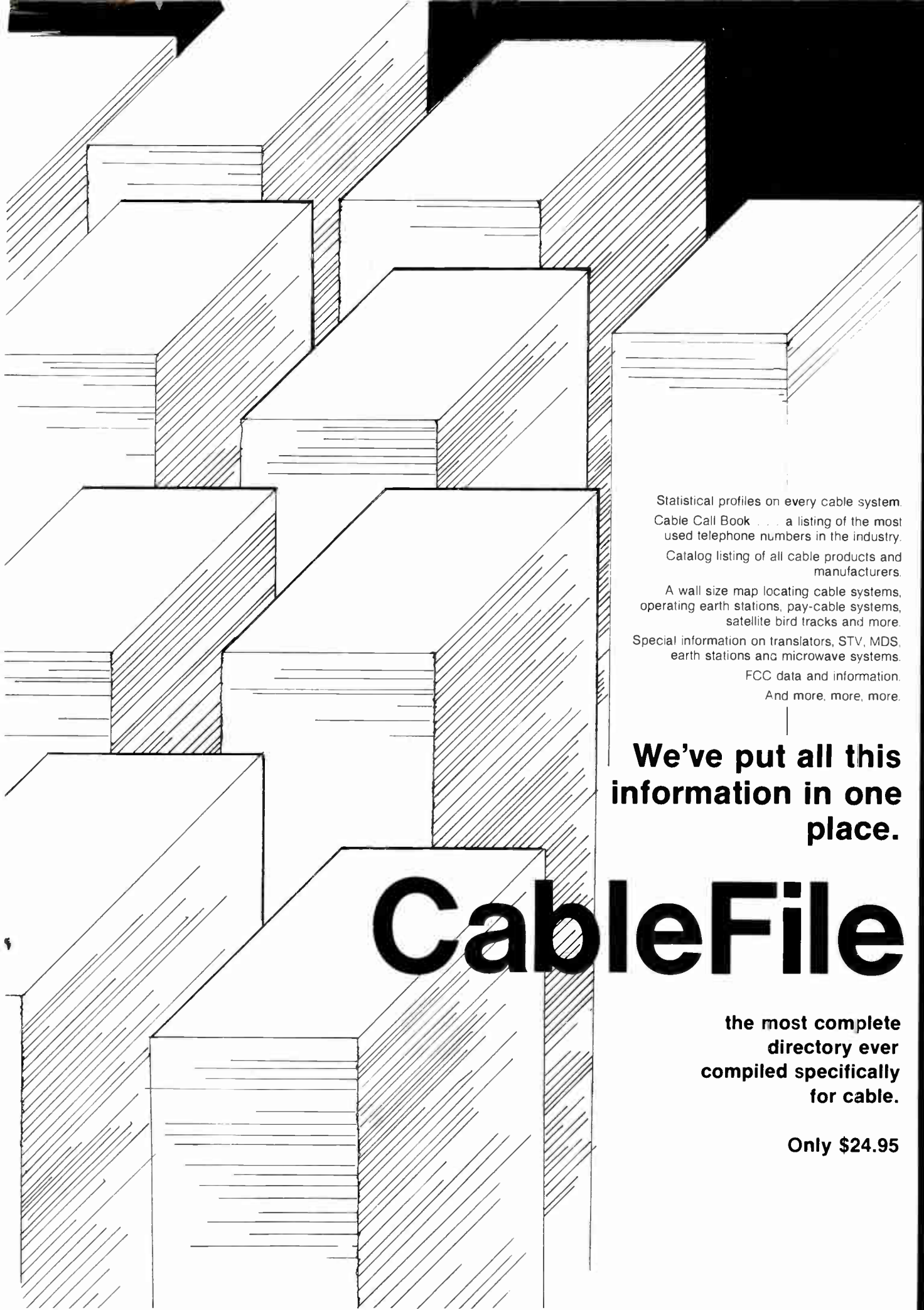
Listing of all Manufacturers and Products

STV
MDS
Earth Stations
Microwave Systems

We've put all this information in one place.
Only $24.95

☐ Enclosed is my check.
☐ Bill me.

Name
Company
Address
City State Zip
Phone



Statistical profiles on every cable system.

Cable Call Book . . . a listing of the most used telephone numbers in the industry.

Catalog listing of all cable products and manufacturers.

A wall size map locating cable systems, operating earth stations, pay-cable systems, satellite bird tracks and more.

Special information on translators, STV, MDS, earth stations and microwave systems.

FCC data and information.

And more, more, more.

We've put all this information in one place.

CableFile

the most complete directory ever compiled specifically for cable.

Only $24.95

classifieds

Help Wanted

CATV TECHNICIAN

Duties:
Perform troubleshooting, repair and maintenance on broadband RF amplifiers and headend equipment.

Applicant should possess:
Minimum 3 years experience as a field service technician.
At least 2 years experience as a bench technician and hold a current FCC 1st class license.

Send resume with salary requirements to:
Peninsula Cable TV
894 Industrial Road
San Carlos, California 94070
Attn: Engineering Dept.

CHIEF ENGINEER ALASKA

Experienced 1st phone shirt sleeve type for MDS/Pay TV operation. Requires ability to install and maintain VTR/Audio Studio. Also mangement experience to supervise technician staff. Knowledge of microwave and TVRO earth stations helpful. Resumes and salary requirements to: P.O. Box 4-1300, Anchorage, AK 99509.

CHIEF TECHNICIAN

Chief technician for medium sized expanding CATV system in very desirable mid-atlantic location. Top benefits. Real growth opportunity. Expansion program under way. Immediate requirement.

Write Box CED-0718-1.

Equal Opportuntiy Employer

LEAD TECHNICIAN

20,000-subscriber, 550-mile system in Northeast has opening for a Lead Technician. Minimum of five years CATV technical and head end experience required. This is a hands-on, pole-climbing position reporting to the plant manager. Must be a self-starter and be able to teach. Generous employer-paid fringe benefits. $13,000-$15,000 range, depending on experience. Send resume and salary history to Box CED-0718-2.

MANAGER-TECHNICIAN WANTED

Aggressive MSO has an immediate opening in a major West Coast resort area for an experienced manager-technician. 125 miles of new system under construction. Should have construction supervisory experience. Send resume to Box CED-0718-3.

LOCAL ORIGINATION PROGRAM DIRECTOR

Mid-Western MSO seeks L.O. Program Director to be responsible for studio operation and program origination. Minimum three years experience. Salary commensurate with experience. Excellent company benefits and good advancement opportunities.

Send resume and video tape to Box CED-0801-4.

EXCITING FUTURE IN PAY-TV

For Production, Technical and Operations oriented person. Seeking experienced creative self-starter with initiative, mature judgment, cool head in emergencies, able to cope with pressures of daily air operation.

Full details in first letter . . . Resume, Salary, References.

Reply in confidence to Box CED-0801-3.

SYSTEM MANAGER

MSO seeking manager with electronic know-how for medium sized cable system in mid-west. Company offers generous benefit package. Salary commensurate with experience and ability. Send resume with salary history in complete confidence to Box CED-0801-1.

Equipment Wanted

MICROWAVE EQUIPMENT

Will pay cash for used Cars band microwave equipment in good condition. Contact: Bob Pace, (615) 473-5979.

AUDIO VIDEO EQUIPMENT

In excellent condition. Wanted Immediately! Film chain, two color cameras, switcher, studio lights, audio equipment, editing VCR system.

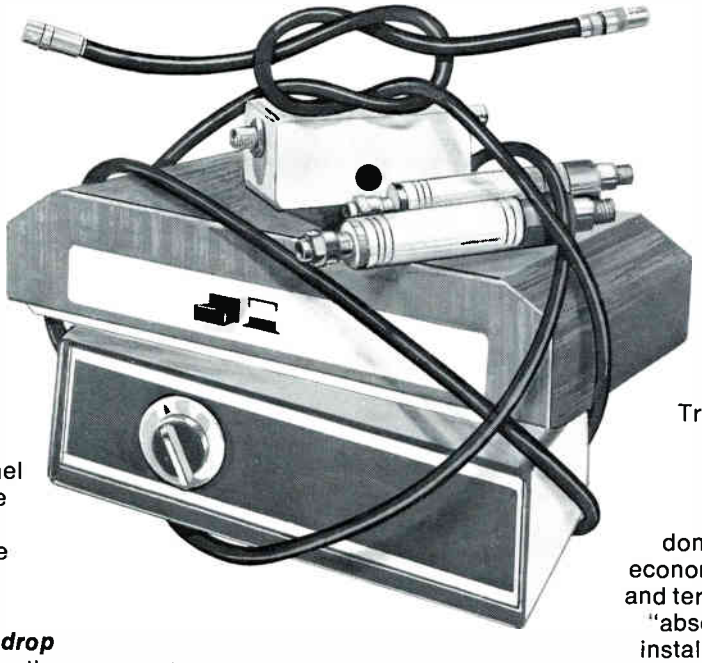
Contact Box CED-0801-2, or call (617) 998-3003.

Business Directory

FREDERICK G. GRIFFIN, INC.
Engineers & Planners
Communications, 911 Studies
Alarm Systems, Mobile Radio Systems
Telephone — Cable Television
Industrial Engineering
Monitor and Telemetry Systems
7212 Timberlake Road, Lynchburg, VA
(804) 237-2044

ad index

Negative vs Positive Systems
Audited vs Unaudited Systems
Cable Traps vs Descramblers
Lowest Overall Costs vs
Lowest Front End Costs
Single Channel or Multi-channel



Negative vs Positive System

There's no doubt about it . . . the Negs have it over the Pos. The greatest deterrent against theft of service is to not allow the premium channel into the home where it can be reconstituted . . . to trap the signal of all non-payers at the pole where it is least subject to tampering.

VITEK Cable Traps ***look like drop cable***, provide deep-notch depth (typically greater than 70dB), superior environmental stability and durability, are maintenance-free — and are ***on the pole!***

Audited vs Unaudited Systems

Auditing is easy with VITEK Cable Traps. Simply count your traps and compare with your current subscriber list. No contact with the subscriber is necessary. Since (Pos) descramblers are located in the home, installation records are your only clue as to who your "customers" really are. Gaining access to the residence can be difficult and may require numerous visits.

Cable Traps vs Descramblers

If "they" don't pay . . . reconnect the cable trap . . . on the pole! Recovery and replacement of descramblers is time consuming, costly and may require legal action.

Any way you look at it... VITEK is the answer for PAY TV Security!

VITEK

Descramblers can also be "loaned out" depriving you of additional income . . . but VITEK Cable Traps stay put . . . ***on the pole!***

Lowest Overall Cost vs Lowest Front End Costs

You get what you pay for, so don't be misled by the apparent economies of (POS) descramblers and terms like "self-amortize" and "absorbed costs". The larger the installation, the more economical VITEK Cable Traps become. You save on maintenance and service calls, recovery or replacement of equipment and in the end, there is nothing more foolproof and reliable than a VITEK Cable Trap to prevent theft of service . . . and that's what PAY TV Security is all about.

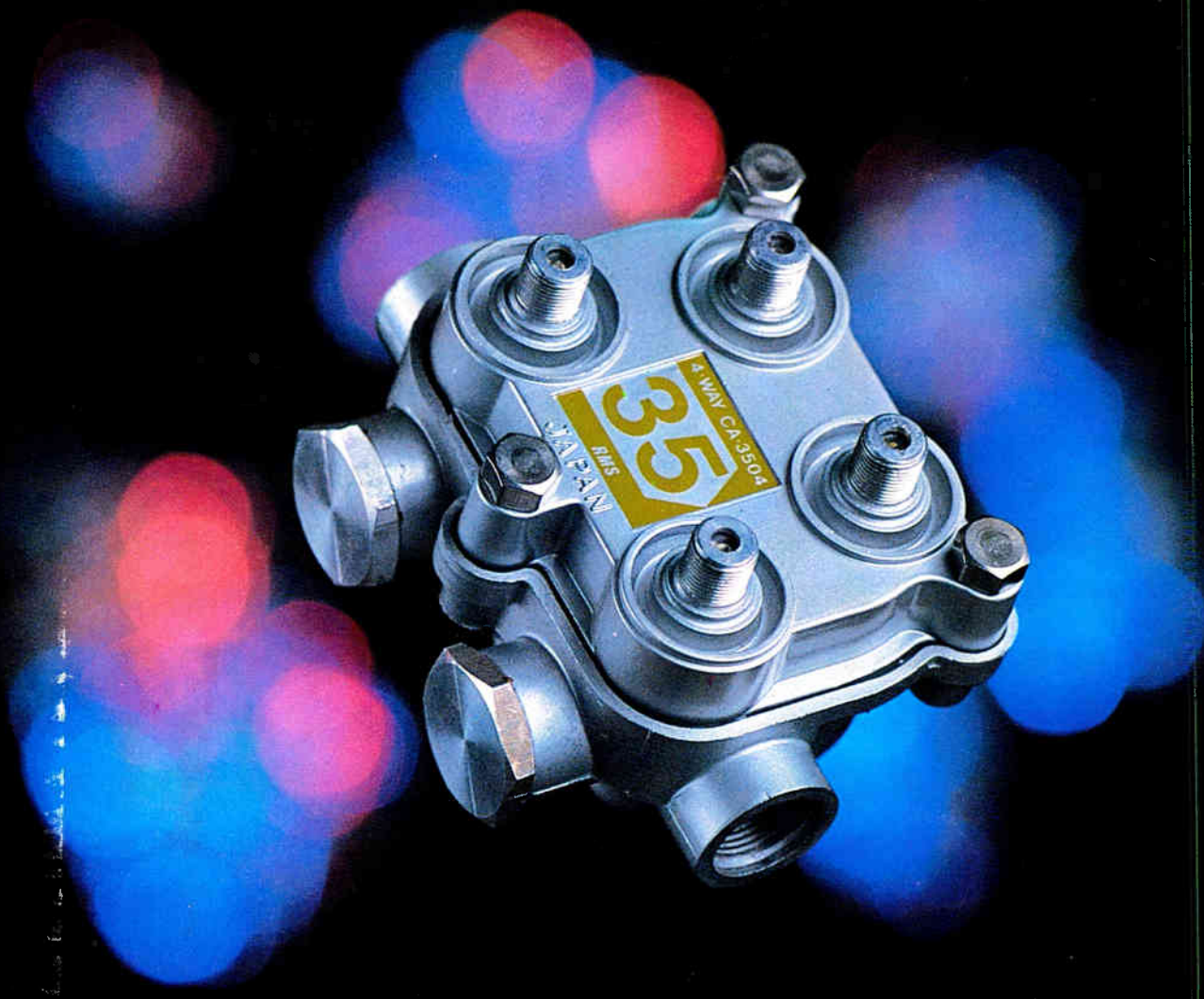
If you're successful, you'll outgrow the short-term economics and inadequacies of descramblers as others have and change over to VITEK's Cable Traps.

It's simply a matter of . . . Pay us Now . . . or Pay us Later.

For additional information call or write:

VITEK Electronics, Inc.
200 Wood Avenue, Middlesex, N.J. 08846
Tel: (201) 469-9400

When Quality Counts . . .



. . . count on RMS CATV DIVISION

ELECTRONICS, INC.

A unitap PRODUCT
RMS ELECTRONICS, INC.
50 ANTIN PLACE
BRONX, N.Y. 10462
CALL COLLECT (212) 892-1000