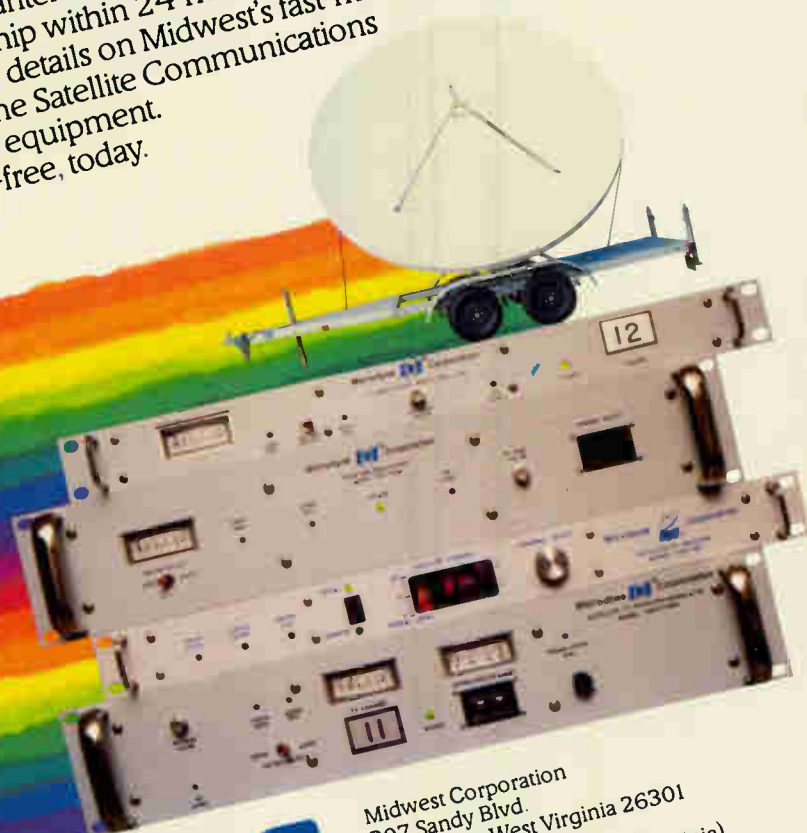


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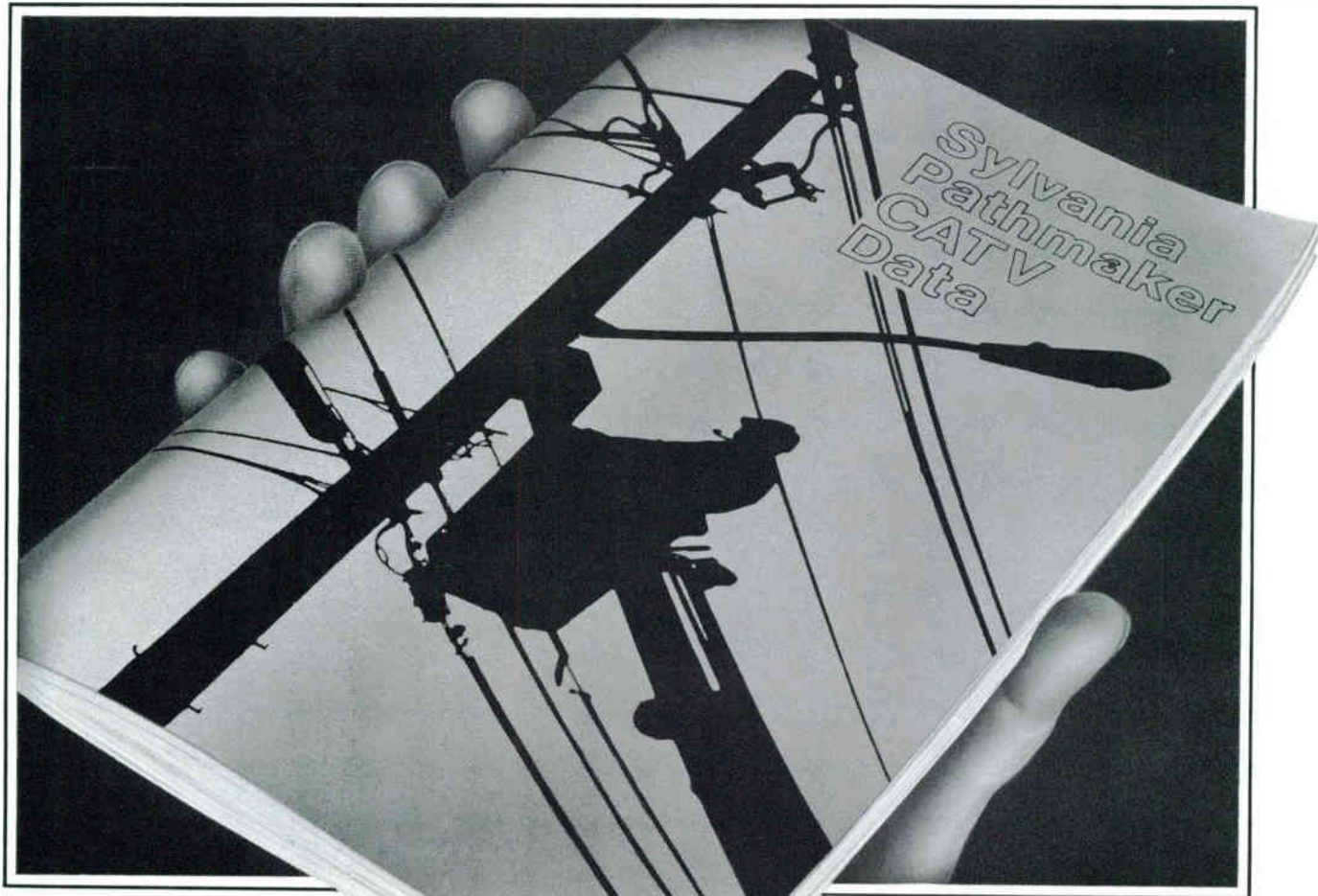


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FEATURES



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12 **RMS — A SURVIVOR IN TODAY'S ECONOMY . . .** CATJ Director of Engineering, Ralph Haimowitz, visited the RMS facility in the Bronx to tour their manufacturing site and explore their role in today's cable television industry.

26 **CABLE TECH'S FILTER COOKBOOK . . . PART #5 —** Glyn Bostick and Laurie Goldman, Microwave Filter Company explain a simple design of a combined low-pass and high-pass filter.

Sub. 1 **THE ANSWERS ARE HERE!!! . . .** If you took the basic evaluation test found in last month's issue of CATJ, we promised the answers would be printed this month. You'll find them on Sub-Card #1; we've included the questions as well for any one who missed them last month, but don't cheat!! If you want a true picture of yours or your cable tech's technical knowledge, try this test and see how you come out!!!



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DEPARTMENTS

4 **CATA-TORIAL . . .** Peter Athanas, CATA's newly elected President, discusses cable as a public utility.

10 **BIRKILL ON EXPERIMENTAL TERMINALS . . .** the absence explained.

24 **YOUR COLUMN . . .** in response to our announcement of this section, this month's presentation contains some interesting problems and their solutions.

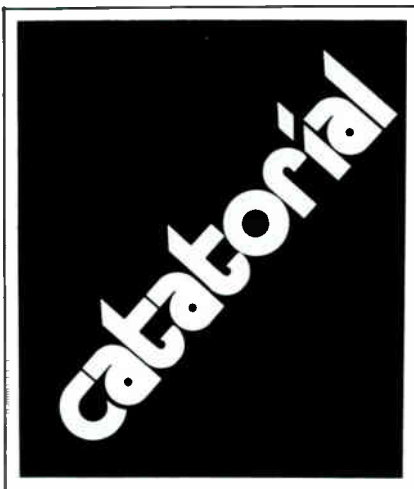
31 **WASHINGTON UPDATE . . .** CATA Executive Director, Steve Effros, brings CATJ readers the most current information about what's happening with the FCC, Pole Law formula, TVRO renewals, Pay Programming, etc. What you need to know, Steve can supply!!

43 **ASSOCIATE'S SHOWCASE**

44 **PRODUCT REVIEW . . .** this month's presentation features RMS' Descrambler 16-D and Scrambler - 1000.

49 **ASSOCIATES' ROSTER**

52 **CLASSIFIED**



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On the Cover - (Upper photo) Laboratory testing of the RMS Scrambler/Descrambler System by the Engineering Staff; (Bottom photo) RMS Standby Power supply Coming Off the Production Line.

A CABLE [OF] UTILITY?

Is cable television a “public utility”? CATA does not think so, but we may be the last ones to fight the battle against such a designation. Unfortunately, the battle may be a futile one since some of our larger brethren are starting to see some advantages of being considered a utility. They are not, however, focusing on a lot of the negative aspects. I’d like to run down both sides of the ledger sheet here and see what decision you reach on the issue.

As you may know, this has been a long-standing battle in the cable television industry. For many years we, as a united industry, fought any suggestion that we were either a “public utility” or a “common carrier”. The reason for the fight was clear. By being put under either designation, we ran the risk of being regulated by either the State or the Federal government in a way that we had no interest in rate of return regulation, public utilities commission regulation and the like. Cable was, and still is to some degree, a business of individuals — of free enterprise entrepreneurs. We want no part or more government control.

But things are changing. And, as usual, the changes are coming about because of what is happening in the big metropolitan areas as they finally become enmeshed in the “wired nation”. The regulators in those big cities have taken the “wired nation” concept to its ultimate (albeit illogical) conclusion and have decided that cable is the solution to most social ills. All that needs to be done is to add a few more access channels, a few mobile vans and expensive studios, an “institutional loop”, and some other goodies, and the “communications revolution” will pave the way to a brave new world! We have been trying to tell them for a long time now that the paving is not made of gold, but we have not had much help from the major MSO’s who, until recently, insisted on participating in “bidding wars” that seemed to support the theories of the wildest RFP writers. Now, finally, the big boys are saying that it has simply gone too far, and that the bidding has reached a point of absurdity. But it may be too late. Many of those bids have already been made. Many of the wild franchise promises are already in print in the contracts. Now the companies are trying to figure out how they will perform on those promises — and lo and behold, looming on the horizon are some new competitors who will make it even more impossible to meet those promises if they take even five percent of the market away from the franchisee!

It is not unusual for a big-city franchise to be granted and headlines in the papers proclaim that the winning company is expected to make XXXX millions of dollars over the fifteen-year franchise term. What the article does not say is that in most cases that money will only come in the last few years of the franchise, and if the bidder made just a **five percent** projection error for each year of the contract he or she will **LOSE XXXX millions instead of make it!**

The operators themselves are very aware of the problem. Thus, when they are faced with something like increased competition from private cable operators — the ones who are serving large apartment complexes — they naturally seek ways to stop the competition. This goes against the grain of a lot of us who have said for years that we would rather compete in the open marketplace than have the government interfere either in our favor or against us (as was the case for many years at the FCC).

But the pattern is starting to emerge, and we think it is a very dangerous one. There was the law suit in New York between the apartment house owner and Teleprompter (now Group W Cable). In that case the question was whether the cable operator could be given absolute access to all apartment houses at nominal cost under state law. The Supreme Court said **no** — there had to be a reasonable compensation of the owner. The decision is not as important as the argument made by Group W’s lawyers, who told the Court that cable should now be considered an “essential” service!

How can they say that? How can they argue that cable is “essential” when they can’t get any more than 50 percent of the homes their cable passes to subscribe to their service? That type of argument is an open invitation for public utility status. Unfortunately, even though the Court did not say that cable is a “utility” in that case, the argument is now being heard more and more in City Halls around the country. It particularly is heard in areas where SMATV operators are beginning to flourish. The local authorities, supported by the franchise holder, are arguing that they should be able to put the SMATV operator out of business because he could adversely affect the cash flow of the cable operator and therefore all the “goodies” that the city got promised (including high franchise fees) would be jeopardized.

Stripped of all the rhetoric, what some city officials are saying is that cable is a “utility” because that is the only way they can protect their franchise fee income.

The overriding reason for regulating cable, therefore, is to derive revenue for the city, and the only way to protect that revenue is to make the cable a "public utility", thereby "legalizing" the concept that no one else may compete!

If you followed that circular logic, you will see that it is totally self-serving on the part of the city. It does, however, hold some attraction to cable operators who have over-promised. By being designated a "utility" they can then seek rate of return regulation, guaranteeing that they will at least make a set profit, regardless of how much extra they have to spend to meet promises that should have never been made in the first place. Further, they guarantee that there will be no significant competition from such entities as SMATV operators. Yes, we can see how some big operators, who now find themselves in a very big hole, might think they see the "light at the end of the tunnel" by becoming a safe, guaranteed monopoly, regulated as a utility.

CATA **opposes** the whole notion. We suspect that the Courts will as well. If cable is now called a "utility" just at the time we see more and more competition in the form of SMATV, DBS, STV, MDS, etc., then those who make that designation had better be prepared to prove in Court that they are not violating the antitrust laws by **CREATING** that monopoly for their own benefit! Now the "Boulder" case takes on much greater importance. If a city designates cable a "utility" for the sole purpose of protecting its franchise fee revenue and "free" services,

we think that that can be characterized as a clearly anti-competitive act. Further, we already have cases on the books indicating that the local or state authorities may not restrict MDS or STV service, and we presume that will extend to DBS service as well when that gets going. So the effort, we believe, will be doomed to failure in any case. The attempt to designate cable as a "utility" in order to get protection from competition will be futile in the long run because both legally and competitively it will not solve cable's problems. We would urge, instead, that operators become much more realistic in their bidding, and that the entire industry educate local and state officials to the true competitive nature of our business. One way or another the big city franchise authorities will have to understand that what they had hoped to get from cable will not be forthcoming, at least so far as monopoly fees and "goodies" are concerned — either because of competition, or because economically they are not justified. The answer is not to try to create the fiction of a "utility" to preserve those expectations, but rather to renegotiate the offending franchises to allow the operator to give subscribers what they want, in a competitive marketplace, without the additional burden of being a sole telecommunications and entertainment source of income for the city as well. In short, what we seek is equal treatment among competitors in an open marketplace — not by bringing others under the regulatory umbrella, but by eliminating the regulations completely. □

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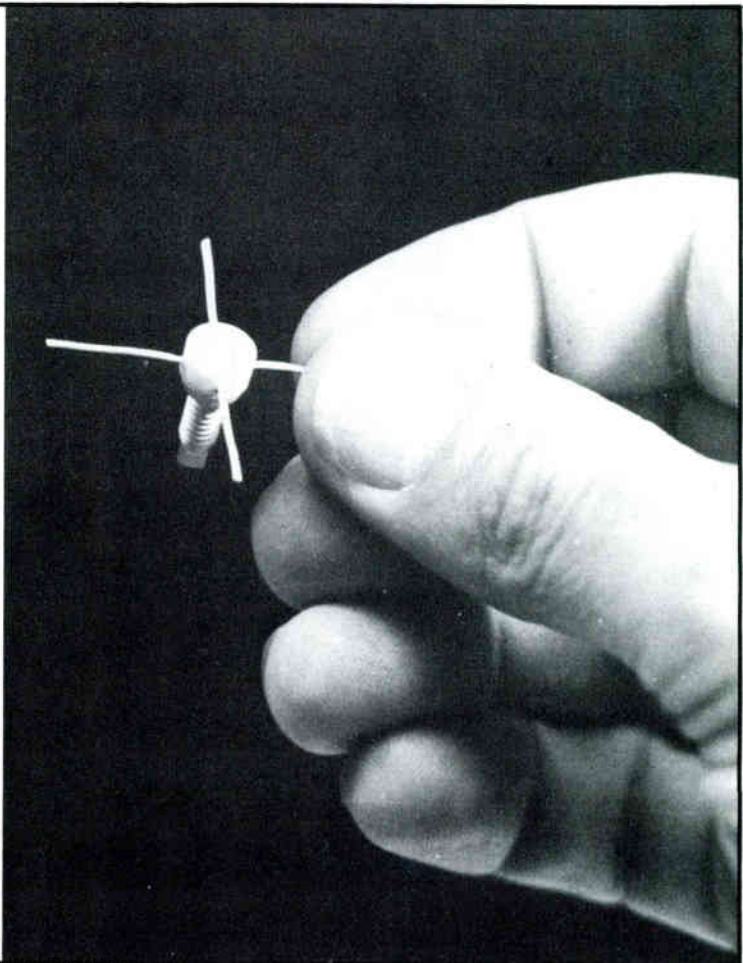


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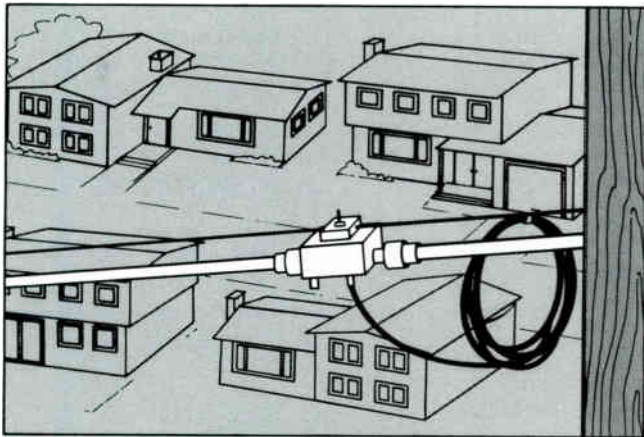
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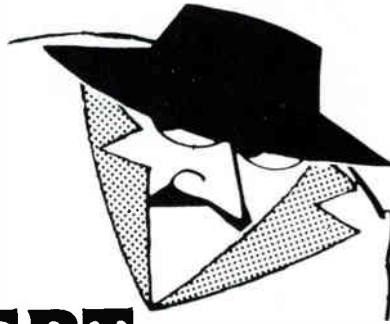
*Based on a Kagan report of monthly revenues in *The Pay-TV Newsletter*, April 30, 1981, and conservative estimates of a 10% piracy rate.



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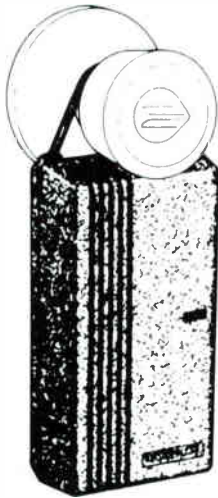
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Steve J. Birkill

CATJ will not have an article by Steve Birkill in this issue as the dedicated author requested a "breather" as he is finishing the final draft on a book that he is compiling. CATJ is anxious for the completion of this edition, so we were happy to cooperate with him to give him that extra time he requested.

Again, it is obvious that Mr. Birkill's material is highly anticipated and eagerly accepted by CATJ readers, and we wish to encourage his endeavors. Mr. Birkill is tireless in his efforts to assist and in-

form CATJ readers, and you readers can expect his column in the next issue. As it was once said about Mr. Birkill's material, "... is just splendid the way it is. . .", and our comments run high in praise of his material. There continues to be a demand for his information, and CATJ is proud of our affiliation with this acclaimed engineer.

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2. Where should your cable system be grounded?
3. What does dBmV mean?
4. At a subscriber's house, you measure +4dBmV of signal and -36dBmV of noise. What is the carrier-to-noise ratio?
5. What is the effect on cross modulation on a cable system with a change of 2dB in signal level?
6. +26dBmV is the equivalent of how many microvolts?
7. What carrier-to-noise level rating produces an excellent quality picture on a TV set?
8. What are the FCC requirements for limits in signal leakage from a cable television system?
9. How often should you calibrate your signal level meter?
10. Looking at the video carrier portion of a channel on a spectrum analyzer, you note that the highest visual peak is at 175.26MHz. Other signal peaks are visible at 15KHz intervals to each side of the peak signal and decrease in level as the distance increases from the center frequency of 175.26MHz. An additional visible signal is seen at 175.24MHz. What is the signal at 175.24MHz?

HERE'S THE ANSWERS!!!!

1. 0 dBmV
2. Every pole or pedestal and every house.
3. Signal measurement in decibels referenced to one millivolt across a 75ohm line (0 dBmV).
4. Unknown. The signal level meter measurements are not precise in this instance due to erroneous readings with regard to the I.F. Bandwidth, meter detector circuit, and/or the noise floor of the signal level meter.
5. ±4dB. Cross modulation levels will change 2dB for every 1dB of change in signal level.
6. 20 microvolts (19.950 microvolts to be exact).
7. +45dBmV by TASO standards.
8. a. 15 microvolts per meter at a distance of 10 feet in the frequency range of 0 through 54MHz.
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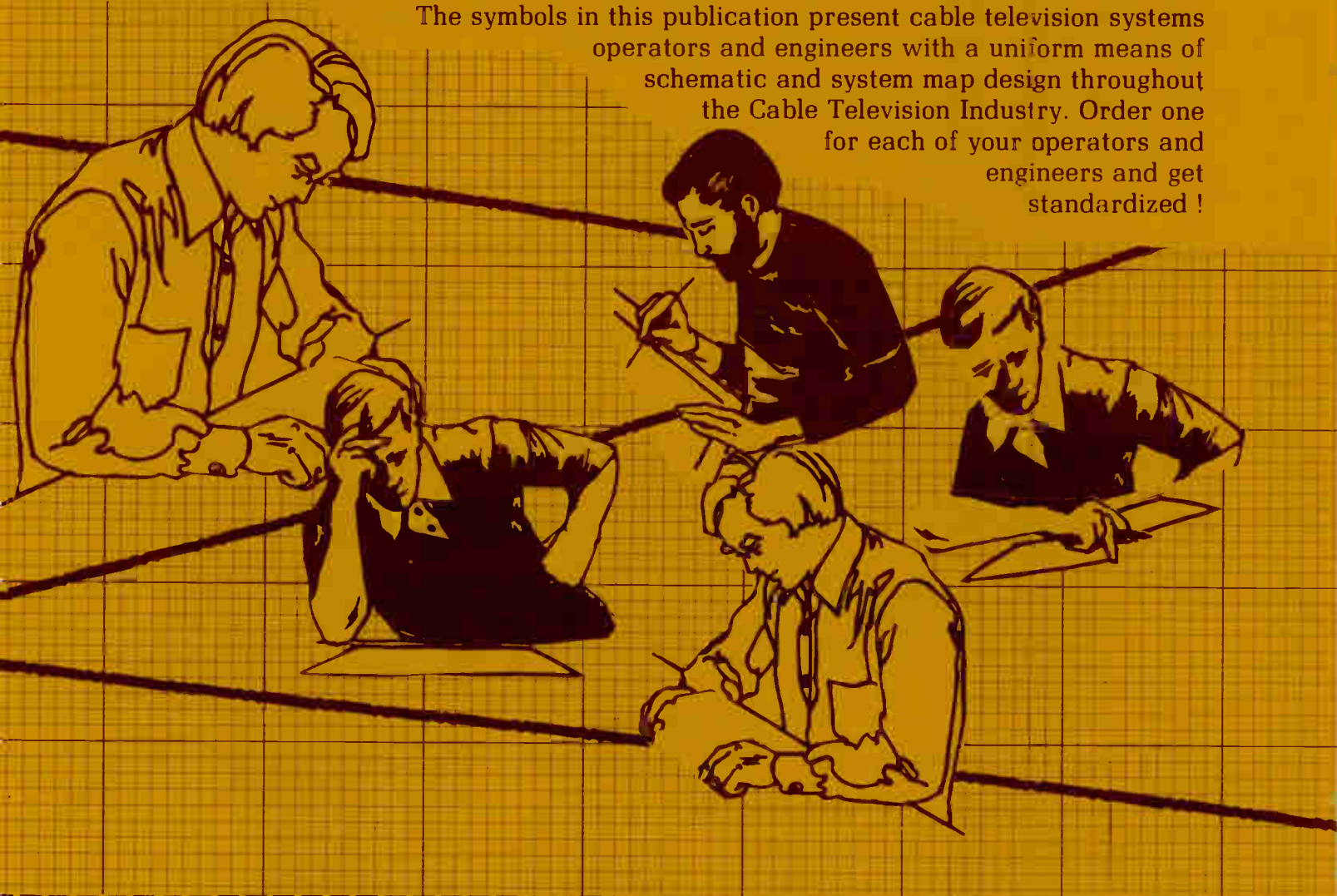
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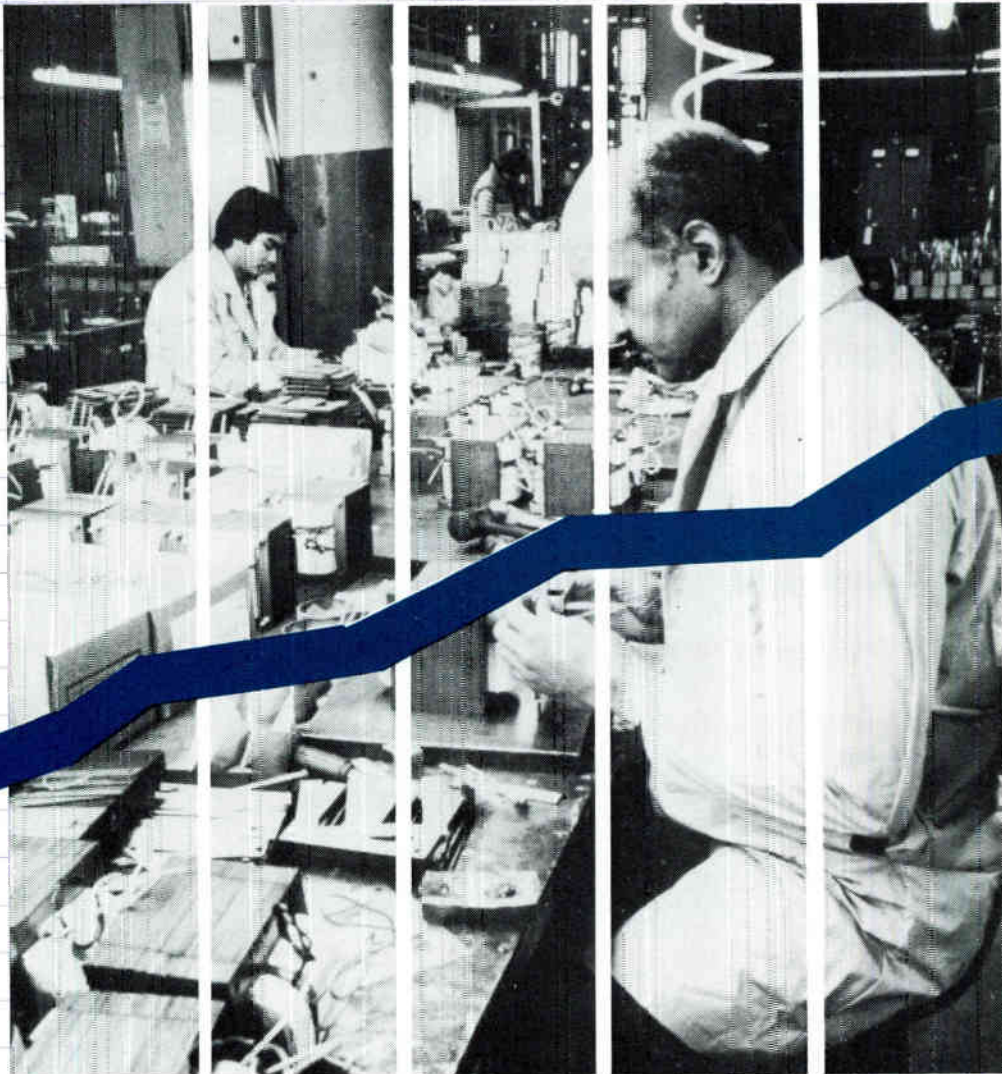
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Assembly of transformer cores for PS-60 power supplies - Kenyon Magnetics

RMS - A Survivor in Today's Economy

Economic survival is considered to be the most significant problem in every person's thoughts today. We are all aware that the past two years of high inflation, unemployment, and a depressed Wall Street where the stock exchange has slipped below the eight hundred figure,

have resulted in serious setbacks throughout the business world. The sales for gross national products are so poor that major manufacturers are either making or contemplating additional mass layoffs of employees in the face of government predictions for a long, hard, and

slow recovery from our economic ills. Business failures have become a daily reality with the recent disclosure of over 600 filings for bankruptcy in one week.

continued

TO-packaged Mixer and IF Gain Modules for TVRO... From Avantek



UMX-4220 TVRO Mixer (TO-8 package):

- 3.7–4.2 GHz RF, 2.4–5.5 GHz LO, DC-1.3 GHz IF
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- Low R-port VSWR for low passband ripple
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UTO and GPD Series IF gain modules:

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- Use in conventional microstrip PC board
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- UTO Series: High Performance, GPD Series: Low Cost
- Eliminates amplifier design problems

Avantek's UMX-4220 and IF gain modules simplify TVRO design, assure excellent performance and minimize customer returns. They're perfect complements to the TVO-8370, a voltage-tuned local oscillator designed and priced for TVRO applications. Contact Avantek for the address and phone number of your nearest stocking distributor, who will provide detailed information on performance and on our competitive pricing for all these TVRO components.

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continued from P. 12

Certainly there has been considerable effect on the cable television industry. We appear to be better off than many other industries, perhaps because we offer something that the public needs and demands, particularly during hard times — entertainment. Much like the movie industry during the last depression, we will probably survive and perhaps even grow to a much greater future. However, it hasn't been a bed of roses. Cable operators have had the same concerns and problems as everyone else with obtaining financing, paying exorbitant interest rates, etc. Cable operators have had to tighten their belts hoping to get through this era of economic disaster, and the results are obvious. Planned construction is down at least 25%. Many rebuilds have been delayed until things get better. New expansion is being put on hold. Even the recent enthusiasm to rush into new franchise races seems to be on the wane. Costs are up and income is down. Non-Pay disconnects and bad debts seem to be increasing in record levels.

Even though the cable operator is feeling the effects from all of these problems, it is the manufacturer and distributor in the industry who seems to be suffering the most. His product market, which was booming just a few years ago, is fast disappearing, and sales are far below projections. To find out what is happening in this section of our industry, CATJ paid a visit to one of

the industry's leading and most successful cable television supplier/manufacturer — **RMS Electronics, Inc.**

RMS had its beginnings some 49 years ago under the name of Radio Merchandise Sales Company, becoming RMS Electronics, Inc. on April 4, 1961. The company products were primarily consumer-oriented lines of indoor and outdoor antennas, accessories, and related hardware. In 1972, RMS organized the CATV Division and introduced a line of passive devices for use in cable television systems. This initial line consisted of top quality matching transformers, splitters, and directional couplers. This product line of passive devices was expanded over the next eight years to include installation tools, cable connectors, and hardware.

In 1981, some things took place at RMS that are destined to alter its present industry image. First, RMS moved into the manufacture of active cable television components with the introduction of the **Power-King™ Standby Power Supply**. Second, it began operating a subsidiary company called **Poleline Corporation**, which provides construction and installation materials to the CATV industry. Third, RMS acquired **Kenyon Magnetics, Inc.**, a corporation that manufactures transformers. Finally, and probably most importantly, RMS began designing a CATV Scrambler/Descrambler system (see New Products Review in this issue on page 44.)

continued

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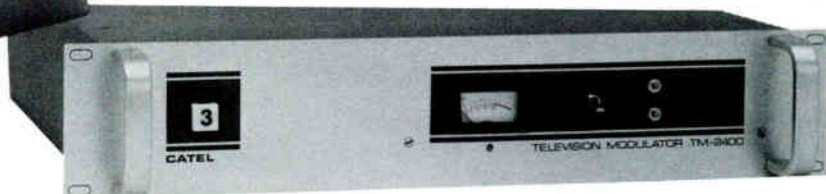
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continued from P. 14

Arthur A. Fink, Chairman of the Board, showed that about 80% of their business is within the CATV Division of RMS, with the remaining 20% coming from the consumer products and transformers manufacturing areas. Mr. Fink stressed that RMS has always taken great pride in the fact that their products are of the highest quality. Their CA-2500 75/300ohm matching transformer was the first three capacitor design transformer in the cable industry.

Don Edelman, President of RMS, pointed out to us that the success of RMS has been based upon a quality product, from the CA-2500 matching transformer, through the power passing splitters and directional couplers, subscriber splitters, and directional couplers, and directional taps.



Donald Edelman, President

When we asked Mr. Edelman how RMS manages to remain a leader in CATV products manufacturing and distribution when some of their line is price competitive while other items are priced higher than their competition, he said, "first it has to be based upon the quality of our products, then on our policy to accept orders only for

continued

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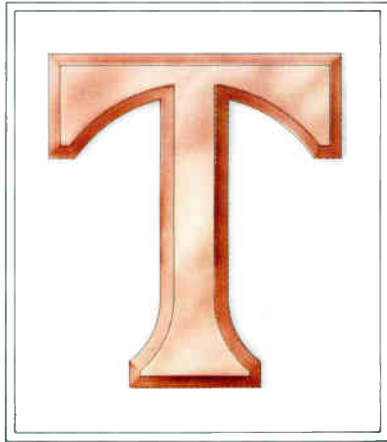
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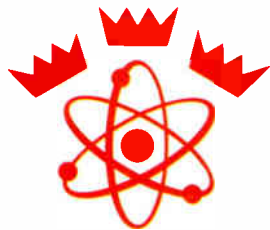
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those materials we have in stock, and finally upon the dedication of the people who work for the company. You can sum it all up in one word," he said, "Dependability. We not only won't take orders for a passive product that is out-of-stock, but we ship all orders out the same day they are received if at all possible, and certainly no longer than within one full working day." In some emergency cases, an RMS

employee has delivered items in his personal car to cable operators in desperate need if they were located within a few hours drive from the Bronx facility.

In 1979, RMS began manufacturing its own line of AC regulated power supplies under the Power-King trademark (Power-King™). Following stringent quality control guidelines, which included a 96 hr.

"burning-in" testing of each unit before it was readied for shipment. RMS Electronics moved from "just another power supply manufacturer" to the second largest manufacturer and supplier of AC regulated power supplies in CATV industry today. Its 30 volt, 60 volt, and 60/30 volt power supplies are recognized for their quality and durability, even under the most climatic conditions. In fact, in the Product Review section of CATJ, April 1980 issue, the CATJ Testing Lab had this to say about the Power-King™ Power Supply, "All in all, CATJ found the RMS Power-King™ series as a rugged, well built power supply, meeting the most demanding criteria of the cable operators — that being, install it and forget it!! What better recommendation!!"

"Our goal," Mr. Edelman stated, "was to build the best power supply available and, like every other item that we have, we challenge any competitor to prove that he has a better comparable product." A recent evaluation was performed by Argyle W. Bridgett & Associates, Inc. of Auburndale, Massachusetts, between an RMS Model PS-60 and a leading competitor's CATV Constant Voltage Power Supply. In their findings, they rated the RMS power supply superior in six different mechanical comparisons, including location of the circuit breaker externally, handles that allow easy and more convenient replacement of parts, better quality of wiring in AWG gauge and wiring techniques, better masking of painted areas to provide good grounding, better location of electrical parts (the competitors had a capacitor located where it could easily have shorted to the chassis), and better ventilation. On the electrical side, the RMS unit had a far more stable and reliable time delay circuit and much better voltage curves under specified load conditions where the competitor's model showed a drop of nine volts as compared to a drop of only two volts for the RMS Power Supply. Actually, the RMS supply showed a voltage drop of only three volts when loaded up to 16½ amps, far exceeding the specifications of



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either unit. In this test, the RMS Power Supply was selected at random from the assembly line to eliminate any possibility of accusations of a special or pre-tested unit.

RMS also provides, as a service to both present and potential customers, a Power Supply Demonstration Van. This van, operated by Bill Gamble, RMS Specialty Technician, travels an average of 70,000 miles per year, coast-to-coast and border-to-border, providing demonstrations on the Standby Power Supply as well as technical seminars on their care and repair. In addition, Bill provides demonstrations of such Poleline Corporation products as the CorePrep 5™ combination coring and stripping tool, Tuff-Box™ apartment house prewire boxes, and other products. *"Our account executives find out who is interested in a demonstration, and set up the routing schedule based upon that information,"* said Gamble. In certain instances, other cable operators are notified of the demonstration date(s) and make it their business to be at the demonstration site. In these cases, the Standby is getting maximum exposure. Mr. Edleman further stated that RMS wants their customers to know about their quality product and will spare no expense to insure its proper operation in their systems.

On the RMS Scrambler/Descrambler system Edelman had this to say, *"We would have probably captured a large part of the market with our descrambler system if we had started manufacturing and marketing a year ago,"* said Edelman, *"but we just wouldn't sell anything with the RMS name until all of the bugs were worked out and it met our standards of operation and reliability. Now we feel we have something we can stand behind and be proud of."* RMS has established the policy of sending in their own technical and engineering staff to install the Scrambler into the cable systems who purchase their product, . . . *"because every cable system headend is different and has its own peculiarities that have to be taken into consideration and worked out to insure that the system works*

when it is installed." The company hopes that their Scrambler/Descrambler system will solve the problems that cable operators have in providing security for pay programming and pay tiers at a reasonable cost whether the systems have only twelve channels or multi channel operation where more than one or two channels need security.

Kerwin F. McMahon, Senior Vice President, better known as "Mac" in the CATV industry, developed the Poleline Corporation subsidiary

of RMS with Don Edelman. *"The objective of Poleline Corp. is not to be a direct competitor with other distributors by carrying the same products,"* Mac claims, *"but to develop new and innovative products such as the new "Tuff-Boxes™" that are almost 100% tamper-proof, and CorePrep 5™ coring and stripping tool kit"*.

"The acquisition of Kenyon Magnetics, Inc. by RMS was a natural," says J. Robert Siegel,

continued

Not One Tower Failure!

Virtually anyone with a hardware store welding set and a bunch of pipe can "claim" to be a tower manufacturer. When you specify your CATV tower, you should consider the long-term reputation of the supplier, the number of towers he has standing, and how long he has been providing service. WESTERN TOWERS has supplied hundreds of CATV towers from coast-to-coast; up to 600 feet in height. WESTERN TOWERS has been in the communications-supply business for 36 years. We guarantee all materials and workmanship.

WESTERN TOWERS is one of the largest suppliers of CATV logs in the nation. There are WESTERN logs on CATV towers today providing quality service today that were installed over 15 years ago! Our log-line-up is complete and the prices are difficult, if not downright impossible to beat.

Before you specify a new CATV tower or CATV antennas, check around. We feel certain our knowhow, reputation, and experience ...and our prices... will make you a WESTERN customer for life !

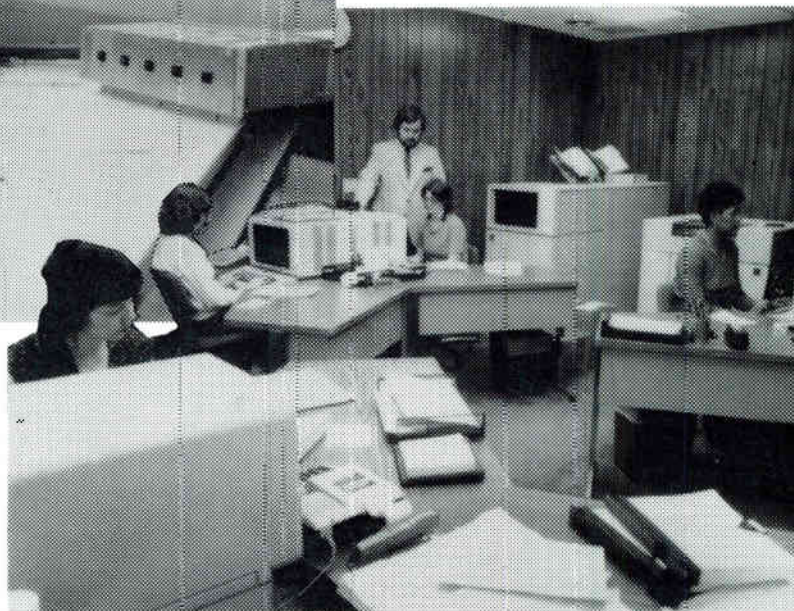
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Design Engineering puts finishing touch to new DESCRAMBLER-16D SYSTEM for Pay TV Service.



former owner and now Vice President in charge of RMS's Kenyon Manufacturing Division. "We make the transformers that are the heart of the RMS power supplies and also

provide diversification through other transformer products". Kenyon makes all varieties and sizes of transformers for communications and industrial use, specializing in ig-

nition transformers for oil heating systems.

RMS has established two new locations, one in California and another in Texas. The California office, located in Santa Ana, is headed by Richard Oberman. Oberman will stock and ship RMS products for operators in the Western U.S. The Texas office, located in San Marcos, is headed by C.E. "Chuck" Swehla. Although basically acting as a sales office for the Central United States, Swehla will have enough diversified inventory to fill "emergency" orders on specific products. By setting up these new locations, RMS expects to reduce both the shipping time and cost to these parts of the country.

Three computer systems have been installed to keep track of materials and warehouse stock to keep cost of purchasing, storage and shipping to a minimum and still insure that sales commitments can be met. The computer systems also provide other data in design, accounting, and management func-



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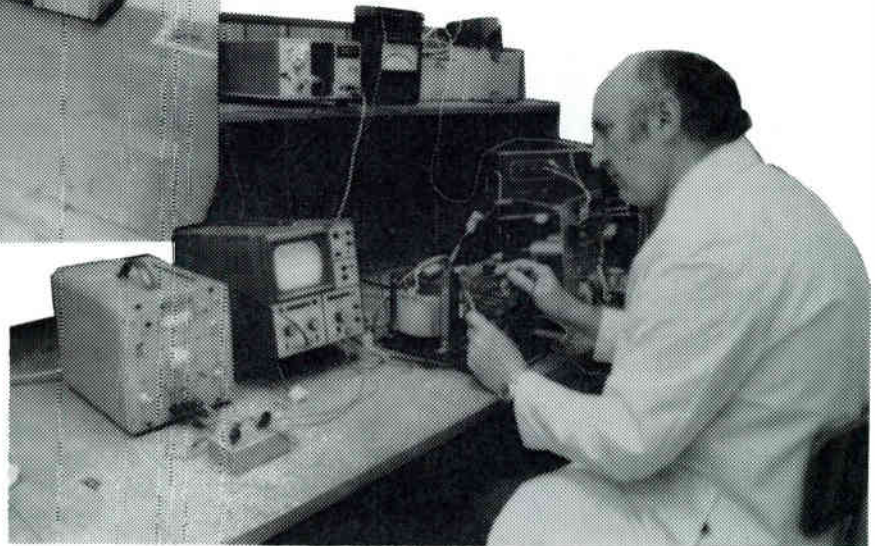
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Electronics



Quality Control — an essential part of the RMS reputation for product excellence.

▲ *Printed circuit board assembly for POWER-KING™ Series of Power Supplies.*



tions to increase the company's efficiency. Additionally, RMS is producing a price competitive line of passives, such as the **ECONOTAP™** series that are, "as good in quality and operation as others on the market, but are not quite up to the level of our new, more expensive 450 MHz equipment", according to Edelman.

"New product is not the only answer to combating the economy," Arthur Fink pointed out. "Naturally we keep trying to improve on what we already have, but there are also some concessions that you have to make in order to survive. We also provide incentive through our stock participation program, as well as excellent company benefits and salaries, to our key people so that they give 120%," he said.

When we asked what the future holds for RMS Electronics, the answers were enthusiastic and optimistic. "We are a business that hangs together like a family," Edelman said. "If the economy

does not turn around soon, then we will all look for new ways to improve efficiency, continue to develop new products, and tighten our belts until we ride it out." This opinion is shared by everyone we spoke to at RMS, and they all feel that the company may have been slowed down some by the present economy, but it will prove to be only a slight delay in the climb to the top of the ladder of success.

Of this we can be sure, after years of observing RMS and its progress, their participating within the cable industry, their searching and researching for the most adaptable and useable products, their dedicating their products to the highest standards of quality, and their supporting the entire spectrum of the advancement of cable television operation, RMS stands ahead as a responsible and reliable leader. □

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Excellent new opportunity with dynamic and growing cable M.S.O. This position will coordinate specific engineering projects, including coordinating with regional and system engineers, implementing system upgrades, hands-on FCC proof of performance testing, and system and microwave and support functions.

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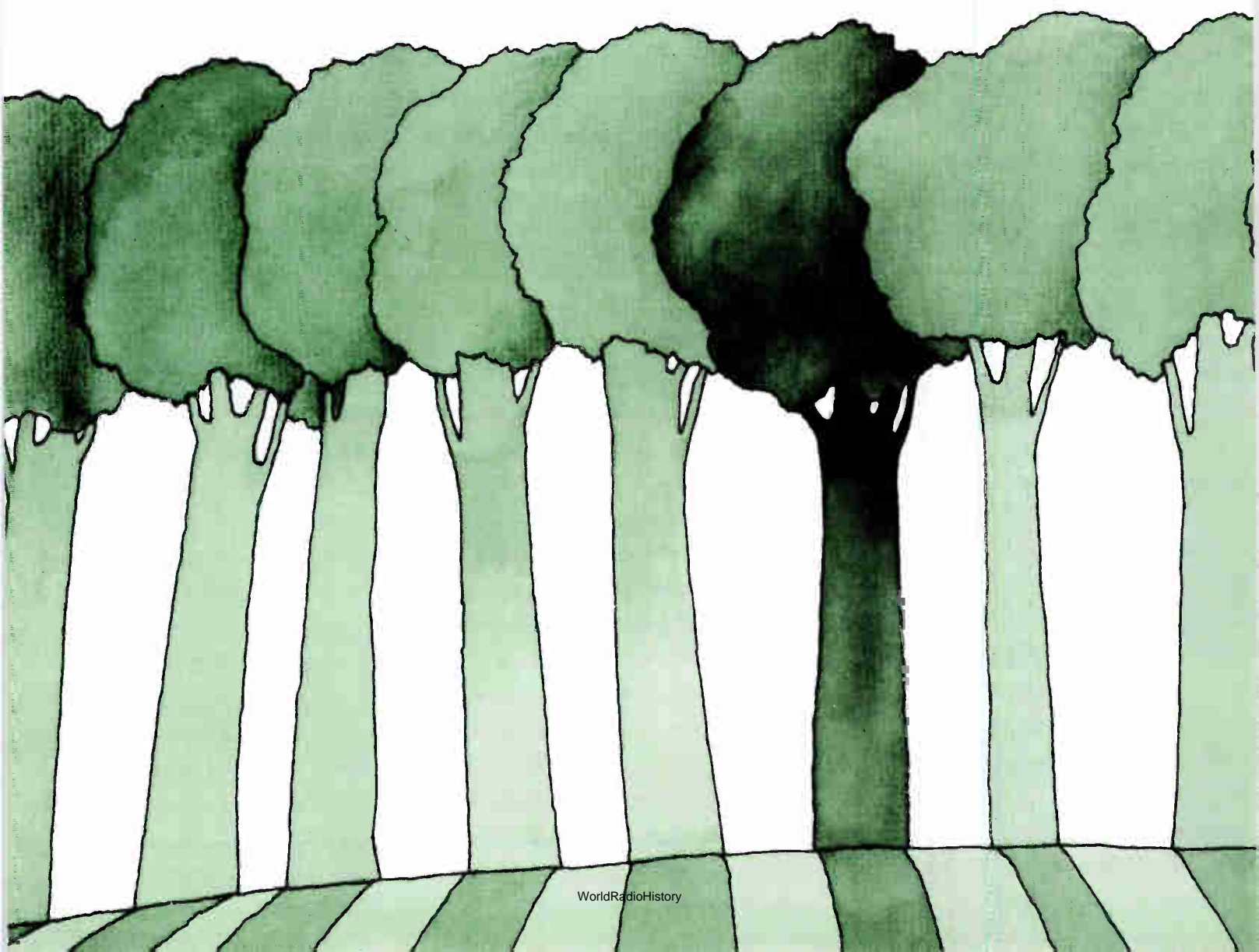
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In subscriber terminals, look beyond pretty cases and into performance. Look for things like a "favorite channel" memory for fast, easy tuning, parental control and durable membrane keyboard entry.

Finally, make sure everything's covered by a full year's warranty. That way you won't get caught out on a limb.

Look at software performance.

See if it offers modular programs for you to pick and choose the kind of input and output you need. You want a system that takes into account versatile record access, allows entry to common menus with a single keystroke and interfaces with your billing system for highly efficient and accurate operation.

Make sure you and your software speak the same language. Your addressable system should have a simplified design with plain English menus, so your own people can be trained to use it quickly.

Finally, find the right suppliers.

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Only Oak Communications Systems (formerly Oak Communications CATV Division) has everything you're looking for in an addressable system. Backed by over 15 years in the cable TV business, Oak invented and introduced state-of-the-art addressability and has a proven track record of having the most addressable systems in operation in the U.S. today.

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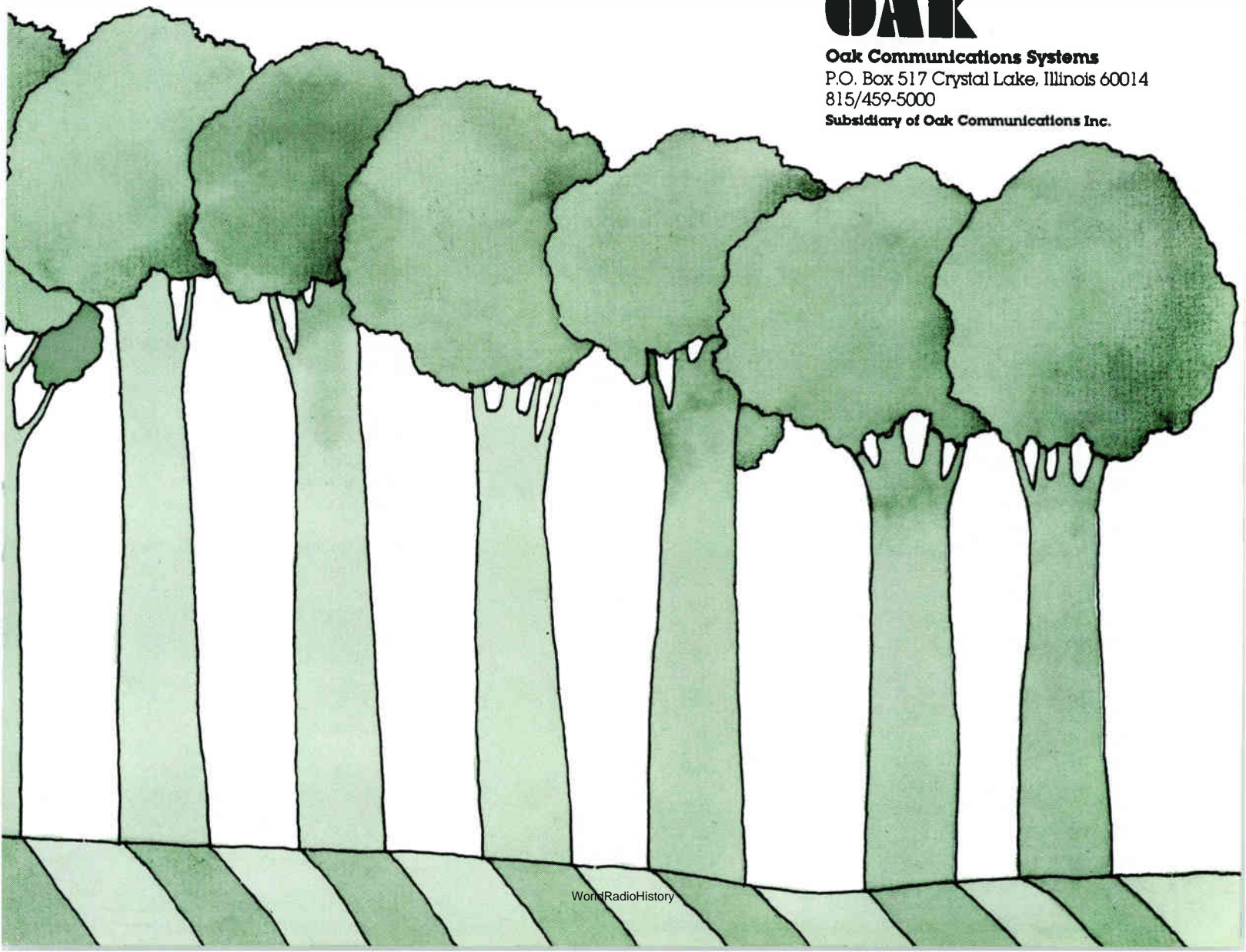
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Your Column

... An exchange of ideas and suggestions from you cable operators!! Got an idea or suggestion? Send it in!! Got a problem? Submit it too and perhaps we can get a solution for you! It's yours — use it!

It has been suggested to CATJ that there be instituted a section in the magazine where troublesome problems or questions could be submitted, requesting answers, assistance, or suggestions from other CATJ readers, and we have agreed that this might be a very worthwhile way to provide another aid to the cable television industry. This is your column in which to ask questions about cable television, outline any unusual problem that you might have encountered, and share with your fellow cable operators any helpful hints you might have discovered, or solutions to problems you might have had. Feel free to use this column; it can only be as interesting as your questions and response.

Inexpensive Drill Steel

For drilling under streets, driveways, sidewalks, etc. on a high production basis, strong, flexible drill steel is required. This is expensive equipment, but for operators that have only an occasional drill job, there is a much cheaper material.

Twenty-one foot lengths of ordinary 3/4 inch water pipe works very well as drill rod. The main problem is that it breaks easily at the threaded couplings. There is a simple solution to this. Use a long protective coupling that supports the threads. These are available from suppliers, but are expensive and usually are a special order item. It is simple to make your own.

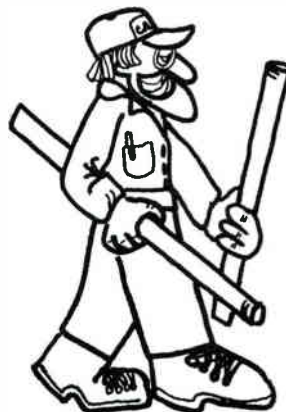
All that is needed is a piece of 1 1/4 inch water pipe about 18 inches long and an ordinary 3/4 inch coupling that will slide into the pipe. Drill three or four 1/2 inch holes around the perimeter of the pipe at the center. Then, using a heavy hammer and an anvil or a heavy piece of

steel, pound one end of the pipe into a square that is slightly smaller than the 3/4 inch pipe. Use a round file to remove the sharp edges and increase the size of the hole just enough so that it fits snugly over your 3/4 inch pipe. Then slip the coupling into the pipe and reduce the other end in the same way. Take two pieces of threaded 3/4 inch pipe and screw them into the coupling inside of the 1 1/4 inch pipe. This holds the coupling straight and you can position it under the holes already drilled. Weld the coupler and the 1 1/4 inch pipe together by welding through the holes. An arc welder works best, but they can be brazed together if an arc welder is not available.

This device stiffens the area of the threads and prevents the drill pipe from breaking there. Be sure to keep the threads clean when connecting and these special couplers will last a long time.

Drilling Aid

Problem: In drilling through some soil that had been compacted on top with heavy equipment, we had the problem of the drill wandering off target. Due to the hard soil on top, the steel usually dived and in some cases it was several feet deep at the far end.



Solution: We made a "stinger" for the drill. A piece of 1 1/2 inch pipe, seven feet long was used. On one end we welded the coupling adapter from the drill to the bit and in the other we put a sleeve that fit over the drill rod. The cutter we used made a hole about a half inch bigger than the diameter of the "stinger." This device keeps the drill from wandering and when the cutter goes from hard to soft soil it will go in a straight line. By using this device, we seldom miss the target by more than eight inches on a one hundred foot hole. We now use it in all holes, good soil and bad.

Why did I use a seven foot piece of pipe? That was the length that happened to be standing in the corner of the shop that day. Any length, from four feet to eight feet would work.

Handy Test Adapter

If your system has directional taps that have removable plugs for conversion from aerial to pedestal mount or for setting the seizing screw, a handy test adapter can be made from an old pressure tap stinger. Preferably you should use a back matched transformer type as they have a fairly flat response. The capacitor type have a sloped response.

Take an extra plug that fits your DT and drill and tap it for the stinger. Replace the plug in the tap with the drilled one and then screw in the stinger until the tip makes contact inside. If the tip is not long enough you can carefully solder on an extension. This device has several advantages:

1. If all ports on the DT are used, you do not need to interrupt a subscriber's drop to make a test.
2. You do not need to disturb the

weather sealing on the drop cable (you do weather seal, don't you?)

3. Since the pressure tap does not sense direction, it can be useful for testing upstream transmission, but the best use is for checking the VSWR on the line. Directional taps do not let you read the reflected signals but the pictures are still smeared by them. If you compare the signal levels from the DT and the pressure tap, they should track reasonably well. If you get normal readings on the DT and get wild readings on the pressure tap, this means the VSWR is high, and corrective action should be taken. A defective terminating resistor on the feeder line is a common cause, but defective RF paths through a tap or a badly kinked cable can also cause a high VSWR.

With a little computation and practice, you can even determine the approximate distance to a defect. Remember, for this test the defect will be downstream from the test point.

PROBLEM & SOLUTION

A cable television system experienced a sudden wipe out of their off-the-air channel 9 to what appeared to be radio frequency interference (RFI). This problem continued on a daily basis, but only between the hours of 5:00 p.m. and 6:00 p.m., with occasional interference occurring two or three times a week between 8 and 10 p.m.

Use of a standby off-the-air antenna at the cablevision office, about four miles from the headend site, showed no interference on channel 9 at any time. This localized the problem to the near vicinity of the systems antenna tower.

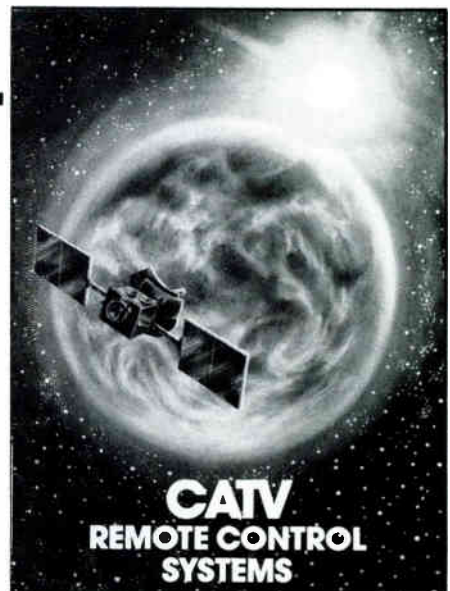
Using a dipole antenna cut to channel nine frequency length, a battery powered black and white

portable TV set, and a signal level meter, the system engineer and chief technician began a search of the areas around their headend site. This process took two days to narrow the problem down to a 650 unit mobile home park located about 1/4 of a mile east of the headend site as the interference only occurred for one hour on those days.

Starting from the center of the mobile home park, they used the dipole antenna and signal level meter as a direction finder on the offending signal. This was accomplished by rotating the dipole antenna 360° to the strongest bi-directional signal reading of the interfering signal on the meter. Using that maximum signal level on the meter and switchable attenuator pads, they moved in one of the two possible directions that the signal could be emanating from. If the signal decreased, they reversed their direction 180° and continued to use the dipole antenna, meter, and attenuator pads until a maximum signal level reading occurred. At this point, the signal reached a level that saturated the area so there was no immediate visible change in the meter level. A visual check of their surrounding disclosed a few mast mounted TV antennas, one of which had a preamplifier attached. The residents of the mobile home having the TV antenna with the preamplifier were contacted and, after the situation was explained to them, they cooperated by turning off the power to their preamplifier. Lo and behold, the interference that was on the portable TV set disappeared.

Power to the preamplifier was turned off and on several times so that the owners could see for themselves that this was the cause of the cable company's interference problem. An examination of the preamplifier showed that it had been damaged during an electrical storm in such a way that it worked normally on the owner's TV set, but it was also producing an unwanted oscillation in the channel 9 video

continued on P. 28



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- (2) Optimize return loss. Sweeping

for return loss, "tweek" L_{ML} and L_{MH} for highest return loss in the passband. "Tweek" or adjust LI_L or CI_H for sharp rolloff near F_{CL} and F_{CH} . Use a trimmer for CI_H if possible, to make adjustment easier.

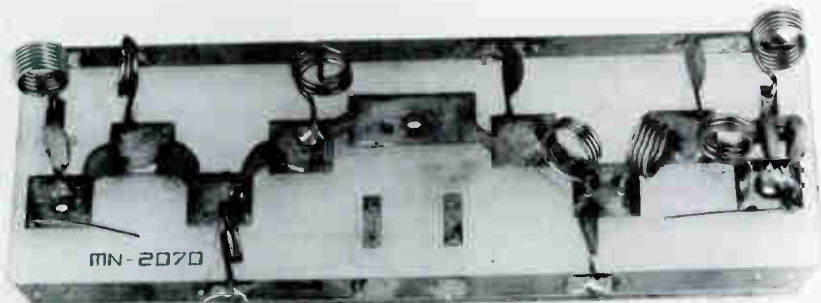
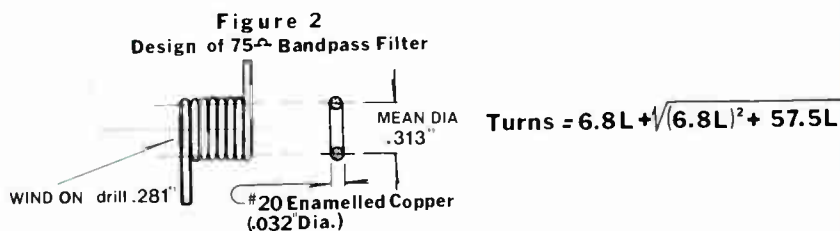


Figure 3 Picture of Completed Circuit
W/Elements from Example Mounted
WorldRadioHistory

Design Example

(1) We want to pass the "highband" (174-216 Mhz), while suppressing the lowband (5-54 Mhz), the midband (120-174 Mhz), and the superband (216-300 Mhz). In this example then, our F_{CL} is 216 Mhz, and our F_{CH} is 174 Mhz.

(2)/(4) We go to Figures 1 and 2 to compute the required circuit element values. See design example on Figure 1.

Circuit Elements with passband 174-216 Mhz:

- CE_L : 2.42 pfd, used two 1.2 pfd caps in parallel
- CM_L : 14.83 pfd, used 15 pfd
- LE_L : $.185 \mu h = 4.754T$, used 5T
- LI_L : $.089 \mu h = 2.95 T$, used 3T
- LM_L : $.135 \mu h = 3.85 T$, used 4T
- $\frac{1}{2}CM_L$: 7.415 pfd, used 7.5 pfd
- CE_H : 4.093 pfd, used 3.9 pfd
- CM_H : 5.169 pfd, used 5.0 pfd
- CI_H : 7.670 pfd, used 7.5 pfd
- LE_H : $.2518 \mu h = 5.88 T$, used 6T
- LM_H : $.043818 \mu h = 1.91T$, used 2T
- $2LM_H$: $.087636 \mu h = 2.92T$, used 3T

(5) We now lay out the elements as per Figure 3. Note that the coil axes are positioned at nearly right angles, to minimize mutual coupling.

Figure 1 is a spectrum sweep of the completed filter.

Next Time

We will use the low-high filter approach to design **Band-Splitters** with cross-over frequencies anywhere in the cable spectrum.

Acknowledgements

Many thanks to John Greatrex for line art, Dave Skeval for photography, and to Denise Dickinson and Earl Holton for technical assistance. □

frequency band. This RFI oscillation was being amplified by the preamplifier and back-radiated through the TV antenna where it was being picked up by the cable system's channel 9 antenna array.

The reason for the peculiarity of timing of the interference was due to the fact that the owners only watched the local news on channel 5 from five to six every evening and, on rare occasion, prime time favorites, none of which were on channel 9. During the remainder of the day, when they were not watching television, they would turn off their TV set AND preamplifier.

The system engineer made the solution to this problem even more appreciated by all parties concerned by offering a free installation on the cable system to the owners of the problem causing preamplifier which they gratefully accepted rather than have to pay to have their preamplifier replaced.

Dear CATJ:

I have recently been trying to determine whether there is an accurate method of calculating manufacturers triple beat specifications at channel loadings other than stated. Is there a formula that can be used for this purpose or a rule of thumb? For example, if a manufacturer's spec is -87dB for 35 channel loading, how can I determine what the triple beat level will be at 12 channels? 52 channels?

Dave Young
Capital Cable TV. LTD.
Edmonton, Canada

DEAR DAVE:

There is a formula to help you determine triple beat loading in systems up to 35 channels. This is the same formula we use to figure cross-modulation loading for channels in a cable system,

$$TB = 20 \text{ Log } \frac{(N1 - 1)}{N2 - 1}$$

where N1 = number of lower channels and N2 = number of higher channels. For example given where the manufacturer's spec was -87dB for 35 channels, to solve for 12 channels:

$$TB = 20 \text{ Log } \frac{(12 - 1)}{35 - 1}$$

$$TB = 20 \text{ Log } \frac{(11)}{34}$$

$$TB = 20 \text{ Log } (.32352941)$$

$$TB = 20 (-.49008623)$$

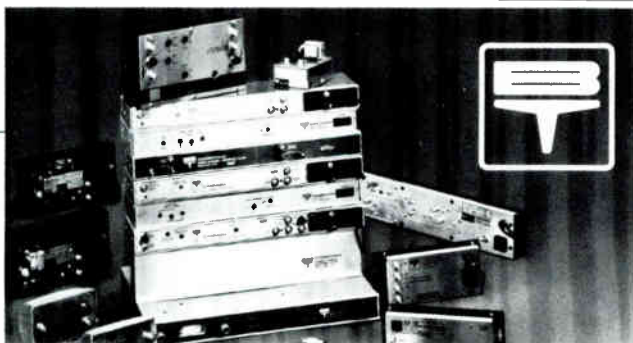
$$TB = -9.8017246$$

Thus the triple beat loading factor of -9.8dB is added to the manufacturer's spec of -87dB to determine the triple beat level for the amplifier at 12 channel operation, the answer would be -96.8dB.

CATA's Associate Director Raleigh Stelle advises caution in the use of the manufacturer's specifications for *triple beat*. For example, some manufacturers will base this figure upon the average output level of the amplifier rather than the lowest or highest output levels; *i.e. if the recommended output levels are +28/30/32dBmV with 4dB of slope over the operating frequency range, then the triple beat specification may have been rated with a +30dBmV average output level.* You must check with the manufacturer to know what output level he used to calculate his triple beat specification.

Above 35 channel operation, the calculation for channel loading goes off the logarithmic curve, and we do not know of any accurate way to make the calculation from 35 to 52 channel loading by formula.

IF YOU HAVE EXPERIENCED A PECULIAR PROBLEM IN YOUR CABLE SYSTEM SUCH AS THE ONE ABOVE, WHY NOT WRITE IT DOWN AND SEND IT IN TO CATJ TO SHARE YOUR EXPERIENCE AND HOW YOU CORRECTED IT WITH OTHERS. IF YOU HAVE A PROBLEM THAT YOU CAN NOT SEEM TO SOLVE, LET US KNOW IN DETAIL ABOUT IT AND WE WILL ASK OUR EXPERTS TO TRY TO SOLVE IT FOR YOU. □



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Another thing to remember: SAM's price includes rechargeable batteries and charger—usually offered as options on other meters.

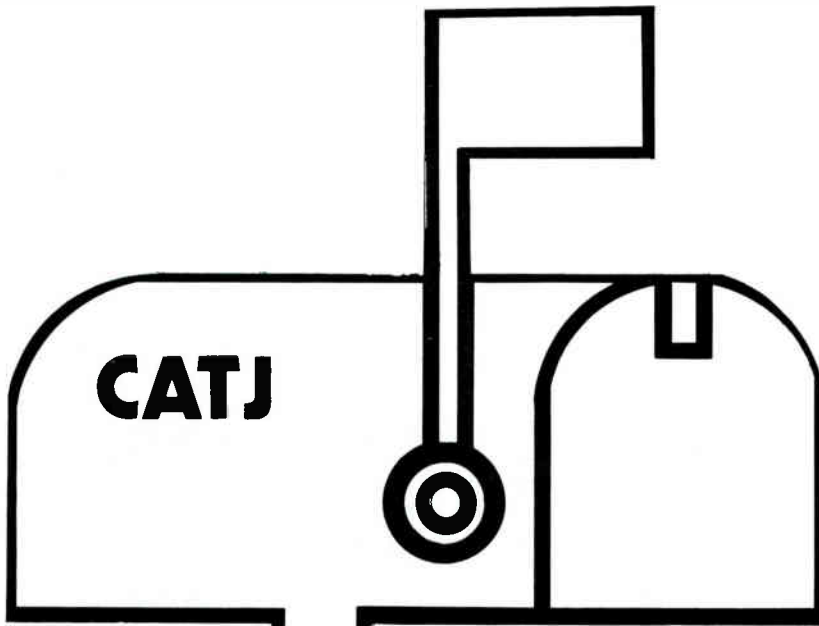
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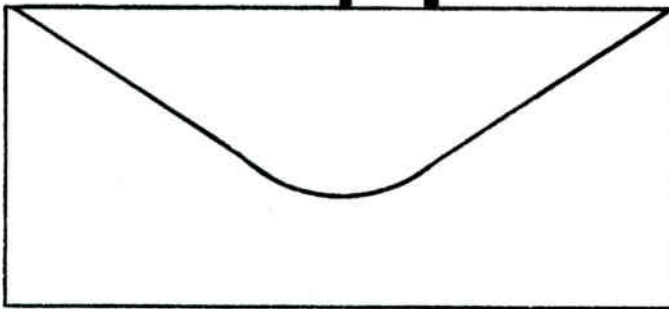
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Steve Effros
Executive Director, CATA



Washington update

Wash

CONGRESS APPROVES EXTENSION OF FEDERAL POLE LAW FORMULA

By now everyone should have heard the good news. The federal pole line formula, the one that has been saving us millions of dollars by getting pole attachment costs down to a reasonable level, has been saved by some quick and very effective lobbying on the part of the NCTA. We always give credit where credit is due and, in this case, the NCTA lobbyists very quietly and very expertly pulled off something that is still hard to explain. Rather than go through the parliamentary details of how a bill got voted on more than four times in a matter of 32 hours, we will just simply say that it was a masterful piece of lobbying, and one that was done so quietly that the opposition was not aware it was happening until it was too late. The net result is that while the federal formula has been scheduled to expire on February 21, 1983, the new law now extends indefinitely the federal pole formula which the FCC uses to determine if pole rates are just and reasonable. Of course, this does not solve the problem of states taking jurisdiction over pole attachment contracts away from the FCC, nor does it deal with the issue of co-ops and government owned facilities which are not covered under the present pole law. However, given the fact that we were about to lose even the protection that we had in the past few years, this was a major and very well done coup for the cable industry. Now it's time for all of us to refocus our efforts to get those co-ops and municipally owned poles under the pole attachment formula because there is no question that those groups are abusing their power and certainly overcharging cable television for pole right attachments.

TVRO RENEWALS — ALL IT TAKES IS A LITTLE COOPERATION

Many of you have responded to our recent comments in the Catacable regarding renewal of your

television earth station license. A lot of people have forgotten that those licenses, when they were first issued, lasted for only **three years**. The result was that we were inundated with requests for renewal forms and with questions about what was going to happen to those who had already missed their renewal deadlines. As we have already reported, the FCC is being very cooperative in this effort to solve what is obviously a problem, and they have agreed that a simple letter from one of the protection agencies, Compucon or Comsearch or whoever, stating that your protection has been continuing even though your license expired, along with a Form 405 and a request for a reinstatement of the license is all that's needed. Now we are finding that the cooperation has gone even farther. One CATA member recently contacted Compucon to get the letter required by the FCC. In return mail he not only received the letter he requested, but a form letter to the FCC requesting reinstatement and a preprinted copy of Form 405 with all of the important information already on it. That's what we call service, and we think that the industry members who are doing this sort of thing should be congratulated.

SPEAKING OF SERVICE

As we all know, service is really the name of the game in cable television. Apparently it is coming as a surprise to some operators, however. In a front page article in The Wall Street Journal on August 13th the headline read, "**Cable TV Service is Often Shoddy — Industry's Rapid Growth Is Blamed**". One and half full columns of the paper were spent discussing the problems of simply providing service and keeping cable systems on-the-air around the country, and the growing com-

continued

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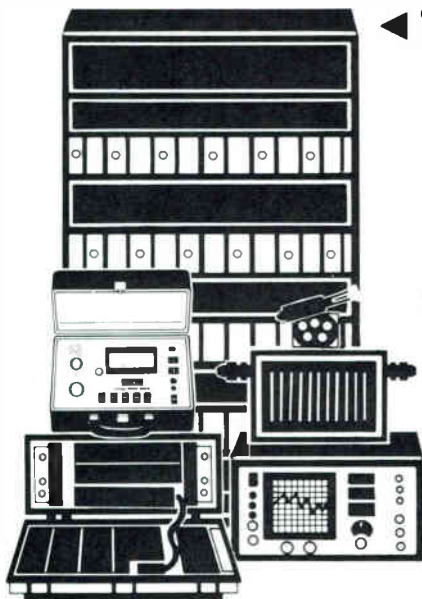
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plaints both from subscribers and city administrators regarding the problem. CATA has always emphasized that if you don't provide good service to your customers, then you have no logical reason to continue in this business. Service has several components to it. One, of course, is maintaining a technically viable system. The technical capability to do that includes having technicians who know what they're doing, and an ongoing maintenance program to assure that your system is up to snuff. CATA is working to improve the industry's ability to do both of those things in our CATA Technical Training Seminars. If you are not aware of when the next seminar is in your area, you ought to call our Florida office and find out. The CATA seminars stress preventive maintenance. It's the only way that a system can keep up with the growing problems of signal leakage and poor quality service. Another aspect, of course, of the service question has to do with the dealings between the cable television operator and the subscriber. This focuses more on your front office, and CATA has been working on that aspect too in the last two years. The CCOS seminars have focused on how to deal with front office relationships between the cable operator and the subscriber. The first and most important aspect of those dealings is that whoever answers the phone in your office should know about all of

continued

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the services offered by the cable system, and what they are. Admittedly, this is getting more and more complicated as we increase our channel capacity and have numerous satellite services, but if you don't know what you're selling, the customer doesn't know what he's buying. And if the customer's confused as to what he is suppose to be getting, then you will ultimately have an unhappy customer. That is what we all have to avoid.

PAY PROGRAMMERS — YOU CAN'T TELL THE PLAYERS WITHOUT A PROGRAM

There's just not enough space in this issue of the CATable to do justice to all the news that is taking place in the area of pay programmers — happily, most of the news has to do with future plans, so we can spend more time on it in future issues. Just to give you an idea of what we are talking about, here are a couple of headlines — all of them printed in the major news media in the past month;

- “FCC OKs GTE PLAN FOR DBS”
- “THREE HOLLYWOOD STUDIOS SET TO BECOME PARTNERS IN THE MOVIE CHANNEL”
- “OAK PLACES DBS BID BEFORE FCC”
- “SSS LOFTS DBS PLAN TO FCC”
- “ABC SPELLS OUT HVN PLAN”

Who was it that said that cable was a monopoly? This is getting ridiculous! Just to give you a brief outline, in reverse order, ABC has decided to go ahead with their plan, explained in these pages earlier, to transmit scrambled movies over the air from their affiliated stations to home video tape recorders during the wee hours of the morning. Viewers would pay for an addressable descrambler to watch the movie whenever they wanted to watch it. We think this is a potential winner of an idea IF the technology works, and that is a big IF! Anyway, the FCC has now given the go-ahead for the plan, and ABC says that 204 of their 208 affiliates have agreed to carry the programming! That's a LOT of competition! Testing of the services will start in the first quarter of next year.

SSS has come up with a proposal that would see pay-per-view (ppv) and pay-per-series (pps) programming going directly into the via satellite by late 1984. The SSS concept includes using someone else's DBS bird at first, but by 1988 they want to use their own satellite and by 1992 they would have four operational birds to serve all time zones with four transponders full of programming. They would offer two more transponders to others. SSS is inviting cable operators to become equity partners in the venture.

continued

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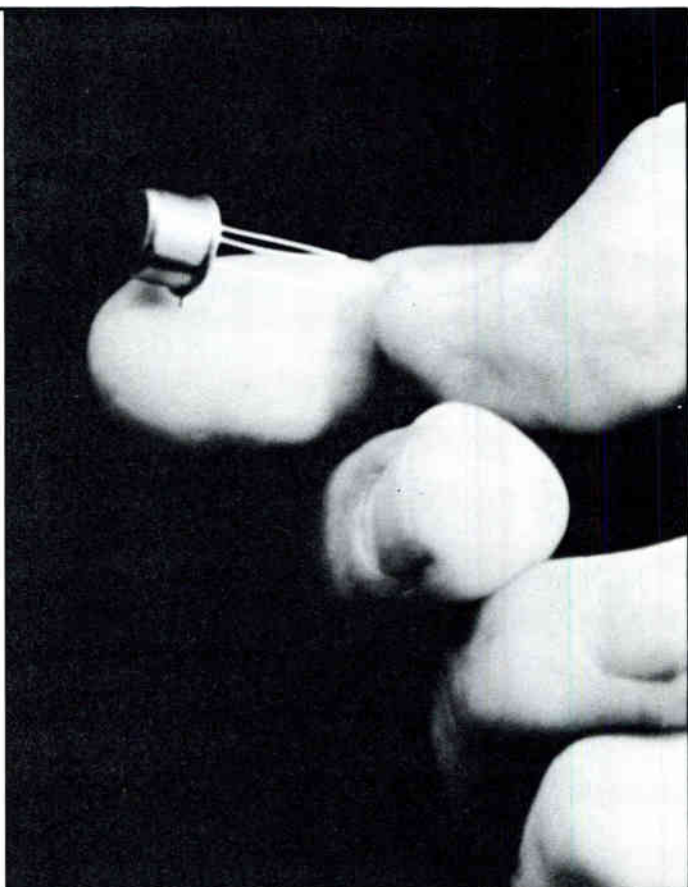
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continued from P. 34

Oak has also clarified its DBS plans in a 153-page filing at the FCC. They plan to start serving the Northeast with DBS in 1984 via a Canadian satellite and then expand gradually to a goal of 12 channels serving the entire country by 1994. It is interesting to note that both SSS and Oak own STV stations now, and they both say that experience will help them in the DBS venture. To give you some hint at how big they think it is, Oak says that when its service is mature, it expects to have about four million subscribers paying \$1.4 BILLION annually! GTE, you might note, has the same idea, starting with the use of Canadian satellites and moving to their own which are scheduled for launching in 1984. Because they have their own launches already approved, GTE, in combination with General Instrument, is on a faster track. The FCC has already approved their lease of 10 transponders on Canadian satellites to start the service. The actual service would be offered by United Satellite Television (USTV), a name we are likely to hear a lot more about. They plan to start East Coast service to individuals, cable systems, and SMATV operators early in 1983.

Finally, you have probably already read about the fact that Paramount, Universal, and Warner

Brothers plan to split the action with Warner Amex in ownership of The Movie Channel. Some of these movie companies are the same ones, of course, who tried to get the "Premier" movie service started last year. They were stopped by the Courts when it was decided that their plan for a 90 day "exclusive" pay cable contract with their own company, leaving others, like Showtime and HBO out in the cold, was a violation of the antitrust law. They are not planning any "exclusives" this time around — they just want to get a piece of the action. The probable result will be that The Movie Channel will get more money to play with, and thus be a stronger competitor against the other big two, and at the same time the nature of purchase negotiations will change since up till now HBO has sort of dominated the negotiations. It will be interesting to watch.

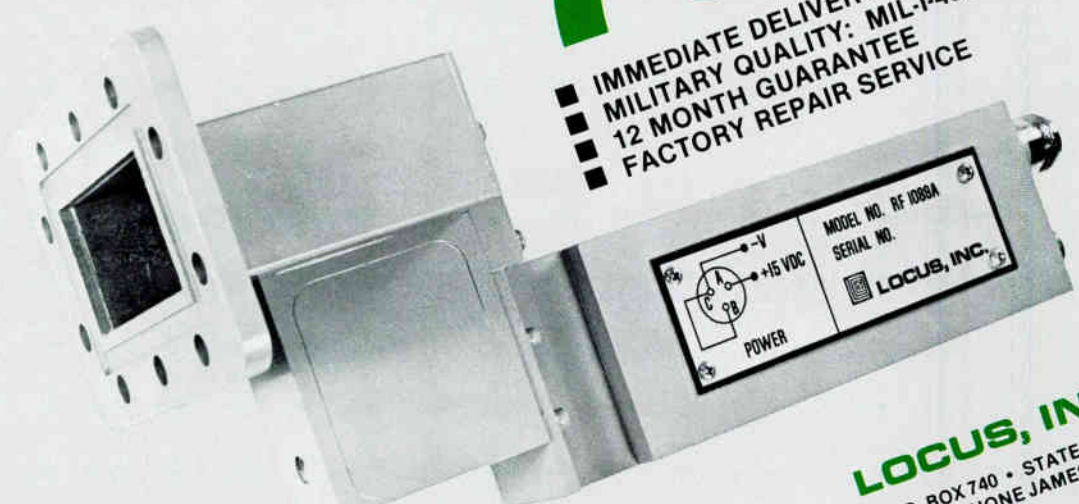
Finally, just the other day an announcement came out that Group W is selling its 50% share of Showtime back to Viacom. They (it was Teleprompter at the time) bought that 50% from Viacom less than four years ago. What was it worth? Well, rumor has it that the 50% interest was originally bought for about \$10 million. The selling price — \$75 million! Not a bad deal. Of course, Showtime got to be Group W's main movie service at the time — which is worth a lot too. Group W says it will keep offering Showtime

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to its subscribers as part of the sales agreement. The main reason for the sale seems to be that Group W wants to get program control over Showtime (Viacome has it now). Group W's chief has always argued against the use of "R" rated movies, and Showtime is now finding that that is what people really want to watch. Group W decided that if it could not get program control under the current agreement, it would either buy Viacom's half of the business, or sell it outright. Happily for consumers who don't like big corporations deciding what they can and can't watch, Viacom held firm, so Group W sold.

By the way — as just another indication of what people want as opposed to what some so-called "leaders" say they want, in the most recent test of attempts to impose "obscenity rules" on cable operators, an ordinance banning "sexual perversions" on cable programs in Muskegon, MI, was defeated in a referendum vote 4,211 to 1,880. The Rev. Jerry DePoy, chairman of the "Citizens for Media Integrity" backed the proposal.

FCC CUT FROM SEVEN TO FIVE COMMISSIONERS

It's actually a sordid political story. The result may or may not be good, but how it happened certainly doesn't speak well for certain members of the U.S. Senate! It all started with President

Reagan nominating Steve Sharp to become an FCC Commissioner. Steve is a good guy — smart, knowledgeable, and certainly qualified for the job. He is presently the General Counsel of the FCC. But Alaska's Senator Ted Stevens had his own nominee — and Bob Packwood, head of the Senate Committee that approves nominees, apparently had an IOU outstanding to Stevens. So the White House was told that it would either be Steven's man or nobody — Packwood wouldn't set hearings! This is taking away the power the President is supposed to have to appoint his own people. Nevertheless, the power struggle ensued, and it became clear that neither side would back down. The Senators then did a back-door maneuver that will result in no one really getting what they want; they put an amendment in a bill that reduces the number of FCC commissioners from 7 to 5. That way, even if Sharp gets the appointment, it will only be good for less than a year. It's sort of like the little kid who takes his ball home because he doesn't like the way the game is played! Anyway, the result is that within a year there will only be five FCC Commissioners.

TIME INC. TO START NEW CABLE LISTING MAGAZINE

It has been increasingly obvious that TV Guide is having trouble coping with cable television. The

continued

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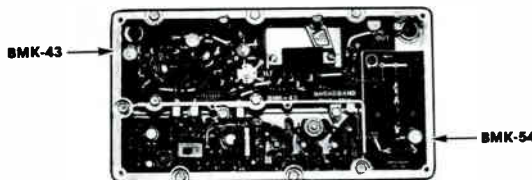
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Broadband's BMK-43 & 54 installed in Jerrold SAM module.

Features ►

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See us at the Atlantic Show in Booths 51-53/ Atlantic City

Guide is the largest circulation magazine in the country, but it is done in regional editions to deal with the major market television listings. Now, with cable increasingly penetrating the major markets, TV Guide is still trying to figure out what to do. Time Inc. may help them out. It has decided to put out a fully customized cable listing magazine. It will be customized on a system by system basis, says Time, and they expect to spend \$100 million to develop the magazine. Will it work? Well, as you know, there are already several customized magazines on the market. With the deep pocket that Time Inc. has, we would not doubt that they will give the competition, including TV Guide, a run for their money. Of course some of the major MSO's expect to put out their own magazines as well, so it should be interesting to watch — glad it's not our money!

CABLE + LAW = CONFUSION!

One of the services that CATA routinely offers its members is the ability to call the Washington Office if they have a legal question that they need advice on. That is not to say we provide legal services, we don't. But we do explain what is going on with the various legal cases concerning cable television and how they might or might not impact

a particular system. Boy, have we been getting telephone calls! First it was the Boulder case, then it was "Loretto", and now the United Video/WGN case. Each one got written up in the local papers — usually with incorrect statements, and at the very least the implications and theories regarding the impact of the cases ran the gamut. Let's try to clear it all up, as best we can, here.

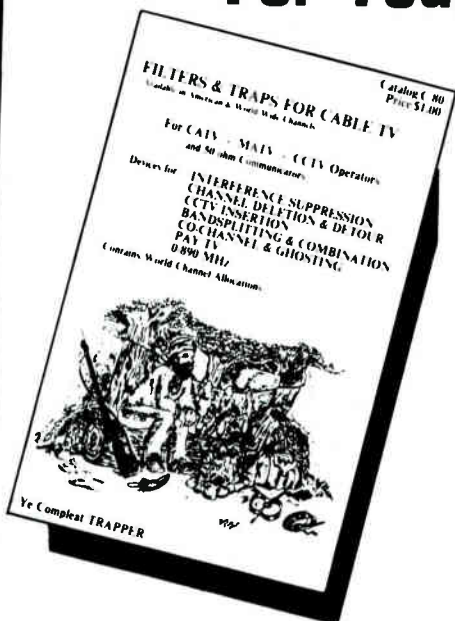
BOULDER

The case that got all the publicity, and all the attention of city officials, was the "Boulder" case. In that case ALL THAT WAS DECIDED was a technical question regarding whether cities can use the same "immunity" that states have against prosecution in antitrust cases. The Supreme Court said no, cities do not automatically have the right to claim that protection — there must be State law, providing adequate supervision of what the cities are doing before the "immunity" applies to the city. It is for that reason that a lot of cities are fighting hard to get special laws passed in the state legislatures assuring that they have immunity. They argue that without it they are subject to antitrust actions and that they therefore would have to do things like "go out for bids" at renewal time to assure they were not sued later. What they seem to forget, from a practical standpoint, is that

continued

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they could also protect themselves by simply offering a second franchise to anyone who wanted it, rather than throw out the present franchisee in a bidding process. Anyway, remember that the "Boulder" case did NOT find any city in violation of the antitrust laws. There are other cases now being brought to test the antitrust aspects of this whole question. Ironically, the "Boulder" case itself, which was back in Court for just such a determination, was settled by the parties. We will never know if Boulder really did violate the law or not. The franchisee (TCI) got its renewal. The other cases that are now under way demand that a city grant a competing franchise to a losing bidder, and claim that the city would violate the antitrust law if it didn't do so. This one, in Tuscon, Az., is also being brought by TCI — but this time instead of defending an existing franchise, they are challenging someone else's franchise area. We'll keep you informed.

LORETTO

Once again, publicity from a Supreme Court case has caused chaos. In Loretto, the Court simply said that a state may not order apartment building owners to allow access to cable television without reasonable compensation. The Court did not say what "reasonable compensation" was. That will be decided by the New York State Cable Commission and, presumably, the New York Courts, where this whole thing got started. The case DOES NOT say that every apartment owner must be paid by the cable system. In fact there was some language in the case suggesting that the apartment owner does get value from the cable being available in his building to begin with. The cable operator, of course, always has the "weapon" of refusing to wire the building if the owner asks for too much. In any event, this case had to do with State laws REQUIRING access at a set price. It does not say that apartment owners can now come back to you and demand additional payments from you that you have no recourse against. If you are having specific problems with this, give the Washington office a call.

UNITED VIDEO/WGN

This is the most confusing one of all. The main reason for that is that the Judge who wrote the opinion clearly did not understand what he was talking about regarding cable television and television technology. In brief, what the Appeals Court said in a recent decision is that while United Video is allowed to carry the signal of WGN via satellite without incurring copyright liability under the 1976 Copyright law, United Video must carry the WHOLE signal, including any coded material in the vertical blanking interval so long as that material is related to the television programming that is being shown by WGN at the same time. The Court even intimated that cable operators would

have to carry the videotext material in that vertical blanking interval if it was "related" to the television program or they would be violating the copyright law too!

Again, we will not get too long-winded about this. While it is true there are some people panicking about this decision, we do not think it is going to have any material effect on the cable industry. The reason is simple. Television stations that plan to use the vertical blanking interval are not going to use it in conjunction with the program being shown — they want to use it for totally different, unrelated purposes — they have no interest in tearing people away from the video screen to look at the data screen when they are making more money by having those eyes glued to the video! NO, teletext services are for a different, additional income audience and therefore the broadcaster has no real interest in connecting the video and text programming. Thus, while the Court gave WGN a "victory" in that they said that for certain purposes the material in the VBI must be carried by the cable system, that victory won't do them any good since the TYPE of text material that the Court limited the decision to is not the type the broadcaster wants to use! Have we got you totally confused now! That's all right, you're not alone — anyone who has read the court decision walks away cross-eyed too!

One practical result of the decision is that it has created even more doubt about passage of any new cable copyright legislation soon. The theory that cable is required to carry teletext sent out on the VBI by broadcasters has created quite a row! We are sure this will all get into Court again for clarification — or Congress will eventually clear it all up — but don't hold your breath! Needless to say we are monitoring developments on Capitol Hill in this regard, and, if every it looks like the dispute will be settled we'll let you know! Meanwhile, it probably would serve your best interests to let us worry about the complexities of this one — you go out and do some preventive maintenance on your system — it will serve you better in the long run than worrying about this stuff!

THE CATA QUESTIONNAIRE

Thanks! The response has been gratifying. If you have not sent in your copy of the questionnaire yet, please do it now. We are getting lots of responses and we want to compile the results as soon as possible — hopefully for the next issue of the CATAcable. Keep those cards and letters coming! It is especially important that you get us the information we requested because there are several issues, specifically "must carry", and copyright, that will be affected by what you send back to us. So please, if you have not already done so, fill out the questionnaire that was in the last issue of the CATAcable and send it back to the Washington office ASAP. Thanks. □

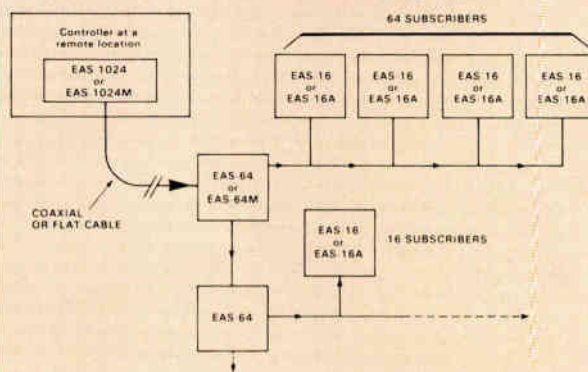
EAS ELECTROLINE'S ADDRESSABLE SYSTEM

A cost-effective system offering maximum security with ease of control for multi-unit buildings.

EAS

Designed to control access or premium service to subscribers in multidrop buildings. The system is modular in design. Security is maintained by means of continuous scanning. EAS is ideal for apartments, hotels, hospitals or other such location where constant control is needed and to provide visual audit of each subscriber's status.

ADDRESSABLE SYSTEM



EAS

The above system is composed of 3 units — a microprocessor control (EAS-64); and a wide-band, multitap switch assembly (EAS-16). The system can be installed in 2 alternative configurations and is most compatible with other systems.

Illustrated folder with specifications upon request.



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WorldRadioHistory
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Okla. City, Okla. 73107

CATJ



FM VIDEO TRANSMISSION WALL CHART —

This chart gives you a basic introduction to FM transmission, helping you to recognize particular distortions or set up problems, whether observed with a waveform monitor or a video monitor.

HEADEND/INTERFERENCE WALL CHART — has more than 20 off-the-screen photos of typical (and not so typical) off-air headend type problems. Each is identified, and with this chart you can zero in on headend problems in one big hurry. Explains what headend interference looks like and leads you to solutions to eliminate it.

FCC TESTS WALL CHART — is the industry's best training tool for teaching system employees how to recognize everything from cross-mod to Hum Mod. Has more than 60 off-the-screen photos of typical plant problems; things like Hum Mod (with calibration), signal to noise, co-channel and more.

CB INTERFERENCE WALL CHART — leads you quickly and painlessly to cures to CB interference.

COST FOR EACH IS: \$10.00 or \$35.00 set of 4.

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I am enclosing a check for \$ _____ for the items marked below.

- A — F.M. Video Transmission Chart**
- B — CBIC — Citizens Band Interference Committee Diagnostic Chart**
- C — FCC Compliance Tests Subjective Evaluation System Chart**
- D — Head End Signal Quality Evaluation Comparison Chart**

Mail to: CATJ Magazine
 Suite 106, 4209 N.W. 23rd
 Okla. City, Okla. 73107

SHOWCASE

COMMUNICATIONS EQUITY ASSOCIATES OWNERSHIP SHIFTS

Communications Equity Associates, the Tampa, Florida based communications investment banking firm has announced a change of ownership. In the recently completed transaction, CEA's founder Rick Michaels has become 100% owner of the company by acquiring the interest of Jeff Marcus the company's other principal.

Michaels and Marcus have operated CEA together since 1975 and are familiar figures in the cable television industry. Both Michaels and Marcus have been involved in the cable business since the mid-1960s. CEA, which Michaels began in 1974 as a one-man operation has represented its clients in over \$1 billion in cable related transactions in the past 8 years. The firm currently employs 25 people.

Marcus in a related announcement has confirmed plans to relocate his newly created firm Marcus Communications, Inc., (MCI) to Greenwich, Connecticut later this year. MCI will concentrate on the acquisition of existing systems and new franchises and currently is in the process of completing a major transaction. Marcus will continue to manage Tampa based Communications Equity Management, Inc. (CEM) owned jointly with Michaels. CEM currently manages six cable systems owned by the two former partners and CEA employees.

"This change is no way means a split between Rick and me," said Marcus. "We remain best friends and I view this shift in emphasis simply as the difference between owning the asset and being the asset. The change of direction will also enable me to spend much more time with my family as opposed to traveling over 200 days per year."

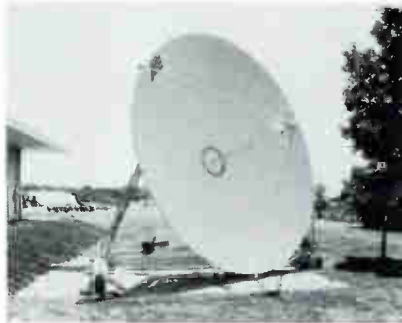
Michaels confirmed the two would continue to work together not only in building the management company but on a variety of non-cable related personal investments. Marcus will also maintain a consulting brokerage arrangement with CEA. "I wish Jeff and his family every success in this new endeavor," Michaels said. "After all, I consider them to be my family too."

While CEA primarily serves the cable television industry Michaels confirmed that CEA is looking at several major areas of expansion.

For further information contact: J. Patrick Michaels, Jr., Jeffrey A. Marcus 851 Lincoln Center, 5401 West Kennedy Boulevard, Tampa, Florida 33609, (813) 877-8844.

ANIXTER MARK INTRODUCED NEW STEERABLE ANTENNA

Anixter Mark has introduced a new 5 Meter Steerable Antenna System which is a new design featuring a hydraulically actuated, single axis position control that will allow an operator to switch between satellite signals easily. Available with either TX/RX or TVRO capabilities, the Anixter antenna is ideally suited for teleconferencing, broadcast and cable television systems, and for any satellite communication service that requires great flexibility.



The 5 Meter Steerable Antenna System also features a Zero-Offset Polar Mount and a standard antenna repositioning rate of 1° per second. (Optional repositioning rates of 2° or 0.5° per second are available.) The antenna can cover the entire Geostationary arc with no changes to mount members, and can be positioned within 0.05° accuracy. The standard control has 7 programmable positions. One position can be used as a manual override, and additional programmable satellite positions are available.

The installation of this dish requires no heavy equipment (normal installation time for 3 men is a maximum of 8 hours). The Steerable 5 Meter dish is constructed of 24 precision stamped interchangeable aluminum petals.

For further information contact Anixter-Mark TOLL FREE at (800) 323-5273.

October 27 and 28: A Blonder-Tongue Technical Seminar

October 27 and 28: A Blonder-Tongue MATV/CATV/Earth Station Technical Seminar will be held at the Hilton Airport Inn, Romulus Township, MI in conjunction with Robert Milsk Company, Inc. Contact Ed Curreri (513) 729-4392 or Robert Milsk (313) 354-3310. □

AUTOMATION TECHNIQUES INTRODUCES NEW SATELLITE RECEIVER

Automation Techniques has introduced a new low-cost imageless satellite receiver with a combination of features designed to "bridge the gap" between their successful GLR-500 and GLR-550 receivers, according to ATI President Ted Anderson.

The GLR-520 features the proven performance of the GLR-500's imageless mixer design which eliminates frequency noise or interference and combines it with the brushed aluminum styling of the GLR-550. Like the GLR-550, the GLR-520 also features push-button transponder selection with fine tuning control and provides H/V button and LRL indicators to eliminate the need to vary fine tuning between polarizations. The GLR-520, according to Anderson, also includes a front-panel audio level control meter and a relative RF signal meter for constant quality check on dish orientation.



Anderson indicated that the GLR-520 has a separate Weatherized Tuning Module (downconverter) which can be located at the dish or at the receiver. In addition, the GLR-520 has unfiltered video output for external audio demodulators with an optional modulator with vestigial sideband filter also available.

The GLR-520 is available in stand-alone configuration and has a 70 MHz output that may be run through standard coax rather than expensive microwave cables.

For literature and price information about the GLR-520 and other Automation Techniques products, call Ted Anderson at 1-918-836-2584 or write to Automation Techniques at 1846 N. 106th E. Ave., Tulsa, Oklahoma, 74116. □

Descrambler-16D

RMS



This "New Product Review" section has been initiated to provide CATA Associate Members an opportunity to present their new products or services in a commercial manner. With the increase of technology in the cable television industry, there are innovations being developed constantly, and CATJ is pleased to offer this section where some of these can be explored extensively. We invite CATA Associate Members to use this section, and material can be submitted for consideration to:

*New Products Review Section
CATJ Magazine
4209 N.W. 23rd, Suite 106
Oklahoma City, Oklahoma 73107*

The RMS descrambler system accepts a television signal with suppressed horizontal and vertical sync pulses and has sync recovery information supplied on the accompanying sound carrier. In addition to the usual sound FM, the sound carrier contains information for remote enabling of a pay channel.

The **Scrambler-1000** scrambles the input signal by an amplitude-modulation process which reduces the amplitude of all sync pulses below black level. The result is that a TV receiver cannot distinguish between video and sync. Because the channel frequency sound subcarrier is also modulated during scrambling, the information needed for descrambling is automatically imparted to it. The sound carrier also contains a steady FM 120 KHz subcarrier which carries a digital FSK modulation for remote addressing of a pay channel.

The **Descrambler-16D** recovers the information that is contained in the FM 120 KHz subcarrier by envelope detection of the sound carrier. The detection results in recovery pulses which are not exactly coincident with the original suppression pulses. Proper timing is obtained by the introduction of adjustments to both pulse width and pulse delay.

To minimize the effects of noise which might cause a momentary loss of program, a special circuit is used that introduces a delay between a non-valid transmission and the units disabling circuit. When the transmission again becomes valid, the delay is quickly reset so that any subsequent loss of validity has to undergo the full delay period.

ELECTRONICS INTRODUCES

SCRAMBLER/DESCRAMBLER

SYSTEM

The RMS Scrambler/Descrambler System is an entirely new concept at extremely competitive prices in the Security Marketplace. It provides descrambling for up to sixteen tiers of unlimited channels on a cable system, and features the mechanical capability of being mounted to the base of any make converter to prevent unauthorized persons from opening and tampering with the converter unit. The Descrambler-16 features tamper-proof hardware to prevent removal from the converter, as well as entry to the unit itself.

Following is detailed information concerning this outstanding new system. If you should wish additional information, call the RMS toll-free number (800) 223-8312.

A NEW CONCEPT

- DESCRAMBLER-16D is an entirely new concept in the security marketplace.
- Compact in design (5-1/2" x 5-1/2" x 1") and attractively wood-grain styled, DESCRAMBLER-16D will upgrade any existing converter (except block type) with output on channel 2, 3, or 4 to a SYNC-SUPPRESSION DESCRAMBLER capable of any combination of one (1) to sixteen (16) separate tiers, or channels with unlimited descramble capability.
- There are no additional pilots that degrade the system performance and it combines low noise with dynamic input range of - 10 to + 25 dBmV.
- The level of pay program may be upgraded with a change of the custom programmed decoding chip. (Factory programmed).
- With only two (2) connections, DESCRAMBLER-16D can be quickly and easily installed to provide maximum channel security.
- Tamper-proof SECURITY CLOSURE SCREWS can only be removed by use of a special tool. (Extra charge for tool). Regular closure screws provided upon request.
- NOTE: DESCRAMBLER-16D has been engineered for future addressability upgrade.

- **WHY NOT SALVAGE RATHER THAN DISCARD?**
- **PROTECT YOUR ORIGINAL CONVERTER INVESTMENT!!**
- **USE WITH PRE-INSTALLED EXISTING CONVERTERS WITH CHANNEL 2, 3, OR 4 OUTPUT.**
- **USE WITH EITHER NEW OR USED INEXPENSIVE CONVERTERS WITH CHANNEL 2, 3, OR 4 OUTPUT.**
- **NOT FOR USE WITH BLOCK CONVERTERS.**

One (1) Model DC-8 decoding chip, required for one (1) to eight (8) channels/tiers of descrambling is provided with each DESCRAMBLER-16D. An additional Model DC-8 decoding chip (total of two (2) decoding chips) is required for nine (9) to sixteen (16) channels/tiers of descrambling.

ALL MODEL DC-8 DECODING CHIPS MUST BE PROGRAMMED AT THE FACTORY PRIOR TO SHIPMENT. Future changes in the descrambling programmed combination, will require replacement of the decoding chip, or chips. Replacement is very inexpensive and is done quickly by removing old decoding chip and

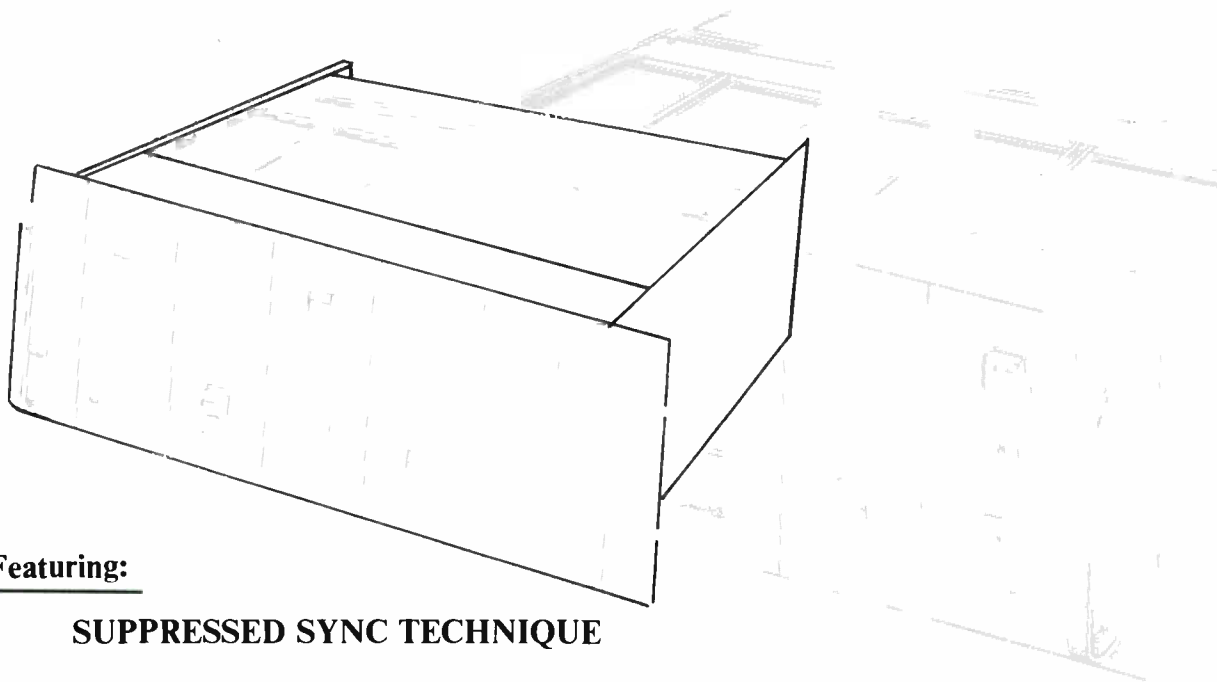
simply plugging-in the new combination decoding chip. Thousands of combinations can be programmed.

- DESCRAMBLER-16D is easily installed by inserting unit into coaxial cable line between the converter and subscriber's TV set.

- DESCRAMBLER-16D is only compatible for use with RMS headend sync-suppression scrambling system available now.

Scrambler-1000

"For Unlimited Scramble Capability"



Featuring:

SUPPRESSED SYNC TECHNIQUE

Designed for 19" rack mounting.

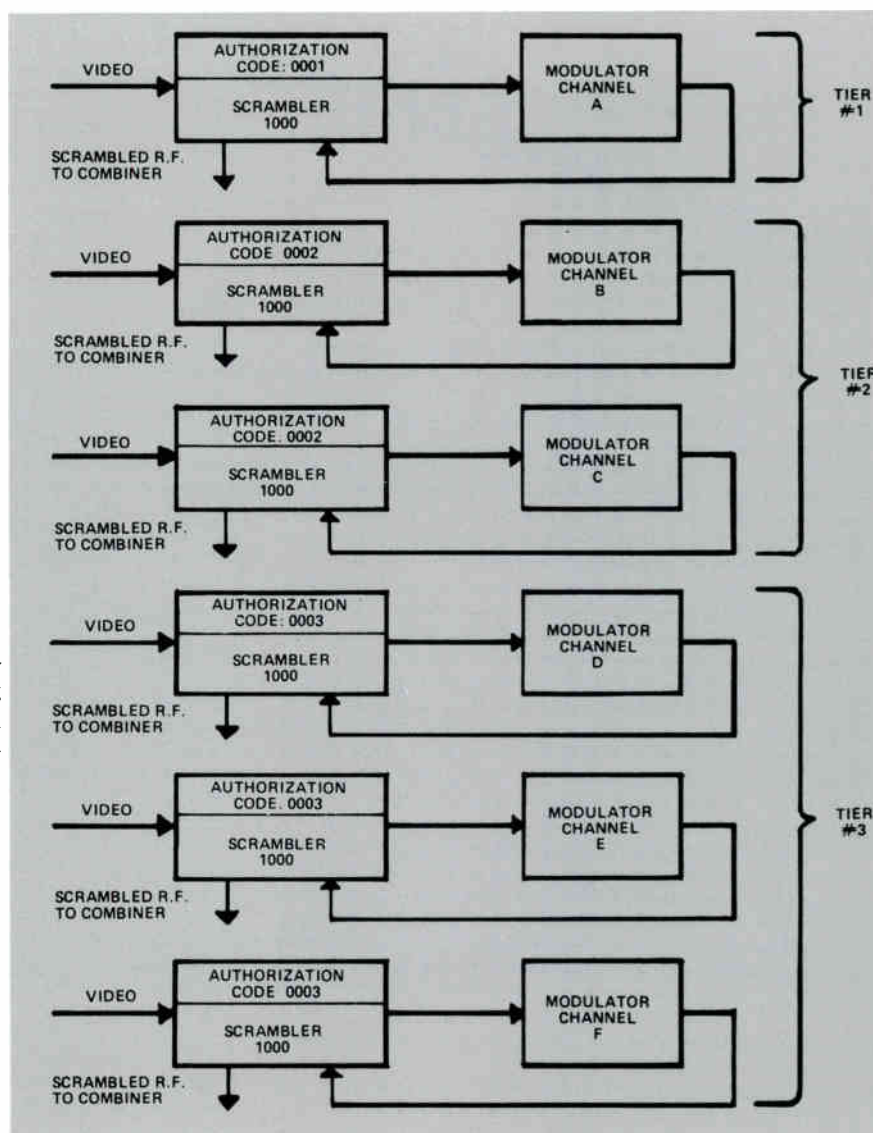
FEATURES

The SCRAMBLER-1000 is designed as an easy to install 19" rack mount unit. Used in conjunction with a modulator, the SCRAMBLER-1000 secures the video portion of the channel by using a Suppressed Sync technique. Scrambling can be accomplished on any channel. The information required for "descrambling" is carried "in-band" thereby eliminating the need for additional carrier frequencies.

Also contained in the "baseband" information is the Authorization Code required for proper operation of the DESCRAMBLER-16D. Each channel to be scrambled requires its own SCRAMBLER-1000. The Authorization Code is programmed at the System Headend by a simple selection of "jumpers" conveniently located in the SCRAM-

BLER-1000.

Assigning more than one channel to any pay tier, is accomplished by programming each channel in a tier with the same Authorization Code. The number of channels that can be assigned to a given tier is **unlimited**. An example of a multiple channel, three tier headend is shown below.



EXAMPLE:

It is possible to tailor the configuration of each tier by grouping those channels in the same tier and assigning the identical Authorization code to those channels.

REPAIR SERVICE

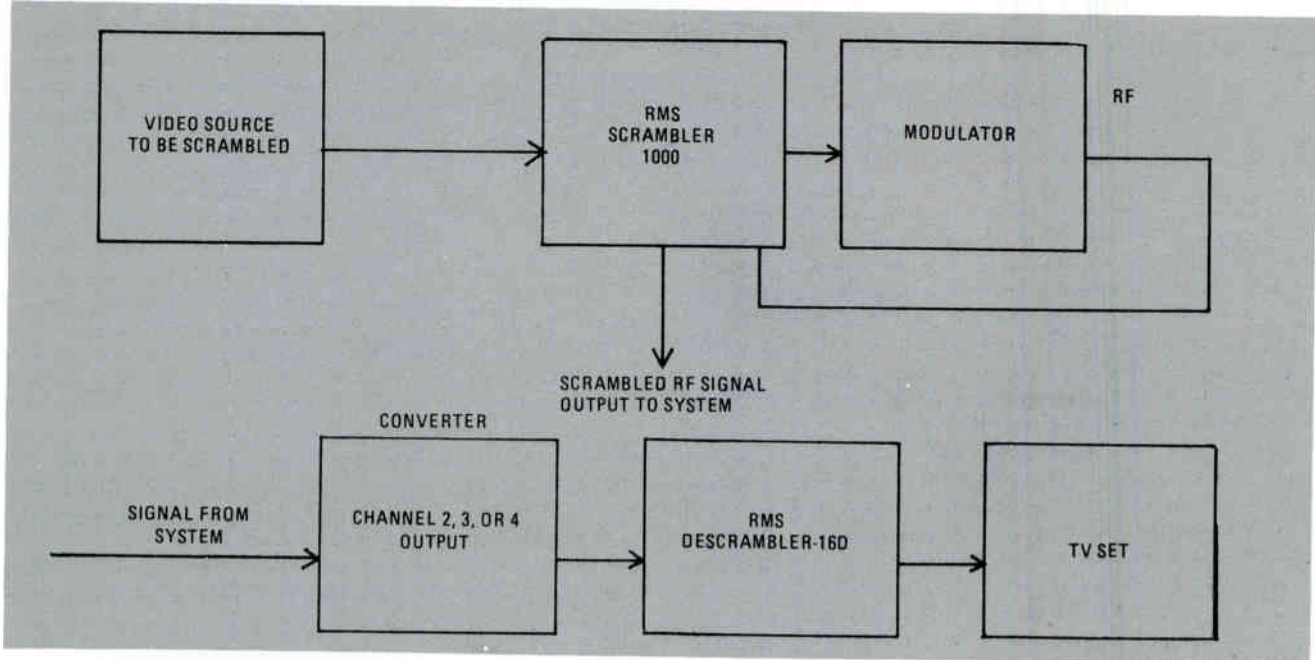
- RMS Electronics, Inc. maintains a REVOLVING REPLACEMENT INVENTORY so that units found to be defective, or damaged, may be immediately replaced upon receipt at the factory.
- Replacement units may be either refurbished or new units, depending upon inventory and the decision of the manufacturer. New units will be used for replacements only if refurbished units are not available and for the purpose of expediting return deli-

- At the purchaser's request, the original unit will be repaired and returned to the purchaser. However, return delivery may be delayed by one (1) to two (2) weeks until repairs can be scheduled by the factory.
- Repair Service is available directly from RMS Electronics, Inc., 50 Antin Place, Bronx, N.Y., 10462, under the following conditions:

- A) Return Authorization and Shipping Instructions must be obtained in writing from RMS Electronics, Inc.
- B) Units being returned must be shipped with freight charges prepaid. (United Parcel Service or U.S. Postal Service only).
- C) Replacement of damaged parts, that are no longer under Warranty, will be made at the discretion of the manufacturer.
- D) Cost of replacement parts, labor, and return shipping charges will be invoiced to Purchaser with full payment due within thirty (30) days.

Descrambler-16D

DESCRAMBLER-16D SYSTEM



PRICE SCHEDULE:

DESCRAMBLER-16D, WITH ONE (1) DC-8 DECODING CHIP@ \$38.75 PER UNIT (AC ADAPTOR PROVIDED)

DC-8 DECODING CHIP ONLY (SPECIFY DESCRAMBLING COMBINATION) Required for 16 tier capability@ \$4.75 EACH

SCRAMBLER 1000@ \$595.00 PER UNIT

MONTHLY AVAILABILITY SCHEDULE:

October 15,300 units
 November 15,300 units
 December 15,300 units
 January 15,300 units (1983)

- PURCHASE ORDERS ACCEPTED ON MONTHLY PRIORITY BASIS — FIRST COME.
- FIRST SERVED ACCORDING TO DATE OF ORDER AND PRE-SCHEDULED DELIVERY REQUEST.
- TO ASSURE DELIVERY, PLACE YOUR ORDER IMMEDIATELY.

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D3—CATV cable	M3—CATV cable	S3—CATV financing
D4—CATV amplifiers	M4—CATV amplifiers	S4—CATV software
D5—CATV passives	M5—CATV passives	S5—CATV billing services
D6—CATV hardware	M6—CATV hardware	S6—CATV publishing
D7—CATV connectors	M7—CATV connectors	S7—CATV drop installation
D8—CATV test equipment	M8—CATV test equipment	S8—CATV engineering
D9—Other	M9—Other	S9—Other

Note: Associates listed with * are Charter Members.

ADT Security Systems,
One World Trade Center,
92nd Fl.,
New York, NY 10048
212—558-1444
(M9 Security Equipment)

Alpha Technologies,
1305 Fraser St. D-G,
Bellingham, WA 98225
206—671-7703
(M9, Standby Power
Supplies)

AMCOM, Inc.,
Bldg. E, Suite 200,
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Atlanta, GA 30342
404—256-0228
(S9, Brokering &
Consulting)

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(M4)

* **Anixter-Purzan, Inc.,**
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(M1, 2, 4, 5)

**Broadband Engineering,
Inc.,**
P.O. Box 1247,
Jupiter, FL 33458
1-800—327-6690
(D9, replacement parts)

**Broadcast Equipment
Leasing,**
7 Wood Street,
Pittsburgh, PA 15222
412—765-0690
(S3)

Budco, Inc.,
4910 East Admiral Place,
Tulsa, OK 74115
1-800—331-2246
(D9, Security &
Identification Devices)

CATEL,
4800 Patrick Henry Dr.,
Santa Clara, CA 95054
415—969-9400

* **C-COR Electronics, Inc.,**
60 Decibel Rd.,
State College, PA 16801
814—238-2461
(M1, M4, M5, S1, S2, S8)

CBS Cable,
1211 Avenue of the
Americas, 2nd Floor,
New York, NY 10019
1-800—528-3341
(S4)

CCS Hatfield/CATV Div.,
5707 W. Buckeye Rd.,
Phoenix, AZ 85063
201—272-3850
(M3)

CRC Electronics, Inc.,
2669 Kilihau St.,
Honolulu, HI 96819
808—836-0811
(M9 Videotape & Headend
Automation Equipment)

CWY Electronics,
405 N. Earl Ave.,

Lafayette, IN 74904
1-800—428-7596
(M9, D1)

CableBus Systems,
7869 S.W.
Nimbus Avenue,
Beaverton, OR 97005
503—543-3329
(M1)

Cable Health Network,
2840 Mt. Wilkinson Pkwy.
Atlanta, GA 30339
404—436-0886
(S4)

Cable-Text Instruments,
705 Avenue K, Suite #4
Plano, TX 75074
214—422-2554
(M9 Generators)

Century III Electronics, Inc.
3880 E. Eagle Drive,
Anaheim, CA 92807
630-3714
(M1, M3, M4, M5, M7, M8,
S1, S2, S8)

Capscan, Inc.,
P.O. Box 36,
Adelphia, NJ 07710
1-800—CABLETV or
222-5388
(M1, M3, M4, M5)

Channel Master,
Ellenville, NY 12428
914—647-5000
(M2, 3, 4, 5, 6, 7)

**Collins Commercial
Telecommunications,**
MP-402-101,
Dallas, TX 75207
214—690-5954
(M9, Microwave)

Comm/Scope Company,
Rt. 1, Box 199A,
Catawba, NC 28609
1-800—438-3331
(M3)

**Communications Equity
Associates,**
851 Lincoln Center
5401 W. Kennedy Blvd.,
Tampa, FL 33609
813—877-8844
(S3)

**Computer Video
Systems, Inc.,**
3678 W. 2105 S. Unit 2,

Salt Lake City, UT 84120
1-800—453-8822
(M9)

COMSEARCH INC.,
11503 Sunrise Valley
Drive,
Reston, VA 22091
703—620-6300
(S8, S9, Earth station
placement frequency
coordination)

ComSonics, Inc.,
P.O. Box 1106,
Harrisonburg, VA 22801
1-800—336-9681
(M8, M9, S8, S9)

DF Countryman Co.,
1821 University Ave.,
St. Paul, MN 55104
612—645-9153
(D1, S1, S8)

Ditch Witch,
P.O. Box 66,
Perry, OK 73077
1-800—654-6481
(M9)

The Drop Shop Ltd., Inc.,
Box 284,
Roselle, NJ 07203
1-800—526-4100 or
1-800—227-0700 (West)
(D3, 4, 5, 6, 7, 8, 9,
M5, 6, 7, 8, 9 Plastics)

Durnell Engineering Inc.,
Hwy 4 So.
Emmetsburg, IA 50536
712—852-2611
(M9)

Eagle Com-Tronics, Inc.,
4562 Waterhouse Rd.,
Clay, NY 13041
1-800—448-7474
(M9 Pay TV Delivery
Systems & Products)

**Eales Comm. &
Antenna Serv.,**
2904 N.W. 23rd,
Oklahoma City, OK 73107
405—946-3788
(D1, 2, 3, 4, 5, 6, 7,
S1, 2, S7, 8)

Eastern Microwave, Inc.,
3 Northern Concourse,
P.O. Box 4872,
Syracuse, NY 13221
315—455-5955
(S4)

Associate Roster

- Electroline TV Equipment, Inc.,**
8750-8th Ave.,
St. Michel,
Montreal, Canada
H1Z 2W4
514-725-2471
(M4, 5, 7, 9, D7, 9)
- Electron Consulting Associates,**
Box 2029,
Grove, OK 74344
918-786-5349
(M2, D1, S1, 8)
- Elephant Industries,**
P.O. Box 3949
N. Ft. Myers, FL 33903
813-995-7383
(M9)
- ESPN,**
ESPN Plaza,
Bristol, CT 06010
203-584-8477
(S9)
- The Entertainment Channel,**
1133 Avenue of the Americas,
New York, NY 10036
212-930-4900
(S4)
- Ferguson Communications Corp.,**
P.O. Drawer 1599,
Henderson, TX 75652
214-854-2405
(S1, 2, 7, 8, 9)
- Franey & Parr of Texas, Inc.,** (Formerly Doherty & Co.),
One Turtle Creek Village,
Suite 524,
Dallas, TX
214-528-4820
(S9, Insurance)
- GTE Sylvania,**
10841 Pellicano Dr.,
El Paso, TX 79935
1-800-351-2345
(D7, M4, M5, M6, S4, S8)
- Gardiner Communications Corp.,**
3506 Security St.,
Garland, TX 75042
214-348-4747
(M9 TVRO Packages, S1, S2, S8)
- General Cable Corp.,**
1 Woodbridge Center,
P.O. Box 700
Woodbridge, NJ 07095
1-800-526-4385
(M3)
- Gilbert Engineering Co.,**
P.O. Box 23189,
Phoenix, AZ 85063
1-800-528-5567 or
602-245-1050
- Group W Satellite Communications,**
41 Harbor Plaza Dr.,
P.O. Box 10210,
Stamford, CT 06904
203-965-6219
(S4)
- H & R Communications,**
Rt. 3, Box 102G,
Pocahontas, AK 72455
1-800-643-0102
(M2, D1, S2, S3, S8)
- Harris Corporation,**
P.O. Box 1700,
Melbourne, FL 32901
305-724-3401
(M2, M9, S2)
- Heller-Oak Communications,**
105 W. Adams St.,
Chicago, IL 60603
1-800-621-2139 * 7600
(S3)
- Home Box Office, Inc.,**
7839 Churchwill Way,
Suite 133, Box 63,
Dallas, TX 75251
214-387-8557
(S4)
- * **Hughes Microwave Communications Products,**
3060 W. Lomita Blvd.,
Torrance, CA 90505
213-517-6233
(M9)
- * **Jerry Conn Associates, Inc.,**
P.O. Box 444,
Chambersburg, PA 17201
1-800-233-7600
1-800-692-7370 (PA)
(D3, D4, D5, D6, D7, D8)
- KMP Computer Services, Inc.,**
703 Central Ave.,
Los Alamos, NM 87544
505-662-5545
(S4, 5)
- Karnath Corporation,**
2001 Westridge,
Plano, TX 75075
214-422-7981 or 7055
(S1, 2, 8, 9)
- Katek, Inc.,**
134 Wood Ave.,
Middlesex, NJ 08846
201-356-8940
- Klungness Electronic Supply,**
P.O. Box 547,
107 Kent Street,
Iron Mountain, MI 49801
1-800-338-9292
1-800-682-7140 (Mich)
(D1, D8, S2, S8)
- LRC Electronics, Inc.,**
901 South Ave.,
Horseheads, NY 14845
607-739-3844
(M7)
- Larson Electronics,**
311 S. Locust St.,
Denton, TX 76201
817-387-0002
(M9 Standby Power)
- Lemco Tool Corporation,**
Box 330A,
Cogan Station, PA 17728
1-800-233-8713
(M8, 9 Tools)
- Lester Kamin & Company,**
2020 North Loop West,
Suite 111,
Houston, TX 77018
713-957-0310
(S9 Brokers Consultants)
- Lindsay Specialty Products, Ltd.,**
50 Mary Street West,
Lindsay,
Ontario, Canada K9V 4S7
705-324-2196
(M1, 2, 4, 5, 7, 9)
- Magnavox CATV Division,**
100 Fairgrounds Drive,
Manlius, NY 13104
1-800-448-5171 or
1-800-522-7646 (N.Y.)
(D4, 5, 7, M4, 5, 6, 7, S3, 8)
- McCullough Satellite Equipment,**
Route 5, Box 97,
Salem, AR 72576
501-895-3167
(M2, 9, D3, 4, 6, 7)
- Microdyne Corporation,**
471 Oak Road,
Ocala, FL 32672
904-687-4633
(M9 Satellite TV Receivers)
- Microwave Associates Communications Co.,**
777 S. Central Expwy.,
Suite 1G,
Richardson, TX 75080
214-234-3522
(M9 Microwave Radio Systems)
- * **Microwave Filter Co.,**
6743 Kinne St., Box 103,
E. Syracuse, NY 10357
1-800-448-1666
(M5 Bandpass Filter)
- Midwest Corp.,**
One Sperti Dr.,
Edgewood, KY 41017
1-800-624-3845
(D1, 2, 3, 4, 5, 6, 7, 8)
- Modern Cable Programs,**
5000 Park St. N.,
St. Petersburg, FL 33709
(S4)
- Mullen Communications Construction Co., Inc.,**
P.O. Box 1387A,
Green Bay, WI 54305
414-468-4649
(S2)
- NCS**
2255-E Wyandotte Rd.,
Willow Grove, PA 19090
1-800-523-2342
1-800-492-2032 (PA)
(D1, 2, S8, 9 repair service)
- National Screen Service Corp.,**
1600 Broadway,
New York, NY 10019
212-246-5700
(M9)

Distributors	Manufacturers	Service Firms
D1—Full CATV equipment line	M1—Full CATV equipment line	S1—CATV contracting
D2—CATV antennas	M2—CATV antennas	S2—CATV construction
D3—CATV cable	M3—CATV cable	S3—CATV financing
D4—CATV amplifiers	M4—CATV amplifiers	S4—CATV software
D5—CATV passives	M5—CATV passives	S5—CATV billing services
D6—CATV hardware	M6—CATV hardware	S6—CATV publishing
D7—CATV connectors	M7—CATV connectors	S7—CATV drop installation
D8—CATV test equipment	M8—CATV test equipment	S8—CATV engineering
D9—Other	M9—Other	S9—Other

Note: Associates listed with * are Charter Members.

North Supply Company,
10951 Lakeview Ave.,
Lenexa, KS 66219
1-800-255-6458
1-800-332-1073 (Kansas)
(D1, 2, 3, 4, 5, 6, 7, 8)

Oak Industries, Inc.,
Crystal Lake, IL 60014
815-459-5000
(M1, M9 Converters, S3)

Octagon Scientific, Inc.,
476 E. Brighton Ave.,
Syracuse, NY 13210
315-476-0660
(M9)

**Power and Telephone
Supply Company, Inc.,**
530 Interchange Drive
N.W.,
Atlanta, GA 30336
1-800-241-9996
(D1)

Prodelin, Inc.,
1350 Duane Avenue,
Santa Clara, CA 95050
408-244-4720
(M2, M3, M7, S2)

Pyramid Industries, Inc.,
P.O. Box 23169,
Phoenix, AZ 85063
1-800-528-4529
(M7, 8)

RMS Electronics,
50 Antin Place,
Bronx, NY 10462
1-800-223-8312
1-800-221-8857 (Poleline)
(M4, M5, M6, M7, M9)

Reuters,
1212 Avenue of the
Americas., 16th Floor,
New York, NY 10036
212-730-2715
(D9)

Rockwell International,
M.S. 402-101,
Dallas, TX 75207
214-996-5954
(M9, Microwave/Satellite)

**S.A.L. Communications,
Inc.,**
P.O. Box 794,
Melville, NY 11747
1-800-645-9062
(D1)

Sadelco, Inc.,
75 West Forest Ave.,
Englewood, NJ 07631
201-569-3323
(M8)

Scientific Atlanta, Inc.,
3845 Pleasantdale Rd.,
Atlanta, GA 30340
404-449-2000
(M1, M2, M4, M8, S1, S2,
S3, S8)

Shafer Associates, Inc.,
9501 Briar Glen Way,
Gaithersburg, MD 20760
301-869-4477
(S9, consultant)

**Showtime Entertainment,
Inc.,**
1633 Broadway,
New York, NY 10019
212-708-1600
(S4)

**Southern Satellite
Systems, Inc.,**
P.O. Box 45684,
Tulsa, OK 74145
918-481-0881
(S9)

TVC Supply Co., Inc.,
1746 E. Chocolate Ave.,
Hershey, PA 17033
717-533-4982
(D1, 2, 3, 4, 5, 6, 7, 8)

Teledac, Inc.,
1575 Taschereau Blvd.,
Longueuil,
Quebec, Canada J4K 2X8
514-651-3716
(M9 Character
Generators)

Tele-Wire Supply Corp.,
122 Cutter Mill Rd.,
Great Neck, NY 11021
1-800-325-4868
(D1, 2, 3, 5, 6, 7, 8, 9)

* **Texscan Corp.,**
2446 N. Shadeland Ave.,
Indianapolis, IN 46219
1-800-528-4066
(M8 Bandpass Filters)

* **Theta-Com CATV,**
2960 Grand Avenue,
Phoenix, AZ 85061
602-252-5021
(M1, M4, M5, M7, M8)

* **Times Fiber
Communications,**
358 Hall Avenue,
Wallingford, CT 06492
1-800-243-6904
(M3)

Tocom, Inc.,
P.O. Box 47066,
Dallas, TX 75247
214-438-7691
(M1, M4, M5, Converters)

* **Toner Cable
Equipment, Inc.,**
969 Horsham Rd.,
Horsham, PA 19044
1-800-523-5947
In Penna. 1-800-492-2512
also 1-800-523-5947 (PA)
(D2, D3, D4, D5, D6, D7)

**Triple Crown
Electronics, Inc.,**
4560 Fieldgate Dr.,
Mississauga, Ontario,
Canada L4W 3W6
416-629-1111
Telex 06-960-456
(M4, M8)

**Turner Broadcasting
System,**
1050 Techwood Dr.,
Atlanta, GA 30318
404-898-8500

Tyton Corp.,
P.O. Box 23055,
Milwaukee, WI 53223
414-355-1130
(M6, 7)

USA Network,
208 Harristown Rd.,
Glen Rock, NJ
201-445-8550
(S4)

United Press International,
220 East 42nd St.,
New York, NY 10017
212-682-0400
(S9 Automated News
Svc.)

U.S. Tower,
P.O. Box 1438,
Miami, OK 74354
918-540-1574
(M2, M9)

United Video, Inc.,
3801 South Sheridan Rd.,
Tulsa, OK 74145
1-800-331-4806
(S9)

Video Data Systems,
40 Oser Avenue,
Hauppauge, NY 11787
516-231-4400
(M9)

Viewstar, Inc.,
705 Progress Ave.,
Suite 53,
Scarborough,
Ontario, Canada M1H 2X1
416-439-3170
(M9 Cable Converter)

Vitek Electronics, Inc.,
4 Gladys Court,
Edison, NJ 08817
201-287-3200

**Warner Amex Satellite
Entertainment Corporation,**
1211 Avenue of the
Americas,
New York, NY 10036
212-944-4250
(S4)

* **Wavetek Indiana,**
5808 Churchman,
Beech Grove, IN 46107
1-800-428-4424
TWIX 810-341-3226
(M8)

Weatherscan,
Loop 132,
Throckmorton Hwy.,
Olney, TX 76374
817-564-5688
(D9, Sony Equip. Dist.,
M9 Weather Channel
Displays)

**Western Communication
Service,**
Box 347,
San Angelo, TX 76901
915-655-6262/653-3363
(M2, Towers)

Winegard Company,
3000 Kirkwood Street,
Burlington, IA 52601
1-800-523-2529
(M1, M2, M3, M4, M5, M7) □

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A non-refundable charge of \$25.00 for the City's preparation and handling should accompany each request for a Cable TV Request for Proposal and proposed Franchise Agreement. J.W. Brown, Commissioner
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1020 Municipal Services Building
Philadelphia, PA 19107
(215) 686-4430



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