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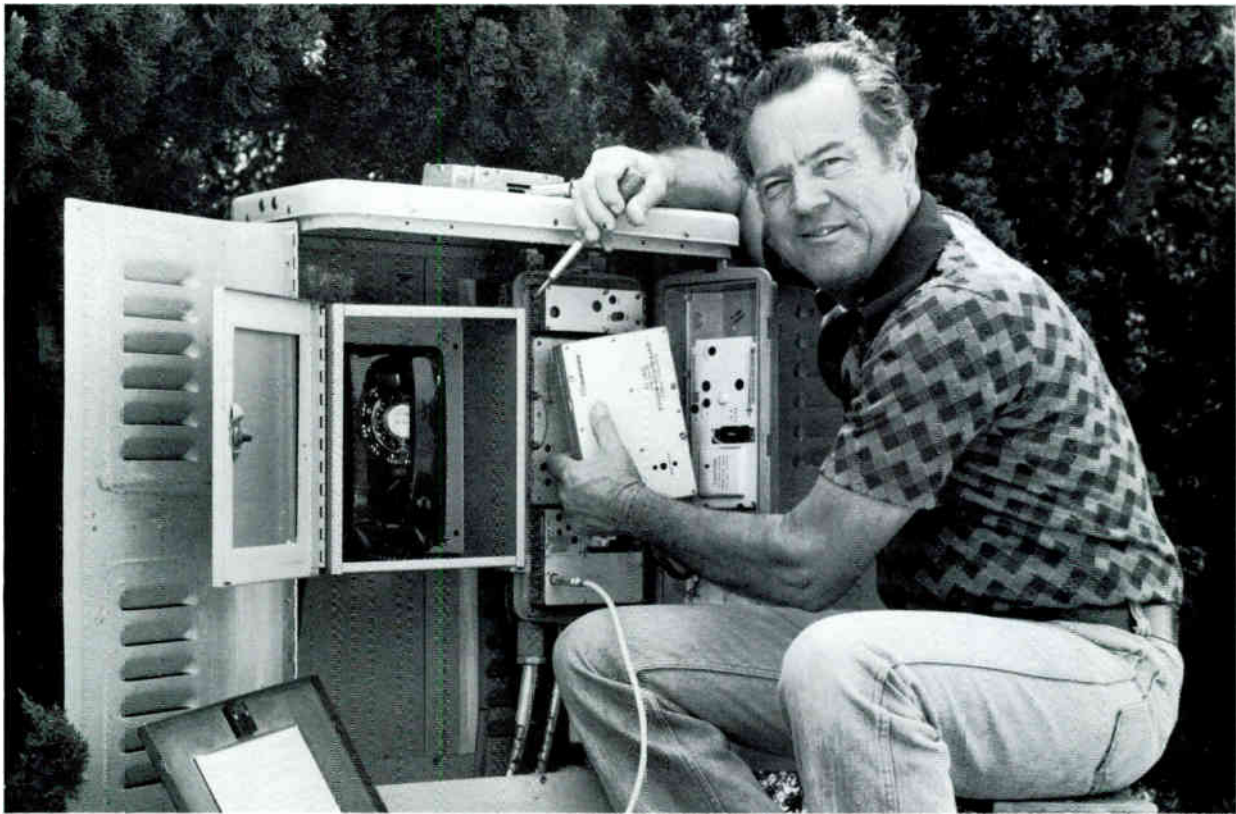
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## **“My original 20-channel system now passes 36 channels and will pass 54 next year - all without rebuilding!”**

*Jonathan Lippitt, Signal Master - San Diego, California*

**“I operate a small cable system. With only 1,100 customers I have to watch every penny. I can’t afford a staff of technicians, racks of test equipment or a large inventory of repair parts.**

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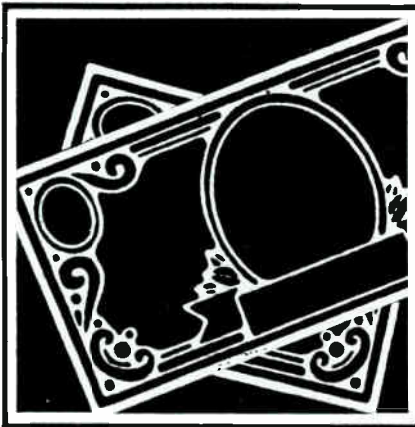
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## ON THE COVER

As we begin the celebration of CATA'S DECADE OF PROGRESS, we feature the man who led the fight for acknowledgement of the independent cable operator. But Kyle Moore is much more than a cable operator and association organizer — this feature article is about Kyle Moore the man, researched and written by long-time CATA member, Kathleen Sheldon, Sheldon Electronics, San Jose, California, wife of CATA Director, Wayne Sheldon.

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simply a one-issue group that would disappear once copyright had been settled. On the contrary, by then it had become obvious to a growing number of folks that while for the most part the NCTA did a good job protecting the interests of the major cable operators, there was a definite need for representation of the rest of the industry. CATA started growing into that role.

Naturally, since our roots were firmly based in the small, local cable operation, we maintained that focus — and we do to this day. But it soon became apparent that many of the problems we were trying to address were problems faced by most, if not all cable operators. The real difference was that we focused on the individual cable operator while the NCTA usually focused on its corporate masters' headquarters. There is a valid need for **both** approaches, and, over the years, most of the cable industry has come to appreciate that fact.

Since we wanted to continue to focus on the practical level, CATA immediately started taking action to eliminate as much of the political and bureaucratic red tape as we could which was surrounding and threatening to bury the cable industry — and particularly the smaller operator. You must remember that even today close to **80%** of all cable systems have **less than 5000** subscribers. There was a lot of work to do.

One of the first efforts undertaken following the Copyright Wars was to get the FCC to recognize the difference between large and small operations — just as we had done in Congress. We were similarly successful. A frontal attack on the "Certificate of Compliance" process (remember the Kyle Moore "Gridley" case, where he challenged the FCC to come out to Gridley, Kansas, and shut him down?) resulted in the Commission eliminating the CAC requirement for "small" (under 1000) operators, and ultimately eliminating the certifying process completely. From then on, it was a series of small steps to where we are today. Since those fights began, practically every Federal rule written about cable television has had "small system" exemptions built into it. That has been due, in no small part, to the existence of CATA. If nothing else we can say that legislators and regulators have decided that we are "more trouble than we are worth" and therefore they automatically, today, include those exemptions. The reason that was not true prior to the emergence of CATA is that there was simply no awareness of, or consideration of, the "small" operator.

But has CATA only worked for the "mom and pop" operators over these past 10 years? No, of course no. We are proud to say that some of the

actions CATA has initiated probably will go down in the annals of communications legislation as the most significant steps forward for the entire cable industry. The single most important step was CATA's leadership in the drive to get the FCC to authorize small satellite receive only earth terminals (TVRO's).

CATA, you will remember, was way out front on that one. We had seen for some time that the future of signal delivery was in the sky — high in the sky. Experimentation and testing of small TVRO's was done by CATA and comprehensively reported in both the CATAcable and CATJ **long before** anyone else in the cable industry started focusing on the issue. We demonstrated the quality and reliability of small earth terminals at our annual CCOS seminar a year before such terminals were "legal". And, yes, we invited the FCC to come out and take a look at the terminals they said could not possibly work! When HBO and Turner decided to put their programming up on the satellite, we were ready! It simply would not do, from the "small" operator's point of view, to be satisfied with FCC rules that said we had to build 10-meter, \$125,000 dishes, in order to get programming that we knew we could get with 4 1/2 meter dishes that would cost less than \$25,000!

Once again CATA went into action — and, as usual, we didn't mince words. We filed a petition with the FCC demanding the elimination of the restriction on the use of small earth terminals. Of course some of our colleagues told us we were crazy, that that was not the way to get things done — they had formed a committee to "study" the problem. With a lot of help from our friends, particularly the smaller earth station manufacturers, we prowled the halls of the FCC. Naturally, once we started the battle, the bigger companies jumped into the fray too. The net result was that the FCC allowed the use of small earth terminals in record time.

As is usually the case, the FCC couldn't make things simple. They had to create a whole licensing process for the TVRO's. So CATA responded the same way we did with the Certificate of Compliance process. First we organized mini-seminars around the country to teach cable operators how to fill out the various forms rather than pay exorbitant fees to Washington lawyers, and then we went after the rules themselves. As we are sure you know, there **no longer** exists a requirement for a TVRO license.

What else have we been up to in these last ten years? Well, I could go on and on. Of course we have been in the middle of all of the yelling and screaming over the years about potential changes

In the copyright laws, and we are also deeply involved today in the industry-wide effort to achieve regulatory relief through federal legislation. The "must carry" rules remain one of our primary targets as well. Certainly there is no lack of things to do.

I think it is undeniable that CATA, as has the cable television industry, has grown up. There no longer are bitter battles between CATA and the NCTA. We have all matured to the point where we recognize and respect both our differences and our similarities. The two national trade associations provide true synergy for the industry — that is, the whole is greater than the sum of its parts.

There is a recognition that one association, be it either CATA or NCTA, cannot possibly represent all the diverse viewpoints in our industry all the time. The strong and usually harmonious voices of both associations are being heard — and listened to. CATA has grown up. No longer can it be said that we simply represent the "mom and pop" operators only — although clearly CATA is their spokesman, and there is a warm spot in our heart for the true, individual independent operator. We will **always** represent that point of view, but with a recognition

that our membership now spans the industry, from the smallest to the largest operator — who, after all, really simply owns a lot of small systems! CATA can better be defined today by what, or who, we do not represent rather than who we do. We do not attempt to represent the interests of the major urban area broadband communications systems. True, some of our members are in the process of building those systems — but once again, it is important to go back to our roots and remember that the initial reason for starting the Community Antenna Television Association was that too many people lost sight of what cable television really was — they were, and still are, being seduced by the image and dream of the "wired nation." CATA represents the cable television industry — the hard working men and women in big and small cities and towns — in the suburbs and the rural areas, who are serving the needs of today's consumers. We're proud of what we have done, and what we will continue to do. We are proud of the industry we represent. And, as President of CATA, I can only say thanks for sharing this time with me to look at where we have been, and thanks too for supporting us, and yourselves in what we have become. □

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## EDITORS NOTE

Happy New Year from the CATJ Staff!! We wish all our readers a very Happy and Prosperous New Year. 1983 was full of many things — some happy and some not so happy, but we must look forward to 1984 and hope that each day will bring the best of life to you.

1984 is a herald year for us here at Television Publications, for it marks the tenth anniversary of the **COMMUNITY ANTENNA TELEVISION ASSOCIATION** and of the above named corporation that publishes this magazine, **COMMUNITY ANTENNA TELEVISION JOURNAL**, the official publication of CATA. As I sit here and look about this office, I remember the first time I walked in here — the floors were bare, office partitions were being constructed, lighting was being hung, and the place was just a mess, but we were confident that a little time would put this place into shape and our offices of CATA and CATJ would be the result. All this was accomplished, and our headquarters office here has become very much our “other” home, but more important, a place where CATA members (especially the Oklahoma members) drop by for information or assistance and feel comfortable to use these premises. We’ve had CATA members from several states going through the Oklahoma City area that have stopped by to say hello because they wanted to be able to picture the scenario when they call, and wanted to see this CATA office in operation. We’re always happy when some of the CATA Associate Members and CATJ advertisers stop in, again just to visit or to obtain information or help on a problem. The CATA office is always open to you, and the coffee pot stays hot, so let us extend an open invitation to you if you’re in the area to pay us a visit. We’d be honored by your presence.

The tens years of CATA for me personally has been a fleeting decade, but filled with many memories . . . memories of the hur-

ried trips to Washington for Kyle Moore and many others for work and testimony on the copyright law which was re-written in 1976 as a result of the concentrated effort and support of many CATA members and other cable people supporting our copyright efforts . . . memories of the test case on “Certificate of Compliance” that was filed by Kyle Moore on his Gridley, Kansas, system which resulted in the FCC definition of “small” systems (under 1000) . . . we still have a few of those famous posters of the Gridley tank picture which were autographed by Kyle and sent to contributors to that test case fund. The leaders of CATA were always farsighted, as evidenced by their actions to legalize the use of small earth stations so that the small cable systems could take advantage of that kind of investment to bring programming into their communities.

And remember the early seminars called “Mini-CCOS”? With all the paperwork and new technology coming down, CATA foresaw the need for the cable operators to have some briefing about all of that. From the beginning, the message was to focus on the FCC forms so as not to develop a problem for your system that was needless. But who could figure out the questions? Mini-CCOS was the answer — the two day meetings were split between some technical instructions and FCC personnel was invited to come to assist in the compliance of information. The Mini-CCOS of course became the forerunner of the first

CCOS (we’re still asked — it stands for Cata Cable Operators’ Seminar — that would have made a good trivia question!!) conducted at Western Hills Lodge, Wagoner, Oklahoma, in July of 1976. When that was put together, we had no idea that it would enjoy the success that it did — all of the lodge was taken, as well as every room in every nearby motel (and some not so nearby) and every six-foot table that could be crammed into that big room was full of the vendors’ goods. That CCOS started the tradition of the CATA-family oriented summer seminars; we have had some great meetings, but that first outdoor barbecue on the point on Lake Wagoner, complete with a beautiful full moon shining and the crowd participating in group songs stands out as one of the most convivial moments in CCOS history. There was real camaraderie present and a warm (not just temperature) feeling of friendship among the operators and their families, and the vendors that attended. Do you remember that Bob Huston of CABLE NEWS was there with a big black Oklahoma hat on? Mr. Huston originally had been less than enthusiastic about the “maverick bunch from Oklahoma” who named themselves CATA and had been as vocal in his writings. However, as time passed, he realized that the small cable operator did have a viewpoint and should be considered; he became so involved with CATA and Kyle Moore that his publication

*continued on page 23*

## COMMITMENT

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By: Steven K. Richey, President

# DTMF TONE DECODER

This month we will discuss the DTMF (Dual-Tone Multifrequency) Decoder needed to control the switchers and to decode the four tone control signals sent as part of the Audio portion of the Satellite Signal.

The first Tone Decoder we built was a result of a feature in the May 1982 CATJ by John Lazar (Harris Corporation) and Richard Kirn (Wire Tele-View Corporation). We found that it worked fine with a Touch Tone Pod but we had some problems with its remaining stability over long term and with the very fast tone burst that comes from the Satellite.

The solution to this problem was to use a M-947 DTMF (see Figure 1) Receiver manufactured by Teletone Corporation of Kirkland, Washington. The 947 combines switched capacitor and digital techniques to Decode DTMF Signals to Four bit binary data. The 947 filters out the noise, splits the signal into its high-frequency and low-frequency components to determine the validity of the composite pair. Valid signals are decoded and stored at the DATA outputs; invalid signals are ignored. The clear input resets all functions while the BD and DV outputs provide an early indication of signal presence and a DATA Strobe.

The audio signal comes in through a .1 capacitor and a 100k resistor into a 4069 CMOS inverter biased as an Amplifier. There is adjustable feedback around the amplifier so that the output level can be adjusted to be approximately 500mv (1/2 volt) which is the optimum level for the 947.

The 947 Sequentially decodes the DTMF signal and outputs in BCD (see Figure 2) code to the 4154. IC3 a 4 to 16 Line Decoder.

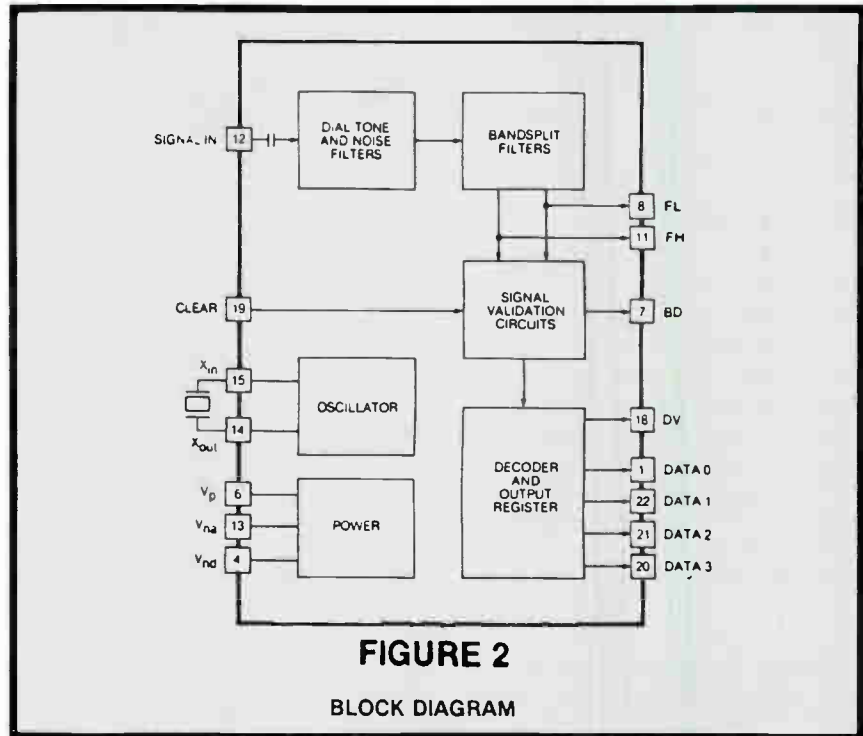
In the 4514 Decoder, the BCD input is converted to a single number output; example: a 0001 code outputs to pin 9 for a digit #1 or a 0100 outputs to pin 18 for a digit 8.

A jumper is placed from point A to the appropriate 1st number at the output of IC3. When that number or output goes high, a pulse is transmitted to the input of IC1b where it is inverted and the output goes momentarily low. When the low pulse is connected to pin 3 of IC5, it causes the output pin 13 to go and stay high until reset. The

with the C input, we have a 3 digit sequential Decoder. The output of the 3rd digit authorizes (BOTH) IC4C and d so that either the # or the \* is an authorized command. \* for on and # for off.

Now a digit, digit, digit \* will cause pin 1 on IC5 to go and stay high. The pin 1 voltage is then coupled to a 2N2222 used as an emitter follower and then sent on to the Timer Board.

Conversely a digit, digit, digit # will cause pin 1 to go and stay low resetting the unit and awaiting further commands.



output is fed to one of the inputs on IC4a a 2 input and gate. The 4011's output will go low only when both inputs are high, so by bringing pin 1 high by an action of the 1st digit and the pulsing the other input with the second digit from the 4514, we have a two digit sequential Decoder. Then by repeating the process again

IC6a and b monitor the input signals and, each time a tone is received, they restart the timing circuit consisting of IC7 and IC8 a-d which, if not restarted every 1/4 second, will output reset pulses to the 947 DTMF Decoder and to the 3 resets on the Digit Logics of the 4044. Therefore if the numbers are



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When using this log for recording signal leakage in the Aeronautical Frequency Bands, the log sheet must remain in the file for a minimum of two years.

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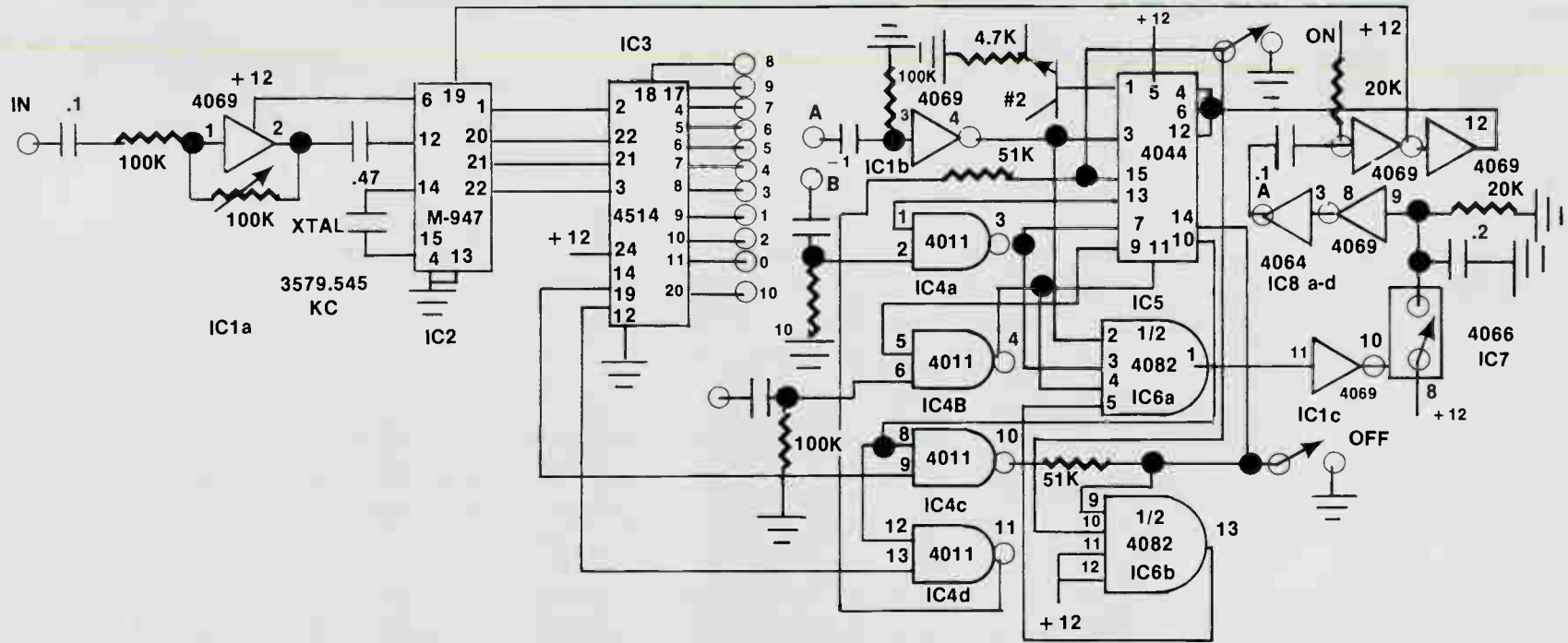
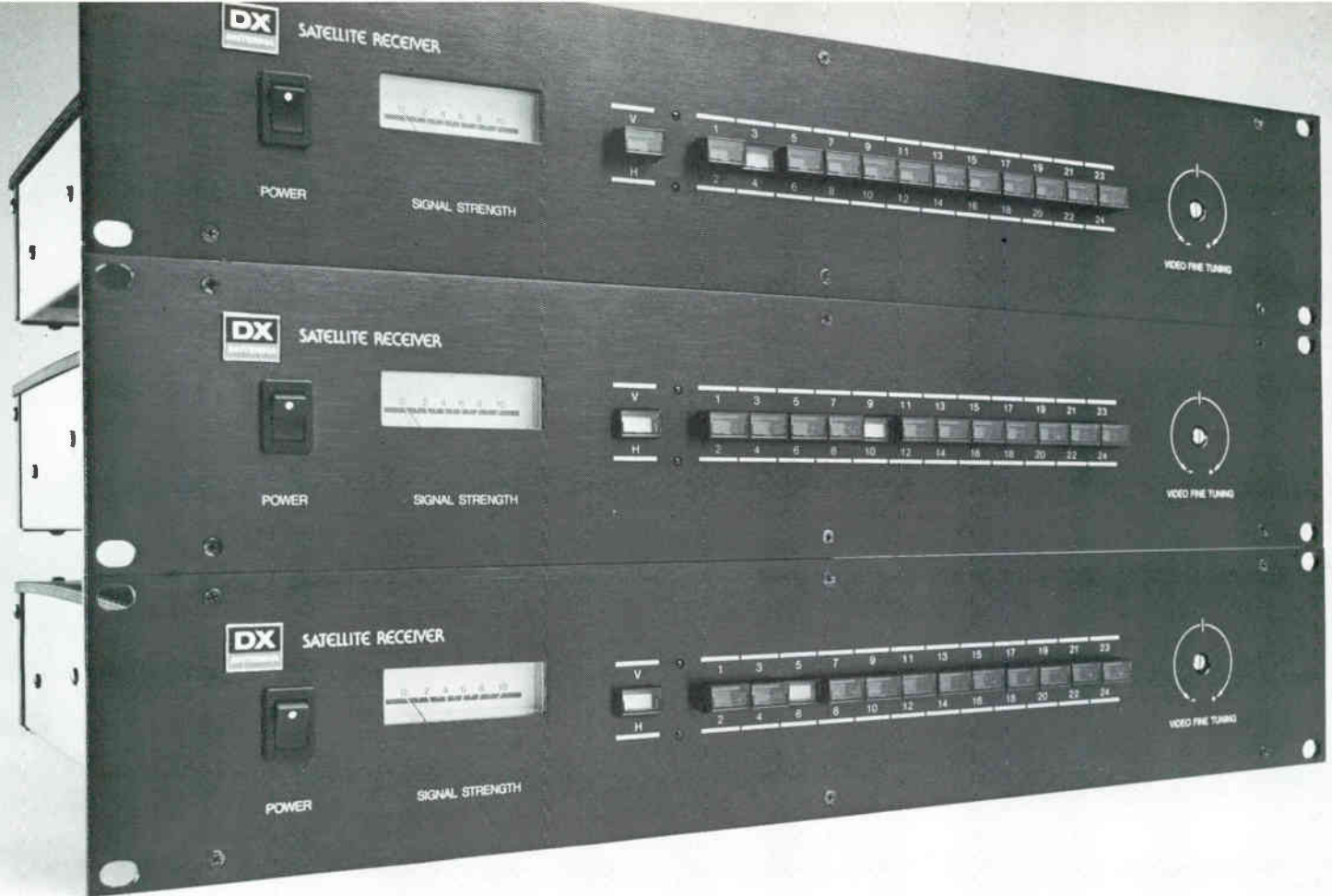


FIGURE 1





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# DTMF DTMF DTMF

TABLE 1 DTMF TO BINARY DECODING

SIGNAL	LOW-FREQUENCY COMPONENT	HIGH-FREQUENCY COMPONENT	DATA OUTPUTS	OUTPUT EQUIVALENT	
			3 2 1 0	HEX	OCTAL
1	697 Hz	1209 Hz	0 0 0 1	1	1
2	697 Hz	1336 Hz	0 0 1 0	2	2
3	697 Hz	1477 Hz	0 0 1 1	3	3
4	770 Hz	1209 Hz	0 1 0 0	4	4
5	770 Hz	1336 Hz	0 1 0 1	5	5
6	770 Hz	1477 Hz	0 1 1 0	6	6
7	852 Hz	1209 Hz	0 1 1 1	7	7
8	852 Hz	1336 Hz	1 0 0 0	8	10
9	852 Hz	1477 Hz	1 0 0 1	9	11
0	941 Hz	1336 Hz	1 0 1 0	A	12
*	941 Hz	1209 Hz	1 0 1 1	B	13
#	941 Hz	1477 Hz	1 1 0 0	C	14
A	697 Hz	1633 Hz	1 1 0 1	D	15
B	770 Hz	1633 Hz	1 1 1 0	E	16
C	852 Hz	1633 Hz	1 1 1 1	F	17
D	941 Hz	1633 Hz	0 0 0 0	0	0

TABLE 2 PIN FUNCTIONS

Pin	Function
V <sub>p</sub>	Postive power supply connection.
V <sub>na</sub> , V <sub>nd</sub>	Negative power supply connections. V <sub>na</sub> and V <sub>nd</sub> should be at equal potential.
CLEAR	Clear. As shown in Figure 3, logic 1 applied to CLEAR resets the Signal Validation Circuits (see Figure 2) and forces the DATA outputs to the "D" row (all zeros) of Table 1. Logic 0 applied to CLEAR enables the Signal Validation Circuits.
SIGNAL IN	DTMF input, internally AC-coupled. See Table 1 for the frequency pairs associated with each DTMF signal.
DATA 0-3	Data. As shown in Figure 3, the DATA outputs change when a signal is validated and are maintained until a new signal is validated or logic 1 is applied to CLEAR. See Table 1 for the outputs associated with each DTMF signal.
BD	Button Down. As shown in Figure 3, BD goes to logic 1 after a signal is detected but before it has been validated as one of the frequency pairs listed in Table 2. If the signal is determined to be invalid, BD returns to logic 0 immediately. If the signal is determined to be valid, BD returns to logic 0 after the signal ends.
DV	Data Valid. As shown in Figure 3, DV goes to logic 1 after the DATA outputs change and returns to logic 0 after the signal ends. To read DATA during signal presence, use the leading edge of DV. To read DATA after signal presence, use the trailing edge of DV.
FL, FH	Normally not used.
X <sub>in</sub> , X <sub>out</sub>	Input and output connections for a 3.579-MHz television color burst crystal.

not received sequentially and all within a second, the unit will be reset and not activated.

On the set and reset lines for the \* and #, on and off both controls

go through a 51K resistor with a front panel normally open momentary contact switch which can be used to manually override and turn the system on or off.

This concludes the information on the Tone Decoder, and next month we will discuss the timer and the Logic needed to put it all together and control a VTR. □

## FOR SALE USED JERROLD LINE EQUIPMENT

*Removed from service during system upgrade to increase channel capacity.*

**OPERATIONAL MODULES** (functioning satisfactorily when removed from service)

Quantity	Model Number	Description	Price Each	Total
125	SAM-PT	Automatic trunk module	\$186.62	\$23,327.50
125	SMM-PT	Manual trunk module	113.40	14,175.00
197	SDH-P	Terminating trunk module	72.00	14,184.00
221	SBM-P	Bridger module	79.38	17,542.98
14	SAS-300	Automatic slope module	186.82	2,612.88
78	SJAS-301	Automatic slope module	186.82	14,556.38
36	SJMM-301	Manual trunk module	113.40	4,082.40
31	SJDL-301	Terminating trunk module	72.00	2,232.00
80	SJBM-301	Bridger module	79.38	6,350.40
			<u>\$99,063.32</u>	

**NON-OPERATIONAL MODULES** (needs repair)

Quantity	Model Number	Description	Price Each	Total
16	SAM-PT	Automatic trunk module	\$62.21	\$ 995.38
38	SMM-PT	Manual trunk module	37.80	1,436.40
18	SDH-P	Terminating trunk module	24.00	432.00
69	SBM-P	Bridger module	26.46	1,825.74
11	SJAS-301	Automatic slope module	62.21	684.31
3	SJMM-301	Manual trunk module	37.80	113.40
14	SJBM-301	Bridger module	26.46	370.44
3	SJDL-301	Terminating trunk module	24.00	72.00
6	SJAS-400A	Automatic trunk module	51.24	307.44
4	SAS-300	Automatic slope module	62.21	248.84
200	SCD-2W	Chassis ("Mother Board")	37.20	7,440.00
54	SPPS-60	Power Pack 60 Vac	13.00	702.00
				<u>\$14,627.93</u>

**EQUALIZERS** (functioning satisfactorily when removed from service)

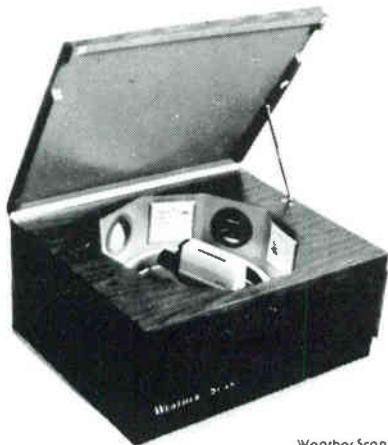
Quantity	Model Number	Description	Lump Sum Price
130	SEP-260-L	Equalizer	
132	SEP-260-H	Equalizer	
7	SEP-260-S	Equalizer	
17	SEP-274-L	Equalizer	
18	SEP-274-H	Equalizer	
3	SEP-274-TL	Equalizer	
3	SEP-274-ST	Equalizer	
24	SEP-304-TL	Equalizer	
37	SEP-304-ST	Equalizer	
63	SEP-304-H	Equalizer	\$4,000.00
53	SEP-304-L	Equalizer	
96	SEE-260-6	Equalizer	
85	SEE-260-12	Equalizer	
8	SEE-260-20	Equalizer	
2	SEE-270-6	Equalizer	
2	SEE-270-12	Equalizer	
54	SEE-300-6	Equalizer	
19	SEE-300-12	Equalizer	
54	SEE-300-18	Equalizer	

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The NCTA president David Foster . . . had finally gotten Kyle off into a private room. There, I later learned, Kyle had been offered the chairmanship of something Foster called the 'Independent Operators Board.' For several hours Foster had talked and Kyle had listened. When Kyle finally came out, his face

what he wanted to say and I would compose it and type it. I wore out a brand new typewriter!"

Late Wednesday afternoon Pat would drive back home to Cordell while Kyle stayed on in Oklahoma City until Friday night. Support and cooperation from the entire Moore family was needed to make this work week



*In 1978, after serving as President of CATA for more than four years, Kyle congratulates the incoming President and another CATA founder, Ben Campbell, as he takes over the reins of the organization and Kyle becomes Chairman of the Board at the Annual Board of Directors' Meeting at Fountainhead Lodge, Eufaula, Oklahoma.*



*Kyle worked closely with the Business Office in Oklahoma City and its Business Manager, Celeste Rule Nelson, on day to day business operation and helped formulate the arrangements and plans for the CCOS programs as they began in 1976.*

drawn, shirt unbuttoned and his tie loosened, he looked at me with the same piercing eyes that later would set back Congressmen, Senators and FCC officials and he summed up his decision. 'There's just no way. If it is going to work, we are going to have to do it ourselves.'

"And so we did . . . Kyle . . . recognized that the CATV industry was in truth . . . two quite distinct industries. We share in common many important operating procedures and much of the equipment but where the two industries differ, they differ a great deal."

CATA was launched with Kyle as the first president and a four member board of directors: Ben Campbell, G.H. Dodson, Warren Fribley and William Risden.

There were about ten people who actually funded the formation of CATA according to Kyle. An office was opened in Oklahoma City and, during the first months it was managed by Kyle and Pat. Pat recalls that early every Monday morning she and Kyle would leave their then teenage daughter, Trecia, under the supervision of her grandparents in Cordell, and drive two cars to Oklahoma City, about a hundred miles away.

Kyle recalls, "I was on the telephone constantly, trying to get support and new members to come into the association."

When it came to the volume of written words that needed to be prepared, Pat says, "He would tell me

after week.

Many others worked hard, not only then, but during the ensuing decade and Kyle is generous with his praise. "I was glad to be a part of it, but I was just a small part of it," he says with typical modesty. "There were people from all over the country that helped . . . A lot of people were never recognized, some didn't want to be recognized. They helped us with . . . financial aid in the early days. He adds that much of the early success should be attributed to Bob Cooper and Richard Brown who "helped the association along tremendously." Bob was CATA's first executive director and was a major force in organizing, promoting and sustaining CATA. Richard was CATA's first general counsel in Washington D.C. and was very effective in dealing with the FCC and lobbying in Congress. One of his major contributions was in the campaign to have the earth terminals reduced from 7.5 meters to 4.5 meters.

Kyle praises the dedication of association presidents and directors. He adds that all the officers and directors have had their own systems to operate, and so the major work of the association has fallen to Celeste Rule Nelson and Steve Effros. "I don't know what we would have done without them," he says, speaking of some of their many accomplishments. "All in all, there's been a lot of hard work . . . by a lot of different people."

It took not only work, but someone special to put it all together and get it started. Most would agree that

# CHANNELIZER

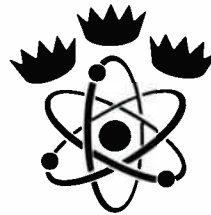
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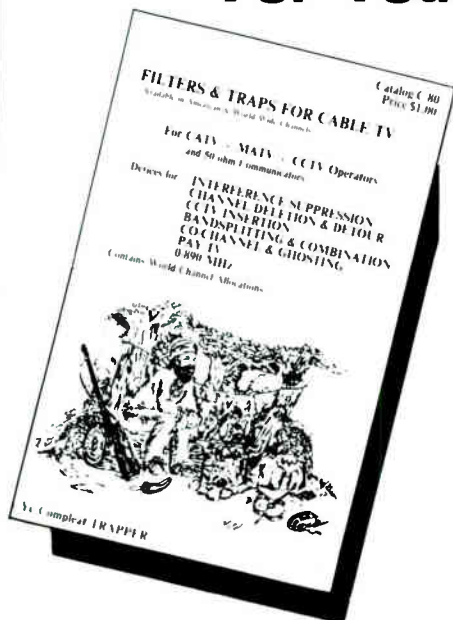


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CATA is Kyle Moore, and without him, it wouldn't have happened. Even though there were others who saw the need as urgently as Kyle, his desire, motivation and opportunity to put forth all the effort required made it work.

At one time Kyle Moore piloted his own airplane around the country, supervising his cable operations, attending association meetings and promoting CATA. Today he prefers to travel at a slower pace in his forty foot Newell Custom Coach. He keeps it fully outfitted



1982 CCOS participants found Kyle Moore's wife, Pat, in Nashville among the enthusiastic visitors to the city, as her interest in country music brought her there with Kyle, and the above was taken at the banquet where Bill Anderson performed.

Kyle is quick to add that he was fortunate to have "good dependable, dedicated help, both in the offices and in running the systems, thereby making it possible to be gone so much of the time." He was confident then, as he is now when he takes to the road, that his employees would keep the cable systems operating at his high standards.

Kyle learned all about hard work at an early age on the farm in Western Oklahoma where he grew up. Hard work, perseverance and determination were the ingredients of that life, and his mother was a good teacher. Kyle attended a country school and was very active in the 4H Club which he credits with developing his enthusiasm for the free enterprise system. Kyle has known Pat, his wife of twenty-eight years, since she was a little girl. They have one daughter, Trecia, and both of them talk about what an exceptional person she is. Trecia and her husband, Jackie Harper, live in Cordell, and having them close by is another source of happiness for the Moores. When asked about grandchildren, Kyle's voice softens with love, and he says, "We have a grandbaby, two years old." Her name is Julie Ann and she is a constant delight to her grandparents. At an age when most toddlers can say only a few simple words, she is learning to recite the names of the Books of the New Testament. She carries her own Bible to church "all the time" says Kyle. Kyle and Pat are active members of the Northside Church of Christ in Cordell.



Kyle Moore has succumbed to the charm and delight of their two-year old granddaughter, Julie Ann. We understand that no one else is allowed to sit behind this wheel and play cars.

and ready to go.

When taking care of business at his cable systems, he parks the motorhome at the headend site and uses it for a headquarters for several days, then moves on. For recreation he, his wife Pat and their four tiny dogs take to the road in the motor home. The dogs, two Maltese and two Yorkshire Terriers, rate high on Kyle's list of favorite possessions, and go nearly everywhere with him.

Travel destination is usually a swap meet in search of items to add to Kyle's collection of "Automobilia." He is particularly interested in car, oil and gasoline advertising pieces from an early era. He has an extensive collection of porcelain signs, tin signs from the late 1800's and early 1900's, gasoline pump globes and country store advertisements. A building on his 320 acre wheat farm stores and displays these items along with his enviable collection of restored antique automobiles. These include a 1930 Pierce Arrow, a 1930 DuPont, a 1931 Cadillac convertible, a Cord, a Graham and two Auburns.

Kyle and Pat have made friends all over the United States who share their interest in antique automobiles and related collections. This year they plan to attend swap meets in southern California, Arizona and Hershey, Pennsylvania, among others. They are looking forward to the "Gasoline Bash," a meeting of collectors of early gasoline pumps in Fresno, California.



While she admits to being more of a “homebody” than Kyle, it’s apparent, listening to Pat talk about seeing old friends at swap meets, their life in the motorhome and the beauty of his automobiles, that she shares Kyle’s enthusiasm.

fired the first shot on behalf of independent cable operators throughout the country.

Through the years Kyle’s business experience has involved many other fields besides cable television, including owning a jewelry store, watch repairing,



*Kyle Moore congratulates the incoming President, Peter Athanas, at the 1982 CCOS meeting and welcomes Wayne Sheldon, CATA Director to the Board of Directors.*



*Kyle Moore and G.H. “Bunk” Dodson — pioneers in the cable television industry — founders of CATA — co-founders of CATJ — compadres in philosophy and responsibility — long-time friends — both giants among men.*

Pat has a collection of Roseville Pottery on display in her home, but for the most part she leaves the collecting to Kyle. “This family can support only one collector,” she says, laughing, and she emphasizes that she prefers it that way.

They both look forward to the day when their granddaughter will be a regular companion on their trips and will appreciate and enjoy Kyle’s collection. Their daughter, Trecia, enjoys using her skills to bake and decorate cakes designed especially for collectors of “automobilia.” These masterpieces, decorated with appropriate pictures such as gasoline pumps, are shared with some of the Moore’s swap meet friends.

Two or three times a year when Kyle’s son-in-law is able to get away from his farming and cattle vocation, a trip to a swap meet or auction becomes a family event, with Trecia, her husband Jackie Harper, and little Julie going along. Recently Jackie has started collecting paper advertising and is particularly interested in farm machinery advertisements. There seems to be something contagious about all this!

Kyle Moore is admired and respected by many: by his family because he is a loving and caring man; by his subscribers because he has brought the outside world to their homes via good television reception in areas where there would be no reception at all without cable; and by hundreds of cable operators because he stood up and

antique automobile restoration, manufacturing, publishing and farming. When asked to describe himself, he said he was conservative, a believer in free enterprise and a “fighter for independence from government involvement” in private business. When he started out in the cable television business, there were no seminars or training courses to offer help and no one with previous experience to turn to for advice. Maybe that is one reason why, once he had taught himself, Kyle was so willing to offer help and advice to fellow operators who asked for it.

Kyle Moore, who started it all, says that today CATA is a very viable organization with strong leadership. It is important, he mentioned, to continue the effort he began ten years ago of bringing in new members and support from the ranks of independent operators. He points out that some of the owners of small systems who have been the strength of CATA in the past, are selling their systems to MSOs, so CATA must work extra hard to bring in operators who don’t belong to any association. “There are a lot of them out there that have never joined any association,” he says. Another source of new members might come from the SMATV operators, whose business, Kyle believes, is faced with many of the same problems of the small independent operators. He doesn’t see any real conflict between the two, because most SMATV operators are interested in ►



*Kyle has always enjoyed the visiting and exchanging of ideas that goes on at CCOS, and you can imagine the stories that he and CATA Directors, David Fox and Joe Bain, are telling!*

installing systems in large private developments in metropolitan areas, rather than overbuilding in the rural areas where the small independent operators are.

He cites the industry problems today with the same litany as most knowledgeable operators: upgrading, theft of service, non scrambling of the movie channels and refranchising.

He agrees that the cable business will never be an easy business to be in, but he emphasizes that the business has been good to him. "It's been a good business," he said, "but it's been a business that you have to stay on top of." He adds that he was lucky to be in the right place at the right time. He lived in a town that had absolutely no television reception because of its location, and Kyle had the foresight and curiosity that took him in search of a solution at a time when community antenna systems were a comparatively new idea and opportunities were open. In the process, Kyle found outside work with plenty of fresh air and exercise, which he prefers to working inside. While he climbed towers, installed cable and set amplifiers, Pat handled the paperwork and bookkeeping.

Today Kyle says he can't imagine any other business he would rather be in, and he and Pat often talk about how well it all worked out for them and how very grateful they are!

*Kyle Moore at the podium — a most often seen position for him.*

## FROM KYLE

Just a note to express my gratitude and pride in having been a part of CATA for the past ten years. As we all know, it hasn't been easy but I think we'd agree it's been worthwhile and I am very glad to have had the opportunity to have a part in its formation.

Lots of good people have spent their time, effort and money in helping the small cable operators have a voice in their destiny, and we're thankful for the good that has come from it.

I'm especially glad to have had the opportunity of meeting so many CATA members from all over our country and consider them to be among my best friends.

My hope is that the cable industry will continue to be successful for small operators. I feel this will be true only through our continuous efforts of joining together and cooperation.

So let me say thank you again to all the officers, directors, staff and members, both past and present, and to all who will serve in the future. □



*Several years in Kyle's life were spent just as this shows — at the meeting table — asking questions — negotiating — representing CATA — and, most important, getting the results that are attributed to his tenacious leadership.*

## LOOK FOR UPCOMING SEGMENTS IN THIS SERIES!!

**INNOVATIVE SMALL SYSTEMS  
UNIQUE CABLE SYSTEM OPERATION  
SUPPLIER CONTRIBUTION  
PEOPLE BEHIND THE SCENES  
AND MUCH MORE**



dubbed Kyle "Man Of The Year" at the end of 1974 — CATA's first year after organization.

From Western Hills, CCOS moved on to Fountainhead Lodge on Lake Eufaula where it was housed for two years — outstanding meetings and filled to the brim both times. 1978 was the year the 12-meter dish was erected for live broadcasts via satellite to cable systems (and do you remember the collapse of the supports as it was being dismantled? Nothing like a little excitement to an already hectic CCOS!). From there, we knew that our annual seminar had outgrown these facilities and should be moved to other parts of the country; thus the move to Lake Geneva, then Snowmass (CO.), the cruise on the S.S. Emerald Seas, Opryland in Nashville, and lastly, Hot Springs, Arkansas. The July issue will feature all the CCOS meetings as we gear towards the 1984 version of CCOS.

We realized that CATA was growing in stature when more and more cable operators voiced their opinions concerning the independent point of view, and that indeed there was a need for both the NCTA and CATA operating on their specific philosophies within the cable industry. One of the most satisfying moments was when Bob Schmidt, then President of the NCTA, suffered the 100° plus weather in Oklahoma to attend our CCOS '78 and participate in one of the panels. It was nice to know we weren't going to fight any more — through his leadership, CATA was accepted and we were going to work together!!! Mr. Schmidt felt the need for CATA and what CATA stands for; I personally feel his attitude towards our association began the turn-around towards the acceptance of CATA. Sometimes little things suggest a person's character, and Mr. Schmidt demonstrated his to me at the 1978 Western Show when he grabbed me by the hand and literally drug me down to the headtable at one of the luncheons. He said, "We have a place at the headtable for the CATA President, and I can't find Ben (Campbell); it's important CATA be represented and introduced to the crowd!" I thought

that was certainly above and beyond his role as NCTA President but certainly indicative of the man; we all appreciated his concern.

To assist the cable operator in his day-to-day operation has been the basic philosophy for CATA lo these ten years, and again, CATA came forward to formulate the technical seminars expanding on the annual seminar and bringing technical assistance to cable operators and their technical staff. The CATA Engineering Office was established with Ralph Haimowitz as the Director of Engineering, and he developed the curriculum which is based on Basic or Advanced technology and which is presented in various selections in the country during the year. Ralph has cooperated with CATJ on articles and technical questions from readers and also serves the CATA members who have technical problems. The big man is the one who cooperates with the CCOS committee on the development of the program and handles the technical set-up, and his task each year presents a new set of problems as each situation is unique. Anyone who has attended either the Basic or Advanced seminar has come away with a better understanding of the technology, and CATA receives many letters from attendees complimenting the association on the development of the Technical Training Seminars. CATA can stand proud over this contribution to the cable industry.

When CATA graduated to its own Executive Director in Washington, how fortunate to have Steve Effros fill that position. I'm sure many of you have been at state and regional meetings, not to mention our own CCOS, when Steve relates what the latest situation in Washington is in regard to the FCC or legislation — and you can understand what he says!!!! Many are his qualities, but the most frequent compliment to Steve's abilities is that he can explain legal situations in understandable laymen's language. You can always be proud of CATA's representative in the person of Steve Effros as the impression he makes on crowds is favorable, and his CATA membership pitch is

undeniably one of the best! You'd probably buy a used car from him too!

Through these ten years, the opportunity to work with and for the CATA members has been more rewarding, and many of them have become friends. The opportunity to work with those outstanding individuals who founded this organization and then led it through perilous times until the present has been a signal honor for me and my staff. To have worked with Kyle Moore and Ben Campbell in the early days, and Bunk Dodson, with whom we continue to have the pleasure of working and affectionately calling "The Boss", and can be considered nothing short of gems in a professional's life. No matter how difficult the problems, to know that you have a President like Peter Athanas on whom you can rely, or a Vice President like Carl Schmauder who is so approachable and dependable, or the man who controls the purse strings as Secretary/Treasurer and Chairman of the Budget Committee, Clarence Dow, whom you can call to draw on his expertise in association management and who talks "straight" to you, is to know that these are the people who have their interest in the best for CATA and will help you work through the problems. Then, there's the committees and their chairmen — no doubt about it, CATA has grown in stature but it now operates on a committee system that is **operational** and much effort goes into those committee meetings and deliberations before the recommendations to the full Board.

To the Officers and Directors, and those who serve as Committee Members who work so closely with our office, we want to thank you for your **DECADE OF PROGRESS** and the opportunity to be a part of your history. We appreciate the high standards by which you have operated and extend our best wishes for continued success and advancement of the association in the cable industry. We are proud to be one of you. Thanks for the memory.



Celeste Rule Nelson



---

# It's Only Money

## Marketing For Fun And Profit

### INTRODUCTION

*Cable Marketing Services, Inc., headquartered in the Dallas-Fort Worth, Texas, metroplex, has been invited to share marketing information and experiences with CATJ readers during the coming year. The Company, headed by Janie and Bob Cull, has had marketing and direct sales experience in some 50 markets in seven states ranging in size from a few hundred homes to about 40,000 homes. Their accounts have ranged from small and medium-size independents to major MSO's in both urban and rural markets. We are pleased to offer these features to our readers in the hope that they will increase marketing awareness and effectiveness.*

*Editor*

By: **Bob Cull**  
Cable Marketing Services, Inc.  
P.O. Box 13676  
Arlington, Texas 76013  
(817) 429-2737

Marketing. Can you see it? Touch it? Measure it? What is it? How do you do it? How much is enough? How much is too much? Should I do it? How much should it cost? When should I do it? Which approach should I use? These represent some of the major, although incomplete, questions confronting operations today. And, while wrestling with these issues may be lonely and confusing in a small or medium-size independent

operation — be assured that large corporate marketing groups continue the same search for the same answers, even if on a grander scale.

While we don't pretend to have a corner on the answers to these questions, we plan to share our insights and experiences in sales and marketing with you in a series of articles over the coming year. Our ultimate goal will be to shed some light on a variety of marketing issues, in the hope that it will assist you in making a more informed decision regarding your system(s). Certainly, it is too much to hope that all of you will benefit equally, but we will attempt to cover the area

from a perspective broad enough to appeal to a diverse audience.

Just as technological advances, franchising, construction and expansion of services have been the hallmarks of the cable industry over the last decade, so marketing approaches and strategies will become the identifying characteristic in the balance of the '80's and beyond. This is not to say that progress and advancements will cease in other areas, but that marketing will move up on the list of priorities as the vehicle necessary to obtain a return on the increasing investment in cable systems. In a sense, the television set as the final

and continuing converter of invisible signals into visual images is comparable to the marketing function as final and continuing converter of technology and services into profit. If a faulty TV can ultimately destroy an otherwise effective operation in the final stage, so too can a faulty approach to the marketplace fail to provide positive results from an otherwise adequate system.

Ultimately, marketing and sales is what moves the product "off the shelf" and into subscriber homes. But, before we go too far in the direction of thinking of marketing activity as something which occurs after everything else is done, we should note that an effective marketing strategy begins "at the beginning." The "beginning" is obviously different for each circumstance and could include a point as early as a franchise bid or at any number of other points, such as rebuilds, expansion of services, reevaluation of channel lineups, or others. But, even if there is nothing new going on in your cable life, it is still important to assess your position, make determinations about where things are headed and develop or enhance strategies to deal with the future.

Regardless of where you are at the moment, you may be able to benefit from a step-by-step approach as a means of building the kind of understanding necessary to develop a successful program. We are not attempting to uncover every possible step in the universe, but rather provide some track to run on in hopes that you may benefit. Also, some of you are much further down the marketing road than others. In any case, a possible series of events leading to a well-developed strategy might look something like this:

Item	Purpose(s)
1. <b>Accumulation of Demographic Data</b>	1. To make certain determinations about economic well-being, age distribution and other community statistics. Please don't

**2. Community Surveys**

2. Again, don't assume that you know what people want and what price they are willing to pay. While surveys can be tricky in terms of acquiring truly useful data, a sample of community attitudes can be helpful and relatively inexpensive to acquire.

**"... marketing approaches and strategies will become the identifying characteristic of the balance of the '80's and beyond."**

**3. Legal/ Franchise Restrictions**

3. Obviously, the "shalls" and "shall nots" vary tremendously from one system to another, but can become a factor in pricing and other areas.

**4. Current Subscriber Analysis**

4. The questions here might be:

- "Who are these people?"
- "What do they take?"
- "What else might they consider?"

take anything for granted. We have found that communities change in subtle ways and so slowly that it can almost go unnoticed, even by someone in residence.

• "How much will they pay?" It is helpful here to analyze certain statistics, such as pay-to-basic ratios, the ratio of multi-pay subscribers, and programming preferences.

**"... 'As the Cable World Turns' never goes by the book, and is more akin to a street fight than a formal affair."**

**5. Alternative Entertainment**

5. The availability and cost of other community entertainment can be a factor, in addition to the quality and number of off-air signals.

**6. Pricing and Packaging**

6. Selecting viewer incentives in pricing and packaging can be important not only in the buying decision but in the decision to retain services as well. Thus, you should consider the economic consequences to the customer whether they are adding or removing services. The purpose would be to make the reduction in monthly charges and ancillary charges for getting off relatively less attractive

7. **Promotion** than staying on the service.

7. Based on a variety of factors, including current statistics, marketing history, budget, and goals, you would select those tools which appear most appropriate. They

8. **Planning for Retention**

could include any of a variety of approaches, such as direct sales, telemarketing, direct mail, print or broadcast advertising, among others.

8. Actually, this step belongs in every other step and should never

be out of your thoughts - particularly as it relates to four through seven. It can involve all the previous steps, in addition to specific retention training programs for all system personnel.

The most obvious omission of such an overview is that of the tremendous number of tasks and sub-tasks involved at each level. Also, there is the risk of sounding somewhat "textbookish" and formal, when all of us know that "As the Cable World Turns" never goes by the book and is more akin to a street fight than a formal affair.

But, regardless of the cable circumstance in which we find ourselves, profit maximization and enhancement of our investment are primary objectives. A marketing program which is not rooted in the general framework outlined above is likely to wander aimlessly and would only accidentally hit the mark. However, even if you carefully

**"... there is no formula - otherwise we could just plug it in and make daily trips to the bank."**

assemble the pieces and parts we have outlined above, you will discover that reasonable people may disagree about its interpretation and application in your marketing program. Debates over methodology, relative cost and relative payoff rage from the front rooms of the "Mom and Pop" operations to the boardrooms of the largest MSO's. To those of us who are also seeking answers, there is some comfort in knowing we are not alone. But this knowledge does not bring us much closer to a formula for marketing action. It does, however, bring us to the realization that there is no formula - otherwise we could just plug it in and make daily trips to the bank.

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The Detectron "Go-Fer" Model 505 helps you find underground cable at depths of up to 20 feet. Tracing distances of 1000 feet are not uncommon.

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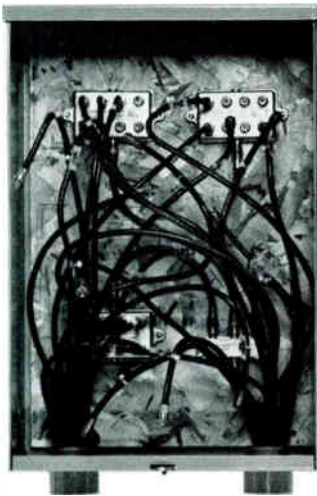
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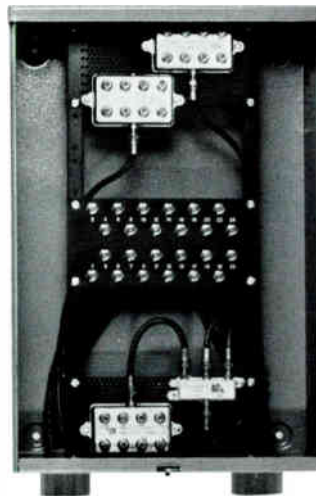
Ultimately, then, we must mix a little experience, judgement and "Kentucky wind factor" into our final selection of tools and approaches. We will discover that some of our selections will work better than others, and we must track our performance to provide a marketing history on which to build better future decisions. Thus, all the steps we have mentioned above, plus our continuing experiences provide the statistical foundation on which we can further refine and enhance our results in the future. The more

marketing experiences we have - both successful and unsuccessful - the more likely we are to arrive at sound marketing decisions in the future, assuming we continue to move through the steps outlined above and quantitatively and qualitatively track our results.

Over the coming months we will take a more detailed look at some specific marketing areas, hopefully providing some ideas or information on how to improve your marketing performance. □



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With the proven VITEK PaySaver.

PaySaver is compatible with virtually every converter/descrambler.

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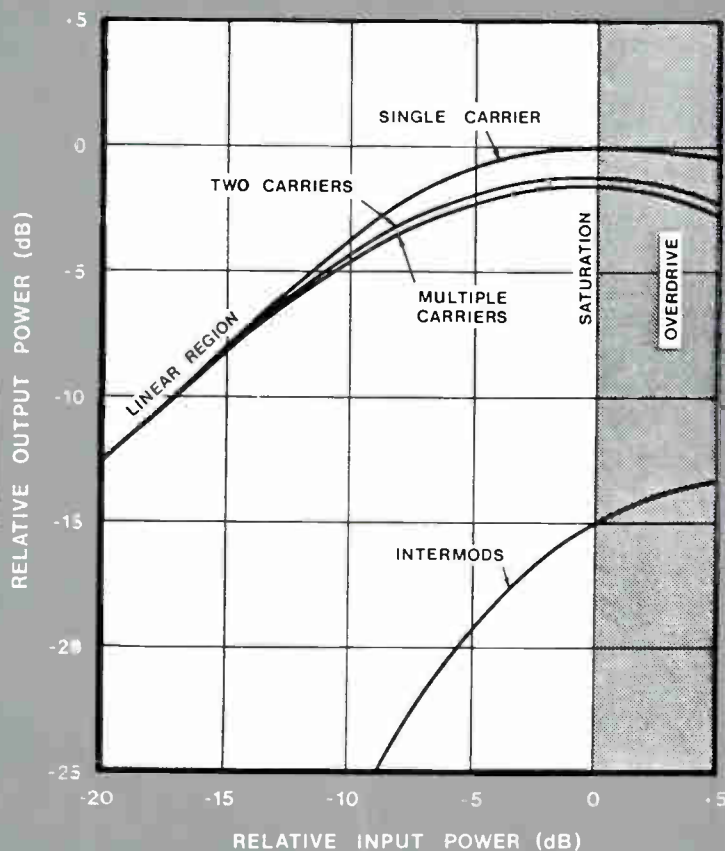


FIG. 1. TRANSFER CHARACTERISTIC OF TYPICAL TWTA

of a nominal 80 MHz transponder width, suitable for TDMA (time-division multiple access) telephony at a bit-rate of 120 Mb/s.

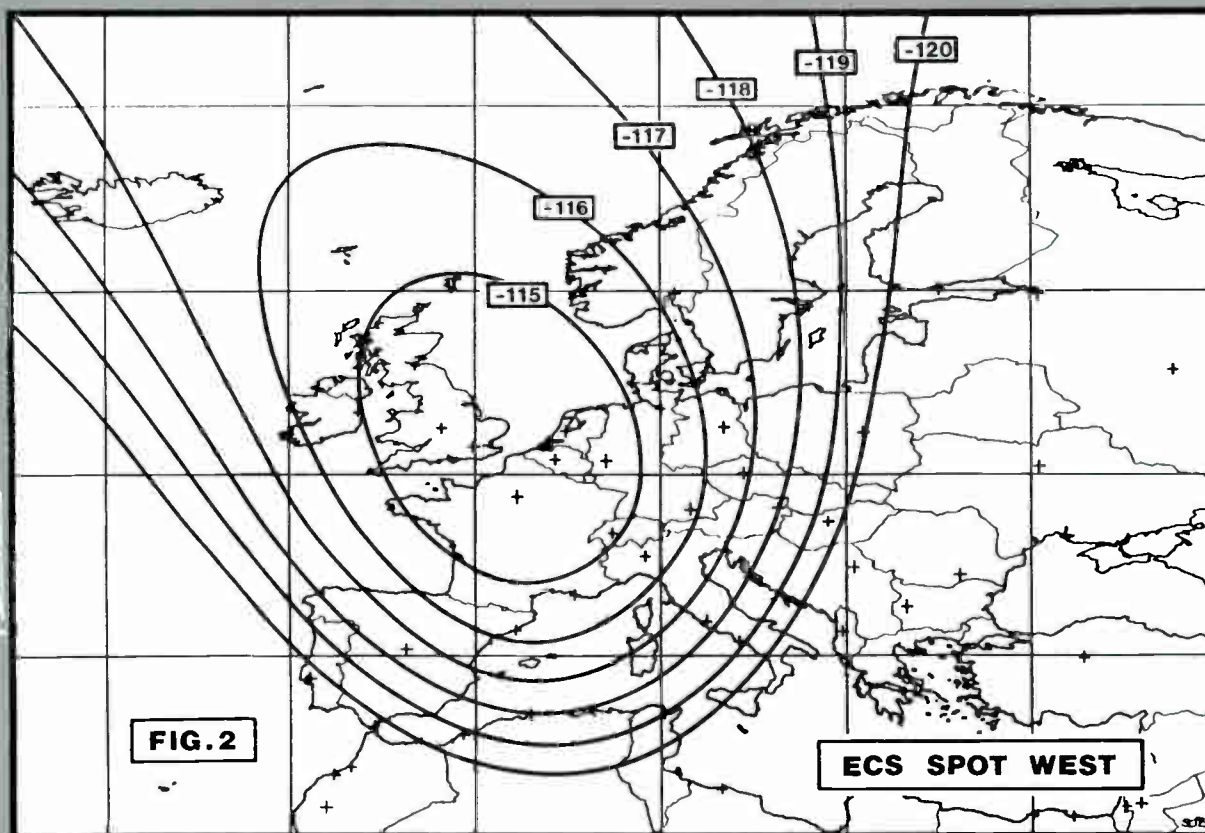
With the second and third flight models up and running, this kind of pattern may emerge in the second half of the decade, if the TV demand allows it. For the present, Eutelsat has F1 with a maximum of eight transponders available to the Spot West beam, and each of these about twice as wide as necessary for TV. How best to utilize this bandwidth?

If we had the luxury of designing a system for the cable TV needs of today, we would want to see not twelve 80 MHz transponders in various beams, but 24 transponders of 36 or 40 MHz each, in a beam similar to the existing Spot West. 36 MHz will accommodate the lower deviation "DBS-format" channel width of 27 MHz as well as the "professional" standard 36 MHz channels. Reducing TWTA output power from 20W to 10W nominal would take care of primary power constraints, while still placing in excess of 43 dBW per channel towards the principal cable TV countries of western Europe.

But we must live with ECS. To be sure, we could take advantage of the excess transponder width by offsetting the frequencies of the frequency re-use (cross-polarized) TV carriers, away from channel centre. For instance channel 6 (6X) carrier might be at 11640 MHz and channel 12 (6Y) at 11680 MHz. That way, any slight misalignment of up- or downlink polarization angle, or indeed a high level of atmospheric depolarization, will not give rise to co-channel interference. This technique has long been practised on OTS, but is really only a nice refinement in the absence of any more serious use for the excess bandwidth.

Another option is to transmit two FM TV carriers through each transponder. Careful choice of carrier frequency would still permit interleaving of "X" and "Y" polarized signals. But the penalty here is in output power: 3 dB, you might think, an equal sharing of power between the two carriers — and I have already suggested that 3 dB reduction would be acceptable, in regard to a 24-transponder satellite. But no, as readers of my "International Guidebook" will be aware, 7 dB is nearer the practical figure. The reason is intermodulation.





### Intermodulation

Figure 1 shows the power transfer characteristic of a typical traveling-wave tube amplifier (TWTA) as used in a satellite transponder. The vertical axis shows the RF output power resulting from the input drive power shown horizontally. Increasing power input beyond a certain value results in no further increase in output. At this point (the 0 dB reference on our graph) the tube is said to be saturated. Near saturation, the TWT is a non-linear device, and like any non-linear component it generates distortion products. For single carrier operation this distortion does not trouble us — the signal is frequency modulated and immune to amplitude distortion. The harmonics fall well outside the pass-band of the communications chain. So it is advantageous for us to run our transponder at (or close to) saturation, maximizing the downlink EIRP which we have no doubt paid highly for. TWT drive level is set by a suitable combination of uplink EIRP and transponder gain step, selected by telecommand. (It is naturally desirable to have uplink power to spare, to cover the eventuality of heavy rain attenuation at 14 GHz in the vicinity of the uplink site.)

Now put two (or more) carriers through the non-linear TWTA and a whole host of other frequencies appear, the sum and difference frequencies of the signals and of their harmonics. The odd-order intermodulation products fall within the band, spaced apart by the frequency difference of the original carriers. The first pair, the third-order intermods, can run as high as -15



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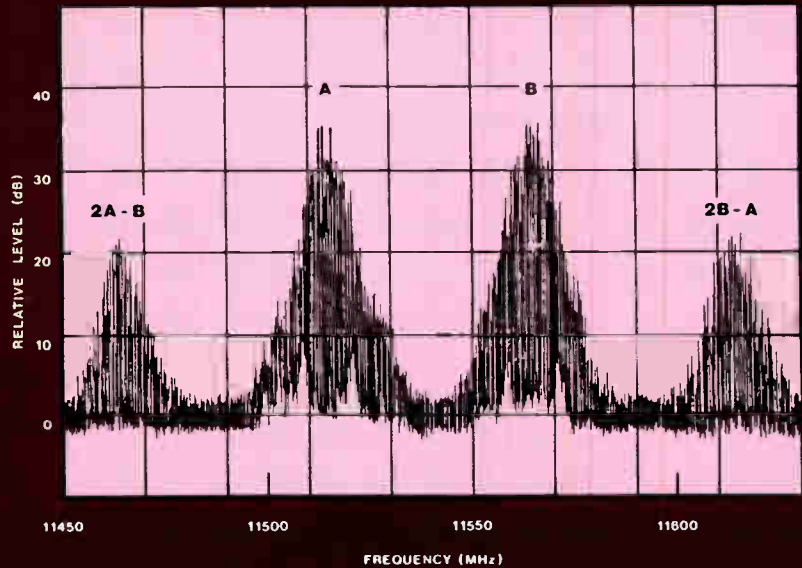
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FIG. 3. INTERMOD SPECTRUM



dB relative to the fundamental carriers, constituting a potentially severe interference problem.

**Back-off**

In its global system, Intelsat economizes on spectrum usage by operating half-transponder TV. In the nominal 36 MHz wide channel, centered (for example) on 4175 MHz, two independent TV transmissions are accommodated. Each employs reduced deviation and has its center frequency offset 9 MHz above or below transponder center. So each looks like an 18 MHz-wide channel of TV, but they both share the same satellite TWTA. Here the intermods would pose a serious hazard to traffic in adjacent transponders, so the uplink power is closely controlled to achieve an "output back-off" of between 3 and 5 dB, dependent on traffic loading and individual TWTA characteristics, to meet Intelsat's stringent interference standards. This means the downlink EIRP is reduced not only by the 3 dB power sharing, but also by the 4 dB (or so) back-off: a total reduction of some 7 dB.

Now apply that 7 dB to Eutelsat operations and look at the implications for cable operators. If a 3-meter antenna were specified for single-channel-per-transponder operation, then (assuming efficiency, receiver noise temperature and video deviation were unchanged) a 7 dB increase in gain would be needed for two-channel operation. That means a 7-meter antenna is required. Not only that, but with half-power beamwidth reduced to a quarter of a degree, an automatic tracking system would be prudent. The cost is already in the region of \$150,000 for the installation. As against a handful of thousands for the complete 3-meter system.

Could ECS operate with less back-off? With 36 MHz channels spaced 36 MHz apart about transponder center, third-order intermods would come 54 MHz out, well into the adjacent transponder. But the adjacent transponder always serves a different beam, so with careful planning it may be possible to accommodate a pattern of dual TV channels with reduced back-off. There may be attendant problems should Eutelsat at some time pre-empt a transponder to cover outage on the primary bird.

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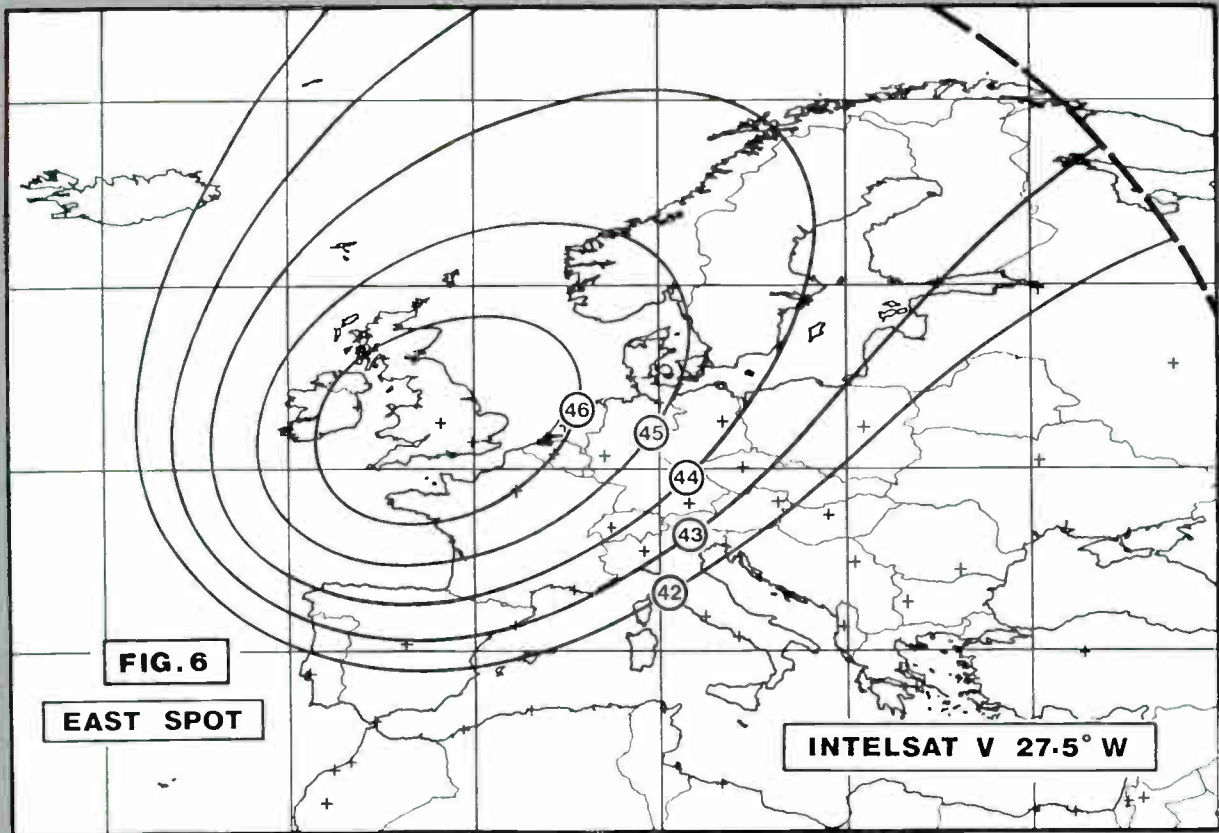
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each of 1-2 and 5-6, on each polarization. Up to 12 Ku-Band TV channels per Intelsat!

In late November, British Telecom demonstrated to the press and programmers in London the grade of service possible with two TV channels in transponder 7-12, west spot. Output back-off was varied from 0 to 8 dB. Quality was excellent, no intelligible crosstalk being detectable even at 2-carrier saturation. Some coupling into the east spot transponder was apparent, manifested as a 400 Hz (approx) beat when receive polarization was moved way from the null point.

So what about EIRP levels? If you take away allowances for pointing errors, end of life, etc., my own estimates of footprint contours right now, nominal boresight in the Birmingham area, are shown in Figures 5 and 6. Beam center EIRP of the west spot is in the vicinity of 50 dBW at saturation. And 49 dBW covers all of England and Wales, plus the northern coast of France. The east spot, leased to BT's independent rival Mercury, is around 3 dB lower in power.

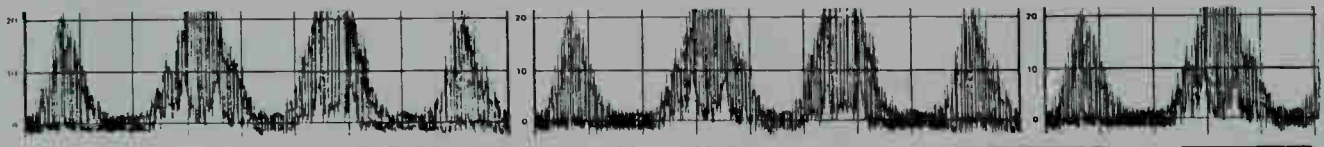
At the time of writing (November 83) it appears that both ECS and Intelsat V F4 will "turn on" with multiple cable TV feeds during first quarter 1984. West Germany, France and the U.K. hold the prime upper band channels 4 (X and Y) and 6 (X and Y) on ECS.

These services should be full transponder, subcarrier sound, and there may be a temporary relaxation in the demand for encryption.

Indications are that Intelsat V F4 will now maintain the offset configuration to permit its use for cable services. There may be some initial slight drift in satellite position as the controllers re-learn how to stabilize the spacecraft's orbit in its new "biased" condition.

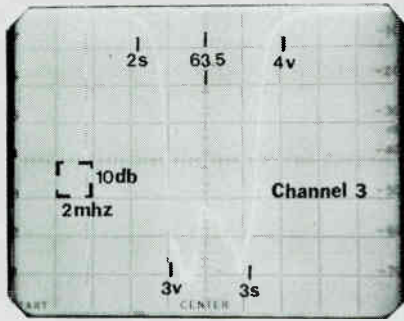
#### DBS now?

By all means the programmers should make economical use of the power and the spectrum for cable TV services, with two TV channels at 45 dBW each: high grade service to a 3-metre system. But they should be aware of the system's full potential: LNBs with < 3 dB noise figure over 10.95 to 11.70 GHz are now available. 11.7 is a man-made frontier in Region 1, as 12.2 is in Region 2, and British industry needs stimulation. At transponder saturation, with existing receiver technology and 27 MHz channel width, they can serve 90 or 100cm dishes in all but cloudburst conditions — **three DBS-capable channels from an existing bird.** Compared to the costings for Britain's two-channel, 63 dBW Unisat, that is an attractive proposition indeed. □

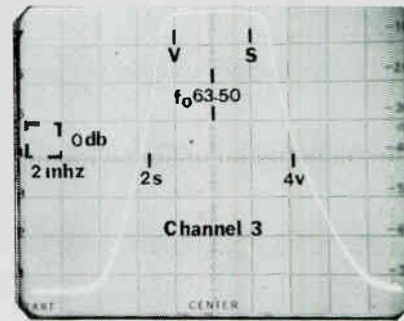




# THE FILTER TECH'S COOKBOOK Part 6



**CHANNEL DELETION FILTER**



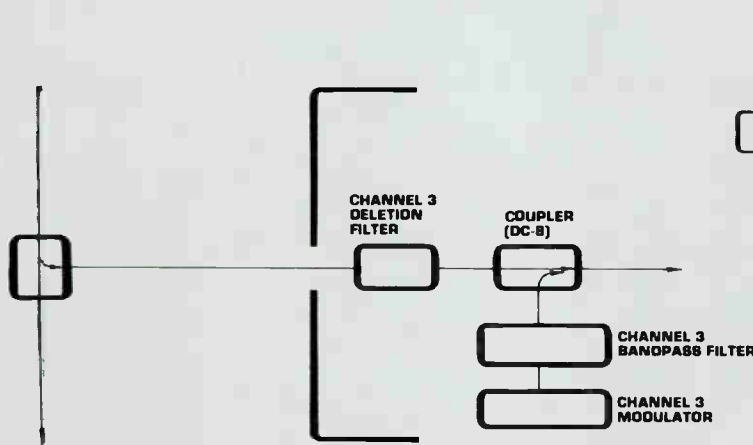
**CHANNEL BANDPASS FILTER**

All video and sound information should be suppressed by about 50 db to prevent Co-channel from infecting new programming.

Suppression of nearest out of band carriers should be substantial to prevent RF modulator noise from degrading adjacent channels.

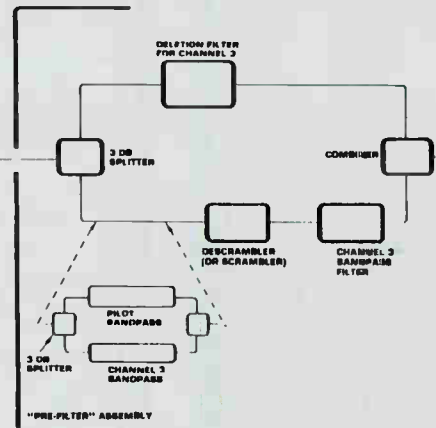
**Figure 4**

These two filter types are the key elements in many CATV System-subscriber networks for "outside sales."



**FIGURE 5**

Network to permit local insertion of new programming on a channel coming in on the cable. (Illustrated for channel 3)



**FIGURE 6**

Network for batch descrambling showing pre-filter assembly sometimes required to remove descrambler modulation from other channels. This network can also be used for local scrambling by replacing the descrambler with a scrambler.

isolation, this signal will cross over to the other branch and give interference to all channels. In this case, a bandpass filter for the descrambled channel is placed immediately before the descrambler.

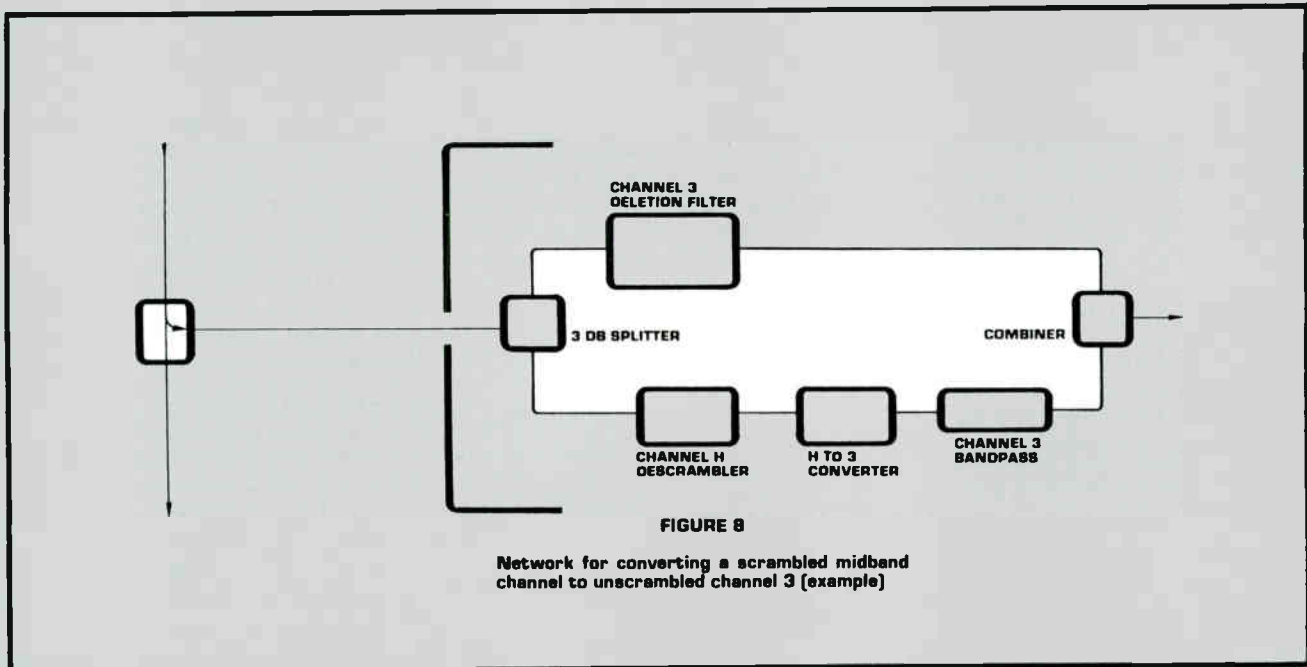
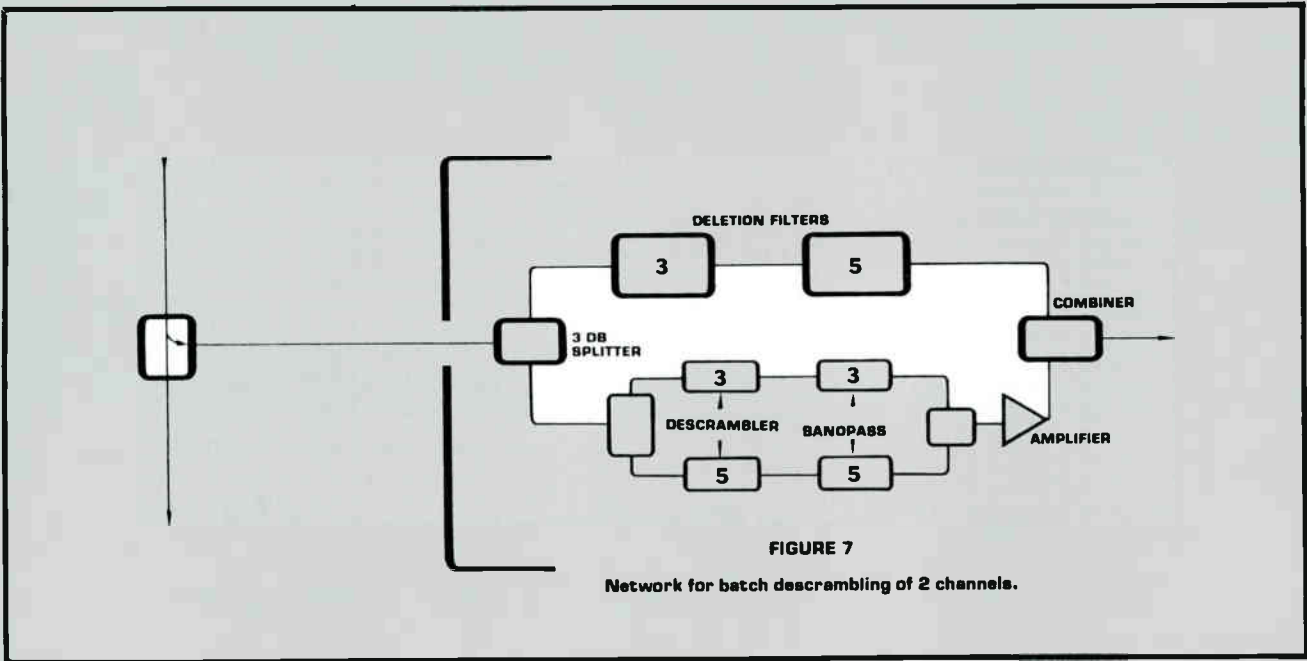
While this arrangement will still reflect off-channel frequencies, their reflections will not contain the degrading modulation. Such a descrambler requires a pilot carrier

which, in this case, is passed to the descrambler by a pilot-carrier bandpass filter wired in parallel with the "pre-filter."

### Local Scrambling

This is done by using the batch descrambling networks and substituting a scrambler for the descrambling (Figure 6). After

capitalizing the interfacing network, the major cost will be the decoding devices. Positive trapping is usually less expensive than conventional decoding. In the positive system, the scrambler is a tone generator which puts a CW carrier onto the channel to be scrambled. The decoding device is a passive trap attached to the individual set. This system is patented by the T.E.S.T.



Corporation who licenses to several equipment manufacturers.

### Batch Descrambling of More Than One Channel

The network shown for batch descrambling of a single channel (Figure 6) can be used for each

channel and then the networks placed in series. While this is workable, lower overall loss results by combining them, as shown on Figure 7.

### Batch Channel Conversion

Often, outside sales will require

the conversion of a midband channel to a conventional one (H to 3, for example). The Batch descrambling network of Figure 6 will effect this conversion if the descrambler is replaced with the required converter. Here also a selective bandpass filter at the output of the converter results in



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We have nine nation-wide factory authorized distributors who routinely stock our equipment, so it's a pretty good bet that you'll be able to get just what you want, when you want it. And our distributors are selected on the basis of their experience, knowledge and willingness to provide the support you need.

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You have already seen several big, established companies abandon the TVRO market. But not Microdyne. We have been involved in satellite

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# HELP!

Cable operators commonly complain that one of their biggest problems is trained personnel — CATA developed the Basic and Advanced Technical Training Seminar program to help cable operators in their plight to provide education and

training on these two levels.

CATA's Director of Engineering, Ralph Haimowitz, now needs some guidance from the cable operators; information is needed to make the plans for the 1984 circuit of technical training sessions.

Please complete this questionnaire and return to CATA at the address given — it will be very much appreciated and the information is very necessary to make appropriate and convenient plans.

1. Are you interested in having scheduled Basic or Advanced sessions? Or both? For yourself? For your employees? How many?  
\_\_\_\_\_

2. Is there a certain time of year that would be the most convenient for your areas?  
\_\_\_\_\_

3. Four day sessions will be planned for the Advanced course — is a Monday, Tuesday, Wednesday, and Thursday schedule all right? Or is Wednesday, Thursday, Friday, and Saturday better? Any other suggestion?  
\_\_\_\_\_

4. Three day sessions will be planned for the Basic Course — is Monday, Tuesday, and Wednesday better? Or Thursday, Friday, and Saturday? Any other suggestions?  
\_\_\_\_\_

5. Would a cooperative session bringing together several cable systems' personnel be a possibility for your area? That would mean our coming to your location at your request.  
\_\_\_\_\_

6. How far are you willing to travel or to send your employee(s)?  
\_\_\_\_\_ Up to 200 miles    \_\_\_\_\_ Up to 500 miles    \_\_\_\_\_ Over 500 miles

7. Is there a particular locale that you would like to recommend for either an Advanced or Basic seminar?  
\_\_\_\_\_

8. Do you have any particular requests or suggestions as plans are made for future seminars?  
\_\_\_\_\_  
\_\_\_\_\_

9. Please make any comments or suggestions that you might have:  
\_\_\_\_\_  
\_\_\_\_\_

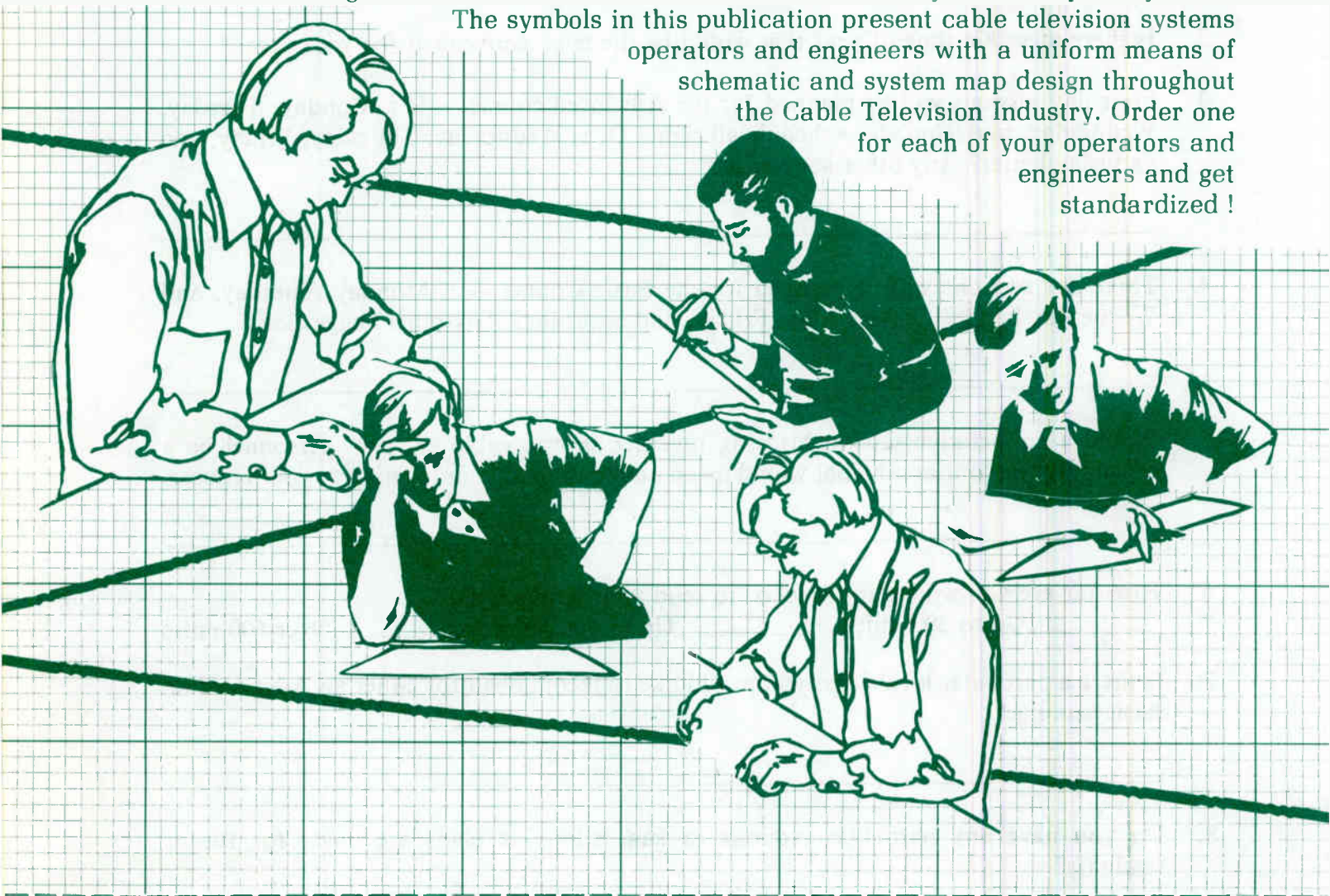
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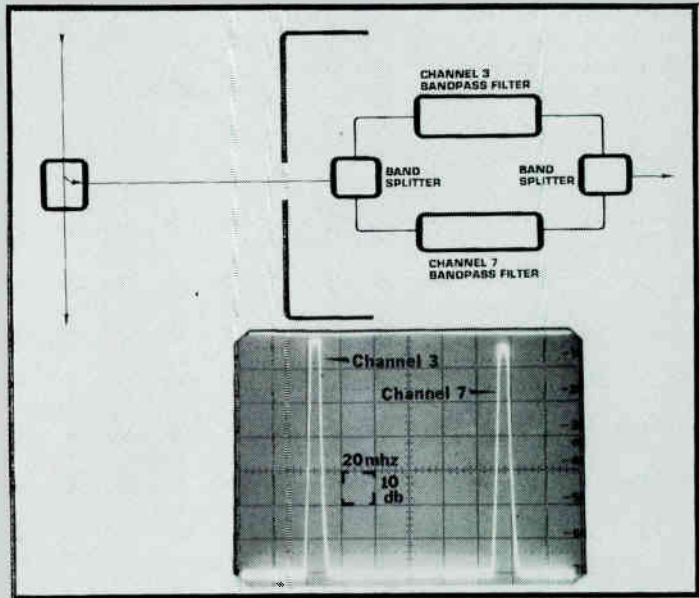
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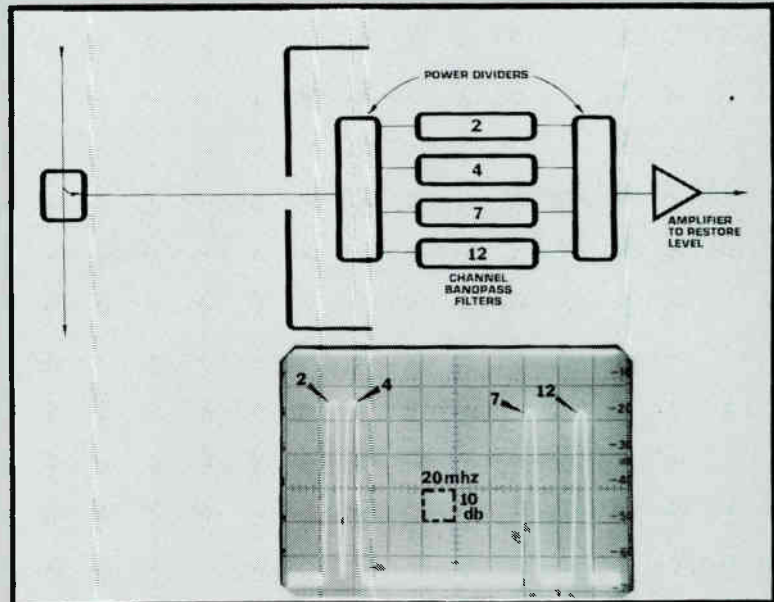
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**THE FILTER TECH'S  
COOKBOOK  
Part 6**

**FIGURE 9**  
Network for selling selected  
non-adjacent channels.



**FIGURE 10**  
Network for selling adjacent  
channels or more than 2 channels.



better reinserted quality.

**Batch Descrambling-Conversion**

Where a selected midband, scrambled premium channel is desired and the subscriber is not on a set top conversion system, it is first necessary to descramble the channel and then convert it to a

regular channel. The regular batch descrambling network is modified by adding the converter (Figure 8).

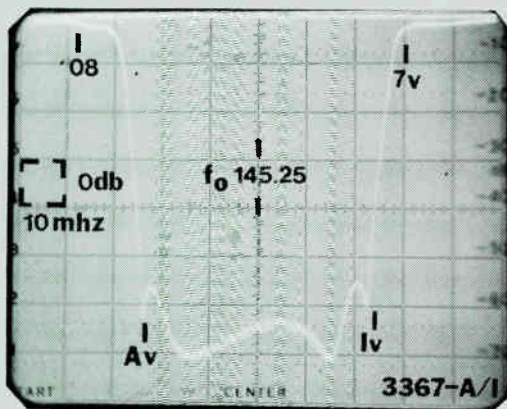
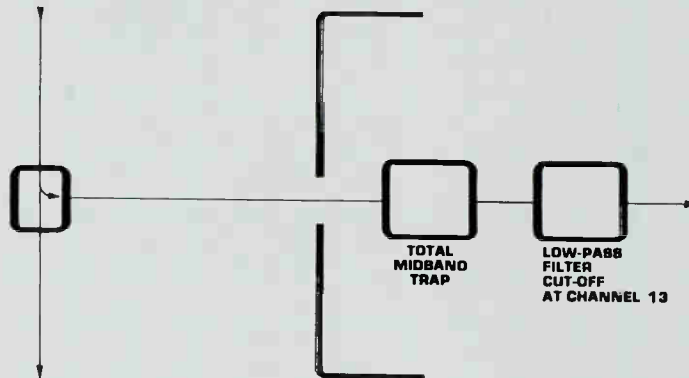
**Selling Selected Channels**

The new subscriber may have his own off-air system and will desire only supplemental channels. Where two non-adjacent channels are

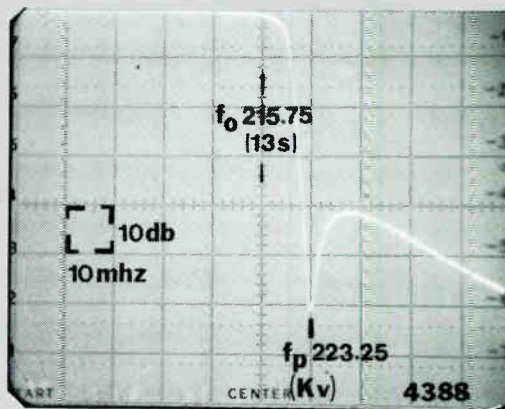
desired the interface network can consist of two corresponding bandpass filters between bandsplitter whose crossover frequency lies between the two channel frequencies (Figure 9). Where the channels are adjacent, or there are more than two of them, single channel filters can be bracketed between two power dividers (Figure 10).



**THE FILTER TECH'S  
COOKBOOK  
Part 6**



**FULL MID-BAND TRAP**



**LOW-PASS FILTER FOR  
SUPPRESSION OF SUPERBAND**

**FIGURE 11**

**Trapping mid and superband to prevent interception by sets with letter channel reception capability**

**Midband and Superband Security**

Where all or some of the subscriber's sets have midband receive capability, an appropriate suppression filter is inserted near the interface of the Cable system and the subscriber. Filters for suppressing wide bands may be expensive. But the cost justified since one filter provides security for

many individual sets. Moderately priced filters are available for trapping most of the midband while it is possible to trap the entire midband at somewhat higher cost (Figure 11). Wide bandstop filters become expensive at superband making a selective low-pass filter the more viable option.

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## Acknowledgements

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## Next Time

The CABLE TECH'S FILTER COOKBOOK will continue. □

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In PA. 1-800—492-2512  
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**Triple Crown  
Electronics, Inc.,**  
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Mississauga, Ontario,  
Canada L4W 3W6  
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Telex 06-960-456  
(M4, 8)

**Turner Broadcasting  
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Atlanta, GA 30318  
404—898-8500

**Tyton Corp.,**  
P.O. Box 23055,  
Milwaukee, WI 53223  
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(M6, 7)

**United Press International,**  
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New York, NY 10017  
212—682-0400  
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SVC.)

**United Video, Inc.,**  
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Tulsa, OK 74145  
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**Viewstar, Inc.,**  
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Unit 53,  
Scarborough,  
Ontario, Canada M1H 2X1  
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**Vitek Electronics, Inc.,**  
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**Walsh, Walsh, Sweeney  
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Madison, WI. 53701  
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**Warner Amex Satellite  
Entertainment Corporation,**  
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Americas,  
New York, NY 10036  
212—944-4250  
(S4)

\* **Wavetek Indiana,**  
5808 Churchman,  
Beech Grove, IN 46107  
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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 Towers**  
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San Angelo, TX 76901  
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(M2, 9 Towers)

**Winegard Company,**  
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Burlington, IA 52601  
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(M1, 2, 3, 4, 5, 7)

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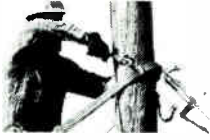






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