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LEADING THE ELECTRONIC
SERVICE MARKETS

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micro computer troubleshooting Video
processors Test instrument applications
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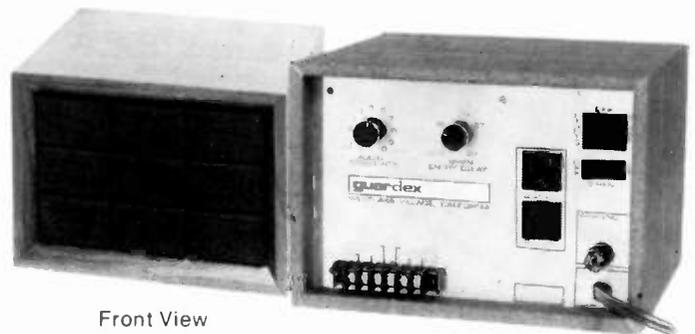
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INDUSTRY REPORT

Direct Broadcast Satellite Report

Strategic Incorporated has presented updated forecasts and information in its newly released report, *Small Satellite Earth Stations: U.S. Market Opportunities, 1981-1989*. The new study contains current data and projections regarding direct broadcast to homes by satellite.

Projections by Strategic are said to be "conservative, compared to manufacturers' claims." Restricted to the U.S., non-military market segment, Strategic predicts that the total small satellite communications earth station market will grow at an average annual growth rate of more than 48% (in units) through the decade of the eighties. Declining prices, especially in the DBS segment, will limit the annual revenue growth (in constant 1980 dollars) to about 18 percent. Total equipment sales (receivers, antennas, transmitters, and amplifiers) will be in excess of \$1 billion over the 1981-1989 period.

The April 1981 FCC ruling that tentatively permits direct-to-home broadcasting represents a significant milestone in the development of the small earth station market. "However, there are still hurdles to overcome. Protests by cable television companies, government red tape, lack of programming, competition by other video media for the viewers' time, and delays of K-band satellite transmission until the mid-1980's," are all obstacles to be overcome. Strategic predicts sales of 160,000 antennas in 1989, assuming that DBS does not become a viable service until 1985-1986. Sales are then expected to increase tenfold each year in the early 1990's, as the DBS services increase.

The cost of the home earth station will decrease rapidly as DBS becomes a reality in the mid-eighties. The price erosion forecast by Strategic is from a minimum \$3,200 (antenna, amplifier and receiver) in 1981 to \$600 in 1990. Because of the decline in prices, DBS is predicted to be 96% of the total earth station market (# units) in 1989, but only 45% of the total 1989 revenue.

The report now includes a company/product matrix of over 85 firms involved in the manufacture of small earth station equipment for the U.S. market.

TVI Guidelines Offered

The National Association of Broadcasters recently said the public must be assured that television broadcasts are as interference-free as possible from devices

such as citizens band radio. To accomplish this, the Association outlined several steps for consideration by the Federal Communications Commission.

NAB suggested the FCC:

- Conduct additional research to determine the effect of modulations of interfering carriers on TV receivers.

- Recreate the actual technical environment where interference occurs and recommend for testing purposes that interference be applied to either or both the receiver terminals or the entire receiver.

- Further discourage illegal amplifier use by CB operators by requiring amateur radio operators to show their licenses when purchasing an amplifier. (Ham operators may legally use the equipment while CBers are prohibited).

- Not hold broadcasters responsible for interference, but focus on enforcing its existing standards for CB transmitters.

- Permit the industry rather than the government to set up a labeling program to aid consumers in choosing among equipment with varying degrees of interference rejection capability.

VCR Sales Soar In September

Total U.S. market sales to retailers of home video cassette recorders increased

sharply in September, 1981, over the same month a year ago, and color television receiver sales last month were a standoff with a strong September, 1980, according to the Marketing Services Department of the Electronic Industries Association's Consumer Electronics Group.

VCR sales to retailers in September were 153,680 units, an increase of 63.9 percent over sales of 93,747 in the same month last year. Home VCR sales in the first nine months of 1981 climbed to 883,729 units, up 81.4 percent over 487,267 sold in the same period of 1980.

Color television receiver sales to retailers in September, 1981, amounted to 1,260,244 units, off 0.8 percent from 1,270,003 units sold in September a year ago. Color TV sales in the first nine months of 1981 rose to 8,065,215 units, an increase of 5.5 percent over the 7,646,017 sold to retailers in the same period of 1980.

Monochrome television sales in September, 1981, amounted to 538,998 units, a decline of 32.7 percent from 801,297 units sold in the ninth month last year. Monochrome TV sales in the first nine months of 1981 amounted to 4,071,195 units, up 1.0 percent from 4,029,711 units sold to retailers in the same period a year ago.

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ELECTRONIC TECHNICIAN/DEALER
LEADING THE ELECTRONIC
SERVICE MARKETS

December 1981, Vol. 103, No. 12.

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as Continuing
Audio troubles
Microproces
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logic and digital
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New t

On The Cover: Here are a few of the topics we are going to cover in the coming year. We are going to continue to try to make better business managers and technicians out of all of you, in spite of yourselves.

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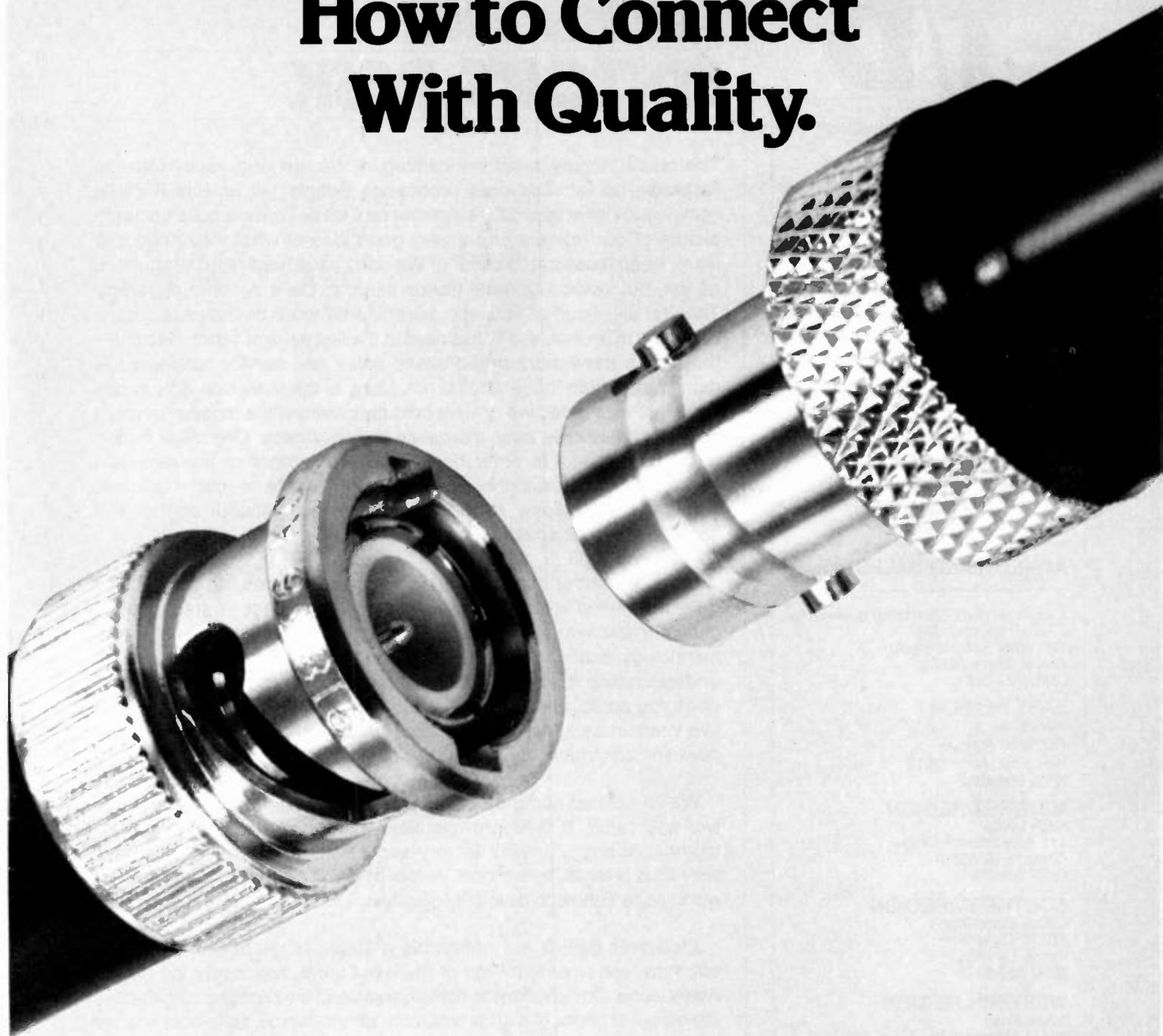
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FROM THE EDITOR'S DESK

The reader survey cards are coming in. We are very happy with the response so far. Our data processing people tell us that if cards continue to come back at the present rate we will have a quite accurate picture of our readers and a very good idea of what they need and want. Keep those cards coming! We don't have hard results tabulated as yet, but several general trends seem to have become apparent. The first is—those of you who advertise do more business and have had more of an increase in business in the last several years. Second—those who have more broad-based sales and service activities are doing better than those who do not. Many of the television-only shops have suffered a decline or only held their own, while those with more diversified activities have increased their business. One other factor, to be fair, seems to enter here—apparently more of the one man shops are TV only, and these often can only handle so much business. The same may apply to those in audio, auto sound, commercial sound, and other specialties.

Quite a number of you, even in very small shops, do seem to be quite diversified in your activities and interests—that's great. Like the old timer who wrote us (Letters column this month), don't let the new technology scare you and *don't think you can get along without understanding it*. He says he is not going to let it get him down and don't you do so. Just because you have two, five, ten or over twenty-five years in as a technician doesn't mean you can't learn something new—or don't have to!

We've noticed some other things, too. Not too many of you are in two-way radio. It is a growing field; perhaps it is hard to gain a foothold, though, against factory service operations. CB radio is of very little interest to anyone. A few of ET/D's readers do some CB work; none seems to be a CB specialist. That balloon really did burst.

Electronic games are not as big a factor as we at first thought—but there are several million of them out there, reportedly 2.5 million Ataris alone. So between the home games and the commercial games—the manufacturers of the commercial games can be quite cooperative if you wish to repair them—this could be a profitable area for some of you. Keep those cards coming in; it's not too late even yet.

Sincerely,

Walter H. Schwartz
Editor

“You fix TV’s... what brand should I get?”

You’re on the spot. Any set you tell your customer about has a chance of failing sometime.

But though we’re not saying we’re perfect, we’d like you to recommend RCA. Because we’re sure your customer will love its picture performance.

You can find the problem and repair it quickly if anything does go wrong. Because with RCA’s unitized chassis, failures are easy to handle.

RCA gives frequent hands-on workshops, as well as lectures. So when failures do occur, you’ll be ready.

RCA has more than 500 parts distributors nationwide. We have this large network because we don’t want you to have to wait too long for parts.

We also keep your inventory expenses lower by using components instead of modules, in most circuits.

We know your customers think you’re responsible for everything about their sets.

Good and bad.

And that’s why we here at RCA are doing everything possible to make sure that when you finish a service call, everybody’s smiling. Your customer’s happy with your recommendation. And you’re still the expert.

RCA

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For your free subscription to RCA COMMUNICATOR, our magazine of news and advice for service technicians, write RCA, Dept. 1-455, 600 North Sherman Drive, Indianapolis, IN 46201.

LETTERS

BOUQUETS:

Your editorial in September issue was very interesting and informative with regard to "things to come"—(some of which are already here). Your last paragraph regarding future articles certainly appealed to me. Boy, do I need that kind of information.

I have been in the electronic service industry for a long time, my background has always been "analog technology"—and how I find myself facing all of this "digital technology"—and I DO NOT INTEND TO QUIT.

ET/D (and its former title) have been very helpful for many years. Your editorial indicates that you will be (and I know you have been) right in there with the latest helpful information for all technicians.

As you have indicated you intend to make the articles useful for the technician who has no real computer background but needs to develop one. May I request that you attempt to explain any "new language" used in the articles. DO NOT let your writers assume that the readers "know what they are talking about"

when the writer uses new digital/computer terms and expressions. I have read at least two dozen digital/computer books and the practice of writers seems to be that because the writer understands a term, the reader also understands the term—not so.

We "old timers" have been "analog oriented" for years. The largest problem to be overcome when converting to understanding digital technology is the "new language" more than the basic technology.

Thanks for your time and best of luck with your new series of articles.

Charles Knoell
Charles Knoell & Co.
19 Cooper-Tomlinson Rd.
Medford, NJ 08055

Thank you! It's great to see an old timer who can see that the changes constantly occurring are not too awesome and who finds them challenging and intriguing. Microcomputer, satellite TV, and other articles are coming up in '82. Editor.

HELP!

I would like to know if any of our readers could help me obtain a schematic for a Majestic equalizer for an automobile radio, Model #MEB-580, or supply me

with the address of this company so I might write to them. I greatly appreciate any help I can get.

John C. Cox
S&J TV Repair
230 Londonderry Drive
Lexington, KY 40504

Need information on Crown Valet answering device CTA 4100, I would like to locate parts for the same, like message tape ENR 701 and tape head AM-H-43 or place to repair the answering device for me.

F. J. Loewel
Fritz T.V. Service
841 East 23rd St.
Erie, PA 16503

I need a schematic for a Wards Airline Radio (approximately the year 1938) Chassis #83WG-37OA. I am willing to buy the original or a copy of it.

Robert G. Ruhlman, CET
404 South Main Street
Box 746
Sheffield, PA 16347

Need info on United Model C-140 from Mays—made in Taiwan.

Marty Krieger
2572 Lefferts Place
Bellmore, NY 11710

In July ET/D we printed several letters which were in response to editorials published earlier. Here is further comment to one of those responses by Frank Moch of NATESA. Editor.

Mr. John S. Messier
Home TV Service Co.
2945 Novus Street
Sarasota, Florida 33577

Dear John,

Your letter on professionalism on page 6 of the July ET/D, and Editor Schwartz' comments, are basic in our industry.

We service products of so extreme complexity that we must recognize that customers can't truly understand need of service. Obviously producer/marketers, at best, would rather stay clear of thoughts of service need. Our industry is a mix of highly competent, unequipped dabblers and get-rich-quick entrepreneurs. Far too few servicers belong to associations and so it is very hard to develop service industry norms. Associations are hindered by senseless bureaucracies when it comes to creating universally recognized standards.

Most set owners select servicers on a catch-as-catch-can basis, and on



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T-291	Heat Shrink Tubing 10 asst sizes 10" long shrinks 50% in diameter	89c		
T-35	Cheater Cord's Polarized C clip	59c		
T-36	Cheater Cords NonPolarized C clip	59c		
T-18	Blue Lateral Magnets	1.49		
C-66	100MFD at 450volt axial	1.25		
C-39	80 MFD at 450volt axial	10 for 9.99		
T-73	# 47 6.3volt .15amp bulb	10 for 1.99		
T-19	2.5amp Circuit Breakers	79c		
T-113	Antenna Rod for GE, Admiral, Magnavox 4section ET83X3, ET83X03 open 29" closed 10"	2.25		

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whims. As a result, in fact or fancy, service often is unacceptable on a quality or cost basis. This results in expose's almost always by incompetent people and for selfish motives of exposers. Thus servicers start under an aura of suspicion. This is compounded by the catch-as-catch-can selection of the servicer by the set owner.

The solution is NOT hard to achieve. Confidence is the answer. It starts with equipment and facilities that permit a knowledgeable technician to operate productively. The technician and all persons in contact with the customer must exude top customer relations. Pre-education of prospects in the selected zone of operations, using NATESA's "Joys of Electronic Living" or other similar P.R. pieces, is a great and economical "pre-sale" effort. Service order forms must be informative on all conditions of service, leaving nothing up in the air. Thorough knowledge of one's legitimate costs of doing business, and honest appreciation of one's own value to the customer, are essential. Every promise must be inviolate, and in cases where recalls are required on the same symptom within the guarantee period, these should be done without charge, with a smile. Following these policies the servicer has the confidence that convinces set owners.

Your statement that \$50.00 service fees are in order could well be factual. I would not question \$20,000/year technicians for 2000 hour year. In cases where 30% unproductive time is a factor, it should be looked into. Unfortunately, most small shops are doing many chores that should not be done by a \$10.00/hour technician.

I think that comments by Thomas R. Barnes, also on page 7, on the logic of IBM rates and references to home electronic servicers, are very sound.

The answer to how do you "sell" a \$50.00/hour service fee to the set owner is not too hard to arrive at. (1) Do a thoroughly professional job; (2) know your costs; (3) delegate those essential chores that don't call for \$10.00 (plus) technicians; (4) respect yourself and demand rates predicated on the above points. Editor Schwartz' suggestion that you don't let the slobs get you down is good advice. It calls for guts. If you lose a customer because he doesn't want to pay what it really takes, say a simple prayer of thanks that you won't be burdened with one willing that you go bankrupt to subsidize his/her entertainment. We MUST keep well in mind that the only business we can afford to be in is one that allows us to

make an honest profit on work properly done. We are not social welfare agencies to provide entertainment to others at our cost.

To answer your closing questions . . . (1) Lay it on the line at time of origination of the call. If the customer was pre-educated (as noted above), you'll have no problems. (2) Getting customers, too, is a function of pre-education, and belonging to effective associations locally but definitely nationally, because these separate the "men from the boys." Use of the NATESA logo on regular DIRECT MAIL, and display of the logo and certificates are effective. The old cliché about expecting a pa-

rade of customers to buy a "better mouse trap," works only when the customer is pre-sold. From my own experience as the operator of a highly successful service business for many decades, I can assure you that cut-rate and give-away offers are senseless. We used only bold face listings in yellow pages. Our customers came by direct referral from our customers. Repeated economical direct mail contacts generated for us fourth generation customers regularly.

Sincerely,
Frank J. Moch
Executive Director
N A T E S A

24 good reasons why you'll enjoy this free gift from TCG.



The top two dozen replacement semiconductors at your fingertips...packaged for convenience...identified for accuracy...priced for profit. And now organized for faster servicing in this TCG 304A Kit.

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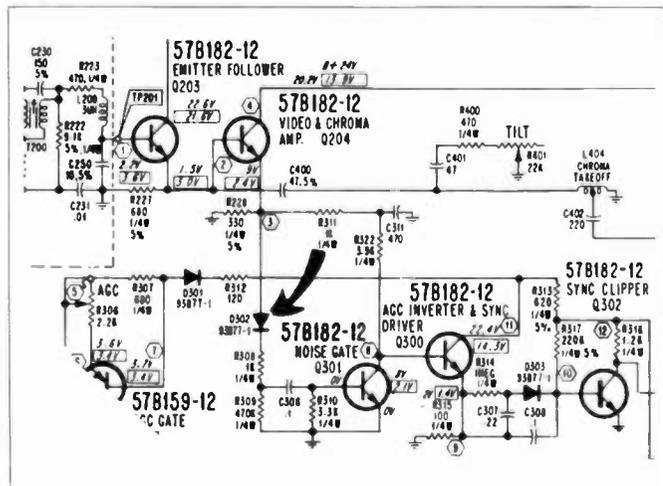
SERVICE SEMINAR

With the holiday season upon us and a new year about to begin, we are including in *Service Seminar* some **tips for good customer relations** that Admiral suggested a couple of years ago.

1. Always extend proper courtesy, in the home, on the phone, or in the shop.
2. Always keep a promise made to a customer. If your plans change, notify the customer.
3. Listen to the customer's complaint—don't belittle it.
4. Be careful—but remember, a service problem is serious to the customer.
5. Show confidence in your ability to properly service the product; but do not appear "cocky"—as if you know everything!
6. Be sure that you have the tools, equipment, and parts that you will need.
7. DO NOT condemn a competitor's product! The customer feels it's the best since he paid his hard-earned money for it.
8. Always be neat—in dress and workmanship.
9. Be sure that the repair is done right. Assure the customer. Avoid repeat calls.
10. Always leave the job clean.
11. A good service technician will mention the outstanding features of the product.
12. Always remember, satisfied customers are the best advertisement! This statement cannot be overemphasized!

ADMIRAL

4M10—Severe horizontal pulling at the bottom of the screen. Possible cause: Defective D302.



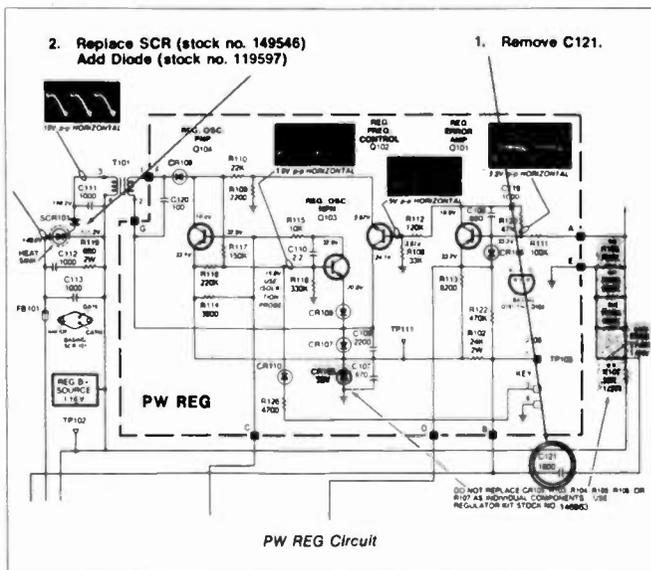
GENERAL ELECTRIC

Chassis DE—No raster—sound garbled. In our October *Service Seminar* we indicated that this could be caused by a blown yoke capacitor in a note by W. M. Sulry of Stratford, CT. We have been informed that the recommended replacement should be a 600 volt unit. (The original was rated at 400 V). Thanks to C.J. Masek of GE, Portsmouth.

RCA

CTC 107/CTC 108—Horizontal output transistor reliability. In the event a Q412 horizontal output transistor failure is encountered in a CTC 107 or CTC 108 chassis from an instrument with a date code prior to 038 (first three digits of serial number), to enhance the reliability of the replacement:

1. Check for the presence of C121 (1800 pf) in the chassis. Refer to schematic. If the capacitor is present, remove (clip out) and discard it. Check the markings on the SCR 101 B+ Regulator in the chassis. If marked "RCA", make the changes outlined in step 2. If the SCR 101 in the chassis is marked "A23" do not perform step 2.
2. Refer to schematic.
 - a. Replace SCR 101 using only stock number 149546.
 - b. Cut the copper pattern between SCR 101 gate and C111.
 - c. Add a diode (stock number 119597) in series with SCR 101 gate—crimp and solder cathode lead to gate, crimp and solder anode lead to C111 lead.



Chassis KCS 207. No raster. To correct: Check for open or shorted T502 driver transformer.

Chassis CTC 101. Excessive brightness, retrace lines. In "service" position, line increases in intensity until shutdown occurs. Color and focus controls vary brightness. To correct: Check for open connection on PW5000 at pin 5 of the kine socket. Westbrook Service Co., Rock Spring, GA.

Chassis CTC 108. No picture or sound, no "ticking" noise from regulator circuit. To correct: Check for open Q104 (B to E) regulator oscillator.

SYLVANIA

E21-03,07 Chassis, Red and blue bottom vertical lines would not converge. Turning control only caused bottom of picture to fold up—checking components revealed nothing. Substituted yoke and convergence board cured problem. Replace old yoke and convergence board and part by part sub. Revealed defective SC808 breaking down with load—still checked OK out of set.

E210900 Chassis, Vertical roll. R412 open.

SECURITY VIEWPOINT

By Ray Allegrezza

In past months we've discussed various types of insurance, such as liability insurance and errors and omissions coverage. Each type is vitally important to the alarm installer/dealer, especially considering the types of services you provide to the subscriber.

This month I'd like to discuss another type of insurance equally important to the perpetuation of your business. Specifically: bad debt insurance.

The main thing that keeps any business operation solvent is the constant flow of cash both in and out.

With the economy being what it is, there is a marked tendency in this business to hold off paying bills for as long as possible. People are simply trying to hold on to their cash for as long as possible.

Although as of this writing the interest rate has dropped slightly, it is still high enough to encourage slow and in some instances *no* paying trends.

As you know, the inability to collect monies due you is probably the single most contributing factor responsible for the demise of the small business. One way to safeguard yourself and your business against this is commercial credit (also commonly called bad debt) insurance.

Basically, what bad debt insurance can do is protect you against abnormally high credit losses.

If you are in the process of considering this type of insurance, keep in mind that the policy does not necessarily have to provide coverage against all your accounts. It is your responsibility to be able to determine which accounts present the most likely risk of becoming non-paying accounts.

Here the job becomes somewhat difficult. While your initial reaction may be to say that your biggest accounts (assuming they ran into financial problems) might be your main concern, keep in mind that should enough of your smaller accounts fall into the same category, you could very well run the risk of being "nicked and dined to death".

After careful evaluation, decide which accounts you wish covered by this insurance. While buying bad debt insurance is not the answer to all your problems, you can breathe a little easier knowing that:

- In the event of a major problem you will be covered against excessive losses.
- Your working capital will not be embargoed to the point that you can't work with it.
- The carrier will usually make an attempt to offer you collection assistance.
- Lending institutions oftentimes view commercial credit insurance as good collateral in terms of either maintaining existing or seeking higher lines of credit.

The best candidates for bad debt insurance are those who offer specialized services or products, have the majority of customers located within one region, or are involved in a business that is particularly sensitive to economic fluctuations.

It is fairly apparent, then, that this type of insurance actually does more than insure and protect against bad debts. It can help your credit ratings, and perhaps most importantly, keep your cash flow flowing. Properly understood and used, it can help you attain higher sales with fewer risks.

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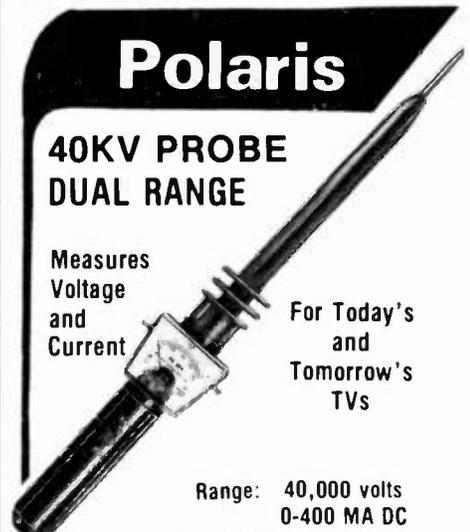
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ET/D - December 1981 / 11

LOOK FOR NEW LAWS GOVERNING HOME VCR USE. Sony Corp. recently filed for a rehearing of a Ninth Circuit Court of Appeals ruling against the company that said it is illegal to record copyrighted programs off the air--even for use in the same home in which the recording was made. Sony, backed by the Electronic Industries Association, urges that the court withdraw its ruling on the grounds that video recording for non-public performance at home does not constitute copyright infringement. According to Walt Disney Productions, one of the co-plaintiffs in the case, they welcome and will support legislation to allow individuals to videotape copyrighted TV programming for personal use on their home TV sets, as long as safeguards are also provided to prohibit misuse outside of the home in which the recording occurred. Legislation has been introduced in the House and Senate that would exempt home videotaping from the copyright law for non-commercial, personal use in the home. Meanwhile, another solution in the minds of some is that compensation should be paid by VCR and tape manufacturers to the copyright owners if their products are to be used for recording copyrighted material.

HIGH-DEFINITION TV READY. A high-definition TV system which is "ready for delivery" was introduced recently, according to Television Digest. The system, demonstrated by Compact Video, is called Imagevision and utilized a new standard; it features 655 lines and 24 non-interlaced frames per second. The system was claimed to have a definition equivalent to a 1,125- or 1,250-line system with interlace and requires 10MHz bandwidth. Most observers at a recent demonstration agreed that the pictures were excellent, of theater quality.

SOME PICTURE TUBES BY CORNING NOT TO INCREASE IN PRICE. A new glass price increase formula by Corning holds the line on popular import-sensitive sizes (13" and 19"), but raises the prices of others (17", 23", and 25") by 10%. According to Television Digest, this was done to protect imports from taking over the 13" and 19" market. The alternative was to have had an across-the-board increase of 5-7%.

EVT ENTHUSIASTIC ABOUT FCC OPEN MARKET RULING FOR TELETEXT. British Videotex and Teletext interests have reacted with enthusiasm to the recent open-market ruling on teletext by the FCC. With the cost of British decoders at \$150 (and decreasing with demand), some 750,000 sets with British-standard decoders have been bought by consumers in eleven different countries, including the U.S. That number is said to be increasing by about 40,000 per month. Zenith, in its filing with the FCC, reportedly lauded the British system as having the advantage of lowest equipment cost and performance capabilities exceeding today's requirements.

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Security insecurity

Legal considerations for the security business.

The security industry is often most vulnerable and insecure in the case of its own legal and financial protection. The potential liability when a system does not provide absolute protection requires that the dealer safeguard himself through proper contract terms and insurance protection.

By George L. Tanty*

The security industry in this country is a necessary part of the society in which we live. It has grown dramatically in the last two decades to a point where several thousand companies provide security-related products and services to businesses and individuals who annually pay millions of dollars for protection.

There are many services which can be provided within the security field. These include: guard and watchman services, card key access systems, closed circuit television, detective and surveillance work, and a wide range of intrusion and fire detection devices sold to the public, designed to make them feel safer.

The alarm part of the security business is a multi-million dollar business in itself. However, it also necessitates certain

skills and other protections. The companies in the alarm business are staffed with highly trained, competent personnel. The owner should be constantly educating himself in the latest developments, since many common alarm systems employ technological advances unheard of twenty years ago.

However, reading magazines and attending trade shows simply isn't sufficient today. That's why alarm companies must avail themselves of two specific areas of protection: sound subscriber contracts, and a comprehensive insurance policy. Both of these will help the alarm company protect itself from the problem best stated by "Murphy's Law"—if something can go wrong, it will go wrong; and at the worst possible time."

Let's assume, for the moment, that your employees are well versed in the equipment they're installing, they protect every opening, they correctly hook the system up and never miss a signal. There is, then, no way to get sued, right? Wrong!

No matter how good a job you did, if your subscriber suffers a loss due to a burglary, you'll probably be sued, either by your customer or his insurance company.

Because of this, there must be some way to limit your liability; and there are several ways.

The contract.

The courts have ruled for some time that language in a subscriber contract limiting the company's liability in the event of a claim is valid. In part, they base their decision on the following logical argument: Alarm services exist for the public good and are a necessary part of business and the private sector. If an alarm

company is held responsible for any claim which arises on an area it is protecting, its fee would have to be commensurate with the exposure, and this much higher fee structure would make it impossible for all but the wealthy few to purchase alarm protection. Secondly, the courts recognize that the charge you are making to your customer is dependent on, among other things, your cost of the equipment, leased line charges, and your monitoring expenses, plus a profit margin. It is very important to note that you are not making your charges based on the values you are protecting. In other words, if you are asked to provide identical protection to two side-by-side identical warehouses, your charges will most likely be the same, despite the fact that one has old newspapers stored in it, and one has \$10,000,000 in furs.

These, then, are two valid reasons you should be able to limit your liability in the event you make an error. There are also other things that can go wrong, over which you have no control; telephone lines down, blackout, uncertain police response time, etc.

You should, however, remember two things: First, you can't limit your liability for gross negligence. You can't simply lock up your monitoring station at 5:00 p.m. and go home. You can't install a system, leave the wires dangling, and leave the premises. Secondly, when the courts have ruled that limitation clauses in your contract are valid, all they are doing is ruling on a matter of contractual law by stating that the contract is not one-sided or unconscionable. They have ruled that alarm companies can agree with their customer to limit their liability

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to a maximum amount (limitation of liability), or that their responsibilities in the event of a claim shall be fixed at a specific amount (liquidated damages). The important distinction here is that it is not enough to just be an alarm company to take advantage of the protections granted by the courts; it is necessary to state it in a contract signed by your customer. Thus, a contract containing protective clauses should be one of the most essential tools utilized by an alarm company.

Alarm subscriber contracts have been in use for quite some time, as evidenced by court cases upholding this language. New York, for example, has a case ruling in favor of alarm companies that was decided in 1912. This is important to remember because you may encounter a customer who objects to the language. It should be pointed out to him that this is standard procedure, and he will probably find a contract is a necessity if he goes to your competition.

A properly executed contract will do many things. It will state what you intend to do for the customer, how much it will cost, how long you will provide service, who owns the equipment, what the duties of the customer are, what your liability is limited to, who pays for false alarms, who bears the cost of a telephone line tariff increase, how the contract can be cancelled, etc.

You should, however, keep in mind that a contract with acceptable protective clauses is useless if it is not utilized correctly. You cannot, for example, be protected on a claim arising due to monitoring error if your contract makes no mention of monitoring, or install sprinkler supervisory, medical alert, and temperature control alarms on a contract entitled "Fire Alarm Purchase Agreement."

What, exactly, must a contract say? It changes from state to state, but basically it should contain the following types of statements:

1. The alarm company will agree to do certain specified work for the customer in return for the payment of an indicated price.

2. Customer will be responsible for increases levied by the phone company, any other utility, or governmental body.

3. How the various parties to the agreement can cancel it.

4. What the alarm company will do in the event it receives a signal from the subscriber (assuming you are providing the monitoring).

5. The subscriber should be told to test the intrusion system periodically and set the system at every closing (com-

mercial customers only).

6. A sub-contract may state that repairs and service after the warranty period lapses will be done at additional charge on a time and material basis.

7. The responsibilities of the alarm company will cease if it is unable to perform its obligations due to some valid reason, e.g. phone lines down, monitoring facility destroyed by fire or Act of God.

8. If there is a conflict between the contract and the subscriber's purchase order or any other document executed prior or subsequently, the alarm contract will take precedence.

9. A denial of implied warranties in-

cluding merchantability or fitness for a particular use.

10. A clause limiting your liability regardless of cause, to a fixed amount. Also, a provision to increase the limit.

11. A clause in which the subscriber agrees to indemnify and hold you harmless from any third-party claims.

12. Whether or not you currently use subcontractors, there should be a clause allowing them to invoke any of the protective clauses in the contract.

Several of these clauses need further explanation.

8. Quite often, especially when dealing with commercial accounts, you will receive an invoice or purchase order from

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the customer, even though he signed your contract. Routinely, the purchase order will contain a "hold harmless" clause favoring the customer. Clause 8 above will effectively negate the hold harmless. Sometimes it is company policy for it not to sign any contract. In some instances, it is possible to have the customer copy the important clauses from your contract on his purchase order and have it held valid in court.

9. It is important to deny warranties (other than those which you pass on from the equipment manufacturers) for two reasons. First, no alarm system is foolproof. Therefore, the customer must be advised that the system should *reduce* the chance of loss, but can't eliminate it. Secondly, this clause is designed to protect you from an overzealous salesman making untrue statements regarding the system.

10. The ability to limit your liability is probably the most important single clause in the contract. The reasoning for being able to do this has been discussed earlier. It is important to *offer* a higher amount. This is because both the theory of "limitation of liability" and "liquidated damages" assume that the amount you will be responsible for was freely bargained. Most of you have preprinted

amounts, so an increased amount must be offered. However, you should not refer to a "graduated scale of rates" because this does not exist. Your insurance company should be able to quote the additional premium to you once they have details on the subscriber. You should also be cautioned that the decision to use either a "limitation of liability" clause or a "liquidated damages" clause should be based on case law in your own state. California is currently one of the very few jurisdictions where "liquidated damages" has been preferred over "limitation of liability".

11. Your contract is with the subscriber. Therefore, if he is in a position of routinely having property of others on his premises, the owner of that property can sue you if it's stolen or damaged, and you have no way of limiting your liability. However, if your subscriber does have a situation like this, he can purchase insurance to protect himself. A good example would be a jewelry store which you might be protecting. The owner probably has a Jewelers Block policy which will pay for stolen or damaged property regardless of ownership. Some alarm companies have language at the end of this clause which provides that the hold-harmless wording will not apply

to claims which occur while the alarm company employees are on the premises, and which claims are solely and directly caused by acts of said employees.

12. Even if you don't subcontract installation or service, many of you have someone else monitor the signal. These are usually other alarm companies, telephone answering services, a police panel, or one of the numerous nationwide monitoring companies. Because they did not supervise the installation, they may want protection from you. To an extent, you can pass this obligation to your subscriber by having him agree that the clauses in the contract are applicable to and inure to the benefit of any subcontractors employed by you.

Remember, always, that contrary to some people, alarm contracts are not one-sided agreements favoring the alarm company. You are providing a service in return for a fee. Even though systems are capable of circumvention, they were designed to *reduce* (not eliminate) risk of loss. It is an established fact that the presence of a system will both act as a deterrent to burglary and serve to increase the odds of apprehension of the criminal. If the subscriber is concerned about making sure he won't suffer a loss,

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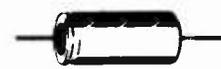


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or recover his loss if one occurs, he can hire guards and take other precautions. Lastly, he can purchase insurance to protect himself. You can insure almost anything these days, whether you are a homeowner or a "Fortune 500 Company". You should make it clear to the subscriber that your service is *in addition* to his insurance policies, not *in lieu* of them.

Insurance

All companies should make sure they are properly insured against the type of risks they have. These include workers compensation, automobile liability and property insurance on an "all risk" basis, covering your property and contents. For large central station operations, you might wish to purchase "extra expense" coverage (to cover the additional cost of continuing to operate if your station is damaged). In addition, there are many other insurance policies you can buy that will cover anything from plate glass to life and health.

General liability, however, creates some needs which you, as an alarm company have, which are generally unavailable except through a few carriers who have a policy written especially for alarm companies providing special coverage for your special needs. If you haven't purchased your general liability coverage from one of these specialty houses, chances are excellent that you are not properly insured. To find out what coverage you are lacking, have your agent answer these questions:

1. Has "property damage" been re-defined to include loss of property? Most policies cover loss of use and destruction of property. Insurance companies have successfully argued that just because a burglar stole \$100,000 in jewelry doesn't mean it can't be *used* anymore, because the burglar still has the use of it.

2. Do you have full, unqualified, "care, custody, and control coverage?" Insurance companies sometimes offer this in a limited form called "broad form property damage", but this isn't good enough.

3. If you don't have "products/completed operations" liability, you should. But make sure it covers claims arising due to a failure of the product to perform its intended function. Most companies will pay a claim if the system itself creates a claim, but the only way that can happen is either it falls off the wall or starts a fire. If it didn't ring a signal, almost all insurance companies will deny coverage.

4. Are you covered for dishonest acts of employees? If you have them bonded and they steal from you, you're covered, but you need coverage if they steal

something from a customer while on their premises.

5. Each installation will be slightly different, and you will have an exposure arising out of your design of the system. Thus, if you miss a skylight or you don't provide protection for all of the areas of the premises—and that's where the robbery occurred—you will need design errors and omissions coverage.

6. Probably the most difficult coverage to obtain is monitoring errors and omissions. Even if you subcontract this exposure, you still need the coverage so that your legal bill, possibly thousands of dollars, will be paid in the event you are sued.

Lastly, errors and omissions is usually written on a "claims made" basis. This means that you must notify your insurance company of a loss when it occurs and before the policy expires, or it won't provide coverage. This never is a problem when you first sign up on this form, but if you ever leave that insurance company (or they stop writing coverage and leave you), any claim reported after expiration will be denied. Instead, only buy "occurrence" coverage. As long as the claim occurred within the policy period (and you are in compliance with all the other terms of the policy) you are covered, regardless of when you first discovered, *continued on page 47*

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Talking about satellite TV, part I

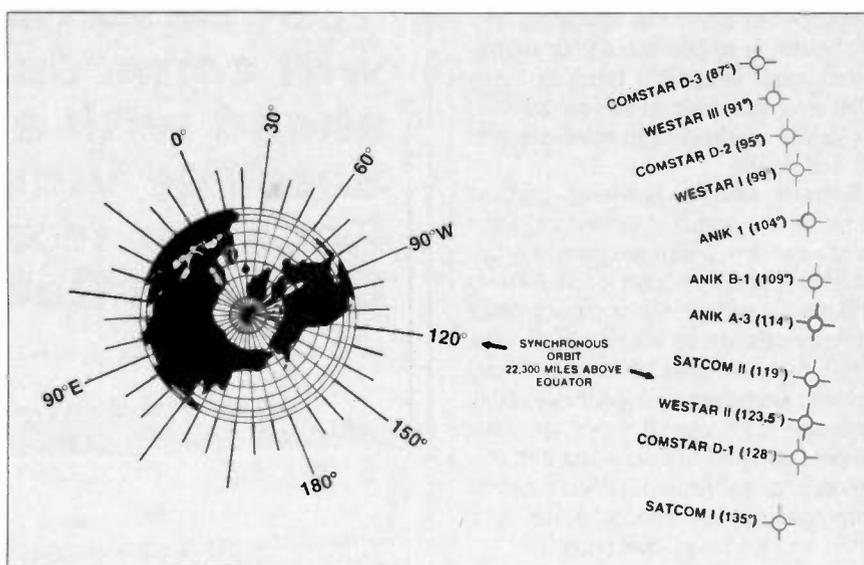
Let's Go

This material is edited from a talk and a question-and-answer session conducted by Rick Towers at the NESDA National Convention in Tarpon Springs, FL, in August 1981. We found it necessary to split the talk into two sections, even after editing; even with this length, all your questions will not be answered. We shall, therefore, present a series of in-depth articles immediately following the second part of Rick's talk in our next issue: Editor.

By Rick Towers*

It started out that our first sale was a guy that lived out in the country, out on the range where he couldn't get anything but local TV. He would never get cable, so I thought fine, I would do one for him. Well, in doing that, I found out a lot of suppliers, other than the commercial ones, didn't know what they were doing. I guess it's like getting new industry—you have to realize this is only about a year and a half old, and I would talk to people on the phone and I would order gear and it would be a piece of garbage. I would send for a dish and that would be sloppy and there was so much re-engineering work; it was very frustrating. I was about to give up, except people kept wanting it.

So, with the first one I learned a lot. We probably took a loss, didn't make



The location of satellites of interest to North America.

any money, but we learned a lot. And I said, "Well, I am going to be in business with a lot of people—I'm going to be the man—I'm not going to count on another person."

Last November we went to a seminar—we made our connections with manufacturers, we looked at their wares and got to really know the stuff.

There used to be a lot (of talk) about it being illegal, and I want to tell you from all I have read—and our position—and the fact that Channel Master and Zenith have gone into it, it is not illegal to provide a customer with equipment. What *possibly* could be wrong, from a civil point of view, is what that customer does with the product. So be careful about putting one in a bar, a condominium, a hotel . . . anywhere you haven't arranged for licensing. What you put in a guy's home for his own private use, and he doesn't go out and distribute to his neighbors, or he doesn't make video tapes and sell them down the street, then you are not

part of anything. Tell your people what it is for—private, non-commercial use.

The other point I want to put to you is that a lot of people say, "Well, why would I want to buy an earth station with my cable there?" That is a good question. But strangely, here in Clearwater we put in 19 systems and there is cable all around us, and we have got good theaters, good local TV—obviously plenty of entertainment—and people buy these things as fast as I can deliver them. Now, part of it might be they like the idea of something unique, but I think, moreover, they don't have the ongoing, constant monthly cost of full cable system—and the other thing is the flexibility. With an earth station, you look at anything that is in the sky—not just what the cable company wants to deliver. The cable company will deliver to you what they have a practical market for. They have one dish focused on one satellite; they have got potential to sell 10 or 12 of those channels to people. But another

*"Jersey Jim" Towers TV, 512 U.S. Hwy 19 South, Clearwater, FL 33516.

program is on one satellite alone—a different satellite. They are not going to build another dish just to fix a satellite unless there is demand for it. Generally, one station is not worth it, but you have a home receiver or can sell one and can reposition your dish to look at another satellite, so you do have more coverage. Right now, there are about 60 channels up there. By '82 we are looking for there to be 100, and by the time 1985 rolls around, from the applications that have already been made, we are looking at 200 channels.

You have heard of the direct-broadcast satellite—a little two-foot-dish. I want to explain that quickly. That is a system, in concept, that may or may not blow up—I am sure it is going to blow up eventually. It is by Comstat, it is a direct broadcast satellite of a high frequency. It will put out, maybe, 100 watts of power, and that is why you can get by with a 2-ft dish—plus, it's a 12 gigahertz, not a 4. The point is, that has nothing to do with the satellite business today. It is, in concept, the same thing, yet it is not the same thing. No. 1, there will be a maximum of three channels. No. 2, by the time those prices come around to what they are projected at—\$500—four years from now, you all know what inflation is going to do; I am sure it is going to be a lot more than \$500. Third, we don't know that anything that's going to be on there is going to be worth watching.

The cable system charging \$40-\$50 a month for a full package, you can bet the programs coming down on the satellites for the cable business are going to be premium programs. Premium programming will not be on direct-broadcast satellites because it is unlikely that people are going to get that kind of market. It is going to be more like where people can't get good television. The biggest advantage to direct-broadcast satellites for the home will be in areas where they can't get good local TV.

After the networks get through fighting the direct broadcast satellite, which they will probably be joining and wind up taking some of their time to reach people in markets where they can't reach them any other way. The real shame is that up to this point, there are people who are deprived of good TV. They watch one or two channels. It is poor; they don't know what it is to get network—or otherwise. You put up an earth station and there is no such thing as a bad area. There is a lot to consider about that, too. I think you are serving one more extension of your business if you are in the video, TV, business. Often, an earth station can give them better programming

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(and) much better quality.

The broadcast signal—I am sure you know it comes either by cable or microwave and goes to all different affiliates and is rebroadcast, regenerated. A lot of times it doesn't look as good.

Equipment

The lowest-price amplifier is generally all you need. Now here in the Clearwater area, we need a 13-ft dish because the footprint (signal pattern) of the most popular satellite is also the weakest in the country. The only place worse than we are is the Miami area, and you have to go to 15- or 16-ft dishes. If you are anywhere in the middle of the country other than the extremes—extreme New England or out West, like in Oregon or Southern California—you can probably get by with a 10-ft dish. At the first of the year, approximately—Jan. '82—SatCom 1, which is the most popular satellite, will have all its major people on it move over to SatCom 3, a replacement satellite. I am sure most of you have heard about the satellite lost about 1 year ago. That was going to do that function. Well, now they are launching another one, right around November, operational in January. So what will happen is, just the fact that it is newer, it will be much better than SatCom 1, and even in this area we will be able to get by with a 10-ft dish. The point is that eventually a 10-ft dish will become the center of the market. For here and today, when we are selling a system in the \$7-8-9,000 price category, we can't tell a customer (to) wait until January, when he'll look better. So we put a 13-ft dish on some of the other satellites—mainly Weststar 1, Weststar 3, and Comstat 2. They are much newer satellites. Their footprint is much stronger and 10-ft goes very well with those. That is another thing to look out for. If you are looking at other people's gear, find out which satellite they are looking for. The real judge of the industry is Satcom 1. It is the weakest, but it is the most popular. A lot of guys will put the dish on Weststar and make it look like a million bucks, and if you are not familiar with the headings, and you don't know what you are looking at, you will say you saw a beautiful picture on a 10-ft dish. Maybe, but not on the satellite that most of your customers are going to want—so again, that is why we sell the 13 for this area. We recommend the 10-ft for outside of Florida, anywhere generally north. The ideal spot in the country would be the Midwest. That is where your satellite signal is strongest.

There are several reasons why they perform better: No. 1, the meager 5-watt

signal on satellite is centered on a market area and centered on the U.S. But there is more reason to it. It has to do with earth noise. As you get your dish turned away from the earth, you get away from ground noise and you get better reception. That is why New England is one of the bad spots. There, you have an angle that runs generally 10 to 11 degrees—again we are talking about Satcom, let me make that clear—the reason why we use Satcom is because it is the most popular. Eventually, when it is replaced, these problems won't be as acute. In New England, you are looking at 10 to 11 degrees look angle, and your dish doesn't get off the horizon very much. It is looking across a lot of territory, so it picks up earth noise and it goes through a lot of atmosphere. Now here in Florida, we are at 25 degrees and that helps.

That brings us to another point. There are areas in the country where you have microwave interference and you would have no way of knowing. It is generally in the urban areas, but it could also be . . . let's say a customer comes to you that is out on a ranch and he looks like he is on a good clear spot. There may be a microwave link that you can't see going from one city to another right over his property. And you make this deal—you sell the earth station. Fine, before you put that thing in the ground, you better make sure you are not going to have microwave interference. Write for coordination of the site—you can write Washington and they will give you all this baloney—it will take 3 or 4 months to get a printout of the area. And even that is not conclusive; it may tell you that there may be interference, so check further. So, the best thing to do is have a dish on a trailer as a demonstrator and as a check-out. Then, roll it out and take a look. If everything looks clean, the customers have seen it in their yard and know what kind of reception to expect—they know what it is going to look like sitting there relative to their house—that helps, too, because it is one thing to see it in your shop, but you get it to their house, they may look at it and say they don't want it in their yard.

What we do here at Towers is ask the people for a small application fee—generally \$100 in the Tampa Bay area, and for that we roll our dish out and check the site. We also make sure we are not going to hit a tree or a lot of buildings in the way. You must understand that it is an absolute pinpoint thing, there is no such thing as bending it around a tree a little bit like with a regular antenna. There is only one spot, period. If something is in the way, it is going to affect

it. You are also making the customer make a commitment. What we do is take their \$100 fee, and they understand that that applies toward the purchase of their system if the system works out in their house. If we get to their house and it works fine, but they decide they just don't want to spend that kind of money, then their \$100 is waived for the cost of us doing this. On the other hand, if it works out, then the \$100 goes toward the purchase of the system. And that has worked out very well. We haven't had one not take it, and there have been no problems with anybody. It is really the clincher, because generally whenever we can we go in and run the lead right into their present TV and let them look at it in their house, because people think that you have got something special on your TV that makes it look good. You roll that dish out and hook it to their set and let them see the kind of programs—it really does kind of clinch it.

Again, if this is the kind of thing that you want to do, No. 1, you have to believe that there is a market there. There may or may not be in your area. Maybe it is beyond what you think you can do—it really isn't. It is really quite simple once you know the basics. The basics are very important, and it is something that I have learned by the seat of my pants, but I like that in a way because I can count on myself. I don't have all the technical terms that someone may be looking for, but I can tell you what will work and what won't and give you a nuts and bolts answer why it may not work. We have learned things about feed assemblies that work best, what length of cable, what type of construction material, what type of rotor. These things could possibly keep you from going through all of this, because there is a lot of junk on the market. Once you get it down here in Florida, it is a good test area because the signal is low. Sometimes the receivers that will work in some parts of the country won't work in the weak signal area.

Questions and answers

Question: In terms of installing the unit and the use that a person makes of it—do you have a release in your application that a customer signs?

Answer: I don't use one because according to my attorney, I don't need one now, because we are not the ultimate user and we are not the builder . . . we are the in-between; we are the supplier. What I have done is in our brochure here—it says: "Certain programs are protected by copyright law; viewing of copyright programming may require a

license." The reason I put that in there is the only people that ever responded to our ad were Showtime, and they asked us very nicely to put that in there. We do recommend that our customers join an organization called SPACE. It is the Society for Private and Commercial Earth Stations. It costs \$25.00 a year. It is an association of people to protect your rights for having private earth stations, and they have a newsletter each month to let you know what kind of legislation they are fighting. Big companies like Channel Master are getting behind it, to show that they are lobbying hard in this. And I think what it is going to come down to, when it comes to the nature of people like HBO and Showtime that won't deal with the public, the FCC is going to say to them "If you want us to do anything for you, you should accept a regional fee from these people equal to what you would sell it to a cable company for, and then if the people refuse to pay, you may have a civil matter." The way it has been right now, particularly in HBO and Showtime, they say they can't or won't deal with private market, and yet they want the government to do something about it. The government is going to say, "These people legitimately want to pay you. If you don't accept it, that is really your problem." But again, it is such an unpopular issue for them to go and chase somebody down for using something that will pick up signals that are falling on their house. They don't do that. I have heard it from the words of the people themselves—I am very tight with the people at the movie channel and Showtime—and their feeling for the home is, "Hey, you are not hurting us and we know we can't technically deal with you, so we are not going to worry about it." But very strongly, they make it clear that if you go put an installation in where it is being reproduced to generate revenue—be it a hotel or a bar—even if you are doing it just for entertainment, if you are charging (for) that (service) in one way or the other—whether it is an implied charge or a direct charge—when it increases your business, then you have got a problem, because you are using their copyright material.

Question: If you put in a system for public use, what type of red tape do you have to go through?

Answer: The sports channels will generally deal with you and, as I understand it, ESPN formed a famous sports channel; if you contact them, and you're in a non-cable area, they will give you a rate based on what they figure the average sitting is in the establishment. Now I know in Tampa, they put one in a place

called the Press Box, which is a bar and lounge that is geared toward the sporting-type people, and they put a dish in there and got licensing for that one channel. Now there is nothing to keep that man from taking the dial and dialing the HBO Showtime, but basically he would be in violation. And ESPN's rate is very low. It is something like \$2.20 for five years per user. That is what they charge the cable company. That is because they are commercially-sponsored. The reason other movie channels cost so much is because they have no other source of revenue. Take your other channels such as your super station like WGN Chicago and WTBS in Atlanta—they have commercials. And because they do, they ask a very small fee. Ted Turner right now will give cable news network to most cable operating systems, just for the sake of keeping their name public. Of course, your movie channels do require training because it is a premium product, and it is not commercially-sponsored. I do know for a fact that certain channels will give a rate to a hotel and public viewing area. Movie channels tend not to. Now HBO has a deal with the Holiday Inns and they pay a group rate. Most Holiday Inns, you may have noticed, frequently have a dish. They made a deal with HBO a long time ago to provide in-room movies; but again, every room gets it and they don't charge for it.

Question: I have two questions. I am interested in about how many home-type, non-commercial installations has your company made, and do you run into zoning problems with different neighborhoods and the high-class sub-divisions? Most of them will not allow a dish, I believe.

Answer: We have put in 19 systems, only one of which was commercial. We put in a dish for Channel 10, which is one of the up-and-coming TV stations. It is one of the strongest stations in the South . . . has the highest transmitter and all of that. It is an ABC affiliate. The latest thing is that they bought an earth station from us over a lot of other people's prices because we were able to beat the price by a lot—our reputation preceded us; we knew how to rig up just what they wanted. Here, we put in a commercial dish and they use it for re-broadcasting and for special news; and if the ABC cable ever goes down, their dish is always sitting on the satellite that carries ABC, also, so it gives them a backup. When the other ABC affiliates go out, they are still on the air.

The other 18 have been in homes. One now—the man is having a problem, and it wasn't because of a zon-

ing restriction, but because he told us his lot line was a certain place and it wasn't. Now that is up to him; he built it too close to his lot line. In the Clearwater area, for example, there is a sub-division called Countryside that restricts outside antennas. Other than that, nobody has pulled a permit problem that I know of. We are treating it as an outdoor antenna, and so far we haven't had any problem. In the exclusive areas it has worked out even better. We are working on an area now called Kent Place, in Clearwater, which is a place where homes start at \$300,000 and a minimum of a 2½-acre tract. They are not big enough to be cable, they are not in an area where cable is available, and we are going like hot cakes there. There, the people have so much yard available, and they are the kind of people who have a tennis court and a pool and all that stuff.

Question: I can understand this, but I am talking about sub-divisions with maybe \$200,000 homes on 100-foot lots, and in the local area a lot of these sub-divisions have restrictions against unsightly things . . . some of them even against outside TV antennas, towers, or transmitters.

Answer: Obviously, that would be a problem to check into. One thing that has worked very well—our lowest-price system in our catalog is a \$3900 system with a spherical reflector. The advantage to it is its low cost, because it is a wire mesh reflector that the customer or you have to put together. Also, it looks a lot like the backstop for a baseball game or a trellis. You can grow flowers on it. I can't say it is great, but it is easy to camouflage.

It is the only thing that you can really put on a roof. Be careful of people that want to put dishes on their roof—they think that is the place for it, but it's not. A 10-foot dish is going to have a great wind loading factor. Ten-foot and 12-foot dishes are available in wire mesh. We are looking at a petal-shaped wire mesh dish that possibly would go on the roof because of the fact that each panel is ventilated. Right now, the only thing we have ever put on a roof is the 12-foot wire mesh spherical, and again, it disappears very well. In a yard, you could back it right up to a hedge line and then the receiver has to be 15 feet out on a pole and it just looks like a small post with a small tripod about the size of a camera.

This is as far as we can go this month. Part II of this talk covers low noise amplifiers, receivers, antennas, mounts, and a number of other topics. **ETD**

Central station monitoring

What and why

Central Station monitoring should be an important part of your sales pitch. It can be profitable today and ensures continued profit in the future. Why? Read on!

By Walter H. Schwartz

The basic concept of central station monitoring is very simple. The alarm system protecting a residence or business is connected, usually by wire but sometimes by a radio link, to a remote monitor position, normally manned con-

stantly. You can set up a system to do this for your customers, or you can contract with an outside company to monitor them. But there can be much more to the services of a central monitoring station than simple monitoring.

Physically, in the simplest arrangement, the central monitoring station is connected to the protected premise's alarm system through a pair of wires, possibly installed directly but probably leased from the phone company (sub-voice-grade lines are all that is necessary). With the increasing cost of phone lines and the apparent reluctance of the phone company to supply them for alarm

purposes, most systems use the standard telephone connections and tape or digital dialers.

A variety of central station monitoring equipment is available using direct wire connection, dialed access, or now, CATV cable system cables. So you can, if you have the capital, go into the monitoring business yourself. You will need a convenient location at which all the lines can terminate and most costly, someone to monitor the receivers twenty-four hours a day, seven days a week without fail.

As a consequence of this need for people to constantly monitor, most installers/dealers use the services of a



(courtesy 3M)

Table I

Alarm monitoring services

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Linden, NJ 07036
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Emergency 24
4223 W. Irving Park Rd.
Chicago, IL 60641
800-621-4113

Knightwatch
521 Chestnut St.
Cedarhurst, NY 11516
800-645-2190

Nationwide
4831 78th St.
Brooklyn, NY 11209
800-221-0826

3M
Safety and Security Systems
223-3N 3M Center
St. Paul, MN 55144
800-328-1009

This list is intended to be representative only and lists only a few major national monitoring services. Local services and regional services exist in many areas.

regional or national monitoring service. Not too long ago local monitoring was all that was available—direct connections to a nearby central monitoring station or the police. Now the use of WATS lines means that the use of a nationwide central monitoring service is available anywhere telephone lines reach, without the expense of special lines or special telephone charges. These nationwide central monitoring services, in effect, wholesale their services to you, the dealer/installer. When an alarm occurs, the digital dialer at the protected premises calls the monitoring service via an 800 number (incoming WATS), and the monitoring service responds by calling the local police or fire department or other number its instructions indicate. (System signals can be coded to indicate the nature of the alarm—break-in, fire, other environmental control malfunction.)

A central monitoring service keeps complete records of all alarms and of the response made for its own protection as well as yours.

So what is central monitoring besides a feature to sell your customer? It is, as the national sales manager of one of the better known of the national central

monitoring services repeats with great emphasis, residual income. If any of you close down your business today your income ceases. It is dependent upon your day-to-day business activity—no new business—no income. But—if over the last ten years you have sold a thousand alarm systems and have sold each a continuing contract central monitoring and perhaps maintenance, at \$15 per month, you continue to have an income of \$15,000 per month even if you never sell a new system again! Perhaps more realistically, even if you sell only a couple of hundred systems which maintain their monitoring contracts, you can have a cash flow of two or three thousand dollars each month which is not particularly dependent upon the ups and downs of day-to-day business. It is like being able to sell your TV customers perpetual service contracts. (The cost of central monitoring, to you the dealer, can vary depending upon the number of account services, the service used, and many other factors, from a low of apparently \$2 per month to \$6-\$8 per month).

But that is not all there is to the services of the central monitoring company. Many of them offer much more. The agreement between the dealer and the monitoring services can vary from a closely controlled franchise to a very loose ar-

angement requiring only payment of the monitoring service's fees.

Several of the national monitoring services offer extensive business and technical assistance. They will supply sales training and then supply you with sales information and materials to help you sell the alarm installation and the monitoring contract. (At least one has a portable demonstrator so you can show the customer exactly how the system would work and how the monitoring service would respond.) The monitoring service with its wide experience may well be able to help you evaluate equipment and make your buying easier. Some will help you with your system design, layout, and estimating. The monitoring service probably also can advise you on your insurance coverage, on business practices, advertising, all aspects of your business. The help available is not necessarily proportional to the strength of the contract between you and the monitoring service. Some of the monitoring companies with the least restrictive agreements at least claim to offer all such services.

The major point of all this is: central monitoring should be part of every alarm system sale. Having a number of alarm maintenance/monitoring contracts can be excellent for your cash flow. **ETD**

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By Dick Glass*

You must be saved

Yes, to make the decision to stop starving and to start enjoying the good life, you have to be **SAVED**. By that, we mean you can't just make the decision that you are going to quit kidding yourself about how fast you can make repairs, and about how many new TV's you will sell if you give service away, and how you will give your techs a raise . . . **JUST AS SOON AS THEY START GETTING MORE EFFICIENT**. First you must go **BANKRUPT**, or watch your wife leave and marry a \$15 per hour postal worker, or realize your dumb 19 year-old kid is making \$10,000 dollars more per year than you. After you have wasted much of the best parts of your life wishing that your wonderful personality would get you a lot of totally dedicated customers; after you have worked 12-hour days, all of your Saturdays, many Sundays; never even considered taking more than a week or two in vacation time; after you realize you could have done better sweeping the floor in a local factory . . . then you

*Reprinted from *Management Update* for August 1981, from the Electronics Technician Association, International.

Hourly Service Rate	# of Calls Per Week	Total Labor Income	Gross Profit Per Call	Weekly Gross Income
\$20	20	\$400	.00	.00
\$30	20	600	9.00	180
\$40	17	640	19.00	325
\$50	13	650	29.00	377

might be able, you might be conditioned, to considering the advantages of **CHARGING ADEQUATE SERVICE RATES**.

Once you make the **DECISION**, you will realize these truths:

1. Low-priced competition is good to have around, not a deterrent to profits in your shop.

2. There is no logical reason that you should have lower service rates than Sears, RCA Service Company, IBM, or any other business that uses technical personnel.

3. If your charges are lower than competition, customers will consider your shop lower in ability and technical expertise.

4. Higher prices **TEND** to discourage repair jobs on older, more-likely-to-be-**'TOUGH DOGS'** TYPES OF EQUIPMENT. Your efficiency will be higher.

5. Employee problems—employee turnover will cease to be a problem.

Because consumer electronics servicers deal so closely with their customers, they find that emotion has a great deal to do with how high their service charges are, rather than any scientific

analysis of what rates **SHOULD BE**, or even where local **COMPETITION** is. Throughout the history of our business, pricing has been the number-one problem. It has caused shop owners to fail or to work most of their life for inadequate compensation. It has been such a problem that some have resorted to 'hiding' their service rates by trying to include extra profits in parts, nonexistent parts, or labor functions. The lack of income that has resulted from too-low service rates has been responsible for most of the ills that have been evident in the service business—problems like low pay for employee techs; no reserve funds to invest in merchandise and parts (which allowed the Radio Shack chain to step in and take over that part of the business); no funds to allow bigger and bolder advertising signs; no funds to allow help to wash the windows or clean up the store; no funds to allow for investment in new products (which allowed all of the speciality stores to step in and take over the CB, Video, Alarm, etc. etc. businesses); no funds to allow the technicians to be sent to training schools or the boss to business school; and more.

Competition

The excuse for this plague has been: "My competition is so low I just can't increase my rates, even though I know they are too low."; "My customers are older people on retirement and social security—they just can't pay higher service charges."; "How can you charge \$90 to repair an \$80 TV?" and "I just can't get any efficiency out of my service department."

Inadequate service charges also caused a large number of shops to decide that the answer to the problem might be in CUTTING COSTS rather than raising prices. After all, there are more ways than one to skin a cat! Since practically every shop I have become familiar with has already cut cost—TOO LOW—The only way to reduce them any further has been to attempt to reduce the products or brands serviced to a few, in hopes that familiarity and availability of repair parts will reduce time and labor expense. That works real well. On those few items you do service, you can be more efficient and thus keep the cost of service lower than you could servicing unfamiliar brands and models. It is also like going fishing with no bait. You have several advantages by doing this: You have no bait cost; you lose no lures; you spend little time cleaning fish, untangling lines or . . . fishing. It's the same when you narrow your services. While you can be more efficient on one brand of TV, and it seems you are doing better, often the result is a long-term loss of customers, a weakening of your community image, and a feeling in your own mind that you have cleverly found a way to undercut the competition.

If you are charging somewhere in the neighborhood of \$25 or \$30 per hour to perform electronic service, ask yourself if any of the above applies to you.

There is another emotional reason service prices have remained too low over the years: that is the HOPE many dealers have that if they keep service rates low, customers will come back to them to purchase furniture or new sets. Since this does actually work—in an occasional instance—it appears to have some merit. However, since 80% of the customers have now defected to the discounters or anyone else who would give them a 'deal', that philosophy has proven to be a dud. It, too, has led to the downfall of many servicers.

To think rationally about pricing, set up a chart as in Fig. 1 for your shop. Fill in the blanks with your best guesses or predictions. Be an expert. Try to anticipate what will happen at the higher price levels. Even if you are now charging

\$40 per hour, you should make this forecast regularly for your business.

The shop in the chart has been charging \$20 per hour for service work, trying to reduce the hourly losses by underpaying the technician, and skimping on necessary overhead expenses. At that, the "total cost" to sent a tech out on calls or to perform in-shop repairs is over \$20. So each time something is serviced, a larger loss results. Fortunately, the owner is wisely reducing advertising expenses—hence reducing the number of repair jobs. He is correct in doing this, since the more service work he does, the more he loses!

Were he to increase rates to \$30, he might anticipate a gross (not NET) profit of \$9.00. He would not lose ANY legitimate repair work, since \$30 is still below any of the serious competition. At \$40, he would perhaps lose a "shopper" or two, but the financial advantage of this rate over the \$30 rate is clear—it produces a 24% increase in gross profit, in addition to a lighter work load.

At \$50 per hour, the shop may find customers with older sets trying to find someone else to share their troubles with. Depending on the shop's sales ability, let's estimate we would actually lose 7 of the original 20 jobs. We would lose these only if there were a lot of very-low-priced shops in the area. With other prices what they are today on everything we buy, it is doubtful that seven jobs would be lost, but let's use it for illustration here anyway.

Notice that even if 7 were lost, the profits are substantially higher than the \$40 level. Even the \$30 price provides \$10,000 more dearly-needed dollars per year for the shop. The \$50 price is \$2800 better per year than the \$40 level, and while the total jobs are down only 35% from the \$20 point, the actual work, because of the newer mix of sets, will be less than 50% of that needed for the \$20 level type of repairs.

Some keys to overcoming the 'pressure' you feel from the community, relatives, and friends (which depresses your prices) is as follows:

1. Honestly estimate the 'worst case' anticipated losses in your shop.
2. Keep an absolute record for a month, showing number of repair jobs turned down, jobs taken in, phone inquiries that resulted in a rejected repair, and any other info you think may bear on the price increase project.
3. Stick to the price schedule explicitly. Don't start giving every other job a 'break'. The grocer, new truck dealer, post office, hospital, and gas station give you no break. **ETD**

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BULLETIN BOARD

Products for the commercial sound contractor are the subject of a new catalog from *Quam-Nichols Company*. The eight-page commercial sound catalog lists Quam's background music, public address, intercom and outdoor loudspeakers, as well as its line-matching transformers and ceiling baffles. The catalog includes complete technical specifications and physical configuration information on each product, so the sound contractor can easily determine the best units for a particular application. Quam offers a broad line of commercial sound products which reportedly meet all pertinent EIA standards, including the EIA RS-426 power standard, and each carries EIA service guarantees. All are manufactured in the United States of America. All products listed in the new catalog, including speaker/transformer/baffle combinations, factory-assembled at no extra charge, are available for immediate delivery from stock.

Circle No. 160 on Reader Inquiry Card

Leader Instruments Corporation recently announced the availability of its new 1981-82 catalog. The 48-page, comprehensive catalog includes detailed descriptions, specifications, photographs, and pertinent charts and illustrations of over 70 products including **oscilloscopes, frequency counters, digital multimeters, function generators, and video and audio test instruments**. Announced in the new catalog are ten new products. Included is reportedly the only vectorscope in the industry with CRT generated vector targets, an X-Y display module that can be customized to O.E.M. user needs and requirements, and a CRT display designed for use in microwave swept frequency measurements, a CATV level meter and an audio frequency response test set.

Circle No. 161 on Reader Inquiry Card

A new, fully illustrated, 40-page catalog describing more than **75 films, slide programs, and books for use by law enforcement agencies, security executives, alarm companies** and educational facilities is now available from *Charles S. MacCrone Productions, Inc.* Included in the catalog are 9 films on Residential Crime Prevention, 14 films on Commercial Crime Prevention, and

7 films covering Community Crime Prevention. Also included are films on Executive Protection, which are available with Arabic, French, Spanish, and English sound tracks. The new catalog also features 25 Roll Call Training Films (including five new films on Forensic Science), films on Drugs and Alcohol, as well as Slide Programs on Crime Prevention and several new books. Information on film rental programs, preview policies, film repairs, and prepaid preview order forms are included.

Circle No. 162 on Reader Inquiry Card

The "whats" and "whys" of True RMS for *Beckman Instruments, Inc.*'s line of digital multimeters are answered in a new brochure. Primarily, it addresses the question: Do you think an *RMS calibrated* meter is as functional as an *RMS responding* meter? In passing, have you wondered what the advantages of ac + dc coupled True RMS measurements are? These questions and many more about True RMS measurement are answered in the brochure.

Circle No. 163 on Reader Inquiry Card

A new, 44-page catalog giving complete details of its greatly expanded line of **capacitors and resistors** is now available from *Capar Components Corporation*. In addition to describing numerous new capacitor and resistor products, the catalog details the extended range of the company's lines of electrolytic, film, and ceramic capacitors, as well as its design engineer kits consisting of selected capacitances and voltages of various types of capacitors.

Circle No. 164 on Reader Inquiry Card

A new line of **quartz crystals specifically designed for microprocessor applications** and reportedly exhibiting low series resistance, tight frequency settings, stable frequency tolerance over the temperature range, and excellent long-term stability, is now being manufactured by the *Capar Components Corporation*. All standard frequencies are available from stock, and the company will manufacture specials to any desired frequency, or to any specifications.

Circle No. 165 on Reader Inquiry Card

Westinghouse Electric Corporation has completed the updating of its motor library with the addition of a new **catalog covering small motors from 1/12 to 5 horsepower**. Compiled by the corporation's small motor division, the catalog incorporates both stock and non-stock ratings for the entire fractional motor line. Catalog 2820 provides both heating,

ventilating, and air conditioning (HVAC) replacement motor and general purpose motor sections. The entire HVAC section has tinted pages for quick reference. It includes a shaded pole and permanent split capacitor replacement application guide. In addition, the HVAC section features specific photo identification of each motor style and applicable dimension drawings on the same page as the motor listings.

Catalog 2820 is filled with motor specifications, including horsepower, rpm, volts, frame size, bearing information, thermal protection guides, amperage, catalog and style numbers, weights, dimensions, and list prices. Catalog numbers and style numbers are cross-referenced. Installation, start-up, and operating instructions are included, as are connection diagrams.

Circle No. 166 on Reader Inquiry Card

A new consumer information booklet—**"Video—Your New Window On The World"**, is now available from the *Electronic Industries Association's Consumer Electronics Group*. The 24 page, 2 color booklet offers the consumer a full explanation of products available as "viewer controlled television," such as the video cassette recorder, videodisc player, satellite TV, cable, and other forms of subscription TV. Major formats of VCR's (video cassette recorders) and videodisc players are explained along with various features of the systems, and the booklet contains 45 tips on "getting the most from your VCR." A section on "enjoying your video camera" is included. New video transmission systems—cable and satellites—are profiled and other uses for the TV screen such as video games and personal computers are covered. Video information services that should be available in the next few years, including Teletext and Viewdata, are defined for the consumer. New developments in TV sets are reviewed, including the growth of both small screen and large projection TV models. The booklet also has a section on antennas.

Proper care of video equipment and tapes is suggested for the consumer and the importance of the product warranty is explained. Suggestions on service and service contracts are part of the valuable contents of this new EIA/CEG booklet. Copies in quantity are available from Electronic Industries Association/Consumer Electronics Group, 2001 Eye Street, N.W., Washington, DC 20006, at costs of: 2-99 copies are 15¢ each; 100-499 copies are 10¢ each; over 500 copies are available on request.

Circle No. 167 on Reader Inquiry Card

BOOK REVIEWS

The first item this month is not a book, but is a video tape. Sentrol, Inc., the switch manufacturers have produced a video cassette titled *Residential Applications*. This tape closely parallels Sentrol's security book *Applications Notes for Magnetic Contracts*. The tape shows clearly how to install switches in almost any imaginable application. Magnetic switches can be used easily with wood frame windows and wood doors. Less obvious is their use with aluminum frame windows and doors, with chain link fence gates, with car doors and other steel doors. The tape's advantage over a book is its full step-by-step demonstrations. Both the book and the video cassette are available from Sentrol, 10831 S.W. Cascade Blvd., Portland, OR 97223.

A second edition of Charles Sippl's *Microcomputer Dictionary* has recently been published by Howard W. Sams. This, or a similar volume, will be indispensable to all of us learning to work with microcomputers. A great problem is the new language we must learn. Initials and acronyms abound in the computer field and endlessly confuse the inexperienced, as do ordinary words with new computer definitions. This dictionary appears to be very complete and additionally includes appendices which explain the philosophy and applications of microprocessors and microcomputers. *Microcomputer Dictionary* by Charles J. Sippl, Howard W. Sams & Co., paper, 606 p., \$15.95 ISBN: D-672-21696-5.

Microprocessors are used in instrumentation and control of industrial equipment and processes even more than in microcomputers. This requires not only logic circuitry, but analog signal processing and analog to digital and digital to analog converters—after all, the real world is analog. Temperature, pressure, motion and many other variables must be sensed, and motors, positioners and heaters and other devices must be controlled. *Microprocessors for Measurement and Control* analyzes typical control and process functions and develops microprocessor programs to control these functions. *Microprocessors for Measurement and Control*, Auslander and Sagues, Osborne/McGraw-Hill, ISBN 0-931988-57-8, paper, 310 pages.



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Circle No. 111 on Reader Inquiry Card

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Circle No. 101 on Reader Inquiry Card

TEST INSTRUMENT REPORT

The timing relationships of digital signals in the various parts of a circuit can be very critical, and the ability to easily see these relationships can be valuable—essential—in troubleshooting. Multitrace oscilloscopes and logic analyzers are costly—most of us have only a dual trace scope available. So, what's the answer? One answer is *Albia Electronics* DM-12 eight channel scope multiplexer. This little black box is much more than the low-priced gadget it might appear to be. Eight color-coded (standard color code) leads connect via miniature alligator clips to the various circuit points under test. The output goes to your scope. Trigger can either be internal or external (my scope was happiest with external trigger) and you now can see eight pulses or traces of pulses in accurate timing relationship to each other.

The DM-12 is made to accept TTL logic levels 2.4v high, .7v low, and a 5.5v maximum. (Over this you run into trace separation problems. Its loading factor is that of one low power Schottky TTL load, and it reportedly will handle pulse rates to 3MHz.

The DM-12 is inexpensive enough so that it would be logically an early addition to any shop entering the area of logic troubleshooting.

Albia also offers a trio of accessories

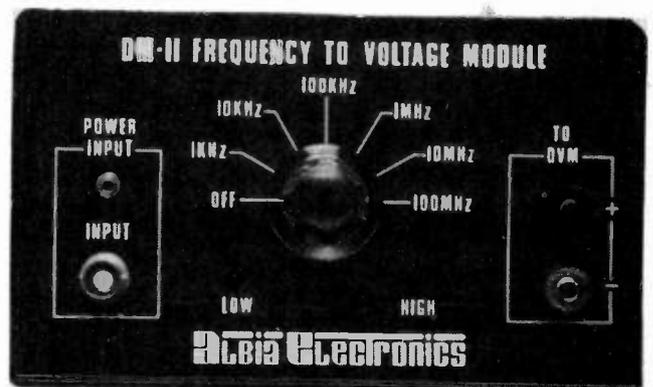
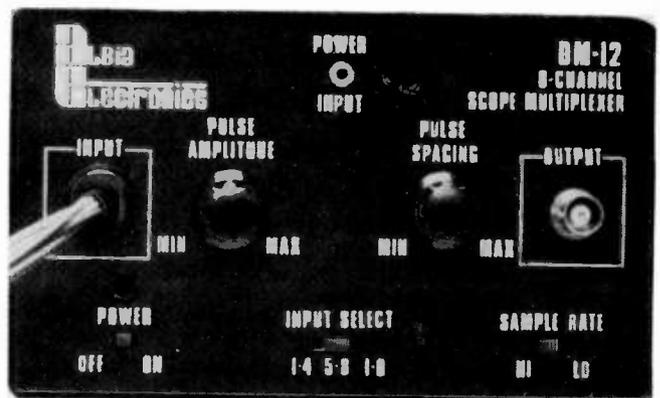
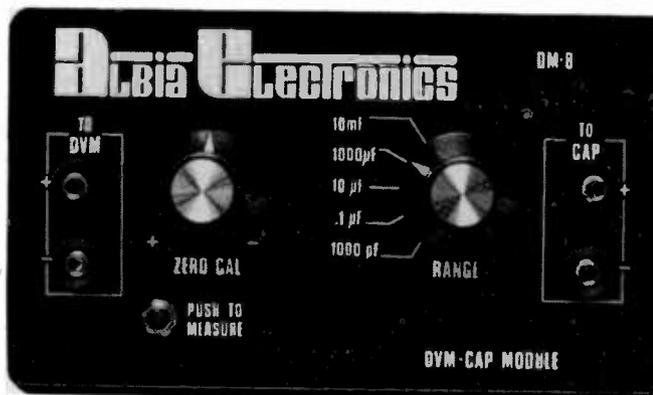
for your DMM. At a modest price you can obtain capacitance, low ohms, and frequency measuring capabilities for almost any digital multimeter. These accessory units do have some limitations in accuracy but are probably accurate enough for most practical purposes. The frequency meter, DM-11, has a range of 5Hz to 100MHz, though its resolution is only 3½ digits which, depending upon application, could be a significant limitation. The ohms module, DM-10, allows you to measure resistance from 10 milliohms to 20 ohms. It has the capability of nulling out lead resistance for accurately measuring very low resistances. The DM-10 will allow you to measure the resistance of ground cables, transformer windings, and circuit board conductors, etc. The last module of the three is the DM-8 capacitance meter. It will measure capacitance from 1pfd to 20,000mfd to an accuracy of ±5% of reading, ±1 digit, ±1pfd, and as with all the modules, the DMM used also limits the overall accuracy. It has a zero calibration control to allow zeroing out the test lead capacity.

Each instrument comes with a brief but adequate instruction manual; it is useful to read them; millifarad meter ranges confused me; and the prices are modest.

Eight scope traces!

For logic troubleshooting

By Walter H. Schwartz



Albia Electronics' test instrument accessories. For more information circle 150 on the Reader Service Card.

CONTINUING EDUCATION REPORT

Several months ago the Heath Company sent ET/D another of its Heath/Zenith Electronic Technology Series *Optoelectronics*. It has taken us a little while to sit down and thoroughly evaluate but it has been worthwhile and enjoyable to do so. This course is designed to make the technician comfortable with the principles of a variety of optoelectronic devices: we feel it succeeds. It should give a understanding of basic optical terms and the optical spectrum. It covers light sources: lamps, LED's lasers, etc.; displays from character displays to cathode ray tubes; light reactive devices: photo cells, phototransistors, photodiodes, light activated SCR's, etc.; and the principles of fibers40optics.

The explanation of the production of light, from whatever source is explained briefly but well, as are the principles of various light sources with the possible exception of lasers. Unfortunately the laser is so complex in overall operation compared to a light bulb that the coverage simply suffers by comparison (perhaps Heath will offer a laser course complete with O kits?).

Optoelectronics Fun from Heath

By Walter H. Schwartz

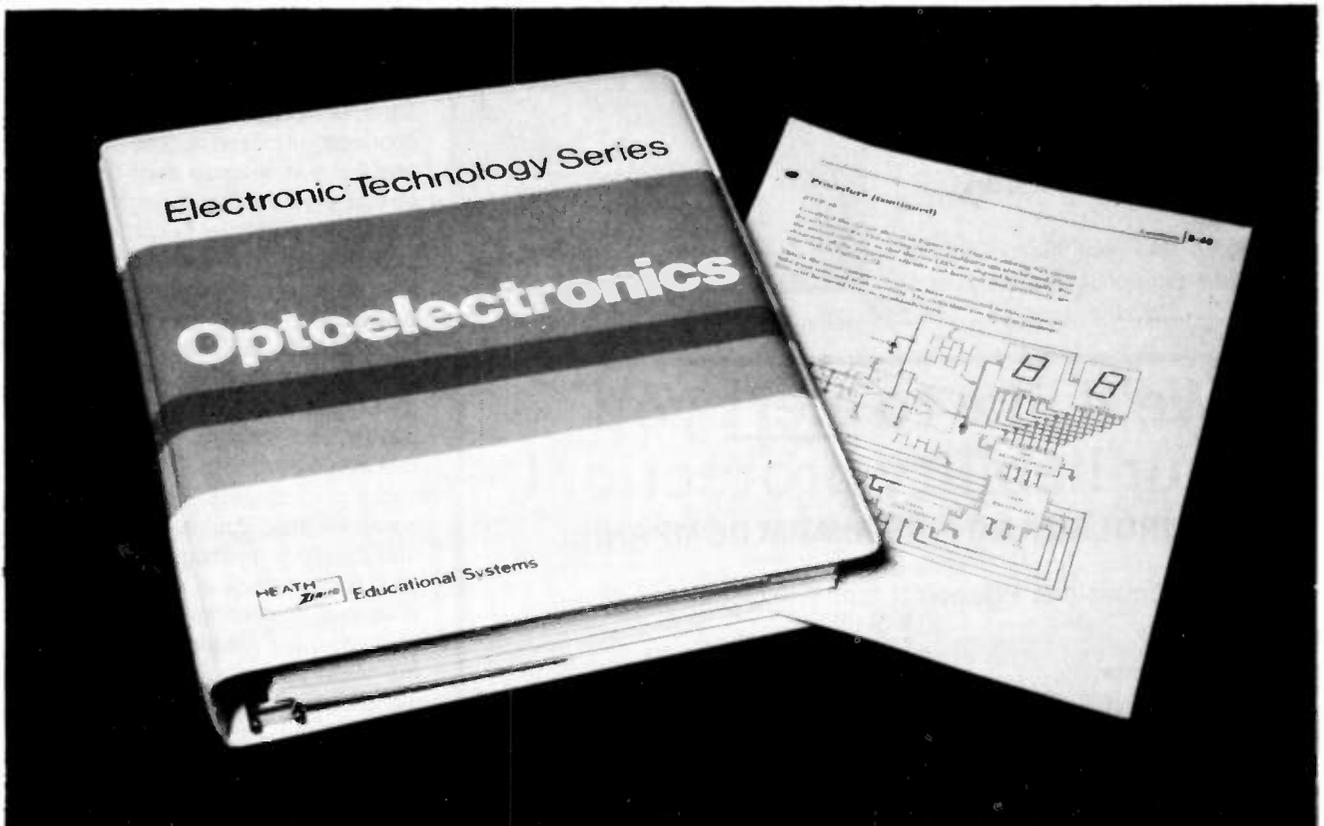
The chapter on fiber optics is a good introduction but again as with the material on lasers it is only introductory; it will only wet your appetite (another chance for Heath and another course?).

The *Optoelectronics* course includes the electronic components and instructions for seven experiments including

one on fiber optic data transmission. As in all of the Heath courses the experiments contribute a major portion of the courses' value. The experiments are when the technician (or ET/D's editors) develop a comfortable feeling towards the course material. Some of the experiments seem very elementary but on nevertheless valuable; you may just learn something you hadn't thought about before. The experiments cover lamps, LED's, segmented displays, photocells, photodiodes and phototransistors, optocouplers, and fiber optics; no, no lasers. The fiber optic experiment for example involves operating an IR emitting diode with bursts of 1KHz tune at a 3Hz rate; detecting this with a phototransistor and amplifying it to drive a speaker. Data sheets for all of the optoelectronic devices used in the experiments are included in an appendix and another appendix contains a glossary of optoelectronic terms.

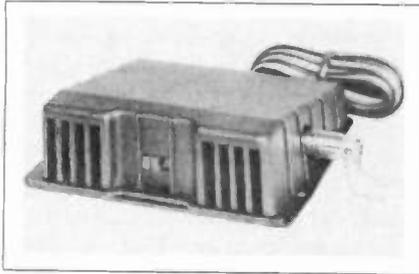
We did not feel that *Optoelectronics* covered its material with the depth that most of the Heath courses we've reviewed earlier did. But—it is admittedly a different sort of course; how can everything from lasers to fiber optics be covered in depth in one volume? This is a survey of optoelectronic devices; it gives you an introduction and an excellent introduction too. It leaves the way open for further study in several areas.

We like it. We enjoyed it.



Heath's Optoelectronics Course. For more information circle 154 on the reader service card.

SECURITY PRODUCTS



Ultrasonic Vehicle Alarm

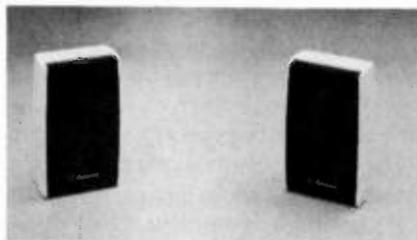
Circle No. 130 on Reader Inquiry Card

Burglar protection for vans, motor homes, cars, and trucks is afforded by *Mountain West's* Sonic Sentry. The Sonic Sentry is said to be triggered only by an actual intrusion, not a falling package, and sounds a 60-second horn blast. At the end of the 1-minute cycle, the Sonic Sentry resets itself, ready for the next intrusion. If the intrusion continues, so does the horn blast. Commercial applications include delivery trucks, sales fleets, demonstration vehicles, and semi-trucks. Armed by a simple on-off switch, the 5-second entrance and 12-second exit delays allow the owner to deactivate and activate the alarm without setting it off. According to the manufacturer, advanced ultrasonic technology keeps the unit from being affected by anything outside the vehicle, thereby minimizing false alarms. The unit measures 3½" × 3½" × 1".

Photoelectric Intrusion Detector

Circle No. 131 on Reader Inquiry Card

Arrowhead Enterprises recently intro-

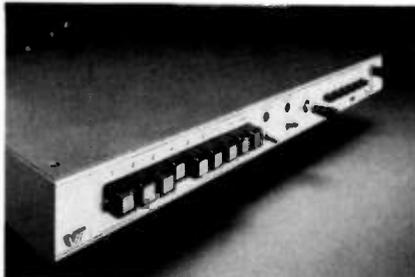


duced the Series S6000 photoelectric intrusion detector. Its transmitter reportedly uses a cylindrical optic which develops a wide infrared beam horizontally, but narrow vertically. This means the transmitter does not require alignment, and the optic is designed to eliminate "skip" or unintentional beam paths, according to the manufacturer. One or more receivers may be located up to 100 feet away, and it is claimed only a screwdriver adjustment at the receiver is required to align the system. An automatic alignment verifying circuit in the receiver tells when the system is aligned with 75 percent cut-off. No alignment light or 75 percent cut-off tool is required for this system. The unit has a snap-out circuit and requires an input power of 6 to 14v ac or dc.

CCTV Preset Control

Circle No. 132 on Reader Inquiry Card

Vicon Industries, Inc., recently introduced a control unit that permits a single closed circuit television security camera to

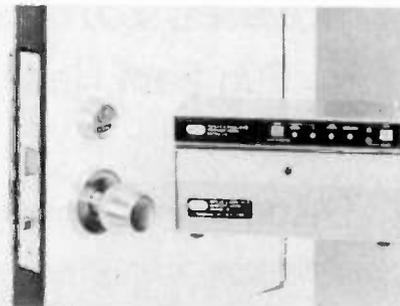


function as a sentry for up to eight remote locations. The V129-8PP preset position control unit is a product of computer technology. It allows up to eight operator-selected pan, tilt, zoom, and focus settings for different scenes to be instantly placed into memory with the push of a button. An alarm signal at any pre-selected scene instantly returns the camera to that particular setting. Another feature of the V129-8PP is its ability, through pushbutton selection, to function in a completely operator-controlled manual mode. This manual override feature allows positioning of the pan and tilt and zoom lens combination to any other scene—without disturbing the preset memory.

Electronic Locking System

Circle No. 133 on Reader Inquiry Card

A new electronic locking system has recently been developed by *ELS (Electronic Locking Systems) Limited* of London. Called the ELS System-Lock, it has reportedly been developed over the past two years and undergone an extended-



life test of over 250,000 locking operations. Its monitoring capabilities indicate door open or closed, locked or unlocked, and there is a timed door-open alarm so that should a door be jammed or held open for an unusual period, this will be indicated. All of these alarms can be relayed to a main control center. The unit is available in one mortice dead-latching lock, activated by a two-wire communication link using a coded signal, which makes the lock tamperproof. The mortice lock also has all the features that would be required in a normal high-security mechanical lock—resistance, hardened steel double-throw latch bolt, and deadlock latching. In addition, the ELS System-Lock is designed so that custom-built interlocks can be configured using its three standard components—the lock, power supply, and control module. It can be used with a simple push-button control or with any access control system—card, token, or digit based. On site, the ELS System-Lock can be set to be fail-locked or fail-safe. The latter facility enables interfacing with

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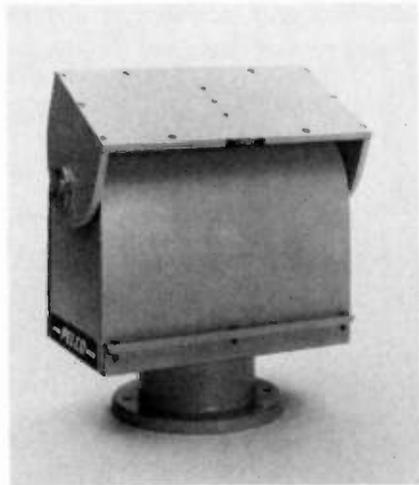
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Circle No. 102 on Reader Inquiry Card

a fire alarm control panel so that in the event of fire, all doors open automatically.

Heavy Duty Pan/Tilt

Circle No. 134 on Reader Inquiry Card
Pelco Sales, Inc., recently introduced the Model PT1250DC, a heavy duty pan and tilt, reportedly constructed to com-



fortably operate with loads up to 100 lbs. High-torque dc motors with heavy duty adjustable worm gear final drive eliminate backlash and drifting and provide dynamic braking, according to the manufacturer. The PT1250DC is capable of auto-scan and variable-speed operation. The unit reportedly features easy access to all electrical and mechanical components. Internal electrical connections are made through a "koil-kord" which is said to eliminate any wire fatigue during normal or auto-scan operation. All internal parts are said to be corrosion-protected steel or aluminum and the external finish is a textured semi-gloss beige enamel.

Wide Angle Lens

Circle No. 135 on Reader Inquiry Card
The Superwide is a 4.8mm auto iris lens recently introduced by Visual Methods, Inc., for low light level $\frac{2}{3}$ " CCTV and industrial TV cameras. The Model AI 4816 with its 4.8mm focal length provides an angular field-of-view of 110 degrees diagonal, 96 degrees horizontal, and 75



degrees vertical. A spot filter gives the Superwide a wide range of automatic light compensation from f/1.9 to f/360, making it especially effective with Newvicon, Ultracon, and Chalnicon cameras, according to the manufacturer. Aperture is controlled through a sampling of the camera video signal output. The built-in 12 vdc iris drive motor results in a small lens barrel diameter of $2\frac{3}{4}$ " (67mm) and overall lens length of $4\frac{1}{4}$ " (105mm). The Superwide fits any standard "C" mount camera.

Dialer Test Set

Circle No. 136 on Reader Inquiry Card

Salco Industries offers a battery-powered, portable instrument for testing digital dialers (of both major groups) as well as tape dialers. The Model 927 reportedly can be used to test dialers either on or off the telephone line. The unit is said to test dialers with Franklin, SESCO, and Silent Knight Ademco formats; it sequentially displays the telephone number dialed (on or off the line) and account number and code; it generates dial, acknowledgment, and kiss-off tones and has a speaker amplifier for testing recorded tape transmissions of tape when testing on-line. The Model 927 alleviates the



necessity of preliminary testing with the central station, although it is recommended that final testing be done with the central station.

Salco also makes available a number of other security products, including zone locaters, test sets, and battery-powered passive infrared sets.

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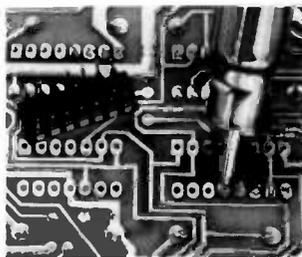
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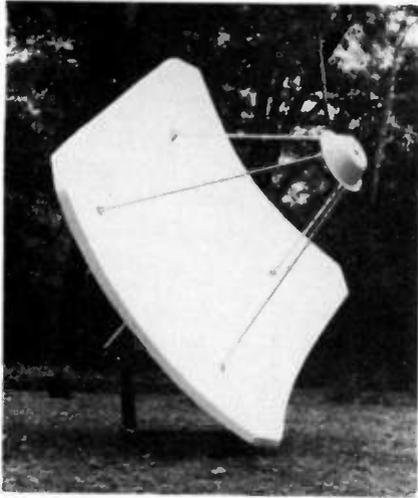
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NEW PRODUCTS

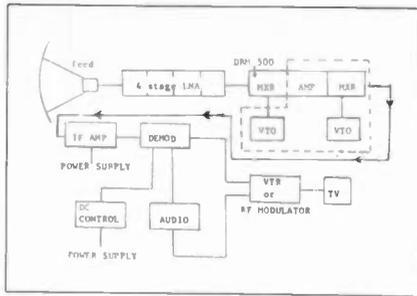


Satellite Antenna

Circle No. 140 on Reader Inquiry Card
National Microtech, Inc., recently reported that successful testing of its new Apollo X9 satellite antenna has been completed in Los Angeles, New York, and Florida. The design of this 9-foot satellite antenna reportedly allows high-quality reception from the Sat-Com I satellite in those areas usually requiring 4 or 5 meter dishes. The X9 antenna is single-piece fiberglass construction in the shape of a diamond. This is said to maximize performance, while reducing the size of the antenna. The basic concept of the X9 was to produce a one-piece antenna for closer surface tolerances that could be shipped in a standard freight truck.

Satellite TV Receivers

Circle No. 141 on Reader Inquiry Card
 For those of you who might want to build your own TVRO receiver, a series of



circuit boards is available from *Robert M. Coleman*. Coleman, one of the pioneers in TVRO work, built a system from surplus for about \$500 several years ago. Offered are circuit boards and some special components for low noise amplifiers, mixers, IF amplifiers, demodulators, audio systems and control, as well as two books on satellite TV reception, based on Coleman's experience.

Earth Station Equipment

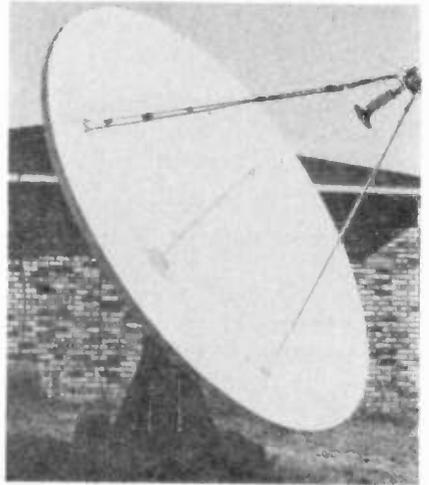
Circle No. 142 on Reader Inquiry Card
Antenna Technology Corporation manufactures a complete line of satellite TV antennas, receivers, LNA's, and other related components. Antennas are available in 3-meter and 5-meter di-



ameters with single, 90° switchable, continuous, or dual polarization. The company also features switchable and continuous feed; one model can be converted from 90° switching to continuous rotation by changing a wire connection. Elevation and azimuth angles are adjusted via hand cranks or by optional low-voltage motor drives with LED display.

TVRO Systems

Circle No. 143 on Reader Inquiry Card
 A variety of satellite TV receiver systems and components with a wide range of pricing are available from *Star View Systems™*. Star View offers parabolic reflectors from eight to twenty feet in diameter, several mounts, feed horns and supports, hardline, and low noise amplifiers and receivers by several



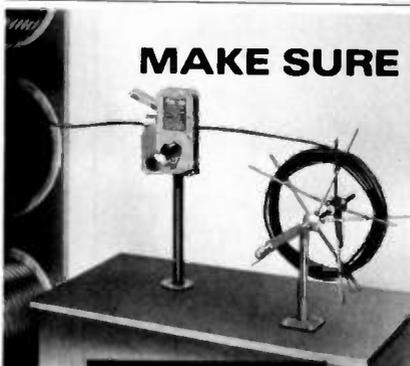
manufacturers. Star View has a line of parts and accessories for both home and commercial systems, including trailer mounted demonstration systems.

Satellite Earth Station

Circle No. 144 on Reader Inquiry Card
Microwave General Corporation recently introduced its Star Trac™ home television satellite earth station. The system combines the company's Star Trac wireless remote control unit and its four-meter microwave antenna with a 120° Kelvin



low noise amplifier and high performance receiver. Options to the basic system include a motorized polar mount and 100°K or 80°K low noise amplifiers for use in weak signal areas. The Star Trac provides the buyer with a complete television receive only (TVRO) system capable of accepting signals from all U.S. and Canadian satellites in domestic orbit. The Microwave General Star Trac antenna is constructed of 12 die-stamped panels. All electronics in the system are



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Circle No. 110 on Reader Inquiry Card

mounted in a vault-like enclosure at the rear of the antenna to protect them from weather, interference, and theft. The Star Trac wireless remote control unit used with the motorized polar mount allows the viewer to remotely focus the antenna on any of the domestic satellites from up to 200 feet from the antenna. This feature reportedly enables the user to control the antenna from any room in the house without cumbersome extra electronics in every room in which a television set is located. This remote control unit contains the only electronics in the Star Trac system which must be kept in the house. According to the manufacturer, by pressing a button on the remote control unit, the user can tune to any transponder (channel) on any of the satellites currently in geostationary orbit. Channel numbers are displayed on the television screen for ease of reference when tuning the antenna from one transponder to another. The Star Trac system is packed in compact cartons, and the antenna can be assembled with no special tools or training, the company claims. They also design and manufacture transmit/receive stations for commercial use.

Low-Cost Dual Trace Oscilloscope

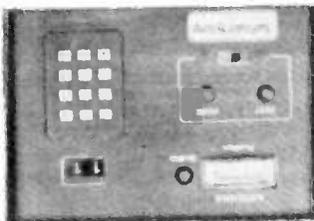
Circle No. 145 on Reader Inquiry Card
 Scopex recently introduced its Model 14D-10V oscilloscope developed primarily for the video cassette/video disc/television service market. The 14D-10V was evolved using the 14D-10 as the base, retaining all its features, and utilizing available space on the front panel to add all the necessary controls required for the line-select functions. Its major new feature is the facility to trigger onto a video color waveform via an active TV sync separator and then select any line on the waveform, to reportedly enable easy and accurate alignment of the VCR, BETA, and video disc recorders. By pressing two push-buttons, the instrument automatically triggers off the TV line and the operator can then, by means of a simple precision potentiometer, select each individual line of the TV waveform. Taken against the conventional way—using a delayed timebase oscilloscope and the delay in adjusting its



numerous controls, this is said to be a valuable time-saving aid to the technician.

Satellite TV Equipment

Circle No. 146 on Reader Inquiry Card
 A 3-meter antenna (solid or 5-piece fiberglass), polar mounts, and electronic rotation package by *Satfinder Systems* are now available. The electronic rotation package is pushbutton-controlled with



digital display readout and an integrated LNA polarity control. The unit is programmable to fix the antenna on up to 99 satellites; memory for these positions is retained even with power loss.

SECURITY INSECURITY

continued from page 19
 cover a claim. When choosing an insurance carrier, there are a few things to check. Just because you might not

have heard of it doesn't mean it isn't any good. Ask your agent to explain the best system of insurance company rating, and then choose a high-rated company.

Also, check into their "track records". Have they been writing this coverage for a long enough period of time? If so, they probably know what they are doing and will probably be writing this coverage for a long time to come. In other words, you should be looking for stability. In the last ten years, at least six insurance companies tried to write this class of business, but no longer do so.

It is an ironic twist of circumstance that the security device industry is often most vulnerable and insecure in the case of its own financial protection. In order to cover yourself and your company from every possible angle, you must be discriminating in your choice of agencies. Discuss these issues with your agent, regardless of the confidence you have in his judgment or ability to design an adequate program of coverage. Ultimately, it is your responsibility to educate your agent on the nature and liabilities of your business, or you will suffer in the event of loss or damage. Ignorance, as they say, is no defense in the eyes of the law, and small comfort in the face of loss. **ETD**

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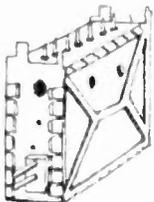
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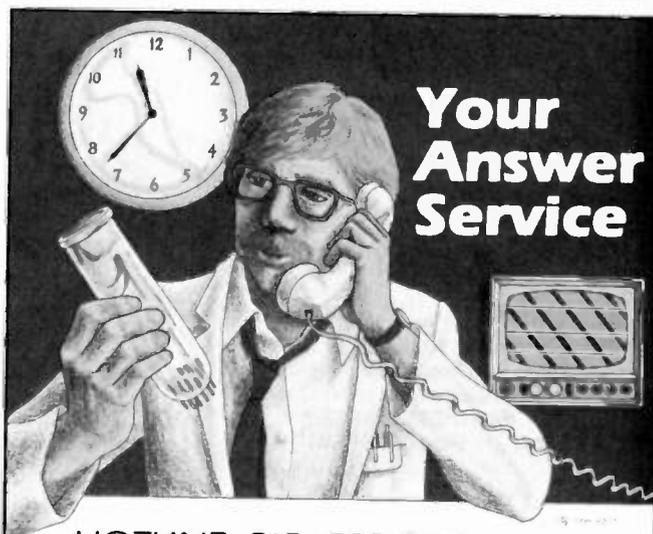
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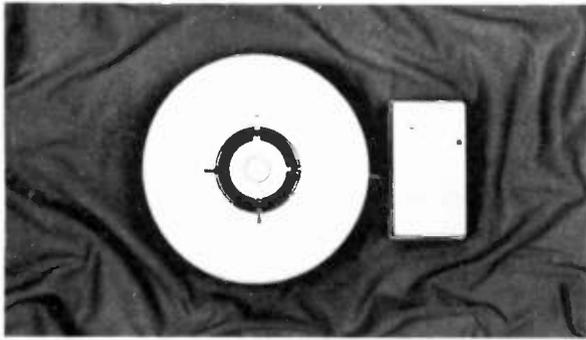
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