

SOUND & COMMUNICATIONS

Volume 37 Number 12

December 27, 1991

1991 SUPPLIERS' SURVEY AND ECONOMIC REPORT



Attitudinally, things are okay. The crunch comes in other areas — tougher credit, higher costs. But indications are positive as suppliers focus their efforts, finesse their distribution and plan out their product lines. Sound & Communications presents its sixth annual survey of manufacturers. **39**

THE HOTEL BUSINESS

From atriums to health clubs, hotels are providing work. A hard economy and downsized tourism means shifting the systems have to be flexible and user so do the contractors. Find out the trends for the future. **18**

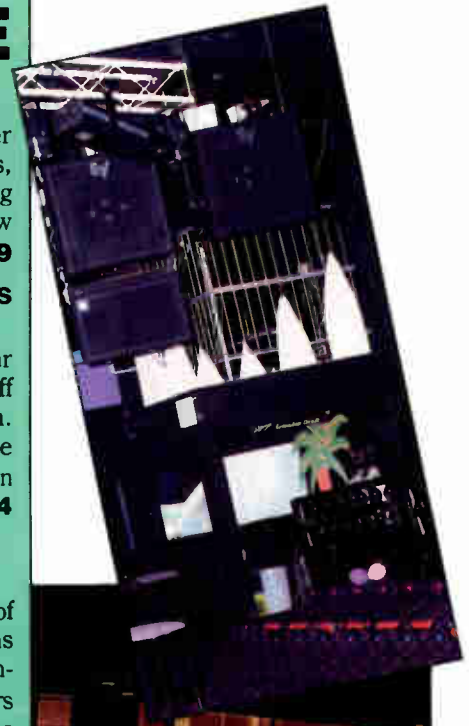
1091 01225 0211U45A 125C \$TDP
00017872 RZ
MARK GANDER PRES
BEAR SOUND & COMMUNICATION
47000 W. WINFIELD RD. CA 90290

BROADMOOR

IL
convention business through capacity and improved sound this Colorado Springs luxury hotel. Electronic Systems International called in to accomplish the renovation of the main hall and a second hall divided into zones. The result is the ability to schedule three conventions at the same time and rave reviews for the sound system. **26**

IN THIS ISSUE

- **Coax Speakers, Part 3**
Horn-within-a-horn and other solutions of coax configurations, as our series continues, looking at the products available and how they work. **29**
- **Hotel Meeting Rooms and Translation**
When the participants put their headsets on upside down, Jeff Ader knew he had a problem. There are many problems in the world of simultaneous translation at hotels, and Ader explains. **14**
- **Manufacturers' Perceptions**
What do manufacturers think of reps? What is hated? Who is loved? WesTech Marketing conducted a survey of manufacturers in the sound and communications industry. **48**



Is There A Point When Out Of Control Becomes Complete Control?



Yes. The Moment You Plug In The New CEX-4L

From Peavey
Architectural Acoustics®

When we say complete control, we mean it. The CEX-4L from Peavey Architectural Acoustics is a totally programmable, all digital audio processor that redefines the role of a multi-way sound system controller. The CEX-4L provides ultimate control of even the most difficult rooms, with surprising options you never thought available in a crossover at this price — or any price, for that matter.

The versatility of the CEX-4L will amaze the most discriminating sound engineer. For example, the CEX-4L may be configured as a crossover — four-way, two-way stereo, three-way with a fourth full range (or band limited) delayed output — or it can become a one or two input multi-tap delay. In either application, each of the four outputs can be delayed, equalized, peak limited, and/or bandwidth limited with a choice of six filter selections, including eighth order Linkwitz-Riley filters with 48 dB per octave slopes. An adjustable horn EQ, a one band parametric EQ, or low and high frequency shelving filters can be selected for each output. Precise peak limiters provide driver protection while maintaining musicality to system performance. The selective “linking” feature allows the limiters to track, preserving the spectral balance. Set-up and functionality come quickly and intuitively. The control panel is simple and straightforward with labeled buttons for the various features and a 20 x 2 backlit LCD display. A “data entry wheel” has been included for rapid system calibration, plus a built-in security lock, selective polarity reversal, and muting on each of the four outputs. The totally software-based CEX-4L also allows for essentially effortless field upgradeability, meaning that the CEX-4L will never become obsolete. Yet, we saved the very best for last...audio integrity comparable to high performance DAT recorders. The new CEX-4L all digital audio processor from Peavey Architectural Acoustics. The technology is here. The time is now. Experience the feeling of control...COMPLETE control!

PEAVEY
ARCHITECTURAL ACOUSTICS®

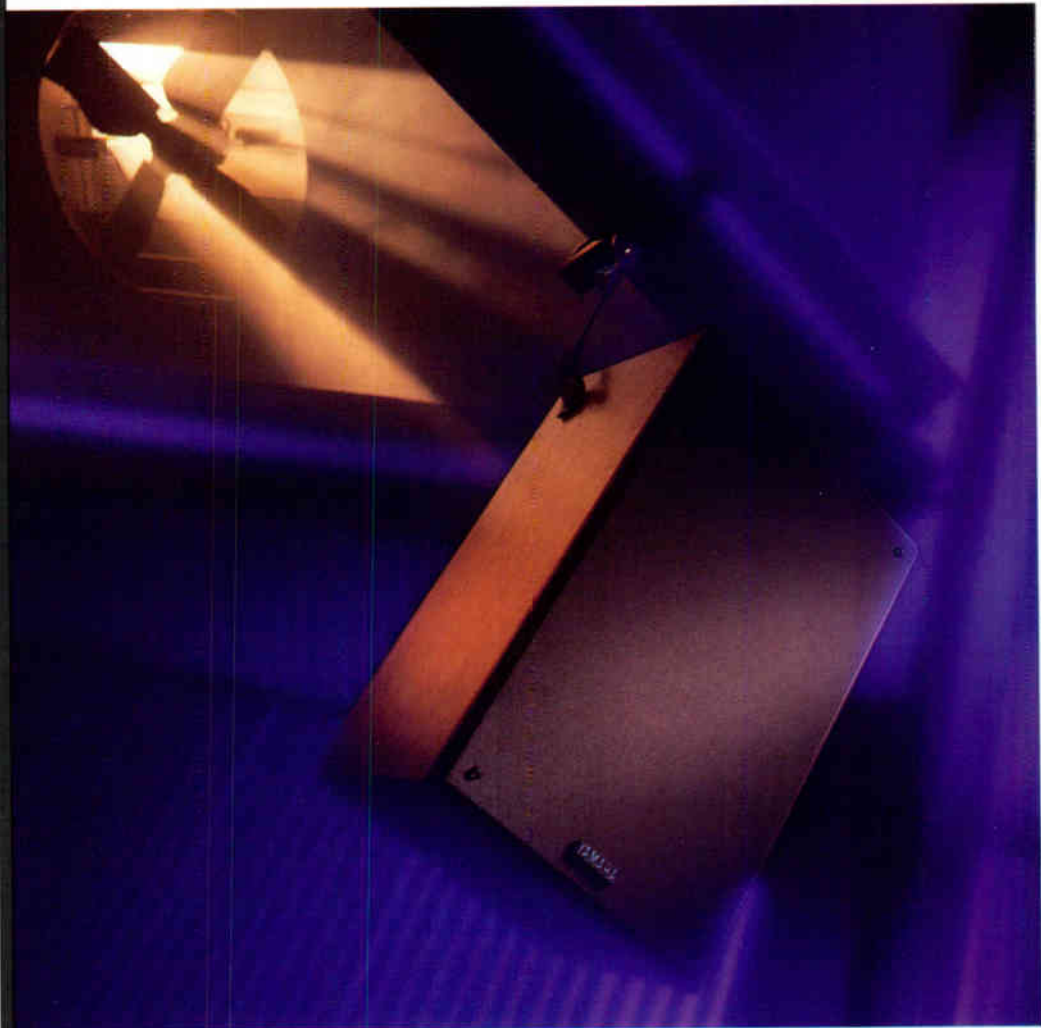
If you like what you see, you'll definitely like what you hear. They're the

Oak Series speakers from Yamaha.

If you could see the inside, you'd know why the outside deserves to look this good. Their compression drivers have rugged titanium diaphragms and they keep distortion to a minimum, even at high power levels. They have a constant directivity, high frequency horn so dispersion and pattern control is optimized. And whether it's music or speech, you always hear smooth clear sound.

You can choose from front-of-house or stage models. Each available in versions with 10, 12, or 15-inch woofers. They're the Oak Series speakers. Beautiful sound quality. And just plain beautiful.

Contact your local Yamaha dealer or sound contractor for more information.



When you hear them, they look even better.

The Oak Series™
YAMAHA™

Optional rigging hardware available from third party suppliers. © 1991 Yamaha Corporation of America, Professional Audio Products, P.O. Box 6600, Buena Park, California 90622-6600

Circle 207 on Reader Response Card
World Radio History

LETTER FROM THE EDITOR

End of Year Surveys and Shows for the Nineties

Our end of the year issue is traditionally a time to take stock. What are the directions, what are the perceptions of the industry at large as we enter the main part of the last decade of the century? Once again we surveyed the suppliers; those manufacturers active in the sound and communications industry. And once again their responses were a mixed bag, eminently suitable for an industry that encompasses so many market segments. Overall, our respondents were positive that there is business being done and business to be done. You can read all about their descriptions and predictions in this issue of *Sound & Communications*. Attitudinal and qualitative questions were answered in force. And you'll see some surprising changes of attitudes in this year's survey as compared to last year's.

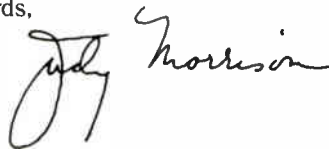
If we're talking about attitudes, we have some more for you. Wes Alderson of WesTech took his own survey of manufacturers' attitudes toward reps. And Wes has kindly produced and analyzed his results for us. You'll read them in this issue of *Sound & Communications*. In this article, too, you're in for some surprises. How do you think a manufacturer rates his reps?

The month of December in this business is always superseded by thoughts of January. We'll be seeing some of you at two trade shows that occur before our next issue hits the mail. CES and NAMM both take place before we next talk. Both shows have shown market strength in their winter incarnations: sold out of space and massive attendance expected. But of course both have had hard times in their summer venues. When NAMM's attendance and exhibitor space precipitously dropped in June of 1990, the response was to cancel the summer show. And so for the first time in many of our memories we got to stay home on Father's Day. In June of

1991 we didn't attend a summer NAMM. We missed it, but a lot of people didn't. And the jury is still out on whether NAMM made the right decision. CES, on the other hand, has chosen to strengthen an otherwise weakened show by opening the summer show to consumers for the last two days. The impetus is to fuel the market at the end user level, create promotional vehicles for the industry, and build up attendance, a route that NAMM chose not to follow. Of course, it's okay to remember that NAMM is a dealer association, while CES is sponsored by an association of manufacturers. The outlook may be different from the getgo. (In the dark recesses of recorded memory, of course, NAMM and CES were one show; until the CES participants left to form their own meeting.) Interestingly, the shows that have shown increased attendance: NSCA, CEDIA, NAB, Infocomm, AES have only one U.S. show a year. Maybe that is what it takes in these times. What do you think?

For the record, the winter Consumer Electronics Show takes place in Las Vegas January 9 through 12; the NAMM Winter Market is in Anaheim January 17 through 19. And Testa Communications will be presenting televised news shows about those conventions in hotel rooms and on the exhibit floor. Don't forget to watch CES-TV News and NAMM-TV News (If you miss the events, you can order the tapes). And stop by our booth and say hello. Until next month ... Happy Holidays.

Regards,



Judith Morrison
Editor in Chief

SOUND COMMUNICATIONS

Publisher/Editorial Director

Vincent P. Testa

Editor-in-Chief

Judith Morrison

Technical Editor

Mike Klasco

Associate Editor

Steve Jacobs

Research Assistant

Jeff Colchamiro

Contributors

Jeff Ader, Wes Alderson,

Christine Bunish, Malcolm Howard,

Pamela Michael, Allan Varela

Technical Council

Dr. Mort Altshuler

*Professor Audiology, Hahnemann University,
Chief of Audiology, V.A. Hospital, Phila, PA*

C. Leroy James

Rees Associates, Inc.

Richard N. Jamieson

Jamieson and Associates, Inc.

Russell Johnson

Artec Consultants, Inc.

Joel Lewitz

Lewitz and Associates

William Parry

Maryland Sound Industries, Inc.

Daniel Queen

Daniel Queen Associates

Jon Sank

Cross Country Consultants

Neil Shaw

Paul Veneklasen Associates

William R. Thornton

Phd, PE

Art Director

Joyce Dolce

Artists

**Alicia Celli, Janice Pupelis,
Scott Schlemmer, Colleen Warenik**

Production Manager

Michelle Montoya

Typography

Christina Buckley

Diane Catanzaro

Circulation Director

Arturo Lizarraga

Advertising Manager

John Carr

Classified Ad Manager

Tom Dorsam

Traffic Manager

Ron Perone

Director of Sales and Marketing
Nancy Davis

Editorial and Sales Office
Sound & Communications
25 Willowdale Avenue
Port Washington, New York 11050
(516) 767-2500
FAX: (516) 767-9335



Sound & Communications • DJ Times
Post • Producers Quarterly
Sound & Communications Blue Book
The Music & Sound Retailer • The Retailer Red Book
The Music & Sound Buyer's Guide
CES-TV News • NAB-TV News • NAMM-TV News
NSCA-TV News • CROSSTALK/AES-TV News

PICTURED BELOW IS OUR IDEA OF THE APPROPRIATE SPEAKER INVENTORY FOR A COMMERCIAL SOUND CONTRACTOR



At Quam, we believe you should sell and install sound products, not inventory them. So Quam saves you the high cost of owning inventory by stocking 70,000 units in our factory warehouse. It's meant to be *your* stockroom, and we'll ship from this stock on a moment's notice.

We manufacture the broadest line of commercial sound speakers available, everything from intercom to background music speakers.

We stock transformers and baffles, too. So you can even have complete baffle assemblies shipped immediately from stock.

Remember, too, that Quam is a manufacturer with 60 years' experience in sound. That means we'll respond to your special needs as quickly as we respond to your stock needs.

Save your money and let Quam hold your inventory. To find exactly what's in it, write for our Commercial Sound Products Catalog.

Quam • The Sound Decision



Quam-Nichols Company

234 E. MARQUETTE ROAD • CHICAGO, ILLINOIS 60637
PHONE: 1 312 488-5800 FAX: 1 312 488-6944

SPONSOR



National
Sound and Communications
Association
for sound and electronics system contractors

Circle 210 on Reader Response Card

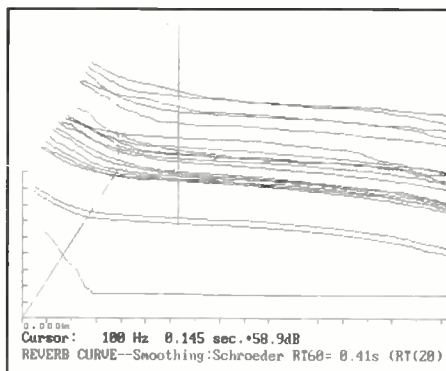
CONTENTS

Volume 37 Number 12

December 27, 1991



18



57



26

FEATURES

18 HOTELS IN HARD TIMES

By Malcolm Howard

Tourism, nightly rates and hotel profits are down. So what is left to the contractor when there are no new hotels? Renovations and diversification seem to be the only options. And meeting rooms and ballrooms are the major work available.

26 THE BROADMOOR HOTEL

By Christine Bunish

The 16,000-foot International Center and the 18,000-foot Colorado Hall received major upgrades in their sound systems in order to increase this luxury hotel's business.

29 COAXIAL SPEAKERS, PART 3

By Pamela Michael and Mike Klasco

The final installment looks at various configurations including horn-within-a-horns for high output and limited space requirements.

39 1991 SUPPLIERS' SURVEY AND ECONOMIC REPORT

By Judith Morrison

Here's the skinny on the way the manufacturers feel about the economy? You'll get the trends — whether they feel positive or negative — and how they're plotting for the future.

48 HOW MANUFACTURERS PERCEIVE REPS

By Wes Alderson

A survey of manufacturers shows how they feel about reps. Various traits are explored, and the results might surprise you.

57 THE FOUND ANALYZER, PART 2

By Mike Klasco

The Sound Technology RTA-4000's RRC mode, interface with other computers and general construction is discussed.

DEPARTMENTS

4 LETTER FROM THE EDITOR

9 NEWSLETTER

13 THE ANSWERMAN

14 FIRST PERSON: HOTEL MEETINGS OF MANY IMAGES

By Jeff Ader

62 TRADE SHOWS: PERSONAL IMPRESSIONS OF AES

By Allan Varela

66 NEWS FROM AROUND THE INDUSTRY

71 LITERATURE

72 PRODUCTS

76 PEOPLE

77 CALENDAR

80 AD INDEX

80 MARKETPLACE

82 PRODUCT CHECK: RESIDENTIAL

SOUND COMMUNICATIONS



It
never
forgets
a face.



The only video entry system that takes a picture.

Digitally records eight images without film or tape!
Introducing the Telecall TD-BM, Telecall's newest video entry system, now with an eight-image memory. Simply push one button to set auto record mode and the infrared LED camera will automatically record images of the next eight callers at the door, even in total darkness. You also have the option to take a candid manual photo while talking to a caller on the intercom. Photos, along with their dates and times, can be reviewed any time with the push of a button.



All the convenience and security of Telecall's excellent attended systems, plus a memory! Like all Telecall video entry systems, the TD-BM allows positive visual identification of callers, direct two-way communication and door control from one remote location. Even monitor the entry-way anytime with the push of a button. This sophisticated system uses only 2 wires for easy installation. With the TD-BM's photographic memory, complete security was never so easy.



The Leader In Intercom Technology

For more information, call toll-free 1-800-752-2860 U.S.A. and Canada

14620 N.E. 95th St., Redmond, WA 98052 FAX (206) 881-3085 In WA State (206) 881-2742

Circle 204 on Reader Response Card



HOW TO LEVEL A HOTEL FOR UNDER \$350.

DOD graphic equalizers are veritable workhorses for improving public address sound quality in airports, shopping malls, hotels and public buildings.

That's because DOD makes more configurations of quality graphic EQs for more professional applications, than any other company in the world. For a lot less than you'd expect.

For a demonstration, see your professional audio dealer or sound contractor.

He'll recommend DOD with no reservations.

©1988 DOD Electronics Corporation. 5639 So. Riley Lane, Salt Lake City, Utah 84107. (801) 268 8400.



R-431 Graphic Equalizer (top) R-830 Graphic Equalizer (bottom)

NEWSLETTER

SOWDEN JOINS PELTON MARSH

Christopher "Topper" Sowden, P.E. has joined Pelton Marsh Kinsella, Inc. as senior consultant. Sowden moves after 14 years at The Joiner-Rose Group (recently reformed as Joiner and Company) where he specialized in the design of technical systems for sports facilities, convention centers and religious facilities, including the New Comiskey Park, Orioles Stadium and Joe Robbie Stadium.

RANE CELEBRATES

Rane Corporation is celebrating its tenth birthday. The company was founded in 1981 by five partners: Steve Brakken, Linda Arink, Richard Bernard, Larry Winter and Dennis Bohn. The first four designs were shipped in the summer of 1982, with the current line consisting of more than 45 products, and export sales to over 50 countries worldwide. The company has 85 employees.

CEDIA ELECTIONS

The Custom Electronics Design & Installation Association has elected three new board members and a new officer. CEDIA's new secretary is Ferdinand Steyer of F. Steyer Design in Greenwich, Connecticut. Steyer, who was a board member, replaces Russ Herschelmann, who steps down after two years in the post. Newly elected to the board are Eric Bodley of Sound Advice and Randy Wilson of Wilson's Audio Video. Stepping down after two years on the board of directors are Susan Riedl Kuse of HiFi Buys and Kurt Anderson of Anderson Audio Light. Also elected as an ex-officio board member was John DeSilva of JDS Marketing. He is the first manufacturers' representative to sit on CEDIA's board, and replaces Buzz Goddard of Lexicon, who held the post for two years.

HELP FOR FIRE VICTIMS

The Academy for the Advancement of High End Audio has formed a relief fund for two industry members who suffered losses during the Oakland, California fire in October. Engineer John Curl and Stereophile reviewer Kevin Conklin both lost their homes and belongings in the fire. In addition, Curl's losses included a 20-year collection of technical materials. Contributions are being accepted for the AAHEA Relief Fund FBO John Curl and/or the AAHEA Relief Fund FBO Kevin Conklin by The Academy for the Advancement of High End Audio, P.O. Box 6652, Santa Rosa CA 95406.

ELECTRONIC IMAGES FROM TELECALL

Telecall America's new TD-BM video entry system records eight images digitally via an auto record mode. The system reportedly works in total darkness, and has a manual option for photographing a caller when the auto record mode has not been set. Dates and times are included in the photograph.

MATH ASSOCIATES TRANSMISSION SYSTEM

Math Associates, Inc., recently acquired by General Microwave Corporation, has announced the availability of a fiber optic transmission system designed to send video, two-way audio and mount control signals over a single optical fiber. The Fibervision FX/FR-5800 is compatible with all standard video formats. The mount control channel is user programmable to interface with PTZ systems, while the bidirectional audio channel accommodates standard one volt rms, 600 ohm line level audio. The system operates at a single optical wavelength of 850 nm or 1300 nm.

ELECTROSONICS AT SUPERBOWL

Electrosonics is facilitating Super Channel 26, a community television vehicle to promote the Superbowl throughout downtown Minneapolis. The company is providing videowalls to be placed throughout the Minneapolis skyway the week before the Superbowl. Programming will include promotional events, sports analysis, and of course, the game. Programming will be fed to the videowalls from the stadium by AVL of Minneapolis.

NEW HEAD FOR BASF

Dr. Hans Richard Schmidt has been named Group VP of BASF Corporation Information Systems in Bedford, Massachusetts. Schmidt replaces Dieter Thomaschewski who has accepted a promotion at BASF in Germany.

NEWSLETTER

RISER BOND BIRTHDAY

Riser Bond Instruments is celebrating its tenth anniversary, having introduced its digital TDR cable fault locator in 1981. The company initially served the CATV industry, but now provides cable test equipment to multiple communications industries from its 14,000 square foot location in Lincoln, Nebraska. The company founder and president is Marshall Borchert.

AUSTRALIAN MONITOR AWARD

Australian Monitor has been awarded the contract to supply 48 amplifiers for the Sydney Opera House. The amps will provide a total power supply of 64,000 watts. The contract award was preceded by four months of testing against 20 other bidders. Australian Monitor has also been chosen to supply 27 amplifiers to the Parliament House, Canberra.

WINTER CES SOLD OUT; SUMMER SHOW OPENED TO CONSUMERS

A record amount of assigned square footage and booths at the winter Consumer Electronics Show, and six sold out key product areas have been announced by the EIA Consumer Electronics Group. An estimated 1,500 companies will be housed in more than 840,000 square feet in the newly refurbished Las Vegas Convention Center, in addition to the Las Vegas Hilton, Sahara and Mirage hotels. The keynote speaker at CES will be John Sculley, chairman, ceo, and chief technology officer of Apple Computer Inc. More than 30 workshops are planned. Over 70,000 people are expected.

In addition, for the first time in the 25-year history of CES, the 1992 Summer Consumer Electronics Show will be opened to consumers for the last two days (Saturday May 30 and Sunday May 31). The Consumer Electronics Group of EIA expects between 50,000 and 100,000 consumers with 10 percent of them from outside the Chicago area. Consulting and other aids are being made available to exhibitors who will have to have exhibits designed to accommodate both trade and consumer attendees.

Ten companies have recently joined the Electronic Industries Association Consumer Electronics Group (sponsors of CES) including Commodore Business Machines, Martin-Logan Ltd. Mastervoice, Inc. and Terk Technologies.

CHANGES AT TECHRON

At press time, it was learned that Larry Shank has left the Techron division of Crown International. Jim Bumgardner is to move into the position.

PRIVATE SPEAKERS FOR THE BAR

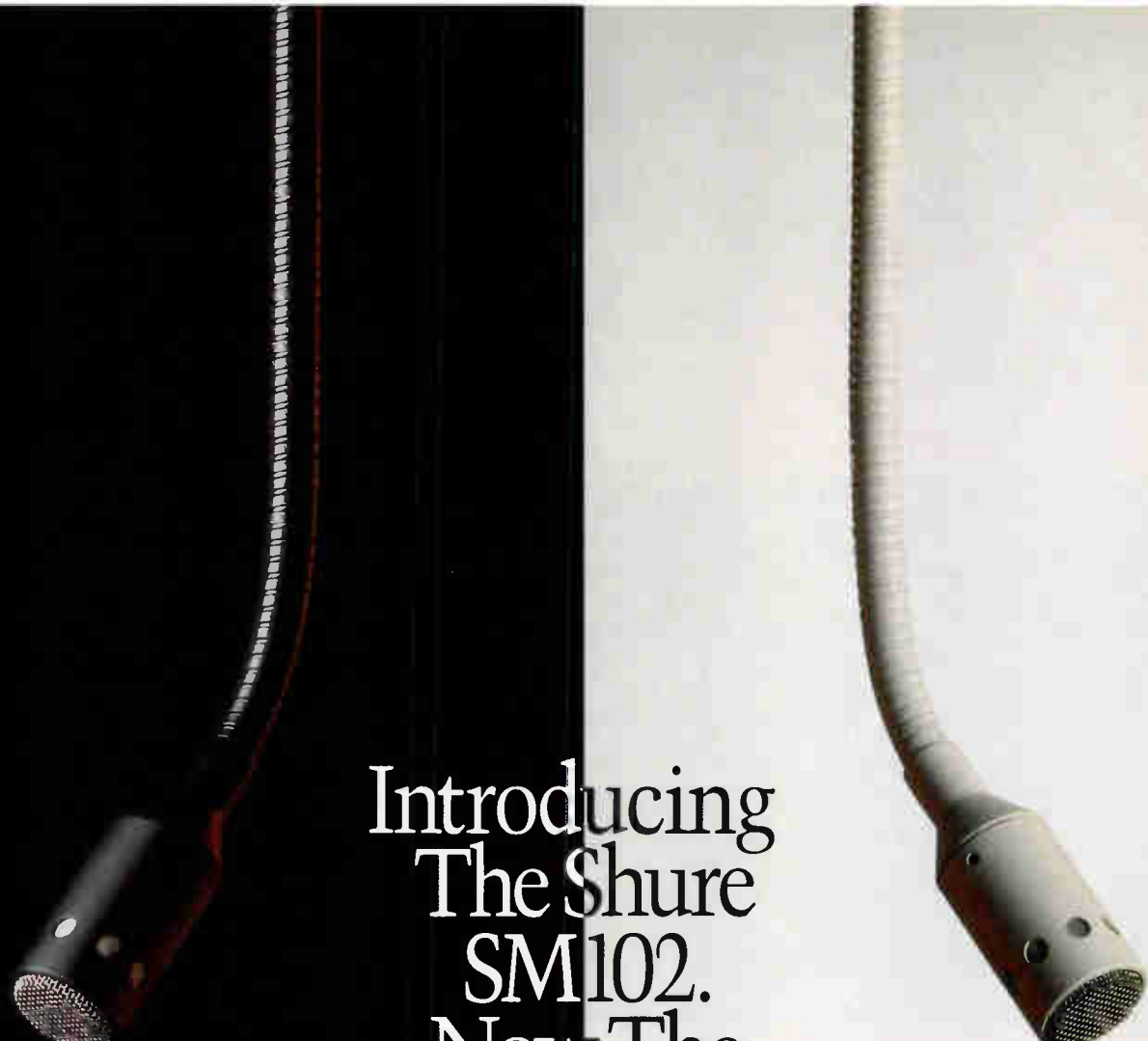
The Telespeaker Personal Sound and Advertising System, now seeking distribution, is a wireless speaker system for hotels and bars which can be individually controlled by patrons. The speakers which have a skin printed with advertising have multichannel capability allowing the patron to control television audio from among five channels. Advertising revenues will be split between Telespeaker and the dealer who will provide service to the establishments. The product is expected in the market by June of 1992; reportedly at least one large brewery has expressed interest in the new advertising vehicle.

MACKIE PLANS NEW MIXER

Mackie Designs, headed by Greg Mackie, having developed compact mixers for medium priced applications, is working on mixers for wider applications such as post production, recording and PA. Mixers for DAT machines are in the future.

FURNITURE BOASTS IMPRIMATUR

Henredon Furniture's "home entertainment" furniture is the first piece of cabinetry to carry promotion tags informing consumers that the cabinetry was designed in conjunction with the Custom Electronic Design & Installation Association. The tag will provide an 800 number for consumers to reach a custom installer in their area.



Introducing
The Shure
SM102.
Now The
Choice Is
Black And White.

The new Shure Microflex™ SM102 makes the job of choosing a miniature condenser microphone an effortless one.

With its flexible, 6-inch gooseneck, the SM102 is easy to set up and aim. And its high sensitivity and smooth frequency response assure a clear and natural sound.

Compare directional characteristics. You'll find the SM102's cardioid polar pattern exceptionally uniform throughout its frequency range, which accounts for its outstanding background noise and feedback rejection. What's more, it has the lowest self-noise in its class, so you pick up distant voices down to a near-whisper

and assure the intelligibility of every word.

And with a choice of in-line or wall plate preamps, both with switchable gain, the SM102 gives you the unmatched flexibility to hang it any way, anywhere.

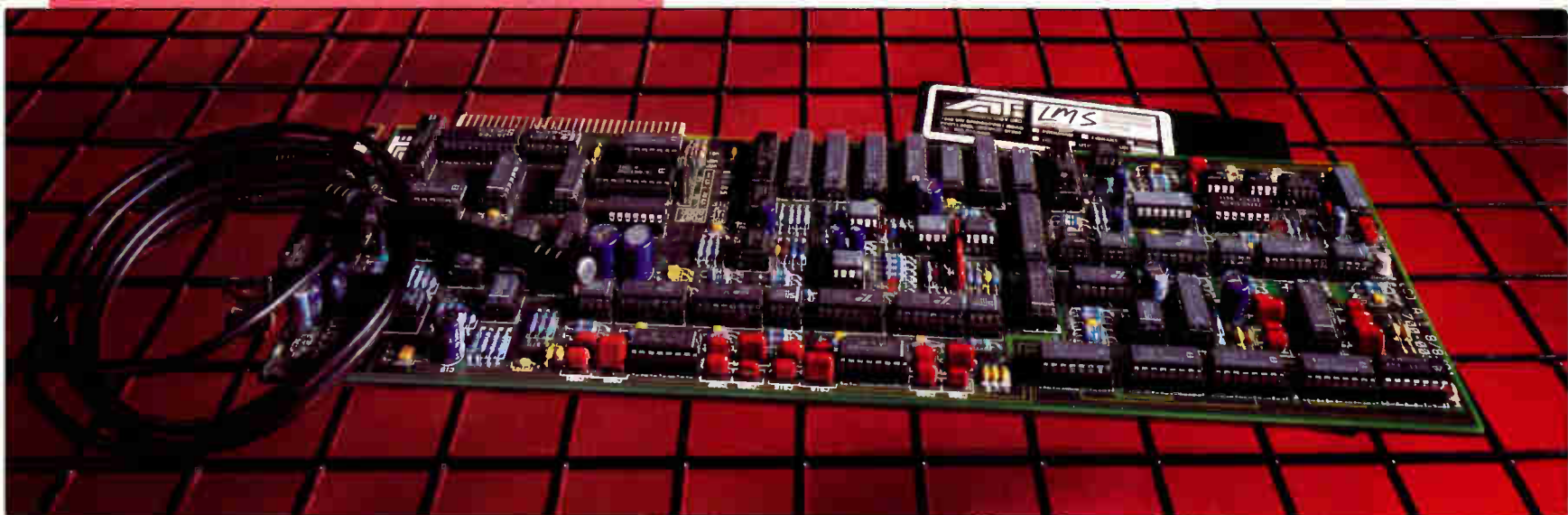
In fact, the toughest decision you need to make is black or white. Take your pick.

The SM102 is a proud member of the new Shure Microflex family of miniature condenser microphones. For more information on the **SHURE®** *microflex™* SM102 or other Shure Microflex products, call 1-800-25-SHURE. The Sound of the Professionals ... Worldwide.

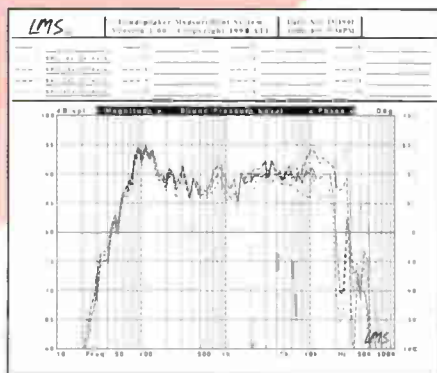
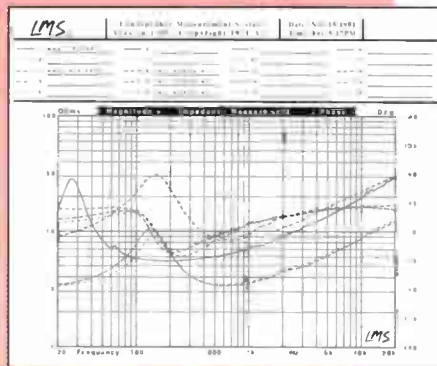
Circle 209 on Reader Response Card

LMS

Loudspeaker Measurement System *Solution!*



**Quick,
Easy,
Accurate,
& Under
\$1000.**



A laboratory-quality Loudspeaker Measurement System tool at an unbelievable price!

The ATI LMS is a complete electro-acoustic measurement system for your test/analysis requirements. You get a calibrated precision condenser measurement microphone, a PC-compatible card and LMS system control software. The LMS features a programmable sine wave oscillator, dual tracking filters with LP/HP/BP/BR modes, and a high-speed gating system for quasi-anechoic measurements. You can take SPL and Impedance measurements at the touch of a key, and print the graphs to a wide variety of output devices. Moreover, other system utilities are provided for scaling, smoothing, subtracting, dividing, and PASS/FAIL curve comparisons. For serious production testing, the LMS software provides macro programming capability for automatic test operation. And this is only the start. The LMS system provides features and capabilities usually found (if at all!) on systems costing many times more.

By utilizing the power of a PC, our own precision calibrated microphone (with greater than 20kHz bandwidth), and complete test/control software, we are able to offer a system with more features, precision, flexibility, and capabilities. Up to now, anything with this much performance had to be assembled out of high-priced stand-alone test instruments, expensive measurement microphones, and non-existent software!

Still not convinced? Give us a call and take our demo software package for a test drive.

Audio Teknology Incorporated

7556 SW Bridgeport Road
Portland, Oregon 97224
TEL: 503-624-0405
FAX: 503-624-0194

Circle 219 on Reader Response Card

*Breakthrough
Technology from*



© 1991 Audio Teknology Incorporated

World Radio History

FINDING ELECTRONICS TEST EQUIPMENT

In a recent discussion that the Answerman had with Tom Walker, president of Audio Control Industrial, Tom lamented the lack of information on companies that specialize in selling mail-order electronics test equipment. Just the day before, the Answerman's advanced communications center (a dual line phone) received a call from Bert Kronfeld of Wavelength Systems Design looking for a source for the Riser-Bond and Amprobe cable test gear featured in "Straightening Out A Media Room" article in the October issue of Sound & Communications. The Answerman has compiled a list of test gear companies with a brief description of what is in their catalogs.

Rental Companies

These firms specialize in short and long term rental of medium to expensive test instrumentation, including signal generators, distortion analyzers, spectrum analyzers, etc. Additionally, they are a source for used test gear as they must continually unload their surplus or older inventory.

- Tucker Electronics Company, 1717 Reserve Street, Garland, Texas 75042, 214-348-8800. Tucker carries Fluke, Leader, Beckman, B&K/Dynscan, as well as the Riser-Bond cable analyzer that Bert was looking for.
- U.S. Instrument Rentals, 800-824-2873.
- Genstar Rental Electronics, 6307 De Soto Ave., Suite J, Woodland Hills, CA 91367, 800-227-8409.
- GE Rental/Lease, P.O. Box 105625, Atlanta, GA 30348, 800-GE-RENTS.

The following companies offer tools, multimeters, and the like:

- MCM Electronics, 858 E. Congress

Park Dr., Centerville, Ohio 45459, 513-434-0031.

- Techni-Tool, 5 Apollo Road, Plymouth Meeting, PA 19462, 215-941-2400. Techni-Tool carries Beekman, Triplett, Simpson, Speery, B&K, etc.

- Jensen Tools, 7815 S. 46th St., Phoenix, AZ 85044, 800-426-1194.

- Transcat, Box D-1, Rochester, N.Y. 14606, 800-828-1470. Transcat has a very comprehensive catalog of inexpensive to expensive test gear, including the Amprobe cable tracing devices.

Stamford, CT 06907, 800-826-6342.

- Jameco, 1355 Shoreway Road, Belmont, CA 94002, 800-831-4242. Jameco has the usual multimeters and other inexpensive test gear, as well as boards and other items for personal computers.

- Davis, 513 E 36th St., Baltimore, MD 21218, 800-368-2516.

- Sencor, 3200 Sencor Drive, Sioux Falls, South Dakota 57107, 605-339-0100. Sencor is another alternative. They sell their own products direct, including signal generators, scopes, and some innovative combination pieces of test gear.

This is in no way an exhaustive list, but will certainly give you a choice of sources for most of your field test and service needs.

But back to Bert Kronfeld's question about cable tracing devices — I have grouped all sorts of these devices into the following list of manufacturers and suppliers of this type of equipment:

ANSWERMAN

THESE FIRMS SPECIALIZE IN SHORT AND LONG TERM RENTAL

- Contact East, 335 Willow St. South, North Andover, MA 01845, 508-682-2000. Contact East carries a wide variety of inexpensive to medium priced test gear as well as tools for servicing electronic equipment.

- Extech Instruments, 335 Bear Hill Road, Waltham, MA 02154, 617-890-7440.

Extech markets a very wide range of hand-held instruments under its own name, including sound level meters, multi-meters, watt meters, frequency counters, etc.

- Omega, 1 Omega Drive, Box 4047,

- PEI Model 508E Mini-Tracker Cable Locator System. Available through Jensen Tools for \$210.

- Triplett Fox & Hound Tone Generator and Inductive Tracer. Available through Jensen Tools for \$80.

- Cable Hound Cable Locator. Available through Techni-Tools for \$229.

- B&K 860 Cable Length Checker. Available through Davis for \$550.

- Riser-Bond 1210 TDR. Available from Tucker, or contact Riser-Bond at 402-694-5201.

- 3M Scotchtrak transmitter/detector. Available from Transcat for \$368.

- Amprobe Pasar Tracer. Available from Transcat for \$341.

Look for our field test for all these gizmos during 1992. ■

HOTEL MEETINGS OF MANY IMAGES

By Jeff Ader

When I tell people that I work for a company that provides simultaneous interpretation for international meetings and conferences, they automatically assume that I do the interpreting, too. I'm only the technician. It's hard enough for me to speak and understand English.

We work with interpreters who are hired by us or other companies that specialize in providing interpretation and translation. Our company provides a portable broadcast system and soundproof-type interpreter booths for international meetings and conferences. We don't do translation work. The difference between the two is that translators work with documents, translating from one language (written) into another and interpreters convey the nuances and idiomatic inflections of a person speaking in another language (verbally).

With two interpreters per booth and a separate booth for each language, we can broadcast up to 16 different frequencies at any meeting or conference. We distribute specially dedicated receivers and ear-phones to the audience, who then select the appropriate channel designated for the language that they want to listen to. I

would like to mention the importance of instructing the audience in the proper use of this equipment. Otherwise they are liable to find new and surprising applications for it that you won't find anywhere in the users manual.

A double-ear stetho-loop headset is made to be worn with the "V loop" hanging under a person's chin. This was not the case at the Society of Cosmetic Chemists convention which took place in the Grand Ballroom of the New York Hilton Hotel. Most of the audience chose to wear the headsets on top of their heads, making them look like so many "cone heads" from the "Saturday Night Live" show. We really had to jump to it for the International Socialist Convention at the Waldorf Astoria when one of the delegates tried to use his single-ear earpiece as a microphone! We had to get a wireless mic over there real quick.

MOST OF THE AUDIENCE CHOSE TO WEAR THE HEADSETS ON TOP OF THEIR HEADS, MAKING THEM LOOK LIKE SO MANY "CONE HEADS".

I work in hotels and convention centers across the country and around the world. Most hotels have in-house audio/visual, or they contract outside companies. We usually coordinate with a representative from there and someone with the hotel's international meeting office or banquet and catering manager. I am always in touch with these people well in advance of the meeting to work out equipment logistics, setup times, room availability and audio hook-up capabilities.

I like to setup a day in advance in case any gremlins decide to visit. I also carry two complete systems, so I have back-up gear on-site if needed.

I ALSO CARRY TWO COMPLETE SYSTEMS, SO I HAVE BACK-UP GEAR ON-SITE.

These meetings are usually well thought out and organized, but there is the occasional novice meeting planner to deal with and that's when the fun begins.

There was a conference at the Atlanta Marriott Marquis, where the conference planner had scheduled simultaneous interpreting in alternating rooms for the whole day. She neglected to tell any of the hotel or technical staff. It was a scene from a Marx Brothers movie, with two large bellmen and me moving the equipment from room to room every 45 minutes. If I ever had a day that felt like it was a week long, that was it.

I advise clients to try and make my accommodations in the same hotel or as close to the site of the conference as possible. I like to be on site and on call in case something comes up or problems occur.

Hotel people are always helpful and accommodating. Occasionally they get over-zealous in their search for customer satisfaction.

For a conference in St. Louis, Missouri, I was booked into the St. Louis downtown Holiday Inn. Upon arriving, I found the reservation people in a quandry. They had misplaced my reservation. So, they put me in a small room temporarily, while they sorted things out. No sooner had I got to the room, when the fire alarm went off and

Jeff Ader is affiliated with Simultaneous Wireless Interpretation.

"People love to sing and Pioneer Laser Karaoke offers the ideal venue."

*Trent Esperti, Barwinkles
Long Beach, CA*



"Pioneer has the best and most reliable equipment."

*Susan Apple Manegold
Apple Entertainment
Seattle, WA*



"Pioneer Laser Karaoke has increased our business 100%."

*Jon Spradlin, Cat's Meow
New Orleans, LA*

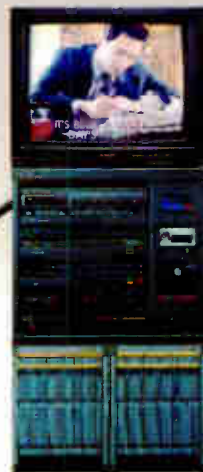


INSTALL LASER KARAOKE AND CLIENTS WILL SING YOUR PRAISES.

It's not often that an installation leaves bar owners and hotel managers singing.

But then again, it's not often that they see a crowd-drawing money-maker like Pioneer Laser Karaoke.

Now it's your turn. Install Laser Karaoke and let their praises be music to your ears. And put an extra ring in your cash register.



For more information, call (800) 421-1404 and ask for Laser Karaoke. And be one step ahead of your clients when they call to ask what's new and different.

LaserKaraoke[®]

PIONEER[®]
The Art of Entertainment

© 1991 Pioneer Laser Entertainment, Inc.
2265 East 220th St., Long Beach, CA 90810

Circle 211 on Reader Response Card

everyone had to evacuate the hotel. While we were waiting for the fire department to come and determine whether it was a false alarm or not, I figured I would get something to eat. A few hours later when I returned I found that it was in fact a false alarm. I also found my clothes and luggage missing from my room and someone else's there instead! I rushed downstairs and a cheerful front desk attendant inquired if my new room was okay. She turned very red when I told her what I had found. We tracked down my stuff to my new room and just as I was hanging up my last shirt, someone knocked on my door. It was a bellman, who cheerfully told me that he had my lost clothing and luggage! Sometimes, real life makes for better stories than the movies.

The government holds numerous international meetings for different agencies. Some of these meetings require confidentiality and a low profile. The U.S. Department of Drug Enforcement or D.E.A. held a Directors meeting at the Grand Hyatt Tampa Bay, in Florida, with representatives of France, Italy, Canada and the U.S. in attendance. At first they didn't want me in the room with the equipment. They wanted me to sit outside the room. After I explained that it was necessary for me to continuously monitor the equipment, they reluctantly allowed me to be present. There were armed secret service men stationed on our floor and escorting us to meetings and our meals. It was real James Bond to see them talk into their jacket sleeves or lapel microphones.

There are situations when we rely on our client to help us out with additional personnel to help distribute receivers and earphones. For a large luncheon of 350 people in the Grand Ballroom of the Waldorf Astoria Hotel where the President

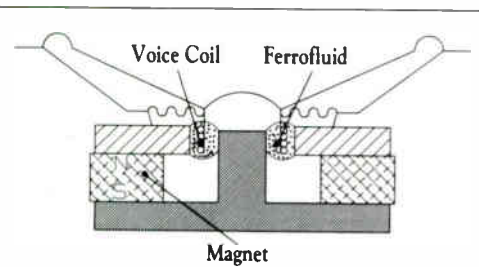
SUDDENLY MY LOAD SHIFTED AND ONE RECEIVER SLID OFF THE TOP, RIGHT INTO A BOWL OF SOUP!

of Brazil was speaking, our client had forgotten to assign people to help us. The crew we had on site were hard pressed and rushing to get the equipment in place on the tables, when the doors were opened ahead of schedule, and the people were let in. There I was, arms full of receivers and earphones, as people started to arrive at the table. Suddenly my load shifted and one receiver slid off the top, right into a bowl of soup! I apologized profusely as I gingerly extracted the receiver and called a waiter over to replace the soup.

I work with many freelance simultaneous interpreter agencies that provide interpreters for all kinds of conferences, meetings and other situations. On a recent job for Metropolitan Interpreters in New York, I had to utilize my experience as a recording engineer. Our client had to prepare four foreign language versions of a large resort's promotional video. This required overdubbing new voice tracks and creating new video masters in Japanese, Korean, Cantonese and Italian. We ran into a cultural impasse. According to our English script, taking a vacation at the Doubletree Cabrillo Beach was just like being in paradise. In the orient, paradise is equated with the state where we are no longer burdened by life's turmoil (death). So, we had to find a new concept to convince the Asian audiences that a vacation at Doubletree would be a fun time.

Well, that's all for now. I'm off to a meeting at the Merrill Lynch Conference Center for some Japanese financial people. I'll tell you all about it next issue. ■

For hot voice coils, the cool solution.



Introducing the APG 900 Series — ferrofluids designed specifically to safely withstand 200 degree centigrade temperatures in speaker voice coils while maintaining long-term

thermal stability. Offered in the low to medium viscosity range, APG 900 ferrofluids are ideal for all high efficiency speaker systems. This Series complements our existing product line of high viscosity ferrofluids widely used in tweeter and mid-range drivers. Call or fax us today. And, our in-house audio lab will help you with the speakers you have designs on.

Ferrofluidics

40 Simon Street, Nashua, NH 03061 Call: (603) 883-9800 Fax: (603) 883-2308

Circle 268 on Reader Response Card

No More Compromises.

No more "half" solutions. No more "kluge" systems.
No more modifications or "add-on" accessories.
Finally, a measurement system designed for electroacoustics applications.

The Brüel & Kjær Type 2012 Audio Analyzer



The solution for electroacoustic transducer measurements.
Quickly, easily, accurately completely.

No compromises.

Brüel & Kjær 

WORLD HEADQUARTERS: DK-2850 Nærum · Denmark · Telephone: +45 42 80 05 00 · Telex: 37316 bruka dk · Fax: +45 42 80 14 05

Australia (02) 450-2066 · Austria 02235/7550*0 · Belgium 02-2429745 · Brazil (011) 246-8149/246-8166 · Canada (514) 695-8225 · Czechoslovakia 02-311 4840/311 4841
Finland (90) 80 17 044 · France (1) 64 57 20 10 · Germany 04106/7095-0 · Great Britain (081) 954-2366 · Holland 03402-39994 · Hong Kong 5487486 · Hungary (1) 1338305/1338929
Italy (02) 57 60 41 41 · Japan 033-438-0761 · Republic of Korea (02) 554-0605 · Norway 02-90 44 10 · Poland (0-22) 42 10 52 · Portugal (1) 65 92 56/65 92 80 · Singapore 2258533
Spain (91) 268 10 00 · Sweden (08) 711 27 30 · Switzerland (042) 65 11 61 · Taiwan (02) 713 9303 · Tunisia (01) 232 478 · USA (508) 481-7000
Local representatives and service organisations world-wide

Circle 213 on Reader Response Card
World Radio History

91-080

Hotels in Hard Times

The Goals and the Systems Shift as New Construction Ebbs

BY MALCOLM HOWARD

Take the next flight to Atlantic City or Las Vegas and chances are you'll have no problem finding a place to stay. They'll be plenty of "vacancy" signs.

But if you're a sound contractor looking for a hotel in which to install an intercom or nightclub sound system, you might be told, "Sorry, we're all filled up."

It's a sign of the times that tourism is down, as are nightly rates and hotel profits. With competition over weary travelers at an all-time high, budgets for building and remodeling are low.

New hotel construction is practically nonexistent except in a few cases — most notably Orlando, Florida — and upgrades

cents on the dollar by speculators. The new owners invest in the essential renovations needed to change the hotel's image, but do little to actually improve services, he said.

Signs of Hope

Despite the discouraging road signs, contractors and suppliers of installed sound systems say there are signs of hope. In order to survive and compete, hotels, like contractors, are diversifying.

Because hotels can't meet the 70-percent occupancy rate usually needed to make a profit, they are finding profits else-

where. Instead of competing to fill bedrooms, they're competing to fill ballrooms.

There isn't much dancing going on in these ballrooms, however. To keep the punch bowls full, hotel managers are waltzing with the organizers of national and local conventions and meetings. For the contractor, that means more ballroom combining systems, and more audio-visual possibilities. Also, the hotels that are doing serious "back of the house" remodeling are offering services such as health spas, gyms, and aerobics classes which also call for new sound systems.

Video is also a sign of the times. And

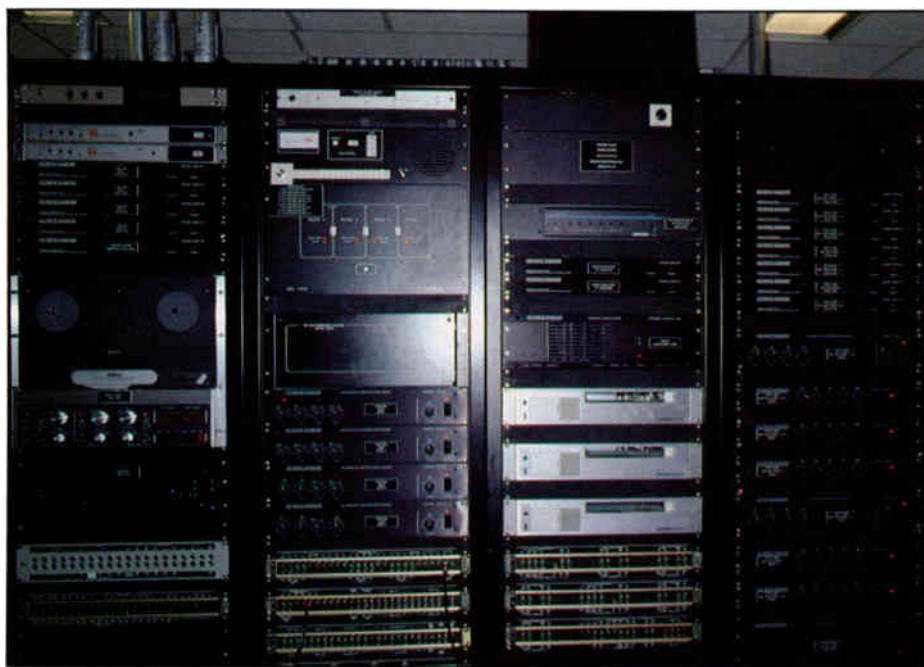
Hotels, like contractors, are diversifying.

of existing systems are at least keeping contractors on the road.

"The only thing I see going on domestically is renovation work," said one industry consultant who asked not to be identified. "The hotels that have managed to survive are reducing amenities and are focusing on preventive repair."

On top of that, most renovations are "front of house," said the consultant, who works for a large U.S. hotel chain. Managers of hotels are putting some money into what he called "eye wash" — face lifts to the lobby, the marquee, or the restaurant. But they're doing little for the ears.

Some of the remodeling work comes after bankrupt hotels are bought up at 50



The Crowne Plaza Hotel in New York City, installed by Norcon, contains equipment from Altec Lansing and FSR.

COURTESY OF NORCON COMMUNICATIONS, INC.

A PROFESSIONAL WIRELESS SYSTEM PRICED SO COMPETITIVELY IT HAS

NO COMpetition

Presenting Concert Series II

We're serious. Nothing comes close to our new Concert Series II.

Why? Because we've achieved new technical breakthroughs to come up with the most cost-effective, fully professional wireless system ever created.

Our new high performance Concert receiver features truly outstanding True Diversity performance. A brand new *dbx IC that measurably reduces noise while extending transmitter battery life up to 17 hours. Plus balanced and unbalanced Outs and removable antennas in a solid metal 19" rackmount chassis.



The compact and rugged Concert hand-held and belt pack transmitters offers audio professionals everything they need.

Exceptional sound, fail-safe RF performance, a full complement of controls. Plus a selection of popular hand-held, lavalier and wireless headset mics to choose from.

Bottom line. If you can find a professional wireless system with all these high quality features at a price this low, we'll buy it.

Because when it comes to competition for the Concert II, there simply isn't any.

SAMSON®
WE ARE THE WIRELESS FUTURE®



© 1991 SAMSON

Samson Technologies Corp., P.O. Box 9068, Hicksville, NY 11802-9068 Tel: 516.932.3810 Fax: 516.932.3815
*dbx is a registered trademark of Carillon Industries.

Circle 222 on Reader Response Card

World Radio History



COURTESY OF NORCON COMMUNICATIONS, INC.

Ceiling of the ballroom at the Crowne Plaza Hotel.

at some higher-end hotels and resorts, patrons are being offered the modern version of the house photographer. Hotel A/V staffs these days might even find themselves editing convention meetings for

We have a Panasonic camera there at all times. So we just hit 'go' and we're taping.

their clients. Or, they might find themselves splicing together five-minute videos of golf course bleepers and blunders, which are replayed during the last dinner of week-long conventions.

So what's a contractor to do? Our anonymous consultant says do what the hotels are doing. Diversify.

Steven Schlaff, of Norcon Communications Inc. of Brooklyn, New York, agrees.

"It's very competitive with hotels right now," said Schlaff. "High-end hotels have to try and compete even harder. So, one thing the high-end hotels are doing is more meeting and ballroom sound systems."

And in the New York City area, Norcon Communications has done a lot of those ballrooms. Their resume includes some of the Big Apple's newest and dearest: The Sheraton Centre, The Regent Hotel, The Crowne Plaza, The St. Regis, The Grand Hyatt, the Marriott Marquis, to name a few.

"There's more money for hotels in meetings and conventions," said Schlaff. Virtually all of Norcon's jobs have some common elements: Video distribution systems, Altec Lansing electronics, intercom systems, and FSR ballroom combining systems.

With the ballroom combining systems, Schlaff said hotels have one basic requirement aside from decent sound. "The systems have to be flexible and user-friendly," he said. Many contractors echoed this sentiment because hotels are looking to cut down on staff, not add salaries for more full time A/V people.

Schlaff said nation-wide, meeting business for hotels should pick up, in part

High-end hotels are sprucing up.

due to politics. The Grand Hyatt, for example, is expected to host the Democratic National Convention, Schlaff said. But other hotels, across the country, will be vying for the patronage of Democratic and Republican caucuses as the 1992 presidential campaign nears.

But business will vary from region to region and from the high end of the hotel spectrum to the low.

Electronic Systems International, of Colorado Springs, Colorado, has the luxury of serving The Broadmoor, one of the

U.S.'s five-star hotels [see feature article in this issue] where President Bush and company often shoot a few rounds of golf.

Indeed, not all hotels are like The Broadmoor, which has up to 10 full-time audio/visual engineers on staff, an in-house post suite for editing videos, and a chief engineer that doesn't cut corners, says Terry Castle, one of the principals of Electronic Systems International. In fact many of Castle's hotel clients are trying to save money by opting for mid-priced gear.

"They're using different equipment," said Castle. "If things are tight, they might not use a White EQ. They'll use a Rane, which can't do exactly what the White can do, but it's certainly sufficient. In the pro-

If you have a deluxe restaurant, then it should sound like a deluxe restaurant.

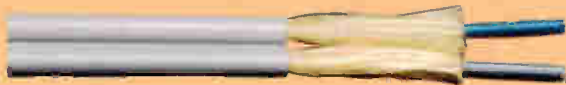
cess, they save five or six hundred dollars. That adds up when you're doing a ballroom."

Still, manufacturers who sell most of their products to hotel owners say sales are either flat, or have increased roughly five to 10 percent. Few are reporting losses. One maker of combining systems says sales are actually up 10 percent over last year.

"We've noticed that although new construction has slowed, the renovations are up," says Jan Sandri of FSR Inc. of West Paterson, New Jersey.

But she says that has something to do with the fact that most of FSR's products specifically target the meeting and convention arena: FSR's ML-112A Ballroom Combining System and their "Silent Server" are two examples. While the combining system has gone into about 200 hotels, the Silent Server is a new product. The Silent Server, says Sandri, lets the

WEST PENN WIRE FIBER OPTIC CABLES FOR CCTV SIGNAL AND DATA TRANSMISSION



WPW
WEST PENN WIRE

West Penn Wire offers a complete line of fiber optic cables for CCTV signal and data transmission installations.

Their rugged construction resists mechanical damage even under the demanding conditions of rigorous installation and use.

Optical properties are assured by a quality control system that includes a 100% attenuation testing of all finished cables.

Choose from these standard types:

- Simplex
- Duplex
- Multi Fiber Distribution
- Multi Fiber Breakout

All cables are available in either PVC (Riser Type) or Plenum type.

Multi Fiber Breakout cables are available with an outdoor and/or direct burial jacket. Consult your dealer or the West Penn factory for price and delivery.

And, of course, all of our fiber optic cable is backed by the dependable quality, outstanding service, competitive pricing and complete engineering and technical assistance that you expect from an industry leader like West Penn Wire.

To place an order, or for more information, call **800-245-4964** (in PA, call 800-222-8883) or write:

West Penn Wire
P.O. Box 762
2833 West Chestnut Street
Washington, PA 15301





COURTESY OF NORCON COMMUNICATIONS, INC

The New York Helmsley was provided with meeting room audio and visual facilities including 2x2 and 16mm visuals, automatic mic mixing and custom lecterns.

people running meetings page their hosts when the conventioners are ready to eat. That way, Sandri notes, the meeting isn't

There's more money for hotels in meetings and conventions.

continually interrupted by caterers or waiters who would otherwise have to interrupt meetings to ask if guests are ready for lunch.

In many ways, the Biltmore Hotel, a historic hotel and resort in Phoenix, Arizona, is an example of the many ways in which high-end hotels are sprucing up.

The hotel's most recent remake was a mainly cosmetic touch up of the hotel lobby. Wood trim, wallpaper, and paint were the key elements of the front of house remodeling.

Still, the hotel did build a new health spa, and the hotel's head audio man, Tom Buckley, says he's proposing a new sound system in the hotel's main ballroom because of the hotel's growing corporate meeting business.

Buckley now rents JBLs or Apogeos when Nissan or Pontiac rolls in to unveil a new model to its national sales force. But because events like those are more and more frequent, Buckley hopes to have in-house sound system by 1993.

"We could use something with more

power and impact, so when the bass kicks in you really feel it," said Buckley. "They're often big sales conventions, with motivational meetings. And they need a heavy sound. [These multimedia presentations] are normally produced outside by a production company that requires a certain level of sound quality. Often they suggest the equipment; they'll ask up to bring in JBL or Apogee."

The only new construction is going into a new health spa, where convention goers can unwind after meetings. "In the health club, we're putting in a foreground system," said Buckley. The gym dressing room will be fed Muzak programming but

To keep the punch bowls full, hotel managers are waltzing with organizers.

the workout room will get Top-40 channels, he said. The Biltmore used eight BEST speakers that hide under two-by-two-foot ceiling tiles. A QSC amp also powers sound from CD and cassette players. For those who like to work out to video, the aerobics room has a 25-inch TV monitor.

Although the Biltmore doesn't do too much with video taping, it is using more video in meeting rooms. "We're not doing

that much with video, although we are getting more requests for data projection," Buckley said. "If someone's doing a seminar on a workstation, they'll need the image projected on the screen." Buckley said the hotel owns Sony and Barco large screen projectors.

The Trump Hotel and Casino in Atlantic City is one of many hotels gambling with video. The Trump empire's financial difficulties and lean times have meant "conservative" purchasing decisions, said Steve Gietka, entertainment manager for Trumps.

They're big sales conventions, and they need a heavy sound.

But the conservative economy Gietka cites hasn't stopped Trumps from doing more with promotional video systems. An eight-foot-high, custom-built mockup of a slot machine now advertises coming attractions through a 27-inch Sony monitor, Bose 101 speakers and a TOA mixer.

"We also have a small staging area where jackpot winners are taken and interviewed by the casino host," said Gietka. "We have a Panasonic camera there at all times. So we just hit 'go' and we're taping."

A video of the week's winners, as well as other promotional flicks, is played on the giant video slot machine and in lobbies and restaurants throughout the hotel.

In Atlantic City, and most other traditional U.S. hotel hot spots, new construction is virtually on hold, according to observers.

Orlando, Florida, however, is the one city where manufacturers of sound distribution systems say new construction is rising. The projects are ambitious: At least four major hotels are going up to serve



Bally's casino entrance.

Universal Studios, MGM, Disney World et al. All the hotels boast more than 1,000 rooms, and the only down side for contractors is that they're "family-type" hotels, to use the words of Herb Jaffe, vice president and consultant for marketing to Atlas/Soundolier.

Because the average family may have trouble footing the \$30 a day admission prices of the local theme parks, the hotels are going for economy of scale. That

means less snazzy, in-house nightclubs and sound systems, Jaffe noted.

But it does mean these hotels will diversify in other areas, Jaffe noted. "Traditionally, a family would come to Orlando, stay a day or two and then go south," he said. "Maybe they'd go to Miami or the west coast. But now they don't go much further than Cape Canaveral. There's so much right in Orlando now. With Universal, MGM, Sea World, Cyprus Gardens,

Features Like These Are Usually Found Only In Larger Mixing Consoles.

Mic/Line switching for optimal level adjustment.

High-gain (84dB Channel input to program output) ensures full output with low level or distant mics. Optional Precision input transformers are available.

Better than 130dBu Equivalent Input Noise.

10-Segment LED meters for quick, accurate visual monitoring of all signals.

Switchable Phantom Power for Condenser Mics

Three-band EQ with sweepable mid frequency center.

Separate Mono Output level

Rear-panel channel insert points on separate jacks.

Headphone Out w/ Level control

Switchable Meter Functions

2 Aux sends per channel greatly increase flexibility when interfacing signal processing units.

Utilizes the same mic preamp chip found in top recording consoles to provide exceptional, low-noise performance.

Transformer Isolated +24dBm 600 ohm Balanced XLR Stereo Program Outputs w/ Left and Right Master Controls.

Our MM-508 Offers Them In Just Three Rack Spaces.

100 Fernwood Avenue, Rochester, NY 14621 • Toll Free: 800-828-6308 • 716-544-5191 • FAX: 716-266-4589

ASHLY

Circle 252 on Reader Response Card

there's enough entertainment to keep going."

"The hotels in Orlando are gearing up for people staying more than one night," said Herb Jaffe. "Why not? They've got all these attractions. So, one- or two-night stays become four or five nights, and you have to offer facilities that you didn't have to have before. You always have pools, but now you'll need Jacuzzies; some hotels are even starting sports programs."

All these health spas and aerobics classrooms need communication systems, Jaffe notes. "If you have a deluxe restaurant, even inside a family-type hotel, then it should sound like a deluxe restaurant, not like the outdoors of a McDonalds."



Bally's Park Place hotel entrance.

Sales in hotel areas are relatively "flat," Jaffe said, but he says he's "conservatively optimistic." This somewhat Orwellian prediction translates, Jaffe says, to five-

percent growth next year.

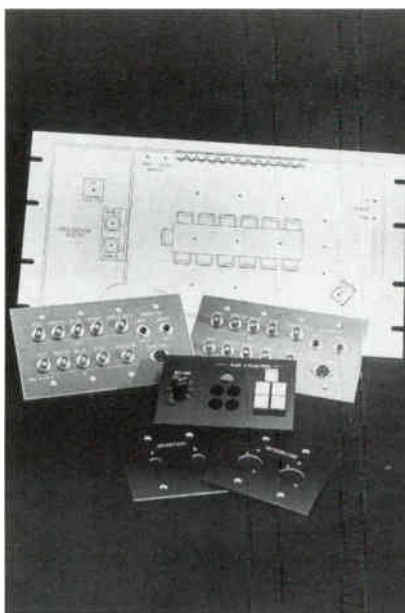
John J. Karamon, vice president of marketing for Sonic Systems in Stamford, Connecticut, says his company has grown partly because of a pleasant, late-'80s architectural fad that yields certain acoustical problems for hotel contractors.

Finish Your System.. With Custom A/V Panels and Wallplates

TSI's Special Products Division is committed to the very finest custom panel and wallplate services for all audio, video and security needs.

TSI is responsive and our quality can't be beat! It's more than our CAD-driven computerized engraving, it's the keen, demanding craftsman's eye that makes the product what it is.

Your result is shorter projects completed in less time. As long as your orders are being booked PROFITABILITY is assured! Call 1-800-628-2084 for further information.



- > **CAD-driven-** AutoCAD drawings are available for approval and for specifications
- > **Engraving-** There is no limit at TSI. We have linked AutoCAD to our engraving software, anything you can draw, we can engrave. LOGOS TOO!
- > **Finish-** with many colors to choose from, our panels and wallplates are scratch resistant, and will not fade or discolor.
- > **Assembly-** Our panels come with or without connectors.
- > **Turn-around-** Let us know when your deadline is.

We work hard at making you look good!



TSI
Special Products Division
393 Jericho Tnpk. Mineola, NY 11501
Phone 516-294-5390 Fax 516-294-5008

Circle 271 on Reader Response Card

A lot of suppliers just go away when there's no money.

"We have a product that fits an atrium very effectively," Karamon said. Hotel business comes in fits and starts, but overall he says it's growing steadily. For Sonic Systems, which markets Soundsphere speakers, that's in some part due to the rise of large indoor spaces, many with glass, marble, or tile. The Soundspheres fit in aesthetically even when placed prominently in the center of the atrium.

Two recent Soundsphere installations were outdoors, however. At Bally's Park Avenue, the proprietors installed a Soundsphere system outside the tour bus drop off point and the valet parking at the entrance outside the hotel. The speakers are used in the valet parking for upbeat music, while at the bus depot, they're primarily used for paging, he said.

It's the operations people who have to use the system after it's installed.

But what's a contractor to do in the case of the hotel that just isn't listening to the call for a new sound system? One industry consultant offers some business advice that may pay off in the long run. He says, "Stay in touch."

"Don't push, but be available," says Jeff Loether, president of Electro-Media Design, the audio consulting company that specializes in hotels. "Make sure they know you're interested in helping them

when they can use your help. A lot of hotel managers feel bad that they have no money and they're not giving any work to their usual suppliers. A lot of suppliers just go away when there's no money. So, if anything, stay in touch with your clients. Stay visible; make sure your clients feel good about you. It just public relations."

Tom Buckley of the Biltmore said extending a handshake to the engineering staff would be even better than PR. "One

The speakers are used in the valet parking for upbeat music.

thing I think is important in any install (or when specs are being proposed) in a hotel is to talk to the operations people," says Buckley. "There always be communication with the architects and to certain layers of management. But it's the operations people who have to use the system after it's installed. I've been in other places that are not user friendly. Once you're in day-to-day, you find you have to patch around different things to get it to work." ■

"STILL THE ONE...AND ONLY"



The GE 30 Commercial Graphic Equalizer is the singular choice for any alignment job. It's the first and still the only design to offer:

BOOST/CUT OR CUT-ONLY AT THE FLIP OF A SWITCH. No need to decide which format to order before you actually make measurements. The GE 30 does both.

DIRECT OR TRANSFORMER-COUPLED OUTPUT. A standard feature, not a costly option.

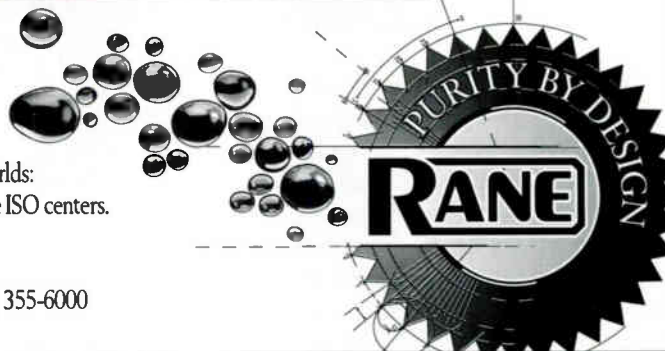
CONSTANT-Q INTERPOLATING FILTERS provide the best of both worlds: consistent precision with the ability to tune bandpass response BETWEEN the ISO centers.

The GE 30: another first from Rane. And still the only.

RANE CORPORATION 10802-47th Ave. W., Mukilteo, WA 98275. (206) 355-6000



Back Panel Shown



Circle 254 on Reader Response Card

Good Sound — Good Business

*How the Broadmoor Hotel Increased Business
by Renovating Its Audio System*

BY CHRISTINE BUNISH

Terry Castle and Mike Ames, partners in Colorado Springs-based Electronic Systems International, Inc., have completed new audio installations in that city's luxury Broadmoor Hotel, designed to increase conference capacity and improve sound quality.

The electronic systems engineering and installation firm undertook a face lift of the sound system in the 16,000 square-foot International Center and a total audio renovation of the 18,000 square-foot Colorado Hall as well as the redo of sound systems in a number of smaller meeting rooms. The projects are part of an extensive ongoing renovation of The Broadmoor's entire property under the direction of project manager Val Smith from The Broadmoor's parent company, Nashville's Opryland.

The International Center, one of the hotel's largest ballrooms with a capacity of 1,500–1,800 people, had been limited to bookings by a single convention. Following audio system additions to the south side of the Center, the ballroom is now handling two or three national conventions at a time, reports Broadmoor audio/visual manager Jerry Jensen.

The Electronic Systems International team installed an Apogee cluster of four AE5 speakers in full view, 20 feet off the floor on the Center's south wall, utilizing Apogee's radial strapless rigging bracket.

"Apogee's flying hardware was a big factor in selecting these speakers for the project," notes The Broadmoor's Jensen. "We had little time and didn't want to fool around with building rigging."

Apogee's hardware was "extremely simple to deal with and made it easy to focus the speakers," he adds, an advan-



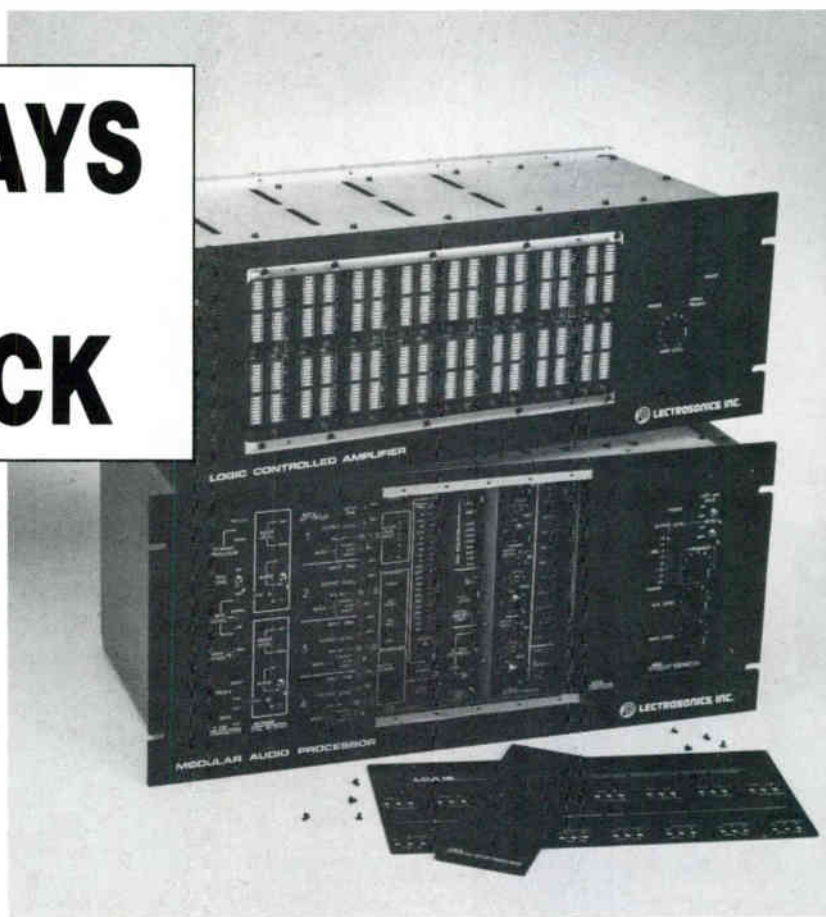
Colorado Hall construction phase.



Colorado Hall completed.

FOUR WAYS TO STOP FEEDBACK

- Automatic Speaker Zoning
- Automatic Microphone Mixing
- Automatic Equalization
- Automatic Notch Filtering

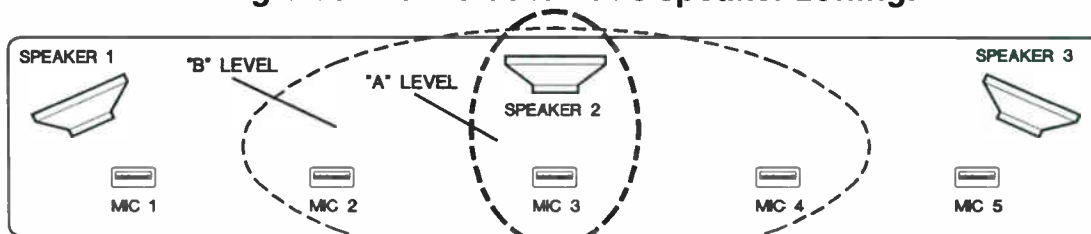


In two cost-effective, modular packages!!

As technology advances, conference room, courtroom and council chamber sound systems have become increasingly complex. Presentations have become more important and the form, in some cases, has become as important as the function. This rising technical complexity of automatic sound systems has created the need for automatic operations which can be operated with the touch of a switch.

The use of automatic mixers has become standard in "unattended" sound systems but there are other aspects to be considered in a fully automatic system besides simply turning microphones on and off. Lectrosonics has integrated advanced automatic mixing with automatic EQ and notch filtering and added auto speaker zoning, creating the most advanced, user friendly automatic sound systems available.

Logic controlled automatic speaker zoning.



ON-SITE DIPSWITCH PROGRAMMING OF ATTENUATION ZONES

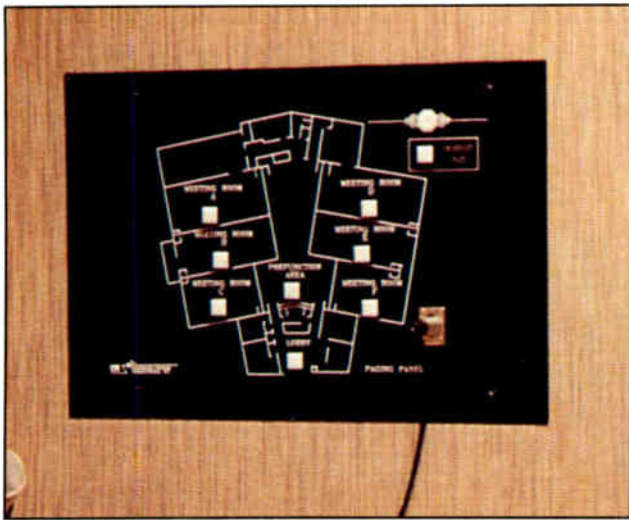
Call toll-free for
a free copy of the
Applications Guide
1-800-821-1121

Innovative sound system solutions by:



LECTROSONICS, INC.

P.O. Box 15900 • Rio Rancho, NM • 87174
581 Laser Rd. NE • Rio Rancho, NM • 87124
(505)892-4501 • (800)821-1121 • FAX (505) 892-6243



FREQUENT FLYER

Sound Features:

- Heavy cast frame, 12" woofer.
- Titanium diaphragm for extended range & reliability.
- Constant dispersion horn for pattern control.
- No special processors needed.

Portable Features:

- Handle & recessed socket for stand mounting.
- 16 gauge carbon steel perforated grill.
- Field replaceable crossover network.

Flying Features:

- 1.5" thick top & bottom panel for structural integrity.
- 6 fly points for horn up or horn down rigging.
- Trapezoid shape for easy arraying.



T-122

OAP Audio, Inc.
310 Peachtree
Industrial Boulevard
Buford, Ga. 30518
Phone: 404/945-1028
FAX: 404/945-1843



Custom ESI paging panel at Colorado Hall (left). Apogee cluster at International Center (right).

tage when the speaker cluster required lifting and refocusing from its initial planned position.

"We weren't getting a lot of gain out of the mics before feedback," Jensen explains, "so we had to reposition the speaker cluster higher and focus [the speakers] down so the sound dies down before it echoes."

Castle incorporated QSC MX-1500 and MX-2000 amplifiers and Shure's AMS 4000 automatic mic system in a rack with a 16-channel Yamaha mixer, Rane third octave equalizer, Tascam MK2 bidirectional cassette deck and ESI customized switching network. The rack is housed in an electrical closet in the southwest corner of the ballroom.

The installation has enabled the hotel to divide the Center in half with a 30-foot partition, thus doubling its potential convention occupancy. Four new Ramsa speakers, hooked up to a Yamaha digital delay unit, also permit smooth coverage of the entire area for a single, large conference.

Colorado Hall, formerly an exhibition area with a concrete floor and open rafter ceiling, may now be configured in seven zones: up to six small ballrooms/meeting rooms and a pre-function area.

With the emphasis on selecting a user-friendly system to enhance Colorado Hall's capabilities, Castle installed FSR Inc.'s ML-112A ballroom combining system with lockable wall panels in each of the seven new zones and a large control panel in the electrical closet.

(continued on page 78)

Coaxial Speakers

Part 3

Horn-Within-a-Horn and Other Coax Configurations

BY PAMELA MICHAEL and MIKE KLASCO

At first glance, the idea of sticking one horn in the mouth of another horn and expecting it to sound good seems like lunacy — the obstruction ought to create serious reflection problems and polar discontinuities. But manufacturers have been doing just that for 20 years, and speaker designers have found ways around these problems and even made substantial improvements, often turning drawbacks into advantages.

Historically, coaxial speakers have not been known for super-high output. Woofers tend to be direct radiators, so there's only so much you can get out of them. The questions of how to configure coaxes — especially high output coaxes — is a matter of much concern and debate. The horn-within-a-horn solution has many merits that have long been recognized: efficiency, potentially closer driver alignments and the resulting point source response. Speaker designers and speaker listeners alike prefer to hear their highs and lows coming from the same spot. In terms of the speaker components, most horn/horn coaxials either use cone speaker(s) loaded by a horn for the lower part of their bandwidth and a compression driver for the top end, or a very large format compression driver for the lower bandwidth and a compression driver for the top end.

The large format, high output coaxial speakers utilizing the horn-within-a-horn configuration has experienced a rise in popularity in the past two or three years. When introduced by Community in the early 1970's with their FRC ("For Real

Coax'), this solution to the coax design question found limited initial success, despite being the speaker of choice of such high-visibility users as the J. Geils Band and the communications staff of Gerald Ford's White House. The FRC had a mouth of 30" by 40" and a depth of 44" and a weight of 100 pounds. The fiberglass construction enabled the bass horn shape to be molded to the exact contours to accommodate the high frequency horn coaxially located in its mouth. The bass horn loaded a 15" woofer while the top end was handled by a high frequency horn/driver.

Putting aside Bruce Howze's work at Community for the moment, another early innovator of horn-within-a-horn design is Georgia Tech's Dr. Eugene Patronis. Beginning with his initial design, the "Pataxial" (a J.W. Davis product) which utilized a 15" woofer in a short horn bass reflex enclosure and a 1" throat compression driver-exponential horn, coaxially mounted in the throat of the low frequency horn, Patronis has been almost single-minded in his focus on coaxial design. He holds patents on several of the techniques and products common in the industry. Dr. Patronis' most recent patent, granted in April of this year, is a designed-from-the-ground-up coax loudspeaker due to be released by OAP about the time you are reading this. Dubbed the Pro-Ax, this new design takes the horn-within-a-horn concept a step further, utilizing a 10" transducer horn loaded into a birch plywood constant dispersion horn which provides high SPL for voice paging or sound rein-

forcement of vocal frequencies. The Pro-Ax has a specially tooled rotationally molded shroud, or faring (which acts as a phase plug), for the 2" exit horn driver that is coaxially mounted into the throat of the 10" horn. This set up provides an aerodynamic transition from the 2" driver, which is round, up to the rectangular throat at the mouth of the device, and thus reduces reflection. The OAP Pro-Ax will be available in two versions, the PX-1090, a 90 x 40 degree model and the PX-1060, a 60 x 40 degree model. "The unique aspect of my design is that the acoustic centers of both the high frequency device and the low frequency device coincide in time as well as space," Dr. Patronis told us by phone from Georgia. "Other designs are synchronous in time, but not synchronous in angular divergence. It looks like one device."

Patronis also designed the crossover for OAP's C-1, a 12" horn-loaded coax, as well as components of many other products. In addition to designing many products and accessories for various manufacturers, he has trained an entire generation of acoustical engineers.

Many of the current speakers manufactured by Frazier, in fact, were designed by a former student of Dr. Patronis, Jay Mitchell. The Frazier CAT (Coincident Aligned Transducer) Series is a cost-effective approach to coaxial design. The line includes several horn-within-a-horn speakers, including the CAT 66/69, a high output loudspeaker in an extremely compact package. The low end are dual 12" woofers in a short foam-lined horn (60 x

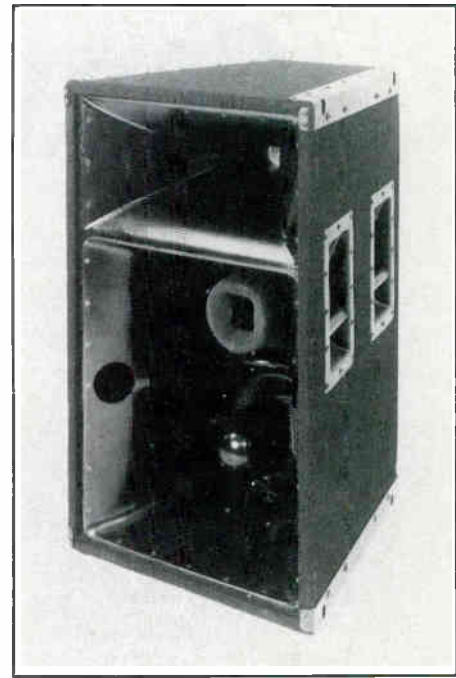
40, CAT 66 and 90 x 40, CAT 69). Top end is a horn loaded 1" exit compression driver. A passive crossover network is built into the fiberwood enclosure.

From a value/engineering perspective, the Frazier CAT 79 is truly innovative. The CAT 79 is a speech reinforcement loudspeaker designed for high output and natural sound quality. The CAT 79 has controlled pattern (90 x 40) down to 350 Hz, but will work down to its cutoff of 120 Hz.

Typically, to get the benefit of the point source of coaxial speakers the two drivers must be in time alignment. That is, the acoustic centers must be in the same plane. For most horn-within-a-horn coax-

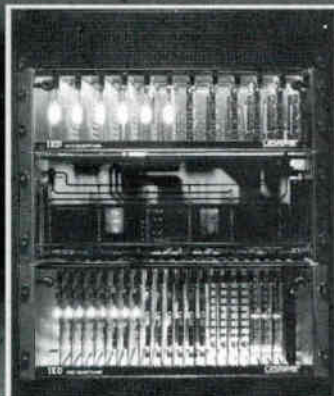
ials this means that an electronic time-offset delay is required. Usually this takes the form of an analog or digital delay line with a few milliseconds of delay. Once you have a delay line, you must also use separate amplifiers to drive the speakers as well as an electronic crossover. At this point the support electronics cost more than the speaker.

The Frazier CAT 79 claim to fame is the use of an "acoustic delay line" to put the high frequency horn into acoustic alignment with the mid bass/mid range horn. Actually, this "acoustic delay line" is a plane wave tube (a pipe) that extends from the high frequency compression driver to

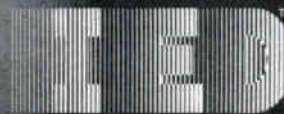


Community's RS660 with grille removed.

A Revolutionary State of Mind



When we introduce a revolutionary product, we introduce a revolutionary training program to support it. Our newest componentry, the Universal Digital Audio Processing System (UDAPS)[™] with its digital domain processing functions of up to 508 simultaneous signal paths... is the world's first system to allow routing, signal delay, equalization and level control in one integrated system. IED provides complete technical training for UDAPS[™] and every component we design and market. And we provide continuing technical field support, regardless of when or where our products are installed. We instill technology through education and documentation, so you can install technology that solves audio problems more creatively than ever before. For innovation in technology, training and support – the only choice is IED.



Innovative Electronic Designs, Inc.
9701 Toyarsville Road
Louisville, Kentucky 40299 U.S.A.
Tel 502.267.7436
FAX 502.267.9070

Circle 255 on Reader Response Card



WHICH IS THE MOST IMPORTANT COMPONENT OF A CCTV SYSTEM?

The answer is **A**, your ADI systems specialist. He'll review bid specifications to help you win more jobs. He'll suggest alternatives and keep you apprised of new equipment. He'll make sure the product is ready and waiting when it's time to start the installation. No matter what your level of expertise, he can help.

And his services are **FREE**. As if he were on **your** staff, but **our** payroll.

There are 15 ADI systems specialists around the country

to help you with CCTV, Fire, Intercom, Access Control and Sound System bids and installations. Backed by the computer-linked inventory of our 70 locations.

To reach the ADI systems specialist near you, call 1-800-233-6261.

The second most important component? The new ADI catalog of CCTV Products featuring the industry's top brands. To get your copy, fill in the coupon and mail it right away!

Please send me the following ADI catalogs: CCTV
 Sound Fire

Name _____

Company _____

Address _____

City _____

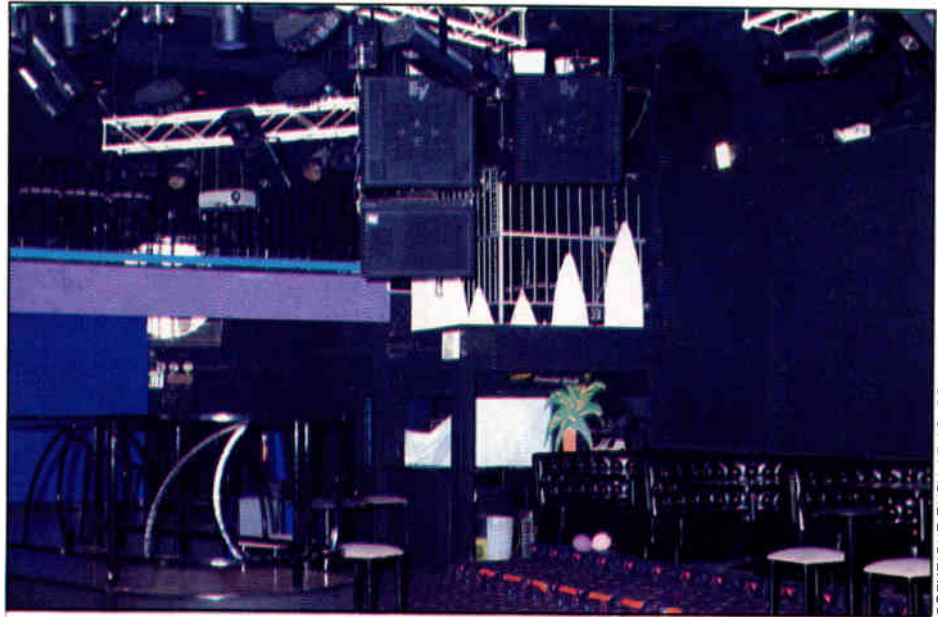
State _____ Zip _____

Phone () _____

Mail to ADI, Dept. SC,
 180 Michael Drive,
 Syosset, NY 11791



its horn, whose mouth is lined up with the bigger horn. Because the "delay line" in the CAT 79 is acoustic, the option of using a passive crossover and a single amplifier presents itself. Frazier has taken advantage of this and ships the CAT 79 with an integral passive crossover. Aside from the 90 x 40 coverage model, Frazier plans to add a 60 x 40 CAT 74 to the family. "Longer throw mixed with regular coverage patterns will then be available to contractors on jobs requiring a cluster," was mentioned by James R. Truelsen, VP Sales and Marketing for Frazier. Finally, a biampable subwoofer plus a systems subwoofer will add further applications to



Electro-Voice Manifold Technology systems at the Shark Club in Los Angeles.

COPYRIGHT RUDY ARIAS, COM ARTS

Your Professional Connection

For Quality Response Use the

MARKETPLACE

ACOUSTICAL / SOUND AND TELEVISION SYSTEMS ENGINEERS

Major audio-visual consulting engineering firm is seeking engineer to develop acoustical systems.

SOUND SYSTEM DESIGN AND SALES

Seeking independent contractor for expanding independent distributor for Michigan and surrounding areas. Seeking individual experienced in design, installation, and bidding of commercial and residential sound systems. Must have excellent communication skills and benefits. Reply to: Sound & Communications Class, 25 Willowdale Avenue, Willowdale, NY 11094.

SITUATION WANTED

Experienced audio professional seeking employment related business opportunities in VA. Formal training in engineering and sound. pro sound. hr.

Sound & Communications
25 Willowdale Avenue
Willowdale, NY 11094
and significant experience in

MANUFACTURER'S REPS

Leading manufacturer of Horn/Speaker Assemblies and Baffles seeks experienced sales representative for the Northeast and Midwest.

EQUITY/OWNERSHIP SITUATION WANTED

Two individuals with strong technical experience in sound systems seeking equity or total ownership in a profitable business.

FOR SALE

Tef System 12 — upgraded with battery backup, extensive software including many programs. Mic. stand, printer, cables, manuals. Must sell. Call 416-6600.

WANTED

ELECTRONIC SERVICE TECH
Established Clientele ■ Excellent Opportunity
Contact: [Name] [Phone]

Music
n, MS 39204

Every Month in *Sound & Communications*

How To Mic Your Piano!

ducer

-P SERIES

Preferred By More Professionals

Models also available for:
Guitar, Harp, Bass, Violin,
Mandolin and Dulcimer.



Contact Your Dealer or
Call 800 C-T AUDIO

Circle 291 on Reader Response Card

INTRODUCING A NEW GENERATION

MXa SERIES



Our engineers took the very best features from our successful MX Series and improved them to create the new MXa Series Power Amplifiers from QSC. The results are dramatic. . .

More Power. Output power has increased as much as 20% on some models.

More Models. A model was added to make it easier to meet your exact power needs.

Additional Features. We added indicators, automatic fan speed control, and an input slot that accepts additional connectors, active and passive input accessories.

Increased Performance. Everything we did was aimed at one goal. . .delivering a higher level of audio performance.

Greater Reliability. The MXa Series has been subjected to the most rigorous development testing yet.

Lower Weight. As new technology was being added, we were able to remove some things – like weight.

With all of the improvements and engineering advances introduced with this new generation, you might assume that the price would zoom. Wrong.

The MXa Series from QSC. All new, except the price.

QSC[®]
A U D I O

© QSC is a Registered Trademark of QSC Audio Products, Inc., 1926 Placentia Ave., Costa Mesa, CA 92626 (714)645-2540

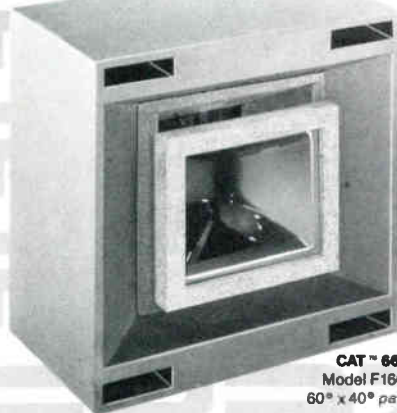
Circle 203 on Reader Response Card

Specify the Best...



CAT™ 66
Model F1690
90° x 40° pattern

the CAT™ 60 & 66 will do the rest.



CAT™ 66
Model F1660
60° x 40° pattern

- Controlled Directivity—Horn loaded down to 350 HZ
- Source aligned—Coincident Aligned Transducers
- 250 Watts (AES Std.)
- Compact enclosures with lock miter joinery, reinforced for suspended array applications, 25" x 25" x 17" D
- Real oak and walnut hand-finished options for church and auditorium installations
- Isobar tabular data available for PHD/CAD Program™

Fax or call Toll-free NOW for complete data on these state-of-the-art FRAZIER systems.

FRAZIER

Route 3, Box 319 • Morrilton, AR 72110
Toll Free 1-800-422-7757
(501) 727-5543 or FAX (501) 727-5402



these products.

Community, who pioneered the horn-within-a-horn concept 20 years ago, is still committed to the approach. In fact, Community has introduced new product lines using coaxial techniques. Community's highest output coax systems feature their M4 Coax. The M4 compression driver, which is an established solution for achieving very high acoustic output at low distortion, is a midrange compression driver that can operate over the bandwidth decade from 200 Hz to 2000 Hz (with usable output to 4000 Hz with some EQ). The M4 has a 7" diaphragm and a 4" exit to its horn. The M4 allows any of Community's PC Series high frequency horns to be coaxially mounted directly in the center of a matching M4/PC1500 Series horn, allowing use of either a 1" exit or 2" exit compression driver for the top end response. Horns are available in three different pattern controls.

Community also offers the RS Series, which it describes as "electronically controlled wavefront coherent loudspeaker systems." The RS series features a modular system approach of one-box speaker systems with three different subwoofer options. The RS Series is designed with internal passive three-way frequency dividing networks. Community's John Wiggins says the RS systems don't require external electronic signal alignment because of precise placement construction — "They're signal aligned right out of the box." The ingenious design of the RS series places the high frequency compression driver/horn into the long phase plug of the bass horn. The acoustic centers are in alignment so the requirement of electronic signal delay and electronic crossover are eliminated. The midrange horn/compression driver is located above the bass horn/high frequency drivers, but also has the same path length and acoustic centers in the same plane. The RS series includes the extremely compact RS220 (27" x 14" x 14"), which consists of two 8" woofers, a 2" exit compression driver and a 1" exit high frequency driver, the RS 660 (33" x 20" x 20"), which has dual 10" woofers

Circle 221 on Reader Response Card

FREE INFORMATION

GET MORE FACTS ON PRODUCTS IN THIS ISSUE.

These Reader Response Cards are your **FAST AND EASY** way to get additional information. Just circle, detach and mail!

Please Send
FREE
INFORMATION
on all items



SOUND COMMUNICATIONS

12/91 EXPIRES 3/92

NAME: _____ TITLE: _____
 COMPANY: _____
 STREET: _____
 CITY: _____ STATE: _____ ZIP: _____
 SIGNATURE: _____ DATE: _____
 TELEPHONE: () _____

NEW PRODUCTS:		43	60	77
(Please Circle)		44	81	78
1	15	29	48	83
2	16	30	47	64
3	17	31	48	85
4	18	32	49	66
5	19	33	50	67
6	20	34	51	68
7	21	35	52	69
8	22	36	53	70
9	23	37	54	71
10	24	38	55	72
11	25	39	56	73
12	26	40	57	74
13	27	41	58	75
14	28	42	59	76

Do you wish to receive (continue receiving *Sound & Communications*)
 Yes No

1 Primary Job Function (only one):

A Management/Owner
 B Engineering/Technical Mgt
 C Sales/Marketing
 D In-House Maintenance/Service
 E Field Installation/Maintenance
 F Consultant
 G Advertising/Promotion
 H Other _____

2 Primary business of company (only one):

1 Contractor—Engineered Sound/Acoustical
 2 Contractor—Interconnect/Intercom
 3 Contractor—Fire/Alarm/Safety
 4 Electrical Contractor
 5 Pro Audio/Studio/Reinforcement

6 Architect/Designer
 7 Engineering/Acoustical Consulting
 8 Maintenance/Service
 9 Dealer/Distributor/Rep
 M Manufacturer
 O Other _____

3 Your purchasing authority:

A Final approval/Buyer
 B Recommend/Specifier
 C No Direct Authority/User

4 Intensity of your product need:

1 Have salesman call
 2 Need within 3-6 months
 3 Future projects

5 Number of employees at your company:

A 1-3 B 4-10 C 11-25 D 26-100
 E over 100

ADVERTISING PRODUCTS:		243	260	277
(Please Circle)		244	261	278
201	215	229	246	263
202	218	230	247	264
203	217	231	248	265
204	218	232	249	266
205	219	233	250	267
206	220	234	251	268
207	221	235	252	269
208	222	236	253	270
209	223	237	254	271
210	224	238	255	272
211	225	239	256	273
212	226	240	257	274
213	227	241	258	275
214	228	242	259	276

SOUND COMMUNICATIONS

12/91 EXPIRES 3/92

NAME: _____ TITLE: _____
 COMPANY: _____
 STREET: _____
 CITY: _____ STATE: _____ ZIP: _____
 SIGNATURE: _____ DATE: _____
 TELEPHONE: () _____

NEW PRODUCTS:		43	60	77
(Please Circle)		44	81	78
1	15	29	48	83
2	16	30	47	64
3	17	31	48	85
4	18	32	49	66
5	19	33	50	67
6	20	34	51	68
7	21	35	52	69
8	22	36	53	70
9	23	37	54	71
10	24	38	55	72
11	25	39	56	73
12	26	40	57	74
13	27	41	58	75
14	28	42	59	76

Do you wish to receive (continue receiving *Sound & Communications*)
 Yes No

1 Primary Job Function (only one):

A Management/Owner
 B Engineering/Technical Mgt
 C Sales/Marketing
 D In-House Maintenance/Service
 E Field Installation/Maintenance
 F Consultant
 G Advertising/Promotion
 H Other _____

2 Primary business of company (only one):

1 Contractor—Engineered Sound/Acoustical
 2 Contractor—Interconnect/Intercom
 3 Contractor—Fire/Alarm/Safety
 4 Electrical Contractor
 5 Pro Audio/Studio/Reinforcement

6 Architect/Designer
 7 Engineering/Acoustical Consulting
 8 Maintenance/Service
 9 Dealer/Distributor/Rep
 M Manufacturer
 O Other _____

3 Your purchasing authority:

A Final approval/Buyer
 B Recommend/Specifier
 C No Direct Authority/User

4 Intensity of your product need:

1 Have salesman call
 2 Need within 3-6 months
 3 Future projects

5 Number of employees at your company:

A 1-3 B 4-10 C 11-25 D 26-100
 E over 100

ADVERTISING PRODUCTS:		243	260	277
(Please Circle)		244	261	278
201	215	229	246	263
202	218	230	247	264
203	217	231	248	265
204	218	232	249	266
205	219	233	250	267
206	220	234	251	268
207	221	235	252	269
208	222	236	253	270
209	223	237	254	271
210	224	238	255	272
211	225	239	256	273
212	226	240	257	274
213	227	241	258	275
214	228	242	259	276

Please Send
FREE
INFORMATION
on all items



SOUND COMMUNICATIONS

FAST ACTION CARD

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY CARD

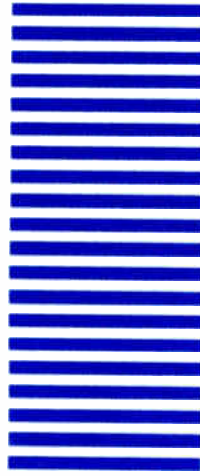
FIRST CLASS MAIL PERMIT NO. 1217 BOULDER, CO

POSTAGE WILL BE PAID BY ADDRESSEE

TESTA COMMUNICATIONS, INC.

SOUND COMMUNICATIONS

P.O. BOX 8302
Boulder, Colorado 80329-8302



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY CARD

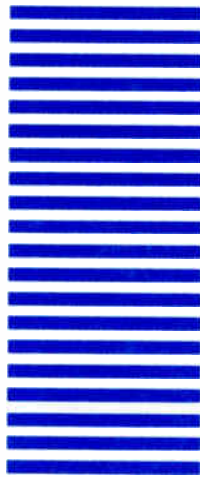
FIRST CLASS MAIL PERMIT NO. 1217 BOULDER, CO

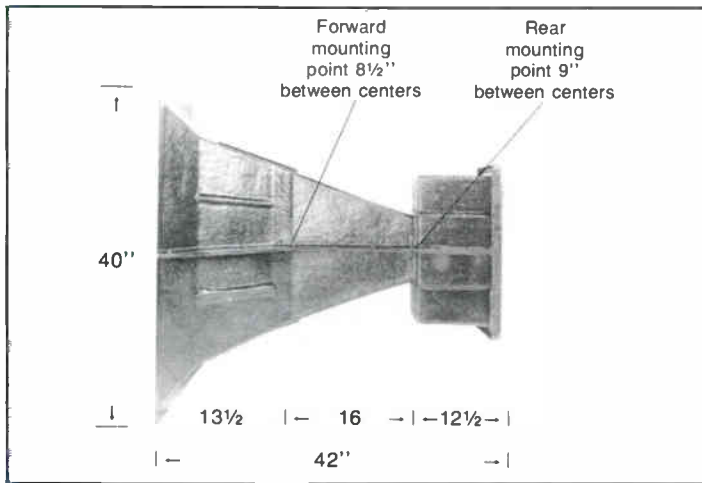
POSTAGE WILL BE PAID BY ADDRESSEE

TESTA COMMUNICATIONS, INC.

SOUND COMMUNICATIONS

P.O. BOX 8302
Boulder, Colorado 80329-8302





Side view of Frazier CAT 79 showing integral panel stiffening, removeable rear service panel and reinforced mounting points.

and the larger RS 880 (50" x 30" x 20").

Several other coax manufacturers (Design Engineering, Emilar and Renkus-Heinz among them) also use extremely large compression drivers that are essentially midrange compression drivers and not woofers; they are also horn-loaded. William Gelow, when he was at Renkus-Heinz, presented a paper at the 1989 AES

entitled "Design Considerations of a High Level Coaxial Point Source," which stated that a large format compression driver coupled to a constant directivity horn provides low distortion and accurate coverage over the critical vocal range. Renkus-Heinz' National Sales and Marketing Manager Carl Dorwaldt concurs, and reaffirms the company's commitment to the

point source concept.

Renkus-Heinz uses a big compression driver with a small one loaded in front powering the top end for its coaxes. The R-H large format SSD5600 compression driver has a 5.6" diaphragm and a 2.4" exit. The line includes the COAX90, with a 90 x 40 degree dispersion pattern; the COAX60, with a 60 x 40 degree pattern, in addition to a 40 x 20 degree long throw horn which is pretty much a pinpoint device. All these models are available with waterproof front and rear covers upon request. R-H also offers two concert coax systems which include four low frequency drivers, as well as a subwoofer module.

SOUNDSPHERE LOUDSPEAKER HITS HOME RUN IN CINCINNATI ...

If you didn't register for The NSCA Trade Show at the Hyatt Regency Cincinnati, you missed hearing a single Soundsphere #168 loudspeaker providing background music to four levels of the large atrium. This includes the lounge bar where music in the evening, emitting from the speaker, provides piano-bar type ambience.

Richard Carlson, the Hyatt general manager stated, "The Soundsphere speaker in the four-story atrium lobby of the Hyatt Regency Cincinnati has really enhanced the hotel's atmosphere. The system is clean and crisp in quality, and is a pleasant addition to our Sun-garden Lounge, our restaurant Findlay's and all the public areas into which it reaches."

The baseball theme of banners and the large Cincinnati Reds cap is continued in the permanent "Home run," a floating White #168 Soundsphere loudspeaker. Allen Volz of Industrial Communications and Sound, the contractor, mentioned that "it was a very easy and simple installation."

Many other hotel, mall and office building atriums have Soundsphere loudspeakers to solve the problem of even distribution of voice page and background music in these highly reverberant environments. In many instances they are color coordinated to the design scheme of the location.

There are 5 different models of Soundsphere loudspeakers to help you solve problems in difficult environments. Call us to assist with your next challenging situation.



SOUNDSPHERE A PRODUCT OF
SONIC SYSTEMS, INC.
737 Canal Street • Bldg 23B • Stamford, CT 06902 • USA • Tel (203) 356-1136

Circle 249 on Reader Response Card

The C-1 concert coax system is signal-aligned and features "Smart" processor technology.

Longtime players in the coax field, Electro-Voice has recently combined CD (Constant-Directivity) horns and Manifold Technology. At the heart of the MH6040 are two Manifold 10" water-resistant drivers. They face into E-V's unique Manifold loading and a sophisticated phase plug and then into a large format 60 x 40 pattern fiberglass horn. Manifolding allows the output of two or more drivers to be summed with reduced interference effects. Even without the high frequency driver/horn, the MH6040 can cover the entire voice

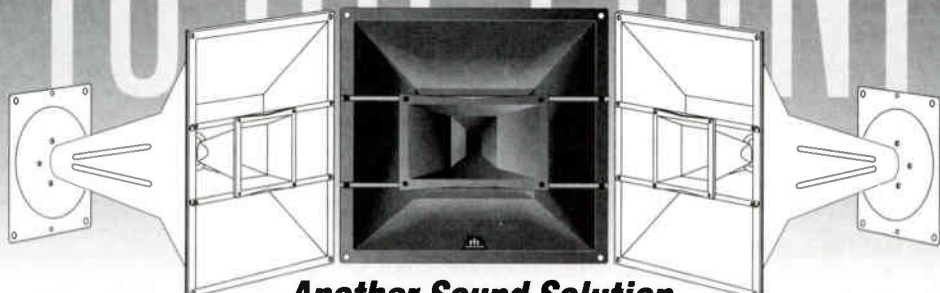
range up to 4000 Hz without excessive EQ. The matching top end horn is the HP640. The high-frequency compression driver options include E-V's popular DH1A, or their smaller DH2A, or if weight is critical (but your budget is not!) the high-tech magnet N/DYM1. If higher sound levels are required, then E-V offers manifold folding for the top end with the 2MT double driver "plumbing" for the DH1A or N/DYM1 or the four banger 4MT for the smaller DH2A. Signal processing recommended for the MH6040 system includes electronic time offset correction between the woofers and compression drivers, electronic crossover and equaliza-

tion. The MH6040 would be a good candidate for E-V's Deltamax signal processing series (which will be covered in our next speaker article).

There have been rumors of a large format driver from JBL (which would probably lead to a coax horn-within-a-horn product), but a JBL spokesman stated only that "JBL engineers are doing research in this area currently with more info available in a few months." Hint: if you can't wait to find-out more about this, then corner someone who attended JBL's press conference at AES.

Not all horn-within-a-horn designs are intended for high acoustic output, but in-

TO THE POINT



Controlled Coverage
Coaxial horns provide tight dispersion control from 250 Hz to 17,000 Hz

High Power
Over 100 acoustic watts output; 135 dB max SPL at 1m

3 Models
Choose between 3 models all weighing less than 75 lbs.; 90° x 40°, 60° x 40° or 40° x 20°


**Another Sound Solution
from Renkus-Heinz**

COAXIAL HORNS

For Full Technical Details, or Further Information - Contact:

Point Source Performance
Presence and intelligibility possible only from a single point source

Compact, Space Saving Design
Coaxial design is light in weight and easy to mount



17191 Armstrong Avenue Tel 714/250-0166
Irvine, California 92714 Fax 714/250-1035

Circle 261 on Reader Response Card

The AVPS-6 The Intelligent Approach to A/V Control. We've removed your headaches, decreased installation time, and decreased your rack space!

stead use the technique to combine compact size with increased bandwidth. One example of this approach is a modest and inexpensive paging unit originally manufactured by Electro-Voice in the 1970s which utilized the Model 1828C (screw-on compression driver, threaded on both sides). One side of the compression driver's dome diaphragm fed a conventional re-entrant horn; the other side gave a direct tap out to the tweeter path, with a tiny horn screwed onto the front. The idea was to provide the low end response of the typical re-entrant background music/paging horn, but with a smoother and cleaner mid and top end response. Acceptance has been good enough so that 20 years later the same driver is now used by University in their Compound Diffraction horn series, which includes the FC100, 848AT, 850T, among others.

Frazier has an unusual horn-within-a-horn coax ceiling array, the F2240 QMD. It consists of four modules mounted at 90 degree angles. Bass is handled by 4" cone speakers while the top end uses integrated compression driver/horns. Typical applications will require one Frazier Ceiling Array to cover an area that would have called for 15-25 regular ceiling speakers.

Atlas/Soundolier's approach to compact higher quality paging/background music coaxial speakers is the WT-15T. Just slightly bigger than a paging speaker with a mouth of 13" by 10" and 10" deep, it uses a 6" cone speaker for the low end (good down to 150 Hz). The top end is a compression driver/re-entrant horn.

Then there is the Soundsphere, from Sonic Systems. While the Model 168 utilizes a fiberglass enclosure, it is not horn shaped, but the spherical shape instead acts as a dispersing element. Sound is radiated by the symmetrical reflector in a smooth, circular pattern (at least in the horizontal plane), using a 8" coaxial driver as the sound source.

This completes our "mini-series survey" on the epoch story of coaxial speakers. Our next loudspeaker series will feature a long look at the new crop of signal processor speakers. ■



We design our products with you on our minds. Designing an audio/video system puts your reputation on the line. You are required to put together all the right components, make it easy to use, and have it work.

The AVPS-6 has dubbing, switching, ada/vda, and remote control capabilities all in one box. It is simple and easy to use. No more messy wires. AND, the front panel is customized to your client's specifications.

Systems featuring the AVPS:

- * Training rooms
- * Boardrooms
- * Conference Rooms
- * Classrooms
- * Auditoriums
- * Office Viewing Modules

For more information on the AVPS -6 or our other unique products, call:

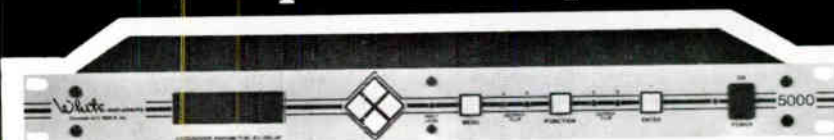
1 - 800 - 628-2084



TSI
Special Products Division
393 Jericho Tpke., Mineola, NY 11501
(516) 294 - 5390 Fax (516) 294 - 5008

Circle 274 on Reader Response Card

Introducing a 19 Bit Digital Audio Signal Processor Model DSP 5000 1 Input—4 Outputs



Offering fully user configurable

- Crossover • Delay • Parametric E.Q.
 - Notches
- One Rack Space

White
instruments
Division of C VAN R Inc.

P.O. Box 698
Austin, TX 78767

Phone 512/389-3800
Fax 512/389-1515

Circle 273 on Reader Response Card

SLIM STYLE, SUPERB SOUND.

Model SH2020 is a two-way system featuring a 20cm woofer and a new high fidelity dome tweeter with wide dispersion characteristics. Model SH2510 is a super low reproducing woofer system with a new double voice coil design--space saving without any sonic compromise.

The combination is a stunning example of modern transducer technology from Fostex--one of the world's leading manufacturers of primary speaker components and systems.

The wide dispersion dome tweeter in the SH2020 gives you much more flexibility of placement than that offered by conventional wall-mount or ceiling-mount units. When used in tandem with Model SH2510 Sub-woofer, true fidelity is reproduced across the entire sonic spectrum.

In fact, the music reproduction is so good, these Fostex systems, unlike typical wall-mounts, can be installed in homes as the primary music system--so they're ideal for surround sound entertainment centers.

Fostex In-Wall speaker systems are also perfect for offices, restaurants, hotel lobbies and other commercial applications for background music sources. Their outstanding clarity makes them ideal as public address speakers for halls and meeting rooms. Their thin profile, designed for recessed mounting in walls and ceilings, plus a unique "cam action" mounting method requiring no external screws, make them the easiest to install in standard 2 x 4 stud construction.

Space is already provided for in-line transformers when multiple SH2020 units are used in larger systems. When two SH2020s are wired to the SH2510 you have a full response stereo system which rivals that of many high end (and often visually unappealing) speaker systems. You can take advantage of the human ear's low directional sensitivity to bass response and position the SH2510 with a great degree of freedom--it does not need to be contiguous to the SH2020s.

Call or write for more information on these remarkable speaker systems--you'll want to specify them for your very next job. We'll include data on our Model US 300--an omnidirectional underwater speaker system. It can be used for temporary or permanent sound reinforcement. It's safe, won't corrode, and most important of all, it sounds great.

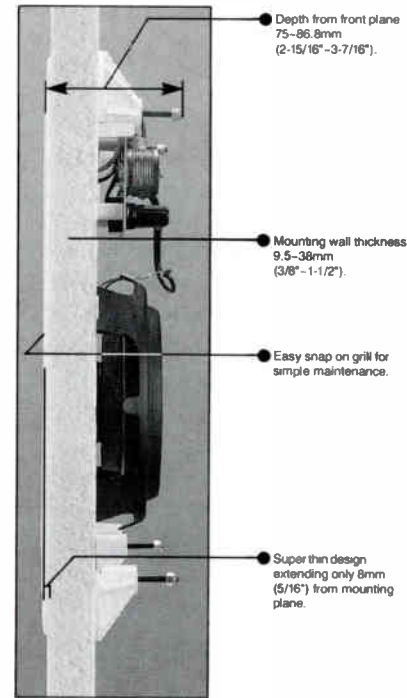


Photo: SH2020

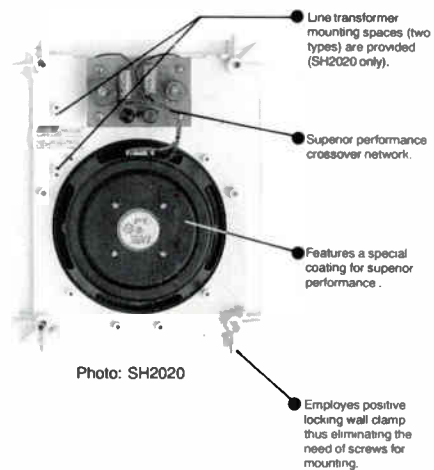
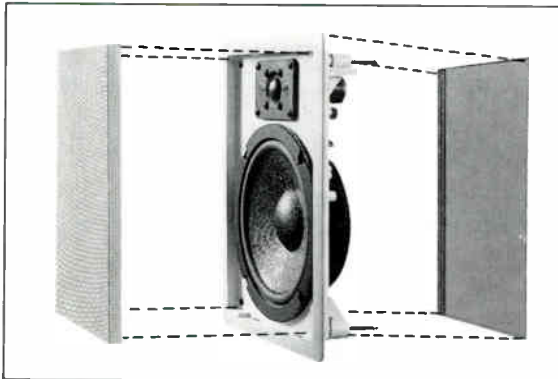
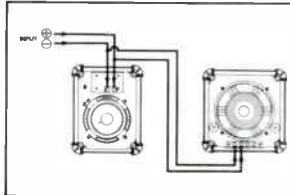


Photo: SH2020

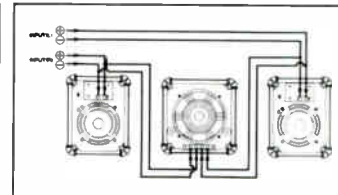
Method of mounting



Model SH2020 and SH2510



Model SH2020 x 2 and SH2510



FOSTEX®

FOSTEX CORPORATION OF AMERICA 15431 BLACKBURN AVE., NORWALK, CA 90650 TEL: 213-921-1112 FAX: 213-802-1964

1991

SOUND
&
COMMUNICATIONS
Suppliers' Survey and
Economic Report



Is there a direction?

1991

Sound & Communications Suppliers' Survey and Economic Report

By Judith Morrison

Attitude toward industry as a whole —		1990	1991
Very Positive	▶	8.5%	5.6%
Positive	▶	43.7	48.1
Neutral	▶	38.0	40.7
Negative	▶	9.9	5.6
Very Negative	▶	0	0

There's good news and there's bad news. Suppliers to the sound and communications industry are being paid slower, they're feeling less than "very positive" about the industry, and they're planning fewer new product introductions and new product lines.

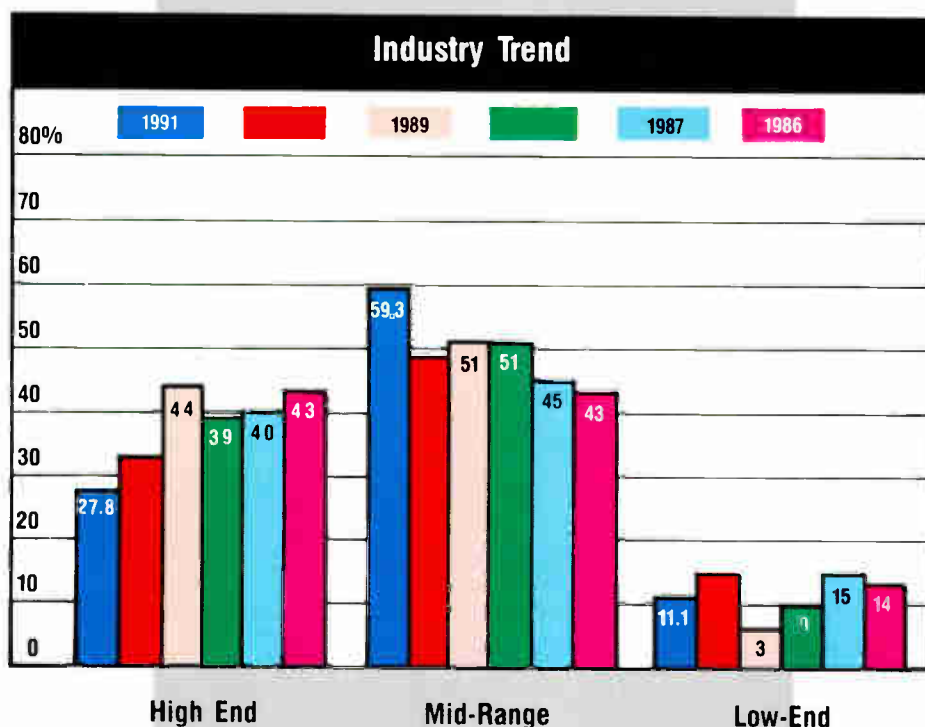
But they're feeling *more* positive about their companies, *less* negative about their industry; they're planning to be more aggressive and they're full of advice to sound contractors.

Our annual Sound & Communications end-of-year Suppliers' Survey and Economic Report is once again a mixed bag of information to peruse and use as we enter the somewhat unpredictable realm of 1992.

Our four-page questionnaire was sent out to all companies in the sound and communications industry. While most of the questions were multiple choice, there was ample room for write-ins, since we wanted to ascertain attitudes as much as statistics. We thank the respondents — who are anonymous. All tabulation was done by Survey Analysis of Palm Lake Gardens, Florida.

This may be a year of lowered expectations. For the second year in a row, fewer people expect to see an increase in unit sales (but fewer expect a decrease) and more people expect to sell the same. (79.6 percent expect an increase, 16.7 percent expect to sell the same number — and no one expects a decrease in units sold.)

But costs are higher for 78 percent of our respondents. And payment is slower for 59 percent. Some of our respondents, as a matter of fact, felt the need to add a comment to this multiple choice questions. They added the word "much" before the choice of "slower" or underlined "slower." Obviously, this question elicited some emotional outbursts.



This year saw a continuing of a trend toward sales through dealer/contractors rather than distributors or direct to end users. Sixty-five percent of sales were reported to be through dealers/contractors (up from 61 percent last year and 55 percent the year before). Conversely, sales through distributors continued a steady decline (17.8 percent this year, 19 percent last year, and 22 percent the year before. End user sales saw a similar decline, going from 23 percent in 1989, 20 percent in 1990 and 15.9 percent this year.

We should stop here and discuss terminology. When Sound & Communications began this study in 1986, the terminology for the classifications of sales outlets was set up. We realize that by lumping dealers and contractors into one category we are in some cases mixing apples and oranges. But in many cases we aren't. However, by combining the terms, we are making it difficult for, or at least not encouraging, manufacturers to break out the different distribution setups within a dealer/contractor structure (e.g., MI, consumer electronics). But for this year at least we felt that it was more dangerous to further segment this question. If we ask only for "contractors," we stand the chance of manufacturers deleting those they call "dealers." If we ask for only sound contracting dealers, we stand a chance of some manufacturers lumping everyone together and others delineating them. It's not a perfect world, and this is not a perfect survey. For now we think it's the best there is; and our consistent terminology has at least let people see trends through the years. Within the next year, if any of our readers have a suggestion on how to improve this question, please let us know.

The bulk of our respondents sell through dealer/contractors. Over a fifth of them sell between 91 and 100 percent of their products through them. 59 percent sell between 71 and 100 percent of their products through them, although 11 percent sell only 10 percent or less through dealer/contractors. This holds for big and small companies, although bigger companies tend to be lumped at the low and high end of the scale. Almost all of our respondents sell some portion of their product directly to the end user, although over 70 percent sell under 10 percent in this way. Larger companies did less of this.

Suppliers see product trends for the next year as moving towards the midrange rather than the high end or low end. This

Do You Use Independent Reps?			
	—	1991	1990
Yes	▶	70.4%	74.6%
No	▶	29.6	25.4

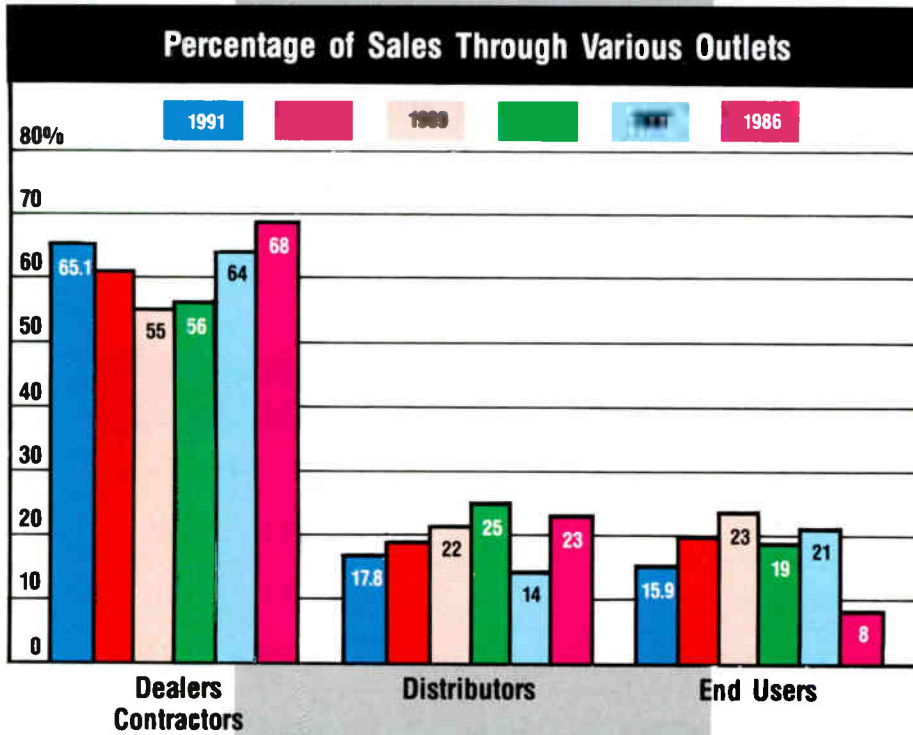
How Pleased Are You with Your Reps Performance? - 1991 1990			
Very Pleased	▶	13.2%	13.2%
Pleased	▶	57.9	49.1
Not Pleased	▶	28.9	35.8

Trade Shows Attended in Year			
	—	1991	1990
None	▶	3.7%	1.4%
1-5	▶	70.4	69.0
6-10	▶	18.5	21.1
Over 10	▶	7.4	7.0

Trade Shows Exhibited At in Year		
None	▶	7.4%
1-5	▶	66.7
6-10	▶	16.7
Over 10	▶	9.3

Plans for Number of Trade Shows Exhibited At			
More	▶	24.1%	
Fewer	▶	7.4	
Maintaining Current Level	▶	64.8	
No Answer	▶	3.7	

Expectations Unit Sales				
	—	1989	1990	1991
Increase in unit sales	▶	93.3%	81.7%	79.6%
Decrease	▶	4.4	2.8	0
Same	▶	0	14.1	16.7



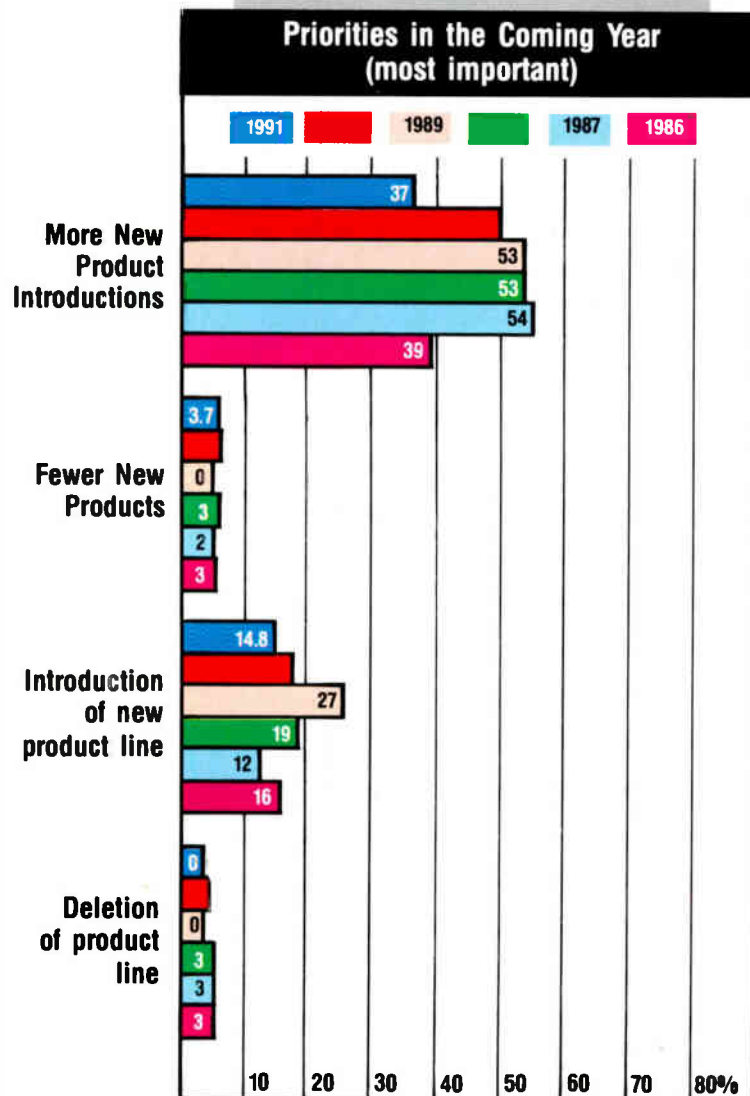
was a decided change from last year when more people were predicting activity in the low end and high end.

We asked the companies what they perceived as the most important criteria on which their customers base a purchase. Once again, serviceability and reliability came in rated as most important more times than any other category. Interestingly, "relationship between contractor and manufacturer" was the category least cited as "most important." Technical innovation was rated most important only 27.8 percent of the time, and availability 16.7 percent.

Well over half of the respondents feel either positive or very positive towards sales for 1992 for the industry as a whole. But over 40 percent feel neutral. There was a drop this year from last year in both the "very positive" and the "negative" categories; but once again nobody felt "very negative." When the focus switched to one's own company, the result was somewhat different. Just about 80 percent felt either positive or very positive (50 percent and 29.6 percent respectively) about their own companies' prospects for 1992. Only 18.5 percent felt neutral, 2 percent felt negative. And once again, no one felt very negative. These figures are relatively consistent with last year's results, with the exception of a drop in the negative aspect from 5.6 percent to 1.9 percent.

More companies plan to be more aggressive next year (64.8 percent versus 57.7 percent last year), but the "less aggressive" category also grew (from 1.4 percent to 3.7 percent). Here we offered a line on our survey to elicit write-in comments on why plans were being made to be more or less aggressive. Write-ins included the following: "To increase market share in medium to small jobs." "It [the sound and communications industry] has become our only marketplace." "This group as a whole is very professional in their approach to sales, installation and service." "The focus of our marketing is shifting to ready buyers rather than previous clients who tend to be slow decision makers and slow payers." All in all, of those who intend to be more aggressive in the coming year, the reasons given tended to have to do with more purely defining a market and distribution network.

How will this aggression show itself? That's not quite clear. Fewer companies see their priorities as introducing more



new products or a new product line. But, although the figure is down from previous years, 37 percent of our respondents felt that more new product introductions were the main priority for them in the coming year. And 65 percent rated new product introductions as the most important or second most important priority for 1992.

Uh oh. Don't tell the reps, but use of the manufacturer's rep is down from 74.6 percent to 70.4 percent reporting use of an independent rep network this year. But the good news is that those "not pleased" with their reps' performance dropped from 35.8 percent last year to 28.9 percent this year. Those "very pleased" stayed consistent at 13.2 percent. And those pleased jumped over 8 percentage points. Presumably, some of those who were not pleased last year dropped their reps this year and will be happier in 1992.

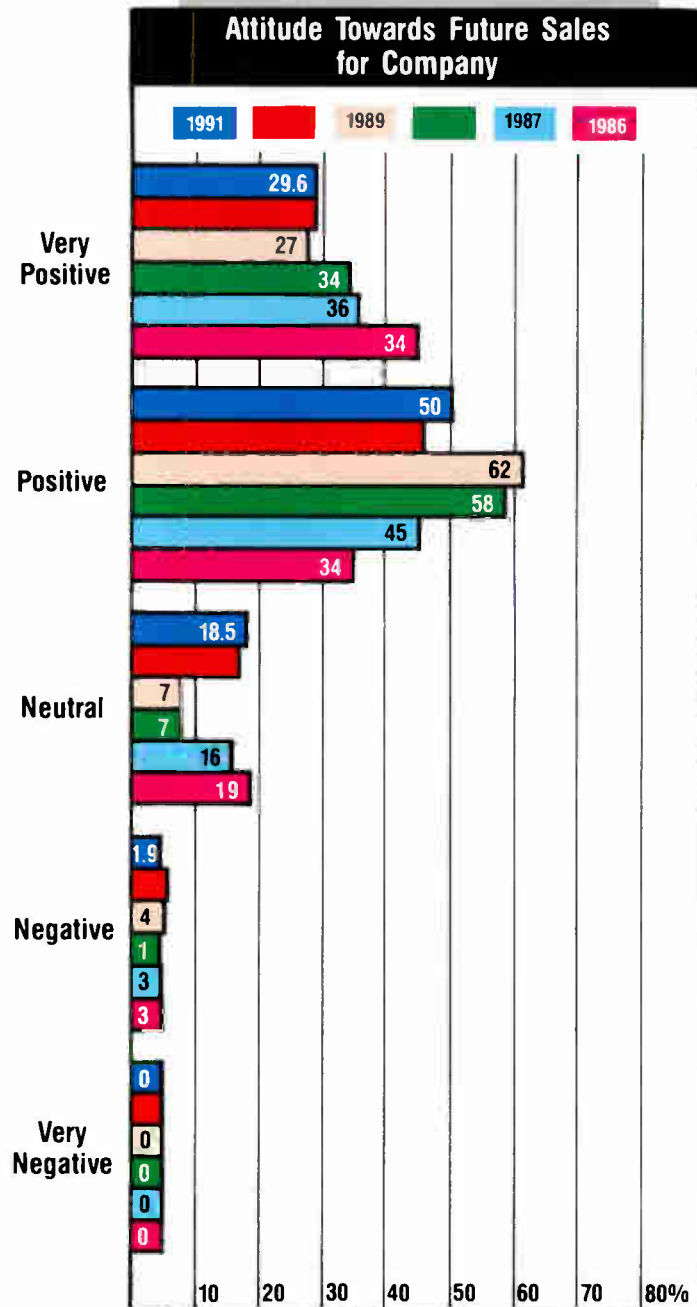
We tried to elicit information on how heavy attendance at trade shows is for sound and communications manufacturers. We didn't break this down into particular trade shows, just number of shows. Over 70 percent of the respondents attend between one and 5 trade shows in a year (just about the same as last year). But only 68 percent of them exhibit at between 1 and 5 shows. Another 17 percent exhibit at between 6 and 10 shows. And over 9.3 percent exhaust themselves at over 10 trade show exhibits a year. But nearly a quarter of the manufacturers plan to exhibit at more shows, although 65 percent plan to maintain their current level.

Twenty-eight percent plan to change their distribution pattern, a figure pretty much the same as last year's. Explanations given in a write-in line on the questionnaire included: "Concentrate on the dealer;" "probably do away with rep usage;" "concentrate more on dealers/distributors." "global;" and "We are rethinking our entire distribution."

Fifteen percent of the manufacturers have over 100 employees, 41 percent have between 25 and 100, and the rest have under 25.

The venues for expanded business were pretty much the same as last year, with hospitals again coming in last and "worship houses" again garnering the most votes for expanding business. Schools came in second. Factories and office buildings came in third. And "residential" came in sixth. More of the larger companies were looking to worship houses and schools than to other places. More small com-

Expanding Sources for Company Business (in descending order)	
▶	Worship Houses
▶	Schools
▶	Factories and Office Buildings
▶	Board rooms
▶	Concert Halls
▶	Residential
▶	Hospitals



Priorities in the Coming Year (Least Important)	1989	1990	1991
Fewer New Product Introductions	33.3%	33.8%	24.1%
Introduction of another product line	15.6	14.1	18.5
Deletion of product line	53.3	32.4	33.3
More new product introductions	4.4	5.6	0

panies were planning on hospital work than were big companies.

And for some bad news: Almost 60 percent of those surveyed said that more time is now elapsing between their invoice date and receipt of payment. Only 5.6 percent said they were getting paid in less time. But the good news is that a third of those surveyed said that things have remained the same. And although last year's response had over 10 percent fewer people complaining about slow payment, only 1.4

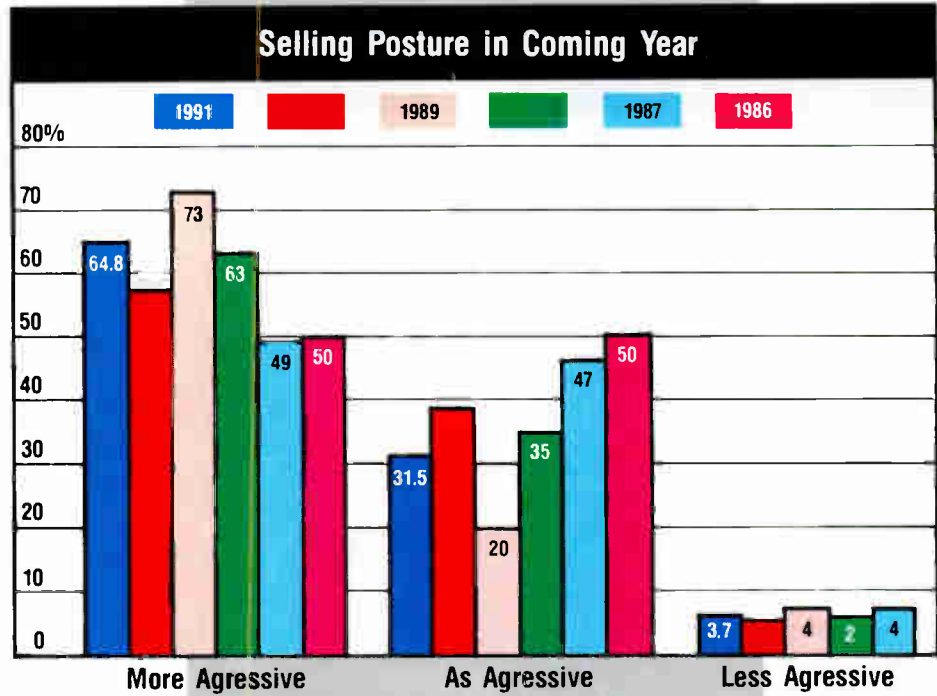
Suppliers' Advice to Contractors

- **"Look for profitable medium to small size jobs. Avoid the large jobs which attract underqualified bidders."**
- **"Look closely at the Americans with Disabilities Act and see how you can benefit your business and society."**
- **"Offer large discounts — 10 percent or more — for prepay or fast pay customers."**
- **"Work with manufacturers. Let them know exactly what you need and must have to use their equipment."**
- **"Put emphasis on pro-active selling and customer service."**
- **"Get advance payments to ensure job completion."**
- **"Do a good job."**
- **"Sell upward! Quit giving your services away by bidding!"**
- **"Get educated."**
- **"Diversify. Add lines from security/fire."**
- **"Get involved with CCTV. Many of the major video "experts" came out of the audio marketplace."**
- **"Plan for a fiberoptic future."**
- **"Be willing to keep end user/customer motivated with new approaches. Don't take a close minded attitude."**
- **"Hustle."**
- **"Improve technical knowledge."**
- **"Become aware of and control your "non-value added costs."**
- **"Look at new manufacturers. Don't settle for old line suppliers."**
- **"Go find a friendly banker."**
- **"Take a hard look at custom home installation. The market can be very profitable if done right."**
- **"Stay under control — cost, pricing etc."**
- **"Learn how to use software."**
- **"LCD video projectors are hot."**
- **"Give us a reasonable lead time on orders."**
- **"Hire a good salesperson — on commission. Attend product training seminars."**

percent of the people last year said payment time was getting shorter (versus 5.6 percent this year).

Who is most important in making the buying decision for a product? The manufacturers think the end user is (44.4 percent of them checked this box as "most important"). After that comes the contractor/installer (31.5 percent voted for him) — versus contractor/management (20.4 percent) or contractor/engineer (16.7 percent). The consultant came in with a vote of 22.2 percent. More of the larger companies found the consultant of prime importance, along with contractor/management. More of the smaller companies found the contractor/engineer and the end user important. Forty-six percent of the respondents plan to spend more time with consultants.

Although over three quarters of our respondents report that their cost of doing business increased last year, that figure was down from the 90 percent who said that last year. And those who reported business costs as the same increased from 8.5 percent to 14.8 percent. And over 5 percent actually saw a decrease in business costs (versus 1.4 percent last year).



Over 35 percent refused credit to more customers last year, although 5.6 percent refused fewer people.

As we said, despite some negative indications, overall there's a sense of optimism out there, as nearly 80 percent of

the suppliers expect sales to increase, 16.7 percent expect them to stay the same — and no one expects them to decrease.

Gross revenues for these firms came in with a mean of \$7,592,000.90, with 17 percent of the companies reporting gross

Contractors Doing an Unusually Good Job

■ Acromedia Corporation, Los Angeles, CA	■ Ceitronics, San Jose, CA
■ Advance Sound Co., Bay Shore, NY	■ Indy Pro Audio, Indianapolis, IN
■ Ancha Electronics, Tampa, FL	■ J&S A/V, Houston, TX
■ Audio & Video Specialists, Homewood, AL	■ Long Communications, Winston-Salem, NC
■ Audisee, Seattle, WA	■ Norcon Electronics, Brooklyn, NY
■ Cardinal Systems, Silver Springs, MD	■ Peerson Audio, West Palm Beach, FL

New Markets and Applications

■ Security Systems	■ One-Third Inch CCTV	■ Discos
■ Fire Alarm/Detection	■ Video Walls	■ Wireless Signaling
■ Law Enforcement	■ Multi-Zone Audio/Video Distribution	■ Fiberoptic Interfaces
■ Intercom	■ Home Theater	■ Digital Transmission
■ Warehouse Paging	■ Computer Control	■ A-D Conversion
■ Broadcast	■ Medical Clinics	■ Outdoor Products
■ Assistive Listening Systems	■ Retrofit Hospital	■ Autosound
■ Special Education Audio Systems	■ Nurse Call	■ Exhibit and Display
■ Teleconferencing/Video Conferencing	■ Churches	■ Training

Changes Planned in Distribution Pattern		—	1991	1990
Yes	▶		27.8%	29.6%
No	▶		72.2	69.

Change in Time Between Invoice and Receipt of Payment		—	1991	1990
More	▶		59.3%	47.9%
Less	▶		5.6	1.4
Same	▶		33.3	43.7

revenues of over \$6 million, although a quarter of the companies brought in under one million dollars. The rest were spread out between those numbers.

We also asked our survey recipients to state what markets or applications they thought they might expand into. This was a write-in question in order to give the respondents the most leeway in their answers. And a wide range was in fact shown in the answers. Much was made of the Americans with Disabilities Act which goes into effect in 1992, and which will presumably require more hearing assistive equipment. Other ideas mentioned included outdoor products, medical clinics, one-third-inch format CCTV, hospital

retrofit and law enforcement. You'll see an expanded listing elsewhere in these pages.

Who are the contractors who are most respected by suppliers? Again, we provided an open ended question which asked, "Is there any contractor that you feel is doing an unusually good job from a marketing and technical standpoint?" (One person answered, "No.") Many of the respondents took the time to single out one or two firms for special mention. Some of these firms deserve extra special mention for being written in last year also (survey takers will tell you it takes a lot to get a subject to write something instead of checking off a box). Companies listed last year and this year include: Long Com-

munications, Peerson Audio, and Cardinal Sound and Communications. One manufacturer listing Peerson said, "Very competent people; thorough in contract execution." Reasons given for listing companies included "understand new markets," "increased volume in soft market," and "they are aggressive and extremely service minded." (A full listing of companies mentioned is provided elsewhere in this article.) Manufacturers respect innovation and service and competence in general.

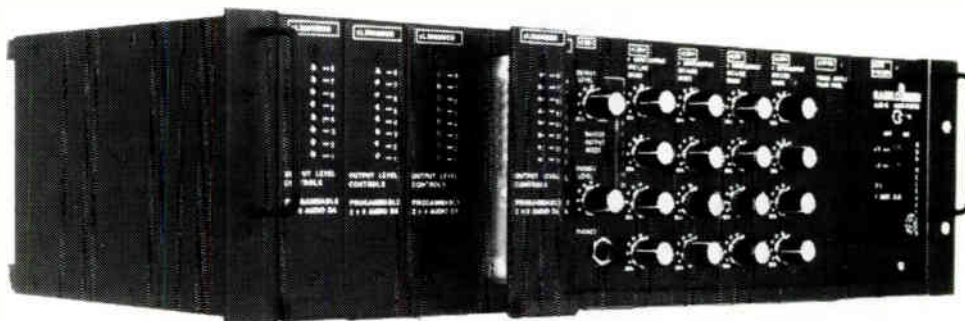
So we asked the suppliers to give advice to contractors. And they did. Comments ranged from "Give us a reasonable lead time on orders" to "Don't bend over." But our favorite was, "Do a good job."

Softening Sources for Company Business (in descending order)	
▶	Concert Halls
▶	Residential
▶	Hospitals
▶	Factories & Offices
▶	Worship Houses
▶	Schools
▶	Boardrooms

Most Important in Making Buying Decisions		—	1991	1990
Consultant			22.2%	25.4%
Contractor/Management			20.4	21.1
Contractor/Installer			31.5	22.5
Contractor/Engineer			16.7	23.9
Architect			3.7	5.6
End User			44.4	25.4

NEW!

Now, create over 200 different sound systems with the all new xLAS series of modular main frames & programmable plug-ins!



The xLAS-1, xLAS-3, & the xLAS-10. Audio systems so versatile, imagination may be their only limitation.



Let your imagination go.

Imagine a system where you can create: An audio distribution amp from 2 in 8 out to 20 in 80 out with on board programming for mono, stereo, mixed stereo or any other combination; A full function 24 channel mic/line mixer; Or even an eight channel mixer with compression/limiting, EQ, and an eight output distribution amp....all in the same package!

Eliminates jury-rigging & all the wiring associated with separate components.

Three different main frames allow you to choose from one module, three module or ten module capability. Containing their own back plane bussing system, the configuration of choice can be easily assembled by simply setting the module's programming switches and plugging in the module. No more rat's nest external wiring or mish mash system set ups. And, their compact size allows them to go places where no separate component system can. In addition, all units are table top, bracket, or rack mountable for ease of installation.

Only sixteen modules create hundreds of variations.

- Dual 1 x 4 audio DAs.
- Compressor/noise gate.
- 4 in/out mic/l mixer.
- Master output mixer.
- 4 x 4 switcher mixer.
- 2 input HI/LO shelving filter.
- Remote controlled quad VCAs.
- Digitally controlled 8 x 1 switcher.
- Digitally controlled dry contact machine control.

- Intelligent zone paging.
- Quad variable audio delay lines.
- Programmable room combining.
- And much, much more.

The versatility of the systems is derived from both the unique multi-bussing arrangement on the back planes and the programming DIP switches on the plug-in modules. Thus, by simply selecting the appropriate switch setting, all of the mixing, routing & interconnects are achieved internally without any external lash ups. Additionally, external contacts are provided for special outside world applications.

Installation couldn't be easier.

All rear terminations are via unique plug-in barrier strips which are wire captive and require no spade lugs or other type of terminal installation. Simply insert the wires into the block, tighten the screws, and plug the block into the back panel. The back panel also features individual label holders which accept the hook-up labels supplied with each module.

Pricing & quality that makes anything else a high priced alternative.

The xLAS series is the result of over twenty years of designing professional audio products for the most discerning users. Thus, you will find that all module edge connectors and sockets are plated



with precious metals; all ICs are socketed for ease of service; only the highest quality components are used throughout and performance is nothing less than state of the art.

List pricing starts at a low \$127 for the main frames and \$158 for the modules with substantial discounts available for qualified dealers & contractors.

Don't delay, call today.
Call TOLL FREE:

(800) 678-1357

or FAX: (916) 635-0907 for further information and let the xLAS series start saving you money & time and solve a lot of other problems in the process.

RAMKO RESEARCH

3501-4 SUNRISE BLVD.
RANCHO CORDOVA, CA 95742

Circle 202 on Reader Response Card

How Manufacturers Perceive Reps

Results of a Survey Conducted by WesTech Marketing

BY WES ALDERSON

The sound, signal, security and audio visual industries have coalesced into a market segment during the past 20 years. As this has occurred, increasing attention has been focused on the manufacturers' representatives serving this market segment. The reasons for this increased attention include the following:

- Manufacturers depend on reps to carry the message to accounts.
- Dealers and contractors perceive the manufacturer based on the rep's actions.

Therefore, a good part of the manufacturers' image and sales success depends on the quality of these manufacturers' representatives. Similarly, the ability of dealers and contractors to maximize sales and profitability depends partly on how well the rep conveys the opportunities and advantages each factory offers to the dealers.

During my 35 years as a manufacturers' rep, I have heard manufacturers praise various reps, and I have heard other manufacturers berate the very same reps! Strangely enough, such comments seemed generally unrelated to sales performance. Therefore, some degree of subjectivity must exist in the way manufacturers perceive their reps. It is also likely that each manufacturer perceives the strength or weakness of his or her rep based on different criteria. This would explain why the same rep can be thought of as a winner by one manufacturer and a loser by another manufacturer.

We are extremely interested in the thought processes involved in the manu-

facturers' perception of reps. Therefore, we decided to survey a number of the top manufacturers in our industry, analyze the results, and write this article. Fifty well-known manufacturers and certain key reps were asked to complete a questionnaire. Each manufacturer was also asked to list the three traits he or she *disliked* the most in reps. (See questions listed below.) There were 29 replies.

We averaged the numerical results of only the manufacturers, but will quote some of the excellent comments made by both reps and manufacturers, in our following analysis and discussion. The average importance the answering manufacturers placed on each factor in the questionnaire is also listed below. Our discussion will analyze the implications of some of the surprising results, as well as the comments made, and the traits most disliked.

TRAITS MOST HIGHLY VALUED

The three traits most highly valued by manufacturers were the rep's relationships with accounts, reputation in the industry, and honesty/integrity. This indicates that almost all manufacturers correctly realize that regardless of how good a product is, or how good a salesman the rep is, his success is largely determined by how well he gets along with the accounts. It also underscores the importance of a rep's function in helping his accounts with problems and dealing fairly and honestly with accounts.

TRAITS ALSO CONSIDERED VERY IMPORTANT

The traits considered also important included the rep's understanding of basic business practices, his ability to focus and

prioritize, his ability to surround himself with a competent staff, and his willingness to "say it like it is."

Again the analysis indicates that no matter how good a salesman the rep is, the long term success of his company, and therefore the success of the manufacturers he represents, depends on how well he understands basic business function in terms of the viability of his own company, the manufacturer, and the accounts he calls on. Likewise, the rep must be able to surround himself with a competent staff.

Several manufacturers state that they want their reps to objectively report difficult situations in the territory, but that they want the reps to be positive. It can be quite a trick to do both! Obviously, being positive is an important trait for reps! However, there are times when bad news must be given to manufacturers. There are other times when "even a manufacturer" makes a mistake, and a good rep with character will diplomatically tell the manufacturer this, rather than be a "yes man while Rome burns," so to speak.

Carlos Mira, Vice President of Tektone, states, "If a rep communicates that a product is somehow lacking, it is not what I would *like* to hear, but it is vitally important." The best path for a rep to follow is to maintain a general feeling of positiveness in himself and his organization, but to report bad news with objectivity and candor when it is necessary.

TRAITS RATED OF MODERATE IMPORTANCE

Moderately important traits included verbal persuasiveness, membership in trade associations, and also one of the surprises in this survey — namely the fact

Wes Alderson is President of WesTech Marketing, the California rep firm founded in 1952.

that product knowledge was only rated to be of moderate importance! I had always personally placed product knowledge at the top of the list. A look at the individual results explains this surprise. Some manufacturers rated product knowledge as a solid 10 while others rated it only a 3 or a 4. Interestingly, those manufacturers who rated it a 10, produce products which are technologically sophisticated, which must be handled by reps who can communicate with design engineers. Those manufacturers rating product knowledge as only a 3 or 4 generally produce lines of low tech widgets, *e.g.*, power strips, metal boxes, basic wire, etc. . . namely "commodity type lines." One might conclude from this that reps handling commodity lines generally deal in terms of price and delivery as opposed to applications knowledge. There is nothing wrong with this,

but it does indicate that different types of reps are required for different sorts of manufacturers.

However — this does indeed point out how important the notion of "chemistry" is in the success of a team composed of the manufacturer and his rep! If a manufacturer of extremely sophisticated loud-speaker or amplifier products chooses a rep because that rep is doing great selling bulk quantities of electrical conduit, the resulting chemistry may be poor. This is due, obviously, to the fact that the elements determining the rep's success in selling conduit probably are of no importance when it comes to selling hi-tech speaker and amplifier products!

The Chemistry Notion is reinforced by the fact that the same manufacturers who felt product knowledge was relatively unimportant also felt that the rep's ability to

warehouse was extremely important. This indicates that delivery is of overriding importance, as opposed to technological sophistication, when selling a commodity type product. Or at least this is what the numbers seem to indicate.

I must digress for a moment to state that I personally disagree with the statistical result noted above — *i.e.*, that membership in an industry trade association is of only moderate importance. Membership in NSCA, for example, is extremely important for reps. The reasons include the fact that a rep can gain deeper understanding of the accounts he calls on by belonging to NSCA, and can gain greater applications knowledge. And reps owe it to the industry from which they derive their income to participate and contribute effort to the trade association which is so very important to our industry.



CAL SWITCH

CALIFORNIA SWITCH & SIGNAL, INC.

Makes Buying Easier

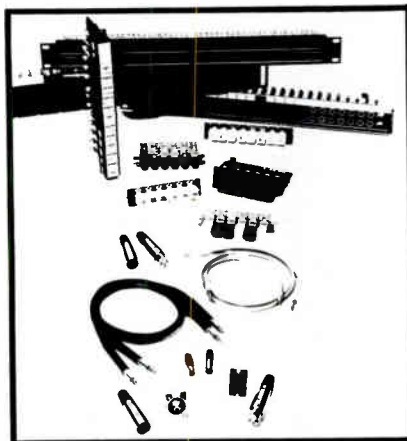
With

Switchcraft®

A Raytheon Company

Adapters
Connectors
Jack Panels
Jacks
Plugs
Switches

** We Stock The Complete
Switchcraft Line **



We Offer
Fast Delivery
Custom Assembly
Custom Engraving
Custom Modification

Call (800) CAL-SWCH Today !

13717 South Normandie Avenue · Gardena, California 90249 · (213) 538-9830 · FAX: (213) 327-2741

TRAITS CONSIDERED RELATIVELY UNIMPORTANT

Traits considered unimportant included "closing skills," warehouse capability, and a college degree. Most manufacturers agree that the skills required in order to be successful as a rep (those traits noted above as important) are either learned in the school of hard knocks, or are part of an inherited nature. This is probably true. However, a college degree in, say, engineering or business may enhance abilities in a rep. . . it is not necessarily wrong for a rep to have a degree! It is just not of fundamental importance.

Several manufacturers commented that they felt a rep who warehoused was doing a dis-service! This is also a surprise, but closer examination reveals some very

believable logic, as follows. These anti-warehouse manufacturers stated that a rep warehouse is falsely perceived by accounts as a "free service" and a delivery enhancement. They point out, however, that the warehouse is a tangible though hidden cost and that cost is invariably borne by the dealers who use the warehouse service. They are paying more for the product than they realize, in the form of hidden warehouse service charges, higher freight costs, etc. Therefore the rep warehouse silently erodes a dealer/contractor's profitability on a product line.

These manufacturers feel that a rep warehouse also trains the manufacturer to avoid the reality and necessity of training himself to provide better, more efficient production and delivery of his products. They also feel that the warehouse detracts very strongly from the rep's focus and the

amount of time that rep spends calling on accounts. One manufacturer who wished to remain anonymous states, "I want my reps out creating new business, not sitting in the office playing store." This is a perceptive comment!

The same manufacturers feel that the existence of a rep warehouse encourages the reps to sell to non-qualified accounts, to financially non-viable accounts, or even worse — to sell around the accounts to end users in the attempt to make more profit than the rep's commission provides. When dealers and contractors learn of such actions, they generally come to perceive the rep as a competitor rather than a supplier!

The placement of "closing skills" in the "relatively unimportant" category may indicate increasing maturation in our industry. I, for one, expect good salesmen to be persuasive. However, dealers and

Linkage.

LED signs that network.

From high-traffic retail settings to industrial communication, LaBelle offers a network that can work alone or with existing audio systems to help any business broadcast information better, faster and to larger audiences than ever before.

Find out how selling LED networks will increase your profits.

Call 1-800-558-9526.

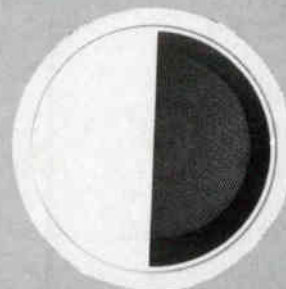

Display Sciences Group



Circle 279 on Reader Response Card

DECO 7 Ceiling Speakers

When the appearance is as important as the audio, use DECO 7.



Excellence in Audio-
Elegance in Styling.



Manufactured by:
CREATIVE ACOUSTICS, INC
197-09 Jamaica Ave. Hollis, NY 11423
(718) 464-6444 Fax: (718) 217-0076

Circle 280 on Reader Response Card

RENEW

CONTINUE YOUR
FREE
SUBSCRIPTION

TO

**SOUND
COMMUNICATIONS**

FILL ALL THE
QUESTIONS AND
MAIL YOUR
NEW
SUBSCRIPTION
OR RENEWAL
TODAY.

FOR YOUR FREE
SUBSCRIPTION TO BE
PROCESSED THE FORM
MUST BE COMPLETED
PROPERLY, SIGNED AND
DATED FOR THOSE
QUALIFIED INDIVIDUALS.

YES! I WANT TO STAY ON TOP OF THE INDUSTRY BY RECEIVING
A COPY OF **SOUND & COMMUNICATIONS** EVERY MONTH

- NEW RENEWAL
- 1 Year \$15.00 3 Years \$37.50 (Savings \$7.50)
- Payment Enclosed Bill My Credit Card Visa MC AE
- (Foreign: Add \$10 for delivery) Card # _____ Expires: _____
- DO YOU WISH A FREE SUBSCRIPTION? YES NO — COMPLETE BELOW:

Signature _____ Date _____

Name _____ Title _____

Company _____

Address _____

City _____ State _____ Zip _____

- | | | |
|--|--|---|
| <p>(1) Do you wish to receive Sound & Communications?
Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>(2) Primary Job Function (only one):</p> <ul style="list-style-type: none"> <input type="checkbox"/> A Management/Owner <input type="checkbox"/> B Engineer/Technical Mgt. <input type="checkbox"/> C Sales/Marketing <input type="checkbox"/> D In-House Maintenance/Service <input type="checkbox"/> E Field Installation/Maintenance <input type="checkbox"/> F Consultant <input type="checkbox"/> G Advertising/Promotion <input type="checkbox"/> H Other _____ | <p>(3) Primary business of company (only one):</p> <ul style="list-style-type: none"> <input type="checkbox"/> 1 Contractor—Engineered Sound/Acoustical <input type="checkbox"/> 2 Contractor—Interconnect/Intercom <input type="checkbox"/> 3 Contractor—Fire/Alarm/Safety <input type="checkbox"/> 4 Electrical Contractor <input type="checkbox"/> 5 Pro Audio/Studio/Reinforcement <input type="checkbox"/> 6 Architect/Designer <input type="checkbox"/> 7 Engineering/Acoustical Consulting <input type="checkbox"/> 8 Maintenance/Service <input type="checkbox"/> 9 Dealer/Distributor/Rep <input type="checkbox"/> M Manufacturer <input type="checkbox"/> O Other _____ | <p>(4) Your purchasing authority:</p> <ul style="list-style-type: none"> <input type="checkbox"/> A Final approval/Buyer <input type="checkbox"/> B Recommend/Specifier <input type="checkbox"/> C No Direct Authority/User <p>(5) Number of employees at your company:</p> <ul style="list-style-type: none"> <input type="checkbox"/> 1-3 <input type="checkbox"/> 4-10 <input type="checkbox"/> 11-25 <input type="checkbox"/> 26-100 <input type="checkbox"/> Over 100 |
|--|--|---|

12/91 EXPIRES 3/92

YES! I WANT TO STAY ON TOP OF THE INDUSTRY BY RECEIVING
A COPY OF **SOUND & COMMUNICATIONS** EVERY MONTH

- NEW RENEWAL
- 1 Year \$15.00 3 Years \$37.50 (Savings \$7.50)
- Payment Enclosed Bill My Credit Card Visa MC AE
- (Foreign: Add \$10 for delivery) Card # _____ Expires: _____
- DO YOU WISH A FREE SUBSCRIPTION? YES NO — COMPLETE BELOW:

Signature _____ Date _____

Name _____ Title _____

Company _____

Address _____

City _____ State _____ Zip _____

- | | | |
|--|--|---|
| <p>(1) Do you wish to receive Sound & Communications?
Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>(2) Primary Job Function (only one):</p> <ul style="list-style-type: none"> <input type="checkbox"/> A Management/Owner <input type="checkbox"/> B Engineer/Technical Mgt. <input type="checkbox"/> C Sales/Marketing <input type="checkbox"/> D In-House Maintenance/Service <input type="checkbox"/> E Field Installation/Maintenance <input type="checkbox"/> F Consultant <input type="checkbox"/> G Advertising/Promotion <input type="checkbox"/> H Other _____ | <p>(3) Primary business of company (only one):</p> <ul style="list-style-type: none"> <input type="checkbox"/> 1 Contractor—Engineered Sound/Acoustical <input type="checkbox"/> 2 Contractor—Interconnect/Intercom <input type="checkbox"/> 3 Contractor—Fire/Alarm/Safety <input type="checkbox"/> 4 Electrical Contractor <input type="checkbox"/> 5 Pro Audio/Studio/Reinforcement <input type="checkbox"/> 6 Architect/Designer <input type="checkbox"/> 7 Engineering/Acoustical Consulting <input type="checkbox"/> 8 Maintenance/Service <input type="checkbox"/> 9 Dealer/Distributor/Rep <input type="checkbox"/> M Manufacturer <input type="checkbox"/> O Other _____ | <p>(4) Your purchasing authority:</p> <ul style="list-style-type: none"> <input type="checkbox"/> A Final approval/Buyer <input type="checkbox"/> B Recommend/Specifier <input type="checkbox"/> C No Direct Authority/User <p>(5) Number of employees at your company:</p> <ul style="list-style-type: none"> <input type="checkbox"/> 1-3 <input type="checkbox"/> 4-10 <input type="checkbox"/> 11-25 <input type="checkbox"/> 26-100 <input type="checkbox"/> Over 100 |
|--|--|---|

12/91 EXPIRES 3/92



FOR YOUR **FREE** SUBSCRIPTION
ALL YOU NEED TO DO, AS A PROFESSIONAL
IN OUR SOUND AND COMMUNICATION INDUSTRY,
IS TO COMPLETE THE CARD BELOW AND
MAIL IT. THIS QUALIFICATION IS NECESSARY
FOR AUDIT PURPOSES. DO NOT MISS
A SINGLE ISSUE. MAIL YOUR CARD
TODAY.

Place
Stamp
Here

SOUND COMMUNICATIONS

25 Willowdale Avenue
Port Washington, NY 11050

Place
Stamp
Here

SOUND COMMUNICATIONS

25 Willowdale Avenue
Port Washington, NY 11050

contractors do not want to be pressured by overly-aggressive "peddler" type reps. This is especially true of design consultants and contractors whose business is oriented toward high tech design.

These accounts deserve to be called on by someone who can relate to them and discuss features, benefits, and applications. Verbal communication skills are important for the rep in order to convey such information, but preferably without the use of a baseball bat! The continuing maturation of our industry is illustrated by the fact that manufacturers are increasingly looking for reps who are knowledgeable, communicative "relaters," as opposed to old time hard-sell peddlers. . . in other words they want silk purses instead of sow's ears.

SOME BIG SURPRISES

Please note that the survey provided room for additional comments. In retrospect it is surprising that no manufacturer mentioned customer advocacy, and no one mentioned focus on our industry! Customer advocacy, of course, is the notion that the rep should identify with the accounts and do what is right for them. Customer advocates feel that this will cause the accounts to favor them and the manufacturers they represent. This is an excellent concept, though possibly oversimplified. For example, it is great that the accounts realize that the rep is "on their side" as he should be. However, the account still needs to hear about features and benefits from the same rep, or he will not know enough about the product to use it

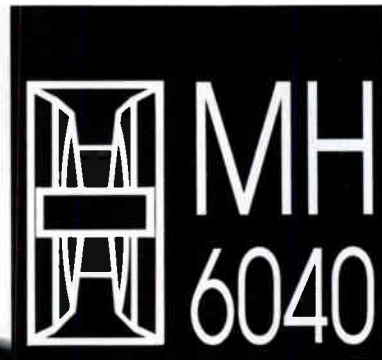
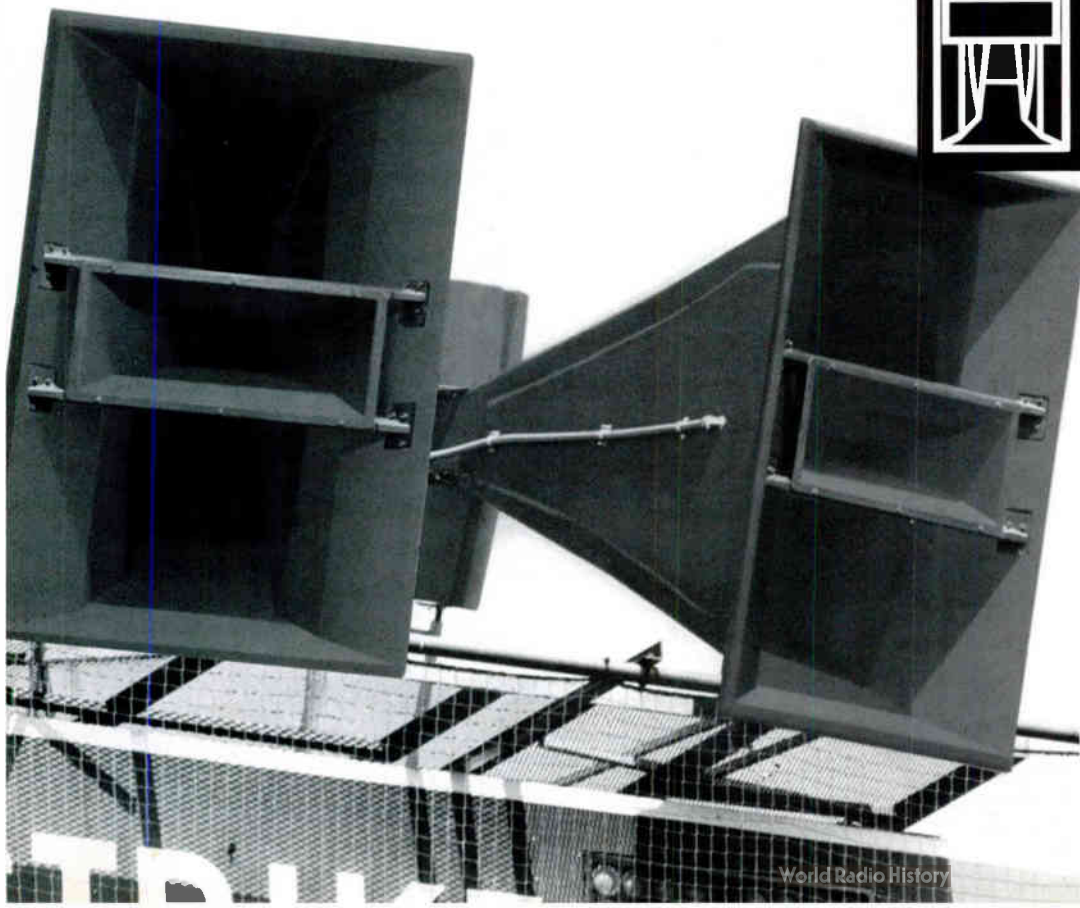
in systems!

In any event — it is a surprise that the customer advocacy was mentioned by no one! We hope that this can be explained away by saying that most manufacturers consider customer advocacy as being a subset of "relations with accounts" and "reputation." The closest appropriate quote came from Don Otomo of Radon Marketing in California. Don states, ". . . a representative should be concerned with his customer's profitability & future."

We agree whole-heartedly with Don — after all, if the customers are not profitable and therefore have no future, it sure makes our jobs as reps a lot tougher!

As mentioned, no one mentioned focus and concentration by a rep organization on a few closely-related market segments. I

MH6040 shown with optional coaxially mounted HP640 high-frequency horn with N/DYM*1/2MT manifolded compression driver system.



The Stadium Choice

From Jack Murphy Stadium to the Metrodome to the Citrus Bowl, Electro-Voice® makes the sound systems of choice. With the introduction of the new EV MH6040 **manifolded** horn-and-driver system, we've taken a further step in meeting the PA needs of larger venues.

By combining two concepts pioneered by EV — constant directivity and Manifold Technology® — we've created a system providing constant coverage, higher output, as well as extended frequency response, 100 — 4,000 Hz

In other words, the MH6040 really delivers in the low- and mid-frequency ranges, making it the premier system for large-scale speech and music reinforcement.

The MH6040 — a new innovation from EV, a company known in stadiums as *the* sound system of choice.



Electro-Voice® a MARK IV company

600 Cecil St. Buchanan, MI 49107 616/695-6831
In Canada: 613/382-2141

Circle 256 on Reader Response Card

believe that a rep must use enough logic, analysis, and planning to pick out the types of customers he wants his account base to consist of. Then the rep must determine which of the electronics industry market segments are important to that account base, and choose to concentrate on those related market segments.

For example, my rep company, WestTech Marketing, made a decision 20 years ago to get out of industrial electronics and consumer electronics. We made a very conscious decision to concentrate on the sound, security/life safety, and A-V market segments because the same accounts were generally involved in each of these segments. It takes a certain amount of courage to stick to such a chosen course. Twice now we have declined to represent manufacturers whose annual sales exceed \$4 million dollars. The reason? Certainly

not arrogance! Acceptance of these lines would have pulled us off the course which we know is optimum for us and the manufacturers we represent.

If a rep does not maintain his focus and chosen course, he soon finds himself spinning out of control, and selling speakers one day, cellular phones the next...and then maybe shoes! At that point the rep can no longer be productive for the manufacturers he represents and he can't be productive for himself! He has become a "sow's ear rep."

THE TRAITS WE "HATES" — AND OTHER QUOTABLE QUOTES

Our survey asked the manufacturers to list the three traits in reps which they most disliked. Manufacturers were also encouraged to give additional pertinent com-

ments. They provided excellent input!

Here is a list of dislikable "Sow's Ear Traits" in order of frequency mentioned:

- dishonesty
- negativity
- representing two lines which compete with each other.
- lack of organization
- laziness
- staying in office instead of making calls.
- failure to follow through
- failure to communicate regularly
- spreading rumors & gossip
- poor time management
- ineffective time management.

Ron Means, President of JBL Professional, makes this important statement: "Most of the reps I have worked with are very good and do not have the above negative traits. Many reps don't think highly enough of themselves and what

Finally, A pocket size tone generator you can throw away if you want to*...THE TONE WAND.™



The small hand-held THOMAS TONE WAND provides sound technicians, service repairmen, studio personnel, and roadies a convenient to use nominal 1000 Hz. -50dBm signal for testing and checking microphone inputs and amplification equipment. Measuring one inch in diameter and six inches long, THE TONE WAND'S male XLR-type output plug allows direct connection to commonly used female XLR-type input receptacles.

Uses of the TONE WAND include checks for continuity, level adjustment, input channel status, microphone outlet identification, remote signal tracing, sound system setting, and many more. It can even be used to check some dynamic microphones.

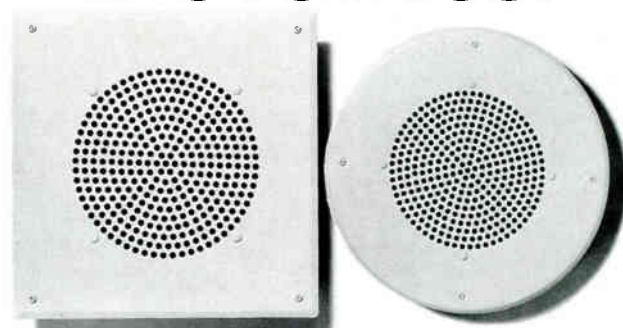
THE THOMAS TONE WAND only \$19.95 plus shipping.

To order call: 1-800-583-4488
or Fax: 1-817-625-1513

Made in the U.S.A. by
THOMAS ELECTRONICS
2350 Great Southwest Parkway
Fort Worth, Texas 76106

*Operates one year on a double A battery (Included) which is field replaceable.

LOOK WHAT ^{else} QUAM HAS FOR YOU!



VANDAL-PROOF BAFFLES FOR 8" LOUDSPEAKERS Part No. BS8VP/BR8VP

- Fit Quam square security enclosures plus most popular recessed enclosures
- Carbon steel grille and acoustically transparent 23 gauge steel speaker screen
- Tamper-proof hardware and interior security screen
- Virtually chip and scratch-proof

Ask for FREE Tech Spec TS-44

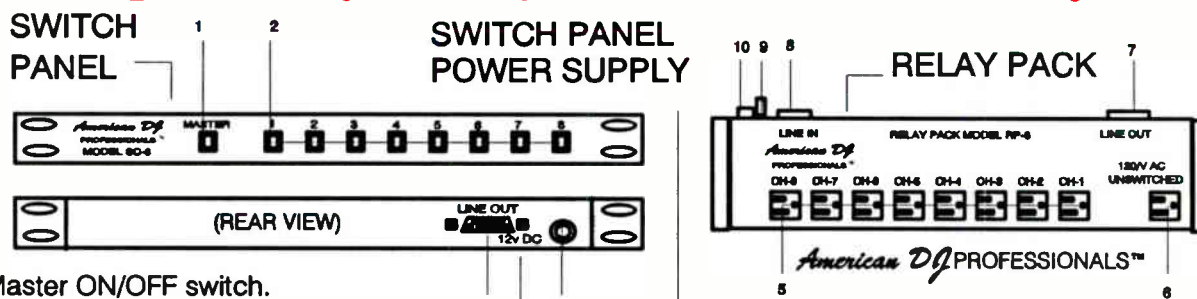
Quam-Nichols Company

234 East Marquette Road, Chicago, Illinois 60637
Phone: 1 312 488-5800 • FAX: 312 488-6944

Sometimes You Can Tell What's Missing! And It Makes Good Sense.



Introducing the First Affordable 8 channel, Low Voltage, Relay Pack, (On- Off) Switch System.



1. Master ON/OFF switch.
2. Individual channel switches.
3. 9 Pin line out connector.
4. 12V Power supply input connector.
5. Channels 1-8 110V switched sockets.
6. Unswitched 110V socket for constant on or linking ac to another Relay Pack.
7. 9 Pin 12V line out for linking Packs.
8. 9 Pin 12V line input from SC-8.
9. 15 AMP circuit breaker.
10. A/C cord and plug.

THE SC-SYSTEM CONSISTS OF:
 1 SC-8 19" RACK MOUNT LOW VOLTAGE
 8 CHANNEL SWITCH CENTER.
 1 RP-8 15 AMP 8 CHANNEL RELAY PACK.
 1 SC-PSU 12V POWER SUPPLY FOR SC-8
 1 SC-6EX 9 PIN SIGNAL LINE EXTENSION.



The SC-SYSTEM is an 8 channel lighting control system which uses a low voltage signal to switch on and off lighting effects. This is achieved by sending a 12V signal thru a 9 pin computer style cable to trigger relays in a pack at a remote location. The SC-SYSTEM offers an Affordable, Safe, & Reliable way to activate effects from your control booth. This system is ideal for small clubs and mobile operators.

SUGGESTED RETAIL PRICE: \$169.95

For Product or Dealer Information Call Today!

800-333-0644 (CA 800-655-3586)

FAX 213-773-1956

American DQ Supply, Inc. Los Angeles, CA 90040

Circle 215 on Reader Response Card

Com-Tech™ gives you even more in a commercial

Reliability, serviceability, safety and value. Crown's new Com-Tech™ series gives you everything you've asked for in a commercial amplifier. Packed with practical features and options, Com-Tech provides greater flexibility when designing a system and better value when adding up total system cost.

You can't afford to ignore the many benefits of these amplifiers.

Guaranteed Reliability

You know all too well that unplanned service calls can quickly wipe out the profit you make on an installation. That's why we've designed the Com-Tech series to be the most reliable amplifier you can install.

We're so confident that a Com-Tech will consistently provide problem-free,



high-quality sound that we back it with a three-year no-fault warranty.* If it fails for any reason, we'll repair or replace it absolutely free, including shipping. And, for a very modest fee, we'll extend that coverage for another three years. But that's not all.

As a contractor, you'll also be covered by our exclusive 90-day installation warranty that not only covers the amp, it pays you for any service calls. That's guaranteed reliability.

Designed-In Serviceability

Because they're designed exclusively for commercial installations, we made certain that every Com-Tech is easy to service. Front panel

LED indicators give you vital operating information at a glance, making initial system diagnostics quick and easy. Should you need to get inside an amp, simply remove two screws and you're ready to work in seconds.

Remote Control And Monitoring

All Com-Techs are compatible with our innovative IQ System

2000™ which allows



you to remotely monitor and control each channel of up to 2000 amplifiers from one location. You can adjust levels, monitor performance, run diagnostics and much more—all without leaving your seat.



Everything you've asked for in an amp. And more.

Our Safety Starts With "UL Listed"

Com-Tech amplifiers are UL[®] listed, a requirement for more and more installations today.

It's a sign they've passed some of the most stringent testing procedures devised.



But we've gone above and beyond UL requirements. Additional safety features are available, like a full-isolation mode that isolates speaker lines from the grounding path for complete safety and crystal-clear sound. Even our exclusive ODEP[®] (Output Device Emulator Protection) circuitry adds to overall safety by making the amplifier virtually immune to overheating and overload.

Features And Value That Really Make A Difference

Feature for feature, no other amplifier can help you reduce costs as effectively as Com-Tech. For example, the Com-Tech series give you more options on delivering their massive power than any other amp. Com-Tech is the *only* amplifier with built-in multi-impedance shift design that permits constant 70V output

without the need for expensive output transformers. For long cable runs, Com-Tech can also be configured in a 140V bridge-mono mode, significantly reducing wire costs. With less wire loss from



NO OUTPUT TRANSFORMERS REQUIRED

high-voltage output, you'll require fewer amplifiers.

All Com-Tech amplifiers accept our Plug-in Panel (P.I.P) modules. These easily installed panels allow you to inexpensively customize each amp for its intended use. The P.I.P. modules also act as a hedge against obsolescence by allowing future amplifier technology to be plugged in as it becomes available.

When you add up features like low-profile design for less rack space, on-demand fan cooling and ODEP efficiency, you'll find savings that can bring the price of a Com-Tech equipped system well under those equipped with lesser amps.

For more information on the Com-Tech series, see your Crown representative or call toll-free: 1-800-535-6289.



Crown International, Inc. • P.O. Box 1000
Elkhart, IN 46515-1000 • 219/294-8000

*See your Crown representative for complete warranty details.



Circle 218 on Reader Response Card

they do. When reps do this, they are not setting their sights high enough, and it will become a self-fulfilling goal." Ron's comments show that he has good insight into human nature and logic — one does not

usually hear talk of self-fulfilling goals. Definitely a "silk purse" comment!

Terry Pennington of Rane states, "A good rep needs to make sure all dealers are up to speed on new products — we

never want to hear a dealer say, 'Gee, when did you start making that?'" Jeff Peters of Telex cites lack of product knowledge and failure to make sales calls as two of his biggest laments. It is easy to see that Jeff's and Terry's comments are really the same problem seen from two different perspectives. The rep has to know what he is selling and what it does, then he must carry this information to the accounts. This is common sense!

Jim Morrison of Aiphone comments, "We have an excellent group of representatives. When we must make a change it is seldom because of lack of sales . . . usually it is because of a lack of communication and/or cooperation. This often means a lack of genuine effort. If (reps) honestly try and communicate, and sales decline, we look to ourselves — are we doing our job?" Jim's thoughts are welcome. Many good reps put out tremendous amounts of well-directed effort, but are thwarted by obstacles beyond anyone's control. I know a rep who was fired by a automobile radar detector manufacturer, for lack of sales in California. Was it the rep's fault? Maybe he should have let the manufacturer know that the California Highway Patrol is forbidden by state law from using radar!

Everyone seems to assume that the only factor which motivates reps is the *dollar*. Naturally, income is a powerful motivator, and it should be. Success in sales should be rewarded. However, it is not the *only* motivator, at least in my opinion. The owner of a really good rep company should also have the sincere desire to do a good job . . . just for the sake of doing a good job. This usually means that the rep will use some sense of ethics to balance the sense of "greed" that lies within most of us. The best reps do the right thing and they do it well!

WHAT DOES IT ALL MEAN? — Specs for a Good Rep

If we distilled the above information, we are left with the essence of what a good rep should be, or at least what he is expected to be. The profile, or the boiler-

(continued on page 78)

HEADQUARTERS

Acoustic & Fire Retardant Fabrics

Grille
Cloth
—
Acoustic
Panel
Coverings

NEW! FIBERGLASS WONDER FABRICS


OUR 2G OVER SOUND ABSORBING
PANELS STOP REVERBERATION

OVER 100 PATTERNS IN STOCK

FREE SAMPLE CARDS • TESTS • PRICE LIST

ACOUSTONE CORPORATION

80 Wythe Ave., Brooklyn, NY 11211
TEL (718) 782-5560 — FAX (718) 782-7367
Circle 288 on Reader Response Card



ROLLS MOS POWER

The ROLLS RA2100 Reference Amplifier sets performance standards for 100 watt per channel power amplifiers. The MOSFET design lets you run up to clipping without the harshness of transistors. It is ideal for studio and other critical applications. Besides having great s/n and damping ratios, at \$300 it has an unbeatable price/performance ratio.

POWER OUTPUT STEREO: 100 Watts RMS/ch 4 ohm; 70 Watts RMS/ch 8 ohm; bridged mono: 200 WRMS 8 ohm

THD: <.05% (1K Hz & 1 Watt)

IMD (SMPTE): <.005%

S/N RATIO: >95dB A weighted

DAMPING FACTOR: >150

POWER BANDWIDTH: 5Hz—30K Hz +/- 1dB

SLEW RATE: 100 V/μS

CONTROLS: 2 Input level

LIGHTS: Power LED & 4 LED power meters (4 ohm)

PHASE SHIFT: <10 DEG


20Hz—20K Hz

INPUT IMPEDANCE: 10K ohm balanced

INPUT CONNECTORS: RCA & 1/4" (mixed)

OUTPUT CONNECTORS: 5 way binding posts, 1/4" phone jacks

ROLLS CORPORATION
7023 South 400 West
Midvale, UT, 84047
Phone 801-562-5628
Fax 801-562-5655



MADE IN U.S.A.

Circle 265 on Reader Response Card

The Found Analyzer, Part Two

Sound Technology RTA-400 One-Third Octave Spectrum Analyzer

BY MIKE KLASCO

In a previous issue we explored the Sound Technology RTA-4000's beginnings as the dbx RTA-1, its ATM bank teller style of operation, and its real time spectrum analysis and reverberation time functions. This month we will take a close look at the RRC mode (which uses music as the test signal), interface with other computers, the RTA-4000's general construction, and overall conclusions on the product.

RRC Mode

In 1984, John Meyer (Meyer Sound Labs) gave an AES paper on his research on "source independent measurement." By using music as the test signal, in conjunction with a dual channel FFT spectrum analyzer, sound systems could be tested during live performances. John Meyer gave another paper on his SIMS technique at the Acoustical Society of America annual meeting in St. Louis about two years ago. Other efforts in this field have been reported by B&K, Apogee with their CorreQt System and by Solstice. I have had the privilege to observe some of these systems in operation, and in critical situations such as televised live broadcast and Broadway productions, they can yield 3-5 dB more headroom before feedback.

Why have these systems not taken over?

These systems are not sold, but only available through rental of both the equalization-measurement system and an operator. Part of the problem is that the operators must be highly skilled, both as mixing engineers and as technical operators. In a number of cases there have been personality conflicts between the operator of the equalization system and the mixing engineers.

The analyzers typically used are Hewlett Packard, although B&K, Spectral Dynamics, Rockland or any other FFT analyzer that has a transfer function mode should be adaptable. Most of these instruments cost \$20,000+.

The RRC approach does not compute the transfer function.

Another tough part is the selection and location of mics, aiming of speakers, and most importantly, interpretation of what the analyzer displays. Some of the high Q peaks can be equalized out, and increased gain will result; other high Q peaks, if molested, will respond with a nasty howl. This is why you will mostly see this type of equalization used with shows that are

highly rehearsed, or long running, such as Broadway musicals.

The output of the system (just before the amplifiers and electronic crossovers) is connected to one channel of the analyzer. The output of the mic(s) is connected to the second channel of the analyzer. Using the correlation mode of the analyzer, the transfer function (the frequency response) is determined.

Equalization is by parametric equalizers, with Meyer and Solstice using the Meyer CP10, and I remember Apogee using Klark-Teknik units. The Orban Programmable Parametric might be an interesting unit for this application. These units are costly, about the same as the RTA 4000.

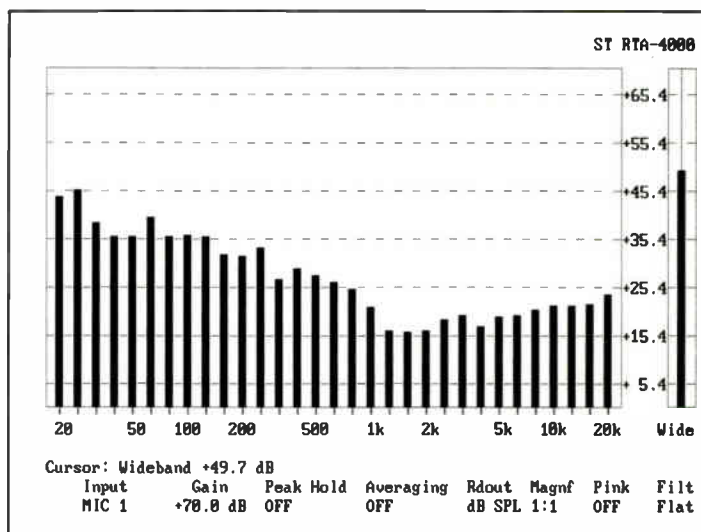
A precision delay line is required to compensate for the transit time for the sound to leave the speaker and reach the measurement mic. Remember, the reference channel is taken directly from the wiring, so the propagation time is essentially nil.

The typical cost per day, including operator (but not travel expenses) is in the ballpark of \$1,500 for these systems. All use high resolution dual channel spectrum analyzers and parametric equalizers.

Where does the Sound Technology RRC approach fit into this picture? The Sound Technology RTA-4000 is only a single channel 1/3 octave analyzer. Unlike the sys-

tems mentioned above, the RRC approach does not compute the transfer function, but instead statistically averages, over time, the energy in each of the 31 $\frac{1}{3}$ octave bands. The energy in each band is averaged for the output of the system, before reaching the electronic crossover

This Real-Time Analyzer screen shows the frequency domain in $\frac{1}{3}$ -octave bands and amplitude in absolute SPL. Note the SPL level meter all the way to the right of the spectrum analyzer bar graph.



ATC[®] ACOUSTICALLY TIME CORRECTED LOUDSPEAKERS

H121T



810



618



KSI's line of ATC[®] acoustically time corrected loudspeakers are unsurpassed in their ability to accurately reproduce today's digital technology. KSI's ATC[®] acoustical time correction will maintain the sonic quality, clarity, imaging and spacial detail for all critical installations. And without the need for special electronics, processors, and other devices which are often expensive, KSI ATC[®] loudspeakers are affordable for everyone. **Call direct for more information on KSI's ATC[®] loudspeakers as well as our complete product line.**



Karibu Sound Industries, Inc.
3500 Parkdale Ave.
Baltimore, Md. 21211
410-383-2167, FAX 410-383-7573

Circle 247 on Reader Response Card

and amplifiers (memory 1), and also from the measurement mic inputs (memory 2). Spurious signals from the measurement mic inputs are rejected by the test system (hopefully) by discarding any data that is 3X out of the reference (memory 1) range, such as applause, boos, etc. The signal within each band must be 10 dB above the noise for meaningful results. Since the averaging takes a minimum of minutes, rather than realtime, the need for a delay line to correct the time offset between memories is eliminated.

Essentially, by giving up the resolution in frequency, the criticalness of the time resolution is also bypassed.

Will the lower resolution of the RTA-4000 simplify its operation enough so that the typical sound contractor or sound system operator will be able to make use of it? How much of the benefits of the more sophisticated high resolution source independent analyzers will be lost? These questions are beyond the scope of this review, but I intend to pursue this topic with an associate and have a comprehensive report in the future. There is much more to the operation of the RRC approach than meets the eye (or ear) and it is the subject of a number of patents, and this also will be explored.

Some Hardware Limitations

The joy stick is a little tedious to operate and I think a keyboard is easier to use, especially for labeling. No problem, as a keyboard connector for a standard IBM compatible keyboard is built into the rear chassis (labeled "device"). This leads into some other limitations, which you can also get around. The unit does not directly accommodate a floppy or hard disk. Yet three slots are not being used on the motherboard. Why not just plug in a "hardcard"

The Secret is out!

RCI Systems...more than just great plates & panels.



Circle 201 on Reader Response Card

RCI

SYSTEMS INC

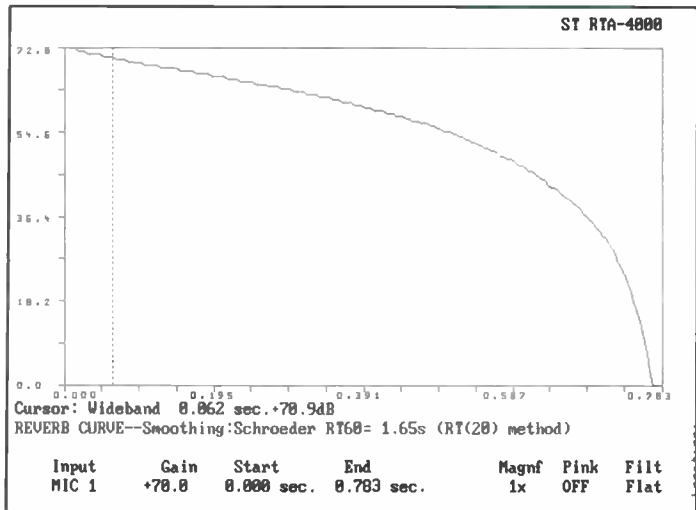
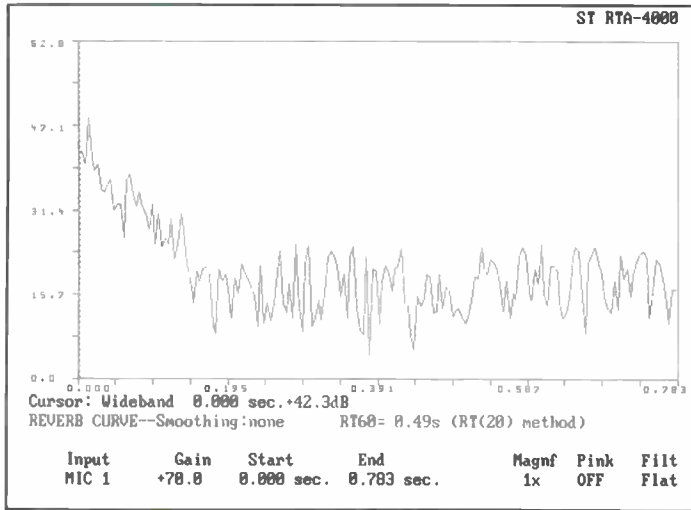
5615 Fishers Lane
Rockville, MD 20852-5200

SPECIALISTS IN DESIGN AND CREATION OF YOUR CUSTOM AUDIO/VIDEO PRODUCT NEEDS.

Clockwise from top left, BM-24 Passive Media Mult Box-compact/portable 24 XLR outputs plus 5 mm diag. BM-30-M Active Media Mult Box-compact portable 30 XLR balanced output, 20 hr. battery + charger/auto AC/DC switch/over. PB-424-ND Patch Bay 30 point fully wired to horizontal accessed screw terminal blocks. RL-1 Racklight, AVD Series Custom Wall Plates, RI-440 Dual Channel "Pre-Adapter" 2 channel level matching amplifier, AVD Series Custom Panel, MXB20F Clearcom Selector Matrix ASP-10-1 Amplifier Substitution Unit (your switching network/one stereo amplifier may be substituted for any of 5 stereo amps. Custom MXM52 5x2 Precision Mixer With Slate.

301-984-1800 • FAX 301-984-6175

World Radio History



The RTA-4000 can view the time domain somewhat like a digital storage scope. On the left, the wideband RT60 is shown although any of the 1/3-octave bands can be viewed. On the right the same wideband decay curve has been smoothed by a reverse Schroeder integration.

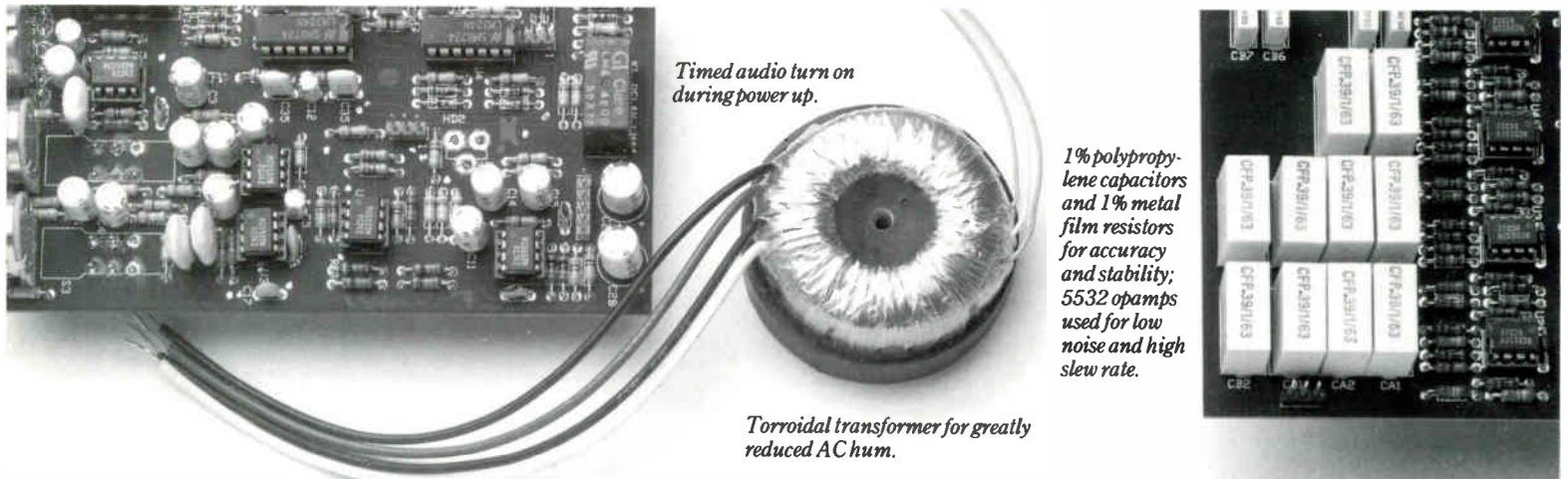
(a harddisk/controller on a circuit card)? A floppy would also be a nice addition, but the chassis has not been punched to accept this. By using a keyboard and a hardcard, you can use the RTA-4000 as an MS-DOS/IBM compatible computer. To switch back to spectrum analyzer operation you would have to power down the RTA-4000 and remove the hardcard.

The simplest way to get full IBM compatible computer operation is to simply connect an existing computer to the RTA-4000 through the serial port and use Sound Technology's Remote Control software program. The software lets you transfer files from either direction. Files in the RTA-4000's memory can be saved to disk on the computer. Files previously

taken, perhaps with an earlier sound system at some location, perhaps before renovation, can be retrieved from the computer and transferred to the RTA-4000 to be viewed superimposed with the current measurements.

Construction

Not only is the RTA-4000 a cross be-



NO GUTS. NO GLORY.

It takes guts to compare yourself to the best names in the industry.

The Audio Logic SC31 is a powerful EQ designed for professional use. It offers 31 1/3 octave centered bands with selectable 6 dB or 12 dB of boost and cut.

Look at the chart* In every category the SC31 delivers better specs plus incomparable sound quality.

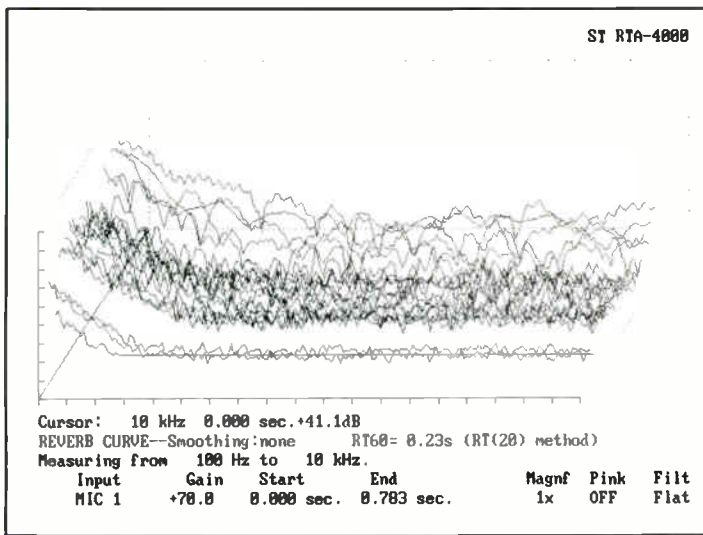


	Audio Logic SC 31	RANE GE 30	JBL/Urei 5547A	Klarck-Teknik DN 300
Noise	Less than -90 dBm	Less than -90 dBm	Less than -90 dBm	Less than -90 dBm
Maximum Output	+27 dBm	+24 dBm	+22 dBm	+22 dBm
Dynamic Range	+117 dBm	+114 dBm	+112 dBm	+112 dBm
Frequency Response	18 Hz to 30 kHz +/-0.5 dB	10 Hz to 40 kHz +/-0.3 dB	20 Hz to 20 kHz +/-1.2 dB	20 Hz to 20 kHz +/-0.5 dB
Number of Bands	31	30	30	30
THD plus noise	Less than .005% @ +22 dBm @ 1 kHz	Less than .01% @ +4 dBm	Less than .5% @ +22 dBm	Less than .01% @ +4 @ 1 kHz
Suggested Retail Price	\$550.00	\$749.00	\$849.00	\$1,050.00

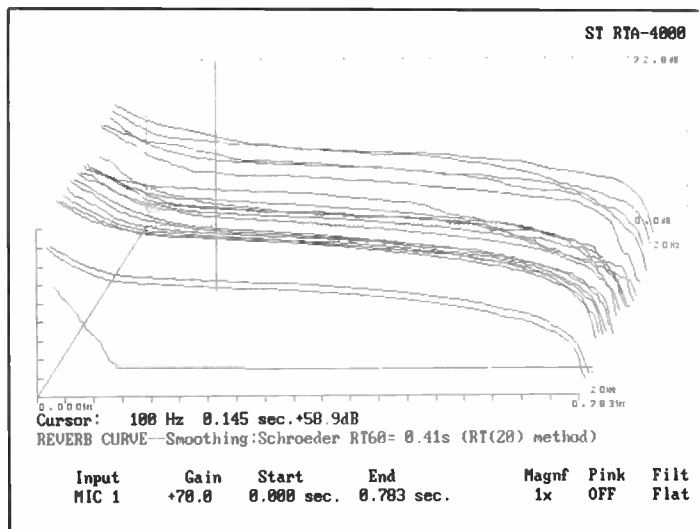
With this much quality and technology, why shouldn't we display more than a little intestinal fortitude?

Manufactured in the U.S.A. For more information, contact Audio Logic, 5639 So. Riley Lane, Salt Lake City, Utah 84107. (801) 268-8400.
*All specs taken from manufacturers' published literature.





Three-D reverberation plots are offered by the RTA-4000. Zoom functions, smoothing and other options are available.



The "noisiness" of the data has been smoothed from the previous graph.

tween a conventional 1/3 octave analyzer and a sophisticated acoustical analysis system like MLSSA, TEF, or SYSid in operation, but it is also a hybrid between self-contained test instrumentation and computer-based test instrumentation. Inside the RTA-4000 is an IBM compatible mother board, three special circuit boards that plug into the motherboard's buss and another large board that mounts to the side of the chassis. Still other boards that come standard with the RTA-4000 are an EGA color graphics board for an external monitor, which also has the printer interface. Another board has the RS232 serial port outputs. Inside the construction, layout and cabling are clean, boards are properly shielded when necessary, and the quality of materials is top grade. Since the open frame switching power supply and built-in amber monitor are completely exposed when the cover is removed, explore the RTA-4000's innards with caution.

The RTA4000 is built into a seven-inch-high rack mount chassis, which is 19 inches wide and 19 inches deep. Weight is 50 pounds. Taking an RTA-4000 on a plane is awkward, and if you use a flight case, you cannot take it with you as carry-on.

Without any external case, the RTA4000 fits under the seat, but is vulnerable and hard to carry by its rack handles. The current packaging is fine for permanent installations, including the RRC/music-as-the-test-signal installations, and also appropriate for the broadcast market. For the sound contractor or acoustician who will be taking the RTA-4000 to the job, and flying, then a more compact package would be preferred. Looking at the inside (which is what I am doing right now), I could see this unit being repackaged into one of the plasma display transportable computers that are about half the size. Maybe next year.

Documentation

The 54-page manual is clearly written and includes graphics and screen printouts. Sections are included on mic calibration, reverberation measurement procedures, remote control operation (interface with external computers) and storing and manipulating curves. Application notes are also available on the RRC equalization method.

(continued on page 79)

L.A. Rocker[™] Speaker System

Malibu
Dark Color / Small SBA

Palos Verdes
Light Color / Large LPV

Malibu
Dark Color / Large LMA

Palos Verdes
Light Color / Small SPV

Detailed and realistic "rock" speaker housings.

Comfortable carrying weight and easy to handle.

Two models available in two sizes.

Compatible with a variety of OWI's quality speakers—2-way, 3-way; low or high impedance.

Blend into customized landscape designs.

Ideal in gardens, hotels, malls, courtyards, lawns, spa or pool landscapes.

Environmentally and structurally safe.

3-year limited warranty.

U.V.-resistant.

Lawnmower and puppy-proof.

OWI

OWI Incorporated
1160 Mahalo Place
Compton, California 90220
213 . 638 . 4732
800 . 638 . 1694
FAX: 213 . 638 . 8347

Circle 272 on Reader Response Card

PERSONAL IMPRESSIONS OF AES: RECKONING WITH THE REALITIES

By Allan Varela

The 91st Audio Engineering Society's convention was held in the Big Apple on October 4th through the 8th and presented a host of the best from the audio industry. The show was upbeat from the start and offered several startling new realities for the industry at large to digest.

First was the show's theme, "Audio Fact and Fantasy: Reckoning With The Realities." This direction portrayed a growing movement in the industry towards honesty about product performance. This is a back to basics approach to audio that has its roots firmly grounded in the laws of physics, and not in the thin ethereal air of market hype. A chance, perhaps, to re-learn the indisputable (i.e. Ohm's Law) and to clear the air of hocus-smocus — where and if it exists.

One example of this claim-versus-reality controversy revolved around current wire technology. The question was about the trend towards, for lack of a better term, designer wire and the performance benefits realized for the much inflated prices. The manufacturers of this category of wire insist that their products offer more bang for the substantial buck than other types of wire, but, according to the workshop on the topic at the show, setting about proving this allegation was illusive.



The Alesis ADAT 8-track digital audio recorder.

The Chair of the workshop was Dan Dugan, from Dan Dugan Sound Design, and included, among others, Wilfredo Lopez, a representative from the Department of Consumer Affairs in New York. Essentially, a double blind comparison test was given between a \$2,600 pair of 10 foot speaker cables and a \$20 pair of 10-foot speaker cables. The show-of-hands results from the show, according to Dugan, fell well within the limits of chance (the actual results from the forms that were filled out will be available soon). This means that the same results would have happened by having the participants simply guessing with no actual audio comparison involved.

Listening tests were not the only ones presented. "There are certainly measurable differences out beyond the audio band, but no one has shown that there is

CLEARLY, WHAT IS NEEDED IS SOME DEFINITION OF STANDARDS BY THE AES AS CONCERNS THESE TOPICS, AS THE LAW IS FAIRLY CLEAR AS TO CULPABILITY IN A LEGAL ACTION.

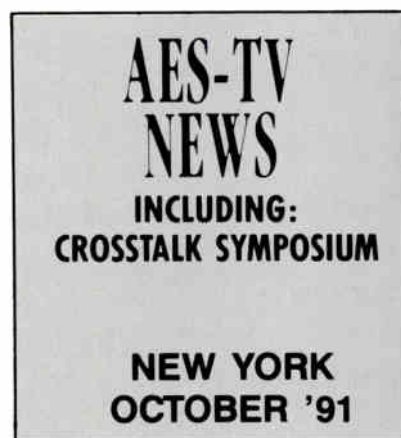
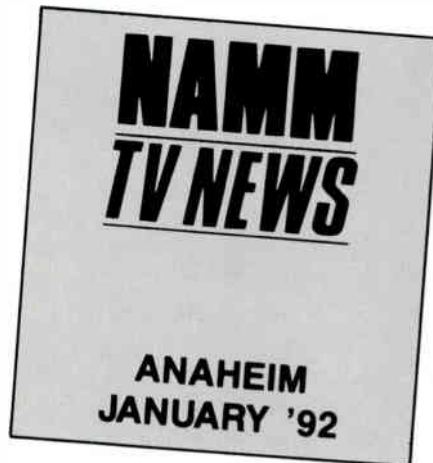
any effect within the audio band." claims Dugan. "In terms of interconnect cables, there are no differences in the audio band at all. In terms of speaker cables, there are very small differences within the audio band, and whether they are significant or not is questionable." According to Dugan,

WE'LL TAKE YOU THERE

VIDEO CASSETTES NOW AVAILABLE WITH FULL COVERAGE OF ALL THE INDUSTRY TRADE SHOWS IMPORTANT TO YOUR BUSINESS.

You and your key personnel can travel to the trade show on your VCR. Each video cassette contains 3 full days of on-the-spot show coverage of the people, products, and hottest news in the industry.

**DON'T MISS
A THING!
ORDER YOUR
TAPES TODAY.**



Please check the Show(s) you want.
First Tape \$59.95; Additional tapes just \$24.98 each

- NSCA-TV NEWS — Cincinnati**
Nat'l Sound & Communications Assn
Contractors Expo '91
- NAB-TV NEWS — Las Vegas**
Nat'l Assn. of Broadcasters Show
- NAMM-TV NEWS — Anaheim**
Nat'l Assn. of Music Merchants
- AES-TV NEWS/CROSSTALK Symposium**
Audio Engineering Society Convention, NY
- CES-TV NEWS — Las Vegas**
Consumer Electronics Show

All shows are independently produced by Testa Communications

Please send _____ tape(s).
1 Tape, \$59.95; 2 for \$84.93; 3 for \$109.91; 4 for \$134.89;
All Five for \$159.87

Name _____

Company _____

Address _____

City _____ State _____ Zip _____

Telephone: _____

Indicate payment method: (Prepayment required)

Credit Card # _____

Visa MC AmEx Check Enclosed

Expiration Date _____

Signature _____

Mail to: TV Tapes, 25 Willowdale Avenue, Port Washington, N.Y. 11050

Wholesale Prices Call!

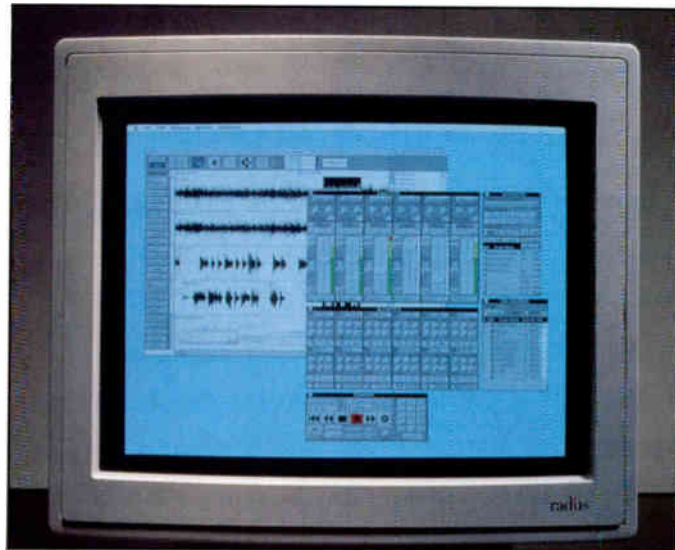
- AB International • AKG • Anchor • Anvil • Aphex • ART • Ashly • ATI • Atlas/Soundolier • Audio-Technica • Belden • BEST • Beyer
- Bogen • Bretford • Canare • Clear-Com • Countryman • Crest • Da Lite Screen
- Electro-Voice Mics • ElKay • ETA • Furman • GE Lamps • Gemini • Geneva (Nortronics) • GEPCO • Goldline • Henry Engineering • Hosa • Inkel • Leader Instruments • Little (CAE) • Loft • Marantz • Maxon • Middle Atlantic • Nady • Neutrik • Numark • Onniramount • Panasonic CCTV • Panasonic Consumer • Panasonic Industrial Video • Pro Co • QSC • Radio Design Labs • Raxxess • Rosco • Samson • Sennheiser • Sescom • Shure • Sony
- Sound-Craft Systems • Soundtech • Star Case • Stanton • Stewart • Studiomaster • Switchcraft • Symatrix • TDK • Tannoy • TEAC • Telex • Ultimate Support • University • Ushio • West Penn • Whirlwind • White • Wiko • Williams • Winstead

1-800-828-0509

**FULL DISCOUNT
WHOLESALE**

Local Phone:
(608)273-5488
Madison, WI

Circle 289 on Reader Response Card



*Digidesign's ProTools
for the Macintosh.*

“There are no valid listening tests that I know of that have shown that there is any improvement or even difference in terms of audibility.”

Of more significance to the contractor, however, is the opinion from the Consumer Affairs approach. It seems that the questions raised were matters of deceptive advertising and that includes unfair disparagement of other products. “If they are saying that ordinary speaker wire is terrible and our speaker wire is good, that is disparaging perfectly good speaker cable

THE TREND TOWARD MULTIMEDIA PRESENTATIONS FROM EVERY SOURCE FROM MUSEUMS TO CORPORATE IS FAST BECOMING BUSINESS AS USUAL.

since there isn't really any difference.” Claims Dugan. “This is serious because there are consultants that are specifying fancy wires for some installations. It may be that the consultant sincerely believes that it [designer wire] is different, but if it isn't...? There is no proof with either listening or engineering tests that show any audible improvement.” Clearly, what is needed is some definition of standards by the AES as concerns these topics, as the law is fairly clear as to culpability in a legal action.

The second big attraction at the show was a sense of science. There seemed to be an overall trend toward acutely refining a product line or to invent new technology altogether. This was apparent up and down

the line from Tannoy with their new Inductive Coupling Technology (ICT), and TAD with their new live venue systems to TOA, long established in the American contracting market, with their new large frame all digital control board.

From the post production/recording studio market came a product from Alesis that may have quite an impact on the contracting market. The product, first shown in January at the NAMM show, is the ADAT and it is a sure winner. Essentially, the ADAT is an eight track digital recorder that uses S-VHS tape for its medium. This means that a user can buy tape from the local grocery store or all night convenience store rather than a traditional supplier. The unit offers 16 bit linear recording with sampling rates from 42.7 kHz to 50.85 kHz with 44.1 kHz and 48 kHz available from the front panel pitch control.

The unit can be had for under \$4,000 and is stackable so that a total of 16 units can be locked together to one sample accuracy yielding a total of 128 fully digital tracks. This means that a left signal from a stereo program could be recorded on track one on machine one and the right signal recorded on track eight on machine sixteen and the program will remain phase coherent. The BRC is a full function controller that handles control over timing, track selection, automatic record rehearse and punch in, and complex assembly editing. The BRC reads and writes SMPTE and MIDI Time Code. The BRC goes for under \$2,000 (all prices are taken from the Alesis handout available at the show).

The trend toward multimedia presentations from every source from museums to corporate is fast becoming business as

usual. The larger companies may have the budgets to go out of house, but certainly smaller companies must stay in house. The Macintosh, IBM, Atari and Amiga computer platforms put desk top publishing within reach of everyone, and desk top video is just now starting to become possible.

Digidesign, with their Macintosh based ProTools four track digital audio workstation, and other platforms from a growing number of companies are providing quality multitrack digital editing environments for the lower budget company. The ADAP offers reasonable multitrack storage for these devices, and has one big advan-

tage over the editing systems as a front line recorder. That advantage is that the ADAP runs very much like a VCR and is therefore very familiar to use; for the non-sophisticated user, this is a god send. This machine and others like it should be high

on the watch list for the contractor looking for new fertile ground to grow their businesses.

All in all, this year's AES was a landmark, and showed that the audio business isn't getting older — it's getting better. ■



The BRC controller for the Alesis ADAT.

How To Reach 22 Million Hard-Of-Hearing Americans...Sennheiser Infrared.

The Perfect Solution for Providing an Assistive Listening System While Complying with the ADA.



Cinemas and Live Theatres
Retirement Communities



Houses of Worship
Municipal and Legislative Facilities



SENNHEISER

Sennheiser Electronic Corporation 6 Vista Drive, P.O. Box 987, Old Lyme, CT 06371 (203) 434-9190, Fax (203) 434-1759
Manufacturing Plant: D-3002 Wedemark, Germany AudioLink® is a trademark of the National Captioning Institute, Inc. SEC, Inc. SE-IR 11/91

NEWS FROM AROUND THE INDUSTRY

News from NSCA; Celebration at Audio-Technica

News from NSCA

Miriam Evaslin of Pro-Tec Electronics in Jersey City, New Jersey has been elected to the board of directors of the National Sound & Communications Association. Evaslin has been a member of the Expo Committee and chairperson of the Women in Electronics Committee. Re-elected to the board were Jay Johnson of Central California Electronics in Fresno CA, and Jack Toerner of American Sound & Electronics in Covington KY.

Audio-Technica Celebration

Audio-Technica held a celebration at the Power Station in New York to unveil the company's new studio microphone, the AT4033. During the

NSCA Expo Seminars Set

The education program for the NSCA Expo and Conference April 27 through 29 in Anaheim is being formalized. Expo Chairman Jack Toerner said that this year will see new sessions on the impact of the Americans with Disabilities Act. The two day courses on Basic and Advanced Design and Sales will be repeated this year, as will the MATV System Design Course. These courses will be offered before the Expo opens. More than 300 ex-

hibitors and 5,000 registrants are expected at the 1992 Expo. Phil Ramone was presented with an award for his contributions in the development and evaluation of the new microphone.

hibitors and 5,000 registrants are expected at the 1992 Expo.

Audio Design Installs Galaxy

Audio Design Services, Inc. of Tarzana, California, is completing installation of distributed sound and public address systems for the Hollywood Galaxy Entertainment Complex in Hollywood. The systems include products from Electro-Voice, Bose, JBL, Symetrix, Micro Audio, Soundsphere, and AEI Music. The Hollywood Galaxy contains multiple levels of retail shops, restaurants, six movie theaters and a central stage for daily live entertainment.

Accom Acquires Axial

Accom Incorporated has announced that it has acquired Axial Corporation. The operations of the two companies are to be merged under the Accom name. The Axial name will continue as the name for the editor product line. Accom manufactures digital video processing and storage systems. Junaid Sheikh, who was chairman of both Accom and Axial, becomes the chairman and president of Accom. Ed Engberg, previously head of sales and marketing for Accom, becomes vice president of sales. Lance Kelson is vice president of marketing.

Karaoke Statistics

The Karaoke International Industry Association has released retail sales estimates for 1990 and projections for 1991 and 1992 in the United States. Hardware projections for 1992 are \$400,000,000 for audio and \$40,000,000 for video.

Klipsch Installations

Klipsch & Associates has announced recent installations using the company's KP-600 system. The Sportsman's Lodge in Los Angeles is using Klipsch speakers for each of its main

banquet rooms, the largest of which seats up to 1,000 people and makes use of a digital effects processor. The meetings of the Los Angeles Chapter of the Audio Engineering Society are held at the facility. The New Orleans Convention Center has doubled its contiguous exhibit space to 700,000 square feet, not including 200,000 square feet of meeting rooms and ballrooms. A portable Klipsch system will be used for shows ranging from general sessions to concerts to Mardi Gras parades.

REP NEWS

Kropp To Represent Bag End

Michael Kropp & Associates of North Kingston, Rhode Island has been appointed to represent Bag End loudspeakers in the northeast United States — Vermont, Maine, Massachusetts, Connecticut and Rhode Island. Kropp, who plays banjo and guitar, is a member of the Northern Lights band, which records on the Flying Fish label. He was previously a record producer for Columbia Records.

Corby Adds Rep

Bob DeMoss of Security Solutions in Gainesville, Georgia has been named sales representative for Corby Industries, Inc.

VanSan Rep

VanSan Corporation, the manufacturer of conference room/presentation furniture, has announced the appointment of T.O.T.A.L. Marketing as its representative for the southwest, including Arkansas, Louisiana, Oklahoma and Texas.

G.A.P. Sales Moves

G.A.P. Sales & Marketing Inc. (Greg Dzubay & Associates) has moved to 6841 N. Glen Harbor Blvd., Glendale, Arizona 85307. The phone number is 602-872-1080; fax is 602-872-9655.



Left to right: Steve Jacobs of Sound & Communications and the staff of Post magazine (Allan Varela, Randi Altman and Ken McGorry) at Audio-Technica event.



Phil Ramone, second from right, receives award from Audio-Technica's (left to right) Ken Reichel, Buzz Goodwin, and Garry Elliott.

THE 2nd ANNUAL INTERNATIONAL DJ WEST expo RETURNS TO

LOS ANGELES, CALIFORNIA

Monday — Thursday, May 4, 5, 6, & 7, 1992
Sheraton Universal Hotel

Any questions about the workshops or other events — just call the DJ Times hotline (516) 767-2500 or FAX (516) 767-9335

Return this form below before April 13, 1992, and your badge and tickets will be waiting for you at the Pre-Registration desk at Sheraton Universal Hotel.

Discount Hotel Reservations available through the Sheraton Universal Hotel, with 1992 International DJ Expo/West affiliation.

I am a . . .

- Club DJ
- Mobile DJ
- Radio DJ
- Radio PD/MD
- Sound Contractor/Installer
- Lighting Installer/Designer
- Club Owner/Manager
- Architect/Designer
- Audio Equipment Dealer/Distributor
- Lighting Equipment Dealer/Distributor
- Record Tape, CD Retailer/Distributor
- Record Company
- Independent Promoter/Manager Agent
- Artist
- Media
- Manufacturer's Rep
- Other

YES! Register me now for the 1992 DJ EXPO/West in Los Angeles (on May 4, 5, 6, & 7, 1992)

<input type="checkbox"/> EXHIBITS ONLY Before Feb 25.....Free (Tues, Wed, Thurs) After Feb 25.....\$25.00	XXX
<input type="checkbox"/> DAILY PASS (includes all special events)	
Monday.....\$125.00 (9 Sessions & 3 Workshops. There are no exhibits today)	
Tuesday.....\$100.00 (Exhibits, 6 Sessions & 1 Workshop)	
Wednesday.....\$100.00 (Exhibits, 6 Sessions & 1 Workshop)	
Thursday.....\$75.00 (Exhibits, 3 Sessions & 1 Workshop)	
<input type="checkbox"/> FULL EXPO PASS (4 Days) (includes sessions, workshops, exhibits and all special events)	
Register by Feb 25....\$135.00	
Register by April 13....\$175.00	
On-Site Registration (\$225.00)	TOTAL \$

Make Check Payable to: 1992 International DJ Expo/West
25 Willowdale, Ave., Port Washington, NY 11050
(516) 767-2500 Fax: (516) 767-9335

- Check or money order enclosed. US funds only, please.
- Charge my MasterCard/VISA account

Card Number _____ Expires Day _____

Signature — required for charge orders

NAME _____
TITLE _____
COMPANY _____
ADDRESS _____
CITY _____ STATE _____
COUNTRY _____ POSTAL ZIP _____
Daytime telephone _____ (include country and city code if outside the USA)
FAX number _____ (include country and city code if outside the USA)

Please photocopy for your files or if you need additional forms.

Have you seen the "STEALTH" Baffle?

Probably not! The new "Stealth" baffle from Fourjay is so inconspicuous you may never notice it. The 11" round, flush mount baffle has 25% less surface area than competitive units and the "Stealth's" low profile and specially textured, non-glare coating blend perfectly with ceiling materials.

The "Stealth's" design and construction meet U.L. 1480 ceiling baffle requirements. You can choose either phillips head speaker mounting screws or pre-set studs with push-on nuts which slash installation time. Also available with factory assembled speakers and transformers, the "Stealth" baffle is fully compatible with all Fourjay 8" mounting systems including the Plenum Connection.

So if you would like to see the baffle that escapes observation, just give us a call. We'll be glad to show you what you've been missing.

Since 1956 customer satisfaction has been our first priority. All Fourjay products are in stock for immediate shipment. If you're not getting price, quality and fast service, you're not using Fourjay.



FOURJAY
INDUSTRIES, INC.

3400 STOP EIGHT ROAD • P.O. BOX 14617
DAYTON, OH 45413-0617
TELEPHONE (513) 890-6444 • FAX (513) 890-1692

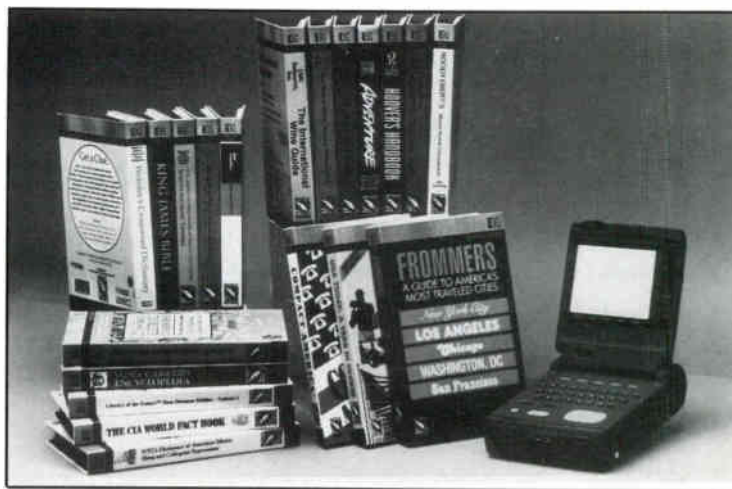
Circle 251 on Reader Response Card



BASF Intros

BASF Magnetics has reiterated its position in investing in the production of digital compact cassettes (DCC), with products planned to be available by spring of 1992. A manufacturing line is being set up in one of the company's facilities in Germany. Presumably, the purchase last year by BASF of Agfa Gavaert consolidated and freed up manufacturing

room. BASF showed a prototype of the tape cassette at the Berlin Audio Fair in September. Also on display at the fair was a reversible erase lock for VHS cassettes. The lock is pushed aside with a finger to secure the cassette from inadvertent erasure, and can be pushed back to its original position. S-VHS and HiFi Professional, top-of-the-line products, will be equipped with the erase lock.



Sony Data Discman

Optical Data

Sony's Data Discman, scheduled to be on the market in November, is a portable 3.15" CD-ROM disc drive combined with a 3.5" backlit LCD. The screen displays 30 characters of text or graphics horizontally and 10 lines vertically. The optical disc software is housed in a protective caddy. Each disc can hold 200 megabytes of digital data. The Data Discman incorporates a 26-character keyboard. Three "electronic" books are packaged with the unit: Compton's Concise Encyclopedia, the Wellness Encyclopedia, and World Travel Translator. In all, Sony has introduced

23 of these "book" for use with the player, which they are calling a "Hand-held information retrieval system."

Schroff Program

Schroff Inc. has announced the creation of a new customer service program to support the low quantity buyer of standard cabinets and cases. Some of the features of the program include: a special stocking program to guarantee five-day delivery on fully assembled enclosures; a toll-free 800 number; and an "easy-to-use" cabinet and case catalog.

HME Appoints DeBrocke

HM Electronics has appointed John DeBrocke midwest regional sales manager. DeBrocke comes to HME from Cinch Connector where he was the regional sales manager in charge of sales and business development for the central and western United States. Based in Chicago, DeBrocke oversees the management of all dealers, sound and communications contractors, representatives, and house accounts in the midwestern third of the United States.

Sapsis Rigging Event

Sapsis Rigging, Inc., the Philadelphia based company specializing in theatrical rigging materials and installations, recently completed a series of projects on the Monarch of the Seas, the cruise ship of the Royal Caribbean Cruise Lines. The com-

pletion of the Monarch coincided with Sapsis Rigging's 10th anniversary, and both events were celebrated at a surprise party for president Bill Sapsis.

Sapsis created two movable video walls for the Monarch, each consisting of 25 monitors. The walls were assembled on location in St. Nazaire, France where the Monarch was built. Each assembled wall weighed more than 3,500 pounds. Sapsis also installed motorized curtains in the ship's theater. The project took 11 months.

Syn-Aud-Con Concert Sound Workshop

The Third Syn-Aud-Con Concert Sound Reinforcement Workshop will take place January 14 through 16, 1992 at Chapman College in Orange, California. The staff includes Albert Leccese of Audio Analysts, Roy Clair

of Clair Brothers, Mick Whelan of Electrotec, and M.L. Procise III of Showco. Will Parry of Maryland Sound chairs the workshop; David Scheirman of Concert Sound Consultants is the facilities coordinator. "There are new techniques and equipment to be talked about," said Will Parry. "We're looking at the industry from a recession viewpoint, as opposed to a boom viewpoint. . . . I think this will be very instructive." The event is cosponsored by Syn-Aud-Con and Pro Sound News.

Comiskey Park Sound

Three million fans filled the new Comiskey Park stadium in its inaugural season. Ann Jillian was one of the singers of the Star Spangled Banner prior to the start of the White Sox games. Comiskey Park uses Bag End TA12 field monitors and 89 Bag



Ann Jillian opens game at Comiskey Park (Bag End monitor is in front of her.)

End double 12-inch custom enclosures for the main sound reinforcement system.

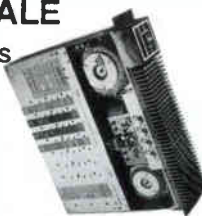
NEW TO THE U.S.

Optim Audio
The Source For

WHARFEDALE

FORCE Series

hi performance
professional
loudspeakers



WHITELEY

Integrated
amplifiers,
telephone
interconnects
for public
address



DESIGN/PLANNING

We are looking for key
dealers wishing to share the
success of fine products.

CALL US

1-800-989-0802

733 Canal St., Stamford, CT. 06902

CD.J. CLASSIC & CD SOUND
MUSIC MANAGER SYSTEMS

**We've
turned
MuzakTM
into
music.**

**Now you can play the music your
customers really want to hear.**

With CDSoundTM & CD.J. ClassicTM,
you control the compact disc sounds
that play in your business or home.

Pop. Rock. Jazz. Classical. Blues.
Whatever you want. In the order
you want it.

Each music system can include an
18, 60, 100 or 300 CD changer
connected to an IBM or MACINTOSH
personal computer.

You play the music by keying the
keyboard or by touching an optional
touch screen or IR remote control.

CDSound and CD.J. Classic.
For people who like to choose the
music they hear.

For more information contact:

GEFEN SYSTEMS
6261 VARIEL AVE. SUITE C
WOODLAND HILLS, CA 91367
PHONE: 818-884-6294
or 1-800-545-6900
FAX: 818-884-3108



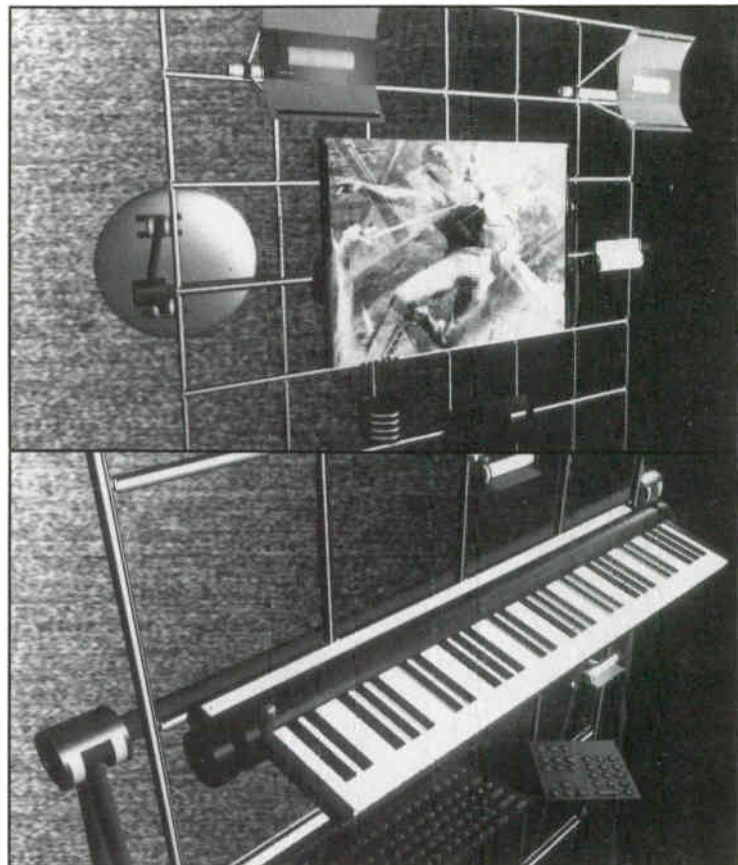
RCI Sound Systems in DC

RCI Sound Systems provided sound reinforcement for two large events in Washington, D.C. — the Desert Storm National Victory parade and the AFL-CIO's Solidarity Day rally. The Desert Storm parade required a system for speech reinforcement that covered the entire two mile long parade route with seven zonal systems. The company used Electro-Voice 848A outdoor horns and Musicaster speakers. RCI Sound Systems also provided an additional concert system on the Washington Ellipse for a picnic featuring military bands for all of the servicemen and women. The AFL-CIO's Solidarity Day included two stages with entertainment and speeches for an estimated 250,000 people. The main stage on the Capitol Mall, used radio transmitters to connect five sets of

delay speakers stretching over eight city blocks. Both systems used Yamaha PM-3000/40C mixing consoles, RCI Systems BM-30 press muls and the company's R-490 and R-240 speakers.

Design Vision

Sony Corporation has chosen five winners in its Design Vision '91 student competition. This year's competition challenged students to use the CD player and digital technology to design the audio system of the future. A total of five winners was chosen, who then compete in worldwide competition. Winning entries ranged from Max Herr's Opus '01, which "removes the limitations of the audio component box," to Adam Richardson's "Post-Analog Audio System," which places the components by a listening chair.



Soundance, a wall-mounted grid structure and movable audio components, was designed by Eduardo Sciammarella and Norio Fujikawa for the Sony Design Vision '91 competition.

World's Most Popular RTA

Affordable, 1/3 Octave, Real Time Analyzer With Memories & SPL Display SA-3050A



Also available: Plug-in A & C Weighting Filter, Prosonus SRD Test Compact Disc, Accurate measuring devices

Call today for more information!

Audio Control Industrial

22313 70th Ave West • Mountlake Terrace, WA 98043 • (206)775-8461 • FAX (206)778-3166

"With the BBE[®] system, it sounded cleaner, crisper, brighter, & simply put... BETTER!"

DJ Times Magazine



"BBE is the most inexpensive way to stand out from the competition. BBE is easy to use and will make your music so exciting, you'll be booked solid!"

DJ Times Magazine

BBE Sound Inc. Huntington Beach, CA
(714) 897-6766

ASK YOUR DEALER FOR A DEMO TODAY

LITERATURE

Brochures from Ariel and American Dynamics

DSP Catalog

Ariel Corporation has released a 52-page catalog featuring its line of signal processing and data acquisition systems for computer platforms.

The products covered in the catalog include DSP development tools based on DSP chips from AT&T, Motorola and Texas Instruments for six computer platforms include models from IBM, Apple, Hewlett-Packard and NeXT.

Circle 19 on Reader Response Card

CCTV Equipment

American Dynamics has released a catalog of closed-circuit video equipment. The 20-page catalog covers the company's line of sequential switchers, quad multiplexers, image multiplexers, splitters, inserters and loss detectors processing equipment, motion detectors,



matrix switcher/control systems and accessories.

Circle 20 on Reader Response Card

Pro and MI

Rolls Corporation has released two brochures for the company's two

areas of product specialization. The first of these, for the pro audio market, focuses on the PRO series. Product dealt with include personal monitors, phantom powering, DI boxes, mono and stereo power amps, a mic processor, graphic equalizers, mixers and a reference amplifier.

Rolls' second catalog deals with the musical instrument market and is called the MI series.

Circle 21 on Reader Response Card

Healthcare Parts

Crest Electronics has released a 240-page catalog including replacement parts and components to keep hospitals, nursing homes and medical clinics in repair. A new product section includes call cords, Executone nurse call parts and bed controls.

Circle 22 on Reader Response Card



Inspection, Assembly and Field Service

Jensen's Master Catalog contains 256 pages of tools and instruments for inspection, assembly and field service of electronic components and equipment. Included are analyzers, monitors, meters, testers and probes.

Circle 23 on Reader Response Card

Menlo Scientific, Ltd.

Acoustical Consulting and design services for sound contractors

Contact Michael Klasco

Menlo Scientific, Ltd.
39 Menlo Place
Berkeley, California 94707

(415) 528-1277

FAX (415) 526-8087

Circle 253 on Reader Response Card

PRODUCTS

Consoles from TOA, Yamaha and Soundcraft



Digital Mixing System

TOA Electronics has announced the US introduction of its fully digital ix-9000 mixing system. Using 18-bit linear pulse-code modulation with 64 times oversampling, the ix-9000 digitizes analog audio inputs. The unit then processes all signals in the digital domain before converting them back to analog at the outputs.

With different processing modules the unit can be configured for different applications of different sizes and degrees of complexity.

Circle 1 on Reader Response Card

Mixing Console

Yamaha Corporation of America has announced the PM4000 fourth generation console which is the successor to the PM3000 mixing console. The console is available in 32, 40 and 48 input configurations. The models also have four stereo input modules.



Changes from its predecessor include four-band parametric channel equalization and a six-segment LED on each channel. Two stereo auxiliary sends have been added for a total of 12 aux sends. The insert point may be switched to either pre or post EQ.

Circle 2 on Reader Response Card

Knobless Volume Controller

Niles Audio Corporation's RVS-6 infrared remote control speaker selector/volume controller/infrared repeater is a knobless volume controller for up to six rooms.

A modular system, the RVS-6 accepts cards for 12-step remote speaker volume control or remote speaker on/off. It also has an IR repeater system built in allowing the user to control these functions by pushing buttons on the unit or by remote control from a Niles wall-mount, ceiling-mount or table-top sensor.

Circle 3 on Reader Response Card

Front of House Console

The Soundcraft Europa console is a front-of-house mixer designed for touring and fixed installations. The Europa is designed to have a strong frame with extrusions forming handles which run the full length of the desk front and back.

Multiway connectors are mounted and recessed into the rear panel. The rest of the panel is blank, allowing for custom multiways.

A common gain control features the Soundcraft padless mic preamplifier with separate line and mic inputs.

Circle 4 on Reader Response Card

Six-Channel Amp

NAD has introduced the model 906 6-channel power amplifier that provides six discrete channels of 30 watts each, and is the first model in a series of products designed for modern media systems.

The 906 consists of three stereo amps, with three independent power supplies, in a single package that can be deployed as a 6-channel home-theater installation, to provide a multiroom custom installation with three independent zones, or for six discrete monophonic zones in commercial applications.

Circle 6 on Reader Response Card



Digital Controller

JBL has introduced the ES52000 digital controller. The unit combines the functions of two-way dual channel or two, three, or four-way single-channel active frequency division, system equalization, time delay and transducer protection limiting, all incorporating advantages possible in the digital domain.

In addition, the ES52000 is designed to work with Concert Series, SR Series and the Array Series lines of concert loudspeaker systems.

Circle 5 on Reader Response Card

Waterproof Speaker

New England Audio Research (NEAR) has introduced its AES-1.1 compact waterproof speaker. Metal-alloy cones and rustproof hardware make the speaker waterproof. The 5.25-inch full range speaker was designed with a hard alloy material and the frame is made of cast aluminum, which is rust proof.

Circle 7 on Reader Response Card





Mid-Bass Loudspeaker

Meyer Sound Labs has introduced the DS-2 mid-bass loudspeaker. The speaker is a horn-loaded arrayable unit operating with the D-2 control electronics unit.

The DS-2 mid-bass consists of two 15-inch MS-15 cone drivers mounted in a folded horn enclosure. The horn features maximum energy transfer and minimum response ripple packaged within the same enclosure as the MSL-3. The balanced compression chamber presents a symmetrical load to the drivers and is designed for high power handling and low distortion.

Circle 8 on Reader Response Card

Speaker Systems

Technical Audio Devices (TAD), the professional products division of Pioneer Electronics (USA) Inc., has introduced loudspeaker systems to the professional sound reinforcement market.

The systems line includes the TCM-1821, TCM-1621 and TCM-



TAD's TCM-1821 two-way loudspeaker system.

1631, which are two- and three-way systems designed for fixed installation and touring applications. They all feature TAD's Opaxial transducer application for second harmonic distortion reduction, and AFAST technology to shape the systems' frequency response.

Circle 9 on Reader Response Card

Talkback Monitor

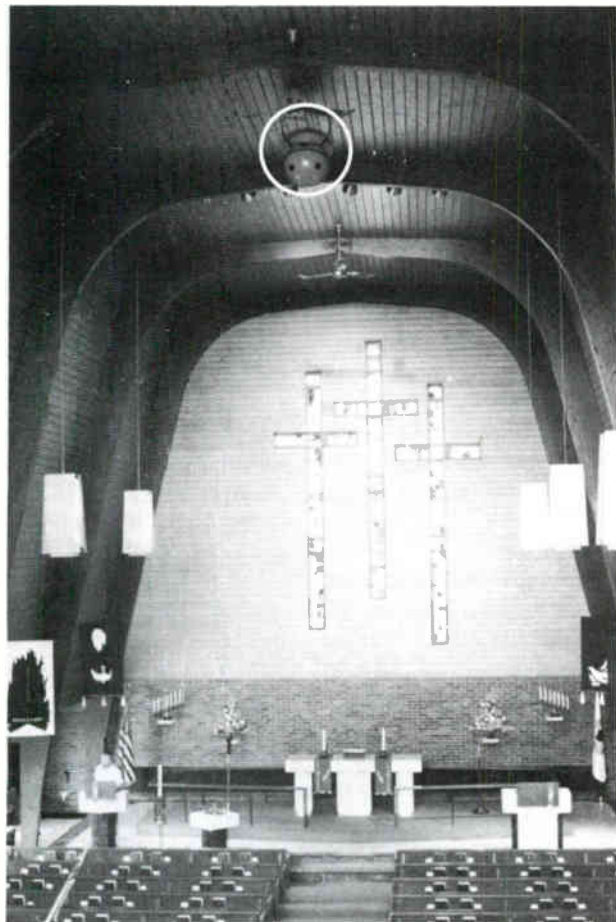
TSI (Tamco Systems Inc.) has introduced its TAMU-4 talkback monitor system. The unit allows a system operator to listen to meetings and presentations in order to properly cue slides, video, etc. It also includes a mic mixer, two speaker amplifiers and a preamplifier for recording. The switching logic, monitor speaker and microphone are included in the unit.

Circle 10 on Reader Response Card

Polarity Tester

Galaxy Audio has introduced the Cricket polarity tester designed to indicate absolute polarity. It is able to test microphones, mixers, microphone cables, equalizers, crossovers and speakers. The Cricket can also be used as a cable tester when the ends are hundreds of feet apart.

Circle 11 on Reader Response Card



"...excellent voice clarity and beautiful music reproduction."

Pastor Don F. Thomas

The Prince of Peace Lutheran Church, Ida, MI, has used a Sand colored Soundsphere #2212-1 loudspeaker for a few years. Pastor Don F. Thomas has been delighted with the improvements. He stated "there is no comparison between the former system and what we have now. The single Soundsphere loudspeaker produces excellent voice clarity and beautiful music reproduction. It also achieves very even sound distribution in my church. With it, we now do a lot more speaking by church members with wireless mikes from various areas of the church with good results. Even special programs done with children are now clearly heard in the church."

This Soundsphere installation was done by Monroe Sound in Monroe, MI. They have also installed Soundsphere loudspeakers in many other local churches, gyms, and auditoriums. A representative of Monroe Sound stated that, "Soundsphere speakers are a quick and easy installation. My employees can finish more jobs in a shorter time period resulting in improved cost efficiency for the church and for the company."

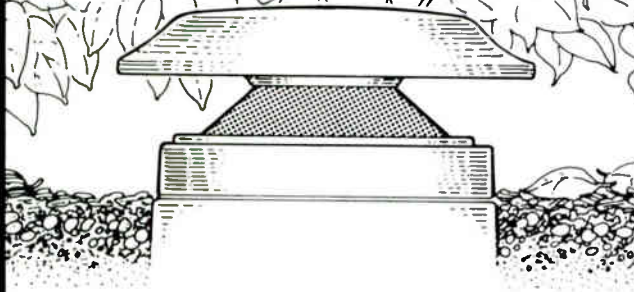
Write or call direct for further information.

SOUNDSPHERE A PRODUCT OF
SONIC SYSTEMS, INC.

737 Canal Street • Bldg 23B • Stamford, CT 06902 • USA • Tel (203) 356-1136

Circle 250 on Reader Response Card


**THE HIGH QUALITY,
ALL-TERRAIN,
WEATHER-RESISTANT,
OUTDOOR SPEAKER
SYSTEM.**



SoundScape®

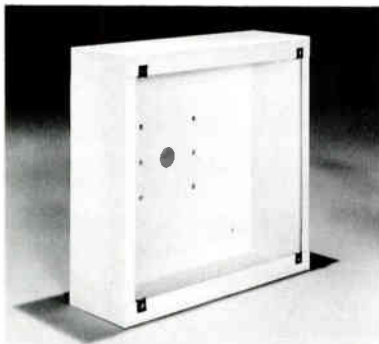
P.O. Box 1563
Windermere, Florida, 34786

407-876-6884



Circle 281 on Reader Response Card

else
**LOOK WHAT QUAM
HAS FOR YOU!**



**VANDAL PROOF SURFACE MOUNT
ENCLOSURES**

Part No. SE1WVP

- Thickness of box deadens sound—no damping required
- Enclosures designed to be acoustically stiff
- For ceiling or wall mounting
- Cold rolled steel .060" thick
- Attractive white powdered epoxy finish
- Can be used with Quam Vandal-Proof Baffles

Ask for FREE Tech Spec TS-47

Quam-Nichols Company

234 East Marquette Road, Chicago, Illinois 60637
Phone: 1 312 488-5800 • FAX: 312 488-6944

Circle 283 on Reader Response Card



Clockwise from far left: HTS640LRS monitor loudspeaker; HTS650SW subwoofer; HTS680CF monitor loudspeaker; HTS400SPA signal processing amplifier.

Home Theater and Pro Products

Shure HTS, a division of Shure Brothers, Inc has introduced four products for professional and high-end home applications.

The HTS400SPA signal processing amplifier is a bridgeable two-channel power amplifier with balanced and unbalanced inputs and 12 loudspeaker modes. The HTS680CF monitor loudspeaker features magnetic shielding for video applications. The HTS640LRS monitor loudspeaker monitors multi-channel playback with similar features to the HTS680CF. The HTS650SW subwoofer is a fourth order vented box with a front-firing 12-inch driver with a heavy, damped felted cone and rubber roll surround.

Circle 12 on Reader Response Card

Dual Record Deck

Tascam has debuted the 202 MKII dual record dubbing deck. The model offers features such as parallel record, which allows two identical copies to be made simultaneously from an external master.

The unit offers both a twice speed and real time mode and is designed to be a "cost effective" duplicating system for church and studio users. In addition, the dual continuous auto-reversing playback feature is aimed at background music installers needs.

Circle 13 on Reader Response Card



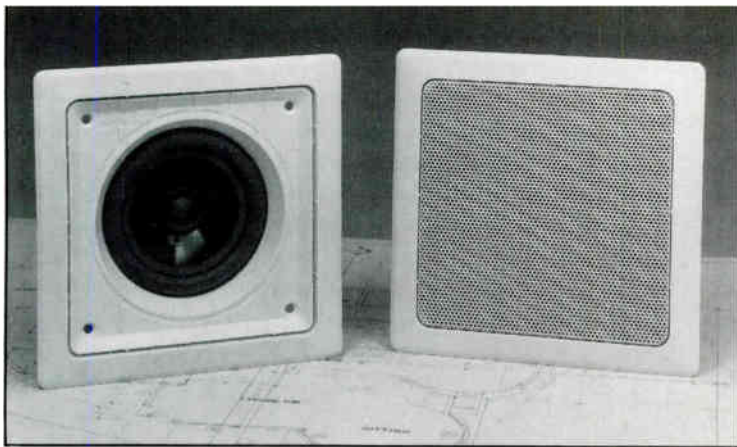
High-Security Sub-Stations

Two tamper resistant sub-station models have been introduced by the Talk-A-Phone Co. Designed for high security areas the sub-stations are made for use in prisons, parking garages, crime-sensitive commercial locations and sensitive areas in government and private industrial applications.

The model TAP-LR-3S sub-station contains a tamper-resistant call switch and front panel. The unit can be recessed in the wall or surface mounted. The TAP-LR-2RS provides the same basic function but does not contain a call switch.

Circle 14 on Reader Response Card





Environmental Speaker

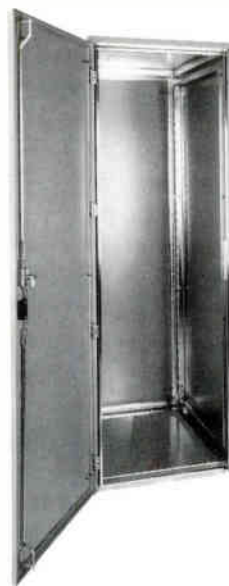
Infinity has added the ERS 400 to its line of flush-mounted, in-wall speakers that make up the Environmental Reference Series (ERS). The unit uses a 4-inch IMG (injection molded graphite) full range transducer mounted to a 7-inch high x 7-inch wide x 2 9/16-inch deep baffle requiring a 6 1/4-inch mounting hole.

Circle 15 on Reader Response Card

Voice Paging Amps

The TPA series of voice paging amplifiers from Wheelock contain inputs for telephone, music and microphone. In addition, the TPA amplifiers offer an automatic volume limiter circuit and built-in voice activated mute of music during paging. The TPA series is available in 10, 20, 35, 60 and 100 watt models.

Circle 16 on Reader Response Card



EMC Cabinet

Schroff Inc. has introduced an EMC cabinet designed for the commercial/industrial marketplace. The 38U x 600W x 800DP 19-inch rack-mount cabinet is part of its Tecnorack line of products. The welded cabinet is designed to provide companies with an affordable enclosure to ensure maximum shielding effectiveness against both conductive and radiated electromagnetic energies.

Circle 17 on Reader Response Card

Call Systems

American Zettler, Signal Division has introduced a "smart" call system designed for use in retirement communities, condominiums and other applications.

SmartCom is designed to provide the benefits of an intercom system while including features such as a master key switch which allows staff to operate any unit in any room as the master station.

Circle 18 on Reader Response Card



*Faster than the speed of sound.
More powerful than a computer-controlled amplifier.
Able to leap 120 db spl in a single bound (without clipping!)
Is it an amp? Is it a speaker?*

No! It's

ANSWERMEN

Our fearless ANSWERMAN will tackle everything from the most basic to the most difficult of questions relating to the Sound & Communications, industry. The all-knowing all-seeing audio guru is more than capable of answering ANY question that could possibly be on your minds.

Send your Questions to: The Answerman

**SOUND
c/o COMMUNICATIONS**

25 Willowdale Ave.

Port Washington, NY 11050

Call: (516) 767-2500 Fax: (516) 767-9335

NSCA WORKSHOPS • EXHIBITS EDUCATION & MORE...

EXPO '92

**ANAHEIM CALIFORNIA
CONVENTION CENTER
APRIL 27th, 28th, & 29th**

April 1992

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

MARK YOUR CALENDAR

Phone: 800-446-NSCA

PEOPLE

VP at DOD; Thorkelson at Javelin

Boyce at DOD

Ferdinand Boyce has been appointed Vice President, Marketing of DOD Electronics. Boyce had been an independent rep for DOD during his association with Northshore Marketing in Seattle, Washington.



Boyce

Prior to working at Northshore, Boyce was National Sales and Marketing Manager for TAPCO and Western Regional Manager for Electro-Voice.

Thorkelson Joins Javelin

Javelin Electronics has appointed Donald Thorkelson to the position of Systems Product Manager, Northeast Region. In this position Thorkelson is responsible for the sales of Javelin Omni systems throughout the northeastern area of the United States.

Prior to joining Javelin, Thorkelson served as Director, National Accounts for Vicon Industries and has over 20 years experience in systems and video sales.

Toshiba Specialist

Michael Skryha has been named National Sales Specialist for Toshiba

Video Systems. Skryha's responsibilities include training Toshiba representatives and promotion of products to dealers and end users.

Prior to joining Toshiba, Skryha was Area Sales Manager for CMC Ltd. and was District Sales Manager for Sony's professional video division.

Celestion Sales

Celestion International has appointed Martin Brady Sales and Marketing Manager for its Pro Audio Division. The ex-Casio Sales Manager, who has spent four years in the same position with the Celestion Hi-Fi Division, will now run both divisions.

Miller at Panasonic

Wayne Miller has been named National Marketing Manager for the Business Telephone Systems Division of the Panasonic Communications & Systems Company. Miller is responsible for all sales, marketing, product management, planning and market development activities for Panasonic digital business telephone systems.



Miller

COMPARE SPECS AND PRICES

The 1992 Music & Sound Buyer's Guide
It's the handiest reference you will find for model numbers, specs and list prices.

- Speakers
 - Signal Processors
 - Power Amps
 - Mixing Consoles
 - Microphones
 - Sound Projection
- ... and musical instruments, too!

- YES. I want the 1992 MUSIC & SOUND BUYER'S GUIDE for \$7.95, plus \$2.00 for postage and handling.
- Payment enclosed
- Bill my credit card Visa MC AmEx

Card # _____ Exp. Date _____

Name _____

Address _____

City _____ State _____ Zip _____

Signature _____

Easy Comparison

Speakers	
Allen Lansing Corporation	
Celestion Industries, Inc.	
Citic Group	
Electro-Voice	
FAW Eastern Acoustic Works	
Intercom Service	

ORDER TODAY!

Mail to:
MUSIC & SOUND BUYER'S GUIDE
25 Willowdale Avenue
Port Washington, NY 11050
att: Arturo Lizarraga

CALENDAR

Upcoming Events

DECEMBER

American Society of Mechanical Engineers (ASME): Atlanta, GA: Contact: (212) 705-7795. December 1-6.

Image World Miami: Miami, FL: Contact: (800) 800-KIPI. December 2-6.

JANUARY 1992

Consumer Electronics Show: Las Vegas, NV: Contact: (202) 457-4919. January 9-12.

NAMM (National Association of Music Merchants): Anaheim, CA: Contact: (619) 428-8001. January 17-19.

FEBRUARY

SMPTE (Society of Motion Picture and Television Engineers): Detroit, MI: Contact: (914) 761-1100. February 7-8.

Infocomm: Washington, D.C.: Contact: (703) 273-7200. February 6-8.

ISC (Int'l Security Conference) West: Las Vegas, NV: Contact: (708) 299-9311. February 11-13.

Telex Appointments

Telex Communications, Inc. has announced several organizational changes in the company's Professional Audio Department.

Jeff Peters has been named national sales manager, Gary Bosiacki has been named western regional sales manager, Mike Rangitsch has been appointed eastern regional sales manager and Frank Olson is sales specialist.



Peters

Coast Business Names VP

Richard W. Bowman has been appointed Senior Vice President of

Coast Business Communications, Inc. of Livermore, California. A 30-year audio-visual industry veteran, Bowman is directing the a/v systems contractor's sales and marketing operation.

JVC Appoints

JVC Professional Products Company has appointed John Brown and Steve Martin to the newly created positions of director of duplicator sales and assistant director of duplicator sales, respectively. JVC has also named Gary Ballard to the position of government sales manager.

Brown's responsibilities include overseeing the duplication sales and participating in the marketing of JVC's duplicating products. Martin is assisting Brown in these areas. Ballard is managing the government

sales division and participating in the sales and marketing of JVC products in the government video marketplace.

Director at Burle

Burle Industries Inc. has appointed David Burne Jones to the position of Managing Director of Burle Industries (U K) Ltd. Jones is responsible for the management of Burle Industries (U K) Ltd. operations and is accountable for the company's financial results.



Jones

AD INDEX

Company	Page	RS #	Company	Page	RS #	Company	Page	RS#
Acoustone	56	288	Fourjay Industries	68	251	Quam-Nichols	5,74,	210,283,
ADI	31	220	Full Discount Wholesalers	64	289		52	284
American DJ Supply	53	215	Gefen Systems	69	270	QSC Audio	33	203
Ashly Audio	23	252	IED — Innovative			Ramko Research	47	202
AudioControl Industrial	70	269	Electronic Design	30	255	Rane Corporation	25	254
Audio Logic	60	258	JBL Professional	CIV	—	RCI Systems	59	201
Audio Technica	CIII	212	KSI — Karibu Sound	58	247	Renkus-Heinz	36	261
ATI — Audio Teknology	12	219	Kelvin Electronics	81	237	Rolls Corporation	56	265
BBE Sound	70	290	LaBelle Industries	50	279	Samson Technologies	19	222
Bruel & Kjaer	17	213	Lectrosonics	27	205	SeamTech	81	235
Cal Switch	49	259	Mellotone	81	232	Sennheiser Electronics	65	260
Cord Lox	81	238	Menlo Scientific	71	253	Shure Brothers	11	209
Creative Acoustics	50	280	Music Supply Company	81	231	Sonic Systems/ Soundsphere	35,73	249,250
Credit Lease	81	230	NSCA	75	—	SoundScape	74	281
Crown International	54/55	218	OAP Audio	28	248	Telecall Communication Systems	7	204
CT-Audio	32	291	Opamp Labs	81	236	Thomas Electronics	52	282
DJ Expo	67	—	Optim Audio	69	292	TSI — Tamco Systems	24,37	271,274
DOD Electronics	8	214	Oval Window Audio	81	234	West Penn Wire	21	208
Electro-Voice	51	256	OWI	61	272	White Instruments	37	273
FerroFluidics	16	268	Peavey-Architectural Acoustics	CII	206	Yamaha Pro Audio	3	207
Fostex	38	217	Pioneer Laser	15	211			
Frazier	34	221	Qualitone	81	239			
Freed International	81	240						

FREE INFORMATION

Use the Reader Service Card opposite page 34. Just circle the RS# of products that interest you. Detach, and Mail!

BROADMOOR HOTEL

(continued from page 28)

"The FSR system is so easy to use it doesn't require a full-time technician," Electronic Systems' Castle points out. "Everything is laid out on customized, silk-screened graphic panels with lights. Once a room is set up, you don't have to do anything. The AMS mics have their own threshold level adjustment so you don't need to technically monitor sound levels."

"I can send someone to Colorado Hall without worrying about whether he's a veteran audio engineer," adds Jensen. "Anyone can operate the system."

Housed in Winsted racks are a White 4700 programmable equalizer, seven 8-channel Shure AMS 8000 mic mixing systems, nine QSC Model 1400 amplifiers and seven Tascam 112R cassette decks for recording meetings as they occur without patching playback. One hundred thirty-eight Soundolier C12A speakers are mounted in the ceiling.

Castle and Jensen collaborated on the creation of a custom paging system for Colorado Hall which interfaces with FSR's ballroom combiner. It features a rack-housed control panel plus panels located in the Hall's head-end room and pre-function area.

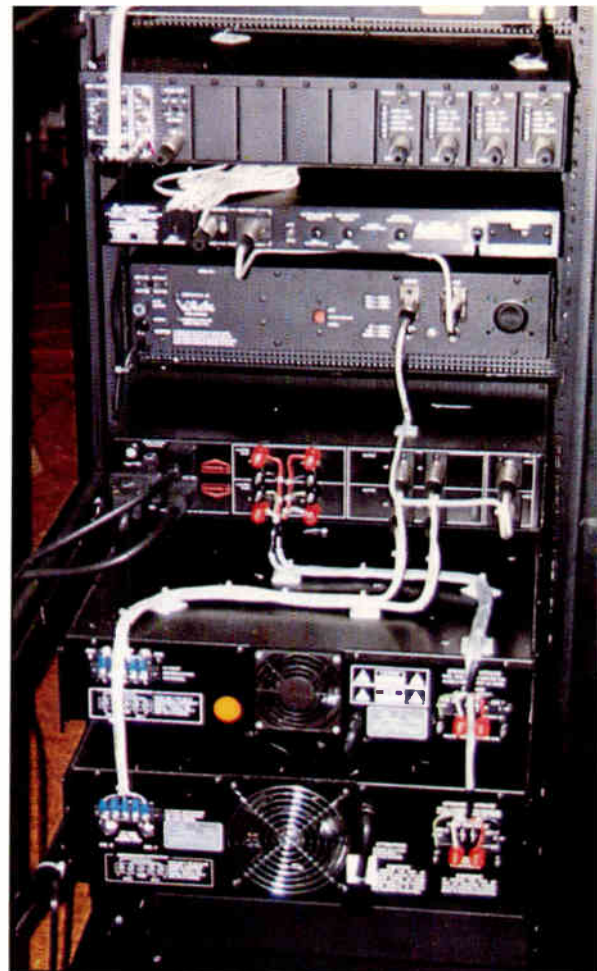
Jensen reports convention business at The Broadmoor is booming and customers are giving the new systems rave reviews. Conference-goers can now book the International Center and the adjacent Colorado Hall, using the Center for general sessions and dining and the Hall for breakout meetings, and be assured of top-quality sound throughout.

Colorado Hall has already hosted three

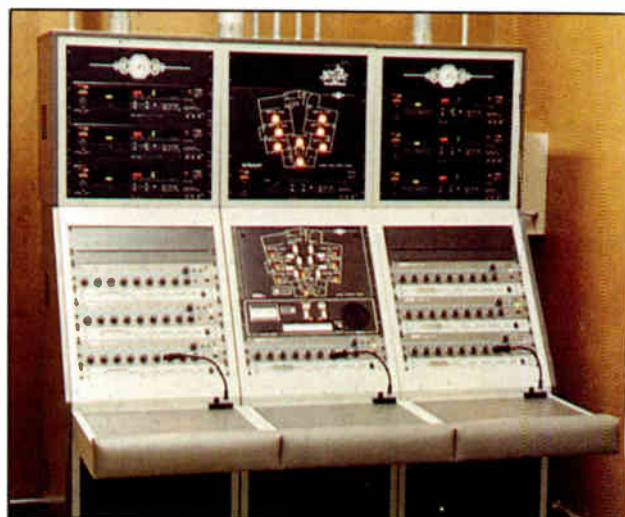
conferences simultaneously with one client in two combined rooms, another in a single room and a third in three combined rooms and the pre-function area. "Everyone wanted audiotape recordings of the sessions and all we needed was one operator to watch the tapes roll," notes Jensen. "We get very clean recording with no extraneous noise with the mics in the priority selection or standard mode."

Electronic Systems' Castle credits the architectural firm of Earl Swenson & Associates, Nashville, for "designing around the sound, instead of vice versa. You can have the best equipment in the world but if the room sounds terrible it doesn't matter what you use. At The Broadmoor the rooms were so well acoustically treated that we didn't need to use back boxes or speakers."

G.E. Johnson, Colorado Springs, was the project's general contractor with Bloomfield, Colorado's Wall Technology acoustical contractor and Colorado Springs' Whitney Electric the electrical contractor.



Rear of International Center rack.



Racks at Colorado Hall.

ALDERSON SURVEY

(continued from page 54)

plate specifications as it were, of a good rep are as follows:

The rep shall have a professional, trained organization to surround him, that specializes in a particular segment or related segments of the industry. The rep organization shall therefore be able to master product knowledge of every one of his lines. That rep organization shall be honest, sincere, positive, and energetic. The rep shall have integrity, and be able

to relate well with accounts. That rep shall have developed an excellent reputation in the industry, and shall have a track record to prove his abilities. This rep shall also be adept at both written and spoken communications, but will not be overly "pushy." The rep shall manage his company and focus so as to produce maximum benefit to each of his relatively few number of lines, and assure good communications with his accounts. The rep shall not be just a "yes man," but will say it like it is when it is appropriate to do so.

A prominent California rep who wishes to remain anonymous states, "There seem to be many poor representatives and

a few good representatives. In many cases the line makes the rep and not the other way around." The "many poor reps" can give *all* reps a bad name. Therefore it is important for contractors, dealers, manufacturers, and for reps themselves to realize that there are bad reps . . . and there are great reps! It is critically important for us all to find and work with the good reps. Possibly we can also encourage an improvement in the general quality level of all reps by working with our trade associations and making the sorts of facts that are contained in this article better known. We need more silk purses and fewer sow's ears.

QUESTIONNAIRE

Please fill in the blanks with a number from 1 to 10. One signifies the least important, 10 is the most important.

	AVERAGED REPLIES
1. How important is verbal persuasiveness in a rep?	3.2
2. How important are applications & product knowledge?	7.1
3. Is the rep's ability to warehouse important?	2.0
4. What value do you place on honesty and integrity?	10.0
5. Of what importance is the rep's knowledge of fundamental business practices?	8.1
6. Is it important for your rep to communicate with independent engineering consultants?	10.0
7. How important are rep's relationships with the accounts in the territory?	10.0
8. What is the importance of a rep expressing his own opinion when he disagrees with you vs. just telling you what you want to hear?	8.5
9. What value do you place on a rep's college degree?	1.7
10. How important are trained sales closing skills?	2.2
11. How important is your representative's overall reputation and image in the industry?	9.8
12. What is the importance of a representative's membership in our industry's trade associations?	2.8
13. What value do you place on the rep's organization as opposed to the ability of the rep himself?	8.0
14. How important is the rep's ability to achieve focus and self-coordination?	8.3
15. What is the importance of your rep's ability to help resolve credit disputes with accounts?	7.1
16. Is there an additional trait in reps you like? If so, What is the trait _____?	?
How important _____?	?

SOUND TECHNOLOGY

(continued from page 61)

Conclusions

The RTA-4000 is unique instrument, offering the simplicity of operation of two dimensional test gear with much of the power of the sophisticated acoustic analyzers. Aside from the performance of the unit, the manufacturer's experience and track record as a supplier of test gear must always be considered. Sound Technology has an excellent history of introducing test equipment that is reliable and holds its calibration and value. I have had a Sound Technology 1700B Distortion Measurement System for well over 10 years and it continues to work without a hitch. And the documentation and support of their products is quite good.

The RTA 4000 would be ideal for permanent installation in a church, sports

arena, auditorium, convention center and the like. As a field use test system for a sound contractor or an acoustician, it is an upgrade path from the plain vanilla 1/3 octave analyzers, although it is not alone when viewed from this perspective. Klark-Teknik and Ivie, for example, offer sophisticated RT60 subsystems for their 1/3 analyzers, both of these packages are more compact than the RTA 4000. Ivie also has the PC-30, a laptop computer based 1/3 octave analyzer, although it is not as physically robust as the Sound Technology RTA-4000.

In the RTA-4000, the IBM compatible computer-based operation has not yet been fully exploited, both as to use of peripherals and audio test options. For this type of money, I would like to see both floppy and hard disk operation, in order to save files (not just in memory, and without having to link up to another computer), direct file interchange by floppy with other computers, etc. The use of a CRT is not

ideal for portable use, and the rack mount configuration should be joined by a transportable version, or at least a soft carrying case. An additional test option that I hope Sound Technology will work on in the future would include intelligibility measures.

If you are computer literate, if assembling your own portable acoustic analysis test lab is within your skills, and if when you look at a facility you can intuitively ballpark the time window needed to accommodate the room's impulse response, then you ought to be looking at the SYSid, MLSSA, or TEF systems. If you are currently using a 1/3 octave analyzer, or are considering buying one, and do not want to know about time window aliasing, swept times and the like, then you should start counting your pennies to see if you can afford the Sound Technology RTA-4000.

Sound Technology is located at 1400 Dell Avenue, Campbell, CA 95008. The phone number is 408-378-6540. ■

HELP WANTED



SALES MANAGER

JBL Professional has an immediate opportunity in the Systems Group. Specific responsibilities include sales management of Cinema, Architectural and Industrial products.

The successful candidate will have a bachelors degree (business or technical) and a minimum of 5 years experience in the sound contracting industry. Particular emphasis will be placed on management, sales and design skills, as well as familiarity with the sound contracting, sound reinforcement and theatre vertical markets.

JBL Professional offers a competitive salary, comprehensive benefits package and the challenge of working for an industry leader. If you would like to join our team, please submit your resume including salary history to:

Gary Hardesty
Director, Systems Group
JBL Professional
8500 Balboa Blvd., P.O. Box 2200
Northridge, CA 91329

WANTED: MANUFACTURER'S REPRESENTATIVES

Power Protection Products mfr is seeking independent sales reps to represent our line in the security & audio/visual markets.

Please send resume to:

Kalglo Electronics Co., Inc.
Dept SC
6584 Ruch Road
Bethlehem, PA 18017

**FOR
THIS MONTHS
AD INDEX,
PLEASE REFER
TO
PAGE 77.**

DISTRICT MANAGER

Rauland-Borg Corporation has an immediate opportunity for a District Manager position. The successful candidate will be responsible to develop, train and maintain liaison with the Distributor Network within the designated Territory. A minimum of 5 years experience in the sale of Rauland-Borg type communications equipment is required. Effective verbal and written communications skills. Candidate must be willing to relocate if required.

Send resume in confidence to:

Harry Hahn
National Sales Manager
Rauland-Borg Corporation
3450 W. Oakton Street
Skokie, IL 60076-2951

SITUATION WANTED

SITUATION WANTED

Articulate communicator with creative flair. Attractive, professional appearance; exceptional voice. Radio, video, theatre experience (performance and production.) Available for field production, reporting, narration, etc. Management experience, people skills, college grad, New York based. Travel OK.

(718) 423-1792. Or write

Sound & Communications Classifieds
Dept. 11A
25 Willowdale Ave., Port Washington, NY 11050

SITUATION WANTED

C-UNIX Programmer/Project Leader

Experience with Open Look GUI and X-Windows. Excellent communication skills. 3.5 years experience, B.S. Mathematics. Seeking employment in New York/New Jersey area. (908) 985-2531. Or Write:

Sound & Communications Classifieds
Dept. 11B
25 Willowdale Ave., Port Washington, NY 11050

FACILITY FOR SALE

MUSIC STORE

Family owned music store established 1939. Best location for music store in progressive city of 100,000. Outstanding franchises available like Peavey, Yamaha, Ibanez, Crate and more. School band instrument rental program with Selmer and Bundy. Private teaching rooms. Assume lease on present building with option to buy. Buyer must be willing to maintain family tradition of service and customer satisfaction. Contact:

C.C. Martin at Martin Music
Pueblo, CO
(719) 543-0775



REGIONAL MANAGER, INTER-COMMUNICATION SYSTEMS

TOA ELECTRONICS' Communication Systems Div. is seeking a Northeast Regional Manager TOA-CSD has, in a very short time, become one of the major manufacturers of intercom products for the educational, correctional/security, industrial and medical markets. We need an individual that is able to interact with small to large contractors, architects/engineers, and Fortune 500 executives to help accelerate our explosive growth.

If you are college educated, an "A" type, have a minimum five years security and/or inter-communication systems experience; either in contracting or on the manufacturing side, please fax or mail your confidential resume, with earnings history and salary requirements, to the attention of Mr. Al Burns, Director, Communication Systems Div.

TOA Electronics, Inc.
601 Gateway Blvd. Suite 300
S. San Francisco, CA 94080
Fax: (415) 588-3349

BUSINESS CONNECTIONS

WANTED:

LOCAL NETWORK AFFILIATE

The fastest growing national network of broadcast business services has an immediate need for a local affiliate.

- Build contracted, recurring revenue and long term asset value.
- Experience in business to business marketing preferred.

CALL 800/831-8001

Ask for Denny Thompson



Over 200 local affiliates in operation since 1971

Circle 233 on Reader Response Card

EQUIPMENT FOR SALE

GOING OUT OF BUSINESS SALE

Much TekTone, also Florence, Mirtone, Korten, Wiremold. Lot price \$2495 — Retail value \$6000. Call for complete list: 216-239-2874. By the piece also.

INTERCOM LINE FOR SALE

A well established line of quality Intercom Products is for sale. Columbia Scientific Industries Corp. has been manufacturing intercoms since 1968 for bank and restaurant drive-ins, for cashiers, x-ray rooms, prisons and many other applications.

Contact CSI
Mr. Jim Cotton
P.O. Box 203190
Austin, TX 78720
(512) 258-5191

MARKETPLACE

INSTALLERS!

EASY KARY®
Wire Reel Holders




- 3 SIZES
- All Steel Construction
- Carry like a briefcase

PUSH-PULL RODS Get cable through impossible places. Extends 45'. Light weight. Flexible



SPEAKER & TILE SUPPORTS



SPEAKER ENCLOSURES



ALL STEEL LIGHT WEIGHT but STRONG for all 4" and 8" SPEAKERS in ALL types of CEILINGS U.L. LISTED FREE SAMPLES

The Audio Serviceman's Right Arm. Check the complete sound system from MIC to SPEAKER

TESTSET TS-1A ... and much, much more.

CALL OR WRITE FOR CATALOG
MUSIC SUPPLY CO., INC.
809 North Madison • Dallas, TX 75208
ALL 50 STATES 1-800-527-1522
FAX 214-946-9155 Local 214-946-8450

800-527-1522

Circle 231 on Reader Response Card

FLAME RESISTANT ACOUSTIC GRILLE FABRICS

Meeting Fire Code Safety Standards.

ALL FABRICS INVENTORIED AND AVAILABLE FOR IMMEDIATE SHIPMENT

CALL OR WRITE FOR YOUR FREE SAMPLE FOLDER AND PRICE SHEET

MELLOTONE®

Mills: Post Office Box 145 • 108 East Church Street
Blacksburg, SC 29702 • (803) 839-6341
Fax (803) 839-2911

Circle 232 on Reader Response Card

EQUIPMENT

EQUIPMENT FINANCING

- ◆ No Down Payment
- ◆ True Lease or \$1.00 Buyout
- ◆ Fixed Rates, Long Terms
- ◆ No Financial Statements Required
- ◆ New or Used Equipment
- ◆ For Transactions Under \$50,000

CreditLease

Commercial Equipment Financing

To apply or request additional information contact
Chris Simpson or John McMindes

(713) 686-4794

Circle 230 on Reader Response Card

SKB ATA Rack Mounts at an Affordable Price



Meets ATA class 300, Cat.1 Spec. available in 2U - 12U sizes and is half the weight of conventional wooden racks. Call your local dealer for a demo or fax for the name of your nearest distributor.

434 West Levers Place, Orange, CA 92667 (817) 847-5400 FAX (817) 847-6319

Circle 240 on Reader Response Card

Miniloop II,™ Superloop II,™ Superloop "PRO,"™ & "Satellite"™

Personal and Large Space Induction Loop Assitive Listening Systems

Introducing the "3-D"™ (Three Dimensional) Induction ALS

OVAL WINDOW AUDIO

33 Wildflower Court
Nederland, CO 80466
303-447-3607
Voice/Fax/TDD



"The leader in induction ALS technology"

Circle 234 on Reader Response Card

Cord Fox

VELCRO CORD-TIES & "Satellite"™



- Over 20 Standard Designs
- 18 Colors Available
- Custom Printing
- Can Build to Your Specs!

Toleeto Fasteners International
170 Mace St. E-6 (619) 426-3725
Chula Vista, CA 92011 FAX (619) 422-2084

Circle 238 on Reader Response Card

RIP-TIE

Velcro® Cable Wraps



FAST EASY TIDY

800-348-7600
PO Box 77394 San Francisco, CA 94107

Circle 235 on Reader Response Card

Free Catalog & Audio/Video Applications

Routing Switchers (SI-A/V) (24,16,12,8,4,2 stations)

Mic, EQ, Line, Tape, Phone, Osc, Trans., Video, ACN, Pwr. Supp.

Press Boxes 1-in/18-out Video/Audio 2-in/24-out Audio

Video & Audio Dist. Amps. RGB-Sync Dist. Amps.

OPAMP LABS INC (213) 934-3566
1033 N Sycamore Av LOS ANGELES CA, 90038

Circle 236 on Reader Response Card

PRO 400

AC/DC VOLTAGE AC/DC CURRENT DIODE TEST LOGIC TEST LED TEST GOOD/BAD 5 FREQ RANGES 5 CAPACITANCE RANGES LOW BATTERY Warning CONTINUITY TEST BUZZER TRANSISTOR CHECKER 20 MHZ FREQ COUNTER

\$69.95

Stock No. 990082

2 YEAR WARRANTY PARTS LABOR

KELVIN Electronics

(516) 349-7820 (800) 845-9212 FAX (516) 349-7830 VISA M/C

Circle 237 on Reader Response Card

One Stop!

Great Prices Great Service EVERY DAY SINCE 1958!




Qualitone

FREE! 164 pg. Dealer/ Contractor Catalog.

800-431-2490

696 Locust Street Box 214 Mount Vernon, New York 10552

Circle 239 on Reader Response Card

PRODUCT CHECK: RESIDENTIAL

... NOW IN PROGRESS

PRODUCTS

• Audio Tape Players
• CD Players
• Speakers
• In-Wall & Ceiling Speakers
• Signal Processors
• A/V Control Systems
• Racks
• Intercoms
• Security Cameras
• Video Monitors (for CCTV)
• Projectors
• Screens
• Video Monitors (for A/V)
• VTRs

FIRST PLACE

YAMAHA
YAMAHA
JBL
JBL

RANE
NILES
ATLAS/SOUNDOLIER
AIPHONE
PANASONIC
PANASONIC
JBL (HARMAN VIDEO)
DRAPER
MITSUBISHI
JVC

SECOND PLACE

TECHNICS
PIONEER
BOSE
ATLAS/SOUNDOLIER

YAMAHA
AMX
MIDDLE ATLANTIC
NUTONE
JAVELIN
SANYO
SHARP
DA-LITE
SONY
MITSUBISHI/PANASONIC*

THIRD PLACE

PIONEER
TECHNICS
ELECTRO-VOICE
SONANCE

ASHLY
YAMAHA
LOWELL
TEKTONE
BURLE
SONY
SONY
STEWART FILM SCREEN
JVC
SONY

* Indicates tie

... IN LAST SIX MONTHS

PRODUCTS

• Audio Tape Players
• CD Players
• Speakers
• In-Wall & Ceiling Speakers
• Signal Processors
• A/V Control Systems
• Racks
• Intercoms
• Security Cameras
• Video Monitors (for CCTV)
• Projectors
• Screens
• Video Monitors (for A/V)
• VTRs

FIRST PLACE

YAMAHA
SONY
JBL
JBL

RANE
NILES
ATLAS/SOUNDOLIER
AIPHONE
PANASONIC
PANASONIC
SHARP
DRAPER
SONY
SONY

SECOND PLACE

TECHNICS
PIONEER
BOSE
ATLAS/SOUNDOLIER

YAMAHA
AMX
MIDDLE ATLANTIC
NUTONE
BURLE
SONY
JBL
DA-LITE
MITSUBISHI
MITSUBISHI

THIRD PLACE

PIONEER
YAMAHA/TECHNICS*
ELECTRO-VOICE
SONANCE

ASHLY
YAMAHA/CARVER*
LOWELL
TEKTONE
JAVELIN
SANYO
SONY
STEWART FILM SCREEN
PANASONIC
JVC

* Indicates tie

SURVEY METHODOLOGY

1. The sampling pool for the survey consists of sound and communications contractors from Sound & Communications' subscription list. Only contractors within the United States and Canada are called.
2. In a telephone survey, contractors/installers selected at random are asked to identify what brand they used for various products in installations completed in the past six months and those in progress. A different type of installation is highlighted each month.
3. On completion of the survey, results are tabulated and the product brands are ranked on a scale from one to three, with number one having the most votes. Separate rankings are made for installations occurring in the past six months and for those in progress.
4. An asterisk (*) denotes a tie for that ranking.

Copyright © 1991 SOUND & COMMUNICATIONS PUBLISHING, INC. Reprint of any part of contents without permission forbidden. Titles Registered in the U.S. Patent Office. Sound & Communications (U.S. PS. 943-140) (ISSN #0038-1845) is published monthly by Sound & Communications Publications, Inc., 25 Willowdale Avenue, Port Washington, N.Y. 11050. 516-767-2500. President, Vincent P. Testa. Subscription rates: U.S.—1 year \$15.00, 3 years \$37.50. All other countries—1 year \$25.00, 3 years \$67.50. Subscriptions outside of U.S. must be paid in American currency. Second-class postage paid at Port Washington, NY and at additional mailing office. POSTMASTER: Send address changes to Sound & Communications, 25 Willowdale Avenue, Port Washington, NY 11050.

4 Heads are far better than one!

The basic cardioid microphone has long been the backbone of sound reinforcement, but there are times when only another pickup pattern will do. Yet you may not know which pickup pattern is truly ideal until you try several under actual acoustic conditions.

Now UniPoint® gives you full freedom of choice. With each of our six basic models, you can now choose from cardioid, supercardioid, omnidirectional and our new subcardioid polar patterns. And if requirements ever change, just change the capsule.

Best of all, every "a" series or later UniPoint or UniPlate® microphone can accept the new capsules. If an installation is picking up a bit too much reverb, or doesn't have a deep enough null to reject a nearby speaker, update the installation in moments by simply replacing the capsule. No soldering, no tools.

No other line of low-visibility microphones gives you this remarkable versatility. And no other line offers the low noise, dynamic range, and small size of true UniPoint design.



HYPERCARDIOID



CARDIOID



SUBCARDIOID



OMNIDIRECTIONAL



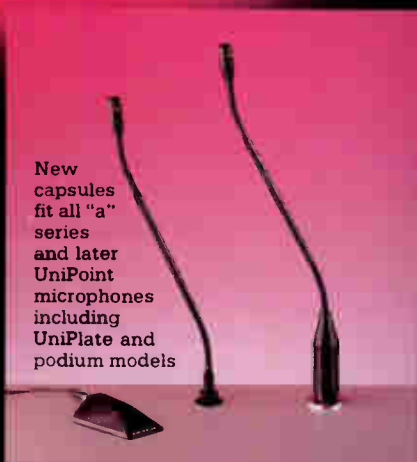
SHOWN ACTUAL SIZE

Indeed, the best keeps getting better...and far more versatile. Ask your A-T representative to explain the details today.



audio-technica

Audio-Technica U.S., Inc.
1221 Commerce Drive, Stow, OH 44224
(216) 686-2600 • Fax (216) 686-0719
In Canada call: (800) 258-8552



New capsules fit all "a" series and later UniPoint microphones including UniPlate and podium models

Circle 212 on Reader Response Card



Even Our Smaller Systems Can Fill A Big Hall.

SR4700 Series

You've seen and heard our big systems, installed in major venues around the world and on tour with some of the biggest names in the music business. The SR4700 Series Loud-speaker Systems are equally at home on the road or in the hall.

Their legacy comes from Cabaret® Series, a prime player in small to medium club sound reinforcement since the seventies. Their influence is Concert

Series™, the new standard in packaged JBL systems. With

Cabaret as the starting point and Concert Series as our current direction, we listened to your comments and suggestions, turning them into the sound system of the nineties and beyond.

The SR4700 Series is pure pro audio. Pure JBL components, the same caliber as those in our larger systems, including the Vented Gap Cooling™ low frequency drivers and the 2445J compression driver. Pure JBL enclosures, five times stronger than traditional designs, and protected by plastic-coated steel grills and super-durable fabric-laminated plywood cabinets. Pure JBL sensibility, interlocking enclosures with heavy-duty steel handles and recessed input connectors, so they travel tighter, set-up easier and last longer.

SR4700 Series, pure JBL. Be the first in line to hear them today at your local JBL dealer.



JBL Professional
8500 Balboa Boulevard, Northridge, CA 91329 USA
A Harman International Company