AES Show Preview

INTERVIEW: RUPERT HINE

THE LEASING GAME
The Electro-Voice N/D857 dynamic microphone, flagship of the new N/DYM® Series II microphone line, is the culmination of years of engineering research, input from major concert sound companies and the unwavering commitment to produce the optimum hand-held dynamic microphone. Combining neodymium aligned technology with innovative design refinements and new damping materials, the N/D857 has evolved into the world's ultimate concert vocal microphone.

The N/D857 employs a revolutionary vibration-isolation suspension system, made possible through the utilization of DynaDamp™. A low-Q elastomeric material, DynaDamp substantially reduces handling and cable transmission noise.

A switchable high-pass filter with an 80-Hz corner frequency, set just below the low end of the vocal range, provides a steep, 12-dB-per-octave rolloff to further eliminate handling noise and stage rumble without compromising sound quality.

P-pops are also significantly reduced by a two-stage filter system, including the placement of Acoustifoam™ on the interior of the Memraflex grille and a secondary pop-filter on the element itself. No other dynamic exhibits more resistance to P-pops.

Furthermore, the addition of a unique acoustical path corrector provides increased sensitivity, more than any dynamic microphone, and an extremely uniform supercardioid polar pattern with superb off-axis rejection and maximum gain-before-feedback.

No other dynamic microphone can deliver the overall sound quality, tremendous output and low-noise handling characteristics of the N/D857.

Step up to the N/D857 and uncover your vocal potential.
THE POWER PACKAGE

Neve VRP Series
Post-Production Console,
Flying Faders Automation,
MITSUBISHI X-880 w/Apogee filters
Roger Nichols, and SOUNDWORKS WEST...
...it doesn’t get any better than this!

Neve
a Siemens Company
Exclusive North American Distributor

CT: (203) 744-6230  NY: (212) 956-6464  TN: (615) 329-9584  CA: (213) 461-6383  TORONTO: (416) 3...
We'd been working hard in the studio for 14 years. It was time we got out for a night.
Spending years on end cooped up in small, dark rooms with a bunch of engineers takes certain special qualities. Durability, for one. We’ve always been known for that. Of course, incredibly clear, uncolored sound quality doesn’t hurt, either. Or hand-assembled components, with gap precision to plus or minus one-millionth of an inch.

These features got TAD speakers into studios like Record Plant, NOMIS and Masterfonics. And the same features are now getting us out of them.

See, we had this funny idea that if TAD could make music sound terrific in a small room, we could make music sound terrific in a huge arena. And every outing we’ve had with Maryland Sound has proved us right.

Not that we won’t still work our woofers off in studios from London to L.A. all day. But, at night, we’d like to get out and jam more often.

TAD Technical Audio Devices

When music is your business.
Contents

AES Preview

52 89th AES Convention Preview
   By the R•E•P staff
A summary of the convention coverage in this issue.

54 Show Schedule
   By the R•E•P staff
An overview of all the events scheduled at the convention.

56 Don Plunkett Interview
   By Dan Torchia
The executive director of the Audio Engineering Society talks about the society's origins, its role in developing standards and the future of AES/SMPTE collaborations.

58 Five Questions: Convention Imbibition
   By Mike Joseph
Mike "Show Warrior" Joseph unshrouds the phenomenon of convention "socializing" and its effects on your body.

60 First Look
   By Laurel Cash-Jones
A preview of some late-breaking product developments that will be announced at the show.

62 Papers and Workshops
   By the R•E•P staff
A comprehensive list of the papers and workshops to be presented at the show.

64 Exhibitor Listings
   By the R•E•P staff
New products and product lines that exhibitors will be showing, arranged in alphabetical order.

66 Product Directory
   By the R•E•P staff
An alphabetical listing of product types and the companies that make them.

68 Product Preview
   By the R•E•P staff
A special version of the Cutting Edge products section, containing only products that will be introduced at the show.

69 R•E•P Interview: Rupert Hine
   By Richard Buskin
Imagine this project: 65 artists, 25 different recording environments, 13 cities, four continents. Producer Rupert Hine details the monumental "One World, One Voice" sessions.

70 The Great Equipment Leasing Game
   By Gregory A. Deloge
Quandary, quagmire or financial bonus?

72 Live & Direct
   By Mike Joseph
Playing With the Big Boys.

74 Clair Bros. Programmable Monitor EQ System
   By Mark Herman
A profile of the joint technical venture between Clair and TC. Electronic.

76 Advertisers' Index

Other Features

Departments

From The Top .......................... 7
Random Access .......................... 10
Fresh Tracks .......................... 20
Sound Business .......................... 26
Digital Domain .......................... 28
Classified .......................... 119
Advertisers' Index .......................... 128
Rapid Facts Cards .......................... 129
Subscriber Cards .......................... 131

AES poster design: Cosmic Muffin Group, ©1990, Audio Engineering Society.

R•E•P: Recording, Engineering, Production (ISSN 0034-1673) is published monthly by Intertec Publishing Corporation, 9221 Quivira, Overland Park, KS 66215. Subscriptions rates are $26 to qualified readers, $30 to non-qualified readers per year in the United States, $50 for qualified and $60 for non-qualified per year outside the United States. Optional airmail for non-qualified readers outside the United States is also available for an additional $10 per year. Foreign subscriptions are payable in U.S. funds only by bank check or money order. Adjustments necessitated by subscription termination at single copy rate. POSTMASTER: Send address changes to R•E•P: Recording, Engineering, Production PO Box 12960, Overland Park, KS 66212.

Photocopy rights: Permission to photocopy for internal or personal use is granted by Intertec Publishing Corporation for libraries and others registered with Copyright Clearance Center (CCC), provided the base fee of $2.00 per copy of article is paid directly to CCC, 21 Congress St., Salem, MA 01970. Special requests should be addressed to Cameron Bishop, group vice president, Intertec Publishing Corporation.

ISSN 0034-1673 $4.00 + $0.00

©1990 by Intertec Publishing. All rights reserved.

R•E•P September 1990

www.americanradiohistory.com
IF A-DAM IS JUST ANOTHER
DIGITAL MULTI-TRACK,
STEVIE IS JUST ANOTHER MUSICIAN.

You know how good this guy is. For total musical abilities there's simply no one better. So when an impressive guy like Stevie tells us he's real impressed with A-DAM, its music to our ears.

Well, what Stevie is doing for music, Akai is doing for digital multi-track. A-DAM. The world's first portable digital multi-track, with the convenience of universally accepted 8mm tape, gives you the flexibility to expand to 36 tracks. It's the only digital machine within the means of any professional application.

A-DAM is the ultimate satellite multi-track. In a midi facility, A-DAM is the ideal primary machine because its SMPTE compatibility lets you devote 12 digital tracks to vocals. And with single frame editing, you can now eliminate the most difficult breaths and pops with absolute precision.

A-DAM. Just another wonder from Akai. Call today for the authorized AKAI Digital dealer nearest you.

AKAI DIGITAL
P.O. Box 2344 • Fort Worth, TX 76113
(817) 336-5114
Digital Recording.  
Hard Questions.  
Simple Answer.

Considering a direct to disk digital recording system? Separating the hype from the hard facts isn’t easy. You’ve got tough questions, and we’ve got the answer—Sound Tools; our Macintosh-based digital recording and editing system. With more than 2000 Sound Tools systems installed worldwide, it’s the best selling system of its kind. Here’s why.

How does it sound? 
In a word, superb. The new Pro I/O™ Professional Analog Interface featuring oversampling converters, Apogee filters and balanced XLRs guarantees there isn’t a better sounding system available.

What about storage? 
Sound Tools uses virtually any Macintosh-compatible storage media (hard disks, optical disks, etc.). And with our unique DATa™ software, you can save all edit parameters with your recordings on regular DAT cassettes.

I’d like to offer my clients CDs. Can Sound Tools help? 
Absolutely. Sound Tools, equipped with the DAT I/O™ and Master List™, will create a CD-ready DAT master. Through CD Express™ from Optical Media International, you can turn your clients’ final tracks into a pressed CD in as little as 48 hours.

We do a lot of film and video work. How does Sound Tools fit in? 
Add our industry standard software, Q-Sheet AV™ with its audio EDL (Edit Decision List) and the Pro I/O for flawless video sync and you’re set—a digital post production workstation.

Okay. Now what about multi-track? 
Simple. Add DECK™ software and you’ve got 4 independent tracks with automated mixing and unlimited digital track bouncing in stereo. And that’s just the beginning.

Great. Now what’s it all going to cost me? 
Sound Tools is affordable and flexible. Configure the system to your needs—here’s what it takes. $3285 for Sound Tools with DAT I/O. Options include Pro I/O. $2995. Q-Sheet AV. $995. Master List. $95. Deck. $349.*

Best of all, Sound Tools grows with you. It’s simple to expand your system with any of a growing number of hardware or software options—such as Studio Vision™ from Opcode Systems, which lets you integrate MIDI sequencer and digital audio in one powerful package.

So call Digidesign today at 1-800-333-2137 for a free brochure and find out how easy it really is to step up to digital. We’ll include our step-by-step guide to CD pre-mastering with Sound Tools.

Sound Designer II 2.0 
New Features
• New DSP Modules
• Compressor/Limiter/Expander
• Pitch Shift with Time Correction
• Continuous SMPTE Sync
• Enhanced Editing Features

Pro I/O Features
• 2 in/2 out balanced XLR connectors
• 8x Oversampling 18 bit DAC with Apogee Filters
• 64x Oversampling ADC
• Video “House” Sync (PAL, NTSC)
• High Resolution Digital Meters

digidesign
1360 Willow Rd #101
Menlo Park, CA 94025
415.688.0600

*Macintosh and hard disk drive not included. All prices shown are suggested list price in the US. Also available for the Atari Mega ST. Some features and specifications may vary.

©1990 by Digidesign. All prices and features subject to change without notice.
Save the Audio Industry

Wanted: An industry organization, in a small universe of non-joiners, to explain complex technology and diffuse controversial issues to a volatile public that is apprehensive about the future.

As we gather for this month's Audio Engineering Society convention in Los Angeles, this industry's main technical convention, it's more apparent than ever that the audio industry is really a collection of individual user groups. Only technology, and the fact that each group deals with audio, keeps these groups in some semblance of unity.

We love our technology, to the exclusion of almost everything else. No anti-tech distracts here; technology has made our jobs much easier; careers have been saved (and ruined!) by it. But technology won't mean a damn thing if you get called into court by a family that wants to know why its son or daughter committed suicide.

Collectively, we've forgotten that there's a public that listens to the audio we create. We've ignored the ramifications that our work has on the public at large. Why? Do we think that technology is our refuge? Do we think that before legal or moral responsibility (or a lawyer's subpoena) reaches us, there is plenty of other targets, such as a record companies, film studios or ad agencies, that will take the bullet before we do?

Wanted: An industry organization that pays attention to the newspapers. In the past couple of weeks, two experiences have convinced me that we can no longer afford to keep our heads in the sand.

Item: I go to my local national chain record store to buy a copy of 2 Live Crew's "As Nasty As They Wanna Be." The store clerk, a guy in his late teens or early 20s, sheepishly asks to see my driver's license to verify that I'm over 18. I'm at least 10 years older than the guy. In what I thought was the freest country in the world, I have to show ID to buy an album?

Item: I get into a discussion with a man who owns a chain of religious radio stations. Why, he asks, is the music industry circling the wagons around 2 Live Crew? Wouldn't it be better off if it distanced itself (in biblical terms, cutting off the offending part) for the greater good of the industry? Can I really defend the material on this album? Are there no limits? Defending a principle in the abstract isn't the same as doing it with a real-life example. First Amendment advocate that I am, I nonetheless had difficulty defending a work that offends me much of the time.

In case you haven't noticed, the mood in the country ain't so great. These events are just the most recent in a trend that's several years old. Consider:

- An engineer, following his client's request, samples an old Jimmy Castor record. Along with the record company and the artist, the engineer is named in the resulting lawsuit.
- More than a third of the country's state legislatures introduce record labeling bills. One actually passes in Louisiana, later vetoed, that includes criminal penalties for the producers.
- The Supreme Court rules in favor of a New York City noise control law, which allows the city to install a city-approved system in an outdoor venue, to be run by a city-installed operator. Volume reductions can be made without the performers' consent if the volume rises above permissible levels.
- Laws requiring disclosure when concert acts lip-sync or use any prerecorded material are introduced in three states.
- In the Judas Priest trial, the plaintiff's expert witness, while identifying alleged subliminal messages, all but absolves the band during pre-trial testimony; he thinks the engineers probably did it, without the band's knowledge.

Wanted: An industry organization that will stand up for us. Who will tell the public that we aren't pornographers and satanists, explain how our technology works to legislative committees, tell the truth about subliminals, and remind the public that as an industry we contribute much to our culture, despite what the opportunists and demagogues would have us believe?

In what group can we meet to discuss such difficult issues as freedom of expression, the nature of technology, self-censorship, freedom vs. responsibility, and our moral or legal responsibility to the public? I don't have any answers; but I do know we need to start talking about these subjects. Soon.

A possible answer lies this month in Los Angeles. We're gathering for the AES Convention. Let's use this opportunity to discuss what can be done.

Sadly, the AES, the organization best-suited to take on a political/lobbying role, is unwilling or uninterested in doing so.
In this issue, executive director Don Plunkett explains that AES was set up as an educational organization and should remain that way. The task then falls to the two other organizations that have a presence at this show. To their credit, both are responding to the challenges before us.

The Society of Professional Audio Recording Services, which is holding a variety of events at AES, recently recommended two members to anti-labeling forces in Pennsylvania. These members testified in legislative hearings against the bill, which was defeated. Additionally, the SPARS board is scheduled to consider the organization's position on censorship and how it relates to SPARS members.

The National Academy of Recording Arts and Sciences, which is sponsoring an AES workshop on mixing for records, has responded to the issue by scheduling an anti-censorship rally in Washington, DC, in late summer or early fall.

As important as these steps are, the goals of both societies do not directly address the issues of the technical community. After all, SPARS' mission is to serve the owners and managers of facilities, so its focus is more business-oriented. As for NARAS, its focus is extremely broad, including artists, A&R, arrangers, producers and engineers.

With both organizations, there is some crossover to the technical/production community. When goals are common, we should welcome the opportunity to collaborate. But we have to fight our own battles. By continuing to ignore the larger societal issues surrounding our industry, we are courting disaster. It's only a matter of time before a law or court decision seriously impairs our freedom. If that happens, we have only ourselves to blame. Wanted: An industry organization that truly looks out for our interests. We have a lot of work to do. The industry we save may be our own.

NEW BUSINESS

In this issue, we're pleased to introduce Mark Herman in our pages. President of High Tech Audio, a Half Moon Bay, CA, sound reinforcement equipment rental company, Mark wrote this month's sound reinforcement article while David Scheirman, RE•P's sound reinforcement consulting editor, is doing house sound for Linda Ronstandt's tour.

Mark is only one of several new writers who made his debut this summer, including Rick Schwartz, director of post-production at L.A.'s Music Animals, and Dan Levitin, a Northern California engineer/producer. It's a pleasure to have them appearing beside such RE•P stalwarts as Scheirman, Paul Lehrman and Laurel Cash-Jones. RE•P's strength has always been in its writers. Whether for the first time or the 20th, we thank them for their efforts.

Dan Torchia
Editor

PERMANENT POWER.

Four new amplifiers from Carver Professional. The PM-120 (40+40W @ 8Ω), PM-300 (110+110W @ 8Ω), PM-600 (200+200W @ 8Ω), and PM-900 (350+350W @ 8Ω).

Each with features you've asked for. Like barrier strip inputs (along with TRS & XLR's) and 70 volt capability.

The new PM-600 and PM-900 also include remote/manual sequential power on/off and rear cover card slot for use with Carver add-in options such as our new PG2 Dual-Zone Paging Module. Call toll-free, FAX, or write us for complete information including Architects' and Engineering Specs on the powerful, accurate, reliable solutions to permanent installation challenges.

Carver Professional

TOLL-FREE 1-800-443-CAVR, FAX 206-778-9453
P.O. Box 1237, Lynnwood, WA 98046

Circle (7) on Rapid Facts Card
Howard Schwartz the man, Howard Schwartz the studio. They've both always done things with a different style.

He's built one of the world's largest recording studios without ever cutting a hit record. Then again, he's always said that audio-for-video was going to be the biggest hit of all.

His competitors laughed, but he laughed last. With eight control rooms in his mid-Manhattan location (including the latest edition — a fully digital editing/mixing suite), Schwartz (the studio) has grown bigger than Schwartz (the man).

But the studio still maintains the creative, warm and friendly character of its founder, who continues to welcome his clients with the finest audio tools, the most innovative engineers, and the best bagels in town.

"People are the only thing you can count on in this business," Howard explains. "I find the talent, I supply them with the best tools, then I let them do what they do best."

One of these tools is AGFA PEM 469 bias compatible mastering tape — the international standard in audio-for-video recording.

"Year after year we have 'shoot-outs,' and AGFA always comes out ahead," he says. "But 'tape...schmape; people really make the difference. And whatever you need, there's always someone you can talk to at Agfa."

AGFA. The hits are on us...and the bagels are on Howard.
This has not been a good summer to be connected in the recording business. Across the country, engineers, producers, artists and record companies are being forced to account for their actions in the studio.

To wit: 2 Live Crew’s “As Nasty As They Wanna Be” was found to be obscene in three Florida counties. In Louisiana, the governor contemplated the country’s first mandatory labeling bill, passed by both state House and state Senate. Ultimately vetoed, the bill that would have provided jail time and fines for retailers, distributors, manufacturers and producers for labeled product sold to minors, and for unlabeled product deemed unacceptable under the law.

But foremost is the Reno, NV, trial of the metal band Judas Priest, which is being sued by the parents of two men who attempted suicide after listening to the band’s “Stained Class” album. One died immediately; the other died three years later of complications.

At issue is whether subliminal messages are contained in the music. Lawyers for the families contend that subliminal messages such as “Try Suicide” and “Let’s Be Dead” drove the men to suicide. The band says that there are no such messages contained in the music.

This lawsuit is being argued as a product liability case. If the words, messages were intentionally inserted in the music, which was then purchased by an unsuspecting public. This gets around the First Amendment protection, which has caused similar cases to be dismissed.

The judge, who is hearing the case without a jury, ruled in pre-trial motions that subliminal messages are not speech and therefore are not protected by the First Amendment. The purpose of the trial is to determine if subliminal messages exist in “Stained Class.”

**Sampling**: Flo and Eddie’s sampling lawsuit against De La Soul has been settled. The former members of the Turtles claimed that a portion of “You Showed Me” was sampled without authorization on De La Soul’s album “Three Feet High and Rising.” Unlike other sampling lawsuits, which dealt with copyright infringement, this lawsuit was filed under a California state anti-piracy statute.

**Live Concerts**: California is the latest state to consider a public disclosure law when a concert uses taped vocals or instruments. That bill appears to be less far-reaching than bills introduced in New York and New Jersey. In California, fans who feel cheated by a concert with canned material could get the ticket price refunded. See David Scheirman’s Live & Direct column in the August issue for more information on this issue.

**SPARS at AES**

The Society of Professional Audio Recording Services is holding a number of events in conjunction with this month’s Audio Engineering Society convention. Add these to your convention planner:

Friday, Sept. 21, 3 p.m.: A special meeting to discuss SPARS programs, and to review and update the National Studio Exam.

Saturday, Sept. 22, 8:30 a.m.: General membership meeting to elect the 1990-1991 officers. To be held at SoundWorks West, transportation from the convention will be provided.


Sunday, Sept. 23, 8 a.m.: Manufacturers interface at the Los Angeles Hilton and Towers.

For more information about these events, contact SPARS as 4300 10th Ave. N., Suite 2, Lake Worth, FL 33461; 800-771-7727; fax 407-842-8263.
L.A.'s Skywalker: Last of a Breed?

Eight months ago, LucasArts Entertainment moved into the Los Angeles studio market with the purchase of the former Lionsgate studios. Referred to as Skywalker Sound South, this facility boasts a film re-recording stage, a combination ADR/Foley stage, two sound transfer rooms and a 25-seat screening room, all outfitted with the Lucasfilm THX sound system.

However, the big excitement is the new ground-up facility being built five blocks away. Dubbed Skywalker Sound South Olympic, this overwhelming 30,000-square-foot facility may very well be the last of its kind to be constructed from the ground up in the Los Angeles area, due to such factors as changes in the marketplace, the price of real estate and construction costs.

This new facility was designed by John P. Edwards of Edwards & Edwards Architects. Construction is being done by Tishman, with acoustical design by Jose Ortega of Paul S. Veneclausen and Associates. The construction is being orchestrated by Lawrence Goga, one of the two chief engineers of Skywalker Sound South. The equipment installation is being done by David Carroll Electronics and Larson Technology.

Equipment installation is being overseen by John Brunnick, chief engineer of Skywalker Sound South. The facility will include two identical re-recording stages with Otari Premiere 88 input consoles, both with Diskmix III Moving Fader automation. Each will be equipped to record Otari DTR-900B 32-track digital or 35mm 6-track film. The playback is 35mm with either digital or analog audio. The ADR and Foley stages will be outfitted with Otari LARTEC Computer Controlled Consoles.

Two videotape-based rooms are identical in size. Both rooms are equipped with a 72-input Otari Premiere console with Diskmix III automation. One room will be outfitted with four Otari MTR-90 24-track machines. The other will be billed as the “New Technology Room” and will be centered around the new SoundDroid, a co-venture between LucasArts Entertainment and New England Digital. [See this month’s First Look column for more information — Ed.] Both will offer high-definition video playback projection.

There is a 70mm 6-track THX Doiby surround screening room that seats 49, and a layover/lavback room that has one of the hippest designs yet devised. This room truly is a wonder. The first portion of the room is a somewhat typical layover/lavback control room but has glass so that the engineer can see to the monitor in the far room.

The far room has been designed as a comfortable living room experience with a sofa, coffee table and chairs and (of course) a home THX environment. It is set up to allow a producer to actually make adjustments to the layback while sitting in a living room atmosphere. There are also multiple transfer rooms as well as a centralized machine room for the Magnatech film recorders and dubbers used on the re-recording stages.

Other equipment being utilized includes all JBL power amplifiers, JBL/THX speaker systems in every room augmented with Boston Acoustic Surrounds (which are also being used as the recordists monitors). The equalizers are by Rane.

Bruce Markoe, general manager, projects an early October opening for the ADR and Foley stages, and the transfer and screening rooms. “We plan to open the first re-recording stage Nov. 12, and the second on Dec. 10,” he says.

The combination of the two Skywalker Sound South facilities in conjunction with their existing Skywalker Sound North facility promises to make LucasArts Entertainment a “force” to be reckoned with.

— Laurel Cash-Jones

William C. Mohrhoff has joined E-mu Systems as vice president of worldwide sales and service. David W. Roudebush has been promoted to U.S. marketing and sales manager for AKG Acoustics, Orban Professional Products Division and dbx Professional Products Division. Jesse Maxenches has joined AKG in the newly created position of regional manager, Western Hemisphere. At AMS Industries, Stuart Hirotsu has joined AMS as sales executive, and Julie Stratton as office manager. Ridge Nye of Interface Audio has been appointed the AMS representative in the Southeast. John Carey has been promoted to vice president of sales and marketing at Otari. Tony Marra has been named customer service manager of Klark-Teknik. Paul Schmidman has joined Meridian Data as vice president of marketing. Elizabeth Gillespie has joined Clarity as marketing manager. Ediflex Systems has appointed John Patrick Warrington as a digital audio engineer in the Audiflex division. Digidesign has appointed M3 Sweatt as director of international sales and marketing. Peggy Dold has joined the New Music Seminar as an executive director. Kelly K. Hannig has been appointed director of research and development. Scott Robbins has been named western regional sales manager at Crown International.

“I don’t know if the musical group was actually involved in [inserting subliminal messages]. I am more inclined to believe that possibly a producer or engineer or one of the technicians involved in the production was involved in it.”

— William Nicklof Jr., plaintiff's witness, in pre-trial testimony in the Judas Priest case, analyzing what he claimed were subliminal messages in the album “Stained Class.”
If we were to tell you that our new S-770 is the best digital sampler in the world, you'd probably mutter something about truth in advertising and go on about your business. When, as you'll discover momentarily, it's absolutely true. And, as you'll also discover momentarily, the reason for it has less to do with any one feature in particular than it does with several features working in conjunction.

Such as the fact that the Roland S-770 is equipped with AES/EBU Digital I/O, so it's actually possible to set up a fully integrated digital production facility.

We've also equipped our S-770 with both 20 bit D/A conversion and Differential Interpolation, thereby giving it higher resolution than any other stereo sampler.

And while we're making comparisons, allow us to offer another one. With 24-voice polyphony, the Roland S-770 has more voices than any other comparably-priced sampler. So you're not only assured of getting
extraordinary sound but the flexibility to go along with it.

Before we forget, the S-770 is also blessed with an elephant-like internal memory. It can be expanded to 16 megabytes which, for those of you without calculators nearby, translates to 83.5 seconds of continuous stereo sampling time at 48 kHz—twice as much as any sampler in its price range.

While we're on the subject of price, there's one more thing we should mention. On many samplers you have to add a slew of peripherals. On our sampler, you don't. Things like a 40 megabyte hard disk drive, SCSI port, Digital I/O and RGB video monitor output all come standard.

Of course, these are just the highlights. For the rocket-scientist information, write us at the address below or call (213) 685-5141.

And as far as the sonic boom is concerned, that comes later. When you hear the S-770 being played live.
### STUDIO UPDATE

<table>
<thead>
<tr>
<th>Facility/Location</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HAWAII</strong></td>
<td></td>
</tr>
<tr>
<td>Sea-West Recording Studios, Sea-West Productions/Pahoa</td>
<td>Moved to The Big Island, Box 2063, Pahoa, HI 96778; 808-965-8841; fax 808-965-8853.</td>
</tr>
<tr>
<td><strong>CANADA</strong></td>
<td></td>
</tr>
<tr>
<td>Soundwerks/Vancouver</td>
<td>New facility for rehearsal and music production. Equipment: Soundcraft 6000; Otari MTR-90 II 24-track 2-inch; UREI 6260 and 6290 power amplifiers; UREI 8130 monitors; Tascam MSR-24 1-inch tape machine. 1969 Pandora St., Vancouver, BC, V5L 5B2 CANADA; 604-255-3536; fax 604-255-8711.</td>
</tr>
<tr>
<td><strong>EUROPE</strong></td>
<td></td>
</tr>
<tr>
<td>Abbey Road/London</td>
<td>Additions: Sonic Solutions digital mastering room; another Cedar system; another Mitsubishi 32-track digital machine; a third mobile with DDA desk; another Direct Metal Mastering lathe; a multiple R-DAT copying room; an increase to 55 cassette machines in the real time cassette copying facility; a Sony DAE 3000 editor; a third Studer A820; an increase to 15 PCM 1610/1630 systems; residential accommodations.</td>
</tr>
<tr>
<td><strong>MANUFACTURERS</strong></td>
<td></td>
</tr>
<tr>
<td>AMEK Systems and Controls</td>
<td>Deliveries of 40-input Mozart consoles: Today Video (New York) and Loomis Productions (Texas).</td>
</tr>
<tr>
<td>Neve</td>
<td>Pacific Recording (North Hollywood) has upgraded to a VR72 with Flying Faders Automation. 525 Studios (Los Angeles) and Studio 306 (Toronto) have added VPR48s with Flying Faders. Soundcastle Recording Studios (Los Angeles) has purchased a VRP72 with Flying Faders.</td>
</tr>
<tr>
<td>Otari</td>
<td>The first Sound Workshop Series 54 console was installed at RO Studios (Concord, CA). LucasArts Entertaiment has purchased four Premiere consoles for the Skywalker Sound South audio post-production facility in Santa Monica, CA.</td>
</tr>
<tr>
<td>Solid State Logic</td>
<td>Vancouver Studios (Vancouver, Canada) has purchased two ScreemSound digital audio- for-video editors. Right Track Recording (New York) has installed an 88-input G Series console.</td>
</tr>
<tr>
<td><strong>DEALERS</strong></td>
<td></td>
</tr>
<tr>
<td>AudioTechniques/New York</td>
<td>John Guth Productions (New York) has purchased a Peavey/AMR 2400 Production Series console; Jeff Layton Music Production has purchased a Trident 24 console.</td>
</tr>
<tr>
<td>SG Audio/Chicago</td>
<td>River North Studios (Chicago) has taken delivery of a 56-input DDA DCM232 console with full automation. Optimus (Chicago) has purchased a Neotek Elite Film console.</td>
</tr>
</tbody>
</table>

---

**Clariates** (Ocala, FL) to represent its line of pro audio consoles and power amplifiers in Florida.

Audio-Pro, Springfield, MO, has purchased QSC MX Series amplifiers for its new house and monitor systems.

Sales of **Digital Dynamics'** ProDisk digital workstations set a record in the second quarter of the year. In the New York area, **Martin Audio Video** has been named the exclusive dealer for the workstation.

---

**ADDRESS CHANGES**

**Klark-Teknik** has relocated its American headquarters to larger facilities at 200 Sea Lane, Farmingdale, NY 11735; 516-249-3660.

**AudioTechniques** has moved to a 10,000-square-foot facility at 1619 Broadway, New York, NY 10019; 212-586-5989.

**AKG Acoustics** has moved to a 77,000-square-foot facility at 1529 Alvarado St., San Leandro, CA 94577.

---

**DISTRIBUTION NEWS**

Mark IV Audio has selected **Altec Lansing** for the distribution of Dynacord products in North America.

**Swire Magnetics** now has exclusive distribution rights for all products presently being manufactured by Olamon Industries.

**AudioTechniques** has been named the exclusive dealer in the northeast U.S. for RPG Diffusor Systems.

Apple Computer's corporate video facility, **Apple TV**, has taken delivery of a Digital Dynamics 8-track ProDisk-464.

**Southern Thunder Sound** has opened a repair center for sound reinforcement electronics and speakers.

TGI plc has acquired the entire issued capital of **Martin Audio Ltd.** Martin America, the U.S. distributor for Martin Audio, remains in Chatsworth, CA, under the direction of TGI North America.
The APR-24. In a couple of years, it will become even clearer why you bought it today.

The Sony APR-24 Analog Multi-track Audio Recorder not only meets your production needs today, but those of the future as well.

It's a remarkable combination of reliability and advanced engineering that won't become obsolete as your requirements expand.

To provide dependability and alignment stability, we've constructed a die-cast aluminum webbed deck and tubular welded frame. And the state-of-the-art amorphous-metal heads give the APR-24 significantly longer head life and a smoother, more extended frequency response.

The APR-24's microprocessor fully integrates control of the transport, alignment, signal routing and timecode functions. So you can take advantage of the built-in synchronizer and precise automated punch-in/punch-out operation.

Since these operations are software-based, the APR-24 can incorporate new features and performance improvements. Such as our unique serial interface that enables the APR-24 to control a Sony VTR for a video sweetening project. Or a second APR-24 in a dual 24-track music recording session.

To learn more, call us at 1-800-635-SONY. With the APR-24, it's clear today why you can look forward to the future.
More artists go gold on Ampex than on all other tapes put together.

Every artist pictured here has earned the prestigious Ampex Golden Reel Award for creating a gold album exclusively on Ampex audio tape. In fact, of all the gold albums released last year—and the year before—most of them were laid down exclusively on Ampex tape. And it’s a good bet that most of the others used Ampex for the majority of their cuts, too. • At Ampex, we respect the art of music and the rare ability it takes to create it. Being an artist means committing your body, mind and soul to your profession. It means fighting to preserve the integrity of your talent. It means never compromising your sound. • We’ve made our own commitment to provide you with the highest quality, most consistent, most dependable audio tape in the world. Tape created with the same uncompromising attention to detail that you bring to your music. • For all the details on what makes Ampex tape right for your sound, just call or write for a copy of our new 456 Technical Brochure, and see why Grand Master® 456 is engineered like no other tape in the world.

Ampex
A MASTER OF ENGINEERING
The Time: “Pandemonium”

Produced by: The Time
Production supervision and coordination: Jimmy Jam & Terry Lewis and Jesse Johnson
Recorded at: Paisley Park, Flyte Tyme, Jungle Love, Sunset Sound, The Skillet and The Time Studios
Engineered by: Steve Hodge, Femi Jiya, Tom Garneau
Second engineers: Matthew Larson, Dave Friedlander, Chuck Zwicky, Brad Yost
Mixed at: Flyte Tyme Studio D by Steve Hodge
Mastered at: Bernie Grundman Studios by Brian Gardner
SPARS Code: N/A

Comments: The popular hype associated with the much-celebrated reunion of the 1980s R&B group may or may not raise the eyebrows of the '90s music culture; however, from a technical achievement, this album brings much more to the party than a history lesson in funk.

Of special interest: While the stylistic presentation evident on previous productions from Messrs. Day, Johnson, Lewis and Jam (and dare we say Prince) have fancied their way into these recording sessions, we must once again note the talents of Steve Hodge. His work previously noted on Janet Jackson’s album, he has managed again to creatively deliver a clear and imaginative mix.

Vladimir Spivakov/Moscow Virtuosi: Vivaldi “The Four Seasons” and Violin Concertos RV 278 & RV 357

Label: RCA Victor
Produced by: Yolanta Skura
Engineered by: Yolanta Skura
Mixed by: Yolanta Skura
Recorded At: Eglise du Liban, Paris
SPARS Code: DDD

Comments: This is one of the best-sounding classical recordings we have heard. The fact that it is all digital is even more impressive. So many all-digital classical recordings have such a grating and unnatural high end that it is easy to see why digital has gotten a bad rap in the popular audio press. This recording is a superb model of how good digital can sound in the right hands.

Of special interest: The dynamic range of a symphony perfectly captured on tape is really something to hear. The full orchestra surrounds the listener; the quiet parts are unobstructed by background noise or hiss. The genius of the engineering is that the featured instruments seem to be in stereo when they are playing alone, yet they never lose their specific place in the orchestra when the ensemble as a whole joins in. We would like to know how Skura did this. Perhaps through close-miking, but the acoustics are so rich and natural sounding that they suggest otherwise.

Harry Connick Jr.: “We Are In Love”

Label: CBS Records
Produced by: Harry Connick Jr. and Marc Shaiman
Assistant producer: Ann Marie Wilkins
Executive producers: Dr. George T. Butler and Bobby Colomby
Recorded and mixed by: Joel Moss
Assisted by: Gregg Rubin
Second engineers: David Marquet, Elaine Anderson and Sandy Palmer
Recorded at: Evergreen Radford Studio, North Hollywood, and RCA Studio B, New York
Mixed and edited at: Smoke Tree Ranch Studios, Chatsworth, CA
Mastered by: Bernie Grundman
SPARS Code: DDD

Comments: There’s an adage among those of us who surf the higher tides: “When you ride the really big one, keep busy and make sure you’re noticed.” If Connick’s brisk rise to stardom hasn’t caught your eye, perhaps one of his two recently released recordings will convince you of his work ethic. “We Are In Love” was recorded in just 10 days — no mean feat considering the number of musicians and today’s project studio standards.

Of special interest: The much-ballyhooed, multitrack, a cappella escape in the track “Heavenly” is actually executed very smoothly. The imaging of string ensembles, particularly the smaller sized ones found in the poignant “Drifting,” are impeccable.
Because compromise is out of the question

Whoever said, “compromise is the oil that lubricates the business process” apparently wasn’t in the studio business. To the contrary, in this unique world where art and business meet, and clients expect the best, compromise may be the fastest way not to stay in business.

That’s why Otari tape recorders come with something behind the meters. 

Our MX-80 and MTR-90 multi-tracks are used all over the world to produce hit CDs and major motion picture sound tracks, and for good reasons. For example, if you’re involved in audio post, you’ll appreciate a capstan motor that is designed to be speed-slewed, plus external control connectors for easy interface to any SMPTE/EBU time-code based synchronizer, editor or machine controller.

For whatever you do in audio, both machines share constant tension transport technology for high performance, yet gentle tape handling. You’ll also get digitally timed, gapless, seamless, punch-in, punch-out. On the “80,” an autolocator with search zero and three cue memories comes built-in. And if you’re a purist looking for the highest quality sound possible, you’ll appreciate the transformerless balanced inputs and outputs.

The MX-80 and MTR-90 were designed from the beginning to lock to external controllers, and therefore provide exceptional performance under these conditions. Pictured is the MTR-90’s advanced EC-101 chase synchronizer.

And to keep everything where it belongs as you move from one studio to another, something else you have to look beneath the surface to see—a 2” thick, cast alloy deck plate.

It’s not that we don’t have our imitators. We do. But to coin an old phrase, beauty is more than skin deep. And someday when you’re under pressure to get that track out, and you lock a “90” to your video machine and things happen exactly the way they should... Or some early morning after the talent has gone, you sit back and listen to what you’ve put together; you'll be glad you decided that “compromise is out of the question.”

Call Otari. (415) 341-5900.

Otari isn’t in the toy business. The MX-80 and MTR-90 sport 2” thick cast alloy deck plates, heavy duty swing arms, and motor shafts designed to handle the exceptional acceleration characteristics of these machines.

Otari’s proprietary integrated circuitry provides superior reliability and reduces service time.

Circle (12) on Rapid Facts Card
Bob James:  
"Grand Piano Canyon"

**Focus:**  
**AL SCHMITT**  
Basics engineer, "Grand Piano Canyon"

R•E•P: The bass on "Bare Bones" is one of the most full-range sounding basses I've ever heard.  
AS: We used a tube direct, the James Demeter.

R•E•P: That's it? That's a pretty short secret.  
AS: That and a good player. I usually use a tube limiter, like an LA-2A, and I pull very little, maybe a decibel and a half or 2dB, just really to get the sound of the tube. No EQ. I use very, very little EQ.

R•E•P: You mean generally?  
AS: Yes. I usually use placement of microphones to get what I want.

R•E•P: How did you mic the piano?  
AS: I think I used a couple of Schoeps or CI2s. It's hard to remember; it's been a while now. I used Schoeps on the Joe Sample record I just did. If I use CI2s, I put them inside the piano as high as I can get them, up over the sounding board.

R•E•P: Do you keep the lid on?  
AS: Yes. If I use the Schoeps, I use them sometimes in a X-Y pattern across the top. I recorded the basics, including piano, and then I know some of the piano was redone in New York, but I don't know which of it was redone.

R•E•P: How did you mic the drums? They're really clear, and, for an all-digital recording, the drums don't always sound so natural.  
AS: Well, the whole thing is really placement and choice of mics. I used a Neumann 47 FET on the kick (with some padding inside), a Sennheiser 452 on the snare, miking just the top, a 452 on the high hat, two 452s for overheads, AKG 414s on the toms and two Beyer M50s for the room.

R•E•P: You made this album on the Mitsubishi X-880. Do you like that better than the Sony?  
AS: Maybe I do, a little bit. It just sounds better to me. Although I do like Sony's 3348 — that's really nice. But I don't do a lot of digital recording. Most of the stuff I do is analog and then we transfer to digital. I was talking to Bruce Swedien this past weekend, and a lot of the stuff he does is recorded 16-track analog for basics and then transferred to digital. I do that a lot, only with 24-track, not 16-track.

R•E•P: You said you don't use a lot of EQ, and yet your records are plenty bright...  
AS: It's microphones. If they're in the right place, things should sound naturally bright. That's how I learned. When I learned engineering, and when I was just starting out, there wasn't a lot of EQ on the boards and we didn't have a lot of inputs. A lot of engineering was microphone techniques and where to put the mics to get the best sounds. We didn't have isolation booths and a lot of that stuff, so you had to learn to use the room and the leakage and the microphones for the sounds you wanted.
En Vogue:
“Born To Sing”

Focus: KEN KESSIE
Principal engineer, “Born to Sing”

KK: I think the engineering on this record is interesting, because it’s kind of “anti-engineering.” Its purpose was to not detract from the songs, or from the soul or the vocals. But to just support the songs and be invisible. I found that’s kind of hard to do, because one’s natural tendency as an engineer is to try and impress people with sound, with shimmer and so on.

Everyone definitely decided we wanted to tone down the drums for this record. It’s kind of been a direction lately because of rap — with a lot of the snare drums coming from old James Brown records and stuff — so the drums are not as powerful and whacking you in the face like they were two years ago.

The drums, of course, were drum machine, and it was played off a sequencer in a 4- or 8-bar pattern. Believe it or not, all of the other instruments, the keyboards and bass, were played by hand, which is kind of contrary to modern R&B. Most R&B is done completely with sequences. That’s part of how 2 Tuff [Foster & McElroy’s production company, 2 Tuff-E-Nuff] gets their feel; the drums are right on and everything else is off a little bit.

RÆP: What kind of mics did you use on the girls?
KK: That was a Neumann 250 on the lead. On backgrounds we used an AKG 414 because we needed more brightness and more pattern variation — sometimes I’d use figure eight, sometimes omni, depending on which song we were doing.

RÆP: Did you compress the vocals to tape?
KK: Yeah, an 1176. With what the studio had available, it was either that or dbx 160s, and I find those can crush the vocals too much. They can grab them and make them too thunky in the front. I wanted to do those vocals as “soul” vocals in the old-fashioned sense.

To me, most modern vocals are overprocessed; there’s so much Harmonizer, AMS Delay, compression and short room put on them that you can’t even tell who the singer is anymore; it’s equal effects and singer. I tried to keep the vocals bright and clear so that the personalities of the girls would come through. The vocals are bright and maybe at times slightly distorted so they’re exciting — like old-time Motown vocals, where they weren’t super clean but they were there and they were dramatic.

RÆP: Do you have any mix notes?
KK: I used the SSL console limiter on the lead vocals. From tape, they went into a GML EQ and then into a dbx 902 de-esser. On the GML I went +9dB at 16k (you can see why I need a de-esser), +3 at 10k, +2 at 1.2k, +2 at 200 and +2 at 80. I tend to use really narrow EQs, both on the GML and on the SSL, very narrow “Q.”

RÆP: Is that so you’re not mussing up all of the other frequencies in the area where you want to be?
KK: Exactly, it means I’m able to fit more into the mix. With most R&B, you’re trying to fit 10 pounds into a 5-pound bag and you do a lot with compression, but you also do a lot with pinpoint EQ.

In a way, it makes everything smaller rather than bigger, because that’s what you have to do to make it fit. Like Hugh Padgham, who mentioned it in the June RÆP [RÆP Interview — Ed.], I very much prefer the E series EQ in the SSL.
Flexibility, no matter how you spell it, means power. It's the power to meet varied needs. To meet budgets with optimum performance. To efficiently accommodate system growth. Long into the future.

Flexibility is the essence of Rane's new FLEX System. The first universally compatible, cost effective, modular approach to signal processing and routing. With no special requirements. And no dead ends.

Each Flex module is an HR (Half Rack) compatible, UL/CSA/VDE approved, self-contained processing unit. Each capable of being EIA rack-mounted either horizontally or vertically, with inexpensive, readily available hardware. Or simply set on a shelf, stand-alone fashion.

HIGH-POWERED COMPATIBILITY. Using standard 3-pin, ¼” or barrier strip connectors. FLEX modules are directly compatible with professional audio gear. And since they are remote powered—via Rane's proposed power supply standard—troublesome ground loops, hum and agency approval problems are solved up front by design.

ENDLESS POSSIBLE COMBINATIONS FOR CUSTOM DESIGNS. The FLEX non-exclusive modular concept makes it inherently expandable.
and upgradeable. It boasts a large and growing number of functions and components to choose from. Mixers, Preamps, Splitters, Crossovers, Dynamic controllers, Equalizers, Amplifiers, Line drivers. And much more under development.

And thanks to Rane's efficient bus design, system wiring is greatly simplified in even complex mixing and splitting layouts.

**COST EFFECTIVE CAPABILITIES.** Modular flexibility. Uncompromising performance. All without a premium price. That's the FLEX System manifesto. There is no expensive mainframe to buy; you only pay for the functions you want, when you want them.

Say, for example, you only need a 3 channel mixer with one channel of crossover. The FLEX System delivers. And when your needs expand, just add more modules. No need to obsolete old equipment for a loss.

Whether you use two modules or twenty modules, the FLEX System remains cost-effective. And supremely flexible. Year after year.

**SUPERLATIVE PERFORMANCE, RANE RELIABILITY.** The design and performance of each and every Flex module is, in a word, superlative. Every model carries top-grade studio specifications, utilizing the best components available. The result is unsurpassed performance and reliability.

Our HR compatible modules may be compact, but they're stuffed with more top-notch features than you would have thought possible. For example, the FMI 14 Mixer Input module measures only 1.5" x 10.5", yet it boasts a -128dB EIN mic stage, switchable phantom power, true 20dB pad, powerful 3-way EQ section, insert loop, two source-selectable Aux sends and balanced master channel outputs. A single DIN cable, supplied with each module, routes the Master and Aux buses from unit to unit for quick and clean hook-up.

The FMM 42 Master Module not only provides Aux returns and mixing, but features extra mic and stereo line inputs with ducking capability for paging and other applications.

For even more mixing flexibility, the FPM 44 Program Mixer allows 4 separate mic or line inputs to be mixed to 4 output programs, with pre or post fade switch selection for the Aux sends. Both the direct balanced/unbalanced terminal strip and the DIN Flex bus inputs and outputs can be used simultaneously for easy expansion and integration into larger systems.

Carrying on a fine tradition of innovative equalizer technology, Rane sets yet more new standards with the Flex Series. The FPE 13 Parametric Equalizer provides 3 separate bands, each capable of +15/-20dB boost/cut, 2-octave down to 1/3-octave bandwidth range for notch capability, and a full 10kHz frequency sweep range for unprecedented flexibility.

The FME 15 MicroGraphic Equalizer brings Interpolating Constant-Q filter performance to the Flex line, pioneered by our full-sized GE 30 current balanced outputs, and you've got a powerful, flexible new crossover standard.

This is but a sampling of the innovative Flex Modules to be released this year. We encourage you to obtain separate, detailed data sheets on the many FLEX System modules. Then compare these with the best standard equipment available. You'll discover that FLEX offers the best of all worlds: compact, cost effective, flexible, uncompromising performance.

---

FLEX

**MODULAR SIGNAL PROCESSORS**

RANE

10802-47th Ave. W.
Everett, WA 98204
(206) 355-6000

Circle (13) on Rapid Facts Card

www.americanradiohistory.com
Reality: What a Business Concept!

By David Porter

As I write this column, my company is ending its fiscal year and I am completing my term as president of SPARS. Both events bring time for reflection on what was planned and what actually happened.

My company grew larger and more complicated, and in about 45 days my CPA will hit me with the bottom line. Did we have another "pride of ownership" year, or did we actually generate enough profit to worry about those overlooked quarterly tax prepayments? Or, is this the year we really put it in the toilet?

The facilities business is the only one I know of where people are so entranced with owning the new technology that they leave their business brain at home and plow right ahead even when it is painfully obvious that new acquisitions make no economic sense whatsoever.

We have to get it. We can find the money somewhere and in five years it will be paid for and all of the debt service will turn into profit! Right? I seriously doubt it. I'm convinced there is no magical point in time where changes in technology will slow down enough for any of us to stop building and buying, and allow us to stand back, collect cash and clip coupons. It's not going to happen.

Most of my philosophical speculations in the industry magazines have been aimed at convincing studio owners and managers to charge a fair rate for the services they provide. In other words, stop giving it away. As I look at my year-end account books, I have to ask myself a tough question: Am I a hypocrite? If I'm having another "pride of ownership" year, then I am guilty of giving it away as well. This leads me to believe that we studio owners are all pretty much alike.

whether we have a one-room operation in the suburbs or 17 rooms in midtown Manhattan. We all want to have the best technology available, even if our clients can't—or won't—pay a reasonable rate.

How do we deal with this perpetual dilemma? First, we need to become realistic about our particular marketplaces. There may not be a market for a $1 million automated digital room in Mooselips, ID. St. Louis may not need 10 of them. Also, we need to plan for the technological obsolescence and charge enough to make a profit while paying off the debts.

Axiom No. 1: Gross in 12 months what your facility cost to build or buy. If you buy something new, it should increase revenue in the next year by that same amount, less depreciation. If you are financing equipment with 5-year money, this formula should keep you out of trouble.

There may not be a market for a $1 million automated digital room in Mooselips, ID.

Axiom No. 2: My informal poll of studios indicates that engineers make approximately 20% of what they bill. A little more in the sub-$100/hour market and a little less in the plus-$200/hour market. Total labor costs of engineering and support usually run between 30% to 38% of gross.

Axiom No. 3: If you finance with 5-year loans or leases, be careful when total debt service of principal and interest is greater than 10% of gross sales.

I can imagine all of you running for the file cabinet now to find last year's financial statement for analysis with Porter's Axioms. There are certainly many exceptions to the rules and it would be very presumptuous of me to suggest that anyone running a facilities business along different guidelines is wrong.

There are no hard and fast rules, but I have seen these percentages come up time after time. The figures appear to be typical throughout the country, in both large and small markets.

The bottom line is to be realistic about being in business. Many of us were not trained in high finance and come from a musician/engineering background. We may have stumbled into this business through the back door. As the market becomes more populated and competitive, we need to step back and take a well-considered businesslike approach.

If your marketplace can't support a $400,000 console, don't fool yourself into thinking it can. There are not enough low-rate hours in the day to pay for it. Your profits will dwindle and you'll end up working for free. You must provide facilities and services that fit the market. Do some serious research before purchasing, and then face the facts. Your desire to own something does not necessarily mean that the market can support it.

You might ask how I came up with all of this worldly wisdom. I make a point of grilling my SPARS associates with the hardest of questions. I talk to the big corporate guys and the independent entrepreneurs. It is amazing how people share their hard-earned experience when given a non-threatening forum in which to speak.

SPARS provides the network for studio owners, managers, engineers, producers and manufacturers to talk openly about financial and technical issues. Our interface program gives the manufacturers the opportunity to evaluate our feedback on new and existing products. Our business conferences offer practical information for operations, personnel, finance and marketing.

The SPARS National Studio Exam is a valuable tool in evaluating the skills required in the professional audio environment. Our digital workstation conferences have provided the in-depth, comparative and comprehensive information crucial to making the right purchasing decisions.

I hesitate to use the word communication because it has become so expansive in its ramifications that it no longer serves us well. Some years ago, the term networking became popular and has now lost much of its true meaning. Call it what you will, but the personal and professional relationships, conferences and industry connections which flourish through SPARS are among the best professional resources available today.

The annual AES Convention is an excellent time to join with your colleagues from around the country and learn how others are making a go of it. The only way to profit from SPARS is to participate.

The Society of Professional Audio Recording Services is the audio industry's best source of business information. For information on membership and activities, contact SPARS at 4500 10th Ave. N., Lake Worth, FL 33461, 407-541-6648, fax 407-642-8263.
UNPRECEDENTED.

Industry standards. To be redefined at AES.
Booth 200

GUARANTEED EXCELLENCE

CROWN®

Made in America Exported as Amcron

Circle (14) on Rapid Facts Card

www.americanradiohistory.com
To Live & Die in LA

By Rick Schwartz

Trade shows are like ... summer films. (You know you're going to be disappointed, but you go anyway, because you don't want to miss out on anything.) Manufacturers can live or die based on how well their new products are received at a major trade show, such as this month's AES Convention in Los Angeles. This is because buying decisions for high-ticket items, such as consoles and tape machines, are often made during or shortly after a show. Manufacturers compete aggressively for your dollars.

Trade shows force manufacturers to "show their hand" several times a year. I've heard that some companies wait until several months before a major trade show and then try to cram six months worth of work into six weeks. Sometimes they don't make it. More than a few of the new devices shown this fall will be one-of-a-kind prototypes.

Real production units won't be ready to ship until months after the show is over. It is not uncommon to announce a product at one trade show and not ship it until the next one. Some products never ship.

Software companies have it a little easier because of the special tools that help programmers design their user interfaces. These utilities make it easy to create software that looks like a real application, but is really just a collection of working screens.

Last fall, a well-known audio manufacturer announced a revolutionary new audio workstation. I stood mesmerized at the booth for more than 10 minutes before I realized that there were no loudspeakers. Imagine that: an audio product that can't make a sound. I walked away, shaking my head, only to find out later that it was the "talk of the show." (Almost a year later, the product still hasn't shipped.)

Rick Schwartz is a sound designer/engineer and director of post-production for Music Animals, Los Angeles.

Some people come to trade shows in search of the next "big thing." Little in recent memory has done more to change the recording industry than the compact disc. Although first accepted by audio enthusiasts, CDs quickly became a mainstream product that has surpassed the sales of LP records. Until recently, pressing a CD was a costly task because of the cost of maintaining a clean room, which is 10 times cleaner than a typical operating room, to manufacture the glass master. No studios I have worked in meet this criteria.

DESKTOP CDs

Desktop CD mastering was first shown last fall at the New York AES show. Marketed by Gotham Audio, the system consists of a Yamaha write-once CD burner and an IBM PC. Since then, there have been CD-R systems from Sonic Solutions and others. The cost for a complete desktop CD mastering system has been hovering in the $50,000 to $100,000 range, hard- ly within the reach of the average facility. This may soon change because of a joint venture between Optical Media International (OMI) and Digidesign. OMI, based in Los Gatos, CA, is no stranger to optical technology. In 1986, it introduced the first CD-ROM system for use in recording studios. It contained a large collection of sounds for the E-mu Emulator II sampling keyboard. Recently, the company has added a new service called CD Express. Not only can CDs be pressed at a reasonable cost, but the need for a Sony PCM-1630 master is no longer mandatory. This helps to keep costs down, because a PCM-1630 rents for about $500 a day.

CD Express offers limited special pricing to Sound Tools owners who send in a DAT created using Master List software. For $199, OMI will prepare a DAT master for transfer to CD. There are two types of disc replication available: desktop and factory. Desktop CDs are ideal when small quantities are needed. A single disc can be pressed for as little as $299 plus artwork and shipping. Also, the turnaround is normally less than 48 hours.

Factory CDs are the best way to go when you need more than 100 discs. Of course, the price goes down as the quantity goes up. For quantities greater than 1,000, discs cost as little as $2. There is one catch: Factory CDs take a little longer to make, with the average turnaround time being three weeks.

All of this makes me wonder why we are still paying an average list price of $14.98 for something that costs major labels less than two bucks to press. Although these prices do not include fancy artwork and studio time, I find it hard to believe the record company's argument that the cost of signing new artists is the reason for such high retail pricing.

DIY CDs

This month, OMI is scheduled to ship its new macTOPiX CD Publishing system. All that's needed, in addition to a Mac CPU and an editing DAT master, is a special Sound Tools package from Digidesign and a CD maker. The macTOPiX system uses the Sony CD-R writer to produce Red Book-compatible discs, as well as CD-ROM and CD-I discs. According to Allen Atkins, OMI president, total system cost will be less than half the price of similar systems. If this pricing trend continues, maybe someday we'll have Photomosaic-style CD service bureaus. Drop off your DAT by noon and pick up your finished CDs the next day.

MIXERS WITH MIDI

Moving fader packages are more popular than ever, for obvious reasons. What could be cleaner than a system without any of the signal degradation that VCs can cause? Also, there is never any question where your fader is, or if it's playing back your moves correctly.

I was pleased to see a moving fader system that also controls outboard gear via MIDI. The package is made by Uptown Systems of Boulder, CO. MIDI allows the mixer to easily automate signal processing devices from Eventide, Lexicon, TC Electronic, Yamaha and others. Effects can be switched in and out with frame accuracy, programs can be stored and recalled during playback of a mix, and moving faders can be assigned to vary effects parameters in real time. Expect other manufacturers to follow suit.

SHOW SCOOPS

I don't have a crystal ball, but ... Don't be surprised if you see a new, low-cost digital console at the show. Of course, the "War of the Workstations" will rage on, so expect several companies with DAWs to add exciting DSP capabilities. Expect more 1-bit A/Ds and 18- to 20-bit D/A. A nifty AES digital fiber interface will be shown by AID, and every product will be heralded as "perfect for post."
Into a technological world where 16 bit digital sound is the norm comes The Reference. At 20 bits, it's unprecedented for sonic purity. Without peer in performance.

Incorporating more than 40 years of Crown's technological achievements, The Macro Reference represents our philosophy of going beyond industry expectations. We have once again created new standards in sound amplification.

With The Reference, you will truly experience the sound of the live performance. This is an advantage you must hear to fully appreciate...

in an amplifier designed to be displayed.

For complete specifications visit your nearest Crown dealer. Or call Crown direct at 1-800-535-6289.
Having immersed himself in a welter of production projects since the early '70s with such names as Tina Turner, Stevie Nicks, Bob Geldof, Chris De Burgh, Howard Jones and the Thompson Twins, producer Rupert Hine has also done his fair share of fader fiddling. However, it is a safe assumption that nothing has been like "One World, One Voice."

When trying to come up with a novel way of involving music biz celebs in last May's international "One World" ecological campaign, Kevin Godley — the ex-10cc drummer, now a successful video director — settled on the idea of putting together a "chain tape." This would take the form of a tape traveling around the world, and various artists recording their own unique contributions, tagged one after the other. All of this would be filmed and thus the result would, if...
Imagine this project: 65 artists, 25 different recording environments, 13 cities, four continents.

Producer Ruper Hine details the monumental "One World, One Voice" session.
all went as intended, differ considerably from the Live Aid-type production.

What started out as an idea for a 20-minute multitrack ended up using the services of 65 different artists/bands/orchestras, taped in 25 different recording environments, located in 13 cities on four continents. All was accomplished within the generously extended schedule of 8 1/2 weeks, from the original 6-week estimate.

Hine, in the middle of producing a new band's debut album, was asked to drop everything immediately and take on the simple task of pulling the whole operation together with engineer and frequent colleague Stephen Tayler.

Nothing could be more straightforward: Six weeks in which to travel around the world and record as wide a variety of musicians as possible ... book the plane tickets!

**LOGISTICAL CONSIDERATIONS**

"We were literally our own roadies, because everyone had to carry their own gear — including flight cases galore — in and out of major airports," said Hines. "So the physical side alone was pretty exhausting. An awful lot of plane flights and an awful lot of locations to set up in, each one totally different. Only when we'd arrive there would we have any idea of what equipment would be appropriate, so we'd really have to carry most of it with us, humping it all around even if most of it wasn't used at each place.

"Toward the end of the project, upon arriving somewhere, it would only take a 2-minute conversation between Stephen and myself to figure out how to record something. To start with, however, it had been like an hour of head-scratching, and even halfway setting up one system before deciding that it wasn't going to work!"

"Kevin Godley had Sting lined up in New York as the first participant, and the idea was for him to lay down some kind of basic groove — a bass and drum track — and that we could then go on building it. The 24 hours that I had to think about it before the first production meeting was enough for me to say to Kevin that this wouldn't be a good idea, because if we wanted to pick up world music artists, from continents like Africa and South America, these people can only really express themselves by using rhythm in a very individual way. Rhythmic increases and decreases are all part of their performance, and so being tied in to some metronomic groove would be very restrictive.

"Therefore, I suggested that we start with a 5- or 6-minute stretch that would at least get something going, and then the next person who received it could either add something to that in a lateral way — meaning overdubs — or in a linear way, extending the piece and changing or developing the tempo and so forth. The next musician would then have two sections to choose from if he wanted to overdub laterally, or he could add to the end of either piece."

**ONE CHANCE**

"It was explained right from the start that once the chain tape has passed through your hands, it has gone for good, and you have to accept whatever takes place thereafter. The only really doubtful feedback was from Lou Reed when he first heard the overdubbing to his own segment. But once he heard the whole thing in context later on, he realized it was OK. His piece was just two guitars and bass, and, in a way, because it was so good and so complete, it didn't invite that many contributions.

"But a French accordionist in Paris named Richard Guilliano liked it and added these kind-of squeeze-box references. He's an astounding player, very liked in the jazz circles, and he has an incredible ear for listening to almost any kind of music and finding a really nice niche for himself. So I liked it a lot, and once Lou heard it within a broader framework, he was fine about it.

"On one occasion, I wasn't too pleased with what I heard: The Azuquita Salsa Band, of Cuban origin but based in Paris, played in a very uplifting style, but the lyrical content was not in strict adherence to the desired environmental theme, be it on a global level or a local one.

"The song was basically about himself. Azuquita means 'little sugar,' and one got the impression that it was really giving the message that a little bit of azuquita helps the medicine go down! It wasn't really in quite the right spirit."

**ONE TAPE**

From the outset, Hine and Tayler decided that the idea of using one master tape was going to be impractical; far too many complications would arise out of trying to retain the same recording medium. Consequently, almost every known medium — bar 4-track was used: 2, 8, 16, 24, 32- and 48-track, both analog and digital, on cassette and reel-to-reel, DAT, 1/2-inch and 1/2-inch, at various speeds, using Dolby A, Dolby SR or non-Dolby.

"We needed a compiler and so we looked at the DAR SoundStation II, but we weren't able to hire a 16-track version. In the end, we opted to do something that initially looked like a pretty jokey way of doing things. That was just to have a little Tascam 238 8-track cassette recorder, and because both Steve and I are very used to spooling things in and doing everything live — as your ear tells you — it worked out very well.

"On the few occasions when we honestly had enough time to sit back and review what we'd done — and that was probably only on about three or four occasions throughout the entire couple of months — it served the purpose very well. During our pre-production we somehow thought that we'd get back to hotels late at night, and have an hour or two where we could sit and put things into the SoundStation II and juggle them around, but it was not to be.

"We'd get back to the hotel at two in the morning, absolutely wasted, having to get up at six that morning to catch a plane. So no one was in a very creative mood at that point!"

**DAT IN THE FIELD**

"In Brazil, we were recording a samba orchestra out in the street, and we used four mics into two DATs: two mics very close to them, and the other two further away. Then, when we got back to the hotel, we laced the tapes onto the 8-track, just manually spooling them in. Having got them perfectly synced, we jostled with the levels and found we had lots of good control, so we started opening up that system more and more. In the end we used all four DATs in exactly the same way.

"Richard Kershaw at HHB Hire told us that the clock rate now on the new generation of DATs is so perfect, you can pretty much guarantee that if you find a sync point, they'll stay in synchroniztion. This turned out to be the case, to a point where it was almost unbelievable.

"We were running these four DAT machines, recording things like the Kodo drummers in Los Angeles (at the Royce Hall, UCLA) with two mics on stage, two just in front of the stage, two halfway down the hall and two at the back of the hall. Steve did a dummy of it, shortly afterward on the 8-track cassette, just roughly syncing them up over the performance, and they stayed perfectly in sync.

"Later, when we got back to Nomis Studios in London and put them into the NED direct-to-disk 8-track, once we found the start-point, they again stayed in perfect sync, and it was just as if we had a DAT 8-track.

"Originally, the only reason we had that number of DATs was that Steve and I were going to have a DAT player and one spare each, but it ended up being an 8-track in four bits, and it worked perfectly. There wasn't one instance where we had any problem at all. We'd use them in a number of combinations; sometimes — in the case of overdubs — we'd use 6-track and have the fourth DAT for playback, so people could hear what they were overdubbing to off the one machine while they were recording to the six other tracks."

"When we recorded Johnny Clegg, the only way we could grab him was at a
200 Delta. From the smooth contours of its sleekly styled shell to the advanced circuitry that delivers unprecedented performance, Delta is the compact console of the nineties. Expanding on the modular versatility of its 200 Series predecessors, Delta incorporates many innovations unique to Soundcraft. Advances in low profile console design that go well beyond the obvious restyling.

Delta delivers superb sonic quality, with an improved electronic design that incorporates a new microphone preamp and active panpot. And, because Delta selectively bypasses any circuitry not in operation, you can be assured of optimum transparency.

Delta delivers unmatched versatility and control. With Standard, Deluxe, Stereo and Dual-Line Input Modules, Delta can meet a wider variety of applications. By adding up to four Group Modules, configuring just the right console for your application couldn't be easier.

sound check for a gig, in this huge concert hall called the Salle Espace Foire (in Lilles, France). At the last moment, he announced that he'd also like to overdub vocals and things, so all his stuff was going through the live sound mixer and we took a stereo feed from that.

"We used the same multi-DAT system, but all going through the 8-track, and so this became our multitrack recorder. When he'd done the first pass, we then gave him playback off the 8-track through the stage monitors, and then they'd record the vocals onto two more tracks, backing vocals and squeeze box after that, and so we actually used up our six spare tracks on the 8-track and had a complete 8-track tape.

"It was then a question of duplicating those same overdubs on the NED back in London, this time straight off the DAT ... crazy, really!"

FINAL SESSION
Having recorded the thunderous Japanese beat of the Kodo drummers, Hine began to think in terms of combining this with an orchestral segment in order to give the record a strong ending. Hine had already prepared a synth string outline when, still fitting back and forth between Europe and Africa, he called upon the services of Simon Jeffes, whose orchestrations have ranged from film and TV productions to Sid Vicious' rendition of My Way.

At 10 p.m. on Saturday, April 28, all 94 members of the Leningrad Symphony Orchestra turned up en masse in the Leningrad Philharmonic Hall, ready to do their bit for charity.

"I'd overdubbed a click to the Kodo track and we fed this to the conductor through headphones, so it was a bit clearer where the first beat of the bar was. He had a go at keeping time with it and it was bloody difficult, and we had to offset timings when we got back to London to try to make it a bit more 'in the pocket.' Considering that we had two hours to set up all our equipment, however, for them to rehearse this piece and another one for Howard Jones' section, record both and be out by midnight, we didn't do too bad! It was the last piece that we recorded and it was the last piece on the program, and so it really felt final. You know, 'We've done it!' We all shook hands and fell flat on our backs at the end of a last crashing chorus from this orchestra. A great finale in every sense of the word!"

---

**Portable Equipment List**

- 4 Sony TCD-D10 Pro DAT recorders
- 1 Tascam 238 8-track cassette recorder
- 1 Yamaha MV1602 16-channel mixer
- 6 Sony MDR V6 headphones
- 2 Sony MDR V7 headphones
- 1 Sony ECM MS5 stereo microphone + power supply
- 1 Sony ECM 979 stereo microphone
- 1 Crown Sass-P stereo P2M microphone
- 2 Shure SM58 microphones
- 1 Yamaha FX500 multi-effects processor
- 1 set of Acoustic Research speakers with built-in amps
- 1 Anker battery-rechargeable speaker with amp for playback

---

See the D&R

**MARILON**

in booths 750 & 851

at the AES 89th Convention.

TOTAL CONTROL

D&R USA • Rt. 3, Box 184-A • Montgomery, TX 77356 • Phone: (409) 588-3411
D&R Electronica b.v. • Rijndade 15B • 1382GS Weesp • The Netherlands • Phone: (-) 31 2940 18014

Circle (50) on Rapid Facts Card

www.americanradiohistory.com
A Woof and a Tweet just can't compete...

Music Workstations of the 90's demand new MONITOR STANDARDs.

When you've spent a small fortune on sampler and synths, and the Steinway, Bosendorfer and Baldwin samples all sound like a tack piano...

it's time for MONITOR STANDARDs

When a decent scratch mix on your small monitors sounds completely different on the mains...

it's time for MONITOR STANDARDs

When you're sick and tired of “fixing it in the mix” or worse yet, you're in mastering, and discover that the snare's lost somewhere in the ozone...

it's time for MONITOR STANDARDs

While other speaker manufactures were busily touting benefits of exotic metals, "new" materials technology, and reaching amazing new heights of hyperbole...

Radian has quietly introduced the most significant advancements in small monitor systems in decades! Premium performance point-source coaxials.

Call for the name of the nearest Authorized Dealer to arrange for a demonstration in your studio.

MONITOR STANDARD is a registered trademark of Radian Audio Engineering, Inc.

Circle (16) on Rapid Facts Card

4520 Eisenhower Circle, Anaheim, CA 92807
TEL: 714-693-9277 FAX: 714-693-9278

www.americanradiohistory.com
It's time to buy a world-class console. But until now, the two or three that you'd consider all carried price tags that you wouldn't.

Catch the M700, the console with unbelievable sound at a price you'll find hard to believe: About $70,000.*

When you're looking for a world-class console, your first consideration is, what does it sound like. And because the final instrument for testing sound quality is your own two ears, you've got to hear the M700. You'll then find out how well it compares to the consoles that defined "great sound."

Then get some hands-on experience. The M700 is designed around familiar industry standards with no

**NOW YOU CAN GET UNBELIEVABLE SOUND AT A PRICE THAT SOUNDS UNBELIEVABLE.**
surprises to slow you down. Everything is where it should be, from full parametric EQ to its 12 auxiliary sends, which makes operating speed another of the M700's best features.

You'll get superb routing flexibility, with 40 in-line monitors, 80 inputs, 32 subgroupings and quad outputs. When you decide to move up to digital, to accompany your console, one option to consider is the DASH format DA800 24-track digital recorder with award-winning ZD circuitry. Currently available for $99,000; it's destined to be the best-sounding 24-track around.

So before you invest in any console, you owe it to yourself to hear the M700. We think you'll agree that the only thing more unbelievable than the sound of the M700 & DA800 combination is its price tag.

*Manufacturer's suggested retail price. Actual price may vary from dealer to dealer.
Quandary, quagmire or financial bonanza?

The Great Equipment Leasing Game

By Gregory A. DeTogne

Chances are that if you own or operate a facility, the subject of outfitting your studio with leased equipment has arisen. Chances are also considerably better than winning your state's lottery that you've been left befuddled and confused at the many leasing options available.

The questions surrounding the whole process are many. What's better, an operating lease or a capital lease? Should you insist upon a dollar purchase option, or a 10% buy-out? Better still, what about taxes? When is a lease not a lease, but just a re-packaged form of financing?

This article will try to sort through these questions and more. And for those that feel there's never a need for a leasing program, if you simply have to have that new SSL console for your B room, and have walked away from your local pro audio dealer without the slightest hope of ever being able to buy one outright or through your friendly banker, maybe it is time you read on and take a serious look at what the various programs offer.

WHERE TO TURN

Logically, it makes sense to look at where you might turn to get into a leasing program first. For starters, you can try your standard pro audio leasing company, and if you don't like what you hear, you can skip the middlemen and go right to the manufacturer. In principle, the latter may sound the most advantageous, but in reality it may not be. In many cases, a manufacturer will refer you to a leasing company that the manufacturer uses regularly to help move its products.

Let's examine the world of pro audio leasing agencies, their ways, habits and programs. Essentially, there are three major leasing companies dealing exclusively with pro audio in the United States. The "Big Three": Sigmet Corporation, Valley Forge, PA; Century Financial Services Group Ltd., Chesterfield, MO; and Terminal Marketing, New City, NY.

At Sigmet Corporation, Al Fisher has been officially given the job of handling leasing operations. While Fisher himself is a seasoned veteran of the leasing wars, Sigmet's leasing division has been in existence for only 18 months. Despite its tender years, however, the firm today is processing approximately $500,000 worth of applications per month, and has outfitted a wide variety of studios with everything from monitors to consoles.

In addition to acting on its own behalf, Sigmet manages leasing programs for manufacturers such as Community Light & Sound. According to Fisher, the present proliferation in his business is due in no small part to the escalating price tags on major pieces of equipment, which have been reaching for the sky in ever greater leaps and bounds.

"Studio owners are learning how to better conserve their capital, and leasing is one of the methods of saving they are turning to more frequently," he says. "The Fortune 500 companies have traditionally made almost 50% of their product purchases through leasing arrangements, yet smaller companies tend to stay away from it, mainly, I think, because of fear and lack of knowledge.

"The market climate today, however, especially in the recording industry, has pushed them into looking at leasing as an option. After all, you can't buy a console for $3,000 anymore, and to stay in business once you progress, you have to have modern equipment, yet can't always lay out $20,000 or more at a time. When you reach this point, that's when leasing comes in as a viable alternative!"

In most of the leases Sigmet holds, studios have chosen one of two options: the dollar purchase option (which means at the end of the lease you own the equipment for a dollar), and the fair market value option (which means you can either buy the leased equipment at the end of
Don Was Is

Producer of the Grammy Award-winning "Album of the Year" Nick of Time by Bonnie Raitt, the comeback album Cosmic Thing by the B-52's, as well as Iggy Pop's new album Brick by Brick, Don also collaborated on the critically acclaimed Was (Not Was) album What Up, Dog? and the hit single "Walk the Dinosaur."

Don chose the Peavey Audio Media Research Production Series™ 2400 Console and the PRM™ 308S Phase Reference Monitors for his studio after searching for and testing many different brands on the market. Like many other professionals of his caliber, Don appreciates the performance, features, quality, and creative freedom AMR equipment offers. The Production Series 2400 Console features 4-band full sweepable EQ on each Input, 8 Aux-Efx Send/Returns, 92 Inputs with EQ available for mix-down, an on-board MIDI command center for control of outboard devices, low-noise design, and many additional production facilities. The PRM 308S Monitors have uniform frequency response, a minimum of coloration, and feature a selectable switch for reference and EQ playback for the option of hearing how your music sounds in an alternate environment.

If you're designing a new recording studio or upgrading your present one, check out the complete line of professional audio equipment from Peavey...

DON WAS DID.

PEAVEY AUDIO MEDIA RESEARCH™

Circle (18) on Rapid Facts Card
your term for whatever fair market value is, or you can crate it back up and return it — you are under no obligation to buy.

In the case of the latter, the fair market value usually could be anywhere from 10–15%. Against this backdrop, Fisher believes that one of the most important factors studios should consider when contemplating a lease is the size of the monthly payment.

"No matter what they’re thinking of buying, if the dollar per month figure doesn’t fit their pocket, leasing is a bad idea," he says. "A studio should also look at the tax advantages of leasing vs. buying and leasing vs. going to the bank. Sometimes leasing will offer an advantage, and sometimes it will not.

"In some cases, it can be written off as a regular expense. You don’t own the equipment, so it’s not an asset or a liability. The best person to explain the difference between leasing and the tax advantages is your accountant. Be advised though, that every accountant will look at leasing differently."

Tom Roche at Century Financial has made a name in the business by providing turn-key lease/purchase financing for studios small and upscale alike. An authorized rep for Yamaha, JBL and others, he feels leasing is on the upswing for a variety of reasons.

"First off, manufacturers today are finding that they can’t sell their equipment unless it comes with its own finance package," he says. "You have to also factor in depreciation, which is extremely important since the tax laws changed in 1986. Depreciation is critical in leases that cannot be written off totally because now, pro audio gear has been made 7-year proper-

You can see right away that if you enter a lease/purchase agreement for $10,000, and you’re on straight line depreciation, you have to write that lease off over seven years.

"However, if you enter into a similar arrangement that runs only two years, you can write the whole thing off in two years, thereby accelerating the depreciation process by five years.”

Century Financial will happily write fair market, dollar purchase, 10% outright, or operating leases. Similar in concept to the fair market lease described by Al Fisher, Roche says his version of this lease is used infrequently — only when the customer wants the absolute lowest payments. Only 1% to 2% of his customers go with the dollar purchase option. According to Roche, this is because the IRS does not view this as a lease, which prohibits the customer from writing off the entire amount of his monthly payments as an operating expense. Roche’s 10% outright lease is admittedly his most frequently written.

"Typically, studios want a straightforward, no questions asked, write-off-their-payments 100% lease with a 10% purchase option," he says. "As far as operating leases are concerned, I’ve found that they are really only suited for larger companies. On most operating leases, your purchase option is 20% or greater, but you get significantly lower payments."

"LEASING HAS HELPED US WHEN BANKS WON’T"

The ultimate advantage represented by leasing in Roche’s opinion is the fact that studios can use his programs to grow faster than through conventional bank financing.

"We may start out a small studio with a 24-track Studer, and a couple of months down the road they call back, say it’s working great, they’re now a little ahead financially, and are ready to do a B room. Next week, we’ll get them a B room going, then a MIDI room, and so forth. In many cases, none of it would have ever been possible if you had to rely upon purchasing the gear outright.”

With regards to the latter point, Mike Busby is one studio owner who readily admits that he couldn’t have grown as fast or gone as far without leasing. Busby, who along with partner Miles Christiansen owns Post Logic, a Hollywood audio-for video post facility currently encompassing eight rooms, started with what eventually became a 2-room studio in another location.

"When we were ready to expand, we took the equipment from the first two studios with us into our new location, then leased an SSL 6000 as the first major piece of equipment for the expansion," Busby says. "From there, we went through three other leasing companies for most of the equipment in the rest of the rooms. We took this step primarily because we had to front the money for the construction of the new facility ourselves, so there was not enough in bank loans left for us to buy equipment with.

"For us, the bottom line with leasing is that a leasing company makes it easier for people in the recording industry to get the money for improvements. Clearly, we pay a premium in higher interest rates for this easier access, but the leverage is there when you need it. Leasing has helped us when the banks wouldn’t, but banks in general are leery of businesses like ours anyway because they don’t understand us.”

John Fry has been at the helm at Ardent Recording in Memphis, TN, for almost a quarter of a century. Legendary in status with recorded product to its credit from the likes of ZZ Top and REM, Ardent has financed its equipment acquisitions over the years with a combination of bank loans, leasing and installment sales contracts from manufacturers. For Fry, whether he leases or chooses another form of financing doesn’t depend so much on taxes and the general economic scene, but on the recording studio’s own business cycle.

If you ask Murray Allen, obsolescence is the critical factor to consider when leasing. President of Chicago’s Universal Recording Studios, Allen has been leasing for
years, but not when it comes to outfitting entire rooms.

"My advice on this subject is really quite simple," he says. "Lease anything that's computer-based. The hardware changes so fast that it's usually always cheaper to lease, and many times you have no down payment.'

**MANUFACTURER PROGRAMS**

Manufacturers involved in lease/purchase programs are finding that their sales have increased as the result of using either their own leasing programs or going through an agency. Conversely, leasing agencies representing manufacturers find that working directly with manufacturers provides them with a valuable ally when it comes to re-marketing equipment or finding new clients when a lease goes bad.

"Leasing is a very good idea for manufacturers, because it helps them arrange financing for their studio products without losing control of the deal," Sigmet's Al Fisher points out. "And really, that's why you have leasing programs. For example, if a person went out to look at consoles, and saw one he liked but couldn't come up with the $20,000 it would take to purchase it on the spot, he'd say, 'Well, I'll check with my bank and get back to you.' As any good salesman knows, once the person walks out the door, he usually won't be back. With an available leasing program, a dealer or manufacturer can tell that same person that he can place a credit application in his own system right there and then. In the ideal version of this scenario, the person makes a commitment, gets his console, and is taken out of the marketplace. From my perspective, if I can make two sales each month for a manufacturer that he wouldn't have made otherwise, I've done a good job for him."

---

**Leasing Companies**

These are the three main leasing companies that write letters for professional audio equipment. Before you enter into any leasing program, have your accountant examine it.

- Century Financial Services Group, 15455 Conway Road, Chesterfield, MO 63017; 314-537-0330. Contact: Tom Roche.

- Terminal Marketing Co., 5 Waverly Court, New City, NY 10956; 914-634-7601. Contact: Sandy Schneiderman.

- Signet Corporation, 2-130 Valley Forge Office Colony, Box 995, Valley Forge, PA 19481; 215-783-6666. Contact: Al Fisher.
Playing With the Big Boys

By Mike Joseph

Have you ever found yourself wondering why the vast majority of really big tours feature speaker systems built by the specific rental companies supporting that tour? Or why there aren't more full-blown, off-the-shelf manufactured touring systems? Why, in light of the very limited number of component speaker and driver suppliers, do most touring companies insist on “rolling their own”? The answer lies in tradition, and understanding the precedent requires a brief dip into history.

Back in the germinal days of low power woofer and phenolic diaphragm drivers (short excursion Altec, E-V paging horns and JBL 100W guitar speakers), sound companies learned quickly that boxes bought off-the-shelf not only sounded bad, but vibrated apart under power and tore themselves to pieces merely in the process of being moved about. The components fried when you ran them with the really big amplifiers of the day (Crown DC-300s and the now-unknown Flame Linear 700s).

Serious early companies, like Hanley Sound on the East Coast and Tychobraci on the West, learned you had to use lots of wood, with lots of bracing, to get the things to hold up at all on the road. Stacks were block-and-tackle affairs, platformed from the stage up.

These early tourers learned that cabinets had to stand up to local union crews and lift trucks first, and sound good second. Sounding good meant sounding just decent under the full onslaught of clipped square wave signal, typically the best that got delivered with too few amplifiers and generally low-tech power distro.

When fiberglass horns hit the scene, these same companies had contests over how many broken yokes and cracked necks would be piled up after a tour. Back then you either bought JBL metal horns or you weren't a player.

Touring companies learned early that the key to survival was building your own, controlling the ruggedness of the cabinets, the balance and weight tradeoffs, the number of parts you could stuff inside, ever-striving for max SPL and killer density.

And over the years, everything was tried and tested, usually in this way: “We've got a show locked in if we can pull together 24 cabinets, but the old ones don't sound so good (anymore), so we'll put in another order to JBL with the money I'll borrow (again) from Dad, and we'll build up a whole bunch of new boxes to the design of the one box we built last week (which sounded great in my living room), and it'll be bitchin’!” Somehow, quite a few companies survived through this. At least until the owners got too old for the road.

Why do the majority of big tours feature speaker systems built by the rental companies supporting that tour?

Along this road, after the skids and sleds got abandoned, cabinets were built every way imaginable: with four front load woofer on a baffle, with one woofer on a huge horn, with horn mids, with cone mids, with multiple drivers facing into single chambers, some slanted, with passive crossovers, or active, with two or four drivers coupled on a single horn (an idea almost as old as the compression devices themselves), with multiple horns in the same bandpass range, with slots/bullets/interference tubes for tweets ... you name it.

All did something right. Few were well-balanced in all areas — fidelity, loading, excursion, projection, pattern control, array-ability, weight, durability, ease of installation, etc. But they generally did the right thing. They didn't break in the long haul, which (back then) you couldn't buy off-the-shelf.

Today, the big guys, the companies with their own colored shirts labeled Sound or Crew beside the company logo, still live the hard-learned lesson: if they build it themselves, they have total control over what it will do, how it will survive, and how it matches everything else they have.

A company invested in 650 2445s is not going to switch over to brand No. 2 because it's a little sweeter at 16k. Especially not if there are 40 aluminum frisbees in the warehouse already in FedEx bags.

Of course, we also know that more than a dozen audio manufacturing companies around the world have finally learned how to design and build complete speaker systems every bit as capable, in every necessary way, as the proprietary concert touring boxes. But in all likelihood, these systems will not show up at the big boy’s party in any quantity. It's not because these systems aren't good. Nothing could be further from the truth. Many are much better, in fact.

And for the regional or local company not competing with the financial do-or-die intensity of the big boys, or without the resources to go through the long development process and cash outlay inherent in tweaking out a really good box, off-the-shelf is great. Competitive performance at minimal costs. But the big boys can afford the dedicated development leading to a unique design. They have to.

The bottom line the big companies need is uniqueness. What sets one company apart from another is not the boards or the amplifiers, but the speaker system. Aside from service and the stable of in-house mixing engineers that a rental shop can offer, the speaker system is the single most important personality stamp a touring company can have. If it really does what it's supposed to do, be it combine coherently when hung 40 wide, or hit the back wall at 105dB, so much the better. Either way, they are the company's signature, more than anything.

To paraphrase Albert Lecesse of Audio Analysts in Montreal, touring companies are like ex-factory racing teams. They tweak on little things, which may or may not provide a big competitive edge somewhere down the road, but you have to believe it will.

That's where all new ideas get tested, whether it's delaying the entire front stack back to the phantom equipment amplifier line-up plane (to present a coherent front wave off the stage), or reconing all of the woofs with the wrong paper to get linear phase and the damping to match the cabinet tuning; they have to try it.

That edge is what they sell. That edge is how they service their clients.
In an age of disk and digital, why buy analog?

We know there are some applications where our 32-channel digital machine, the DTR-900, is the only answer. But if your business is such that you can do anything you want to do in the analog domain, and at the same time do less damage to your budget, then our brand new analog 24-channel MTR-100A may be the perfect machine for you.

When you consider that the MTR-100 will literally change forever the way engineers interface with audio machines, and transport is pinchrollerless to give you the legendary tape handling ballistic of our MTR-90.

What’s more, with its optional EC-103 chase synchroizer, the MTR-100 maintains frame-lock in forward and reverse from 0.2X to 2.5X play speed, and will typically park with zero frame error.

Then, there’s the sound. New cylindrical-contour heads built by Otari especially for the MTR-100 result in remarkably low crosstalk and outstanding low-frequency performance. Pre-amps are located directly beneath the heads to further improve frequency response, and HX-Pro* is built-in for enhanced high frequency headroom. (An optional internal noise reduction package houses Dolly* SR/A.) Add all these features to gapless, seamless, punch-in, punch-out, which is also built-in, and your MTR-100’s sonic performance will rival, or beat any digital machine in the world.

So there you have it. With these powerful benefits available in analog, does it make sense to go digital? Sure, for some applications. But analyze your needs carefully before you buy. For many applications, a hot analog tape machine like the MTR-100 is the right choice.

And because we can see both sides of the question, put us to work. We have information that can help you make the right decision. Call Otari at (415) 341-5900 for the “Technology You Can Trust.”

The MTR-100’s auto-alignment saves you hours of time by eliminating constant tweaking and re-tweaking between sessions.

that this new way will save you hours spent in non-productive time, the analog choice begins to make even more sense. You see, the MTR-100 features full Auto-Alignment that allows total recalibration of the record and reproduce electronics. This means you can compensate for different tapes in a fraction of the time that it previously took, and your studio is not bogged down with constant tweaking and re-tweaking between sessions.

And if you think digital machines have a corner on high performance transports, think again! The MTR-100’s new transport incorporates reel motors that approach one horsepower—you’ll get fast wind speeds of up to 474 inches per second! Of course, the

Trademark Dolly Laboratories Licensing Corporation

Reel motors that approach one horsepower are driven by pulse width modulation amplifiers to tape speeds up to 474 ips.

Circle (20) on Rapid Facts Card

www.americanradiohistory.com
By Mark Herman

A profile of the joint technical venture between Clair and TC Electronic.

Step up and take a quantum leap into the future of live equalization engineering. Imagine using a portable remote device that controls numerous outboard equalizer preset memory settings, as well as reads, computes and displays EQ curves and spectrum analyzer data. Picture soloing a monitor mix, which moves high-speed motorized faders on the remote device into a true graphic representation of the equalization response curve applied to that mix. No over-the-shoulder EQ rack scanning is necessary.

With the slightest of ease you can adjust and choose between 99 individual preset EQ curves on any of the outboard rack-mounted equalizers. A backlit LCD on the compact remote head provides further visual information, including spectrum analysis and various softkey functions.

Somewhat far-fetched? It's all available right now with Clair Bros Audio's new TC6032 remote controller system, based on the TC Electronic TC1128 equalizer and a custom-designed controller. This summer marked the concert touring industry's debut of the system, which has the possibility...

System Operation

To adjust or view an output channel:
1. Press the corresponding device select button for the desired output mix; the faders will automatically jump to their positions, which will be whatever the last EQ memory location selected.
2. If needed, adjust the output mix by moving the faders on the TC6032 remote just as you would on a regular graphic EQ. This new mix can be stored as a separate preset or left in a comparison mode by selecting the A/B preset. This allows you to toggle between the move you just made and the selected preset you had before.
3. If you decide to assign the new mix its own preset number, press the 0-9 keypad buttons and then the Store button. This output mix can now be accessed by simply touching the preset number.
4. To access, view and control the LCD, press either the Menu button or soft keys as necessary.

Mark Herman is the president of Hi-Tech Audio Systems, a sound reinforcement equipment rental company based in Half Moon Bay, CA.

A total of 16 TC1128s and one 6032 controller were used on the Don Henley tour.
If You Think All Professional R-DAT Recorders Are Alike...

Wait Until You See What JVC Unveils At AES

- SMPTE time code capability for pinpoint audio and video synchronization
- Analog and AES/EBU digital I/Os for universal compatibility
- 45 pin parallel and 9 pin serial remote for simple connection to edit controllers
- Delta sigma conversion performed by 64 times oversampling
- 256 times oversampling 16-bit D/A converter
- Manufacturer’s suggested list price is under $5,000

To find out more about JVC’s DS-DT900U R-DAT recorder call 1-800 JVC-5825.
bility of revolutionizing modern onstage monitor engineering and even front-of-house as well.

THE NEED FOR CONTROL

After analyzing input from its experienced, road-savvy engineers and technicians, Clair Bros. came up with the 6032 concept. Clair requested European audio manufacturer TC Electronic of Denmark to do the actual product development and manufacturing of the product to Clair’s specifications, with Clair Bros. holding proprietary rights. A total of 30 remote control units and a considerable quantity of the microprocessor controlled TC1128 equalizers have been ordered to support Clair’s numerous concert monitor and main systems.

The monitor system comprises a single TC6032 remote controller device, 16 customized TC1128 programmable 28-band 1/3-octave graphic equalizers, and a TCMM24 matrix unit that interfaces the TC1128 equalizers with the TC6032 remote head via MIDI cabling. A house system requires fewer TC1128s, pending the number of controlled speaker zones.

TC6032 REMOTE CONTROLLER

Physically, the TC6032 remote head is 17"x10"x4" (but can be 19 inches for rack mounting, if necessary) and weighs 20 pounds. The 50-foot cable (expandable up to 160 feet) connected to the rack-mounted MM24 MIDI matrix box allows an engineer to locate the remote where desired, or the option of roaming the stage, if necessary. Currently the remote controller is placed on top of the EQ rack at the monitor position during performances, and travels separately in its own case between shows.

At first glance, the TC6032 remote controller looks like an oversized graphic equalizer. (See Figure 1.) Further inspection reveals a high-contrast, bit-mapped Epson LCD window, many individual function and select buttons (a red LED remains lighted on any active button), a keypad and motorized faders. Each fader represents one of the 28 1/3-octave bands on the host TC1128.

The completely TC-designed MIDI-controlled faders and an advanced proprietary DSP error correction system for positioning, with no audio signal passing through the optically encoded faders. On the far right is an additional programmable fader for adjusting the currently selected EQs output gain up to 16dB.

SYSTEM OPERATION

Each TC1128 equalizer is assigned a device number from 1 to 32; they are selected by one of the 32 buttons located on the upper left of the remote unit. Clair Bros. is using 16 rack-mounted TC1128s in each touring system, although an additional 16 EQs could be assigned if needed.

When a device select button is pressed for any of the assigned TC1128s, the TC6032 remote polls that specific equalizer for frequency response and says in effect: "Yo, babe! What's happening?" The 1128 then transmits the corresponding response on the MIDI bus, and the remote reads the assigned device number and EQ settings. The 1128 also includes a mini-sequencer for saving and recalling up to 25 EQ settings.

SYSTEM ROAD TEST

Clair engineer Dave Skaff, who used the TC6032 as the monitor mixer on the Don Henley tour, talked to R•E•P about using the system.

R•E•P: What advantages does the TC6032 system have over traditional setups?

DS: It's so easy to use. Now I only have to look at the remote controller device to see what I'm doing. There's no more getting down on my hands and knees to scan the EQs, especially the ones at the bottom of the rack. Keeping your head out of the rack prevents becoming distracted during the performance. Now it is possible to remain over the console and constantly be in position to read and mix every performer at all times while adjusting the output EQs.

Another important characteristic about the TC6032 is that it just sounds good. I've done A/B tests between TC1128 programmable equalizers and several name-brand EQs, and the TC1128 comes out better sonically every time. They also test out very well on our shop bench tests. With the entire system using TC1128s, I notice it sounds remarkably cleaner than any system I've used before.

R•E•P: It seems as though the TC6032 would also make sound checks faster and easier.

DS: It definitely saves an immense amount of time at soundchecks. I'd say that several of the functions save me between 40% to 50% of the time spent equalizing. Being able to recall different presets has obvious advantages; having it all centrally located reduces extraneous movements, and the function that allows you to "pile" several output mixes onto one EQ setting is particularly useful for backup vocalists.

For example, if we are running short on time, it is possible to instantly equalize all of their microphones and mixes off one setting.

R•E•P: How long did it take for you to grasp the design and get comfortable with the remote?

DS: I was comfortable on my first day after just several hours of hands-on operation. After I was
A ROOM EQUALIZED TO PERFECTION
MULTITRACK TO MIXDOWN
STUDIO MONITORS REVEAL
THE ENTIRE SOUND SPECTRUM

Now the excellence of sound experienced by engineers and producers can be duplicated on Sunkyong Pure Chrome Tape.

What the producer hears, chrome remembers.

UCR Pure Chrome Professional Duplicating Tape from Sunkyong.
Because the time has come for the world to share the excitement of studio sound.

SUNKYONG
Professional Products

Sunktong Magnetic/America. Inc., 4041 Via Oro Avenue, Long Beach, CA 90810 1-800-331-5729 Outside CA 1-800-237-8372
Circle (22) on Rapid Facts Card
www.americanradiohistory.com
fader positions back to the remote control, which instantaneously moves the faders — in less than 500ms — to their positions, giving the engineer a visual, graphic EQ-style representation of the output equalization curve.

To the right of the device select buttons are the Mix 0, Pile, All and Preset A/B editing buttons. Mix 0 controls the listen mix for the engineer's own headphone or monitor cabinet. The inventive Pile function works as a way to control several TC1128s at once. This could be useful if variations in local weather (humidity) or venue characteristics dictated that a certain frequency (for instance 2.5kHz) is running a little too hot and needs to be pulled down on several mixes.

Pressing the Pile button activates and selects those devices that need to be controlled. The motorized faders on the remote head will “drive” to the flat position, without changing any of the TC1128's actual parameters. Any subsequent changes made to that flat curve by the engineer's hand will universally be added to all of the selected 1128s. So if the 2.5kHz is pulled down 3dB on the flat curve, it is reflected on all of the selected 1128s. Any changes made will affect all the selected devices equally; hence they get ‘Piled’ together.

Similar to Pile is the All function, whereby all of the EQ devices in the system are automatically selected. The Pile and All functions exhibit enormous potential for quick and accurate multiple output changes.

The last and most widely used of these functions is Preset A/B. When a preset is loaded into the actual audio chain of a selected EQ, it is referred to as Preset A. As soon as a change is made on any EQ setting, the A/B button’s light comes on, indicating that the newly adjusted equalization curve is presently active. When the A/B button is pressed, the output will switch back to the A curve, enabling the engineer to switch back and forth between the original preset and the current modified setting. This A/B comparison function is handy for quickly determining which of the two settings is most desirable.

To the right is the TC6032 remote's LCD window. It is approximately four times the size of the Sanyo window on the TC1128 and has a contrast knob to adjust for prevailing lighting conditions. The LCD allows viewing of the 28-band, real-time spectrum analyzer data, real response equalization curves, and a menu for the eight “soft” switches that appear below the window. These soft controls — depending on what parameter is selected — activate and control the various software legends that appear on the LCD.

On the opposite side of the remote head, a push-button keypad assigns and accesses any of 99 available preset equalization curves. The number of the selected preset is shown by the LED indicator window in the extreme upper right hand corner. Also in the keypad area are Clear, Enter, Preset Store, Preset Recall, Card and Menu buttons for controlling the presets and certain LCD functions.

The default mode to start — and normally remain — is the Preset Recall mode; it is designed to prevent accidentally writing over a preset. To store any preset changes made, the engineer presses the Preset Store button and selects the desired preset number using the keypad. When Enter is pressed, it stores the current settings of the equalizer into the current preset number being displayed.

The Card function activates the Memory Card Slot, which appears above the previously mentioned device selection area. It is primarily used for adjusting certain mechanics of the TC6032 system. This includes the speed and the sensitivity of the motorized faders, which can only be moved by the human body — they are sensitive to 60 cycle hum statically riding on the skin, and activated by touch!

The faders use this to unlock or release and otherwise will not move. If you were to use an inanimate object to move the fader, it would not respond. (It is interesting to note that certain people seem able to conduct the omnipresent 60 cycle hum better than others. The engineer can adjust the fader's touch sensitivity to match his body conductivity. This gives new meaning to the expression, “The engineer's mix requires a good touch.”)

It is expected that the memory card slot will eventually be able to upload and download a special floppy disk-style card capable of containing all 99 presets for each of 32 TC1128s. This would be ideal for storing various venues' acoustic characteristics and/or artist specific parameters.

Anyone remotely familiar with computers or today's signal processing devices will instantly grasp the Menu function button. It allows access to various software-driven functions available via the eight 'soft keys' located directly beneath the LCD window.

The appropriate menu monikers appear in the LCD screen above and are subject to change according to assignment. The most often used screen menu will typically show EQ ON, FLAT, HOLD, EQ, SA (spectrum analyzer), CAR (computer aided response), PREV (preview for entering a preset into the LCD window without actually being loaded into the audio chain) and UNDO (similar to the Macintosh computer command).

Generally the selected device's EQ curve will be present on the screen in the form of a bargraph. The LCD screen can be cycled — depending on the Menu button or which of the soft keys is activated shown the basic functions I quickly figured out what it would take to do a show. It is actually very easy to learn. On the Henley tour, I already have the opening act's engineer to the point where they confidently handle the TC6032 and make their own necessary adjustments without my having to be there.

R•E•P: What do the performers think of the remote controller system?

DS: They are pretty much fascinated by it. The moving faders seem to impress just about everybody right off the bat. And the fact that things sound the same every day really impresses them.

R•E•P: How well can you see the LCD screen in the daylight?

DS: It actually works quite well. There is an angle adjustment and contrast control for better viewing. I primarily watch the display to make sure that the faders are tracking right and the input gain is correct.

R•E•P: Is there a manual override in case the remote fails?

DS: Yes. The TC1128s can always be used by themselves at any time.

R•E•P: How are you using the presets?

DS: I store the standard EQ curves that ideally match our monitors and several others that I find seem to work best. I will make changes on certain things on a day-to-day basis — usually for the ball — and if it is a minor change I probably won't store it. Rarely will I radically change the EQ curves, but sometimes there is that occasion where everything sounds way off. In that case I change the curve and temporarily use and store it for that particular day.

Usually, I like to start each soundcheck with the same EQ settings in order to have a given reference point. I make very little EQ changes unless the venue starts to hamper the quality. After a while you'll get several presets that seem to work best. You label them and anytime during the day when you want to change something you can go to your presets and keep bouncing back and forth between the different types of EQ settings until you find one that sounds better on that day.
NHK goes digital with the 480L

NHK, the Japan Broadcasting Corporation, has replaced all of its analog reverberators with the 480L Digital Effects System, making NHK one of the world's largest users of the 480L.

The 480Ls are being employed throughout NHK's extensive television, radio, and recording studios. Virtually every program broadcast by NHK is being produced with the assistance of the 480L.

There are also 480Ls at the NHK Concert Hall, where they are used for recording concerts for television and radio broadcast.

"The 480L just sounds great," says Masaki Sawaguchi, NHK's chief engineer. As well as being sold on the "Lexicon sound," Sawaguchi was impressed with the system's flexibility.

Brings the clients back

Interface books OPUS non-stop

Lexicon's OPUS digital audio production system is proving to be more than a versatile performer at Interface Video (Washington, DC). It's become a powerful sales tool as well.

Michael David of Interface says the versatility and efficiency of the system, which has been in operation since April, gives his clients a real incentive to come back.

"We did a very effect-laden spot that the client projected would take a day and a half to complete," says David. "That's what it would have taken before. We did it in 4 hours, which allowed the client to use the extra time for other work."

Clients also feel more comfortable with OPUS, says David. "With other systems, the client can't really see what's happening. They feel left out. OPUS looks familiar. You can see the audio passing by on the screen."

The word is spreading. "We're now booking OPUS non-stop," says David. "And we're not the only OPUS in our market."

Lucasfilm's Home THX Audio System

Lexicon is early THX licensee

Lexicon has become an initial licensee of the Home THX Audio System created by Lucasfilm. Lexicon was selected by Lucasfilm based on its reputation for excellence in surround processors and the patented digital technology found in the CP-1 and CP-2 processors.

Lexicon made the announcement during a THX technology demonstration for press and select dealers at the Consumer Electronics Show in Chicago. The surround sound processor used in the demonstration was designed and built by Lexicon.

The Home THX System incorporates a series of proprietary electronic and loudspeaker developments designed to reproduce movie sound in the home as it was originally created by film makers. Lexicon will soon formally announce its first product incorporating THX technology.
**What's New at Lexicon**

**Trainor becomes VP of operations**

Dick Trainor has joined Lexicon as vice president of operations. Dick spent 11 years at Prime Computer as plant manager and director of manufacturing where he instituted several successful programs for production control, materials planning, and shop floor scheduling. He also started and managed an off-shore manufacturing facility for two and a half years.

Dick now has responsibility for the manufacturing, customer service, and field service operations at Lexicon.

**Ap notes are yours — free**

The sales and marketing staff has put together some very interesting application notes to let you get the most from Lexicon products. Here's the list:

- **PCM 70/MRC:** CHORUS 300DLY. A stereo chorus and stereo delay with remote control using Dynamic MIDI®.
- **LXP-5/MRC:** Interactive improvisation and alternative performance techniques.
- **MRC:** MIDI, mixing, and the MRC.
- **MRC:** Mono mode on Yamaha synthesizers.
- **LXP-5:** Too many nouns? Try these 'verbs' (getting more reverb from the LXP-5).
- **MRC:** Two MRC set-ups for the Kurzweil 1000 Series.

They're yours for the asking. Just ask your local Lexicon dealer.

---

**Family Channel hosts OPUS**

**'We wanted the edge'**

A year from now, the Family Channel plans to be completely digital in both video and audio, with arguably one of the most sophisticated studios anywhere. Not surprisingly, an OPUS room will be a permanent fixture.

"We're designing and constructing new audio and video facilities that will keep us more than competitive with the networks and other cable stations on the air," says Bob Whyley, Family Channel's director of audio. "In our audio production room, we figured this would be the time to go all digital. We looked at various digital rigs, and when we saw OPUS, we realized it was just head and shoulders over everything else."

OPUS will initially be used for editing in-house promotional spots, according to Whyley, with posting to come later this fall. The channel's Big Brother Jake sitcom that is currently posted in Hollywood, will ultimately be done by OPUS as well.

The Family Channel's move to all-digital capability is broad-based. All the station's videotaping is done in D2, and all the ancillary equipment in the OPUS room will be digital. In addition, all of the analog tape machines are being eliminated, with RDAT taking its place. They have also installed the Geffen sound effects library in the OPUS room. There are two Sony 60-disc changers that are computer operated and will feed OPUS directly, according to Whyley.

"There are a lot of digital workstations that are great stand-alone editors," says Whyley, "but they are very cumbersome to mix on. The OPUS clears all that, and will let us do more work in a given amount of time."

---

**Notoriety for OPUS/e**

**Turning heads in Jacksonville**

**"People come in and are truly impressed."**

So says Wayne Fanning, owner of August Recording in Jacksonville, FL, commenting on the studio's new OPUS/e digital audio editing system. The OPUS/e has been on line at August Recording since February performing editing of commercials and jingles.

"We bought OPUS/e to make a statement," says Fanning, "and to bring in a higher level of client. We've been able to bring in new business, some of whom might not have considered us otherwise."

Fanning integrated OPUS/e into his existing room, which includes an SSL 4000G console, OTARI MTR-90 24-track deck, Westlake monitors, and "lots of outboard equipment," including a Lexicon 480L, 224, and Super Prime Time.

An immediate benefit of OPUS/e was its aptitude for dialog replacement. "We found that we could get into the subframe level and manipulate the audio," says Fanning. "It's given us a real advantage."

---

Digital Domain Digest is published by Lexicon Inc., 100 Beaver St., Waltham, MA 02154; (617) 891-4790. All editorial comments and suggestions are welcome, and should be addressed to Leah Holsten at Lexicon. For information about any of Lexicon's products or where to buy them, contact Lexicon directly. Dynamic MIDI® is a registered trademark of Lexicon Inc.

---

le...
to show the spectrum analyzer and a list of different parameters for the various features available. Examples of system utility display functions an engineer can vary include peaking, shelving, response speed and freeze/hold.

TC1128 EQUALIZER

TC Electronic's standard microprocessor-based, 1-rack space TC1128 programmable equalizer/spectrum analyzer was first introduced in late 1988 and has since gone through numerous software and operating upgrade revisions. It has gained considerable industry respect for high audio quality and advanced technology.

One of the highlights of the 1128 (and the TC6032 remote) is the ability to calculate and show real response curves. In all equalizers, each band influences and overlaps adjacent bands. When one filter is raised or lowered several decibels, it can substantially effect the adjacent filter response and wreak havoc on the actual EQ curve. On the TC1128, a real response curve command does an interpolative band computation using its own look-up table called Make Real Response. This displays the true EQ curve response on the LCD screen.

True to form, Clair Bros. has taken a big step to offer its clients the latest advancements in audio electronics.

The TC1128s that work with Clair's TC6032 remote system have been slightly customized and employ special drive software. They have variable gain of 16dB, representing an increase of 4dB over the standard TC1128s.

MM24 MIDI MATRIX

The 2-space rack-mount MM24 unit is a 24 x 24 MIDI crosspoint matrix switcher. It patches any selected 1128 equalizer directly to the remote control to avoid any MIDI delay problems that might slow down the answer-back of the motorized faders. This design also prevents any equalizer or analyzer response slowdown in the remote. A fairly thin, pliable 50-foot multipin cable connects the MM24 to the remote and carries power and MIDI Sysex data. Two MIDI cables are needed for each equalizer. In the Clair stage system, the 2-rack-space MM24 is placed in the bottom of the rack below the 16 1128 equalizers.

TECHNICAL BRIDGE

The TC6032 remote controller system is a bridge between familiar standard graphic equalizers and the promise of an automated microprocessor black box. Its innovative design allows engineers the ability to provide excellent electronic and human interfacing in today's increasingly sophisticated and complex sound reinforcement industry.

True to form as one of the leading sound reinforcement companies, Clair Bros. Audio has taken a big step by investing in new technology to offer its clients the latest advancements in audio electronics.
Before you buy any mixing console for recording or post-production, we urge you to explore the Sound Workshop Series 54 from Otari. You'll discover significant design breakthroughs, reasonable cost, and Otari reliability and product support.
Finally there's a mixing console that sounds great to the engineer, the studio owner, and to the artist! Call Otari at (415) 341-5900 for information.
Art, technology and imagination — each of these traits is part of the audio equation. Take away one third of the pie — or rely too much on it — and the equation fails. Truly unforgettable audio occurs when each trait is given equal accord.

The theme of the 89th AES Convention — “Creating Illusions in Sound — The Fusion of Art, Technology and Imagination” — turns this objective into reality. Four days of exhibits, workshops, papers and special events provide ample opportunity to explore the frontiers of audio.

R•E•P’s show coverage, the most comprehensive it has presented, is designed to give attendees and non-attendees alike an overview of what will happen. If you’re planning to attend, this section will give you a good idea of what to expect. And if you’re not attending, you can still get a good idea of what will happen and how it may affect you in the future.

One disclaimer: This information is current as of early August. Refer to on-site convention information for any changes that have occurred.

More Information:
Contact AES at 212-661-8528; fax 212-682-0477.
"This was a big installation. We didn’t have much time, so it had to be easy. I needed a high performance system that could be clearly heard on a huge convention floor, and easily concealed too.

The sound solution was Bose."

-- Randy Lucauto, Scenario Systems, Incorporated

The Site: Colorado Convention Center, Denver, Colorado
The Challenge: Design and install a state-of-the-art sound system for a one million square foot convention facility in half the normal time estimated for a project of this type.

The Contractor: Randy Lucauto, Scenario Systems, Incorporated
The Tools: Bose Sound System® Software
The Products: 280 Bose 102® I loudspeakers
140 Bose 402 loudspeakers
24 Bose 902® II loudspeakers

The Result: "We had to do it all. We needed even sound dispersion for meeting rooms and function areas, a presentation system for the exhibit hall and event systems for the grand ballrooms. The Bose Sound System Software helped us try different design scenarios, maintain a very tight schedule, and quickly and accurately provide the data and illustrations needed for immediate approval and construction. It was cost effective and exceeded our client's performance expectations. But that's what I've come to expect from Bose."

For more information on Bose products, call 1-508-879-7330, or write Bose Corp., Dept REP, The Mountain, Framingham, MA 01701-9168

©1990 Bose Corporation. All rights reserved

Circle (26) on Rapid Facts Card
The executive director of the Audio Engineering Society talks about the society's origins, its role in developing standards and the future of AES/SMPTE collaborations.

Don Plunkett
INTERVIEW

By Dan Torchia

As the industry's focus shifts to Los Angeles for this month's 89th Audio Engineering Society convention, it's an ideal time to take a look at the man who's been the executive director for 16 years: Don Plunkett, an AES founding member.

It's been a year of changes and challenges for the AES. Policies concerning trade shows have been questioned, culminating in many British manufacturers boycotting the spring Montreux convention. Occasionally accused of embracing the technically obscure at the expense of real world considerations, the AES's papers and workshop schedule this year is as well-balanced as any in recent memory. And talks between AES and the Society of Motion Picture and Television Engineers concerning future collaborations are proceeding, albeit cautiously.

Criticized in some quarters for his direction of the AES, Plunkett is unflappable. To his credit, he is secure in leading the society in its traditional areas of strength — technical education and standards.

In the interview, Plunkett talked about the beginnings of the AES, its role in developing standards, AES/SMPTE collaborations and how AES should remain an educational/information society.

Dan Torchia is the editor of R·E·P.
A professional CD player that does the work of two.

Introducing Numark's Dual-Transport CD Player

Finally, there is one CD player that satisfies the mixing needs of DJs, club owners and professional sound installers... Numark's CD6020. This revolutionary player features two CD transports in a single unit. So now, with a single player system, CDs can be mixed with the same ease as LP's.

The CD6020 consists of two 19" rack-mountable components—a control unit that can be mounted neatly in the mixer console, and a transport module that mounts in an equipment rack. This design approach enables sound contractors to upgrade existing club installations to CD without touching the turntables.

For hands-free mixing, the CD6020 features Numark's patented Integrate™ feature. Push a button and it ping pongs from one disc to the other, playing programmed selections from each disc automatically, and without interruption. There's also Numark's patented Beat Sync™ feature that automatically mixes from one disc selection to another while matching the beat structure of both discs for perfectly-matched, beat-synchronized mixes.

The CD6020's control panel features two sliding pitch controls for varying the pitch of each disc ±8%. A matching set of LED displays, large start/stop buttons, and a full complement of search, repeat, and memory functions provide total mixing and playback control!

So, if you are looking to upgrade your installations to CD, check out Numark's new CD6020 Dual-Transport CD Player. It's the only CD player you need to do the work of two... for a lot less.

NOW IN STOCK

Numark PPD

The world leader in interactive audio/video mixing technology.

For additional product information call:
MAIN OFFICE: 503 Newfield Avenue, Raritan Center, Edison, NJ 08837 Tel. (201) 225-3222/Telex 287-249 Edin/Fax (201) 287-2155
WEST COAST: 4486 Runway Street, Simi Valley, CA 93063 Tel. (805) 522-3550/Telex 287-313 Simi/Fax (805) 584-8416
CANADA: S.F. Marketing, Inc., 3524 Griffith Street, St. Laurent, Quebec H4T 1A7 (514) 733-5344/Fax (514) 733-7140

Circle (39) on Rapid Facts Card

www.americanradiohistory.com
FIVE QUESTIONS:

By Mike Joseph

Convention Imbition

Q: Consuming alcohol is (unfortunately) often a byproduct of doing "business" at a show like the AES. What actually happens when I have several drinks?
A: Biophysically, the alcohol is absorbed through the lining of your stomach. Once in the blood stream, alcohol becomes a central nervous system depressant. In the brain, synaptic activity (or the electrical "firing rate") between brain cells is inhibited. We believe that the active process is tied to the negative chemical regulation of enzymes and hormones.

An added factor involves the brain's blood vessels becoming dilated, unbalancing the normal nutritive relationship between blood oxygen, blood sugar and cell demand. All this creates the sensation of an alcoholic high, while euphorically reeking havoc and destruction.

Additionally, booze impairs the electrochemical mechanism in your brain which allows you to differentiate between and among discrete sounds, explaining in part why at a cocktail party, people speak louder. It becomes increasing more difficult to focus on one particular sound.

Q: What effect does alcohol have on my liver and kidneys?
A: Downstream, the liver is the only organ that breaks down and removes the alcohol into its component parts, glucose (sugar) and water, among other impurities, for elimination. If you drink a lot of alcohol, you are overworking your liver, which can only filter at a limited rate.

Unlike a muscle that gets stronger with exercise, the liver is worn down when it is repeatedly overstressed. Alcohol affects the kidneys by inhibiting the reabsorption of water via the Anti Diuretic Hormone, or ADH. The kidneys are fooled into thinking they have to drop water from your blood stream (via elimination), when in reality you are being dehydrated.

In other words, drinking alcohol damages your brain cells, stresses your liver's ability to filter the blood and inhibits the kidney's normal function to maintain water levels in your system, causing major dehydration.

Q: Since beer is mostly water, doesn't drinking it put more of the lost fluid back into my system? Would that mean that beer is better than hard liquor? Please?
A: Alcohol is a dehydrant, no matter which form it takes or what its delivery vehicle. Bacardi 151, at 75% pure alcohol and only 25% binder fluid, acts much more quickly on less total consumption than a 6% brew. But they all dehydrate you, starve the electrolytes in your system and affect your hormones, enzymes, blood sugar and oxygen levels. It is only a matter of how much alcohol in any given form you consume, as all motor vehicle department blood alcohol level charts (which correlate beer to cocktail amounts) clearly indicate.

Q: Is there anything I can do before or after drinking that will help me survive the ill effects?
A: Despite the plethora of free canapes, dead shrimp and soggy, stuffed, fried mushrooms at convention hospitality suites, food doesn't help. While there is some truth to introducing nutritive substances into your system, whether vitamin B or Gatorade (which replenishes electrolytes), there is absolutely no truth to the countereffective measures of eating food or drinking milk, unless you are plagued by a sensitive stomach and need the calcium and alkaloids of the latter.

All food does is delay the onset of the alcoholic progression. Alcohol still must go through your entire system, including the absorption, circulation and elimination stages. Don't be fooled by myths and old wives tales!

Q: Knowing all this, how does one avoid a hangover?
A: Don't drink, or drink in moderation. If you don't get drunk, you don't drunk.
Time is important to you and your customer. So we have developed a console and automation system which allows you to minimize your efforts while maximizing your efficiency, no matter whether you are using tape machines or disk based systems.

Want to know how we do it? Call Martin, Brad, or Gary at 615-331-8800.
By Laurel Cash-Jones

IT'S SHOW TIME!

If the rumbling I'm hearing about the new products that are going to be shown at the 89th Audio Engineering Society Convention is true, it promises to be a very exciting one.

This is partly because of the fact that the digital audio workstation is maturing as a product category, and, as such, is showing real signs that this may be the year that we may see some compatibility in the form of data transfer between the systems. In the last few months, some of the major manufacturers have addressed some of the biggest problems with these systems.

The results have been fascinating. Optical disk has become a reality in some of the systems, backing up data as a background function, and a more intuitive user interface has contributed to advancing this product category from "Gee, that's nice, but..." to "Wow, I need one of these!"

In fact, it is interesting to note the various manufacturers that have thrown their hat into the ring since the last AES Convention in New York. Even the Japanese manufacturers are entering the arena.

With these new entries, the competition will get even more interesting in the next 12 months.

RETURN OF THE SOUNDRID

No, this is not the latest movie from George Lucas. However, it is quite possibly a landmark in audio history, involving LucasArts & Entertainment and New England Digital. Originally shown in 1986, the SoundDroid was exhibited at various conventions and showed great promise. With the additional expertise of New England Digital, the SoundDroid is a greater product than either could have produced alone.

The SoundDroid has been designed to manage all of the information requirements of post-production, from a single editor's needs to a complete multiroom facility. This is no small task. To accomplish all of this, the design team started with the concept of creating a "Multitrack Digital Moviola with Memory."

In order to integrate the various computer technologies necessary to create such a comprehensive multitasking system that could accommodate the full range of audio for film and video post-production, the design engineers had to come up with some far-reaching design goals. Among these were the power to access, audition, play back and modify large numbers of sounds simultaneously from production tracks on an on-line sound library, plus the ability for groups of editors to work simultaneously while accessing these tracks, and a central database of production records (i.e.: cue sheets) and sounds.

But above all, the SoundDroid had to have an intuitive interface that used established film and TV editing terms and practices. And all reports and recoredkeeping had to be automatic in order to streamline the post process and control costs.

Sounds like fun doesn't it? Aside from all of the software considerations, the hardware side of a project this size can also be a nightmare. Knowing this, the NED PostPro family of products was used because of its acceptance in the post-production world.

However, instead of just adapting the SoundDroid to the PostPro, New England Digital has instead introduced the PostPro DSP, which will provide a platform for the evolution of this multitasking, multiuser environment.

Within the PostPro DSP, a full range of signal processing and mixing capabilities are available, including 3- and 4-band parametric EQ, sample rate conversion, time compression/expansion and automated level control. The hardware architecture has been designed to mirror the physical layout of the post facility of the future. It allows for the digitization of multiple editing rooms, each room performing a specific task, and all rooms sharing a central audio processor.

Managers of facilities who find they want to start small can because stand-alone versions of SoundDroid for the Macintosh IIx will be available for project management. Software options include off-line Cuesheet creation, updating and printing, picture changes, ADR, effects, dialogue spotting and library management.

The DSP option is plug compatible with current Synclavier, PostPro, and Direct-To-Disk systems, and will allow you such new features as pooled "trackless" storage, multitasking, and digital EQ and mixing. Delivery is anticipated in November 1990. All in all, this could be the most major advancement in post-production since the invention of the Moviola. Honest.

DAR DSP, ETC.

Digital Audio Research is introducing a DSP version of its SoundStation II workstation, along with an advance in audio production technology that it calls "Segment-Based Processing." These advances allow users to assign settings for digital 4-band parametric EQ, gain and panning to each individual audio segment. These new settings are then attached to the edited segment and stay with them wherever they are moved, copied, slipped or backed up. What is even more remarkable is that this is done in real-time.

DAR is also introducing 16-channel operation to the SoundStation II, along with a sophisticated drop-in recording function with autoloation. A rewritable optical disk can be used for back-up, or random access playback and editing of sound files. These back-up functions are done in the background so you don't lose time.

If that wasn't enough, there's Wordfil, a software enhancement that can automatically edit one dialogue track to synchronize exactly with another (i.e., guide) track. This feature alone will allow sound editors on long-term film projects to spend more time with their families.

Last, but certainly not least, is the DASS 100, which is a multifunction digital audio synchronizer, multiple device interface and signal processor that will allow you to do sampling frequency conversion, format conversion, digital audio sample synchronization, gain adjustment and test signal generation.

Circle (100) on Rapid Facts Card

---

Laurel Cash-Jones is R • P's editorial consultant and a Los Angeles-based free-lance writer.

Circle (101) on Rapid Facts Card

---

www.americanradiohistory.com
MONITOR SERIES

PREMIER DEBUT
SEE US AT A.E.S. BOOTH #
926, 928 & 930
-LOS ANGELES-

TGI/Tannoy, 300 Gage Avenue, Kitchener, Ontario, Canada N2M 2C8.
Tel: (519) 745 1158. Fax: (519) 745 2364.

Tannoy Ltd., Rosehall Industrial Estate, Coatbridge, Strathclyde ML5 4TF, Scotland.
Tel: (0236) 20199. Tlx: 77862 TANNMFGG. Fax: (0236) 28230.

www.americanradiohistory.com
Through the hard work of many people, this year's papers and workshops offer an exceptional mix of the cutting edge of technology with real world considerations. The following schedule combines technical workshops and papers by date and time. Information was current as of early August; there may be changes at the convention.

Friday, Sept. 21

9 a.m. to 12 p.m.
• 10 a.m.: "The Architectural, Acoustical and Construction Analysis and Techniques of Two Underground World Class Recording Studios;" John Storyk, Wilters-Storyk Design Group, New Paltz, NY.

2 p.m. to 5 p.m.
Sound Reinforcement, session chair: Michael MacDonald, Yamaha Corporation of America.

2 p.m. to 5 p.m.

7 p.m. to 10 p.m.
• 7 p.m.: "Challenges to the Successful Implementation of 3-D Sound," Durand R. Bega, NASA-Ames Research Center, Moffett Field, CA.
• 7:30 p.m.: "Directional Perception on the Cone of Confusion," William Martins, Auris Corporation, Evanston, IL.

Saturday, Sept. 22

9 a.m. to 12 p.m.
Signal Processing, session chair: Andrew Duncan, Quantum Consulting, Agoura, CA.
• 9 a.m.: "Time and Pitch Scaling of Audio Signals," Chris J. Roehrig, University of Waterloo, Ontario.
• 9:30 a.m.: "A Computer Aided Environment for the Design of Digital Audio Products," Paul
Hiroshi Ogawa, Takashi Ishiguro and Hietaro

**Note:** The text is not legible due to the image quality. It appears to be a program listing for an event. The text includes names, dates, times, and locations of various sessions and discussions, but the specific content is not clear. The text is not legible enough to be transcribed accurately.

---

**CHECK YOUR BALANCE.**

Before you invest in a professional DAT recorder, check to see if it stacks up against the Sony PCM-2500:

- **Records at 44.1kHz as well as 48kHz**
- **Has professional SDIF-2, AES/EBU and S/P DIF interfaces**
- **Has built-in error indicator**
- **Operates on 100/120/220/240V, 50/60Hz**
- **Is supplied with both wired and wireless remote control**
- **Can individually trim L/R analog input and output**

If it's a Sony, you can check all of the above — what you'd expect from The Leader in Digital Audio™. For more information call 1-800-635-SONY.

**PCM-2500**

- Recording and erasure of Start ID, Skip ID and Program Number subcodes
- Two-hour recording time (with DT-120 Sony DAT cassette) > Less than 0.005% Total Harmonic Distortion at +4dB > Greater than 90dB dynamic range
- High-speed locate capability at 60 times normal playback speed

Sony Communications Products Company, 1600 Queen Anne Rd., Teaneck, N.J. 07666 © 1989 Sony Corporation of America, Sony and The Leader in Digital Audio are trademarks of Sony.
2 p.m. to 5 p.m.

Modelling of Acoustic Spaces II, session chair: Manfred R. Schroeder, Drittes Physikalisches Institut, Universität Gottingen, West Germany.
• 2 p.m.: “Historical Coherence in Loudspeaker Systems,” Manfred R. Schroeder, Drittes Physikalisches Institut, Universitat Gottingen, West Germany.
• 2:45 p.m.: “Computer Modelling of Acoustics,” Manfred R. Schroeder, Drittes Physikalischen Institut, Universität Gottingen, West Germany.
• 3 p.m.: “Computer Modelling of Acoustics,” Manfred R. Schroeder, Drittes Physikalisches Institut, Universität Gottingen, West Germany.
• 3:30 p.m.: “Computer Modelling of Acoustics,” Manfred R. Schroeder, Drittes Physikalisches Institut, Universität Gottingen, West Germany.
• 4:20 p.m.: “Computer Modelling of Acoustics,” Manfred R. Schroeder, Drittes Physikalisches Institut, Universität Gottingen, West Germany.
• 5 p.m.: “Computer Modelling of Acoustics,” Manfred R. Schroeder, Drittes Physikalisches Institut, Universität Gottingen, West Germany.

Saturday, Sept. 22
9 a.m. to 12 p.m.: “Recording Studio Mixing,” George Massenburg, National Academy of Recording Arts and Sciences.
9 a.m. to 12 p.m.: “Loudspeaker Assessment,” Marshall Buck, Psychoacoustic.
2 p.m. to 5 p.m.: “Business Aspects of Recording: Market Segmentation,” David Porter, Society of Professional Audio Recording Services.
2 p.m. to 5 p.m.: “Educational Fair: Opportunities in Audio,” Roy Pitts, University of Colorado at Denver.
7 p.m. to 10 p.m.: “Computer Music Composition,” Howard Sandroff, University of Chicago.
7 p.m. to 10 p.m.: “RDAT in Production and Post-Production—The Good, the Bad and the Not-Yet,” Larry Blake.

Sunday Sept. 23
9 a.m. to 12 p.m.: “Dialogue Processing and Clean-up,” Terry Porter, Walt Disney Studios.
9 a.m. to 12 p.m.: “Basic Audio for Musicians,” chair to be announced.
2 p.m. to 5 p.m.: “Sampling, Editing Voice, Music and Sound Effects,” Chris Harvengt, BICL Post.
2 p.m. to 5 p.m.: “The Dolby Motion Picture Stereo Dilemma: Theatrical vs. Home Release,” Tomlinson Holman, USC Cinema Dept.
7 p.m. to 10 p.m.: “Fixed Speaker Systems Using Touring Speaker Enclosures,” Fred Ampel, Editor, Sound & Video Contractor.
7 p.m. to 10 p.m.: “Improving the Listening Environment,” Peter D'Antonio, RPG Diffusor Systems.

Monday, Sept. 24
9 a.m. to 12 p.m.: Modelling of Acoustic Spaces I, session chair: Manfred R. Schroeder, Drittes Physikalisches Institut, Universität Gottingen, West Germany.
9 a.m.: “Modelling of Acoustic Spaces: An Overview,” Dr. Manfred R. Schroeder, Drittes Physikalischen Institut, Universität Gottingen, West Germany.
10 a.m.: “Electroacoustic Simulation of Listening Room Acoustics for Investigation of the Interactive Sound Source, Room and Listener,” Soren Beck, The Acoustics Laboratory, Technical University of Denmark, Lyngby, Denmark.
10:30 a.m.: “Experiments in Acoustical CAD,” Mendel Klein, Chalmers University of Technology, Department of Applied Acoustics, Gothenburg, Sweden.
11:30 a.m.: “Computer Simulation for Acoustic Visualization,” Adam Stettner, Stettnner Consultants, Medusa, NY.

Tuesday, Sept. 25
9 a.m. to 12 p.m.: Recording
9 a.m.: “Flying Faders: A Case Study in Product Development,” Morgan Martin, Lambda Unlimited, Los Angeles.
9:30 a.m.: “New Frontiers in Digital Audio,” Roger Lagadec, Sony Corporation, Japan.
11 a.m.: “A Simple High Frequency Audio Magnetic Tape Recording and Playback Model,” Michael Poinboeuf, Personecs Corporation, Redwood City, CA.
11:30 a.m.: “Hard Disk Recording and Editing of Digital Audio,” James A. Moore, Sonic Solutions, San Francisco, CA.
The EX 4000 represents a complete change in how you look at power amplifiers. Engineered to be the most advanced professional power amplifier available, it combines massive output power, high efficiency, and sophisticated protection features. Plus, Open Input Architecture™ provides the ability to interface with computers, digital audio, and fiber optics.

The new EX 4000. Some people may call it QSC’s evolution. We call it a revolution. And it's just begun.
The exhibiting companies are a good anchor to the papers and workshops portion of the convention. After all, technology is ultimately expressed in terms of products, the tools audio professionals use every day.

These listings were derived from information taken from forms we mailed to exhibiting companies. Companies that were able to submit new product information have a new products entry, containing the model name of number and a short description. Product lines are listed below the new products. Each entry has been assigned a Rapid Facts Number. For more information on any of the companies, circle the appropriate number on the Rapid Facts Card bound into the back of this issue.

If you are looking for a specific piece of equipment and want to find out which companies make it, refer to the Product Directory. For additional information on many of the products listed in this directory, refer to Product Preview.

EXHIBITOR LISTINGS

AB International Electronics (1011)
New products 1200C 2-channel power amp; 200 slim-line 1-rack power amp.
Product line Amplifiers.
Circle (200)

Accurate Sound Corporation (1004)
New products AS-200B high-speed reel-to-reel duplicator system; AS-100 micro-processed tape handler for Studio Master recorder cassette pancake evaluator and cassette duplicator slave transport; 315 high-speed audio duplicating electronics and model 925 bias supply.
Product line Tape duplication, systems and accessories; tape machines, analog; tape machines, cassette and cartridge.
Circle (201)

ACO Pacific (241)
New products MK224 electret measurement mic; 511D sound pressure calibrator.
Product line Maintenance, test and measuring equipment; microphones, booms, stands and accessories; microphones, pre-amplifiers; tape machines, digital.
Circle (202)

Acoustical Physics Labs (847)
Not available at press time.
Circle (204)

Acoustics Design Group (448)
Product line Acoustic design and construction.
Circle (203)

Adamson Acoustic Design Corp. (1422)
New products MH225/B218F/AX300 and MH121/B118/AX300 concert loudspeaker systems.
Product line Crossovers and frequency dividers; loudspeakers, component; loudspeakers, sound reinforcement; signal processors, other.
Circle (205)

Adams-Smith (1407*)
New products 2600 A/V audio editing system.
Product line Editing systems; MIDI hardware; sequencers; synchronizer systems; time compression/expansion.
Circle (206)

AEG Corp. (900*)
New products High-speed duplicating system and loading equipment for audio cassette manufacturing.
Product line Tape duplication, systems and accessories.
Circle (207)

* Indicates products not available at press time.
A.R.T. INTRODUCES THE FIRST SIGNAL PROCESSORS OF THE 21ST CENTURY

THE SGE MACH II
The stunning new Wonder-processor offering 12 effects simultaneously! The Mach II has over 70 different effects including an exciter, equalizer, compressor, limiter, noise gate, expander, sampler, stereo chorus and flange, 12 killer distortions, 21 delay types (2 full seconds) and 24 different reverb algorithms! Real time midi, 200 memories and bandwidth to 20 kHz.

THE DR-X
The all new studio Digital Reverberator/Dynamics Processor/Pitch Transposer/Sampler offering 160K bytes of audio ram, bandwidth to 20 kHz, sampling, 10 simultaneous audio functions. an exciter, equalizer, compressor, limiter, expander, noise gate, stereo panner, stereo chorus and flange, 21 different delays (2 full seconds), 24 reverb algorithms, 200 memories, amazingly comprehensive real time midi control.

THE MULTIVERB III
A new age of technology and 400% more processing offers digital reverb and spatial enhancement that defies description! The Multiverb III has over 53 effects to choose from (up to four simultaneously) including sampling, stereo chorus and flanging, 21 delay types (2 full seconds), stereo panning, pitch transposing, 24 reverbs, 200 memory locations, full programmability and Performance Midi™.

THE MULTIVERB LT
The Multiverb LT gives you the power of the Multiverb with the simplicity of 1-touch control. The LT has 192 of the finest studio multi-effect combinations ever created! For those who don't have time for the complexity of programming, the LT gives you all the power you can use at a great price! Midi addressable.

Export Distributors:

APPLIED RESEARCH & TECHNOLOGY INC., 215 Tremont Street, Rochester, New York 14608, (716) 436-2720, TELEX 4949793 ARTROC, FAX (716) 436-3942

Circle (31) on Rapid Facts Card
Agfa Corp. (114*)

New products
Audio mastering polyester leader tape; audio mastering paper leader tape; audio duplication tape cleaning fabric; video duplication tape cleaning fabric; SRXS chrome studio reference cassette IEC II; audio mastering splicing tape; audio mastering splicing tape dispenser; audio duplication splicing tape; video duplication splicing tape; Spliceproof printed video splicing tape; R-DAT cassettes.

Product line
Recording tape, audio; recording tape, video.
Circle (208) See ad page 9

Akai/IMC (Rm. 211A)

New products
DD1000 magneto optical disk recorder; S1000 16-bit stereo sampler.

Product line
Drum machines; MIDI hardware; recorders, hard disk; routing switches, audio; sequencers; sound samplers; tape machines, analog.
Circle (209) See ad page 5

AKG Acoustics (226*)

New products
K1000 reference listening system; V6HP headphone amp; C425 stereo mic; K270HC headset; C406/407 miniature mics; C451E pre-amp.

Product line
Delays, analog and digital; digital audio workstations; headphones and headsets; headphone mixing systems; microphones, booms, stands and accessories; microphones, studio and PA; microphones, wireless and RF; reverb devices.
Circle (210)

Alesis Corp. (249*)

New products
SR16 16-bit stereo drum machine.

Product line
Consoles, recording and production; consoles, sound reinforcement; delays, analog and digital; drum machines; equalizers; headphone mixing systems; limiters/compressors; MIDI hardware; noise gates/expanders; reverb devices; sequencers; signal processors, other.
Circle (211) See ad page 71

Allen and Heath (101*)

New products
SC Plus Series sound reinforcement console.

Product line
Consoles, automation systems; consoles, recording and production; consoles, sound reinforcement; microphone mixers.
Circle (212)

Alpha Audio (700*)

New products
DR-2 digital hard-disk recorder; DR-2 edit controller.

Product line
Acoustic treatment materials; editing systems; recorders, hard disk.
Circle (213)

Amek Electro Design (1012*)

Not available at press time.
Circle (214)

Amek/TAC (632*)

New products
Mozart RN console designed by Rupert Neve; Amek Bullet mid-frame console; TAC Bullet console in mid-frame chassis.

Product line
Consoles, automation systems; consoles, recording and production; consoles, sound reinforcement; equalizers; equipment cases.
Circle (215)

American Helix (1418*)

Product line
AudioFile Plus hard-disk recorder/editor; Logic I digital mixing console; SoundField microphone system.
Circle (216)

Amplex Recording Media Corp. (212*)

Product line
Tape supplies and accessories.
Circle (217) See ad pages 18,19

AMS Industries (336*)

New products
AudioFile Plus hard-disk recorder/editor; Logic I-22 digital mixing console, SoundField microphone system.

Product line
Consoles, automation systems; consoles, digital; consoles, recording and production; delays, analog and digital; digital audio workstations; editing systems; microphones, booms, stands and accessories; microphones, pre-amplifiers; microphones, studio and PA; miscellaneous equipment and services; pitch shifters; recorders, hard disk; reverb devices; signal processors, other; sound samplers; time compression/expansion.
Circle (218)

Analog Devices (1048*)

New products
AD1860 18-bit audio D/A converters; AD1864 dual 18-bit D/A converter; AD712 high-speed monolithic BiFET op-amp.

Product line
Amplifiers; noise reduction systems; signal processors, other.
Circle (219)

Apex Machine Company (348*)

New products
CA-20 1- or 2-color, 2-sided audio cassette player; Z-90 automatic packaging machine; Rotoscope Machine DAT, audio and video cassette rotoscroper; PP-18 and PP-21 pad printers.

Product line
Miscellaneous equipment and services.
Circle (220)

Aphex Systems (708*)

New products
720 Dominator II tri-band peak limiter; 800DA Macintosh software for setup and editing of maps for the Aphex Studio Clock.

Product line
Computer software, MIDI; computer software, studio applications; limiters/compressors; MIDI hardware; noise gates/expanders; signal processors, other.
Circle (221) See ad page 83

Apogee Electronics (600*)

New products
D160 proprietary dithering module for the AD1000 A/D converter; C384 low-jitter slave clock regenerator.

Product line
Filters, replacement; maintenance, test and measuring equipment; metering devices.
Circle (222)

Apogee Sound (351,Rm. 202B)

New products
AE-3M stage monitor; a high-frequency device and heavy duty straps that connect rigging points for 3x3 speakers; AE-4SB subwoofer system; AE-4 single-amped speaker system; literature for Apogee speaker systems and accessories; AE-68 stage monitor; second generation processors for all loudspeaker systems, including a single-channel processor for permanent installations.

Product line
Loudspeakers, sound reinforcement.
Circle (223) See ad page 79

Apollo Masters Corp. (140)

Not available at press time.
Circle (440)

Applied Research & Technology (ART) (240*)

New products
MDC 2001 stereo master dynamics controller; X11 MIDI master control foot controller; The Power Plant studio guitar pre-amp.

Product line
Delays, analog and digital; equalizers; limiters/compressors; noise gates/expanders; pitch shifters; reverb devices; signal processors, other; sound samplers; time compression/expansion.
Circle (224) See ad page 69

APRS (96)

Product line
Miscellaneous equipment and services.
Circle (441)

AQ Design (152)

Not available at press time.
Circle (442)

Archon (942)

Not available at press time.
Circle (225)

Ariel Corporation (549*)

New products
DAT-56 DSP development system; Pro-Port line of A/D and D/A boards with 16-bit AD/DA and AES/EBU interface.

Product line
Computers, hardware and peripherals; digital audio workstations; signal processors, other.
Circle (226)

AR'Sonic U.S. (33)

Not available at press time.
Circle (227)

Ashly Audio (624)

New products
LM-1000 8-input stereo line mixer; LM-2000 8-input stereo line mixer with stereo sends and returns; MM-108 8-input mixer with 90dB of gain; MM-208 8-input stereo mixer with input EQ, stereo sends/returns, built-in limiter.

Product line
Amplifiers; crossovers and frequency dividers; equalizers; limiters/compressors; microphone mixers; noise gates/expanders; signal processors, other.
Circle (228)
If Michelangelo had a QUADRAVERB, he might have mixed music instead of paint.

It's true. Music and painting are very similar. A stroke of red, a touch of chorus. A splash of blue, a wash of reverb. Either way, it's art. And every artform has its masterpieces. And its tools.

Introducing the Alesis QUADRAVERB. An all-new 16 bit digital, simultaneous multi-effects processor and dead-serious musical tool. With QUADRAVERB, your mixes will be mirror images of the sound in your head. No letdowns. No noise. No nonsense. No boundaries between art and creation.

Inside, QUADRAVERB is alive with colors. Chorus, flange, phase shift, pitch detune and delay... all in stereo, to give your music depth and space. For absolute tonal control there are 5 bands of parametric and 11 bands of graphic e.q. And, of course, there's the unmistakable clarity and drama of the award-winning Alesis digital reverb programs.

With full programmability, 100 memory slots, and 90 factory programs created by the best ears in the business, QUADRAVERB gives you total artistic freedom. Plus, in QuadMode™ four of these flawless 20kHz bandwidth effects occur simultaneously. Like crunching thousands of dollars worth of studio gear into one rack space.

With very little cash, and even less effort, you can use QUADRAVERB on your next mix... plug it into your instrument rig... perfect your sound.

See your Alesis dealer today and hear what state of the art really means.

Michelangelo would agree, QUADRAVERB is a masterpiece.
Audio Accessories (247)  Product line  
Cable and connectors; patchbay and jack panels.  
Circle (229)

Audio Action (32)  New products  
Compact disc releases of all music libraries.  
Product line  
Libraries, music production; libraries, sampled sounds; libraries, sound effects.  
Circle (230)

Audio Animation (948*)  New products  
Paragon digital audio dynamics processor for broadcast.  
Product line  
Consoles, digital; signal processors, other.  
Circle (231)  See ads pages 75, 77

AudioControl Industrial (746)  New products  
SRD-10 audio test signal CD; UTM-250 ultrasonic tape measure; AC-10 A and C weighting filter for SA-3050A RTA.  
Product line  
Maintenance, test and measuring equipment; metering devices; miscellaneous equipment and services.  
Circle (232)  See ad page 59

Audio Precision (20*)  Product line  
Maintenance, test and measuring equipment  
Circle (233)

Audio Services (1420)  Product line  
Cable and connectors; educational courses and programs; equipment cases; equipment rental and leasing; headphones and headsets; intercom systems; libraries; sound effects; loudspeakers, component; loudspeakers, sound reinforcement; loudspeakers, studio monitoring; microphone mixers; microphones, booms, stands and accessories; microphones, pre-amplifiers; microphones, studio and PA; microphones, wireless and RF; miscellaneous equipment and services; noise reduction systems; racks and stands; recording tape, audio; tape machines, DAT, tape machines, digital; tape supplies and accessories.  
Circle (234)  See ad page 108

Audio-Technica U.S. (301)  New products  
AT825 N/Y single-point stereo microphone; ATM41HE dynamic microphone for vocals; AT826HE dynamic microphone for vocals and instruments; AT4162 (48) field stereo mixer with built-in 48V phantom power; AT804 handheld omnidirectional dynamic microphone; AT871R remote power UniPlate microphone; ATM25 high SPL mini condenser instrument order.  
Product line  
Cable and connectors; headphones and headsets; microphones, booms, stands and accessories; microphones, wireless and RF; MIDI hardware; phonograph cartridges and accessories.  
Circle (235)

Auditechniques / Tube Tech (307)  New products  
ADT FC-1 digital interface; DCS 900 A/D converter; TubeTech EQs, limiters and mic pre-amps.  
Product line  
Amplifiers, digital audio workstations; equalizers; limiters/compressors; microphones, pre-amplifiers; record/CD manufacturing.  
Circle (236)

Audio Teknotrony (71*)  Product line  
Computer software, studio applications; consoles, sound reinforcement; crossovers and frequency dividers; equalizers; limiters/compressors; noise gates/expanders; transformers, audio.  
Circle (237)

Audio Video Consultants (629*)  New products  
SAM Tapematic static audio waster loader; 2002 Tapematic automatic audio loader dual pancake; 3002 Tapematic automatic video loader dual pancake; 3003 Tapematic automatic video loader dual pancake with conveyor system; 5128 Tapematic slave with four speeds and 8 EQ.  
Product line  
Tape duplication, systems and accessories.  
Circle (238)

Audix Corp. (42)  Product line  
Loudspeakers, studio monitoring; microphones, booms, stands and accessories; microphones, studio and PA; microphones, wireless and RF.  
Circle (239)

Audra International (69)  Not available at press time.  
Circle (443)

Australian Monitor (844)  New products  
AM K12 (600W) and AM K7 (350W) 2-channel, 2-rack space MOSFET power amplifiers.  
Product line  
Amplifiers, loudspeakers, sound reinforcement.  
Circle (240)

BASE (Rm. 101)  New products  
BASE processor.  
Product line  
Signal processes, other.  
Circle (241)

BASF Corp. Information Systems (440*)  Product line  
Maintenance, test and measuring equipment; recording tape, audio; recording tape, video.  
Circle (242)

BEC Technologies (1046)  Not available at press time.  
Circle (243)

Berklee College of Music (346)  Product line  
Educational courses and programs.  
Circle (244)

Beyerdynamic (601*)  New products  
MC742 large diaphragm stereo condenser microphone; M59 hypercardioid dynamic microphone; MCE 50 mini condenser lavaliere microphone; TG-X series dynamic vocal microphones.  
Product line  
Cable and connectors; headphones and headsets; microphones, booms, stands and accessories; microphones, pre-amplifiers; microphones, studio and PA; microphones, wireless and RF.  
Circle (245)

BGW Systems (216)  New products  
200 power amp; 350 Series power amps; 6500T dual 100W power amp with optional input and output transformers, precision stepped attenuators and crossover.  
Product line  
Amplifiers.  
Circle (246)

Bose (Rm. 216B)  Product line  
Computer software, business; loudspeakers, sound reinforcement; signal processors, other.  
Circle (247)  See ad page 53

Brainstorm Electronics (1406)  New products  
TB-4 communicator, an infrared talkback remote control; JHM2 autolocator multibox for IJ-H4; TBS-4 remotable talkback switch for Trident; SR-1 time code refreshers; VP-90 VSO for Ampex machines; TDC-24 tach/dir converter for Sony APR-24.  
Product line  
Miscellaneous equipment and services; synchronizer systems.  
Circle (248)  See ad page 59

Brul & Kjaer (7)  New products  
Portable R-DAT recording system with two Series 4000 professional mics and a Panasonic SV-255.  
Product line  
Acoustic design and construction; educational courses and programs; microphones, studio and PA.  
Circle (250)

BrystonVermont (418*)  New products  
6B 800W mono amplifier; 8W 8x50W incremental amplifier.  
Product line  
Amplifiers, crossovers and frequency dividers; microphones, pre-amplifiers.  
Circle (251)

BSS Audio (826*)  New products  
DPR-901 dynamic EQ; TCS-803 time corrector; TCS-804 dual time corrector; DPR-404 4-channel compressor/de-esser.  
Product line  
Amplifiers; crossovers and frequency dividers; delays, analog and digital; equalizers; limiters/compressors; maintenance, test and measuring equipment; microphones, pre-amplifiers; noise gates/expanders; transformers, audio.  
Circle (246)
Dolby SR. The sound investment for analog multitracks.

When everyone else was making noise about digital, we quietly developed Dolby SR. But it’s no secret: Dolby SR makes analog multitrack recording a cost-effective alternative to digital.

Improves the preferred sound of analog
At both 15 and 30 ips, Dolby SR dramatically increases headroom, and virtually eliminates tape hiss and modulation noise. Dynamic range is improved by more than 25 dB over unassisted analog, preserving all the warmth and purity of the original sound.

Increases the return on your investment
Dolby SR upgrades your multitrack at a fraction of digital’s cost. Add our Model XP SR (configured for up to 24 channels), or update an existing Dolby mainframe with plug-in SR modules. If you are in the market for a new multitrack, Otari and Studer offer models with Dolby SR built-in.

Simple to use
Set-up is quick and easy with Dolby SR. A unique Auto Compare feature lets you instantly verify frequency response and playback calibration. And editing is as convenient as ever, with no need for special equipment.

Worldwide acceptance
Tapes recorded with Dolby SR can go anywhere, anytime. In fact, with more than 25,000 channels in over 30 countries, analog with Dolby SR is a firmly-established format you can’t afford to ignore.

Put it to the test
Call your Dolby dealer to arrange for a demo at your facility. Hear for yourself why Dolby SR is the sound investment for analog multitracks in today’s competitive marketplace.
<table>
<thead>
<tr>
<th>Company</th>
<th>Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>California Switch &amp; Signal</td>
<td>(1405) Products: Audio mixers, amplifiers, processors, equalizers, limiters/expanders, microphones</td>
</tr>
<tr>
<td>Capri Digital Studios SRL</td>
<td>(56) Not available at press time.</td>
</tr>
<tr>
<td>Carver Corp.</td>
<td>(1417) New products: Amplifiers</td>
</tr>
<tr>
<td>Cipher Digital</td>
<td>(635*) New products: CD-328 random access recorder; CDI-1000 VITC reader/translator; CDI-5000P Softouch II audio edit/controller</td>
</tr>
<tr>
<td>Cintas Vac</td>
<td>(82*) Not available at press time.</td>
</tr>
<tr>
<td>Clear-Com Systems</td>
<td>(807) New products: MS-812 Master Station fully programmable communications control center; model 1021 stereo-amplified monitor speaker</td>
</tr>
<tr>
<td>Community Light &amp; Sound</td>
<td>(40) New products: RS220 3-way, electronically controlled loudspeaker system; VBS210 subwoofer system for use with RS220; 220 system controller; RS880 3-way trapezoidal live/playback loudspeaker; VBS413 subwoofer system for use with RS880; 880 system controller.</td>
</tr>
<tr>
<td>Concept Design Electronics</td>
<td>(740*) New products: CD 9000 automatic cassette loader; DAAD Type R digital audio analog duplication system.</td>
</tr>
<tr>
<td>Circle</td>
<td>(259) Conneau Technologies: New products</td>
</tr>
<tr>
<td>Connectronics</td>
<td>(319) New products: PV video patchbays; CR1, CR2 and CR3 cable reels.</td>
</tr>
<tr>
<td>Countryman Associates</td>
<td>(524) New products: Microphones, studio and PA.</td>
</tr>
<tr>
<td>Creation Technologies</td>
<td>(34) Not available at press time.</td>
</tr>
<tr>
<td>Crest Audio</td>
<td>(801*, Rm. 202A) Product line</td>
</tr>
<tr>
<td>CST Manufacturing &amp; Sales</td>
<td>(819*) New products: PP 2000 cassette imprinter; cassette labeler.</td>
</tr>
<tr>
<td>C-T Audio Marketing</td>
<td>(155) Product line</td>
</tr>
<tr>
<td>Crown Audio Technology</td>
<td>(263) New products: Consoles, recording and production; console, sound reinforcement.</td>
</tr>
<tr>
<td>D&amp;R Electronics</td>
<td>(748*) New products: Consoles, automation systems; consoles, recording and production; consoles, sound reinforcement; equalizers; limiters/compressors; microphone mixers.</td>
</tr>
<tr>
<td>dbx Professional Products</td>
<td>(226*) New products: 160RT compressor/limiter; 1531X graphic EQ.</td>
</tr>
<tr>
<td>DigiDesign</td>
<td>(1109*) New products: Deck multitrack software and Pro I/O interface for Sound Tools; Sample Cell 16-volume sample playback card for Macintosh II.</td>
</tr>
<tr>
<td>Digital Audio Research Ltd.</td>
<td>(1411*) New products: SoundStation/DSP digital signal processing for SoundStation II; DASS 100 digital audio synchronizing system.</td>
</tr>
<tr>
<td>Digital Dynamics</td>
<td>(76*) New products: ProDisk-464 hard-disk digital audio recording and editing system and accessories.</td>
</tr>
<tr>
<td>DLC Design</td>
<td>(60) New products: SPEAK IBM/compatible software for designing speakers.</td>
</tr>
<tr>
<td>DOD Electronics</td>
<td>(523*) New products: Ten Audio Logic products; IPS-33B Super Harmony Machine; GSP-21 guitar signal processor with full-function foot controller; Whammy pedal; MEQ 28, MEQ 14 and MEQ 7 MIDI programmable graphic EQs; DOD compact mixer series.</td>
</tr>
<tr>
<td>Dolby Laboratories</td>
<td>(326*) New products: MT Series; model 422 reference encoder/decoder; model DP501/DP502 audio coding units.</td>
</tr>
</tbody>
</table>
par•a•gon  \( \prime \) par-e-, gän, -gen\  n
1 : a model of excellence or perfection, an apparently perfect person or thing

As Defined by Webster’s.
Dolby Laboratories, con't.

other.
Circle (276) See ad page 73

Doremi Labs (1036)
Not available at press time.
Circle (446)

Dorrough Electronics (940)
New products
40-C telecon transfer level meter; 60-D digital transfer meter.
Product line
Limiters/compressors; maintenance, test and measuring equipment; metering devices.
Circle (277)

Drawmer (1113*)
New products
DL241 Auto-Compressor dual-gated compressor/limiter; DS301 dual expander/noise gate.
Product line
Limiters/compressors; noise gates/expanders; noise reduction systems.
Circle (278) See ad page 41

Duplicaton Equipment Brokerage (1045)
New products
A-301 manually operated Norelco Box over-wrapping machine with pre-cut cellophane and polypropylene films.
Product line
Miscellaneous equipment and services.
Circle (279)

Duplontronics (1006)
New products
DM 400 Series digital master high-speed cassette duplication system.
Product line
Computers, hardware and peripherals; power conditioning/standy power systems; tape duplication, systems and accessories; tape machines, digital.
Circle (280)

Dynacord (53)
Not available at press time.
Circle (447)

E-mu Systems (Rm. 211B)
New products
Emulator III digital sound production system; Emx II 16-bit digital sound system; Proteus/1 and Proteus/2 digital sound modules; Performance 16-bit true-stereo piano modules.
Product line
Digital audio workstations; libraries, sampled sounds; libraries, sound effects; MIDI hardware.
Circle (281)

East-West Communications (25)
Not available at press time.
Circle (282)

Eastern Acoustic Works (244*)
New products
KF-1000 Virtual Array system; a high-definition stage monitor — details at show.
Product line
Loudspeakers, component; loudspeakers, sound reinforcement; loudspeakers, studio monitoring.
Circle (283)

Ediflex Systems (1119*)
New products
Optiflex digital multitrack recorder.
Product line
Digital audio workstations; editing systems; recorders, hard disk.
Circle (284)

Electro Sound (730*)
New products
4800 digital control slave; ES 8000 with improved power loop bin; ES 4300 Series quality control system.
Product line
Tape duplication, systems and accessories.
Circle (286)

Electro-Voice (Rm. 205)
New products
DML-1152MC DeltaMax slant floor monitor; MT-2 concert speaker system.
Product line
Amplifiers; consoles, sound reinforcement; crossovers and frequency dividers; equalizers; loudspeakers, component; loudspeakers, sound reinforcement; loudspeakers, studio monitoring; microphone mixers; microphones, studio and PA; microphones, wireless and RF.
Circle (287) See inside front cover

El Mar Plastics (31)
Not available at press time.
Circle (448)

Enterprise Corporation of America(1043)
New products
CD CATS SA2 compact disk computer-aided test system.
Product line
Computers, hardware and peripherals; computer software, business; record/CD manufacturing.
Circle (288)

Euphonix (90*)
New products
Crescendo audio mixing system.
Product line
Consoles, automation systems; consoles, digital; consoles, recording and production.
Circle (289)

Eventide (208*)
New products
H3000 SE/B/VW/HS322 “Kitchen Sink” Ultra Harmonizer.
Product line
Delays, analog and digital; pitch shifters; reverb devices; signal processors; preamp; MIDI interface.
Circle (290)

Fairlight (45*)
Not available at press time.
Circle (291)

Feltway S.A. (14)
Not available at press time.
Circle (292)

Ferrofluidics (84)
New products
APG 900 Series audio-grade ferrofluid.
Product line
Acoustic treatment materials; loudspeakers, component; loudspeakers, sound reinforcement.
Circle (293)

FM Acoustics (4)
New products
Forcelines 3 transfer cable.
Product line
Amplifiers; cable and connectors; crossovers and frequency dividers.
Circle (449)

Focusrite Audio Engineering (1*)
New products
Focusrite Studio console; ISA 230 dual-channel dynamics module.
Product line
Consoles, automation systems; consoles; recording and production; equalizers; limiters/compressors; microphones, pre- amplifiers; noise gates/expanders; signal processors, other.
Circle (294)

Fostex Corp. of America (820*)
Product line
Computer software, MIDI; consoles, recording and production; headphones and headsets; loudspeakers, studio monitoring; microphones, studio and PA; MIDI hardware; patchbay and jack panels; synchronizer systems; tape machines, analog; tape machines, cassette and cartridge; tape machines, DAT.
Circle (295) See ad page 93

Fujif International (946)
New products
Greencorp Magnetics audio cassette pancake tapes; Teccon Enterprises magnetic recording replacement heads.
Product line
Recording heads, replacement, sales and service; recording tape, audio.
Circle (296)

Full Sail Recorders (548*)
Product line
Educational courses and programs.
Circle (297)

Furman Sound (48)
New products
SP-20 half-rack power amplifier; AR-Pro ac line voltage regulator.
Product line
Amplifiers; equalizers; headphone mixing systems; limiters/compressors; metering devices; microphone mixers; noise gates/expanders; patchbay and jack panels; power conditioning/standy power systems.
Circle (298) See ad page 109

Gauss (726*)
New products
3588 coaxial loudspeaker.
Product line
Loudspeakers, component; tape duplication, systems and accessories.
Circle (299) See ad page 97

Gefen Systems (445)
New products
GS-006 interface unit for the Sony CD-K006; M & E organizer with AMS AudioFile interface;
As Re-defined by Audio Animation:

par•a•gon \'par-e-, gän, -gen\  \( n \)

1: a fully digital audio dynamics processor for all broadcast environments. 2: Featuring: No clipper, meaning no clipping artifacts; 4-band compressor and limiter; 9" VGA touch-screen equipped video monitor; factory-loaded sound library; on-air A/B comparison; remote controllable. User installable options will include a 10-band Graphic EQ, Stereo Generator and AES/EBU digital I/O.
Genelec Oy (1105) New products 530B and 530BNF active monitoring speakers; 1053A control room monitor. Product line Amplifiers; loudspeakers, studio monitoring. Circle (450)

Genefur Electronics (1308) Product line Amplifiers; microphone mixers; routing switchers, audio. Circle (301)

Gepco International (142) Product line Cable and connectors; patchbay and jack panels. Circle (302)

GML (747*) New products Series 2000 Moving Fader automation; 8900 2-channel compressor/limiter. Product line Consoles, automation systems; equalizers; faders; limiters/compressors; microphones, pre-amplifiers. Circle (303)

Gold Line/Loft (521) New products PN-3 gated pink noise generator/timer; CBM-2 Celebrity Boundary mic; SPL 120 digital portable SPL meter; Loftech TS-2 audio test set. Product line Crossover and frequency dividers; headphone mixing systems; limiters/compressors; maintenance, test and measuring equipment; metering devices; microphones, studio & PA; miscellaneous equipment and services; noise gates/expanders; signal processors, other. Circle (304)

Gotham AG (846) Not available at press time. Circle (305)

Gotham Audio Corp. (712*) New products Neumann GFM 132 boundary layer microphone; Harmonia Mundi BW102/50 sampling frequency synchronizer; Gotham SPOT 90 CD recording system with R-DAT source. Product line Computers, hardware and peripherals; computer software, business; computer software, studio applications; consoles, digital; disc mastering systems; equalizers; limiters/compressors; microphones, boom, stands and accessories; microphones, studio and PA; noise reduction systems; record/CD manufacturing; signal processors, other. Circle (306)

Goutam Elect. Products Ltd. (38*) Not available at press time. Circle (307)

Greencorp Magnetics Pty. Ltd. (946) New products XD38, XD385 and CR22 high-speed duplicating and blank cassette pancake tapes. Product line Recording tape, audio. Circle (466)

The John Hardy Company (13) New products MPC-IR mic pre-amp. Product line Amplifiers; microphones, pre-amplifiers. Circle (308) See ad page 113

Harrison by GLW (312*) New products ARS-9 audio routing switcher; Series Ten console. Product line Computer software, studio applications; consoles, automation systems; consoles, recording and production; consoles, sound reinforcement; metering devices; routing switchers, audio. Circle (309) See ad page 61

HEDCO (1044) New products Pro-Bel 6050 A/D-D/A converters; Pro-Bel 6063 digital DA; Pro-Bel 5012 digital audio waveform generator. Product line Amplifiers; routing switchers, audio; video equipment, all. Circle (310)

Hybrid Arts (15*) New products ADAP II digital audio recorder/editor. Product line Digital audio workstations. Circle (311) See ad page 106

Heino Ilsenmann GmbH (722*) Product line Tape duplication, systems and accessories. Circle (312)

Industrial Strength Industries (446) Product line Amplifiers; consoles, sound reinforcement; crossovers and frequency dividers; delays, analog and digital; drum machines; equalizers; reverb devices. Circle (313)

Innovative Electronic Designs (519) New products 2000 UDAPS universal digital audio processing system; 596S speaker circuit sensor for use with IED 596 monitor/test system. Product line Amplifiers; microphone mixers; routing switchers, audio; signal processors, other. Circle (314)

Institute of Audio Research (1016) New products 650-hour recording, engineering and production (REP) program; 930-hour video technology program (VTP). Product line

JBL Professional (430*) New products SR4700 Series loudspeaker systems; Control SB-1 subwoofer; Control SB-5 subwoofer; SR6600 Series amplifiers; ES Series amplifiers. Product line Amplifiers; loudspeakers, component; loudspeakers, sound reinforcement; loudspeakers, studio monitoring. Circle (318) See ad back cover

Jensen Transformers (605) Not available at press time. Circle (319)

J.L. Cooper (130*) New products Magi II console automation system; Magi III internal retrofit automation system; SA-1000 stage automation system; Synapse MIDI patchbay processor; Synmaster Macintosh synchronizer interface; PP-100 SMPTE synchronizer. Product line Computers, hardware and peripherals; computer software, MIDI; computer software, studio applications; consoles, automation systems; consoles, sound reinforcement; digital audio workstations; MIDI hardware; synchronization systems. Circle (452)

Josephson Engineering (1041) New products C603A transformercless low-distortion microphone; KA600 switchable pattern capsule; KA800 figure-eight capsule. Product line Microphones, pre-amplifiers; microphones, studio and PA; miscellaneous equipment and services. Circle (320)

JRF Magnetic Sciences (330) New products Magnetic head replacements for the Ampex MM1100 and 1200 24-track. Tascam 80-8 and 86-16, Otari MTR10 and MTR12 for low-speed mastering; replacements for 16/35mm film recorders; PAW P/N PTC-50TT Pilot Tone test tape; PAW Seamless/Gapless retrofit kit for Otari MTR10 and 12 machines; TC-50 center track time cod conversion kits with EC-BII option. Product line Maintenance, test and measuring equipment;

Educational courses and programs. Circle (315)

Intelix (745) New products MIND Control system. Product line Consoles, sound reinforcement; headphone mixing systems; routing switchers, audio. Circle (316)

Jan-Al Cases (89) Not available at press time. Circle (451)

Japan America Electronics (1416) Product line Recording tape, audio; tape machines, DAT; tape supplies and accessories. Circle (317)

JBL Professional (430*) New products SR4700 Series loudspeaker systems; Control SB-1 subwoofer; Control SB-5 subwoofer; SR6600 Series amplifiers; ES Series amplifiers. Product line Amplifiers; loudspeakers, component; loudspeakers, sound reinforcement; loudspeakers, studio monitoring. Circle (318) See ad back cover

Jensen Transformers (605) Not available at press time. Circle (319)

J.L. Cooper (130*) New products Magi II console automation system; Magi III internal retrofit automation system; SA-1000 stage automation system; Synapse MIDI patchbay processor; Synmaster Macintosh synchronizer interface; PP-100 SMPTE synchronizer. Product line Computers, hardware and peripherals; computer software, MIDI; computer software, studio applications; consoles, automation systems; consoles, sound reinforcement; digital audio workstations; MIDI hardware; synchronization systems. Circle (452)

Josephson Engineering (1041) New products C603A transformercless low-distortion microphone; KA600 switchable pattern capsule; KA800 figure-eight capsule. Product line Microphones, pre-amplifiers; microphones, studio and PA; miscellaneous equipment and services. Circle (320)

JRF Magnetic Sciences (330) New products Magnetic head replacements for the Ampex MM1100 and 1200 24-track. Tascam 80-8 and 86-16, Otari MTR10 and MTR12 for low-speed mastering; replacements for 16/35mm film recorders; PAW P/N PTC-50TT Pilot Tone test tape; PAW Seamless/Gapless retrofit kit for Otari MTR10 and 12 machines; TC-50 center track time cod conversion kits with EC-BII option. Product line Maintenance, test and measuring equipment;
Outstanding Technical Achievement

- SOUND REINFORCEMENT PRODUCT OF THE YEAR
- TRANSDUCER TECHNOLOGY

Applications

LIVE SOUND REINFORCEMENT
AUDITORIUMS
HOTEL AV & MULTI-IMAGE PRESENTATIONS
CLUBS/DISCOs
CHURCHES
MEETING ROOMS

Specifications

FREQUENCY RESPONSE:
55Hz to 16.5kHz (±4dB, 1 METER ON AXIS)

POWER HANDLING:
300 WATTS CONTINUOUS,
1200 WATTS PEAK

MAXIMUM SOUND PRESSURE:
121dB CONTINUOUS, 126dB PEAK

DISPERSION:
90° HORIZONTAL, 45° VERTICAL

DIMENSIONS:
23" HIGH, 14" WIDE, 14" DEEP

Apogee is proud to be recognized by the audio professionals who nominated our AE-4 speaker system in not one, but two categories of the 1990 TEC Awards. We thank the nominating committee for this honor, and we also thank the consultants, contractors and sound companies who specified and installed AE-4 systems throughout the world.

The AE-4 loudspeaker is a two-way, electronically coupled system providing high acoustic output, smooth response and very low distortion. Designed for use with the new generation Advanced Technology P-4 Processor, the AE-4 system is a versatile performer fulfilling a wide range of music and speech reinforcement applications.

Long acknowledged as the leader in sonically transparent systems technology, Apogee’s new “P” series processor brings to the AE-4 system an integral subwoofer output and an advanced “User-Preset” mode with electronic ‘lock-out’. The subwoofer output allows ready use of the optional SB subwoofer, for an economical means of extending the bass response while increasing overall power output capability.

The AE-4 electronically coupled system is one of the many fine products “Engineered to Perfection” by Apogee Sound.

See us in AES booth #351
Hear us in demonstration room 202B
miscellaneous equipment and services; recording heads, replacement, sales and service; syn-chronizer systems; tape duplication, systems and accessories.
Circle (321)

JVC Professional Products (121*)
New products
DS-DT9000 professional R-DAT recorder.
Product line
Disc mastering systems; limiters/compressors; tape machines, DAT.
Circle (322) See ad page 45

KABA
Product line
(936*)
Tape duplication, systems and accessories.
Circle (323) See ad page 99

Kenwood USA (57*)
New products
DA-7000 CD encoder, DD-7000 CD writer.
Product line
Disc mastering systems; record/CD manu-facturing.
Circle (324)

King Instrument Corp. (724*)
Not available at press time.
Circle (325)

Klark-Teknik Electronics (826*)
New products
DN735 digital VTR editing "lay-off" recorder.
Product line
Delays, analog and digital; equalizers; limiters/compressors; maintenance, test and measuring equipment; noise gates/expanders; reverb devices; sound samplers.
Circle (326)

Klipsch & Associates (141)
New products
KP-115-SW 15-inch subwoofer.
Product line
Loudspeakers, component; loudspeakers, sound reinforcement; loudspeakers, studio monitoring; miscellaneous equipment and services.
Circle (327) See ad page 89

Korg USA (Rm. 216C)
New products
S3 rhythm workstation; C-50 concert piano; WS Wavestation synthesizer; DAW digital audio workstation.
Product line
Delays, analog and digital; digital audio work-stations; drum machines; reverb devices; signal processors, other; synthesizers and key-boards.
Circle (328)

Leater Audio Laboratories (1033)
New products
DAS-2000 64-channel audio-to-optical multi-plexer fiber optic sound transmitter.
Product line
Routing switchers, audio.
Circle (329)

Lexicon (Rm. 208)
New products
300 digital effects system.
Product line
Consoles, digital; consoles, recording and pro-duction; delays, analog and digital; digital au-dio workstations; reverb devices; signal proces-sors, other; time compression/expansion.
Circle (330) See ad pages 48 A-F

Lindos Electronics (1414)
Not available at press time.
Circle (331)

Lone Wolf (70)
New products
MidiHuG 8 and MidiHuG16 MIDI patch-bay/processors with full merging on all inputs.
Product line
Computers, hardware and peripherals; comput-er software, MIDI; computer software, studio applications; MIDI hardware.
Circle (332)

Mag-Zon (1034)
Not available at press time.
Circle (333)

Magnefax International (725)
New products
3081 4-track cassette duplicator; HP-110 con-tinuous belt-tape degausser.
Product line
Tape duplications, systems and accessories.
Circle (334)

Mark of the Unicorn (945)
New products
Video Time Piece VITC/MIDI/SMPTE syn-chronizer with built-in character generator; Video Distribution Amplifier 3x15 video sig-nal routing device.
Product line
Synchronizer systems.
Circle (335)

Marshall Electronic (Rm. 201)
Not available at press time.
Circle (336)

Marshall Electronics (340)
New products
Molded cable assemblies.
Product line
Cable and connectors.
Circle (337)

Martin America/Martin Audio (1027*)
New products
Fl 2-box version of the VRS1000 sound reinforcement speaker system; CT Series.
Product line
Loudspeakers, sound reinforcement.
Circle (338)

McCaulay Sound (1042)
Not available at press time.
Circle (339)

Meyer Sound Laboratories (626*)
New products
VX-1 stereo program equalizer; DS-2 arrayable mid-bass loudspeaker.
Product line
Amplifiers; equalizers; loudspeakers, sound reinforcement; loudspeakers, studio monitoring.
Circle (340)

MicroAudio (11)
New products
DCM 6290 programmable, tamper-proof 6×2 microphone mixer.
Product line
Computer software, studio applications; equalizers; microphone mixers.
Circle (341) See ad page 87

Midas (826*)
New products
XL3 mixing desk; XL88 outboard matrix mixer.
Product line
Consoles, sound reinforcement.
Circle (458)

Mila (826*)
New products
VM-44 small diaphragm condenser mic; LSR-2000 handheld condenser mic.
Product line
Microphones, studio and PA.
Circle (459)

Minim Electronics Ltd. (332)
Not available at press time.
Circle (342)

Monster Cable Products (625)
Product line
Cable and connectors.
Circle (343)

Morenzer Development (1047)
New products
SA-1000 power amplifier.
Product line
Amplifiers.
Circle (344)

Motorola (831*)
New products
New audio applications on 56001 fixed-point digital signal processor.
Product line
Signal processors, other.
Circle (345)

Nady Systems (317)
New products
WA-150 wireless speaker system.
Product line
Headphones and headphones; intercom systems; microphones, wireless and RF, MIDI hardware.
Circle (346)

Nagra USA (5*)
Not available at press time.
Circle (347)

Nakamichi America (718)
New products
1000 digital audio recording system; MR-1 3-head discrete cassette deck; MR-2 2-head cas-sette deck.
Product line
Tape machines, cassette and cartridge; tape ma-chines, DAT.
Circle (348)

Neotek (615)
New products
Encore console series for film dubbing and film-style TV post-production.
Product line
Consoles, recording and production.
Circle (349)
Professional Audio Systems, cont.
loudspeakers, component; loudspeakers, sound reinforcement; loudspeakers, studio monitoring.
Circle (369)

Pygmy Computer Systems (932)
New products
AD-2 A/D converter.
Product line
Miscellaneous equipment and services; signal processors, other.
Circle (370)

QSC Audio Products (610*)
New products
EX 4000 power amplifier.
Product line
Amplifiers.
Circle (371) See page 67

Quad Eight Electronics (500*)
New products
Pinpoint update on all console lines.
Product line
Consoles, automation systems; consoles, recording and production; equalizers; limiters/compressors.
Circle (372) See page 113

Quested Monitoring Systems (24)
Product line
Loudspeakers, studio monitoring.
Circle (373)

Radian Audio Engineering (133*)
New products
MS-12 Monitor Standard system with 12-inch coaxial loudspeaker; MS-809 for direct retrofit of the UREI 809 system; MS-10 Monitor Standard system with 10-inch coaxial loudspeaker; 5200 Series high-output versions of coaxial loudspeakers in 8-, 10- and 12-inch cast frame formats.
Product line
Crossovers and frequency dividers; loudspeakers, component; loudspeakers, sound reinforcement; loudspeakers, studio monitoring.
Circle (374) See page 35

Rane Corp. (1031)
New products
Commercial EQ Series: MQ15, MQ30, GG15 and GG30; FPL44 quad program limiter; FNG44 quad noise gate.
Product line
Amplifiers; crossovers and frequency dividers; equalizers; microphone mixers; noise gates/expanders; signal processors, other.
Circle (375) See pages 24, 25

R-E^P (347*)
Stop by to meet R-E^P's sales and editorial staff, including Cameron Bishop, group vice president; Dennis Milan, publisher; Dan Torcia, editor; Mike Joseph, technical editor; Stan Kashine, East Coast sales rep; David Ruttenberg, Midwest sales rep; West Coast sales reps Herb Schiff, Jason Perlman and Kelly Dougherty; and Nick McGachin, international sales rep.
The sales and editorial staff of Sound & Video Contractor and Broadcast Engineering will also be at booths 347 and 349. All three magazines are InterTech publications.

Renkus-Heinz (701*)
New products
EASE acoustical design and analysis software program: CM12I loudspeaker; C1 System coaxial point-source speaker system.
Product line
Amplifiers; loudspeakers, component; loudspeakers, sound reinforcement; loudspeakers, studio monitoring.
Circle (376)

Richmond Sound Design (62)
New products
Not available at press time.
Circle (455) See page 118

Roland Corp. U.S. (Rm. 207)
New products
DM-80 digital multitrack hard disk recorder; S-770 digital sampler; R/V/S NF-25 powered monitors; R/V/S NF-100 powered monitors; M-480 48-channel mixer; SX-550 digital noise eliminator; SV-30 personal MIDI studio system.
Product line
Computer software, MIDI; delays, analog and digital; drum machines; equalizers; libraries; sampled sounds; loudspeakers, studio monitoring; MIDI hardware; recorders, hard disk; reverb devices; sequencers; signal processors, other; sound samplers; synthesizers and keyboards.
Circle (377) See pages 12, 13

Roldex Industries (1007*)
New products
STF-2 automatic cassette imprinter; A-5 automatic platemaker.
Product line
Tape duplication, systems and accessories.
Circle (378)

Rolls Corp. (744)
New products
HR210 dual 10-band EQ; HR250 stereo power amp.
Product line
Amplifiers; equalizers; microphone mixers; pitch shifters; signal processors, other.
Circle (379)

RPG Diffusor Systems (341)
New products
Trade Show Audio Suite; Diffracloral full-spectrum 1- and 2-D fractal diffuser within a diffuser; FlutterFree non-absorbent flutter control architectural molding; Chlorister QRD choral acoustic shell; Ensemble QRD orchestral and chamber group shell; Diffusor QRD diffuser performance partition; Omiffusor 2-D broad-bandwidth diffuser; QRDX diffuser based on new number theory sequences.
Product line
Acoustic design and construction; acoustic treatment materials; miscellaneous equipment and services.
Circle (380)

Saki Magnetics (627)
New products
Replacement heads for the Studer A-80 and A-800 series recorders.
Product line
Recording heads; replacement, sales and service.
Circle (381) See page 95

Samson Technology/Soundtracs Plc. (540*)
New products
VLP wireless system; Super TD wireless system; UHF Series.
Product line
Microphones, wireless and RF.
Circle (382)

Sanken/Audio Intervisional Design (1026*)
New products
COS-11 ultra-miniature high-performance electret lavalier microphone; COS-11 PT ultra-miniature pigtail version.
Product line
Microphones, booms, stands and accessories; microphones, studio and PA; microphones, wireless and RF.
Circle (383)

Schoeps/Posthorn Recordings (1000)
New products
KCY/VMS01 BA miniature stereo microphone system.
Product line
Metering devices; microphones, booms, stands and accessories; microphones, studio and PA; microphones, wireless and RF.
Circle (384)

Seck (536*)
New products
47mm collet control knobs.
Product line
Consoles, recording and production; consoles, sound reinforcement.
Circle (385)

Selco/Sifam (720)
New products
47mm collet control knobs.
Product line
Meters; microphones, booms, stands and accessories; microphones, studio and PA; microphones, wireless and RF.
Circle (386)

Sellmark Electronic Services (1101*)
New products
OMITRAC plastic faders and motorized faders.
Product line
Consoles, automation systems.
Circle (387)

Sennheiser Electronics Corp. (609*)
New products
MKH 60 short shotgun condenser microphone; HD450 studio headphone.
Product line
Headphones and headsets; microphones, booms, stands and accessories; microphones, studio and PA; microphones, wireless and RF; miscellaneous equipment and services.
Circle (388)

Sescam (206)
New products
Amplifiers; cable and connectors; crossovers and frequency dividers; equalizers; microphone mixers; noise gates/expanders; patchbay and jack panels; signal processors, other; transformers, audio.
Circle (389)

Shure Bros. (107*)
New products
To be announced at show.
Product line
Amplifiers; headphones and microphones; microphones, booms, stands and accessories; microphones, pre-amplifiers; mi-
Some manufacturers want you to believe filters don't make a difference.

But you know better.

That's why so many of you have specifically requested Apogee Filters on your Mitsubishi 32-channel digital audio recorders.

Now every X-880 comes fully enhanced from the factory with Apogee 944 Series Digital Audio Filter Modules.

You can hear the difference.
Shure Bros., con't.

cophoners, studio and PA; microphones, wire-
less and RF.
Circle (390)

SigTech (formerly Cambridge) Signal Technologies
New products
ASC 1000 adaptive signal correction digital
filtering unit for automatic analysis and real-
time compensation of loudspeaker and room
interaction.
Product line
Signal processors, other.
Circle (391)

Singular Solutions
Not available at press time.
Circle (392)

Slinger Sierra Designs
Not available at press time.
Circle (456)

Society of Professional Audio Recording Services (SPARS) (431)
Product line
SPARS is a non-profit professional trade orga-
nization whose members include prominent stu-
dios, manufacturers of professional equipment,
recording schools and colleges, small personal
home-use studios, individual engineers and pro-
ducers. The goal of SPARS is to promote world-
wide communication among all those who
make and use professional audio equipment,
to foster high-quality educational programs for
future engineers and producers, and to promote
the economic well-being of the recording serv-
vice industry as a whole.
Circle (399)

Solid State Logic (812*)
Product line
Consoles, automation systems; consoles,
recording and production; digital audio worksta-
tions; equalizers.
Circle (393)

Sonex Acoustical/Illbruck (43*)
Not available at press time.
Circle (394)

Sonic Perceptions
New products
Aachenhead recording system.
Product line
Consoles, digital; consoles, recording and pro-
duction; headphones and headsets; micro-
phones, studio and PA; miscellaneous equip-
ment and services.
Circle (285)

Sony Professional Audio (300*)
New products
7000 Series 4-head DAT recorders with time
code; MXP-210 and MXP-290 mixers; BVG-200
portable time code reader/generator; MXP-
2900 Series console.
Product line
Consoles, automation systems; consoles, rec-
cording and production; disc mastering sys-
tems; editing systems; equalizers; headphones
and headsets; limiters/compressors; metering
deVICES; microphone mixers; microphones;

booms, stands and accessories; microphones,
studio and PA; microphones, wireless and RF;
MIDI hardware; noise gates/expanders; re-
cord/CD manufacturing; recording tape, audio;
reverb devices; tape machines, analog; tape
machines, cassette and cartridge; tape ma-
chines, DAT; tape machines, digital.
Circle (395) See ads pages 17, 65

Soundcraft (526*)
New products
Products based on the Delta console.
Product line
Consoles, automation systems; consoles, re-
cording and production; consoles, sound rein-
forcement.
Circle (396) See ad page 33

Soundcraftsmen (63)
New products
900X2 MOSFET power amplifier; DJ900 MOS-
FET power amplifier.
Product line
Amplifiers, equalizers, patchbay and jack
panels.
Circle (397)

Sound Ideas (441)
New products
Series 1100, 2000, 3000 and 4000 sound effects
libraries; Series LF LucasFilm sound effects li-
brary; PML, production music library.
Product line
Libraries, music production; libraries, sound
effects.
Circle (398)

Soundmaster International (146*)
New products
Soundmaster audio editing system; Syncram
random-access digital audio modules.
Product line
Computers, hardware and peripherals; digital
audio workstations; editing systems; libraries,
music production; libraries, sampled sounds;
libraries, sound effects; recorders, hard disk;
sound samplers; synchronizer systems.
Circle (458) See ad page 116

Sound Technology (139)
Not available at press time.
Circle (457)

SoundTracker Pty. Ltd. (98)
Not available at press time.
Circle (459)

Spatial Sound (1042)
New products
SSP-100 Spatial Sound Processor.
Product line
Consoles, automation systems; signal proces-
sors, other.
Circle (400)

Spectral Synthesis (12)
New products
Digital Studio board and sampler Pak 1 and 2
with Windows 3.0 software interface for IBM
PC/AT, ADDA-2218 18-bit digital audio convert-
er for multitracking; AudioVision 16-track sam-
pole editor with Windows 3.0.
Product line
Computers, hardware and peripherals; comput-
er software, studio applications; digital audio
workstations; editing systems; recorders, hard
disk; signal processors, other; sound samplers;
time compression/expansion.
Circle (401) See ad page 114

Spectrum Signal Processing (1121)
New products
600-00752 dual DSP56001 processor board;
600-00761 dual-channel analog I/O module.
Product line
Signal processors, other.
Circle (402) See ad page 102

Star Case (443)
New products
Reusable shipping cases and EIA rackmounts
for professional audio sound reinforcement,
computer and AV/TV equipment.
Product line
Computers, hardware and peripherals; equip-
ment cases; miscellaneous equipment and ser-
vices; racks and stands; video equipment, all.
Circle (403)

Stellavox
New products
Prototype of Stelladat portable professional
R-DAT.
Product line
Tape machines, analog; tape machines, DAT.
Circle (404)

Stewart Electronics (547)
New products
PA-50U/B single-channel half-rack space ster-
eo power amplifier; PA-100U/B single half-rack
space stereo power amplifier; PA-500 2-rack
space dual mono amplifier.
Product line
Amplifiers; microphone mixers; miscellaneous
equipment and services.
Circle (405)

Strand Magnetics (433)
New products
V-0 video cassette shells.
Product line
Miscellaneous equipment and services.
Circle (406)

Studer Revox America (111*)
New products
D820-48 48-channel DASH recorder; Dyaxis
2+2 4-channel digital audio hard-disk record-
ing and editing suite; A827-24 multitrack
recorder; A820-24 multitrack recorder with Dolby
SR; A727 and A730 professional CD players;
961 and 962 portable mixing consoles; C274
and C278 multitrack recorders.
Product line
Compact disc players; consoles, recording and
production; digital audio workstations; record-
ers, hard disk; tape machines, analog; tape ma-
chines, digital.
Circle (407)

Success Specialty Sales Corp. (607)
New products
1/4-inch acetate and polyester splicing tape for
recording studios.
Product line
Tape supplies and accessories.
Circle (408)

Summit Audio
New products
960 op-amp.
Install the Mixer of the Future!

Installations in churches, courtrooms, and meeting rooms require the DCM (digitally controlled mixer) 6200 from MicroAudio. Designed to compliment MicroAudio's programmable EQ PODs, the DCM 6200 offers a simple, secure way to add microphone mixing to the system.

Up/Down buttons set the levels of individual inputs as well as the level of the master gain. A 7 segment LED indicates gain from 0-9. Six balanced mic/line inputs and two balanced outputs (XLR on the rear panel) are all programmable from an IBM PC via RS 232/422 connectors. Software controls the volume of each channel and master gains, making the mixer tamperproof!

Install the mixer of the future . . . today!

4438 SW Hewett
Portland, Oregon 97221 USA
(503) 292-8896
(800) 445-1248
FAX 503-293-0562
TELEX 4997744INTR

“MicroAudio” is registered with the U.S. trademark office. Sheetmetal and assembly by Tektronix/ECB.

Circle (78) on Rapid Facts Card
TDK Electronics, cont.

tape supplies and accessories.
Circle (418)

Tecon Enterprises Ltd. (946)
Product line
Recording heads, replacement, sales and service.
Circle (467)

Techron (204)
New products
TEF 20 acoustic analyzer for IBM/compatible or Macintosh.
Product line
Maintenance, test and measuring equipment.
Circle (419)

Telex Communications (734*)
New products
FMR-100 wireless microphone receiver; WT-60 beltback transmitter; MRT-327 intercom user station; Series 2100 wireless intercom; Series 2200 wireless IFB; PS15 intercom power supply.
Product line
Headphones and headsets; intercom systems; microphones, studio and PA; microphones, wireless and RF; tape duplication, systems and accessories.
Circle (420) See ad page 49

THAT Corp. (845)
New products
202H modular VCA; 202XT and 202XT modu- lar VCAs; THAT/dbx 2252 integrated-circuit RMS-level detector; THAT/dbx 2150 series integrated-circuit VCAs.
Product line
Amplifiers; miscellaneous equipment and services; noise reduction systems; signal processors, other.
Circle (421)

Theatre Crafts (61)
Not available at press time.
Circle (460)

3M/Professional A/V Products (412*)
Product line
Tape supplies and accessories.
Circle (422)

360 Systems (1403*)
New products
DCR1000 Digicart; AM-16/R Remote Control Station; Patch-it editor/librarian software.
Product line
MIDI hardware; recorders, hard disk; routing switches, audio.
Circle (423)

TimeLine (1123*)
New products
Lynx SSL data interface; Lynx keyboard control unit.
Product line
Editing systems; synchronizer systems.
Circle (424)

Toa Electronics (125*)
New products
SAORI integrated digital sound reinforcement processor; AX-1000 automatic microphone mixer; SR Series electronically controlled speaker system; SF-60 trapezoidal 3-way loudspeaker system; SR-30 flying loudspeaker system; SW Series ultra-linear subwoofers; F-500/F-600 2-way sound reinforcement loudspeaker system; CX-124 and CX-164 professional mixing consoles.
Product line
Consoles, sound reinforcement; microphone mixers; signal processors, other.
Circle (425)

Trident Audio USA (232*)
New products
Series 80C music recording mixing console; Vector 432 music/post-production audio console.
Product line
Consoles, digital, consoles, recording and production; consoles, sound reinforcement.
Circle (426) See ad page 91

Trouper Industries Ltd. (81)
Not available at press time.
Circle (461)

Trublend (826*)
New products
TMS-5 3-way enclosure; TFS Series compact loudspeaker enclosures.
Product line
Loudspeakers, component; loudspeakers, sound reinforcement.
Circle (470)

Valentino (55)
Not available at press time.
Circle (433)

Vega (829)
Product line
Intercom systems; microphones, wireless and RF.
Circle (432)

Versadyne International (1415)
New products
1500 Series high-speed bin-loop duplicator; PT-250 duplicator production totalizer; SR-150 slave reader.
Product line
Tape duplication, systems and accessories.
Circle (433)

WaveFrame Corp. (Rm. 216A)
Product line
Computer software, studio applications; consoles, automation systems; digital audio work stations, editing systems; MIDI hardware; recorders, hard disk; signal processors, other; sound samplers.
Circle (434)

Westlake Audio (Rm. 203)
Product line
Loudspeakers, studio monitoring.
Circle (435)

Whirlwind (321*)
New products
Concert 42 and Concert 32 mic splitting systems; Line Balancer/Splitter.
Product line
Cable and connectors; patchbay and jack panels; transformers, audio.
Circle (436)

Wireworks (1401*)
Product line
Cable and connectors; miscellaneous equipment and services; transformers, audio; video equipment, all.
Circle (437)

Yamaha Corp. of America (318*)
New products
DMC1000 digital recording console; PC4002M dual-channel amplifier.
Product line
Amplifiers; consoles, digital; consoles; sound reinforcement; crossovers and frequency dividers; delays, analog and digital; equalizers; limiters/compressors; loudspeakers, sound reinforcement; loudspeakers, studio monitoring; microphones, studio and PA; microphone mixers; reverber devices; signal processors, other; tape machines, cassette and cartridge; tape machines, digital.
Circle (438)

Zoom (644*)
Product line
Signal processors, other.
Circle (439)

This directory is current as of Aug. 3, 1990 and is compiled from information supplied by exhibiting companies as of that date. For changes and additions after Aug. 3, consult the official program at the convention.
Introducing the new KP-600 Series flyable speaker system from KLIPSCH. No longer does breathtaking sound translate to backbreaking weight.

A full-range, fully-featured, three-cabinet stack that’s ready to fly weighs less than 520 lbs. To really lighten your load, you can move the system one cabinet at a time. Or you can use the rigid assembly hardware, put the whole stack on its wheel tray, and still move it without much of a strain.

The secret is in the cabinet construction. A super-light composite material molded around a rigid aluminum skeleton. The result is a stronger, lighter, cabinet that remains free of unwanted resonances.

The fact that the KP-600 Series is lightweight is just one of many things that makes this system a heavyweight contender.

Consider its maximum continuous output of more than 131 dB. Consider its frequency response of 43 Hz - 17 kHz ± 3 dB. Consider its modular design that lets you easily rotate or interchange the horns for the best polar coverage. Consider all the infinite design details that help you hook it up and hoist it up, quickly and easily. Consider the simple fact that it sounds great, too.

For some informative literature about the new KLIPSCH KP-600 drop us a line at the address below. Or if you don’t have time to “weight,” give us a call.
## PRODUCT DIRECTORY

This directory lists exhibiting companies that manufacture equipment or offer services in 75 categories. The categories are listed in alphabetical order, as are companies within the specific category. Companies advertising in this issue are printed in blue.

Basic information on all exhibiting categories is contained in the Exhibitor Directory. Detailed information on many new products is contained in Product Preview. Because of our press deadlines, changes or additions after early August are not included. Check your convention program for updated information.

### Acoustic design and construction
- Acoustics Design Group (448)
- Bruel & Kjaer (7)
- DCL Design (60)
- RPG Diffusor Systems (341)

### Acoustic treatment materials
- Alpha Audio (700*)
- Ferrofluidics (84)
- RPG Diffusor Systems (341)

### Amplifiers
- AB International Electronics (1011)
- Analog Devices (1048*)
- Ashly Audio (624)
- Auditechniques/Tube Tech (307)
- Australian Monitor (844)
- BGW Systems (216)
- Bryston/Vermont (418*)
- BSS Audio (826*)
- Carver Corp. (56)
- Crest Audio (200*)
- Crown International (200*)
- Electro-Voice (Rm. 205)
- FM Acoustics (4)
- Furman Sound (48)
- Genelec/Oy (1105)
- Gentner Electronics (1308)
- The John Hardy Company (13)
- HEDCo (1044)
- Industrial Strength Industries (446)
- Innovative Electronic Designs (319)
- JBL Professional (430*)
- Meyer Sound Laboratories (626*)

### Cable and connectors
- Audio Accessories (247)
- Audio Services (1420)
- Audio-Technica U.S. (301)
- Beyerdynamic (601*)
- California Switch & Signal (1405)
- Connectronics (319)
- FM Acoustics (4)
- Gepco International (142)
- Marshall Electronics (340)
- Monster Cable Products (625)
- Neutrik USA (342*)
- Optical Disc Corp. (29*)
- Pro Co Sound (450)
- Sescom (206)
- Switchcraft (1117)
- Vacuum Tube Logic (1008)
- Whirlwind (321*)
- Wireworks (1401*)

### Compact disc players
- Gefen Systems (445)
- Studer Revox America (111*)
- Tascam (103*)

### Computers, hardware and peripherals
- Ariel Corporation (549*)
- Morenz Development (1047)
- OXmoor (343*)
- Panasonic Professional Audio/Ramsa (Rm. 206)
- Peavey Electronics (805*)
- Professional Audio Systems (248*)
- QSC Audio Products (640*)
- Rane Corp. (1031)
- Renkus-Heinz (701*)
- Rolls Corp. (744)
- Sescom (206)
- Shure Bros. (107*)
- Soundcraftsmen (547)
- Summit Audio (1421)
- Symetrix (901*)
- THAT Corp. (845)
- UREI (426*)
- U.S. Audio (325)
- Yamaha Corp. of America (318*)
- Vacuum Tube Logic (1008)
- Yamaha Corp. of America (318*)

### Computer software, business
- Bose (Rm. 216B)
- DLC Design (60)
- Enterprise Corporation of America (1043)
- Gotham Audio Corp. (712*)

### Computer software, MIDI
- Aphex Systems (708*)
- Fostex Corp. of America (820*)
- J.L. Cooper (130*)
- Lone Wolf (70)
- Opcode Systems (1107)
- Passport Designs (245)
- Roland Corp. U.S. (Rm. 207)
- TC. Electronic (841)

### Computer software, studio applications
- Aphex Systems (708*)
- Audio Teknology (71*)
- Gfen Systems (445)
- Gotham Audio Corp. (712*)
- Harrison by GLW (312*)
- J.L. Cooper (130*)
- Lone Wolf (70)
- MicroAudio (11)
- Opcode Systems (1107)
- Optical Disc Corp. (29*)
- Passport Designs (245)
- Pinc Link (135)
- Spectral Synthesis (12)
- TC. Electronic (841)
- WaveFrame Corp. (Rm. 216A)

### Consoles, automation systems
- Allen and Heath (101*)
- Amek/TAC (652*)

---

www.americanradiohistory.com
Advancing The Art.

Trident pioneered sophisticated audio mixing systems over two decades ago. You cut and mixed your best tracks on a Trident and have since longed for our legendary sonics in a mixer designed for your application. The wait is over.

A new standard is emerging from the company that continues to define audio integrity. Vector, the latest in Audio for Video mixing technology. It's heritage is firmly rooted in the finest audio tradition: a tradition unique to Trident.

With four stereo busses, dynamics, stereo inputs, integrated machine control and fader automation options, there really is no other choice. Audition a Vector and hear for yourself. After all, you've been listening to us for years.

Circle (29) on Rapid Facts Card

TRIDENT AUDIO DEVELOPMENTS LTD • Trident House, Rodd Estate, Cowett, Yerres, Shepperton, Middlesex TW17 8AQ, England • Phone 0932-226065 • Fax 0932-226721 • Telex 8013082 TRIDEN
TRIDENT AUDIO USA • 2720 Montereys Street, Suite 403 • Torrance, California 90306, USA • Phone 213-334-9900 • Fax 213-334-7072

www.americanradiohistory.com
Consoles, automation systems, cont.

AMS Industries (336*)
D&R Electronics (748*)
Euphonix (90*)
Focusrite Audio Engineering (1*)
GML (747*)
Harrison by GLW (312*)
J.L. Cooper (130*)
Neve (604*)
Otari (512*)
Quad Eight Electronics (800*)
Sellmark Electronic Services (1101*)
Solid State Logic (812*)
Sony Professional Audio (300*)
Soundcraft (526*)
Spatial Sound (1042)
WaveFrame Corp. (Rm. 216A)

Consoles, digital
AMS Industries (336*)
Audio Animation (448*)
Euphonix (90*)
Gotham Audio Corp. (712*)
Lexicon (Rm. 208)
Sonic Perceptions (49)
Tascam (103*)
Trident Audio USA (232*)
Yamaha Corp. of America (318*)

Consoles, recording and production
Alesis (249*)
Allen and Heath (101*)
Amek/TAC (632*)
AMS Industries (336*)
DDA (826*)
D&R Electronics (748*)
Euphonix (90*)
Focusrite Audio Engineering (1*)
Fostex Corp. of America (820*)
Harrison by GLW (312*)
Lexicon (Rm. 208)
Neotek (615)
Neve (604*)
Otari (512*)
Panasonic Professional Audio/Ramsa (Rm. 206)
Peavey Electronics (806*)
Quad Eight Electronics (800*)
Sega (76*)
Solid State Logic (812*)
Sonic Perceptions (49)
Sony Professional Audio (300*)
Soundcraft (526*)
Studer Revox America (111*)
Tascam (103*)
Trident Audio USA (232*)

Consoles, sound reinforcement
Alesis (249*)
Allen and Heath (101*)
Amek/TAC (632*)
Audio Teknology (71*)
Crest Audio (200*)
DDA (826*)
D&R Electronics (748*)
Electro-Voice (Rm. 205)
Harrison by GLW (312*)
Industrial Strength Industries (446)
Intellix (745)
J.L. Cooper (130*)
Midas (826*)
Panasonic Professional Audio/Ramsa (Rm. 206)
Peavey Electronics (806*)
Sega (536*)
Soundcraft (526*)
Tascam (103*)
Toa Electronics (125*)
Trident Audio USA (232*)
Yamaha Corp. of America (318*)

Crossovers and frequency dividers
Adamson Acoustic Design Corporation (1422)
Ashly Audio (624)
Audio Teknology (71*)
BrystonVermont (418*)
BSS Audio (826*)
Electro-Voice (Rm. 205)
FM Acoustics (4)
Gold Line/Loft (521)
Industrial Strength Industries (446)
Panasonic Professional Audio/Ramsa (Rm. 206)
Peavey Electronics (806*)
Professional Audio Systems (248*)
Rane Audio Engineering (133*)
Rane Corp. (1031)
Sescom (206)
Yamaha Corp. of America (318*)

Delays, analog and digital
AKG Acoustics (226*)
Alesis (249*)
AMS Industries (336*)
Applied Research and Technology (ART) (240*)
BSS Audio (826*)
DOD Electronics (523*)
Eventide (208*)
Industrial Strength Industries (446)
Klark-Teknik Electronics (724*)
Korg USA (Rm. 216C)
Lexicon (Rm. 206)
Panasonic Professional Audio/Ramsa (Rm. 206)
Peavey Electronics (806*)
Roland Corp. U.S. (Rm. 207)
TC. Electronic (841)
Yamaha Corp. of America (318*)

Digital audio workstations
AKG Acoustics (226*)
AMS Industries (336*)
Ariel Corporation (549*)
Audiotechniques/Tube Tech (307)
Digidesign (1109*)
Digital Audio Research Ltd. (1411*)
Digital Galaxy (76*)
E-mu Systems (Rm. 211B)
Edifex Systems (1119*)
Hybrid Arts (15*)
J.L. Cooper (130*)
Korg USA (Rm 216C)
Lexicon (Rm. 208)
New England Digital (Rm. 214A,BC)
Otari (512*)
Pinc Link (135)
Solid State Logic (812*)
Soundmaster International (146*)
Spectral Synthesis (12)
Studer Revox America (111*)
Symetrix (801*)
WaveFrame Corp. (Rm. 216A)

Disc mastering systems
Gotham Audio Corp. (712*)
JVC Professional Products (121*)
Kenwood USA (57*)
Pinc Link (135)
Sony Professional Audio (300*)

Drum machines
Akai/IMC (Rm. 112A)
Alesis (249*)
Industrial Strength Industries (446)

Korg USA (Rm 216C)
Roland Corp. U.S. (Rm. 207)

Editing systems
Adams-Smith (1407*)
Alpha Audio (700*)
AMS Industries (336*)
Cipher Digital (635*)
Digital Audio Research Ltd. (1411*)
Edifex Systems (1119*)
Sony Professional Audio (300*)
Spectral Synthesis (12)
TimeLine (125*)
WaveFrame Corp. (Rm. 216A)

Educational courses and programs
Audio Services (1420)
Berkeley College of Music (346)
Brue & Kjaer (7)
Full Sail Recorders (546*)
Institute of Audio Research (1016*)

Equalizers
Alesis (249*)
Amek/TAC (632*)
Applied Research and Technology (ART) (240*)
Ashly Audio (624)
Audiotechniques/Tube Tech (307)
Audio Teknology (71*)
BSS Audio (826*)
D&R Electronics (748*)
dbx Professional Products (226*)
DOD Electronics (523*)
Electro-Voice (Rm. 205)
Focusrite Audio Engineering (1*)
Furman Sound (48)
GML (747*)
Gotham Audio Corp. (712*)
Industrial Strength Industries (446)
Klark-Teknik Electronics (724*)
Meyer Sound Laboratories (626*)
MicroAudio (11)
Orban — a division of AKG (226*)
Oxmoor (343*)
Peavey Electronics (806*)
Quad Eight Electronics (800*)
Rane Corp. (1031)
Roland Corp. U.S. (Rm. 207)
Rolls Corp. (744)
Sescom (206)
Solid State Logic (812*)
Sony Professional Audio (300*)
Soundcraftsmen (63)
Summit Audio (1421)
Symetrix (901*)
TC. Electronic (841)
Vacuum Tube Logic (1008)
Yamaha Corp. of America (318*)

Equipment cases
Amek/TAC (632*)
Audio Services (1420)
CT Audio Marketing (155)
Star Case (443)

Equipment rental and leasing
Audio Services (1420)

Faders
GML (747*)
Penny & Giles (303*)

Filters, replacement
Apogee Electronics (600*)
Fostex RM monitors are significantly more directional than almost all other near-field designs. RMs eliminate those confusing reflections in the listening room so effectively that you maintain a crystal clear sonic picture at all times.

The RM high directional design is a true coaxial point-source reference. All the sound reaches your ears at the same time, just like in nature. Thus RMs are working tools for those who work with sound. They are especially good for mixing because what you hear is what you get.

Now you can end the frustration of mixing something in the studio and hearing it sound different on home and car systems or in other studios. The mix you create on your RMs will sound proportionally the same on all other playback systems.

Our patented ribbon technology is so precise we had to provide a control for what is called the "boundary effect"—where accurate speakers exhibit different characteristics in a free-standing field [4 pi steradian] vs. a wall/soffit mount [2 pi steradian].

In fact, a good test of correct placement is to sit down after arranging a pair of RMs as shown above. Listen for a few minutes, repeat the program material and after 30 seconds, stand up. The sound changes radically because your ears are now out of position. Try this simple, effective test with other so-called near-field monitors. Then ask yourself this musical question: "Who's kidding whom?"

So listen to a pair of Fostex RM monitors—one of our three models will best suit your application. A neutral, accurate reference you can rely on, leaving no room for error.
Headphones and headsets
AKG Acoustics (226*)
Audio Services (1420)
Audio-Technica U.S. (301)
Beyerdynamic (601*)
Clear-Com Systems (807)
Fostex Corp. of America (820*)
Nady Systems (317)
Sennheiser Electronics Corp. (609*)
Shure Bros. (107*)
Sonic Perceptions (49)
Sony Professional Audio (300*)
Telex Communications (734*)

Headphone mixing systems
Alesis (249*)
Furman Sound (48)
Gold Line/Loft (521)
Intelix (745)
U.S. Audio (325)

Intercom systems
Audio Services (1420)
Clear-Com Systems (807)
Nady Systems (317)
Telex Communications (734*)
Vega (829)

Libraries, music production
Audio Action (32)
Gefen Systems (445)
Optical Disc Corp. (29*)
Sound Ideas (441)
Soundmaster International (146*)

Libraries, sampled sounds
Audio Action (32)
Audio Services (1420)
E-mu Systems (Rm. 211B)
New England Digital (Rm. 214A,B,C)
Optical Disc Corp. (29*)
Roland Corp. U.S. (Rm. 207)
Soundmaster International (146*)

Libraries, sound effects
Audio Action (32)
Audio Services (1420)
E-mu Systems (Rm. 211B)
Gefen Systems (445)
Optical Disc Corp. (29*)
Sound Ideas (441)
Soundmaster International (146*)

Limiters/compressors
Alesis (249*)
Aphex Systems (708*)
Applied Research and Technology (ART) (240*)
Ashly Audio (624*)
Audiotractechines/Tube Tech (307)
Audio Technology (71*)
BSS Audio (826*)
D&D Electronics (748*)
dbX Professional Products (226*)
Dorrough Electronics (940)
Drawmer (113*)
Focustrie Audio Engineering (1*)
Furman Sound (48)
GML (747*)
Gold Line/Loft (521)
Gotham Audio Corp. (712*)
JVC Professional Products (121*)
Klark-Teknik Electronics (724*)
Orban—a division of AKG (226*)
Peavey Electronics (806*)
Quad Eight Electronics (800*)
Sony Professional Audio (300*)
Summit Audio (1421)
Symetrix (901*)

Vacuum Tube Logic (1008)
Yamaha Corp. of America (318*)

Loudspeakers, component
Adamson Acoustic Design Corporation (1422)
Audio Services (1420)
Community Light & Sound (40)
Eastern Acoustic Works (244*)
Electric-Voice (Rm. 205)
Ferrofluidics (84)
Gauss (726*)
JBL Professional (430*)
Klipshc & Associates (141)
Neutrik USA (342*)
Peavey Electronics (806*)
Professional Audio Systems (248*)
Radian Audio Engineering (133*)
Renkus-Heinz (701*)
Turbosound (826*)

Loudspeakers, sound reinforcement
Adamson Acoustic Design Corporation (1422)
Apogee Sound (351, Rm. 202B)
Audio Services (1420)
Australian Monitor (844)
Bose (Rm. 216B)
Community Light & Sound (40)
Eastern Acoustic Works (244*)
Electric-Voice (Rm. 205)
Ferrofluidics (84)
JBL Professional (430*)
Klipshc & Associates (141)
Martin America/Martin Audio (1027*)
Meyer Sound Laboratories (626*)
Panasonic Professional Audio/Ramsa (Rm. 206)
Peavey Electronics (806*)
Professional Audio Systems (248*)
Radian Audio Engineering (133*)
Renkus-Heinz (701*)
Turbosound (826*)
Yamaha Corp. of America (318*)

Loudspeakers, studio monitoring
Audio Services (1420)
Audix Corp. (42)
Clear-Com Systems (807)
Community Light & Sound (40)
Eastern Acoustic Works (244*)
Electric-Voice (Rm. 205)
Fostex Corp. of America (820*)
Genelec Oy (1105)
JBL Professional (430*)
Klipshc & Associates (141)
Meyer Sound Laboratories (626*)
Panasonic Professional Audio/Ramsa (Rm. 206)
Peavey Electronics (806*)
Professional Audio Systems (248*)
Quixet Monitoring Systems (24)
Radian Audio Engineering (133*)
Renkus-Heinz (701*)
Roland Corp. U.S. (Rm. 207)
Tannoy/TGI North America (926*)
Westlake Audio (Rm. 203)
Yamaha Corp. of America (318*)

Maintenance, test and measuring equipment
ACO Pacific (241)
Apogee Electronics (600*)
AudioControl Industrial (746)
Audio Precision (746)
BASF Corp. Information Systems (440*)
BSS Audio (826*)
California Switch & Signal (1405)
Concept Design Electronics (740*)
DLC Design (60)

Dorrough Electronics (940)
Gold Line/Loft (521)
JRF Magnetic Sciences (330)
Klark-Teknik Electronics (724*)
Neutrik USA (342*)
Tape Automation (648*)
T.C. Electronic (841)
Techron (204)

Metering devices
Apogee Electronics (600*)
AudioControl Industrial (746)
Dorrough Electronics (940)
Furman Sound (48)
Gold Line/Loft (521)
Harrison by GLX (312*)
Peavey Electronics (806*)
Schoeps/Posthorn Recordings (1000)
Sony Professional Audio (300*)
Symetrix (901*)

Microphone mixers
Ashly Audio (624*)
Audio Services (1420)
Crown International (200*)
DKR Electronics (748*)
DOD Electronics (523*)
Electro-Voice (Rm. 205)
Furman Sound (48)
Gentle Electronics (308*)
Innovative Electronic Designs (519)
MicroAudio (11)
Panasonic Professional Audio/Ramsa (Rm. 206)
Peavey Electronics (806*)
Rane Corp (1031)
Rolls Corp. (744)
Scosche (206)
Shure Bros. (107*)
Sony Professional Audio (300*)
Stewart Electronics (547)
Toa Electronics (125*)
U.S. Audio (325)
Yamaha Corp. of America (318*)

Microphones, booms, stands and accessories
ACO Pacific (241)
AKG Acoustics (226*)
AMS Industries (336*)
Audio Services (1420)
Audio-Technica U.S. (301)
Audix Corp. (42)
Beyerdynamic (601*)
Gotham Audio Corp. (712*)
Panasonic Professional Audio/Ramsa (Rm. 206)
Peavey Electronics (806*)
Sanken/Audio Intervisual Design (1026*)
Schoeps/Posthorn Recordings (1000)
Sennheiser Electronics Corp. (609*)
Shure Bros. (107*)
Sony Professional Audio (300*)
Vacuum Tube Logic (1008)

Microphones, pre-amplifiers
ACO Pacific (241)
AMS Industries (336*)
Audio Services (1420)
Audiotractechines/Tube Tech (307)
Beyerdynamic (601*)
Bryston/Vermont (418*)
BSS Audio (828*)
CT Audio Marketing (155)
Focusrite Audio Engineering (1*)
GML (747*)
The John Hardy Company (13)
Josephson Engineering (1041)
Microphones, pre-amplifiers, con't:
Sescom (206)
Shure Bros. (107*)
Summit Audio (1421)
Vacuum Tube Logic (1008)

Microphones, studio and PA:
AKG Acoustics (226*)
AMS Industries (336*)
Audio Services (1420)
Audix Corp. (42)
Beyerdynamic (601*)
Bruel & Kjaer (7)
Countryman Associates (524)
CT Audio Marketing (155)
Electro-Voice (Rm. 205)
Fostex Corp. of America (820*)
Gold Line/Loft (521)
Gotham Audio Corp. (712*)
Josephson Engineering (1041)
Milab (826*)
Panasonic Professional Audio/Ramsa (Rm. 206)
Peavey Electronics (806*)
Sanken/Audio Intervisual Design (1026*)
Schoeps/Posthorn Recordings (1000)
Sennheiser Electronics Corp. (609*)
Shure Bros. (107*)
Sonic Perceptions (49)
Sony Professional Audio (300*)
Telex Communications (734*)
Vacuum Tube Logic (1005)
Yamaha Corp. of America (318*)

Microphones, wireless and RF:
AKG Acoustics (226*)
Audio Services (1420)
Audio-Technica U.S. (301)
Audix Corp. (42)
Beyerdynamic (601*)
Electro-Voice (Rm. 205)
Nady Systems (317)
Panasonic Professional Audio/Ramsa (Rm. 206)
Peavey Electronics (806*)
Samson Technology/Soundtracs Plc. (540*)
Sanken/Audio Intervisual Design (1026*)
Schoeps/Posthorn Recordings (1000)
Sennheiser Electronics Corp. (609*)
Shure Bros. (107*)
Sony Professional Audio (300*)
Telex Communications (734*)
Vega (829*)

MIDI hardware:
Adams-Smith (1407*)
Akai/IMC (Rm. 112A)
Alesis (249*)
Aphex Systems (708*)
Audio-Technica U.S. (301)
E-mu Systems (Rm. 211B)
Fostex Corp. of America (820*)
J.L. Cooper (130*)
Lone Wolf (70)
Nady Systems (317)
New England Digital (Rm. 214A,BC)
Peavey Electronics (806*)
Roland Corp. U.S. (Rm. 207)
Sony Professional Audio (300*)
Tascam (103*)
360 Systems (1403*)
WaveFrame Corp. (Rm. 216A)

Miscellaneous equipment and services:
AMS Industries (336*)
Aphex Systems (348*)
APRS (96)
AudioControl Industrial (746)
Audio Services (1420)
Brainstorm Electronics (1006)
Crystal Semiconductor (447)
Duplication Equipment Brokerage (1045)
Gold Line/Loft (521)
Josephson Engineering (1041)
JRF Magnetic Sciences (330)
Kilpack & Associates (141)
Oxmoor (343*)
Precision Monolithics (1040)
Pygmy Computer Systems (932)
RPG Diffusor Systems (341)

Selco/Sifam (720)
Sennheiser Electronics Corp. (609*)
Sonic Perceptions (49)
Star Case (443)
Stewart Electronics (547)
Strand Magnetics (435)
Switchcraft (1117)
THAT Corp. (845)
Wireworks (1401*)

Noise gates/expander:
Alesis (249*)
Aphex Systems (708*)
Applied Research and Technology (ART) (240*)

How To Upgrade Your Studer A-80 (A-800)

Answer: Switch to Saki 24-track Record and Playback heads when replacement time comes.

Compare ours vs. theirs. Same crisp, clean audio. Same mechanical and electrical specs down to the last detail. Guaranteed.

Ah, but the difference: The Saki heads are made of long-lasting Permalloy…proven reliable for years of troublefree service. And, just incidentally, priced about 30% less than Studer. Ours vs. theirs—it's no comparison.

Call us now for immediate, off-the-shelf delivery.

Saki Magnetics, Inc.
26600 Agoura Road, Calabasas, California 91302
Phone: (818) 880-4054 Telex 244546 Fax (818) 880-6242

Circle (43) on Rapid Facts Card

September 1990 R·E·P 95

www.americanradiohistory.com
Noise gates/expanders, con't.
Ashly Audio (624)
Audio Teknolog (71*)
BSS Audio (826*)
CT Audio Marketing (155)
dbx Professional Products (226*)
DOD Electronics (823*)
Drawmer (1113*)
Focusrite Audio Engineering (1*)
Furman Sound (48)
Gold Line/Loft (521)
KlarkTeknik Electronics (724*)
Orban — a division of AKG (226*)
Peavey Electronics (806*)
Rane Corp. (1031)
Sescom (206)
Sony Professional Audio (300*)
Symetrix (901*)

Noise reduction systems
Analog Devices (1048*)
Audio Services (1420)
dbx Professional Products (226*)
Dolby Laboratories (328*)
Drawmer (1113*)
Gotham Audio Corp. (712*)
Orban — a division of AKG (226*)
Peavey Electronics (806*)
Pinc Link (135)
Symetrix (901*)
THAT Corp. (845)

Patchbay and jack panels
Audio Accessories (247)
Californioa Switch & Signal (1405)
Connectronics (319)
Fostex Corp. of America (820*)
Furman Sound (48)
Gepco International (142)
Peavey Electronics (806*)
Penny & Giles (303*)
Pro Co Sound (450)
Sescom (206)
Soundcraftsmen (63)
Switchcraft (1117)
Whirlwind (321*)

Phonograph cartridges and accessories
Audio-Technica U.S. (301)

Pitch shifters
AMS Industries (336*)
Applied Research and Technology (ART) (240*)
Eventide (208*)
Rolts Corp. (744)

Power conditioning/standby power systems
Duplitrivics (1006)
Furman Sound (48)

Racks and stands
Audio Services (1420)
CT Audio Marketing (155)
Peavey Electronics (806*)
Star Case (443)

Record/CD manufacturing
American Helix (1418*)
Audiotechniques/Tube Tech (307)
Enterprise Corporation of America (1043)
Gotham Audio Corp. (712*)
Kenwood USA (57*)
Sony Professional Audio (300*)

Recorders, hard disk
Akai/IMC (Rm. 112A)
Alpha Audio (700*)
AMS Industries (336*)
Cipher Digital (635*)
Digidesign (1109*)
Digital Audio Research Ltd. (1414*)
Digital Dynamics (76*)
Ediflex Systems (1119*)
Opcode Systems (1107)
Roland Corp. U.S. (Rm. 207)

Sound samplers
Akai/IMC (Rm. 112A)
Alpha Audio (700*)
AMS Industries (336*)
Cipher Digital (635*)
Digidesign (1109*)
Digital Audio Research Ltd. (1414*)
Digital Dynamics (76*)
Ediflex Systems (1119*)
Opcode Systems (1107)
Roland Corp. U.S. (Rm. 207)

Signal processors, other
Adamson Acoustic Design Corporation (1422)
Alesis (249*)
AMS Industries (336*)
Applied Research and Technology (ART) (240*)
Serial Systems (708*)
Spectral Sound (146*)
Synth Sequential (549*)
Ashly Audio (624)
Audio Animation (948*)
BASE (Rm. 101)
Bose (Rm. 216B)
Digital Audio Research Ltd. (1414*)
DOD Electronics (523*)
Dolby Laboratories (326*)
Eventide (208*)
Focusrite Audio Engineering (1*)
Gold Line/Loft (521)
Gotham Audio Corp. (712*)
Innovative Electronic Designs (519)
Korg USA (Rm 216C)
Lexicon (Rm. 208)
Motorola (831*)
NVision (947)
Oxmoor (343*)
Pinc Link (135)
Pygmy Computer Systems (326)
Rane Corp. (1031)
Roland Corp. U.S. (Rm. 207)
Rolls Corp. (744)
Sescom (206)
SigTech (18)
Spatial Sound (1042)
Spectral Design (12)
Spectral Signal Processing (1121)
Summit Audio (1421)
Symetrix (901*)
TC. Electronic (841)
THAT Corp. (845)
Toa Electronics (125*)
UltraAnalog (944)
WaveFrame Corp. (Rm. 216A)
Yamaha Corp. of America (318*)
Zoom (644*)

Routing switches, audio
Akai/IMC (Rm. 112A)
Center Electronics (1308)
Harrison by GLW (912*)
HEICO (1044)
Innovative Electronic Designs (519)
Intelex (745)
Lester Audio Laboratories (1033)
NVision (947)
Oxmoor (343*)
360 Systems (1403*)

Sequencers
Gates-Smith (1407*)
Alesis (249*)
Opcode Systems (1107)
Roland Corp. U.S. (Rm. 207)

Synchronizer systems
Adams-Smith (1407*)
Brainstorm Electronics (1406)
Cipher Digital (635*)
Fostex Corp. of America (820*)
J.L. Cooper (130*)
JRF Magnetic Sciences (330)
Mark of the (945)
Peavey Electronics (806*)
Soundmaster International (146*)
Tascam (103*)
TimeLine (1123*)

Synthesizers and keyboards
Korg USA (Rm 216C)
Peavey Electronics (806*)
Roland Corp. U.S. (Rm. 207)
Tape duplication, systems and accessories
Accurate Sound Corporation (1004)
AEG Corporation (900*)
Audio Video Consultants (629*)
Dwight Cavendish (85)
Concept Design Electronics (740*)
Duplitrionics (1006)
Electro Sound (730*)
Gauss (726*)
Heino Iseemann (722*)
JRF Magnetic Sciences (330)
KABA (940*)
Magnex International (725)
Paktec Automation (1413)
Roldex Industries (1007*)
Tape Automation (648*)
Telex Communications (734*)
Versadyne International (1415)

Tape machines, analog
Accurate Sound Corporation (1004)
Akai/IMC (Rm. 122A)
Fostex Corp. of America (820*)
Otari (512*)
Sony Professional Audio (300*)
Stellavox (843)
Studer Revox America (111*)

Tape machines, cassette and cartridge
Accurate Sound Corporation (1004)
Fostex Corp. of America (820*)
Nakamichi America (718)
Otari (512*)
Sony Professional Audio (300*)
Tape Automation (648*)
Tascam (103*)
Yamaha Corp. of America (318*)

Tape machines, DAT
Audio Services (1420)
Fostex Corp. of America (820*)
Japan America Electronics (1416)
JVC Professional Products (121*)
Nakamichi America (718)
Panasonic Professional Audio/Ramsa (Rm. 206)
Sony Professional Audio (300*)
Stellavox (843)
Tascam (103*)

Tape machines, digital
ACO Pacific (241)
Audio Services (1420)
Duplitrionics (1006)
Neve (604*)
Otari (512*)
Sony Professional Audio (300*)
Studer Revox America (111*)
Tascam (103*)
Yamaha Corp. of America (318*)

Tape supplies and accessories
Ampex Recording Media Corp. (212*)
Audio Services (1420)
Concept Design Electronics (740*)
CST Manufacturing & Sales (819*)
DIC Digital (848*)
Japan America Electronics (1416)
Success Specialty Sales Corp. (607)
TDK Electronics (85*)
3M/Professional A/V Products (412*)

Time compression/expansion
Adams-Smith (1407*)

AMES Industries (336*)
Applied Research and Technology (ART) (240*)
Digital Audio Research Ltd. (1411*)
Eventide (208*)
Lexicon (Rm. 208)
Spectral Synthesis (12)

Transformers, audio
Audio Teknology (71*)
BSS Audio (826*)
Neutrik USA (342*)
Plitrion Manufacturing (243)
Pro Co Sound (450)
Sescom (206)

Whirlwind (321*)
Wirewoks (1401*)

Video equipment, all
HEDCO (1044)
Panasonic Professional Audio/Ramsa (Rm. 206)
Pinc Link (135)
Star Case (443)
Wirewoks (1401*)

This directory is current as of Aug. 3, 1990, and is compiled from information supplied by exhibiting companies as of that date. For changes and additions after Aug. 3, consult the official program at the convention. All numbers listed with an asterisk mean multiple booths.
Product Preview is designed to supplement the basic information supplied in the Exhibitor Listings.

When we asked exhibiting companies for basic show information, we invited them to submit short product releases concerning new products that were being introduced at this show. This information has been arranged here in alphabetical order. Each has been assigned a Rapid Facts Number. For more information, circle the appropriate number on the Rapid Facts Card.

These are only part of the products that will be introduced. Some companies chose to wait until the show to release any product information. In future issues, Cutting Edge will showcase additional products from the show.

**AB International power amplifiers**
AB's 1200C is a 2-channel, fully modular power amplifier, featuring 1400W per channel into 4Ω and 1500W per channel into 2Ω, with selectable load limiting or soft clip. The model 200 is a 1U rackmountable power amplifier that delivers 75W per channel into 8Ω or 100W per channel into 4Ω. It includes front-panel dual phone jacks for signal monitoring, and signal and clip indicators.

**Adams-Smith 2600 A/V**
The 2600 A/V audio editing system allows the traditional tape-based audio studio the capability to synchronize or edit any mix or 24-, 25- or 30-frame time codes; correct off-speed audio; expand/compress audio to fit; make audio edit decisions visually; automatically select and log record tracks; cue talent and mixers; record, store, edit and play MIDI events; trigger carts, CDs and other non-time code devices; input, output and manipulate audio edit, video edit, memo and MIDI event lists; and control more than 100 types of transports.

**Agfa SR-XS cassette**
Designed for studio reference applications, the SR-XS is a Type II cassette that uses highly coercive magnetic particles. The tape is designed to provide users with a consumer-compatible medium that can be compared with metal cassettes for quality and sound reproduction. The Agfa-designed and manufactured shell offers precise and reliable tape housing.

**Agfa accessories**
Agfa has introduced a line of accessories for audio/video duplicators, including mastering splicing tape; duplication splicing tape; mastering polyester leading tape; and paper leader tape.

**Alesis SR-16 drum machine**
With 100 new sounds, including stereo samples, the SR-16 has 200 presets and use patterns with fill variations, 100 "drum sets" that can be assigned to any user pattern and Dynamic Voice Allocation, which allows repeated notes from the same drum pad to overlap rather than cut off, resulting for a more natural sound. The Dynam-
To celebrate entering the sixth year of supplying the world’s most cost-effective audiophile quality duplicating system, we’ll help you duplicate our success by offering you everything you need to duplicate, imprint and package your own audiophile quality cassettes.

For a limited time, we’ll offer you this complete package of quality KABA equipment, including a 10 slave 4-track real time and 2X duplication system consisting of the master control deck, 5 dual transport slave decks, a pad printer, ultraviolet platemaker, plates, inks, cassette fixture, bar sealer, heat gun and a 2000' roll of shrink film, all at a price that can’t be duplicated. Now one person can duplicate, imprint, assemble and shrink wrap over 300 tapes a day, quickly and economically... for an amortized cost of equipment and maintenance of as low as 3.1 cents* each.

SAVE $2,300
Call today for details, and start duplicating success in your business 1-800-231-TAPE
From California & abroad (415)-883-5041

Complete KABA cassette duplicating, imprinting and packaging system $9,995

KABA
Research & Development
24 Commercial Blvd., Novato, CA 94949 (415) 883-5041
1-800-231-TAPE
FAX (415) 883-KABA

Circle (45) on Rapid Facts Card
ic Articulation feature incorporates timbral changes into drum sounds as they are played at different volumes. This allows soft hits to sound soft, and harder, louder sound to sound as if they were hit harder.

Circle (485) on Rapid Facts Card

Analog Devices converters

The AD1860 is an 18-bit D/A converter that requires no external components. Of a proprietary design, the AD1860 is designed for CD players, DAT recorders, synthesizers, digital audio amplifiers and keyboards. Also being introduced is the AD1864, a dual 18-bit D/A for multichannel digital audio applications such as electronic musical instruments, CD players, digital mixing/editing systems and multimedia workstations. The AD712 is a low-cost, high-speed monolithic BIFET op-amp.

Circle (487) on Rapid Facts Card

Apogee AE-3M

Apogee Sound’s AE-3M is a derivative of the AE-3 system, and shares the same A-3 processor. The system is designed to combine high output capability and power handling in a compact cabinet. Other features include steel-recessed Neilite pads on both sides of the cabinet, 2-position cabinet angles, multiplicit Finland birth construction and Neutrik NLAMP Speakon connectors.

Circle (488) on Rapid Facts Card

Apogee AE-6B

A new high-output stage monitor, the AE-6B is derived from the AE-6 and incorporates a horizontally mounted high-frequency horn. It uses the A-5 processor, which provides time domain alignment, fixed equalization points and Positive Amplifier Return driver protection.

Circle (489) on Rapid Facts Card

Audio Animation

Paragon processor

Designed for broadcast production, the Paragon features the company’s instant-attack-time limiting system, which yields no clipping artifacts. It has four bands of compression and four bands of limiting, including adjustable crossover frequencies, attack times, density (release time), coupling and mix level. Five sound libraries, CHR, AOR, AC, Urban, Classical/Jazz, General Use, and Television, are included. Each has five setups, ranging from minimum to heavy processing. Options include a digital 10-band graphic EQ, digital FM stereo generator and an AES/EBU input/output package.

Circle (492) on Rapid Facts Card

BASE processor

Standing for Bedini Audio Spatial Environment, BASE is a non-encoding processing tool that creates dimension, width and depth without a loss of sonic purity. According to the company, results can be more true-to-life than stereo, with minimal cancellation, more highs, better clarity, more accurate point source, better separation of instrumentation and an enlarged “sweet spot.” This is accomplished without a change in spectrum, total gain or SPL.

Circle (490) on Rapid Facts Card

Beyer MC 742 microphone

The MC 742 is a stereo condenser microphone designed for stereo, MS and XY recording configurations. It has two double-diaphragm capsules arranged vertically, one on top of the other. The upper con-
The Great Lease Co. Paperchase

Start Here

Client applies for preliminary lease approval

Wait a long time

Preliminary deal looks good to Lease Co. so they send out a proposal letter to client outlining rates, terms etc. (At this point some customers will tell their salesperson that it's a "done deal... It ain't!!!)

Client approves and signs proposal letter and returns it to Lease Co. Sometimes (often) a deposit is required by the Lease Co. at this point. (This is called "qualifying the customer" and getting a commitment. See "closing the sale...")

Lease Co. NOW runs full credit approval procedure with its own funding source and loan committee.

Wait a long time

Lease receives final approval. (Don't spend your commission just yet however...)

Lease company issues a purchase order. If it's a hard-copy, it's not very often worth the paper it's written on. (See "Vapor Paper")

Lease is approved subject to certain conditions being met (IE: Payoff outstanding loan, pledge other equipment or additional security, pay a higher rate or shorter term, or lower amount, etc.)

Lease is declined for some flimsy, nondescript reason. (Lease Co. is out of $$$ etc...)

Lease is thrown back at us with sounds of hysterical laughter and words like "he'll be approved when pigs fly..." in the background

We immediately prepare an invoice (in proforma) with EXACT prices, correct information, and equipment serial numbers. FAX to lease Co for approval of document. Every mistake delays the process a week. Be sure it's right!!! Immediately mail an approved hard copy via Fed Ex.

We now try to encourage the client to pay us a deposit (the bigger the better) on the package. We will refund immediately upon receipt of lease Co. check.

Client accepts delivery and signs-off lease at our office. We actually deliver upon receipt of lease Co. funds.

Client verifies his happiness and overwhelming satisfaction because (your name) is the finest audio salesperson on the planet.

Somebody finally cuts a check and sends it by mule train from Tierra del Fuego. NOW we finally have a deal!!

Customer is credit criminal and nobody will touch him with a 10 foot financial pole (See "Pay cash or deal is dead")

Customer can't come up with the extra security. Try another lease co, reduce the size of the package, or give back the commission and find another deal

Client is generally nasty about the terms of the lease, especially after he reads the fine print. Client successfully beats up the Lease Co. for a better deal. A new proposal letter is generated and sent to client

RIP
Here lies my big deal...
Good thing I didn't invest a lot of time before it died...

More problems that will appear at the worst times... Insert in chain as necessary to further slow the process

Wait... I want to change the equipment list - Rewrite the docs

Wait... we need one more document.

Wait... we need clear title to the collateral. That should only take a couple weeks more.

No Check... Customer is on safari in Africa and we can't find his elephant

Oops... I can't sign these docs anymore... I was demoted from president to mailroom squeegee and retroactively have no authority.

Meanwhile...

IF YOU WOULD RATHER HAVE SERVICE THAN EXCUSES — CALL US

CFS
Century Financial Services Group, Ltd.
15455 Conway Road Suite 350 Chesterfield, Missouri 63017 314| 537-0330 800| 593-9300 Ask for ext. 200 314| 537-4026 (Fax)
DSP Development Tools and OEM Systems for Digital Audio

Spectrum's DSP boards can be used to develop and build digital audio workstations on personal computers. All boards have a common expansion bus called DSP-LINK, letting you match off-the-shelf analog or digital interface boards with any DSP board.

Processor Boards have a DSP processor, RAM, and DSP-LINK. System Boards have the same plus on-board analog I/O. Prices include monitors, debuggers, sample code, and 'C' libraries.

**PRO-AUDIO BOARDS!**
- DSP96002 System Board $1,495
- Dual DSP9601 Processor Board $2,995
- Adaptable FIR Filter module $1,995
- DSP32C Processor Board $3,595
- DSP56001 System Board $2,995
- DS56001 Processor Board $1,495
- DSP56001 VME Board $5,995

**OTHER POPULAR PRODUCTS!**
- TM320C30 Real-Time System $6,995
- TM320C25 Processor Board $995
- TM320C25 System Board $1,995
- DSP32C System Board $2,995
- DSP32C Processor Board $1,995
- ADSP-2101 System Board $1,995

**DSP-LINK Peripherals**
Off-the-shelf analog or digital interfaces for all System and Processor Boards.
- 16-bit Stereo Board $1,195
- 4 Channel Analog Input / 2 Output $645
- 32 Channel Analog Input $845
- 16 Channel Analog Output $845
- Pro-audio (AES, Sony PCM, MIDI) $1,850
- Dual-Processor Comm. Module $95
- DSP-LINK Prototyping Module $95

**DSP Development Software**
'C' Compilers, Assemblers, Simulators and Hypersignal Workstation.

Call for quantity & OEM discounts
Like no other.

No other digital workstation fits this picture because no other system matches the flexibility and productivity of the Sonic System.

The Sonic System offers a series of "firsts." The first (and only) digital audio workstation that can record directly to a compact disc. The first to offer background loading and unloading to hard disk. And no other system gives you from 16 to 24 bit audio at such a reasonable price.

The Sonic System offers unprecedented ease, speed, and power. All editing and mixing can be previewed in real time, so there's no waiting for the system to compute edits and write them to the hard disk.

**EDITING** - We surrender complete control over crossfades, allowing you to make smooth edits which are impossible on other systems. All editing is "non-destructive," so you can make changes quickly and save multiple versions for those finicky producers.

**MIXING** - Our Mixing Desk includes a broad array of filters, dynamics, and full automation. You can change filter settings and audition your EQ in real time.

**NoNOISE** - The NoNOISE system has restored thousands of recordings. Now you can add any NoNOISE "tool" for de-clicking and noise reduction to the Sonic System. Whether you edit or mix music, dialog and sound effects, or multi-track recordings, chances are there is a Sonic System package that could enhance your productivity without breaking your budget.

Call us for more information:

**Sonic Solutions**

1902 Van Ness Avenue
San Francisco, California 94109
Tel (+15) 394-8100
Fax (+15) 394-8099
with most wireless systems. Circle (497) on Rapid Facts Card

Crystal Semiconductor

CS4328 DAC

The CS4328 is a complete stereo D/A output system. In addition to the D/A function, the CS4328 includes an 8x digital interpolation filter, followed by a 64x oversampled Delta-Sigma modulator. The modulator output controls the reference voltage input to an ultralinear analog low-pass filter. It is available in a 26-pin DIP or SOIC. Circle (499) on Rapid Facts Card

Crystal Semiconductor

CD5336 ADC

The CS5336 A/D converter performs sampling, A/D conversion and anti-aliasing filtering, which results in a 16-bit serial word for each channel. It uses Delta-Sigma modulation with 64x oversampling, followed by digital filtering and decimation. The filter passband is dc to 24kHz. Sampling rates are 32kHz, 44.1kHz and 48kHz. It is available in a 28-pin plastic DIP or SOIC. Circle (500) on Rapid Facts Card

Digidesign SampleCell

SampleCell is a 16-bit, 16-bit, RAM-based sampler playback card for the Mac II. It offers eight outputs, up to 8Mbytes of RAM using standard Mac II RAM and includes a CD-ROM loaded with approximately 600Mbytes of ready-to-load samples. Multiple SampleCells can be used to create a 64voice, 32-output, 32Mbyte sampler. When used with the company's Sound Tools, it transforms the Macintosh into a high-fidelity stereo sampling and editing system, which can be configured to match users' needs. Samples can be stored on any Mac-compatible storage device, so no dedicated disks are needed. A special version of SoundDesigner II is included to edit samples. Circle (501) on Rapid Facts Card

DLC Design SPEAK software

Designed for IBM AT/compatibles, SPEAK is a loudspeaker simulation program designed to provide accurate simulations of loudspeaker designs. Using menus, the user inputs necessary data, after which calculations are made and plots drawn. The manual trains users by stepping through design examples. Circle (502) on Rapid Facts Card

Dolby MT Series

The MT Series provides up to 24 channels of switchable Dolby SR and A-type noise reduction, software-controlled automatic alignment, flexible assignment of any number of channels to separate groups for multitrack and multi-machine use, electronically balanced/ floating input and output stages, and auto compare circuitry. Applications include recording, film, video, post-production and broadcast. Circle (503) on Rapid Facts Card

Dolby 422 encoder/decoder

The reference encoder/decoder provides four channels of Dolby B, C- and Stype NR in a 1U frame. One pair of channels can operate either as encoders or decoders, while the other pair operates as decoders only. A signal generator provides calibration tones corresponding to selected NR type. Applications include encoding running masters for audio and video tape duplication, decoding recordings for quality assessment and C-type decoding of 1/2-inch and 1/4-inch VTR formats. Circle (504) on Rapid Facts Card

Drawmer DL241

The DL241 auto-compressor is a dual-gated compressor/limiter that incorporates many automatic features for quick operation in situations where strict dynamic range control is required. An auto-

Puts the others in perspective...

Community's new RS880 loudspeaker system flies heads above all others with its trapezoidal, three-way Wavefront Coherent® horn-loaded design. Dynamically controlled from a single rack space with our 880EQ, the RS880 additionally features unique feedback-loop sensing circuitry, and reinforced D-rings which can get you off the ground quickly and smoothly. For room-shaking bass response, our VBS415 subwoofer can also be added to extend the system.

Community

PROFESSIONAL SOUND SYSTEMS

333 East Fifth Street • Chester, PA 19013 • (215) 876-3400 • Fax (215) 874-0190

Circle (48) on Rapid Facts Card

www.americanradiohistory.com
Recording Engineering Production.
Helping engineers and producers
do their jobs better.
And more profitably.

R·E·P is available to qualified audio professionals—not hobbyists or interested spectators. For subscription information, call Doug Wilding at 913/888-4664.
attack expander/gate with auto-ratio circuitry prevents "chatter," on or around the threshold, and has a switchable release time. The unit also has a full auto-attack/release "soft knee" compressor with simultaneous LED displays for gain reduction and output level. It can be switched for manual control of the attack and release times if required.

Circle (506) on Rapid Facts Card

**Drawing DS301**
The dual expander/noise gate offers auto attack, peak attack, retriggert mast, and balanced inputs and outputs. It also has comprehensive MIDI facilities, including programmable individual MIDI channels, programmable notes sent, programmable split bands receive, "data present" LEDs, velocity sensing and velocity output in EXPAND mode.

Circle (507) on Rapid Facts Card

**Ediflex Optiflex**
The Optiflex is a digital multitrack recorder for use on film sound re-recording and music recording/mixing stages, using removable, rewritable magneto-optical disks. Tracks are instantly accessed by computer, allowing total freedom in sound manipulation, with the creative flexibili-

ty of 35 mag film.

Circle (508) on Rapid Facts Card

**HRSII recording system**
Available from Electronic Architecture Techniques, the HRSII AachenHEAD recording system is a dummy head microphone system operated by 48V phantom power inputs. It includes individually tuned EQ (frontal free-field or independent of direction, switch-selectable) for loudspeaker compatibility, and Schoeps mic capsules.

Circle (509) on Rapid Facts Card

**Electro-Voice MT-2**
The MT-2 is a half-size version of the MT-4 speaker system, using Manifold Technology. The system contains an MTH-2/94 mid/HP cabinet and an MTL-2 LF cabinet. It can be used as a stand-alone system or to supplement the MT-4 in down-fill and medium-throw applications. Crossover points are at 160Hz and 1600Hz.

Circle (510) on Rapid Facts Card

**E-V DeltaMax monitor**
The DML-1152MC slant monitor offers the same performance as the DML-1152A with new features. The spare front horn can be rotates for a 60°x40° or 45°x60° pattern.

Three-angled sides offer two horizontal cabinet positions and one vertical cabinet position. Using the existing DMC-1152A controller, the -1152MC has a frequency range of 50Hz to 18kHz and is designed to deliver this a high SPL.

Circle (511) on Rapid Facts Card

**Euphonix Crescendo**
The Crescendo audio mixing system provides SMpte-based automation of all mixer functions, including faders, mutes, EQ, mic pre's and signal routing. Entire console setups can be recalled in 20ms. Snapshots and automation files are stored in high-speed RAM and archived to hard disk. Dynamic automation of faders, EQ and aux sends is frame-accurate. The system can be configured for 48 to 112 inputs and includes two mic inputs, two EQs, two stereo faders, three effects loops, and two direct outputs per channel.

Circle (512) on Rapid Facts Card

**Ferrofluids APG 900**
The newest generation of audio-grade ferrofluid, the APG 900 series is designed to meet continued high colloid stability and withstand high temperatures. They have low volatility and the capability to withstand temperatures of 200°C for long peri-

---

**Pssst....**

When Sound Editors, Record Mixers, Sound Designers, Broadcast Recording Engineers, TV & Film Studios, Post Production House and Recording Studio owners (Did we leave anybody out?) look for ways to get into digital audio technology, they call us.

Everyone has been looking for ways to get into digital audio to stay competitive and on the cutting edge to provide their customers with top notch quality.......affordably.

Enter ADAP II. ADAP II is no secret in the audio for broadcast, post production, film and recording industries (a brief look at its list of credits will tell you that). Its generous list of features coupled with speed, reliability and unequaled factory/dealer support says more than any two page advertisement could.

Call us for a brochure, credits listing, information package and a dealer/rep near you. Time Page (time compression), Album Assembler, SMPTEChase Board and DAT Back-Up software are now available.

---

**SEE US AT AES & SMPTE**

Hybrid Arts, Inc.
8522 National Blvd. Los Angeles, CA 90023
Phone: (213) 841-0340 Fax: (213) 841-0348

ADAP II, Hybrid Arts, and Hybrid Arts logo are registered trademarks of Hybrid Arts Incorporated. © 1990 Hybrid Arts Incorporated.

Circle (41) on Rapid Facts Card

---

**We're not a secret anymore!**

ADAP II is based on a philosophy of quality engineering from an audio professional's point of view. The system has evolved with years of input from working professionals around the world. From the U.S. to Paris, France, to West Germany, Canada and Australia. That means ADAP II was made for you.

Of course we can tell you all this and much more, but we think you will want to look at the system for yourself. It is very clear that professionals require a product that provides performance, a competitive edge, reliability, satisfied clients......the things that make sense to you. These are also the things that make sense to us.

We see the vision from the ground up...like you do. That's our secret. Make ADAP II your secret too!

**POWER**

**SPEED**

**PRODUCTIVITY**

---

106 R·E·P September 1990
The indicating output regulation and input current, and sensitive to line voltage. The output outlets of each that supplies regulated power at each of 12 rear-panel and two front-panel outlets. It can supply a nominal 120Vac output from any input from 88V to 264V, allowing it to be used almost anywhere in the world. Taps are switched only at voltage zero-crossings, and the unit is not sensitive to line frequency. Features include 21+LED bar graph meters for input voltage and input current, and three status lights indicating output regulation.

Circle (514) on Rapid Facts Card

Furman AR-PRO
The AR-PRO is a 30A line voltage regulator that supplies regulated ac power at each of 12 rear-panel and two front-panel outlets. It can supply a nominal 120Vac output from any input from 88V to 264V, allowing it to be used almost anywhere in the world. Taps are switched only at voltage zero-crossings, and the unit is not sensitive to line frequency. Features include 21+LED bar graph meters for input voltage and input current, and three status lights indicating output regulation.

Circle (514) on Rapid Facts Card

Furman SP-20
The unit is a stereo power amp in the half-rack spec, and features 20W per channel. It may be switched for normal stereo, dual-channel mode, or bridge 40W operation as needed. It includes a stereo input level control, signal present and overload LEDs for each channel, a headphone output with its own volume control and speaker mute switch. If needed, the unit can be used as a multistation headphone amp by connecting a chain of HR-2 headphone remote stations.

Circle (515) on Rapid Facts Card

Gauss 3588 coaxial
The 3588 is "conservatively" rated at 200W RMS and can be retrofitted into existing cabinets or new designs for studio and sound reinforcement applications. Because of the company's proprietary design parameters, both drivers are virtually in the same acoustic plane, eliminating the need for time compensation networks. The heavy ferrite magnet structure features Gauss Pole Geometry (GPG), which reduces second-harmonic component, which would degrade the sound. The crossover was designed using Gauss's Computer-Aided Time Spectrometry (CATS) program, which is said to provide a stable image and reduce shadowing.

Circle (516) on Rapid Facts Card

GML 2000
George Massenburg Labs' Series 2000 Moving Fader Automation Environment features pan and zoom graphics recall, machine control and "C" peripheral VCA controller. New options include true stereo fader, software-nested groupers, drop-in points, data add and VCA-style auto-null mode. New software packages include video post and film re-recording configurations, using relevant terminology and multi-sectional control.

Circle (517) on Rapid Facts Card

Gold Line PN-3
The PC-3 gated pink noise generator/timer automatically turns pink noise on and off of time without congealing.

Circle (513) on Rapid Facts Card

**Lowest Prices on AMPEX Tape**

**Ampex 456 Grand Master® Studio Mastering Tape**

- As low as... 2" $114.08 per reel
- As low as... 1" $52.68 per reel
- As low as... 1/2" $30.43 per reel
- As low as... 1/4" $9.43 bulk

**COMPLETE CATALOGUE AVAILABLE UPON REQUEST.**

- AEG-Telefunken Mastering • Telefunken/Lyrec Duplicating
- 3M Audio Distributor • Audio-Video Cassette Duplication
- R-DAT Digital Tape • J-Card Printing
- Sony Pro Video • Custom Video Cassette Loading
- Audio & Video Accessories • Ampex Pro Video

**HRC Magnetics**

### CALL TOLL FREE 1-800-443-8457 Nationwide FAX 817-756-0082

**The $100,000 digital recording and editing you want... for under $10,000**

The MTU MicroSound gives you multitrack digital audio-to-disk recording with the editing power you have dreamed of. Install it on your PC/AT computer, or purchase complete, ready to use workstations. Graphically edit with precision, moving instantly thru uncompressed multi-track files up to 94 stereo track minutes. Mix entire files or segments, selected from up to 30 files. The studio quality 16-bit A/D and 18-bit D/A, 64x and 8x converters with linear phase filters and 30dB noise floor gives you true sonic purity for professional mastering.

**Multitrack Audio on your PC/AT... Now!**

Call, write or fax today for your free brochure.

**Micro Technology Unlimited**

156 Wind Chime Court • Raleigh, NC 27619 • (919) 870-0344 • fax: (919) 870-7163

Circle (52) on Rapid Facts Card
Four dudes same features
The John Hardy impedance meter frequency dio set
or testing gates or checking trol.

Circle (519) on Rapid Facts Card

Other Gold Line products
The company is introducing three other products. The CBM-2 is an omni electret boundary mic with "normal," "cut" or "boost" filters, designed for drums, pianos or stage use. The SPL120 is a digital portable SPL meter with a 7-segment numeric display, with readings from 45dB to 120dB. The Loftech TS-2 is an audio test set designed to read impedance at any audio frequency. A sine wave generator, frequency meter, decibel meter and an impedance meter are built in.

Circle (518) on Rapid Facts Card

Hardy MPC-1R
The John Hardy Co. MPC-1R offers the same features as the MI mic pre-amp in a 3.5-inch vertical card cage format. It includes a Jensen JE-16B input transformer, 990 discrete op-amp and dc-servo circuitry that eliminates coupling capacitors. Four meter options, test transform-er options and an optional TS-1R companion card with three additional transformer outputs for sending the signal to several transformer-isolated locations are available.

Circle (520) on Rapid Facts Card

Hybrid Arts ADAP II
The system is a computer-based digital audio recorder and editor. ADAP II allows non-destructive editing of digital audio with 16-bit precision and will accept analog or digital audio at sample rates between 22kHz and 48kHz. It includes a SMPTE reader/generator, and all of the necessary hardware/software in a turnkey system. Recording times of more than 100 minutes of stereo are available.

Circle (521) on Rapid Facts Card

JBL products
JBL Professional is introducing five products. The SR4700 series loudspeaker system is a portable sound reinforcement loudspeaker system featuring Vented Gap Cooling transducers and pure titanium diaphragm compression drivers. The Control SB-I subwoofer is a triple-chamber bandpass subwoofer system for use with Control I monitors. The Control SB-5 is a subwoofer system for the Control I and Control 5. The SR6600 Series amplifiers are compact sound reinforcement power amplifiers feature HF power conversion technology. The ES Series amplifiers are compact commercial amplifiers featuring 1dB stepped digital attenuators and HF power conversion technology.

Circle (523) on Rapid Facts Card

JVC DS-DT900U
The unit is a DAT recorder that can be synchronized to TV signals and use standard SMPTE code to permit its use in TV production and post-production. An internal TV sync generator can output TV sync signals that are in-phase with digital audio played back from the machine. Paral-

Sheer Opulence of Sound

TLM 170
The studio microphone which achieves that elusive perfection. There is no comparison. Each one handcrafted by NEUMANN, the world leader in microphone technology over half a century.

DeWolfe Music Library
and SFX CD's
Compact Disc Hotline
1-800-221-6713

DeWolfe Music Library
25 West 45th Street
NewYork, NY 10036
212-382-0220

Circle (53) on Rapid Facts Card

Circle (54) on Rapid Facts Card
Klark-Teknik's DN735 solid-state recorder records and plays back short passages of stereo audio in synchronization with other devices via externally applied time code, thus adding two extra tracks of audio to standard VTRs. Plug-in memory cards can increase on-board memory to 175 seconds. When used in mono mode, the maximum storage time is 350 seconds. RS-422 provides serial control, allowing the unit to be controlled directly from the VTR.

Circle (525) on Rapid Facts Card

Klipsch KP-115-SW

The KP-115-SW is a 15-inch subwoofer that can be transported anywhere because of its size and weight. When placed on its side, it is rack-mountable (14U), and can be placed underneath most popular 15-inch 2-way systems. Weighing 65 pounds, it can also be drop-shipped to sites if needed. Handles are recessed and are placed so that the cabinet is balanced when carried. Edges are round, and interlocking caps lock stacked cabinets together.

Circle (526) on Rapid Facts Card

Korg DAW

The Korg DAW digital audio workstation features 16-bit technology used in such products as the M-1 and T-Series workstations. It consists of four major systems: a hard-disk-based 8-track digital audio recorder; a computer-controlled 8-channel mixer; a 16-track MIDI recorder/sequencer; and a multichannel digital effects generator. All functions are controlled by a built-in SMPTE generator and synchronizer. The recorder features 114 minutes of on-line sound, stored on a built-in hard disk drive. A built-in magnetic optical disk drive system is used for storage and backup.

Circle (527) on Rapid Facts Card

Mark of the Unicorn Video Time Piece

The Video Time Piece is a VITC/MIDI/SMPTE synchronizer and character generator for audio/video production. It reads and writes all SMPTE formats, gen-locks to house sync or video, jam sync SMPTE, and coverts SMPTE to MTC, VITC to LTC, and LTC to VITC. A character generator allows the unit to burn in code, generate streamers and conductor crawl lines and download graphics from a computer onto the video. An audio click-to-MIDI converter is also included. Video Time Piece is controlled by a personal computer with a software desk accessory that allows users access over all synchronizer and character generation functions. Initially available for the Macintosh, it will be available in other platforms in the future.

Circle (528) on Rapid Facts Card

Meyer VX-1

Meyer Sound Laboratories' VX1 stereo program equalizer is a single-space rackmount unit designed for composite response shaping of program material. Featuring Virtual Crossover implementation, the unit provides five controls for each channel: two frequency breakpoint settings, and gain controls for low, mid and high bands. Applications include simulation of non-flat playback systems and standardized house curves to compact disc mastering and sound reinforcement house equalization.

Circle (529) on Rapid Facts Card

Meyer DS-2

The DS-2 arrayable mid-bass loudspeakers...
er is a horn-loaded unit designed to cover the frequency range from 50Hz to 200Hz. Designed to supplement the Meyer MSL-10A and large MSL-3 arrays, it employs two 15-inch cone low-frequency drivers in an enclosure the same dimensions as the MSL-3, and presents a 4Ω load.

Circle (530) on Rapid Facts Card

Neotek Encore console

The Encore console is designed for film dubbing and film-style TV post-production. Available in 4- and 6-track formats, with several automation options and custom patchbay alternatives, the console has comprehensive facilities familiar to film mixing engineers. It is available in versions for one to three operators, with up to 95 inputs.

Circle (531) on Rapid Facts Card

Neve DTC-2

The DTC-2 digital transfer console is an enhanced version of the DTC-1. New equalization consists of two pairs of selections for LF and HF, with a full range of peak/shelf response in both selections. Midrange band coverage is between 1,000Hz and 3,150Hz, with a choice of up to seven different Q values. An A/B store system facilitates comparisons between different EQ settings. New Neve A/D and D/A converters include special anti-aliasing and anti-imaging filters, which results in S/N figures exceeding 102dB.

Circle (532) on Rapid Facts Card

NVision NV2000

The NV2000 is a high-definition audio system developed to support and simplify multichannel audio interconnection requirements, including HDTV, D-1, D-2 and Type C VTRs. Designed to bridge the gap between high technology and affordability, the unit offers an integrated approach to multichannel distribution. Up to 10 channels of 20-bit audio can be routed throughout a facility with the same switch and cable space required for one analog audio channel. This means that one deck of a video routing switch can be used to carry all program audio, time code and cue information.

Circle (533) on Rapid Facts Card

ODC 617 CX encoder/decoder

Optical Disc Corporation's 617 is a stand-alone rack-mounted unit that performs both CX encoding and decoding of two audio channels in accordance with the CX standard and IEC specifications for videodiscs. It can be set up to CX-encode and decode for stereo or to provide independent channel encoding and decoding for bilingual (dual-independent) audio. Encoding and decoding are bypassed when power is not applied, and can be bypassed independently by front-panel switches. This allows the unit to be integrated into a mastering or recording system with no cable changes necessary.

Circle (534) on Rapid Facts Card

Oxmoor distribution amps

The RMX-44 is a compact 4x4 buffer/mixer/distribution amplifier, while the RMX-62 is a 6x2 unit. Both are housed in 1U, rack-mount chassis. Both offer front-panel input trimmers with ±15dB gain adjustment. A logic control port allows for remote selection of an input or multiple inputs to any or all outputs. Any of the inputs can be assigned to any or all of the outputs, in any combination. Jumpers are used for setting various output configurations, electronically balanced, XLR-type inputs and outputs. All outputs can deliver +24dBm into a 600Ω load.

Circle (535) on Rapid Facts Card

Paktec Cassingles packaging system

The system consists of the model OCG6000 O'Card score/form/glue machine and the model OC3000 inserter. The...
TRACKMIX 24 is a new 24 or 32 modular input, 12 buss console. Full 24 track monitoring and MIDI controlled muting make TRACKMIX 24 the perfect choice for any modern 12, 16 or 24 track recording studio.

Pictured: 24x12x24x2
For more information contact:
STUDIOMASTER, INC.
3941 Miraloma, Anaheim, CA 92807
Fax (714) 524-5096
Phone (714) 524-2227
WE'RE STILL HUNGRY

Two years ago we ran an ad that challenged you to "show us a better cassette and we'll eat it." We offered you a better sounding tape, faster turnaround and a better price. Instead of eating any tapes, we've been amazed at the response.

What was proven to us was that people everywhere are really listening to the quality of their audio cassettes. And the best sounding audio cassettes available anywhere are mastered and duplicated at Music Annex Duplication.

The challenge still stands.

Call us and ask for our free demo tape. Find out how good a cassette can sound.

Now offering CD's!

Circle (81) on Rapid Facts Card

"The Hollywood Edge ... the best sound effects library, without a doubt!"

Oliver Stone, Director
(Born on the Fourth of July, Platoon)

Listen for yourself—If you buy sound effects for your company, Call us for a free Premiere Edition demo disc.

Call 800-292-3755 In CA 213-466-6723
7060 Hollywood Boulevard, Suite 700, Hollywood, CA 90028

Circle (60) on Rapid Facts Card

equipment accepts flat rectangular printed stock, which it then processes into the finished product at 120 pieces per minute. Computer control interfaces with the audio cassette line to start and stop on demand, and to monitor all machine functions simultaneously.

Circle (536) on Rapid Facts Card

Panasonic SV-3700
The company's latest addition to its DAT machine line features a front panel shuttle wheel with 0.5 x to 15 x speed range. Other features include an infrared remote controller, push-button fade-in/fade-out functions, balanced inputs and outputs video XL-type connectors for diverse interfacing possibilities and up to 400 x forward/rewind/search speeds.

Circle (537) on Rapid Facts Card

Panasonic SV-3900
The SV-3900 DAT machine features enhanced 4-stage, 1-bit Delta-Sigma A/D converters, plus quad-18-bit D/A converters. An all new mechanical system provides up to 400 x forward/rewind/search speeds and a 9-pin serial port makes it compatible with most editing controllers and automation systems. Also included is a remote control unit with standard key-pad for entering PNO and start IDs.

Circle (538) on Rapid Facts Card

AMR SyncController update
Peavey's Audio Media Research division has introduced a new software update for the SyncController, a SMPTE-based synchronizer and event controller. Full "chase-lock" is now available, along with tempo mapping. Other refinements include improved locate and lock times with several popular tape machines.

Circle (539) on Rapid Facts Card

Quad Eight console systems
Quad Eight now features 3-channel, left, center and right, and 4-channel, left, center, right and surround panpots on all of its console lines, including the Virtuoso recording console, Screenstar video post-production console and Filmstar film recording console. Four-channel monitor systems are supplied with the Virtuoso and Screenstar, while the Filmstar is available with a matrix and dedicated assignment 4-channel or 8-channel monitor system to present all film formats. Customization is available.

Circle (540) on Rapid Facts Card

Rane FPL 44
The latest addition to the Flex Series is the FPL 44 Quad Program Limiter. In addition to using the Servo Lock design of the DC 24, each channel can independently be switched to a special function called audio slave, which links the side chains of selected channels so that they all respond identically to the limiting demands of any
one channel. This allows the overall dynamic integrity to be preserved in such difficult situations as actively crossed-over speaker systems and multichannel live sound reinforcement.

Circle (541) on Rapid Facts Card

**Rane FNG 44**
The FNG 44 is a quad noise gate that features separate attach threshold, attenuation depth, release time, release threshold and bypass controls for each channel. The separate release threshold control eliminates noise "chattering" on long decay patterns such as cymbals. The unit is built in the HR spec, which allows two units to be mounted together, providing eight separate channels in a single rack space.

Circle (542) on Rapid Facts Card

**Renkus-Heinz products**
The company is introducing three products. EASE is an acoustical design and analysis software program for consultants, engineers and contractors. The CM121 is the latest addition to the Cluster Module loudspeaker line and features a multiangled cabinet that simplifies installation and is easy to array. The C-1 System is a coaxial point-source high-performance speaker system that provides sonic performance in large concert sound applications.

Circle (543) on Rapid Facts Card

**Roland DM-80**
**hard disk recorder**
Roland’s DM-80 digital multitrack hard disk recorder combines the editing power of a sequencer, the audio recording capabilities of a multitrack recorder, and the sound quality of digital audio equipment. It is a stand-alone unit that allows any sound source, including acoustic instruments, to be recorded. The basic configuration provides four recording tracks, sampling rates of 32kHz, 44.1kHz and 48kHz, and a built-in 100Mbyte hard disk. It can be expanded to eight tracks. Also included is a SCSI bus, AES/EBU I/O and a dedicated remote control.

Circle (544) on Rapid Facts Card

**Roland monitors**
The R/U/S Activ NF-25 and -400 are powered close field monitors. The NF-25 is a 2-way bi-amped system with a 5.25-inch woofer and 10mm dome tweeter, and the Activ NF-100 features an 8-inch woofer. Both feature all-electronic crossovers with active frequency and phase compensation, and external high current power supplies. Input level and tweeter level controls are located on the rear panel.

Circle (545) on Rapid Facts Card

**Rolls 10-band EQ**
The HR210 is a dual 10-band EQ in a single half-rack unit, with a noise floor of -90dB and S/N of 106dB. The front pan-
el has level and bypass controls for each channel, as well as power and overload indicators. The unit also uses gold sockets and RCA’s, and non-inductive capacitors.

Circle (546) on Rapid Facts Card

Rols HR amp
The HR250 stereo power amp is a 50W per channel, general-purpose amplifier in a half-rack chassis. It is bridgeable for 100W into 8Ω or can drive a 70V line directly. Front panel controls and LED power meters are included. Frequency response is 20 to 70kHz, and the MOSFET design is intended to withstand heavy use in distributed systems or permanent installations.

Circle (547) on Rapid Facts Card

RPG Flutterfree
Flutterfree is a non-absorptive architectural flutter control hardwood molding, which eliminates flutter echo and resonances while maintaining a natural ambiance. When the panels are mounted adjacent to one another and spaced from a wall boundary, they can be used as low frequency slat Helmholtz absorbers to control room modes.

Circle (548) on Rapid Facts Card

RPG Biffusor
Biffusor is designed to provide an acoustic barrier between instrumental sections in an orchestra, where high intensity instruments like percussion and brass can overwhelm softer sounds like woodwinds and strings. Biffusor is designed to provide an acoustical barrier within instrumental sections, providing abfussion on one side and diffusion on the other.

Circle (549) on Rapid Facts Card

Saki replacement heads for Studer
Saki Magnetics is now offering factory-equivalent record and playback heads for Studer A-80 and A-900 series 24-track recorders. They are made of permalyoy to meet or exceed Studer electrical and mechanical specifications in all essential characteristics. The replacement heads can replace the original heads with no wiring modification.

Circle (550) on Rapid Facts Card

Samson wireless systems
Samson Technologies is introducing three wireless systems. The VLP is a budget-conscious system available on 14 VHF frequencies, and is designed for entry-level users. Super TD is an upgrade modification of the company’s Concert TD system. It features greater distance through optional active antennas, improved frequency response and four times the headroom. The UHF series is Samson’s first product in the UHF band. In addition to the capability to operate up to six different units in the same location, the series uses cavity tuning and dielectric filtering.

Circle (551) on Rapid Facts Card

Schoeps/Posthorn
KCY/VMS021B
The unit is a miniature stereo microphone system with M-S matrix, which permits the user to configure a stereo mic for XY or M-S. Any two of the Colette series capsules can be used to make up the stereo pick-up head, with a special cable connecting them to a remote box with simultaneous M-S and XY stereo outputs at line level. A separate headphone monitor output with level control audits either signal. The remote box also features switchable gain settings, a variable M-S matrix and LF filtering if required.

Circle (552) on Rapid Facts Card

Selco control knobs
Selco has introduced a 47mm model to its range of collet control knobs. Plain or
cranked versions are now available, offering the opportunity to match control knobs when a larger diameter product is specified. Both types of knobs may be fitted with a brass flywheel weight, if required. Standard colors are black or gray, but other colors are available upon request.

Circle (553) on Rapid Facts Card

Sennheiser WM 1 wireless mixer
Designed for field audio mixing, the WM 1 is a 5-channel, portable audio mixer that operates on internal or external dc power. Four of the channels have RF receivers as inputs for wireless microphones, and one additional wired balanced input for mikes or line-level audio sources. Each of the channels has bass and treble equalization controls, a switchable 70Hz cutoff filter to reduce LF rumble, pre-fader listen, channel gain adjustment, channel on/off switch and an LED bar graph switchable for audio level or RF field strength. All controls are accessible at the front panel.

Circle (554) on Rapid Facts Card

Sony products
Sony Pro Audio is introducing a variety of products, including the 7000 series 4-head DAT recorder with time code, MXP-210 and -290 mixers, the BVG-200 portable time code reader/generator, and the MXP-2900 series consoles. The latter is the latest in Sony's audio-for-video consoles, which provide a wide selection of plug-in cards and modules for inputs, monitoring, dynamics, communications, mic pre-amps and line pre-amps, which allows users to configure a console for their individual needs.

Circle (555) on Rapid Facts Card

Spatial Sound SSP-100
The SSP-100 Spatial Sound Processor is a programmable multichannel audio signal processor for the creation of surround sound on speaker arrays with up to eight loudspeakers, with the loudspeaker positions being programmable. Mono sound sources can be placed or moved in real-time with joysticks anywhere inside the loudspeaker array. These movements can then be recorded in the internal position sequencers or externally on a MIDI sequencer, or on an FSK data audio track, or programmed in step-time. Proportional reverberation and Doppler shift can be added.

Circle (556) on Rapid Facts Card

Spectrum Signal DSP56001
Spectrum Signal Processing's dual DSP56001 processor board is said to be the first PC-based processor that uses multiple Motorola DSP56001 signal processors. The board is designed for audio systems that use DSP to reduce or eliminate acoustical echo, compress digital data and improve overall sound quality. It is designed for use with IBM PC/XT/AT computers and compatibles. A companion module, a dual-channel analog I/O module, performs 16-bit conversion at sample rates of up to 200kHz on one channel, or 100kHz on two channels.

Circle (557) on Rapid Facts Card

Stewart amplifiers
Stewart Electronics is introducing three products. The PA-50U/B is a single-channel, half-rack stereo power amp that delivers 25W per channel into 8Ω, or 50W per channel into 2Ω. The PA-100U/B is a single half-rack stereo power amp that delivers 50W per side into 8 or 100W per side into 2Ω. The PA-500 is a 2U dual mono amplifier that delivers 250W per channel into 8Ω or 600W per channel into 2Ω. Features include a switching power supply, and thermal and short-circuit pro-
**Studer D820-48 DASH recorder**
The D820-48 is Studer's entry into the 48-track DASH market. Extremely low-noise passive filters have been developed to match the machines 4x oversampling D/A converters. Features include advanced head technology, built-in time code generator, track bouncing from one track to one or more other tracks, compatibility with all 24- and 48-track DASH machines, an internal synchronizer, output with negative delay, and a wide selection of external clock sources.

**Studer EdiTech Dyaxis update**
The Dyaxis 2+2 now features 4-channel simultaneous playback, overdubbing, multitrack record and programmable I/O. A new system synchronizer and time code options allows the system to lock to SMPTE, EBU, VITC, video and film tach. An integrated DAT subsystem stores all soundfiles and allows for precise editing instructions. Up to 100 different sampling rates are available on-line.

**Symetrix SX206 processor**
The SX206 multidynamics processor is a single-channel device that may be used as a compressor/limiter, gate, downward expander, duck or a slave for stereo operation. Complete operating controls are provided for each operating mode. For situations that require the unit to “wake up” in a particular mode, rear panel DIP switches determine the initial operating state. For stereo, units are linked via rear panel TRS jacks and operated as a tracking stereo pair in a master/Slave configuration.

**Tannoy Monitor Series**
Based on 10 years of Differential Material Technology research, Tannoy's Studio Monitor Series consists of six speaker types: System 2 NFM; System 8 NFM; System 10 DMT; System 12 DMT; System 15 DMT; and System 215 DMT. By using DMT technology, which involves isolating any moving or vibrating component by using a surround or mount made from a different material or a fused bond generating a differential, the company says unwanted sonic characteristics are eliminated. All products in the line use redesigned Dual Concentric Drivers mounted in cabinets constructed from a high-density MDF space-frame. Additional features include bi-wired terminal panels, hard-wired crossovers, polyimide wire insulation and magnetic gap coolant.

As in past AES shows, Tannoy is giving away three pairs of monitors at the end of each day. Ballots are available at Tannoy's booth, and winners must be present to win.

**TDK pro tape line**
TDK has introduced a line of professional audio and video recording tape called the Professional Master Series. The line features improved tape formulations, high-performance cassette mechanisms and new packaging. Audio cassettes in the line include SM (Sound Master), for studio and demo recording; AM (Acoustic Master), for A/V applications; AL (Acoustic Master/Leaderless), for instant starting and high-quality reproduction; and ZM (Duplicate Master); for duplicator applications.

**THAT VCA s**
THAT Corporation is introducing three voltage controlled amplifiers. The 202XT and 202XTC are modular VCA s that offer improved modulation noise over a dbx 202XL and improved control-voltage feed-
through over a dbx 202X. The XTC is fully
temperature-compensated. Both are pin-
compatible with the dbx 202 series. The
202H features improved noise and distor-
tion compared to a dbx 202X and is pin-
compatible. It is designed for automation
systems in new consoles, and may be
retrofitted into existing automated con-
soles based on dbx modular VCA.
Circle (564) on Rapid Facts Card

360 Systems DigiCart
DigiCart is a digital audio cart machine
that contains a 16-bit stereo digital record-
er/ reproducer while retaining the controls
of a traditional cart machine. It stores 10
minutes of stereo at 15kHz on a remova-
ble magnetic digital audio disk; there is no
limit to the number of cuts that can be re-
corded on the disk. Standard remote con-
trol functions, three NAB standard cue
tones, a serial computer interface and ex-
tensive editing facilities have been provid-
ed. An optional internal disk drive in-
creases the storage time to one hour.
Circle (555) on Rapid Facts Card

360 Systems audio routers
The company has added the AM-16/R re-
move control station and the AM-16/CR
rout cart card remote to its line of audio rout-
ers. The AM-16/R is a 1U control panel
that will access up to four levels of switch-
ing. Interface with AM-16/B master
switches is through EIA-485 control ports.
A “lock-out” feature allows sources and
destinations to be dedicated to individual
locations with all routing assignments dis-
played on backlit buttons. The AM-16/CR
includes the capabilities of the AM-16/R
but without the buttons and chassis, which
allows users to create “idiot-proof” control
panels.
Circle (566) on Rapid Facts Card

360 Systems
Patch-It software
Created by Sprocket Development and
marketed by 360 Systems, Patch-It is an
editor/library software package for the
Macintosh that provides remote control for
the AM-16/B audio crosspoint switcher.
It provides a clear display of parameters for
each of the unit’s operating modes, includ-
ing program select, program edit, program
recall and individual crosspoint editing.
Circle (567) on Rapid Facts Card

TimeLine SSL data interface
The Lynx SSL data interface is said to be
a more flexible and cost-effective meth-
OD for the SSL Studio Computer to talk
directly to audioplate recorders, VTRs and
film equipment. A joined development be-
 tween SSL and TimeLine, the unit allows
facilities to use complete Lynx systems for
a simple, unified network between con-
soles, tape machines and synchronizers.
In addition to offering unlimited mas-
ter/slave selection, it allows all offset, cue
and mix data to be stored on the SSL data
card.
Circle (568) on Rapid Facts Card

TimeLine Lynx keyboard unit
The Lynx keyboard control unit, designed
for multimachine synchronization and au-
dio editing, features new software with ad-
ditional operating features. All controls are
functionally grouped for ease of operation,
and the fluorescent alphanumeric display
provides the maximum amount of user in-
formation. To expand the number of trans-
ports and other devices controlled by the
system, the Lynx System Supervisor may be
added.
Circle (569) on Rapid Facts Card

TOA mixing consoles
TOA has introduced the SC-164 (16x4) and
SC-124 (12x4) mixing consoles, designed
for professional sound reinforcement ap-
lications. Both incorporate nine mix
buses, including four group sends, stereo
left and right buses and three independent
aux sends, one pre-fader, one pre-EQ and

![TC-MAXI $1,650 (under your screen)]

![TC-MIX $1,150 (off the wall)]

**Denecke, Inc.**
54178 Canuenga Boulevard
N. Hollywood, California 91607
(818) 766-3525 or FAX (818) 766-0269

Circle (68) on Rapid Facts Card

---

**SamAsh**

**INNOVATIVE SOLUTIONS FOR PROFESSIONALS**

**A FEW EXAMPLES:**

- **SOUNDTRACS IL/A&RC/MAX/MRX STUDIO CONSOLES**
- **AMEK MAGNUM/AT/SCORPION & BULLET CONSOLES**
- **C.A.D. 16 TO 48 INPUT, DC SERVO POWERED MIXING CONSOLES**
- **EVENTIDE H-3000 & B**
- **NY'S EXCLUSIVE T.C. ELECTRONICS DEALER FEATURING THE T.C. 2290 & 468X DIGITAL REVERB & 1660 DIGITAL E.Q.**
- **CONVOLVER MICS BY JOSEPHSON, AKG, CROWN, NEUMANN, SONY & SENNHEISER**
- **APPLE MACINTOSH COMPUTERS BY APPLE**
- **SOUNDTOOLS DIGITAL AUDIO RECORDING & EDITING SYSTEMS**
- **TASCAM MSR-24 16-TRACK BREAKTHROUGH PRICE REORDERS**
- **MONITORS BY TANNOY, EV, JBL & L+REI**

---

**AKAI A.D.A.M. 12-TRACK DIGITAL AUDIO RECORDER**

**NEW YORKS LARGEST PRO AUDIO INVENTORY**

**PROCESSORS BY EVENTIDE, LEXICON, DBX, SYMPHETRIX, VALLEY PEOPLE, ALEIS, T.C. ELECTRONICS & AUDIO LOGIC **

**THE SONY TC-D10 PRO & PCM 2500 & THE PANASONIC SV-3500 & SV255**


**INTRODUCING D.A.R. DIGITAL WORKSTATION—POSTPRODUCTION POWER TOOL.**

**TASCOATR-80 JAPAN'S FINEST 24-TRACK**

723 SEVENTH AVENUE (THIRD FLOOR)
NEW YORK CITY • 10036 • (212) 719-2640

Circle (68) on Rapid Facts Card

---

September 1990 R•E•P 117
one switchable. Each channel features 100mm sliders, 3-band EQ with sweepable mids, selectable phantom power to XLR inputs, and an accessory loop, pan and input level pad with trim and pre-peak EQ.

Circle (570) on Rapid Facts Card

US Audio MIX-5S
The MIX-5S is a 1U unit that brings mixing capabilities and other features to an audio or A/V installation. Features include four balanced XLR or 1/4-inch TRS inputs, each with level and pan controls as well as a line/mic/instrument level switch that provides 35dB of gain to either signal. An auxiliary input is also provided, which accepts and sums a stereo pair of unbalanced line level signals. Other features include 24Vdc of switchable phantom power, 10-segment LED level meters and independent master level controls.

Circle (571) on Rapid Facts Card

Versadyne PT-250
Production Totalizer
The PT250 provides tape duplicators with up-to-the-second running totals of production copies, and can be added to most existing tape duplication systems. It tracks the ongoing number of copies made on a system with up to 12 slaves by evaluating the status of each slave before and after cue tone insertion. This ensures that only completed copies are counted in the totals. The unit’s design allows slaves to be stagger-loaded and various hub lengths to be used with no effect on the accuracy of the count.

Circle (572) on Rapid Facts Card

Versadyne SR-150 slave reader
The SR-150 duplicator slave reader permits precise adjustment of bias and recording levels on most duplicating systems. Technicians can easily monitor proper biasing and record levels for each track while adjustments are being made, which minimizes downtime and boosts productivity. The unit consists of a playback head on an adjustable headblock, a VU meter with associated electronics and a control knob for selecting pre-determined record level calibration points. It is affixed to the slave in the tape path following the record head.

Circle (573) on Rapid Facts Card

Whirlwind line balancer/splitter
The Line Balancer/Splitter is a single-channel, low-impedance device for isolating, splitting and balancing line-level signals, and is designed for applications requiring isolation at line level. It uses the Whirlwind TRSP-600 transformer. A choice of two input connectors — a female XLR jack or a 1/4-inch TRS jack — is provided for connection to a line level source, either balanced or unbalanced. Two output modes, isolation and splitting, are provided.

Circle (575) on Rapid Facts Card
Blevins Audio Exchange, Inc.
Nashville's Only Full Service Professional Brokerage Company
Specializing in Used MCI Products & Parts — New CAD Consoles & Products

- Neotek Series III 36/30 w/Quad Auto - $19K
- MCI JH556 LM AF - 48 Modules - Must sell $35K obo
- MCI JH542 LM AF - 42 Modules - $30K obo
- MCI 400, 500, 600 Modules
- Otari MTR 90 II - 24 TK - Clean - $33K
- Sony/MCI JH24's - Many to choose from - $17K and up
- 8API 550A EQ's in rack w/Power Supply - $4,800
- Tietjenkuns 261 microphones - $4,500 each
- Studer Daxis Workstations

All Kinds of Consoles, Machines, Mics...you name it!
"Dealers, call us with your trade-ins."

Sales • Service • Parts • Appraisals
615-242-0596 / Fax 615-242-0599 Ask for Randy Blevins or John McClure

Circle (80) on Rapid Facts Card

SYNCLAVIER
32 Poly - 8 FM - 8 out, 16 meg RAM, 240 meg storable, clock module. 2 x 8 MIDI, VP keyboard w/custom Formica console cabinet. Mint condition. $65,000.
516-669-1872

Classified Advertising is available by the column inch. Classified Display: $35 per inch, per insertion, with frequency discounts available. 1/4" minimum, billed at 1/4" increments thereafter. 10" maximum per ad. Blind ads (replies sent to REP for forwarding) $25 additional. Reader Service number $25 additional. Ads 4" and larger will receive a free reader service number and your company's name listed in the Advertiser's Index. Spot color (determined by magazine) $150 additional. No agency discounts are allowed for classified advertising.
Contact Renee Hambleton, 913-688-4664, for information on frequency and pre-payment discounts, or to place your classified ad. Or send your order and materials to:
Renee Hambleton
REP
9221 Quivira Rd.
Overland Park, KS 66215.

Is it your QUALITY CIRCULATION?
Is it your LOW RATES?
Is it your USEFUL EDITORIAL?
Or, all of the above?

REP classifieds work for these current advertisers...it can work for you!
"Advertising in REP has taken us directly to the source of our clientele — the producers and the engineers. Our business has increased by 30% in the last year and has put A TOTAL EFFECT squarely on the audio industry map. Thank you REP!"
Dean Burt
A TOTAL EFFECT
"There has been a distinct jump in inquiries since going with REP. The leads are traceable and yield good qualified buyers from major studios and people building new facilities, for example."
David Butler
db Engineering
"I advertise in REP's classifieds to promote my company name and because of the low rate. I like REP's editorial content, especially the audio production values & techniques and guest interviews."
Doug Parry
Rack Attack
"I feel that REP reaches a specific audience, home and professional recording studios and those are the people I need to contact. The people reading the classified section are buying or selling equipment and we need those people and we wouldn't have a business. I would recommend advertising with REP to any business that has my same concerns."
David Malekpour
Anything Audio
"I advertise in REP's classifieds because of the high number of quality sales leads, and the hands-on applications features. It's effective advertising! REP allows me to target my potential customers with minimum effort and maximum dollar value."
Bryan Cammarota
Casette Tek, Inc.
"REP embodies the character and spirit that closely relates to the professionalism and attitude that I want my business associated with. It is well respected throughout the various disciplines and therefore, reaches a large, diverse audience. The Rapid Facts Service is a great leature that works amazingly well. As an advertiser, considerable business is generated from sales leads. As a reader, the service provides me with an efficient method to stay abreast of new products and obtain detailed specifications with ease. The people at REP make it the professional magazine of choice."
Rob Rosait
E.A.R.S., Inc.
"Thanks again for an excellent publication. REP has been on top of my list ever since I got serious about my profession. It's grown with the times and continues to do just that."
Steve Moroninak
Reel Productions
Simply call 913-888-4664 or fax your ad to Renee Hambleton, Classified Ad Manager, 913-541-6697.
NO PREPAYMENT REQUIRED.
FOR SALE

OCEAN AUDIO INC STRIKES AGAIN

THE COLLECTORS NEVE-" ONE OF ONLY 3 MADE "!

NEVE 8078 CONSOLE -- 52 INPUTS WITH MASSENGERG AUTOMATION
REFURBISHED, 32 MONITORS W/6 SENDS, 8 SENDS ON INPUTS, DISCRETE, ASK FOR $$$

2 - COMPACT NEVE 8068 CONSOLES, BOTH AVAILABLE LANDED IN U.S.
AS PAIR FOR £67,500 + TAX, FROM GOVT FACILITY, CREATE YOUR OWN 64 INPUT DISCRETE CONSOLE

AVAILABLE DATA BASE OF THOUSANDS

OCEAN AUDIO INC., 366 Las Casas Ave., Pacific Palisades, CA. 90272 CALL (213) 459-2743

FAX (213) 454-6043

Circle (81) on Rapid Facts Card

CUSTOM MIDAS CONSOLE
Ex-Oscar Peterson, 16 x 8 recording, 8 PRO5, 8 PRO3 w/updated amps, Remix option, 6 LED option, NTP peak meter, patch bay, flight case. $9,000.

Hank (916) 284-6929

GET YOUR CABLES TOGETHER

Circle (82) on Rapid Facts Card

THINKING ABOUT A DIGITAL WORKSTATION WITH UP TO 64 TRACKS ??

db now offers digital workstations and hard-disk recording. Digital Dynamics PRO-DISK 464 for 4-64 channels. The Spectral 16 with 8 or 16 tracks & true DIGITAL MIXDOWN !!! Or start under $10k w/ 2 track DigiDesign SoundTools for the Apple Macintosh computer. Used Macs, too !

db ENGINEERING
Phone (617) 782-4838
Fax (617) 782-4935

NEW, USED, DEMO EQUIPMENT
LARGEST SELECTION OF MULTITRACK RECORDERS AND CONSOLES, TRIDENT, AMEK-TAC MAGNUM AND SCORPION II SOUNDTRACKS, AKAI, ADAM, TASCAM M3500, DIGIDESIGN SOUND TOOLS, PANASONIC SV3700 DAT, OP Codice, VIDEO TIMEPIECE, TASCAM DA-30, DAT, STUDER-DYAXIS, EVENTIDE H3000SE, ADAMS SMITH-ZETA, ROLAND/ AKAI SAMPLERS, STUDIO PACKAGE SPECIALISTS-EXPERIENCED STAFF/U UNEQUALLED SERVICE

EAR PROFESSIONAL AUDIO/VIDEO
(602) 267-0600

120 R • E • P September 1990
E.A.R.S.™ Inc.
Studio Specialists
The Studio Design and Installation Company

15 years of design and installation experience ensure high performance.

- Studio Design
- Acoustical Consultation
- Turnkey Installations
- Custom Electronic Engineering
- Studio Maintenance Services
- TEF™ Room Analysis
- Pro Audio Equipment Sales
- Custom "Production" Furniture

System Layout, Cable Harnesses, Custom Patchbays, Wall Panels, Cue Systems, Modifications, Service

Many famous brands of pro audio equipment—from analyzers to XLRs, API to White...
a full service company!

CALL for our company brochure.
(617) 783-5229 • FAX: (617) 254-8781
Rob Rosati, Design Engineer
Leasing Options • Mastercard • Visa

Circle (83) on Rapid Facts Card
STUDIOWORKS
Recording & Broadcast Equipment

FACTORY DIRECT PRICES
ON 3M & AMPEX TAPE

AKG    JBL/REMI  RAMSA
ALLEN & LEXICON SENNHEISER
HEATH NEUMANN SOUNDTRACS
FOTEX OTARI VALLEY INT'L

Over 70 Professional Lines!

SONY
Professional Audio
(800)438-5921
(704)375-1053

Sony used & demo sale
Sony 3036 loaded 32 mono-auto. $52K w/warranty.
Sony 3036 loaded 36 mono/mono hard drive. $75K.

PORTABLE SOUND PANELS
island Cases
1121-1 Lincoln Ave., Holbrook, N.Y. 11741
(800)342-1433 • In NY 516-563-0633

FOR RENT OR SALE
Soundcraft 800B 40x8x8x2
Will Deliver
Call Greg Flynn
Ray Pro Sound
1902 Wharton Rd., Jenkintown, PA 19046
215-885-8885

Circle (86) on Rapid Facts Card

World Class Tapes & Duplicating

Digital Audio Tape (D.A.T.) In Stock
Analog Tape, Audio Accessories
Phone In Order, Ship Same Day
Great Quality — Great Price
On-Shell Printing

Call us at
(800) 365-0669
for prices on tapes & duplicating

World Class Tapes
Audio Tape Distributors & Duplicators
670 Airport Blvd., Suite 1
P.O. Box 7611
Ann Arbor, Michigan 48107
(313) 662-0669 (within Michigan)

Circle (89) on Rapid Facts Card
FOR SALE

WHO USES THE TUBE DIRECT

WHY NOT YOU?
THE TUBE DIRECT IS SIMPLY THE BEST SOUNING DIRECT BOX MADE!
ALSO NOW AVAILABLE THE TUBE MIC PRE-AMP
See Hugh Padgum interview June 1990 issue R+EP

DEMETER AMPLIFICATION/INNOVATIVE AUDIO SYSTEMS
(213) 470-6426

Circle (90) on Rapid Facts Card

TRAINING

READY TO IMPROVE YOUR RECORDING SKILLS?
THEN SIT NEXT TO A TOP FLIGHT ENGINEER AS HE DEMONSTRATES ALL THE ELEMENTS THAT GO INTO GREAT RECORDING

The SHAPING YOUR SOUND series is five indispensable new videotapes covering multi-track recording, mixing, signal processing and microphones. They bring better studio technique to life using the power of video to do "WHAT NO BOOK ON THE SUBJECT HAS EVER BEEN ABLE TO ACCOMPLISH!" (Mix Magazine).

Every tape is packed with demonstrations and examples that cut through time consuming book study and get you down to better recordings.

CALL FREE TO FIND OUT MORE ABOUT SHAPING YOUR SOUND, THE PROFESSIONALS' TRAINING PROGRAM.
1-800-777-1576
FIRST LIGHT VIDEO PUBLISHING
374 N. Ridgewood Place, L.A., CA 90004

SERIOUS AUDIO SCHOOLS
New comprehensive guide profiles 84, lists 324 college, trade, foreign programs, $11.95, New Ear Pub., 1033 Euclid, Syracuse, NY 13210.
Call 315-425-0048 for more info.

Circle (91) on Rapid Facts Card

DUPLICATION SERVICES

CASSETTE TEK, INC.
SPECIALISTS IN PROMOTIONAL CASSETTES FOR ARTISTS—PRODUCERS—AGENCIES
• Highest quality custom blanks audio and video VHS cassettes
• Duplication of audio and video
• EMBOSSED on-cassette printing using the PRINT RITE system
• Direct mail services
• Reasonable pricing
• Fast service
1605 THOMASTON AVE.
WATERBURY, CT 06704
TEL. (203) 757-4848
FAX (203) 756-8585

Private Recording Studio Complex
with reception, office, production rooms, waterfall, sundeck, under remodeling. Includes a three bedroom house. $375,000.
Located in Southern California.

Call Dorthy Berg
619-352-0502

BASIC TOOLS

Hammer
Superconductor™

If you record guitars and you don’t use a Superconductor™ you’re missing a basic tool!

Guitar cables eat up high end. A 15ft cable causes up to a 10db roll off between 4kHz and 20kHz.

The Superconductor’s circuitry eliminates this loss. Experience new clarity & brilliance. Get it all on tape!

DW Labs || The Audible Difference
PO. Box 882, Dept. 26, Millburn, N.J. 07041
1-800-542-2454

SERIOUS AUDIO SCHOOLS

SERIOUS AUDIO SCHOOLS
New comprehensive guide profiles 84, lists 324 college, trade, foreign programs, $11.95, New Ear Pub., 1033 Euclid, Syracuse, NY 13210.
Call 315-425-0048 for more info.

Phone Renée Hambleton for Classified Advertising Information
(913) 888-4664

Circle (82) on Rapid Facts Card

CFS Century Financial Services Group, Ltd.

LEASE FINANCING

Specializing in Professional Audio Equipment.
New and Used.
Transactions Approved Nationally.
Ask us about our Mini-lease.

Tom Roche
1-800-826-6639
or
314-537-0330
Fax 314-537-4026
RACK ATTACK
∞ Audio Processing Systems ∞

Rack System ‘A’ . . . $265 per day
1) AMS . . . . . . . . . . . . . DMX 1580S
1) AMS . . . . . . . . . . . . . RMX-16
1) Eventide . . . . . . . . . . SP-2016
1) Eventide . . . . . . . . . . H-3000SE
1) Lexicon . . . . . . . . . . 480L with Larc
1) Lexicon . . . . . . . . . . PCM-70
1) TC Electronics . . . . . 2290
1) Yamaha . . . . . . . . . . SPX-1000

Short Guy System . . . $165 per day
1) Lexicon . . . . . . . . . . 480L with Larc
1) Lexicon . . . . . . . . . . PCM-70
1) Lexicon . . . . . . . . . . PCM-42
1) Eventide . . . . . . . . . . H-3000
1) TC Electronics . . . . . 2290
1) Yamaha . . . . . . . . . . SPX-1000
1) Yamaha . . . . . . . . . . Yamaha REV-5

Rack System ‘B’ . . . $225 per day
1) Lexicon . . . . . . . . . . 480L with LARC
1) Lexicon . . . . . . . . . . PCM-70
1) Lexicon . . . . . . . . . . PCM-42
1) Eventide . . . . . . . . . . H-3000SE
1) Publison . . . . . . . . . . Infernal 90
1) TC Electronics . . . . . 2290
1) TC Electronics . . . . . 1210
1) Yamaha . . . . . . . . . . SPX-1000

Individual Rentals . . . per day
AMS . . . . . . . . . . . . . 1580S . . . . . . . . . . . . . . . . . . . . . . $75.00
AMS . . . . . . . . . . . . . RMX-16 . . . . . . . . . . . . . . . . . . . . 75.00
Lexicon . . . . . . . . . . 480-L . . . . . . . . . . . . . . . . . . . . . . 85.00
Publison . . . . . . . . . . Inf 90 . . . . . . . . . . . . . . . . . . . . . . 85.00
Quantec . . . . . . . . . . QRS . . . . . . . . . . . . . . . . . . . . . . 65.00
Quantec . . . . . . . . . . XL . . . . . . . . . . . . . . . . . . . . . . 65.00
Yamaha . . . . . . . . . . REV-1 . . . . . . . . . . . . . . . . . . . . . . 65.00

- Introducing our latest configurations & prices -

Outboard Rentals (818) 998-1024
We Rent Keyboard Racks of Doom!
RENTAL EQUIPMENT

A TOTAL EFFECT

- Eventide H-3000 SE
- T.C. 2290 (32 sec.)
- T.C. 1210 spatial ex.
- Publison Infernal 90
- AMS S-DMX
- AMS RMX-16
- Eventide SP 2016
- Lexicon 480L
- 480L Larc & Manuals

The Professional Edge in Cassette Duplication

- Each order custom personalized to fit your budget and your total needs
- High speed - Realtime & DAT Replication

LORAN
1-800-633-0455

Call For Free Sample

The Nation's #1 Co. for Live Console Rentals:

- ATI Paragon ***NEW!! Yamaha 3000, 1800
- Gamble EX56, HC40, SC32 Yamaha 2800, 2408M
- Ramisa 852, 840 Soundcraft 800, TOA RX-7
- TAC Scorpion I & II + other console models!
- *MacPherson LPM monitor rigs* R-DATs
- *Intersensics SDL-5 subs / various EFXs

HI-TECH AUDIO SYSTEMS
Long & short term 415-726-2428

Cassettes
AS EASY AS...
1. REAL TIME DUPLICATION
2. HIGH SPEED DUPLICATION
3. CUSTOM BLANKS

INTRODUCING:
Full Service Digital Editing and CD Compilation


1-800-527-9225

DID YOU KNOW?
Print advertising attracts
OVER TWICE
the new customers as
direct mail!

You can reach nearly 50,000 potential customers for a fraction of a cent each by placing your ad in the Classifieds.

FAX your ad to 913/541-6697
or send it to

Jensen Twin Servo® Mic Preamp
The world’s clearest preamp - you’ve heard of it. Now hear it at Audio Rents (LA), The Rental Company (NY) or at your competitor’s studio.

Jensen transformers INCORPORATED
10735 Burbank Blvd • North Hollywood, CA 91601
FAX (818) 763-4574 • Phone (213) 876-0059
(Mon-Thurs, 9am-5pm Pacific time)

STUDIO EQUIP. FOR HIRE
Technician on staff 7 a.m. - 1 a.m.
Open 7 days a week
Digital Tape Machines, Synclavier Systems, Effects Processors, Reverbs
(213) 871-1104 (818) 980-4006
Ask For Mark

11120 Weddington St., N Hollywood, CA 91601

Source: Cahners Advertising Research Report
HELP WANTED

AUDIO ENGINEER
Major NYC video production facility with 3 stages seeks experienced Audio Engineer for live shoots. Minimum 3 years of related experience a must. Send resume in confidence to: Caller Box #739, New York, NY 10018

AUDIO SWEETENING
Major NYC video facility seeks audio engineer with experience in multitrack sweetening. Send resume to: P.O. Box 2258, Dept. Audio Times Square Station NY, NY 10108-2050

STUDIO MANAGER
Major NYC multi-studio facility needs experienced recording studio manager; big grief, big bucks, big studios, great client roster, lotsa action. Should be connected to and respected by labels large and small. You need us—we need you. Please call: (212) 873-8973

FINANCING

EQUIPMENT FINANCING
"LOANS BY PHONE"

- NO FINANCIALS REQUIRED FOR TRANSACTIONS UNDER $35,000
- NEW OR USED EQUIPMENT
- $2,000 TO $200,000
- NO DOWN PAYMENT
- SALE-LEASEBACK EQUIPMENT FOR WORKING CAPITAL
- TO APPLY OR REQUEST ADDITIONAL INFORMATION CONTACT MARK WILSON

(800) 342-2093
FAX: (214) 235-5452

LFCI
Equipment Leasing

- $50,000 with credit app. only
- Provides:
  - Off-balance sheet financing
  - Tax benefits
- All types of equipment
- Nationwide
- Dealers welcome
We specialize in A/V equipment
Call: (216) 882-6503

EQUIPMENT WANTED

WANTED TO BUY
iTAM 16 Track Tape Decks
iTAM Sigma 16 x 8 x 16 mix Boards
Top Dollar Paid
402-488-1464

WANTED
NEVE-SSL-API-TELEFUNKEN-SONY
NEUMANN-OTARI-MCI-PULTEC-URIE-AMS
OR ANY USED CONSOLE, TAPE MACHINE, VINTAGE MIC OR PROCESSOR YOU WANT TO SELL—CALL ANYTHING AUDIO
617-426-2875

EQUIPMENT WANTED
BUY OR TRADE
YOUR USED MULTITRACK RECORDERS AND CONSOLES
EAR PROFESSIONAL AUDIO/VIDEO
(602) 267-0600

CLASSIFIEDS
Renée Hambleton
913-888-4664
9221 Quivira Road
Shawnee Mission, KS 66215
Telefax: 913-541-6697

SANTA MONICA, CA
Herbert A. Schiff
213-393-9285
Jason Perlman
213-458-9987
Kelly Daugherty
213-451-8895
501 Santa Monica Blvd.
Santa Monica, CA 90401
Telefax: 213-393-2381

CHICAGO, IL
David Rutenberg
312-333-2360
55 East Jackson Blvd.
Chicago, IL 60604
Telefax: 312-922-1408

NEW YORK, NY
Stu Kashine
212-332-0634
38th Floor
888 Seventh Ave.
New York, NY 10016
Telefax: 212-332-0653

OXFORD, ENGLAND
Nicholas McGeechan
Roseleigh House
New Street
Deddington, Oxford
OX5 4SP England
Telefax: (0869) 38040
Telephone: (0869) 38794
Telex: 837469 BES G

FREWWILLE, SOUTH AUSTRALIA
John Williamson
Hastwell, Williamson, Rep.
Pty Ltd.
109 Conygham Street
Frewville 5063
South Australia
Phone: 799-522
Telefax: 98 79 9735
Telex: A87113 HANDM

TOKYO, JAPAN
Masay Yoshikawa
Orient Echo, Inc.
1101 Grand Maison
Shinomiyabi-Chuo, 2-18
Shinjuku-ku, Tokyo 162, Japan
Telephone: 03-235-5961
Telex: J-33376 MYORIENT

September 1990 R•E•P 127
<table>
<thead>
<tr>
<th>Advertisers</th>
<th>Page Number</th>
<th>Fast Fact Number</th>
<th>Advertiser Hotline</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Total Effect</td>
<td>126</td>
<td>96</td>
<td>818/345-4404</td>
</tr>
<tr>
<td>Agfa Corporation</td>
<td>.9</td>
<td>8</td>
<td>201/440-2500</td>
</tr>
<tr>
<td>Akai/IMC Pro EMI</td>
<td>.5</td>
<td>5</td>
<td>617/336-5114</td>
</tr>
<tr>
<td>Alesis Corp</td>
<td>.7</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>Aligned Audio, Inc.</td>
<td>125</td>
<td>93</td>
<td>80/869-6561</td>
</tr>
<tr>
<td>Ampex Recording Media</td>
<td>18-19</td>
<td>11</td>
<td>415/367-3809</td>
</tr>
<tr>
<td>Anything Audio</td>
<td>122</td>
<td>85</td>
<td>617/426-2875</td>
</tr>
<tr>
<td>Aphex Systems Ltd.</td>
<td>83</td>
<td>38</td>
<td>818/767-2929</td>
</tr>
<tr>
<td>Apogee Sound Inc.</td>
<td>79</td>
<td>38</td>
<td>707/778-8877</td>
</tr>
<tr>
<td>Applied Research &amp; Technology, Inc.</td>
<td>.69</td>
<td>.31</td>
<td>716/436-2720</td>
</tr>
<tr>
<td>Audio Animation, Inc.</td>
<td>.75</td>
<td>.77</td>
<td>615/669-2500</td>
</tr>
<tr>
<td>Audio Services Corporation</td>
<td>108</td>
<td>53</td>
<td>818/980-9981</td>
</tr>
<tr>
<td>Audio Visual Assistance</td>
<td>122</td>
<td>.86</td>
<td>612/481-9715</td>
</tr>
<tr>
<td>AudioControl Industrial</td>
<td>.59</td>
<td>76</td>
<td>206/775-8461</td>
</tr>
<tr>
<td>Blevins Audio Exchange</td>
<td>119</td>
<td>.80</td>
<td>615/242-0596</td>
</tr>
<tr>
<td>Bose Corporation</td>
<td>.53</td>
<td>.26</td>
<td>508/872-6541</td>
</tr>
<tr>
<td>Brainstorm Electronics</td>
<td>.59</td>
<td>27</td>
<td>213/475-7570</td>
</tr>
<tr>
<td>Bryco Products</td>
<td>.115</td>
<td>64</td>
<td>618/783-9133</td>
</tr>
<tr>
<td>Capitol Production Music</td>
<td>118</td>
<td>59</td>
<td>800/421-4163</td>
</tr>
<tr>
<td>Carver</td>
<td>.8</td>
<td>7</td>
<td>818/442-0782</td>
</tr>
<tr>
<td>Century Financial Services</td>
<td>101,124</td>
<td>46,92</td>
<td>800/593-9300</td>
</tr>
<tr>
<td>Community Light &amp; Sound</td>
<td>104</td>
<td>48</td>
<td>215/876-3400</td>
</tr>
<tr>
<td>Cooper Sound Systems</td>
<td>114</td>
<td>74</td>
<td>714/248-1361</td>
</tr>
<tr>
<td>Countryman Associates</td>
<td>.110</td>
<td>57</td>
<td>415/364-9988</td>
</tr>
<tr>
<td>Crown International</td>
<td>27,29</td>
<td>14,15</td>
<td>219/294-8000</td>
</tr>
<tr>
<td>D &amp; R USA</td>
<td>.34</td>
<td>50</td>
<td>409/588-3411</td>
</tr>
<tr>
<td>Denecke Inc.</td>
<td>.117</td>
<td>68</td>
<td>618/766-3525</td>
</tr>
<tr>
<td>DeWolfe Music Library</td>
<td>.108</td>
<td>54</td>
<td>212/382-0220</td>
</tr>
<tr>
<td>Digidesign</td>
<td>.6</td>
<td>6</td>
<td>415/688-0600</td>
</tr>
<tr>
<td>Disc Makers</td>
<td>.102,125</td>
<td>70,94</td>
<td>212/265-6662</td>
</tr>
<tr>
<td>Dolby</td>
<td>.73</td>
<td>33</td>
<td>415/558-0200</td>
</tr>
<tr>
<td>Drawmer</td>
<td>.41</td>
<td>19</td>
<td>508/650-9444</td>
</tr>
<tr>
<td>E.A.R.S., Inc.</td>
<td>121</td>
<td>83</td>
<td>617/783-5229</td>
</tr>
<tr>
<td>Electro-Voice, Inc.</td>
<td>1FC</td>
<td>1</td>
<td>613/382-2141</td>
</tr>
<tr>
<td>First Light Video Publishing</td>
<td>124</td>
<td>91</td>
<td>800/777-1576</td>
</tr>
<tr>
<td>Fostex Corp. of America</td>
<td>93</td>
<td>42</td>
<td>213/921-1112</td>
</tr>
<tr>
<td>Furman Sound</td>
<td>109</td>
<td>55</td>
<td>415/927-1225</td>
</tr>
<tr>
<td>Gauss</td>
<td>.97</td>
<td>44</td>
<td>213/875-1900</td>
</tr>
<tr>
<td>GLV Enterprises, Inc.</td>
<td>61</td>
<td></td>
<td>615/331-8800</td>
</tr>
<tr>
<td>Hardy Co.</td>
<td>113</td>
<td>62</td>
<td>708/864-8060</td>
</tr>
<tr>
<td>Hollywood Edge</td>
<td>112</td>
<td>60</td>
<td>800/292-3755</td>
</tr>
<tr>
<td>HRC Magnetics</td>
<td>107</td>
<td>51</td>
<td>600/443-8457</td>
</tr>
<tr>
<td>Hybrid Arts</td>
<td>106</td>
<td>41</td>
<td>213/841-0340</td>
</tr>
<tr>
<td>Innovative Audio Systems</td>
<td>124</td>
<td>90</td>
<td>213/470-6426</td>
</tr>
<tr>
<td>Intelix</td>
<td>.115</td>
<td>65</td>
<td>608/273-6333</td>
</tr>
<tr>
<td>JBL Professional</td>
<td>.72</td>
<td>3</td>
<td>213/876-0059</td>
</tr>
<tr>
<td>Jensen Transformers</td>
<td>126</td>
<td>97</td>
<td>213/876-0059</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>JVC Professional Products</th>
<th>Page Number</th>
<th>Fast Fact Number</th>
<th>Advertiser Hotline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Co.</td>
<td>.45</td>
<td>21</td>
<td>800/JVC-5825</td>
</tr>
<tr>
<td>KABA Research &amp; Development</td>
<td>.99</td>
<td>45</td>
<td>415/883-5041</td>
</tr>
<tr>
<td>Klipsch</td>
<td>.89</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Lexicon, Inc.</td>
<td>.48A-48F</td>
<td>23</td>
<td>617/891-8790</td>
</tr>
<tr>
<td>M.T.U. (Micro Technology Unlimited)</td>
<td>107</td>
<td>52</td>
<td>919/870-0344</td>
</tr>
<tr>
<td>Markertek</td>
<td>121</td>
<td>84</td>
<td>800/522-2025</td>
</tr>
<tr>
<td>Micro Audio</td>
<td>.87</td>
<td>78</td>
<td>503/292-8996</td>
</tr>
<tr>
<td>Mitsubishi Digital Pro Audio</td>
<td>.85</td>
<td></td>
<td>203/744-6230</td>
</tr>
<tr>
<td>Music Annex, Inc.</td>
<td>112</td>
<td>61</td>
<td>415/226-0800</td>
</tr>
<tr>
<td>Neve, Inc.</td>
<td>112</td>
<td></td>
<td>203/744-6230</td>
</tr>
<tr>
<td>Numark</td>
<td>.57</td>
<td>39</td>
<td>201/225-3222</td>
</tr>
<tr>
<td>Ocean Audio</td>
<td>120</td>
<td>81</td>
<td>213/459-2743</td>
</tr>
<tr>
<td>Otari Corp.</td>
<td>21,50</td>
<td>51,43</td>
<td>415/341-5900</td>
</tr>
<tr>
<td>Ozmund Communications</td>
<td>116</td>
<td>66</td>
<td></td>
</tr>
<tr>
<td>Panasonic (Ramsa Div.)</td>
<td>.81</td>
<td>37</td>
<td></td>
</tr>
<tr>
<td>Peavey Electronics Corp.</td>
<td>IBC39</td>
<td>2,18</td>
<td>601/483-5365</td>
</tr>
<tr>
<td>Phonic Ear</td>
<td>.110</td>
<td>56</td>
<td>800/227-0735</td>
</tr>
<tr>
<td>QSC Audio Products</td>
<td>.67</td>
<td>30</td>
<td>714/645-2540</td>
</tr>
<tr>
<td>Quad Eight</td>
<td>113</td>
<td>63</td>
<td>805/295-1324</td>
</tr>
<tr>
<td>Rack Attack</td>
<td>125</td>
<td>95</td>
<td>818/996-1024</td>
</tr>
<tr>
<td>Radian Audio Engineering, Inc</td>
<td>35</td>
<td>16</td>
<td>714/693-9277</td>
</tr>
<tr>
<td>Rane Corp.</td>
<td>.24-25</td>
<td>13</td>
<td>206/355-6000</td>
</tr>
<tr>
<td>Richmond Sound Design</td>
<td>118</td>
<td>58</td>
<td>604/732-1234</td>
</tr>
<tr>
<td>Roland Corp. US</td>
<td>12-13</td>
<td>9</td>
<td>213/685-5141</td>
</tr>
<tr>
<td>Saki Magnetics, Inc.</td>
<td>.95</td>
<td>43</td>
<td>818/880-4054</td>
</tr>
<tr>
<td>Sam Ash Professional</td>
<td>117</td>
<td>69</td>
<td>212/719-2640</td>
</tr>
<tr>
<td>Seam Tech</td>
<td>102,120</td>
<td>71,82</td>
<td>415/861-6011</td>
</tr>
<tr>
<td>Sonic Solutions</td>
<td>.103</td>
<td>47</td>
<td>415/394-8100</td>
</tr>
<tr>
<td>Sony Pro Audio</td>
<td>17,65</td>
<td></td>
<td>800/635-SONY</td>
</tr>
<tr>
<td>Soundcraft USA</td>
<td>.33</td>
<td></td>
<td>818/893-4351</td>
</tr>
<tr>
<td>Soundmaster U.S.A., Inc.</td>
<td>116</td>
<td>67</td>
<td>805/494-4545</td>
</tr>
<tr>
<td>Spectral Synthesis, Inc.</td>
<td>114</td>
<td>73</td>
<td>206/487-2931</td>
</tr>
<tr>
<td>Spectrum Signal Process</td>
<td>.102</td>
<td>72</td>
<td>604/438-7266</td>
</tr>
<tr>
<td>Standard Tape Laboratory, Inc.</td>
<td>122</td>
<td>87</td>
<td>415/786-3546</td>
</tr>
<tr>
<td>Studiomaster</td>
<td>111</td>
<td>77</td>
<td>714/524-2227</td>
</tr>
<tr>
<td>Sunkyong Magnetic/America, Inc.</td>
<td>.47</td>
<td>22</td>
<td>800/331-5729</td>
</tr>
<tr>
<td>Switchcraft, Inc.</td>
<td>15</td>
<td>10</td>
<td>312/792-2700</td>
</tr>
<tr>
<td>T.C. Electronic A/S</td>
<td>.100</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Tannoy North America Inc.</td>
<td>.63</td>
<td>28</td>
<td>519/745-1158</td>
</tr>
<tr>
<td>Tascam Div./Teac Corp.</td>
<td>36-37</td>
<td>17</td>
<td>213/726-0303</td>
</tr>
<tr>
<td>Technical Audio Devices</td>
<td>2-3</td>
<td>4</td>
<td>213/816-0415</td>
</tr>
<tr>
<td>Telex Communications, Inc.</td>
<td>.49</td>
<td>24</td>
<td>612/887-5531</td>
</tr>
<tr>
<td>The Broadcast Store, Inc.</td>
<td>123</td>
<td>88</td>
<td>818/845-7000</td>
</tr>
<tr>
<td>Trident USA, Inc.</td>
<td>91</td>
<td>29</td>
<td>213/533-8900</td>
</tr>
<tr>
<td>World Class Tapes</td>
<td>123</td>
<td>89</td>
<td>800/365-0669</td>
</tr>
</tbody>
</table>

www.americanradiohistory.com
Head through the main entrance, main aisle. Pick up your pace for a minute, take a left, and you're there. See the most exciting line of professional audio equipment anywhere. Made right here in the U.S.A. by Peavey. Come by and visit us at Booth #810 AES.