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THE RECORDING INDUSTRY MAGAZINE

# Mix

Interview: David Sanborn



106

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**Sound Reinforcement**  
**Remote Recording listings**

**Synthesizer Studio Forum**  
**Weird Al Yankovic**



**Los Lobos**  
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**COVER PHOTOS:** Top: The Showco ASX sound reinforcement system utilized by Prince and the Revolution on the Purple Rain tour, shown here at Reunion Arena in Dallas. Photo by: Lewis Lee.

Bottom: The mobile recording unit from Reels on Wheels, based in White Plains, NY, went on-line last September and now features a new Harrison MR-4 console and Studer A800 24 track recorder. Photo by: Doug Abdelnour.

Corner photo: David Sanborn by David Gehr.



The age of synthesized music production is now in full swing and writer Larry Oppenheimer talks to artist Gary Chang (at left) and others whose lives and work have been shaped by the new breed of synthesizer-oriented studios. Page 18.

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We've heard of laughing all the way to the bank, but this is ridiculous! In the past year, Weird Al Yankovic's clever lampoons of current and old pop tunes have made him one of the best-selling artists in pop. Weird Al and Mr. Bonzai "Eat It" at this issue's "Lunching" on page 62.



Summer's here and the time is right for...playing huge outdoor shows? Not everyone will be playing stadiums this summer, of course, but summer is the big rock touring season and Elizabeth Rollins brings us up to date on the latest happenings in the sound reinforcement field. Page 70.

From the barrio in East Los Angeles come one of the freshest roots-rock bands in many a year: Los Lobos. Blending rockabilly, Tex-Mex and R&B, Los Lobos has become one of the bands to watch in the '80s. Moira McCormick profiles the group on page 108.





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Whether you're an engineer, an artist, or both, Otari's MTR-90 will satisfy your most demanding ideas of what a multi-channel recorder should be.

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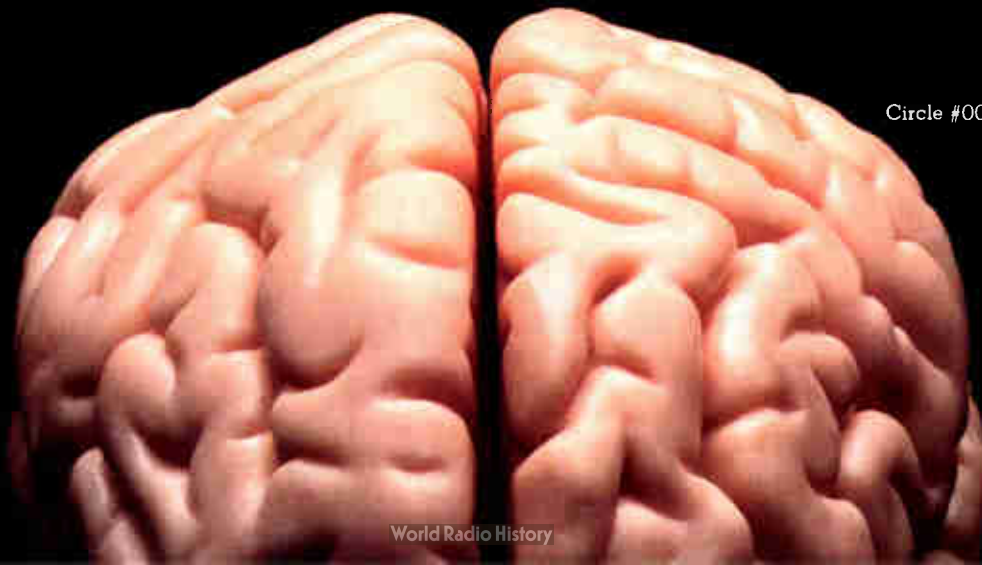
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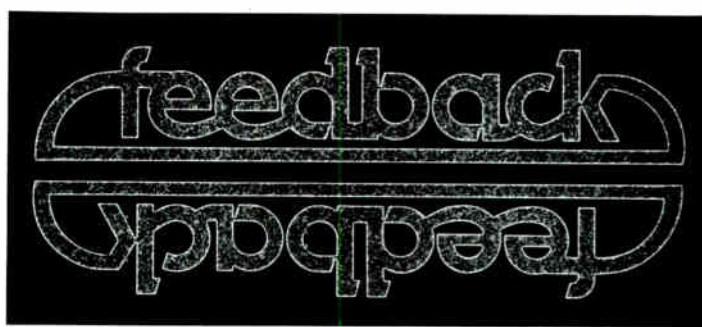
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Dear Mix,

With regard to your "International Update" on CTS Recording in the April issue (Vol. 9, No. 4), successful implementation of full scale digital mixing is the most significant fundamental technical breakthrough in professional audio in the 1980s. Richard Dean's low-key negative approach not only fails to convey this newsworthy excitement, but also contains serious errors of fact.

The BBC did not *back* the DSP project per se, nor did they *offer* Neve COPAS—Neve approached the BBC and paid the BBC for rights to the design as part of the collaborative agreement. The collaborative agreement dates from August 1978 and the mention of the IBC'80 is irrelevant. The BBC console has not been "still waiting" at Neve's Royston plant—hence there is no question of *resumption* of work. The BBC have formally given Neve free rights (non-exclusive) to relevant proprietary designs, including COPAS. The main BBC patent covers techniques for digital dynamic range control.

There *is* (of course) an actual physical patch bay for all analog inputs and outputs at the right hand end of the console pictured in the article. It is the multiplicity of internal insertion "break points" which are electronically routed. There's a further misconception about assignability. Assignability *is* extended to all faders and is available if the operator wishes to use it. Any fader can be assigned to any input, subgroup or output and in fact, multiple inputs can be assigned to one fader. The inclusion of a source button above each fader sets the fader to the source it is selected to. The console, in theory, could be a one fader console. A reset feature *is* incorporated in the console for setting the console before or during a session. The reset feature resets every control with laboratory precision together with complete signal routing. It takes around 11 seconds to reset the entire console (the various logic checks needed taking most

of the time). It is the real-time automation ("Necam" including EQ, dynamics, etc.) which will be retrofitted later this year. It is further implied that the SSL 5000 Series will be reset automatically for a moment selected in a mix. This is not the case, as it does not reset the main controls but only the routing switches, similar to the Neve 81 series of consoles first introduced six years ago.

It might also be worth noting that the DASH format for stationary head digital tape machines has nothing to do with the PAL video standards.

A standard digital interface protocol has been developed (AES/EBU) and is incorporated in the DSP. Neve hopes that makers of reverb units, etc. will use it.

My only conclusion is that this is a pretty incompetent piece of negative journalism, probably written around early January. The article is fairly well calculated to offend most of the organizations mentioned except SSL. It is hoped that Richard Dean at the press conference in mid-February at CTS will have learned more about the DSP which might reduce his error rate in the future. Instead of applauding the incredible technical achievement, and the exciting operational capability, which should come over like a 4th of July fireworks display, it in fact came over like a damp matchstick.

Yours sincerely,  
Barry J. Roche  
President, Rupert Neve Inc.  
Bethel, CT

In the *TEC Awards voting ballot*, included in the May issue (Vol. 9, No. 5) we inadvertently listed the *Institute of Audio Research*, one of the nominees for Outstanding Recording School/Program, as Institute of Audio Arts. We deeply regret this error and offer our apology to the Institute of Audio Research.

# CURRENT

## ATSC Recommends Worldwide HDTV Standard

The Executive Committee of the United States Advanced Television Systems Committee (ATSC) has unanimously approved a recommendation to the State Department for the United States position on a high definition television studio standard.

That proposal recommends a worldwide HDTV Studio Standard based on 1125 lines, 60 fields per second; 2:1 interlace, and an aspect ratio of 5.33:3. It also recommends that work continue on other parameters including colorimetry, gamma, constant luminance, etc. It further recommended that work continue during the next CCIR cycle on 60 Hz, 1:1 progressive scanning.

"This action" said ATSC Chairman E. William Henry, "by the ATSC,

which represents the views of a broad spectrum of U.S. interests, constitutes real progress on the road to a worldwide HDTV Studio Standard."

### Mitsubishi and DEC Acquire Quad Eight/Westrex

Digital Entertainment Corporation has announced the acquisition by Mitsubishi Electric Sales America, Inc. and Digital Entertainment Corporation (DEC) of all shares and assets of Quad Eight/Westrex of Los Angeles, California.

DEC has moved its headquarters from the New York area to the new QEW facilities in San Fernando, re-established the New York regional sales and support office at 555 West 57th

Street in New York, and will maintain the local sales office in Nashville as well as the new established sales office in Toronto.

The acquisition of QEW includes a U.K. subsidiary—Quad Eight/Westrex Ltd.—based outside of London in 12,000 square foot facilities. The U.K. subsidiary manufactures most of the mechanical systems for the Westrex 35mm film recorders. DEC will immediately establish a marketing/sales/support office at the QEW London facility in line with previous plans of initiating U.K. marketing.

Tore Nordahl, President of DEC, has been appointed also as President of Quad Eight/Westrex. Lou Dollenger remains as Marketing Manager of DEC and will head up the regional office in New York City.

For further information write or call: Quad Eight/Westrex, 225 Parkside Drive, San Fernando, California 91340. Tel: (818) 898-2341.

### RIAA Reports Record Year in 1984

The dollar volume of U.S. manufacturer net shipments of records and prerecorded tapes rose to an all-time high in 1984. Calculated at suggested retail list price, dollar volume increased 15% over 1983. Manufacturer unit shipments reached their highest since 1980, up 18% over 1983, but still below the peak years of 1977-1980. Compact discs showed the fastest growth of any new configuration, with shipments increasing 625% in 1984. Shipments in 1984 were valued at \$4.3 billion, calculated at suggested retail list price, compared to \$3.8 billion in 1983.

Other highlights of 1984 included prerecorded cassette shipments reaching an all-time high, up 40% over the previous year. In 1983, 236.8 million cassette units were shipped, and in 1984 that figure jumped to 332 million units.

According to the RIAA Market Research Committee, the upswing in this year's market reflects the country's stronger economy, heavy sales by superstars, and multiple hits from individual albums.

*Lutz H. Meyer*, former Vice President of Marketing for *MCI/Sony*, has formed *Electronic Systems Laboratories, Inc.*, to specialize in import and export of unique equipment for systems design, construction, and support for the broadcast, production and recording industries. They can be reached at P.O. Box 100456, Ft. Lauderdale, FL 33310, ph. 305/791-1501. . . *Patapsco Designs, Inc.* of Frederick, MD, has acquired all the assets of the *BTX Corporation* and will manufacture the former BTX product line in their Frederick engineering and manufacturing facilities. . . *Phillip M. Ritti* has been promoted from Marketing Manager of *Video Tape Products* to Director of Marketing at the *Ampex* Magnetic Tape Division. . . *Andrew A. Brakhan* has been appointed to the post of President and Chief Executive Officer of the *Sennheiser Electronic Corporation*. . . *Robert D. Summer*, *RCA Records* President, has been elected Chairman of the Board of Directors of the *Recording Industry Association of America*. . . *Agfa-Gavaert, Inc.* has begun work on a nine story, 130,000 square foot office building to be their U.S. corporate headquarters in Ridgely Park, NJ. . . *Shigeru Ohmatsu* has been appointed to the office of President of *Leader Instruments Corporation*. . . *Electro-Voice* has added *David*

*E. Goldschmidt* as Market Manager/Professional Markets. . . *Crown International* has announced the addition of *Tim Kueppers* into their Prototype Engineering Department. . . *Sony Corporation of America* has appointed *Gary Hall* digital sales engineer in their Professional Audio Division. . . *Tim Prouty* has assumed the position of Vice President of Marketing and Sales at television audio and video control products manufacturer, *Graham-Pattern Systems, Inc.*. . . Console manufacturer *Auditronics, Inc.* has announced the acquisition of *Tapecaster TCM, Inc.* of Rockville, MD, a manufacturer of audio tape cartridge recorders, reproducers and loaders. . . At *Lucasfilm's Droid Works*, *Mary C. Sauer* has been appointed Director of Marketing. . . The *WOSU* Broadcast Engineering Conference will be held July 23-25. Call 614/422-9678 for more info. . . *Don Buck* has been appointed President of the newly reorganized *TVC Video, Inc.* of New York City. . . *Bruel and Kjaer* will be offering sound measurement seminars in Salt Lake City and Denver during June. Call 415/574-8100 for more details. . . *Chesbro Music* has been chosen as exclusive distributor for *Audix* microphones in the eleven western states. . .



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## NORTHEAST

At *Quadrasonic Sound Systems* in NYC *Certain General* was in the studio recording tracks for their release on Desire Records called *Invitation to Suicide*. It was produced by *Chris Perry* and engineered by *Mathew Kasha*. Atlantic Records sent *Bruce Forest* in to Long Island City's *Power Play Studios* to mix *Passport's* single "Running in Real Time." The keyboard overdubs were done by *Jack Waldman*, engineered by *Julian Herzfeld*. *Jeff Rust* of *Jasir Recording* (Boston, MA) captured the funk & jazz fusion of the *Jamnation Band* live at the Berklee Performance Center. Startrax Productions have just completed recording and mixing the new project from *Jacki Members Poindexter* at *Sound Heights* in Brooklyn. At *Normandy Sound* in Warren, RI, engineer *Karl Rasmussen* remixed tracks by *John Cafferty* and *The Beaver Brown Band* for an appearance on the weekly TV series *Solid Gold*. At *39th Street Music* in NYC, *Raul Rodriguez* produced *RAMA*, featuring raps by D.C.-based *DJ Cool*, & *The Uptown Horns*. *Richard Kaye* engineered. *Corey Hart* finished his new album at *Le Studio* (Morin Heights, Quebec). The album was co-produced by Hart and *Phil Chapman*, who also engineered. *Michael Carlone* and *Judy Briggs* produced Steven Pacca at *Reel Platinum Studios* in Lodi, NJ. *Westrax Recording Studio*, NYC, completed work on two albums—the original cast album of *Nightclub Confidential* produced by *Peter Link*, owner of Westrax, with *Jesse Plumley* and *Jeremy Harris* sharing engineering duties; and *Jeremy Harris* engineered the recording of *Palais Bimbo Lounge Show*. At New York's *MediaSound Studios*, *Steve Thompson* and *Michael Barbiero* finished *Natalie Cole's Dangerous* for Modern Records, *The Humpe Sisters'* "Three of Us" for WEA, the single, 12" and video mixes of *David Bowie's* "Loving The Alien" and the B-side "Don't Look Now," and a single and 12" mixes of "Some People" for Capitol's *Belouis Some*. Vocalist *JoAnna Gardner* finished working on her debut album for Philly World Records at *Alpha International Studios* in Philadelphia. The project was produced by *Michael Forte*, *Donald Robinson*, *Nick Martinelli* and *Bobby Eli*. Operating the controls were *Remo Leomporra*, *Al Albertini* and *Bruce Weeden*, assisted by *Richard Welter*, *Steve Pala* and *Chris Albertini*. At *Planet Sound Studios* in New York, *Steps Ahead* produced themselves for their new Elektra LP with *Rick Kerr* engineering; *Al Goodman* produced *John Henderson* for Panoramic Records with *Mike Theodore* engineering. At *Systems Two* in Brooklyn, New York, *Keith Zorros* mixed his next LP for Silhouette Records with producer *Jerry Namero*. *Joe Marcianno* engineered. At the *Platinum Factory* in Brooklyn, *Tyrone Brun-*

*son* recorded tracks for his next release on CBS Records, produced by *James Mtume* and *Vincent Randolph*. *Cirland Noel* engineered, with assistance from *Dave Roberts-English*. At *Eras Recording* in NYC, *Flora Purim* put final touches on her new solo LP, featuring saxophonist *David Sanborn*, woodwind virtuoso *Joe Farrell*, and keyboardist *Jorge Dalto*. Airtro produced with *Cynthia Daniels* engineering, and *Peter Sturge* assisting. *Inner Ear Recording* in Queens, NY, welcomes engineer *Matt Schottenfeld* to its staff. Matt will be chief programmer of a recently acquired Emulator. *Industrial Strength* studios in NYC recently completed recording and mixing *Tonight* by *Hanson & Davis*. *Will Sokolov* produced the sessions for *Sleeping Bag Records*. *Bruce Tovsky* and *John Cousins* engineered the dates. At *Eastern Artists Recording Studio*, E. Orange, NJ, Elektra artists *Little Benny & The Masters* had a 12" dance mix completed by *Scott Folkes*; and *Mtume's* 12" "Prime Time" was remixed for CBS by *Reggie Thompson*. *Dave Dachinger* engineered the project. At *Celebration Recording*, NYC, *Phoebe Snow* was in cutting a commercial for Philadelphia Cream Cheese, produced by *Radio Kings*, engineered by *Sal Ciampini* and *Chris Tergesen*.

## SOUTHWEST

Austin's *Riverside Sound* was host recently to *The Leroi Brothers*, whose new album was engineered and produced by *Vince McGarry*; Also, *Richard Mullen* (engineer and co-producer of *Stevie Ray Vaughan's* products) did post-production at *Riverside* for an upcoming album with *The Shake Russell Band* to be released on Austin Records. Jewel Record artists *Shirley Joiner* and *Bright Star Millchord* were at *Rivendell Recorders* in Pasadena, TX in March completing their tracks for their live gospel albums. Both albums were produced by *Herman Findley* and engineered by *Dan Yeany*. The spring semester was a busy one for students and faculty of *The Lincoln Institute* in Spring, TX, a two-year post-secondary school specializing in the recording arts and sciences. In-house projects included work for many popular local recording artists with students participating in engineering and assisting faculty-engineers.

## SOUTHEAST

*Master Sound Studios* of Atlanta recently finished work on a project for the *Band of the United States Air Force Reserve*. Also at *Master Sound*, Atlantic recording artists *First Love*, a Chicago-based group, completed work on a single session, co-produced by *Jason Bryant* and *Bernie McLean*

At *The Soundshop* in Nashville *Buddy Killen* produced *Ronnie McDowell* for CBS Records with *Ernie Winfrey* engineering. At *Mark Five*, Greenville, SC, *Eddie Howard* and *Buddy Strong* did post-production for national radio show *The Liberty Flyer* in the new studio; also cutting numerous commercials, jingles and station ID's. At *Compass Point Recording Studio* in Nassau, The Bahamas, *Julio Iglesias*, *Marianne Faithfull* and *Robert Palmer* are among the recent recording artists in. *Hidden Meaning Studio* in Warner Robins, GA, had *K.I.T.T.E.N.* in laying down vocal tracks for a demo. *Tony Dorsey*, former member of *Paul McCartney & Wings* was also in. At *Bias Recording Company* in Springfield, VA, *Bob Dawson* engineered and *Stuart Smith* produced the new *Nighthawk's* album. At *Stargem Recording Studio* in Nashville, *Wayne Hodge* cut sides on *Doc Randolph* and *George Pickard*; and *Gene Miller* produced country artists *Silver Creek*.

## SOUTHERN CALIFORNIA

At *Group IV Recording* in Hollywood, singer/pianist *Michael Feinstein* put down tracks on his *Pure Gershwin* LP for Parnassus Records with producer *Herb Eisman* and engineer *Dennis Sands*, assisted by *Andy D'Addario*. Also at Group IV, *Big Joe Turner* and *Jimmy Witherspoon* put down tracks for their new Pablo Records LP with producer *Norman Granz* and engineers *Dennis Sands* and *Angel Balestier*, assisted by *Andy D'Addario*. *Craig Huxley* produced *David Shire's* score for a PBS television special *Starring... the Actors!* Huxley and Shire worked at the *Audio Affects* studio using the N. E. D. Synclavier II. This is the second such collaboration between Huxley and Shire, the first being the soundtrack to the film *2010*. At *Artisan Sound Recorders*, disk mastering engineer *Greg Fulgniti* mastered LPs for *Joe Walsh* with producer *Keith Olsen* on Warner Bros.; *Rick Springfield* with producer *Bill Drescher* on RCA; and the *Birdy* and *Visionquest* soundtracks on Geffen. At *Soundcastle Studios* in L.A., *Maurice White* produced with *Bill Bottrell* and *Bill Schnee* engineering a solo album by *White* for CBS Records and *Bino Espinoza* assisting. Also, *Jermaine Jackson* produced sessions for *Pia Zadora*. *Emerald City Recording* in Grover City finished a single for *Merrell Fankhauser* entitled "Some of Them Escaped it All" for the D-Town label. *Atila* is doing his second album at *The Sound Solution* in Santa Monica. The album is being co-produced by *Atila* and *Michael Campagna*, and engineered by *Keith Wechsler*. Also the *Babylon Warriors* recorded their second album for the American Music label there. At *Sunset Sound* in Hollywood, *Diana Ross* did vocal overdubs with producers *Karl Richardson*,





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THE TASCAM MS-16 SIXTEEN TRACK



**TASCAM** THE SCIENCE OF BRINGING ART TO LIFE.

*Alby Galuten and Barry Gibb.* Karl Richardson also engineered the session. At *Preferred Sound* in Woodland Hills, *Precious Metal* recorded their debut LP with producer *Paul Sabu* producing and engineering, assisted by *Meryl Starbin* and *Bill Thomas*. *Sound Image Studio*, North Hollywood, had producer/engineer *Paul Rothchild* in with *The Brat* putting the finishing touches on a project.

## NORTHWEST

At *Montage Recording Studio*, Newark, CA, recent sessions included a new project by *Storm Maxwell* with *Jamie Bridges* engineering. Finishing *God's Miracle*, a benefit album for Cystic Fibrosis, was *Jerry Merril* and *Richard Perkins* with *Will Mullins* engineering and *Louise Singleton* assisting. *Starlight Studio* in Richmond, CA, had *Ken Kessie* mixing *Sylvester's* latest scorching album and *Norman Kerner* and *David Rubinson* producing tracks for the *Freaky Executives*. Producer *Dan Foster* completed tracking for a multi-image presentation for the Christian Action Council of Washington, D.C. Also, producer *Ron Gollner* completed a 16-track film score project. At the *Sound Column Studios* in Salt Lake City, *Heidi Magleby* completed her debut album, produced by *Clive Romney* and engineered by *Ron Miller*. Also, new artist *Vinnie Brown* finished the tracks for his single "Sailing Star" with *Jim Anglesey* at the board.

## NORTH CENTRAL

*5th Floor Recording Studios* in Cincinnati had *Prince* in the studio recently in an 18-hour non-stop session after his final in a series of three concerts. *Sheila E.*, in her silver fox, was on hand for vocals and percussion. After a successful six-week recording retreat at *Elora Sound Studio* in Elora, Ontario, *Rush* completed pre-production for their upcoming album *Algebra Suicide*. *Rush* has returned to *Solo Sound* in Evanston, IL, with their mixture of rock guitar and poetry. They recorded four new pieces soon to be released on compilation albums in Spain, Belgium, France, Germany and the U.S. *Jerry Soto* was at the board.

At the *Sound Suite Recording Studio* in Detroit, producer *Jim Holland* began work on first-time recording artists *Stripp*. Engineering was *Mike Brown*. *Frank "Cornbread" Corn, Jr.* was the assistant engineer. Recently at *Reel-sound Recording*, Southfield, MI, *Ascend to Zero* was in mixing sound for their rock video, "Don't Walk Away," with *Tom Riley* producing; and the jazz group *Camelangra* continued working on their debut album, with *James Ascenzo* engineering.

## STUDIO NEWS

*Al Puskaric*, of *Sound Images Recording Studio* in Duquesne, PA, reports the facility has recently

upgraded to 16 tracks with the addition of an Otari MX-70 one-inch recorder, Ramsa WR-T820 20x16x20 console and a DeltaLab Super Time Line. *The Music Source*, a 24 track studio in Seattle, has recently finished an all-new studio designed by Herb Chaudiere of Towne, Richards & Chaudiere, acoustical consultants. The large new control room is approximately 20 x 30 feet, and houses an array of new gear including a Sony-MCI JH24, Adams-Smith Synchronizer, and Kurzweil 250. *John Hill Music, Inc.*, a leading New York-based music production house, will be expanding their headquarters with the addition of a new state-of-the-art 16 track recording studio equipped with a Sound Workshop console, Auto-Tech recorder, and much more. A massive re-vamping of *VCA Teletronics'* duping center in NYC was completed in which an upgrade of the existing facility and acquisition of additional state-of-the-art duping equipment and computer systems has substantially increased the volume of VCA Teletronics' duping output. *Ron Rose Productions* has opened a new Tampa, FL, recording facility that includes two fully equipped mono to eight track studios complete with state-of-the-art, 16 track mixing consoles and 3/4-inch mix-to-picture SMPTE time code. The ultra-modern studios will specialize in radio commercials, TV voice-overs and slide film narration and will house one of the nation's largest music and sound effects libraries. *Music City Tape Duplicators* in Nashville has added a state-of-the-art duplicator unique to the Mid-South independent pressing and duplicating industry: the Electro Sound System 8000 duplicator with Dolby HX Pro. *Nibor Recording Studio*, Hurley, NY has added an Emulator 2, Apple Macintosh Computer, DX7, LinnDrum, Lexicon digital reverb, Beta Hi-Fi audio/video deck, and Sony PCM digital proc-

essor. *Unique Recording* in NYC has added three Yamaha TX816 racks (8 DX7s in a rack each for a total of 24 DX7s), Yamaha DX1, Yamaha QX1 80,000 note sequencer, Yamaha GS2 w/MIDI, Yamaha KX5 MIDI keyboard controller and more.

*Kajem Recording Studios* has become the first facility in Pennsylvania to offer computerized SSL recording and mixing. *Kajem* has taken delivery of an SL 4000 E Series master studio system equipped with the SSL studio computer.

Studio president and chief engineer *The Barge* in Wayne, NJ has added a new Studer A80 VU/MK IV 24/16 track recorder to its equipment roster. Other recent additions include a Lexicon 224XL version 8.2 with LARC and a Yamaha DX7 synthesizer. *J.B.S. Studio* in Atlanta, has installed the first two Otari MX-70 one-inch 16 track tape recorders in the U.S. The eight track facility, located in a 60-year-old movie theater, will also have a new Amek Angela 33x24 recording console giving J.B.S. the flexibility to offer 8, 16, and 32 tracks. The *Music Annex* in Menlo Park, CA now has the Audio Kinetics Q.Lock 3-10C synchronizing system. *Bear West Studios* in San Francisco remodeled and upgraded their 24 and 16 track recording facilities, with a redesigned control room and monitor system in Studio A. The room features a brand new 28 input Sound Workshop Series 34 console to accompany the MCI 24-track recorder, and MCI and Ampex two-track mastering recorders. *C.D. Presents* has opened a 24 track recording facility in San Francisco. Formerly Rhythmic River Productions, the studio boasts a 1350 square-foot recording area with 16 foot ceilings, an automated MCI 600 Series console, Lexicon 200 and AKG BX-10 reverbs, along with delay lines and harmonizer from Lexicon and DeltaLab. The *Sound Cottage* has added Wm. D. Rattazzi to head the professional

—PAGE 135

*Chris Stone of Record Plant, Los Angeles, stands among the demolition of former Annex studios in Los Angeles to be totally rebuilt to house the Record Plant companies. The move will be completed in the fall of this year.*





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# AUDIO APPLICATIONS

by Ken Pohlmann

The industry is alive with the phenomenal growth of the Compact Disc. Sales have exceeded everyone's expectations, and the factories around the world are straining to catch up. Many factories are operating 24 hours a day and ordering more production equipment. Recently, fascinating reports describing entirely new disc-making processes, with mythical manufacturing properties, have begun to appear with increasing frequency.

I was alarmed into action when the *New York Times* reported that during the Christmas rush CDs accounted for 30 percent of the sales in some record stores, and in some instances people snatched up CDs as fast as stockboys could price them. With visions of minimum wage workers trampled to death by music lovers, and thinking maybe I should rush to the record store and stock up on CDs before the shortage hit, or that these new processes might save the world from panic, I called Peter Jensen, the president of American Compact Disc Co., for an inside track on all the CD news that's fit to print.

**Mix:** Should I start hoarding CDs?

**Jensen:** Things aren't that bad, yet, but there's a tremendous backlog of unfilled disc orders. RCA, for example, is 750,000 CDs behind schedule, and a wait of 90 days is typical at many CD plants. Many of the manufacturers aren't accepting

new clients, and old customers aren't getting as many discs as they'd like.

**Mix:** What's going on?

**Jensen:** Demand for CDs exceeded everyone's projections, and no one was prepared.

**Mix:** Can't the factories just add a shift or something?

**Jensen:** The problem goes deeper than that. The manufacturing method itself has created much of the problem.

**Mix:** I guess we'd better start at the beginning. Tell us about your tour of the CD world.

**Jensen:** I visited the CBS/Sony plant in Japan, in April 1984. At that time, they'd just brought a new wing of the plant on-line, and I saw the latest changes in their manufacturing process. While in Japan I also toured Sony's research facilities, examining their work on CD-ROM and seeing some early examples. Several weeks later I visited the Philips ELA complex in Holland, which is the center for much of Philips research in Compact Disc and Videodisc. These are the places where the CD was developed, and I met the people who had brought this product to market. I also toured other research facilities and traditional LP plants. Later, I visited two labs in the U.S. and Europe where revolutionary new CD manufacturing methods are under development.

**Mix:** All the existing plants use an injection molding process to make CDs?

**Jensen:** Right. Polygram uses a slightly different technique, called injection compression molding, in which the disc is slightly compressed before the mold opens. In conventional molding, like everyone else uses, the mold is tightly closed, the liquid plastic is injected into the cavity, and the mold opens after the plastic cools and hardens. The Polygram process also makes a disc with no center hole—that's punched afterwards. If you look closely at a Polygram disc, you can see the slight stress area around the punched-out center. With the Japanese method, the hole is molded into the disc—a more difficult task.

*Peter Jensen checks out the world's first commercially produced Compact Disc outside the CBS/Sony factory in Japan.*

## AN INTERVIEW WITH PETER JENSEN





# 1975: THE YEAR OF 24-TRACK ANALOG



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—FROM PAGE 13, JENSEN

**Mix:** After your visits, how did you assess the manufacturing process?

**Jensen:** Extremely expensive, quite slow, and labor intensive. Every plant was using essentially the same approach, which was to make discs one at a time.

**Mix:** We should mention that your company intended to build a CD manufacturing plant in the U.S., but that you subsequently decided not to.

**Jensen:** First, I wanted to find out what the real costs of setting up a plant were, what equipment was required, and what the success rate was. After my tours, I decided the manufacturing process wasn't nearly as good as everyone claimed. It's also ridiculously expensive.

**Mix:** Have things gotten better since a year ago? Have they made refinements to the process?

**Jensen:** Yes, everyone's been working to improve the reliability and speed of the process. It's still very slow, although one European factory has achieved a ten second cycle time. But you still have power-hungry presses grinding out discs one at a time. The metallizing is accomplished hundreds at a time, but there is no continuous flow of discs.

**Mix:** How about the problem of clean rooms?

**Jensen:** Clean rooms are a major headache. They're very expensive, they have to contain a tremendous amount of equipment and people work in them, shedding thousands of particles an hour. It's very difficult to keep the environment as clean as CD manufacture requires, and the raw CDs coming off the press have a high static charge which tends to attract dust. This makes manufacturing difficult and success uncertain. Making CDs this way is more like manufacturing semiconductors than making LPs.

**Mix:** Given all the drawbacks, there are still about a dozen plants in the world, with a production capacity of about 45 million discs per year. . . .

**Jensen:** Okay, but that's capacity, not actual production. If we could make 45 million good CDs right now, the record companies wouldn't be scrambling to find production space.

**Mix:** Fair enough. At some point you stumbled upon some alternative manufacturing methods.

**Jensen:** Yes. While these hadn't been fully developed yet, they offered potential for the future and were much faster than injection molding. The speed of manufacture is critical, because if the CD is going to become the vehicle for electronic publishing, then rapid and reliable manufacturing is essential.

**Mix:** Tell us about ComDisc.

**Jensen:** We had been told by Philips, and others, that there was a new process under development in California, but no one seemed to feel it was anything we should pay much attention to. ComDisc claimed to have a process which would revolutionize the industry. Based on what I'd already seen, and having met the people who invented this business, I didn't hold much hope. I was completely

*"ComDisc and DocData have revolutionary processes, and the big manufacturers find it hard to believe these little groups could have hit on something. Would you believe you could replace most of the Polygram factory with one press the size of a refrigerator?"*

surprised by what they'd accomplished. It was far beyond what the industry had indicated they were capable of. We learned they had made CDs back in 1982. Everyone thinks the first U.S. discs were made in Terre Haute, but that's not true. These are very bright people, and it was clearly a future-oriented process. It was in-line from raw plastic to finished disc, and offered a really rapid rate of production—more than one disc per second. A little later I heard about DocData, in Holland, who were also working on a continuous process and I visited their laboratory. They, too, were developing a process with great potential.

**Mix:** These are both continuous processes. . . .

**Jensen:** Right. They continuously make discs by impressing the data on a moving sheet of plastic—like a printing press—and the press is very small. ComDisc indicated that one of their presses could produce more than the entire Polygram factory, yet it could be lifted by two people. The DocData system is quite differ-

ent, but it, too, is very compact. The DocData discs are unlike everyone else's in that the pits are filled with gas and the reflective layer is flat. It's the change in index of refraction from gas to plastic which signals the logical transition from 1 to 0, instead of the difference between pit and land on other CDs. Their discs are read correctly by regular players, though. Both ComDisc and DocData use a continuous ribbon of plastic, either pre-formed or extruded on-site, and chop the discs out of this ribbon like cookies out of dough.

**Mix:** How did this spring up from nowhere?

**Jensen:** Actually, it's been around for about ten years. ComDisc has been using a similar process in the manufacture of other products, like diffraction gratings, special effects filters for photography and holograms. DocData is much more recent, but they started out developing an optical tape memory and moved into CD.

**Mix:** Do you see any fundamental obstacles to the development of these new technologies?

**Jensen:** You have to expect that scaling up to mass production will reveal problems you can't foresee, but I don't see any real inhibitions to the usefulness of the basic processes.

**Mix:** I understand that ComDisc is currently making CDs in a garage under the Santa Monica Freeway. What's the next step in their development?

**Jensen:** They're looking for money right now, but by the time this article is published they should be well on their way. Their joke is that they've spent hundreds of dollars on R&D. Considering what they've accomplished, this is nothing short of incredible. DocData raised their venture capital last year, and they now employ 16 people in a concerted effort to build the first of their production presses.

**Mix:** If these new processes are so spectacular, why haven't the big companies bought them up?

**Jensen:** I think there's a lot of skepticism here. The major manufacturers have seen how incredibly difficult it is to make CDs their way, using injection molding. And remember, injection molding is a process used around the world in a million ways. ComDisc and DocData have revolutionary processes, and the big manufacturers find it hard to believe these little groups could have hit on something. Unless you examine it, would you believe you could replace most of the Polygram factory with one press the size of a refrigerator? Recently, though, all the major manufacturers have been looking a lot closer at these groups.



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—FROM PAGE 14, JENSEN

**Mix:** Obviously you're of a different opinion.

**Jensen:** When I left ComDisc, after my first visit, I knew I'd seen the future of Compact Disc. When I visited DocData, it confirmed that there were better ways to make CDs.

**Mix:** The discussion gets more interesting when we note the shortage of CDs.

**Jensen:** The shortage of production capacity. On the one hand you have the stores discounting CDs to \$12 and \$13, and on the other hand the record companies can't get as many pressed as they want. While the market is expanding, and the retail price dropping, the cost to the record companies hasn't dropped at all, except to CBS, who built their own plant.

**Mix:** I'm sure they're all making plans to increase production capacity.

**Jensen:** Yes, but that takes time. Constructing clean rooms, particularly, is neither easy nor quick, and injection molding requires huge clean areas.

**Mix:** Let me try to understand something. You're not saying that we couldn't use injection molding to meet demand, only that it would be more cost effective to use the continuous printing processes.

**Jensen:** Right. Injection molding might have a future, but I question the economics of that future. I don't believe you could build a \$20 million plant today and pay for it before these new processes come on-line.

**Mix:** What kind of timetable do you estimate?

**Jensen:** I think both ComDisc and DocData will be making commercial discs before the end of 1985.

**Mix:** What kind of capacity should we look for?

**Jensen:** Hard to predict. What seems important to me is that a \$20 million investment in a traditional style plant makes no sense whatsoever at this point. The architecture is so unique, with the huge clean rooms and numerous molding presses, that there would be no way to build it, pay for it, and convert it to continuous printing. You have to go one way or the other. Here's some food for thought. I visited the Arthur D. Little consulting company, in Cambridge, to see about a market survey to determine the future of CD and CD-ROM. Like everyone else, I was unprepared for how quickly the market has caught on! They turned me around, and said that what I really wanted to know wasn't what the market would be in 1987, but what everyone could do to expand this market, as quickly and smoothly as possible. If you look at it this

way, you realize that what's needed is rapid, reliable and inexpensive manufacturing which yields a higher quality product. Injection molding doesn't seem to fit the bill here. Those plants which are operating don't achieve any real economies of scale, and still have too high a reject rate. Look at the tremendous problems CBS/Sony has had at Terre Haute. CBS is still buying CDs from Japan, after spending millions to build an American plant.

**Mix:** Let me try to get a handle on this from the consumer's standpoint. When I go into a record shop I see racks of CDs, more than I could ever afford, so I don't see a shortage per se. Would more efficient manufacturing result in a wider selection and lower prices?

**Jensen:** In the future, yes. Processes which can make a CD every second ought to be able to make them cheaper. Also, these new processes require less power, equipment and people.

**Mix:** Any speculation on cost projections?

**Jensen:** In the long run I see no reason why a CD won't cost the same as a black vinyl LP. That won't happen overnight, because there's a development curve involved. Right now it costs more than four times as much to make a CD as an LP, but CDs don't retail for four times as much.

**Mix:** In your opinion, is the present undercapacity hurting the growth of the CD market?

**Jensen:** Undercapacity and injection molding contribute to the high price of CDs, which limits the steepness of the growth curve. Price and production balance each other in the marketplace. If CDs sold for \$9 today, there wouldn't be any left in the stores and that would be serious, but at \$15 a disc limited production isn't critical. This is a temporary problem; within a year we'll see a revolution in manufacturing from ComDisc and DocData. If one press can equal the entire production from Polygram, think of what four presses in a small plant could do.

**Mix:** How will the introduction of CD-ROM affect the equation?

**Jensen:** In 1985, CD-ROM will be a small part of the market. In 1986, CD-ROM will be bigger than anyone except Ed Rothchild expects. Given the present confusion about how to format the data how to get these discs made and what the costs will be, it will be a slow year. The format has only recently been finalized, and samples of the players are just now being made available. Player interfaces haven't yet been standardized. By the time CD-ROM is ready to really expand, in 1986, these new processes will be ready to make them.



**Mix:** Apparently 3M has their eyes on CD-ROM.

**Jensen:** 3M will help the market a lot, because they're a top company and have the expertise to guide customers through the production steps during these early days. And their production capacity will take the burden off the music CD factories.

**Mix:** When will 3M come on-line with CD-ROMs?

**Jensen:** They'll be producing by the time this article comes out. Their process is a 2P, or photo-polymerization method, similar to their Videodisc manufacturing. It's a process they've used very successfully, but it's too slow for any real volume.

**Mix:** I know you're quite a proponent of CD-ROM.

**Jensen:** CD-ROM offers the incredible combination of sound, data and images. This could be used in a fantastic variety of ways, limited only by the imagination and creativity of their producers.

**Mix:** What words of hope can you offer to people waiting in line to have their CDs pressed?

**Jensen:** Well, the new processes are coming along rapidly, quicker than most people realize. Of course, the existing plants will go to more shifts, and more days, and more equipment. Hopefully, this combination will end the crunch before the year's end. All this will help the record companies, too. Right now there's no price competition between the factories, because they can't make enough discs to satisfy the demand. A record company which pays an overseas plant \$2.50 for each disc isn't really making much money.

**Mix:** I don't think Sony developed the Compact Disc for tax purposes.

**Jensen:** Certainly not, but Sony and Philips make their money selling players, not discs. There's a bright future for Compact Disc, in both music and electronic publishing. I believe CDs will replace records faster than anyone imagines. People who buy a CD player just about give up buying LPs, and an enormous amount of data can be placed on a CD for a very little cost. You could create a phone book for all the boroughs of New York City on one CD, and it would weigh less than an ounce. Or the entire encyclopedia. On CD-ROM, the encyclopedia would cost only a few dollars. Imagine the cost of printing that on paper, not to mention the hundreds of acres of trees which have to fall. Information and knowledge could be more widely distributed than ever before in history. This could be as revolutionary as the invention of Guttenberg's printing press. The future of Compact Disc hasn't even been imagined!

# "With the 6120 I have control over my quality"

Dameon Higgins founded Delta Sounds and Video in 1976 after 10 years in broadcasting. This radio experience and his uncompromising audio standards quickly established Delta as a very successful recording studio and entertainment sound service in the Orange County/LA area. Although the company specialized in supplying complete custom sound programs and systems for school dance DJs and Discos, it wasn't long before Dameon found himself turning down a lot of *tape duplicating* requests. The high quantities were not practical for "real time" duplicating, and the jobs that he "farmed out" to high speed duplicating companies often came back to hurt his image.

Eventually, because of missed profit opportunities and a frustrating lack of control over

quality, Dameon decided to install his own high speed duplicating equipment. He looked carefully at every product on the market and finally selected the Telex 6120, seven slave, 1/2 track cassette-to-cassette model. He knows that he can add on to his system as his business grows, but for now his 6120 can copy up to 280 C-30s in one hour, and is easily operated by one *non-technical* employee because of its compact size, single button operation, jammed or short tape warning lights and automatic master rewind. Dameon hasn't regretted his decision for one moment because he now has a thriving additional business of duplicating voice and DJ audition tapes, seminars and syndicated radio programs. Now he reports a zero reject rate and his quality image is under *his* control where it belongs.

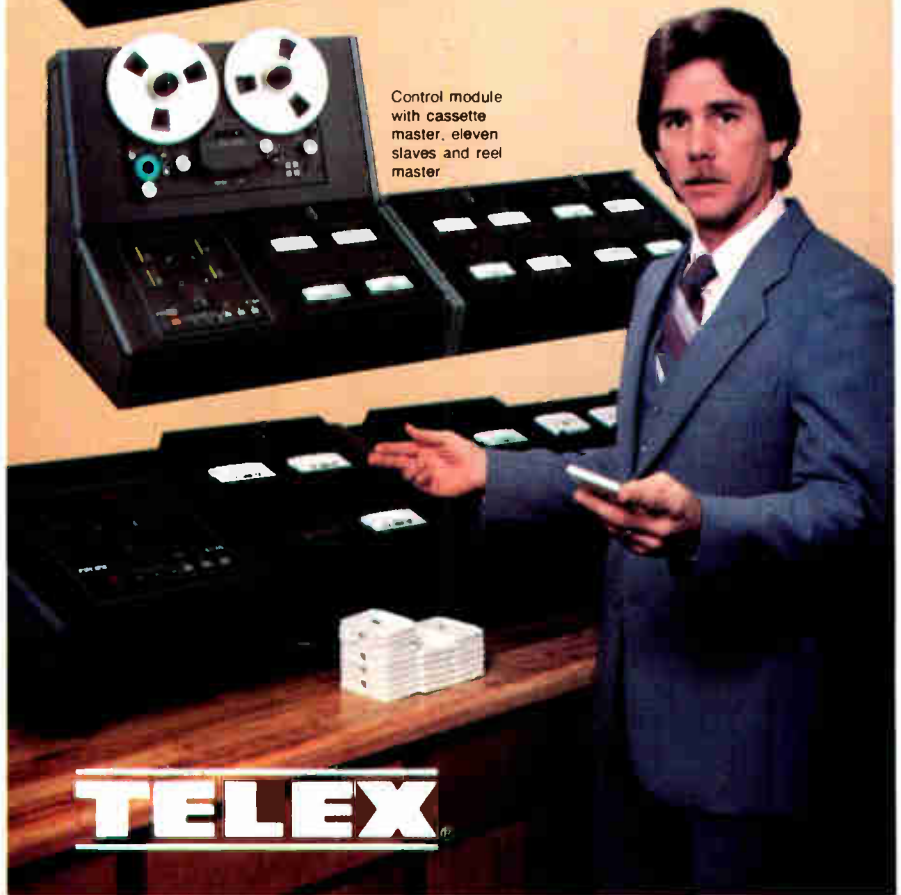
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## ORIENTED STUDIOS

by Larry Oppenheimer

Charles Darwin accurately portrayed evolution as being both merciless and relentless. This concept is universal in scope, extending far beyond the animal kingdom, even into that synergistic amalgam which we call the recording industry. Technology is the most visible manifestation of this: machines that reigned supreme in the studio last week are now in Studio B, or, even more ignominiously, on consignment at the used equipment outlet nearest you.

Consider the rise of the synthesizer. When this novel invention first burst on the scene in a big way, around the late 1960s, many acoustic musicians were horrified and outraged. "This black box of boops and squawks is not a musical instrument," they protested. Very shortly thereafter, the real reason for their alarm became apparent: if one person with a synthesizer could make "any sound imaginable," then why should real string players or horn players, or any players at all be hired at union wages for a recording session? Some musicians in the New York Philharmonic even tried to ban synthesizers from use in the studios using this argument.

As we all know, there are still real string and horn players making just as poor a living now as they did before synthesizers came along, but let's face it: in today's modern recording studio, synthesizers and sampling machines really are used much more often than real string and horn sections. And what about drum machines? Aren't they showing up more and more instead of real drummers? Those guys in the New York Phil weren't that far off the beam, but that's neither right nor wrong, it's just evolutionary.

This is not a new phenomenon attributable only to the appearance of synthesizers; advancing technology has

always done this in the music biz. How many sackbut players do you find around nowadays? How about krumphornists? You can still find people studying harpsichord, but the percentages are a lot smaller than before the pianoforte came along.

Now that we have swallowed the bitter pill of obsolescence carried by technological evolution, let us turn to the bright sunrise colors on the other side of the coin. Older things are pushed out because newer and presumably better things arrive, bringing with them the realization of ideas that were just visionary dreams a short time earlier. Thus do we find ourselves poised on the cusp of a new musical age. (Strains of "Also Sprach Zarathustra," played by a ragged chorus of Casios and sampled kazoos, swell in the background.)

Computers, of course, are at the root of this most recent wave. AT&T was one of the earliest pioneers of computer technology, and they realized long ago that as soon as there are multiple computers in a given situation, it's time to make them able to communicate with each other. It is unfortunate that the music and audio industries could not learn from AT&T's experiences, but at least they have now begun to address the issue of communications between computers in the studio, and so everyone is having gobs of fun and migraine headaches doing things daily which would bring tears of joy to Mozart's sleepless eyes, and waves of relief to his cramped writing hand.

Out of the proliferation of synthesizers and the innovation of MIDI as a communications protocol, an interesting new breed of studio has evolved. Just as the flowering of video begat the editing suite, MIDI has spawned a new type of production facility, which shall be referred to here as Synthesizer Oriented Stu-

dios (SOS). These facilities are built around controlling networks of electronic musical instruments, resulting in the entire studio acting like one giant, flexible, very powerful musical instrument with a number of highly coordinated parts.

Electronic music studios have existed for years, but they were not often intended or able to function as commercial production facilities. The machines that were in them were typically slow to work on and very difficult to interface to one another. In the '70s, commercial synthesizers came into their own and control rooms began to run over with Minimoogs, ARP Odysseys, Prophet 5s and others of that ilk. Since virtually all commercially available synthesizers were keyboard oriented, most synthesists were keyboard players, and two new subspecies were born.

One was the multi-keyboard player and the other was the studio synthesist. Both were usually found at the bottom of an awe-inspiring pile of synthesizers, sequencers and associated gadgets, all of which were hard enough to keep working on their own, let alone trying to hook them together in any fashion other than the simplest master-slave triggering scheme. It was all way too expensive and barely worth the hassle. These were the people who sang the greatest Hosannas when drum machines and, finally, MIDI came along. It didn't cost any less than before, even though instrument prices have steadily declined, because of the added expense of new overhead costs like software updates, and the cost of new tools like personal computers and MIDI boxes of many hues. And there were still plenty of hassles, some of them problems that even the instrument designers couldn't figure out. But suddenly, some dreams of "I wish I could make them do this or that" became realities, and it began to seem



**Setups for Gary Chang (top half) and Robbie Robertson (bottom half)**

**GARY CHANG**

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 Fairlight CMI

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 Sansui power amplifier  
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**Signal Processing**

EMT 240 Gold Foil Reverb

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 Quantum 8x4x2 mixer  
 TEAC 6x2 mixer  
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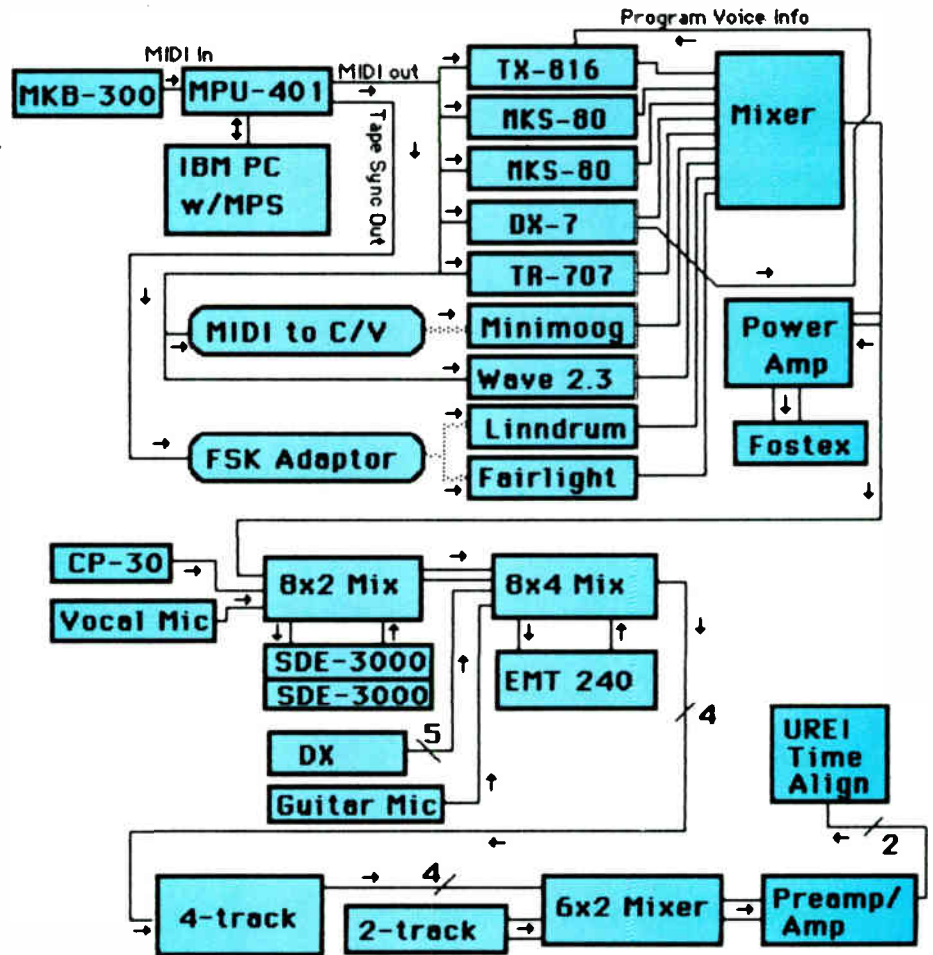
Emu Emulator  
 Emu Emulator 2  
 Fairlight CMI (with MIDI)  
 Oberheim X-Pander  
 PPG Wave 2.2  
 Sequential Prophet 5  
 Minimoog (w/J.L. Cooper MIDI modification)  
 Roland Jupiter 6  
 Yamaha DX7 (2)  
 Yamaha CX5 Music Computer  
 Yamaha TX816  
 LinnDrum

**Sequencing and Timing Devices**

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 Yamaha CX5 Music Computer  
 Fairlight Page R  
 LinnDrum

**Signal Processing**

AMS Digital Reverb  
 Roland SDE-3000 Digital Delay  
 BEL Digital Delay (w/8 second sampling)  
 Dynotronics Tri-Stereo Chorus



worth plunging into head first. Speaking to a few who have taken the plunge confirms that the idea is making quite a splash.

New York's Unique Recording is probably the best known all-synth studio at this point. Chief engineer Bobby Nathan explains how Unique is typically used: "We're using synthesizers in two main categories. One is the classic overdub approach to a project. We have projects here that go from day one to final mix, but we also get tapes in from outside studios where people are coming to us because we have a specialty. They might be looking for a special sound and haven't been able to get it, or the particular synthesist that they work with finds it enjoyable to work here because of our setup.

"The other category would be the client that comes here in a mix situation, that's unhappy with what he has got or just wants to try something conceptually different. We're not just talking about working with synthesis, but also with sampling. That would entail drum sounds, all kinds of percussion, special effects—I call them 'theater effects'—explosions, all these things. Someone might come and add these things in the mix, and instead of having musicians come back and play them, they're all triggered from previous performances."

Paul Fox reports the same two kinds of business coming into his studio. Fox is a Los Angeles studio synthesist who has credits ranging from Billy Joel to Motley Crue, the Pointer Sisters to the *Automan* TV series. About a year ago, Fox teamed up with Rick Stevens to build an SOS at Stevens' Summa Productions in the heart of Hollywood. The studio has recently expanded to a room large enough to comfortably hold the ever-expanding arsenal of electronic instruments and outboard processing, and still fit a half-dozen clients, engineers, and friends.

"It's about 50-50," says Fox of the breakdown between the two kinds of clients. "Cock Robin did 90% of their synthesizers here, that was overdubs to live tracks. At the same time I cut live tracks for an album I was co-producing with McFadden & Whitehead and then came in here and did all the synth overdubs. I co-produced some of Bonnie Hayes' stuff with Franny Goldy and we cut everything in here from scratch.

"I arranged and played virtually everything on two sides from Thelma Houston's last album, and those two cuts are kind of an indication of what's happening with the whole keyboard scene and with the studio, because on those

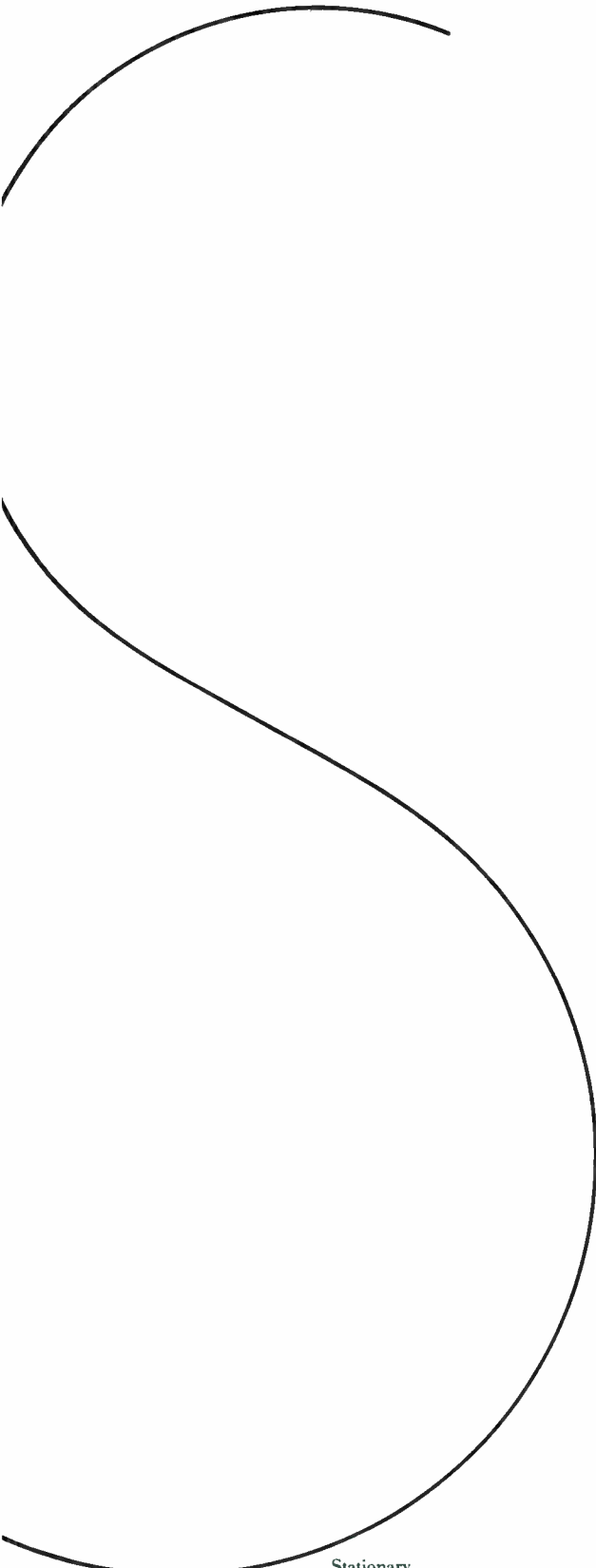
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—FROM PAGE 19, SYNTH STUDIOS

cuts the synthesizers and a guitar player are all there is. The drum machines are doing the drums, and the synths are covering everything from the bass to the rhythm parts and the pads."

Clearly there are a number of functional advantages to this kind of facility that account for their success. Mostly, it's those Three Cs of the studio: convenience, cost, and creative control.

Nathan thinks that part of the appeal of his studio is its flexibility to become whatever the client needs. "Unique is about supporting musicians that are using synthesizers to record with," he says. "In doing so, you have to have all the gear that makes them feel at home and the technology to understand all the different setups for each different personality. What it comes down to is this: there are a million different miking techniques for an acoustic piano. A concert artist will choose an engineer because of his miking technique, but that technique is just one of thousands. The one that particular engineer has is what would make

it accommodating. A synthesist can just walk in with his favorite presets and work with our gear very quickly."

Having the gear is definitely one of the keys to an SOS. All synthesizer overdubs for a project can be done in one place without time consuming setups and teardowns. Additionally, the expertise of the studio's personnel relieves artists of the hassles of dealing with the machines, leaving them free to concentrate on developing musical ideas.

Not only is using an SOS convenient, it is also cost-effective. "What you're going to pay for a room like this is a lot less than you would probably be paying in a major room in town," states Fox. "If you're working at Conway Recorders, the Record Plant, or somewhere like that, even at a 'deal' rate you're still going to be paying about \$100 an hour. Here, you pay about half of that for studio time. What we're doing here is working out a day rate, but it's basically as long as you want to work or as long as your engineer is willing to work. You're not going to get kicked out of the studio



Gary Chang

that artist want to record with him. It's the same way with synthesizers; with so many different kinds of synthesizers today having MIDI, and all the different combinations one can have, there's many different setups to suit different personalities."

Nathan also points out how much more convenient it is for studio synthesists to not have to worry about having, maintaining, transporting and setting up all the machines they need to use. "Cartage is a problem. The fact that we have the gear and it's all set up makes

because you booked 10 hours at \$50 an hour and your 10 hours is up."

Part of the reason that Fox can keep the rates down is that he does not have to maintain a room for acoustic recording, isolation booths, drum booths, and all the rest of the real estate that a full recording studio offers. In a regular studio, after finding room to set everything up and getting it interfaced to the console, the client is still paying for all those other rooms in the rate, even if (s)he is only doing synth overdubs.

One result of the lower rate is

the ability to spend more time working out details without an expensive studio clock ticking away dollars by the hundreds and without paying musicians double-scale to tell shaggy dog stories while you fix up an arrangement. Songwriting in the studio has finally become economically reasonable.

Predictably, removal of some of the time/money anxiety of studio work, combined with the immense musical possibilities of the new technology results in

---

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**Other Equipment:** Yamaha DX1, DX5, (3) TX816 racks, TX7, QX1, QX7, (2) RX11, (2) DX7, GS2 w/MIDI, KX88, KX1, KX5, CX5M computer and accs., (2) Emulator IIs, Emulator w/500 sample library, PPG Wave 2.3 w/16 bit Waveform sampling, Commodore 64 w/JMS, Music Data, Mr. T, Passport, SCI MIDI Sequencer's and Polywriter software, Apple IIe w/Pro DX (over 1800 sounds), Roland's M.U.S.E., DX-Heaven, CZ-Ryder, MIDI 8 Plus, Polywriter, and Eventide Real Time Analyzer, IBM PCXT 640K w/Roland MPU-401 MIDI Interface & Software: Voyetra Editor and Sequencer, Personal Composer, Roland's MPS, Super Jupiter Editor, Texture, Sight and Sound Sequencer, Mimetic's DX-Patch, Rev-1 editor, Linn 9000, LinnDrum, DMX, DSX, the Movement Drum Computer, Polysequencer, Microcomposer, Drumulator w/MIDI, J.L. Copper's Sound Chest II, Roland TR-707, TR-727, TR-808, TR-909, Super Jupiter, JP-8, Juno 60 & 106, JX-8P, JX-3P, Prophet 5, T-8, OBXa, OB-8, Oberheim X-Pander, Matrix 12, Voyetra 8, Casio CZ-101s, Poly 800, Korg DW6000, The Oscar, Memorymoog Plus, Midimoog, 7 piece SDS-7 Simmons Drums, Simmons Eprom Blower, Roland GS-700 MIDI Guitar/Controller Synthesizer. IVL MIDI Pitchrider and Fairlight's Voice Tracker. Fairlight and Synclavier available. Rates: Please call for rates.



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a more creative atmosphere for the artist.

"If someone walked in and didn't even have the idea of using a drum machine or a sequencer, we would try to show that technology to them," Nathan enthuses. "It excites us because it does open up creativity on the spot. It's new technology and it definitely inspires a creative person to come up with something that wasn't planned."

"Just to give you an example, Paul Shaffer from *Late Night with David Letterman* was in doing a soundtrack with Ronnie Spector, and we showed him some music compositional software and sequencing: the Roland MSQ700, Jim Miller's Personal Composer, and the Music Processing System from Roland. He had never planned to do the project using sequencers or any of this other software but it opened up a whole new line of thought."

Fox also sees the spontaneity factor as being a benefit. "We're looking for people to be able to go in the studio and just be hanging out, maybe a couple of writers will just happen to be there, and all the stuff will be plugged in and turned on. . . . conceivably a song could be demoed as it's being written or right after it's written. Sometimes we'll spend a lot of time with everything hooked up,

with all the effects, to just experiment. I'm really into experimenting and trying a lot of different things with all the gear."

The variety of situations encountered at Unique or Summa stretch the boundaries of the new technology in many ways, but the limitations of the commercial world make difficult the in-depth, focused type of compositional applications that Gary Chang is doing.

Chang has been involved in computer music since the early '70s when he was at Carnegie-Mellon Institute. He continued his studies with Morton Subotnick at Cal Arts, and also spent two years as a product specialist for Fairlight Instruments in their early days. More recently, he has done synthesis work on records and, increasingly, in film. Chang worked as a staff synthesist/composer on *The Never Ending Story* and *Electric Dreams* at Giorgio Moroder's Oasis Studio, and has worked on soundtracks for *The King of Comedy* and *The Breakfast Club*.

The soundtrack on *The King of Comedy* was put together by Robbie Robertson, the one-time leader/songwriter for The Band, who has been doing film music for some years now. Robertson first met Chang during his last days at Fairlight, calling him shortly thereafter to

program and add synthesizer parts to that film's score. The soundtrack had songs by a number of different artists, including, of course, one from Robertson.

"On Robbie's song ('Between Trains'), it was the first time we actually did this particular function," recalls Chang, "which is to take the song and try to render it into something that we thought was going to be what the song is like."

The experience felt good to both of them, causing Robertson to think of Chang when he started *American Roulette*, his latest project. "I was using him on a couple of things and it just seemed to work well, so we tried it on some other things," Robertson says simply.

Constructing a synthesized demo of a song and then recording it with live musicians is not, in and of itself, something new and unheard of. However, the idea grew. Somewhere over a year ago, a story idea came to Robertson and he decided to write songs for it. He took the idea to his friend Zalman King, a screenwriter. King had a similar story which he had wanted to develop, and so *American Roulette* was born. At the time of this writing, the screenplay to *American Roulette* had just been finished, but the songs are well underway already.

"For this kind of a project," ex-

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*Paul Fox*

plains Robertson, "I needed to have a workshop situation, where I could write, meet with people, try out stuff, talk them down, and take the songs as far as I needed to take them to find out if they and the idea would work. In doing this, I talked with Gary Chang. I thought that I would get Gary to help me make sketches of the songs. He could program all the chords, all the rhythms, the bass parts that we hum—anything that I would hear that was built into the song or could possibly be built into the song. He would then feed that into the computer and it would play it back for us.

"It takes quite a while for him to program all the stuff in, but when he does, I get this replay and I can sing against that and think if it's really going somewhere. It's so important in this kind of thing that the ambience and the drama of the songs are there. So much of it is based on mood that when it comes on, you can tell in two seconds if it nails it or not, if its got the flavor that feels like it's going to work. We started trying that, and as we went along we got a little better at this whole thing. Now the sketches are quite extraordinary. It's also helped me finish the writing on some of these things, and to figure out what to go ahead with and what not to."

The setting for these experiments was a two-room songwriting suite which was constructed for Robertson above the Village Recorder in Santa Monica, California. The two rooms originally had been the Village Recorder's first studio, a small 16-track. This was gutted, except for the control room glass, and remodeled as a sort of office atmosphere. One room was set up for Robertson to write in, and the other as a meeting

room. Chang soon took over the second room and set up his synthesis rig.

The two rooms are sometimes used independently and sometimes in

tandem, as Chang elaborates: "When I'm working on different things in different songs than Robbie is, to work up arrangements or even songwriting elements, we'll close the double doors and we'll have two separate studios with separate monitoring, and I'll work in my room and he'll work in his. But once we've gotten to the point where we have the "basic track" in the computer and ready to go, then we lock up the two rooms using a 24-pair snake that connects the two rooms through the Tapco mixer." (See block diagrams)

The synthesized tracks are then simultaneously printed onto the back two tracks of a 4-track tape recorder and onto a 2-track digital recording system. Robertson then lays guitar and vocals onto the other two tracks of the 4-track machine. If he wants to try a different approach, the "basics" can be cloned from the 2-track to a new section of the 4-track and the process repeated as often as needed. This system is quite efficient, as Chang does not have to wait for Robertson to write, and Robertson does not have to wait for Chang to program.

Chang's setup epitomizes the state-of-the-art, consisting of a number of different kinds of synthesizers and drum machines, a MIDI mother keyboard to

—PAGE 54



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*During the course of the year, San Francisco Light Works runs shows for a broad range of corporate clients. Here, Matt Watson sits at the board in front of banks of slide projectors at Peterbilt's national dealers meeting.*

## Multimedia Production for the Corporate Client

by Philip De Lancie

**“B**ig Business.” For some, the term conjures images of avaricious tycoons carving up the economic pie with little regard for everyday folk. For an increasing number of professionals in the communications industries, however, the words “corporate client” spell relief from the hype and instability of the world of entertainment production. As high technology continues to infiltrate the home and workplace, corporate consciousness of audio and visual media continues to grow. “Fifteen years ago,” says Jay Mitchell, president of the multi-media production company San Francisco Light Works, “even the most exciting information was presented in mundane ways. Now the average corporate executive has a VCR in his living room. People expect much more now in terms of presentation.” The job of meeting those expectations is becoming big

business in its own right.

Today’s audio/visual field encompasses a great diversity of methods and messages. While providing entertainment is one aspect of multi-media presentation, entertainment is usually primarily a means to an end. “Essentially,” says Mitchell, “our purpose is to present information in such a way that the audience enjoys and remembers it.” Clients commission presentations with the intent of communicating facts, ideas and feelings. The specifics of goal and message depend on the identity of both client and target audience.

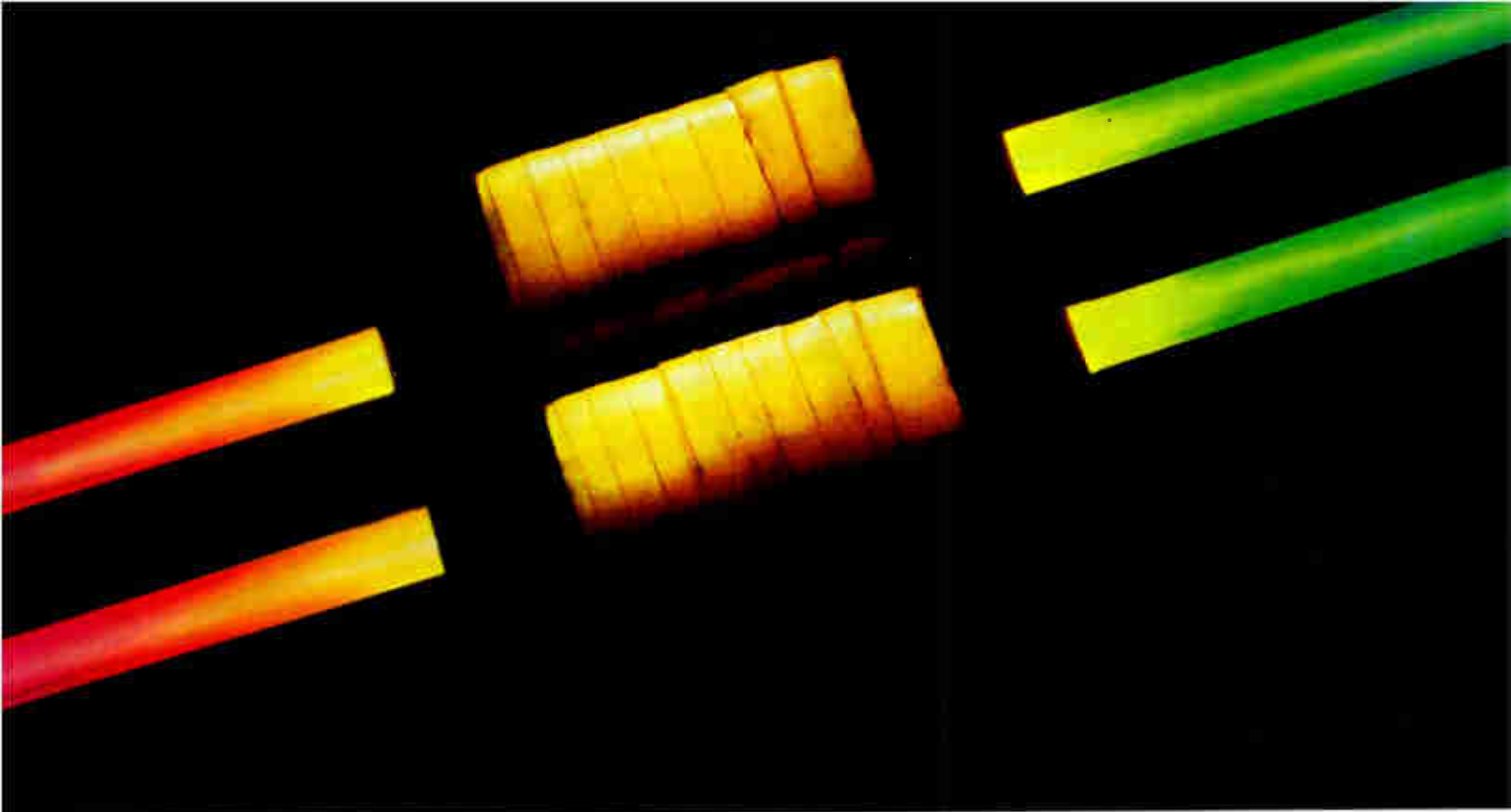
For Mitchell, getting to know the client is an important preliminary to presentation development. “I’ll get a call from the corporate communications officer of a company asking if it would be possible to meet to discuss our designing a show for them. Before I go to that meeting, I make sure to find out what I can about the company—how it’s doing financially and what kind of image it’s projecting. It’s easy to get an annual report.

We also have financial analysts that we talk to. It’s really a matter of courtesy to the client, who has already taken the time and effort to find out about us.” Light Works, co-founded by Mitchell in 1969, counts Motorola, Korbil, and Amfac among its business clients.

At the Media Services Division of Bank of America, client research is rarely necessary. “Our primary goal,” says Pedro Padua, a consultant to Media Services’ San Francisco and Los Angeles operations, “is to provide audio and visual production and support to in-bank clients such as BA Travellers Cheques or personnel management.” As component parts of the nation’s largest bank, these divisions are substantial businesses in and of themselves. Media Services treats them as independent entities, billing for work provided as if it were an outside vendor. In 1984 Media Services began accepting out of bank clients as well, but in-house activities continue to dominate.

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to meet internal needs. But Chevron, through its public affairs department, also produces materials for distribution throughout the nation's educational system, carrying on a tradition dating back to the inception of the Standard School Broadcast more than 50 years ago. Recently, much of Chevron's effort in that area has been handled by the San Francisco based production team of Jackie Baldwin and Mariah Marvin. "The Chevron situation," says Baldwin, "is unique in terms of the quality of the programs, the amount of money they devote and the lack of any kind of censorship. No matter who you work for, there is no program that doesn't have to go through some kind of approval process; but for example, on the half-hour program we completed for them last fall, they asked that we change only one word."

While philanthropic benevolence may be of interest to Chevron and a handful of others, the vast majority of media production for corporations relates more directly to their business needs. When those needs reach beyond the resources of in-house production departments, businesses turn to independent specialists like SF Light Works or McCune Audio Visual. McCune is the largest supplier of audio visual equipment on the West Coast. In addition to rentals, McCune also designs, installs and operates sound reinforcement, com-

munications and visual presentation systems. Many audio-only installations are permanent, but the majority of audio/visual systems are for short duration events in business settings.

While business clients may be the source of bread and butter work, independent AV providers are also involved in projects with much broader exposure. McCune's production services manager, Mike Neal, gives last year's Democratic National Convention as one illustration. For SF Light Works, the introductory multi-image presentation at the Monterey Bay Aquarium, with a projected first year attendance of nearly two million, exemplifies the higher profile of extra-corporate work.

Corporate or otherwise, the first step in the development of a presentation is the definition of goals. Working with the client, the designer must address two basic questions: "What is the message?" and "Who is the audience?" At B of A, communication with the general public through broadcast and print media is handled by advertising. The target audience for Media Services is narrower. While some production is directed at bank customers, the rest is for officers, shareholders and employees such as management team leaders, sales people and branch personnel.

Presentations directed at management often stress techniques of lead-

ership, teamwork and employee motivation. For the sales force, materials are developed to improve sales techniques, as well as to point out the strong selling points of B of A services. Media Services also produces audio visual aids for use by salespersons in the field. Meanwhile, branch employees are targeted in areas such as use of equipment, banking procedures and employee safety. Also distributed to the branches are materials for familiarizing customers with features of B of A accounts or loans.

Beyond conveying specific information, many presentations are prepared with the idea of installing pride and creating incentive. Top grossing sales people and hard working managers are recognized for their accomplishments and displayed as good examples to their peers at meetings and conventions. Company achievements and values are reviewed, and prospects for the future previewed, for stockholders, analysts and potential investors. For producer/designers, in-house or independent, this can be one of the most critical areas of work. In concert with their colleagues in advertising, presentation designers play a crucial role in shaping one of a client's most valued assets: its image.

Once the message and audience are defined, preproduction focus shifts to the means of presentation. Possible formats include video, film, overhead projection, film strips and multi-image or single projector slide shows, any of which may be used in combination with audio and/or each other. Budget, the presentation situation and the inherent properties of the medium are among the important factors to be considered.

"Each medium has a different impact," says McCune's Neal. "Slides give clear, sharp, dramatic images. There's a lot you can do with multi-image using the computer techniques now available." On the other hand, "video has a more immediate, realistic feel. . . People relate to it like the live TV news they watch in their living rooms." Use of both video and multi-image is on the increase in the industrial shows and sales meetings staged by McCune. Film projection, despite its greater clarity than video, has fallen off, as have audio-only productions.

The same trends are in evidence at SF Light Works. Multi-image makes up the largest portion of their work and is "holding steady." Mitchell cites handsome graphics, image clarity and greater possible projection size as reasons for multi-image's popularity, as well as the relative palatability of production budgets. For salespersons in the field, Light Works creates presentations for projection on portable Road Show or Wollensak systems. Composite-image slides may be used for a multi-image feel in a single projector format. With regard to moving images, "We're doing more

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World Radio History

and more video and less and less film. Using video, the clients can see the takes immediately and get more involved with the process if they wish."

Often, formats are combined to take advantage of the best features of each. At McCune, for instance, some combination shows are designed using one audio track on a video cassette for cue and position data which can be interpreted by slide projector controllers. Rolling the VCR begins playback of an integrated presentation which, once set in motion, requires no operator involvement. Video and slide images can both be projected on the same screen, one after another or superimposed. The data track on the videocassette ensures that all events are synchronized precisely as originally programmed.

In some situations, a particular choice of format is dictated by the intended distribution channels or presentation setting. While combining video with multi-image may produce spectacular results, the convenience and flexibility of the simple videocassette is unsurpassed. With the number of VCRs in homes and schools mushrooming annually, video makes a great deal of sense as a format for wide dispersion of audio/visual material. One indication of the trend in that area is the fact that Chevron is no longer producing the film strips which were for many years a staple of the educational AV diet (though existing strips are available). As Jackie Baldwin explains, "There is less demand now for film strips. Most schools are really in the modern age." Video makes possible direct distribution on cassette to school districts as well as transmission via educational satellite systems. For instructors and students, the ease of simply pressing "play" and watching the tube makes video a particularly "user friendly" medium.

Regardless of format, much of the preproduction activity remains the same. Concepts are developed; scripts are drafted, revised and approved; talent and production facilities are lined up. At B of A, extensive facilities allow most projects to be completed in-house. Media Service's San Francisco home features two video studios, two control rooms, one with Epic 1" editing, two off-line editing rooms (1" and 3/4") and a computerized matrix for signal routing between five 1" and 25 3/4" video decks.

Media Services is also equipped with its own multi-image production area. At the heart of their system is the AVL Eagle 2 computer. The Eagle commands three AVL Doves, each of which controls carousel position and lamp intensity for a stack of three Kodak Ektagraphic projectors. At SF Light Works, the Arion system, though different in design and operation, is used in much the same way as Media Service's Eagle. Light Works' Monterey Bay Aquarium

show provides an interesting illustration of the process.

Light Works began by reviewing 15,000 underwater shots from the collections of aquarium staff and associates. An initial pool of 400 were selected and grouped by marine habitat. Light Works photographers supplemented these images with overwater shots of the region. Mitchell then worked with marine biologist Robin Burnett to develop a script evocative of the world beneath the surface of the bay.

Soundtrack production began with script narration by William Conrad. Music, normally drawn from library sources due to the expense and complication of commissioning original work or negotiating rights for commercial releases, came in this case from the Windham Hill catalog by special licensing agreement. Mitchell talked through the moods of the habitat segments with music consultant Charles Woods, who then searched the catalog for appropriate selections. These were laid up on multitrack and eventually mixed with narration to a 4-track tape.

With slides laid out on vertical light trays, Mitchell then sequenced and edited images while listening to the soundtrack. Next, a series of commands were entered on an Arion 848 Micro Programmer, referenced to a time code or "lock track" recorded on track 4 of the tape. Two Arion 804 controllers, similar to AVL Doves, would eventually translate this programmed command data from the 848 into carousel movement and light intensity changes for eight projectors. Not until the skeletal programming was complete, however, were slides loaded into the Ektagraphic carousels. Then, in a process analogous to automated audio remix, the originally programmed balance and timing of images could be updated while viewing. Dissolves, cuts and superimpositions were all "tweaked" for optimum coordination with the soundtrack.

The final show has been installed on site since the aquarium opened in October, 1984. The audio and lock track playback machine is a Tascam 4-track cassette deck. Its audio rewind feature allows the eight-minute show to be repeated more than 50 times a day without an operator. The Arion 804 controllers are commanded by an Arion 852, which utilizes the reliability of ROM (Read Only Memory) chips for program data storage. As of mid-March, the presentation had survived more than 8000 showings without technical difficulty.

Reliability, obviously crucial for heavily played installations, is equally important for one shot presentations. Clients may spend hundreds of thousands of dollars producing and staging gala media events at trade shows, sales conventions or product introductions. Pre-

sentation producers are responsible for integrating a multitude of audio, video and multi-image sources into one seamless whole. As McCune's Neal says: "Everything has got to be right the first time."

McCune's involvement in concert sound reinforcement has provided a natural foundation for trade show and convention work. However, as described by Neal, while concert production focuses primarily on one large sound system, corporate work is usually more diversified. The PA systems tend to be smaller, but the variety and distribution of sound sources tends to be wider. Microphones, possibly from many locations throughout a facility, are frequently combined or interspersed with pre-produced audio from video or multi-image playback. McCune uses matrix output boards like the Yamaha PM 2000 to mix different feeds for distribution to numerous scattered destinations.

For visuals the use of several large screens is not uncommon. Multi-image projection command data may be stored along with time reference and audio tracks on a 4-track open reel tape to reduce the need for bringing programming computers on location. Video may be shown with large screen projection systems, like the Barco or the GE 5055, and also routed to widely dispersed monitors.

Adding to the potential complexity of a set-up is the ability to use teleconferencing to link simultaneous gatherings in distant locations. Media Services recently provided technical support for a four hour nationwide conference on health in the corporate environment. Groups meeting in 23 cities viewed live programming, originating in Washington, DC, transmitted via satellite to local microwave dishes. Two way audio allowed input from participants in any receiving city to be heard in all other locations.

Naturally, with so much time, energy and money going into production and presentation at corporate and industrial gatherings, many clients are eager to have a record for posterity. Photography, audio and video recording are all used to capture bits of history for corporate archives. This documentation also serves as raw material for future production. Today's awards ceremony can be (and often is) tomorrow's multi-image show.

As the business world progressively awakens to the abundant possibilities of AV technology, corporate dependence on creative production personnel is likely to increase. "When we started Light Works in '69," says Mitchell, "one of our goals was to bridge the gap between the business and artistic communities." That goal appears now less distant than it once was. Big business is definitely tuning in, and the future of corporate media production seems bright. ■



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# Digital REVERB

PART TWO

how it works

BY GARY HALL, SONY CORPORATION

Digital reverberation has become the predominant form of artificial reverb since its introduction in 1977. A high degree of flexibility, small size, and low cost (relative to the purchase price and associated overhead of live chambers, springs, and plates) are the primary advantages that have caused this fast rise to the top. In spite of a huge amount of writing on the subject of digital audio, there has been no material explaining the operation of digital reverb in popular terms. In an attempt to fill that gap, the first portion of this article will survey the hardware and software requirements of a digital reverb system. The second will look at how one representative system incorporates these elements in a successful design.

## DATA CONVERSION

Much has been written about analog-to-digital (A/D) and digital-to-analog (D/A) conversion for audio, and no attempt will be made to repeat material readily available elsewhere. The designer of a digital reverb system, however, has a few considerations not present for delay or recording devices.

*The Sony DRE 2000A consists of a rack-mount processor and a full-function remote unit, providing four reverberation modes, two echo modes and two delay modes—each with a wide range of programmable parameters. The unit's microprocessor performs the high-speed computations required for the simulation of many acoustic environments.*

The primary consideration in data conversion for reverberation applications is that the resulting digits must be suitable for *arithmetic*, in this case, multiplication, addition and subtraction. Generally, this means the converter should be linear, with a coding of bits free of abstruse data compression that makes calculation difficult. This requirement generally excludes systems that use companding or non-linear conversion, which are popular for low-cost delay

lines. Likewise, delta-modulation, used for some delay and "maverick" recording systems, produces data which is very awkward for computation.

Several reverb systems on the market use digital "gain ranging" for A/D conversion, but require extra internal circuitry to convert from "mantissa and exponent" form into linear data. The optimum form of conversion for reverb is the same as that used for the Compact Disc: Linear PCM.

In order to compete in a severely price-conscious marketplace, many manufacturers adopt lower sampling rates and narrower word lengths than the 44.1 kHz, 16 bit system adopted for consumer/professional use. This can be done in systems that are still suitable for professional use because reverb is a side-chain of the production process, generally requiring less bandwidth and dynamic range than the main recording chain.

Adoption of less stringent conversion standards leads to considerable overall savings in the total system because it affects the cost of: a) the converters themselves; b) memory; c) computational circuitry; and d) power supplies. This is not to say that full audio performance is not desirable in a reverb system. It is. Fortunately, we are now seeing rapid cost reductions in a, b, c, and d, which means that we can look forward to high quality audio in even less expensive reverb systems in years to come.

## MEMORY

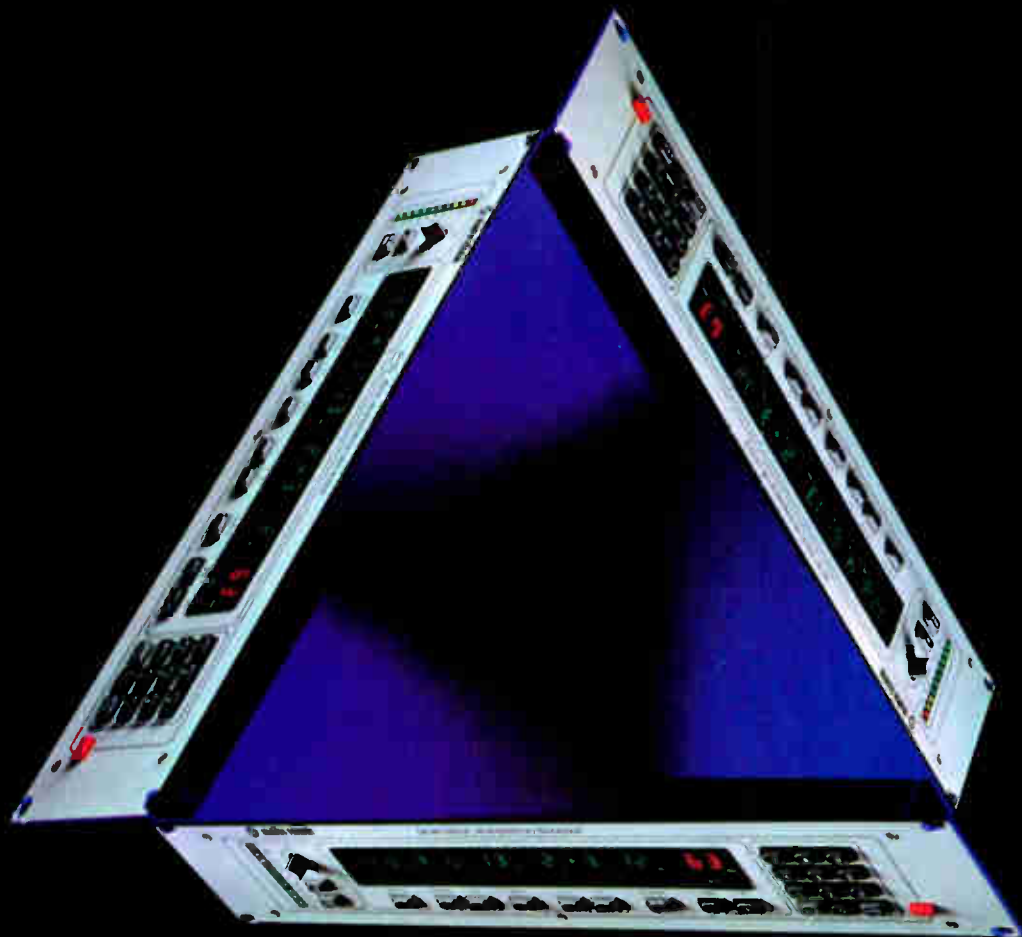
Every digital reverb requires a bank of read/write memory for delay, which is used to emulate the propagation





# A small universe

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## Create space The DN780 – Reverberator/Processor

Klark-Teknik's ongoing investment in research leaps into the age of variable space with the new DN780 reverberation simulator. Its *Very Large Scale Integration* technology and a superfast *Digital Signal Processor (DSP)* allow the world's first practical application of specifically developed algorithms, creating "added density"<sup>TM</sup> reverberation: reflections with much smaller intervals between them.

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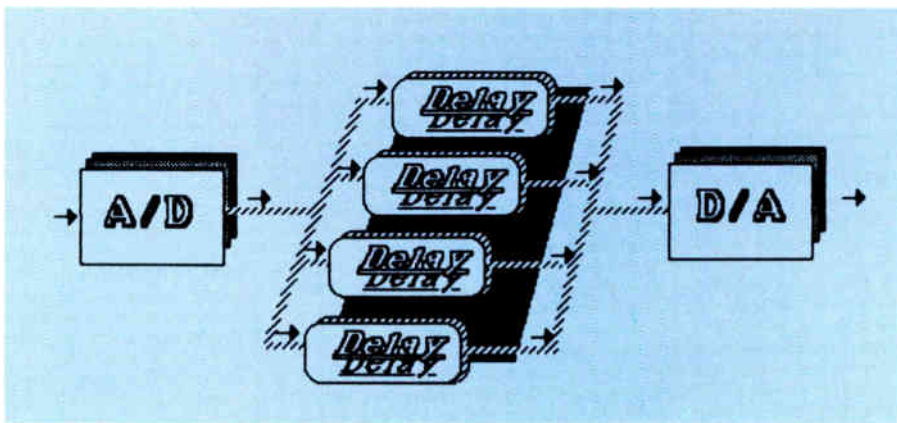


Figure 1

of sound through the air. Digital delays require the same memory, but with an important distinction: the memory in a digital reverb must be divided up to create the equivalent of numerous individual delay lines (more on this later).

This means that where the typical digital delay's memory must be written to and read from once for each audio sample, successful digital reverb requires the same memory to be accessed upwards of several dozen times for each sample interval. Since an individual sample time ranges from 20 to 50 microseconds, depending on sample rate, a

high quality reverb system may access its memory more than five million times per second. This means that the memory itself must often be faster than required for delay lines. It also means a sophisticated address system, capable of accessing a large number of different memory locations during each sample interval. We'll have more to say about this in the section on control.

Some of the most sophisticated digital reverb systems have a further requirement that the word length in memory be longer than that of the A/D and D/A converters themselves, in order to

avoid noise caused by accumulated arithmetic errors.

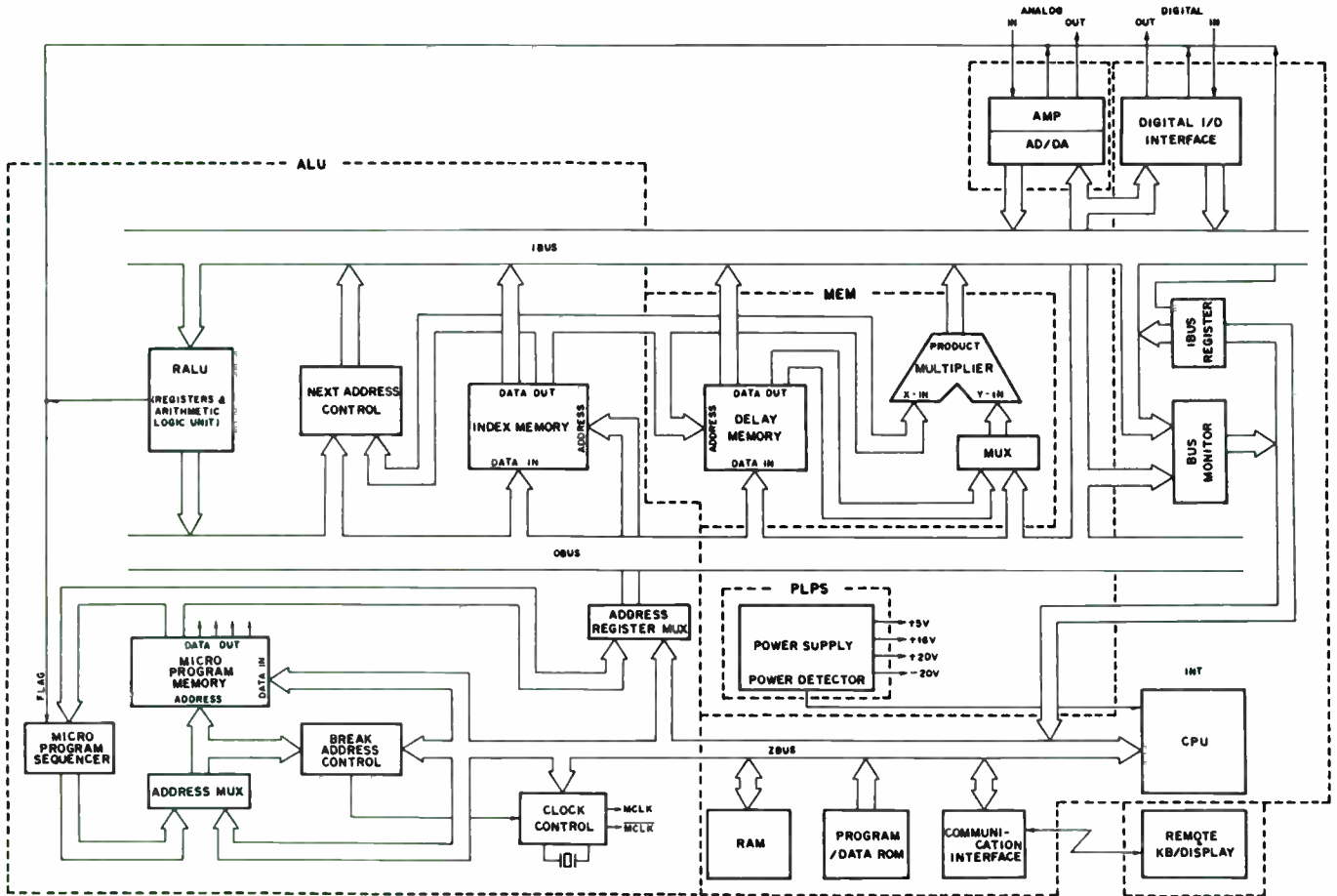
Most digital reverbs contain an amount of memory sufficient for audio delay of 1/2 to 2 seconds. How this amount of memory is used to provide decay times of dozens of seconds, which many systems offer, will become clearer as we proceed.

### ARITHMETIC

Now we arrive at the living, beating heart of the beast, the sine qua non of digital reverberation. The simple but mysterious, crude yet sophisticated, coveted key to success of the digital reverb designer. Yes, folks, we're talking about third grade arithmetic.

Specifically, I wish to discuss multiplication (groan) and addition (sigh). Well, you might ask, what does that have to do with reverberation? Briefly, in digital audio, multiplication by a number less than one is the equivalent of a gain control fader, and addition corresponds to the function of a mixer, combining two or more streams of numbers (audio data) into one.

When we left the section on memory, we had given ourselves the ability to create numerous little digital delay lines, as in Fig. 1. Our newly acquired arithmetic capability allows us to



DRE-2000 Block Diagram



# ECHO TIMES

## THE STORY SO FAR...

A.M.S. (Advanced Music Systems) is a company well recognised for providing the professional audio and broadcast industries with one of the most comprehensive range of digital sound processing systems available. Within the product range already marketed by A.M.S. exist both hardware and software which have made possible the sampling, editing and transposition of audio material. These basic facilities have already had a significant impact on popular music production as well as on film and video post production. The attractions of being able to sample either live or prerecorded sounds digitally, then rapidly and easily to electronically edit that information are obvious. In popular music, any sample whether drum beats or even complete backing tracks, can be captured, edited and triggered on demand by such external sources as programmable music computers or simply by an audio input.

In the case of film or video, either the existing soundtrack or an events controller can be used to accurately synchronise a sampled and edited sound effect to the picture. These techniques are being employed now and are considered highly effective – in addition to providing significant time savings over conventional methods. This particular sampling technique, has been pioneered by the LES (Loop Editing System) on the A.M.S. DMX 15-80S.

## MULTI-SAMPLE RESEARCH BEGINS

In late 1982 A.M.S. completed development on a Digital Preview Editor, the DMX 16E. This system was originally designed to work in conjunction with digital audio recorders to allow trial edits to be performed at variable speed, or by reel rocking, with programmable cross-fades.

These trial edits would be performed with the magnetic tape stationary.

The DMX 16E could support over 30 seconds of audio storage, and with the growing interest in LES experimental work was carried out on the system to investigate multiple sample storage and cataloguing. In June 1983 a highly modified DMX 16E was demonstrated to capture, edit and trigger multiple samples stimulating yet further interest in a



## Digital Recording on Hard Disc – from the pioneers of Loop Editing.

product which was rapidly turning into a solid state digital audio recorder.

### A.M.S. AUDIOFILE IS BORN

AudioFile was shown in prototype form for the first time at the AES in Hamburg and the NAB in Las Vegas and is the result of over three years' research and development at A.M.S. into a hard disc based digital recording and playback system. AudioFile is capable of being configured in several different ways allowing it to perform completely different functions. In its simplest form, AudioFile can capture samples of sound, edit those samples and store them in a non-volatile form for recall and playback at any point in the future. This is the first major difference from the DMX 15-80S where samples are lost on power-down. Complete stores or files of sound effects can be recorded, edited, catalogued and saved within the AudioFile memory. Secondly, AudioFile can have samples assigned to any of its outputs for multiple synchronous triggering. This triggering

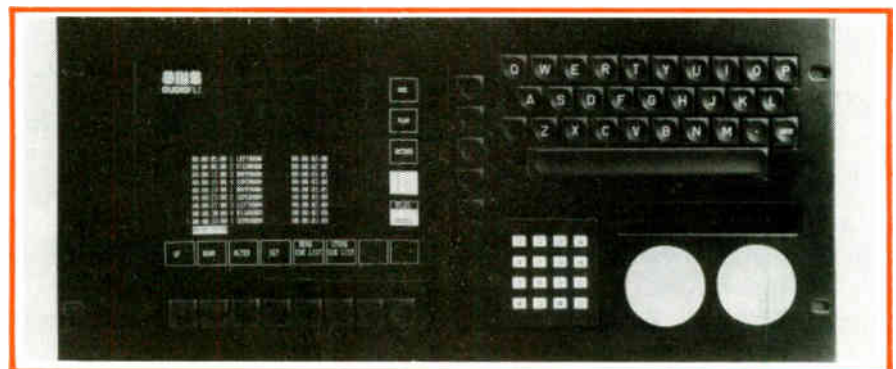
can be effected either manually, by audio input, by an events controller or by using AudioFile's built in SMPTE time code reader/generator. AudioFile can also be configured as a multitrack digital recorder – however, in this form it offers significant

advantages over the conventional magnetic tape machine in that it is able to advance or retard any individual "track" with respect to any other. Tracks on a conventional multitrack recorder become digital files on AudioFile and the storage capability of AudioFile means hundreds of files may be stored at any one time and delivered to any one of AudioFile's outputs on cue.

AudioFile can run independently against its own internal clock or it can be locked via its timecode reader/generator to film, video or other magnetic tape recorders.

### THE TIMECODE DIMENSION

A main advantage of using AudioFile in synchronism with any other machine is that the "elastic band" effect of having mechanical tape transports locked by a synchroniser is completely eliminated. On looping video, the audio will be heard in exact time with the picture virtually as soon as the video settles into play. Although the number of simultaneous tracks available in the "multitrack" form is limited at present, AudioFile with its eight existing outputs has many immediate applications. Once the fundamental attractions of AudioFile have been accepted, it is possible to see that the system can "invisibly" provide additional digital audio "tracks" by locking it to a conventional analogue or digital recorder. Alternatively, with specialised



software, AudioFile can eliminate the need for a multitrack recorder, synchroniser and desk automation system when track laying audio against video.

### DIGITAL EDITING MADE EASY

Audio File can also be used as a digital stereo editing system. Because this editing is fully electronic and has inherent random access it can be conducted on a single machine with an accuracy of microseconds with totally unprecedented speed and flexibility.

AudioFile is working now and Winchester Disc Storage of audio is here to stay. A.M.S. with their successful range of digital audio processors have long understood the advantages to customers of updatable hardware and software – the absence of second hand A.M.S. units of any kind speaks for itself. A.M.S. are committed to making AudioFile the most versatile and upgradeable audio production workhorse available. ■

### ELECTRICAL:

Digital Coding: 16 bit linear PCM  
 Sampling rate: 48kHz standard, (switchable 50/44.1/40kHz)  
 Frequency response: 20Hz to 20kHz (48kHz sampling)  
 Dynamic range: Better than 90dB/ ref full output at 1kHz  
 Inputs: 10K electronically balanced  
 Outputs: 100R compensating electronically balanced

### MECHANICAL:

Processor/first disk module:– 5U rack mounting  
 Disk Expansion module:– 5U rack mounting  
 Display/control surface:– 5U rack mounting

### INTERFACES:

RS422 control for peripheral equipment  
 SMPTE reader/generator  
 Optional control for AMS audio processors (Reverb, etc.)  
 RS422 control of all AudioFile functions

## Specifications:

### CONFIGURATION:

Inputs:  
 Modular/ 2 inputs per module  
 Outputs:  
 Modular/ 4 outputs per module

### CONTROLS:

High resolution (800 x 480 pixels) graphics display  
 13 function keys/ software definable  
 2 digipots for simple parameter setting/ reel rocking, etc.  
 Software/ application dependent starburst LED labelling for digipots  
 Built in alphanumeric pad for quick titling



## CTS.! DSP.! AMS.!

CTS studios in London became fully operational with their Neve DSP console earlier this year. The console is digitally interfaced to the Sony PCM 3324 and as can be seen from the photograph opposite, CTS's choice of digital audio processors is A.M.S. When questioned as to why the DMX 15-80S and the RMX 16 ended up mounted in the DSP chief technical engineer Henry Edwards commented – "They are used all the time so it is the most natural place for them!"

## PEOPLE IN THE KNOW

"If I walk into a studio and I don't see an A.M.S. digital reverb and an A.M.S. digital delay, I start having my suspicions about the place. I use the harmoniser function on the A.M.S. DMX 15-80S delay system, plus delays and I always use their reverb if I can't use natural reverberation. Other ones are good, but they always sound a bit plonky – they've got a sort of tone on them that I don't like. The A.M.S. one is superb – fully equalised top and bottom."

*Colin Thurston, interviewed by Jane Angus in HSR Magazine.*

On the effects side they bought a 6½ second A.M.S... They chose the A.M.S. because it was the only one which would do the job they wanted. Tony: "The great thing about the A.M.S. is that it's here to stay."

*Peter Buick of Sound Engineer Magazine talking to Tony McGrail of Terminal 24 Studios.*

*R-e/p (SB): I'm curious about one snare drum sound in particular: the title track of Springsteen's Born in the USA. It has the impact of a .38-caliber revolver going off. How did you capture that?*

BC: What I did for a few songs on that album – and I think that was one of them – was to use the great sound I'd got from the stereo overhead mikes. The snare sound was amazing, for one thing because Max (Weinberg) tunes his drums really well. The snare drum mike itself wasn't happening, maybe because it was too close, but the overhead mikes were picking up this "Glyn Johns" kind of snare sound. So I just sampled that into an A.M.S., and it became the predominant snare drum sound, although it is mixed in with the original snare drum track. It was easy to do because there are no other drums playing during the intro part. *R-e/p (ML): So you're triggering that sound out of the A.M.S. DMX 15-80 for each snare beat?*  
 BC: Yes, any signal you feed in will key it. You can also put little vocal snippets into the A.M.S. and key it off

something like a bass drum. On the intro of the Hall and Oates album, there are some vocal bits, singing some Spanish words. By keying one off the bass drum and one off the snare, we have these little vocals answering each other exactly in time with the Linn Drum.

*Bob Clearmountain, interviewed by Mel Lambert and Sam Borgerson for R-e/p.*

I don't use any synthetic reverb at all if I can get by without it, but if I can't I'll use an A.M.S.

*Colin Thurston, interviewed by Jane Angus in HSR Magazine.*

**A.M.S. would like to take this opportunity of passing on their sincere congratulations to Humberto Gatica on winning his recent Grammy. Humberto was interviewed in Echo Times No. 4 and we believe since then he has purchased a further RMX 16 digital reverberator.**



# Paul McCartney



Stuart Nevison of A.M.S., discussing another manufacturer's Audio Hard Disc System with Paul McCartney.

Paul McCartney needs no introduction, however, one of his lesser claims to fame is that he owned probably the third unit ever manufactured by A.M.S. Although Paul still maintains he is not technical I do believe that it is obvious from this interview that he understands how to get the best out of his A.M.S. units.

Paul McCartney now owns a DM 2-80, an RMX 16, and two DMX 15-80S systems. One DMX 15-80S is fitted with 14 seconds of delay and a keyboard interface whilst the second has 6.4 seconds. Both units have dual pitch changers and the de-glitch option as standard.

**Paul McCartney:** It's great though! It's fabulous! – We've just been talking about A.M.S. before you arrived, it's really a fairy tale in a way.

**A.M.S.:** Do you remember that first DM 2-20 Flanger?

**P.M.:** Oh yeh and I remember our first meeting at Abbey Road. We were very busy and I think you had explained that you had this Flanger that did this and that to a couple of the roadies. You were in studio two and I remember coming down the big stairs in 2 to see what was going on. I'm not

technical and I'd just used equipment for what it would do but it did seem that the prototype you'd brought down looked and sounded good and had something together. So I thought the best I can do to give this fellow Northerner an "in" is announce in a loud voice whilst other Abbey Road staff were around that I was having one and hope they'd do the same for you.

**A.M.S.:** Well, if we didn't say thank you at the time we had better say it now – because that certainly worked and I think EMI Abbey Road had the fourth DM 2-20.

**P.M.:** The next time I came across A.M.S. was when I realised people were using this thing and when I said whats that and got the answer – it's an A.M.S. – I said I know that don't I? Oh it was them!!! Much more recently I've got into 12" dance version singles and that's when it's become really interesting. When we had an original recording that lasted for 4 minutes but we needed 8 what we would do is invent something that could fit in, lock it in the A.M.S. and finally feed it in. We were creating new bits of tape with the A.M.S. It was great, what I would

do is if I wanted to ad-lib a bit of blues singing over some chords I'd just have a mic run out into the studio and sing what I felt like and lock it into the unit – edit the sample and trigger it out wherever I wanted it in the mix.

**A.M.S.:** Did you use any of the other functions of the DMX 15-80S?

**P.M.:** That's another great thing you can do. By using the pitch changers you don't even have to have samples of the correct tempo. We lifted vocals from ballads that were made up of swimming big block harmonies that were completely the wrong tempo for where we wanted to drop them in, so we'd use the pitch changers in the 15-80S to correct pitch and then drop them in. You can even do that if you find that you've got a set of complicated harmonies early in a song that you just can't get exactly the same feel into later in the song. In fact I recently did that with an American producer on a complicated guitar part – the first verse was really where I'd hit it, other verses although good we both knew just weren't up to the first – so we lifted the first verse.

**A.M.S.:** That's using A.M.S. units as a pretty clever production tool but did you use it purely for effects at all?

**P.M.:** Oh yeh, I had a lot of fun using timecode and noise gates to trigger edited samples from the unit. That can be used to do something that people have always been doing in pop music production and the "hit record scene" – and that is generating something that catches your attention. The sort of thing Trevor Horn is doing now, the Beatles did ages ago the difference being that in the early days we did it with rubber bands and sealing wax and now as we move further into the computer age a lot more possibilities exist.

**A.M.S.:** So how do you see A.M.S. systems fitting in?

**P.M.:** In truth George Martin and I have just worked on three albums together – Tug of War, Pipes of Peace and Give My Regards To Broadstreet. The last thing we did out of all that recording was the 12" single of No More Lonely Nights. What was really great was that working with A.M.S. units I certainly felt as excited with the kind of possibilities as we had in the very early Beatle days because we thought anything was possible. We used a lot of sampling, resampling and even sampling material from other tracks. I think it is fair to say that out of all those three pieces of work I found that 12" version the most exciting and that did coincide with the fact that we got most heavily into the A.M.S. on that particular single ■

# HUGH PADGHAM



*Not too many years ago Hugh Padgham was driving a van for a hardware store when he made a delivery to what is now Farmyard Studios in Little Chalfont. To say this delivery and chance meeting with Rupert Hine and Trevor Morace of Farmyard changed Hugh's life is something of an understatement. Hugh Padgham's career has now been in full swing for quite some time and his mark has been left on many of rock's major works, including material by Peter Gabriel, XTC, David Bowie, Hall and Oates, The Police, Genesis and Phil Collins. As this article is being written Hugh's most recent piece of production is at number 1 in the UK album charts – No Jacket Required, by Phil Collins.*

**Hugh Padgham:** My first job was as a tape op at Advision Studios in 1973/1974. I really didn't last long and I was laid off for being incompetent – but that was fair enough because there just wasn't anybody to teach me the ropes. I then got a job at Lansdowne Studios where I stayed for 5 years and looking back that period was very beneficial for me because I got involved in every sort of recording – from Jingles to Jazz, pop, rock, strings and even small orchestras. The team at Lansdowne were fastidious in their approach to recording and that definitely rubbed off on me. In my

summer holidays I did live sound on tour for Rupert and Trevor's band Quantum Jump and that was a lot of fun. I eventually got a job at Townhouse during its very early days – I always feel very good about that late 70's period when the Townhouse had the first SSL in London and probably some of the first A.M.S. units as well.

**A.M.S.:** So was the Townhouse the first place that you came across any A.M.S. equipment?

**H.P.:** Yes it was. This was even before the DMX 15-80S had been introduced and I can remember using the mono DMX 15-80. That very unit is still sitting in the rack at Townhouse and I still use it. I love the regeneration filter that was on the old mono units. For me, probably one of my most exciting uses of an A.M.S. delay line was during sessions with Hall and Oates on the Maneater track. There was a sax solo in the middle that I didn't like – there was the odd sax phrase and then a huge gap till the next phrase. I thought, I know how to sort this – Electric Lady had a good amount of delay in their A.M.S. so I fiddled around with the first sax phrase and got it to repeat in the gap. I think the result was really great.

**A.M.S.:** Is it possible to say exactly what

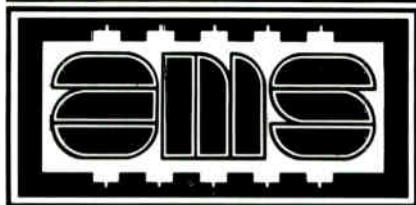
it is you like about the DMX 15-80S? **H.P.:** What's so wonderful about using an A.M.S. is you do get out exactly what you put in. On the new Phil Collins album most of the vocals employ the 15-80S with a 1.007 pitch change and an 11 or 12 millisecond delay – it's clean and it really suits his voice. The unit is brilliant for turning something mono into a big fat stereo sound. Again with reference to the No Jacket Required album we took the Earth Wind and Fire horn section and placed the original sound in the centre and the two outputs of the DMX 15-80S panned left and right. You end up with a really fat sound with the same quality of sound in the centre and on the right and left – you can't do that with any other system. I must admit, it is horses for courses and I can still find uses for tape delay when even analog degeneration can be appealing.

**A.M.S.:** What are your feelings about the RMX 16?

**H.P.:** What I love about A.M.S., and also SSL, is they do seriously consider the "art" side of the business and it isn't just white coated people inventing a piece of equipment that they haven't a clue personally how to use. It is refreshing to feel that there are people genuinely interested in the art and I remember a phone conversation with A.M.S. who quizzed me about the now legendary "Intruder" drum sound on Peter Gabriel 111. The result of that call was obviously the Nonlin program in the RMX 16. I would say A.M.S. has influenced modern day music to a very great extent with the RMX 16 – particularly with the Nonlin and Reverse programs. Those programs are so recognisable and you hear them everywhere – a lot of people would be very lost now without an RMX 16 I can tell you!

**A.M.S.:** Does that mean you'd be lost without an RMX 16?

**H.P.:** I certainly couldn't do a session without A.M.S. units! I couldn't walk into a studio if they didn't have A.M.S. – it would be like someone taking off one of your arms! A.M.S. have undoubtedly changed the face of modern music. ■



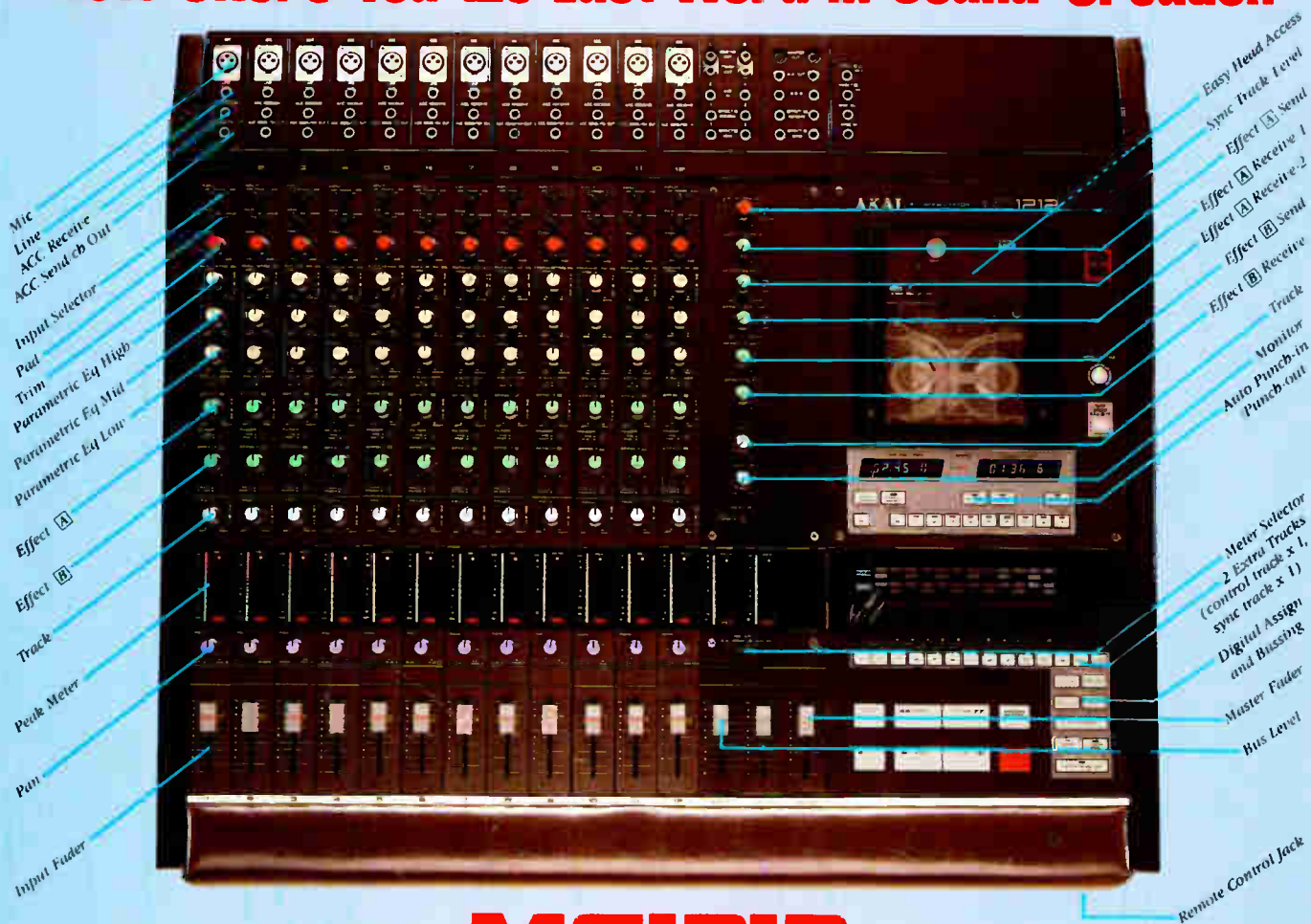
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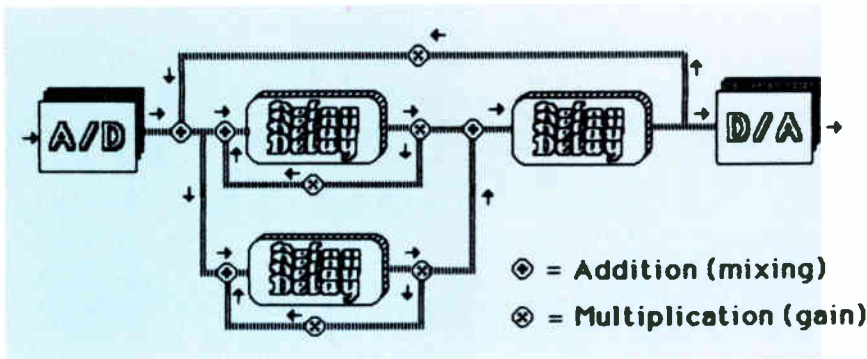


Figure 2

knit these individual delays into an interconnected system with delays feeding back on themselves, combining together to feed other delays which in turn recirculate back to the first delay, and so on, as in Fig. 2.

A typical digital reverb internally creates the equivalent of several dozen delays, faders and mixers connected together into a network of some complexity. (How much complexity? For now, we'll just say that Fig. 2 pales in comparison).

Big deal, you may be saying. Doesn't sound so hard. Just delay, multiply, and add and you've got it. No sweat. Well, in order to create all of those elements, you've got to be able to perform all of those operations *every sample interval*. In fact, for best performance, we'd like to be able to do a multiplication *and* an addition every time the memory is read or written, which means two to ten million times per second. And you thought you were good with flashcards.

Not only must the arithmetic be fast, it must be accurate. The audio samples themselves are equivalent to four- or five-digit decimal numbers, and the numbers by which they are multiplied (coefficients) must be at least two- or three-digit numbers. To make things worse, it is necessary to take the arithmetic out to several decimal places or the result is noise in the audio. But there's more.

Those of you who remember doing arithmetic without a calculator will recall that multiplication of multiple digit numbers is actually a complex operation

involving a number of individual steps. It's reasonably easy to multiply digitally but it normally requires much more time than good reverb can allow.

The result of all of this is that arithmetic, specifically multiplication, is the chief limiting factor in the performance of most digital reverbs. Designers go to considerable lengths to achieve faster multiplication and accumulation (addition) of numbers. Some designs use

expensive, power-hungry multiplier chips designed for military applications, others use a number of more common ICs ingeniously configured to provide high performance at acceptable cost. More recently, some designers have turned to creating their own custom-designed chips to meet their special needs.

However, fast is never fast enough. As technological progress brings high-performance arithmetic within reach of cost-effective designs, quality-conscious designers will look beyond to the higher speed, and hence, higher quality reverb that a higher price tag can bring. For this reason, among others, \$10,000+ units will continue to exist in the market along with less expensive devices. While some new designs will bring yesterday's high performance within reach of modest budgets, others can be expected to stretch the limits of quality and studio budgets.

### CONTROL

By now, you have probably realized the need for a means of determining the length of each delay, the gain of each fader, and the exact pattern of interconnection to be used, because these choices will determine the decay time, as well as the basic character of the reverberation. (In fact, most of the possible combinations will sound like anything but reverb. See Software.)

In the typical digital reverb, there are two levels of control. The first level is a separate chunk of memory called a Writable Control Store (WCS). This memory contains a short set of instructions that is executed every time a new sample is processed. All of the delay times, etc. are determined by the contents of the WCS.

The second level is a slower, but more intelligent controller, usually a standard microprocessor, that selects the reverb program and sets all the variable parameters according to the state of the front panel controls. This second level controller writes all of the instructions into the WCS, from which they are actually executed by the reverberator itself. Fig. 3 shows a simplified block diagram illustrating this architecture.

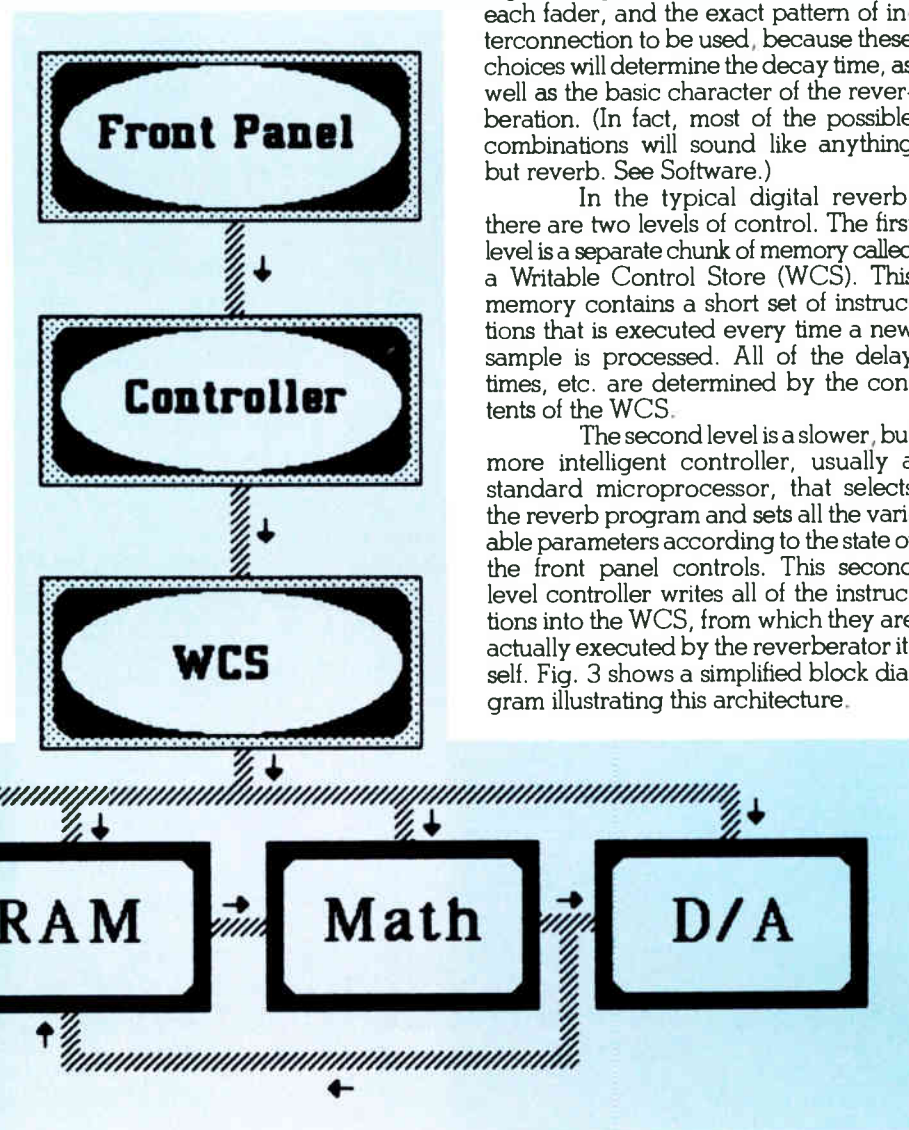


Figure 3



# COMMON DENOMINATOR

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There are variations on this arrangement. Some devices place the instructions in the WCS, but put coefficients in a separate index memory. A few designs dispense with the second level, and replace the first with Read Only Memory (ROM) containing presets. The idea is that enough good presets will compensate for the lack of individually variable controls.

## SOFTWARE

With all of the necessary elements selected and optimized for the right cost/performance ratios, plus compatibility, the courageous reverb designer can begin the most arduous and important step of all. The programming of digital reverbs is where the magic really happens or fails, and the successful companies have generally invested far more man-hours in software than hardware.

At the first level, reverb software consists of instructions that are executed from the WCS. These instructions consist of intricate patterns of bits that control the system's other hardware, but the designer/programmer generally writes in a slightly less abstract form, which is translated by an assembler program into executable form. For instance, a short program to create a recirculating delay might go like this:

1. Get a sample from the A/D.

2. Read a sample from memory at delay time D1.

3. Multiply that sample by coefficient F1.

4. Add the multiplied sample to the input sample from 1.

5. Insert the resulting sample into the beginning of delay memory.

6. Read a sample from memory at delay time D2.

7. Output that sample to the D/A.

The programmer actually writes in a more shorthand form, i.e.:

---

CLEAR IN	(Read A/D)
R A (D1) C (F1) ACC	(Read from memory, multiply, and add to first sample.)
CLEAR W A (O)	(Write to memory)
R A (D2)	(Read from memory)
OUT	(Output to D/A)

---

Notice that each line can often perform more than one action (read memory, multiply, accumulate). Most designs have some capability of this type to speed things along.

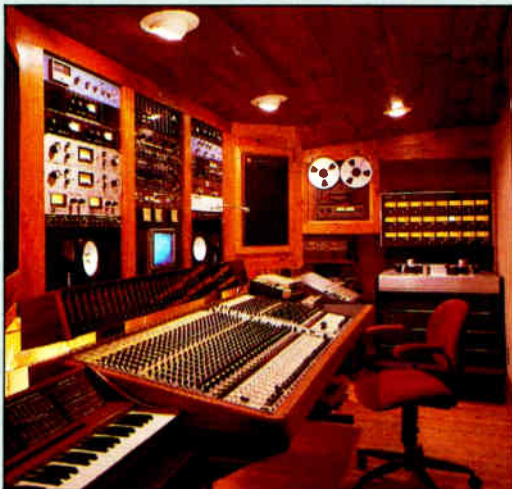
The length of the program that can be written this way is rigidly defined by the time between input samples. All of the program lines *must* be executed every time that a new sample is acquired by the A/D converter. A typical reverb

design might be able to execute a memory access, multiply, and accumulate instruction in half a microsecond. If that same design used a sample rate of 20 kHz, the time between samples would equal 50 microseconds. The number of program steps available would equal 50/.5, or 100. Notice that the number of program steps will increase if a lower sample rate is chosen. More program steps means more capability to create dense and smooth reverberation, but lower sample rate means lower bandwidth. Most digital reverb designs are a compromise between these factors.

How does the digital reverb designer/programmer select his instructions to create desirable characteristics in the reverberation? It would be nice to think that reverb programs derive from scientific analyses of actual chambers, concert halls, and plates, but the simple fact is that most program designs start from rather vague ideas of what *might* work, and proceed by extensive trial and error until they *do* work. The programming of digital reverbs is an art of illusion, an attempt to make a few dozen recirculating delays resemble the extraordinary density of "natural" reverb. (How natural is a concert hall, anyway?)

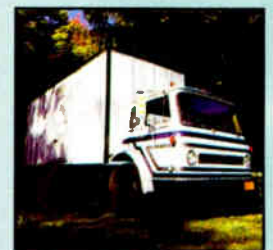
In service of this illusion, most programmers begin with a few simple elements, and connect these elements to-

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gether until something workable emerges. A few of the commonly used elements are:

a. Discrete delays—These are simple delays, or slap echoes, of the input signal, ranging from 5 to 50 or so milliseconds. These are used to emulate the effects of the stage floor and walls in a concert hall. Current reverbs use anywhere from 1 to 40 of these, often variable in delay and amplitude.

b. Comb filters—These are relatively simple, recirculating delays of a few milliseconds that build density of reflection, but tend to create coloration. They are often used to create a sense of the resonances of a room.

c. All-pass filters—Long ago, researchers discovered a mathematical combination of recirculating delays in which resonant peaks and valleys would cancel out, leaving a flat frequency response. Many designs rely on combinations of these for the main reverb.

d. Low- and high-pass filters—Very short delays can be used to create crude equalizers. The effect of these is amplified when they are placed in a delay-recirculation loop. Reverb programmers rely on these filters to tailor decay time as a function of frequency.

Almost all of the algorithms in use consist of more or less elaborate combinations of the elements listed, all carefully tweaked to create rich, dense ambiences that emulate, more or less faithfully, the psychoacoustic character of the "natural" reverb they are intended to represent.

Most of the popular digital reverb systems use a microprocessor to read the user's manipulations of whatever control panel is provided, and translate these into alterations of the actual reverb program. Very often, the motion of a single control, such as reverb time, will result in the simultaneous adjustment of a number of internal parameters. The operating program makes this translation transparent (unnoticeable) to the user, displays the current values in readable form, and also provides convenient features such as presets, user memories, and remote controls.

#### A REAL SYSTEM

The Sony DRE-2000A is a second-generation digital reverb that incorporates all of the elements that have been discussed. The DRE-2000A and its remote control are pictured in Fig. 4. A simplified block diagram is shown in Fig. 5.

#### CONCLUSION

In a few short years, digital reverberation has gone from an idea known only to a few to a device which is in daily use industry-wide. The technology involved is complex and the literature on it sparse. It is hoped that the information given here will foster a deeper understanding of this invaluable tool. ■

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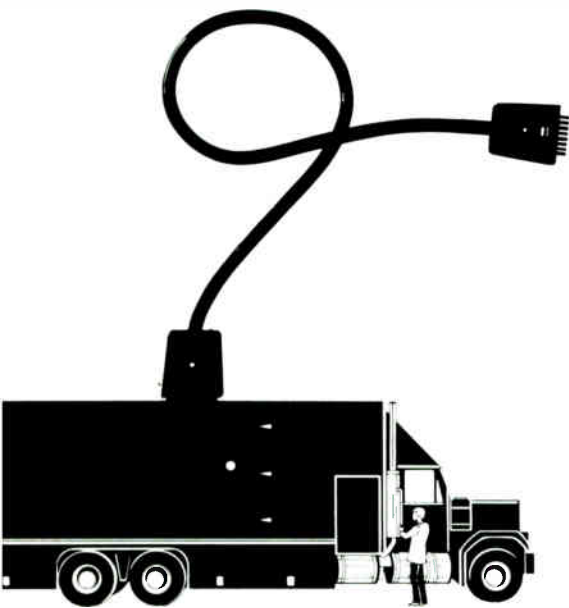
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LOCATION  
RECORDING  
PRACTICES

by Ron Streicher

Preparations for a location recording session—whether for the purpose of making a reference tape or a live broadcast—involve a multitude of minutiae in addition to the major details of the event. Often these tend to be overlooked or given less than sufficient attention, resulting in added “hectivity” both on site and later during post-production.

This article will focus on several of these aspects: scheduling, pre-production planning, paperwork, equipment calibration, on-site activities, broadcast format requirements, equipment inventory, etc. It is not intended as a complete “how to” methodology for the recording session, as this is the subject of many more extensive volumes. Rather, it offers some basic guidelines for completing the event with a minimum of unexpected difficulties.

**BEFORE THE SESSION****BOOKING AND SCHEDULING**

**The Booking:** Confirm the date, time, and location of the session and any rehearsals or technical checks. Determine if it will be a “live” performance with audience, or a session called specifically for the recording. Get complete information regarding the type of material to be recorded: instrumentation, soloists, physical location of performers (if unusual), etc. If it will be a live broadcast, note the specific “on air” times, as well as any “pre-

show” feeds which might be scheduled.

**Time Allocation:** Plan sufficient time to check out all equipment, load and travel to the site (if a location session), and set up the session so that you will be ready to begin *no less than one-half hour* prior to the scheduled starting time. (This will provide you with a chance to relax prior to the actual session, or, at worst, a “buffer” for any contingencies which might arise.)

**The Location:** Where is it? Get the full address and directions. Check the map if you are unsure how to get there.

**Access:** Find out how to approach the site: where to unload and park; are there stairs or other impediments to load-in?

**Scheduling:** When can you get in for set-up; how quickly do you have to load-out?

**Layout and Plot Plan:** What is the site configuration; how is the stage set-up? Where (and how) do you set the microphones? Will they conflict with audience sightlines? If necessary, plan an on-site inspection prior to the session.

**Set-up Areas:** Where can you set-up the equipment? Does it afford easy access to the performing location for sightlines, cable runs, and communications? Are there chairs, tables, and sufficient storage space for extra equipment and cases?

**Specific Problems:** What specific problems might be associated with the site? Is there noise from external sources such as traffic, airplanes, children or animals, etc.; or from internal ones such as air conditioning, signals or alarms, telephones, audience, etc.? Is there a potential problem with RF interference from any nearby broadcast facilities?

**Acoustics:** How does the location sound? Is it too dry or too reverberant? Are there specific problems such as “slap echoes,” public amplification, etc.,

which need to be avoided when placing the microphones?

**The Client:** Obtain the full name, address, and telephone numbers of the client and the musical director; get both home and office numbers.

**The Location:** Get the full name and phone numbers (both home and office) of the liaison people at the recording location, and ask when it is—or is not—proper to call them.

**SCOPE OF THE PROJECT**

**Purpose:** Determine the nature of the project: disk, cassette, broadcast, etc. This will be important in deciding the proper format and the equipment needs for the session.

**Format:** Among the possible end-products of the session are the following:

- Reference or “demo” tape
- Commercial disk or cassette project
- Radio recording (delaying broadcast)
- Television (or video) recording (delayed broadcast)
- Live broadcast for radio or television

**Delayed Broadcasts:** If the recording is of a live performance for delayed broadcast, determine the actual starting time of the performance as well as the length of the intermission(s); plan to record sufficient “ambience” for post-production. Arrange for pauses (if needed) for reel changes—although it is better to use overlapping recorders to avoid these pauses.

**TelCo Broadcast Interface:** Contact all appropriate telephone agencies (local, regional, national) to make necessary arrangements for Class A (or Class B) and communications telephone lines as required. (Since deregulation, there may now be several telephone agencies involved in servicing all of your needs in this regard.) If the link is to be stereo, be



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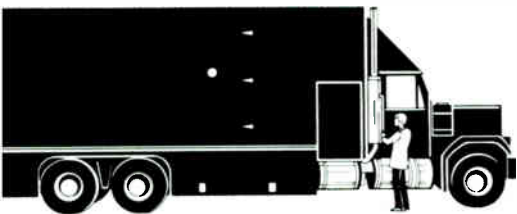
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sure to request a phase-matched pair. Ordering a matched spare line, although at an increase in cost, is a definite safety measure. Arrange for the lines to be installed and tested well in advance of the scheduled start of the session (at least two hours) and then verify them regularly up to the starting time.

**Conventional TelCo Communications:** Arrange for at least one regular telephone communication link so that you may call to—or be called by—Master Control, or anyone else involved with the project off the site.

**Video Interface:** Determine what, if any, special requirements exist with regard to interconnection of the video systems: special line feeds; level and impedance; “mix-plus” or “mix-minus;” etc. Plan also for sync feeds as required.

**Intercommunications:** Determine what personnel and areas at the site will need communications links, and whether you are to provide them; if so, make up a separate plot-plan for all this equipment, and plan for extras. If communications are provided by someone else, make sure that they know what requirements you will have.

**Monaural Compatibility Requirements:** Broadcast mixes have a particular need for good monaural compatibility along with excellent stereo imaging. (Remember: most of your audience—even for FM broadcasts—is still listening in mono.) Proper mono-compatible mixing techniques will serve you well in this regard. The use of a phase-monitor oscilloscope is fundamental.

**Visual Aesthetics:** If the session will involve an audience, the additional factor of visual aesthetics must be considered. Contact the concert producer, house manager, musical director, (or whomever) to discuss this problem. A site inspection in advance of the session might be necessary to determine how the mikes (and other equipment) must be configured. This can avoid last minute surprises or aggravations.

## PRE-PRODUCTION PLANNING

**Contact Arrangements:** Contact the site liaison person to arrange access for

set-up, and to determine if there are any particular problems for which you should prepare prior to the session. If appropriate, arrange for extra personnel to assist during load-in, load-out, session engineering, etc. If the site is a union house, be sure that all appropriate arrangements have been cleared with the shop steward.

**Performer Arrangements:** Plan to meet with performers, if necessary, to discuss any particular problems related to their specific activities. Be sure to ask them whether your planned microphone placement will be a problem for them. (The best way to approach this touchy question is to assure them up-front that the microphones will not interfere with their performance, and that the mikes will be placed so as not to obstruct the audience’s sightlines.) Remember: performers are sensitive people, and their concern for their immediate audience is generally greater than for the broadcast or recording audience.

**Producer/Client Arrangements:** Similarly, make all necessary arrangements with the producer/client well in advance, to avoid last minute complications. Such details as the amount and method of payment, clearances, union agreements, responsibilities of various parties, etc. should all be secured.

**Pre-Session Meetings:** All of these arrangements should be made during pre-session meetings. Schedule these to include any and all appropriate personnel.

**Equipment:** Plan what equipment will be needed for the recording, as well as what backups may be useful. Schedule this equipment for the session, and inform appropriate personnel that it will be needed; allow sufficient time to prepare or service it, as required.

## SETTING UP THE SESSION

**The Master Tape:** This is the tape which will be used for preparation of the final product, whether it be disk, tape, or broadcast. The preferred format for master recordings is that which will provide the best quality throughout the subsequent production stages. Half-track stereo—either 30-i.p.s. non-encoded, or 15-i.p.s. with noise reduction—are formats directly transferrable to disk master or broadcast. In recent years, half-inch tape has also become a new standard for half-track recording, as well as quarter-inch tape.

Digital recordings (of various formats) are also quite acceptable as original master tapes; transfer to an analog production master may be necessary, however.

Of lesser quality, the following are acceptable if no other format is possible; in ranking order: quarter-track stereo, 15-i.p.s. with noise reduction; quarter-track stereo, 7½-i.p.s. with noise reduction; cassette. These tapes, however, will need to be copied to a proper mastering format prior to subsequent production.

**The Client’s Reference Tape:** This is the tape you will provide the client/producer, for use as an audition and evaluation recording. It should be one of the following formats: either a cassette or a 7½-i.p.s. quarter-track stereo tape. On occasion, another format might be requested, such as a second “master” format.

**Calibration Procedures:** A full set of calibration tones must appear on at least one reel of the master tape. The preferred location of these tones is at the head of the first reel of tape from each mastering machine. If this is not possible, the next preferred location is the tail of the last reel of tape. Wherever they are recorded, however, note this location on the tape log.

**Calibration Tones:** A recommended set of calibration tones consists of the following:

- 1) a non-encoded reference-level tone of 1kHz recorded at “Zero-VU” (be sure to note the flux level, i.e. OVU = 250 nW/m)
- 2) a non-encoded frequency response run comprised of the following tones: 1kHz, 15kHz, 10kHz, 500Hz, 50Hz, 100Hz. All tones should be recorded at the appropriate reference level (see Table 1)
- 3) if the recording is Dolby-A encoded, a Dolby-level tone followed by a “program-zero level” tone; both of these should be recorded encoded at Zero-VU
- 4) if the recording is dbx (curve-one) encoded, an encoded 1kHz calibration tone; if a “zero-offset” is employed, be sure to note this offset level on the tape log, i.e. OVU (program level) = -3VU (on tape).

**TABLE 1**  
**Calibration Tone Reference Levels**  
**For Various Tape Formats:**

— 30 i.p.s.	@	0 VU
— 15 i.p.s.	@	0 VU
— 7½ i.p.s.	@	-10 VU
— 3¾ i.p.s.	@	-20 VU
— audic cassettes	@	-20 VU
— video cassettes	@	-20 VU

All calibration tones should be recorded from a common oscillator signal on all tracks of the tape simultaneously. (Dolby-A tones, however, should be generated for each track by its associated encoder.) Relative flux levels



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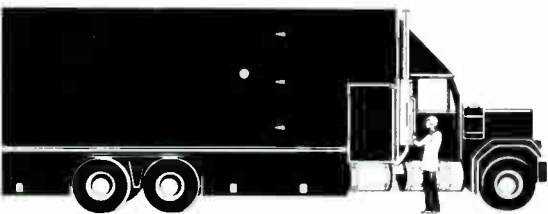


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should correspond to the type of tape being used.

Duration of tones should be at least 15 seconds each; for multi-channel tapes, allow at least 30 seconds for each tone.

If tones are recorded at a print level other than those above, be sure to note this on the tape log.

**Overlap Recording:** If the session is a recording of a live performance, two overlapping recorders should be used to make the master tape in order that reel changes do not interrupt the continuity of the recording. Two minutes overlap is recommended.

**Broadcast Requirements:** Recordings made for broadcast have a few special demands not generally required for disk or tape projects.

**Ambience:** If the recording is of a live concert for broadcast, audience "ambi-

ence" should also be recorded according to the following schedule:

—five minutes prior to the first music (continuing through the end of the first half of the concert) and five minutes into intermission;

—five minutes prior to the resumption of the concert (continuing through the end of the concert and all encores) and five minutes after the end of the applause.

This ambience will give the post-production staff sufficient "air" to use with voice-over continuity.

**Announcers:** If on-site (i.e. live) announcements will be a part of the production, make appropriate arrangements for a proper location for the announcer. Be wary of extraneous noises or possible interruptions. Prepare to build sufficient sub-mixes so that the announcer can be mixed over the program with a minimum of "knob twiddling."

It is best not to pan the announcer "hard center;" rather, place him slightly off-center in the stereo perspective, to avoid possible "announcer drop-out" if the broadcast is incorrectly summed to mono. A better technique, if two inputs are available, is to mike the announcer in stereo with a coincident pair, and slightly favor one channel

**Slating Procedures:** During a recording session, "Take Numbers" should be properly slated onto the tape (with an accompanying low-frequency slate tone if the mixing desk has this provision) so that they can be used to locate takes later during editing. The Take Numbers should be consecutively counted from the start of the session to the conclusion. (This avoids mix-ups during editing.) If a selection is repeated at a later session, be sure that this is noted carefully on the tape log.

**Synchronizers:** If the audio tape is to be striped with timecode for synchronization with a VTR, make sure that appropriate independent timecode feeds are arranged in advance. If a timecode reader is available, note the reading on the tape log (along with the take numbers) at the start of each selection (or take).

**Formats:** Various types of timecode are used in the industry, and you should be sure to verify that the code being used will properly interface with the audio system—during both recording and playback.

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The most common type of code for television audio synchronization is SMPTE (named for the Society of Motion Picture and Television Engineers). Generators and synchronizers for this pulse-code format are available from a number of manufacturers. This timecode signal is recorded on a separate audio track on a multi-track tape, and is used to lock the audio and video reproducing machines during playback. SMPTE code is frequently also used for film synchronization.

It is a common practice to also record the Vertical Sync signal simultaneously with the SMPTE signal as an additional reference for synchronizing audio and video recordings. This 59.94 Hz signal is produced by the master sync-generator of the video recording system.

As SMPTE code is composed of high-frequency energy, and Vertical Sync is a low frequency signal, they are often likely to "leak" into adjacent signals or tracks; therefore, it is necessary to record the time code signal(s) on separate tracks, away from the program material. Frequently, edge tracks are used, with the adjacent tracks left blank as a "guard band." Be careful to avoid edge damage to the tape, if this is done.

## PAPERWORK

A tape log form should be developed and used throughout the session to note information pertaining to what is recorded on the tapes.

**Procedure:** Prepare the tape log form in triplicate. Be sure that it is neat and legible! Include one copy with the client's reference tape, and retain the other two copies with the master tape. If it is a live concert recording, it is a good idea to also include six copies of the program.

Complete information should be given on the tape log form, including: the date, job number, and client/producer; the title (and composer) of each selection; the location of reel changes; and any other information which might be useful to the editor or producer at a later time.

**Timings:** Be sure to note accurate timings for each selection (or take) on the log sheet; if timings are only approximate, be sure to note this fact on the log.

**Track Assignment:** Track-assignments for multi-track recordings should be noted on the tape log form, as should EQ settings or other signal processing information.

**Problems:** If there are any technical problems encountered during the ses-

sion, be sure to note these on the tape log form; this will avoid "surprises" later and allow post-production engineers to prepare for them.

**Tape Identification:** Proper labeling on the tapes is essential to avoid confusion—or worst of all cases, loss of critical master recordings.

**Tape Labels:** Place an adhesive label on every reel/hub of tape as soon as it comes off of the recorder. Include the following information:

- Name of session/client
- Date of session

- Reel # of #
- Job number (if any)

**Multiple Recorders:** If more than one recorder was used to make the tapes during the session, tones from all machines should be provided, and each tape from the session should be marked as to which recorder made it.

**Sequential Numbering:** All tapes should be numbered sequentially, regardless of which recorder made them.

**Log Numbers:** The log number refers to each new selection, title, segment, inter-

—PAGE 190



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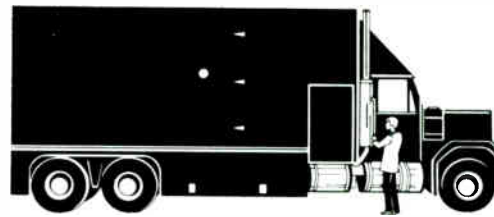
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cut, or different item being recorded; it does not refer to individual "takes." Log numbers should always be sequential, starting with "number one."

**End Slates:** If, for some reason, a proper take number is not slated at the beginning of the take, an "End Slate" announcement should be made; this should also be noted on the tape log.

**Repeats:** During sessions, if returning to a selection previously recorded, continue the sequential take and log numbering scheme; this will avoid any confusion of later takes with earlier ones.

**Live Performances:** Obviously, take numbers cannot be slated onto recordings of live performances (unless a separate track is available for such a purpose); these recordings therefore rely entirely on properly completed tape log forms for identification. Timecode readings should be noted on the log form whenever possible.

**Series Sessions:** If a series of sessions is scheduled, it is recommended that the take and log numbers continue sequentially from one session to the next. Again, this will avoid confusion during editing.

**"Psyching" the Performer:** The process of slating take numbers can sometimes cause uneasiness or aggravation to the performers. In this situation, it would be better to slate the numbers to the tape only and not to the studio; once slated, merely announce "Record, please" to the performers to begin the take.

**Pickups, etc.:** Pickups, intercuts, insert segments, or similar recordings of smaller segments of a selection should be carefully identified, to assist the editor in locating them in the score. (For example: "Take number five, beginning four measures before letter H" or "Take number seven, an intercut to take three, beginning at the second verse.") Mark this information on the Tape Log Form as well.

**Clarity:** Be as complete, clear, and concise as possible; when in doubt, make a note of it. The log sheet should tell the tape editor the "what, where, when, and how" of the tapes—without causing confusion or delay. Remember: you may not be available to answer questions during the editing session.



**Reference Copies:** Give complete information on the client's reference copy, including: track format, speed, noise-reduction, and any other pertinent data. Be sure to enclose a copy of the tape log form.

### SPECIAL TECHNICAL CONSIDERATIONS

Frequently, live (or tape-delayed) broadcast sessions have particular requirements not applicable to other recordings. These have to do with special interfaces to other elements in the production chain.

**TelCo Lines:** Live broadcast lines for musical programs are generally sent from the performance site back to the main studio via Telephone Company lines. These can be either "land lines" (wired connections) or microwave transmissions. CLASS-A lines are requisite for quality music production, and a "Phase-Matched Pair" is essential for stereo broadcasts. It is always a good idea to order at least one spare line of equal quality.

The telephone company field installer will provide you with a "twisted pair" for each line you order. This will be an unshielded pair of wires, requiring connection to a *balanced, 600-ohm source*; the shield connection is left floating in this configuration. It is recommended that this line be driven from a buffered, transformer-isolated signal, properly terminated to provide the necessary 600-ohm source impedance. The nominal level for TelCo lines is +8dBm for OVU. As these lines are not marked for (absolute) polarity, be sure to check for a proper match between stereo lines at the receiving-end before the session. If possible, check the lines for absolute polarity as well, to preserve the proper impact of the pickup.

Remember, also, to arrange a standard telephone communications link at the recording site.

**Standby Signals:** With TelCo lines, numerous "patch points" exist in the routing. The longer the connection, the more opportunities exist for interruptions of the signal. Since the lines should be installed and tested well in advance of the session, it is a good idea to keep some identifiable signal going down these lines at all times to minimize the possibility of someone along the chain "pulling your patch," thinking it is unused. A signal from an oscillator is a simple solution, but a better method is to connect a cartridge player with a continuous message: "This line is currently in use by XYZ broadcasting; for information call (give your telephone number)."—followed by a 15-second OVU calibration tone.

**Television Requirements:** Television equipment requirements are similar to those of conventional audio production standards, except that they often demand long, balanced lines between the audio station and the video truck. Occasionally, the VTR might require a "pre-compressed" signal in order to avoid electronic or tape saturation. Be sure to check with the technical engineer in charge.

**Levels:** As mentioned earlier, broadcast, telephone, and video systems often require levels other than the standard (OVU = +4dBm) common to the recording studio. Be sure to determine these requirements in advance, and make proper arrangements.

**Distribution:** Signal distribution around the production site may necessitate the use of special distribution amplifiers for the audio program as well as time-code (or other) signals. Sometimes, a simple "split-feed" will suffice, but don't rely on this method if there is any possibility that the various signal recipients might cause interference with one another.

**Special Feeds:** In broadcast situations where more than one system or agency receives the program, special mixes might be required for each. Such "mix-minus," "mix-plus," "dry-mix," or "isolated feed" signals must be available for distribution as needed, and should be ar-

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## Beefing Up Your

# DX7

by Lothar Segeler

Yamaha's DX7 has taken over studios and stages by storm. One hundred twenty-eight factory presets were enough to leave deep grooves in today's music. But creating your own sounds is another story. The DX's FM (Frequency Modulation) synthesis differs drastically from conventional synthesis and calls for a new approach to programming. Also the LCD (Liquid Crystal Display) reads out only one of the 168 parameters at a time, which slows down working with these data considerably. Fortunately, there are a lot of aids available now that supply you with new sounds, and help modify, create and store your own.

The information is made available through four basic resources: 1) literature, 2) RAM/ROM cartridges, 3) software updates via MIDI to personal computers, 4) internal modifications.

In this article, I will try to give an overview of all the aids available today.

For your convenience, I have included at the end of this article a listing of the products discussed here.

FM synthesis is a relatively new field, and with the exception of the papers from the original developers of FM synthesis is general, there is only one book at hand dealing specifically with the DX7.

Yasuhiko Fukuda's book *Yamaha DX7 Digital Synthesizer* (see *Mix* review, May 1985, page 97) picks up where the manual left off. A thorough explanation of FM synthesis is followed by a number of tips and hints for the beginning to intermediate user.

The cartridge system used by Yamaha is very effective and far superior to cassette storage employed by most other programmable synths in the past. Its speed and reliability certainly justifies the relatively high price.

If you would like to expand your sound library, but are tired of trying to find your own sounds, here are some that are already preprogrammed.

Musicdata offers four ROM (Read Only Memory) cartridges with 32 programs each. They feature sounds by three industry professionals and one with general purpose "analog" sounds. This is especially appreciated, since most of the factory presets have a typical crystal clear "digital" coloration. Clark Spangler (TV and film), Suzanne Ciani (East meets West) and David Boruff (Techno Studio Live) offer some very exceptional sounds. All these sounds can also be purchased on 5¼-inch floppy disks for the Apple and Commodore computer.

The introduction of MIDI (Musical Instrument Digital Interface) has made it possible for your DX7 to communicate with a computer. What you need is a personal computer (Commodore 64, Apple II, IBM PC, Atari or Yamaha's CX5M) and an interface that is plugged into the computer and connects to the MIDI jacks of the synth. Interfaces are made by Korg, Hybrid Arts, Passport, Roland, Sequential, Yamaha, Musicdata and JMS. Unfortunately most software runs only on one specific computer/interface combination. Before deciding on a specific combination, it is advisable to find the software that suits you most first. Right now a lot of independent software writers are digging into the field of music and computers. We can expect to hear a lot more from sound editing and storage systems, as discussed here, and also sequencers, music writing software and sync systems in the near future.

Hybrid Arts works exclusively with the Atari computer. Their "Session Sounds" is a set of four disks with 32 sounds each: master group, piano and bass group, percussion group and stringed instrument group.

JMS (Jellinghaus Musik Systeme) of West-Germany, distributed through Cherry Lane, offers "Sound Library" with 128 sounds for the Commodore computer. It also stores up to 640 sounds on a floppy disk and works in conjunction with their "Sound Editor," discussed later in this article.

Dr. T (Emile Tobenfeld), an independent software writer, whose system also runs on the Commodore, suggests a library service. Eight contributors send in 32 sounds each to complete a patch library. One such volume will be free for the contributors and they will also receive a commission. The customers will receive a library volume with hopefully a large variety of sounds, because they have been written by eight musicians.

—PAGE 51



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A-1 AUDIO, PHOTOGRAPHER DAVID SCHEIRMAN

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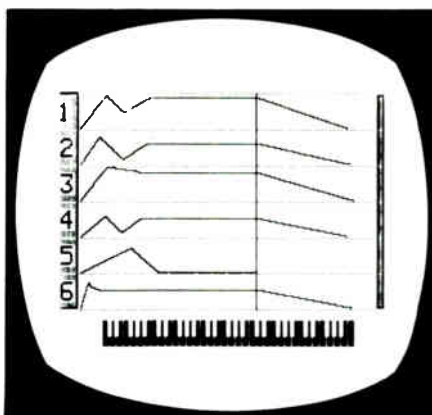
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PER RECORDING, PHOTOGRAPHER RICHARD McCAFFREY

## ...YOU'RE IN THE MIX





The DX-HEAVEN editing system, from Cherry Lane Technologies, facilitates the creation of voices on the Yamaha DX series synthesizers, as well as provides storage of over 800 voices on a single floppy disk.

—FROM PAGE 48

Earlier we talked about the DX7's disadvantage in design with just one LCD. For the many parameters defining just one sound, there are only two short lines for readout. This becomes a major problem when you want to modify or create sounds. But with a computer you can have a display of all the parameters on the screen, thus allowing you to compare your data quite easily.

Laubach Software has developed the "DX PRO" for Yamaha, which works with an Apple II+ or IIe computer and a Yamaha-compatible interface (Yamaha, Passport, etc.). On four screen pages (envelope page, scaling page, algorithm page, modulation page) all of the parameters can be seen. The envelope and scaling pages feature numerical readouts and a graphic display of their operators. You can actually see the envelope curves change, while you modify the parameters, which makes editing a great deal easier. Another nice feature is that you can execute software and editing commands directly from the DX7 keyboard as well as from the computers keyboard. This means that you can actually control the computer from your synthesizer, which is usually faster and more convenient. With this program you can also store your sounds on floppy disks. Each disk can hold over 800 sounds, which are stored in volumes of 32 voices each. Once stored on floppy disks, you can recall either individual voices or whole volumes and transfer them to the DX7's internal memory. The voice names of each bank can also be printed out. One drawback is that you can only store the complete internal memory of 32 sounds onto disk, which is cumbersome when you have created only one new sound and want to organize it in its own volume. Additionally, this software program supplies you with 713 sounds on disk. The factory ROM sounds 1, 2, 3 and 4 are included with a huge number of modifications (one com-

plete volume of 32 sounds is dedicated to piano sounds, one to guitars, one to strings, etc.). There is no question that it takes some time to listen thoroughly through all the sounds so that you can decide which ones work for you.

The "DX-Heaven" editing system works in a very similar way and for the same hardware configuration. The parameters here are displayed on one page only, and the graphics on another. This software allows you to store and load single as well as complete sets of 32

voices. In addition to the voice parameters, function controls like portamento, pitch bend, modulation and aftertouch settings can be remembered and sent for each voice. Also, 192 voices are instantly accessible for your synth through the computer's internal memory. A voice transplant and cloning feature allows you to transfer sections of one voice to another. Voice names, parameters and graphs can be printed out.

Mimetic's "Data/7" displays the voice parameters on four pages. Espe-

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—FROM PAGE 25, SYNTH STUDIOS

act as a master controller, and the Music Processing System (MPS) from Roland to record and process and play back the information.

The Music Processing System is a MIDI software program authored by independent software writer/composer/musician Kentyn Reynolds which provides facilities for recording, extensive editing, scoring, and output (MIDI data to control instruments or score printouts). The program runs on the IBM PC and uses the Roland MPU401 PC-to-MIDI interface box to get from one realm to the other.

Many of MPS's functions are found in a number of other software packages now being shown, such as the aforementioned Personal Composer. Most of these programs, including MPS at the time of this writing, are not quite ready for public release. Advanced facilities like Chang's, Fox's, and Nathan's make ideal testing grounds for these programs. Debugging and user feedback on features are necessary stages in software development if the final product is to be useful and functional. This type of pre-release evaluation is known as "beta testing."

Since there is little precedent for this kind of software, the programs which are now being shown all share a few basic concepts, but each has its own highly individual features and strengths. Bobby Nathan sees virtually all of this new software, which gives him a Unique perspective (bad pun intended) on their similarities and differences. "I think all the software now that's becoming available is subject to taste," he says, "and there are so many different tastes. Right now, in word processors you've got Wordstar, Microsoft Word, on and on. There are at least a hundred different word processors for the IBM, and close to that for the Apple. It's all a matter of taste because they all do the same job. It's definitely going to follow suit with these music processing programs."

One of Personal Composer's more interesting features is the ability to create user-defined symbology, so that a user can make an icon to represent "that shimmery, bright, UFO kind of sound." MPS, having been modeled after word processing software, offers very powerful and detailed editing facilities. It is this capability that has proved most useful in a compositional situation like Robertson's and Chang's.

"We found that there's an incredible function for the computer in this," Chang reflects, "in that when you do demos, you're really concerned with playing the notes, getting the tune right. After you're done recording it, you can listen to it and figure out if an element is right or not right, and then you basically have to do it all over again. The way Robbie functions as a musician is that he

does it all by rote, he plays all the stuff. When he has to modify something, he works on that and then has to practice the song through so that he can play that modification within the structure of the song.

"With the computer, I found that I could lay in one part of the form at a time. Using several tracks [the program is laid out similarly to an 8-track recorder, with the ability to cut, paste, and merge information between tracks] to make one particular part, I was able to graphically represent each part of the form. That meant that once I put all the elements of the song into the computer, we could listen to it and Robbie could say, 'Oh, it's too long. It needs to have one less bridge in it.' I could go and graphically find the bridge, delete it, and then move everything up without having to replay the entire track.

"Also, there were songs that he only had fragments of on three cassettes. I put each of the fragments into the computer and we worked them, one at a time, into actual entities as a formal part of the song; as prototypes, like a prototype verse, etc. Then we pasted up the song much like a filmmaker would do with a film in editing, and said, 'Oh, this particular verse is inappropriate with this chorus, so let's try another verse.' It was a way of taking several different musical elements that were created on different days and putting them into a medium that made them equally editable and manipulable; allowing us to paste it up in whatever combination we wanted to try to make an effective piece of music. After we have the form set, I can reperform any single section of the piece for the particular type of performance feel that we want.

"The beautiful thing about MPS is that if I just need to redo the keyboard part in the bridge, I can delete just that part. The keyboard part for the rest of the form still plays by, and then there's a hole in the bridge. I can immediately see the continuity, just like if it was punching in and out of a tape recorder. It also means that after the final keyboard and bass parts are down, I can also embellish the arrangement with countermelodies or whatever I would want to put on there."

Robertson is not, by nature, a technofreak, although he became familiar with synthesizers early as a result of his long association with Band keyboardist Garth Hudson, who has always been ready to try new things in keyboard technology. He has no objection, however, to using any tool that will get his music the way he wants it. Robertson has found MPS very helpful as a compositional tool, as evidenced by the song constructed from fragments. "We juggled it around until I found a form I could hear that I liked. That was a very unique experience," Robertson marvels. "It was

like editing a song; I mean like moving scenes around."

One of the significant aspects of this *modus operandi* is that there is very little manipulation of anything material; it's all just information being changed. This means that the changes are almost instantaneous and require no tape splicing or shuttling.

For Robertson and Chang, there are other considerations. Most of these songs will eventually be performed by live rhythm sections consisting of hand-picked players from all over. The use of the computer-based composition system means that each player can receive a "music-minus-one" type demo (with all parts except theirs), and a print-out of their part in advance of the session, with very little effort. This avoids expensive rehearsals and portrays what the song should be far more accurately than trying to convey it with vague and abstract verbal descriptions. Perhaps this is how all preproduction will be done in the future.

MIDI is only a standard to allow synthesizers to talk to each other; many of the other pieces of equipment in studios (particularly in film and video) use another standard known as SMPTE time code. Fortunately, there are now a number of devices which provide interfaces between the world of synthesizers and SMPTE, solving yet another group of needs. In some of his other film work which involves tight synchronization between picture and music, Chang makes extensive use of these devices, interfacing them with his stack. Soon, it will be possible to interface an entire studio full of equipment to one master computer which will control picture and sound editors, synthesizers, outboard processors, mixing, sweeping the floors, and emptying the ashtrays. I can hardly wait.

It's a brave new world of MIDI, sampling, FM synthesis, PCs, and music software, all there for the taking by the adventurous. But with each passing day, more and more facilities, like San Francisco's Independent Sound, Nashville's Music Resources, or Detroit's Gnome Sound are making this kind of facility an accepted part of the mainstream recording industry. For anyone who has worked and (usually) struggled with synthesizers since the '60s, '70s, and even early '80s, the rise of this kind of studio is greeted with a sense of grateful relief and eager anticipation of fulfilling ideas long ago written off as futuristic dreams. For composers and arrangers, this technology presents a solution to a problem that has plagued them since the dawn of composition: how do you hear what you've written? Experienced or novice, anyone involved in producing music can only say, "Not a minute too soon." ■



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World Radio History

by Brooke Comer

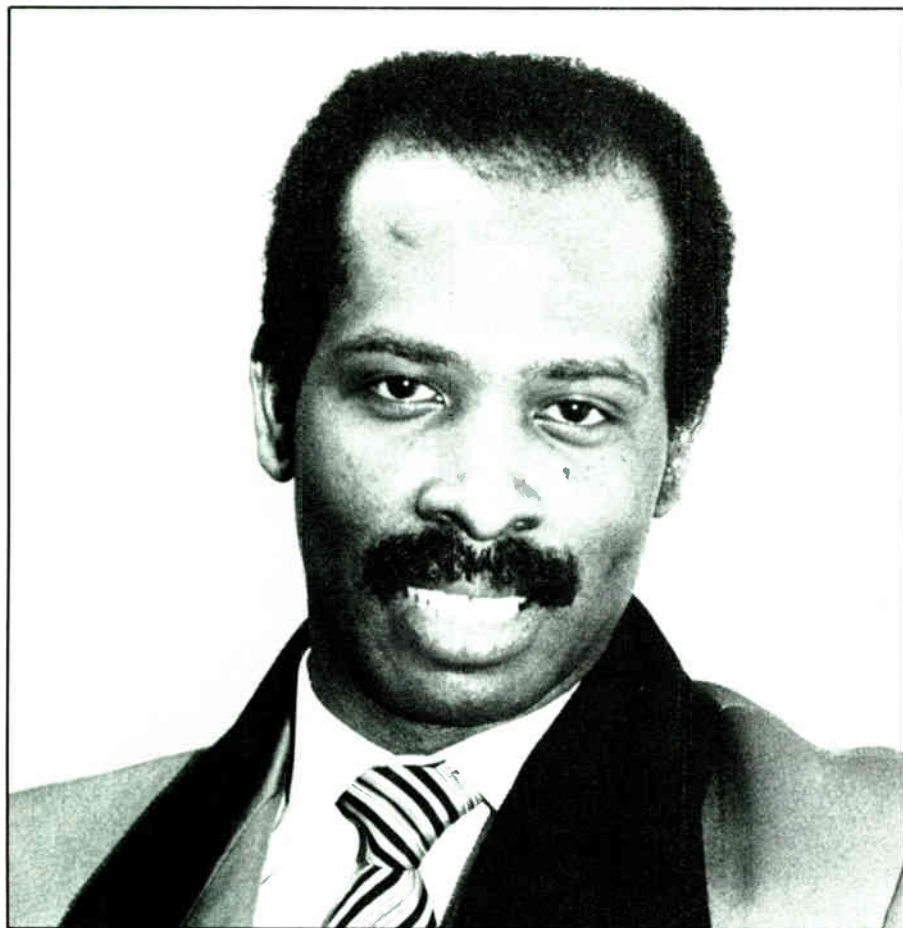


PHOTO: WARING ABBOTT

**I**f Keith Diamond had had his way and stayed in his native Trinidad instead of coming to New York at his mother's urging, Billy Ocean's "Caribbean Queen" might not have been a 1985 Grammy winner. Diamond was a star in Trinidad long before Ocean cracked the charts.

"I'm the new guy on the block," Diamond begins. "I started playing bass when I was very young, though now I play mainly keyboards. In Trinidad, radio was much like London. We heard the Beatles and Frank Sinatra all in one program, along with jazz, reggae and calypso. The bands I played in did what we called matured music, songs like 'Satin Doll.' Bass was the easiest instrument to learn and there was a band that needed a bass player. That's how I began."

The 25-year-old producer speaks in a quiet voice, a mixture of an island dialect and a British accent. Like his speech, his music is also a synthesis of cultures. "I've been exposed to many kinds of rhythm patterns and I credit a lot of my current success to that exposure," Diamond explains. "Reggae rhythms are quite different from latin and jazz rhythms and I evolved a synthesis that included rock and roll. Even when I was in my young teens, I was always the arranger in bands, I wrote and composed."

"I was reluctant to leave Trinidad," says Diamond, "because I was a big star there. It's easy to be a big star in Trinidad because it's such a small island. I was on TV and in the papers. I thought that was the life."

When Diamond left Trinidad to visit his mother in New York, he planned a quick return to "the life" on the island. Instead, he was drawn to America and stayed on. "I worked in banking and insurance and I owned a McDonald's franchise, but McDonald's got boring. I formed a production company with the money I'd saved and put out a record. Then I got signed to Millinium Records, a subsidiary of RCA at that time. While doing work in England I met Clive Cal-

## KEITH DIAMOND

### SYNTHESIZING CULTURES



der, a chap I credit for most of my success. He believed in me and my music from the moment we met and he was prepared to do whatever it took to help.

"I'm a real song person," Diamond admits. "The voice is such a special instrument to me. I always admire really good singers and I'm very good at directing them. I don't feel I have any boundaries either because of my musical background in Trinidad, Europe and America. Mass appeal is what I concentrate on . . . records that will please a lot of people and sell worldwide, records that cross barriers that pop people and R&B people will like. Billy [Ocean] has a magical voice that helps make 'Caribbean Queen' a special record."

In addition to a wide musical frame of reference and a sensitivity to sound, Diamond cites quality engineering and studios as factors that help make a hit production. "I like engineers who have a good attitude. Total assistance, without getting in the way, and speed are vital. I prefer to record in London because the technology there is a little bit ahead of the States. In America I record at Unique Recording in New York City. The owners, Bobby Nathan and Joann Georgio are great people. Bobby's constantly getting new equipment. Some people go for ambience in a studio and they choose the fancier places. I go for sound. Now that Unique has the SSL [console] I'll be doing more work there.

"I like to have that total control over my music. I put a lot of me into my sound," Diamond points out. "I'm a positive thinker. I think almost everything I do will work. If something doesn't work, I always find a positive reason for it."

When his work with Billy Ocean brought Diamond into the limelight, he became the recipient of thousands of tapes and demos from aspiring artists. Though he can't listen to everything that's sent in, "I got one tape and a letter from a brother and sister team in the mid-west. I felt a need to give them a sense of hope. They're 13 and 19 years old and they sent in a tape of them singing over records. I couldn't hear their voices very well. It was kind of funny. It reminded me of when I was starting out. I responded by calling them, and the girl who answered was too excited to speak. I talked to her mother. I told them to try a more professional approach, like singing so I could hear their voices. My general advice to young musicians is that it takes a lot of hard work and dedication and if they're not prepared to do that they should try to stay in school.

"Promotion, timing and luck are what affect a record's success as well as the other records being released at that time," notes the young producer. "How much the record company believes in the record is important. I've been lucky."

—Brooke Comer



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# Introduction to Computerized Productions

by Bruce Nazarian

Synchronous recording, the use of computer clocks and sync tracks to control computerized musical instruments, sequencers, and drum machines, has provided a great boon to the music production community. Synchronous recording allows you to program drum and keyboard parts completely, in advance, and then overdub them in complete precision, "locked" to the rest of the tracks. You can also record parts more than once, changing drum sounds or replacing sequenced keyboard parts easily, as the production takes shape. This gives you more control over the sound of the finished product. (For example, keyboard parts that have already been recorded can be re-recorded in perfect sync using different sounds. This allows freedom in matching the texture of the overdubs to the track.) I personally use computers on almost every one of my sessions, and find them to be reliable, quick, and relatively predictable. For the most part they're easy to get along with if you know how to treat 'em right!

Although computers aren't stupid, they sometimes seem to have a life all their own. In this column, I would like to pass along some hints and tips that I have developed and discovered while using musical computers. These tips may help you out of some problems that you have or might encounter.

Let's start with a little bit of common sense: Using a computerized sequencer for musical instruments is just like using any other piece of recording gear—the more you know about it, the more efficiently you can use it. The easiest way you can get the full use of the instrument's potential is to read the owner's manual. In fact, with the increasing complexity of today's musical instruments and sequencers, it may be the *only* way you ever know exactly what capabilities are buried beneath the buttons, switches, and LED or LCD display.

## Getting Off to a Smart Start

Let's go over some basic ideas that you should understand before attempting to use a computer sequencer or drum machine.

- First . . . I can't believe how many people use a drum computer and never record a sync track. Recording the unit's clock signal, or sync-to-tape tone is

essential if you ever want to overdub anything on this track. Enough said.

- Second, determine the tempo accurately before cutting the sync track. Although you can slow down or speed up the track later, with a VSO, or Varispeed, this can only take you so far up or down from the original tempo. Once the track's cut and you've begun seriously overdubbing, you'll either have to live with it or scrap the whole thing and start over.

- Third, always record the sync track first! Many people think that they can save time in the studio by cutting the basic drum tracks and the sync track together—don't do it! Most computerized drums have a certain delay inherent in locking up to the sync track. To insure proper synchronization of the basic tracks with any subsequent overdubs, you should always record the sync track first, then overdub the basic drum tracks and any other sequenced parts.

- Fourth, know what type of sync signal you are working with—for your reference, there are only three types of clocks that are currently used for tape sync:

- **Square Wave Clock**, as used in the LinnDrum,

- **FSK Clock**, as used on the Oberheim DSX, DMX, etc., also the Roland MSQ700, and some other sequencers,

- **SMPTE Time Code**, used to derive a clock signal to drive the sequencers (units like the Roland SBX-80 Sync Box, the SRC (SMPTE Reading Clock), and the SMPL System all provide a clock signal by decoding a standard SMPTE time code track. One advantage of this method is that the SMPTE track can actually tell the sequencers where they are in the composition, while playing. (More on this in a later column.)

It's important that you know which type of sync signal you have recorded, or is present on your client's tape because, for the most part, they are not interchangeable—that is, you can't use a LinnDrum to read a Roland MSQ-type FSK sync track. (It is this type of complexity that sometimes drives some of my engineer friends mad!) In addition to the *type* of clock you have, it also helps to know about the *clock density*; the number of pulses per quarter note of tempo—usually 24, 48, or 96. It really saves time when you know that to over-

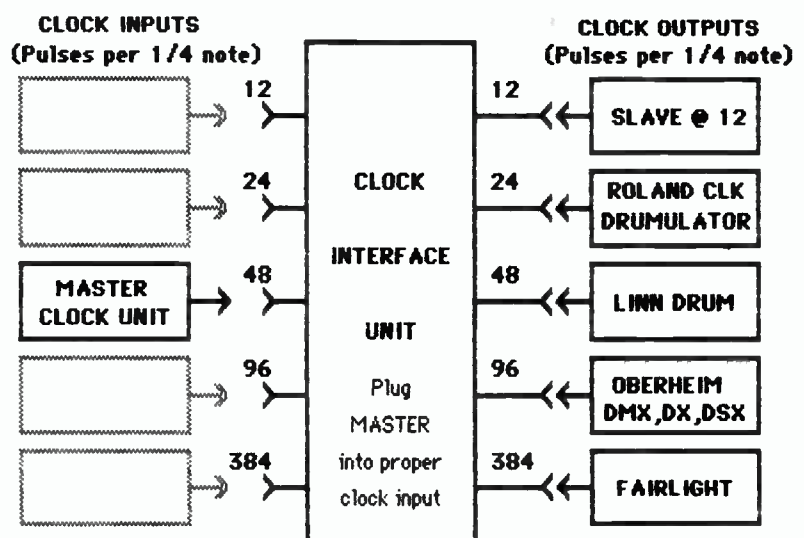


FIG. 1 A TYPICAL CLOCK INTERFACE UNIT'S FUNCTIONS



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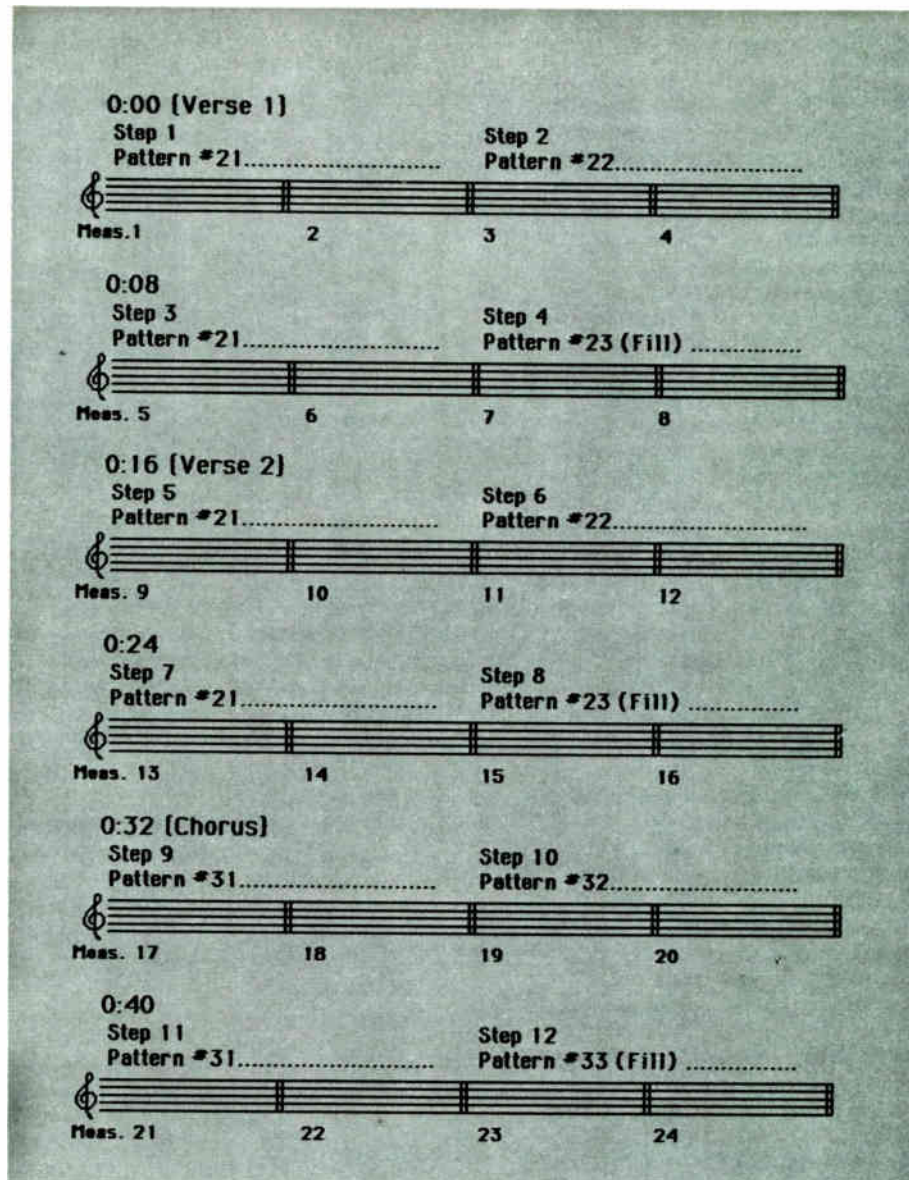


FIG. 2 A SAMPLE COMPUTER PRODUCTION "CHART"

dub a certain sequencer you need a clock that is half or twice the sync rate. For your reference, Roland, Korg, and MIDI use 24X, Linn uses 48X, and Oberheim uses 96X.

There are ways to solve this dilemma: various manufacturers, including Garfield Electronics, Byter, and Korg made a variety of *Clock Interface Units*. (See Fig. 1) These boxes are the answer to an engineer's prayers. They take in one type of clock signal, and convert it to other clock densities, and usually throw in a start/stop signal to boot. If you plan on integrating a lot of different manufacturer's devices, this may be the only way to keep your sanity!

• Fifth, keep track of what you are doing! In addition to marking down which track on your master has the sync tone on it, mark down the tempo at which the sync track was cut (i.e., 120 BPM, 115 BPM, etc.). Why? Because later on, you can take advantage of the mathematical relationships between tempo and time to

help compute delay times for your digital delay effects in the mix. Also, knowing what tempo at which the track was originally cut allows you to intelligently guess how much you can speed it up or slow it down, should it need it later.

It also helps to keep a running log of measure numbers, tape time, and sequence patterns, too. I use a type of music manuscript paper, writing down the key numbers I need later: running time of the track, number of the measures, section of the song (verse 1, chorus 3, etc.), as well as sequence step numbers and patterns. Not having to juggle numbers later really helps while you are trying to finish a long drum program. (Fig. 2 shows a sample of this type of log.)

Following these five simple hints should get you off to a good start, and help you avoid the most common mistakes that are usually made. ■

*NEXT MONTH—Troubleshooting  
Digital "Gremlins"*



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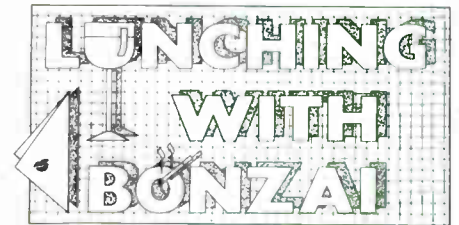
MX65MT

# Weird AL YANKOVIC dares

TO BE STUPID



PHOTO MR BONZAI



by Mr. Bonzai

Humorous artists are easily slipped into the Second Class slot. This is due to faulty educational systems which equate First Class with "serious art." If one looks carefully at history, the role of the fool, the satirist and the class clown is staggering. Just look at Aeschylus, Chaucer, Shakespeare, Mark Twain, Ernie Kovacs, Spike Jones, Frank Zappa, Andy Rooney, Huey, Dewey and Louie—not to mention Andy Kaufman, Gracie Allen and Jay Ward (the naughty guy who created Bullwinkle the Moose). Without the imagination of Monty Python and SCTV, many of us would feel alone in the absurdity of life. It's like a club, and I think Weird Al Yankovic has become an officer, a champion and a weird gentleman in good standing.

I waited patiently outside the double density studio doors of Santa Monica Sound Recorders until the final strains of "Lola" faded. Of course I guessed that it wasn't really "Lola," but it sure sounded like the real thing. I opened the door, introduced myself, and asked Al if I could just melt into the background while he worked on his new album, *Dare to Be Stupid*. "Melt away," he said invitingly.

As the dense Kinks sound enveloped me I heard Ray "Weird Al" Davies sing, "I know Darth Vader's really got you annoyed, but remember if you kill him then you'll be unemployed." In "Yoda," Weird Al has penetrated to the heart of the *Star Wars* phenomenon and carried the banner of parody into the '80s. And the music is real cool. With



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PHOTO MR BONZAI

support from musicians like guitarist Jim West, bassist Steve Jay and drummer Jon "Bermuda" Schwartz, "Like a Surgeon" rings true to Madonna and "I Want a New Duck" is a funhouse reflection of Huey Lewis.

As Al and engineer Tony Papa hunched over the group faders and studied music sheets for a re-mix of "Yoda," producer Rick Derringer explained the intricacies of recreating the Kinks sound. "We wanted that dry sound so we recorded with absolutely no echo," he said. "But the original is still a little drier—we finally realized that it was those '70s studios. The rooms were dead—all go-boed and carpeted." He enthusiastically related how he and Al scrutinize the music before creating musical Frankensteins.

"Were the bubbles loud enough?" Al inquired.

**Bonzai:** Who in their right mind would sign a record deal with Weird Al Yankovic?

**Al:** Rock 'n' Roll Records, a division of Scotti Brothers, affiliated with Epic, CBS.

**Bonzai:** Are there really any Scotti brothers?

**Al:** Yes, there certainly are. Tony and

Ben are the two main guys, but there are other Scotti's cropping up from time to time. Tad Dowd is the president of Rock 'n' Roll Records. He's the cheerleader of the whole company and gets very excited about things. It was mostly through Tad that I got signed. It's a relatively new company and now they have a gold record and their first Grammy.

**Bonzai:** I used to listen to you long ago on the Dr. Demento radio show—didn't you record in your bathroom at the time?

**Al:** Actually I recorded in my bedroom first and then when I went to college I recorded in the bathroom across the hall from the college radio station. It sounded pretty nice in there—the tiled walls gave a nice warm reverb. I didn't have the time or the money to use a recording studio, so we ran lines from the 2-track in the radio station: down the hall to the bathroom at 3 o'clock in the morning.

**Bonzai:** Did you ever imagine that someday you would be catapulted into the hall of fame?

**Al:** I had no idea. I went through all four years of college and actually got a degree in architecture—which you can see

I'm using every day. I really had no idea; it's always been a hobby.

**Bonzai:** Well, you still seem to be enjoying yourself.

**Al:** Oh, yeah, but I still feel unemployed. It's like I don't really have a job—it's all so much fun. It's like a hobby, but luckily, I'm making a living at it.

**Bonzai:** Would you consider this third album a continuation of your style, an evolution?

**Al:** It's pretty much of a continuation. I was for the most part very pleased with the second album. For each album we're taking a little more time to make sure that the production is correct. We're digging that much deeper into the original recordings and taking more time with the arrangements. We recorded ninety percent of the first album before we even had a glimpse of a record deal, so we worked fast and did most of the tunes in one or two takes.

**Bonzai:** In listening to you work with Rick today, I realize how much goes into parodying the music as well as the lyrics. "Yoda" is a remarkable simulation of that "Lola" sound...

**Al:** We always think it's a good idea to suck people in first—make 'em think they're listening to the original song and when they're off guard, then you get them.

**Bonzai:** "Yoda" is the only oldie—why did you choose to record it for this album?

**Al:** I wrote it five years ago but we just recently got permission to do it. We approached Ray Davies before the first and second albums, but for some reason, out of the blue, he decided to give us permission for the third album. We also contacted Lucasfilm and got their sanction. We didn't want to do anything that would get their legal department upset.

**Bonzai:** Do they have to hear the finished version to give approval?

**Al:** No, they just have to approve the final lyrics, but we send them copies of the finished product anyhow. We want to stay on their good side; we're very appreciative, and we want to maintain a good relationship.

**Bonzai:** Well, the parody couldn't exist without the previous success. It's great that people like Michael Jackson aren't taking themselves too seriously. So, you're on a roll now, with a bit more power than you had in the past...

**Al:** Yeah, it seems that way. Ever since last year we've had very good luck dealing with people. When I first started out, it was very difficult for people to return phone calls. They just didn't want to deal with a guy named Weird Al. They really



# WE FIRED OUR AD AGENCY BECAUSE THEY COULDN'T DESCRIBE TURBOSOUND WITHOUT THE USUAL HYPERBOLE.

Advertising's not our business, but we assumed that something as unique as Turbosound should practically describe itself. Our agency kept telling us to "stress the *benefits*, not the features," but the printed page has a way of reducing those benefits to the same glowing terms everyone uses in speaker advertisements. Those worn-out superlatives reduced Turbosound to just another version of the over-processed, two-dimensional "PA sound" concert-goers have been enduring for the last decade. That it most definitely is not, as you know if you've heard Turbosound. For those who haven't, we offer the following mildly technical exposition of our unique solutions to the problems inherent in typical speaker designs.

Conventional wisdom considers enclosure design to be the art of compromise, but trade-offs never produce artistic or technical excellence. Our refusal to accept the usual limitations is one reason Turbosound is different by design.

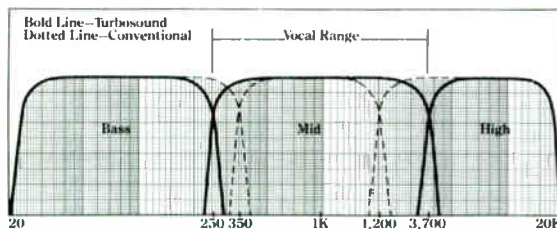
## The TurboMid™ Device

Typical PA systems compromise the integrity of the midrange, dividing it between a cone speaker and a horn-loaded compression driver. The "seam" between two types of sound source causes coloration and phasing problems, too high a price for the increase in projection and efficiency. The patented TurboMid device, a new method of horn-loading, allows our proprietary 10" speaker to reproduce the full midrange from 250 Hz to 3700 Hz. It projects vocals, piano, guitar, snare drums, etc., all the way

to the back row, with clarity and presence. The high frequency driver also performs better thanks to TurboMid, because it no longer strains to cover the upper midrange.

## The TurboBass™ Device

Conventional 'bass bins' rely on enclosure volume (typically over 20 cubic feet), mouth area and path length to generate adequate low frequency energy. They require compromises between system size and weight, efficiency and bass response, cone diameter and transient



response. The muddy, undefined sound produced by those bulky, heavy stacks blunts the impact of kick drums, bass guitar, synths, etc.

Our solution is the patented TurboBass device, a partial horn-loading tech-

nique which pressurizes both sides of the speaker cone. It enables our TMS-4 full range enclosure, for example, to develop a peak SPL of 132 dB at 45 Hz in a total enclosure volume of only 14¾ cubic feet. The uncompromised accuracy and physical punch of Turbosound's low end make a difference you can feel as well as hear.

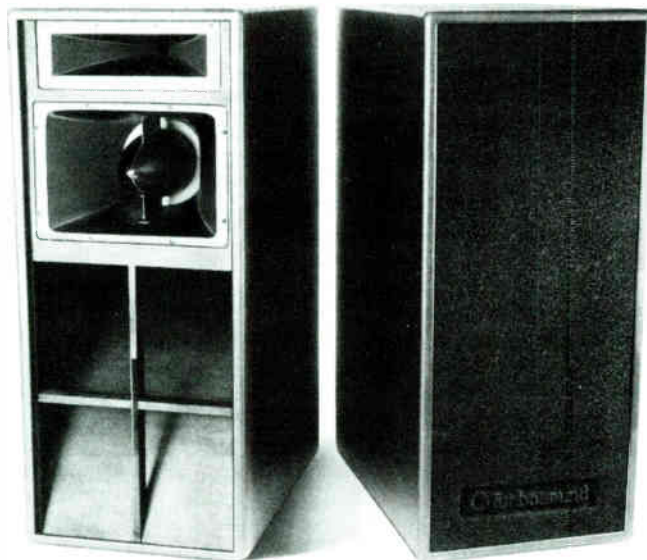
## TMS Series

### Full Range Enclosures

TurboBass and TurboMid devices work with high frequency assemblies as a unified system in our TMS Series enclosures, producing a phase-coherent, amplitude-aligned waveform without the limitations in dynamic range imposed by compensation electronics and "special" processors. Our uncompromising approach to materials and design has made Turbosound the choice of leading industry professionals around the world; from Bowie to the BBC, from Culture Club on tour to a permanent installation in Carnegie Hall. Because, in the hands of a knowledgeable sound reinforcement professional, Turbosound transmits the energy and excitement created on stage to every seat in the house.

## Back To Square One

Conveying the realism and dimensionality of Turbosound with a vocabulary already debased by extravagant advertising claims really is an impossible job. We can only suggest that you audition Turbosound in concert, or call us for the name of your nearest dealer. We know you'll *feel* the difference you're hearing. And if you find the way to put it into words, please let us know.



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Turbosound Sales Ltd. 202-208 New North Road, London N1 7BL (01) 226-3840 Telex 8812703

Circle #035 on Reader Service Card

didn't know what I was all about.

**Bonzai:** Could you point out some of the highlights on the album?

**Al:** Well, we have a polka medley called "Hooked on Polkas," a straight cover version of "George of the Jungle," a few parodies, and some originals. "Slime Creatures from Outer Space" is a danceable tribute to '50s era, grade-B science fiction movies. There's "Cable TV" and "This is the Life," a single that was released as the theme song for the movie

ing to be passe and accordian bands are going to spring up all over. I'm happy to be at the forefront of the movement.

**Bonzai:** Why is sex so messy?

**Al:** I've often wondered about that myself. I've heard that it's pretty messy and I imagine that it would be.

**Bonzai:** In your childhood, which musicians had the biggest impact on your imagination?

He would say "red light, green light" and help regulate my milk drinking. That was a very appreciable quality.

**Bonzai:** So you still look for that in modern recording engineers?

**Al:** Yes, I still enjoy playing "red light, green light"—it breaks up the sessions.

**Bonzai:** What movie would you most like to parody?

**Al:** Either *The Wizard of Oz* or *Swedish Erotica #42*.

*Al with producer Rick Derringer (center) and engineer Tony Papa.*



PHOTO MR BONZAI

*Johnny Dangerously*. There is also a really sick Elvis kind of '50s ballad called "One More Minute" and a Devo-esque anthem called "Dare to Be Stupid." I did a polka version of Devo's "Jocko Homo" on the last album and they seemed to appreciate it, so I think they'll find some humor in this song.

**Bonzai:** Why is the accordian thought of as such a silly instrument? It's your first love, isn't it?

**Al:** Yeah, it's still my main instrument, although I have been playing some synthesizer in the show for about a year. I'm still getting used to not playing buttons with my left hand. The accordian is my main axe and I don't really know why it's thought of as a silly instrument. I guess it's tainted with that "Lady of Spain" image and people think that's all you can play on it.

**Bonzai:** So you feel that it's an instrument that has much more to offer?

**Al:** I think the accordian will completely take over the music industry before long. Synthesizers and electric guitars are go-

**Al:** Oh, people like Spike Jones, Stan Freberg, Tom Lehrer, Allan Sherman, Ray Stevens—people I was introduced to through the Dr. Demento show. These were great people that I didn't get to hear in their prime. All of a sudden I was hearing great things that were recorded 30 or 40 years ago. I thought it was wonderful because there wasn't anything like that on the radio at the time. I felt that it would be great if there were more things like this. Radio was really getting homogenized for a while and it's great that Dr. Demento has spiced it up.

**Bonzai:** What is your favorite way of making love?

**Al:** Did you ask Les Paul this question?

**Bonzai:** No, I try to adapt to the victim, er, interviewee. . . .

**Al:** I think making love with my head in a vat of yogurt would be the ultimate experience.

**Bonzai:** What do you appreciate in an engineer?

**Al:** Engineer Bill was always my favorite.

**Bonzai:** Have you ever witnessed a miracle?

**Al:** Yes, it happened a couple of times while I was on the road last year. I'd stay in my hotel room all day and then I would go out for a couple of hours to have dinner. When I came back, the bed was magically made up and the trashcans were emptied. I can't explain it—it was just a miracle.

**Bonzai:** When, why, and how did you leave home?

**Al:** I left home about 11 o'clock this morning, got inside my Toyota and came here to the studio because it would have been difficult to record in my bedroom.

**Bonzai:** Is there anyone in the world you would like to meet?

**Al:** I would like to meet the guy who invented the ziplock baggie.

**Bonzai:** Do you believe that people can levitate?

**Al:** It's really one of my recurring dreams. I lift my legs and float around about three feet off the ground. The scary thing is that once I woke up and I was actually doing it.

**Bonzai:** What is your strongest characteristic as a human being?

**Al:** Nice shoes.

**Bonzai:** If you hadn't become a musician, what would you be?

**Al:** I would probably be a worthless hunk of slime with discolored teeth, drooling on my shirt and eating chili out of the gutter. No, I'd be less than human—I'd probably be a one-celled animal—an amoeba, or maybe a paramecium just translocating all around.

**Bonzai:** What was the last thing that you gambled on?

**Al:** Every day is a gamble. You put your key in the car and you don't know if it's going to blow up or not. Just sitting here so close to you with that pencil bouncing up and down—it might fly into the air and poke me in the eye. . . .

**Bonzai:** But you're wearing those protective goggles.



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# MR. BONZAI

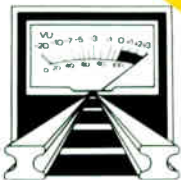
presents



## STUDIO LIFE: The Other Side of the Tracks

Hey, Babe. Take a walk on the lighter side. Join the crew at Ryan Recording as they struggle for respect and profit in the recording industry. The journey is satiric and whimsical, sometimes a bit bizarre but always illuminating.

Mr. Bonzai's work has been praised by critics, recordists, and piano tuners from every corner of the world. Isn't it time you found out what they're all laughing about? Treat yourself to the insider's view of **STUDIO LIFE**.



Send \$7.95 per copy plus \$1.00 postage and handling to MIX Books, 2608 Ninth Street, Berkeley, CA 94710. California residents add 6.5% sales tax.

**Al:** Well, I like to be prepared—I deal with a lot of people with pencils.

**Bonzai:** What is the difference between animals and human beings?

**Al:** Humans wear nicer shoes. Animals are just pigs.

**Bonzai:** What is the most recent business trick you've learned?

**Al:** To be successful in business it's always a good idea to make lots and lots and lots of money.

**Bonzai:** "Oft thought, but ne'r so well expressed." What makes a great producer?

**Al:** Someone who supervises a record that sells billions of copies. Rick Derringer—why, he's been just like a producer to me. Rick really has been wonderful—he's fun and easy to get along with. It's unique to find that combined with great experience.

**Bonzai:** What is the quality of the humans that gives you the most hope for our race?

**Al:** Any civilization that can come up with Wheat Thins is OK with me. This should be a take-home quiz. If we were on TV I could probably think of something really stupid.

**Bonzai:** Do you have any favorite new recording gadgets?

**Al:** Microphones are kinda cool . . .

**Bonzai:** When did you first notice that you were destined for the big time?

**Al:** When I opened my door one day to get the newspaper and there were thousands of teenage girls screaming "Weird Al! Weird Al! Weird Al!"

**Bonzai:** Do you have any advice for aspiring musicians?

**Al:** Yes. Eat from the four basic food groups each day, don't trust naked bus-drivers, and do this: (Al squeezes his nose between his index and middle finger).

**Bonzai:** Any advice for aspiring politicians?

**Al:** Skip the rest and just do this: (Al squeezes his nose again.)

**Bonzai:** How 'bout aspiring gynecologists?

**Al:** Practice makes perfect.

**Bonzai:** Are there any drugs that people should be warned about?

**Al:** Flintstones Vitamins—they'll tear your head right off.

**Bonzai:** What was the biggest mistake of your life?

**Al:** When I was a kid at the dinner table I was fooling around with the butterknife and I decided to cut my head clean off—boy, what a mistake. ■

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It's no surprise that when the key engineers of our PZM<sup>®</sup> microphone technology set their sights on combining the benefits of the boundary effect with unidirectionality, the fruits of their efforts would be nothing less than superior.

After all, Crown has been leading the way in boundary technology longer than anyone in the industry. And, like the PZM project, our commitment to developing the "premiere" unidirectional, surface-mounted microphone rings true.

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For maximum flexibility, the

PCC-160 features an exclusive three-way "bass tilt" switch which allows you to tailor, up or down, the low-end response for special applications or unusual boundary sizes.

Due to its low profile and "go away gray" finish, the PCC-160 microphone becomes nearly invisible in use, making it ideal for the stage, newsroom or lectern top.

But beneath its cloak of dark gray, the PCC-160 is protected by a heavy-gauge, all-steel body, tough enough to stand up to even the most severe abuse.

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World Radio History



PHOTO: MIKE WHELAN

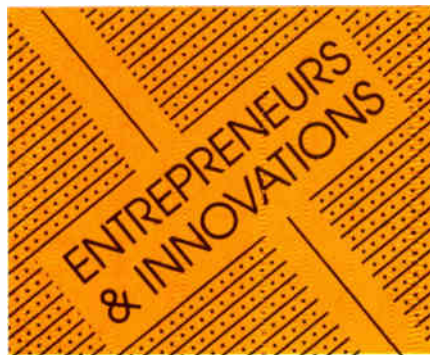
# Concert Sound

## 1985

by Elizabeth Rollins

While stalwart tour companies continue to march smartly to the well-financed tunes of superstars, there is a guerrilla faction creeping about in the R&D fringes of the 1980s sound reinforcement industry. The "upstarts" with the bright ideas and diversified client bases are generally regional companies trying to market the designs they've been testing through staging and sound rental for a few years. And perhaps partially because different companies we spoke with specialize in different types of jobs, allegiances to particular designs and manufacturers are fierce; opinions, steadfast.

One such regional company is Joe's Amalgamated Industries of Trenton, New Jersey, which waxes the bite-sized slogan, "More Sound per Pound." That phrase takes on added meaning when one learns that this umbrella company includes Joe's Sound and Salami, a cabinet design and manufacturing house (it's hard to know if the name indicates audio/gastronomic diversity, or merely that the company grew from a bunch of college buddies goofing around in Ithica, New York seven years ago.) Modular Sound is the sound reinforcement rental arm, and Joe's Recording is their 16 track studio. Joe's president, George Williamson, reasons that this interdisciplinary audio approach gives him an edge when it comes to R&D testing.



The spirit of rugged individualism tinges many of the ideas Modular's manager Robyn Gately discusses. "We have an apprentice program. We try to run three people through at a time. It's six months long, and we train them *our* way, because re-training people is much harder than doing it from the start." The Joe's school of PA teaches not only compactness, but use *retraining* of as little electronic manipulation as possible. "Once the signal leaves the console, I like it to be as unaffected as possible," says Gately. "We even try to use EQ in our PAs as little as possible. Even if you run

EQ flat, what comes out is different from what went in."

That philosophy dictates the actual materials and design of the cabinets. Gately and engineer John Fish have developed a speaker enclosure that uses mechanical design instead of electronic signal delay to correct the problem of high- and low-end time alignment. The box is called the Slide-Align™ because it physically slides the high end about four to six inches out of the box to ensure that high frequencies arrive at the same time the low end hits a concert goer's ear. "It's an acoustic solution to an acoustic problem," Gately says.

At Joe's they know where they stand in the heated horn versus bass reflex debate. "More sound per pound" means as little space in the truck for the traditionally monolithic bass cabinetry. Bass reflex cabinets are used at Joe's because the designers feel they can get truer bass with less distortion in a smaller box—but, that they can overcome the inherent inefficiency problems of a non-horn bass system.

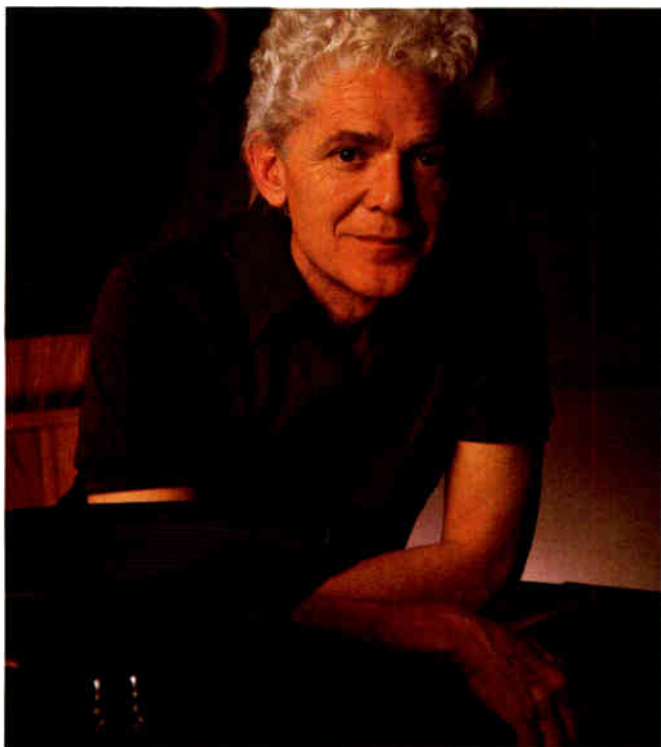
How? The answer lies in something as basic as the cabinet materials, according to Gately. "We experimented with just about everything, and what we developed was a wood resin alloy that gives more rigidity, so less energy is lost to vibration. We can get about three dB more out of one of our boxes," claims Gately.

There's another convention to

*Monitor engineer Dave Bryson of Electrotec in Canoga Park, CA, prepares for Tom Petty concert at San Diego's Jack Murphy Stadium.*



# Before you choose speaker components, listen to Tom Hidley.



It's a good bet that of all the people reading this ad, 10 out of 10 know the name Tom Hidley.

One engineer we spoke with called him "the best engineer in the world." Another described him, a bit more colorfully, as "pretty damn hot."

But most of you know him as perhaps the foremost studio designer in the world today.

The reason we bring this up is that the speaker components Tom prefers for his clients are the ones we make.

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In fact, he does more than prefer them. Insists Tom, "I will use only TAD, unless a client demands otherwise."

We, of course, are delighted that Tom feels so strongly. But it should also be of more

than passing interest to you, since you want the speaker components you use to be the best.

And on the subject of "best," Tom has some very definite opinions about TAD. "They are the most state-of-the-art, consistent quality products today. Nothing touches their performance, honesty, stability and transient response."

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*"NOTHING TOUCHES THEIR PERFORMANCE, HONESTY, STABILITY AND TRANSIENT RESPONSE."*

---

There are some sound technological reasons for such enthusiasm. For example, we use only pure beryllium diaphragms in our compression drivers for high speed sound propagation and exceptional efficiency. We also assemble every component by hand, with tolerances as close as a millionth of an inch. And we use exhaustive and esoteric evaluation techniques — such as the Doppler laser and anechoic chamber — every step of the way, from original design right through to manufacturing.

---

*"TAD MAKES THE BEST SOUNDING COMPONENTS I'VE EVER HEARD."*

---

But for Tom, that's all frosting on the cake. "At the end of the day," he says, "it's what comes out of that speaker that determines success or failure. No matter what it measures, it all comes down to what it sounds like. TAD makes the best sounding components I've ever heard."

If you're in the market for professional speaker components, for yourself or a client, we hope you'll seriously consider what Tom Hidley has to say about TAD.

And thanks for listening.

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The bass cabinet can deliver eight times more in undistorted sound than can another cabinet its size, according to Vukelich. Here's his explanation:

"It uses a DC servo motor which responds directly to the AC signal coming from the amplifier. It rotates back and forth in response to the audio signal, and it's hooked up to a mechanical linkage which is attached to two large 15-inch cones. The advantage is that there are no cone excursion limitations like on a regular voice coil driven speaker, which can only move about a quarter inch before it scrapes the magnet and distorts. Our cones can move out an inch and a half, which is about eight times as much air movement in a 15-inch speaker." The servo drive is manufactured by Inter-sonic of Northbrook, Illinois.

The three-way Wonderbox itself (27¼"x30"x22½") comprises six components: four horns and a pair of compression drivers. Vukelich says the specially designed horns and the signal processor with its protective features allows twice as much power to be driven through the box. (For stage monitor systems, there is also the Wonderwedge).

Vukelich says all skeptics are welcome to challenge Pyramid to a contest if they feel they have a smaller, better sounding system. Later this month at the NAMM show in New Orleans, Pyramid will be demonstrating the Wonderbox system at the Avalon Theater a couple of blocks from the convention center with a band called "Clearlight." The Rascals will also use the Wonderbox system when they begin a tour next month.

Another innovative company that started regionally in London as a rental house only, has infiltrated the international audio market with 21 distributors to date. Turbosound has indeed taken off. The company manufactures several speaker systems for various needs and budgets. Again, size is one of Turbo's big selling points, according to vice president of marketing Daniel Abelson; "All enclosures in our line get unusually high efficiency out of a small enclosure." The largest of the line, the TMS-3, which is sold mostly to rental companies, measures 33¾"x40"x22¾". The tri-amped, three-way box uses a proprietary high compression horn loading system on *both* sides of the cone for the low and mid-range. Both horns are folded, and they are designed and manufactured by Turbosound. Abelson explains the set-up inside the box: "So you've got the back side of the cone loaded into a compression chamber, and the front side is also up against compression before it enters the throat of the horn. This principle was patented by the company about three years ago. It means the enclosure can take more power and it

can put out more dB."

Carnegie Hall in New York City is outfitted with the Turbo TMS-2 (15" bass, 10" mid range, one-inch compression driver by a Spanish company called Beyna) and the TMS-1 for vocal reinforcement (10" mid-range, 10" bass, and a Fane tweeter). Other installations include The Grand Ole Opry, Nashville and the Royal Theater, Copenhagen.

Linear Sound in Oakland, California is one rental company that uses a 36 box Turbosound TMS-3 system, and four different TMS-4 and TMS-2 combination systems. Vice president Kent Kline says recently his company used an 18 box TMS-3 system in Zellerbach auditorium in Berkeley for the Violent Femmes. (Les Femmes Fearsome turned out a full horn section for this show.) Kline says he's planning to get a bigger Turbo system this summer.

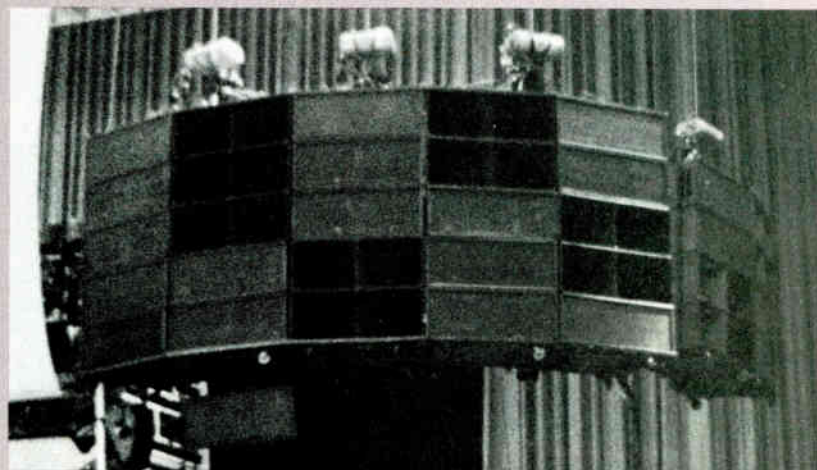
Some other rental companies that use Turbosound are: dB Sound, Chicago; Spectrum Sound, Nashville;

Eighth Day Sound, Cleveland; and Audio Analysts, Plattsburgh, New York. Turbosound is still a rental company, but only in Europe.

As Rob Vukelich of Pyramid Sound says, "The big wheel turns slowly." The regional companies see flexibility as their advantage in catching up to the larger tour companies who can't afford to change their inventory too quickly.

Modern consciousness *does* permeate the more established companies, however. Colin Beveridge, equipment manager of Audio Analysts, Plattsburgh, New York, states succinctly what's on everyone's mind, big or small: "Economy is the key to the modern industry. The whole market is getting competitive." Audio Analysts has one semi into which they try to pack everything they'll need for such clients as Billy Idol, Billy Squire and Culture Club.

Of their 240 cabinets, Beveridge says this year 48 were modified with "a new JBL 10-inch speaker which



## SOUND ON STAGE

Twelve year old *Sound on Stage of Brisbane*, California handled the PA and monitor systems for this year's illustrious BAMIIES show at Brooks Hall in San Francisco. (Sponsored by BAM Magazine, this awards ceremony corrals dozens of Bay Area music celebrities including Huey Lewis and The News, The Jefferson Starship, Eddie Money, and Greg Kihn.)

SOS has toured with Huey Lewis, Night Ranger, Berlin, and Luther Vandross, to name a few. "At this point, you know, with clients like these, we have to invest in the best

equipment," says office manager Bob Walker. "Even though Gamble consoles seemed like a real big cash outlay, we knew that they were what was called for. We had to take the step up. And it was worth it. Everybody wants Gamble."

Owner Jerry Pfeffer agrees that from a technical standpoint, Gamble was a good move. "That console makes everything else in the system sound that much better."

The SOS approach to speakers is modular. Their "Power Physics" cabinetry includes: the CS-15, with a 15-inch, horn loaded Gauss woofer for bass; the CS-210 with two JBL 10-inch speakers handling mids; the "twin" horn pack with two JBL 2440s and four 2402 ring radia-

—PAGE 76



# The purr-fect match...CATS and Vega.

Cetec Vega wireless equipment plays a prominent role in the sound production of the famous musical, CATS.\* Jess Heimlich, sound engineer for the touring company, says, "Cetec Vega wireless systems are work-horses. They make my job a lot easier, and, more importantly, give me a feeling of security. They are subjected to the most unimaginable workout I have ever seen."

Cetec Vega wireless microphones have helped CATS in the winning of seven Tony Awards (including Best Musical, 1983) and the Outer Critics' Circle Award—Best Musical (1983).

The road company of CATS uses 14 Cetec Vega Model R-42 dual-diversity wireless receivers with Model 77/DII bodypack transmitters. The system features DYNEX®II, Cetec Vega's new standard in audio processing. Jess also has two backup Vega systems on standby. "These 16 sys-

tems have been on the road for over a year now, providing about 95% reliability. When you put your reputation on the line eight times a week, you want equipment that'll back you up. Vega's do. And, more importantly, when there is a problem, you want a company and its representatives to provide you with immediate service. Vega has given me both. Typically, repair turnaround time has been 36 hours!"

The road company's stage managers also use the Cetec Vega "Q" System full-duplex wireless intercom system, which interfaces to their Clear-Com wired intercom system.

In all, between 15 and 17 wireless microphone and intercom systems are used simultaneously on stage, without a trace of interference between systems.

Cetec Vega wireless systems are also in use at the newly opened

CATS productions in Los Angeles, Toronto, and Chicago, and on Broadway. Jess says, "In the last three years, I have used more than 30 Vega systems on four different Broadway Productions. The plain and simple truth is: they work...MORE RELIABLY, MORE CONSISTENTLY, AND MORE OFTEN than any other wireless I've ever used"

If you must equip your performers with the most dependable, highest quality wireless microphones, remember the words of CATS' Jess Heimlich: "Cetec Vega wireless are the best I have ever used!"

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"Vega's top-of-the-line wireless systems are great!" says Jess Heimlich, CATS' sound engineer, standing next to their rack full of Cetec Vega R-42 dual-diversity wireless receivers.



**Sound on Stage's PA System set-up for Huey Lewis, Tacoma Dome, 1985**

—FROM PAGE 74, SOS

tor tweeters; the "shin," which is the same as the "twin," except the horns are splayed for wider dispersion. "What we do is use the 'twins' for narrower beaming and a longer throw, and the 'shins' are useful for blending and dispersion," says Pfeffer. Generally a stack will include two bass, two mids and a horn package.

The monitor system is, "of

course, all for the individual—we're just there to serve, our opinions don't really matter," Pfeffer points out. Therefore, he says, it changes all the time. Here are the basic components that are most frequently used: Gamble consoles, a 1.4-inch Ultech driver, an SOS designed conical horn, and a 15-inch Gauss speaker in a ported box, driven by Crest and Phase Linear amplifiers.

—Elizabeth Rollins

we're in love with. It really makes a difference with the existing cabinets we've been using for a few years.

"We're really pleased with this amplifier we've been using for a little while, too—the QSC 3800. We've been working with the company very closely. They work well with us because they're easily serviceable, there's a lot of power in a small package, and they're very clean. We have what we consider a hi-fi PA, so that still has to be our main consideration. There are other equal or smaller in size amps that we've tested, but we couldn't use them because of distortion," says Beveridge with the lilting cadence of a Scottish accent.

Fellow Britisher Mick Whelan, an engineer in the R&D department at Electrotec, Canoga Park, California, echoes some of the aforementioned sentiments. He remembers touring in pre-record industry crash days when certain bands were given extreme economic leeway, partially as a prestige accolade, and partially because of the state of the technology. "Monolithic systems used to be the trademark years ago, but you see, it's a little different now. For example, every tour we've gone out on in the last three years... Tom Petty, Rod Stewart, Waylon Jennings... we've fit it all into one semi.

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"Efficiency and compactness are the attributes," Whelan restates, and Electrotec has its own approach to solving the puzzle. "For about three years now we've been using our own two cabinet PA system. It's called the Lab-Q Series, and it's horn loaded with the bass being an 18-inch JBL transducer and folded horn. Then for the upper frequencies, we've got a fiberglass custom horn made by DDS [Design Direct Sound, Seattle, Washington], the 2445 compression driver, and two modified JBL 2402 tweeters for the high end. They're very popular, these cabinets. We can't seem to build them fast enough," reports Whelan. (Both cabinets measure 50"x22½"x30".)

Whelan brings up one point on which few others comment: "Amplifiers, in my opinion, are the best thing in the chain today—the closest to being perfect. The UREI 6500 amp is the best to use on the road. I've tested every major manufacturer. While they all sound extremely good at four ohms, it's at two ohms that you can tell the men from the boys. It comes down to one thing: the power supply."

There are certain advantages only the larger companies such as Electrotec, who tours with Foreigner, Alabama and Teena Marie to name a few, can afford. For instance, the Crown TEF, which is a \$16,000 machine, basic. Whelan says, "I think it's going to be a whole new field. The TEF is a measuring device that can show the phase response of almost any piece of electronic hardware. Originally, it was used on the moon. They used laser beams to tell how far away the moon was. An audio TEF also uses pulses to do its measuring," Whelan explains.

Despite the high tech sales points, Whelan confides what he calls the key to getting the big tours: "It's the monitor system. The artist is still important, and if he's working himself hoarse every night, that's what ultimately matters." (Electrotec's monitor system is composed of: JBL high frequency amps, UREI 6500s on the bass, and JBL E130 or E140s and a 2441 with special filtering for the monitors.)

A-1 Audio in Hollywood has made its reputation in large part on its sensitivity to just such performer's needs. Barry Manilow (see Feb, 1985 *Mix*), Frank Sinatra, Paul Anka, The Everly Brothers and Englebert Humperdink are the kind of high-priced, so-called middle-of-the-road (MOR), vocal-oriented acts they tour with.

At the AES meeting last month, A-1 engineer Ken Newman delivered a paper on solving stage monitoring problems. President Al Siniscal emphasizes the importance such artists invest in hearing the perfectly mixed, *processed* version of their performance: "MOR performers are usually vocalists and they wander all

over the stage. Another difference is that they tend to stay a week or so in one venue—hotels and casinos—so if you don't have it right after the first two shows, they know it's not 'the house,' it's you!"

Siniscal says there's no question about whether A-1 goes with the more expensive outboard processing gear, "We just have to. We have to get the top of the line at maybe \$14,000 a unit, and we have to use these things on both the house and the stage mix. And every one of our stage monitor boards has sliders, because the engineers have to be fast.

"One reason why these particular performers want the perfect stage mix is because the first 20 rows are getting

the same thing he's getting, regardless of what the house is doing. If he can get those front rows on their feet—that's the excitement, the intimacy he's counting on," Siniscal explains.

For the stage system, A-1 uses the Meyer MSL-3 and the UPA-1 which are powered by Crest 4000 amplifiers and the BGW 750Bs (as well as some custom designs). The consoles are customized Soundcraft 800-Bs and -Cs with multipin connectors and patchbays. Essential outboard processing gear includes: The Lexicon Super Prime Time, the EXR-4, the dbx 900 rack, and full EQ on all monitors.

When a company is out with a

## SOURCE INDEPENDENT MEASUREMENT

by Larry Oppenheimer

If music is the message, then air is the medium which carries it. In a sound reinforcement situation, this translates to the fact that your system can be perfectly clean and wonderful, but if the room acoustics resemble that of an aircraft hangar then the sound engineer will be in for a tough time.

Traditionally, this has been the problem voted "Least Likely to be Improved Tonight." Graphic EQ combined with real-time analysis could help to effectively reduce peaks in the frequency response, but in a bad hall, they couldn't do much to improve intelligibility. Even with more powerful test tools, the problem has remained that hall acoustics change drastically when people enter, but once the audience is present, they won't tolerate loud test signals. Impulse averaging techniques have lower level test signals, but they take quite a while before anything significant can be determined. Of course, the ideal test signals would be music; since that is what the intended listening material is. Unfortunately, the thing that makes music the best test source also makes it the hardest to use: its complexity. This stumbling block may now be yielding to a creative usage of computer technology.

In the fall, the Audio Engineering Society has traditionally had a convention in New York. At 1984's assemblage, John Meyer of Meyer Sound Laboratories in Berkeley, California, presented a technique which he called Source Independent Measurement as a solution

to many acoustic problems which often crop up in sound reinforcement, particularly high-level, civic center-sized concerts. The concept is actually quite simple, but the tools to put the idea into practice have only come along recently.

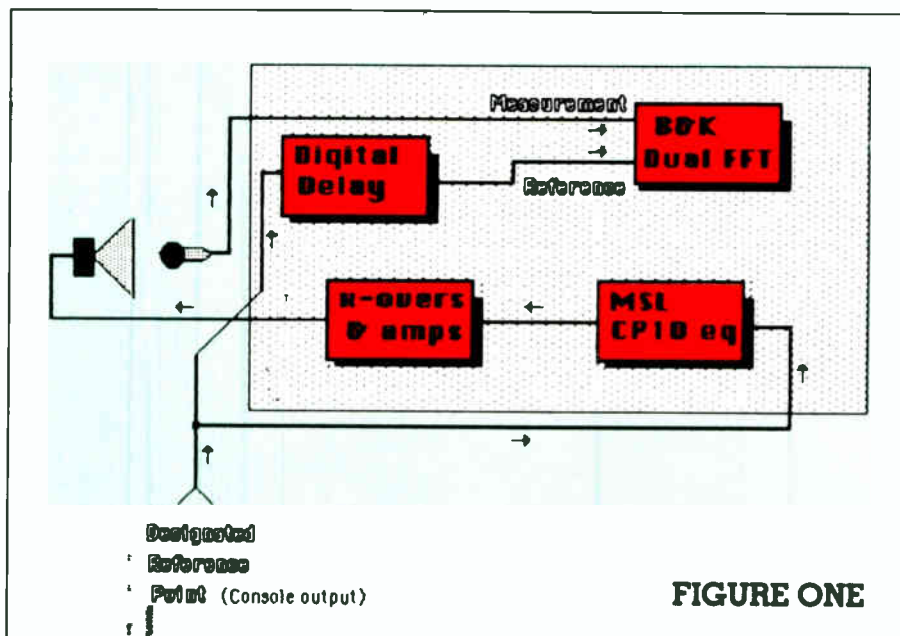
The idea is that you start with a sound system which you know is clean, flat, and coherent. Now you've eliminated one factor from the equation. If your source material is good, and your sound system is good, then the only thing that could possibly still be making it sound nasty is the room. We're a third of the way there.

At this point, what is needed is a comparison between the sound in the room and the signal at some convenient reference point in the chain. By finding the differences between the reference and the room sound, the distortions are isolated and identifiable. The only hitch here is that there is the small matter of a time delay while the sound travels through the air from the speakers to your ears. The simple solution is to insert a high quality delay in the reference signal so that the two are once again coincident.

Now you've finally figured out what is going on, the only thing that remains to do is fix the problem. This time it really gets sticky. Most of the acoustic problems that give boomy, unintelligible garbage are related to the reverberant response of the room. Reverb occurs after the sound that you want to hear, so how are you going to compensate for something that hasn't happened yet? Before I give out Meyer's

—PAGE 78





—FROM PAGE 77, SOURCE  
answer to that one, here's a little closer look at what he is doing.

A basic SIM setup is shown in Fig. 1. A calibrated microphone is fed into the measurement side of a Dual FFT (Fast Fourier Transform). Meyer is using Bruel and Kjaer FFTs, long recognized as one of the world's finest. A reference point is chosen, typically the output of the last stage before the crossover (mixer or house EQ). The signal from this point is routed through a digital delay and then into the reference input of the FFT. With proper adjustment, the comparison can be made and frequency and phase distortions noted.

To do the correction, Meyer inserts a parametric equalizer immediately following the reference point. What kind of parametric equalizer can pull such shenanigans with time? you may ask. According to Meyer, a very special one. While working with his parametric design, Meyer stumbled across a bizarre thing: if he set two EQs in exactly complementary fashion, and passed a signal through the two in series, not only was there no net frequency distortion, there was no net phase shift! And he doesn't mean that the phase shift was some multiple of 360 degrees. This seemed remarkable to him, so he took this discovery to Stanford to see if they could explain. At first, it was baffling. Dr. Julius Smith at CCRMA finally came up with the explanation. Rather than creating complex conjugates (pole and zero functions) in the frequency domain, his equalizer was creating a complex conjugate in the time domain.

Obviously, Meyer is not talking about how his EQ does this. However, his technique and his equalizers have been put to a number of field tests which have borne quite striking results. Meyer's first field research was through the kindness of Rush and the Grateful Dead, both of whom took a few chances in letting someone fool around with their sound while they played. More recently, however, several dealers of Meyer Sound products have begun to use SIM in different kinds of sound reinforcement situations. Meyer hopes to begin an education campaign on this technique in the future, but for right now, it's somewhat limited by the five-figure price tag on the B&K, not to mention the speakers and EQs. But there is hope in the arenas today. ■

top act for six months or even a year, information organization is a priority. A-1 uses in-house programmed personal computer software to inventory equipment, and to calculate trucking space and shipping costs. Siniscal rips a print-out and reads the headings on the top of the page: "item, description, case number, serial number, weight, country of origin, value, size in inches, volume in cubic feet. . . with this we can figure out everything pretty easily in advance and store it."

The huge Dallas-based Showco uses computers as well. Will Sharpe, president and CEO, explains that the calibre of international general contracting they do requires vast data banks. "We do crews, production services; we do everything except play the instruments. So we've got the names of crews, union stewards, services—we've got everything about every hall in that computer," says Sharpe.

Showco has toured with major pop and rock acts such as The Rolling Stones, David Bowie, The Who, and currently, the company is steering Julian Lennon through his first tour.

A 15,000 square foot soundstage with 30 foot ceilings in the Dallas Communication Complex is where Lennon put together his rehearsals for the road. Sharpe says that when the artist was ready, "he put on the first performance there for our crew and management. It was great to see. This is his chance to go out with his band and hammer it out. He's never been on stage before."

The soundstage seems to offer the isolation and change of scene that some musicians like when planning a tour. "It's been very useful to us," says Sharpe. "We can customize it for a certain artist. But I'll tell you one thing—I

wouldn't want to have to start out here in Dallas. It's okay now because we're firmly established. Otherwise it would be hard to get people to come down here, I think."

Sharpe came from Los Angeles this past year where he'd been Showco's marketing director. As he undertakes the presidency, he's got a specific managerial style in mind. "I personally am trying to change the attitude at Showco. A lot of people thought we just had this real good ole boy from Texas thing—as you can probably tell I'm not from Texas," says Sharpe, an Illinois native. Another management goal is to expand the industrial division, which already handles such clients as General Motors, Mary Kay Cosmetics, and IBM.

Does David Bowie really need a wall of sound from a cabinet smaller than a breadbox? Obviously, the Showcos of the industry have different concerns than the regional companies with visions of new-fangled cones in their heads, and patents in their briefcases.

But whether it's a tiny box or a time and labor saving computer software program, it seems many key companies acutely feel the need to solve the problems of their station with logic and creativity.

As to whether the designs from Joe's and Pyramid, for example, will ever catch on—that depends upon the musicians who might use them—and on the strength of marketing campaigns. Whether they do or they don't, the body of research is expanding. People are sitting around on benches late at night trying to do the impossible. And while a few anti-gravity disks would sure come in handy when stacking bass bins at the next venue, we'll just have to wait and see what tomorrow brings. ■



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(Above) Phil Lesh, Bob Weir, and Jerry Garcia

# DEAD SOUND

by Blair Jackson

Whether you love or hate the Grateful Dead, you have to give them credit for their tenacity and longevity. The Dead turn 20 this June, with the nucleus of the band virtually unchanged in that time, and, even more remarkable, the group's popularity on the rise still. Though they haven't made an album in the studio in nearly six years—or an album at all in almost five—they still tour most of the year and are consistently among the top grossing acts in rock. What started in pizza parlors in Northern California's South Bay region now routinely fills basketball arenas and civic auditoriums from coast to coast.

Because the Grateful Dead has always essentially been a live attraction, sound reinforcement has been a top priority for the group. Their early days were spent using bad equipment in acoustically nightmare-ish halls, so they spent a lot of time and money trying to remedy these sound problems. Through the years, the Dead have utilized the ser-

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**AN  
INTERVIEW  
WITH  
GRATEFUL  
DEAD  
SOUND  
WIZARD  
DAN  
HEALY**

---

vices of a number of sound reinforcement visionaries, including Owsley Stanley (better known to most for his chemical contributions to late '60s hippie culture), Ampex's Ron Wickersham and the whole Alembic crowd, John Meyer and, of course, their principal sound mixer for much of the past two decades, Dan Healy. Just as the band continually experiments with its music—songs are never played the same way twice and no two Dead shows have had identical song lists—Healy has always looked to improve on the group's live sound. That quest for perfection has led him down a number of strange paths over the years—who can forget the infamous Wall of Sound, a gargantuan 641-speaker system with complete rear monitoring that the Dead lugged around the U.S. in the mid-'70s? Expensive? Yes. Impractical? Definitely. But it sounded great and that has always been Healy's bottom line. Most "arena bands" have, by now, figured out how to sound good in big halls, but the fact remains, no one consistently has as clean, distortion-free sound in





# PREVIEW



## Sound Workshop Series 34-B/ARMS-II

Sound Workshop Professional Audio Products, of Hauppauge, NY, have introduced their Series 34-B consoles, featuring a new modular patchbay system and an innovative console interface. The patchbay uses steel framed TT-style jacks with a high strength subassembly and connects to the console interface via computer-type wiring; tape machines and other studio gear wire to the interface with AMP multi-pin connectors.

Also featured in the Series 34-B is the new ARMS-II console computer, an enhanced version of the popular ARMS automation system. In ARMS-II, all functions are sped up by a factor of two, and new software-based features and functions have been added. ARMS-II is also available for retro-fit into existing consoles and may be specified for OEM installation from a variety of console manufacturers.

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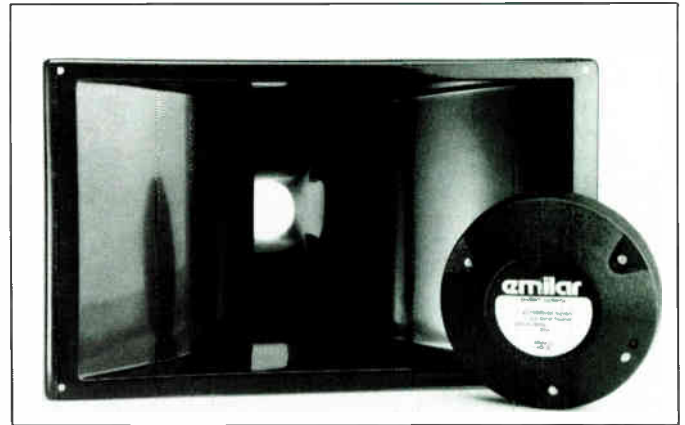
## New Yamaha Personal Studio System

Yamaha's new Producer Series four track cassette system includes the MT44D recorder, RM602 6x2 mixer, and RB353 rack/patchbay. The MT44D, priced at \$535, is a high quality two/four track cassette machine; one to four tracks can be recorded simultaneously, with or without noise reduction (Dolby B or C). Comprehensive full logic transport controls include fast forward and reverse cueing, autolocator functions, and selectable tape counter/time display. Four fast-response, fourteen-segment LED level indicators are provided, as is a rear panel jack for hands-free punching-in when used with a standard footswitch.

The \$395 RM602 is a compact 6x2 mixing console designed for use with small recording systems. Six 1/4-inch

microphone inputs can be accommodated; four of the channels also have tape inputs for playback; the other two channels have inputs for any standard (RIAA) stereo phono cartridge. Each input channel has a signal pad, two-band EQ, pan, effects send, and stereo monitor sends. The RB35B patchbay and rack assembly, designed for the MT44D and RM602, integrates the Personal Studio System in a single pre-wired unit with a convenient front patchbay. The RB35B is priced at \$165; the entire system is \$1095.

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## EH 330 Horn from Emilar

Specially designed for use with the EC 600 driver, the new Model EH 330 Uniform Directivity Dispersion horn from Emilar of Anaheim, CA is constructed of lightweight fiberglass and offers simplified installation. The horn has a mouth opening 27 inches wide and 16 inches high; depth is 16 inches and throat diameter is 3.2 inches. The 10 pound horn is designed to be used in two- or three-way sound reinforcement or voice-only systems: a useable crossover frequency point is 250 Hz.

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## Furman Power and Light Module

The PL-8 AC power conditioner and light module from Furman Sound (Greenbrae, CA) solves two common problems by providing clean, filtered power to sophisticated signal processing equipment and illuminating outboard racks in the dim light frequently encountered in studios and sound reinforcement applications. The unit's eight switched outlets (up to 10 amps total) are protected by a resettable circuit breaker, as well as double-action AC power conditioning which helps shield against high voltage surges, HF noise, and RFI. Lights and power are switched independently from the front panel. The two slide-out lamps retract during transportation, and swivel to put light where needed. Bulbs are standard four- or seven-watt sizes, easily replaced without removing the unit from the rack.

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## Tough-Tech™ Suspender System

Recently introduced by the Sound Suspender Company of Vancouver, Canada, the Tough-Tech Suspender system suspends loudspeakers by means of a strong and attractive nylon webbing that attaches to a finished oak ceiling plate. The oak plate is secured to a ceiling joist or wooden beam, with a single steel lag bolt. The loudspeaker is securely held in its cradle by a unique Velcro hook and loop fastening system. The loop material is sewn onto the inside of the nylon webbing; while the self-adhesive, hook fastener pads are attached to the loudspeaker (peel and stick).

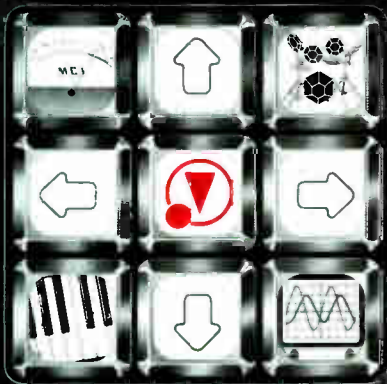
When suspended, the loudspeaker is mechanically



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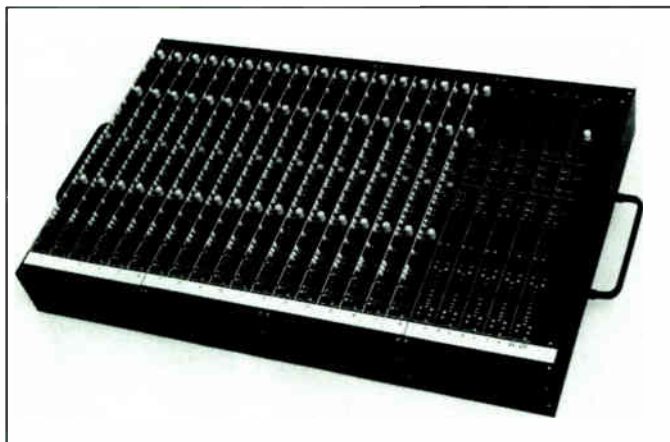
decoupled from the listening environment, eliminating unwanted speaker vibration. Directional control is easy to adjust, allowing the aiming of loudspeakers for optimum stereo imaging. The system, priced at \$79.95 per pair, is available in three sizes (S, M, & L) to accommodate most loudspeakers. The maximum recommended weight per loudspeaker is 125 lbs.

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## Plastic 7" Reel for Half-inch Tapes

A seven-inch, NAB hub reel for half-inch master tapes is available from El Mar Plastics of Carson, California. The reels provide a low-cost alternative to storing materials on seven- and 10½-inch metal reels and are ideally suited for storing bin loop masters, half-inch multitrack tapes, and half-inch 30ips single mixes. A seven-inch white box is also available from the company for storage and filing purposes.

Circle #051 on Reader Service Card



## Interface Series 310 Monitor Mixers

Interface Electronics of Houston, TX, have introduced their Series 310, a new line of stage monitoring consoles. The mixers, available in 12 to 48 input versions, feature 10 outputs (including right and left sidefills); four band EQ with tunable mid frequencies; eight color coded send pots per channel, each having signal in/out and flat/EQ switches; and controls on each module for solo, phase reverse, mute, and up to 30 dB of input attenuation. Rear panel connectors include electronically balanced, transformerless XLR-type microphone inputs and outputs (the splitter is built-in) as well as individual channel interrupts for the insertion of outboard gear.

Circle #052 on Reader Service Card

## APM Catalog Expands

Associated Production Music of New York City, the exclusive representatives of the KPM, Bruton, Conroy, Themes, and Shepherd Bush production music libraries, have added over 20 new releases to their catalog. The new releases range from six jingle albums featuring cuts specifically edited for broadcast, to high-tech synthesizer tracks with a modern slant. A sample cassette is available from APM, 888 7th Avenue, New York, NY 10106.

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## Light Wave Mini-screens

Light Wave Systems, of Panorama City, CA have introduced their new line of high performance fabric/mesh wind-screens for Sony and Thomson Broadcasting Betacam video microphones and the popular Sennheiser ME 80 cardioid/

shotgun mike. According to the manufacturer, the "Mini-screen" windscreens are about the same size as common foam socks, yet offer an additional 20 dB of attenuation of wind noise, along with a sweetened mid-range for improved dialog pickup. The Mini-screen can be used either boom mounted or hand held, and the addition of wind-sock cover allows for working in gale conditions.

The model designed for the ME 80 is nine inches long and weighs 1.5 ounces; the Betacam model is 6¼-inches long and weighs one ounce. Both come with a two year warranty, and have an expected lifetime of over fifteen years.

Circle #054 on Reader Service Card

## BGW 750D Power Amplifier

BGW Systems, Inc., of Hawthorne, CA, have unveiled the Model 750D, an updated, improved version of their 750C amplifier. The 750D features a toroidal power transformer, new technology complementary transistors that are 50% stronger than those in the 750B with five times the speed, a reversible low-noise fan, reduced distortion and noise, and increased power output: 400 watts/channel into four ohms, and 1200 watts mono into four ohms. The BGW 750D is priced at \$1,499 and other standard features include LED status indicators (power on, true clip, signal presence), two ohm operation in the stereo mode, and XLR and ¼" inputs with internal phase inverting jumpers.

Circle #055 on Reader Service Card



## New JBL Sound Reinforcement Speakers

The 46710K Sound Reinforcement System from JBL is a two-way, direct radiator system with a frequency range of 35 to 20k Hz and a power handling capacity of 150 watts pink noise (300 watts continuous program material). The system has a rated sensitivity of 97 dB SPL, 90 degree horizontal beam-width, and a nominal impedance of eight ohms.

System components include the 2225H 15-inch woofer, the 2425J high frequency compression driver, 2370 flat-front Bi-Radial horn for constant horizontal coverage from 500 to 16k Hz, and the 3110A frequency dividing network with a crossover point of 800 Hz. Each system is housed in a 58 pound, oak-finished enclosure measuring (HxWxD) 21 ½ by 30 ½ by 17 ¾ inches.

Circle #056 on Reader Service Card

## LEM USA Debuts Pro Line

LEM U.S.A., of Silverado, CA, have unveiled their line of professional audio products, including stereo power





amplifiers (ranging from 70 to 420 watts/channel); a stereo 10-band graphic equalizer; two speaker systems for sound reinforcement applications; and the "Live 16" and "Live 24" series of consoles. As their name implies, the "Live 16/24" boards are 16 and 24 input boards designed for live sound, featuring balanced mike and line inputs; three-band EQ; individual channel inserts; talkback input; five LED bargraph output meters; main program, sub and sum outputs; and an optional built-in reverb/delay/echo/chorus module.

Circle #057 on Reader Service Card

### Rocktron RX1 Exciter/Imager

The RX1 Exciter/Imager from Rocktron of Auburn Heights, MI, is a rack-mount, two-channel psychoacoustic processor which enables the user to add brightness, clarity, definition and intelligibility to audio signals. When processing stereo sig-

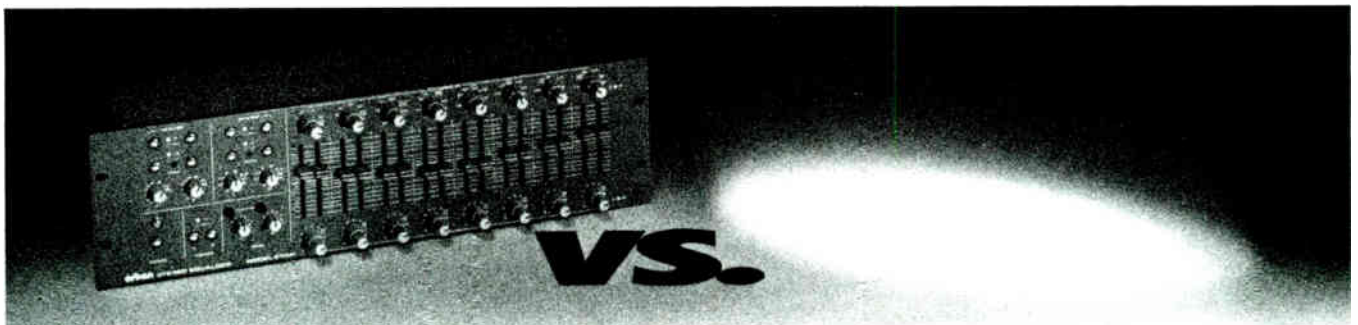
nals, the unit improves stereo imaging and adds spaciousness. A selectable phase mode feature allows both frequency enhancement as well as phase notching, for the highlighting of individual signals while simultaneously reducing less intelligible signals. When the phase mode is not in, the RX1 enhances audio signals across the middle to upper frequency range. Front panel controls are provided for process level, phase adjustment, phase in/out, and process/dry signal mixing. Back panel inputs and outputs are standard mono phone jacks, and the unit can also be driven by a direct instrument input.

Circle #058 on Reader Service Card



### SCV Phase Checker

SCV Inc., which recently opened a U.S. office in Burbank, CA, has introduced their Model PC-80, a highly portable, absolute phase measuring system for checking any audio system, including microphones, loudspeaker systems, console patch points, studio wiring and patchbays. The system consists of two separate units, a generator and a detector. Measure-



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ments can be made either acoustically, (by generating and sending a special wide band pulse through a self-contained speaker and reading it with the detector's built-in microphone) or electrically through standard, three pin XLR-type connectors. LEDs indicate in-phase (green), reverse phase (red), and power on (yellow). Each unit operates on a standard nine-volt battery. The system's operating bandwidth is given at 1Hz to 20kHz in the electrical mode (generator and detector); and the acoustical mode specs are 200Hz to 5kHz (generator) and 100Hz to 15kHz (detector). The PC-80 is priced at \$299.00.

Circle #060 on Reader Service Card

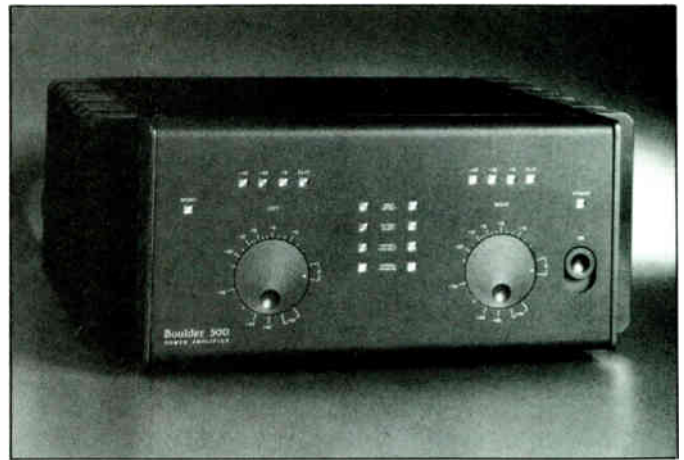
## Inogon Level and Angle Indicator

Designed for the setting and measurement of angles and especially useful for speaker alignment and rigging, the Inogon Level and Angle Indicator provides direct numerical readings of angles with a precision of 0.2 degrees. Pitch rise can be quickly converted to angles with a table provided with the unit. The tool eliminates parallax errors since angle measurements are based on changes in visual patterns that occur when light passes through two superimposed optical windows. The Inogon Level and Angle Indicators, which come in 10, 24, and 48 inch lengths, and magnetic/non-magnetic versions, are available from the Audio Systems Division of Peirce-Phelps, 2000 N. 59th Street, Philadelphia, PA 19131.

Circle #061 on Reader Service Card

## Boulder 500 Power Amplifier

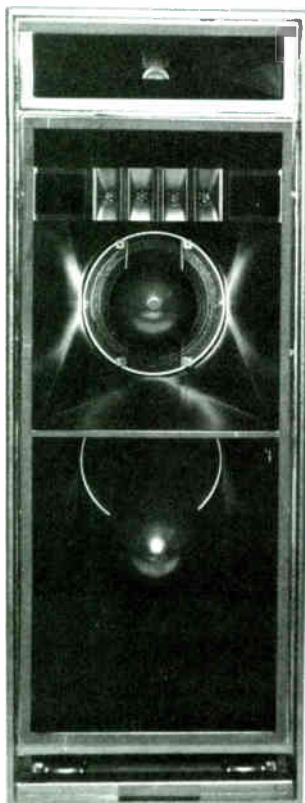
Silver Lake Research of Boulder, CO, have introduced their Boulder 500, a totally discrete power amplifier rated at 500 watts mono into eight ohms, 250 watts stereo into 4 ohms,



and 150 watts/channel into eight ohms. High power bursts in excess of 1300 watts mono are possible into very low impedance loads such as dual woofer monitor systems.

According to the manufacturer, the amplifier's low distortion specs (stated as .005% THD at 20kHz) are achieved by using two sequential stages for the required high power gain: a Deane Jensen 990 op-amp first stage provides high input impedance, most of the voltage gain, and becomes the active differential amp in the balanced input mode. The Boulder 500 also features: conductive plastic output level controls (calibrated in dB), differential and unbalanced inputs, electronic power up/down speaker disconnect, gold plated input and five-way binding post output connectors, recessed controls and front panel status indicators. The 500 is priced at \$2,450.

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Meyer Sound MSL-3 speaker

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"Meyer speakers are intended to meet the needs of clients like Rush, Depeche Mode, and the Thompson Twins. These rock groups play huge spaces and feed the speakers equally huge amounts of amplifier power to get very high sound pressure levels. The result is so clean and clear that Meyer speakers are being employed in P.A. situations that have nothing to do with rock and roll, such as the delicate task of reinforcing opera star Luciano Pavarotti.

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—Larry Oppenheimer  
Mix Magazine, March 1985



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Berkeley CA 94702

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## Manufacturer Specifications: Akai MG1212

Tape format: 1/2" Akai MK20 cassette

Track format: 14 tracks (12 audio channels, one control track, one sync track)

Tape speed: 7 1/2 ips (19cm/sec);  
3 3/4 ips (9.5cm/sec)

Recording time: 10 minutes at  
19cm/s; 20 minutes at 9.5cm/s

Tape speed accuracy:  $\pm 0.2\%$  (at  
either speed)

Pitch control:  $\pm 12\%$

Wow and flutter: 19cm/s: 0.03%  
(JIS wtd); 9.5cm/s: 0.04% (JIS wtd)

Total harmonic distortion: 0.5%  
(0dB, 1kHz, both speeds)

Tape rewind time: 120 seconds  
(MK20)

Noise reduction: dbx Type I

Frequency response: 50-20k Hz,  
 $\pm 3\text{dB}$  (19cm/s); 50-16k Hz  $\pm 3\text{dB}$   
(9.5cm/s)

Signal to noise ratio: 94dB (NAB  
"A" weighted)

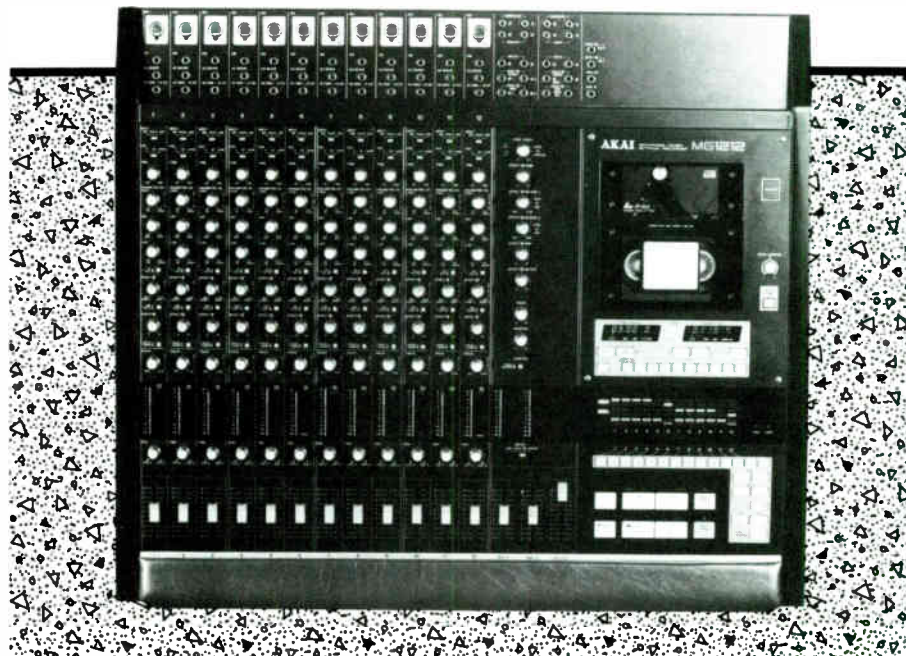
Crosstalk: 55dB (between adjacent  
channels, both speeds)

Transport drive: FG servo DC  
capstan motor; coreless DC reel  
motor

Equalization type: parametric three  
band,  $\pm 15\text{dB}$ ; high—1.5kHz to  
15kHz; mid—350Hz to 5kHz; low  
—40Hz to 800Hz

Dimensions: 856mm (wide) x  
250mm (high) x 752mm (deep)

Weight: 42kg (92.5 pounds)



## ► Akai MG1212 12-Channel Mixer/Tape Recorder

by Robert L. Missbach

The Akai MG1212 is a truly unique piece of recording gear, combining a 12-channel mixer with a 14-track analog recorder. All mixer-tape connections are internally wired and switched for no muss-no fuss recording. The only external wiring required is for communication with the outside world (two track mixdown recorders, monitor and cue amps, and reverb/effects). Of the 14 tracks, the two "edge" tracks are reserved for external sync or clicktrack (drum machine or sequencer sync tones, metronomes, etc.) and internal control (locator functions, memories, etc.) with the 12 audio tracks corresponding to the 12 input channels.

The input modules contain a concise variety of controls. Input selection is through a mike/track/line switch, including a mike pad with up to 40dB of

attenuation, and mike/line trim with 20dB of gain. The three-band parametric EQ section with bypass switch offers 15dB of cut/boost from 40Hz-15kHz with sweep controls. There is a stereo aux send and pan (switchable pre-/post-fader) and a mono post-fader send fed from your choice of input/mix fader or track monitor pot. There are separate track monitor buss and master remix buss pan pots, and a 12 segment bar meter, record status and overload indicator LEDs. Curiously missing is a mute switch, although there is a programmable mute function (described below).

The tape transport is a clever affair, using 1/2" audio tape loaded into a special minicam-sized videocassette. The cassette is loaded into a transport much like a VCR, with a roller arm drawing a loop out of the cassette shell into the tape path. There are actually four heads; Akai's Super GX Crystal Ferrite record-

ing/playback head for the 12 "inside" audio tracks, a record/playback head for the sync and control "edge" tracks, and two heads for erase. The incoming erase head is for the upper control track and even-numbered audio tracks. Next to it is an identical head that is "staggered" for erase of odd-numbered audio tracks and the lower sync track. This staggered erase head configuration gives excellent erase performance, but sacrifices a bit in punch-in/punch-out performance due to the distance from the record head (1"-1 1/2"). Tape speed is selectable at 7 1/2 ips or 3 3/4 ips, with dbx Type I noise reduction which is not defeatable, but is a welcome addition at those low speeds.

The track routing is via a matrix in which each input module is "nor-

malled" to its respective tape track, or assigned to any other track or to one or both output busses. The output busses allow mixing and panning of several inputs to two tape tracks, and may also be used when bouncing or ping-ponging. There are switches and indicators for sync and control track record, a master "anti-record" (master safety) switch, and a solo function, which allows soloing of only one track at a time. Transport controls are the usual rewind, fast forward, stop, play, record, pause, memory search, and "cue" for defeating the auto mute in fast spooling modes.

The counter/locator section contains some useful features. The tape speed indicator is flanked by two six-digit numerical LED displays; "time

counter" is in minutes, seconds, and tenth seconds and "memory time" is minutes, seconds, and memory number. This latter window displays addresses which may be stored in memories corresponding to keys 1-9 of the 10-key pad. These displays and memories are dependent upon the 14th control track for synchronization. Besides allowing location to any address, these memories allow three clever features. In "repeat playback," the transport will repeatedly play any segment of tape between two programmed points. "Playback muting" permits any or all of the 12 inputs to be programmed for mute/unmute in either playback or record (for instance, while ping-ponging). This feature is solely dependent upon the 1-9 memories for start/stop cues, so there is a limit to the number of commands it can store and execute. The third and perhaps most useful feature is "punch-in/punch-out recording." Again, this relies on memories, and there is a limit. Accuracy is to the second, not tenths of seconds, and occasionally after many repetitions the counter/control track may slip  $\pm 1-2$  seconds, but if you can't play the part by then, you'll need a break anyway.

Although self-contained and internally wired, the MG1212 provides several patch points for external equipment. Each input module offers a three-pin XLR mike input, 1/4" unbalanced line input, and 1/4" send/return insert, which is half-normalled (breaks on returns) and which "appears" between the mike/line preamp and the EQ section. The master module provides unbalanced 1/4" jacks for A & B buss outputs and inputs (not normalled), 1/4" outputs for the stereo and mono aux sends and their two stereo returns, 1/4" input/output for the sync track, 1/4" un-normalled insert to the stereo aux sends, and RCA-pin left/right jacks for monitor out, track out, mix buss aux in (prefader), and master out.

At this point the only drawback is the tape. Akai alone makes and markets the cassettes. They're a bit pricey, and only last 10 minutes at the high speed. You'll have a hard time doing edits, but this may not be important to the home recordist, and editing is not often required on a ten minute multitrack tape when cutting demos.

Okay, it's got a lot of great features, but how does it sound? For the number of tracks you get, it sounds *real good*. The home recording market offers you either eight or 16 tracks per half-inch, but 12 is better than eight, and not much less than 16 considering the 13th and 14th data tracks. While the unit's \$6,995 list price may seem high at first glance, the sophistication and completeness of this "micro studio system" (recorder, mixer, noise reduction, auto locator, patchbay) makes the Akai MG1212 an attractively priced entry in the market.

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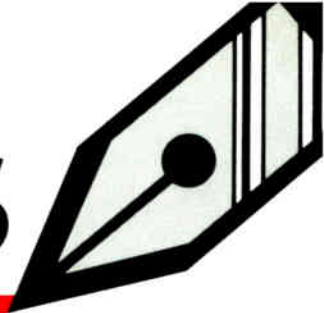
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# Signing Artists



## THE LABELS' VIEWPOINT

by Blair Jackson

"People don't know how hard you work in this business," says Larry Hamby of Epic Records' L.A. A&R staff. "They think you come in, listen to a couple of tapes, go to lunch, listen to a couple more, have a few beers and then go home. There's a lot more to it than that. I believe that making music is a magical process, and listening at this level has to be a magical process, too. You can't quantify what makes something a 'good record.' People will tell you otherwise, but there are no formulas, no set ways of making a hit. And I'm not just looking for hits. I'm looking for art, too."

These are odd times for record company A&R departments, and even stranger ones for struggling artists trying to get a foot in the door of those A&R departments. A look at *Billboard's* Top 100 singles chart would seem to indicate that listeners' tastes are very broad right now—or that there are a number of different pockets that are buying records. It's not at all unusual now to find synth-pop, MOR ballads, black dance tunes and hard rock songs all in the same Top Ten. But listening to different A&R people tell it, radio is actually in a period of conservative retrenchment on almost every front. Things are diversified, but within the different popular formats,

playlists are tightening, not loosening. The same holds true for video, too.

"You have to be on your toes all the time," Hamby comments. "If you try to sign something on the basis of what's popular on the radio, by the time you get it out, it probably won't be popular any more. If you signed a metal band a year ago and just put the record out this week, you'd look up and find that AOR isn't playing metal all of a sudden, and MTV, which really helped break metal, is playing much less of it."

"Every radio programmer cringes when you bring him a record by a new act, no matter how great it is," adds Steve Rabolovsky, *wunderkind* A&R man at Columbia Records in New York (and formerly with EMI). "They're all reeling with the popularity of what we used to call Top 40 [now referred to as Contemporary Hit Radio, CHR] and MTV. Everyone is thinking 'hits' and they're taking fewer chances. At the same time, though, the A&R climate is generally quite good right now. There are a lot of acts being signed. Signing and breaking new acts is what the record business is all about in my opinion, because if you're not always looking for new things, you're not going to be around very long. A few of the big labels have taken some of the profits they've

made the last couple of years and put a bit of it into signing and developing more new acts, and that's how it should be."

Confused? You should be. The fact is, the answer to the age old question "How does someone get signed today?" is as elusive as ever. It takes some weird alchemical combination of talent, perseverance and Lady Luck, just as it always has.

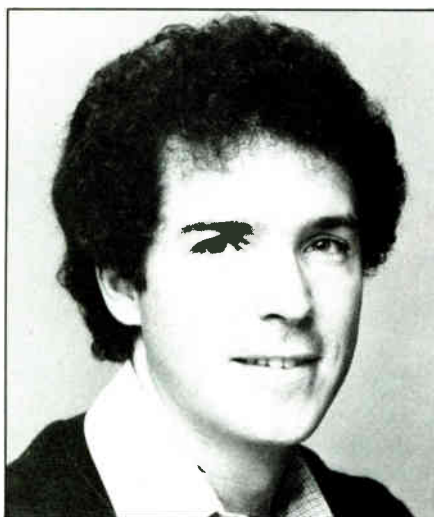
"I know it sounds corny," says Rabolovsky, "but my advice to an aspiring artist is to just be yourself. People have to realize that to get in the door and turn a creative person on, they have to be uniquely creative. By that I mean they can't come in with their version of whatever's popular on the radio at the moment, or whatever's safe and formulaic."

"If you want to be an artist and writer and sing your own songs, you have to sit down and figure out a way to make your songs sound special enough that an A&R person can tell that you are a unique talent, and that your songs are special enough that people are going to want to let your music into their lives. You have to let your uniqueness stand on its own. A lot of people send me tapes with notes that say, 'If you don't like this, I have other, more commercial music you'll like better.' I want people to send a tape and say 'This is me. This is what I'm all about. I think it's good.' What I look for on a tape is some fresh, original perspective. I'm not looking for someone who sounds like Prince or Madonna. Prince and Madonna do what they do just fine."

And what of the demo tapes themselves? Are there now so many people with sophisticated home recording equipment that the simple guitar-or-piano-with-voice tape is an unacceptable anachronism in A&R circles?

"Absolutely not," says Martha Sharp of Warner Bros.' Nashville A&R office. "It's true that we're getting more and more really high quality demos, but we still get a lot of simple guitar-and-vocal demos, particularly from some of the publishing houses around town. A great song and a great voice will show through even the simplest demos."

Hamby agrees—up to a point. "I'm not going to ignore a simple or badly made tape. I've been able to hear through some hideous demos of great songs, but you'll spot a great song more easily if it's produced well. In other



(Left) Martha Sharp of Warner Bros. Records and (above) Larry Hamby of Epic Records.



## The AMPLIFIER: Hill Audio DX500

### The POWER:

Dual channel (per channel)

280 watts into 8 ohms

425 watts into 4 ohms

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Bridged MONO

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IMD SMPTE better than 0.015% at 4 ohms

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words, you can set up a ceramic microphone in the middle of a room and record your song on a little tape recorder, but you probably won't be presenting that song in the best way possible. I never suggest that people go out and spend a lot of money on a demo. That's why demos are demos. But the way technology is today, there are a lot of bedroom studios that can make great tapes, plus there are a lot of first class studios that have a lot of down-time that they offer cheaply. You just have to look around, weigh your options."

"I'd like to think that people in A&R positions can see beyond the limitations of a particular tape," Ralbovsky says, "but there seem to be fewer musically trained people in A&R these days than there used to be and that has to affect this a bit. If you're a musical person, you tend to have more imagination and it's easier to deal with, say, a piano and vocal demo, because you can sense where embellishments might be and you can grasp the whole song on a more musical level. People in A&R who don't have a musical background were usually brought up solely on records and it's sometimes more difficult for them to deal with sparser arrangements. The days of the Arif Mardins, John Hammonds and Ahmet Ertegun's is largely gone now. That type of real musically trained peo-

ple has been supplanted somewhat by people coming into A&R from promotion and other non-musical areas.

"I get all kinds of demos—piano-vocal demos, ones made on little Fostex machines, 24-track demos. You can really put together a pretty good home studio for a few thousand dollars now, which was unheard of a few years ago. But not everyone can afford that, and we take that into account."

Prospective artists should keep in mind that A&R departments are constantly deluged with tapes—sometimes as many as 100-150 a week and that competition for the few slots available on a given record company's roster is intense. "I hear so much junk in the course of a week," Martha Sharp says with a laugh and a sigh. "A lot of people who send in tapes really have no business thinking they can be performers. In country music, it seems that every songwriter wants to be a performer whether they have talent along those lines or not. If you can make your living as a writer, it's a *wonderful* existence. You might not get the glory, or the women—or men—but it can be a very exciting and satisfying life. People should really sit down and evaluate what they're best at and concentrate on that rather than trying to do everything. Some of these tapes..." she repeats

with a touch of frustration in her voice. "But then you hit one or two that really has something and it's all worthwhile."

All three of the A&R people interviewed for this article agreed that while not essential, having a manager or lawyer take your tape around is probably helpful. And yes, it does still help to have connections to get your tape a little extra attention from that A&R rep, though, as Larry Hamby says, "The days of getting signed because of who you know are over. Companies are much more careful than they used to be. If we don't sign acts because of what our hearts say, then it's going to be like it was a few years ago when too many people were being signed because they were the brother of somebody on the label, or an attorney's mother, or the engineer's dog... Labels wasted a lot of money on those kind of signings."

Of course A&R is more than a matter of just listening to a tape and signing an act because of what's on that tape. If you perform live, an A&R person will want to see you in that kind of setting, too.

"There isn't always a correlation between a person's live show and how good a record can be made of those songs," Sharp says. "Somebody can have great songs and not be a good performer, and vice versa. You can be a great performer but not have the kind of material that will make for a good record. And this *is* the record business, after all."

"I still really believe in live bands," Ralbovsky says. "I've rarely wanted to sign somebody off an unsolicited tape. It usually takes a good tape and great live show to get me really excited about a group. And I'm not always just looking for what's obviously there. I'm looking as much for potential. When I first started looking at Jason & the Scorchers when I was with EMI, they couldn't play, the singer couldn't sing, they were loud and raucous. But there was this intense musical synthesis in their music and it was obvious that with some development they'd be something special. And that proved to be the case. They're starting to sell a lot of records for EMI and I think they sound great today."

A new part of the whole equation is video, which Sharp, Ralbovsky and Hamby all acknowledge has become increasingly important in putting new acts across. "Five years ago it was much more important how an act came across live," says Hamby. "Now you wonder how an act will do with a camera in their face. Usually, though, a good live act will translate to video pretty well, so I don't think about it that much."

"A&R will always be mainly about finding that great artist and trying to develop him or her—take them from a few good songs or ideas, through the making of a record and get the music out there. That part of the job will never change." ■

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# If you don't hear the subtle differences implicit in the M 600's performance, don't buy it.



When an audio product achieves the highest levels of technological sophistication, the subtle differences that set it apart from high-priced competitors are only apparent to a very few. Many can't readily appreciate those differences while others are hampered by inferior sound reinforcement and recording equipment that can't capitalize on the superior performance of a mic like the Beyer M 600. Still, there are individuals who demand something special from their equipment and are willing to investigate the finite criteria that distinguish it from the rest.

A comparative analysis of high-technology mics often involves minute differences in sound based on transient characteristics, a tailored frequency response or specific features intended to satisfy particular applications.

The M 600's unique Hostaphan\* diaphragm produces the kind of fast transient response that faithfully captures all of the energy, impact and nuances of a live performance. The M 600's frequency response has been shaped to enhance vocals with extra crispness, detail and presence. Its classic hypercardioid pattern effectively eliminates feedback and its

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Combined with sound reinforcement or recording equipment of equal competence and integrity, the M 600's distinguishing characteristics become apparent both to the vocalist and the audience. At Beyer, we feel those differences are the reasons why the M 600 is unquestionably our top-line vocal dynamic microphone.

The Beyer M 600's level of excellence is also exemplified by its unusually low handling noise and its proven ruggedness and reliability. We've included a three-position equalizer switch for the flexibility to tailor the mic's low frequency contour to changing acoustical environments. For those applications requiring an on/off switch, we provide one (optional\*) that is truly both silent and lockable.

When a vocal microphone represents a substantial investment, you have the right to expect the highest levels of performance. The Beyer M 600 was created for those performers who demand total excellence from themselves and their equipment. If you are one of those people, the logical alternative is to investigate the potential of the Beyer M 600.

The Dynamic Decision

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\* Model M 600S

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# MUSIC MOTIONS

by Bruce C. Pilato

With television, home video, and clubs already well assimilated, music videos are now out to conquer a new territory: the movie theater. And although this concept is not exactly new (music shorts date back to the early 1930s), considering the fact that the record buyers usually attend two to three movies per month, it is certainly one that seems right for this decade and for some time to come.

Now, when you go to see Arnold Schwarzenegger crush skulls in *The Terminator*, you may also be assaulted by Twisted Sister's clip of "We're Not Gonna Take It." Prior to *Vision Quest*, *Turk 182*, *Breakfast Club* and other features, many theaters are showing Rick Springfield's "Bop Til You Drop," as well as clips by Hall & Oates, Jermaine Jackson, Kool & The Gang, Sade, Carly Simon and others.

Last year saw the emergence of Music Motions, a New York based firm designed to develop and place both new and established conceptual music video clips in movie theaters across the U.S. and abroad. With their main competitor, Concert Cinema (a West Coast operation dealing mainly in live clips and long forms), Music Motions has become the forerunner in an idea that seems to have all the right elements. In less than one year, it has gone from 0 to 1200 screens in the U.S. alone.

With their music film clips (or "Music Zaps," as they are called), Music Motions boasts the promotional interaction of record buyers and movie goers, since the largest percentage of both are between the ages of 16 and 34. At present, Music Motions estimates it reaches 25,000,000 viewers per month.

"As of January 1985, we have commitments from 1200 screens," says Tom Hayes, the 27 year old film technician, who, with New Jersey real estate developer Shant Hovnanian, founded Music Motions in April of '84. "But with 19,000 screens out there, there's clearly a lot of room for growth."

In addition to being yet another entertainment medium, Hayes also sees music clips in theaters as an effective promotional tool. He cites surveys in both Connecticut and Massachusetts, where 82% of those attending the movie stated

that they'd prefer to attend a feature film that was accompanied by a music short.

"That 'something extra' excites the ticket buyer into making a clear decision. They also help bring the infrequent movie goer into the theater and make the infrequent record buyer aware of new recording artists," says Hayes.

According to Hayes, and Music Motions vice-president and promotion director Pam Henning, there are great advantages for the music industry with such a concept. Among them, a 40' wide screen rather than a 19" TV or a grainy club screen; 4-channel Dolby stereo sound; a quality viewing environment; a captive audience; and something they call "Zap Intensity," which they feel gives a music clip more identifiability in the long run than the current music video over-saturation which has become common today.

Music Motions acquires established clips, as well as producing its own (they recently did a 10 minute mini-movie based around Carly Simon's song "It Happens Everyday"). At present, the company pays the artist and/or the record company a flat fee and leases a clip to theater owners for \$275 per month. These owners may show the zap as often as they wish during a limited time. Hayes says that his company is presently looking into using corporate sponsors to subsidize his Music Zaps, so that theaters could show them with a 15 second spot, without paying any rental fee. Concert Cinema has been doing this since their inception, though they would rather not.

"We prepare the clips for the big screen and finish them as films," Hayes says. "We put credits on them and then we go into a 4-channel stereo dolby mix. That allows you to hang the sound on four different walls: left, right, center and surround, and that makes the presentation that much more exciting."

The audio re-mixes for many clips have probably been the most difficult part of the production process—transforming a clip originally designed to be viewed on TV, to the big screen.

Hayes has had a hard time getting record companies and artist's managers to let him take the original two-inch master audio tape of a clip's music and re-mix it down to 4-channel Dolby stereo. Instead, he often has to rely on the 2-channel LP mixes of a song. All he is real-

ly able to do with those is enhance them by adding some sound effects and delay.

In order to take full effect of the 4-channel Dolby stereo sound systems which most modern theaters are equipped with, Hayes needs to re-mix the original 24- or 32-track recording and position lead and backing vocals and the instrumentation, as well as add other sound effects.

Hayes says that not only are record companies reluctant to release the original multi-track recordings, but most artists themselves do not want their finished album mixes tampered with. He does feel, however, that as the marriage of music videos and theaters grows, labels, artists, and managers will become more cooperative and will eventually start going out of their way by actively getting involved in the re-mixes.

Despite the problems he has encountered, Hayes says that the smart artists are well aware of the impact their clips will have when the exposure on television is doubled by movie houses. In Chicago, thousands of Twisted Sister fans flocked to a neighborhood movie theater where the infamous group was making an in-person appearance to promote their clip of "We're Not Gonna Take It."

Most of Music Motions' zaps were originally produced for television, however they recently acquired a nine minute Kool & The Gang clip that was produced for theatrical showing, and last June, the company began producing clips themselves.

Both Hayes and his contemporaries at Concert Cinema know that the key to success for each of their companies is to "lock up" as many movie screens as possible. The more screens each has, the more exposure each can promise, and the company with the most exposure is likely to attain the biggest artists.

Though Music Motions is growing at a steady rate (they hope to be profitable by next year), Hayes says it will be some time before his company and others like it can deliver audiences the size of MTV's.

"The bottom line (for most artists) is a business decision. We're not geared up to compete with the promotional exposure that MTV gives. However, when we get onto 19,000 screens, then we can blow MTV off the map. But that," says Hayes, "hasn't happened just yet." ■



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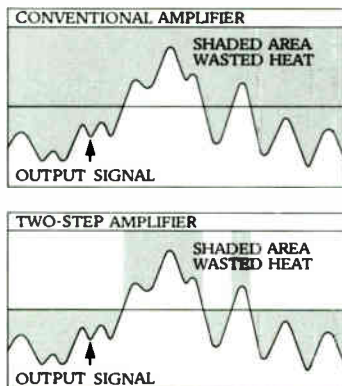
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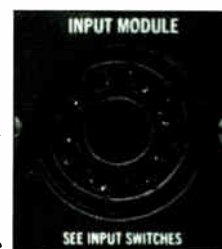
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# REMOTE RECORDING 1985

## REELING IN NEW OPPORTUNITIES



*(Right) A wide chassis trailer gives the GHL remote unit a spacious, open feel.*



*Mobile Audio's 20-foot control room features twin Otari MTR-90 II 24 tracks and a 36 input Sound Workshop Series 34 console.*

by George Petersen

Despite any rumors to the contrary, the remote recording industry throughout the United States is vibrant, alive and thriving, which seems somewhat paradoxical, since the number of live album projects from major labels could hardly be considered to be at a high level these days. However, what does seem to be infusing the industry with jobs and activity (read money) is a steady stream of radio gigs (for both national networks as well as independents such as DIR and Westwood One); video and film support dates; and a surprisingly large number of bookings to do recordings while parked alongside artists' homes and rehearsal facilities.

Other remote recording businesses have found a wealth of opportunities doing live album projects for independent labels (especially jazz) and a host of custom dates ranging from choir and gospel groups to rock, new wave and reggae bands.

We talked to a number of recording truck operators about how they see the state of the market in 1985, and all

## Busy Days for Le Mobile



Owner/engineer Guy Charbonneau inside Le Mobile.

It's been quite a week or two in the San Francisco Bay Area for Guy Charbonneau's celebrated recording truck, Le Mobile. First there was a live recording for Y&T at the Keystone Palo Alto club, followed by more work with the up-and-coming metal band at the group's Hayward rehearsal studio. Then Le Mobile went up to San Francisco to record Santana for a radio special. From there it was on to Sausalito so Charbonneau and producer Michael Masser could do mixing sessions for Stacy Lattisaw's next album. (Masser and Charbonneau had collaborated successfully a year ago on a Teddy Pendergrass album project.) And now here he is a few miles east, with Le Mobile parked outside the Marin Civic Auditorium, right next to One Pass Video's huge mobile unit. Inside the Civic, the Grateful Dead are playing to an empty auditorium, save for a video crew and a few roadies and friends of the bandmembers.

Charbonneau, wearing a headset that links him with the video truck and the auditorium, is changing tapes

—PAGE 104

—FROM PAGE 99, REMOTE RECORDING felt optimistic, but somewhat cautious—in general, they felt the level of business has stabilized to match the number of mobile recording concerns. Another point of agreement expressed was an appreciation for the expanding markets which have created new-found opportunities and kept their reels rolling.

"You really don't make that much money doing live concerts," laments Chris Cassone, owner of Reels on Wheels, a White Plains, New York based truck which is featured on the cover of this issue. "There's a lot of glory in it and it hooks you up with a lot of artists, but the basic slant of our truck is not to be tied down to concert recording only, but doing mobile recordings at artists' homes." At press time, Cassone was involved in exactly this type of project, for Chic keyboardist and ace session player Rob Sabino, whose solo album is being recorded by parking the Reels on Wheels mobile unit outside the artists' house and at several other locations. "We're also planning to pull the truck up to a castle outside of New York and do some tracks with Rob and Nile Rodgers, who's playing on this gig."

Cassone also added that the limitations of a remote truck (when compared to a land-based studio) are becoming fewer in number, especially in light of synthesizer/drum machine type projects where the players rarely need to leave the control room.

Another remote recording company which has recently benefitted from doing dates at artists' homes is Mobile Audio of Rome, Georgia. Owner Rick Norvell's 45-foot air ride trailer cum 48-track control room was called into action by David Hewitt of Remote Recording Services in New York, who was coordinating remote trucks to cover the Prince tour.

"We were pleased to have the opportunity to work with Prince," Norvell comments. "We first went up to St. Paul, Minnesota, back in October, and recorded rehearsals for the tour. Prince actually wrote a song called 'The Ladder' during the rehearsals, and we sure went through a lot of tape that day. After that, we went to Washington D.C., where we were involved in the video for MTV [a 17-minute version of 'I Would Die for You' and 'Baby, I'm a Star']. The multi-track tapes from the Washington D.C. show were flown to New York, mixed, sweetened, and laid back to video, but Prince liked the live two-track mix better and they used that instead, which says a lot for his engineer David Tickle, who is really excellent. From there, we went back to St. Paul to record a show for his home town. Then we took the truck to his house and spent about three days, mostly doing assembly and mixing to two-track."

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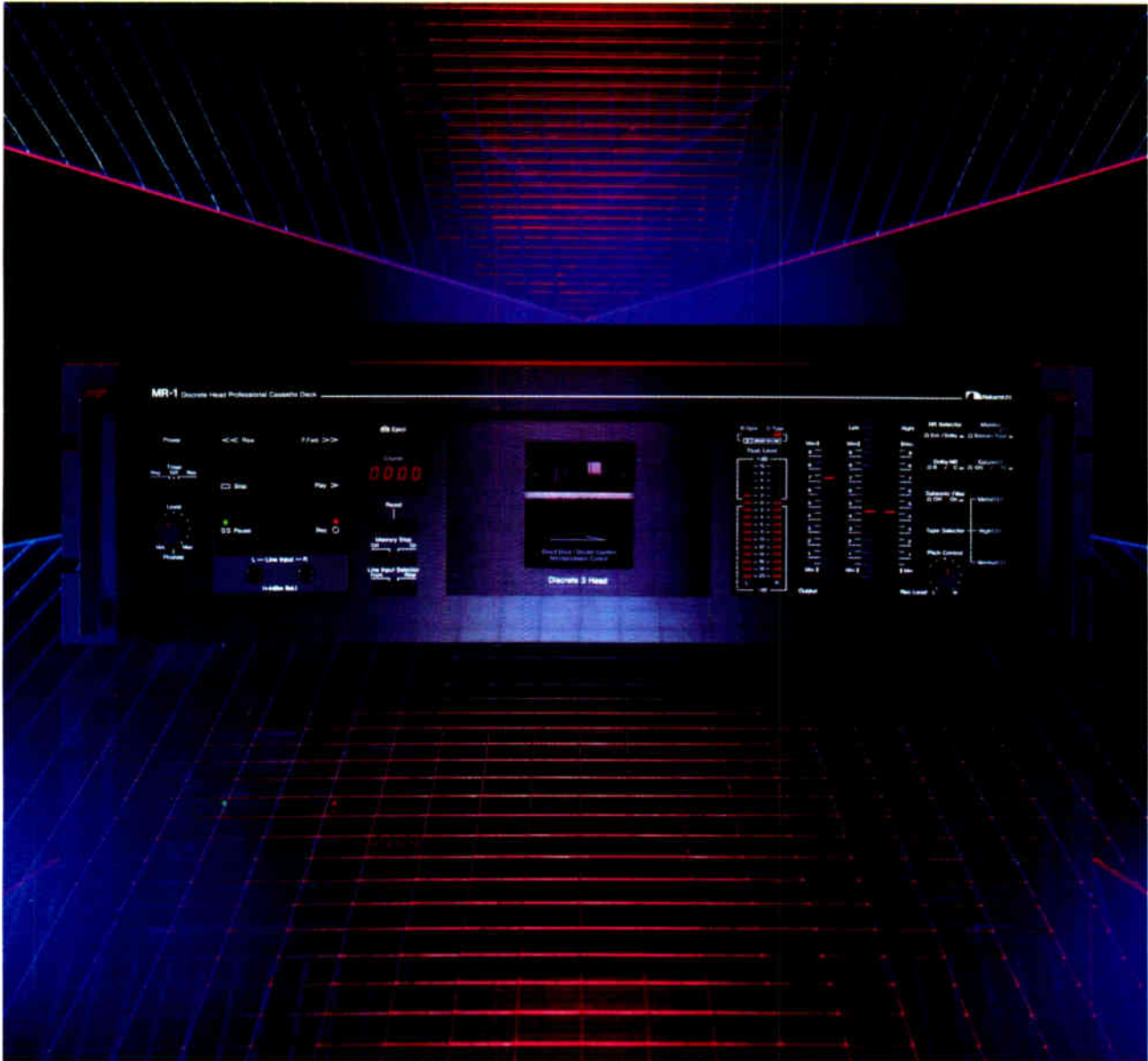
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Participants in this historical (hysterical?) moment are unable to control their emotions during the playback of what may be the first live digital comedy album, featuring Robert Klein and recorded by Reels on Wheels at the Tralfamadore Cafe in Buffalo, NY, earlier this year. Left to right are pianist Bob Stein, truck owner Chris Cassone, artist Robert Klein, and engineer Alec Head.



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involved in several other Prince tour dates, including one at the Memphis Coliseum, where the truck recorded instrumental tracks for Sheila E's "Glamorous Life" during a sound check, to be used for her performance at the American Music Awards later that week. The tapes were recorded and mixed on location, and then flown to Los Angeles in time for the awards. Having a recording studio parked outside your venue can really come in handy at times.

Remote dates linked to film, video and the broadcast media have become the bread and butter of the mobile recording business, keeping both truck tires and tape reels in constant motion all over the country. John Moran, the owner of Houston's Digital Services, notes that "live broadcasts, radio shows and TV are your big dollar segment, with 100,000 to 200,000 dollar projects. The video aspect has become a very important part of the live recording industry." A few of the dates that Moran's 48-track, Sony digital truck has been involved with over past months are: Neil Young live at Gilley's Rodeo Arena (with 10,000 persons attending); an analog shoot for a Culture Club cable TV special at the Dallas Reunion Arena, produced by Schultz Productions of Toronto; and the Van Cliburn International Piano Competitions in Fort Worth, slated for PBS Broadcast June 4, 1985. Moran notes that the competition involves digital as well as analog recording, with a digital layback to a video produced by the Van Cliburn Foundation, and a number of record releases of the event are planned.

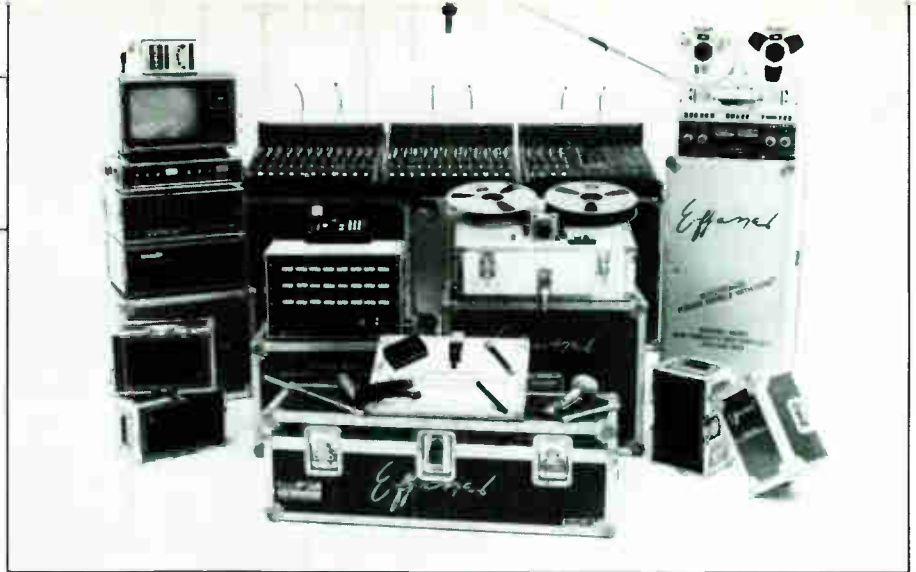
Like several other remote vehicles we talked to, Digital Services was also involved in non-live projects, one being a several month-long booking at a private 12,000 acre ranch in the hill country of central Texas, working on an album for Andy Johns. The entire project was recorded and mixed in the truck except one cut which required a 56 input mix.

Randy Ezratty, of New York City's Effanel, has taken the notion of location recording to the ultimate extreme. Ezratty's unique recording system is entirely portable and travels in several compact flight cases which easily fit into a small air freight container. The Effanel recording complement consists of two

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(Right) Effanel's modular recording system includes a three-section, breakaway Sound Workshop console and Stephens portable 24 track.



Stephens 24-track recorders (each breaks down into two cases, one housing the transport, the other containing the electronics); a modified Sound Workshop Series 30 console which separates into three sections, all interconnected by multipin interlinks; Rogers LS 3/5A near-field monitors; and the rest of the required accoutrements of recording, all carefully selected for optimum performance in the smallest possible packages.

Prior Effanel involvements have taken Ezratty countless thousands of miles working for artists such as Pat Metheny, who utilized the Effanel system to cover 22 dates for his Grammy-winning *Travels* LP (on this occasion the recording system went on the bus with Metheny and the band); Simon & Garfunkel's concert in Tel Aviv, Israel for Broadway Video; and to Ghana, West Africa for Mick Fleetwood's *The Visitor* album. However, the company has lately been best known for their work with progressive Irish rockers U2, first by providing the gear for recording *Under a Blood Red Sky*, produced by Jimmy

Iovine and Shelly Yakus, and cut live at Red Rocks Amphitheatre, Denver, Colorado; and more recently working with the band and the producer Brian Eno on *Unforgettable Fire*, recorded over a period of several months at 16th century Slane Castle (outside Dublin) where the band rehearses.

Ezratty notes that the castle setting offered both advantages and disadvantages from a recording standpoint: "One of the things I didn't know when I arrived was that the power to the castle came from a turbine on the river, and we

had 50 volt swings that no constant voltage transformer could keep up with, so we had to put a variac on the entire recording system and keep a power meter in the control room so we could turn up the variac whenever the river got low. Luckily, the Stephens recorder deals with power fluctuations pretty well, although some of the digital processors had a hard time dealing with fluctuations. That was the only real problem we had." Besides being treated to a "two-month vacation in the Irish countryside," Ezratty notes that the castle also offered practical

—PAGE 106

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—FROM PAGE 103, REMOTE RECORDING advantages as well: "We had tons of rooms to experiment with—different acoustics—circular ballrooms, libraries with heavy draperies that were deader, stairwells and medium-sized rooms. It was very much an ambience type of record."

In spite of all this work, Effanel is constantly upgrading to expand their business. "We bought a truck," Ezratty explains, "mainly as a room where I can set up the portable equipment when I'm on the East Coast, especially for one-nighters at small clubs where space is at a premium, and for video shoots. I can now bill myself as a conventional mobile unit or as a portable system. I also have some network radio accounts, giving my system a lot of exposure to different bands. It's the best form of advertising for me—I did Roxy Music for NBC and ended up getting a three month block booking from Brian Ferry for his new album."

Independent network Westwood One has been growing by leaps and bounds, ever since their humble beginnings ten years ago with a radio special called "The Sounds of Motown." Due to logistical limitations, the network, which has remote units based in Southern California and in the Cleveland, Ohio area, is placed in the unique position of acting as both a buyer and seller of remote services. Westwood's trucks are

The **Mix** directory of remote recording companies throughout the United States and Canada begins on page 154.

available for outside projects whenever they are not being used for in-house work, and independent mobile recording companies are contracted to cover Westwood One dates when their own units are unavailable or the distance between concerts is too great.

The network's programming cuts across all radio formats: the "Superstar Concert Series" includes rock and pop acts; "Live from Gilley's" features country music performers; and "The Concert Hour" spotlights black and R&B artists. Keeping up with all of these required adding the Cleveland operation last year. According to company spokesman James Brown, "Cleveland is very centrally located, being within a day of New York, Chicago, Detroit, Nashville or Atlanta. You can get anywhere in that part of the country in a day or two."

Brown added that Westwood

One is becoming involved in more simulcasting—last month, specials by Huey Lewis (Showtime) and Rick Springfield (Cinemax) were aired—and the company's studios are only two blocks away from a satellite uplink. Another of Westwood's areas of diversification is their co-sponsorship of the U.S. Foreigner tour (with Coca-Cola and Sprite). Not surprisingly, Westwood plans to be recording a fair number of those dates for later broadcast.

Paul Christensen of Omega Audio in Dallas, Texas, now finds about 80 percent of his jobs are video related, and many of these are "turnkey bids"—video package deals put together involving Omega's remote truck and studio, which are co-located at Dallas' Love Field with Clearwater Video and Video Post. In fact, to keep up with the steady business he has encountered, Christensen purchased the Walley Heider remote truck number two from the Record Plant in Los Angeles last summer. Although Omega spent several months refurbishing the 1977 vehicle, owner Christensen is quick to point out that they "wanted to bring the truck into the '80s, but it's a great truck. Wally had built it right from the ground up—the wiring is totally first-class, and we wanted to keep a lot of the things about the truck intact for that reason." The upgrading was completed last November, with the addition of new JBL 4430 Bi-Radial monitors, and two Hill 16x4x2 submixers to augment the existing API modified console and bring the number of available inputs up to 56.

Omega was involved in an interesting project at press time, doing a promotional for Zildjian cymbals, with ten world-class drummers performing in Dallas. The event was recorded live to Mitsubishi X-80 two track and simultaneous analog multitrack.

"There was nothing to keep us from doing the whole project in the bus," says Bob Skye of Skyelabs in Dover, Delaware, commenting on a project he produced for Growing Up Different, an all-electronic band from the Washington, D.C./Baltimore area. The band has no drummer, and instead used five drum machines for their EP on the CES label, which was entirely recorded in "Rover," the Skyelab bus. Vocals were cut in the on-board lounge/overdubbing room.

Skye notes an increasing number of film/video support bookings over the past few months, including Bill Mayett producing a variety music show pilot which Skye describes as "like Soul Train, but country"; and the upcoming Art Garfunkel feature film *Good To Go*, with Rob Fabroni producing the music for Island Records.

After 7,000 man-hours of work, the GHL Audio Engineering mobile unit from Hilliard, Ohio, (outside Columbus)

—PAGE 171

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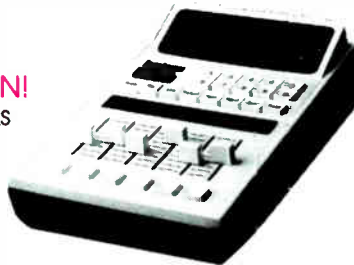
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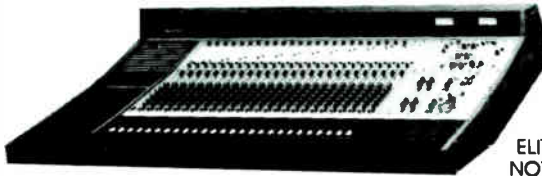
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## Los Lobos

"Eleven years ago," says drummer Louie Perez of Los Lobos, "when we were starting out, we knew we wanted to do something different and we didn't care what anybody felt about it."

"That attitude has prevailed ever since. We've wanted to do something that was real special to us, to who we are, yet ultimately something that belongs to everyone. That's where we are now."

And so they are. This Mexican-American rock and roll band has captured "next big thing" status solely on the merits of their riotously wonderful music, a peppery stew of roots styles from both north and south of the border. There's

nothing a synth in their sound nor a style-monger in their midst, but as Los Lobos grab more and more attention, it wouldn't be surprising to see goatees, Ray-Bans, and avoirdupois adopted by the youth of our nation.

Following the warm reception afforded their first release, last year's superb *Slash EP . . . and a time to dance*, Los Lobos had decided to pull out all the stops on a full-length album. Aided by the machinery of Warner Bros. Records, who picked up the Lobos in a fortunate moment of foresight, this new record was intended to "maintain the gritty kind of energy we have when we perform, and at the same time not sound like a Sun recording from 1953 but like a contemporary record," says Perez.

The result was *How Will The Wolf Survive?*, which since its pre-Christmas release has been (deservedly) garnering critical raves. A melange of Tex-Mex, country, blues, *norteno*, folk, rockabilly, and just about anything else you'd care to throw in, the LP paints an indelible portrait of the hopes, dreams, hardships, and joys of the American working class. It's also fearfully good rockin'.

"We spent three months of real hard work on the record," Perez relates, "with songs that were written specifically for the record, trying to encapsulate the whole thing into a thematic kind of piece. It feels real good to us that people are able to understand that and get the picture of what we're about."

The "wolf" concept came first, says Perez. In addition to referring to the English translation of their name, it is emblematic of the common folk, "the people out there who really make the country strong. From that context we came up with the title track, and that more or less focused everything into this one whole body of work."

"I think it works real well, in addressing a 'common man' kind of theme," Perez continues. "We're all Mexican-Americans from Los Angeles, but what we're talking about isn't limited to a particular ethnic group."

Since their beginning in the Mexican neighborhoods of East L.A., Los Lobos have set about breaking down ethnic barriers. Like their fellow bar musicians at the time, they played popular Top 40 songs because that's all young Chicanos wanted to hear—traditional Mexican music was for grandparents.

—PAGE 110

## THE FAR SIDE

By GARY LARSON



"OK. Here's another little ditty we can all sing. . . Of course, as always, the only words are 'ribbit, ribbit!'"

## MI UPDATE

### Silencers, Software, SMPTE, and Systems

Single-ended systems that remove hiss from *existing* signals (tape tracks, effects, and the like) are going to receive a major boost from a Silicon Valley chip manufacturer: *Solid State Microtechnology for Music* (SSM) has integrated the *Dynafex* noise reduction system onto a custom chip, the *SSM2200*. *Dynafex* has long been considered one of the better-sounding single-ended systems, and now that it's on a chip we can expect to see it built into a variety of gear. The chip is not sold directly to

musicians, but is available to OEMs (original equipment manufacturers) on a non-exclusive, royalty-free basis. Also noteworthy from SSM: the *SSM2134*, an improved (lower noise) direct replacement for the industry standard 5534 op amp.

The 5534 isn't the only item around being updated. *E-mu* is now delivering the long-awaited software for

—PAGE 120





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## One World, One Music, One Penguin Cafe

Their music is lighthearted, engaging, oddly attractive. At times meditative and pretty, at times downright silly. The sounds of pennywhistles blend with ukuleles, violins, violas, cellos, milk-bottles being tapped, rubberbands being twanged, cuatros being plucked.

It's atmospheric, though not as deadly-serious as the Windham Hill gang. It's ambient, but has more spirit and personality than Brian Eno's soundscapes. It's minimal, yet not as pretentious as Philip Glass. It's classical and yet it's not. Sort of semi-popular, semi-chamber, semi-ethnic. . . I dunno what you'd call it. Perhaps the best thing is to call it Penguin Cafe Orchestra music.

Just where is the Penguin Cafe? Is it a place somewhere in England where band members go to sit and chat while enjoying buttered scones with tea? According to Simon Jeffes, mastermind behind this aggregation of kindred spirits, "The Penguin Cafe does exist. It's the place where the music is played. It's located in yourself rather than on any particular street somewhere. It's really an attitude, a general view, a feeling about the way things are. And whenever you get two people who locate it in that way, then you actually get the Penguin Cafe."

Right. So it has no zip code, per se. But it is a real place, existentially-speaking. Or as Jeffes further explains, "For me, the Penguin Cafe is a living myth or fiction encompassing all aspects of life."

Regardless of where it is, the Penguin Cafe Orchestra remains an outlet for Jeffes' clever compositions. As he says, "Having developed the idea of the Penguin Cafe, I can write freely within its framework, disregarding any self-conscious considerations of style."

This music does break rules and cross barriers. But it took Jeffes quite a while to shed the rigors of his strict classical background and arrive at this liberated plane. Originally a classical guitar student, he gravitated to the highly-intellectual arena of avant garde music before finding the Penguin Cafe within himself.

"I studied classical guitar with Julian Byzantine and studied theory with various teachers, and that led to me going to a music college in London. But that lasted for a rather short period of time because I've always had trouble with the academic attitude. It was a very numbing experience, actually. The College of Music in England seems to take in enthu-

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*Penguin Cafe Orchestra*

—FROM PAGE 108, LOS LOBOS

Once they began to recognize that Top 40 work generally leads to very little beyond more Top 40 work, "we got frustrated with the whole scene and started hangin' around in back yards with acoustic guitars, playing music from our own culture," Perez recalls. The quartet—Perez, David Hidalgo (vocals, accordion, guitars, kitchen sink), Cesar Rosas (vocals, guitars, *guitarron*, *bajo sexto*), Conrad Lozano (bass)—indulged in cultural purism for a while, playing the traditional instruments and releasing a pair of all-acoustic Mexican folk albums on an independent label.

Then, as the story goes, Lozano showed up for rehearsal one day with an electric bass, and Los Lobos began to modernize their sound—working back in the direction of rock and roll from the strictly Mexican music they'd been playing, allowing elements of Tex-Mex, rockabilly, blues and country to creep in.

"Going through that period of playing traditional Mexican music led to the Tex-Mex stuff, which because of its format lends itself to all different types of American musical styles," Perez reflects. "It really got us thinking and looking and listening to American music in completely different terms. It redefined the whole thing for us.

"We're still very much the cul-

tural kind of band we began as, but now we've managed to broaden our musical spectrum to embrace American culture as a whole."

Back to historic. The Lobos began playing the rock clubs on the west side of Los Angeles, where they made instant fans of the Blasters' Phil and Dave Alvin. When the two bands played dates together, Blasters' saxman Steve Berlin often sat in with Los Lobos.

"They told me that a lot of the classic Mexican music had saxophones, of which I'd had no idea," says Berlin, a Philadelphia native who's been playing around L.A. for a decade. "I just sort of progressed from sitting in on rehearsals to becoming an indispensable member of the band.

"Playing with the Blasters was a lot of fun—they're a great band—but my role with them was small. It wasn't like being a full, contributing member. So joining Los Lobos became an obvious thing to do—and a happy choice, I might add."

Berlin, along with T-Bone Burnett, co-produced . . . *and a time to dance*, as well as *How Will The Wolf Survive?* "The EP was recorded, shall we say, in documentary style," Berlin recounts, "whereas we wanted the new record to be an '80s record—to sound good on the radio while being true to the band.

—PAGE 119





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World Radio History

## George Duke on Producing Jeffrey Osborne

With his third solo record, Jeffrey Osborne pretty much throws out the formula, and he emerges all the stronger for it. In a year when he could have been buried on the charts by the likes of Lionel Richie, Prince, Michael Jackson, Billy Ocean, Phillip Bailey and Al Jarreau, he put out *Don't Stop*, which after six months is still a force in the black, dance, and pop markets. The second single, "Borderlines," is rivaling the top ten success of the title track first single.

*Don't Stop* is also the third Osborne album to be produced by multi-instrumentalist George Duke, a man with high praise for the singer. "Jeff isn't one of these fly-by-night artists, and that's what I liked about him," says Duke, "besides the fact that he's an incredible talent, a good writer, and a pleasure to work with. There's really no pressure. When we work together for these three months each year, it's a party, and I think it shows in the music. He also has a commitment to growth. I don't think any of these records sound the same."

Osborne spent the better part of ten years with LTD, as drummer and vocalist. If you listen to LTD closely you can't miss his distinctive voice. His passionate rendering of LTD's "Love Ballad" in 1976 features that same velvety growl that he uses here on the ballad "Let Me Know." Osborne's reputation in the business has been that of a balladeer, and his first-ever hit with Duke, "On The Wings Of Love" in 1978, did nothing to change that. "When we did the first album he said, 'You know, I'm really known as a balladeer, and that's where I'm most comfortable. You're going to have to help me on the up-tempo stuff.' And from there, we had to fight to keep a ballad on this record! There was so much up-tempo stuff that we all liked on this one that it was real difficult. As a matter of fact, we were more worried about the ballads on this record than any of the other two records we'd done."

"He sort of thinks like a drummer, and that's why he's rhythmically so good. He likes that real rhythmic kind of stuff," Duke continues. "When he first brought in some of the songs for this record, I was kind of surprised that it was so different from what you would think of a Jeffrey Osborne thing." "You Can't Be Serious," "Hot Coals," and "The Power" are testimony to the harder edge on *Don't Stop*. "He wanted to do that kind

—PAGE 116



David Wakeling (L) and Ranking Roger of General Public.

## General Public: Not Just a Recycled E-Beat

General Public had a tall order to fill when they first took a bow last summer. The sextet, led by Ranking Roger and Dave Wakeling of the late lamented (English) Beat, had to prove they could do it better than the Beat without sounding like a Beat retreat.

And they've pretty much pulled it off, in their own estimation. General Public's self-produced debut album, *All The Rage*, was well-received in critical circles. Predictably, though, there were some who dismissed the band as watered-down you-know-who.

"The press can say what they want," says stripe-coiffed Ranking Roger, General Public's outspoken vocalist, percussionist, and occasional keyboardist and bassist. "The way I see it, if two of the front men and key influences from the Beat form another group, there's bound to be Beat influences. There's no way around it."

Indeed, the reggae-infected, funk-driven sound of General Public, a balance of sparkling pop and urgent, compelling rock, bears more than a passing resemblance to its predecessor's. There's no mistaking that pair of lead voices, whether alone or twined together. And the considerable social conscience exhibited in the Beat's repertoire is also in evidence on *All The Rage*'s lyric sheet

—and will be, one can be sure, on future efforts as well.

"The difference between me and Dave is, Dave likes all the poppy songs, and I like all the hard songs. Coming from being a punk rocker six years ago, I've still got all that aggressiveness in me. If I was to go solo, all my tunes'd probably be hard, and all Dave's would be like Andy Williams. The combination of us two, that's what makes it—the balance of hardness and softness."

Roger's and Wakeling's previous life in the Beat, not surprisingly, helped garner General Public an instant following in North America. Sales of *All The Rage* are approaching gold status in the U.S., and in Canada the LP's about to go platinum (50,000 units). Their second single, a buoyant paean to love'n'affection entitled "Tenderness," was rebuilt by mixmaster Jellybean Benitez and ended up in the Top 30. The band continues to tour every few months; they've recently completed a Pacific Northwest-Canada-New York City jaunt.

The Generals couldn't be happier about the positive reception here. "Being a new group, we didn't know what to expect," admits Roger. "So [General Public's stateside popularity] has really cheered me up. I thought we would've had to spend two years on the road to get to the position where the Beat were."

The Beat called it quits in the summer of 1983 after four years of existence and three outstanding albums "In



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## MUSIC NOTES

my opinion," says Roger, "there were two reasons why the Beat split up. The first one was lack of commitment. I don't know what it was—maybe it was because we got big, and some people got comfortable. But all the aggression that was on the first album definitely wasn't on the third."

"The other reason was, I wanted to play more instruments. And I couldn't in the Beat because within the politics of the group, I was the front man and toaster, and that was it."

"On *this* LP," he says, brightening, "I played drums, bass, and keyboards."

The rigors of the road exacted a heavy toll from the Beat as well and contributed to the band's downfall, according to Roger. "We used to tour for two and a half months, and by the end of it we'd be all whacked out," he gripes. "Then we'd have, like, two weeks off and then we'd be back on the road again. By the time it came to writing an LP, we'd have only half the songs written . . ."

"By the end of the last Beat tour," he recalls, "I remember sitting in the dressing room, and people were talking to me, and they were talking right through me. Everybody was so tired, and yet we had to put up with it."

Having learned a hard lesson, Roger and Wakeling are determined that General Public carry on in a distinctly more civilized—and creatively conducive—manner. This includes allowing enough time between tours to write new songs, leaving them free to work out the bugs while on the road.

The whole General Public concept was carefully designed from the moment Wakeling and Roger left the Beat. "We wanted this group to be a step upwards, in a way," Roger reflects, so he and Wakeling built it from the ground up. First they wrote an album's worth of songs, and then they set about finding the right people to play them.

What they came up with was almost an All-Star team of progressive British pop: keyboardist/arranger Micky Billingham and drummer Stoker, formerly of Dexy's Midnight Runners; bassist Horace Panter, a founding member of the Specials; and guitarist Kevin White, who'd previously held down the position of guitar roadie for the Beat. Rather than trade on prior associations, however, says Roger, "We never talk about our old groups. The way we see it, there's no ex-Specials, ex-Dexy's, ex-Beat. Just General Public and that's it."

Panter, the dapper bassist known as Sir Horace Gentleman in his Specials days, says that while group solidarity is certainly the current order of the day, it wasn't the case when *All The Rage* was

—PAGE 125



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—FROM PAGE 112, OSBORNE

of thing," Duke says, "so I said, 'Let's go.' " "Live For Today," "Borderlines," and "Don't Stop" also give him a chance to show off his vocal versatility, a low range and growl that is pretty much unequaled in pop, a feisty squeal that doesn't waver, and a full and warm mid-range. "It's one of those real natural God-given talents like Stevie Wonder. They just open their mouths and music comes out," the producer says.

Osborne molds expressive phrases out of a single word, like "more" or "no." And according to Duke, who re-

corded most of the album at his house/studio Le Gonks West, it doesn't take the singer long to put his tracks down. "Nine times out of ten you're going to get it on the first or second take," he says. "Generally I tape a second take just in case something happens to the first one. For no particular reason other than just to say I'd like to hear it again. He comes in prepared, and knows just what to do. I worked him a little harder on this record. I actually did say, 'Why don't you do this again?' And he'd look at me and start laughing and say, 'Wait till you do your record. I'm going to come in here and . . .'"

Osborne co-wrote all but two tunes on *Don't Stop*, four of them with keyboardist Don Freeman. One of the Osborne-Freeman tunes, "You Can't Be Serious," is about an experience with flying saucers. Lyrically, *Don't Stop* is the most strong and varied Osborne LP yet. "I think it was right after the *Stay With Me Tonight* record, and I talked to Jeff indirectly about lyrics—it didn't have anything to do with this record," Duke says. "But I said it should be possible to make a hit record out of something other than, 'I love you baby, let's go away in the sea, you and me.' It seems like artists are all writing about the same subject. I just threw it out that we should do something a little different, cause I was trying to do something different at that time on my own solo records, which didn't work out so well. But I still felt it was possible. And maybe he thought about that a little, and that's how we got kind of weird with some of this."

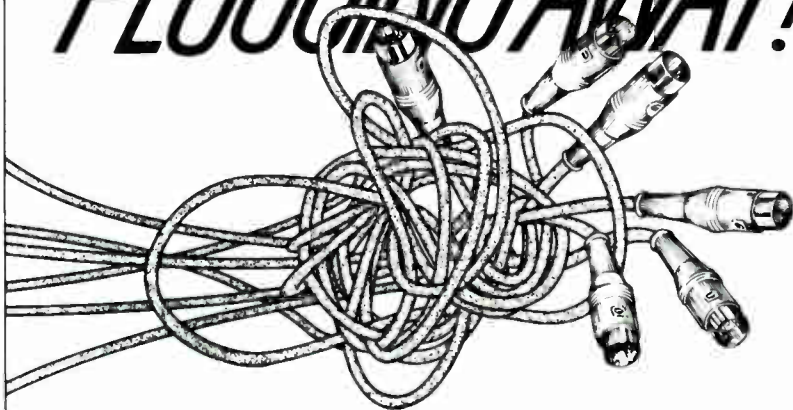
"Hot Coals," "Serious," and "Borderlines" are among the more visual tunes, and are enhanced by Fairlight synthesizer effects. "I have a Synclavier now," Duke says, "but at that time I didn't have anything and I wanted some different kind of sounds, and somebody who knew the instrument (John Barnes, Gary Chang, and Derek Nakamoto programmed Fairlight on the LP). He would try different things and I'd try to give him an idea of what we were looking for. On the spaceship song we needed some outer space kind of effects, and on "The Power" we wanted synthesizer bass and something that was strong."

While they were tracking the effervescent cut "Live For Today," Osborne told Duke that he would like to hear a choir singing behind him. They assembled "The Choir of Life"—Pat Benatar, Lynn Davis, Tramaine Hawkins, Howard Hewett, James Ingram, Joyce Kennedy, Debra Laws and Kenny Loggins, and they power it out, adding a distinctly gospel flavor. "It was a great feeling," says the producer. "There's some magic that happens when you get all that talent in one room, especially when there are no problems with 'I'm a star.' Man, it's amazing. They just did it for Jeff for the love of it, cause there wasn't any big money thing. That's all it was—it was a love thing."

Duke says that Osborne is one of those rare artists who knows what he wants his album to sound like long before he enters the studio. That makes the producer's job a lot easier. "My basic gig is to keep everything cool so he can create and make the best possible product. Make his dream come true."

—Robin Tolleson

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## Volunteers of Nashville

"My band is laughing at me because I have to follow Ted Nugent," said Kris Kristofferson backstage at the Charlie Daniels Volunteer Jam XI. "But, I'm real tickled to be here. The jam has a real reputation among pickers as being a good place to really show your stuff. You are out here with people you respect, and you've got a real righteous audience out there because Charlie Daniels attracts that kind of crowd. It's a real experience. I wish there were more things like it."

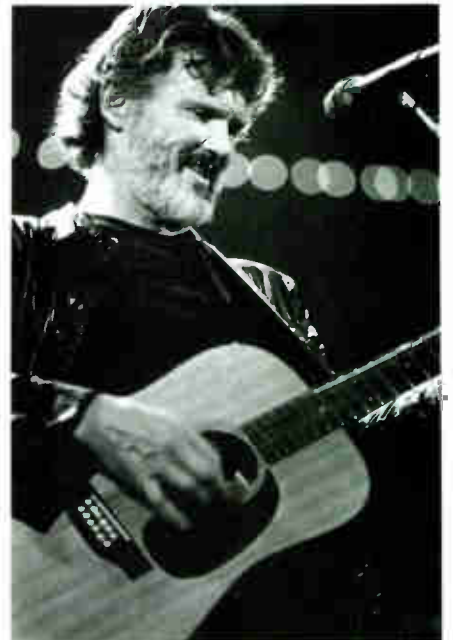
The sold-out Jam grossed nearly \$170,000 from a paid crowd of over 9,000. The entire show plus a one-hour history of the event was broadcast live over 53 cable markets and broadcast live (for the second year) on Voice of America, the global network of the United States Information Agency. Highlights of the Jam were also packaged as a 90-minute special for Showtime cable TV.

The Volunteer Jam cast includes stars from the roots of rock and roll to its most current form, in addition to some of the popular performers in contemporary country music. Guest performers this year included Alabama, Tommy Shaw, Emmylou Harris, Nicolette Larson, Little Richard, Dobie Gray, Tom Wopat, Bill Medley, and a dozen other acts.

And by the way, tickets for Volunteer Jam XII (scheduled for Saturday, February 1, 1986 at the Municipal Auditorium in Nashville) have already gone on sale.

—Rose Clayton

*Kris Kristofferson*





—FROM PAGE 110, LOS LOBOS

We used a lot of studio technology; we explored the virtues of the AMS line of equipment, digital reverbs and stuff like that.

"A lot of stuff was cut live, like 'Serenata Nortena,' 'Corrida,' and 'Break-down.' All the solos and many of the vocals and basic tracks were cut live."

Basic tracks were recorded at Capitol Studios' "legendary Studio A," Perez enthuses, "where the Beach Boys and everybody else recorded. It's an incredible place. It's like going into the past—hermetically sealed, with all these Mediterranean furnishings. It's strange, but it's a great, big-sounding room."

In order to maintain the most uncluttered sound possible while recording live, Perez says, "We built these little houses for the amplifiers, out of baffles and panels and quilted pads. That way the other instruments wouldn't bleed over to the instruments we were concentrating on. A lot of the saxophone and accordion parts were just follow tracks, but we ended up keeping them because they were so exciting."

Vocal overdubs were done at Reggie Fisher's home studio, with instru-

mental overdubs at Sunset Sound and Warner Bros. Studios in Burbank, and fine-tuning at the Producers' Workshop.

"The last thing we did was all those little parts," Perez says. "And that's where the instrumental 'Little King of Everything' just came out." He describes this charming, rather wistful acoustic ditty as "the theme music for this little hobo king with his tin crown, the happiest guy in the world. That song is something real special. We performed it live, right in the studio—one sitting, no overdubs. Took half an hour. It was like, *wow!*"

The touching ballad "Matter of Time" also has special significance for Perez. "David and I sat down and wrote that song to address a particular subject. It's a conversation between a husband and his wife. He's perhaps a migrant worker, or someone coming across to the U.S. from Mexico to find that 'better world,' but we treated it in a way that it doesn't isolate itself to any particular group. It's more a universal statement on the kind of economy that forces a family unit to separate. Something that could occur on the other side of the tracks, anywhere in America.

"What's especially striking," Perez confides, "is that it unconsciously created a parallel to our own situation. When we're getting ready to go on tour and the van pulls up and honks about six in the morning, and my eight-year old son's asleep, all of a sudden it's too real. I shouldn't be leaving—I should be hanging around playing catch with my son."

In the pop music universe of inflated egos and flamboyant personalities, Los Lobos are the most refreshingly regular of regular guys. Their career hopes and dreams, too, are simple and sincere. "We want to make more records," says Louis Perez. "There's a lot of uncovered ground, both writing-wise and instrumentally."

Their unforeseen success, he says, "makes us feel like we're a new band. We're enthusiastic again. We're happy about what we're doing, which can only bring about better things."

—Moira McCormick

*This month, Mr. Bonzai lunches with "Weird" Al Yankovic on page 62.*

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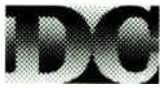
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## MUSIC NOTES



—FROM PAGE 108, MI UPDATE

the *Emulator II*'s built-in sequencer. As it turns out, this 8 track polyphonic sequencer not only works with the *Emulator II* but is also very adept at sequencing MIDI instruments via the *Emulator II*'s MIDI Out port. Among other features, modulation control settings can be stored, sequences may be constructed either a piece at a time or in real time, and you can bounce tracks (even bounce into one of the tracks being bounced). One problem: the instrument still can't read or write SMPTE, although according to the company that should be taken care of soon.

In other sampling news, the *Ensoniq Mirage* is getting a good reception from stores and musicians alike. While not of the same sound quality as a *Fairlight*, *Kurzweil*, or *Emulator*, the sound is definitely acceptable and the price is right. *Akai* has developed a prototype sampling device with *Mike Matthews* (formerly head of *Electro-Harmonix*), whose "Instant Replay" and "Super Replay" helped set the stage for cheaper sampling. Rumor has it that *Roland* will be introducing a rack-mount MIDI sampling device before long. And what of *Fairlight*? They're supposed to have a new machine waiting in the wings.

*SMPTE* continues to gather momentum as a music industry timing standard for high-end equipment. Recently introduced SMPTE synchronizers include the *Roland SBX-80*, *Synchronous Technologies SMPL System with Chase Lock*, *SRC SMPTE Reading Clock* (distributed by Europa Technology), and now the *Garfield Master Beat*. The *Master Beat* reads any SMPTE format (24, 25, 30 drop frame or 30 non-drop frame) and produces any of these four SMPTE formats (as well as sync generation referenced to beats per minute), all five major sync-to-tape codes, MIDI, click, and trigger outputs. It will also sync to click tracks, MIDI, live tracks (with some limitations) and tape sync codes. There are six programmable SMPTE controlled events which would be handy for such tasks as synchronizing sound effects and stage lighting, an RS-232 interface, etc. With MIDI acting as an intelligent interface and SMPTE operating as a master clock, it is now easy to synchronize all the elements of an

electronic music system with a high degree of predictability and precision.

Thinking of getting a computer to assist you with your music? You might want to wait until the fall. By then we'll know whether the *Commodore Amiga* is really as incredible as the hype, whether quality software will be forthcoming for the MIDI port already built into the *Atari 65-XE*, and if Atari's "AMY" chip, built into the 65-XEM, is



*Atari 65-XE*

a) producible and b) as good as *its* hype (waveforms based on digital sampling techniques, multiple oscillator voices, extremely quiet operation, etc.). On the other hand, *Apple* is still selling lots of *Apple II* systems, and there's already plenty of music software available for the *II*—something the new guys can't say (and if you own a *Mirage*, *Ensoniq*'s software support package is based on the *II*). Then there's the *Yamaha CX5-M*. *Yamaha* is a very systems-oriented company, and those musicians who are heavily into *Yamaha*'s system will probably want to have the computer that was designed specifically for them, even if it's not exactly a computing powerhouse. As for *IBM* (sometimes known as the *Darth Vader* of the computer industry), the recently discontinued *PC Jr.* was a big embarrassment; at this point I doubt that they have any interest at all in pursuing anything other than business customers. What's the best computer for musicians? For now, hold on to your checkbook and wait to see which company actually fulfills its promises... some of the upcoming introductions sound pretty formidable.

—Craig Anderton

**Label A&R execs talk  
about "getting signed."  
See page 92.**

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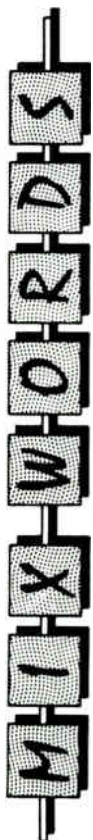
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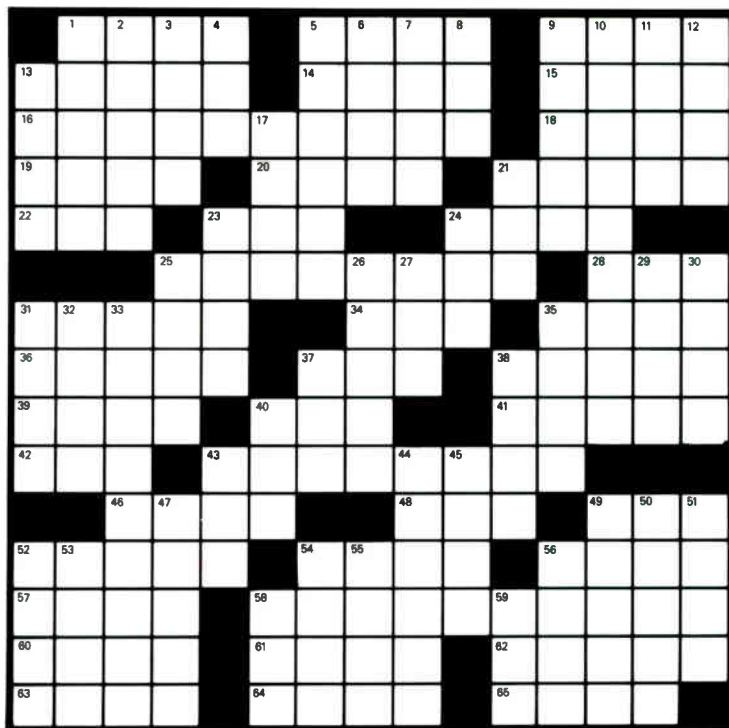
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9. Repeat
13. Put on a show
14. *Commedia dell'* \_\_\_\_\_
15. Plagiarize
16. Sound on stage
18. Theater section
19. Cinnabar, et al.
20. Compensates
21. A golf club, formerly; var.
22. Lighting necessity
23. "\_\_\_\_\_ Dawn"
24. Tubs
25. Sonic accuracy
28. Lennon's love
31. Assail
34. Unusual; abbr.
35. "If \_\_\_\_\_ I cease to love"
36. Moderator
37. Some CRTs are these
38. Fluid buildup
39. Use a phone
40. Onassis, to friends
41. Seasonal song
42. Sprite
43. Available decibels
46. Enemies
48. Each and every one
49. Japanese coin
52. Solo
54. Not coarse
56. *Raison d'* \_\_\_\_\_
57. Snitched
58. Audio problem
60. "Ye \_\_\_\_\_ Pub"
61. Place for grease
62. Past or present
63. See 23 Down
64. Basic requirement
65. Noble family of Italy

### DOWN

1. Save for later
2. What 36A might moderate
3. Sponsorship; var.
4. Dampen
5. Rose or Mummies, e.g.
6. Branch of service

### 7. Inflammation; suffix

8. \_\_\_\_\_ terrae
9. Glory
10. Dividing network
11. Elevated
12. Resound to an order
13. L.A. problem
17. Unclosed, poetically
21. Month
23. Ceremony
24. Viewer's appliance
25. Sense
26. Angry
27. April Feds
29. *20,000 Leagues* skipper
30. Not written
31. The Venerable \_\_\_\_\_
32. Film music conductor Newman
33. Support structures
35. Cheese
37. Vocal syllable
38. Environmental science
40. Organization familiar to many *Mix* readers
43. "\_\_\_\_\_ Haw"
44. Raved on
45. Margarine
47. \_\_\_\_\_ martenot
49. Spell
50. Jagged
51. Hawaiian goose
52. Particle
53. Song by Ray Davies
54. *Idee* \_\_\_\_\_
55. Spot on the water
56. Parisian summers
58. Fogelberg
59. Map abbr.

## Solution to May Mix Words





—FROM PAGE 110, PENGUIN

sistic young people and churn out disillusioned professionals. They're all cynical by the time they get out, and I imagine that's how I would've turned out had I stayed."

Upon leaving music school, Jeffes became a member of Gilbert Biberian's classical guitar ensemble, The Omega Players. Around this same period in the late '60s he began getting involved in the avant garde world.

"I listened to a lot of Stockhausen, Cage, and Boulez, and I experimented with my own compositions, but I eventually discovered that it really didn't satisfy me. It always made me frustrated. And after concerts of avant garde music everybody in the audience always looked a bit ill anyway. It was all very much in-the-head sort of business, so I left it behind."

Then in 1972 he became involved with commercial pop music. "Through my friendship and association with Rupert Hine, I discovered that I could move around quite freely within that world. So I began working a lot with people, doing arrangements and writing things for them, and making a bit of money doing it."

Jeffes collaborated with Hine on the latter's first two solo albums as well as writing and producing music for commercials in England. Thereafter, Jeffes worked with a broad cross section of talent ranging from The Sex Pistols to Yvonne Elliman, Adam and The Ants, Bow Wow Wow and Twyla Tharp.

"This was around the time I really discovered that I was a composer by nature," says Jeffes. "I was writing material for these other groups but was always looking for an outlet to articulate my own feelings and thoughts about music. The avant garde was far too complicated and unrewarding to satisfy me as a composer, so I started writing my own kind of music in my own way.

"I started writing for this mythical orchestra, which meant *whatever* I wanted to write—tapping on salt shakers or milk bottles, a pennywhistle solo or a 60-piece string orchestra. Anything at all can be on a Penguin Cafe Orchestra record or concert. And so, the PCO *is* the context of my composing. It is my vehicle."

Perhaps the main influence on Jeffes' composing sensibilities is the music of Africa and Japan. As a child he had an interest in African music and cul-

ture, "and then in 1972 somebody gave me a tape of Kenyan music, which really turned me on. It was one of the key musical experiences I've had. I heard something in the music that absolutely seemed right to me. It was very direct, very non-intellectual, very affecting. I decided that this was the real thing, whereas the avant garde was not the real thing. Avant garde is a result of willpower whereas African music comes straight from the heart, and it's very, very powerful."

Japanese music intrigued him because of the way each note is surrounded by silence. He incorporated this aspect of composition into his palette, and as he became more fascinated by ethnic or world music he began to strip down his own guitar playing style.

"I was quite a nifty classical guitarist at one point," he says, "but all that's left of that now is that my right hand and my left hand sit in the correct positions. Now what I play is very, very simple but it has an authority in it that wasn't there before. I can feel it. It's absolutely solid now. The classical pieces that I used to play felt very artificial, never really definite. Now it's there 100 percent of the time, even though I haven't got a great

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technique at all anymore."

The members of the Penguin Cafe Orchestra have varied interests outside the context of the group. Pianist Steve Nye is a record producer (Japan, Yellow Magic Orchestra); cellist Helen Liebmann is a graduate of the Royal Academy of Music who performs with numerous orchestras and string quartets around London; Geoffrey Richardson, who plays bass, mandolin, clarinet and guitar with the PCO, is an in-demand

session musician around London; violinist Marcus Beale is an architect with a degree from Cambridge; Neil Rennie, the group's ukulele player, is poet, philosopher and lecturer at London University.

An eclectic bunch indeed. Yet each has found within himself or herself that place which Simon Jeffes refers to as the Penguin Cafe.

"We're not a professional group at all," says Jeffes. "We're just a group of kindred spirits who play music when-

ever we happen to get together, which is fairly infrequent. Because of the nature of the group and everybody's full-time commitments to other things, the logistics of getting everybody together at one time are always very difficult. But nevertheless, when we do get together it's always a special occasion. It's always got this special feeling, and the reaction from the audience when we play is always very warm."

For those who never have and perhaps never will have the pleasure of seeing the Penguin Cafe Orchestra in concert, their music has been well-documented over the years. The PCO found its way onto records in 1976 through association with Brian Eno, who had just formed his own Obscure Records label. That first record, *Music From The Penguin Cafe*, was recorded between 1974 and 1976. The second album, *Penguin Cafe Orchestra*, was recorded between 1977 and 1980 and was released in '81 on Editions EG. In 1983, *The Penguin Cafe Orchestra Mini Album* was released on EG and last year it was *Broadcasting From Home*, an album that incorporated a LinnDrum into a few of the cuts.

Jeffes, who is hardly an advocate of technology in music, explained his use of this machinery on the otherwise-acoustic album: "It was enjoyable but hardly the most profound pieces I've ever done. It was fun but I think there's something very deadening about all this automatic music. It's as if people are beginning to base their feelings on machines. They have an inability to play the rhythms right themselves, so they get a machine to. It's all becoming this sort of tight machine sound, which I find really quite dreadful.

"They're all following each other: there's very little originality. People are just doing what they think has to be done in order to be commercially successful. And when you set out with that view in mind, you're actually going to produce nothing of value."

He adds, "You do get a few brilliant people like Stevie Wonder. He could use all that kind of stuff and still sound like he's got a heart the size of Mt. Everest, because he has. There may be three or four people in the world at that level who can use all that stuff well, because their spirit completely overwhelms the machinery. But most people are just led around by the machinery and dominated by it."

So although Jeffes does have a passion for African and Asian musics, he is open to it all... even Stevie Wonder. As he puts it, "My attitude is that there is



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## MUSIC NOTES

really one music. I listen to John Cage the same way I listen to Bartok or Oriental music or African music. I think considerations of nationality are very distracting because they're actually not really there at all. The principles behind music actually lie underneath location. Music is about physical vibration, pure and simple. It's about how that physical vibration affects the ear and the heart. So all music is of the same stuff, really, and I'm open to it all. I don't listen to music with my head, I listen with my heart."

—Bill Milkowski

—FROM PAGE 115, GEN. PUBLIC

being put together. "The album was recorded in such a peculiar way, if you like," says Panter. "The songs were there, then people got together to play them, then the album was recorded, and *then* we went out and became a group. . . .

"I particularly felt I had to stick to my personality on the record," he continues, adding that the other newcomers approached their tasks in a similar way "because they really weren't sure how much freedom they had. . . . The next album will be more akin to the General Public style."

All members are now actively involved in songwriting, having gotten their collective composing chops together while on tour last year. Numbered notebooks were passed around, and all were encouraged to write down snatches of lyrics therein. "Then we swapped," says Panter. "Somebody'd look at someone else's two lines and say, 'that's good, that fits with what I'm writing.' We'd literally make up songs between the six of us."

Panter's happy to have bass in hand once again. He joined General Public after a self-imposed two-year hiatus from rock and roll, which had followed the Specials' 1981 breakup. "I left the band and the music business in a tantrum," he says dryly, "and formed a clothing business with my wife."

"Then, after I'd calmed down, I decided to be in a group again." Having heard rumors of Wakeling's and Roger's post-Beat project, Panter relates, "I phoned up Dave Wakeling and said I wanted to be his bass player, and he said okay."

Re-entering the biz from an older and wiser vantage point, Panter describes General Public as "a lot more feet-on-the-ground—as opposed to The Specials, which was like living out the fantasies you had when you were 13, about being in a band."

"It's a *career* now, if you like. Perhaps that sort of dampens what people expect from [broad American accent] *rock-and-rollers*, but nonetheless,

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# Mix

THE RECORDING INDUSTRY MAGAZINE

## ANNUAL NEW PRODUCTS DIRECTORY

Mix Magazine's yearly New Products Directory will be published in our AES Convention issue this October. If your company manufactures audio, video or musical equipment or supplies, you may be eligible for a *free* directory listing.

To receive a questionnaire, write to: Mix New Products Directory, 2608 Ninth Street, Berkeley, CA 94710 or call Lauri Newman at (415) 843-7901.

**Deadline: July 5, 1985**

the experience I've had puts me in a different position. To be a bit cold about it, [joining General Public] is a good career move. And I really enjoy myself."

General Public should have a new album out within the year, and its members expect the changes to be apparent. In addition to group songwriting contributions, there will be an outside producer this time around. "We shouldn't produce ourselves again, 'cause we got too involved with it," says Ranking Roger. "That's why everything on the first LP sounds perfect and right. Where it shouldn't, to me.

"If there'd been two mistakes on the album, wrong chords or something, that would've made it for me. Then it'd sound real, like what you'd hear if you saw a live group."

Unafraid to express some disenchantment with General Public's first effort, Roger is quick to predict that album number two should be much more in line with general expectations. A likely producer for the new project is Arthur Baker, who'd been consulted the first time around but was unable to supply his services (Baker did remix GP's third single "Never You Done That.")

"He's good at getting real good drum sounds and making vocals sound great, but at the same time making the backing tracks really hard," Roger says admiringly.

Along with the new record will come a new set of videos, which the Generals, like many of their peers, seem to regard as a necessary evil. "Everybody else is doin' it, so why not?" Roger says philosophically. "At the moment, if you want to make it in America, you must have a video to get your message across."

On the plus side, he notes, video is "the closest we ever get to acting, and good practice for films." His hidden ambition now out in the open, Roger admits, "I'd like to be in a couple of films—as long as they were action films."

*Mad Max III*, perhaps? "If the producers offered it to me, I'd take it," he says, eyes a gleam. "Write that down—they might read it!"

—Moirra McCormick

## Product News Sequential's "Tom"

"Tom" from Sequential is a fully programmable drum machine, priced at \$799, featuring eight digitally recorded instrument sounds (more sounds can be added via plug-in cartridges). The unit allows the programming of volume, tuning, and stereo pan for each of the drum and cymbal sounds. Rhythm patterns can be recorded in real time or in the single step mode, with a memory of over





## Low Cost Quantec Room Simulator

Europa Technology, now the exclusive U.S. distributor of Quantec products, has announced the availability of a lower cost version of their popular Quantec Room Simulator. The main difference between the two units is that the new QRS/L has mono, rather than stereo inputs (both processors have stereo



outs), a list price of \$4,995. Specifications for both products include 64 user-programmable memory locations, a frequency response of 20 to 8k Hz, and two special features: "Enhance" (the simulation of rooms without perceptible reverberation) and "Freeze," an infinite decay time effect. On a related note, the price of the original QRS has been lowered to \$7,995.

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3000 notes; and up to 99 rhythm patterns from one to 99 measures long can be laid out in any time signature. Individual rhythm patterns can then be edited, copied or chained to form whole songs.

A few of Tom's other features include: a back-up battery (with a five-year life) for memory protection; an "Improv Factor" for adding fills and minor tuning/volume variations for a more "human" feel; and clock input/output and MIDI interfaces. The MIDI port also enables the user to program all drum parts in real time by connecting the unit to any velocity sensitive instrument, such as Sequential's Multi-Trak or Prophet-T8.

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## HME System 87

HM Electronics, Inc. of San Diego, California have unveiled a new handheld wireless system incorporating the Shure SM87 condenser microphone element. According to the manufacturer, the new System 87 provides wireless performance identical to a hard-wired SM87. Similar in appearance to the HME System 85, the 87 offers smoother high end response and greater gain before feedback. The System 87 is priced at \$2,600 and is now available.

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## Oberheim Matrix 12

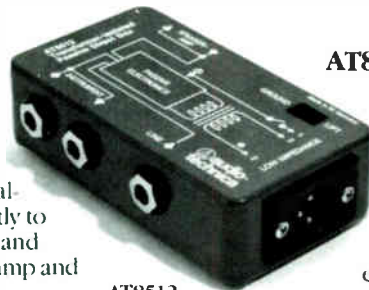
Based on their popular Xpander synthesizer voice, the Matrix 12 synthesizer from Oberheim has 12 independently programmable voices, each of which are composed of two oscillators (with simultaneously available square, sawtooth, and triangle waveforms), five envelopes, a 15 mode filter, 15 VCAs, five LFOs, four ramp generators, three tracking generators, frequency modulation, and a lag processor.

The five octave keyboard has

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AT8512

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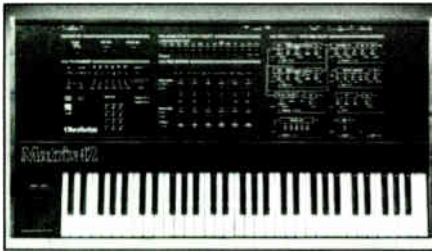
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velocity and release velocity, and can be divided into six user-programmable zones. The Matrix 12 is MIDI-equipped and has 100 single patch memory locations, as well as 100 multi-patch memory locations. Each multi-patch stores the individual single patch assigned to each voice, in addition to information regarding the panning, MIDI channels, volume, and transposition of each voice. The Matrix 12 is priced at \$4,995.

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## Nady Wireless Headphone Monitors

Nady Systems have introduced an infrared cordless stereo headphone system which allows studio musicians to monitor through a high-fidelity head-

phone without the restriction of headphone cords. The system works with any audio source, and has a range of about 35 feet. Consisting of an infrared transmitter Model IRT-200, and an infrared headphone/receiver Model IRH-210, the system retails for about \$150. Special transmitters are available to provide improved coverage in larger or odd-shaped rooms. The headphone/receivers have a wide 50 to 15k Hz bandwidth and are nine volt battery powered; the stereo transmitter is AC powered.

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## Spectrum's OX-24/36 Dimmer System

The OX-24/36 from Spectrum Design & Development of Allentown, PA, offers thirty-six 2.4kw dimmers, with integral fan cooling and power distribution, in a single high-density, rack-mount package. This compact dimming/distribution system was designed to provide low cost, high performance dimming for major tour and venue requirements.

Dimensions are 19"x15½"x19" and the total weight is approximately 100 lbs. All control and indicator functions are mounted on the front panel,

including magnetic/hydraulic circuit breakers, push-to-test buttons, control level LED indicators and neon power output level indicators for each channel. Input and output connections are made on the rear panel—standard panels provide either two Edison or two stage pin outlets per channel for output power. A 37 pin, sub-miniature "D" style control input connector, an overtemp output connector and an expansion input/output connector are also provided. The unit is list priced at \$11,000.

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## Kable King Speaker Snakes

Kable King, of Savannah, GA have introduced a line of professional multipair speaker cables. Available in two, three or four channel configurations and in 25 to 100 foot lengths, the snakes feature 14 gauge conductors, with heat shrinking and color coding for durability and quick set up. Jumbo Switchcraft ¼-inch phone plugs are standard; banana and XLR-type connectors can be ordered.

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—FROM PAGE 83, HEALY

The PA for rock 'n' roll shows, though, was almost nonexistent; it was just terrible. On each side of the stage there'd be a little teeny box about 1 foot by 2 feet, and when the bands played you could barely tell the system was on. You could never really hear or understand the vocals, so singing was just kind of a joke. And so I remember making some crack to Phil and Garcia about how the sound system really sucked, and Garcia sort of challenged me, like, "Put your sound where your mouth is," or something. I said, "All right, you're on."

The next time they were going to play was about two weeks later, also at the Fillmore, so before that I went around to the three major places in the area that rented sound equipment and I got all this stuff from them, and I took it to the Fillmore a couple of days before the show. It was equipment from a few different companies, so I wanted to go in and make sure that it was all hooked up so that things were compatible. It was a horrible looking monstrosity, but when the gig came—**BAM!**—you could hear the singing, and that sort of launched it for me.

I worked with the Dead up until late '69, I think it was, and then I took a sabbatical until about February of '71. I had all these record companies hitting on me to produce albums for them and wanting me to sign contracts with them, but I didn't want to get too involved, so ultimately I signed a one-year contract with Mercury Records. It was during that time that I produced some Sir Douglas Quintet records, Tracy Nelson & Mother Earth, The Charlatans, Harvey Mandel's first two albums, Dr. John's second record. During that sabbatical I also went to Hawaii and produced a couple of Quick-silver Messenger Service albums. We took this portable recording studio over there and rented a huge old plantation. It was a marvelous time. During that period, the Bear (Owsley Stanley) and Bob Matthews did the Dead's stuff.

Then, after I came back, this woman named Darlene Di Domenico and I did a little tour together, a folkie duo thing. While we were in New York playing at the Other End or one of those little clubs, the Grateful Dead came to play at the Felt Forum, which is a smaller room off Madison Square Garden, an annex to the Garden. I went to the show and what I heard was an atrocity. I thought, "Hey, this isn't *my band*." I couldn't believe how bad the sound was! So I just dropped what I was doing and told Ram Rod, Jerry and Phil, "I'll see you on the Coast when this tour is up. I'm re-staking my old turf." It just drove me nuts that this was someone's idea of what good sound was for the Grateful Dead. I always felt, from minute one to this minute, that the Grateful Dead is absolutely rare and special, and it just boiled my blood to

see it treated in a mediocre fashion.

When we all got back we talked about it, and they said, "Do it!" So that's when we started working on the '72 system, which was the predecessor to the Wall of Sound of '74.

**Mix:** The band must have had a lot of faith in you to let you get so much into development. Those sound systems cost a fortune.

**Healy:** The Grateful Dead has always been really supportive of the various things I've wanted to do. There have been many times I've gone to them—in fact I just got done doing it—and said, "Hey, you guys, I need . . ." and it involves huge sums of money. "I've just found out that *this* may be possible and

we might be able to do *this* . . ." And a lot of times when it's been an absolute risk and there really wasn't very much proof that the suggestion was going to be viable, they've gone out on a limb with me. The band has never said no to me, and I've had my share of *faux pas* in the past.

**Mix:** What's an example of something that didn't work?

**Healy:** In the early Wall of Sound days, when it was still in a real experimental stage—maybe '73—we played at Stanford and we were going to unveil one of the facets of the Wall of Sound. Home-town gigs are where you experiment a lot because you're near the shop and so on, and you want to iron things out before you go on the road. On tour, typi-

—PAGE 148

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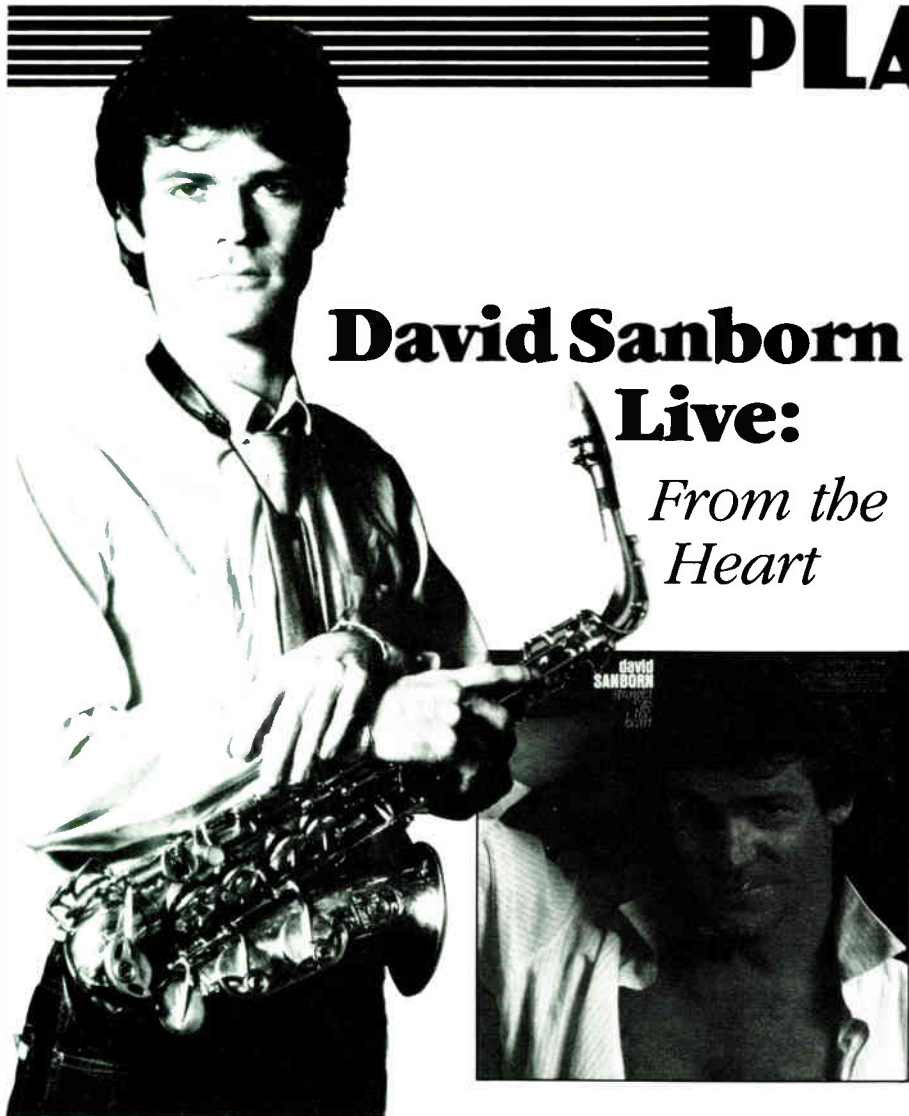
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## David Sanborn Live: *From the Heart*

**DAVID SANBORN**  
***Straight To The Heart***  
Warner Brothers 25150-1

Produced by Marcus Miller; engineered by Elliot Scheiner; recorded live at S.I.R. Studio, New York, by Le Mobile; additional recording at Greene Street Recording, A&R Recording, New York, and Amigos Studios, North Hollywood; additional engineering by Marti Robertson, Guy Charbonneau, Paul Brown and Jerry Soloman.

Saxman David Sanborn has brought new meaning to the term "studio musician" during his career, recording with such diverse artists as David Bowie, Stevie Wonder, James Taylor and John Scofield. But his solo albums are what have made him one of the most popular instrumental artists to emerge since Herb Alpert's heyday in the '60s. *Straight To The Heart*, his first live album, was produced by bassist/songwriter Marcus Miller, and in both sound quality and emotion of performance it shows Sanborn in top form.

"David and all the people around him had decided that he played so much differently when it was a live situation that it would be nice to have that on a record," Miller says. "And S.I.R. kind of gave you

—PAGE 133

## Sanborn on Studios and His Playing

Dave Sanborn likes a live room. After nine solo albums (the latest, *Straight From The Heart*, recorded live at New York's SIR studios) and work on Bowie, Springsteen, Eagles and Stones LPs, he's seen a few rooms in his day. Now with a new record scheduled for production in the fall of '85, Sanborn talks about a new direction, his preferences in studios, engineers and production.

Despite definite tastes in acoustic design, Sanborn admits a tendency to shy away from new technology and has only recently begun to study composition seriously. "I always liked music, but I was never a conscientious student," he reveals. "I wasn't a good reader and I'm just beginning to write," adds Sanborn who started playing sax

as therapy for childhood polio. "Even when I was a music student at the University of Iowa, I had no goals. If I ever thought of being a musician, it was as a sideman in Woody Herman's band. I certainly never thought I'd make records. I'm fairly comfortable in the studio, but new technology is a little intimidating."

Sanborn fends off intimidation by "finding someone who can achieve the effects I want, someone I can communicate with. I know what I'm after and if I know what's available to me I can say, 'give me a little more of this.' That way, I don't feel that I haven't assimilated all the information available to me. So far I've cloistered myself, and avoided any extended foray into the technical area. When I co-produce my new LP in the fall, I'll get a good engineer and a co-producer who's compatible—someone with a certain kind of intuitive communication who'll provide a good creative balance. Someone who can fill the

gaps between my understanding and knowledge. I did get involved in one of my albums, *Hideaway*, in terms of overall content and production, but I backed away from all the others."

Sanborn's choice of a live room is a result of the unique needs of his instrument. "I like a live room because dead rooms tend to soak up too many overtones," he explains. "A lot of engineers think you can re-introduce echo and ambience, but why not use a live room in the first place? The sax has complex vibrations and it's important to get the most out of that sound. To me, the essence of the sax is the vibration of the reed and all the complex overtones it makes. With the sax, you need a room that will acoustically enhance that sound, or you might as well do it on a synthesizer."

In developing his own style, Sanborn picked up musical mannerisms from a range of other players and fused them into his own range of genres. "I learned a lot from Paul But-

—PAGE 132



# One man's disc weapon is another man's screaming monkey.

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—FROM PAGE 130, SANBORN ON STUDIOS terfield, and also from Stevie Wonder," he says. "A lot of things that people think are unique to me are actually attempts to cop some of Stevie's phrasing. I can hear that more than any other influence in my playing, in terms of a direct thing that I lifted from somebody. I hear it especially when someone tries to imitate me."

Warner Bros. signed Sanborn shortly after he left Stevie Wonder. "I was out of focus for a while and I stayed with David Kamon in New York. David was Bowie's musical director, and he got me a gig with Bowie. I was doing a lot of divergent things with Gil Evans, The Eagles and James Taylor when Warners signed me. They were signing a lot of instrumentalists at the time. I slowly developed a solo career, while still doing session work. But recently, my solo stuff has given me more in return."

Sanborn is careful to avoid the term "fusion" in defining his style. "I went to hear Sting recently and that was real fusion music to me. Sting was truly inspiring, the way he used simple structures and his beautiful voice and straightforward melodies over the top with really interesting chords and

changes. I'd like to do some version of that; it's a direction I'd like to pursue. But the word 'fusion' has too many connotations that don't always apply to R&B jazz."

If Sanborn's sound has traces of Southern blues, it's a result of his musical roots in his native St. Louis. "I played in R&B bands as a kid, and listened to rock and roll. It wasn't until I met tenor sax player J.R. Montrose one summer during college that I got a lot of practical experience playing in a be-bop format. I wasn't developing a style then, just listening to Cannonball Atterly, John Coltrane and Charlie Parker, among others." Sanborn blends the blues with be-bop in live performances with Who It Is (formerly Stuff) a New York City band featuring session greats Will Lee, Cornell Dupree, Richard Tee, and Dave Weckl. "I try to be a fairly lyrical player," he adds. "I have a recognizable sound and I look for situations where I can exploit that aspect of my playing."

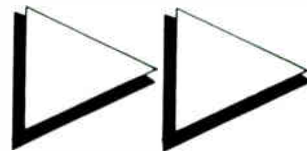
He's currently listening to Mozart, the Talking Heads, Eno, King Sunny Ade and Puccini, so the new LP should be one of Sanborn's more surprising syntheses of sound. "I'm trying to write some of my own stuff too," he

says. "I'm taking composition from Edgar Grana, who's been very helpful, taking me through counterpoint and giving me a wider perspective of music. I want to develop a new direction." In search of that direction, Sanborn listens to a lot of new people and has recently undertaken some diverse projects, including live covers of Marcus Miller's work and writing and performing the score for HBO movie *Finnegan Begin Again*.

Sanborn knows what he likes in an engineer and a producer, and recognizes a necessary link between the two. "A lot of good producers started out as engineers. I work with Ray Bardani a lot. He's got a lot of empathy for music and he understands complexity. I like to work in New York studios like Clinton and Right Track which have very live rooms and Ray likes Minot, in White Plains, which isn't as live as I'd like but Ray knows how to make the most out of it. A good engineer has to be a good producer too, with musicality and a good bedside manner, knowing when to say 'take 42' and when to say nothing. I need someone to be an objective eye to oversee the whole thing."

—Brooke Comer

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—FROM PAGE 130, SANBORN LIVE

the best of both worlds. You got the chance to be in a live situation with an audience, but at the same time acoustically you had the control that you don't have in a huge concert hall because of the reverb and stuff. So S.I.R. seemed like a good choice." They invited a couple hundred guests to the studio, and recorded on three different nights. "A lot of people say the sound is so good it's hard to believe it's a live album," the producer continues. "We really did work at getting good sound quality. We wanted the energy of the live thing, and we used some of the live ambience, but we wanted to make sure the sound was clean."

Miller and engineer Elliot Scheiner set up a couple mikes in the back of the room for ambient sound, but wound up not using them much. "S.I.R. isn't a huge place," Miller says, "so instead of getting that big auditorium sound that we thought the ambient mikes would give us, they gave us more of a band-in-a-basement sound. It wasn't real reverby. So we used mostly the close miking. David had two mikes, one on a stand, and then we attached a PZM to the bell of his horn because David moves around a lot when he plays. After the first night we realized we were losing half of what he was playing, because whenever he wasn't dead center on the mike we lost a note." The wireless mike they put on the bell of his horn is the same model Miles Davis uses on his trumpet. But Miller wound up using the sound from that mike only when absolutely necessary. "It made the horn sound pretty nasal," he says, "and I think David's horn needs room to breathe before you mike it. Horns need time to breathe. The air does something to the sound of the horn. You can't just put a mike in a horn and expect it to sound warm."

Guitarist Hiram Bullock gets a variety of sounds out of his rig. On the album-opening "Hideaway," his fuzzy blues solo sounds doubled note-for-note between the two speakers. "I think it was the delay between the miked sound of the amp and the sound of his guitar going straight into a direct box," says the producer. "Sometimes Hiram's guitar got a little dirty, and we had the choice of punching in and fixing it or just leaving it like it was. The feeling was really good on that stuff, so we decided to leave it. There's some dirt on there, but it's a live album so you have to accept some of that." Later in the same tune, Sanborn takes flight on his alto, first blowing a simple chant, then sliding down an awkward scale. He finds a strange progression and repeats it while toying with the rhythm. "All of the solos were done live," says Miller. "We punched in one thing on Hiram when his amp started making really loud noises and crackling for about two bars. We doubled David's

horn a couple of times, but as far as the actual performance, that was it, the original performance."

On the Al Green tune "Love and Happiness," Sanborn is over-dubbed "about 18 times," according to Miller, creating a powerful all-Sanborn horn section. "The horn line is so important, and we didn't feel like putting it in as a synthesizer." On the chorus to "One Hundred Ways," Sanborn's sax is doubled with a flute sound played by Don Grolnick on a Yamaha DX7. Session ace Grolnick joins Bullock, bassist Miller, and drummer Buddy Williams in the Sanborn band, one that has been together playing live for nearly five years. "It wasn't really hard to choose a band for the record," laughs Miller. "And that's

one of the reasons David wanted to record it, because the band has been so well-received live. I think after this album he wants to try to go into some new music, so he figured a nice cap for this portion of his musical career would be to record the stuff live and put it out."

There was no percussionist at the original session, but Ralph MacDonald and Crusher Bennett both appear on the album. Miller made the decision to add the triangles, temple blocks and shakers on "Straight To The Heart" at the last minute. "We were getting ready to mix the tune, and I just kept hearing those high-pitched woodblocks and things that a percussionist does that would really make it. I had to decide whether to keep the aesthetics of the live situation or add

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it. Right before we mixed I called Crusher Bennett and asked him to come down. He said, 'When?' I said, 'Come down now. We're mixing in five minutes.' So he did it. I don't think it takes away from the live performance, especially David's performance. I think it just adds."

Miller gets his share of solo space on the record, and makes good use of it. On the intro to "Run For Cover" he starts in a low, wistful tone, then breaks so dramatically into a popping, crackling part that it sounds like an overdub or an edit. Miller says it happened that way live. "My jazz bass has a bunch of different sounds, and the intro sound is the one you get when you have mostly the back pickup on. So I did the front half with the back pickup, and then in the middle of it I just put both pickups full on and played with my thumb. The combination of the pickups going all the way on, me switching from finger picking to thumb playing, plus the echo that I took off the bass in the mix when the thumb part came in—it makes it sound really drastic." Miller also made use of a delay effect in mixing Grolnick's harp-like synthesizer part on the song. With all his tinkering, Miller maintains that the sound of the record is very close to what the people at S.I.R. heard. "The only thing people will notice is that there's a little bit more sparkle about it, mainly because of the echos that weren't present when you heard it live. The echo does add a little gleam to it.

"It's a different way to make a live record," Miller continues. "When most people make a live record, it's just totally live, and the ambience is what it was when they did it. But since we had the opportunity to change the ambiances, I decided to use it."

The 25-year-old producer feels he earned his ducats on this gig deciding which tunes and which versions represented the Grammy-winning saxman the best. "The roughest part of doing a live album is sorting through the performances," he says, "especially if you've done three full concerts. Just to sit and listen to all the tapes—there were 12 or 13 tunes that we had to listen to three takes of each. That was the hardest thing, weeding through and finding which contained the essence of Sanborn's performance the most."

Miller calls the soulful Sanborn a "reactionary player." "He's good at just reacting to his environment. Basically we recorded the band and David, but it turned out to be a more elaborate thing than that. I don't even know if the few things we did (overdubs) allow the album to still qualify as a live album. But I know that David's performance is live, and that's what we're talking about. That's what people buy his records to get—a live performance from him and the band—and that's what it was." ■



—FROM PAGE 10, STUDIO NEWS

audio department *Solar Audio and Recording* of Nova Scotia, Canada, is in the process of constructing a new studio at 6065 Cunard Street, Halifax, Nova Scotia, Canada. The studio has been designed by world renowned, Claude Fortier of State of the Arts Electronics in Ontario, Canada. The new control room will be featuring CF2000 monitors and also a Soundcraft TS-24 40 input console with master mix automation. For information call Jeanne at (902) 423-0233. . . The *Toy Specialists*, a fast growing rental company in New York specializing in musical instruments and programming, have been busy since they joined forces with Sid Zimet's AudioForce in February 1984. Some of the Toy Specialists most recent projects included Foreigner, Julian Lennon, Miles Davis, Carly Simon, Stray Cats and Joan Jett. For more information, call Bill or Rita at (212) 741-0919 or (800) 847-4123. . . Beautiful Sonoma, CA, has a new studio: *Jack London Sound Studios* is built in an old winery and sits alongside a creek, surrounded by old oak trees and hills. It's a 12-track studio built by Decca in 1972, but owner Aaron Johnson plans to go 24-track soon. For more info, call (707) 996-5236. . . *5th Floor Recording* in Cincinnati made two major installations: an Audio Kinetics Q.Lock system as well as a Sony 1" lay-back; and a Sphere digital automation system into their 24-track mixing console. . . *Kim Person* has joined *Alpha Audio* in Richmond, VA, as a staff engineer *Terry Medwedyk* of Group One Acoustics, Inc. in Toronto, has completed two recent projects: one is *Comfort Sound's* new 24-track facility in Toronto and the other is the redesign of both 24-track control rooms at *Ocean Sound Studios* in Vancouver. . . *Future Disc Systems* in Hollywood added the Sony digital system to its facility. Along with their Mitsubishi X-80, the new 1610 processor and 2-BVU800DB units will allow Future Disc to provide complete digital and analog mastering services for compact disc, record and cassette manufacturing. . . *Big Apple Studios* of NYC has acquired a Neve 8068 custom 32x32 console and a Studer A80 Mark IV and A80 1/2" two-track for their new Studio "B" electronic mix room. . . *UCA Recording*, Utica, NY, has completed a year-long renovation of its facility to now offer 24-track recording. The equipment inventory now includes a 3M-79 24-track, an Amek "Angela" console, a Lexicon 224XL digital reverb and much more. . . *All Star Sounds Studio* in Bloomfield, NJ, has updated to 24-track format with the addition of a Neotek Series III-C 32x24 console and an Otari MTR-90 II 24-track tape machine. The studio is owned by Steve Becker of Southside Johnny & the Jukes. . . *Omega Recording Studios* in Kensington, MD has purchased an EMT 251 Digital reverb chamber, a second Studer A-80MkIII 24-track, and a video-lock system using Adams-Smith and Sony video components. . . Jerry Ragovoy's *Counterpoint Studios* in NYC have completed installation of two Solid State Logic stereo video systems in Studios A and B. Counterpoint thus becomes the first New York studio to install SSL's back-to-back, and the city's third facility to offer two SSL-equipped rooms. . . *Morrisound Recording* in Tampa, FL has added an Otari MTR 12, 1/2-inch 2-track mastering deck to complement its automated Sound Workshop Series 34 and MTR 90 control room.

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# VIDEO NEWS

by Mia Amato

Just a few years ago it was argued that the mighty American networks might crumble, as media outlets in cable, satellite and home video flourished for independent broadcasters and video producers. A bit of that future has arrived with the takeover of the *American Broadcasting Company (ABC)* by the *Capital Cities Corporation*.

Though a smaller company (reported profits last year of \$269 million vs. ABC's \$369 million) Capital Cities owns seven television stations, some radio stations, dozens of newspapers and magazines and about 50 cable franchises. It will pay some \$3.5 billion dollars to acquire ABC as a subsidiary, with its radio and television networks, five TV stations, radio stations, publishing and film divisions, and part ownership of *ESPN*, *Lifetime*, and *Arts & Entertainment* cable networks. Both firms will be selling off some of their media properties to comply with strict FCC rules that prohibit single companies from too much media control in a single market. The sale, largely in the form of stock transfers, must be approved by the FCC as well as the Justice Department, Securities Exchange Commission, and stockholders in both corporations.

In Wall Street terms, the ABC/CCC deal is a "friendly takeover." Lately *CBS*, the world's largest entertainment conglomerate, has been fending off more hostile advances led by U.S. Senator *Jesse Helms* and right-wing group, *Fairness in Media*, which, among other activities, mailed out a million letters to conservatives urging them to purchase CBS stock so that the network might eventually be pressured against its "liberal bias" in the news it reports. *Ted Turner* has also made no secret of his desire to buy CBS, but the network brass are a little more nervous about a Wall Street dealmaker, *Ivan Boesky*, who has managed over the years to acquire a hefty eight percent of all CBS stock.

Can the networks crumble? Shakeouts on a large scale can be convulsive, and it appears that broadcasting in this country is vulnerable to change. But the scenario of greater opportunities for TV visionaries isn't occurring. All

we're getting is an alarming glimpse of how easy it is for "mass" communication to be controlled by the few.

Other news... a quartet of camp cassettes marks the debut of *Rhino Home Video*, the new video label from the folks at L.A.'s *Rhino Records*. Titles include "Sleazmania" and "Orgy of the Dead"... *Passport Records* and its distributor *Jem* bow *Passport Music Video* with two releases from *Todd Rundgren* and *Utopia*. One's a band retrospective, one's a concert tape; both will be marketed through an innersleeve ad for the band's new studio album *POV*."

To the various talents of *Prince* (songwriter, performer, record and film producer) we can now add videotape editor. Editing "Take Me With U" at *Video Post & Transfer* in Dallas, he not only directed the six-roll session, but did much of the video switching himself, says editor *Jack Enrietta*... one of our well-placed Hollywood sources reports that *Michael Jackson* is planning to produce an animated Saturday morning children's cartoon series, to be based on

## THE AMERICAN VIDEO AWARDS

by Mr. Bonzai

The big surprise at the 3rd annual American Video Awards was *Weird Al Yankovic* walking away with top honors for Best Male Performance, and stepping lightly over *Bruce Springsteen*, *Don Henley* and *Wham's George Michael*. In a conversation after the ceremonies and a pizza bash at a nearby bowling alley, Al seemed quite pleased with his triumph, but expressed his concern for Springsteen: "He's probably home crying about it right now."

Backstage at the Santa Monica Civic Auditorium, the media center was all abuzz as winners and presenters zipped through during breaks in the taping of the show. *Wolf Schneider* of *The Hollywood Reporter* clued me in on the press routine—we stood in a clot of jour-

—PAGE 138

a line of stuffed animals to be merchandised as "Michael's Pets."

L.A. TV station *KDOC* has launched *The Video Zoo*, a video music program along the lines of zany drive-time radio formats. Producer *Barry Fiedel* and host *Barry Richards* (last with New Orleans' *Video Trax*) say the show is looking for black and dance music clips as well as videos from unsigned local bands. The show airs daily from 6:30 to 7:30 p.m.

In the studios... in San Francisco, *Scott Ross* has been promoted to vice president and general manager of *One Pass, Inc.* Another huge soundstage complex is under construction in downtown S.F.: *The San Francisco Studios Inc.* will have at least one stage operational by summer... In New York, *Harry Stoiber* has rejoined *Charlex*, and will head the animatics department which produced the award-winning *Cars* clip, "You Might Think." *Luis Aiza* of the director's agency *Ingalls Inc.* recently completed a debut video for RCA artist *Glen Jones*, "Bring Back Your Love." Artist *John Sanborn* produced and directed "So Tranquilizin'," the popular dance club clip introducing *The Cosmetics*.

*Dale Ward* and *Joe Butt* (a.k.a. *The Maverick Group*) produced and directed the fun and funny crossover clip for *King of Rock* and *Profile Recording* rappers *Run* and *D.M.C.* The high-budget clip is set in a "rock museum" and was filmed by *Robert Leacock*. Sound and video post were completed at *Editel/NY*; staffer *Peter Karp* has a cameo as a member of the back-up band. *Craig Golin* and *Howard Malley*, who've done clips for *Lionel Richie* and *Kenny Rogers*, donated video skills and eyeballed over 45 hours of multi-star footage for USA for Africa's "We Are the World" promo. "It took 25 hours just to do the opening sequence, where the artists' signatures appear on the screen, and the sequence lasts only 22 seconds," said Malley. *The Post Group* donated the editing time to the charity clip, which will be released on *RCA/Columbia Home Video* this month.

Producers *Jon Small* and *Phil Ramone* teamed up to film *Seiko Matsuda's* American debut clip for her song, "Dancing Shoes." *Ron Jacobs* directed... *Dallas' Sundance* hosted a lip-synching session by Japan's 13-year old "pop idol" *Youki* at spots around the city and at *Las Colinas Studios*. Those clips are bound for Japanese TV... *San Francisco Production Group* was the site of a *Tubes* clip, "Piece by Piece," directed by performer *Mike Cotten*. Other band members helped out by spending the better part of four days working with cut-out graphics mixed with single-frame video animation, *Ultimate*, and



ADO. The enigmatic *Residents* posted a demo at SFGP for a planned 20-minute video cassette project with *Ralph Records*. New Manhattan post house *Image Mix* and editor *Art Dome* have been working with *Kiss* on commercials and clips for their album, "Animalize." Off-line shop *Motor Video* on 44th Street has been busy with promo posting for MTV Network's VH-1.

If you're looking for a full-service facility in Akron, Ohio, check out *Creative Technology*. Rank Cintel film-tape transfer, CMX 3400 editing in the one-inch format and a 60' x 40' sound-stage are but a few of their features. *Galaxy Productions* (Elk Grove Village, IL) has revamped its edit suite with Abekas digital effects and acquired a 28' mobile unit. Chicago's *Polycom* has added the Quantel Encore digital effects unit to its Mirage in the "A" suite. Other effects equipment available there include the Bosch FGS-4000 graphics computer and Grass Valley switcher. In Boston, *Century III* has opened a new Digital Images division to offer single-frame video animation with the Bosch FGS-4000 and Quantel Paintbox.

#### CABLE TV UPDATE

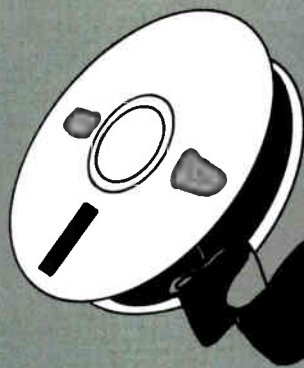
*MTV Networks'* middle-of-the-road channel, VH-1, now claims nearly six million subscribers. The service has been offered free to cable systems also taking MTV, currently beamed into 25 million cable homes. Stereo sound transmission to and from the satellite are encoded digitally. *Odyssey*, which admits to being a "low-overhead" 24-hour video music service, has had a more modest growth with 97 cable affiliates and about two dozen TV stations carrying its Top-40 format. The stereo programming is mastered on the component "M" format which uses half-inch tape.

*Discovery Network*, which has gone so far as to haul competitor MTV into court to test the legality of its exclusivity arrangements with major record labels, delayed the launch of its satellite service to switch from cable to broadcast outlets. Ten affiliated UHF TV stations will begin carrying the service in June, and perhaps three of these will have been purchased outright by Discovery Broadcasting. Audio on its musical programming is reprocessed for Holophonic sound.

*The Nashville Network*, now reaching over 20 million cable homes, has increased its play of promo clips due to the success of its weekly "Country-clips." That show, hosted by a puppet DJ, "Shotgun Red" is expanded to an hour; a weeknight half-hour, *Video Country*, was added in March, according to program director C. Paul Corbin.

Producers hiring writers to script promo clips is becoming a trend in music video. In the past, it was usually the pro-

—PAGE 138



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—FROM PAGE 136, VIDEO AWARDS

nalists, TV crews and photographers as the stars whisked by. It was like an auction as we shouted out our bids for passing comments. Meanwhile, emcee Casey Kasem kept the audience in the auditorium entertained with bushels of rock trivia. As Apollonia slipped by with video producer Simon Fields after accepting Prince's award for Best Soul Video, fashion writer Karen Dash described her as a Latino tart with a glitter headband halo. The boys were all ga-ga for her formal harem outfit with the transparent pantaloons.

Cyndi Lauper appeared in feathered finery to accept the award for Best Female Performance ("Time After Time"). The video also snagged Best Pop Video, Best Lighting Design and Best Director laurels for Edd Griles. Lauper's "She Bop" was given awards for Best Choreography and Best Costume Design.

Unannounced awards included a Hall of Fame honor for Rod Stewart and the Humanitarian Award to Ken Kragen for his participation in the USA for Africa "We Are the World" video.

—FROM PAGE 137

ducer and director who got together to come up with a "concept," but outside writers are proving a boon to creative teams turning out dozens of clips per year and in search of fresh ideas.

A pioneer in this new field is **Iain Blair**, known to the U.S. and London music community as a rock journalist whose recent work includes a book on the infamous Frankie Goes To Hollywood, and clip concepts for **Billy Idol** ("Flesh or Fantasy"), **Roger Glover** ("The Mask"), **Ratt** ("Back For More") and **Pat Travers**.

"I've always been a writer," says the British-born Blair, "I discovered rock and roll pretty late though; I grew up playing the violin." Playing in local bands, he cut a single produced by Roger Glover and performed in the original London cast of **The Rocky Horror Show** and in the film version as well. He worked for the BBC news department for a year, penned a science fiction novel, and began building a reputation for celebrity interviews published in British and U.S. music and film magazines. Moving to Hollywood introduced him to "Brit" directors **Russell Mulcahy**, **Godley & Creme** and the LA music video scene.

One of Blair's most elaborate projects was scripting the \$150,000

"Flesh or Fantasy" clip for Billy Idol. "I was going to London and literally on the afternoon of my flight I got a call from director **Howie Deutsch**," he recalls. "I wrote something on the plane, and we spent some time on the phone from London, flew back three days later for the shoot in New York.

"The lyrics of the song are pretty explicit—'Face to face, back to back, you see and feel my sex attack'—so I tried to approach it with a little humor," he says. "One of my ideas was to have Billy in a kind of sex club environment and have this huge Roman chariot come across the stage, carrying a tall black Amazon with reins and a whip, being led along by these enormously fat sumo wrestlers. Something outrageous. But it wound up instead just with a lot of erotic choreography.

"I've never written anything that turned out exactly the way I envisioned it," Blair adds. "Promos are very collaborative, working closely with the director and especially the art director. It's enormously difficult to write something that first pleases yourself, and then everybody else—not just the artist, but the artist's manager, the artist's girlfriend, the record company and all the powers that be like **MTV**. It's no good writing something you think is right for the artist if no one else wants to go with it. And you have to always be concerned with what the budget is, and what the time frame is."

"Just Another Killer Day" is a long-form video for Pat Travers to be released this summer by RCA/Columbia Home Video. Blair's role was to write a narrative dialogue to tie several musical numbers together. "I had to write three separate music videos inside the total concept, which had to stand on their own so they might be pulled out as separate clips," he says. "The basic story is a satire about three aliens who come to earth from a planet where sex is very free but music is censored.

"The idea came to me when I was out shopping one day and realizing that music—Muzak—is everywhere. In the elevators, in cars, people with headphones on... we're saturated with music. And I imagined a society with music being a matter of two consulting adults going home and listening to records."

Blair sees his work on clip concepts as "art with a small 'a'." He feels that concept writers can be a helpful part of a production team and will soon become as ubiquitous on a promo set as choreographers.

"Video has been an incredible meeting of the ways for me, combining music, writing and visuals, all great loves. I think it's good training for other film and television projects, in the same way that many clip directors have been moving on to features."

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# SIGNING YOUR LIFE AWAY

## WHAT RIGHTS TO SELL, HOW, AND HOW MUCH?

by Neal Weinstock

**S**ell as many rights as possible for as much money as possible. But the value of rights matures much more valuably than any wine; sell no rights before their time.

To define the limits of the possible, let's begin by defining the whole process of music video manufacturing. "We serve the recording industry," says director Steve Kahn. "What we are involved in is nothing more than a way to sell records." Obviously, the record labels are the first stop on the music video money tour.

Say you want to get in the business, you've got a reel of videos you've made in your basically-audio studio for acts that unfortunately remain nameless. If you've got something that you think sells, take the reel on a tour of the labels. Says producer/director Martin Kahan, "I was lucky enough to come to New York at the beginning of January. Somebody needed work done in a hurry, everybody was on vacation, and I basically bullshitted my way into my first video."

Competitive bidding is increasingly being used by the labels in choosing music video production companies—taking a leaf from the way ad agencies choose commercial producers. But a crucial difference between the two media is that, in commercials, agencies have already developed a concept; producers bid merely on execution. In music video bidding, your concept wars with those of other producers. Storyboards are being increasingly used to demonstrate those concepts, so expect this to be a necessary business cost.

Odd as it may sound, independent producers are following exactly the same formula to get jobs on the ever-more-ubiquitous feature film trailer videos, in which the title song is sung against scenes from the movie. MTV has recently developed guidelines to assure that not too much of the movie is shown in the video, that it has some independent material and a story-line independent from the big movie. Independent mu/vid producers understand these guidelines better than the average Hollywood editor, and so are copping the jobs. Chalk up something else owed to MTV.

The labels, or studios, can be expected to come up with a budget of from \$5,000 to \$40,000, with most producer's experiences being distinctly on the low side, and all too few coming in any higher. The typical contract will pay a third to a half of the budget on signing, and will make available more funds as you go through the production process, reserving at least 25 percent of payment till delivery. Be sure your contract specifies when these pay points occur; labels are notorious for slow payment if they can get away with it.

If slow payment becomes a problem, there is always "factoring" to consider. That is, you put up your expected profit as collateral, and a bank loans you your budget up front. Interest rates on this sort of loan can be brutal, especially to beginning production companies. Expect to pay 20 percent of budget (that's flat, not annual) to the bank.

If you sign with a label or a studio, you are essentially a hired gun: thus, the general impression that the producer has no possibilities for profit other than the basic, label-given budget. Don't fall for it! Most contracts have some sort of clause at the bottom stating that "all rights not thus far reserved in this contract to either party are expressly retained by the party of," whichever part the label is. This may be construed as limiting all sorts of future rights that no one may have even guessed at yet. If you do not enumerate rights at the contract stage, this clause will make them very difficult to stand up for.

What sort of rights? For example, we reported last time on a scheme by which sponsors would pay to place their products in music videos. The licensing company in question, headed up by Lenard Jacobs in partnership with Silvercup Studios in New York, plans to pay **production companies** for such rights, not record labels. At a recent music video conference at Silvercup, Jacobs engaged in some not totally happy repartee with a representative of Atlantic Records, who had, "big problems with producers doing this without the participation of the label."

How about rights to royalties when videos are shown for payment?

How about rights to negotiate such sales, for a larger share of profits, if you have reason to think you can do it? Label contract lawyers are going to tell you they've never done such a thing, but there's an awful lot that most people in the music video business haven't done yet. Go for it. In your favor stands a basic perception by the labels that videos exist only to sell records. Thus any exposure is better than none, and if you bring additional—and otherwise impossible—exposure, everybody benefits.

Owners of sound studios that make videos (perhaps doing so for a share of possible profits in lieu of quite the vast sums the studio would normally be entitled to) are in a good position to negotiate profit participation clauses with a (probably minor) label—just as they would for audio-only product. Obviously, this is a case-by-case situation. So is most industry deal-making, as readers are well aware. "There are no rules," says Broadway and film producer Henry Honeckman. "People who tell you there are rules are trying to sell you something that fits those rules. But there are no rules."

Limited partnerships, traditional movie-type investment companies, are beginning to poke their noses into music video. Herb Lefkowitz is the president and chairman of one such company, Music Video Producers Limited (in New York), and says he is now looking for the right projects to fund, most likely for a share in the artist's career and in long form rights, to TV syndication, theatrical presentation, and home video. "This is all so new," he says. "We'll be inventing all sorts of deals as we go along."

One distinctly possible pay-back route is represented by All American Television, which syndicates *Top 40 Videos*, among other shows that include the new *Deja View*—probably the first music video show not very concerned with hyping record sales. *Deja View* will pay producers to make videos of '60s hits for TV syndication. President George Back says he expects to sell TV advertisers a 25-40 year-old audience, and of course, to market the programming to home video, too. Back says his hits programs have always paid royalties

for the videos they show, but actually funding production involves expenses of a different order. Producers with footage—especially off-stage footage—of oldies acts are invited to call.

George Back may just find himself compulsively watching the charts for the performance of Vestron Video's latest venture in mu-vid production, *The Beach Boys: An American Band*. Distributed by a small independent (Sharp Features of Boston) to theaters in "over 20 top U.S. major markets beginning in February," according to Vestron, the film has hardly made a dent. However, it may yet dent public awareness enough to make way for the video, to be released May 22. Vestron threw in all the old footage it could find to make this film bio the first feature fully financed by a home video company. It takes programming like this to determine just what sort of market is out there.

How much are these people paying for future rights? Unfortunately, there is no established futures market for music videos, as there is for pork bellies or currencies. The same general rules ought to apply, however—just not in such organized form. In other words, a property that can only be capitalized sometime in the future is worth only a tiny

fraction of that future profit now. But pop product that is relatively worthless now, just like pork bellies, may be even more worthless in the future. It takes a gambler's instinct, combined with a lot of information, to buy and sell at the right time.

Right now, music video's future looks to be up and up. Steve Kahn cautions, however, "The music industry is very responsive to the general economy's ups and downs. I think right now we're at the top of a swing. We've seen it happen before, time and time again. The marginal acts that have had success in the last couple of years because of video are going to be hurt."

However, signs point to the music video production business being more immune to general economic recession than is the record industry as a whole. Videos are the commercials of this industry. Commercial-makers, and advertising agencies, are well known to thrive through recessions in much better shape than their clients, because clients need to advertise in bad times, too. Yes, ad agency profits go down in recessions, but through the last five of these, agency profits have shrunk less than clients'. (Our statistics come from LNA/PIB.)

In an economist's terms, this translates into a marginal relationship

between growth curves for marketing media, compared to the economy as a whole. A musical analogy might call videos a harmonic of the general economy. In physics talk, this is the relationship between velocity and acceleration. When the economy is at peak (as it may be now) marketing media ought to show zero growth—because advertisers are swamped filling orders. When the economy starts to slide, inventories pile up, and advertisers need to advertise less, so marketing media slide badly. But when signs show that the economy is hitting bottom, and the marginal growth rate turns, that's when advertising really starts to shoot.

This marginal relationship is, to a certain and very predictable extent, counter-cyclical to the general economy. In other words, capitalists needing to make investments when the economy is in the pits also know it is at the verge of accelerating, and that marketing media are a best bet. Thus, investment functions like a second order harmonic.

What does all of this have to do with the here and now? Marketing media as a whole are indeed seeing relatively little growth as the general economy sits in a placid phase of little growth change at the top of a cycle. But *music video* production growth is tremendous. Rock-america's Ed Steinberg estimates that over 200 per month are now produced in the U.S. A consensus of producers we spoke with indicates that average budgets are some \$8,000 higher now than in '84. There are two possible conclusions to draw:

\*The industry is piling up inventory of music videos, and is truly going to crash as soon as the general economy swings down.

\*Music video, a new marketing phenomenon made possible by new technology, is now in a one-time fast growth phase. Cyclical forces will insure that investment in music video grows while everything else looks a worse bet, and production will continue to zoom even as the economy—and the record industry—slides.

Proof of the second, wonderful pudding is only possible as the public continues to react positively to music video; that is, as videos continue to sell records and begin to sell themselves. This may take some time, but at least marketing research carried on by labels and MTV is finally establishing the solid link we've all known about for some time: that videos sell records. A year ago, this interviewer couldn't often get label execs to absolutely own up to that. Nowadays, labels are shipping videos to *radio stations*. "This is working very well in getting airplay for otherwise difficult material," says Steve Kahn. Hold onto your rights, the soufflé is zooming. ■

## FROM **DALLAS TO DIGITAL— CATCH IT IN THE MIX**

**JULY:** Southwest Recording/Audio Education

- Listings: Southwest Studios/Audio Schools & Programs
- Special Report: Mixing Console Technology
- Digital Reverb, Pt. III: Manufacturers' Roundtable
- Southwest Recording Update

**AD CLOSING: May 7th**  
**MATERIALS DUE: May 15th**

**AUGUST:** Studio Design Issue

- Listings: Studio Designers & Suppliers
- Audio Dealers' Forum: Trends in Studio Equipment

**AD CLOSING: June 7th**  
**MATERIALS DUE: June 14th**

**SEPTEMBER:** Southern California Recording

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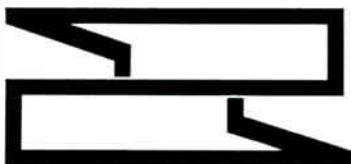
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FILM TITLE:		PRODUCTION COMPANY:		Total 4,175.81				
LC	Sec	Description	FC	MULT	REQ'D	RATE	UNIT	COST
1	2001	PRODUCTION MANAGER						
2		PREP/WRAP/SEV	51	1	16	1522	WK	24,352
3		SHOOT	5	1	8	2388	WK	18,488
4		PRODUCTION FEE	5	1	8	314	WK	2,512
5		FRINGE	52	1	44464	17792	%	7,911
6		---(BLANK LINE)---						
7		---(BLANK LINE)---						
8								> \$ 53,175
9	2002	FIRST ASSISTANT DIRECTORS						
10		PREP/SEV	51	1	8	1445	WK	11,568
11		SHOOT	5	1	8	1445	WK	11,568
12		PRODUCTION FEE	5	1	8	251	WK	2,088
13		FRINGE	52	1	25128	17792	%	4,471
14		---(BLANK LINE)---						
15		---(BLANK LINE)---						
16								> \$ 29,599

(above) Budget detail display from Quantum's dataMOGUL program.

# COMPUTER AIDED PRODUCTION SOFTWARE GOODIES

by Lou CasaBianca

The penetration of the personal computer into the production environment has been accelerating rapidly over the last several years. The original Apple II with Visicalc (financial spreadsheet) and/or Wordstar (word processing) was the first low-cost personal computer hardware-software package to be used in production. In the beginning, small computers were used for general business

applications like accounting, writing, graphics and marketing. Today there are new powerful software packages designed to execute production applications that would have been considered next to impossible just a few years ago.

Sound and music creation and storage, production data management, production equipment control, post-production, graphics and image processing have all been elevated to new levels of sophistication and efficiency by microcomputers. A host of ingenious

software packages are now available to the audio, film and video producer. Instead of making do with software designed for general business, producers can now choose from an array of systems specifically designed for motion picture and television production.

What follows is only a sampling and a brief review of some of the diverse software packages that are now available for the film and video music producer.

## AARDVARK PRODUCTIONS:

"A.I.C.P. Bid Form"  
134 Filbert Ave., Sausalito, CA 94965  
(415) 332-9036

Production manager Emily Riddell has developed a template for Lotus 1-2-3, currently the most popular integrated software package for the IBM PC and compatibles. It will handle budgeting, accounting, proposals, checkbook ledgers, production scheduling and mailing lists. Ms. Riddell says, "I have found that running my business with the help of computers has greatly improved my efficiency . . . and simplified the various jobs involved in managing a production." Aardvark's Lotus template is an obvious solution for current Lotus users who simply purchase the enhancement for their existing software. Since the software is keyed to Lotus 1-2-3, it will run only on MS-DOS compatible machines. Lotus has become such a dominant force in the world of PC software that in fact it might be worth the additional time and money to get up to speed on this widely used software for many other traditional business applications.

## ALNITAK COMPUTING COMPANY: "AD/80"

1326 Greenwich St., San Francisco, CA 94109 (415) 552-1123

AD/80 is a custom package specifically designed for the Assistant Director. The software is menu driven, providing listings of the appropriate steps and forms needed to execute a given application. Designed for portable computers with a minimum of 64k memory with two double density disk drives, it is available for both MS-DOS, Apple and CPM operating systems. Some of the more familiar forms the software will create are a shooting schedule; continuity breakdowns; call sheets; and on-line production schedule.

## HERITAGE SYSTEMS INC:

"The Remarkable Film & Video System"  
1011 N. Foothill Blvd., Cupertino, CA 95014 (408) 996-9898

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# WHAT ARE THE TEC AWARDS?

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The Technical Excellence and Creativity Awards have been established by the Publishers of *Mix Magazine* to honor outstanding achievement in the professional recording and sound production industries. Encompassing three general categories (Technical, Creative, and Institutional Achievement) and nineteen sub-categories, the TECs will give audio and music professionals the opportunity to recognize the accomplishments of their peers. Recipients of the TEC Awards will be nominated and voted upon each year by the readers of *Mix Magazine*. It is our intention that the TECs will become an honored tradition, as well as occasion for audio and music professionals to gather together and celebrate the progress of our industry.

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## WHY A TEC AWARD?

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Although there are awards programs in existence that recognize achievement in the fields of recording, sound and music production, the Publishers of *Mix* felt that an awards program was needed that spans these separate, yet increasingly inter-related fields. As design engineers seek to meet the needs of producers and creative artists, and as artists become increasingly more dependent upon technology to aid in their self-expression, Technical Excellence and Creativity become truly two sides of the same coin. The TEC Awards will recognize those who achieve notable success in this era of technical and creative fusion.

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## TEC AWARDS PROGRAM BOOK

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The TEC Awards Program Book will be specially published to commemorate the TEC Awards Celebration. 2,000 copies will be printed on premium-quality stock for distribution at the Awards Celebration and to nominees and participating companies. Approximately one hundred pages in length, the Program Book will include profiles of all 130 TEC Award nominees, as well as a schedule of the ceremonies and complete information about the TEC Awards.

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*The TEC Awards Celebration will be held in New York City, in October, 1985 (on the first night of the AES Convention). For more information on the TEC Awards, tickets or program book, please contact 415/843-7901.*

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—FROM PAGE 142

This software system is designed specifically for the IBM-PC. It is used in four areas of production planning and control: script breakdown, scheduling, budgeting, and production accounting. The system is also menu-driven using color-coded screens for easier use. The script breakdown programs serve as a database for such items as scene number, set name, INT/EXT, characters, props and special effects.

Scheduling features include a calendar generating facility, full shooting schedule and computerized color stripboard. The Remarkable Film & Video System budgeting element includes chart of accounts, detailed worksheets for set construction, set dressing and transportation, as well as worksheets for calculating costs in all categories including preparations for projecting production costs. Production accounting elements include general ledger, budget

estimates, purchase orders, payroll and supplier records. Heritage provides hardware as well as software, installation, training and repair service.

### QUANTUM FILMS:

"dataMOGUL Software"  
8344 Melrose Avenue, Suite 24,  
L.A., CA 90069 (213) 852-9661  
"Cine-Com Software: Show Auditor"  
(213) 827-5457

Quantum Film's dataMOGUL Budget lets you create or use your own budget format. Its library includes forms from MGM, Fox, Columbia, Warner Brothers, the AICP and others. The company can provide a demo disk for evaluation on IBM-PC, Apple IIe, and compatible computers. It is available in components for budgeting, script breakdowns, scheduling, accounting and reports.

The software provides access to budget data from prior productions or from data libraries containing labor rates,

Sample budget top sheet for a feature film.

<FILM TITLE>	PRODUCTION COMPANY	REV. 05-21-1984	0.1
.....			
<b>PRODUCTION BUDGET</b>			
PRODUCER: BERNARD BULLFISH		START DATE: JUNE 1 1984	
DIRECTOR: HARRY TAKCHARGE		END DATE: TO BE SET	
ACCOUNT	DESCRIPTION	PAGE	BUDGET
1100	STORY & OTHER RIGHTS	1	150,000
1200	CONTINUITY & TREATMENT	2	5,000
1300	DIRECTION & SUPERVISION	3	400,000
1400	CAST - DAY PLAYERS - STUNTS	4	898,891
1500	TRAVEL & LIVING	5	
1900	FRINGE BENEFITS	7	97,522
<b>TOTAL ABOVE THE LINE</b>			<b>\$ 1,551,413</b>
2000	PRODUCTION STAFF	9	184,525
2100	EXTRA TALENT	10	121,343
2200	ART DIRECTION	11	82,489
2300	SET CONSTRUCTION	12	100,000
2400	SET STRIKING	13	
2500	SET OPERATIONS	14	129,625
2600	SPECIAL EFFECTS	15	
2700	SET DRESSING - OPERATIONS - STRIKE	16	128,668
2800	PROPERTY - OPERATIONS - STRIKE	17	59,284
2900	MEN'S WARDROBE	18	123,031
3000	WOMEN'S WARDROBE	19	31,197
3100	MAKEUP AND HAIRDRESSING	20	47,036
3200	ELECTRIC RIGGING - OPERATIONS - STRIKE	21	112,247
3300	CAMERA OPERATIONS	22	192,261
3400	SOUND OPERATIONS	23	62,200
3500	TRANSPORTATION	24	181,099
3600	LOCATION	25	102,388
3700	PRODUCTION FILM & LABORATORY	26	103,915
3800	STAGE FACILITIES	27	54,250
3900	PROCESS - REAR PROJECTION	28	
4000	2ND UNIT - MINIATURES - SPECIAL EFFECTS	29	10,000
4100	TESTS	30	10,000
4400	FRINGE BENEFITS	31	78,200
<b>TOTAL PRODUCTION PERIOD</b>			<b>\$ 1,923,968</b>
4500	EDITING	32	128,786
4600	MUSIC	34	171,500
4700	POST PRODUCTION SOUND	35	104,011
4800	POST PRODUCTION FILM & LABORATORY	36	46,088
4900	MAIN AND END TITLES	37	7,000
5900	FRINGE BENEFITS	38	10,448
<b>TOTAL EDITING PERIOD</b>			<b>\$ 477,833</b>
(CONTINUED)			
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QUANTUM FILMS SOFTWARE	FORM: E158	FILE: DEJA	REG. NO. 0



rentals and services which can be incorporated into new budgets. This is the computer equivalent of a resource book such as Brooks Standard Rate Book. Access to existing labor rate data files such as IATSE, DGA, SAG, NABET and others is available to members of the dataMOGUL Users Group. This, for example, would allow you to easily compute alternative budgets for projects produced in New York or Los Angeles and compare the variances. Quantum has created a link to Show Auditor, a comprehensive accounting/payroll package developed by Cine-Com Software. The accounting software will access the LINK file and automatically set up the chart of accounts as well as the starting estimates based on the budget which was created with dataMOGUL Budget software.

#### **SCREENPLAY SYSTEMS:**

"The Production Toolkit" & "Scriptor"  
348 East Olive Ave., Suite F, Burbank,  
CA 91502 (818) 843-6557

The Production Toolkit is software designed to create budget forms, production boards, cast and crew lists, call sheets, shooting schedule, and scene breakdown. The budget forms currently available are for ABC, AICP, Fox, Lorimar, Universal, Warners and others. The Toolkit contains a unique feature called the Wizard which can answer "What if" questions about cast or characters. It can generate lists of information based on specific queries like, "List all the exterior scenes," or "how many times will this set be used?" In addition to IBM and CPM the Toolkit will be available for other systems including nix and Macintosh.

Screenplay Systems are the developers of Scriptor, an advanced scripting package that uses standard word processing products like Word (for 16-bit PC DOS) or Wordstar (for 8-bit CPM) as text editors. Music videos, commercials and TV programs have been shot with no script or with extremely detailed scripts and every variation in-between. By substituting lyrics and instrumental musical sections for dialogue, Scriptor can be easily adapted for music video. Its feature film format eliminates the reformatting problems inherent in side-by-side columns of text for audio and visual shooting information.

As indicated earlier, this is not intended to be an all exclusive recap of this kind of software. Prices on these systems vary from \$295 to two or three thousand dollars. For more information on the nuts and bolts aspects of this software, you may want to refer to "Computers and Video" (July 1984 *Mix*), with Lon McQuillin's comments about Comprehensive's Associate Producer and PowerScript, or contact the above referenced manufacturers directly. ■



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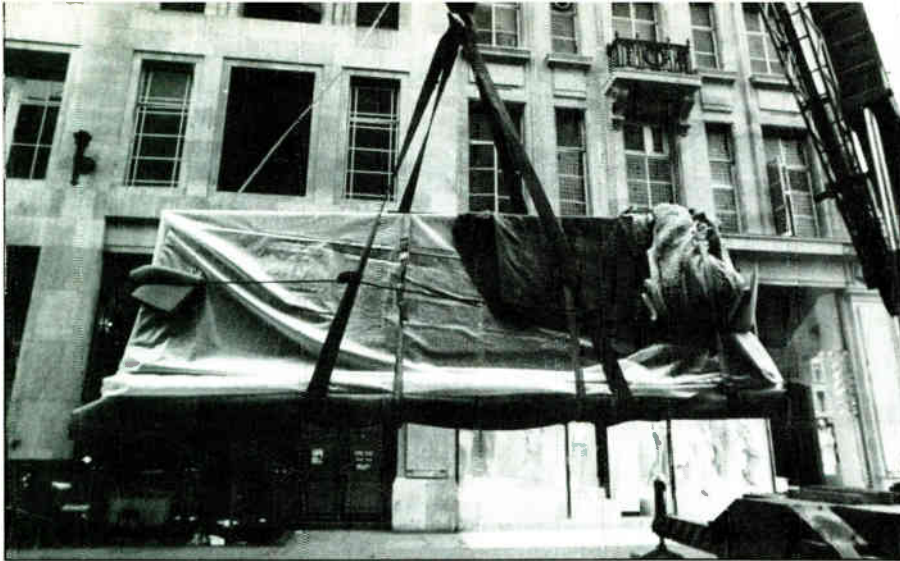
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## INTERNATIONAL UPDATE



### Proposed New Service for APRS

The Association of Professional Recording Studios (APRS) is examining a proposal to set up an interactive view-data service via Prestel, for showing time available at member studios and cutting facilities. Subscribers who access the APRS pages will be able to make immediate booking inquiries after checking dates and times free at APRS member facilities.

The service will be called Studio Link-up, and may be operated by Gwynn Williams Viewdata Limited, which already operates similar services called Theatre Link-up (for venue availability and bookings) and Conference Link-up.

On paying a subscription for validation as members of a closed user group, subscribers—who are expected to be mainly record companies and producers and some artists—will be able to dial up the APRS page. This will also offer an APRS Noticeboard, a facility for user group members to place messages there and a "menu" which allows for choice of studio by area, and then individual pages giving notice of availability for up to three months ahead at any time.

Gwynn Williams will make twice-daily scans of the information to check it, and will make check calls to the studios which have bought pages. Richard Gwynn demonstrated the proposed Studio Link-up system to the APRS Executive at the February meeting, and was invited to repeat the demonstration the same evening at the Association's Business Meeting.

The Studio Link-up experimen-

tal period will begin as soon as possible. Gwynn Williams has yet to finalize charges to studios for pages, and to subscribers for membership of the closed user group. Studio Link-up will be available ONLY to APRS members, and initial inquiries are being handled by Robin Jones at R.G. Jones Studios, Wimbledon, 01 540 9851 and by Richard Gwynn of Gwynn Williams Viewdata Limited, Mansfield House, 376 Strand, London WC2R 0LF (tel. 01 379 5523).

### 'The Firm'—Live by Satellite from Abbey Road

An estimated ten million people throughout the United States heard an exclusive "press conference" with Jimmy Page and Paul Rodgers of The Firm, transmitted live by satellite from Abbey Road Studios to over one hundred stations in the ABC Rock Radio Network.

Page and Rodgers were interviewed by three U.S. DJs—Oedipus of WBCN Boston, Redbeard of Q102 Dallas, and Scott Muni of WNEW-FM New York—in the Penthouse Studio at Abbey Road. The program, which also included live telephone questions from three other U.S. DJs, Gary Lee Horn of WYSP Philadelphia, Dia from WMMS Cleveland, and Rita Wilde of KLOS Los Angeles, was put together with DIR Broadcasting Corporation of New York and was mixed via the Penthouse Suite's recently installed 32 channel Neve 8128 console. Abbey Road engineers on the project were Jim Jones, Peter James and David Flower.

Jimmy Page, best known for his

success with Led Zeppelin, and Paul Rodgers, whose previous career includes a central role in Free and Bad Company, are joined in The Firm by bassist Tony Franklin and Chris Slade on drums.

### SIM Hi-Fi IVES Conference Set

The biggest European exhibition of hi-fi, video, consumer electronics and musical instruments will be held in Milan from the 5th to the 9th of September, 1985, in the halls of the Fair of Milan. The exhibition, now in its 19th year, expects to exceed last year's over 150,000 visitors and over 1000 direct exhibitors and represented companies. For 1985, further growth is expected through electronic musical instruments and the growing sector of computers applied to music. SIM Hi-Fi IVES intends to stress such aspects by organizing a number of collateral exhibitions, congresses, special exhibitions and an intense program of shows, besides a special structure of the exhibition area itself to allow live demonstrations. For more information on SIM Hi-Fi IVES, contact Segreteria Generale, Via Domenichino, 11-20149 Milano, Italy.

### TDS in Japan

Time Delay Spectrometry, the recently developed acoustic measurement technique, has been used in Japan for the first time to test recording studios now under construction for Tokyo-based Studio Take One.

Studio designer G.L. Augspurger, president of Perception Inc., has just returned from a visit to the studios and reports that his TECRON TEF System 10 had not previously been seen by the Japanese technicians. Augspurger explained that he used the TECRON analyzer because, "Time delay spectrometry provides information that cannot be gotten any other way. Moreover, the System 10 allows a great many different kinds of measurements to be made quickly, stored on floppy disk, and then analyzed later." The purpose of his visit was to supervise installation of custom monitor loudspeakers and to check the progress of studio construction in a new multi-story building being erected by the studio owners.

The S. Take Group already operates three successful studios in their existing headquarters building in the Shinjuku district of Tokyo. Two years ago the decision was made to build a second structure from the ground up and to provide space for a new world-class studio and mixdown room. Architect John Philip Edwards and Perception Inc. were chosen to design the recording facilities. According to studio spokesman Shingo Take, console installation is scheduled for early spring and the new studios are expected to be in full operation by the first of June. ■





compare notes. That's where all the progress has come from.

**Mix:** You seem to have a lot of creative control in mixing the band live, being able to put on effects when you see fit, altering the sound and all. Again, it seems like there's a deep implicit trust at work.

**Healy:** The concept is mutual agreement. I don't tell you what to do, you don't tell me what to do. You're playing what you're playing and I'm playing what I'm playing, and I won't ask you to change, you won't ask me to change. In fact, we won't even look into that be-

cause we've discovered that by not addressing it on that level and just jumping into it, we've always done really well. By and large, after everything is said and done, it's been as good a way to go about it as any other idea. So that's another one of the unique things about the Grateful Dead. It's a fine little point, but it's one of the things that keeps it fresh, keeps you from getting burned out on it.

For the past year or so, on the weirdness after the Rhythm Devils' part [a section of free-form "space" music after the drum solo], I've been able to play a lot. I have synthesizers in my

booth, and we sort of play together. A lot of the equipment is home-brew stuff. It's gotten to be a lot of fun, and I've realized that there's a lot more dimension to what I can do.

For example, I have about six different kinds of delay systems that are basically all the popular varieties you find in recording studios. I also have three or four pieces of equipment that we have the only ones of, because John Cutler and I designed them. There's a thing I've got now that allows the sound to be controllable by a computer. The sound can move around the room, and as it moves it turns inside out and upside down. Have you seen those computer graphics on TV where they can turn things all around and show you the inside and outside of things all in one motion? Well, I can now do the aural equivalent of that.

**Mix:** When you say you have a synthesizer at your disposal, what do you mean?

**Healy:** "Synthesizer" is really one of those blanket terms that doesn't really mean anything. It's like saying "computer." What it amounts to is that I have the equivalent of the elements found in most synthesizers, like a ring modulator, envelope generators, envelope followers, burst generators, sine wave and square wave and triangle wave generators and all that stuff. Those are kind of the raw components of a synthesizer. But I have it as separate components rather than built into one device, because I completely restructure the uses of these things so radically that it would be impractical to turn it into a synthesizer unit without limiting myself. Then I have a matrix system that enables me to connect them together in every configuration.

On the drawing board right now I have a microprocessor-assisted matrixing system so that I'll be able to take any one of the microphones and assign them to any one of the effects devices, and then assign any of the effects devices back into the system in any way that you can imagine. It's really out there.

We've got a whole new trip, too. There's that system, plus we've also recently acquired this marvelous piece of very complicated audio analysis equipment that uses three computers. In addition to measuring the amplitude of the various musical notes, it measures the notes' arrival time, the reverberance in the hall, all sorts of things. I think where it's all leading is that in a couple of years we should be able to go into a hall and completely eliminate the echo. We can do that now on a good night—the room will just go away and it's you and the music.

**Mix:** How much do you change the mix during a given show?

**Healy:** Not very much, really. Most of those changes are left up the band. See, what I really do, philosophically, is work

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"We have toured Carvers with the following artists: Softcell, Paul Young, Johnny Mathis, Donna Summers, Howard Jones, Pointer Sisters, Psychedelic Furs, Lee Greenwood, General Public, George Thorogood. This is exclusive of our numerous one-nighters. The consensus of the performers is that the equipment sounds great. They have been amazed by the sound of the amps as well as their size and weight. As for reliability, out of 50 amps we had only one fail in the past year of touring. This is by far the best record we've had with any manufacturer of amplifiers. Sonically, the extra headroom is readily apparent. We, at Manticore unanimously agree that the PM-1.5 is incredible and is the only amp we intend to buy."

*Tom Whisner (owner) MANTICORE*

**In the Laboratory** The Carver PM-1.5 was rigorously tested by Len Feldman for MODERN RECORDING (February 1985). His laboratory test results also prove that the PM-1.5 really delivers. The following quotes from the Lab Report are reprinted with permission of MODERN RECORDING & MUSIC:—

"The first thing we noticed when we began to work with the Carver PM-1.5 was the ease with which the amplifier delivered almost limitless power to speaker loads which we had previously considered to be difficult to drive to loud levels. This is the sort of amplifier that just refuses to quit."

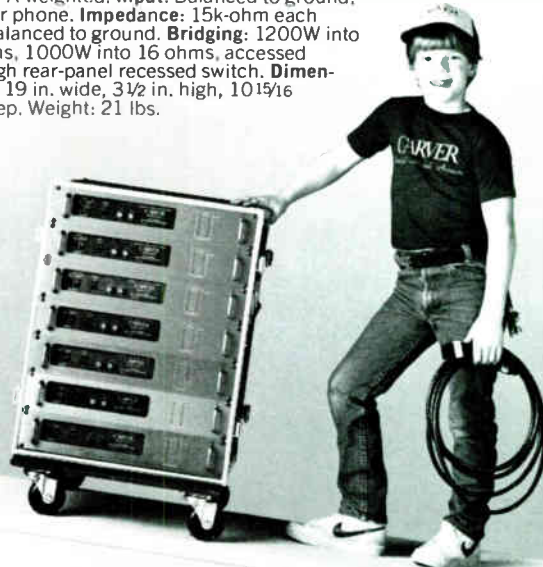
"The amplifier delivered a clean 480 watts per channel into 8-ohm loads with both channels driven for its rated harmonic distortion level of 0.5%. Even at the frequency extreme of 20 Hz, power output for rated THD was 470 watts as against 450 claimed by Carver. Furthermore, at rated power output, distortion decreased to an insignificant 0.015% at mid-frequencies and 0.007% at 20 Hz. When connected to 4-ohm loads, the PM-1.5 delivered 750 watts per channel for rated THD of 0.05%—far more than the 600 watts claimed by Carver. Clearly, when it comes to specs for a professional amplifier, Carver has taken a very conservative approach... All (manufacturer's claims) equaled or exceeded published specifications—usually by a wide margin."

"Carver has managed to deliver a tremendous amount of power in a small lightweight package at a very reasonable cost..."

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**\*Power:** 8 ohms, 450 watts/chan. 20 Hz-20 kHz both channels driven with less than 0.5% THD. 4 ohms, 600 watts/chan. rms 20 Hz-20 kHz both channels driven with less than 0.5% THD. 16 ohms, 300 watts/chan. 20 Hz-20 kHz both channels driven with less than 0.5% THD. 2 ohms, 525 watts/chan. at clipping, 1 kHz, with less than 0.5% THD. Note: 2-ohm specification for information purposes only. Operation at 2 ohms is permissible but not recommended. **IM Distortion:** Less than 0.1% SMPTE. **Frequency Response:** -3 dB at 3 Hz, -3 dB at 80 kHz. **Damping:** 200 at 1 kHz. **Gain:** 26 dB. **Noise:** Better than 115 dB below 450W A-weighted. **Input:** Balanced to ground, XLR or phone. **Impedance:** 15k-ohm each leg, balanced to ground. **Bridging:** 1200W into 8 ohms, 1000W into 16 ohms, accessed through rear-panel recessed switch. **Dimensions:** 19 in. wide, 3 1/2 in. high, 10 15/16 in. deep. Weight: 21 lbs.



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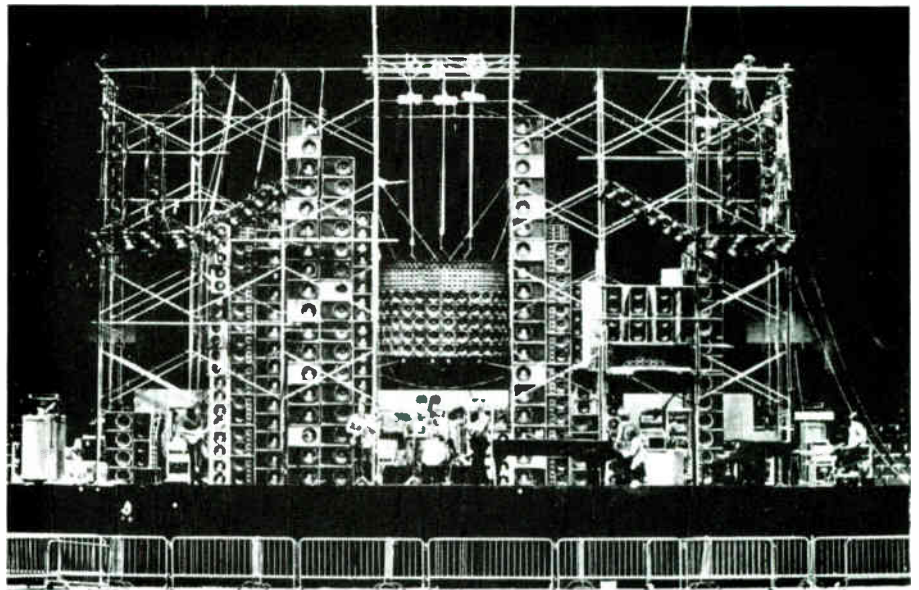
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*The Dead are dwarfed by their infamous monster sound system at a sound-check for their 1974 Winterland pre-"retirement" concerts.*

to eliminate the room and the acoustics and try to plug the band and the audience together. I don't look at it like I'm manipulating something or determining something. I'm removing the sound system and the room, making those *vanish*.

**Mix:** Are the new halls you play around the country—the Centrum in Massachusetts, Brendan Byrne Arena in New Jersey, places like that—being built better from your standpoint?

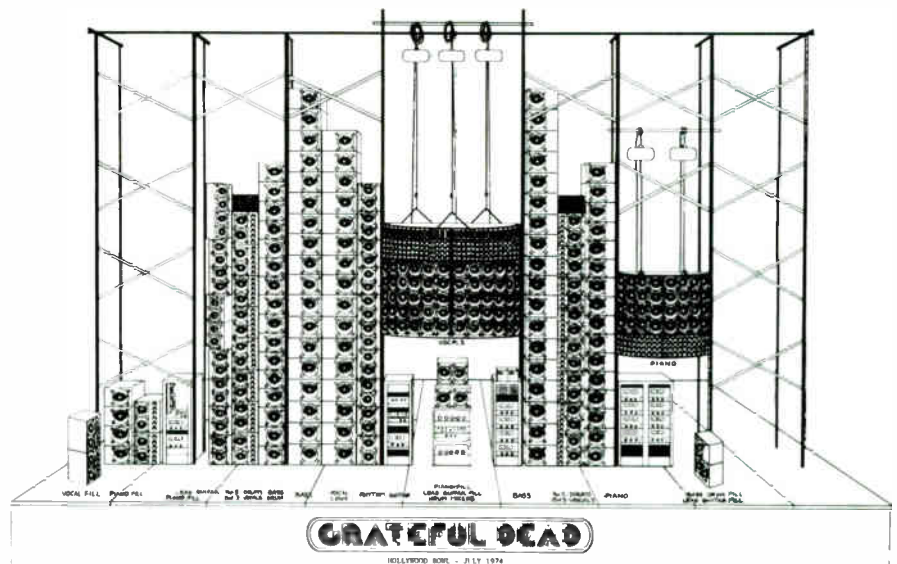
**Healy:** They are getting better in general, but it will still be a long time before civic organizations have the kinds of funds needed to put towards any sort of

real acoustical preparation of those big places. I sort of feel like I've perfected mega-halls. I sort of look forward to them sometimes. It's a good challenge and very rewarding when the band does sound good in those places. It used to scare the hell out of me.

**Mix:** Is there an ideal-size hall?

**Healy:** I think a place that seats about 6000 and doesn't have too horrible acoustics is about right.

**Mix:** Well, the second part of that eliminates Winterland [the legendary S.F. hall]. . .



*The Grateful Dead's Sound System—July 1974*

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**Healy:** Winterland was *awful* acoustically. I'm glad it was like that in a way, though, 'cause that's where we cut our teeth. I was raised in the worst tub going, so by the time I had to venture into bigger halls around the country I'd lived for so many years with that, the rest of it was a piece of cake.

**Mix:** You haven't worked much with the band in the studio the last few years . . .

**Healy:** I don't dig it anymore. The Grateful Dead kill a record in the studio. I can't stand it.

**Mix:** What could you do to prevent that?

**Healy:** Slap 'em! [Laughs] I don't know. I refuse to go in the studio with those guys. In the case of working in the studio, [Bob] Weir is one of those guys who thinks that

### The Dead's Sound Reinforcement Equipment

The Grateful Dead rent the bulk of their current sound equipment from Ultra Sound, one of the major dealers of John Meyer Sound gear. The Dead use up to 48 Meyer Sound MSL-3 loudspeakers, 650-R2 sub-woofer cabinets, and UPA 1-As for side and center fills. The band has chosen three different kinds of Meyer monitors: UPA 1-As, UM 1-A Ultra Monitors and USW-1 sub-woofers. Sound mixer Dan Healy uses a customized 40 input Gamble console (and is actually considering acquiring a second one primarily to handle the enormous number of percussion instruments used by drummers Billy Kreutzmann and Mickey Hart). Stage sound mixer Harry Popick utilizes a Gamble 40 input monitor console.

fame is predicated on fashion. His notion of how to make a record that's a million-seller is to hire some fashionable producer or something. And none of those fashionable slick producers have the energy to put up with those guys. You have no idea the energy it takes to keep up with all those creeps in a session! [Laughs] To me, it's just a convoluted can of worms.

I think the Dead should either concentrate on making good live albums, or at least try to play as live in the studio as they can. But having a hit record isn't important to me. Different things are important to different people. I don't care if we ever record again. Playing live is what's important to me, because that's where it all comes together. That's the real thing. *That's* the Grateful Dead. ■



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# REMOTE RECORDING & SOUND REINFORCEMENT

The following companies offer a variety of services in the field of sound reinforcement and remote recording. Many of the listings in this directory also contain a code which indicates the specialties of each business: *SO* = sound reinforcement, *LI* = lighting, *SL* = sound and lighting, *ST* = staging, *ER* = equipment rental, *AR* = audio recording, *VR* = video recording, *AV* = audio and video recording. All of the information in this Remote Recording and Sound Reinforcement



Directory is based on questionnaires mailed in January 1985. People, equipment and locations may change, so please verify critical information with the companies directly. *Mix* does not take responsibility for the accuracy of the information supplied to us by the firms listed. We encourage all remote recording operations (audio, video, or both) and sound reinforcement companies to contact us here at *Mix*, so as to be included in our next listings.

## L I S T I N G S

### NORTHWEST

**A.ATRONICS, INC.**  
*SOUND REINFORCEMENT & REMOTE RECORDING*  
*SL, ER, AV*  
5903 Franklin Rd., Boise, ID 83709  
(208) 343-0900  
Contact: Bill Donnelly

**ACE TUNEL SOUND CO.**  
*SOUND REINFORCEMENT*  
*SO, ER*  
P.O. Box 19271, Portland, OR  
(503) 666-1935  
Contact: Zack Zaccaria

**ADRIAN'S TV & SOUND ENGINEERING SERVICE**  
*SOUND REINFORCEMENT & REMOTE RECORDING*  
*SO, ER, AV*  
982 Lower Main St., Wailuku, HI 96793  
(808) 244-5922  
Contact: Wilfred Murakami

**ALASKA STAGE CRAFT**  
*SOUND REINFORCEMENT*  
*SL, ST*  
1025 Orca St. #57, Anchorage, AK 99509  
(907) 276-5671  
Contact: Casey Clevenger

**ARMY STREET STUDIO/BSU PRODUCTIONS**  
*REMOTE RECORDING*  
*AV*  
P.O. Box 31425, San Francisco, CA 94131  
(415) 821-6962  
Contact: Leeter Gass

**AUDIO BUNS**  
*SOUND REINFORCEMENT & REMOTE RECORDING*  
*SL, AV*  
706 Alder Ave., Sumner, WA 98390  
(206) 863-6655  
Contact: Dennis Livingston, Jr.

**AUDIO HAWAII INC.**  
*SOUND REINFORCEMENT*  
*SL, ER*  
960 Ahue St., Honolulu, HI 96819  
(808) 839-6966  
Contact: Jim Perri  
Equipment: PA: 30,000 watt, flying system: 18"15"12"10" cones, 90 degree 2" horns, tweeters. Monitors: 10 wedge + side/drum, 3-way system: 15" cones, 2" horns, tweeters 12 wedge 2 way system: 12" cones, 1" horns. Amplifiers: Yamaha, Phase Linear, McIntosh, Crown. EQ: 1/3 & 1/2 octave. Limiters/effects: dbx, UREI, Lexicon, Roland, Ibanez, Yamaha, Aphex. Consoles: House 32 x 8 x 2 w/8 x 8 matrix, V.C.A., 32 x 8 x 2, 16 x 4 x 2. Monitor: 32 x 10. Lighting: 300 fixtures-PARs, Lekos, Fresnels. Trusses: 21' sections. Consoles: 24ch. Leprecaun w/12 matrix, chase, 60ch. Porex DIM system controller, add/sold, chaser, AB subbing, w/30 matrix. 32ch. Datacue 200 scene computer. Stage equipment: full selection of guitar, bass amps, keyboards, percussion.  
Services Available: Equipment rental, engineering, operation for concerts, conventions, & live, tape or satellite television shows.  
Credits: Rock: Earth, Wind & Fire, Grand Funk, Kiss, Night Ranger, Pretenders. Country: Charlie Pride, Johnny Cash, Merle Haggard, Ronnie Milsap, Willie Nelson. Pop: Ben Vereen, Steve & Eydie Gorme, Temptations/4 Tops, Tom Jones, Tony Orlando. Jazz: Chuck Mangione, Count Basie, Earl Klugh, Lee Ritenour, Tom Scott. T.V. Shows: Don Ho, Mike Douglas, Perry Como, PTL Club, Rex Humbard. Conventions: Cambridge, Dairy Queen, Datsun, Lions International, Wendy's. Stage shows: Evita, Bernstein's Mass, Chorus Line, Jesus Christ Superstar. Culture: Arthur Feidler Pope, New York Philharmonic, Nureyev.

**AUDIO SYSTEMS RENTALS**  
*SOUND REINFORCEMENT & REMOTE RECORDING*  
*SO, ER, VR*  
21169 W. River Rd., Stevenson, CA 95374  
(209) 576-8632, 632-7098  
Contact: Donald Setaro, Ray Vierra

**AUDIO VISUAL ASSOCIATES**  
*SOUND REINFORCEMENT & REMOTE RECORDING*  
*SL, ST, ER, AV*  
1515 Old Bayshore Highway, Burlingame, CA 94941  
(415) 381-5472  
Contact: Ron Vierra

**AUDISSEY**  
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*SO, AR*  
1020 Auahi St., Bldg. #6, Honolulu, HI 96814  
(808) 521-6791  
Contact: Gerald Luke, Rick Parlee

**BARNETT PRODUCTIONS**  
*SOUND REINFORCEMENT*  
*SO*  
2500 Dickerson Rd. #96, Reno, NV 89503  
(702) 329-2792  
Contact: Jeff Barnett

**BROWNELL SOUND**  
*SOUND REINFORCEMENT & REMOTE RECORDING*  
*SO, ER, AR*  
3601 S.E. Concord, Milwaukie, OR 97222  
(503) 659-0394  
Contact: Kurt Bevers

**COLORADO CONCERT SOUND, INC.**  
*SOUND REINFORCEMENT*  
*SL, ST, ER*  
P.O. Box 1652, Longmont, CO 80502  
(303) 772-3933  
Contact: Tom Beaman



# The Hy James Story.

## Part 2.

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**Don (Was) Fagenson**

Producer/Musician, *Sound Suite*



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**Gary Spaniola**

Producer/Musician, *Seller Sound Studio*

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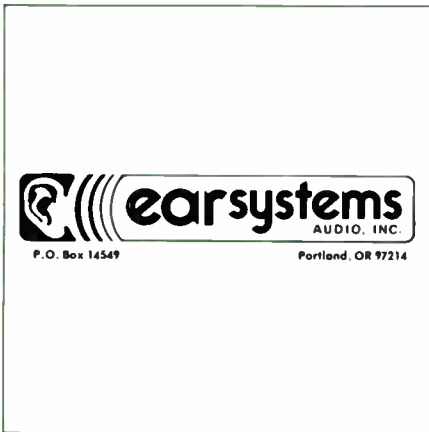
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**CONCERT AUDIO**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
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 20 N.W. Sixth, Portland, OR 97212  
 (503) 227-7303  
 Contact: Mark Sten, Kevin Canty

**DB AUDIO**  
**SOUND REINFORCEMENT**  
 SO  
 S. 4818 Madella, Spokane, WA 99203  
 (509) 448-8740  
 Contact: Drew A. Bunch

**BONNY DOON SOUND WORKS**  
**SOUND REINFORCEMENT**  
 SO  
 7994 Empire Grade, Santa Cruz, CA 95060  
 (408) 428-5249  
 Contact: Allen Hall

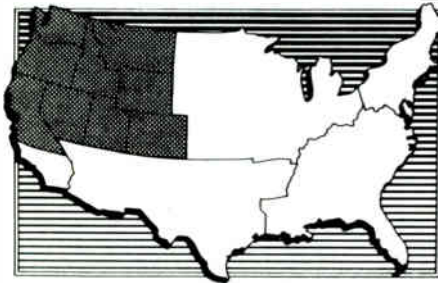


**EAR SYSTEMS AUDIO INC.**  
 Portland, OR

**EAR SYSTEMS AUDIO INC.**  
**SOUND REINFORCEMENT**  
 SO  
 P.O. Box 14549, Portland, OR 97214  
 (503) 230-7145  
 Contact: Ernie Leasley, Ken Ruecker  
 Equipment: 4 or 5 way mains system up to 10,000 seats hard rock & roll. Main mixer: 800b 32 x 8, custom built 2442 24 x 4, Klark-Teknik 1/2 octave EQ, dbx compressor/limiters, Lexicon ddi, Advanced Audio ddi, Lexicon reverb, Aphex Compeller, Klark-Teknik 1/2 octave analyzer. Any effect device available on request. Monitors: 312L 32 x 12 w/3 full parametric EQ. Post EQ listening and metering. 32 ch break-outs: 16 x 6 custom: 1/2 octave on each output, bi-amped listening post. Wedges: dual 15" w/2441 on NWS 2" cd horn, 15" w/1" cd horn, 12" w/1" horn, Side Fill: dual 15" w/12" mid & 2" horn, drum monitor: dual 15" w/2" horn. Microphones: Sennheiser, Shure, AKG, Beyer, A.T., E-V, special mikes available on request, complete recording split. Custom: A.C. distribution system for p.a. and stage equipment, all audio cables multi-pin, speakers on twist-locks. Trucking: 27 semi tractor-trailer rig can pull doubles. Custom trailer allows using part of system without unloading entire truck.  
 Services Available: Built and designed for touring rock bands, festivals, and one nighters. Power, performance, packaging, reliability and fidelity have been exploited to the fullest possible extent. High technology combined with brute force equate to an intimidating look with gut wrenching sonic ability. Ready, willing, and able to satisfy the most particular artist with quality gear and our staff of road seasoned engineers. We carry a complete repair facility. Write for list of lighting co's, buses, personnel, trucking other sound co's, venues, hotels. References available on request. We've done it all—rock concerts, outdoor festivals, new wave, jazz, country, symphony, trade shows.

**PHIL EDWARDS RECORDING (PER)**  
**REMOTE RECORDING**  
 1338 Mission St., San Francisco, CA 94103  
 (415) 861-4439  
 Contact: Phil Edwards  
 Equipment: Mobile II, shown in photo, has a 21 x 8 x 8 body, air ride, air conditioning and lift gate. API equipped 40 input, 24 output, 24 monitor main console with additional API 1604 auxiliary console available. Four matched 3M 79 machines: (2) 24 track and (2) 16 track. Dual 24 and 16 track recording possible with Adams-Smith 605B synchronizer MCI and Ampex 2 track machines available. (3) Sony cassette machines. UREI 811B monitors, Auratones. McIntosh 2100 amplifiers. Redundant power supplies. 70 onboard mikes to choose from: Neumann, AKG,

## REMOTE RECORDING & SOUND REINFORCEMENT



### NORTHWEST

Many of the listings in this directory also contain a code which indicates the specialties of each business: SO = sound reinforcement, LI = lighting, SL = sound and lighting, ST = staging, ER = equipment rental, AR = audio recording, VR = video recording, AV = audio and video recording.

Shure, E-V, Sennheiser, Sony and RCA. Countryman directs. 46 pair snakes, 27 pair splits. 28 channels Dolby "A" noise reduction available. (7) UREI limiters. Clear-Com intercom system, Sony Profel video monitor, Tricon camera. Assorted signal processing, cables, stands, etc.

Services Available: Complete packages for record production, video and radio broadcast taping, film and commercial production. Simultaneous record and broadcast packaging a specialty. Experienced, three-man crew. Call for rates and brochure.



**PHIL EDWARDS RECORDING (PER)**  
 San Francisco, CA

**FAIR WINDS PRODUCTIONS**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SO, ER; AV  
 P.O. Box 812, Dillon, CO 80432  
 (303) 668-3227  
 Contact: Jeff Bahde

**GOSSAMER PRODUCTIONS**  
**SOUND REINFORCEMENT**  
 SL, ER  
 2925 Warren N., Seattle, WA 98109  
 (206) 283-8495  
 Contact: Brett Vichorek

**HEDGE PATH AUDIO**  
**REMOTE RECORDING**  
 AR  
 779 Clayton St., San Francisco, CA 94117  
 (415) 799-8329  
 Contact: Greg Hedgepath  
 Services Available: Remote & studio recording. Recording credits: Chick Corea, Vienna State Opera, Ron Carter, Grover Washington Jr., Placido Domingo, The Nighthawks, Dizzy Gillespie, Steel Pulse. Specialty: Jazz & Rock-n-Roll recording.

**HI-TECH AUDIO**  
**SOUND REINFORCEMENT**  
 SO, ER  
 1443 Lewiston Dr., Sunnyvale, CA 94087  
 (415) 726-2428  
 Contact: Mark Herman

Services Available: Hi-Tech Audio specializes in state-of-the-art portable mixing consoles. Jim Gamble 40 x 16 x 2 House and 32 x 16 Stage consoles independently available for national and regional tours.

**HOERNER AUDIO PRODUCTIONS**  
**REMOTE RECORDING**  
 AV  
 2200 - 196th S.E. #85, Bothell, WA 98012  
 (206) 481-3477  
 Contact: Clint Hoerner

**HORIZON SOUND**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SO, AR  
 P.O. Box 4310, Vista Grande Station, Daly City, CA 94112  
 (415) 239-8913  
 Contact: Ron Armstrong

**HOWZIT SOUND**  
**SOUND REINFORCEMENT**  
 SO  
 14501 Chalk Hill Rd., Healdsburg, CA 95448  
 (707) 838-7537  
 Contact: Rick O'Shay

**J.V. SOUND**  
**SOUND REINFORCEMENT**  
 SO  
 622 3rd Ave., San Francisco, CA 94118  
 (415) 752-6389  
 Contact: Vicky Hamle

**KENNELLY KEYS**  
**SOUND REINFORCEMENT**  
 SL, ER  
 818 N.E. 45th St., Seattle, WA 98105  
 (206) 632-8989  
 Contact: Spring or Sandy

**KUSTOM SOUND SERVICES**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SL; AR  
 P.O. Box 4902, Missoula, MT 99806  
 (406) 728-6655  
 Contact: John Campbell, Jay Straw

**LACKEY SOUND AND LIGHT COMPANY**  
**SOUND REINFORCEMENT**  
 SL, ER  
 3425 Stoneway Ave. No., Seattle, WA 98103  
 (206) 632-7773  
 Contact: William Lackey

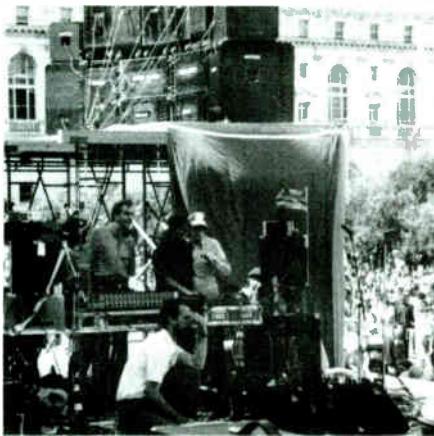
**LIGHTNING BOLT THEATRICAL SPECIALTIES**  
**SOUND REINFORCEMENT**  
 SL, ST, ER  
 P.O. Box 570, Willemina, OR 97396  
 (503) 843-4244  
 Contact: Dave Mendenhall

**LINEAR SOUND SYSTEMS**  
**SOUND REINFORCEMENT**  
 SO, ER  
 5427 Telegraph Ave, Suite W1, Oakland, CA 94609  
 (415) 653-6048  
 Contact: Kaj & Kent Kline

**MANTRA SOUND**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SO, ER; AR  
 P.O. Box 3072, Lihue, Kauai, HI 96766  
 (808) 822-9466  
 Contact: Michael Sena

**MATEEL SOUND CO.**  
**SOUND REINFORCEMENT**  
 SO  
 432 Church St., Garberville, CA 95440  
 (707) 923-3388  
 Contact: Jimmy Dangler





**MATRIX SOUND SERVICE**  
Daly City, CA

**MATRIX SOUND SERVICE**  
**SOUND REINFORCEMENT**  
SO, ER  
134 Alta Vista Way, Daly City, CA 94014  
(415) 987-240

Contact: Joe Bajza  
**Services Available:** We specialize in concert sound production, convention services and planning, also, custom designed installation—rentals and leasing. We maintain an inventory of over 50 Harbinger high efficiency loudspeaker systems which can be custom tailored to your specific needs from a 150 watt fashion show system to a 20,000 watt concert. We feature very affordable rates.

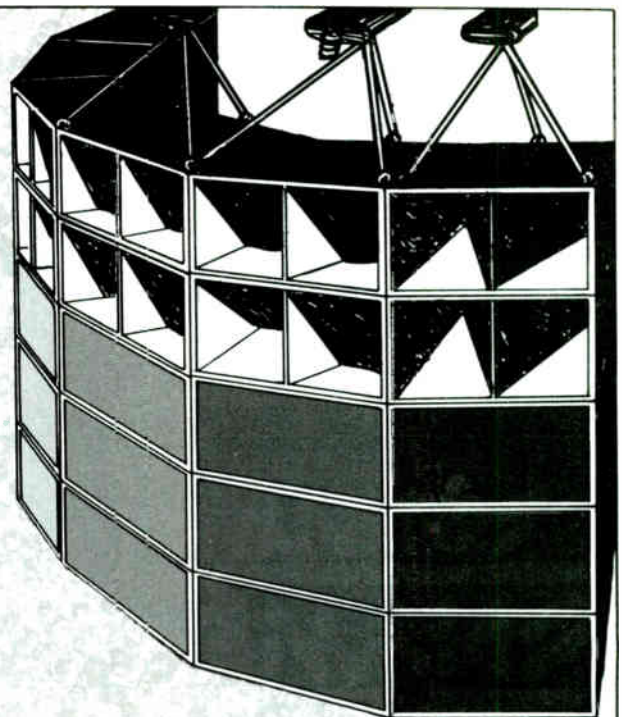
**MAUI SOUND SYSTEMS, INC.** (formerly KRT Audio)  
**SOUND REINFORCEMENT**  
SO, ER  
1063 Lower Main St., Suite 104A, Wailuku, HI 96793  
(808) 242-7775  
Contact: Kenneth Tanaka

**HARRY McCUNE SOUND SERVICE**  
**SOUND REINFORCEMENT**  
SO, ER  
951 Howard St., San Francisco, CA 94103  
(415) 777-2700  
Contact: Allan McCune

**MEYER SOUND LABORATORIES, INC.**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
SO, AR  
2832 San Pablo Ave. Berkeley, CA 94702  
(415) 488-1166  
Contact: Chris Michie  
**Equipment:** Meyer Sound is a manufacturer of Loudspeaker Systems suitable for a wide variety of sound reinforcement applications. Extensive research, innovative design and superior manufacturing have put Meyer Sound at the leading edge of loudspeaker technology, with systems in use around the world for rock, middle-of-the-road, Broadway and opera performances. Demanded by artists as different as they are discerning, Meyer Sound systems have proven their worth with years of trouble-free service, unparalleled clarity and power, consistent and verifiable performance specifications and widespread acceptance as the standard-bearer for the industry. Meyer Sound manufactures the MSL3 Concert Series bi-amplified loudspeaker and the complementary 653-R2 subwoofer, the UPA-1A UltraSeries bi-amplified loudspeaker and complementary USW-1 subwoofer, the UM-1A UltraMonitor(tm) for stage monitoring, and the UPM-1 reinforcement loudspeaker for delay system and paging applications. For further information please contact a Meyer Sound dealer.

**MIRAGE PRODUCTIONS, LIMITED**  
**SOUND REINFORCEMENT**  
SO  
P.O. Box 480, Carmichael, CA 95609-0480  
(916) 927-6592  
Contact: Christopher

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Circle #132 on Reader Service Card

## RECORDING STUDIOS AMPEX 456 TAPE SPECIAL

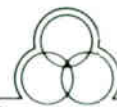
**Ampex 456 Grand Master® Studio Mastering Tape**

<b>Metal Reel</b>	<b>97G111</b>	<b>2"</b>	<b>\$108.65</b>
<b>Metal Reel</b>	<b>573111</b>	<b>1"</b>	<b>\$50.17</b>
<b>Metal Reel</b>	<b>273111</b>	<b>1/2"</b>	<b>\$28.98</b>
<b>Metal Reel</b>	<b>17311J</b>	<b>1/4"</b>	<b>\$16.40</b>

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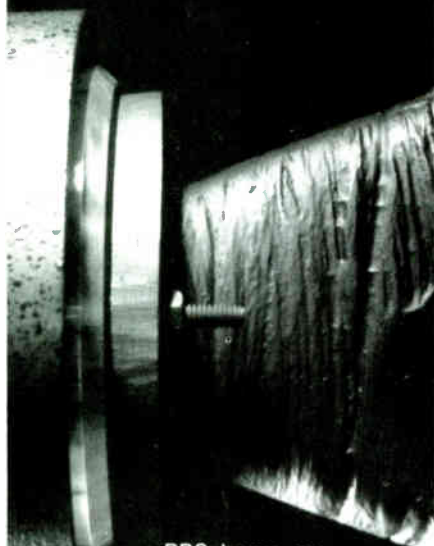


**WORLD RECORDS**

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BOWMANVILLE, ONTARIO  
L1C 3Z3

Circle #134 on Reader Service Card

## Pumping Ferrite

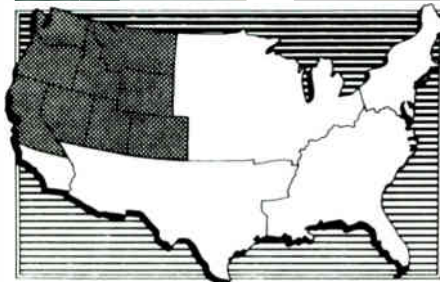


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DESIGN DIRECT SOUND  
6850 35th NE Seattle WA 98115

Circle #135 on Reader Service Card

## REMOTE RECORDING & SOUND REINFORCEMENT



### NORTHWEST

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**MORGAN SOUND  
SOUND REINFORCEMENT  
SO, ER**  
2004 196th SW, #2, Lynnwood, WA 98036  
(206) 771-7257  
Contact: Charlie Morgan



**MORGAN SOUND**  
Lynnwood, WA

**MOUNTAIN MOBILE RECORDING INC.  
REMOTE RECORDING  
AR**  
Rt. 1 Box 25, Tulelake, CA 96134 (30 miles south of  
Klamath Falls, Oregon)  
(916) 667-9508  
Contact: Web Staunton

**NAPA MUSIC  
SOUND REINFORCEMENT & REMOTE RECORDING  
SO, ER, AR**  
3207 Jefferson St., Napa, CA 94558  
(707) 255-2123  
Contact: Gail, Curt, Brad

**NEW JERUSALEM SOUND  
SOUND REINFORCEMENT  
SO, ER**  
P.O. Box 1103, Clovis, CA 93612  
(209) 292-8438  
Contact: Ron Elms, Mark Seibert

**NORTHERN SOUND AND COMMUNICATION  
SOUND REINFORCEMENT & REMOTE RECORDING  
SO, ER, AR**  
420 Mountain View Drive, Kellsell, MT 59901  
(406) 782-3100  
Contact: John Hirschfelder

**OCEAN BREEZE RECORDING  
SOUND REINFORCEMENT & REMOTE RECORDING  
SO, ER, AR**  
2021 Bluebell Dr., Santa Rosa, CA 95404  
(707) 527-8131  
Contact: Ben Rothenberg

**OMEGA SOUND AND LIGHTS  
SOUND REINFORCEMENT  
SL, ST, ER**  
2338 Douglas, Anchorage, AK 99503  
(907) 248-7836  
Contact: Pat Clark

**P & G SOUND  
SOUND REINFORCEMENT & REMOTE RECORDING  
ER, AR**  
584 Alviao St., Santa Clara, CA 95050  
(408) 594-9776  
Contact: Sandy Tolosky, P. Goeltz



**PACIFIC MOBILE RECORDERS  
Carmichael, CA**

**PACIFIC MOBILE RECORDERS  
REMOTE RECORDING  
AR**  
2616 Garfield Ave., Carmichael (Sacramento), CA 95608  
(916) 483-2340  
Contact: Kat Coffey Hibbard  
Equipment: Otari MTR-90 24 track w/Autolocator, MCI JH-110B-14 2 track, 3M M56 2 track, TEAC cassette decks (4), Custom Tangent 3216 console (24 x 24, w/modified EQ & mike pre-amps, second solo buss, & 24 additional inputs); E-V Sentry 500 monitors, JBL 4313a, M & K close field monitors, Auratones, Yamaha & Crown power amps, UREI LA-4 limiters, Lexicon PCM 60 digital reverb, passive and active direct boxes; digital delays, gates, and other outboard gear available on request. 24 ch. 3-way isolated split w/individual ground lifts. 16 ch. 2-way isolated split, 250' main snake, 65' subsnakes, additional lengths available. Mike complement incl: Neumann, AKG, Sennheiser, Shure, E-V, Crown PZM, Beyer, Audio-Technica; plus stands, adapters, video monitors, and intercom system. Truck has custom designed control room: 18' x 7'6" x 7'6", air conditioning, lift gate, 440/220/110 V. transformer isolated AC distribution system, and is pre-wired for additional 24 track machine.  
**Services Available:** Pacific Mobile Recorders provides complete 24 track remote recording for albums, demos, video productions, concerts, radio & TV broadcasts, film soundtracks, and multimedia presentations. Credits include: California Assn. of Nurserymen, CalTrans, Encore Productions, Randy Hansen, Edwin Hawkins, KROY-FM, KOVR-TV, KXPR-FM, Danny Marona, McCurry's Camera, Sacramento Blues Festival, Sacramento Municipal Utility District, Safeway, Inc., Skip's Music, Helen Stevens Choir, Walt Disney Productions. Competitive rates; call for quotes.

**PACIFIC MUSIC & TRADERS  
SOUND REINFORCEMENT & REMOTE RECORDING  
SL, ST, ER, AR**  
714 Lower Main St., Wailuku, Maui, HI 96793  
(808) 242-7822  
Contact: Jerry Whitehead  
**Services Available:** Pacific Music & Traders has complete audio equipment rentals & services, all JBL mains & monitors, all power, mixing, mikes & set-ups. We specialize small or large. Call for our complete free listing.



**PATCHBAY STUDIOS**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SO; AR  
 2111 Francisco Blvd., San Rafael, CA 94901  
 (415) 489-2331  
 Contact: Ted Bloyd



**PRO MEDIA**  
 San Francisco, CA

**PRO MEDIA**  
**SOUND REINFORCEMENT**  
 SO, ER  
 185 Berry St. #358, San Francisco, CA 94107  
 (415) 957-1383  
 Contact: Debra Kay

**Equipment:** Meyer Sound Labs, Schoeps, Klark-Teknik, Vega, HME, Swrtek, Soundcraft, Trident, Yamaha, Clear-Com, TEAC, Shure, Electro-Voice, Anvii, Fender, UREI, Revox, JBL, Rane, Audio Technica, Altec, Controlonics, Sennheiser, Atlas, Koss, Lexicon, GSC, Ramko, TOA, Whirlwind, Wireworks, Soundolier, Sony PCM-F1, AKG, dbx, Ivie, Crowr., Countryman, Bag End,

ATD, BGW, etc. Equipment sales, equipment rental, sound system rentals, sound system installations. Pro Media's technical staff is available to assist in the selection of equipment whether for purchase or for a rental system. Pro Media also has a dedicated staff responsible for the design, engineering and installation of a complete facility's sound, video, and audio/visual systems. Pro Media maintains a fleet of trucks to deliver major rental systems throughout the U.S. and Canada. Pro Media's staff accompanies these tours to insure efficient handling of equipment and meeting deadlines.

**Services Available:** Pro Media provides major sound systems for rent or purchase featuring Meyer Sound Labs. These systems are designed to meet a customer's specific need. Pro Media is providing Meyer systems for the current Pavarotti U.S. tour, as well as major industrial accounts throughout the U.S. Rental may be for a specific piece of equipment or a complete sound system accommodating theaters, nightclubs, concert halls, stadiums and facilities as Madison Square Garden. No system is too small or too large. Pro Media takes pride in maintaining current model equipment for its rental customers. Pro Media's extensive rental inventory of audio equipment includes manufacturers as Meyer, Yamaha, E-V, JBL, Lexicon, TEAC, Shure, Swrtek, Vega, UREI, AKG, Sennheiser, dbx, Trident, Soundcraft, Schoeps, Motorola, Clear-Com, Crown, ATD/AB Systems, etc.

**PRODUCTION SERVICES CO.**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SL, ER, AR  
 1235 Wildwood Ave., Suite 151, Sunnyvale, CA 94089  
 (408) 733-2895  
 Contact: John Probst

**PRODUCTION SERVICES, HAWAII**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SL, ST, ER, AV  
 P.O. Box 2052, Kahului, Maui, HI 96732  
 (808) 871-8024  
 Contact: Robert Namahoe

**PROFESSIONAL PRODUCTION SERVICES OF HAWAII**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SL, ST, AV  
 1648 9th Ave., Honolulu, HI 96816  
 (808) 735-3625  
 Contact: Whittier Davis

**PROGRESSIVE SOUND INC.**  
**(PRODUCTION & SYSTEMS)**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SO; AR  
 44 Monterey Blvd., San Francisco, CA 94131  
 (415) 985-1122  
 Contact: John R. Goodwin

**RAIN RECORDING**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SO, ST, ER, AR, VR  
 Box 297, Mt. View, HI 96771  
 (808) 968-6042, 968-6346  
 Contact: Kenneth Chikasuge

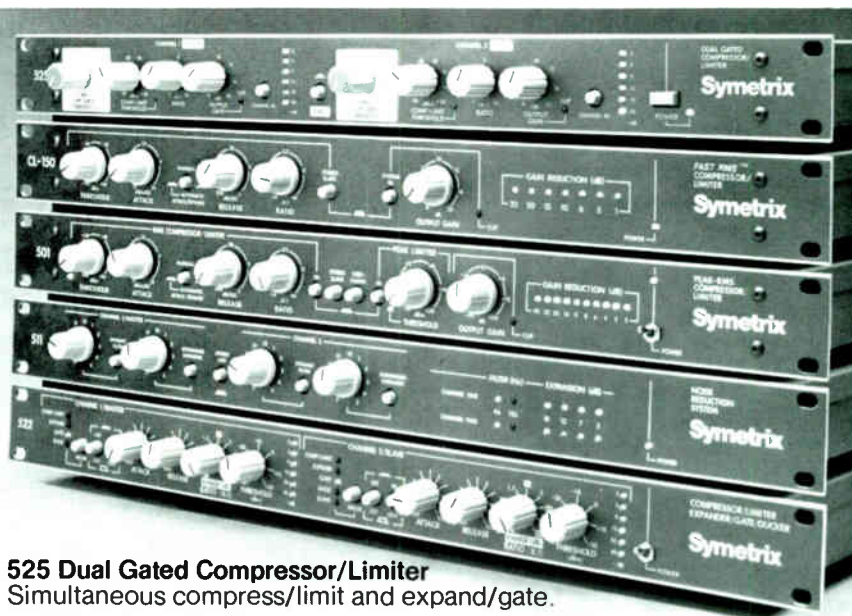
**RAL-RECORDING**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SO, ER, AR  
 2851 Oleander, Merced, CA 95340  
 (209) 722-3220  
 Contact: Robert Laughton

**BILL RASE PRODUCTIONS, INC.**  
**REMOTE RECORDING**  
 AV  
 955 Venture Ct., Sacramento, CA 95825  
 (916) 929-9181  
 Contact: Bill Rase

**R.C. TECHNICAL**  
**SOUND REINFORCEMENT**  
 SL, ST  
 P.O. Box 396, Alviso, CA 95002  
 Contact: Robert Cupp

**RHEMA SOUND**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SO, ST, ER, AR  
 97-719 Kam. Hwy. #204, Pearl City, HI 96782  
 (808) 456-4827  
 Contact: Vincent Chung

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Symetrix products are sold and supported world-wide. When you specify Symetrix you specify quality, performance, and reliability.

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**RICH SOUND CO.**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
*SL, ST, ER, AR*  
P.O. Box 3385, Chico, CA 95927  
Contact: Rich Pires

**ROSE CITY SOUND, INC.**  
**SOUND REINFORCEMENT**  
*SL, ST, ER*  
2915 SE Ankeny, Portland, OR 97214  
(903) 238-8330  
Contact: Jerry Andersen

**RUTHER REMOTE RECORDING**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
*SO, AV*  
1421 Circle Dr., Walla Walla, WA 99362  
(509) 522-0438  
Contact: Bud Ruther

**RANDALL SCHILLER PRODUCTIONS**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
*SL, ST, ER, AR*  
1207 Fifth Ave., San Francisco, CA 94122  
(415) 661-7553  
Contact: Randy Schiller  
**Equipment:** We are utilizing the finest equipment on the market from JBL, Gauss, Eastern Acoustics, Harbinger, Tapco, Crown, SAE, Electro-Voice, AKG, Neumann, DeltaLab, dbx, Eventide, RDS, Otari, etc.  
**Services Available:** Our services include sound systems for small groups up to stadium systems for 60,000 people. We also are designing, installing, and maintaining sound systems for many clubs throughout the Bay Area providing live sound reinforcement and systems for the playback of recorded music. We have a complete recording studio available and specialize in remote recording especially in conjunction with providing live sound for the concert. For private parties we will install sound, lights and video systems that will rival permanent installations.

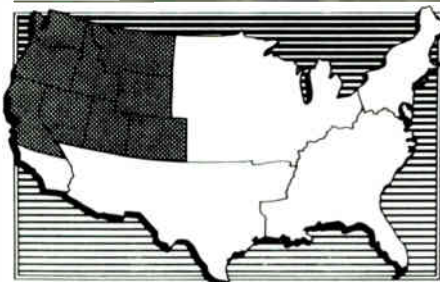


**SHYNE SOUND**  
San Rafael, CA

**SHYNE SOUND**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
*SO, ST, AV*  
36D Woodland, San Rafael, CA 94901  
(415) 459-2833  
Contact: Leroy Shyne  
**Services Available:** Sound reinforcement for up to 10,000 people. Live audio/video remote recording. PZM microphone specialization refer to p. 115, Dec. '84 Mix Magazine (San Francisco Blues Festival).

**SILVER LABEL RECORDING**  
**REMOTE RECORDING**  
*AR*  
1342 Middlefield Rd., Palo Alto, CA 94301  
(415) 321-8776  
Contact: John DiLoreto

## REMOTE RECORDING & SOUND REINFORCEMENT



### NORTHWEST

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**SLICK RECORDING**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
*SO, ER, AR*  
Box 82-A Blue River Rt., Dillon, CO 80435  
(303) 724-3812  
Contact: David Phillips

**SN SOUND CO.**  
**SOUND REINFORCEMENT**  
*SL, ER*  
P.O. Box 1143, Renton, WA 98057  
Contact: Steve Nichols

**SNAKE RIVER SOUND**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
*SO, AR*  
1008 N. 6th St., Boise, ID 83702  
(208) 345-5282  
Contact: David Smyth

**SOUND ADVICE SOUND SYSTEMS (SASS)**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
*SO, ER, AR*  
1901 S. Bascom Ave., Pruneyard Tower 1, Suite 353  
Campbell, CA 95008  
(408) 371-8070, (415) 826-1423  
Contact: Daren Chadwick, Dick Chadwick

**SOUND ON STAGE, INC.**  
**SOUND REINFORCEMENT**  
100 Northhill Dr. #30, Brisbane, CA 94005  
(415) 468-2990  
Contact: Jerry Pfeiffer, Bob Walker  
**Equipment:** Mixers: Gamble, Soundcraft & Yamaha custom quality house and monitor mixers. Certified rigging to fly our own Power Physics FM 4-way speaker systems in any coliseum. We offer complete sound systems with a full complement of effects including Lexicon 224, echo, reverb, gates, flangers and phaser. Additionally we specialize in monitor system service with bi-amp monitor 32 x 16 Gamble consoles, special drum monitor and the best monitor mixing engineers available.  
**Services Available:** Nationwide concert tour, trucking, west coast one nighters and most importantly complete sound system service.

**SOUND VISUAL PRODUCTS**  
**SOUND REINFORCEMENT**  
*SO*  
18425 Fifth Ave., Jamestown, CA 95327  
(209) 532-3272  
Contact: Jerry Chuppelli



**SOUNDS NATURAL AUDIO SERVICES**  
Santa Cruz, CA

**SOUNDS NATURAL AUDIO SERVICES**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
*SO, ST, AR*  
214 Keystone Ave., Santa Cruz, CA 95062  
(408) 425-8015  
Contact: Ken Botelho, Bill Burnside, Bill Van Bloom

**SPECTRAL SYSTEMS**  
**SOUND REINFORCEMENT**  
*SO*  
610 1/2 Elizabeth St., San Francisco, CA 94114  
(415) 826-2626  
Contact: David L. ("Doc") Eakenazi

**SPEEDA SOUND**  
**SOUND REINFORCEMENT**  
*SO, ER*  
3311 West Sussex Way, Fresno, CA 93711  
(209) 227-2203, 227-2209  
Contact: Mike King  
**Equipment:** JBL, Northwest Sound, Yamaha, Sennheiser, Electro-Voice, AB Systems, Audio Arts, Lexicon, dbx, Symetrix, Shure, Whirlwind, Anvil cases, Flag Systems. House consoles: 40 x 8 x 2, 32 x 8, 32 x 4, 16 x 4, 8 x 2, 6 x 2; Monitor consoles: 32 x 16, 32 x 8, 24 x 8, 20 x 8; Monitor speakers: full range & bi-amped wedges, up to 48 monitors available. Speeda Sound is equipped to handle most any venue in the country. JBL 3 and 4 way main stacks. Speeda Sound's inventory is set up to send out 3 major complete sound systems at the same time. We have our own 40' Air Ride tractor trailer rig, 24 ft. Diesel Bobtail, 22 ft. Bobtail, 16 ft. Bobtail, and a Chevy van. We also supply smaller systems in addition to the large, have an instrument rental department consisting of a Yamaha C-3 grand piano down to a Fender Twin w/JBLs. Contact us for more details and printed spec sheets.

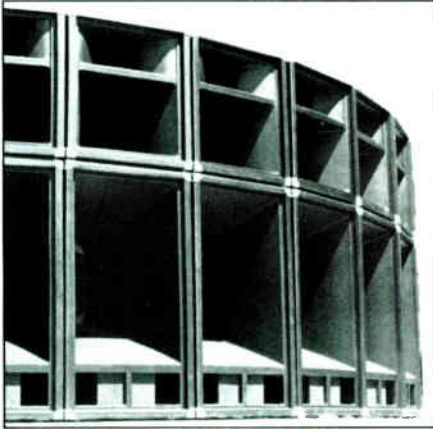
**STARSOUND AUDIO INC.**  
**SOUND REINFORCEMENT**  
*SL, ST, ER*  
2679 Oddie Blvd, Reno, NV 89512  
(800) 354-7252  
Contact: Scott Bergstrom  
**Equipment:** International w/lift & 22' box. Have 1984 Studer A-80 & 1984 Amek "Angela" console in-house studio w/over 1000 instruments available on premises. House sound comfortable to 4,000. 24 x 4 x 2 Yamaha mains, 24 x 8 Studiomaster monitors. Full effects, DDLs, digital reverb, compressors, etc. Some lighting, gemes w/trusses. Staging—40 x 60 w/tractor/trailer, dressing room, scaffold, 1 1/2" T&G floor ply. Call for current status on all systems. Have done sound in most Northern Nevada venues.  
**Services Available:** Stereo 4-way concert system, with 8 monitor mikes onstage. Available with 22' truck. Also available, Reno's largest nightclub venue and 24-track Studer, Amek—in-house recording studio. Store facility—Pro Audio is 5,000 sq. ft.

**STOTZ'S SOUND**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
*SO, AR*  
576 Cypress St., Monterey, CA 93940  
(408) 375-9718  
Contact: Gary M. Stotz

**TECHART SOUND & LIGHT**  
**SOUND REINFORCEMENT**  
*SL*  
1462 67th St., Emeryville, CA 94608  
(415) 652-1102  
Contact: Tom Sephton



**TECHNICAL SERVICE COMPANY**  
**SOUND REINFORCEMENT**  
 SO  
 P.O. Box 420, Casper, WY 82602  
 (307) 266-5222  
 Contact: Marlin Engel



**THE THIRD EAR SOUND CO.**  
 Richmond, CA

**THE THIRD EAR SOUND COMPANY**  
**SOUND REINFORCEMENT**  
 SO, ER  
 601 South 8th St., Richmond, CA 94804  
 (415) 233-2920  
 Contact: Rau, Suarez, David Trinchero

**TRANSPARENT RECORDINGS**  
**REMOTE RECORDING**  
 AR  
 P.O. Box 880933, San Francisco, CA 94188  
 (415) 563-8164  
 Contact: Lolly Lewis  
 Services Available: Transparent Recordings brings the studio to

you. Using the finest professional equipment (Studer 169, Nagra T-Audio) and extensive music experience (S.F. Symphony, Conservatory of Music, Aspen Music Festival), we offer recordings which reflect the highest audio standards. Also available: Album production and graphics, SMPTE Time Code, 30 ips mastering.

**TRAX AUDIO**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SO; AR  
 841 South 500 West, Bountiful, UT 84010  
 (801) 298-3280  
 Contact: Jeff Ostler

**UNEETA PRODUCTIONS**  
**REMOTE RECORDING**  
 AV  
 319 South 39th St., Richmond, CA 94804  
 (415) 236-8866  
 Contact: Hank Gray  
 Services Available: Uneeta Productions provides the following services: record production and musicians hot line. Future services to include video production and electronic repairs. In business one year, we offer over a decade of experience in record production. We specialize in meeting the needs of our clients, serving both the professional and the amateur. Able to work with almost any budget.

**VIDEO VISIONS**  
**REMOTE RECORDING**  
 AV  
 856 Airport Rd., Monterey, CA 93940  
 (408) 373-1300  
 Contact: Tom Rivelli

**VISTA SOUND & LIGHT**  
**SOUND REINFORCEMENT**  
 SL  
 8229 44th Ave. W., Suite C, Mukilteo, WA 98275-2849  
 (206) 743-6811  
 Contact: Neale Frazier, Fred Dente  
 Equipment: House: Ramaa 8724 24 x 4 x 2 console, Klark-Teknik and Audioarts EQs, Ibanez and DeltaLab delays, Symetrix

compressor/limiters and noise gates, UREI and Brooke-Siren crossovers, Hafler and Crown amplifiers, 3 and 4 way McCauley custom speaker systems with McCauley and JBL drivers. Monitors: Soundcraft 24 x 8 console, Klark-Teknik and Audioarts EQs, BGW and Audioarts crossovers, Crown, BGW and Sunn Amplifiers, McCauley 15' floor wedges. Microphones: Beyer, Audio-Technica, Shure, AKG, Sennheiser and Ceteo-Vega. Lighting: Teatronics and ETA dimmers and control, 36 lighting instruments, 4 towers, 1500 watt halogen follow-spot. Misc.: Goldline RTA, Clear-Com system. Transportation: KW sleeper tractor and 45' custom van trailer with hydraulic lift, IH 20' van with hydraulic lift, Toyota crew van.

**Services Available:** We provide high integrity concert sound and lighting for professional entertainers in lounges, colleges, fairs, festivals and mid-size arenas, from local shows to national tours. Tour transportation for artists' equipment is available. Some of the artists we have worked with include: Tower Of Power, The Robert Cray Band, John Hammond, Elvin Bishop, Stockton's Wing, Alan Holdsworth, The Tanahill Weavers, The Fleetwoods, Chuck Berry, Jr., Cadillac, Savoy Brown, The Ventures, The Kingmen, The New Christy Minstrels, Exile... and you! Call us for information and reasonable rates!

**WAH SYSTEMS**  
**SOUND REINFORCEMENT**  
 SL, ER  
 1115 'R' St., Sacramento, CA 95814  
 (916) 444-5491  
 Contact: Walter Horsting

**WAVE PRODUCTIONS**  
**SOUND REINFORCEMENT**  
 LI, ST  
 24 Pico Ct, San Rafael, CA 94903  
 (415) 479-3082  
 Contact: Daniel Newman

**XANDOR RECORDING STUDIOS**  
**REMOTE RECORDING**  
 AV  
 407 Camino Sobrante, Orinda, CA 94563  
 (415) 254-9077  
 Contact: Jim Weyeneth

## USED RECORDING EQUIPMENT FOR SALE

### MICROPHONES

AKG: C61, C28, C29, C12A, C12, C24, C414EB, C414E, D12, D15, D19, D24, D30, D202  
 TELEFUNKEN: M260, M154, Elam 251  
 RCA: BK5A, BK5B, Skunk Mic, 44BK5B, 77DX, 77D, 44B  
 SCHOEPS: CM51V, M221B, M221BH, M221A, CM61  
 SENNHEISER: MKH405, MD421  
 NEUMANN: KM54, KM254, KM53, KM253, KM56, KM64, U64, U87, U67, U47, U48, M49, M50, M250, SM23, SM2, SM69  
 SONY: ECM51, C500, ECM377, C37A  
 PEARL: 8CK  
 BEYER: M101, M88  
 ALTEC: Tube Mic  
 MB: 527, 115  
 SHURE: SM53  
 B & O: Ribbon Mic

### RECORDING CONSOLES

Harrison 3232A automated updated VCAs mods • MCI 636 28 I/O modules parametrics automated • Aengus wired for 16x8x16 has 8x8x8 in place 2 phono inputs with map EQ • Neve 1977 fully discrete custom 52 inputs 24 groups 32 monitors with 4 band EQ • Neve 32x24 (group) x24 /8 limiters /8 aux sends • Helios 16x8x16 older type • MCI 542 with 28 I/O modules • API 20 input 8 groups 16 monitor 550 EQ • Trident A Range 28 inputs 24 groups 48 monitors • Trident Series 80 6 years old • Trident Series 80B as new • Trident B Range 30 inputs 16 groups 16 monitors • Soundworkshop 20x16 logex w/ oak console & 2 patchbay racks

### TAPE RECORDERS

24 TRACKS: Studer A800, Studer A80 24 track MK1/II with updates and with MKIII heads, Otari MTR90 MK2 24 track, MCI 24 track JH114 with auto locator III, 3M M79 24 track with XP14 auto locator, Lyrec MK1 24 track 5 years old 4,000 hrs use  
 16 TRACKS: JH114-16 1979 w/Autolocate III  
 OTHER: Scully 280-8 w/4 trk & 2 trk heads, Studer A80 8 track, 3M M64 4 track, 3M M64 2 track, Ampex 440-2 w/custom cabinet, Scully 2 track, Ampex 440-4  
 CASSETTE DECKS: Technics RSM45, Hitachi D7500, Aiwa M700B

### OUTBOARD GEAR

DeltaLab DL-1 digital delay • Eventide 1745M digital delay • Eventide instant phaser • AKG BX-10 reverb • MXR flanger module • EMT stereo plate reverbs • Roland SPH323 stereo phaser • MXR digital delay • MXR phaser module • UREI (5) 1109 cards

### RACK MOUNT EQUALIZERS

Furman PQ-6 parametric • UREI 545 parametric • Pultec HLF-3 Hi Lo filter • Altec graphic • Furman parametric • U.A. 550 Hi Lo filter • White 3400 1/3 octave graphic

### RACK MOUNT LIMITERS

UREI 1176 • Electrodyne compressor limiter • Decca tube limiter • Altec tube limiter

### EQUALIZER MODULES

API 554 • API 550 • Aengus graphic EQ • Altec 9061A • Orange County sweep EQ • Melcore GME • B&B EQF-1 • Map EQ • ITI parametric

### LIMITER MODULES

Allison Gain Brain 1 • Orange County comp/limiter • Trident comp/limiter • Pye limiters • API 525A • API 525C

### AMPLIFIERS

McIntosh MI-75 • McIntosh MC-75 • McIntosh MC-30 • McIntosh MC-40 • McIntosh 2105 • Crown D-60 • Langevin AM-16 pre-amp • Marantz 240 • Crown SA 30-30

### CONSOLE COMPONENTS

Neve 1058 input module • API 515Q assign module • API 512 input module • API 325 line amp cards • API 312-5 line amp cards • API 575 oscillator

### MISCELLANEOUS

Pultec MH-4 mixer • Stephens VSO as is • dbx 28 channels

**Dan Alexander Audio**  
 Box 9830  
 Berkeley, CA 94709  
 415/527-1411

Circle #137 on Reader Service Card

**LARRY ADAMSON SOUND SERVICES**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SO, ER, AR  
 7027 Vanport Ave., Whittier, CA 90606  
 (213) 895-9473  
 Contact: Larry Adamson

**AUDIO & VIDEO ARTS**  
**REMOTE RECORDING**  
 AR, AV  
 P.O. Box 398, Simi Valley, CA 93062  
 (805) 583-0540  
 Contact: Paul Gardocki

**AUDIO ENGINEERING ASSOCIATES**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SO, ER; AR  
 1029 N. Allen Ave., Pasadena, CA 91104  
 (818) 798-9127  
 Contact: Janet Dodson

Equipment: Studer, Soundcraft and Otari tape recorders; Soundcraft and custom compact mixers; microphones by Schoeps, AKG, Neumann, RCA, Sennheiser, Crown PZM, Coles ribbon; Beyer, Audio-Technica, Shure & E-V; noise reduction by either dbx or Dolby; and a good selection of outboard gear. We do digital, too—we did the first digital recordings ever in both New Zealand and in Pakistan!

**Services Available:** We have done a wide variety of location recording in the last 20 years, from Native American tribal music to Black Gospel to Pakistani religious music to the Los Angeles Philharmonic. "Punst" stereo is a specialty but we also do first class multitrack. Our engineering and equipment are both first rate and our prices are reasonable! Give us a call.

**AUDIO INDUSTRIES CORPORATION**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SO; AV  
 1419 N. La Brea Ave., Hollywood, CA 90028  
 (213) 851-4111  
 Contact: Ike Benoun

## BURNS AUDIO

Vega Wireless  
Microphones

Vega Wireless  
Headsets

RTS Intercom Systems  
 (818) 768-2370  
 (213) 680-9777

BURNS AUDIO  
 Sun Valley, CA

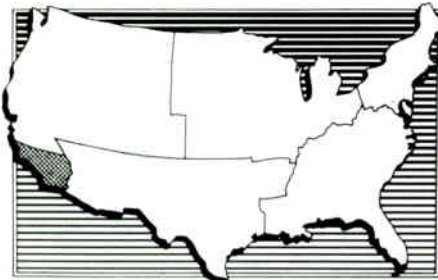
**BURNS AUDIO**  
**SOUND REINFORCEMENT**  
 SO, ER  
 11174 Penrose St., Unit 6, Sun Valley, CA 91352  
 (818) 768-2370  
 Contact: Bruce Burns

**CENTRO CORP.**  
**REMOTE RECORDING**  
*(Vehicle Fabrication & Design)*  
 9516 Chesapeake Dr., San Diego, CA 92123  
 (619) 560-1878  
 Contact: Darrell Wenhardt

**CONCERTECH**  
**SOUND REINFORCEMENT**  
 SO  
 14931 Community St., Panorama City, CA 91402  
 (818) 891-8911  
 Contact: Fred Sites

**CONCERT SOUND CONSULTANTS**  
**SOUND REINFORCEMENT**  
 SO  
 2742 Felton St., Suite A, San Diego, CA 92104  
 (619) 284-6770  
 Contact: David Scheirman

## REMOTE RECORDING & SOUND REINFORCEMENT



## SO. CALIFORNIA

Many of the listings in this directory also contain a code which indicates the specialties of each business: **SO** = sound reinforcement, **LI** = lighting, **SL** = sound and lighting, **ST** = staging, **ER** = equipment rental, **AR** = audio recording, **VR** = video recording, **AV** = audio and video recording.

**CROWN AUDIO/VISUAL**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SO, ER; AV  
 759 E. California Blvd., Pasadena, CA 91106  
 (818) 449-8995  
 Contact: Bob Hoelting

**DELICATE PRODUCTIONS INC.**  
**SOUND REINFORCEMENT**  
 SL, ST, ER  
 1390 Flynn Rd., Unit A, Camarillo, CA 93010  
 (805) 388-1800  
 Contact: Spy Matthews



DYNO KEYBOARDS/DYTRONICS  
 Burbank, CA



DYNO KEYBOARDS/DYTRONICS  
 Burbank, CA

**DYNO KEYBOARDS/DYTRONICS**  
**SOUND REINFORCEMENT**  
 ER  
 P.O. Box 1007, Burbank, CA 91507  
 (818) 845-7864  
 Contact: Chuck Monte

Equipment: CS-5 tri stereo chorus/splitter w/6 waveform 5 speed simultaneously. FS-1 Cyclonic Panner featuring two in. stereo or quad out, six panning modes, 24 "round" modes, trig functions, waveform and two intensity control. Dyno Keyboards: "Signature Series" modified Rhodes with MIDI. The MX-90 MIDI Keyboard, MIDI mods for acoustic pianos. Tour and studio rentals. Musical instrument design for video productions.

**Services Available:** Keyboard sound reinforcement and effects rack design for multi-keyboard/multi-effect players. Specializing in stage cosmetics for keyboards and keyboard racks. The famous Dyno My Piano modifications for the Rhodes.

**ELECTROTEC PRODUCTIONS**  
**SOUND REINFORCEMENT**  
 SL  
 6735 Eton Ave., Canoga Park, CA 91303  
 (818) 888-8687  
 Contact: Pierre D'Atugues



FARRELL AUDIO  
 Burbank, CA

**FARRELL AUDIO**  
**SOUND REINFORCEMENT**  
 SL, ST  
 229 N. First St, Burbank, CA 91502  
 (818) 846-3024  
 Contact: Dave Farrell, Brent Camper

**GOOD VIBRATIONS**  
**SOUND REINFORCEMENT**  
 SL, ER  
 1236 Robinson Ave., San Diego, CA 92103  
 (619) 295-2576  
 Contact: Dan Truscott

**JAGARD FILMS AND AUDIO SYSTEMS**  
**SOUND REINFORCEMENT**  
 SO, ST, ER  
 679 Easy St., Unit G, Simi Valley, CA 93065  
 (805) 583-0220  
 Contact: Dennis Jagard

**L.A. AUDIO**  
**SOUND REINFORCEMENT**  
 SO  
 P.O. Box 10522, Burbank, CA 91510-0522  
 Contact: Larry Abernathy

**L.A. SOUND CO., INC.**  
**SOUND REINFORCEMENT**  
 SO, ER  
 12547 Sherman Way, Unit F, N. Hollywood, CA 91605  
 (818) 765-6900

Contact: Richard Ralke  
**Services Available:** Quality concert sound since 1970. Monitor systems, sales & service. All phases of sound reinforcement, rentals to installations. Concert audio, conventions, sporting events, fairs, colleges, fashion shows, & trade shows. Sales, service, rental of TAD, EAW, Soundcraft, AKG, Electro-Voice, Gauss, Klark-Teknik, AB Systems, Shure & other major brands. Complete systems to individual pieces. One night to full touring packages. Full tour transportation, stage management, professional crews, techs, & engineers. Lighting available. Everything to fit your audio & production requirements!



**LAUGHING CARROT PRODUCTIONS**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
*SL, ST, AR*  
11247 Huston St., N. Hollywood, CA 91601  
(818) 508-1165  
Contact: B. Wilhelm

**MASTER TRACKS RECORDING & MULTI-MEDIA**  
**REMOTE RECORDING**  
*AR*  
402 Loma Alta Dr., Santa Barbara, CA 93109  
(805) 966-6374  
Contact: T. David Sommers

**METZGER AUDIO**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
*SL, ST, ER, AR*  
La Mirada, CA  
(714) 739-0882  
Contact: Tim Metzger

**THE MUSIC FACTORY**  
**SOUND REINFORCEMENT**  
*SL, ST, ER*  
1264 Monterey St., San Luis Obispo, CA 93401  
(805) 544-8944  
Contact: Jack Lutz

**NOVA SOUND RESEARCH**  
**SOUND REINFORCEMENT**  
*SO*  
2323 Corinth St., W. Los Angeles, CA 90064  
(213) 477-1938  
Contact: Ed Maloney

**ORPHARION RECORDINGS**  
**REMOTE RECORDING**  
*AR*  
P.O. Box 91209, Long Beach, CA 90809-1209  
(213) 438-4271  
Contact: Jonathan Marcus



*PACIFIC AUDIO VISUAL ENTERPRISES*  
*Monrovia, CA*

**PACIFIC AUDIO VISUAL ENTERPRISES**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
*SO, AR*  
545 Cloverleaf Way, Monrovia, CA 91016  
(818) 359-8012  
Contact: Ron Streicher

**Equipment:** Location recording specializing in "acoustical music" events—live to stereo mixing and live broadcasts. Microphones by Schoeps, AKG, Coles, Neumann, Beyer, and PZM; custom designed and built mixing consoles; recorders by Studer, Revox, and Sony (including PCM-F1 digital); fully portable and ready to travel anywhere in the world. Also work for sound reinforcement projects of a similar nature.

**Services Available:** Specialty in classical music recording (and sound reinforcement); credits include Los Angeles Philharmonic and the Philadelphia Orchestras; National Public Radio; PBS; and numerous other artists and record labels. Particularly adept at live-to-stereo mixing, using primary mixing techniques. Ready to travel, worldwide.

**PROFESSIONAL SOUND SERVICE**  
**SOUND REINFORCEMENT**  
*SO, ER*  
1819 A Park Glen Cr., Santa Ana, CA 92706  
(714) 554-0356  
Contact: Carson Price

**PRO-ROCK UNLIMITED**  
**SOUND REINFORCEMENT**  
*ER*  
6934 Tujunga Ave., N. Hollywood, CA 91605  
(818) 763-3936  
Contact: Dane Tucker, Keith Rhodes

**RAINBOW RECORDING**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
*SO, AR*  
34 Jackson, Irvine, CA 92714  
(714) 551-5367  
Contact: Dale McCart

**RECORD PLANT**  
**REMOTE RECORDING**  
8456 West 3rd Street, Los Angeles, CA 90048  
(213) 653-0240  
Contact: Mark Eshelman

**Equipment:** Record Plant has two (2) mobile units available for audio, video or film productions anywhere in the world. Each truck comes equipped with a custom designed 44 input API console. Sony PCM 3324 24-track digital tape recorders and other digital equipment available. 3M 79 series 24 track recorders come standard with the truck. Dolby will be provided upon request. 2-track or 4-track tape machines also available. Included with the truck is a 54 line splitter system and an RTS intercom system with headphones. Microphones and outboard gear will be supplied in accordance with engineer's wishes from Record Plant's extensive inventory.

—CONTINUED ON NEXT PAGE

# AUDIO AFFECTS

—L.A.'s LARGEST FULL SERVICE RENTAL COMPANY—

**(213) 871-1104    (818) 980-4006    (800) 252-2010**

**NEW!!!**

Cyclosonic Panner FSI    ■    Drawmer Tube Compressor  
Massenberg EQ    ■    ADR Panscan

**SPECIAL 10% OFF ON ALL DIGITAL RECORDERS THROUGH JUNE SPECIAL**

AMS • Mitsubishi 2 & 32 track • Otari 4 & 24 track • Q-Lock  
3/4" video • Yamaha • Synclavier II • EMT • Lexicon • Publison • Quantec  
Simmons SDS7 • Master Beat • SRC • MXI • Linn 9000 • Emulator II • Drawmer  
DBX • Dynamite • Tube Mics • Kepex II

**... and LOTS MORE!**

**Call THOM or DERRA today!**

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RECORD PLANT  
Los Angeles, CA

**RECORDING SERVICES COMPANY**

**REMOTE RECORDING**

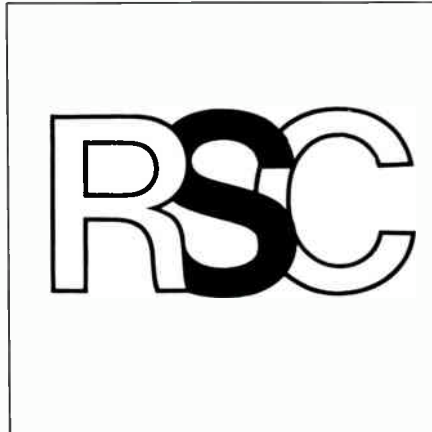
AR  
2414 W. Olive Ave., Burbank, CA 91506  
(818) 843-8640

Contact: Ken Dahlinger

Equipment: RSC's 24 tr remote truck is a comfortable control room on wheels with 50 phantom mike inputs, (2) Ampex MM1200 24 track, (2) Ampex ATR-100 2/4 track, (2) SMPTE/60Hz Synclock Resolvers, Lexicon 200 digital reverb, Lexicon Super Prime Time, some limiters (2-LA3A, 2-dbx 160, 2-1176, 1-LA2A), 13" color monitor, 3 black/white monitors, BGW 250 amp, Auratones w/Crown D-60, (2) complete 3-way Jensen phantom microphone splitter systems, and even (2) 24 packs of Dolbys

Services Available: For over ten years in Los Angeles and the

western U.S., RSC has been providing quality mobile 24 track music recording for television. RSC's mobile facilities are complimented by its audio post production department. RSC offers a choice of all audio tapes formats fully interfaced to your choice of Shadow and Q.Lock Synchronizers.



RECORDING SERVICES COMPANY  
Burbank, CA

**SCHUBERT SYSTEMS GROUP**

**SOUND REINFORCEMENT**

SO  
157 E. 163rd St., Gardena, CA 90248  
(213) 832-4142

Contact: David Morgan, Dirk Schubert

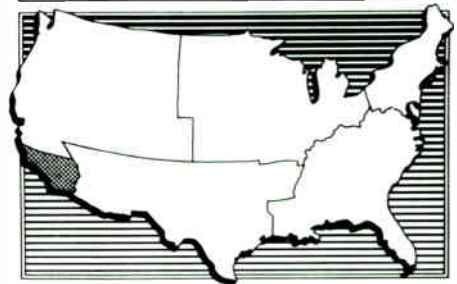
**SKYSYSTEMS, INC.**

**SOUND REINFORCEMENT & REMOTE RECORDING**

SL, ER, AR  
2720 Birch St., Alhambra, CA 91801  
(818) 793-9389

Contact: Chris Bernauer

**REMOTE RECORDING & SOUND REINFORCEMENT**



**SO. CALIFORNIA**

Many of the listings in this directory also contain a code which indicates the specialties of each business: SO = sound reinforcement, LI = lighting, SL = sound and lighting, ST = staging, ER = equipment rental, AR = audio recording, VR = video recording, AV = audio and video recording.

**SOUND AND LIGHTING TECHNIQUES (SALT) SOUND REINFORCEMENT & REMOTE RECORDING**

SO, ER, AR  
P.O. Box 648, N. Hollywood, CA 91603  
(818) 761-8239

Contact: Denny McLane

**SOUND INVESTMENT ENT.**

**SOUND REINFORCEMENT**

SL  
P.O. Box 4139, Thousand Oaks, CA 91359  
(818) 991-3400

Contact: Jim McCandless

Services Available: Sales: Representing over 120 audio manufacturers; discount prices. Services: TEF acoustical analysis, design and installation of permanent and portable audio systems and permanent and portable lighting systems. Technical Training: Regional Sound Shop Seminars, Private Audio Seminars, Audio Training School (Thousand Oaks, CA), Sound Systems Handbook, Vol. 1, Audio Training Series on cassette.

**Question:**

What Has:

- A 60-Piece Orchestra
- An 800-Piece Marching Band
- 120 Fanfare Trumpeters
- 84 Grand Pianos
- A 1,000-Piece Choir
- 8 Separate Multitrack Playbacks
- A Cast of 12,000 Performers

And is carried live to every nation on earth?

**Answer:**

The XXIII Olympiad opening and closing ceremonies live from the Coliseum. The largest live show ever produced. And **Tim Pinch Recording** is proud to have been chosen to handle the final live broadcast audio mix for both the opening and closing ceremonies. If we handle an event of this magnitude and importance, just think of what we can do for you!

For more information and rates, please call (818) 841-8247.



**SOUND MASTER**



**RECORDING STUDIOS®**

SOUND MASTER AUDIO/VIDEO RECORDING  
N. Hollywood, CA

**SOUND MASTER AUDIO/VIDEO RECORDING SOUND REINFORCEMENT & REMOTE RECORDING**

SL, AV  
10747 Magnolia, N. Hollywood, CA 91601  
(213) 650-8000

Contact: Barbara Ingoldsbay

Equipment: 12-Carvin 1330 Horn loaded bass cabinets w/E 140 JBL drivers, 12-Carvin R540 radial horns w/Renkus-Heinz drivers, 2-1215A Altec bass cabinets, 4-908 Carvin cabinets, Renkus-Heinz tweeters, Carvin and BGW power amps equaling 6,000 watts, Carvin 1602 16 x 4 console, effects rack w/limiters, DDLs, flange graphics, AKG BX-10 reverb, house system is tri-amped, 10-bi-amped floor monitors, 2 Klipsch side fills, Carvin 160z 16 x 4 console, spotlights, and complete array of microphones. Three 5-ton trucks—one for sound reinforcement, one for remote recording; completely self-contained power, will travel to any location; 5-ton video truck w/generator; microwave, T.V., cameras; editing; full video production for any location. Also, complete video marine lab for all underwater video. Equipment includes: Hitachi, Sony, JVC, and Crosspoint Latch.

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**Service Available:** Recording - 24 track in studio, full service video production, including location and underwater video plus microwave, T.V. Remote recording, live sound reinforcement, disk mastering studio.

**STAGING TECHNIQUES  
SOUND REINFORCEMENT  
SO, ST, ER**  
1921 Wilcox Ave., Hollywood, CA 90028  
(213) 874-5106  
Contact: Bruce Falls, John Bromberg

**STANAL SOUND LTD.  
SOUND REINFORCEMENT  
SO, ER**  
16123 Valerio St., Van Nuys, CA 91406  
(818) 786-2500  
Contact: Stan Miller, Michael Abbott



**STUDIO ON WHEELS**  
Glendale, CA

**STUDIO ON WHEELS  
REMOTE RECORDING  
AV**  
339 W. Windsor Rd. #6, Glendale, CA 91204  
(818) 243-6165

Contact: John Falzarano  
Equipment: 3M-M79 24 track, Tascam 80-8 dbx, TEAC 3300 1/2 track, Spectra Sonics 28 in x 24 out console, Yamaha power amps, 4310, Auratone, Yamaha NS-10M speakers, digital delay, flangers, doublers, chorus, reverb, UREI 1176, dbx 160, 163 limiters, AKG, Shure, Electro-Voice, Sennheiser, Neumann, PZM, 8 pairs headphones, TV monitoring, Clear-Com communications. Credits: Long Beach Blues Festival (BB King, Eric Burdon, Charlie Musselwhite, etc.) Black Flag at Keystone in San Francisco, Bravissimo TV shoot (Pomona fair grounds), Lizzy Bordon, Savage Grace at Troubador, 216 Zag Club at the Roxy. Prices: 24 track live - \$500/day; sessions - \$300/day. 8 track live - \$300/day; sessions - \$200/day.

**SUPERGROOVE MOBILE TRACKING SYSTEMS  
REMOTE RECORDING  
AV**  
P.O. Box 4474, Van Nuys, CA 91412  
(818) 997-8636  
Contact: Shelly Hillman

**THAT STUDIO RECORDING SERVICES  
REMOTE RECORDING  
AV**  
P.O. Box 958, N. Hollywood, CA 91603  
(818) 764-1421  
Contact: Richard Holbrook  
Services Available: We have an audio remote truck which is specifically equipped for the stereo TV & film industries, and a price to match! From one mike to 48, from feeding direct to VTRs or multitrack audodecks with time-code. Call us for more information.

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REMOTE RECORDING  
AR**  
P.O. Box 4573, Glendale, CA 91202  
(818) 507-TRUK  
Contact: Bruce Black

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**THE TRUCK MOBILE RECORDING FACILITY**  
Glendale, CA

**WESTWOOD ONE  
REMOTE RECORDING  
AR**  
9540 Washington Blvd, Culver City, CA 90232  
(213) 204-5000  
Contact: Richard Kimball, Doug Field

**ZETA SOUND SYSTEMS  
SOUND REINFORCEMENT  
SL, ER**  
6934 Tujunga Ave., N. Hollywood, CA 91605  
(818) 761-3998

Contact: C. David Hopkinson  
Services Available: Full production concert sound and stage lighting equipment. Have provided sound systems for many fairs, conventions, special market events, and tours since 1977. Our full production shops provide cabinet & enclosure construction, metal panel fabrication, and electronics wiring & specialized audio design work. We have installed many club systems, and permanently staff the Palomino Club. Systems available include 24 x 8 and 16 x 6 monitor systems, and two, three & four-way main systems, full power-distribution equipment, including 350 amp video-quality generators, and ground support stage lighting systems. Zeta Sound's rental department for "do-it-yourselfers" includes mixers, EQs, amps, crossovers, cabinets, miles of snake & cables, and tons of mikes & stands. Member of WFA & TEIA.

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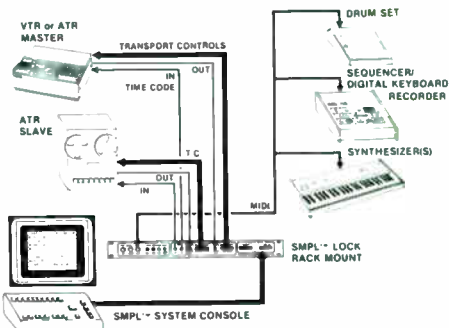
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Circle # 140 on Reader Service Card

**ACA RECORDING STUDIOS, INC.**  
**REMOTE RECORDING**  
**AR**  
 8206 Westpark Drive, Houston, TX 77063  
 (713) 783-1771  
 Contact: Bill Holford

**ALTEC LANSING**  
**SOUND REINFORCEMENT**  
**SO**  
 10500 W. Reno, Oklahoma City, OK 73128  
 (405) 324-9311  
 Contact: Gary Rilling

**ARIZONA REMOTE RECORDERS**  
**REMOTE RECORDING**  
**AR**  
 833 West Main, Mesa, AZ 85202  
 (602) 834-9511  
 Contact: Mike Allison

**ARTRONX INC.**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
**SO, AR**  
 Phoenix, AZ  
 (602) 864-9761  
 Contact: Darrell DeMarco



**LIGHT & SOUND**

**BERNHARD BROWN INTERNATIONAL**  
 Dallas, TX

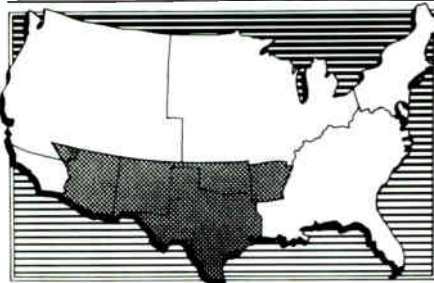
**BERNHARD BROWN INTERNATIONAL**  
**SOUND REINFORCEMENT**  
**SL**  
 11343 Indian Trail, Dallas, TX 75229  
 (214) 241-4334  
 Contact: Danny Brown, Robert Del Gado  
 Equipment: Yamaha PM2000, Soundcraft 32 x 8 monitor mixer, Crown BDP-2 spectrum analyzer, 26,000 watts QSC Series 3 power, 10,000 watts QSC monitor power (all JBL), 60 channel AVAB Q patch dimmer board, 962.4K AVAB digital dimmers, Thomas trusses, Lexicon 224, Lexicon 97 Super Prime Time, Eventide 949H, AKG, Aquarian, Beyer, Crown, Sennheiser, Shure, Mercedes-Benz trucks.  
 Credits: Billy Ocean, W.A.S.P., Metallica, Robin Trower, Armored Saint, Al Stewart, Steve Morse Band, Fabulous T-Birds, Russ Taff, Leon Russell, John Prine, I.D. Souther, Joe King Carrasco, ISE HABLA ESPANOL! Jose Feliciano, Juan Gabriel, Lupita D'Alesio, Rocio Durcal, Nuevo Astro, Sonora Santanera.

**BRIGHT LIGHT SIGHT & SOUND**  
**SOUND REINFORCEMENT**  
**SL, ST, ER**  
 204 E. College, Beebe, AR 72012  
 (501) 882-9020  
 Contact: Bruce Jackson

**CISCO SOUND**  
**SOUND REINFORCEMENT**  
**SO, ER**  
 P.O. Box 16583, Lubbock, TX 79490  
 (806) 763-3537  
 Contact: C.K. Bucy

**CPX SOUND & LIGHTING**  
**SOUND REINFORCEMENT**  
**SL, ST**  
 Rt. 6, Box 200, Crystal Hill Rd., N. Little Rock, AR 72118  
 (501) 793-1406  
 Contact: Mike Cornell

## REMOTE RECORDING & SOUND REINFORCEMENT



### SOUTHWEST

Many of the listings in this directory also contain a code which indicates the specialties of each business: *SO* = sound reinforcement, *LI* = lighting, *SL* = sound and lighting, *ST* = staging, *ER* = equipment rental, *AR* = audio recording, *VR* = video recording, *AV* = audio and video recording.

**CRYSTAL CLEAR SOUND CO.**  
**SOUND REINFORCEMENT**  
**SL, ST**  
 15859 Ridge Roe, P.O. Box 14763, Houston, TX 77021  
 (713) 437-4172  
 Contact: LeeRoy McDonald

**CULLICK'S RECORDING STUDIO**  
**REMOTE RECORDING**  
**AR**  
 8103 Summer Trail Drive, Houston, TX 77040  
 (713) 466-9253  
 Contact: Michael Cullick

**THE DONTM COMPANY**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
**SL, AR**  
 14000 S. Post Oak Rd, #311, Houston, TX 77045  
 (713) 437-3780  
 Contact: Ronald Thomas

**DOVE & NOTE RECORDING CO.**  
**REMOTE RECORDING**  
**AR**  
 15415 W. Antone Circle, Houston, TX 77071  
 (713) 723-7109  
 Contact: Mike Lamm, John Lehmann  
 Services Available: Independent engineers specializing in classical music, recording on location exclusively. Two and 24 track digital recording. Credits include: Houston Symphony Orchestra, Houston Grand Opera, Concert Chorale of Houston, Texas Chamber Orchestra, Singing Boys of Houston, KLEF-FM, KUHT-TV, KTRK-TV, KTXH-TV.

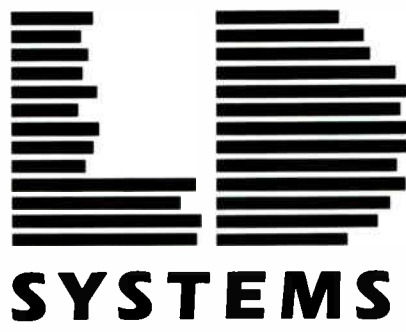
**GABRIEL SOUND & ENGINEERING**  
**SOUND REINFORCEMENT**  
**SO, ER**  
 833 West Main, Mesa, AZ 85202  
 (602) 989-8663  
 Contact: Brent Gabrielsen

**HORIZON ENTERTAINMENT**  
**SOUND REINFORCEMENT**  
**SL**  
 P.O. Box 14587, Houston, TX 77221  
 (713) 747-6433  
 Contact: Gary Seline

**JOHNSON ENGINEERING CO.**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
**SL, AV**  
 3965 E. Foothilla Dr., Sierra Vista, AZ 85635  
 (602) 458-3208  
 Contact: Jim Johnson

**L.D. SYSTEMS, INC.**  
**SOUND REINFORCEMENT**  
**SL, ER**  
 467 W. 38th, Houston, TX 77018  
 (713) 695-9400  
 Contact: Rob McKinley  
 Equipment: Professional sound reinforcement and lighting systems available for local, regional, and national touring. Stereo four way speaker systems, 32 channel mixing consoles, multi-mix

monitor systems, and a wide variety of signal processing including digital reverb, noise gates, etc. Capabilities of systems range from showcase venues to rock and roll arenas and outdoor events.  
 Services Available: Services range from direct equipment rental to full systems with crews. Staff includes experienced sound and lighting engineers. All services are supported by L.D. Systems' pro audio sales and manufacturing divisions which are involved with full sound system, instrument system, and recording system design and fabrication.



**SYSTEMS**

**L.D. SYSTEMS, INC.**  
 Houston, TX

**LONG BRANCH STUDIOS**  
**REMOTE RECORDING**  
**AR**  
 6314 E. 13th St., Tulsa, OK 74112  
 (918) 832-7640  
 Contact: Gregg Gardner, Walt Banfield

**LOST PERSON STUDIOS**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
**SL, ER, AR**  
 200 Timber Creek #115, Richwood, TX 77531  
 (409) 265-2166  
 Contact: Gregory R.H. Leach

**MASTER WORKS**  
**REMOTE RECORDING**  
**AR**  
 Box 26067, Tucson, AZ 85726  
 (602) 586-9364  
 Contact: Chris Gusea



**METEX INTERNATIONAL CORP.**  
 Laredo, TX

**METEX INTERNATIONAL CORP.**  
**SOUND REINFORCEMENT**  
**SL**  
 1217 Lincoln, Laredo, TX 78040  
 (512) 722-3941  
 Contact: Edward Foster  
 Equipment: Crown, JBL, dbx, Ashly, TEAC, Tascam, DeltaLab, Altec, Ramsa, Shure, Sennheiser, L&E, Luminor, Lite Lab, Meteor, Sony, Schell, HME, MXR, TDK, Maxell, Ampex.  
 Services Available: Consultation for sound reinforcement, recording studio, stage lighting and installation.



# That British sound

▶ ITAM #1610: 1" 16 track  
Recorder/Reproducer \$11,950.00  
■ 1" 8trk., pre-wired \$9,950.00



**BOTH TAPE MACHINES FEATURE:**  
+4dBm IN/OUT ■ 15/30ips  
■ Full-function 9 cue position  
remote-autolocator ■ stand  
■ 50% range vari-speed

◀ ACES TR-24: 2" 24 track  
Recorder/Reproducer  
\$19,950.00

■ 2" 16trk., pre-wired 24 trk  
\$14,950.00



▶ ACES ML24:

I/O console, 32 in x 24 buss,  
Integrated wired patch bay

\$17,025.00

■ ACES SM16: Split console,  
32 in x 16 buss \$15,665.00



**BOTH CONSOLES FEATURE:** Fully modular construction

- Audiofad long-throw conductive plastic faders ■ 5 Aux sends
- 5 band switchable EQ ■ Input LED PPM's ■ Stand
- +48v phantom power ■ LED display (optional) ■ Two year parts warranty
- Other frame sizes available ■ Many options available

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**REMOTE RECORDING &  
SOUND REINFORCEMENT**



**SOUTHWEST**

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**MIDCOM, INC.**  
Irving, TX

**MIDCOM, INC.**  
**REMOTE RECORDING**  
**AR**

Three Dallas Communications Complex, Suite 108  
6311 N. O'Connor, LB90, Irving, TX 75039-3510  
(214) 869-2144

Contact: Mike Simpson

Equipment: A pair of Otari MTR-90 Series II 24 track tape machines locked together with a BTX Softouch/Cypher/Shadow time code synchronizer and editing system. Soundcraft TS-24 40 channel console, Lexicon 224XL and Lexicon 200 digital reverbs, Otari MTR-10 2 track with center time code track, Studer A810 2 track with center time code track, Studer A710 cassette, Otari 5050BII 2 track, Eventide H969 Harmonizer, Lexicon Model 95 "Prime Time II," 24 channel "TTM" noise reduction system (Dolby, dbx, or Telcom), JBL 4430 Bi-Radial monitors with White Instruments 1/2 octave EQ, dbx Series 900 frames, RTS 3 channel/dual listen intercom system, ClearCom 2 channel intercom, RTS 8 channel IFB system, 10 line key telephone system, RCC and cellular mobile telephone, wide assortment of microphones.

Services Available: Midcom's 48 track remote audio facility specializes in location audio recording and audio for video and teleproduction. Equipped with state-of-the-art hardware, Midcom offers the finest remote recording truck and crew to be found in the southwest. Recent credits include: Bob Banner Associates productions of "Face of the 80's" and "SMU Presents," League of Women Voters National Presidential Debates, "Country Crossroads" for Acts Network, NBC TV Special "Stars Salute the U.S. Olympic Team." Other credits available upon request.

**MUSIC INTERNATIONAL UNLIMITED**  
**REMOTE RECORDING**  
**AR**

1817 N. 15th, Broken Arrow, OK 74012  
(918) 251-9057

Contact: Jack Brady

**THE MUSICIAN—CONCERT SOUND DIV.**  
**SOUND REINFORCEMENT**  
**SL, ER**

4595 Washington, P.O. Box 991, Beaumont, TX 77704  
(409) 842-2224

Contact: Frank Halter

**O B STUDIOS**  
**REMOTE RECORDING**  
**AV**

5932 North Grove, Oklahoma City, OK 73122  
(405) 721-3727

Contact: Larry O'Rear



**OMEGA AUDIO, INC.**  
Dallas, TX

**OMEGA AUDIO, INC.**  
**REMOTE RECORDING**  
**AR**

8036 Aviation Place, Box 71, Dallas, TX 75235  
(214) 350-9066

Contact: Paul A. Christensen

Equipment 24/48 track remote recording included in our 27' custom finished Ford truck. Equipment includes custom 30 in x 24 out mixing console w/3 band sweep EQ, 2 track audio recorders, Otari MTR90 24 track recorder, 24 channels of dbx noise reduction in Gotham TTM rack, 70 microphones of various types, both dynamic and condensers of major brands, 34 pair mike snake w/30 transformer isolated stage splits, JBL monitors, 1/2 octave tuned w/UREI 539 graphics, Auratone monitors are also available, full complement of signal processing equipment including limiters, parametric EQ, digital delay, reverb, etc.; closed circuit video monitors for interface with video production facilities, two way headset communication system, 150 amp stage power distribution, full BTX SMPTE time code.

Services Available: Omega Audio maintains one of the most successful 24/48 track remote facilities in the country. In recent years our remote truck has been refitted for audio support of video/film projects, and we've expanded into a state-of-the-art audio for video post-production facility. Now in our tenth year of service to the southwest with studio operations at Dallas Love Field, Omega Audio offers turnkey recording services for both live albums and video/film projects. Credits: Johnny Cash, Bob Hope, Helen Reddy, Anne Murray, Al Jarsau, Spyro Gyra, Willie Nelson, The Oak Ridge Boys, Randy Meisner, Quarterflash, Hall & Oates, NBC-TV, CBS-TV, MTV and PBS.

**PAINT HORSE PRODUCTIONS**  
**REMOTE RECORDING**  
**AR**

1305 East Side Dr, Mesquite, TX 75149  
(214) 288-9202

Contact: Ron J. Glorioso

**PHANTOM PRODUCTIONS**  
**REMOTE RECORDING**  
**AR**

P.O. Box 4870, Austin, TX 78765

(512) 443-7965

Contact: Martin Theophilus

**POWER HOUSE SOUND**  
**REMOTE RECORDING**  
**AR**

3319 Rockhill, Houston, TX 77045  
(713) 433-5096

Contact: Lloyd E. Hughes

**PRODIGAL SOUND—THE MUSIC STORE**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
**SO, ER, AR**

1514 Malone, Denton, TX 76201

(817) 568-5555

Contact: Greg Ellenwood



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### 2 Channel Octave Band Graphic Equalizer L-C ACTIVE 4100A

The model 4100A features Active, Inductor-Capacitor (L-C) Tuned Filters. The resonant frequency of each filter is derived PASSIVELY by a Tuned L-C Pair. This drastically reduces the number of active devices necessary to build a Ten Band Graphic Equalizer. Only seven operational amplifiers are in each channel's signal path: THREE in the differential amplifier input; TWO for filter summation; ONE for input level control; ONE for the output buffer. The result . . . the LOWEST "Worst Case" NOISE of any graphic equalizer in the industry . . . -90dBv, or better.

#### REELSOUND RECORDING CO.

##### REMOTE RECORDING

AR

P.O. Box 280, Manchaca (Austin area), TX 78652

(512) 472-3325, 282-0713

Contact: Malcolm H. Harper, Jr.

Equipment: 42' Sierra/Hidley tractor-trailer mobile audio truck. Lounge and overdub rooms. MCI 636Lm automated console, SMPTE lock, dual MCI JH-24 recorders, dual MCI JH-110B 1/2 tracks, (2) Nikko cassette decks, Crown power amps, White 1/2 octave voicing, JBL-4430 and Auratone monitors, Sony color TV system w/camera and switcher, RTS intercom (6 channel), Ursa Major 8 x 32 digital reverb w/8 programs, DL-1, dbx 900 rack (4 limiters, 2 ds, 1 parametric), (4) Dyna-Mites, (4) LA3A limiters, Jensen 48 input splitter, 480 feet of mike snakes, 300 feet of power snake, E-V, Shure, Neumann, AKG, Countryman, PZM, C-ducer pickups, Beyer, Sennheiser, UREI microphones and DIs. Digital 24 track and 2 track now equipped.

Services Available: 46 and 24 track remote recording for studio, live albums, radio syndications, TV audio support and film soundtracks. DIR Broadcasting, Westwood One, RKO Network, NBC "The Source," PBS, NPC, Warner Bros., Epic, Capitol, MCA, Word, Bensen Co., Savoy records. Credits include: Journey, Robert Plant, Triumph, ZZ Top, Motley Crue, Ted Nugent, The Fuxx, Big Country, The Gap Band, Frankie Beverly & Maze, Merle Haggard, George Jones, Willie Nelson, Ray Charles, Loreta Lynn, Jay Aaron Group, Dave Perkins Band, Amy Grant, Rev. James Cleveland, Leon Patillo, Autograph, Eric Johnson, Neil Young, Quiet Riot, Russ Taff, Billy Squier.

#### RIDGE AUDIO

##### SOUND REINFORCEMENT & REMOTE RECORDING

SL, ER; AR

2944 Snow Rd., Las Cruces, NM 88005

(505) 526-8366

Contact: John M. Ridgway

#### ROADRUNNER PRODUCTIONS

##### SOUND REINFORCEMENT & REMOTE RECORDING

SL, ST, ER; AR

2109 Wilhelm, Bryan, TX 77803

(409) 775-2871

Contact: Kevin Bomar

#### SCOOTER'S AUDIO ENTERPRISES

##### SOUND REINFORCEMENT & REMOTE RECORDING

SL; AV

P.O. Box 226844, 400 W. Commerce, Dallas, TX 75222

Contact: Lynn "Scooter" Brown



SLYDER PROFESSIONAL AUDIO INC.  
Phoenix, AZ

#### SLYDER PROFESSIONAL AUDIO INC.

##### SOUND REINFORCEMENT

SL, ER

2109 W. Ross Ave, Phoenix, AZ 85027

(602) 581-2112

Contact: Thom Casey, George Blake

Equipment: Systems available for 50 to 5000 seat venues with a flying arena system capable of up to 15,000 seat venues being built for early "1986." We proudly use: Aphex, AKG, Audio Envelopes, Audio-Technica, BGW, Brooke-Siren, Crest, Crown, dbx, DeltaLab, E-V, Eventide, Gauss, JBL, Klark-Teknik, Lexicon, Roland, Sennheiser, Shure, Soundcraft, Symetrix, Tangent, Whirlwind and Yamaha Products. We also have available a 24 channel, 4 scene light system consisting of 60 kilowatts of dimming w/100 PAR 64 cans. Transportation is available to any function ranging from fashion shows to remote backwoods festivals requiring remote power and all-terrain vehicle access.

Services Available: Slider Audio's commitment to providing

—CONTINUED ON NEXT PAGE

White

instruments, inc.

P.O. Box 698 Austin, Texas 78767

512/892-0752

TELEX 776-409 WHITE INST AUS

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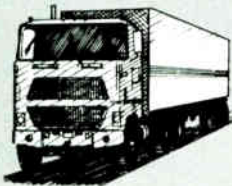
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Midland, Texas 79701  
(915) 684-0861

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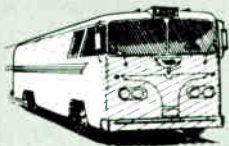
## 46 TRACK...

Our Sierra/Hidley designed truck studio is MCI equipped and ready for the most demanding of location or studio projects. Centrally located near Austin, Texas. Contact Malcolm Harper at (512) 472-3325 or (512) 282-0713. P.O. Box 280, Manchaca, Tx. 78652.



## OR 24 TRACK...

Our MCI equipped bus is now located in Nashville—continuing a tradition of excellence in live and studio recording. Contact Dave Perkins at (615) 385-0220. 3400 Spring Brook Dr., Nashville, TN 37204



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**VERTIGO 1/4" TRS AND TT BURNISHERS:**  
Each eliminates noise in main contacts under normal patching situations.

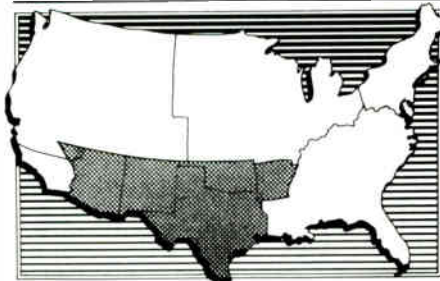
**VERTIGO 1/4" TRS AND TT INJECTORS:**  
Each injects cleaning solvent to eliminate intermittents in breaking contacts (normals) when patch cord has been removed.

**ONLY \$29.95 EA.** Please write for additional information and order form today.

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12115 Magnolia Blvd. #116  
North Hollywood, CA 91607

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## REMOTE RECORDING & SOUND REINFORCEMENT



## SOUTHWEST

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—CONTINUED FROM PAGE 169

quality audio service if twofold. We specialize in complete festival support services for outdoor art fairs, music festivals, trade shows and institutional functions. We also provide high quality custom fabricated sound systems for permanent and semi-permanent installations. In addition to our other services, through a cooperative agreement with local music retailers, virtually any type of stage, lighting, or musical equipment can be provided for your production at competitive rates with prior notice. Call or write for more information.

**SOUND PRODUCTIONS, INC.**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
*SO, ST, ER, AV*  
2711 Electronic Lane, Dallas, TX 75220  
(214) 351-5373  
Contact: Charles Kitch

**SOUTHERN RECORDING**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
*SO, AR*  
56 E. 53rd Pl., Tulsa, OK 74105  
(918) 747-7380  
Contact: John Southern

**SOUTH TEXAS SOUND AND LIGHTS**  
**SOUND REINFORCEMENT**  
*SL*  
823 Saddlebrook, San Antonio, TX 78245  
(512) 673-0430  
Contact: Joseph Torra

**SPECTER SOUND & LIGHT**  
**SOUND REINFORCEMENT**  
*SL*  
1303-B Sandy Lane, Baytown, TX 77520  
(713) 427-2225  
Contact: Michael Morlan

**STAGE SOUND, INC.**  
**SOUND REINFORCEMENT**  
*SL*  
4708 E. Van Buren, Phoenix, AZ 85008  
(602) 275-6060  
Contact: Burt West  
Equipment: Stage Sound offers complete production services for any event from a large Meyer sound system to a 200 lamp digital lighting system. We can provide multi-image shows with AVL Eagle programming to a General Electric PJ-5055 projector for the brightest of large screen projection, 4 camera Sony M3A video. We sell and service over 100 different professional lines of equipment for the most impressive installations in the USA. Air-ride trailer service available for touring groups. We also offer specialized electronic products for the sound industry such as our MM-8 monitor matrix. The MM-8 functions as an eight-way listen matrix for the touring monitor engineer.

**STARLINE PRODUCTIONS**  
**SOUND REINFORCEMENT**  
*SO, ER*  
Box 6034, N. Little Rock, AR 72116  
(501) 758-2086  
Contact: Howard Hutchez

**STUDIO MOBILE**  
**REMOTE RECORDING**  
*AR*  
11226 Sagevale, Houston, TX 77089  
(713) 481-2551  
Contact: Erik Sweet

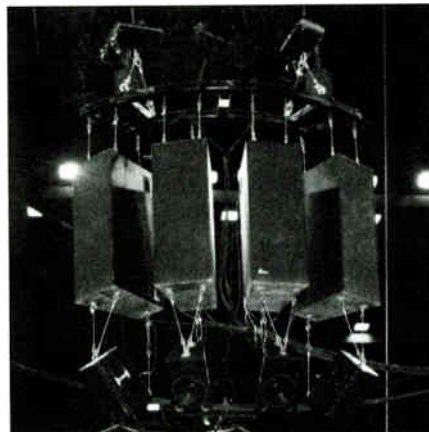
**TAN DEN PRODUCTIONS**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
*SO, ER, AR*  
P.O. Box 382, Gainsville, TX 76240  
(817) 665-6756  
Contact: Bobby Dennis

**TEXSOUND**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
*SO, ST, ER, AV*  
26219 Cypresswood, Spring, TX 77373  
(713) 442-8000, ext. 397  
Contact: John S. Jones

**THE 25TH TRACK**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
*ER, AV*  
309 E. Vicksburg, Broken Arrow, OK 74011  
(918) 455-2459  
Contact: Walt Bowers

**UP WITH PEOPLE**  
**SOUND REINFORCEMENT**  
*SL, ER*  
3103 N. Campbell Ave, Tucson, AZ 85719  
(602) 327-7381  
Contact: Jeff Kinder, Mitch Booth

**WOODEN STUDIOS**  
**REMOTE RECORDING**  
*AR*  
7334 Rampart, Suite 102, Houston, TX 77081  
(713) 988-9872  
Contact: Gus Buzbee



STAGE SOUND, INC.  
Phoenix, AZ

## CORRECTION:

IMA, the International MIDI Association, changed ownership and moved this past winter, and our February *Mix* inadvertently listed the old address for the organization. They are now at 11857 Hartsook Street, North Hollywood, CA 91607, phone (818) 505-8964. IMA is now also offering a telephone technical assistance hot-line, available on Mondays, Tuesdays and Wednesdays during normal business hours (Pacific Coast time).



—FROM PAGE 106, REMOTE RECORDING went on-line last September. Built into a 40-foot Great Dane air ride trailer, the remote truck was available under the recently-amended federal guidelines which allowed the trailer to be six inches wider than previous models. While six inches may not seem like very much to those used to operating in land-based facilities, "the extra width makes quite a difference in interior space for the control room," according to GHL owner Gary Hedden, who is also a well known engineer and studio designer. "Actually our truck is quite unique," Hedden continues, "it's very much like a fixed control room, an acceptable mixdown environment. A lot of our work so far has involved projects which also included overdubbing and mixing in the truck, as well as doing the live recordings."

The GHL mobile was called into action for the Detroit Comedy Jam, (a Saturday Night Live style show combining stand up comics and a jazz band) shot on 16mm film at Detroit's Fisher Theatre. Hedden provided both audio recording (utilizing the truck's automated Harrison MR-4 console and Otari recorders) and time code using the BTX Softouch system. At press time, Hedden was packing to leave for last month's Anaheim AES Convention, where the truck would be available for inspection by the membership at large.

Reelsound Recording, in the Austin, Texas area, has moved their eastern division to Nashville, where that mobile unit (built into a 1948 Flixible bus) has seen a lot of action lately, especially in the contemporary Christian genre. Recent sessions have included Steve Camp and Rick Cua on Sparrow records; a live date with Mike Warnke in Louisville, Kentucky for the Word label;

and a recording of a 3,000 voice choir at Atlanta's Fox Theatre for the Gospel Music Workshop. The Austin branch has been especially busy with radio syndication bookings, ranging from Star Search champions Sawyer Brown live in Tulsa to gigs for Westwood One's Spanish network.

Another Nashville operation which has found a thriving business climate in the "Country Music Capital of the World" is Fanta Recording, and "1985 could be our best year ever," boasts owner Johnny Rosen, whose trucks have been averaging between 10 and 18 dates a month. "We're doing lots of country music shows," Rosen continues, "and we've been doing a lot of mixing in the truck, especially with TV shows and specials." In February, Fanta was called to handle the Volunteer Jam, (at the Nashville Municipal Auditorium) which was carried on live television, live radio, live over The Voice of America, and live to multitrack for a Showtime special. With such a huge audience tuned into the event, there was a lot of pressure to make sure everything went right, but Rosen says "the scary part of it was seeing the signal run out of the truck on a telephone line to a Telco diplex. Under these circumstances, the cost of a couple extra feeds (backup phone lines) is very low compared to the chance of losing your audio!"

At press time, Fanta was about to go on the road with Eric Clapton, to cover concerts in Richmond, Virginia and in Baltimore. Rosen reports that the new Fanta truck, (said to be a 45-foot unit which expands to 21 feet wide and 10 foot ceilings) should hopefully be completed later this year.

Out on the west coast, Phil Edwards of PER has seen a "busy winter and no signs of business letting up," and



**Jazz artist Les McCann checks out the driver's seat at Skyelab's mobile recording bus during the break at his live sessions at Blues Alley in Washington, D.C.**

his truck now does an average of about 35 albums a year. Edwards has recently moved his base of operation from San Francisco to Hayward, California, and while he is best known for his work with jazz labels, he has seen a lot of activity in other circles of late. A few of these non-jazz dates have included Edwin Hawkins conducting a 250-voice choir of top gospel vocalists from around the country, taped live at the newly-refurbished Henry Kaiser Convention Center (formerly the Oakland Auditorium); a 48-track, two-day 35mm film snoot with Lionel Richie at the Oakland Coliseum; and local favorites, The Zasu Pitts Memorial Orchestra, a 16-piece Motown-style revue band whose sizzling performance at San Francisco's Great American Music Hall was recorded by the PER mobile unit.

Diversification has been the key to success for Sound Master Audio/Video Recording, in North Hollywood, California, who "offer everything" according to owner Brian Ingoldsby. Currently, Sound Master's facilities include a sound reinforcement truck, a remote recording truck; a mobile video truck; video editing; a land-based studio; disk mastering; and a video equipped boat for topside or underwater shoots.

The Sound Master audio/video units were called into action on April 25-26 for the Long Beach Jazz Festival's Queen Mary concert featuring Freddie Hubbard and Chick Corea, and Ingoldsby adds that being ready at the right time has really paid off. "We've been swamped," he observes. "We do a lot of 24-track, six camera video shoots, and we see a lot more live concert opportunities coming as stereo television opens new horizons." ■



**Westwood One's remote units at the LA forum. The bus was at Radio City Music Hall recently, doing a Roger Waters concert, delivered live via satellite in Holophonix™ stereo.**

**ACME RECORDING STUDIOS**  
**REMOTE RECORDING**  
 AR  
 3821 N. Southport, Chicago, IL 60613  
 (312) 477-7333  
 Contact: Jim Rasfeld, Les McReynolds

**ADVANCED AUDIO**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SL, ER, AR  
 902-11th Ave So., Virginia, MN 55792  
 (218) 749-4056  
 Contact: Bob Cap

**AERIAL STAGE SYSTEMS**  
**SOUND REINFORCEMENT**  
 SL, ST, ER  
 10106 Industrial Drive, Whitmore Lake, MI 48189  
 (313) 231-2000  
 Contact: Jim Lilje

**ALFA AUDIO**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SO, ER, AR  
 1125 N. Lincoln, Bloomington, IN 47401  
 (812) 336-4910  
 Contact: Bryan Haggerty

**ALPHA STUDIOS**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SO, AR  
 620 D'Lyn St., Columbus, OH 43228  
 (614) 870-6661  
 Contact: Timothy Sheppard

**A.M.S. LOCATION RECORDING**  
**REMOTE RECORDING**  
 AV  
 P.O. Box 4354, St. Paul, MN 55104  
 (612) 645-9826  
 Contact: Jim Higbee

**ANDOVER AUDIO**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SO, AR  
 2387 S. Coon Creek Dr., Andover, MN 55304  
 (612) 757-6589  
 Contact: Don G. Erickson

**ARROW AUDIO/LIGHTING**  
**SOUND REINFORCEMENT**  
 3801 W. Capital Drive, Appleton, WI 54915  
 (414) 733-6171  
 Contact: Randy Stenson

**ASC ENTERTAINMENT DIVISION:**  
**AUDIO SERVICES COMPANY INC.**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SL, ST, ER, AR  
 3016 N. Home St., Mishawaka, IN 46545  
 (219) 255-5198  
 Contact: Phil Ostrander



**ASTRO SOUND**  
 Ann Arbor, MI

## REMOTE RECORDING & SOUND REINFORCEMENT



### NO. CENTRAL

Many of the listings in this directory also contain a code which indicates the specialties of each business: **SO** = sound reinforcement, **LI** = lighting, **SL** = sound and lighting, **ST** = staging, **ER** = equipment rental, **AR** = audio recording, **VR** = video recording, **AV** = audio and video recording.

**ASTRO SOUND**  
**SOUND REINFORCEMENT**  
 SO, ER  
 2923 Dalton, Ann Arbor, MI 48104  
 (313) 971-7370  
 Contact: Phillip W. Stephens

Equipment: Tape recorders: TEAC A-2340 SX 4-track, Nakamichi BX-300 cassette. Mixing consoles: Tascam M-520, 20 x 8; Studiomaster 8 x 2. Amplifiers: (4) VSP Labs Trans MOS 150W x 2. Main speakers: Community RS-440 200W. Monitor speakers: (4) E-V 12-2; Klipsch Heresy. (2) AKG K-240 headphones. Out-board equipment: UREI 546 & Symetrix SE400 parametric EQs; Valley People 610 compressor/limiter/expander/gate, DLC DL-100 compressor/limiter/de-esser, AT8511 Active direct boxes; Crown FM II FM tuner, (2) Technics SL-1200 MKII turntables; (2) Crown SL-2C phono preamps. Microphones: (2) Neumann KM-86, (4) Sennheiser MD-441, (5) Crown P2M, (2) AKG D-202, (2) D-12E, (2) D-330 BT; (5) Shure SM-57 & 58.

**AUDIO ENGINEERS**  
**SOUND REINFORCEMENT**  
 SO, ER  
 2806 Fisher Road, Columbus, OH 43204  
 (614) 272-2422  
 Contact: Bob Cayne

**AUDIO LIMITED**  
**SOUND REINFORCEMENT**  
 SO, ER  
 795 Galleon Lane, Elk Grove Village, IL 60007  
 (312) 894-7840  
 Contact: Kevin Hill

**AUDIOPHILE**  
**SOUND REINFORCEMENT**  
 SL, ER  
 7578 Zona Lane, Parma, OH 44130  
 (216) 842-0172  
 Contact: Kevin Kugler

**AUDIO/RECORDING SPECIALISTS**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SO, ST, AR  
 404 N. Main St, Hutchinson, KS 67501  
 (316) 669-9611  
 Contact: Enc Elwell

**AUDIO SYSTEMS ENGINEERING**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SO, ER, AR  
 100 First St., Noble, IL 62868  
 (618) 723-2518  
 Contact: Jeff D. Gordon

**BEACHWOOD STUDIOS**  
**REMOTE RECORDING**  
 AR  
 23330 Commerce Pk, Beachwood, OH 44122  
 (216) 292-7300  
 Contact: Keith A. Voigt

Equipment: 40-foot Silver Eagle Bus Soundcraft Series 3B 32-in/24-out recording console, (2) MCI JH24 2-inch 24-track tape machines, (5) Technics M85 cassette recorders; (2) Otari 5050 Br-2 4-track recorders, McIntosh MC2205 power amp/400 watt, E-V Sentry 100 and JBL 4313 monitors, (4) UREI 1176N limiters,

(2) UREI LA4 limiters; (4) Gain Brain limiters, (4) Kepex noise gates, McCurdy SS8808 broadcast console; complete FM walkie-talkie system; 12 auxiliary input/output channels, 40 input/output stage box; RTS & Clear-Com intercom system, color and B&W monitors and cameras; 1,000-foot two run (40 input) snake, 1,750-foot single run (25 input) snake; 5,000-foot mc line; 200-foot power line capability to power, power channelled into 60 amp Solar Harmonic isolation transformers, 3/4" & 1/2" video recorders; live announce booth, Hot Clocks, air lights, broadcast meters, and other live gear, ADM distribution amplifiers

**BRITE LITES INC.**  
**SOUND REINFORCEMENT**  
 SL  
 4135 Westward Ave, Columbus, OH 43228  
 (614) 272-1404  
 Contact: Richard W. Horton

**CABOOSE PRODUCTIONS**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SO, AR  
 2204 Duke St, Indianapolis, IN 46205  
 (317) 545-5165  
 Contact: Charles Duke

**CEDAR RAPIDS MUSIC PRODUCTIONS COMPANY**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SL, AR  
 3417 Center Point Rd. N.E., Cedar Rapids, IA 52402  
 (319) 395-0438  
 Contact: John O'Brien

**CENTRAL MUSIC EXCHANGE**  
**SOUND REINFORCEMENT**  
 SO, ER  
 11504 Lorain Ave, Cleveland, OH 44111  
 (216) 671-0093  
 Contact: Russell Kolts

**CONTINENTAL SOUND CO. INC.**  
**SOUND REINFORCEMENT**  
 SO  
 P.O. Box 388173, Chicago, IL 60638  
 (312) 284-0418, 581-6446  
 Contact: George R. Minol

Equipment: Basic system is an electronically crossed over 4-way stereo modular system using 2 x 18" speakers in bass/subwoofer cabinets, 4 x 12" speakers in low-mid cabinets, 4 x 10" speakers and 8 x 6 5/8" drivers for mid/high cabinets. 20,000 watt RMS main system power. Main mix console is a custom built & modified Dynamix 32/8/2. Main interface rack: 1/2 octave GEQs, 4-way stereo crossovers, limiters, cassette deck, digital reverb, pitch transposers, flange/doubler, digital delay, parametric EQs. Other effects available on request. Monitor system is biamped consisting of: 32 x 8 custom monitor mix console, 10-floor monitors, 4-side fill monitors, 8 electronic crossovers, 8 channels of GEQ, 8 stereo power amplifiers, 8 limiters & noise gates. Various assortment of microphones, direct boxes and wireless mixes. System is expandable to fit any requirements.

**dB SOUND, INC.**  
**SOUND REINFORCEMENT**  
 SL, ER  
 1219 Rand Road, Des Plaines, IL 60016  
 (312) 299-0357  
 Contact: Bruce Gordon

**D.L. CORBET AUDIO SYSTEMS**  
 Dayton, OH 45410  
 (513) 258-2994  
 Contact: Don Corbet

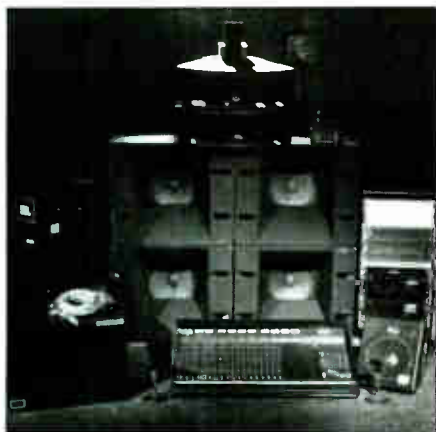
**DOTT INFLUENCES**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SL, ST, AV  
 530 Railroad Dr, Ainsworth, IA 52201  
 (319) 657-4159  
 Contact: Dick Dott

**DYNA-MIGHT SOUND & LIGHTING INC.**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SL, ER, AR  
 3119A South Scenic, Springfield, MO 65807  
 (417) 883-4549  
 Contact: John M. Gott

**ECLIPSE CONCERT SYSTEMS, INC.**  
**SOUND REINFORCEMENT**  
 SL, ER  
 153 E. Thompson Ave, West St. Paul, MN 55118  
 (612) 451-8878  
 Contact: Mike Justen, Willie Rics



ELECTRONIC SOUND EQUIPMENT CO.  
 SOUND REINFORCEMENT & REMOTE RECORDING  
 SO, ER, AR  
 2249 Division Ave. S., Grand Rapids, MI 49507  
 (616) 241-3425  
 Contact: Harvey Jay Kingma



ENTERTAINMENT TECHNOLOGY  
 Columbia, MO

ENTERTAINMENT TECHNOLOGY  
 SOUND REINFORCEMENT  
 SL

701A Big Bear Blvd, Columbia, MO 65202  
 (314) 874-6139

Contact: David Bartlett

**Equipment:** Entertainment Technology offers professional sound reinforcement equipment and highly qualified personnel. The main sound system is a pair of four-way, horn loaded, phase coherent arrays. The system features Intersonics subwoofers, JBL 4560 bass horns with 2720 drivers, JBL 2350 horns with 2482 drivers, and JEL 2404 high frequency drivers. The custom manufactured stereo, four way, active crossover exhibits minimum phase shift and provides exceptional clarity. This system provides smooth, extended frequency response, and a clean, natural sound. The stage monitor system features JBL 4602 and 4691 cabinets, and an 18 x 8 x 2 Soundcraft 400B monitor console with built in Jensen splitter transformers. The entire system is powered by Hafler P500 power amplifiers, and features UREI 537 and Hafler DH-160 equalization. Power distribution systems are provided, and all equipment is in Super Star cases so it will arrive alive.

**Services Available:** Entertainment Technology offers fast professional service, and competitive rates to meet the needs of today's touring entertainers. Concert sound reinforcement and stage monitoring systems are available for night clubs and small concert auditoriums. Professional sound equipment sales and full dealer service include JBL/UREI Professional Products, Hafler Professional Products, Intersonics Professional Products, and Star Case transportation products. Entertainment Technology has worked with Let's Active Romeo Void, The Greg Allman Band, The Fabulous Thunderbirds, The Elvis Brothers, The Producers, The Bel Airs, and many others. Entertainment Technology makes you sound better!

FORTHOFER SOUND & SECURITY  
 SOUND REINFORCEMENT & REMOTE RECORDING  
 SO, AR

1810 Cooper Foster Park, Lorain, OH 44053  
 (216) 282-7611, 323-7611

Contact: Dale R. Forthofer

G\* PRODUCTIONS  
 SOUND REINFORCEMENT & REMOTE RECORDING  
 SO, AR

1102 Milbourne, Flint, MI 48504  
 (313) 238-9703

Contact: Dennis Gilsdorf

GAND SOUND  
 SOUND REINFORCEMENT  
 SO, ER

780 Frontage Rd., Northfield, IL 60093  
 (312) 446-4263

Contact: Gary Gand, Joan Gand

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# Remote Audio Facility that doesn't Look or Sound like a Truck.



Dual MTR-90/II, Automated MR-4, Softouch



Air-Ride Great Dane 40' trailer

The GHL Remote Truck is fully-loaded with leading-edge audio technology, from the maintenance shop up-front, to the motorized snake reels in the back. We invite your serious comparison.



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 Call: 614/876-1057

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# GHL audio•engineering

**GHL AUDIO ENGINEERING**  
Hilliard, OH

**GHL AUDIO ENGINEERING**  
**REMOTE RECORDING**  
**AR**

P.O. Box 273, Hilliard, OH 43026  
(614) 876-1057

Contact: Gary Hedden

**Equipment:** Fully equipped 40' audio truck with Automated Harrison MR-4, BTX Soltouch, dual Otari MTR 90/II, MTR 12 1/2", dbx 700 digital, IVC 1/4" VCR, dual Lexicon 200s, PCM 42s, har monizer, flanger, (6) Dyna-Mites, (6) Aphex CX-1, (4) Aphex EQF-1, (4) dbx 903, (2) dbx 902, approximately 50 superb micro- phones, custom Jensen splitter, computerized HVAC system, on- board maintenance shop

**Services Available:** We are located in central Ohio with over- night access to most of the Midwest. Our complete BTX Soltouch system and special interface snakes are ideal for audio support for video shoots

**GIVHAN PRO SOUND**  
**SOUND REINFORCEMENT**  
**SO**

P.O. Box 11009, Chicago, IL 60611  
(312) 440-1304

**GRS, INC.**  
**REMOTE RECORDING**  
**AV**

13300 Broad St., Pataskala, OH 43062  
(614) 927-9566

Contact: Steve Andrews

**GTK SYSTEMS**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
**SL, ER, AR**

27045 E. Pleasant Ridge, Dearborn Heights, MI 48127  
(313) 278-3989

Contact: Gary Kula

**HARTER SOUND**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
**SL, ER, AV**

P.O. Box 235, Ney, IN 43549  
(419) 658-2955

Contact: Eric A. Harter

**HOOD INDUSTRIES**  
**SOUND REINFORCEMENT**  
**SL**

5700 Superior Ave., Cleveland, OH 44103  
(216) 431-4663

Contact: Jack Boessneck

**INDEPENDENT ENGINEERING SERVICES**  
**REMOTE RECORDING**  
**AR**

1470 N. Cuyahoga St., Akron, OH 44313  
(216) 929-1322

Contact: Thomas N. Ryan

**INDIANA STATE UNIVERSITY AUDIO/VISUAL CENTER**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
**SO, AR**

Campus Services, Stalker Hall, Room 14  
Terre Haute, IN 47809

(812) 232-6311, ext. 5547

Contact: S. Allan Banfield

## REMOTE RECORDING & SOUND REINFORCEMENT



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**INDUSTRIAL RESEARCH PRODUCTS, INC.**  
**SOUND REINFORCEMENT**  
**SO**

321 Bond Street, Elk Grove Village, IL 60007  
(312) 439-3600

Contact: Roger M. Carroll



**INDY PRO AUDIO INC.**  
Indianapolis, IN

**INDY PRO AUDIO INC.**  
**SOUND REINFORCEMENT**  
**SL, ST, ER**

4037 Industrial Blvd, Indianapolis, IN 46254  
(317) 291-3608

Contact: John Schaeffer

**Equipment:** At Indy Pro Audio we demand that extra measure of excellence required to provide a clear, concise sound in any arena, theater or night spot. Our values are carefully reinforced by our dedication to quality, high performance sound equipment. Specifically evaluated for its ability to log thousands of miles on the road and yet reproduce complete distortion free coverage for any size area. Three mix engineers, two monitor engineers, 24 x 8 monitors with side fills, up to 64 channels front mix, coverage to 15,000, riggers, lighting, stage and set designer, trucks & stage management, electricians & carpenters, complete service & shop facilities. Contact John Schaeffer

**JEFFIE SYSTEMS LTD.**  
**SOUND REINFORCEMENT**  
**SO, ER**

9041 S. Dante, Chicago, IL 60619  
(312) 768-6102

Contact: Jeff Newman

**KASTLE PRODUCTIONS**  
**SOUND REINFORCEMENT**  
**SL, ST, ER**

213 1/2 N. Main, Ann Arbor, MI 48104  
(313) 663-1399

Contact: Dave Barlebaugh

**KING SOUND**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
**SO, ER, AR**  
532 Michigan Ave, Manistique, MI 49854  
(906) 341-6533  
Contact: Keith Polkinhorne

**KLA LABORATORIES, INC.**  
**SOUND REINFORCEMENT**  
**SO**  
6800 Chase Road, Dearborn, MI 48126  
(313) 846-3800  
Contact: George J. Kerep

**DUWAYNE KLOOS RECORDING**  
**REMOTE RECORDING**  
**AR**  
8345 Duluth St. Golden Valley, MN 55427  
(612) 544-3050  
Contact: DuWayne or Joann Kloos

**LESCO CONCERT SOUND CO.**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
**SL, ER, AV**  
P.O. Box 741, 317 W. Church St, Newark, OH 43055  
(614) 345-7669  
Contact: Frank L. Edwards II

**LINNMANN SOUND**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
**SO, ER, AR**  
1020 Somonauk St, Sycamore, IL 60178  
(815) 895-8219  
Contact: Terry Linnemann

**L-M AUDIO/VIDEO-PRairie DREAMS PRODUCTIONS**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
**SO, ER, AV**  
206 Locust, Americus, KS 66835  
(316) 443-5181  
Contact: Lee C. Muller

**L.T.C. MUSIC PRODUCTIONS**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
**SL, ER, AV**  
7533 Phillips, Chicago, IL 60649  
(312) 374-4606  
Contact: James Hapier

**MARGUERITE'S MUSIC**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
**SO, AR**  
2409 S. 10th, Moorhead, MN 56560  
(218) 233-7546  
Contact: Don A. Jstad

**MCCLELLAND SOUND INC.**  
**SOUND REINFORCEMENT**  
**SO, ER**  
345 N. Ohio, Wichita, KS 67214  
(316) 265-8686  
Contact: Scott Martin

**MDR PRODUCTIONS, INC.**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
**SL, AV**  
P.O. Box 12897, Kansas City, KS 66112  
(913) 299-8375  
Contact: Doug or Mitch

**MIAMI VALLEY RECORDING**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
**SO, ST, AR**  
3777 Crow Rd, Tipp City, OH 45371  
(513) 698-5933  
Contact: David S. Mohler

**MID-AMERICA SOUND**  
**SOUND REINFORCEMENT**  
**SL, ST, ER**  
2634 N. Emerson, Indianapolis, IN 46218  
(317) 545-2569

**MIDWEST SOUND CO.**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
**SO, ST, ER, AR**  
904 Ridgewood Pl, Highland Park, IL 60035  
(312) 272-5897  
Contact: Tom Morgan



**MILKS COPIER PRODUCTIONS**  
**REMOTE RECORDING**  
**AR**  
2348 E. Frances, Clio, MI 48420  
(313) 686-2116  
Contact: Ken Milks

**MOBILE MASTERS**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
**SO, AR**  
4203 Forest Ave, Brookfield, IL 60513  
(312) 485-3351  
Contact: Jeff Dzura

**MOBILE RECORDING SERVICES &**  
**SOUND REINFORCEMENT**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
**SL, ER, AR**  
13407 B St, Omaha, NE 68144  
(402) 330-1970  
Contact: Rick Curzon

**MOONLIGHT SOUND**  
**SOUND REINFORCEMENT**  
**SO, ER**  
3698 Chelton Rd, Shaker Heights, OH 44120  
(216) 751-1559  
Contact: Paul Thompson

**MORNINGSTAR VIDEO PRODUCTIONS**  
**REMOTE RECORDING**  
**AV**  
3380 Tremont Rd, Columbus, OH 43221  
(614) 459-1500  
Contact: Donn Hooks

**M.S. ENTERTAINMENT**  
**SOUND REINFORCEMENT**  
**SO**  
(Mail) 1001 E. Second St.; (Showroom) 110 Front St.  
Dayton, OH 45402  
(513) 461-1202  
Contact: John Youker

Equipment: A four-way two cabinet system for any venue or program material. Featuring Chaos Audio, Gauss, E-V, Shure, dbx, Lexicon, Soundcraft, Pulsar, Eventide, Ashly Audio, Biamp, Nady, Star Case, Beyer, Sennheiser, and the Renkes Heinz Smart Systems  
**Services Available:** Rental and sales of individual components or complete systems. Design, consultation and construction of speaker enclosures or systems for live sound or music playback applications. Used by Victory Theatre Association, Dayton Ballet Company, Wright State University, University of Dayton, and the Dayton River Festival.



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Dayton, OH

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**SOUND REINFORCEMENT**  
**SL, ST, ER**  
1920 Benson Ave, St. Paul, MN 55116  
(612) 699-1155  
Contact: David L. Fish

**NEW ORIENT MEDIA, INC.**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
**SL, ST, ER, AV**  
126 W. Main St., W. Dundee, IL 60118  
(800) 223-9473  
Contact: Bob Tonge

**NORTH STAR SOUND**  
**SOUND REINFORCEMENT**  
**SO, ER**  
1406 1st Ave. So., Minneapolis, MN 55403  
(612) 871-6016  
Contact: Christopher Eng

**Services Available:** Sales, rentals, installation and service of professional, commercial and broadcast quality audio equipment. Yamaha, JBL, UREI, Lexicon, dbx (dbx 700), HME, Sony, MCI, Canare, Anvil, Clear-Com, Shure, Beyer, AKG. Stage performance equipment, technical and show crew support. Specialization: sound system design and equipment specifications, equipment and systems fabrication, custom patchbays and line switches; Umbulus loudspeaker array design, experienced, professional, customer-oriented service backed by quality equipment.

**NSC PRODUCTIONS**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
**SL, ST, ER, AV**  
2317 Washington St, Two Rivers, WI 54241  
7061 Hilltredge Ln, Minneapolis, MN  
(414) 793-2335

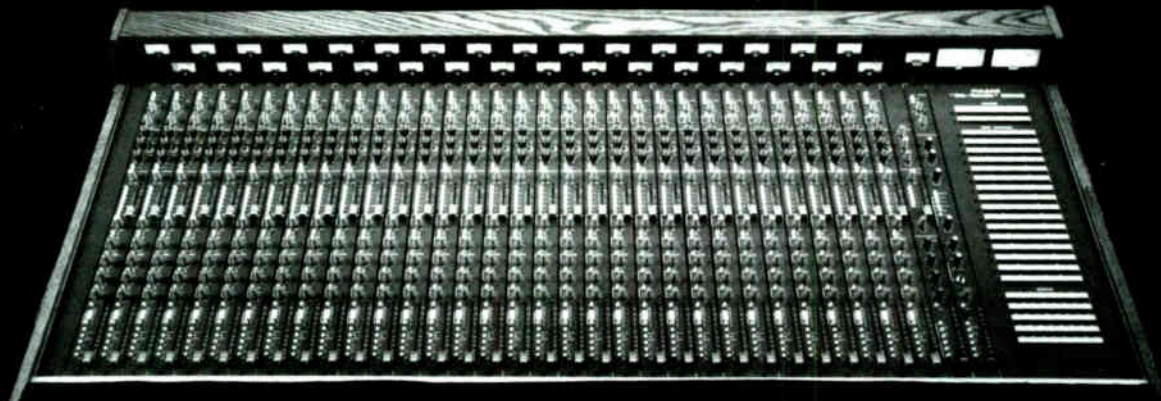
**OPLAND RECORDING**  
**REMOTE RECORDING**  
**AR**  
Route 7, Box 403, Sioux Falls, SD 57103  
(605) 335-5940  
Contact: Ken Eckert

**PLUS ONE PRODUCTIONS**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
**SO, ER, AR**  
5868 E. 71st Street Suite 201, Indianapolis, IN 46220  
(317) 549-3412  
Contact: Jeff Gardner

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**NAMM Booth #302**

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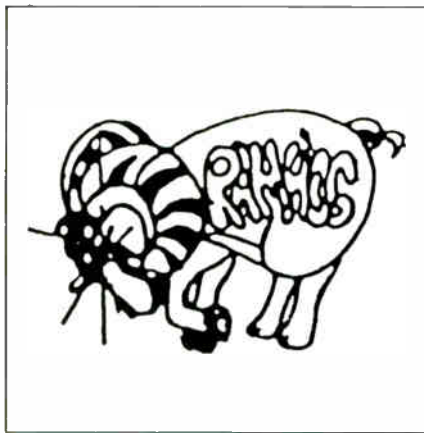
PRESCO PRODUCTIONS  
 SOUND REINFORCEMENT & REMOTE RECORDING  
 SO, AR  
 4366 W. 66th St, Cleveland, OH 44144  
 (216) 749-7244  
 Contact: John Presby



PRO AUDIO INC.  
 Grand Rapids, MI

PRO AUDIO INC.  
 SOUND REINFORCEMENT & REMOTE RECORDING  
 SL, AR  
 0-1640 Lake Michigan Dr. N.W., Grand Rapids, MI 49504  
 (616) 677-5973  
 Contact: Ken Heuricke

RAINBOW PRODUCTIONS  
 SOUND REINFORCEMENT & REMOTE RECORDING  
 SL, ST, ER, AR  
 2322 S. 64th Ave. Omaha, NE 68106  
 (402) 554-0123



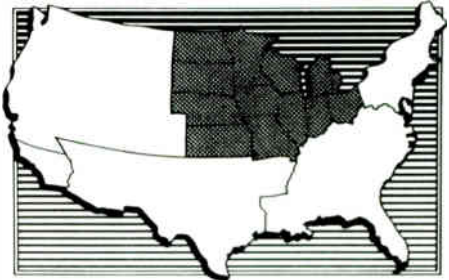
RAMHOG SOUND & LIGHT CO., INC.  
 Cleveland, OH

RAMHOG SOUND & LIGHT CO., INC.  
 SOUND REINFORCEMENT  
 SL, ER  
 4284 E. 124 St, Cleveland, OH 44105  
 (216) 641-6606  
 Contact: William Warren

R.G. SOUND & COMMUNICATION  
 SOUND REINFORCEMENT  
 SO, ER  
 1002 Hawthorne St, Celina, OH 45822  
 (419) 586-3671, 586-2273  
 Contact: Andy Godwin

ROACH SOUND  
 SOUND REINFORCEMENT  
 SO, ER  
 515 Cedarwood Rd, Columbus, OH 43207  
 (614) 491-8579  
 Contact: Jack Roach

## REMOTE RECORDING & SOUND REINFORCEMENT



### NO. CENTRAL

Many of the listings in this directory also contain a code which indicates the specialties of each business: SO = sound reinforcement, LI = lighting, SL = sound and lighting, ST = staging, ER = equipment rental, AR = audio recording, VR = video recording, AV = audio and video recording.

RUKE AUDIO  
 SOUND REINFORCEMENT & REMOTE RECORDING  
 SO, AR

P.O. Box 1166, Tinley Park, IL 60477  
 (312) 532-0130  
 Contact: David Ruke

Services Available: Small to medium-sized sound systems 4 trk, 8 trk, Beta Hi Fi location recording Clients Mike Jordan & The Rockamatics, Heartsfield, Guess Who Tommy Dorsey Orchestra, Ed Vodka Orchestra, Steve Morse Koko Taylor, Matt "Guitar" Murphy, Son Seals, Mighty Joe Young, Jump 'N' The Saddle, Taj Mahal, David Bromberg, Marilyn Michaels, Taste of Oakbrook Terrace, Connolly's, Holstein's, Best Entertainment, Tanglewood Studios American Famous Talent Ruke Audio specializes in delivering our service with a professional attitude that allows our clients to perform without worrying about the sound equipment

SHOWCASE SOUND & LIGHT  
 SOUND REINFORCEMENT & REMOTE RECORDING  
 SL, ER, AR

Rt 1, Box 136, Mayetta, KS 66509  
 (913) 966-2682  
 Contact: Les Roediger

SLY DOG PRODUCTIONS  
 SOUND REINFORCEMENT  
 SL, ST, ER

22767 Panama, Warren, MI 48091  
 (313) 757-7410  
 Contact: F.D. Varicalli

SOUND ADVICE RECORDING  
 SOUND REINFORCEMENT & REMOTE RECORDING  
 SO, ER, AR

422 N. 3rd Ave East, Duluth, MN 55805  
 (218) 722-3781  
 Contact: George T. Zissos

SOUND COM CORPORATION  
 SOUND REINFORCEMENT  
 SO

227 Depot St, Berea, OH 44017  
 (216) 234-2604  
 Contact: Jim Rivard

SOUND SYSTEMS SPECIALIST  
 SOUND REINFORCEMENT  
 SO, ER

2220 Yale, Springfield, IL 62703  
 (217) 789-7078  
 Contact: Chuck McCarrel

SOUNDS GOOD AUDIO/S.G.A. SYSTEMS  
 SOUND REINFORCEMENT  
 SL, ER

410 E. Grand River Ave, Lansing, MI 48906  
 (517) 372-5278  
 Contact: Mark Reed

SOUTH WESTERN COMMUNICATIONS, INC.  
 SOUND REINFORCEMENT & REMOTE RECORDING  
 SL, AV

2448 N. Cullen Ave, P.O. Box 5288, Evansville, IN 47715  
 (812) 477-6495  
 Contact: James R. Miller

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THE RECORDING INDUSTRY MAGAZINE



**SOUTHERN THUNDER SOUND, INC.**  
**SOUND REINFORCEMENT**  
*SL, ER*  
 212 Third Ave No, Minneapolis, MN 55401  
 (612) 339-6303  
 Contact: Art Weller, Kurt Craig

**SPARROW SOUND DESIGN**  
 3501 N. Southport, Chicago, IL 60657  
 (312) 281-8510  
 Contact: Bradley Parker

**SPECTRUM SOUND SYSTEMS**  
**SOUND REINFORCEMENT**  
*SL*  
 2318 N. 6th St, Sheboygan, WI 53081  
 (414) 457-6863  
 Contact: Carl C. Vollrath

**STAHR SOUND SYSTEMS LTD.**  
**SOUND REINFORCEMENT**  
*SO, ER*  
 1392 Webb Road #25, Lakewood, OH 44107  
 (216) 521-3238  
 Contact: Christopher Stahr

**SUN SOUND SYSTEMS, INC.**  
**SOUND REINFORCEMENT**  
*SO, ER*  
 4846 Main St, Skokie, IL 60077  
 (312) 679-1150  
 Contact: Ron Bressler

**SURE SOUND**  
**SOUND REINFORCEMENT**  
*SL*  
 1032 S. Locust, Grand Island, NE 68801  
 (308) 384-6889  
 Contact: Larry Suhr

**SUTTMAN PRODUCTIONS**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
*SO, AR*  
 P.O. Box 72, Dayton, OH 45409  
 (513) 299-4578  
 Contact: Eric J. Suttman

**SYNDER SYSTEMS**  
**SOUND REINFORCEMENT**  
*SL, ER*  
 16638-16640 E. Warren, Detroit, MI 48224  
 (313) 881-5167, 884-1790  
 Contact: Ken Snyder

**TAB RECORDS**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
*SO, AR*  
 2018 W. County Line Rd, Mequon, WI 53092  
 (414) 241-5641  
 Contact: Todd A. Boettcher

**TAK SOUND**  
**SOUND REINFORCEMENT**  
*SO, ER*  
 2211 Avon Industrial Dr, Auburn Hts, MI 48057  
 (313) 852-2044  
 Contact: Ted Kashmerick, Allen Rawa

**TECH LIGHTING & SOUND**  
**SOUND REINFORCEMENT**  
*SL, ER*  
 25058 W. Six Mile, Redford, MI 48240  
 (313) 537-0430  
 Contact: Greg Kay

**VALLEY ACOUSTICS**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
*SL, ST, ER, AR*  
 903 N. Baird, Fergus Falls, MN 56537  
 (218) 736-2750  
 Contact: Maurice A. Skogren

**WESTWOOD ONE**  
**REMOTE RECORDING**  
*AR*  
 27801 Euclid Ave, Suite 30, Cleveland, OH 44132  
 (216) 289-1900  
 Contact: Arnie Rosenberg  
 Equipment: Situated in a 40 ft MCI bus are a custom built Sound

Workshop console, 50 inputs, 24 outputs and 40-track capability; (2) MCI 24-track recorders & (2) MCI 1/4" mixdown decks; an MCI Autolock Synchronizer for multi-track link-up or to generate time code for video; JBL 4711 & Yamaha NS-10 speakers with Hafler amps plus a Lexicon 200 digital reverb and (2) PCM-41 digital delays; Valley People Rack with (6) Kepexes and (4) Gain Brains. Orban & UREI limiters. Lounge with audio & video monitors plus refrigerator and computer bar. Bus is equipped to do on the spot mixdowns, also has 2 bunks and a head on board.



WESTWOOD ONE  
 Cleveland, OH

**BOB WHITE ASSOCIATES**  
**SOUND REINFORCEMENT**  
*SO*  
 P.O. Box 39104, Solon, OH 44139  
 (216) 248-1317  
 Contact: Tod White

**Z-LAND AUDIO SYSTEMS, INC.**  
**SOUND REINFORCEMENT**  
*SL, ER*  
 1408 E. Coolidge Ave, Little Chute, WI 54140  
 (414) 788-3545  
 Contact: Mike Van Zeeland

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### Mobile Audio/Video

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Flushing, NY

#### ASL MOBILE AUDIO/VIDEO REMOTE RECORDING AV

140-02 Poplar Ave., Flushing, NY 11355  
(718) 866-6500

Contact: Stephen Remote  
Equipment: Otari MTR-90 24 tr (24/32 tr digital recording available upon request); Sound Workshop Series 30 32 x 32 console, two Sony MX-20 16 x 8 boards (additional channels available upon request); UREI 813B monitors; Crown/Yamaha amplification; Klark-Teknik DN 780 digital reverb, Eventide 910 Harmonizer; delays by Lexicon, Klark-Teknik, Korg, large complement of limiters, compressors, gates and equalizers, over 75 microphones and directs by Neumann, Shure, E.V., Sennheiser, Brooke-Siren, and Sescam; 816 point bantam jack field; 76 mike/line sends and returns to truck via four 19 pair snakes, over 2000' of 19 pair cable, over 3000' of mike cable, 800' of video/com cable and 1000' of AC line.

**Services Available:** Our philosophy is to bring the multi-media, multi-track control room to the concert, studio, home and/or anywhere desired to develop the visions and sounds needed. We offer our mobile unit as a complete basic track, mixdown and pre/post audio for video production for clients ranging from top video backgrounds to local artists and bands. We have worked with: Frank Zappa, James Brown, Lene Lovich, The Police, Simple Minds, Stevie Wonder, Gene Simmons of Kiss, XTC, Yello, Howard Jones, Reflex, Elvin Jones, Black Uhuru, Icicle Works, The Ramones, Dwight Twilley, Japanese Jazz all-stars, WNEW-FM, WLIR-FM, WPIX-FM, BBC-TV, MTV, PBS, Soundworks, PMC/FM TOKYO and Secret Sound to name a few!

#### ATLANTIC SOUND SYSTEMS SOUND REINFORCEMENT SO

P.O. Box 419, Somers Point, NJ 08244  
(609) 645-0468

#### ATOM AUDIO SOUND REINFORCEMENT SL, ER

120 Donaldson Ave., Rutherford (Bergen County), NJ 07070  
(201) 935-5710  
Contact: Jim O'Connor

#### A/T SCHARFF RENTALS ER

1619 Broadway, New York, NY 10019  
(212) 582-7360  
Contact: Peter Scharff

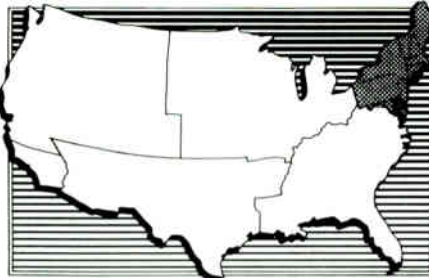
#### AUDIO ANALYSTS USA INC. SOUND REINFORCEMENT SO

13 Air Industrial Pk, P.O. Box 713, Plattsburgh, NY 12901  
(518) 561-5071  
Contact: Bert Pare

**AUDIO ARTISTS  
SOUND REINFORCEMENT  
SL, ST, ER**  
P.O. Box 238, Holmdel, NJ 07733  
(201) 830-7128  
Contact: Tracey L. Dell

**AUDIOARTS ENGINEERING  
SOUND REINFORCEMENT & REMOTE RECORDING  
SO, AR**  
5 Collins Rd., Bethany, CT 06525  
(203) 393-0887  
Contact: Ray Esparolini

## REMOTE RECORDING & SOUND REINFORCEMENT



### NORTHEAST

Many of the listings in this directory also contain a code which indicates the specialties of each business: *SO* = sound reinforcement, *LI* = lighting, *SL* = sound and lighting, *ST* = staging, *ER* = equipment rental, *AR* = audio recording, *VR* = video recording, *AV* = audio and video recording.

#### AUDIO PROMEDIA SOUND REINFORCEMENT & REMOTE RECORDING SO, ER, AV

114 Old Amherst Rd., Sunderland, MA 01375  
(413) 665-7122  
Contact: Art Steele

#### AUDIO RADIANCE SOUND REINFORCEMENT & REMOTE RECORDING SO, ER, AR

34 Hockanum Rd., Hadley, MA 01035  
(413) 584-1272  
Contact: Chris Dixon

**Equipment:** Consoles: Soundcraft 400B 24 x 4, Peavey 24 x 8 monitor, 2 Tangent 16 x 2, Studiomaster 16 x 4, Unisync 8 x 4 monitor. Equalizers: 1/3 octave by Yamaha, Audioarts (main), NEI, MXR, Blamp (monitor). Comp/limiters: dbx 160x, Ashly SC50. Crossovers: Yamaha, Ashly, Loft, Biamp. Effects: 2 DeltaLab DDLs, Orban reverb, Ashly stereo noise gate, Roland Space Echo, MXR flanger/doubler. Tape decks: TEAC 3440 4 track w/case, TEAC cassette. Amplifiers: BGW 750s, 500s, 250s, Crown 300s, 150, Peavey 800s, 400s. Speakers: Horn-loaded, triamped, EAW cabinets (2 x 15", 1 x 12", 2" radial horns) Drivers by JBL, Gauss. Monitors: wedges with 15" & horn, 2 x 12" & horn, 12" & horn, sidefills with 2 x 15" & horn, drum monitors with scoops and horns, all biamped. Drivers by JBL, Gauss, E-V, Emilar, Mikes: Shure, Sennheiser, E-V, Beyer, AKG, Altec. Ford 14' truck.

**Services Available:** Three-way 24 and 16 channel systems for large clubs and small halls. 24 x 8, 16 x 4, 8 x 4 monitor systems with biamped monitors. Remote 4 track recording. One-nighters and regional tours with truck and crew. Recent shows include: Derringer, Robin Trower, James Brown, Outlaws, Leon Russell, dB's, Phoebe Snow, John Mayall, Link Wray, Toots and the Maytals, Run DMC, Jorma Kaukonen, B.B. King, Wilson Pickett, Jr. Walker, Archie Shepp, Bongos.

#### AUDIO SERVICES AND DESIGN SOUND REINFORCEMENT SO

273 Purdue Ct., Paramus, NJ 07652  
(201) 652-2705  
Contact: Frank Reufi

#### AUDIOTECHNIQUES ER

1619 Broadway, New York, NY 10019  
(212) 586-5989  
Contact: Gene Perry

**AUDIOWORKS  
SOUND REINFORCEMENT  
SO**  
52 Linnmore Dr., Manchester, CT 06040  
(203) 646-2387  
Contact: Cary St. Onge

**BANDIT SOUND  
SOUND REINFORCEMENT  
SO**  
1 Faxon Green, Middletown, RI 02840  
(401) 846-0100  
Contact: Peter Ruhle

**THE BEST SOUND, INCORPORATED  
SOUND REINFORCEMENT  
SO, ER**  
400 N. Second St., Halifax, PA 17032  
(717) 896-3926  
Contact: Stephen E. Sands

**BIG APPLE STUDIOS INC.  
SOUND REINFORCEMENT & REMOTE RECORDING  
SL, ST, ER, AV**  
383 West 48th St. 6th floor, New York, NY 10036  
(212) 974-1755  
Contact: George Kazane

**BLUE CHIP SOUND AND LIGHT  
SOUND REINFORCEMENT & REMOTE RECORDING  
SL, AR**  
P.O. Box 123, Orefield, PA 18069  
(215) 398-2900  
Contact: Kent Bubbenmoyer, Conrad Bartholomew

**BOYNTON STUDIO, INC.  
SOUND REINFORCEMENT  
SO**  
Melody Pine Farm, Morris, NY 13808  
(607) 263-5695  
Contact: K. Kolvik, W.B. Gorence

**BRIGHTON SOUND, INC.  
SOUND REINFORCEMENT  
SO, ER**  
315 Mt. Read Blvd., P.O. Box 60977 Lyell Station  
Rochester, NY 14606  
(716) 328-1220  
Contact: Jim Sawicki

**BRONEN MUSIC  
SOUND REINFORCEMENT  
ER**  
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(914) 428-3393  
Contact: Jack, Alex

**CASPER SOUND UNLIMITED  
SOUND REINFORCEMENT & REMOTE RECORDING  
SO, ER, AR**  
517 Morris St, Ogdensburg, NY 13669  
(315) 393-3564  
Contact: Erik M. Brown

**CENTRAL JERSEY SOUND CENTER  
SOUND REINFORCEMENT  
SO**  
P.O. Box 332, 2137 Route 35, Oakhurst, NJ 07755  
(201) 542-4100  
Contact: H. Ducore

**THE CHARM CITY WORKSHOP  
REMOTE RECORDING  
AR**  
4503 Penhurst Ave. 3rd floor, Balto, MD 21215  
(301) 664-9160  
Contact: Ray Chance

**CHROMUNIQUE AUDIO VISUAL  
SOUND REINFORCEMENT & REMOTE RECORDING  
SO, ST, ER, AR**  
11 Exchange St, Portland, ME 04101  
(207) 773-6887  
Contact: Geoffrey Parker, Tobey Levine

**CLAIR BROS.  
SOUND REINFORCEMENT  
SO, ER**  
P.O. Box 396, Littitz, PA 17543  
(717) 665-4000  
Contact: Greg Hall

**CONNECTRONICS CORP.  
SOUND REINFORCEMENT & REMOTE RECORDING  
SO, AR**  
652 Glenbrook Rd, Stamford, CT 06906  
(203) 324-2889  
Contact: Richard Chulvens

**CRAFT SOUND  
SOUND REINFORCEMENT  
SO**  
23 Orchard Ave, Holmdel, NJ 07733  
(201) 264-0536  
Contact: Jeff Schwartz



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**dB SOUND RENTALS**  
**SOUND REINFORCEMENT**  
*SL, ST, ER*  
P.O. Box 7-1317, West Hartford, CT 06107  
(203) 236-5401  
Contact: Alan M. Friedman

**DIGITAL BY DICKINSON**  
**REMOTE RECORDING**  
*AR*  
9 Westinghouse Plaza, Box 547, Bloomfield, NJ 07003  
(201) 429-8996  
Contact: Erin Ohlsen, Frank Dickinson

**DREAM-A-LOT**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
*SO, AR*  
3149 Oak Dr., Huntingdon Valley, PA 19006  
(215) 947-1003  
Contact: Alan Greaves

**EAR CRAFT**  
**SOUND REINFORCEMENT**  
*SL*  
14 Fourth St., Dover, NH 03820  
(603) 749-3138  
Contact: Brian Fischer  
Services Available: Ear Craft-18 Concert Sound and Lighting Systems. Top quality equipment including Turbosound, Myers, JBL, Crest, Soundcraft, LMI, Leprecon, etc. Daily, weekly, monthly rentals and tours. Ear Craft also provides engineers, lighting design, crews, transportation, service, and sales. For literature or prices please call or write Ear Craft.

**ECHO AUDIO**  
**SOUND REINFORCEMENT**  
*SO*  
228 E. Scott Ave., Rahway, NJ 07065  
(201) 382-0945  
Contact: George Muha

## REMOTE RECORDING & SOUND REINFORCEMENT



### NORTHEAST

**EFFANEL MUSIC**  
**REMOTE RECORDING**  
*AR*  
66 Crosby St. 4B, New York, NY 10012  
(212) 807-1100  
Contact: Randy Ezratty

**ENTERTAINMENT CONCEPTS**  
**SOUND REINFORCEMENT**  
*SL, ST*  
P.O. Box 3192, Brick Church Station, E. Orange, NJ 07017  
(201) 672-2690  
Contact: Mark A. Beckett

**FAT SOUND CO.**  
**SOUND REINFORCEMENT**  
*SO, ER*  
P.O. Box 296, Rensselaer, NY 12144  
(518) 462-0036  
Contact: Mark Perrin

**FLY BY NIGHT SOUND & RECORDING**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
*SL, ER, AR*  
Box 91, Spring Grove, PA 17362  
(717) 225-8827  
Contact: David Baker

**FRONT ROW LIGHT & SOUND**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
*SL, ST, AR*  
P.O. Box 826, Columbia, MD 21044  
(301) 486-8449  
Contact: Daryl Beard

**ED GARNIER PRODUCTIONS**  
**SOUND REINFORCEMENT**  
*SL, ST, ER*  
P.O. Box 81, Webster Rd., Greene, ME 04236  
(207) 375-6987  
Contact: Ed Garnier

**CHRIS GATELY AUDIO SERVICES**  
**REMOTE RECORDING**  
*AR*  
P.O. Box 526, Bryn Mawr, PA 19010  
(215) JBL-3605

**GBH PRODUCTIONS**  
**REMOTE RECORDING**  
*AR*  
125 Western Ave, Boston, MA 02134  
(617) 492-9273  
Contact: Anita McFadden  
Equipment: 40 x 24 Automated Processes mixing system; (2) Otari MTR 90 24 track, (2) Ampex ATR 102 2 track; UREI 811, Auratone monitors; dbx 903, 162 compressor/limiters; Lexicon 224 digital reverb, PCM41 effects units; 24 channels Dolby noise reduction; RTS communications and distribution amps; 2,000 point patching system; studio quality mike inventory; custom multi cable system featuring 40 x 3 Jensen transformer mike splitter. Production lounge/announcer area w/audio and video systems. Fully isolated AC power system. Ampex ATR 104 1/2" recorder, Adams-Smith synchronizer and video cassette playback facilities available upon request.

**TERRY HANLEY AUDIO SYSTEMS, INC.**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
*SO, ER, AR*  
329 Elm St., Cambridge, MA 02139  
(617) 661-1520  
Contact: Terry Hanley, Dan Kidwell

**HANSEN RECORDING**  
**REMOTE RECORDING**  
*AR*  
Capt. Foster Ln., Norwell, MA 02061  
(617) 826-9837  
Contact: Torben Hansen

**HERCULES SOUND SYSTEMS**  
**SOUND REINFORCEMENT**  
*SO*  
33 Fairfield Rd., E. Brunswick, NJ 08816  
(201) 254-2042, 254-9370  
Contact: Bob Lichtman

**JOE'S RECORDING STUDIO**  
**REMOTE RECORDING**  
*AR*  
981 S. Broad St., Trenton, NJ 08611  
(609) 394-5637  
Contact: Vann Weller

**JOYFUL NOISE AUDIO**  
**SOUND REINFORCEMENT**  
*SO*  
7 Hughes St., Congers, NY 10920  
(914) 268-3319  
Contact: Bob Kowles

**J.P. EDMUND ENTERPRISES**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
*SO, ER, AV*  
1044 Park Place, Brooklyn, NY 11213

**KENNEDY MUSIC AND RECORDING**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
*SO, AR*  
5253 Montour St., Philadelphia, PA 19124  
(215) 533-2380  
Contact: David Kennedy

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**SOUND REINFORCEMENT**  
 SO, ST  
 177 Highland Ave, Kingston, NY 12401  
 (914) 338-2534  
 Contact: Pete Lewis

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**LIVE TRACKS MOBILE RECORDING**  
 Philadelphia, PA

**LIVE TRACKS MOBILE RECORDING**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SO, AR  
 6201 Crittenden St., Philadelphia, PA 19138  
 (215) 278-8734  
 Contact: Charles Griffin  
 Equipment: Custom design mobile van, Tascam M-32 2 track, Tascam M-44 4 track, Technics M-222 cassette, Tascam M-3 8 x 4 x 2 board, DeltaLab ADM 256 digital delay, dbx 150 & dbx DX-4 noise reduction, Shure SM57, Audio-Technica 450PS, Sony 2710 Beta Hi-Fi and PCM.  
 Services Available: On location recording and radio production.



**MAGNETIK PRODUCTIONS**  
 Philadelphia, PA

**MAGNETIK PRODUCTIONS**  
**REMOTE RECORDING**  
 AV  
 1533 Cherry St., Philadelphia, PA 19026  
 (215) 563-2010  
 Contact: Bob Wakeley  
 Equipment: 18 ft. Ford Cube Van outfitted with the following equipment: Neotek console; MCI-JH-110 multi-track and two track recorders; Sony PCM-F1 digital two track; Outboard Gear by dbx, Orban, Lexicon; BTX "Shadow" synchronizer and time code equipment; MDM-4 and JBL monitors; Mikes by B&K, Neumann, AKG, Sennheiser, Shure; Sony video decks and monitors; Sharp XC-900 video camera; Wireworks 27 pair mike snake with transformer isolated splitter; Telex intercom.  
 Services Available: Magnetik specializes in classical music recording, audio for video, broadcast production, sound system design and installation, and music video production done in-house by our video component GLA Communications. Clients include: The Philadelphia Orchestra, Opera Company of Philadelphia, The City of Philadelphia, Academy of Music, Curtis Institute of Music and Concerto Soloists of Philadelphia.

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**MALCOLM ADDEY RECORDERS**  
**REMOTE RECORDING**  
**AR**  
210 Riverside Dr., New York, NY 10025  
(212) 865-3108  
Contact: Malcolm Addey

**M.A.M. SOUND REINFORCEMENT**  
**SOUND REINFORCEMENT**  
**SO**  
RD. 1 Box 235 John St., Kingston, NY 12401  
(914) 336-8065  
Contact: Michael A. Mottsey

**MARTIN AUDIO**  
**SOUND REINFORCEMENT**  
**SO**  
19 Alva St., New Bedford, MA 02740  
(617) 994-7141  
Contact: George Martin

**MARTIN ENGINEERING**  
**REMOTE RECORDING**  
**AV**  
8710 Patton Rd., Wyndmoor, PA 19118  
(215) 233-1606  
Contact: Niles Martin

**MATRIX AUDIO PRODUCTIONS**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
**SL, AR**  
10 High St., P.O. Box 4097, Middletown, RI 02840  
(401) 846-8597  
Contact: Cliff Chrstan

**MIDDLE HOUSE SOUND INC.**  
**SOUND REINFORCEMENT**  
**SL**  
512 Kingman St., E. Taunton, MA 02718  
(617) 823-5127  
Contact: Rick Washburn

**JON MILLER PRODUCTION STUDIOS**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
**SL, ST, ER, AV**  
7249 Airport Rd., Bath, PA 18014  
(215) 837-7550  
Contact: Jon Miller

**MIX-MINUS AUDIO SYSTEMS**  
**SOUND REINFORCEMENT**  
**SO**  
600 West 58th St., Box 9043, New York, NY 10019  
(718) 639-5142  
Contact: Bob Raymond

**MOBILE RECORDERS LTD.**  
**REMOTE RECORDING**  
**AV**  
Berkshire Rd., Southbury, CT 06488  
(203) 264-2659  
Contact: G. Rothan

**MODULAR SOUND REINFORCEMENT**  
**SOUND REINFORCEMENT**  
**SO, ER**  
Box 388, Princeton Junction, NJ 08550  
(609) 989-1919  
Contact: Robyn Gately

**NEW ENGLAND MOBILE RECORDING, INC.**  
**REMOTE RECORDING**  
**AV**  
51 Circuit Dr., Stow, MA 01775  
(617) 897-7554  
Contact: Alan W. Goodrich  
Equipment: New England Mobile Recording is a complete 24 track location recording studio. It is ideal for large concerts, albums, and radio broadcast work. The facility has an attractive and spacious interior that can accommodate an entire band as easily as a stationary studio would. Three isolation chambers provide recording possibilities unavailable from most mobile units. The bus, a customized Golden Eagle Motor Coach, is wired for 16 video and 52 exterior audio inputs, and 40 interior inputs. We presently use equipment by: MCI, Tascam, DOD, custom designed JBL monitors, Shure, AKG, Audio-Technica, Sennheiser, Dolby Labs, Countryman Assoc., Sescam, custom made snake (260') and splitter (52 x 2), Crown, Phase Linear, Beyer, Roland, and Neumann. Additional audio and video equipment can be brought in as required. Our friendly and knowledgeable staff would like to confer with you about your recording needs. Call for further information.

## REMOTE RECORDING & SOUND REINFORCEMENT



### NORTHEAST

Many of the listings in this directory also contain a code which indicates the specialties of each business: **SO** = sound reinforcement, **LI** = lighting, **SL** = sound and lighting, **ST** = staging, **ER** = equipment rental, **AR** = audio recording, **VR** = video recording, **AV** = audio and video recording.

**NITE DEPOT RECORDING**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
**SO, AV**  
880 5th St., Beaver, PA 15009  
(412) 728-5598  
Contact: Joe Spagnola

**NONCHALANT**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
**SL, ST, ER, AR**  
P.O. Box 784, Ardmore, PA 19003  
(215) 649-0365  
Contact: Bob McNamara, Frank Kurz



**NORTHEASTERN DIGITAL RECORDING, INC.**  
Shrewsbury, MA

**NORTHEASTERN DIGITAL RECORDING, INC.**  
**REMOTE RECORDING**  
**AV**  
12 Sadler Ave., Shrewsbury, MA 01545  
(617) 753-1192  
Contact: Toby Mountain  
Equipment: Sony PCM-1610 digital audio processor, Sony DAE-1100 digital audio editor, Sony BVU-800DB video recorders (2) for digital audio or video, Sony PCM-F1 and PCM-701 (with full professional audio & design modification) digital processors, Sony SL-2000 Beta videocorders (2); AKG, Schoeps, Sennheiser, B&K microphones; Sony MX-PGI 12 x 4 mixer, Ramsa WR 8118 18 x 4 mixer; all above equipment rack mounted for transport around the world. 1985 customized Ford van for local or nationwide productions. Bonded and insured.  
**Services Available:** We specialize in 2-track digital for studio mixdowns, live recording, and video. Also digital editing and CD mastering. For high quality digital audio we're the first and only facility in New England. All of our equipment is totally mobile. Rentals also our specialty. We cater to quality conscious producers and studios around the world.

**OAK GROVE RECORDING STUDIO**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
**SL, ER, AR**  
65 Clinton St., Malden, MA 02148  
(617) 321-1017  
Contact: Mark Hanrahan, Emir Galeev

**OFF THE WALL SOUND**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
**SL, ST, AR**  
10 Howland Circle, West Caldwell, NJ 07006  
(201) 228-4099  
Contact: Dennis Wall

**OKUN SOUND**  
**SOUND REINFORCEMENT**  
**SO**  
502 S. Main St., Randolph, MA 02368  
(617) 963-8399  
Contact: Marc Okun



• PRO SOUND REINFORCEMENT

**OPUS I SOUND**  
Poughkeepsie, NY

**OPUS I SOUND**  
**SOUND REINFORCEMENT**  
**SL**  
56 Dutchess Ave., Poughkeepsie, NY 12601  
(914) 452-5726  
Contact: Kevin Farrell

**Services Available:** Opus I Sound specializes in concert sound systems, featuring full range and modular horn loaded enclosures. Systems are available for touring on a daily, weekly or monthly basis, with engineers and working road crew. Main and monitor systems available independently or together. Soundcraft, Hill and Yamaha consoles. Hill and Crown power. Stage lighting.

**PHILADELPHIA SOUND PRODUCTIONS**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
**SO, ER, AR**  
4335 Osage Ave., Philadelphia, PA 19104  
(215) 382-5390  
Contact: J. Walter Mosetter

**POSI-TECHS'**  
**SOUND REINFORCEMENT**  
**SO**  
19 Gallows Hill Rd., Peekskill, NY 10566  
(914) 737-2923  
Contact: Steve Loving

**POWER PLAY RECORDS INC.**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
**SL, ER, AV**  
198 Bloomfield Ave., Newark, NJ 07104  
(201) 481-0972  
Contact: Greg Furgason

**Equipment:** Audio: Yamaha PM-700 24 in, Harrison "Alive" 32 in, Soundcraft 400B 24 in, Ursa Major Star Gate digital reverb, dbx & Eventide limiters, 19 & 38 pair snakes, (2) Audioarts Parametrics EQ, (2) Lexicon PCM-41 DDL, DeltaLab DL-2 DDL, Ampex MM-1200 24 track, Tascam 85-16B 16 track, (2) Otari MX-5050 8D 8 track, Nakamichi DMP-100 digital mastering processor, (2) Otari MX-5050 BII 2 track, (6) Soundcraftsman graphic EQ & power amps, (12) Bose 800 speakers, (2) E-V subwoofers. Video: (2) Thompson 601A mini cam 14:1 lens, Grass Valley 1400 switcher, Ikegami EC-35 with all lens & filters, Lowell & Berkey Colortran lighting kits, Sony BVU-110 3/4", (2) Sony VU-5850 3/4", Sony SL-2000 1/2", Ampex VPR-20 1", Sony BVH-500A 1", 1984 Ford Econoline 150 truck.

**PRAGMATECH SOUND**  
**SOUND REINFORCEMENT**  
**SO**  
4516 Byron Ave., Bronx, NY 10466  
(212) 325-8888  
Contact: Jim Salta



**PROFESSIONAL MUSIC AUDIO ENGINEERING**  
**SOUND REINFORCEMENT**  
 SL, ER  
 2800 Commercial Dr., N. Providence, RI 02904  
 (401) 353-6221  
 Contact: Peter M. Archambault

**PROJECT PRODUCTIONS; SOUND & LIGHTING**  
**SOUND REINFORCEMENT**  
 SL  
 574 Pompton Ave., Cedar Grove, NJ 07009  
 (201) 239-0995  
 Contact: Jackson Chelius

**PSI PHI SOUND**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SO, ER, AR  
 46 Oak Hill Terrace, Penfield, NY 14526  
 (716) 248-3268  
 Contact: John Nugent

**P.S. SOUND SYSTEMS**  
**SOUND REINFORCEMENT**  
 SO, ER  
 400 Vly Rd., Schenectady, NY 12309  
 (518) 783-0502  
 Contact: Mike Doss

**P.T. SOUND**  
**SOUND REINFORCEMENT**  
 SO  
 34 Lombard St., Pittsfield, MA 01201  
 (413) 442-8731  
 Contact: Peter Tognini, Chris Mattono  
**Services Available:** We specialize in small to medium size tours and concerts, venues to 3500 seats. Systems up to 32 x 8 on the house, 6-way monitor mix with 8 biamped floor wedges, two triamped drum fills. We have worked throughout the northeast with acts such as Henny Youngman, John Conlee, Busboys, Greg Allman, Bonnie Raitt, Pat Travers, Joe Perry, King Crimson, Uriah Heep, Molly Hatchett only to name a few. We use the latest equipment from Yamaha, Soundcraft, JBL, EAW, Carver, Crown, Lexicon, UREI, Apex. We put emphasis on high quality sound and efficiently run shows. Remember P.T. Sound.

**RAINBOW AUDIO**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SL, AR  
 P.O. Box 89, 1 Maple St., N. Springfield, VT 05150  
 (802) 886-8422  
 Contact: Terry Ruppert

**RAINBOW SOUND**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SO, AR  
 24 Riverleigh Pl., Amityville, NY 11701  
 (516) 691-5514  
 Contact: Wayne Fairchild, Gary Haglich  
**Equipment:** Rainbow Sound has been providing professional sound reinforcement systems for over ten years. Our systems feature such well known equipment as: Soundcraft mixing consoles, Lexicon effects, and Brooke-Siren crossovers. Our amp racks consist of Crown and BGW amplifiers, powering speaker arrays made up of JBL, Altec and E-V components. Our PAs have played venues as diverse as Studio 54, Carnegie Hall, The Felt Forum, Lincoln Center and Central Park. Some of the artists that have utilized our systems have been: Don McLean, Laura Branigan, Earl Thomas Conley, Winton Marsalis, Bobby and the Midnites, and the New York Grand Opera Company. Our in-house trained crews are professional and efficient, capable of handling shows as demanding as the WLIR New Music Wars, with four bands per night, and complete set changes in under thirty minutes. More information about fees and services available upon request.

**RCI SOUND SYSTEMS**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SO, ER, AR  
 1310 Apple Ave., Silver Spring, MD 20910  
 (301) 587-1800  
 Contact: David Hoover

**RECORD PLANT**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SO, AR  
 321 W. 44th, New York, NY 10036  
 (212) 581-6505  
 Contact: Phil Gitomer, Patti Joblon

**RECORDINGS**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SO; AV  
 336 Belmont St., Watertown, MA 02172  
 (617) 926-0846  
 Contact: Sam Negri

**REEL PRODUCTIONS**  
**REMOTE RECORDING**  
 AR  
 P.O. Box 427, Allston, MA 02134  
 (617) 576-2872  
 Contact: Ted Evans

**REEVES TELETAPE**  
**REMOTE RECORDING**  
 AV  
 304 E. 44th St., New York, NY 10017  
 (212) 573-8888  
 Contact: Robert Eisenstaedt  
**Equipment:** Encore! Remote television unit with RCA TK47B studio cameras, Ikegami HL79D hand held cameras, Grass Valley 1680 24K switcher, Neve 5114 24 track capable audio board, Ampex VPR 2 1" VTRs, Chyron IV-4100 character generator, Quantel 5000 SP DVE.

**RESOLUTION, INC.**  
**REMOTE RECORDING**  
 AV  
 1 Mill St., The Chase Mill, Burlington, VT 05401  
 (800) 862-8900  
 Contact: Bill Schubart

**ROADWAY RECORDERS INC.**  
**REMOTE RECORDING**  
 AV  
 104 N. Ashby Ave., Livingston, NJ 07039  
 (201) 994-9695  
 Contact: Richard Dior

**ROCK SYSTEMS AUDIO**  
**SOUND REINFORCEMENT**  
 SO  
 15 Lorraine St., Syosset, NY 11791  
 (516) 454-8008  
 Contact: Joseph Light

**LaSalle Music**  
**Professional Audio & Musical Instruments**

75 North Beacon St., Watertown, MA 02172 (617) 923-4420  
 1116 Boylston St., Boston, MA 02115 (617) 536-0066  
 22 La Salle Rd., West Hartford, CT 06107 (203) 236-5401  
**outside MA (800) 533-3388**

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PPG	ROLAND	KORG	BIT ONE
EMULATOR	SEQUENTIAL CIRCUITS	LINN DRUM	ENSONIO

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**RTM AUDIO**  
**SOUND REINFORCEMENT**  
 SO  
 55 3rd Ave., Garwood, NJ 07027  
 (201) 789-9352  
 Contact: Tom Mathews

Equipment: 32 ch. Soundcraft 400B (house), 32 x 6 Yamaha (monitors), 8-double 15" custom made bass bins w/Gause drivers, 10-double 12" custom made mid bass enclosure w/JBL drivers, 18-radial horns w/2" JBL drivers over 10 kw of Crown power, Lexicon DDLs, Ashly X-overs, dbx comp/limiters, Klark-Teknik EQs, 10-custom made bi-amp floor monitors w/JBL drivers, 3-way side fills, Shure, Beyer, Sennheiser, AKG microphones, Countryman DIs, 1978 GMC 22' truck.

**Services Available:** RTM Audio offers professional concert sound systems with state-of-the-art equipment at reasonable prices. Some of the acts that we have worked with include: The Gregg Allman Band, Blackfoot, The Outlaws, Joe Perry Project, Metallica, Wendy O. Williams, Motorhead, Don McLean, Blotto, James Brown, New Edition, Alvin Lee, Peter Dinklage, The Dyvinals, Peabo Bryson, Marshall Greenshaw, Melba Moore, Tony Carey.

**SAWMILL SOUND CO., INC.**  
**SOUND REINFORCEMENT**  
 SO, ST, ER  
 222 N. Franklinton Rd., Baltimore, MD 21223  
 (301) 624-7876  
 Contact: Mike Connell

**SHEFFIELD AUDIO-VIDEO PRODUCTIONS, INC.**  
**REMOTE RECORDING**  
 AV  
 13816 Sunnybrook Rd., Phoenix, MD 21131  
 (301) 628-7260  
 Contact: Richard Vanhorn (Vance)

**SHRUG PRODUCTIONS UNLIMITED**  
**SOUND REINFORCEMENT**  
 SO, ER  
 Trent Bldg., So. Buckhout St., Irvington, NY 10533  
 (914) 591-8667  
 Contact: Sean McCormick, John Doerschuk, Simon Nathan  
 Equipment: Meyer MSL-3, 650-R2 systems and Midas mixing consoles.

**SID STONE SOUND**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SO, AR  
 145 Ipswich St., Boston, MA 02215  
 (617) 267-2470  
 Contact: Paul Carelli



SKYELABS, INC.  
 Dover, DE

**SKYELABS, INC.**  
**REMOTE RECORDING**  
 AV  
 58 W. Tidbury Dr., Dover, DE 19901  
 (302) 697-6226  
 Contact: Bob Skye

Equipment: "Rover" the Skyelabs' mobile recording unit is a GM PD-4106 motor coach fully outfitted for two to dual 24 track live or "in-house" recording. Tape machines: (2) Otari MTR-90 24 track; (2) Otari MK III-2 2 track; Technics RS-1500 2 track; (2) Tascam 122-B cassettes. Console: Sound Workshop Series 30 32 x 24; Sound Workshop 1280B 12 x 8 expander. Monitor amps: Phase Linear; Crown. Monitors: UREI 811A; Auratone. Outboard gear: LA-3As; Gain Brains; Dyna-Mites; MICMIX XL-305 reverb; Lexicon PCM-60 digital reverb; DeltaLab DL-4 delay; UREI & Delta-Graph EQ. Mikes: Sennheiser; Shure; AKG; Sony; Countryman; E-V. Communications: RTS audio comm; CCTV or video interface for visual comm. Interface equipment: 500' 40 x 4 audio

## REMOTE RECORDING & SOUND REINFORCEMENT



### NORTHEAST

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snake; (82) Jensen transformer isolated mike splits; 400' A/C power cables; Rover is equipped with A/C power isolation, regulation, filters and suppressors.

**Services Available:** Skyelabs offers the finest in mobile acoustic environments and equipment for live concert recording, remote broadcast and up-link, A/V audio, in-house recording, and mix-down. Rover is a certified LEDE™ control room that features an acoustic accuracy that surpasses many in-house studios. Rover has become the most popular "Live-to-two" track mobile in the area because of its ability to deliver clean accurate sound to the client with virtually no guesswork involved. Skyelabs is available for everything from one nighters to lengthy tours. If you are looking for more than just saturated tracks, or if you prefer mixing down at your place, give me a call.

**SLUGGO AUDIO**  
**SOUND REINFORCEMENT**  
 SO  
 4112 Spruce St., Philadelphia, PA 19104  
 (215) 382-0536  
 Contact: "Mr." Bill Coe

**SOUND AUDIO**  
**SOUND REINFORCEMENT**  
 SL, ER  
 RFD 4 Box 1025, Bangor, ME 04401  
 (207) 942-8435  
 Contact: Andrew Patterson

**SOUNDMIRROR, INC.**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SO, ER, AR  
 76 Green St., Jamaica Plain, MA 02130  
 (617) 522-1412  
 Contact: John Newton



SOUTHERN AUDIO  
 Millville, NJ

**SOUTHERN AUDIO**  
**SOUND REINFORCEMENT**  
 SL  
 800 Archer St., Millville, NJ 08332  
 (609) 825-3182 (George Cuccia)  
 (609) 691-1075 ext. 54 (David Duffield)

**Services Available:** Designing and manufacturing of custom lighting systems. House sound & lights: The Med, Sommers Point, NJ; Alexanders, Browns Mills, NJ. Credits: A's, AWB, Babys, Chuck Berry, Black Oak Arkansas, Blue Magic, Karla Bonoff, Brooklyn Bridge, Coasters, Joe Cocker, Commets, Crack the Sky, Derringer, Dovells, Driters, Jay Ferguson, Steve Forbert, Full House, Lowell George, Good Rats, Grease Band, Hall & Oates, Horslips, David Johanson, Eddie Kendricks, Kenny Loggins, Marshall Tucker, John Mayall, Model One, Nektar, Point Blank, Ramones, Rockets, Romantics, Rundgren, Sea Level, Skyy, Squeeze, Steppenwolf, Tower of Power, Travers, Village People, Edgar Winter, Johnny Winter, McQuinn, Clark & Hillman.

**SPECTRUM COMPANY, INC.**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SO, ER, AV  
 P.O. Box 22537, Baltimore, MD 21203  
 (301) 792-9641  
 Contact: Tony Bulluck

**SPL SOUND, INC.**  
**SOUND REINFORCEMENT**  
 SO  
 1177 Woodcrest Dr., Vineland, NJ 08360  
 (609) 691-6690  
 Contact: Steve Ponzetto

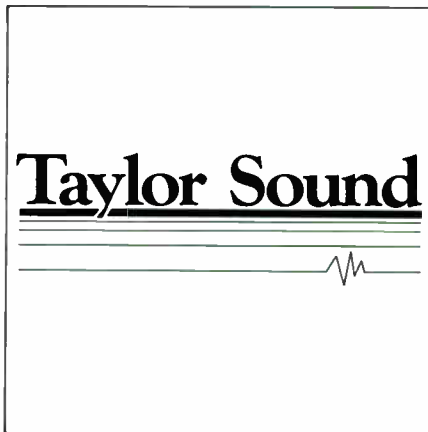
**STARFLEET COMMUNICATIONS (formerly Starfleet Blair)**  
**REMOTE RECORDING**  
 AR  
 6 Dexter Rd., Westport, CT 06880  
 (203) 254-0580  
 Contact: Sam Kopper

**STEED AUDIO INC.**  
**SOUND REINFORCEMENT**  
 SO, ER  
 1133 Pennsylvania Ave., Monaca, PA 15061  
 (412) 728-1234  
 Contact: Tom Beck

**STEREO DISTRIBUTORS**  
**SOUND REINFORCEMENT**  
 SL, ST, ER  
 844 Park Ave., Hoboken, NJ 07030  
 (201) 792-3604  
 Contact: Pierre Maneri, Ed Hauser

**STUDIO 55 PRODUCTIONS**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SO, ER, AR  
 42-55 Cadden St., Suite 11P, Flushing, NY 11355  
 (718) 762-1264  
 Contact: George Lerner

**SUN SOUND AUDIO INC.**  
**SOUND REINFORCEMENT**  
 SO  
 518 Pleasant St., Northampton, MA 01060  
 (413) 586-3465  
 Contact: Herb Mayer



TAYLOR SOUND & LIGHTS  
 Feasterville, PA

**TAYLOR SOUND & LIGHTS**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 LI, ER  
 1631B Loretta Ave, Feasterville, PA 19047  
 (Philadelphia area)  
 (215) 364-8547  
 Contact: Carl Taylor



Equipment: Turbosound TMS Enclosures (exclusively) for House and Sidefill, Soundcraft house consoles, Allen & Heath and Soundcraft monitor boards, up to 8 mixes, Brooke-Siren X-overs, Klark-Teknik and Sundholm EQs, Symetrix compressor/limiters, digital delays and digital reverb, bi-amped wedge monitors, multiple "splits" available, QSC Series III amplifiers, Shure, Beyer, AKG, Countryman, Otari 5050D MK3 8-track, Beta Hi-Fi 2-track, special processing equipment available upon request.  
**Services Available:** We offer complete sound and lighting systems as well as remote recording and trucking. Our Turbosound speakers can be flown or stacked, and insure the highest fidelity available. We cover any type of show from rock and roll to classical. We also have extensive experience in industrial shows. Contact Carl Taylor for information, quotes or references.

**TIMBRE AUDIO INC.**  
**SOUND REINFORCEMENT**  
 SL, ER  
 400 Central St., Georgetown, MA 01833  
 (617) 352-2570  
 Contact: Dave Francis

**UNISTAGE, INC.**  
**SOUND REINFORCEMENT**  
 SL, ST, ER  
 330 Genesee St., Buffalo, NY 14204  
 (716) 853-6500

**VALLEY SOUND**  
**SOUND REINFORCEMENT**  
 SO, ER  
 8113 Barksdale Rd., Towson, MD 21204  
 (301) 337-9379, 321-6015  
 Contact: Ralph Rizzo, Scott Dunbar

**WAVELENGTH SOUND STUDIO**  
**SOUND REINFORCEMENT**  
 SO, ER  
 12 E. 32nd St. 3rd floor, New York, NY 10016  
 (212) 686-8687  
 Contact: Todd Hemleb, Steve Zoyes

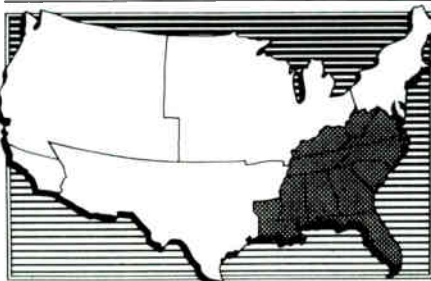
**WHEEL TO WHEEL**  
**REMOTE RECORDING**  
 AR  
 238 Hickory Cor. Rd., East Windsor, NJ 08520  
 (609) 448-5889  
 Contact: Hans Schneider

**WIZARD WORKS STUDIOS**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SO, AR  
 2124 Saranac St., Adelphi, MD 20783  
 (301) 434-0537  
 Contact: Bill (Scruffy) Harrison

**WOMAN SOUND, INC.**  
**SOUND REINFORCEMENT**  
 SO  
 P.O. Box 1932, Washington, DC 20013  
 (202) 269-9000  
 Contact: Boden Sandstrom

**ZERO dB 8/4 RECORDING**  
**REMOTE RECORDING**  
 AR  
 6005 Quinn Orchard Rd., Frederick, MD 21701  
 (301) 682-9076  
 Contact: Ken Cutler, Dave Bort

## REMOTE RECORDING & SOUND REINFORCEMENT



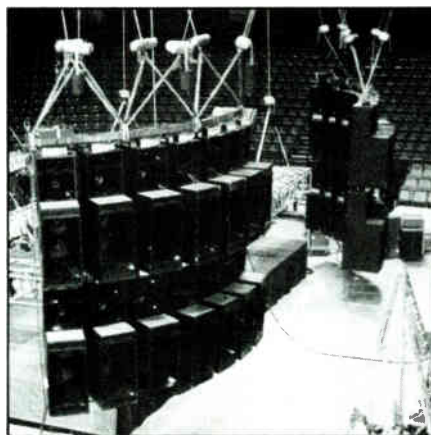
### SOUTHEAST

Many of the listings in this directory also contain a code which indicates the specialties of each business: SO = sound reinforcement, LI = lighting, SL = sound and lighting, ST = staging, ER = equipment rental, AR = audio recording, VR = video recording, AV = audio and video recording.

**ADCO PRODUCTIONS**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 LI, ST, ER, AV  
 7101 Biscayne Blvd, Miami, FL 33138  
 (305) 751-3118  
 Contact: Kommie Shala

**ADVENT PRODUCTIONS**  
**SOUND REINFORCEMENT**  
 SL, ER  
 2518 Southview Dr., Lexington, KY 40503-2250  
 (606) 278-5852  
 Contact: Don C. Morgan

**AMERICAN COMMUNICATION SERVICES, INC.**  
**SOUND REINFORCEMENT**  
 SO  
 13246 NW 7th Ave., N. Miami, FL 33168  
 (305) 688-3735  
 Contact: Cordie Miller



**AMERICAN MULTIMEDIA INC.**  
 Burlington, NC

**AMERICAN MULTIMEDIA INC.**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SL, AV  
 Rt. 8 Box 215-A, Burlington, NC 27215  
 (919) 229-5554  
 Contact: Clay Spivey  
 Equipment: 100,000 watts of Crown amplification for custom 4 way enclosures; JBL components, 20,000 watt subwoofer system for house. Over 5,000 watts for customized Altec monitors. Signal processing for house, monitors, and recording: Aphex, dbx, Dolby, Dynafex, DeltaLab, EXR, Klark-Teknik, Orban, UREI, Lexicon Super Prime Time, Prime Time II, 224X with LARC. Microphones: AKG, E-V, Crown P2M, HME & Cetec-Vega wireless systems. Remote recording utilizing the NEVE 810B 32 x 24 console, Otari MTR-90 24 track, Otari MTR-12 2 track, 24 channels of dbx noise reduction & compressors. Mastering by Studer, Otari, and JVC digital. Monitors: UREI, JBL & Auratone. 500,000 watts of computer controlled lighting mounted on custom trusses,

—CONTINUED ON NEXT PAGE

## GT-4 NOISE GATE

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**OMNI CRAFT, INC.**  
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 (815) 838-1285

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 Postbox 356 d  
 Phone: 201 423 4405

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Circle #156 on Reader Service Card

—CONTINUED FROM PAGE 185

including truss mounted spots. Strand Century computer light pallet and dimmer packs. Grass Valley 300 production switcher, Mark II DVE, Chyron graphics, Ikegami color cameras, Ampex VPR-2B 1" recorders. GE projection with 30" screens.

**Services Available:** Full sound and concert production includes sound reinforcement, lighting, video projection, audio/video remote recording, rigging, and transportation. Fully equipped audio/video post production studios include 24-32 track studio for over-dubbing and mixdown to 2 track JVC digital. Demo, album and music video packages available, staff writers/arrangers meet any A/V or music production needs, including sound tracks and jingles. We are America's largest independent facility for quality high speed cassette and VHS duplication, featuring Electro Sound, Otari, and Gauss bin loop duplicators. In-house graphics and full color printing services insure quality custom printing of labels, inserts, and booklets.

**ATLANTA POST PROD.**

**REMOTE RECORDING  
AV**

1827 Powers Ferry Rd, Bldg. 15, Marietta, GA 30067  
(404) 980-9773  
Contact: Jim Gilson

**ATLANTA SOUND AND LIGHTING  
SOUND REINFORCEMENT**

**SL, ER**

500 Plessamour Dr. NE #3, Atlanta, GA 30324  
(404) 876-5600

Contact: Scott C. Waterbury

**Equipment:** Sound, lights, stage equipment. Soundcraft, Eastern Acoustic Works, UREI Crest, BGW, Lexicon, Eventide, Master-Room, Sennheiser, AKG, Shure, E-V, 32/24/16 ch mains; 24 x 8, 16 x 16, 16 x 4, 12 x 4 onstage monitors; Leprecon, ETA, LTE, Altman, GE, ACLs, etc. Hardworking, reliable crews with a "commitment to excellence."

**AUDIO AND LIGHT RENTALS INC. (ALR)**

**SOUND REINFORCEMENT & REMOTE RECORDING  
SL, AR**

6902 Mt. View Rd., Greensboro, NC 27410  
(919) 668-7392

Contact: Jim Reece

**AUDIO UNLIMITED OF NORTH AMERICA, INC.**

**SOUND REINFORCEMENT & REMOTE RECORDING  
SL, ER, VR**

11 Battleground Ct., Greensboro, NC 27408  
(919) 274-4682

Contact: Jim Elliott

**Services Available:** Professional sound, lighting and video equipment in stock for sale, rent, or lease. Complete production services including PA, lighting, power, tops and rigging all under one roof. Company owned trucks for equipment transportation. Unique quick set-up and dual hung lighting trusses. Very high quality announcement PA for crowds up to one million. Sets up in one hour. Credits: Jackson Five, Alabama, HBO, World 600, various government agencies, theme parks, city festivals and fairs. International tours with #1 artists since 1968. Specialties: Street festivals with several outdoor stages. Large or complex remote broadcasts including outdoor championship prize fights. Sound and lighting for video of boat and auto races. Major touring.

**AUDIO VISUAL IMAGING, INC.**

**SOUND REINFORCEMENT  
SL**

7983 Twist Lane, Springfield, VA 22153-2823  
(703) 569-7646

Contact: Doug McCullough

**AUSTIN PRODUCTIONS & BLACK NIGHT RECORDING**

**SOUND REINFORCEMENT & REMOTE RECORDING  
SL, ER, AR**

8358 NW 14th Ct., Coral Springs, FL 33065  
(305) 752-7317

Contact: Brian Austin

**R.A. BEALMEAR, ARCHITECT**

**REMOTE RECORDING  
VR**

820 Sutton Hill Rd., Nashville, TN 37204  
(615) 298-5616

Contact: R.A. Bealmeare

**BREWSTER-TURNKEY SOUND AND VIDEO**

**SOUND REINFORCEMENT & REMOTE RECORDING  
SL, ER, AR**

2532 Langhorne Rd., Lynchburg, VA 24501  
(804) 528-4448

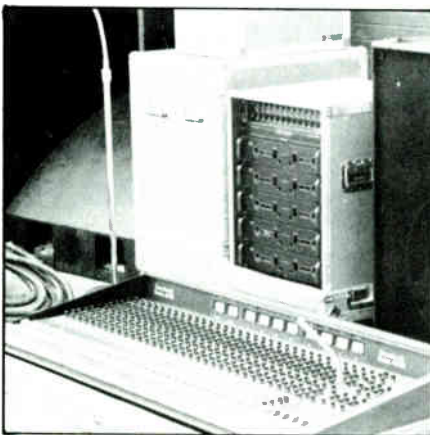
Contact: Gairy Lynch

**REMOTE RECORDING &  
SOUND REINFORCEMENT**



**SOUTHEAST**

Many of the listings in this directory also contain a code which indicates the specialties of each business: SO = sound reinforcement, LI = lighting, SL = sound and lighting, ST = staging, ER = equipment rental, AR = audio recording, VR = video recording, AV = audio and video recording.



**CETACEA SOUND INC.**  
Memphis, TN

**CETACEA SOUND INC.**

**SOUND REINFORCEMENT & REMOTE RECORDING  
SO, ER, AR**

2850 Lamb Place Suite #5, Memphis, TN 38118  
(901) 363-3856

Contact: John L. Fleskes

**Equipment:** Soundcraft 400B 32 x 8 x 2 Parallel & 400B 24 x 8 x 2 Parallel consoles. Shure SM57, 58 & 5B, 33 x 33 x 33 Gold Snake System 150 ft., 24 x 24 x 3 splitter, 100 ft., 6X send 150 ft., 18 QSC 3350 & 3500 amps, 4000 watt BGW & UREI monitor amps, 270 amp 250 ft. AC tap, Ursa Major 8 x 32 & Lexicon PCM 60 digital reverb, Lexicon PCM 41 & Effectron II & DOD 909 digital delays, dbx comp. & gates, White 1/2 octave EQ, 16 bass horns (dual 15 & 18s), 18 Bi-Radial horns (long, med., short w/24451), 10 wedges, splittable side-fills, all equipment is cradled in two-inch foam Anvil flight cases or reels, all electronics are fitted with Gold multi-pin connectors, fans are available for snake rentals.

**Services Available:** We are a new sound company, with the most up-to-date equipment available. We take a fresh, personal approach to every concert and client. Fine tuning (by Steve Durr & Associates) allows us to achieve a hot, clean, pure sound capable of great distances. Add a Gold 33X splitter snake, unlimited effects, awesome power, one of the fastest set-up/breakdown times around, and you've got a successful tour. We specialize in outdoor shows to 100,000 seats. Call or drop in, we'd love to see you.

**COUNTRYSIDE RECORDING**

**SOUND REINFORCEMENT & REMOTE RECORDING  
SO, AR**

13832 Chalmette, Baton Rouge, LA, 70810  
(504) 292-5227

Contact: Gary L. Terry

**DRUID CITY SOUND**

**SOUND REINFORCEMENT & REMOTE RECORDING  
SO, AR**

3511 18th St. E., Tuscaloosa, AL 35404  
(205) 556-3968

Contact: Jim Ingram



**FANTA**  
Nashville, TN

**FANTA**

**REMOTE RECORDING**

1213 16th Ave. South, Nashville, TN 37212  
(615) 327-1731

Contact: Johnny Rosen

**Equipment:** 40 input Sphere console, (2) Ampex 24 tracks, (2) Ampex 2 track AG440Bs, Ampex 4 track, Nagra 4.2L, 2 cassettes, Eventide 910 Harmonizer, (4) Valley People Dyna-Mite Dynamic Processors, (4) dbx 160s, (2) ADR Vocal Stressers, (2) UREI 1176, (2) dbx 163, Master-Room stereo reverb, McIntosh MC2105 amp, BGW, Sony and Pioneer amps, E-V Century 3s, JBL 4311, Auratones, 10 station/16 set earphone system, Clear-Com intercom, private channel 2-way radio, 17 channel mobile telephone, 5-line telephone system, color and B&W monitors, carry approximately 80 microphones, synchronizers for video lock-up.

**Services Available:** Fanta has added within the last year two additional mobile recording trucks. The Centra truck meets the needs of many of our clients who have smaller budgets but still require the quality of a Fanta remote. The third truck specifically meets the needs of dialogue recording for television and film.

**FOREGROUND MUSIC CO.**

**SOUND REINFORCEMENT  
SO, ER**

Box 4707, Shreveport, LA 71134-4707  
(318) 925-8996

Contact: Brett A. Causey

**FULL SAIL DREAM MACHINE**

**REMOTE RECORDING  
AR**

660 Douglas Ave., Altamonte Springs (Orlando), FL 32714  
(305) 788-2450

Contact: Jon Phelps

**FX SOUNDE COMPANY**

**SOUND REINFORCEMENT  
SL, ER**

6028 Greenhill Lane, Jacksonville, FL 32211  
(904) 744-4663

Contact: Stuart Neal

**GATOR SOUND**

**SOUND REINFORCEMENT & REMOTE RECORDING  
SO, ER, AR**

104 E. Main St., Houma, LA 70360  
(504) 851-4602

Contact: Chuck Postterry, Louis Eschete

**GEMINI CONCERT SYSTEMS, INC.**

**SOUND REINFORCEMENT  
SL, ER**

P.O. Box 2123, W. Monroe, LA 71291  
(318) 325-9940

Contact: Rick Ponthieux, Randy Pylant

**GRIP SOUND & LIGHTS**

**SOUND REINFORCEMENT  
SL**

623 Gailwood Lane, Nashville, TN 37214  
(615) 883-9179

Contact: Danny Ellis



**GVNUR PRODUCTIONS**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SL, AV  
 4607 Daleville St., Roanoke, VA 24012  
 (703) 563-5585  
 Contact: Michael Howard

**HARMONY MUSIC & SOUND SYSTEMS INC.**  
**SOUND REINFORCEMENT**  
 SO, ER  
 1303 Central Terrace, Lake Worth, FL 33460  
 (305) 582-2521  
 Contact: Bob Feltz

**HART SOUND & LIGHTING**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SL, ST, ER, AV  
 727 NE 2nd Ave., Ft. Lauderdale, FL 33304  
 (305) 463-4655  
 Contact: S. Barret Hart

**HI SEA MUSIC CO.**  
**SOUND REINFORCEMENT**  
 SO, ER  
 500 E. Spanish River Blvd., Boca Raton, FL 33431  
 (305) 392-3930  
 Contact: Harry Hallerkamp

**IMAGES INC.**  
**REMOTE RECORDING**  
 VR  
 1662 Stockton St., Jacksonville, FL 32204  
 (904) 396-6060  
 Contact: Bill Lewis

**JOYFUL NOISE SOUND**  
**SOUND REINFORCEMENT**  
 SL, ER  
 3206 Valley Lake Dr., Greensboro, NC 27410  
 (919) 668-2091  
 Contact: Ron Massengale

**LEE SOUND ENGINEERING**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SO, AR  
 719 McGowan Rd., Chattanooga, TN 37411  
 (615) 698-7334  
 Contact: G.C. Lee, Jr.

**LIGHTHOUSE PRODUCTIONS**  
**REMOTE RECORDING**  
 AR  
 2979 Inverness Pkwy., Memphis, TN 38115  
 (901) 365-9933  
 Contact: Bill Thorne

**L' PRODUCTIONS**  
**SOUND REINFORCEMENT**  
 LI  
 325 Cloverwood Dr., Nashville, TN 37214  
 (615) 883-3010  
 Contact: Larry Wilson

**MAS PRODUCTIONS, INC.**  
**REMOTE RECORDING**  
 VR  
 P.O. Box 727, Miami, FL 33197  
 (305) 949-6554  
 Contact: Mike Mas

**MASTER-TRAK SOUND RECORDERS**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SO, ER, AR  
 413 N. Parkerson Ave., Crowley, LA 70526  
 (318) 788-0773  
 Contact: Mark Miller

**MOBILE AUDIO**  
**REMOTE RECORDING**  
 AR  
 P.O. Box 6115, Rome, GA 30161  
 (404) 232-7844  
 Contact: Rick Norvell

Equipment: 45' air-ride trailer, 20' x 8'3" control room, 15' x 8'3" lounge. Tape recorders: (2) Otari MTR-90 II 24 track, Otari MTR-10 4 track, Otari MTR-12 2 track, Sony TCFX 1010 cassette deck. Sound Workshop Series 34 balanced 36 in x 24 console, Haller DH500s and DH220s power amps, Lexicon 200 digital reverb, Valley People 430 Stereo Dyna-Mites and 431 Dyna-Mite/Dyna-Mike combo, dbx 160 limiters, Audioarts 4200A stereo parametric EQ, Valley People HH 2 x 2 units, Fostex LS3B monitors, Electro-Voice 100A monitors, Auratone 5C monitors. Panasonic 3400 color camera and (3) Panasonic BTS 1900 color monitors, BTX Softouch synchronizer, Cypher, and Generator/Reader, patch bay for any additional outboard gear upon request. 300 ft. video snake, 450 ft. 42 pair audio snake.  
 Credits: Prince & The Revolution Tour 84/85 in conjunction with Remote Recording Services, Inc., The Newport Jazz Festival, Sheila E., DIR Broadcasting, Kris Kristofferson, B.B. King, The Alabama Music Hall of Fame Awards, a multitude of P.B.S. television specials, the Austin Music Festival, C.B.N. television special, other artists in 84 were: The Judds, Toney Carey, Dizzy Gillespie, Stan Getz, Dwight Twilley, Ray Stevens, Earl Thomas Conley, Jerry Jeff Walker, and Univ. Album projects.

**OAP AUDIO & LIGHTING**  
**SOUND REINFORCEMENT**  
 SL  
 310 Peachtree Industrial Blvd., Buford, GA 30518  
 (404) 945-1028  
 Contact: Michael O'Rourke, Rusty Sheorn

**RICK PAINTER SOUND SYSTEMS**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
 SL, AR  
 2826 Iroquoia Ave., Jacksonville, FL 32210  
 (904) 388-7649  
 Contact: Rick Painter

**PARADISE PRODUCTIONS**  
**SOUND REINFORCEMENT**  
 SL  
 P.O. Box 1295, Albemarle, NC 28002  
 (704) 982-6508  
 Contact: Frank Poolos



# The Incomparable Direct Box

**Bruce Swedien**—1984 Grammy Award winning engineer of Michael Jackson's "Thriller" album; and engineer for Quincy Jones, James Ingram, Sergio Mendez, Missing Persons...on the DI-100 Direct Box:

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 "I like to use it with synthesizers. What I do is take an output from the synthesizer, and because the DI-100 is capable of Line Level, I run it right into the tape machine...straight through...by-pass the console totally! It works great! Oh...and you know what else I really like about it?...that little gain control...that's handy!"  
 The DI-100... "it stays right with me, I won't give it up!!!"

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 WONDERLAND STUDIOS—LOS ANGELES  
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 ANN-MARGRET SHOW  
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 New Haven Goldie Libro Music  
 Stamford Audiotechniques  
 W Hartford La Salle Music  
**FLORIDA**  
 Jacksonville New Hope Sound  
 Miami Harris Audio  
 Tampa Paragon Music  
**GEORGIA**  
 Smyrna The Music Mart  
**INDIANA**  
 Evansville Dallas Music Pro Shop  
 Indianapolis Indy Pro-Audio  
**MASSACHUSETTS**  
 Boston E.U. Wurlitzer, Inc.  
 Brockton Scorpio Sound

**MASSACHUSETTS (Continued)**  
 Dalton Berkshire Pro-Audio  
 Watertown La Salle Music  
**MICHIGAN**  
 Saginaw Watermelon Sugar  
**MINNESOTA**  
 Savage LaVonne Wegener Music  
**NEVADA**  
 Las Vegas Celestial Sound/Light  
**NEW HAMPSHIRE**  
 Hempstead NEAT  
**NEW YORK**  
 New York Audiotechniques  
 New York Martin Audio Video  
 New York Night Owl Music Supply  
**NORTH CAROLINA**  
 Granat Falls Fantasy Music  
**OHIO**  
 Cleveland Central Music Exchange  
 Dayton Hauer Music  
**OREGON**  
 Portland Portland Music

**OREGON (Continued)**  
 Portland RMS Sound  
**PENNSYLVANIA**  
 Philadelphia Tekcom Corp.  
**SOUTH CAROLINA**  
 Charleston Fox Music  
**TENNESSEE**  
 Nashville Valley Audio  
**TEXAS**  
 Austin Xeno Sound, Inc.  
 Dallas Avrom  
 Dallas Gemini Sound  
 Fort Worth Sierra Recording  
 Houston L D Systems  
**WASHINGTON**  
 Bellevue Guitars Etc.  
 Seattle RMS Sound  
**WEST VIRGINIA**  
 Charleston Appalachian Sound  
**WISCONSIN**  
 Waukesha Flanners Pro-Audio



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Circle #159 on Reader Service Card

## REMOTE RECORDING & SOUND REINFORCEMENT



### SOUTHEAST

Many of the listings in this directory also contain a code which indicates the specialties of each business: **SO** = sound reinforcement, **LI** = lighting, **SL** = sound and lighting, **ST** = staging, **ER** = equipment rental, **AR** = audio recording, **VR** = video recording, **AV** = audio and video recording.

**PARADISE SOUND**  
SOUND REINFORCEMENT  
SL, ST, ER  
7918-A Shoals Dr., Orlando, FL 32817  
(305) 671-9543  
Contact: Larry Epstein

**MICHAEL PETRUZZI**  
SOUND REINFORCEMENT & REMOTE RECORDING  
SO, ST, AR  
6701 33rd Ave. N., St. Petersburg, FL 33710  
(813) 381-3217  
Contact: Michael Petruzz

**PLATINUM PRODUCTIONS OF CENTRAL FLORIDA, INC.**  
REMOTE RECORDING  
AR  
6427 Undine Way, Orlando, FL 32818  
(305) 298-3917  
Contact: Michael Creamer

Equipment: Within a converted 22' Winnebago motor home: Sound Workshop Series 30 console; Otari & TEAC tape machines; E-V, Auratone, & Crown monitoring systems; Lexicon 200 reverb; Roland SDE1000 digital delay; Valley People Dyna-Mite (4 stereo); dbx 160 & 162 compressor/limiter; microphones by Neumann, Sennheiser, Shure, E.V. 250' 27 pair, 9 pair snakes with active splitting system; Clear-Com communications, B&W video monitoring.  
Services Available: Audio recording/mixing for multi-track, video, and broadcast productions. Rates and further information available upon request.

**POSSUM PRODUCTIONS**  
SOUND REINFORCEMENT  
SO  
1211 Ducharme Rd., Opelousas, LA 70570  
(318) 948-1217  
Contact: Duncan Thistlethwaite

**PROFESSIONAL CONCERT SERVICES**  
SOUND REINFORCEMENT & REMOTE RECORDING  
SL, ER, AR  
120 Park St., Tupelo, MS 38801  
(601) 842-0300  
Contact: J. Mark Hale

**PROGRESSIVE MUSIC STUDIOS**  
REMOTE RECORDING  
AV  
2116 Southview Ave., Tampa, FL 33606  
(813) 251-8093  
Contact: Ken Veenstra

**RAM SOUND**  
SOUND REINFORCEMENT  
SL, ST  
10 Arlington Dr., Tuscaloosa, AL 35401  
(205) 759-5284  
Contact: Bob McTyre

**RAVEN AUDIO**  
SOUND REINFORCEMENT  
SL, ER  
1918 Wise Dr., Dothan, AL 36303  
(205) 793-1329  
Contact: Jerry Wise

**REAL TO REEL RECORDING STUDIO**  
SOUND REINFORCEMENT & REMOTE RECORDING  
SO, ER, AR  
970 E. Lake Dr., Bartow, FL 33830  
(813) 533-4650  
Contact: Stan Warren

**REELSOUND RECORDING CO. (East Div.)**  
REMOTE RECORDING  
AR  
3400 Spring Brook Dr., Nashville, TN 37204  
(615) 385-0220  
Contact: David Perkins

Equipment: 36' 1948 Fltix bus audio unit, lounge room. MCI 428 LM console, Ampex AM-10 6 input mixer, Valley transamp mic-press. MCI JH-116 24 track recorder, Ampex 400B 2 track, Aiwa dual cassette deck, DL-2, MICMIX reverb, UREI dual 9 band graphic, Allison rack 4 gain brains, 4 Kepexes, 2 dbx 160 limiters, RTS intercom, Sony color monitor and camera, Crown power amps, JBL 4401 monitors and 4413s, E.V., Shure, Neumann, AKG, Countryman, Sennheiser, PZM microphones, 32 input Jensen splitter, 220 feet of snake, 200 feet of power snake. Digital multi-track and 2 track now available.  
Services Available: 24 track remote recording for live and studio albums, radio syndications, TV and film audio support. DIR Broadcasting, Westwood One, RKO Network, MTV, NPC network, Capitol, Epic, MCA, Word, Bensen Co., Savoy records. Journey, Genesis, ZZ Top, Ted Nugent, The Gap Band, Frankie Beverly and Maze, 38 Special, Todd Rundgren, Judas Priest, Christopher Cross, Alabama, Oak Ridge Boys, Willie Nelson, Amy Grant, DeGarmo and Key Band, David Meece, Steve Camp, Rick Cua, Leon Patillo, Rev. James Cleveland, Mike Warnke, Triumph, John Waite, Zebra, Dolly Parton, Bill Gaither Trio, Truth, Farrell and Farrell, B.J. Thomas.

**REGAL RECORDS**  
SOUND REINFORCEMENT & REMOTE RECORDING  
SO, ST, AR  
Rt. 2 Box 91-D, Joelton, TN 37080  
(615) 746-8994  
Contact: R.L. Erickson

**TW RICH**  
SOUND REINFORCEMENT  
SO, ST  
P.O. Box 6252, Lake Worth, FL 33466  
(305) 439-4592  
Contact: Thomas D. Rich

**RM AUDIO FABRICATORS**  
SOUND REINFORCEMENT & REMOTE RECORDING  
SO, ER, AR  
2528 Chamblee Tucker Rd., Atlanta, GA 30341  
(404) 458-6000  
Contact: Lou Simmons, John Tyler  
Equipment: Remote Recording; 29' customized Ford truck w/16 track MCI recorder; trackside custom console w/Jensen trans., Lexicon 200 digital reverb, MDM-4 ref monitors, McIntosh, AB, Mitsubishi power amps, dbx limiters & noise reduction; Orban, UREI, Audioarts, EQs; Sennheiser, AKG, Beyer, Shure, E-V mikes. Sound reinforcement: JBL 15s, 12s, 5s, and Phillips tweeters in custom direct radiating cabinets; McIntosh & BGW power amps; Shure, E.V., Sennheiser, mikes Tangent, Tapco mixing boards, medium (2000 seat) size PA that sounds great. David Grisman, Grinderswitch, Dave Bromberg, Grass Roots, Tracy Nelson, Leon Redbone.  
Services Available: Heartfixers "Live from the Moonshadow", Sinister Angel, Glenn Phillips Band "Live", Stone Mountain Band, Spies of Life, John Scully, Blues for BIFIDA, and more. Anything available! Mike splitters, snakes, stands, amps, effects, anything you need for live sound—live album. You choose the location and we'll roll tape! Coming soon, video capability.

**ROADWORK PRODUCTIONS**  
SOUND REINFORCEMENT  
SL, ER  
1120 Elm Hill Pike Suite #160, Nashville, TN 37210  
(615) 256-9957  
Contact: Greg Horn

Services Available: Sound & Lights, to go. House monitor systems by Soundcraft, JBL, Yamaha, Eastern Acoustics. Lighting system by CAE, Universal Truss. Speaker reconing, instrument rentals, custom wiring, custom cases, Sylvania theatrical lamps, full (in-house) production services, ground support or flown rigging, trucking. Credits include: Conway Twitty (production for over 400 shows), Bobby Womack, Millie Jackson, Grace Jones, Ronnie McDowell, Reba McEntire, Al Green, The Hensons, The Mighty Clouds of Joy, Eddie Rabbit, Earl Thomas Connelly and the Nitty Gritty Dirt Band. Quality and flexibility are our highest goals so don't hesitate to call us the next time you require production.

**ROADWORX AUDIO & LIGHTING SPECIALIST**  
SOUND REINFORCEMENT & REMOTE RECORDING  
SL, ER, AR  
913 S. Chapman St., Greensboro, NC 27403  
(919) 292-2486  
Contact: Hugh Sarvis



**SAM'S TAPE TRUCK**  
**REMOTE RECORDING**  
AR  
2785 Osborne Rd. NE, Atlanta, GA 30319  
(404) 237-9075  
Contact: Joe Neil

**SCOTT SOUND CO.**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
SL, ST, ER, AV  
P.O. Box 374, 10 Stewart Circle, Liberty, SC 29657  
(803) 855-1660, (919) 579-7242  
Contact: Tom Scott Sr

**SERIOUS SOUND, INC.**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
SL, ER, AR  
P.O. Box 50183, Columbia, SC 29250  
(803) 794-9300  
Contact: Doug Baker



**SERIOUSLY SOUND**  
Atlanta, GA

**SERIOUSLY SOUND**  
**SOUND REINFORCEMENT**  
SL, ST, ER  
492 Armour Circle, Atlanta, GA 30324  
(404) 624-3665 (24 hour)  
Contact: David Lowell

Equipment: Concert sound reinforcement: Hill Audio sound system J-Series 3 house console 40 x 8 x 2; M-3 1000 watt 4-way flying speaker cabinets; TX-1000 3-way tri-amplifiers 600 bass 350 mids 350 highs; stereo 3-way crossovers; Klark-Teknik equalizers; Lexicon delay; digital reverb; real time analyzer; Symetrix compressor/limiters. Monitor system: Hill M-Series 3 monitor console 24 x 8; Renku: Heinz wedges; JBL wedges; 3rd octave equalizers on outputs; M-3 1000 watt side-fill cabinets; DX-700 stereo power amps 400/4 ohms, Shure, AKG, E-V microphones. The system is completely modular in design. This feature combined with our nationwide equipment inventory enables Seriously Sound the capability to operate in any size venue.

**Services Available:** Seriously Sound provides complete concert production: sound, lighting, stage equipment and crew. A full concert size rehearsal hall is available for pre-production rehearsals in Atlanta. The pre-production facility has full video monitoring for rehearsal playback. Seriously Sound has a full inventory of specialized equipment: Simmons drums, Yamaha CP-70, DX7 & DX9, LinnDrum 9000, Boogie guitar amps, Kurzweil 250 synthesizers and other current state-of-the-art equipment.

**SONGBIRD STUDIO**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
ER, AR  
1715 DeLoor Ave., Atlanta, GA 30318  
(404) 351-5955  
Contact: Richard Head

**S.O.S. ROAD EQUIPMENT**  
**SOUND REINFORCEMENT**  
SO, ER  
P.O. Box 391, Maryville, TN 37803  
(615) 984-9120  
Contact: Roger Schmidt

**Services Available:** We are a Christian sound company, catering to the needs of the professional performer. We can supply compact, efficient sound systems for the club or concert performer. We specialize in serving contemporary Christian groups on typically tight budgets. We can fill sound reinforcement needs ranging from churches to auditoriums to outdoor concerts. We also build high quality custom flight cases for sound gear and instruments.

**SOUND PROPAGATION, LTD.**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
SL, ST, ER, AR  
4921 Airline Hwy., Metairie, LA 70001  
(504) 833-9892  
Contact: David Humphreys

**SOUND SENSATIONS**  
**SOUND REINFORCEMENT**  
SO  
1010 Henderson Rd. Suite 4H, Huntsville, AL 35805  
(205) 830-2604  
Contact: Ivan Rodenck Brooks

**SOUNDS UNREEL STUDIOS**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
SO, ER, AR  
1902 Nelson, Ave., Memphis, TN 38114  
(901) 278-8346  
Contact: Jon Hornyak, Don Smith

**STEREO SALES AND AUDIO REPAIR SERVICE**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
SO, ER, AR  
637 W. Tennessee St., Tallahassee, FL 32301  
(904) 224-2635  
Contact: W.T. Menasco

**STUDIO 80**  
**REMOTE RECORDING**  
AV  
311 Margo Lane, Nashville, TN 37211  
(615) 834-4124  
Contact: Jade Brooks

**TRI-PHASE PRODUCTIONS, INC.**  
**SOUND REINFORCEMENT**  
SL, ST, ER  
132 Willowbrook Dr., Gretna, LA 70053  
(504) 394-3794  
Contact: Kurt Parsons

**TYCO SOUND**  
**SOUND REINFORCEMENT**  
SO  
2530 Shallowford Rd. NE #105, Atlanta, GA 30345  
(404) 325-1002  
Contact: Tim Youngker

**URANIAN CIRCUS SOUND STUDIOS**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
SO, AR  
P.O. Box 593, Misenheimer, NC 28109  
(704) 463-5783  
Contact: Jeff Balfrey

**VIDEO CENTRAL INC.**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
ST, ER, AV  
7101 Biscayne Blvd., Miami, FL 33138  
(305) 751-0637  
Contact: Earl Wainwright

**WEST MONROE MUSIC & ELECTRONICS**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
SL, ST, AR  
P.O. Box 184, West Monroe, LA 71291  
(318) 323-1590  
Contact: Dennis O'Neal

**WILLCUTT GUITAR SHOPPE, INC.**  
**SOUND REINFORCEMENT**  
SL  
419 Rosemont Garden, Lexington, KY 40503  
(606) 276-2713  
Contact: Bob Willcutt

## REMOTE RECORDING & SOUND REINFORCEMENT



### CANADA

Many of the listings in this directory also contain a code which indicates the specialties of each business: SO = sound reinforcement, LI = lighting, SL = sound and lighting, ST = staging, ER = equipment rental, AR = audio recording, VR = video recording, AV = audio and video recording.

**ALLSTAR SOUND EQUIPMENT LTD.**  
**SOUND REINFORCEMENT**  
SO  
11212 143rd St., Edmonton, Alberta, Canada T5H 2Z9  
(403) 452-2546  
Contact: Clive Alcock

**AUDIO CONCEPT INC. (A.C. INC.)**  
**SOUND REINFORCEMENT**  
3400 Blvd. Loesch, Unit 14  
St. Hubert Quebec, Canada J3Y 5T6  
(514) 445-2662  
Contact: Daniel Angers, Jacques Tessier

**BAND-AID SERVICES**  
**SOUND REINFORCEMENT**  
371 B Danforth Rd.  
Scarborough Ontario, Canada M1L 3X8  
(416) 690-3343  
Contact: Steve Byron

**CARLETON PRODUCTIONS**  
**REMOTE RECORDING**  
1500 Merivale Rd., Ottawa, Ontario, Canada K2S 6Z5  
(613) 224-1313  
Contact: Bill Graham

**COMFORT SOUND 24 TRACK MOBILE**  
**REMOTE RECORDING**  
26 Soho St., Ontario, Canada M5T 1Z7  
(416) 593-7992  
Contact: Doug McClement

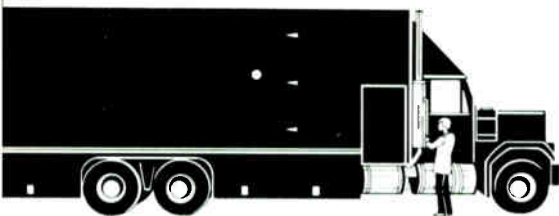
**KELLY DEYONG SOUND SERVICES**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
271 E. 2nd Ave., Vancouver, B.C., Canada V5T 1B8  
(604) 873-3841  
Contact: Rick Bellefleur

**MUSIC EQUIPMENT SALES**  
**SOUND REINFORCEMENT & REMOTE RECORDING**  
34 Parkdale Ave., N. Hamilton, Ontario, Canada L8H 5W8  
(416) 545-0404  
Contact: Bill Longley

Equipment: Speakers, Klipsch professional and Gauss 4-way concert systems; Mixing console: Soundcraft, Bump 6 to 32 inputs; Amplifiers: BGW, Blamp, Bose, Crown, Fostex, HH, Tapco, QSC; Tape recorders: Tascam, Fostex 2, 4, 8 & 16 track; Mikes: AKG, E-V, Fostex, Shure, Audio Technica; Outboard equipment: Aphex, Bump, DeltaLab, Ibanez, Symetrix.  
**Services Available:** Concert sound reinforcement. Location recording - 2, 4, 8 & 16 tracks. Complete crews available. Stage lighting. Fast, efficient repair service. Instrument and amp rentals.

**PIERCE SOUND**  
**SOUND REINFORCEMENT**  
SL  
411 Industrial Rd, Unit #6, London, Ontario, Canada N5V 3L3  
(519) 455-7041  
Contact: Ray & Bev Pierce

Let Mix classifieds  
work for you!  
(See page 191.)



—FROM PAGE 45, LOCATION

ranged and tested in advance. A mixing desk with appropriate subgrouping is essential for this.

**Intercommunications:** Various forms of intercommunication may be required. Each area of the production may have different needs for communication. Be sure to keep these lines separate and discrete from the program feeds, to avoid cross-talk or interference. It is best to use separate cables for these signals; whenever possible, colorcode these cables to facilitate instant identification by everyone on the site.

**Spare Lines:** Plan to have a few spare transmission lines available between all locations.

**Calibration Tests:** Plan sufficient time to send appropriate calibration signals to all areas so that all equipment may be properly aligned. This should be done well in advance of the start of the session, to allow time for trouble-shooting (if necessary).

## CONCLUDING THE SESSION

**Logs and Labels:** Be sure that all tapes are properly labelled, logged, and securely packaged.

**Client Copies:** At the end of the session, present the client with the reference recording and a copy of the tape log. Take some time to discuss any questions he/she may have about the session or subsequent procedures.

**Master Tapes:** When packing up the session, be sure to securely package the master tapes together with the tape log forms, programs, and any other related materials. Clearly identify this package of tapes on the outside with the following information: the name of the program/client, the date of the session, the job number, and the format of the tapes.

## THE STRIKE AND LOAD-OUT

**Protocol:** Pack up as quickly and quietly as possible, and leave the recording site clean and free of litter. Return any borrowed furniture to its original location. Double check for any forgotten equipment. Be sure to check out with site liaison personnel and thank them for their

assistance and cooperation.

**The Equipment:** As the engineer in charge of the session, you are responsible for the safety and well-being of the equipment during the session. Any technical problems experienced with the equipment should be noted and dealt with immediately upon return to home base. Routine cleaning of tape machines is the responsibility of the engineer, and should be done both before and after every session.

## EQUIPMENT LISTING

### RECOMMENDED EQUIPMENT FOR A REMOTE RECORDING SESSION:

It is a good idea to make up a general checklist of all equipment you will be using on the session, and then go over it as you load up to go. Checking the list again, during load out, will minimize the possibility of leaving something behind.

The following list is a recommendation of what should go along on a "well equipped" session:

**Microphones:** Sufficient number and type to cover the session adequately as planned, with extras for backup or additional coverage; complete with appropriate windscreens, stand adaptors, special cables and power supplies (if needed), and any other necessary accessories.

**Microphone Accessories and Stands:** Sufficient number and type to appropriately support all of the microphones, with extras for backup or additional coverage; a supply of "stereo-bars," clamp adaptors, shock-mounts, goosenecks, and similar accessories is also often useful.

**Cables:** Sufficient supply to cover the session, with extras for backup or added coverage; a variety of lengths—both short and long—as well as multi-mike "snakes" should also be available as appropriate. As a rule, you cannot have too much cable with you on a remote.

**Mixing Desk:** Select one which is appropriate for the specific project; complete the power supply and cables, special interface cables, and any specific or necessary accessories.

**Noise Reduction:** Sufficient number of units to provide for all channels to be recorded, plus at least one spare channel, if possible; complete with any appropriate power supplies and cables, interface cables, and accessories.

**Recorders:** Mastering recorder(s) and reference copy recorder(s); complete with dummy plugs (if needed), NAB reel adaptors, power cords, remote control units (if needed), special interface cables, spare fuses, and any other items specifically needed for the operations of these machines.

**Accessory Equipment:** Limiters, compressors, or other signal processing devices for use in the program chain; complete with appropriate power supplies and cables, special interface cables, and accessories.

**Monitoring Equipment:** A good set of isolating headphones is a bare minimum; a power amplifier, loudspeakers, interconnecting cables, spare fuses, etc. are all determined by the requisites of the session.

**Intercommunications Equipment:** A base station with an appropriate number of belt-packs, headsets and/or handsets, special cables, etc.

**Test Equipment:** An oscillator (if not part of the mixing desk) for generating calibration tones, an oscilloscope for monitoring L/R phase coherence, and a set of peak-meters (if not part of the mixing console) to monitor levels are the minimum complement of necessary test equipment—complete with appropriate power cords, interface cables and adaptors. (Additional equipment which might prove useful in an emergency: an alignment tape and an ACVM.)

**Adaptors and Cables:** A wide variety of adaptors and interconnect cables is an absolute necessity! There is no specific list, but be prepared to interface anything to anything! Whatever you think you might need, take two. Whatever cables you expect to use, take more . . . And more still.

**A.C. Power:** Absolute minimum: three 50-foot (minimum 16-gauge) power cords; multi-outlet power strips (sufficient to provide at least three outlets more than the equipment needs); two additional "cube-taps;" two ground-lift adaptors.

Additional items recommended: AC-isolation transformer (with sufficient ampacity to carry the expected load with a safety margin); AC surge suppressor and power-line filter; AC "variac;" extra power cords, extensions, and fuses.

If the session is in a foreign country, a 220:110 VAC step-down transformer, a supply of international power-plug adaptors, and a variac are essential. *Don't rely on the loca-*

—PAGE 194



**Business Opportunities**

**TRACKS WANTED!**  
**INSTRUMENTAL MUSIC**  
**TRACKS WANTED:** We pay cash for cleared trks. All styles/lengths. Submit inquiries to PMW, Box 947, Bryn Mawr, PA. 215-825-5656

**OPEN YOUR OWN RECORDING SCHOOL!** DAWN AUDIO is now offering the opportunity for qualified individuals to open a professional audio engineering school! \*Everything from state approved courses to computerized business systems, \*complete operations manual, \*personalized training program, \*state teaching license, \*marketing & advertising package. **LOW INVESTMENT/HIGH PROFIT.** For more info. call or write Dawn Audio, 756 Main St., Farmingdale, NY 11735, (516) 454-8999.

**Employment Offered**

**Recording Engineer-Manager.** State-of-Art (24 trk) studio under construction in Shreveport, WA with opening about Aug. 1st. Seeking exp. engrngmr with impeccable character and reputation as #1 man with strong trade following interested in profit sharing. Reply W.C. Wheat, 320 Berkshire Pl, Shreveport, WA 71106 (318) 868-8873.

Major Midwest recording studio seeks qualified engineer. Must have experience with video sweetening as well as 24 trk. 5 years experience required. Send resume, salary requirements, support materials to: Mix Classified, P.O. Box 2526, Berkeley, CA 94703.

**Equipment For Rent**

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 AUDIO FOR VIDEO • TIME CODE  
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**Equipment For Sale**

**FOR SALE:** MCI 528B highly modified. Tres Virgos Studios (415) 456-7666.

**State-of-the-Art IBM MIDI Recorder**  
 Licensed free to a limited number of users for evaluation. Recording musician or studio preferred. Send brief description of equip. to Robert Keller, 357 E. 15th, Eugene, OR 97401.

Looking for Eventide SP-2016 or H9497 Space Station Banner RTA ADR Scanner. Need AKG, BGW, dbx, E/V, Neumann, Orban, Sennheiser, Shure, Technics, UREI or White products? Call UAR for the best quote: (512) 690-8888, 8535 Fairhaven, San Antonio, TX 78229.

**LOW OVERHEAD MEANS LOWEST PRICES.** We carry most major lines of pro audio & recording equipment. **Get your best price, then call me.** 3M Tape and accessories at factory prices.  
**S.C.M.S.**  
 East U.S. Toll free: **(800) 438-6040**  
 West & N.C.: (704) 889-4509

Sam Ash Music Store Mail Order Service. Deal with the professionals. N.Y.C.'s largest inventory and best prices on musical instruments, sound and recording gear. 1-800-645-3518. N.Y. State 1-800-632-2322.

**SYNTHESIZER BLOWOUT!** Tired of impersonal service? You **think** you're getting your best deal? Try Starsound Audio for free! 1-800-354-7252. Fluid synthesis spoken here. Studio mixer, \$1,500; Tascam Model 10 \$500. Most major lines in stock. Call for free studio gear hot sheet. Crown, T.E.F. analysis available IN YOUR STUDIO or here. David, Tom, Scott or Bob.

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 Modules—Equalizers—Parts  
 Factory Warranty! Immediate delivery at **CLOSEOUT PRICES!** For further information call:  
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 1446 N. Cherokee Ave.,  
 Hollywood, California 90028  
 (213) 469-9593 Telex 910-321-4465

**SIGMA SOUND STUDIOS GREAT EQUIPMENT BUYS:**  
 24, 2 tr recorders, console automation, synchronizers, hi speed dupe equip plus lots of audio processing gear.  
 Call or Write:  
 212 N. 12th St., Phila., PA 19107  
 (215) 561-3660

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 16 voice, 40K memory, two pedals, ATS flight cases, up to date software, one disk drive. Call Bob (212) 206-8560.

**NEOTEK SERIES III:** 28x24 with 16 busses, 6 echo returns custom "pre-return" submaster fader, extra patch bay, producer's desk, leg set, patch cords, spare parts, exc. cond. White 32-band EQ's \$550 ea. 312-864-4460.

**FRANKFORD/WAYNE DISC MASTERING EQUIP SALE**  
 We're Overstocked! with Lathes, Stereo Cutterheads - Complete Disk Mastering Systems... Cheap!!!!!! Frankford/Wayne Mastering Labs. 134 N. 12th St., Philadelphia, PA 19107, (215) 561-1794.

**VINTAGE MIKES**  
 Call Bill Bradley  
 (312) 751-1216  
 28 channels dbx noise reduction w/ 310-D modules; \$7500. Eventide 1745M w/2 delay lines & 1 pitch changer; \$1500. MXR pitch transposer w/readout \$600. Moog parametric EQ; \$200. 601-956-8226 day; 601-992-1933 night. Sell or TRADE.

**DANBURY ELECTRONIC MUSIC CENTER,** 84 Federal Road, Danbury, CT, 06810, (203) 792-2794. New England's oldest and most experienced Tascam dealer. All professional recording equip. and supplies from stock plus widest selection of electronic keyboards including Yamaha DX-PF.

**SUNSET SOUND SPECIALS**  
 (2) Studer A710 cassette decks brand new & unused; (1) Sony TC-854-4 4-track 1/2"; (1) 3M model M79 24-track; (2) 3M model M79 2-track; (1) 3M series 410 model 64 2 track; (1) Revox A-77 1/4" 2-track; (1) B&B "The Grouper" 24-track grouper system; (1) Kepex power rack; (2) Custom formica lockable studio microphone cabinets: Holds 40-60 mikes & power supplies ea. **MANY 3M TAPE MACHINE SPARE PARTS** (100) API 550A-1 3 band EQ's. **CALL OR WRITE FOR PRICES!** **SUNSET SOUND,** 6650 Sunset Blvd., Hollywood, CA 90028. (213) 469-1186. Ask for CRAIG or PAUL.

**LOW COST EQUIPMENT** due to our studio expansion and direct importing. 16-8-4-2-Track decks. 1" 8 Track under 3K. 16 for 5K to 7K, Mikes, outboards, more. Call WAYNE at AUDIO VILLAGE, PO Box 291, Bloomington, IN 47402. (812) 332-7475.

Quality British & European equipment: Soundcraft, Audio + Design/Calrec, Beyer, Milab, etc, new & used. Rock bottom prices due to strong dollar. Send for lists: Sound Control, 10 Donegall Park Avenue, Belfast, BT15 4ET, N. Ireland. Or call: +44 232 772491.

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 Your national clearinghouse for used audio and video! Call for free copy of our latest listings, or to list your used gear free.  
 The Bertech Organization  
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**THINK BERTECH FIRST!**

**For Sale:** Allen-Heath 16-4-2 mixing console. One yr. old—has only been used in studio. Travel case. Excellent condition. Price negotiable—**MUST SELL!!** Mike Beck (501) 663-8890.

Stephens 821A 24 tr \$17,500 obo; Speck Electronics SP800C 32x32x16 x32 console w/3 band sweep EQ, +4 operation \$7750 obo; Steinway grand \$5500 obo; AKG BX10 \$950 obo; Dokorder 1140 1/4" 4 tr \$600 obo; Tangent 1202ax \$825 obo (213) 462-6477 Rusk.

**USED/DEMO EQUIPMENT SALE**  
 Tascam 8516B w/locator, 80-8 w/DX8, Ecoplate II, Otari MKIII 2 tr w/locator, Otari OCF duplicator, Neumann U64s, Nagra IV-S, Also SOUNDSCRAFT, LEXICON, OTARI, NEOTEK, TRIDENT, UREI, ORBAN, EVENTIDE...  
**E.A.R. PROFESSIONAL AUDIO**  
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Studer A80 Mark III 24 tr new, unused w/auto loc. & support parts. Ampex MM1200 16 tr w/auto loc, Soundcraft 1624 mixer, fully loaded, all items, immaculate condition. SoundTech, 20 Mountview Lane, Unit C, Colorado Springs, CO 80907 (303) 528-8388, Attn: Chris or Jeff.

**SOUND STUDIO**  
 For Sale by AV firm: complete, functioning in-house sound studio. Tascam Model 5 console; Ampex half-inch 4-track recorder AG 440; Ampex 354 TR Sport; & much more. \$11,500. Call Ed: (312) 664-6247.

**16 TRACK STUDIO FOR SALE**  
 Turnkey package with lease or will sell group separately. AMPEX, MCI, SOUNDWRKSHIP, AKG, LEXICON, OTARI, SONY, etc. Clean. Established reputation. Info: 489 1/2 Cavour St. N Oakland, CA 94618 (415) 655-2110.

Amek 2500 console 36 input, 24 plus 6 out, near mint condition; full parametric EQ continuously variable w/ 3 dB detents; extra patch points; 6 aux sends and returns; automation ready; 10 grouping busses; XLR snakes available. (213) 462-0000.

API Console 32 in, 16 out, 554 EQs, 5 groupers. Good condition. In use at Larrabee Sound. Call (213) 657-6750.

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1 pair JBL 4333 studio monitors, \$900, excellent shape. Call Charlie (904) 576-4741.

Tascam 90-16 16-track recorder w/full remote, dbx & auto loc. Excellent condition. Will include alignment tapes, \$8,600. Call Kurt at (215) 642-2346.

Speck Electronics 32-channel mixing console including mainframe, 32 in/out modules, 2 master output modules, 1 communication module, 20 VU meters, 384 point patch bay, dual power supply and wiring harnesses. 4 years old. Cost \$18,000 +. Asking \$9,000. MCI JH10-16 16-track 2" tape recorder w/auto-locator I & remote control \$8,000. 400' 36-channel audio snake in 2 sections \$1,000. Ursa Major Space Station \$975. Omni Craft GT-4 noise gates 2 @ \$275 ea. Altec 9849-8A compact studio monitors \$500/pair. Tannoy SRM12B "Little Red" monitors \$450/pair. dbx #162 stereo comp/limiter \$450. BGW stereo power amps: #250B-\$200, #100B-\$150, #75-\$150, #103 pre-amp \$150. Call or write: Dave Player, (601) 373-8577, 350 Savanna St., Jackson, MS 39212.

MCI JH-114 24/16 trk tape machine, Studer A80 2 trk 1/2" / 1/4" tape machine, Ampex 440C 1/4". Accessories included. Pkg. \$25,000. Contact Robyn (212) 226-4278.

### STUDIO FOR SALE AT UNBEATABLE PRICE

Tascam 85-16B & Model 16 console, w/dbx & access, many effects (e.g., UREI comp-lim, delays, reverbs, Aphex) PLUS entire keyboard stack incl. Emulator, Oberheim OB-Xa, DSX Seq., DMX drums, more extras, low hrs, all immaculate, 18 months young. All under \$23,000, or sell in parts. 317-874-1527 - Ken.

New Audioarts 24x16x2 console, used twice \$12,500; 3M Recorder Model 56 16-trk w/auto loc & remote. All original, excellent condition, \$11,000. (818) 888-6126.

8 Trk Studio Sacrifice. A fantastic opportunity to buy, lease or finance your own complete 8 Trk studio. JBL, SoundWorkshop, BGW, LA-4s, 80-8,

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Automated Processes Console 16x4 x2 w/24 mainframe, custom built w/550 EQs, 515B input modules, 2-525 limiters, 575 oscillator, 475 faders, in place solo, 23 meters. \$10,500 (205) 595-8497.

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**—FROM PAGE 190, LOCATION  
tion to have the proper power for  
your equipment!**

**Tool Kit:** Complete with a variety of standard screwdrivers, special nut or screw drivers (if appropriate), regular and "needle nose" pliers, wire cutter and stripper, soldering iron and solder, vise grips, medium-duty hammer, sharp knife, multimeter, insulating tape, shrink tubing, calibration tools; small hardware items such as a variety of nails, screws, hooks, wire staples, etc. Also useful is a spare fuse kit—sufficient for all equipment being used. A few spare connectors and a set of clip-leads often prove useful as well.

**Tape:** Take a sufficient supply of tape to record the session twice for all

machines you will be using. If using bulk-pack tape (on hubs) remember to take enough flanges and empty cores or take-up reels to satisfy the needs of all machines—plus spares.

**Miscellaneous Items:** The following list of small accessory items constitutes a well-stocked "remote kit" for location session work. If this seems redundant, it is not unintentional. This kit should be kept together for use only on remote sessions; if any item becomes depleted, it should be replaced immediately.

- Spare fuses for all equipment
- Splicing tape, razor blades, editing block
- Tape reel flanges (8)
- Tape cores (hubs) (4)
- Tape labels, pens, markers, etc.

- Leader tape (red and white)
- Spare "dummy plugs" (if appropriate)
- Spare power cords (if appropriate)
- AC power cord and multi-outlet box
- Spare "special interface" cables (if appropriate)
- Roll of lacing twine or mono-filament line
- "Gaffer tape" and masking tape
- Worklamp with blue bulb or gel
- Flashlight
- Tape measure
- Tape log forms
- Headphones
- Cube-taps (2) and ground-lift adaptors (2)
- Head cleaning and demagnetizing supplies
- Spare audio interconnect cables





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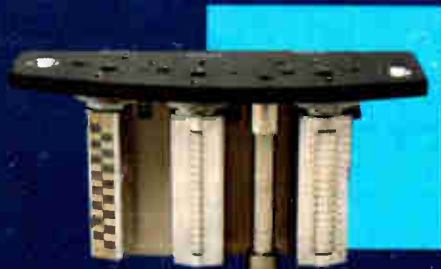
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