

Talking Heads Go "Naked" • DAT in Russia • Jimmy Cliff

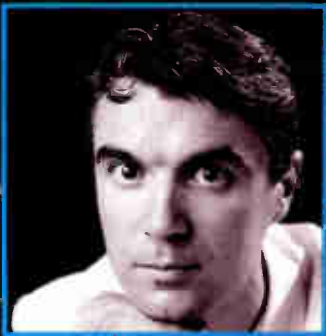
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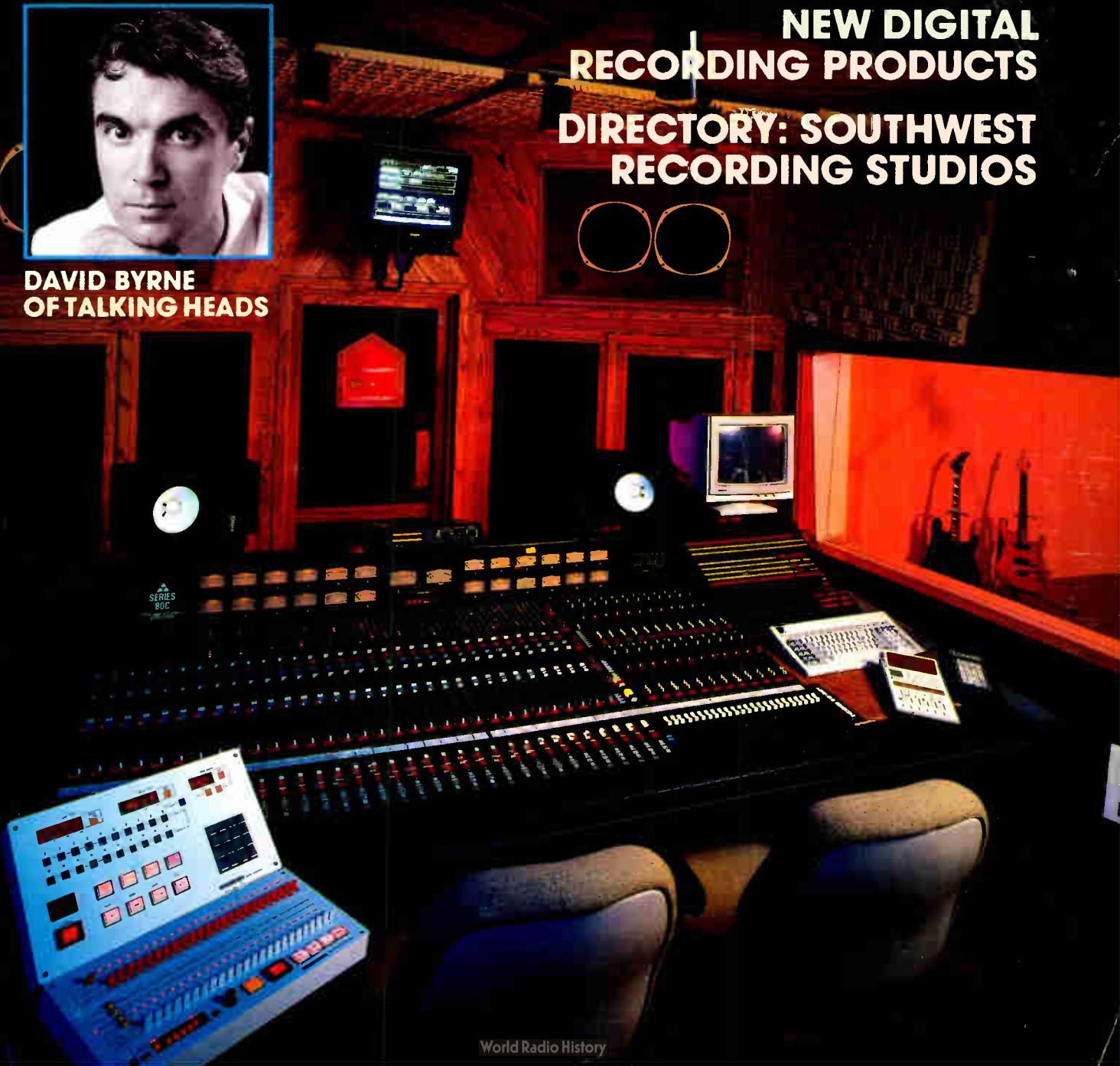
THE RECORDING INDUSTRY MAGAZINE



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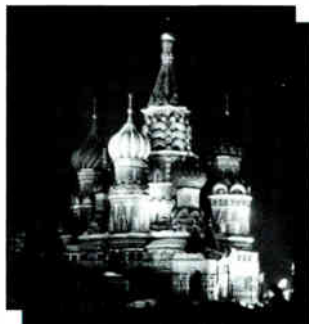
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# FROM THE EDITOR



**Cover:** Studio A at Chaton Recordings in Scottsdale, Arizona has installed a Trident Series 800 32 input console fitted with Disk Mix moving fader automation from Digital Creations. The room uses an Otari MTR 90 Series II recorder with Dolby SR and Tannoy PSM biamped monitors. Chaton can record up to 48 tracks with full video capabilities.

**Photo:** Paul Markow

**David Byrne Photo:** Bonnie Schillman

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Our Southern California rep, Ken Rose, was saying the other day how recording studios are so used to being low-key that many go out of business due to their own lack of promotion. They fail to get noticed and, therefore, supported. "I'm not just talking about advertising," Ken said. "Too many studios don't do enough to let people know they're in business. . . like put a sign over their door, or have promotional receptions and meetings, or ask for good billing on a client's credits list and album cover. They are just too shy, too often."

There seems to have been some understanding through the years that studios are the private domain of the stars and, since the rich and famous want to work in seclusion, low key was the way to go. To cater to this mentality, many studios have masked themselves as underground operations, with little or no public visibility.

The problem with this covert mentality is that the industry has changed, and these days studios are more like commercial businesses. The type of business most studios thrive on today is not the "star" albums, but the day-to-day audio services for a wide variety of applications. Studios need to have the profile of a professional business in order to generate a profit. Exposure isn't wrong. It's essential for the survival of a business. The challenge is to make the exposure appropriate and successful.

There may be a lot more business out there than many studios realize. It may just have to be found. SPARS recently hosted a successful panel on "Marketing Diversified Recording Services," encouraging studio owners to look for new sources of business, and sharing success and horror stories. The successful studio owners agreed that business doesn't just walk in the door; it must be pursued. And that pursuit can be creative and enjoyable, as well as profitable.

Keep reading,

A handwritten signature in black ink, appearing to read 'David M. Schwartz'.

David M. Schwartz  
Editor-in-Chief

# CURRENT

## **Microsoft's CD-ROM Division Restructures**

After much thought about how to commercialize CD-ROM technology to its greatest extent, Microsoft has decided to integrate it into their mainstream product divisions. To that end, the CD-ROM group within Microsoft Press, under the direction of Susan Lammers, will be responsible for marketing their existing CD-ROM titles and developing new titles. The MS-DOS CD-ROM Extensions will be handled by the Systems Division. The CD-ROM development tools and software technology will be taken over by the Languages group, and the advanced CD-ROM applications research program will be handled by the Applications Division. Tom Lopez, vice-president of the CD-ROM division, has stepped down from his position to pursue other challenges; Carl Stork, director of CD-ROM marketing, is managing the transition and after it is complete, will work for Microsoft in a new capacity.

## **Unit Shipments Reach Highest Level in Decade**

The dollar volume of U.S. manufacturers' net shipments of prerecorded discs and tapes increased 20% in 1987. Unit shipments rose 14.3% to the highest level since 1978. Shipments in '87 were valued at \$5.57 billion, calculated at suggested list price, according to the Recording Industry Association of America, Inc. (RIAA). In 1986, the dollar value was \$4.65 billion, with 618.3 million unit shipments compared to the 1987 total of 706.8. The total number of units shipped fell just short of the all-time high set in 1978 (726 million).

Compact disc unit shipments rose 93% over 1986 figures, while cassette unit shipments were up by 19% and

dollars rose by 18.4%. Cassette singles made a healthy debut in '87, with 5.1 million units shipped at a dollar value of \$14.3 million. LPs/EPs continued to decline—units were down 15%, to 106.6 million units shipped.

## **TEC Awards Date Set**

The 1988 Technical Excellence & Creativity (TEC) Awards will be held in Los Angeles, California, on Thursday, November 3, coinciding with the opening day of the AES Convention. The fourth annual TEC Awards, voted by the readers of *Mix* to honor outstanding achievement by behind-the-scenes professionals in recording and sound, will be held in the beautifully redecorated Biltmore Bowl at The Biltmore. Ticket revenues from the event will be donated to the House Ear Institute and audio education scholarships. Executive director for the 1988 TEC Awards is *Mix* publisher Hillel Resner. For more information, contact nominees coordinator Karen Dunn or event coordinator Rachel McBeth at (415) 653-3307.

## **DAT Marketer Legal Defense Fund Set**

The Electronic Industries Association's Consumer Electronics Group (EIA/CEG) has established a six-figure, matching legal defense fund, to be made available to the first member company sued as a result of marketing DAT recorders in the U.S. The funds are intended to be used to match company funds needed to defend the company in litigation on the legality of importing and marketing DAT recorders.

"Our position on home recording remains unchanged," says Thomas P. Friel, EIA/CEG vice president. "We oppose any legislative or judicial effort to restrict a con-

sumer's ability to tape music for private, noncommercial purposes."

Gary Shapiro, EIA/CEG vice president of government and legal affairs, adds, "The RIAA's threat to sue the first DAT seller is more a scare tactic than one based on any well-reasoned legal or policy argument. You would think the RIAA would have learned from the motion picture industry's unsuccessful effort to stop the sale of VCRs."

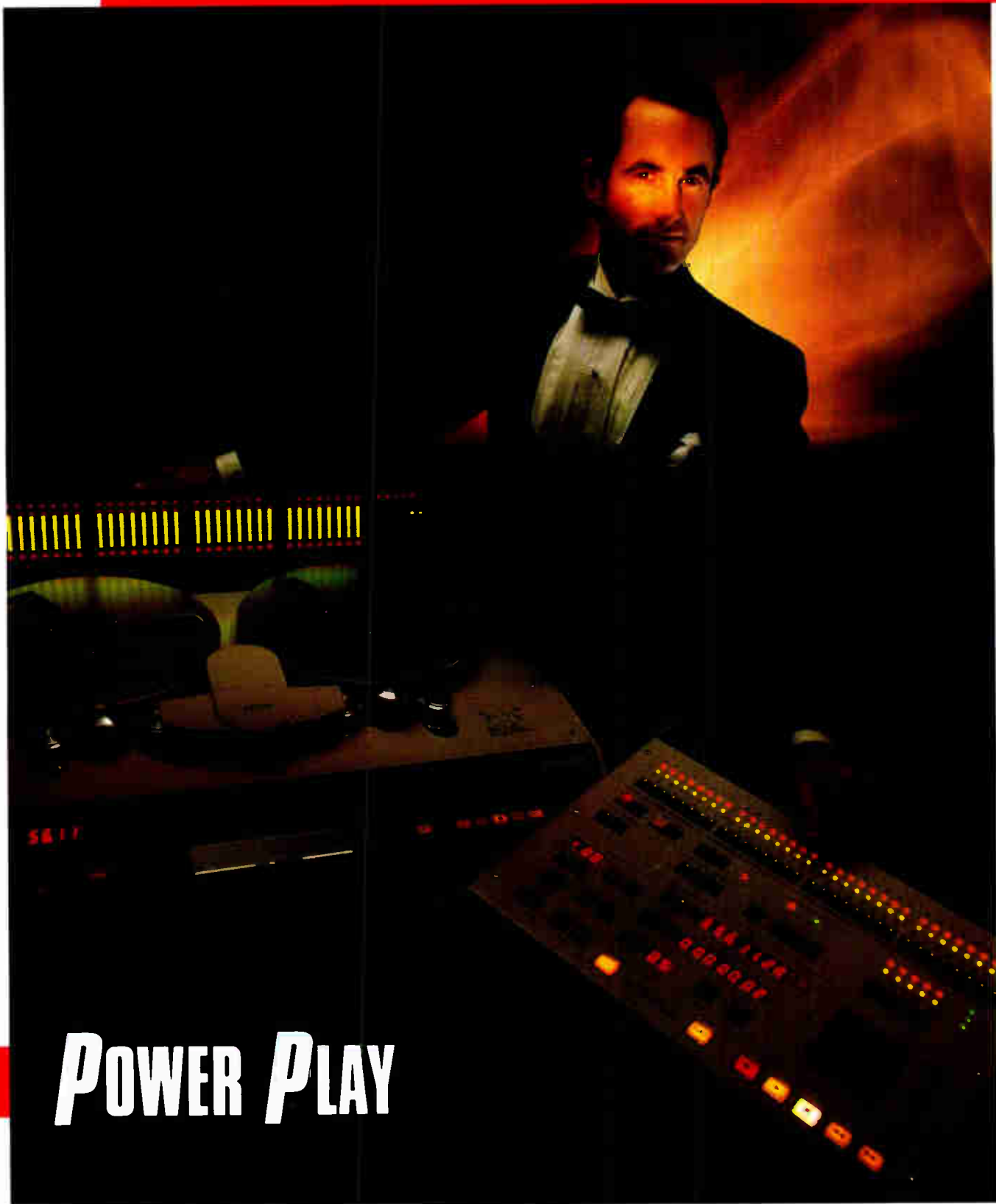
## **NARAS Adds New Grammy Categories**

The National Academy of Recording Arts (NARAS) recently announced the addition of three new categories for Grammy Awards: Best Hard Rock/Heavy Metal Performance, Best Rap Performance and Best Bluegrass Recording.

At the same Trustees meeting in New Mexico, NARAS also created a new fusion field, into which the Grammy categories of Best New Age Performance and Best Jazz Fusion Performance will be placed. Other highlights included the softening of eligibility requirements for the Best New Artist award and the tightening of those for its two Producer of the Year Grammys.

Alfred W. Schlesinger was reelected for a second one-year term as chairman of the board of trustees; Tim McCabe of the Atlanta chapter was reelected as first national vice-president; and Tom Morgan of Los Angeles was reelected as national secretary/treasurer. The board also approved potential funding for a contemplated national office building and NARAS Foundation.

"The attitude and actions of the meeting were indicative of the progressive new attitude I feel is essential for the Academy's future," said Mike Greene, Academy president. ■



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# INDUSTRY NOTES

**Sony** has opened a new division, **Advanced Systems**, to coordinate such emerging technologies as high-definition television (HDTV). **William Connolly** was named president of the division. Meanwhile, **Richard Wheeler** was appointed president of Sony's communications products company. . . **Peter Flicker** was appointed to **Neve's** board of directors as vice chairperson. . . **Philips** and **Du Pont Optical (PDO)**, the compact disc giant, has opened a West Coast sales office at 3815 West Olive Ave., Burbank, CA 91505, (818) 848-2442. The office will be headed by **Spence Berland**. . . **Cubicomp Corporation** named **Donald Bogue** acting president and CEO. . . **Margaret Copenrath** was named regional distribution manager for the Atlanta distribution office of **Agfa-Gevaert**. **Bart Van der Cruyssen** joined their New Jersey office as manager of internal audit. . . **Broadcast Television Systems** hired four salespeople for its San Francisco office: **E.L. "Mac" Mehaffey**, **Mark Rushton**, **Ric Mancuso** and **Laura Connard**. . . **Clear-Com Intercom Systems** has moved all operations to new headquarters at 945 Camelia St., Berkeley, CA 94701, (415) 527-6666. . . **Davkore**, an audio and video duplicating and packaging company, has moved to new facilities at 1300A Space Park Way, Mountain View, CA 94043, (415) 969-3030. . . **Ralph Goldheim** was recently appointed national sales manager of **Alesis Studio Electronics**. . . **Shelly Diamond** has joined **See Factor Industries**, a sound and light production company, as head of their audio division in Long Island City, NY. . . **North Star Audio Video Corporation**, of Stamford, CT, has new numbers for FAX (203-322-4993) and Telex (201126 ACTCUR). . . **SECA/Studio Magnetics**, a Shrewsbury, England, manufacturer of multi-track analog recorders, has appointed **Kevin Bower** as sales manager. . . **Synergetic Audio Concepts (Syn-Aud-Con)** announced their upcoming training schedule. Two-

day audio engineering seminars will be held in Toronto (June 23-24), Syracuse (June 28-29), Chicago (September 22-23), Minneapolis (September 27-28), St. Louis (October 6-7) and Anaheim (November 1-2). Three-day workshops on sound reproduction will be held at the Syn-Aud-Con Farm, IN (July 15-17 and August 18-20), on grounding and shielding in Los Angeles (November 17-19) and on concert sound reinforcement in Los Angeles (January 17-19, 1989). For information, call (812) 995-8212. . . **Gemini Sound Products** has completed the organization of a national sales network. For sales rep details, call (718) 851-6000. . . **The Balance Recording Company** has moved to expanded facilities at 226 Industrial Drive, LaGrange, GA 30240, (404) 884-3138. . . **Shelton Leigh Palmer** named **Syd Weiss** executive producer at Palmer's commercial music production house. . . **Bose Corporation** named **Tim Dorwart** as national field sales manager and **Robin Sibucuo** as Eastern regional sales manager for pro products. . . **Monfort Electronics Marketing, Inc.**, an Indiana rep firm for Midwest pro audio markets, appointed **Robert Fox** and **Jeffrey Eiler** as field sales engineers. . . **Marshank Sales** moved to new digs at 6733 South Sepulveda Blvd., Los Angeles, CA 90045, (213) 670-7071. . . **Recorded Publications Laboratories, Inc. (RPL)** appointed **Lee Gray** vice president and regional sales manager. . . **Session Masters, Inc.**, a disc mastering facility, has opened in Wheaton, IL (312-653-1516). . . **Digital F/X** appointed **Peter Werp** as vice president of manufacturing. . . Hollywood's **Great American Market** appointed **William Barbour** as marketing manager. . . **Dan McLellen** was named president of Toronto's **VTR Productions/Eastern Sound**. . . **Robert Kelly** has joined the **U.S. Coast Guard Band** as recording engineer. . . **Amanda Stuart** will head a new public relations division at **The Phelps Group**, an L.A. ad agency.

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# SESSIONS AND STUDIO NEWS

## NORTHEAST

At **Bayside Recording** in Bayside, NY, **James Brown** worked on a track for his new album, with **Full Force** producing, **Andre DeBourg** and **John Fig** engineering. Full Force also produced tracks for **LaToya Jackson's** next LP there. . . Engineer **Joe Nicolo** did some work with rappers **Schooly D.** and **Steady B.** at **Studio 4** in Philadelphia. . . **Lloyd Price** has been working on a new album at **Power Play** in Long Island City, NY. **Sam Culley** and **Tony Simpson** co-produced the cut "Second Wind" with Price. **Tony Arfi** engineered, with **Mike Nuceder** assisting. . . Much of **Najee's** new album was recorded and mixed at **Presence Studios** in East Haven, CT. **Rahni Song** produced, **Jon Russell** engineered, **Earl Grey Fowler** assisted. . . At **Dreamland Recording** in Bearsville, NY, BMG International artists **Cries** cut their second album with producer/engineer **Peter Coleman** and assistants **Dave Cook** and **Harvey Sorgen**. . . The South African bass player **Gnu Mtbu-andui** was at **Braidwood Studios** in Metuchen, NJ finishing his third album, *Plaid Cow*. **Drew Bellware** produced and **Ed Pfefferkorn** engineered. . . **First Circle** have been cutting their second EMI album at **Quad Recording** in NYC with production by **Brian Muller**, engineering by **Brian Max**. . . Suave soul sensation **Freddie Jackson** cut some vocal tracks at **Electric Lady Studios** in NYC with engineer **Curt Upper**, assisted by **John Magnusson**. . . The **Chili Brothers** finished their new North Star Records album at **Normandy Sound** in Warren, RI. **Phil Greene**, **Bob Winsor** and **Tom Soares** shared in the engineering. Assisting were **Jamie Locke** and **Ralph Petrarca**. . . At **Rockin' Reel Studios** in East Northport, NY, jazz pianist/arranger **Bob Hinz** recorded a few pieces to complete his new LP. Chief engineer **Bob Lessick** was at the board. . . Producer **Ivan Ivan** was in at

**I.N.S. Recording** in Manhattan working on overdubs for a remix of **Devo's** "Disco Dancer" for Enigma Records. **Gary Clugston** was at the board. . . At **Studio 900** in NYC, **Lia Howell** was in with producers **Carl Sturken** and **Evan Rogers** working on tracks for her upcoming record for Virgin. **Matt Noble** was at the board, with **Julio Pena** assisting. . . At **Unique Recording** in NYC, the **Fat Boys** were in doing a duet with **Chubby Checker** on a new version of "Let's Twist Again." The **Latin Rascals** produced; **George Karras** engineered. . . **River Audio Studios** in Fort Erie, Ontario, had **Helix** in the studio working with the facility's new chief engineer, **Ed Stone**. . . **Sound on Sound** in Manhattan did recording work for the Broadway show *Sarafina*. **Mike McMackin** engineered, with **Steve Immerwahr** assisting. . . **Jeane Seals** has been working on a new album for MCA at **E.A.R.S.** in East Orange, NJ. **Jimi Randolph** handled the engineering. . .

## SOUTHEAST

Nashville rockers **The Dusters** recorded their Reptile Records debut at **Sound Emporium** in Music City with **Scott Tutt** producing, and **Jon D'Amelio** and **Gary Laney** engineering. It was mastered at **Masterfonics** by **Benny Quinn**. . . **David Bethany**, formerly of Killer Whales, was in at **Mark Five/Sandcastle** in Greenville, SC, working on a new release with producer/engineer **Rick Sandidge**. . . **Mike Ballard**, son of the legendary Hank Ballard, completed a six-song EP at **Air-wave Recording** in North Miami Beach. **Rob Walker** and **Scott Tanner** engineered. . . At the **Bennett House** in Franklin, TN, Minnesota's **Secret Society** was in recording with producer/engineer **Mike Clute** at the console. . . At **Reflection Sound** in Charlotte, NC, producer **Rick Lee** worked with a new artist, **Art New-**

**kirk**, on some rock tracks, with **Mark Williams** at the console. . . At **Music Works** in Hollywood, FL, **John Martyn** and **Michael Shiner** completed writing and producing post scores for the **Cenvill Corporation** and **Burdine's**. . . Producer/engineer **Rodney Mills** was in **Criteria Studios** in Miami working on a new album by the **Gregg Allman Band** for Epic. **Teresa Verplanck** assisted. . . Allman and Mills also did work at **Cheshire Sound** in Atlanta, with **Tom Wright** assisting. . . At **Mr. O Studio** in Columbus, GA, engineer/producer **David Norman** was in mixing material for Amethyst Records artists **Charmaine** and **Elijah Rock**. . . **Marvin Winans** of the popular gospel group The Winans, has been cutting solo material at **Master Sound** in Atlanta. **Ricky Keller** produced, while **Ron Christopher** engineered. . .

## NORTH CENTRAL

Funkster **Bootsy Collins** completed mixes for his new CBS album at **Pearl Sound Studios** near Detroit. The album was mixed by **Ben Grosse**, with assistance from **Chris Andrews**, **Mark Childress** and **Matt King**. . . Dance mix specialist **Mark Berry** is producing the debut album by Winnepeg's **Hypno Gogo** at Metalworks Studios in Mississauga, Ontario. **Hugh Cooper** is engineering. . . At **Pinebrook Studios** in Alexandria, IN, **Sandi Patti** recorded a song boosting the city of Indianapolis, called "Indianapolis Indeed." Patti produced with **Bill Gaither**. . . At **Chicago Trax**, Atlantic artists **Ten City** tracked and mixed material for their new album with producers **Byron Stingily** and **Marshall Jefferson**, and engineer **Julian Herzfeld**. . . **Lonnie Mack** did some recording for CBS at **Streeterville Studios** in Chicago, with **Justin Niebank** at the controls. . . The **Bon Ton Soul Accordion Band** finished

their new album, *We're Only in it for the Monkey*, at **United Recording** in Kansas City, KS. The album was produced by **Dave McQuitty** and **Richard Lucente**, with McQuitty and **Dann E. Haworth** engineering. . . **Greg Brown's** new theme for **Open Pit Barbeque Sauce**, "Summer in a Jar," was cut at **Solid Sound** in Ann Arbor, MI, with **Rob Martens** engineering. . . At **Bouvier Run Studios**, a new facility in Valparaiso, IN, **The Balance** recorded their second EP. The project was produced by **Mark Manley** and engineered by **Bob** and **Rich Greco**. . .

## NORTHWEST

At **Robert Berke Sound** in SF, work included radio spots featuring 49er quarterback Joe Montana for **TeleConnect**, posting for a promotional video for **Shaklee**, and music and sound effects for Sunset Films' *Tough Customer*. . . At **CD Studios** in SF, rocker **Keith Gale** finished a five-song EP, co-producing the sessions with **Gary Hobish**. . . **John Denver** has been working at Vancouver's **Phoenix Recorders** with producer **Roger Nichols** and engineer **David Raine**. . . **Diane Schuur** stopped by Seattle's **London Bridge Studios** to record some piano and vocal tracks for her next GRP album. **Steven Miller** produced and **Jim Boyer** engineered, assisted by **Rick Parashar**. . . Bay Area singing sensation **Rosie Gaines** recorded demo tracks at **Starlight Sound** in Richmond, CA, with **Michael Cooper** and **Darrin Harris** producing. . . **Brett Smith** was in at **Inside Trak Studios** (Burnaby, BC) working on his debut album for Pacific Wave Records, with **John Ellis** producing and **Dave Slagter** engineering. . . Recent happenings at **Alameda Digital Recording** in Alameda, CA, included partners **George Petersen** and **J.J. Jenkins** cutting the soundtrack album for the **SF Mime Troupe's** production of *The Mozamgola Caper*. . . **Nokie Edwards**, former lead guitarist of The Ventures, was in at Seattle's **Ironwood Studio** working with engineer **Paul Scoles** on a new album. . .

## SOUTHWEST

At **Future Audio** in Dallas, producer **Randy Willis** was busy working on AV scores and jingle projects for a variety of clients. **Doug Phelps** and **David Boothe** engineered. . . **Shallow Reign** and **Rude MCs** both did work at **Goodnight Dallas** with engineer **Kerry Crafton**. . . **Lone**

**Star Recording** in Austin had Norwegian songwriter **Erik Moll** in putting down five songs with engineer **Joe Gracey**. Also, **Progress** cut a 12-song demo there, engineered and produced by **Jim Watts**. . . **The Daylights** checked into **Planet Dallas** to record a new LP for New York-based 109 Records with **Rick Rooney** engineering and co-producing. . . The **Four Tops** did some tracking for their next album at **Soundworks** in Las Vegas. **Narada Michael Walden** produced, with **Dave Frasier** and **Bryan Haggerty** at the console. . . "The Battle Is On" is the new release from Christian artist **Al Denson**. The tracks were mixed at **Rivendell Recorders** in Houston by co-producers **Paul Mills** and **Kemper Crabb**. . .

## SOUTHERN CALIFORNIA

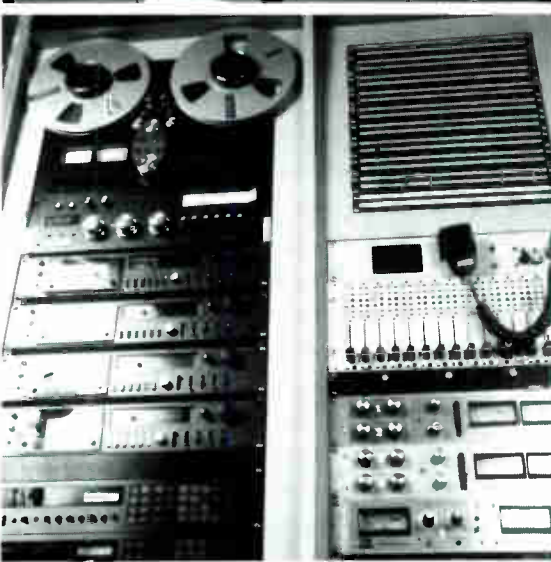
**Skip Drinkwater** and **Laythan Armor** were in at Ignited Productions in Hollywood doing recording work with **Porter Carroll** and **Latin Fresh** for Epic, and **General Kane** for Motown. **Paul Klingberg** engineered, with **Greg Bartheld** handling programming. . . **Randy Newman** and **Mark Knopfler** worked on Newman's next album at **Westlake Audio** in L.A. with engineer **Frank Wolf**, assisted by **Darryl Dobson**. Also at Westlake, **Eddie Murphy** cut tracks with producer **Narada Michael Walden**, engineer **Dave Fraser** and assistant **Brad Sundberg**. . . **Sweets Edison** recorded and mixed his new LP for Fantasy Records at **Group IV Recording** in Hollywood. **Eric Miller** produced and **George Belle** was at the board, assisted by **Bruce Balestier**. . . At **Take One Recording** in Burbank, producer **John Hugg** was in with **Brian Elliott** of The Busboys working on a song for Eddie Murphy. **John Hoier** was the engineer. . . At **Sound City** in Van Nuys, **Tom Petty** mixed a new song with producer **Jeff Lynne** and engineer **Bill Butrell**, assisted by **Bret Newman**. . . Island Records artist **Terry Carter** finished tracking at **Valley Center Studios** in Van Nuys with producer **Stan Sheppard** and engineer **Steve Miller**. . . MCA artists **Klymaxx** recorded tracks for their upcoming album at **TMF Studios** in Toluca Lake. TMF staffers **Ron Bloom** and **Ricky Delena** are among the producers on the project. . . **Eddie Money** has been working on his next LP at **Rumbo Recorders** in Canoga Park. **Richie Zito** is producing once again, with engineering by **Phil**

**Kaffel**. Zito also worked on some sessions with **Cheap Trick** at Rumbo. . . Speed metaloids **Slayer** rocked out at **Hit City West** in L.A., with producer **Rick Rubin** and engineer **David Bianco** getting it all on tape, assisted by **Richard Schweitzer**, **Kevin O'Connor** and **John Hiler**. That album is destined for Def Jam Records. . . At **Control Center** in Hollywood, studio co-owner **Frankie Blue** produced **Freida Woody's** debut album for RCA. . . **Gary Wright** was in Redondo Beach's **Total Access Recording** digitally mixing his new album for Cypress with his co-producer/engineer **Wyn Davis**, assisted by **Chris Steed** and **Eddie Ashworth**. . . Producer **Stephen Hague** has been working with **Walter Egan** at L.A.'s Summa Music Group studio. Nice to see the talented Egan back in action! . . . At **Cherokee** in L.A. **Paul Schaffer** was overdubbing with the Tower of Power horns on a project being produced by **Steve Cropper**, engineered by **Bruce Robb**, assisted by **Scott Gordon**. . . At **Kren Studios** in Hollywood, **Jane Child** put down tracks for her Warner Bros. debut with engineer **Hein Hoven** and assistant **Russell Bracher**. . . **Five Star** mixed a bunch of new singles at **Larrabee Sound** in L.A., with producer **Leon Sylvers**, engineer **Taavi Mote** and assistant **Liz Cluse**. . . **Karla Bonoff** was in Burbank's **Alpha Studios** recording and mixing her new album. **Mark Goldenberg** produced, while **Larry Hinds** engineered. . . Head Talking Head **David Byrne** did some scoring work for a new **Jonathan Demme** film called *Married to the Mob* at **Entourage Studios** in Hollywood. **Andy Waterman** and **Mark Wolfson** engineered. . . Engineer **David Devore** and assistant **Scott Campbell** were in **Preferred Sound** in Woodland Hills working on a new project with **REO Speedwagon**. . .

## STUDIO NEWS

The **Tape House** in NYC, an audio-for-video and film facility, has installed its third custom Neve V Series console. . . **Euro-padisk** has added a new digital editing room that includes a Sony DAE 1100A digital editor, Sony PCM 1630 digital processor, Mitsubishi X-80 digital recorder and much more. . . **Vitello & Associates**, a Burbank, CA, audio post house, has purchased Lexicon's Opus digital audio production system and plans to construct a new editing suite around it. . . **Pearl Sound** near Detroit has added a Neve V48 console with Audio Kinetics automation. . .

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Wood Radio History

by Stephen St. Croix

# SOMETIMES I JUST DRIVE AROUND

I

n the beginning, there was no gas shortage. There was gas. Billions of cubic miles of hot gas, swirling and compressing under the gravity of its own mass. After some time, it all collapsed and exploded. This, by the way, was the very last thing to ever happen on schedule. Stuff spewed out everywhere, and began to cool into huge globs. Some of the globs began to form giant, spinning disks, soft flexible disks with very low density. Inside these, certain areas solidified into much smaller, harder disks with much higher density. These were the first hard disks.

Then, after a series of events that we still cannot agree on, life began on balls that formed within these very disks. It then instantly evolved to Homo sapiens, who went on to invent the computer. It's hard to say exactly where the wrong turn was actually made; but it was. The fact is, we now have computers. So there were disks before there was man. Really big and really slow disks. They have been getting smaller and faster ever since.

It doesn't even matter who bit who first; it only matters that there is a byte, and a world based on it.

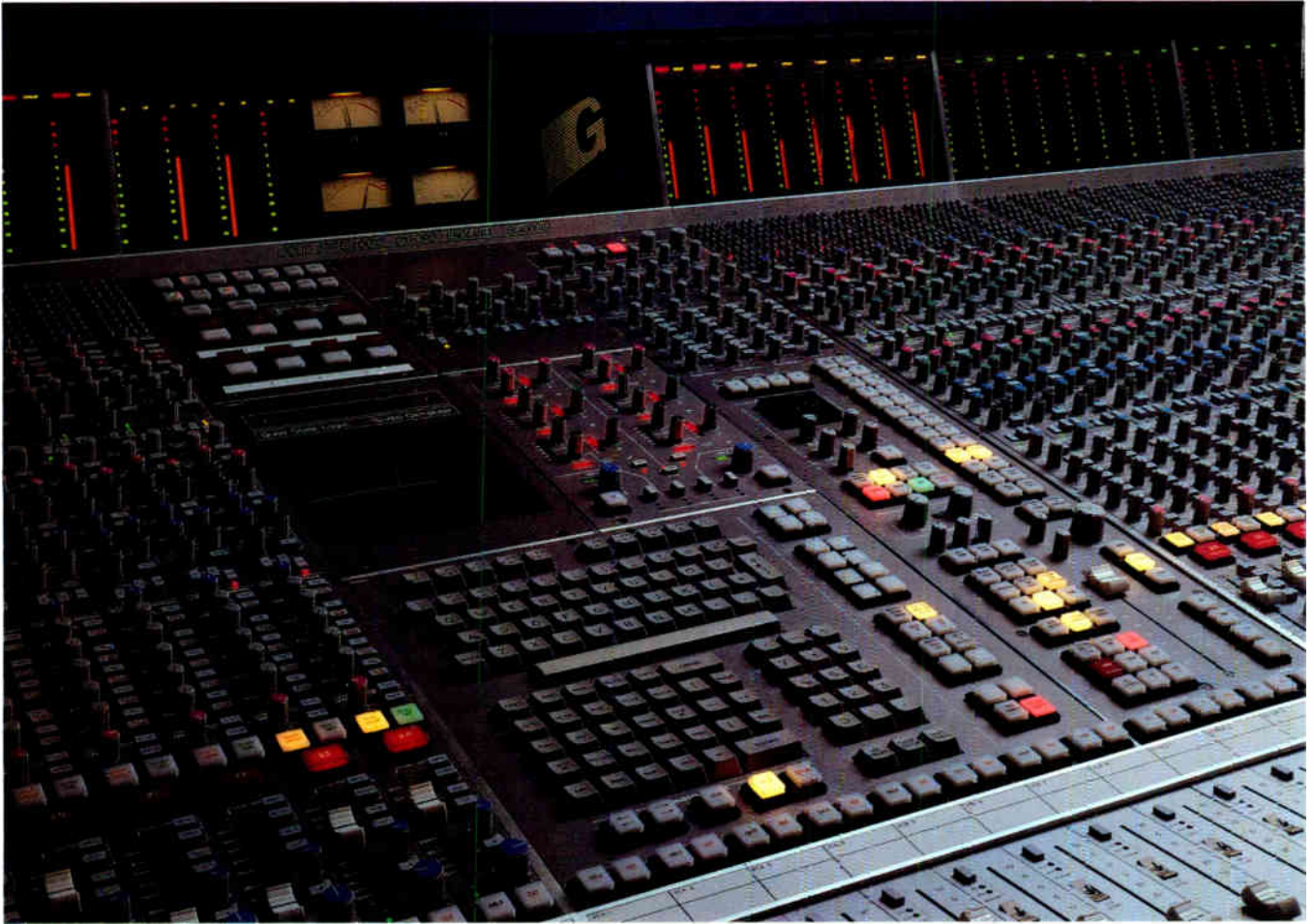
I was born before there were 144 Meg drives, or even 20 Meg drives. Actually, there were not even 10 Meg drives, then. Well, OK; there were *no* drives. By the way, there were no floppies either. But you know something? This complete lack of drives did not seem to bother anybody at all. Perhaps this is because there were no computers.

My first hard disk (the buzz word then was "Winchester drive") was a big deal for me. It was a serious investment in a new technology that most of my friends did not trust at all (I had very wise friends). It listed for around \$5,000, but I was very lucky to be connected enough to pick it up for only \$1,400. It was *huge*; a full 5 megabytes

It doesn't matter—  
who bit who first; it—  
only matters that—  
there is a byte, and—  
a world based on it.



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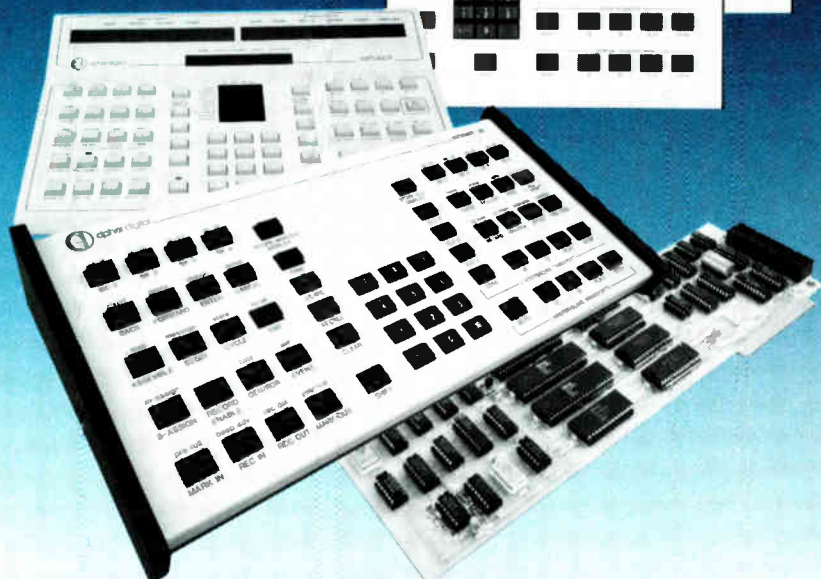
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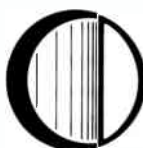
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## THE FAST LANE

of unformatted storage! It was amazingly small; only about 25 pounds, 9 inches wide, 14 inches deep and about 8 inches tall. And, it was *fast!* I could get a page of text off of it in less than seven seconds! Just for reference, the computer that this drive lived in had a whopping 128K of memory.

When this drive finally developed transmission trouble that was too severe for me to figure out (the manufacturer had gone the way of the 78), it had 3.5 Meg of data on it: my life up to that time. Backing onto 8-inch 140 kilobyte floppies at \$7 each was unattractive enough that I never actually managed to do it. This was a bad day for me, and I swore that it would be a very long time before I would trust a non-removeable drive with my data again.

It was in fact years before I was forced to give in to the seductive call of newer technology and try again. This time it was a 10 Meg 5-inch drive for an IBM. This cost me around \$1,400, and lasted for quite a while. When it finally lunched, it had 7 Meg on it. Again, for comparison, this machine had 640K of RAM.

Next came my first really giant monster drive; a new 3.5-inch 20 Meg for my Mac. I liked this one so much that I got several, and none of them blew up until last month. This drive had 14 Meg of stuff on it the day it went to Mars. All of the surviving drives have about the same amount of data on them. Oh, yes; I paid \$1,400 each for them. The Mac had 1 Meg of RAM.

Three months ago, I gave up again and replaced all of my Macs with Mac IIs, and, you guessed it, I took another look at hard drives. This time it had been only a year and a half or so since my last examination of the hard drive market, but it felt like it had been a decade. Things had changed so much that I felt like it was my first time shopping for drives. With all but one of the Mac IIs having 8 Meg of RAM and another 8 Meg of RAM disk on expansion cards (there is actually over 30 Meg in one of these computers), I felt that I would need bigger drives again, maybe something like 40 Meg.

After much searching and studying, I made the decision to get the largest drives that I could find, so that they would not fill up like all the others did. I would get drives that I was sure were going to set me up for a few good

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## THE FAST LANE

years, at least. I figured that I had learned my lesson, and that this time I would get literally the biggest drive that I could find. It turned out to be a 144 Meg high-speed SCSI drive, and because of some very nice connections, I got them all for, you guessed it again, under \$1,400 each. I was sure I was set for a good ten years. I was a happy guy. Besides, these were very high speed (the fastest you could buy); they transferred 1.2 million bytes in a second! Ha! I laugh at that amazing one page of text in seven seconds! Yes, no question; I was set for a decade.

It has turned out to be a very short decade.

Imagine, if you will, a guy sitting at home with some drives. Within two weeks of the delivery of four identical drives, he decides to have a look at how much data has collected on them. Everything *seems* normal enough as you watch him at the keyboard. You pull back and pan up, crossfading into a field of stars (version 1.3, in fact).

Submitted for your approval: a story of forces beyond understanding; a trip into... the megabyte zone. The drives had on them: 44 Meg, 63 Meg, 91 Meg and 105 Meg. The one that he really uses all the time (the one he is writing on now) is the one that counts, and of course that is the one with 105 Meg on it.

OK, if you have not figured it all out yet, here it is: an old friend once made the observation that "data shall expand to fit the available space." I thought that this was witty and amusing, and it did, in fact, seem generally true. But if you look at the figures above, you see that it is much more than "generally true"; it is *amazingly consistent!* Every drive I have ever used as my primary hard disk has checked out (read: crashed for the last time) with 72% of its total available space used! This is the megabyte zone.

Even more alarming is the fact that while it used to take years for me to fill a drive to 72%, I can now do it in *days*. It simply does not matter how big the drive is.

But wait, there's more. My friends were amazed when I told them that I had ordered 144 Meg drives. They did not even know that they were available. They were even more amazed when they found out that they only cost \$1,400. Some even pointed out

that every drive I buy costs \$1,400, and then I sell them used 16 months later for \$350. It was great fun.

It doesn't stop there. By the time the drives arrived about ten days later, there were ads in the computer magazines for several other 100+ Meg drives. Within another five days, items began to appear in other computer magazines promising 2, 3, 5, and even 800 Meg drives in the very near future. A mere two days after that, I received information in the mail about 1 and 1.5 GIGABYTE drives for the Mac II. There is more (a new generation of drives that talk directly on the data bus and are so fast that they test as *zero* access time), but I will spare you the pain.

Why all this space to drive my point home? Well, all of these drives were filled with data other than audio. To

No more  
audio forced  
through  
232 or 422,  
please.

record audio around our place, we use several 360 Meg drives chained together. I *expect* them to fill right up. I did not, however, expect to fill any size drive to 72% automatically with a few columns and pictures.

Within the last nine months has come a brave new world. Well, a silly new world, at least. Technology has actually come to a point where you never have to decide what to back up in the "forever archive." You simply back up everything! You won't have to worry about spending hours deciding which files to keep and which to trash. You just back your entire 300 Meg drive; all files, all revisions, all temporaries; every byte. Who cares? You just don't worry about it any more. Stick it all on a \$10, 3 Gig WORM and throw it on the shelf. If you ever need any of

the data, a special search program will do all of the work and find it for you. Life begins at three billion.

I predict that we will see a massive increase in both capacity and speed in magnetic media in the very near future, along with dramatic reduction in price and size. This is, of course, a pretty safe prediction. What I mean is that I expect changes far more extreme than one would assume.

I now back these drives onto identical drives. It makes sense. I just bought more drives to use as backup targets, but some of them have drifted down to the studio to become attached to samplers. There is nothing like a 1 Gig 16 ms drive to make your sampler sing!

Samplers, synthesizers, and all sorts of other studio audio equipment will soon be equipped with internal hard drives with 200 or 300 hundred Meg. I just bought a *printer* with a 140 Meg hard drive stuck to it just to store fonts! My Ensoniq EPS-1 sampler has a giant hard drive hanging off of its SCSI port.

Ah, yes; SCSI ports. Audio equipment without an internal drive needs a SCSI port to talk to drives for storing sounds or they are violently obsolete before they are shipped, guys. No more audio forced through 232 or 422, *please*. And audio through MIDI? Come on.

All this, and we haven't even started to play seriously with CD-ROM and the other hyper high density storage media.

There are, in fact, 43 magnetic drives in my house; nine of which are for audio. Wait! Don't laugh! Let's see if you don't have more drives next year than you ever thought you would see in one place at one time. You can throw a drive at a computer today for less than you can throw memory at it, and the drive doesn't forget when you power down (if you are real lucky).

They say that you can't even think of living in L.A. if you don't drive around.

I say that you can't even think of living in the industry if you don't have a drive around. ■

*Stephen St. Croix is a guy who forgets a lot, and has searched since early childhood for some method of getting someone or something to remember for him. He feels that since his brain is analog, he deserves a total core dump at his discretion, and it is nice to know that his home address is safely stored somewhere.*

by Mel Lambert

# BINARY FOR THE MASSES

## THE RISE OF PROFESSIONAL DIGITAL RECORDING SYSTEMS

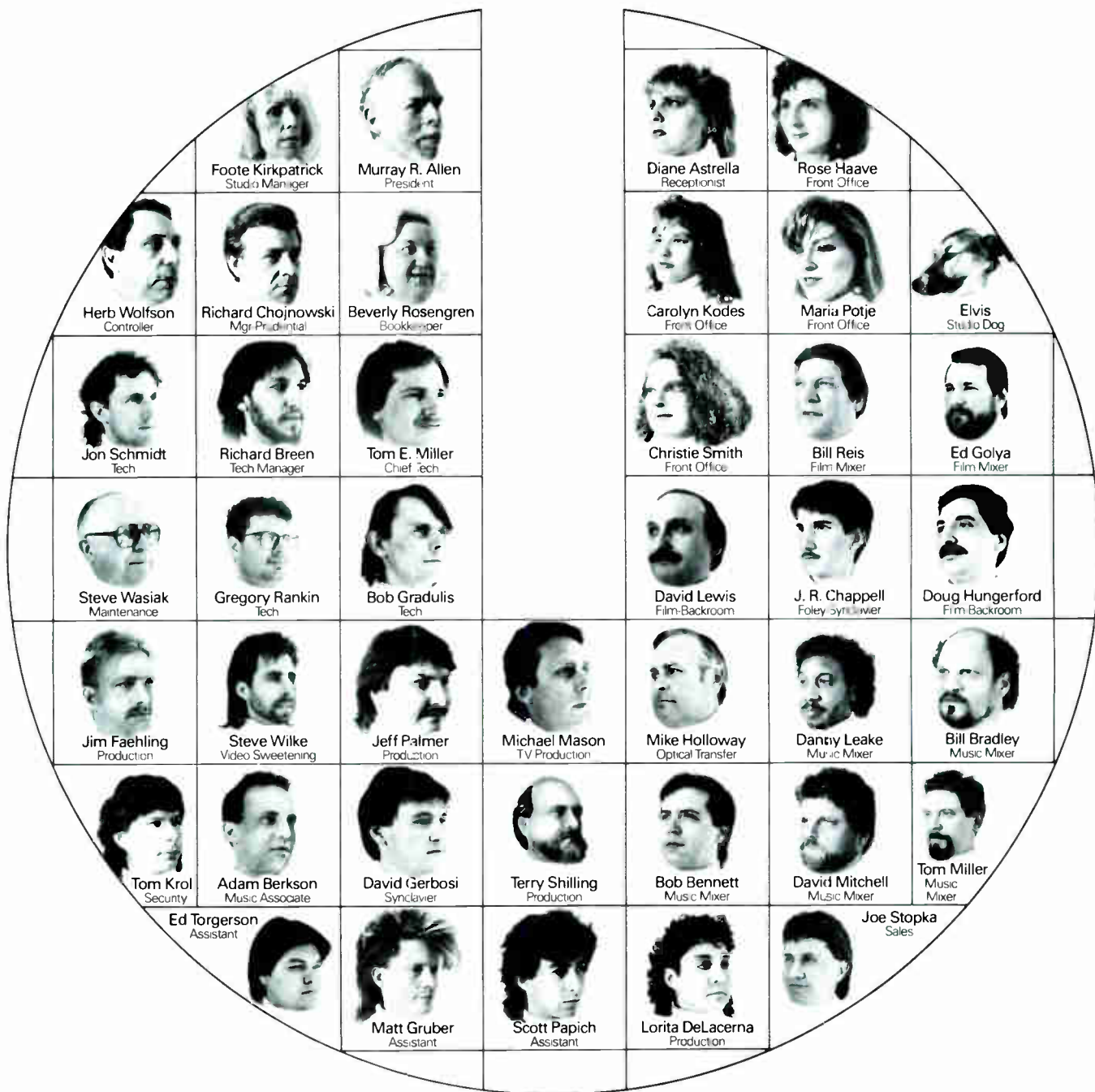
**H**ardware and attitudes sure do change rapidly in the professional audio business. No sooner have we gotten used to one frame of reference, than another one usually comes along to take its place. Such is "progress" as we have come to know it. Analog recording technology, for example, ruled the roost for so long that when the first digital recording systems appeared during the early '70s, many of us were frankly skeptical of their usefulness.

Our initial reservations were not at all concerned with the audio quality of digital recorders—simply their reliability and, let's be honest, the sheer inelegance of their hardware. Theoretically, 16-bit PCM digital systems operating at sensible sampling frequencies offer sonic advantages that put analog to shame. We can easily achieve dynamic ranges in excess of 90dB, wow

and flutter plus speed stability that are practically unmeasurable, frequency response ruler-flat at all record levels from just off DC to 20kHz and beyond, and, in a well-behaved system with optimized low-pass filtering, a respectable phase response across the entire passband. And let's not forget a transient response that tracks even the most demanding of impulse waveforms—as long as the input and output analog sections have been designed properly, and the same care and attention lavished on the anti-aliasing filters.

We were all extremely impressed by the outstanding performance specs that digital systems were supposed to offer. And as soon as the first practical (albeit fledgling) transports became available, the promise became reality. But we began to wonder about the downside: how will these systems

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hold up in the real world of pro audio recording and production facilities?

Or, more to the point, will our clients be willing to pay a premium on sessions that involve the use of unproven, occasionally temperamental hardware? We sometimes forget, in these days of established DASH and PD format transports and PCM and CPDM audio processors, that the first examples of the art were pretty clumsy by comparison. In the case of PCM processors and their companion video transports, certain production tasks may have been affected adversely, simply because of the compromises their operating rationale forced us to accept.

The earliest digital transport I encountered during the mid-'70s was a vintage Denon PCM recorder that used a rather conventional-looking 2-inch quadruplex video transport to print 16-bit audio data to tape in the form of a full-bandwidth, monochrome NTSC-format video signal. I recall that the sampling frequency was 50kHz. Like every digital recorder I have examined since, the Denon Quad transport and rack of electronics sounded great; no problems on that score. Operationally, however, it was a nightmare. Aside from the large amounts of hardware involved—this was well before the miniaturizing days of advanced VLSI technologies—the systems tended to be noisy and cumbersome to operate. Of course, nobody at Denon ever suggested that this prototype would be put into production, a fact for which we can all give thanks.

Subsequent developments from Sony Corporation resulted in the PCM-10 and eventually the now-familiar PCM-1600/10/30 Series of PCM processors designed for use with U-Matic VCRs or one-inch VTRs. With each generation of processor, we saw refinements in design and enhancements in audio quality. Similarly, Matsushita/JVC came to market with the BP-90 and then the VP-900 families of PCM processors that attracted a loyal following. In the early '80s, dbx developed its own "lateral-thinking" digital processor, the Model 700, whose Companded Predictive Delta Modulation (CPDM) principle is still the technique of choice for numerous (usually classical-based) session work and broadcast applications.

Have you ever calculated how much information is contained within a PCM digital signal? More than you might think. A single audio signal converted to 16-bit data at a sampling frequency of 44.1kHz (today's "normal" parameters) generates, with a sensible amount of error correction, around 1 megabyte of information per second. To record that number of digital pulses onto conventional magnetic tape involves the equivalent of approximately 500,000 flux transitions; in other words, for all intents and purposes, a 500 kHz audio signal. To record the PCM digital representation of an audio signal requires up to 25 times the bandwidth of its analog equivalent.

Aside from hardware derived from data logging and expensive instrumentation recorders, until very recently few manufacturers managed to develop stationary-head techniques for printing such large amounts of data to tape. For one thing, magnetic tape wasn't available with sufficiently small particle sizes to enable that kind of linear packing density and data resolution, or the appropriate media properties to ensure correct head-to-tape contact and coercivity.

Against such a background, it is remarkable that at least three stationary-head systems did come into existence at about the same time the early PCM/video deck formats were being perfected. That these early essays in the subject were fairly short-lived underscores the precarious nature of this business, particularly for newer and/or emergent technologies.

Dr. Thomas Stockham's 8-track Soundstream digital recorders of the mid-'70s were truly remarkable. The Honeywell instrumentation recorders upon which they were based, together with practically hand-built A-to-D and D-to-A converters, anti-aliasing filters and sample-and-hold circuitry, were definitely ahead of their time. Many engineers and producers still consider the long-defunct Soundstream system to have been one of the finest sounding digital recorders they have ever used.

Around the same time 3M also developed a pair of equally remarkable 4- and 32-track stationary-head transports. The Digital Mastering System found its way into a remarkable number of studios during this period, but was eventually superseded by more elegant (and, some would argue, more

reliable) designs that came along in its wake. In England during the late '70s, EMI Laboratories developed a stationary-head digital 8-track based on an SE Instruments data recorder. (At that time, SE was one of EMI's more successful electronics divisions.) The resulting machine was used on many classical sessions at Abbey Road and other London facilities during that period, and even traveled on location for one or two landmark sessions.

I recall that all three systems—along with others that never made it off the drawing board—were either too early, required too much care and attention to be viable hardware for recording studios, or were superseded by subsequent developments from other major manufacturers who offered service and support at a reasonable cost to the user.

So the large amount of data produced by PCM and CPDM systems necessitated the use of either video-based techniques—where we already have more than sufficient bandwidths available in off-the-shelf VCRs—or custom-designed stationary-head systems that pushed the available limits of current technology. It is at this point in the turbulent genesis of digital hardware that we took a partial wrong turn.

The first PCM processor-based systems were, I'm convinced, only intended to serve as staging posts for subsequent stationary-head designs. While there is no denying that a great deal of practical, hands-on experience in the design of D-to-A, low-pass filter and companion circuitry resulted from these early prototypes, the basic recording technique they incorporated was a mistake.

By sheer necessity of the high bandwidths involved, current analog and new digital designs of video recorders require the use of a helical-scan tape path, but I find it unfortunate that we were so slow to move once we had practical hardware available to us in the studio. Helical-scan recorders are the only way to print video to tape, and it will most likely remain that way for quite a while. That we remained for so long with VCR-based digital systems may have set us back as much as a half-decade from the kind of technology now available for use in the studio.

How so, you may be wondering? Let me explain. I consider the speed of editing that we can achieve with VCR/VTR-based digital systems to be too



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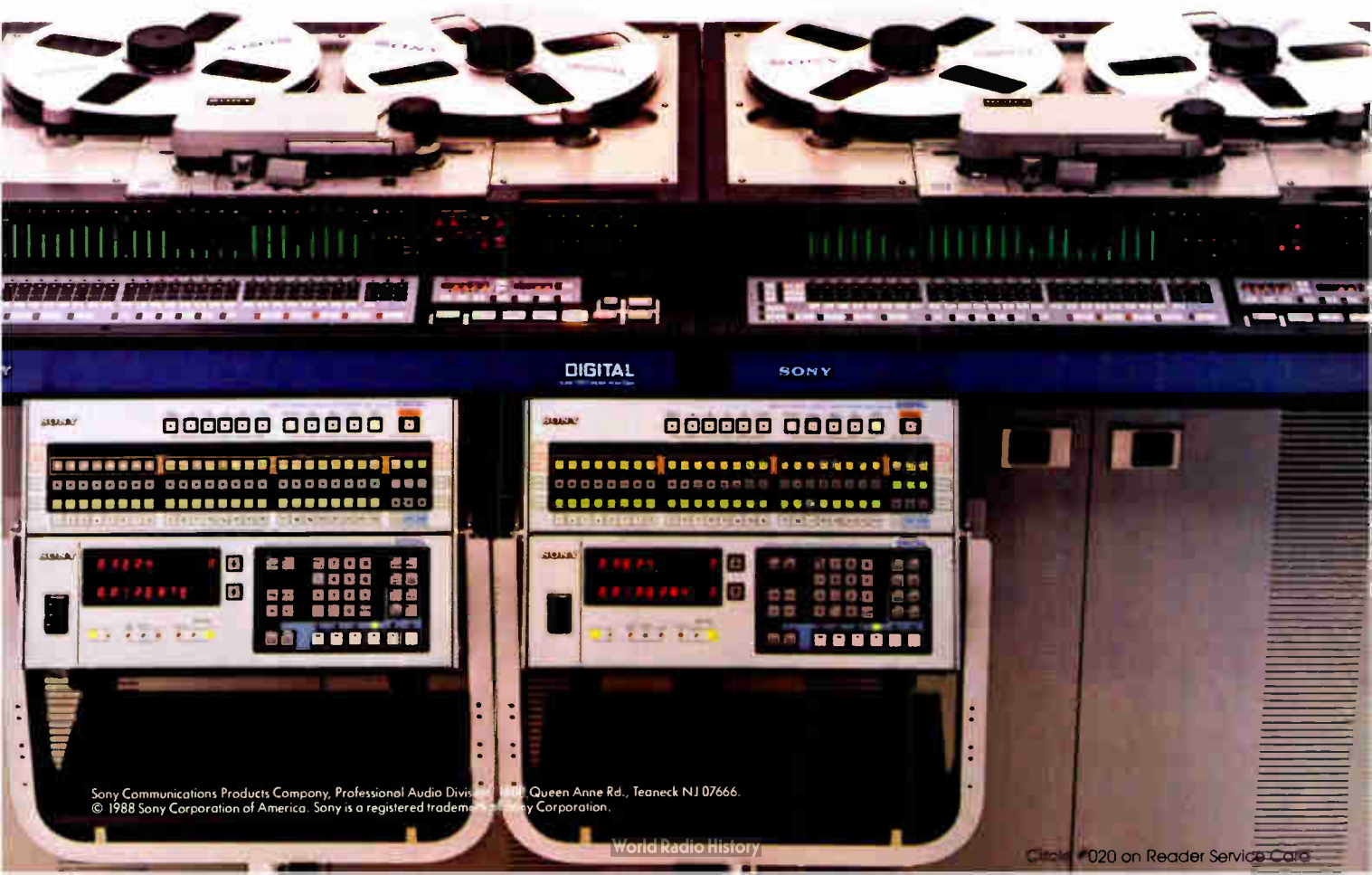
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## JUXTAPOSITIONS

slow for most applications. Also, the speed with which we can synchronize multi-machine systems and audio with video is pretty slow, and such systems can never offer more than two (and in a couple of systems I know of, four) audio channels. I'm the first to admit that these emergent systems gave us the ability to reproduce audio like we never experienced before; it just seemed to take an inordinate amount of time before useful formats—reel-to-reel designs—made an appearance.

And it wasn't just the politics of the situation that prevented us from making the transition from rotary to stationary-head. (At least one of the key developers of PCM systems was also instrumental in developing one of the successful digital reel-to-reel formats.) Nor did that affect the availability of thin-film head technologies to print that data to tape. Obviously, everyone involved with the evolution of DASH and PD was interested in ensuring that the formats incorporated all the features we needed in the studio. But here is where the situation began to slide off at a tangent. Those of us fol-

lowing the technology spiral in the early '80s recall the first slow-speed, 7.5 ips DASH-format machines which, to this day, still represent an excellent example of a well-respected manufacturer failing to canvas sufficient opinion from the recording and production industries. That such a machine sprang into being bristling with useful features is laudable; that it should be ill-equipped for conventional editing because of the analog cue track's slow record speed, is bewildering. Of course, later twin-DASH transports running at 15 ips rectified the mistake.

Nobody expects a manufacturer to get it 100% right from the get-go—the process of innovation involves a series of discrete steps towards what will be considered, with hindsight, the "perfect system." I just sometimes wonder about the faltering steps it has taken to bring digital recording systems to market, and some of the technological funnies—as well as successes—that have occurred along the way.

The professional audio industry is, despite its appearance, rather small and incestuous. That it innovates so much technology purely for its own self-defined applications is a wholly

remarkable feat in itself. I predict that as digital recording systems develop further towards the hard- and optical-disk-based, random-access systems of the not-too-distant future, we will be able to take advantage of a far wider technology base and computer industry-generated array of storage devices and high-speed microprocessors.

When we reach that stage of having the necessary hardware available virtually off-the-shelf, we can take advantage of this industry's natural proclivity for applications-orientated innovations and software developments, and leave the chip and storage-device manufacturers to find a mass market for the processing engines, WORM and magneto-optical drives required for digital recording, processing and editing systems. ■

*Mel Lambert has been intimately involved in the pro audio industry—on both sides of the Atlantic—for the past decade. Formerly editor of Recording Engineer/Producer magazine, he currently is a partner in the Marcus\* Lambert PR firm, and the president of Media & Marketing, a consultancy service for the pro audio industry.*

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by Ken Pohlmann

# FOOD FOR THOUGHT

**B**ack in the old days, there were no books. Well, there were comic books and *Playboy* magazine, but no books. I am quite certain of this. Then, sometime during my second year of college, textbooks were introduced. This was an exciting breakthrough in education, however they sometimes made it difficult to watch important TV shows. Fortunately technology responded with the VCR, a much more important invention in most people's lives than books.

Now that I am a college professor, I find that books can play a very important role in people's lives. They play an important role in my life each time I receive a royalty check from my publisher. Moreover, there are now a considerable number of books available, more and more of them in the audio field. Formerly there was one audio book, *On the Sensations of Tone as a Physiological Basis for the Theory of Music* by Hermann Ludwig Ferdinand von Helmholtz. This book is famous and widely quoted, however historians have discovered that the last person to read it was Mrs. Helmholtz, who fell asleep in the 11th chapter, and never got any further.

Nevertheless, today there are a considerable number of audio books, many non-somnambular. And while obviously important to students, books are beneficial for professionals as well. Because of the rapidly changing nature of audio technology, we are all, in fact, students of audio. Or at least the smart ones are.

Below I have listed some of my favorite audio books, ones which have served me well as resources on a diversity of topics ranging from transducers to the compact disc. Together, they form a collection of current theory and practice in the audio field; surely any serious practitioner should consider making room on his or her bookshelf (clear out some of those VCR tapes) for these. Because space is limited, many fine books have been omitted; I apologize in advance to those authors.

There are a number of excellent introductory audio books, providing an overview of the theory and technology in the field. John Woram's *The*

**Just three of the many books available for audiophiles.**



PHOTO: GEORGE PETERSEN

*Recording Studio Handbook* (Elar Publishing, Plainview, NY) is perhaps the most well-known. First published in 1976, it has welcomed many recording engineers into the profession. It covers basic audio terminology, and recording hardware. A subsequent edition was expanded to include chapters on digital audio and time code. The book is again showing its age; reportedly a newly revised edition is in the works. Also, reportedly, Woram is preparing a new book called *Recording Studio Technology*, for

Howard W. Sams (Indianapolis, IN).

John Eargle's *Handbook of Sound Recording* (Van Nostrand, NY) is a completely revised presentation of two earlier editions of his *Sound Recording* text. The *Handbook* provides an overview of recording hardware and techniques, but is pitched at a more advanced level than other similar texts. As such, it covers its ground more rapidly, yet in greater detail. In particular, the light dose of mathematics and schematics help aid the reader.

John Borwick has prepared a third edition of his *Sound Recording Prac-*

*tice* (Oxford University Press, England). It is a collection of material from various industry experts, carefully edited by Borwick. It covers audio basics, hardware, recording techniques, production of consumer formats, and has a section on allied fields such as video and film. The third edition is largely revised from previous versions, bringing both new authors and material, with emphasis on new technologies and techniques. American readers may be particularly interested in this British perspective of audio.

A long-time standard introductory audio text, *Modern Recording Techniques* by Robert Runstein (Howard W. Sams, IN), has been updated and revised by David Miles Huber. It provides a basic overview of recording hardware and techniques, including console automation and synchronization lockup. It is intended for the beginner.

Finally, Sams' *Handbook for Sound Engineers: The New Audio Cyclopedia*, edited by Glen Ballou, is a technical reference book covering the audio spectrum with 31 chapters and 1,264 pages. Everything from components, circuits, and audio measurements, to acoustics, psychoacoustics and image projection is presented.

The field of digital audio is well served by several books. *Digital Audio Technology* by Heitaro Nakajima, Toshitada Doi, Jyoji Fukuda, and Akira Iga (Tab Books, PA) presents early work in the digital audio field by these Sony engineers. Design of PCM circuits and an in-depth look at error correction codes are included.

Two books edited by John Strawn, *Digital Audio Engineering: An Anthology*, and *Digital Audio Signal Processing: An Anthology* (A-R Editions, WI) present papers from leading authors on a diversity of digital audio topics. Synthesis, processing, PCM conversion, digital filter design, vocoders and other topics are discussed. The latter book is particularly relevant to computer music practitioners.

*Musical Applications of Microprocessors* by Hal Chamberlin (Howard W. Sams, IN) is a classic in the field of microprocessor music and synthesis. The considerable amount of valuable information it contains will be increasingly useful to recording studio denizens as workstations continue to integrate processing, mixing and stor-

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age with synthesis. In addition, its software approach to many topics will become increasingly timely for the same reason.

It would be false modesty for me to omit my own *Principles of Digital Audio* (Howard W. Sams, IN) from this discussion. Derived from the University of Miami's undergraduate course in digital audio, this text presents discussions on fundamental digital topics such as binary arithmetic, sampling, quantization, dither, aliasing, and modulation. In addition, chapters on recording and reproduction hardware such as D/A and A/D converters, and chapters on error correction, the compact disc, and other topics are included. There is also a picture of my BMW motorcycle.

*The Compact Disc Handbook* (A-R Editions, WI) is a forthcoming book of mine, edited by John Strawn. It covers the spectrum of CD technology from disc specifications and data format to disc manufacturing methodology. Difficult to find engineering information on topics such as EFM, digital sum value, pickup optics, subcode format, premastering and player design is included. In addition, chapters on CD-ROM, CD-V, CD-I and DAT provide the latest information on these new formats. There is also a picture of two penguins.

*The Complete Guide to Compact Disc Player Troubleshooting and Repair* by John D. Lenk (Prentice Hall, NJ) provides an overview of CD specifications with an emphasis on hardware operation. Typical player circuits with discussions on troubleshooting and adjustment are useful to the service technician. Similarly, *Compact Disc Troubleshooting and Repair* by Neil Heller and Thomas Bentz (Howard W. Sams, IN) offers a description of basic digital theory, the CD system and detailed examples of player circuits.

*The Compact Disc Book* by Bryan Brewer and Edd Key (Harcourt, Brace, Jovanovich, CA) is a consumer-oriented introduction to CD technology with emphasis on information for the informed buyer.

Two CD-ROM classics are published by Microsoft Press (WA): *CD-ROM The New Papyrus* and *CD-ROM Optical Publishing, Volume 2*. The former is edited by Steve Lambert and Suzanne Ropiequet, and the latter by Ropiequet. They hold a variety of articles by

industry experts which serve to introduce CD-ROM technology and explore the potential of it as a means of information dissemination. Authoring and development, data preparation, project management, marketing, data protection, the High Sierra Group format, and other data delivery topics are presented. In addition, glossaries and a list of industry references are highly useful.

Another CD-ROM reference book is *The Brady Guide to CD-ROM* by Laura Buddine and Elizabeth Young (Prentice Hall, NY). This book presents information on CD standards and technology, with emphasis on CD-ROM concerns. The steps in producing a CD-ROM application are described, as are user interfaces, and commercial retrieval software. Multimedia CD-ROM applications, and disc premastering and mastering are discussed as well.

*Compact Disc Interactive: A Designer's Overview* (McGraw-Hill, NY) is authored by Philips International, the originators of the CD-I format. The book is the official comprehensive primer on the topic for CD-I authors. It describes the CD-I format, and offers guidelines for preparing audio, visual and text/data material for CD-I mastering and replication. The book also explains how to work with the CD real-time operating system (CD-RTOS), OS-9, and the InVision multimedia user interface.

For the electrical engineer, *Digital Signal Processing* by William D. Stanley, Gary R. Dougherty and Ray Dougherty (Reston, Reston, VA) presents theory and principles of DSP, along with introductory treatments of linear system concepts and filter design. The last third of the book presents applications of techniques using currently available hardware.

Richard W. Hamming's *Coding and Information Theory* (Prentice-Hall, NJ) is an introductory look at topics such as error correction codes, Shannon's Theories and coding theory.

The Helmholtz classic notwithstanding, there are several good acoustics books available. Another classic in the field is *Fundamentals of Acoustics* by Lawrence E. Kinsler and Austin R. Frey (John Wiley and Sons, NY). This book explores theoretical topics in acoustics ranging from fundamentals of vibration to spherical acoustic waves, from ultrasonic and sonar transducers

to underwater acoustics. Be warned that a mathematical background is required to appreciate the excellent presentation.

Two other acoustics books, more accessible to the layman, are *The Master Handbook of Acoustics* and *Acoustic Techniques for Home and Studio*, both by F. Alton Everest (Tab Books, PA). They present the basics of sound and hearing, acoustic effects, room acoustics, guidelines for the acoustical design of a listening room or studio including treatment, isolation and tuning.

A new book by Murray Campbell and Clive Greated, *The Musicians' Guide to Acoustics* (Schirmer, NY) approaches acoustics from a musical standpoint. Discussions on hearing, pitch, loudness, timbre, consonance and dissonance, and scales are presented. Detailed descriptions of the acoustical operation of musical instruments, including the human voice, comprise the majority of the text.

*The Auditory Perception Course* by F. Alton Everest (Mix Bookshelf, CA) combines printed text and cassette tapes to explore the fundamental psychoacoustic effects of delay, auditory filtering, masking, pitch, timbre, binaural hearing, etc. The booklet alone is a useful presentation of the topic.

Sound reinforcement topics are covered in *Sound System Engineering* by Don and Carolyn Davis (Howard W. Sams, IN). It is a highly practical manual on designing sound systems. Topics from the design phase, installation, equalization, operation and maintenance are discussed. There are also discussions on audio mathematics such as the dB, impedance matching, loudspeaker directivity and coverage, intelligibility, gain, and specifications.

John Eargle has prepared a new book in the field of sound reinforcement and contracting, entitled *Handbook of Sound System Design* (Elar, Plainview, NY). Judging from his other books, it promises to be a comprehensive presentation of that technology. Look for it at the end of the year.

Several books devoted to microphones are available. John Eargle's *The Microphone Handbook* (Elar, Plainview, NY) combines the theory and practice of microphones. Discussions on transducer theory, patterns, acoustical effects, and design are followed by applications chapters such as stereo

technique, speech and music reinforcement, and studio technique. This book works well both as a text, and handbook for the practitioner.

Another new book by David Miles Huber, *Microphone Manual: Design and Application* (Howard W. Sams, IN) provides a tutorial on microphone technology including microphone design and characteristics, and microphone techniques for a variety of applications.

Two texts on production techniques have recently been introduced by

Sams. *Audio Production Techniques for Video* by David Miles Huber bridges the gap in post-production between audio and video. Synchronization, time code, electronic editing and live broadcast stereo are all covered. *Introduction to Professional Recording Techniques*, by Bruce Bartlett, focuses on introductory recording and production techniques including microphone techniques, sampling, sequencing and MIDI.

A small but vital book is *The Time Code Handbook* published by Cipher Digital, Inc (MD). It outlines the basics of time code, and provides a tech-

nical manual on using the wide variety of codes properly in many diverse applications. It's more intricate than you may think.

Although most engineers are so busy making recordings they rarely have time to sell them, Diane Sward Rapaport's *How to Make and Sell Your Own Record* (Jerome Headlands Press, AZ) is of interest. It covers all the how-to's in promotion, sales, production, song rights and recording for the independent. Even if you're not planning on going platinum, the book provides an interesting perspective on the other side of the business.

The Audio Engineering Society's (NY) series of anthologies, conference proceedings, and collected papers are indispensable. The anthologies cover disc recording, loudspeakers, microphones, sound reinforcement and stereophonic techniques. Conference proceedings from the Tokyo Digital Audio Conference, Rosemont Stereo Audio for Television Conference, and the Los Angeles Music and Digital Technology Conference are available. Collected papers from the Rye Digital Audio Conference are also available.

Of course, no serious audio bookshelf is complete without Mr. Bonzai's decidedly unserious *Studio Life* (Mix Bookshelf, CA), which Timothy Leary called "... a marshmallow delight of a book." Whatever that means.

This is just a sampling of books from my shelf, with emphasis on introductory presentations. A great many others are available, with considerable depth in each subject area. Whatever the current or intended professional obligations, an audio engineer owes himself or herself the chance to gain greater understanding of the field. Technical books are a good way to keep up with current developments in your profession, affording greater detail than magazines. If you want to get ahead, buy books. If worse comes to worse, you can always go to the library to read books. Good libraries also have *Playboy*. ■

*Ken Pohlmann's an author, educator (assistant professor of music, program director of music engineering at University of Miami), inventor (has designed and built real-time computer music systems, aural lab testing devices), and quasimaniacal motorcyclist.*



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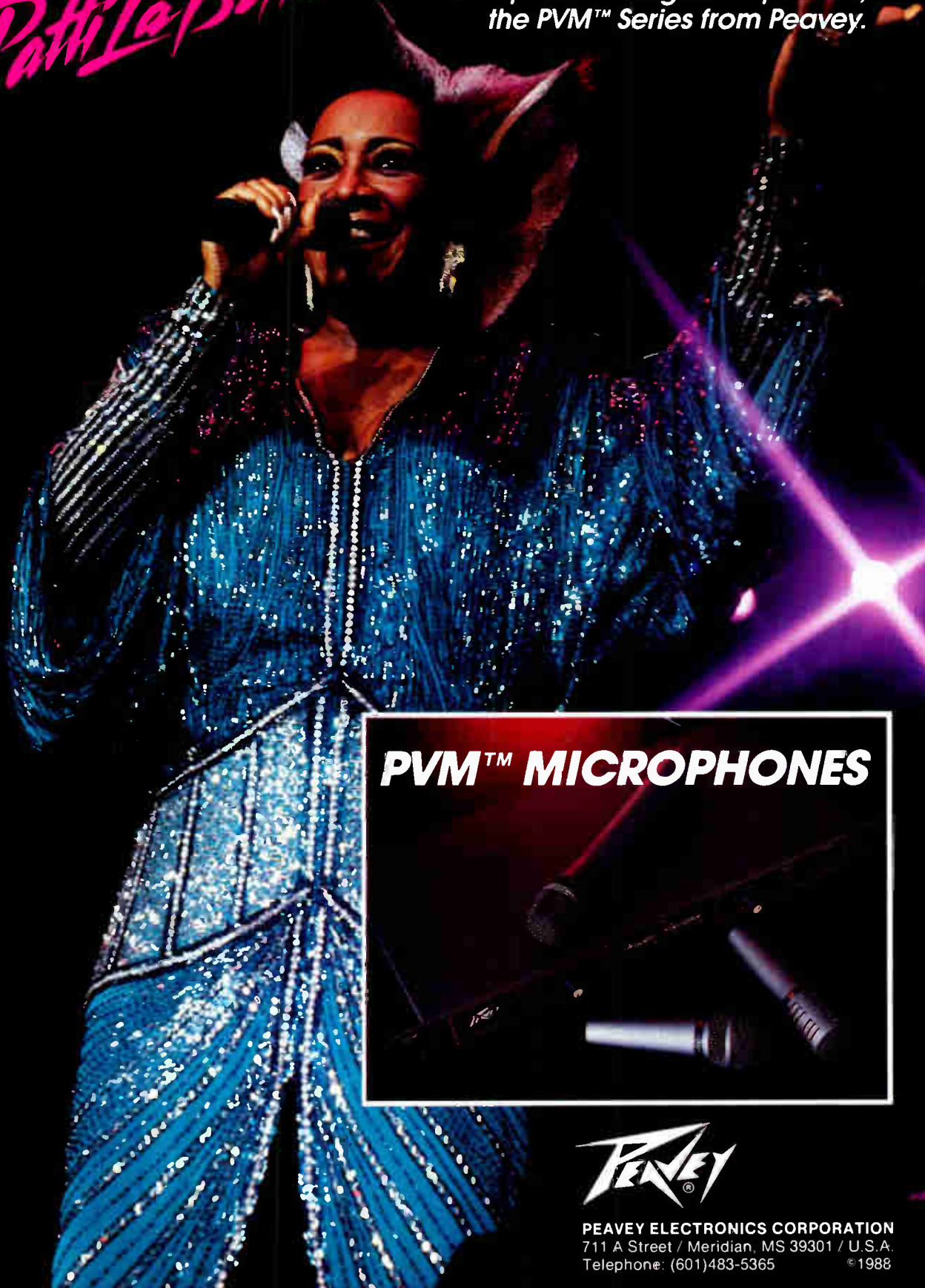


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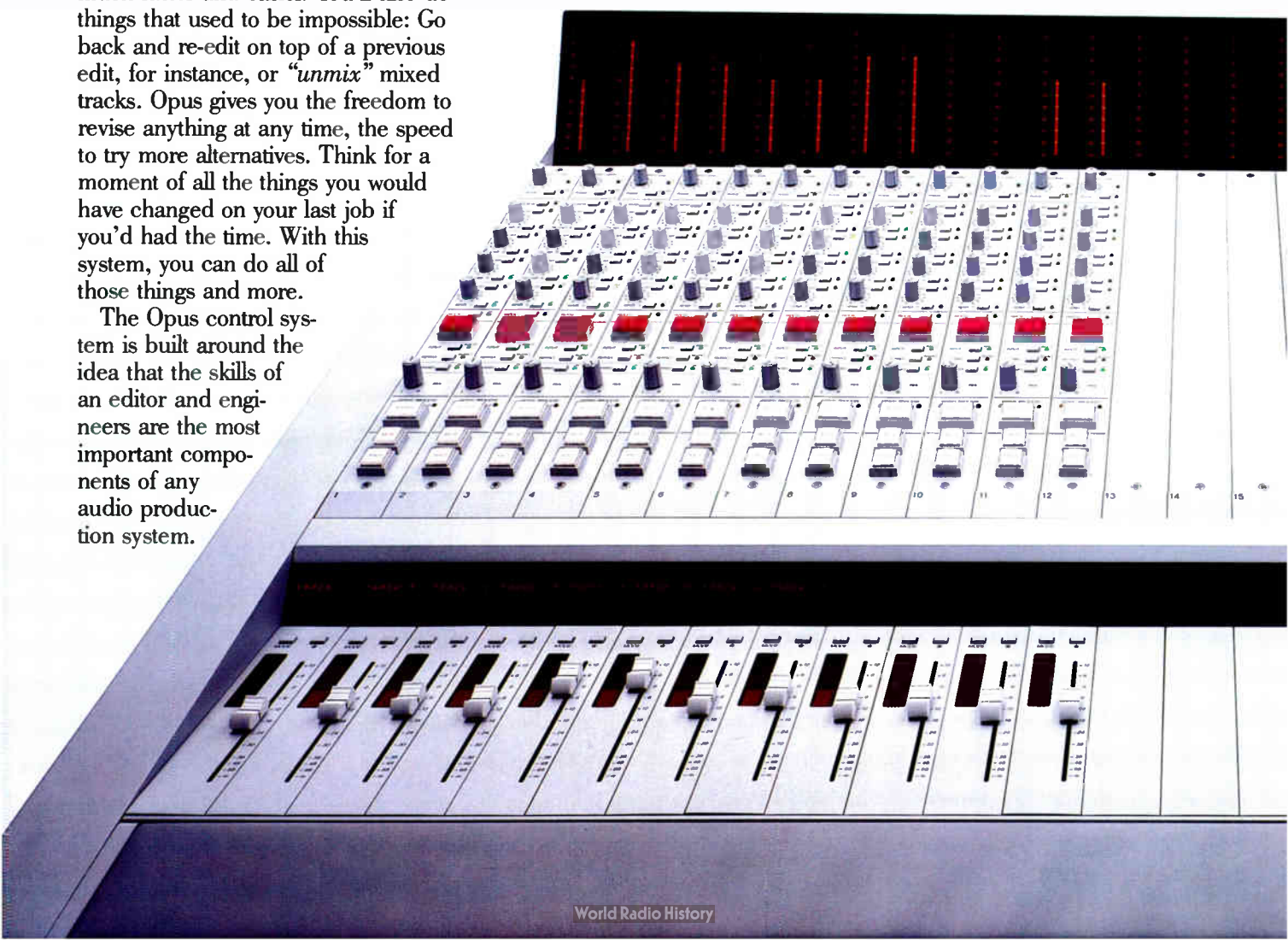
The Opus control system is built around the idea that the skills of an editor and engineers are the most important components of any audio production system.

It's a powerful workstation that integrates key elements of a multi-track recorder, an editor, a mixing console and a personal computer. One that stands as an excellent definition of the term "ergonomic". The emphasis at every stage is on making your job easier, not on making our engineering and design tasks simpler.

One example: To locate an edit point on Opus, you "scrub" the actual audio stored on the disk with the Edit knob. It's exactly like rocking the

reels of a tape recorder, except that you're hearing digital audio reproduced from the hard disk with full bandwidth and frequency response. You can also enter timecode locations on the numeric keypad if you find that method faster.

Another illustration: Opus changes level in real time, in the digital domain. You control this process with ordinary faders, and see the results on a familiar plasma bar graph meter bridge. You never interrupt the work



# You'll Have To Change Expectations.

flow to call up a special "mix" screen on the monitor, because real-time digital mixing is integral to the system's design.

Too often, new technology offers nothing more than a different set of obstacles. Opus is a genuine breakthrough to new standards of effi-

ciency, quality and creativity: the systems already in use are proving that statement every working day. From the 800 megabyte Winchester hard disks to the powerful distributed processing hardware and advanced software, each element of the system is focused on the task of capturing, assembling and manipulating sound with extraordinary flexibility and ease.

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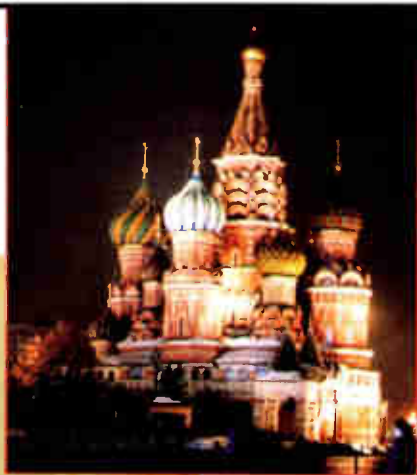


# DEPAUL

## BEHIND THE IRON CURTAIN

by Murray R. Allen

On Chicago's Northside, just above Old Town, sits the lovely campus of DePaul University. Well known for its championship basketball teams, DePaul also is renowned for its excellent



music school. Beginning with Sergei Tarnowsky, claimed to be Vladimir Horowitz's piano teacher, DePaul has had a long line of famous Russian musicians as faculty members. No wonder an invitation for the DePaul Wind Ensemble to tour the Soviet Union and Poland created much excitement.

As an advisor to the music department, I was asked if I would like to accompany the Wind Ensemble on this tour and record all the concerts. The itinerary called for performances at the Moscow Conservatory, the Leningrad Conservatory and the Chopin Academy of Music in Warsaw among others.

I jumped at the chance to join the tour. I was excited about recording in the same concert halls that had been the home of Tchaikovsky and Rimsky-Korsakov. I thought of all the different techniques I could use to capture the rich sounds echoing throughout these concert halls. Then I was informed of the restrictions that would be imposed on me. For openers, I would have to be able to carry all the recording equipment myself. In other words, I would not have an assistant. In the USSR, elevators are not always available so I would very seriously have to consider carrying my luggage and my recording equipment up and down several flights of stairs. To test my endurance I loaded suitcases with

(Above photo)  
Red Square at  
night, Moscow

(Left photo)  
Author Murray  
R. Allen with  
the portable  
DAT recorder



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weights and trotted up and down stairs. I found my limit to be about 70 lbs. going up and down five floors. My clothes and toilet articles weighed in at about 17 lbs. leaving me 53 lbs. for the recording equipment and tape.

The next obstacle was a limit on the amount of time I would have for set-up and sound checks. In all but one case I would be limited to one hour to set up and get my levels. (The only exception allowed me an hour and one half). I decided to go back to basics and make this the simplest recording project I had attempted in 25 years.

I called Sony and asked if they could furnish me with a very lightweight DAT portable recorder. They came through with a TCP-D10 model sold only in Japan. This DAT recorder weighed less than five pounds. It would run and record for two hours on a rechargeable battery. Sony also found me a charger that would be compatible with the 220 volts/50Hz USSR current. I found by plugging the charger into the battery slot in the DAT recorder, I could run the DAT off of available AC.

I decided to use two very light cardioid microphones fixed in a 90-degree

pattern as my sole pick up. After some experimentation, I decided to use two AKG 451s. We built a small battery-operated phantom power supply that would power the microphones as well as match them to the unbalanced input on the DAT recorder. I decided to record directly to DAT, as the additional weight of a mixer with extra microphones, cable and stands was prohibitive.

I used a stand that is normally used for movie lights. It telescoped up to a height of nine feet. We built a good shock mount for the microphones to fit on its top to avoid any rumble. Because the stand was so light, I carried gaffer's tape to anchor its base to the floor.

In addition, I carried a 30-foot extension for the AC, three 20-foot cables for the microphones, earphones, extra 9-volt batteries, an extra transformer and battery charger, extra European-type AC plugs, a tool kit, a Sony stereo microphone with 10-foot extensions and batteries, ten DAT cassettes (each two hours in length), and presents to give to the local technicians whom I might have to ask for help.

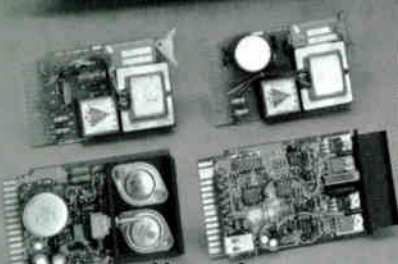
We arrived in Moscow on March

17th. Everything went smoothly through customs. The only piece of luggage that was lost was a tuba that was inadvertently sent to Russia by way of Los Angeles. The Moscow airport is very modern and very clean, but once we left the airport, we had seen our last modern, clean building for two weeks. The bus that picked us up worked just fine for the first two miles. Then it broke down.

The Wind Ensemble is comprised of 47 members. This includes eight clarinets, three saxes, two oboes, one English horn, two bassoons, one bass clarinet, three flutes, one piccolo, six trumpets, four trombones, two tubas, one baritone, six French horns, five percussion, a piano and a conductor. So just two hours after arriving in Moscow, 47 Americans were stranded on the side of the highway throwing snowballs at each other. A lonely baritone sax case on the side of the highway resembled a sled out of the Russian novel *Dr. Zhivago*.

After being rescued by another bus, we arrived at our hotel. My room was on the twenty-first floor. Although we never walked up the 21 flights of stairs, we found it much quicker when leav-

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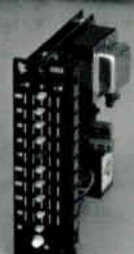
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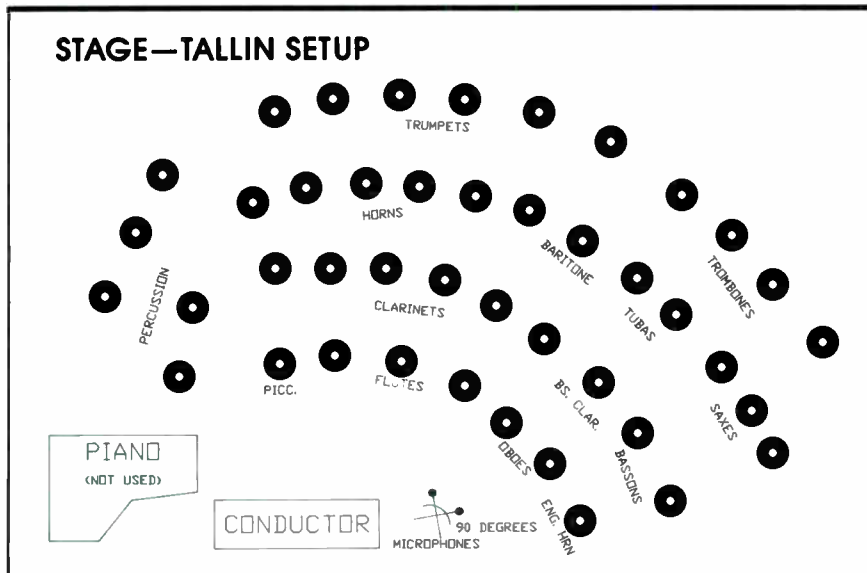
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GRAPHIC: GREG RANKIN

ing to walk down rather than use the elevators.

The first night, we went to see an opera written by Tchaikovsky. Although Tchaikovsky is not famous for his operas, this performance gave us a chance to get into the Soviet spirit by sipping large amounts of vodka from a flask at every chance that presented itself. By the end of the opera we were convinced this was the greatest thing we ever saw or heard.

The next afternoon was our first concert. Appropriately enough, the performance was scheduled for the Tchaikovsky Theater in the Moscow Conservatory.

The Wind Ensemble was on a very small stage, tightly squeezed together. There was enough room behind the conductor to place my microphones in a good position for recording. As I said before, the microphones were set at a 90-degree angle, which allowed for coverage of the entire ensemble without a hole in the middle. As we found out later, many of these old concert halls were not acoustically treated for the kind of volume created by the Wind Ensemble. Although a string quartet and/or a solo with piano worked acoustically well, the amount of low-frequency energy created by the Wind Ensemble sometimes caused a "boomy" result which made it difficult for the musicians to hear themselves.

This rehearsal was very important as it was the first time I'd heard the Wind Ensemble to set levels. It took me about 15 minutes to set up. This gave me about 45 minutes to get my best

levels and microphone placement. It turned out I needed every minute of this time. The Wind Ensemble took a break, and at 3 o'clock, the first concert was performed flawlessly.

The DAT recorder worked perfectly. Every time the conductor raised his hands to begin a new piece, I tapped the record button and a go-to cue was put on the tape. I did the same at the end of each piece. This made it possible to time the takes at high speed at a later time. During the performance I used house AC (220/50hz) to power the DAT; however, all playbacks after the concert were powered by the self-contained battery.

Following the concert at the Moscow Conservatory, we walked four blocks to the National Hotel (which is situated across from Red Square) and had some vodka to relax. For background music, we played the afternoon concert, using the speaker in the DAT recorder as our monitor source. As you can imagine, it's quite a thrill to finish a recording, then carry your master recorder into a bar to hear what you've just recorded.

We ate at the National Hotel, danced to the music of a balalaika band and had a grand time mixing with all the people of various nationalities. We even were asked to join a local wedding that was going on in a room adjacent to the restaurant. The Soviet citizens may not have the material wealth that we do, but they sure know how to party. By 2 o'clock in the morning, we were ready for a walk. We strolled over to Red Square, which at night looks

—CONTINUED ON NEXT PAGE

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#### Bernie Grundman Mastering, CA

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like Disneyland, with the colored lights playing on St. Basil's Church and on the Kremlin. The only military people we saw were the two guards at Lenin's Tomb.

The following evening we left Moscow for Tallin, the capital of Estonia. We traveled on an overnight train. Each compartment was 6.5 feet by 4.5 feet and had two lower and upper berths. At 6 o'clock in the evening, four of us piled into this tiny box with all our luggage and equipment to settle down for the 14-hour trip. My roommates were my wife Michele, and Fred and Flo Miller (Fred is the dean of the

DePaul School of Music). Naturally we slept with all our clothes on.

One of the percussionists had a suitcase stolen while on the train. We asked if there was a policeman to whom we could report this robbery. We were told that there is no crime in the Soviet Union. The suitcase must just have been misplaced. I gather it is not uncommon for people to come into your tiny train compartment while you are asleep, and "misplace" items.

The next morning we arrived in Tallin. The people there do not like the Soviet Union. They speak a different language, and if you speak to them in

Russian they probably will not answer. The hotel was the best we had on the entire trip—each room even had a color TV. The population in Tallin is more Scandinavian than Russian. In fact, since Finland is so close to Tallin and Tallin has fewer drinking laws, the Finnish people cross the border to party. Even though Soviet bars are only open late in the day, the hard currency stores have a superb liquor selection all day long. There are also hard currency bars open all day long (although in theory Soviets cannot go to these bars).

That evening we gave our concert in Tallin. This was the smallest stage and created the most problems for me. All the percussion was set way to the left with the center of gravity of the ensemble shifted to the right. To compensate, I placed the microphones to the right to achieve the same distance from the instruments. This setup worked for about 60% of the concert. The ensemble was good, though some of the solos sounded slightly off-axis. I hoped that the next three stages would be larger. And indeed they were.

On March 23rd we took another all-night train to Leningrad. This time we had our choreography down, and the four of us loaded into our tiny cubicle in a matter of minutes. But the trip was actually a little more difficult because the heat was set much too high. Sleeping with all your clothes on in what amounts to a hot-box is not very pleasant. We were happy to arrive in Leningrad to a snow storm.

The hotel in Leningrad was only five stories high. I saw this as a really good chance to work out. While in this hotel I made six trips up and down the stairs with my 70-pound load. Each floor had a concierge, and a rather full Russian woman concierge on the third floor took a liking to me. Every time I passed her station, she poured me a cup of Russian brandy and we'd chug-a-lug together. Needless to say, I got smashed working out each day.

The subway systems in the Soviet Union are excellent. In Leningrad there was a subway station two blocks from our hotel. This enabled us to get around town easily by ourselves. Each night we went to a music house/restaurant called Sadko's. We would arrive around 7:30 pm and drink, eat, see the show, dance and sing, and fall out at about midnight. In a typical evening, the four of us drank a liter of

# WE GET AROUND



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## How to keep an 8-inch splash from getting lost in the crowd.

Use the new Zildjian ZMC-1 system. Cymbal miking that puts a specifically designed microphone under each cymbal in your set-up. So you can isolate and amplify each cymbal individually. Which means now, for the first time, your 8-inch splash can sound as loud as your 22-inch China Boy.

The basic ZMC-1 system features five cymbal microphones, one Hi-hat mic and a unique mixer unit. It gives you volume and pan control for each channel, and volume and EQ controls for the left and right master outs. There are also outs for each channel, so you can even add effects, like reverb and delay, to individual cymbals. Extra ZMC-1 mics are available for larger set-ups.

And by the way: when you go see Kenny Aronoff (John Cougar Mellencamp), Neil Peart (Rush) and Gregg Bissonette (David Lee Roth)... what you're listening to is the ZMC-1.

For more information write: Avedis Zildjian Company, Longwater Drive, Norwell, MA 02061. Circle #031 on Reader Service Card



Kenny Aronoff

vodka, ate a dinner that consisted of blinis with caviar, several types of sausages, and breads, a large bowl of borscht, and a serving of meat, cabbage and potatoes. For dessert there was ice cream and two bottles of champagne. All of this came to \$85 for four people, or \$21.25 each. I usually left the waiter a ten-ruble tip. In return, he gave me another bottle of champagne on the way out.

The Leningrad Conservatory is in heavy competition with the Moscow Conservatory. Each takes the credit for educating every great Russian musician. The Leningrad Conservatory has all the pianos of its great graduates on display. However, there are not enough openings in the Soviet Union to handle all the graduates. A young trumpet player, who graduated with top honors, was working in a restaurant while waiting for an opening in some orchestra.

The people at the Leningrad Conservatory went out of their way to show us they were better than the Moscow Conservatory. The concert was well attended by an enthusiastic audience who stayed for an hour after the concert just to talk to the musicians. In fact, many of our musicians went to the private homes of these newfound Soviet friends for dinner and musical interludes. The whole event was covered by the evening news on TV.

We concluded our trip to Leningrad with a visit to the Hermitage, which is without a doubt one of the greatest art museums in the world.

That night we took another overnight train to Moscow, where we caught a plane that flew us to Warsaw.

Poland is more modern than Russia. The black market operates openly side-by-side with the official government, though the black market exchange rate is three times higher than the official rate. Everybody is more than willing to exchange money on the black market—we even ran into an official exchange agent who suggested we exchange at the hotel bar to save him the paperwork he would have to do if we were to exchange our money legally.

That evening we gave our concert at the Chopin Academy of Music, which is a very modern hall. For a change, the acoustics could easily handle the volume of this wind ensemble. This academy offers a *tonmeister* degree, so all the young recording students were



**Concert hall in Posnan, Poland. Murray (in short sleeve, white shirt) adjusting microphones.**

thrilled to actually see a DAT recorder. They recorded the concert at the same time as I did. They had a AKG C-24 as their main sound source. In addition, they used several KM-84s spotted around the ensemble. For reverberation, they placed two U67s way up above the balcony, facing the back of the hall. The effect was different than we are used to in the U.S., albeit not all that bad. Their console was over 30 years old, as was their Studer recorder. But the result of their labors was quite good and definitely took advantage of the wonderful acoustics in the hall.

The ensemble played very well because of the good acoustics. Some of the musicians said the stage had the same feel as my Studio A at Universal Recording in Chicago. I was very pleased with my recordings, although I would have liked having more equipment so that I, too, could have taken better advantage of this great hall.

We closed the tour with a concert in Posnan. The stage in this town was the largest of the entire tour. The en-



semble played a great concert and we were all happy that the tour was finished and we would be heading home.

We boarded our plane with the good feeling that the concerts had all gone well and that my equipment worked flawlessly. I would not be afraid to use a DAT recorder for any

location project anywhere in the world. I want to thank Sony for their help in this project, and I also want to thank LOT airlines for all the free vodka they served on the way home. ■

*Murray Allen owns Universal Recording in Chicago.*

# MOVING FADERS: AUTOMATION UNCOMPROMISED



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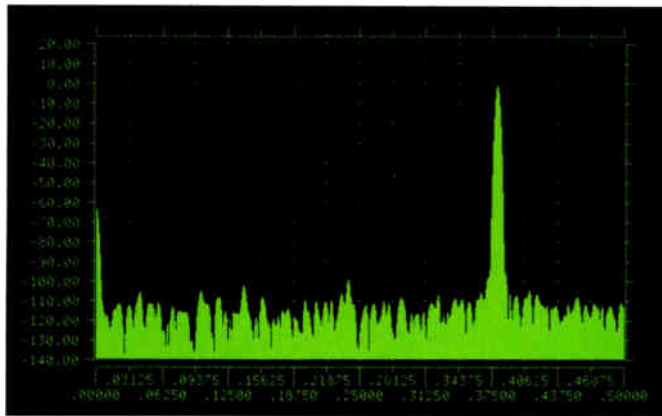
For full information on how you can combine the highest levels of automated freedom with the utmost in audio performance, contact your Digital Creations dealer, or write us direct:

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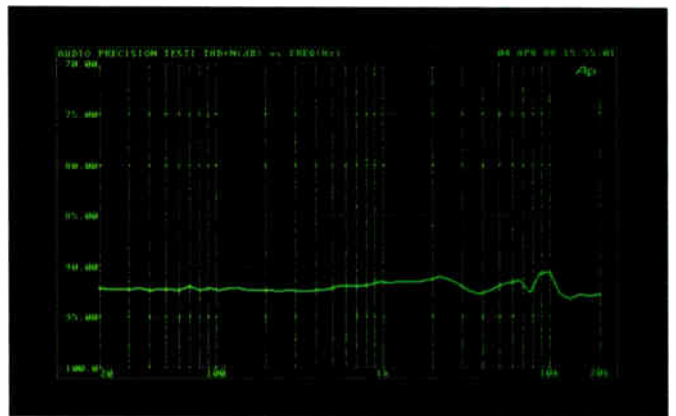


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# Stop, look, listen.



FFT: Detailed distribution of noise and harmonic distortion vs. input signal. Measurement of sample and hold and ZAD2716 A/D converter only. Computer analysis receives digital information from A/D converter (to avoid DAC reconstruction distortion).



Using an Audio Precision system, a sine wave is digitized by the ZAD-2716, then reconstructed by the ZDA-1801, and filtered by Apogee's 944S linear phase filter. Graph shows combined total harmonic distortion and noise vs. frequency.

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If seeing is believing, you'll be impressed by the harmonic distortion and noise plots of our ZAD2716/ZSH202 digitizing subsystem (left) and ZDA1801 deglitched reconstruction DAC (right). Nobody's ever seen plots like those before.

But there's more to the story than a good plot.

The ZAD2716-2 coupled with the ZSH202 Dual Sample-Hold can provide stereo digitizing at a 50 kHz sampling rate per channel. The ZSH202 allows simultaneous sampling of both channels within  $\pm 2$  nsec with guaranteed  $-96$  db/channel separation. And there's no sacrifice of phase linearity or sin x/x. In fact, we guarantee sin x/x performance of 0.01dB and phase linearity of 0.1 (degree) over 0 to 20 kHz. (Performance that brings a smile to any Golden Ear.) Cost savings are significant on a per channel basis, because you only need one converter for two channels.

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## Gefen M&E Organizer

The *M&E Organizer System* is a software package that catalogs, retrieves and triggers music and sound effects off CD libraries. Designed by Gefen Systems (Woodland Hills, CA), it eliminates manual searching and centralizes the storage, selection and

### THE M&E ORGANIZER SYSTEM



playing processes. The system understands basic English, offers several methods for retrieving descriptions for each effect or cue, and saves all listing data in a separate file for future use or accounting purposes. It includes a listing catalog for several popular commercial libraries and a machine interface board. The system needs an IBM PC/XT/AT or clone) with a 10-Meg hard disk, and interfaces with one or two Sony CDK-006 auto disc loaders. The company also offers a complete hardware/software package, and an optional circuit board that uses SMPTE time code for "mark in/mark out" effects triggering.

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## Harris DAT →

In an OEM agreement with the Tokyo-based Aiwa Company, the Harris Corporation (Quincy, IL) will

# NEW PRODUCTS

distribute the XD-001UH broadcast-use digital audio tape recorder throughout North America. Available under the Harris label, the DAT unit features a straightforward design and offers broadcasters high

digital (and/or analog) ports. The processor is equipped with four sets of input ports (three digital, one analog) and four sets of output ports (again, three and one). Input/output port selection is made under program control, and the digital ports can be independently programmed to the Sony SDIF-2 (1610), AES/EBU and S/PDIG (CD/DAT) standards—the user can, for example, import music from a DAT deck and export the edited version to an AES/EBU device. Front panel control lets the user switch between

## AudioFile Video ↑ Interface

AudioFile, the digital recorder/editor from AMS/Calrec USA (Seattle, WA), is now available with a video editor interface. This allows video editing and synchronizing systems to deal with the AudioFile as if it were an Ampex VPR-3 or VPR-6 transport. According to the manufacturer, this is the first time video editors can enjoy synchronous audio follows video editing and track slipping in the digital domain.

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flexibility and ease of use. The rack mount XD-001UH allows high speed music search, preview of the first eight seconds of any cut on the tape, forward and back skip, timer recording/playback, high-speed cue/review and a multi-function counter. A versatile remote control is optional.

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## Dyaxis with Digital I/O

Integrated Media Systems (San Carlos, CA) has introduced the Digital Direct Dyaxis, providing direct-to-disk, stereo or mono recording, playback and editing capabilities from



analog and digital, selecting the final digital format from menus on the computer screen. Digital input data can be monitored while recording direct to disk or while the system is "idle." Digital Dyaxis supports three standard sample rates (44.1, 48 and 32 kHz).

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## Studer Digital ↑ Audio Editor

Studer Revox has developed its first digital audio editing system, the DE4003. Intended for CD/tape mastering in conjunction with Studer's digital 2 channel D820X recorder, the DE4003 accommodates two playback machines (one can be analog) and one recorder. Studer's filters for nominal and low-speed cueing offer high audio quality and shorter searches for cue points. Users can select operating



sequences and internal memory size, and can monitor the off-tape signal in all modes. Other features include a built-in time code generator and the ability to integrate with the Studer and Philips LHM-3050 PQ editor.

Circle #127 on Reader Service Card

interfaces to DAT, CD and other standard digital systems, and incorporates dual Apogee filters. According to Apogee, Fairlight found that the filter eliminated the "harsh, brittle" sound typically associated with digital audio.

Circle #129 on Reader Service Card

to 999 ms in 1 ms steps) that can be preset individually for in and out ports, a 16-bit digital gain fader (with 12 dB range) that controls the level of the signals to be edited, and 16-bit, full-bandwidth stereo sound search. The editor accommodates four players under frame-accurate computer control. It can interface with Sony's DMR-4000/2000 and optionally connects to the PCM-3402 2-track and PCM-3324 24-track DASH recorders.

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AD808 conversion box with eight analog XLR inputs and an RS-422 digital output for direct connection to the DMP7D. A Yamaha representative expects initial deliveries of the DMP7D to begin this October.

Circle #131 on Reader Service Card



## Panasonic DATs ↑

New from Panasonic are a pair of full-feature DAT machines developed for pro audio. The SV-250 model is a portable device for high-quality recording on location, and features balanced XLR-type inputs and a 2.2-hour record capability from its rechargeable Nicad battery pack. The SV-3500 model, mains-powered, offers remote control and is designed for rack mount applications.

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## Sony Digital Editor ↓

A new Sony digital audio editor, designed to enhance Sony's CD mastering system, has been introduced. The user-friendly DAE-3000 (replacing the DAE-1100A) offers greater editing accuracy and efficiency and a more versatile system interface. Features include improved editing resolution (23  $\mu$ s), variable crossfade time (1

## Yamaha DMP7D

Unveiled at last month's NAIMM show in Atlanta, the DMP7D is the digital input/output version of Yamaha's DMP7 Digital Mixing Processor. The DMP7D accommodates a variety of standard digital input/output sources including: Yamaha DSP-LSI, Sony PCM-3324, Mitsubishi X-850 (all via an RS-422 input); AES/EBU standard; CD/DAT; word clock in/out; effects send/return and digital cascade in/out. The unit's only analog ports are left/right monitor and headphone outputs. Users requiring analog inputs can use the optional

## AES "Music & Digital Technology" Book

The Audio Engineering Society (New York City) has published *The Proceedings of the AES 5th International Conference: Music and Digital Technology*. Comprised of 20 papers presented at the spring '87 gathering, it includes diagrams and photos, and covers such topics as digital workstations for music, advanced software, and music & the CD-I. The 248-page paperback costs \$25 for members, \$35 for non-members. Quantity (two or more) discounts are available.

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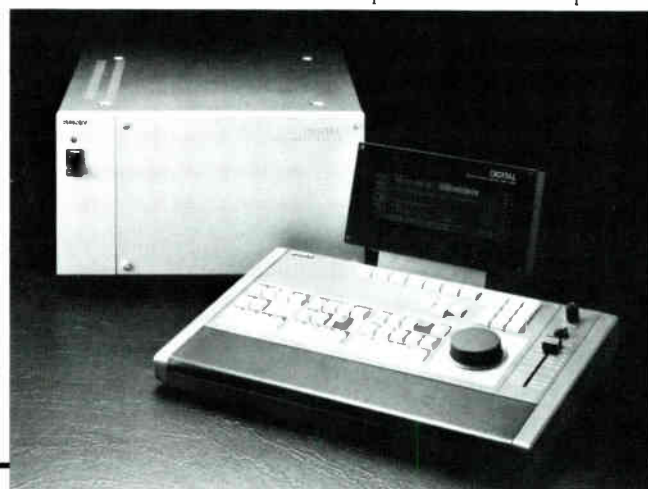
## Wendel jr Returns

Industrial Strength Industries, of Cerritos, CA, is now marketing the Wendel jr drum machine developed by Steely Dan engineer Roger Nichols. Wendel jr can be triggered from a variety of sources (with a 32  $\mu$ s response time), and is capable of playing back interchangeable 16-bit drum sample cartridges (recorded at 50 kHz and transferred completely in the digital domain to ROM carts). The Wendel jr is offered from ISI at a direct sales price of \$600, including two cartridges.

Circle #133 on Reader Service Card

## Apogee for Fairlight

The 944S and 944G anti-aliasing anti-imaging filters from Apogee Electronics (Santa Monica, CA) have been designed into Fairlight's new AES/EBU sampling card for the Series III system. This stereo analog-to-digital converter card



# Some quotes to make you think hard (disc).



"We've just completed our first film for Cannon Films completely on AudioFile without reverting to mag stock in post production. We can't see anybody wanting to work the old way once they've worked on AudioFile."

Vic & Linda Radulich,  
Digital Post, Los Angeles.



"On our latest film, 'Lords of Magic', we recorded all of our production sound digitally. The AudioFile is used to handle the dialogue and music editing and will be used as a playback source in the final mix."

David Marsh,  
Marsh Films, Los Angeles.



"Commercial production forms the bulk of our business. The AudioFile has proven to be easy to use and now makes it possible for us to realise our goal of digital audio from start to finish."

Jay Scott,  
Producers Color Service, Detroit.



"When we took delivery of our AudioFile, we got it out of the box, powered it up, and did a project with it, it really is that simple."

John Wiggins,  
HBO Productions, New York City



"Over the years we've built up a very comprehensive digital audio effects library and we're now building two complete new rooms, each equipped with an AudioFile to get the very best results when laying audio to picture."

Wylie Stateman & Lon Bender,  
Soundlux, Los Angeles.



"The AudioFile has eliminated the need for our analog 24-track in post work. Recording and editing entirely in the digital domain makes possible first generation audio for our final video mix. This has allowed us to maintain our leading edge as one of the top audio for video facilities in the world."

John Binder,  
Editel, Chicago.



"Client response to disk based recording and editing has been nothing short of phenomenal. They have realised the AudioFile's time saving during their first session, and for them saving time means saving money. What this means to the Chicago Recording Company is that the AudioFile has helped the busiest room in town to get even busier."

Hank Newberger, & Tim Butler  
Chicago Recording Company, Chicago



"We own a lot of AMS equipment, and all of us at the Hit Factory are very excited about the addition of AudioFile to the Studio. Right now, our clients are eagerly awaiting the arrival of our first system."

Eddy Germano  
Hit Factory, New York City



"You can build a house with a hand saw or a power saw; AudioFile gives you the advantage of using a power saw - it's so fast it can actually make a repetitive chore fun!"

Ken Hahn,  
Sync Sound, New York City



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AMS Industries plc, 1986. In July 1985 Edendisk Ltd became AMS Industries plc.

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by Guy DeFazio

# MITSUBISHI X-86 RECORDER

In 1978, roughly 50 years after Harry Nyquist's sampling theory opened the doors to the development of digital audio technology, Mitsubishi Electric unveiled one of the world's first 2-channel, fixed-head PCM tape recorders with razor-blade editing capabilities. Two years and several prototypes later, the Mitsubishi model X-80 fixed-head PCM tape recorder hit the market.

Today, the Mitsubishi Pro Audio Group has successfully combined the performance features of the X-80, recent advances in LSI (large scale integrated circuit) technology and reliability of the PD (ProDigi) encoding format into the X-86 series of professional digital master recorders. Standard features of the X-86 include cut-and-splice editing, individual or simultaneous punch-in/punch-out, read-after-write monitoring, varispeed ( $\pm 10\%$ ), switchable 44.1 and 48 kHz sampling rates, four additional subtracks (two cue, auxiliary digital and time code), 14-inch reel capacity, selectable emphasis, remote control interfacing, digital dubbing facilities and various sources of external clock synchronization. There is also an integrated autolocator that allows "on the fly" storage of tape position, four location memory, rollback and location playback.

The X-86 is available in three versions: the standard X-86 with 44.1/48 kHz sampling and two hour playing time (14-inch reels), the X-86HS with a 96 kHz sampling rate that extends its bandwidth well beyond that of the best analog recorders, and the X-86C incorporating a dual headstack design allowing playback of X-80 tapes, as well as recording and playback in the X-86 format.

Originally available as an option, but now included as standard equipment, is a Digital Interface (DIF) card which slides into a card cage conveniently located behind the front access panel. The DIF card permits SMPTE time code to be read and generated, two-way digital dubbing using the AES/EBU interface standard, as well as electronic editing features in combination with Mitsubishi's XE-2 digital editing console. The X-86's RS-232 port will enable remote





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audio/video needs of musicians and production studios.

### Just the Facts, Ma'am

Things change quickly in pro audio. To make sure everyone here knows all the facts about the latest equipment, we've added a Product Specialist to our staff. His *only* job is researching equipment—reading brochures and tech manuals, going to trade shows, talking with manufacturers—and sharing that knowledge with our customers.

### New Central Location

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Sales Staff (l to r): Nat Hecht, Paul Freudenberg, Paul Svenson (Sales Manager), Karyn Thomas (Sales Assistant), Philip Celia, Mark Lever, Vanessa Perea (Tape and Accessories), Garth Hedin, Robert Corn, Ben Ing (Product Specialist), Constantino Psorakis



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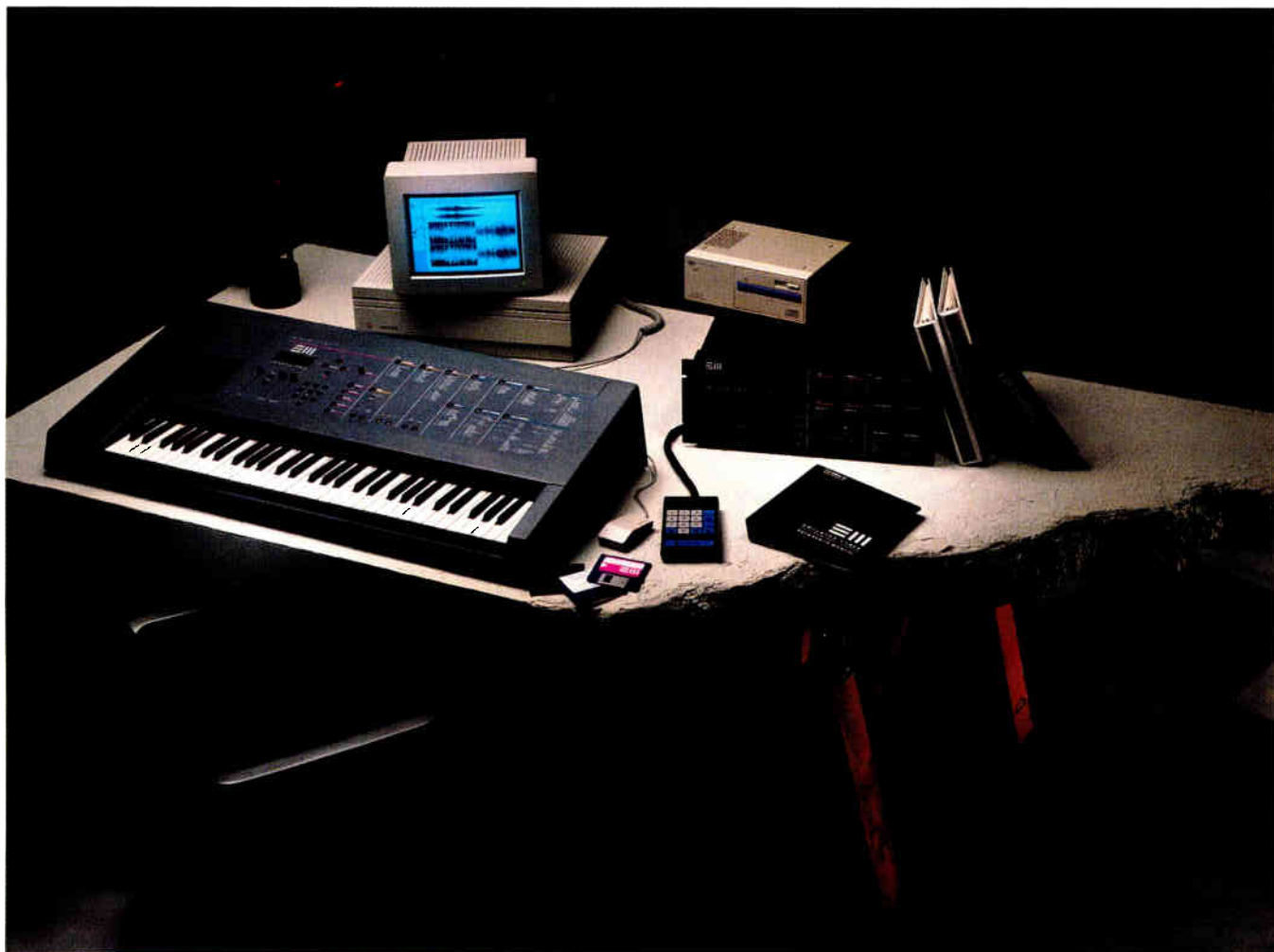
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Technical Staff (l to r): Steve Smulian (Service Manager), Paul Hulse (Senior Technician), Rik Shannon (P.O.M.P.), Greg Dougan (Parts Manager), (Not Pictured: Nello Torri)

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## Why your next console should be as difficult to hear as it is easy to operate.

### The studio is more complex and less forgiving.

Electronic production techniques using MIDI and SMPTE sync require more control than a "wire with gain" can provide. But as functions and components accumulate, the console's signal path has grown more complex, and its audio performance has suffered. On analog recordings, higher levels of crosstalk, noise and intermodulation were an acceptable price for additional control. On digital multitrack, however, these flaws become glaringly obvious.

### Crosstalk blurs the stereo image.

Now that digital recorders have virtually eliminated crosstalk, this is an especially annoying problem. *The AMR 24 matches the channel separation performance of digital multitracks* because it employs balanced buses that eliminate crosstalk the same way mic inputs do. This radical design approach takes full advantage of digital's more coherent stereo imaging.

Balanced buses also eliminate the intermodulation that plagues the sound of conventional "virtual ground" mix amps. *The AMR 24's noise floor is constant whether you route one input*

*to a group, or thirty six.* So you can concentrate on the music without distractions from the mixer, even on digital multitrack.

### Features shouldn't degrade audio performance.

Automation widens creative possibilities — and narrows the margin for console error. For example, FET mute switches that are "silent" individually can produce audible glitches when grouped. The AMR 24's carefully controlled switching time constants eliminate this problem.

Every circuit in the AMR 24 has been calculated with equally close attention. Each stage has at least 22 dB of headroom; total dynamic range is over 100 dB. Even so, *unused stages are bypassed to produce the shortest effective signal path in every operating mode.*

Perhaps the AMR 24 is a product of extremist engineering. But as we see it, optimum audio performance, not simply a revised layout, is what makes a console automation- and digital-ready.

### The feel is familiar, the functions are unprecedented.

The AMR 24 facilitates innovative production techniques within a classically

split configuration. Master Input Status switches select mic inputs or line returns on all input channels simultaneously. In its mixdown configuration, the AMR 24 will handle up to 60 tracks, because the 24 Track Select switch changes the monitor returns to line returns normalised to your second 24 track (or to synchronised "virtual tracks" from synthesisers and samplers). The monitor returns have aux buses, solo and mute, plus four bands of EQ and long throw faders, so this flexibility is achieved with no loss of audio quality. For additional effects returns, the Fader Reverse function creates an additional 24 patch points through the cue send faders.

Imaginative design and uncompromising construction give the AMR 24 flexibility and sonic transparency that represent clear achievements: especially clear on digital recordings. For all the facts on this innovative console, send your business card or letterhead to:



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transport and synchronization control using the EBus (EBU/SMPTE bus) networking standard. While all hardware for the RS-232 interface has been installed on the X-86, Mitsubishi is awaiting further development of the EBus standard before implementing applications software.

The X-86's rear panel contains all audio, synchronization, communications, external control, and power connections. The L/R, auxiliary digital and time code connections are XLR-type balanced in/unbalanced out; digital dubbing connections are made using XLRs for the AES/EBU standard and 25-pin D-type connectors for the Mitsubishi interface; 50-pin D-type connectors are used for both the parallel transport remote control and the XE-2 editing console; 25-pin and 9-pin D-type connectors handle the RS-232C and RS-422 interfacing, while BNC-type connectors are used for the composite sync in and clock in/out connections.

Looking at the X-86's operational features from the top, the meter bridge contains level controls for record, repro, and monitor signals, VU and digital peak meters, monitor select controls, record ready/safe controls for each channel, two monitor speakers, a headphone jack, and all system status switches and indicators. Uncal switches for both record and repro, when enabled, allow rotary pot adjustment of levels, while screwdriver controls beside the uncal switches are used to set standard operating levels. Separate monitor level controls for the left and right channels provide adjustment of monitor speaker level and headphone level. Located between the X-86's standard VU meters are highly visible LED bar-graph indicators with selectable peak hold operation, as well as Code and Aux-D indicators which light up when a time code or auxiliary digital playback signal is present.

This brings us to the monitor control switches. These controls allow selection of repro, input, sync or cue signals. The repro signal is a read-after-write signal, which has been encoded, recorded to tape, and decoded again. Just as monitoring repro on an analog tape machine allows you to hear distortion due to tape saturation or dropouts, read-after-write reveals distortion due to digital errors encountered during the recording process. The sync signal is de-

rived from the sync head (the first of the X-86's two read heads), delayed to coincide in time with the write head, and is used for punch-ins and punch-outs. The input signal is taken after the input A/D converter and thus has identical fidelity, assuming minimal errors during recording, to that of the repro signal. The cue signal is the playback signal of the auxiliary analog cue tracks and is recorded using PWM (Pulse Width Modulation). Ready controls enable and disable the L/R, code, and aux-digital tracks while the auxiliary analog tracks are linked to the L/R channels.

System status indicators keep the user informed of the current state of the system status switches, as well as many other dynamic and static system modes. System status switches include an external clock enable, an external sync enable, and an emphasis enable. When the X-86 is locked to an externally supplied clock, an Ext-clock indicator stays

## **The ProDigi format is the backbone of the X-86's reliable performance.**

lit; if the clock is lost, the indicator flashes. A Synchro indicator displays the synchronization status of the X-86 when synchronized to the FM 9.6 kHz signal from its remote connector. When the Emphasis switch is enabled, preemphasis and de-emphasis (with time constants of 15/50 $\mu$ s) are used for recording and playback, and the emphasis indicator lights up. If the emphasis flag of a recorded tape does not correspond to the setting of this switch during playback, the emphasis indicator flashes.

The remaining status indicators on the meter bridge provide the user with information on dubbing status, sampling frequency, servo speed, time code selection and error correction occurrences. I find the instant availability of synchronization, servo lock and error correction information to be invaluable not only in quickly discovering my own operational mistakes but also as a source of assurance that the unit is maintaining proper performance. Mon-

itor speakers for left and right channels, as well as a stereo headphone jack, are also located on the meter housing.

Moving on to the mainframe, all transport and tape path components are mounted on a die-cast aluminum chassis, with each component individually adjustable for easy alignment. The headblock contains four ferrite heads that physically appear to be identical, but operationally utilize various track widths and inductances. As the tape enters the headtrack assembly it contacts a perforated aluminum plate that effectively removes stray particles from the surface of the tape. Anti-flutter guides with recessed ceramic edges guide the tape first across the sync head, then past the erase and record heads and finally past the repro head. Two ceramic tape lifters are used to eliminate unnecessary friction as the tape shuttles past the headstack in fast forward and rewind. A hardened steel capstan shaft is driven by capstan servo circuitry which maintains tape speed with quartz crystal accuracy. Capstan servo clocking, as well as data buffering in the reproduction processing circuits, virtually eliminates mechanical errors such as transport wow and flutter.

The traditional primary transport controls are located at the forefront of the top panel and become highly illuminated when enabled. In addition to Record, Play, RWD and FF, there are: Reel, Dump, Slow, and Shuttle controls. Reel should be selected when using small 7-inch reels. Dump disables the take-up motor during editing, and Slow facilitates smooth packing in fast wind modes. The Slow control has an internally adjustable speed of 60 to 250 ips. When the Cue control is enabled, the shuttle lever becomes active, the tape lifters are released, and the cue tracks are automatically selected as the monitor source. The shuttle lever is a mod-wheel type of control and tape speed depends on its setting angle. The lever is extremely sensitive and controls the tape speed from approximately 1.5 ips to 250 ips. As a result of user comments, new cue circuitry is being implemented that is capable of 1/50th play speed and improved S/N ratio.

The autolocator and varipitch controls are located just above the primary transport controls and both utilize seven-segment LED displays. The autolocator display contains eight display fields and is non-programmable. If the DIF card is installed, the display can be

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switched to tach or code. Otherwise, tach is displayed. Four memory address locations are provided and can store displayed location values during any operation. The most recent play start address or the four memory address values can be located to at any time. A Rollback control returns the tape to a point four seconds before the most recent play start, and Reset zeroes the counter.

The varipitch section features programmable  $\pm 10\%$  pitch change in 0.1% steps. When using varispeed on record, as well as playback, I was able to get as much as  $\pm 20\%$  variation in tape speed. The 44.1 kHz operating mode is implemented as a fixed varispeed offset from 48 kHz operation. Consequently, varipitch controls are inoperative in 44.1 kHz operation.

The ProDigi data format is the backbone of the X-86's reliable performance. PD encoding makes use of Reed Solomon and CRCC error correction codes, a two-by-four data modulation scheme, relatively low recording density, pulse width modulated auxiliary cue tracks, and a self-clocking data signal. Reed Solomon Code is a highly successful multiple-error correcting code (particularly well-suited for burst errors) whose correction ability increases when used with CRCC (Cyclic Redundancy Check Code) pointers. The 2/4 modulation scheme is a system whereby the original data of 2 bits is converted into 4 bits of channel data, allowing for more efficient data storage. Low recording density not only maximizes tape-cut editing reliability, but also facilitates future expandability such as increased data rates. In fact, the X-86 is presently capable of recording 20-bit audio data through its AES/EBU network. PWM cue channels enable the X-86 to record and reproduce cue signals using the same heads as the modulated PCM signals, eliminating the need for dedicated analog audio heads.

A phase-locked loop capstan servo mechanism and accurate data clocking are absolute necessities in digital audio recorders. ProDigi generates its clocking information directly from the playback signal itself and is not restricted to the operation of a separate control track. In order to facilitate the performance of successful error correction and maintain a certain quality of error concealment, the audio data is interleaved

upon recording, with the data of the left and right channels being mixed and recorded on six (of eight) data tracks, while the other two tracks are used for error correction check codes. In all, 12 tracks are used to record all audio, time code and auxiliary digital information.

Fundamentally, recording and editing operations on the X-86 employ all the traditional features of analog recorders, with the added performance of digital processing introducing a few distinct operational trade-offs. During normal stereo recording, with the Repro switch selected, the capstan is driven by the record servo circuitry and read-after-write is enabled. Read-after-write monitoring is not possible if only one channel is set to "ready." Single channel record operation is reserved for sync recording. During sync recording, the capstan is driven by the playback servo and channels can be recorded individually or simultaneously. Sync recording monitors the input signal during record and the sync head playback at other times. In sync mode, an adjustable (2.7 to 82.7 ms) digital crossfade is automatically performed between the playback signal and the input signal during punch-in and punch-out. Punch-in and punch-out is a truly elegant operation with none of the traditional analog problems of erase timing and bias ramps. Crossfades are not employed on the auxiliary tracks, but timing accuracy for punch-in and punch-out is maintained within  $\pm 1$  ms. Both the read-after-write and sync recording modes independently carry out their own set of sophisticated signal processing. Therefore, during recording, switching between sync and repro is not possible. Recording on the auxiliary cue tracks is linked to the digital audio tracks and carried out automatically.

The input and output configurations for the time code track and the auxiliary digital track are identical, which gives the user the option of recording two time code tracks or two auxiliary digital tracks. The time code track has the additional utility of having its location displayed by the tape counter. The auxiliary digital track can be used for recording CD subcodes, time code of a different frame rate, or user-specific data such as location, date, reel, take, etc.

Mitsubishi supplies a list of recommended precautions for razor-blade editing on the X-86. This list includes: using only the supplied splicing block, avoiding wrinkles in the tape, making a

dubbed copy prior to editing, making a dubbed copy prior to long-term storage of an edited tape, and last, but not least, "wearing gloves" in order not to leave fingerprints on the tape. In spite of these suggestions, I put the X-86 to the test by using analog splicing tape, an over-the-counter splicing block, non-recommended digital recording tape, no gloves and a variety of intentionally bad splicing techniques. The error correction on the X-86 performed exceptionally well. Not a single edit was audible. As expected, the Uncorrect indicator flashed briefly at each edit point, subtly reminding me that it was correcting the disrupted data at each splice. After several playbacks, over a two month period, the edited tape did show increased error correction and some audible artifacts around the spliced areas. Of course, the edits were significantly less than ideal, and two months should be more than enough time for even the busiest studios to make a dubbed copy. The X-86 also allows fine tuning of razor-blade edit points with an adjustable electronic crossfade time of 2.7 to 10.7 ms.

Pulse width modulated cue tracks and the availability of a shuttle lever

necessitate a partial rethinking of the editing process. The cue tracks have a bandwidth of 8 kHz, a S/N ratio of 40 dB, 6% distortion at 1 kHz, and—at normal playback speed—sound somewhat "grainy," to say the least. While cueing the tape, the accuracy of the shuttle lever made locating the splicing point much faster than rocking the reels by hand. After adjusting to the sonic quality of the cue tracks, I found the PWM signal to have certain distinguishable features that are ideal for locating edit points.

Electronic editing between two or more X-86's is possible with the addition of the Mitsubishi XE-2 editing console. The XE-2 is a SMPTE-based editor that utilizes 20-bit (AES/EBU standard) PCM data, 12-second memory buffers, selectable crossfade times, shuttle wheel control and accuracy to a single time code bit.

The master clock of the X-86 can be synchronized to a variety of external clock signals. Composite sync or TTL sync signals with frequencies of 9.6 kHz, 50 Hz, 60 Hz, 59.94 Hz, 48 kHz, or 44.1 kHz, are selectable. When slaving the X-86 to a VTR, Mitsubishi recommends locking the X-86's master clock to

house sync, in order to keep wow and flutter in the VTR transport from affecting the audio data.

An easy-to-follow instruction manual supplied with the X-86 gives a concise overview of all operational features. A separate maintenance manual is available for detailed mechanical and electrical service information. Because of the complicated nature of stationary head digital audio recording, head alignment is much more critical than on analog tape machines and should not be attempted without first consulting the Mitsubishi maintenance manual. Likewise, strong electric or magnetic fields (i.e. SR head demagnetizers) can quickly destroy thin film heads.

The X-86 successfully implements, and in many respects surpasses, the operational features historically limited to analog recorders, while also utilizing far-reaching, state-of-the-art standards such as AES/EBU interfacing. There is no doubt that the future of professional audio is digital, and with the availability of products like the X-86, 2-track analog tape recording may soon be joining other analog formats (8-track cassettes and wax cylinders) as monuments in audio history. ■

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# SCHOOL STUDIOS: BUDGET OR BUST

by Karen Margroff Dunn

**W**hether schools have studios on campus or take their students elsewhere for hands-on experience, all educators feel the need to expose their future engineers, producers and musicians to a variety of equipment; learning by rote is not accepted. Not only does variety expose students to what's happening in the industry, it also helps them adapt more readily in a professional world that is constantly changing.

The schools that *Mix* contacted, whether long-established or in their first year, all agreed that hands-on experience in conjunction with studying the theories and principals behind the technology was important to produce a competent, employable graduate.

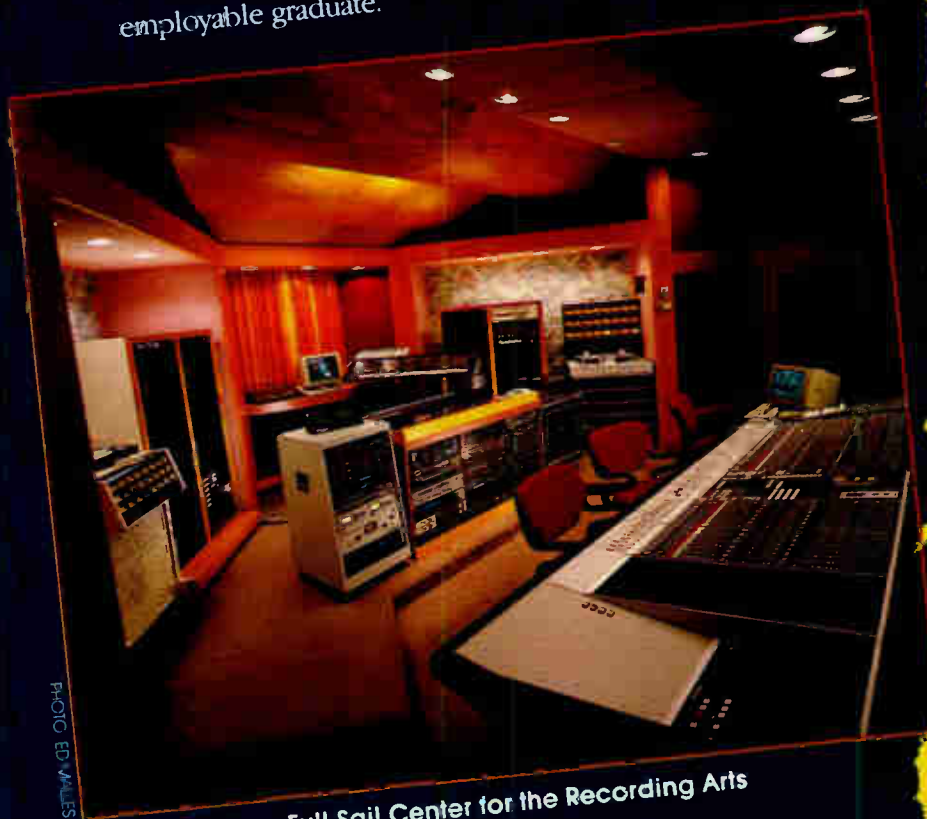


PHOTO: ED WILLES

Full Sail Center for the Recording Arts

## Mix Goes To School

A SPECIAL SUPPLEMENT

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University of Miami's School of Music

### University of Miami

Offering a four-year Music Engineering Technology program, which culminates in a Bachelor of Music degree, and a two-year Master of Science degree, the School of Music at the University of Miami in Coral Gables, Florida, has enjoyed success over the past few years with a claimed 100% placement of graduates.

"Our program is evolving," says program director, Ken Pohlmann. "We really are a recording program, but over the years the program has evolved into other areas, and I think our focus is really changing. We've seen the incredible need for entry and mid-level positions in the industry for people who are more technically inclined from an engineering standpoint. We're working hard to get students who are really literate in terms of computers, digital signal processing, software design—these real computer whiz-kid types who feel very comfortable in a computer hard disk programmable environment, because that's really where the business is headed."

To that end, Pohlmann and the school are very conscious about equipment selections for their two studios. The principal recording studio houses a recently installed, fully automated Sony MXT 3036 console, an MCI JH-24

24-track, two Sony APR 5002 analog tape machines, a 3M 4-track digital recorder, a Mitsubishi X-86 digital recorder, a dbx digital audio processor, an Audio Kinetics Q-Lock synchronization system, Sony 1/4-inch video recorders and monitor, and a Cezar video editor. It also has "most all the effects, gizmos and boxes you would want to mess with," Pohlmann says, along with a full complement of speakers and microphones. The school was also one of the first to buy a Synclavier: "We just saw that kind of concept as being very important to the future," notes Pohlmann, "so we scraped up the money and went out and bought one."

Keeping ahead of the game is not always easy, though. "It's tough to keep on top of things and try to figure out what's going to be important three to four years from now," says Pohlmann. The department is helped by the school being able to fund a complete remodeling of the studio every couple of years, so the equipment is "pretty fresh," Pohlmann notes. Even so, "We have to be as cost-conscious as any studio out there. We look for equipment that really has a future ahead of it. We would never consider buying a piece of gear that has a foreseeable finite lifespan."

On the drawing board for the School

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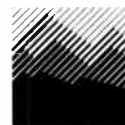
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of Music is a new complex that will house a recital hall, a large (5,000 square feet) recording studio and control room, an overdub studio, office and maintenance facility. More immediately, though, Pohlmann says the program will be adding more hardware and software to the Synclavier system. "That's really where the future is," he says, "in the workstation concept."

### **Full Sail Center for the Recording Arts**

Located four hours north of the University of Miami is the Full Sail Center in Altamonte Springs, near Orlando. "We offer what's called the Comprehensive

Recording Arts program," says Jon Phelps, president and director of the school. "The program lasts for 1,240 clock hours and has over 600 hours of lab time."

Labtime is spent in one of five facilities. "We have a studio that features all SSL with an SSL 6000E with full automation and Total Recall, Studer machines, and every kind of outboard gear you could imagine," says Phelps. They also have a 48-track mobile unit with two Otari MX80 24-track machines. The large array of outboard equipment floats between the studios depending on where it's needed.

Currently under construction is an

entirely new complex that will expand the center from its present 8,000 square feet to 23,000 square feet. "When the new facility is done—which will be October of this year—there will be three Synclavier suites [with two Synclavier in individual suites and a Synclavier direct to disk system in another], the mobile unit, the SSL facility and we're adding a complete video studio and post production facility.

"We're offering a new comprehensive program in video in the fall. There's a real boom here with MGM, Disney and Universal building huge production facilities. We're gearing up for the film/video post work. That's

## **The Manufacturer's Role In Education**

### **HELPING THE USER THROUGH THE TECHNO-MAZE**

**by Paul Potyten**

Do any of these scenes sound familiar?

You've been using your new Astrosystems digital multi-effects processor for about six months now, but you have a funny feeling that you're not getting everything you thought you could from it, and you just haven't had time to sit down and read the manual. In fact you can't even *find* the manual, but you think it's buried somewhere in that huge stack of manuals on the table.

You've already put in six hours trying to hook up your new synchronizer, but you still can't get it to lock up to video. The manual doesn't seem to address the problem that you are experiencing.

You're spending all of your spare time researching the newest sampling products, but you still feel like you don't have enough information to know which one is best suited for your purposes. Meanwhile, you're not getting your work done.

If these or other similar scenarios are giving you heartburn, indigestion or psoriasis, then you undoubtedly know what it means to suffer from techno information overload. It seems no matter how many machines you learn to use, the army of latest generation machines continues to advance—sort of like Mickey Mouse and the insurgent brooms in the "The Sorcerer's Apprentice"

from the Disney classic, *Fantasia*. Although we can't expect to stop the march of the brooms (nor do we really want to), help is on the way. In increasing numbers, the manufacturers of these sophisticated products are offering a variety of training environments for their consumers, for dealers and for their own technical support staff.

#### **IMC Akai**

According to Jerry Freed, president of International Music Company, which includes Akai Professional in Fort Worth, Texas, "We need to educate the masses, and right now all we have is a select few who are up to speed electronically in our industry."

The company's approach in dealing with this issue is to start with the consumer and go up. Akai clinics are conducted at music stores in major cities. Their product line is quite sophisticated, and the company finds that clinics are a very effective way to inform and educate the end user.

Akai also regularly holds two- to three-day seminars at their Fort Worth facility for the dealer store salespeople and, in the major regional markets presents service seminars where all of the ins and outs of the product line are explained.

"Ten years ago, a music store might get one new product per

month," observes Freed. "Somebody would take the manual home and study it, and have time to learn how to run the thing at the store. Today, the dealer salesmen are getting new products almost hourly, and there's such an information overload that it's impossible to keep up with it in the same way. Our service seminars are designed to address that issue."

Instructional video tapes are increasingly becoming a popular tool for use by manufacturers of high end equipment. Akai Professional has produced a series of videos on a wide variety of its products. The company sells the tapes at cost directly or through the music stores. Freed comments, "In some cases we give them away, as was the case with the EWI, where we sent video tapes to most of the band directors across the country."

#### **Roland**

Another company which has adopted an aggressive attitude toward training and education is Roland Corp. Their Learning Center was opened at Roland's U.S. headquarters in Los Angeles in late 1986, and was designed to help Roland retailers improve their knowledge of MIDI technology and equipment. The regular classes are held each week, Monday through Wednesday.

—CONTINUED ON PAGE 142

## Student Participation: Good Ideas, Excellent Learning

Everyone faced with building a studio has the problem of trying to furnish the optimum facility within the confines of space, time and, of course, budget. In education these boundaries are often further challenged by the need to provide meaningful learning experiences for students while also attending to the details of acoustical integrity, equipment specifications and interfaces, ordering materials, powering and grounding, interface wiring, heating, ventilation, air conditioning, lighting and, of course, budget.

This was the situation faced by the staff at the Technical Institute of Hutchinson, Minnesota in the fall of 1987. Confronted with the need to build additional studio facilities to accommodate expanding enrollment, the school decided in early 1987 to embark on a three-year project to convert a 24 x 60-foot space, previously used as a photo studio, into a second recording studio com-

plex. The fiscal plan called for completing as much construction in the first year as could be handled within the existing budget, finishing basic construction and installing equipment in year two (school year '87-'88), and completing acoustical detailing and certain aesthetic details in the third year. This allowed for use of the facility after the equipment was installed while spreading the expenditure over three fiscal years. With design assistance from Twin Cities acoustical consultant Steve Orfield and input from the members of the Audio Technology's program advisory committee, wall specifications and plans were established, and construction began in June 1987. Fall quarter arrived with walls in place and a group of students anxious to get into "the new studio."

The Audio Technology Program at the Technical Institute of Hutch-

—CONTINUED ON PAGE 64

one of the reasons we have all the Synclaviers," says Phelps. But that's not the only reason.

"We've gone together with Synclavier to develop a school for Synclavier in conjunction with New England Digital," he says. "They chose us to set up their training because they realize that as sophisticated as the equipment is getting, serious training by people who can do it quickly is very important. So we're going to be training their future owners and people who operate Synclaviers." The course is also open to students, and they recently completed the first official session.

"We've become an over decade success," laughs Phelps.

### Trebas Institute of Recording Arts

Trebas offers a two-year Recording Arts & Sciences program at their four campuses in Canada and one in Southern California. With almost ten years of experience, Trebas chief administrator David Leonard has found, "Technology changes so quickly, running a studio itself is a major enterprise. We're basically not a studio-running workshop. We're basically a school. We don't focus on the technology so much, although it's important to teach what's current, but we don't want to get locked into current technology.

"What we've done is gone with major 24-track studios, like Artisan in Hollywood with an SSL console, Red Zone with an Amek and Studers, and Promise Productions with the new Westar console. So our students have an opportunity to work on different equipment.

"We have on-campus studios, but I would rather call them elaborate laboratories—where the students can go right after their class—mainly for mixing and learning the outboard gear, and the process of doing overdubs and voicing."

Leonard defends his use of outside facilities: "We don't just go visit them. We're spending hundreds of thousands of dollars a year in studio rentals, renting thousands of hours of studio time a year. Basically, students get four hours a week in the 24-track studio, plus, on top of that, we have put in our own MIDI workstations in the last school year. All the campuses have at least one or two. We'll probably add more. We don't know if we'll have two, five or ten per campus." The workstations are outfitted with Atari com-

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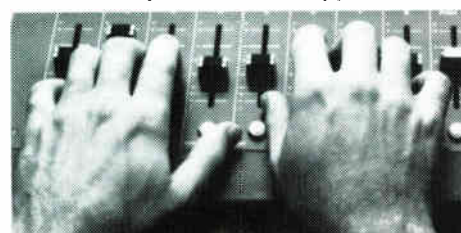
If you're serious about becoming an engineer whose services are constantly in demand by the music industry, there's something you should know. More than ever

before, the hottest engineers will be those with the skills of both a technician *and* a musician. And now there's one place where you can develop your technical and musical awareness hand-in-hand—at the acclaimed Grove School of Music in Los Angeles.

Grove's new Recording Engineering Program is an intensive one-year course of study that gives you an exceptionally well-rounded approach to making music sound better. Grove instructors are working professionals based here in the entertainment capital of the world, where opportunities are at your doorstep in more studios and concert halls than you'll find anywhere else. Students from more than 30 countries have found the Grove School to be the most *practical* place to launch their music careers.

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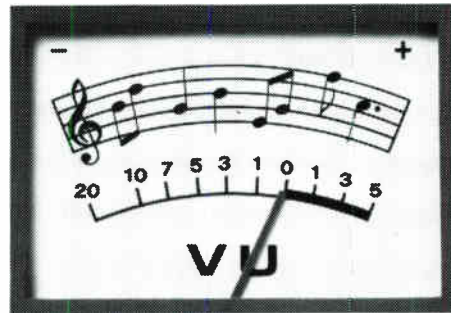
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"The most important thing we're trying to do is to help students learn how to think, how to solve problems, how to work in different situations in studios."

### **Institute of Communication Arts**

"Our basic philosophy is that facilities have to be student accessible," says Nils Hartvig Nielsen, program administrator and chief executive officer. "It's fine to go out and rent outside state of

the art, million dollar studios for a limited amount of hours, but that's not where the learning takes place. Our approach is to have multiple noncommercial facilities that are within and have them accessible to students, so that students have priority."

To that end, the Institute of Communication Arts (ICA) in Richmond, British Columbia, which offers one-year, two year or part time programs, incorporates on campus 16-track and 24-track studios and a mobile unit with a limited amount of time at two outside

studios.

"We're using a combination at this point," says Hartvig Nielsen, "but we're headed in the direction of on campus studios. It works well on a number of levels to go to outside studios. Placements have been very good because the natural place for the outside facility to look to fill their job opening is with people who are already familiar with their equipment. But that's a small point, because if a school's well known, and its educa-

CONTINUED ON PAGE 69

—FROM PAGE 62, HUTCHINSON

inson offers post-secondary vocational technical training in recording, sound reinforcement, and audio electronics. Special attention is given to the design, installation, maintenance, and repair of pro audio equipment and systems. Vocational technical education teaching methods involve an individualized instruction method to present theory units combined with practical hands-on training in both lab and on-the-job settings through internships or work experience. It is recommended practice in vocational technical education to replicate tools, materials and working conditions of industry as closely as possible in the training environment.

With this in mind the students in the studio design and installation class were presented with the course content outlining design considerations for the new facility. This included the development of a statement of purpose for the proposed facilities, studio financial planning, break-even analysis and cost-benefit justification. Items more technical in nature such as acoustical considerations, equipment specifications, interconnect wiring, patch bays, power requirements and grounding procedures were also discussed. The students were required to produce plans and specifications for a theoretical problem. The proposal submitted was to include a financial analysis, break-even point, operating costs and profits. The students were also expected to develop construction sketches, equipment specifications and cost estimates, interface dia-

grams, power requirements and grounding specifications.

After these assignments were corrected, a flow chart of the tasks needed to be done to complete the new studio was developed by the students and each was given an opportunity to assume responsibility for the jobs. Duties included: microphone feed installation, design of room layout, racking equipment, and wiring of patch bays, punch down blocks and studio gear. Through involvement in the planning and installation of the control room they would shortly be using, each student had a built-in incentive to do his/her job accurately and on schedule.

Having the creative energies and watchful eyes of 15 extra people served to add quality and reduce costs, allowing the studio to include some features which would have otherwise been beyond budget limitations. One such item was the computer access flooring which, although originally specified, was threatened because of budget constraints. Through the students' efforts in working out the design details using conventional construction techniques and by working with a local carpenter, the sand-filled access flooring was constructed well within budget.

Another area in which student effort and creativity afforded considerable savings was in the patch bay construction and interconnect. By retrofitting some tiny surplus telephone jacks and working out the installation procedures using a modified wire wrapping technique the students provided a professional quality patch bay in addition to

developing their skills and problem solving abilities.

The skills and experience contributed by students who have enrolled for retraining or job skills upgrading can prove quite valuable for any project. In our studio we encountered a problem involving the control room electrical power. The power for the new control room had been spec'd according to accepted industry standards and installed by a licensed electrical contractor. To be on the safe side, one of the students (who happens to have been a three-year veteran of live sound) suggested we check it out with a meter before making any connections—just in case. Sure enough, somewhere in the process the electrician had neglected to make sure that all feeds were to come off of the same leg of the three-phase service entry. A quick call to the electrician got the problem fixed.

The successful installation of a studio requires careful attention to detail and a lot of work. In situations where student learning objectives are related to the task at hand, the closely supervised involvement of students in an "on campus internship" or work experience program can be an excellent learning experience, providing opportunities to learn technical skills, project planning and creative problem solving.

—David Igl

*David Igl is the curriculum manager for the Audio Technology program at the Technical Institute of Hutchinson in Hutchinson, Minnesota.*



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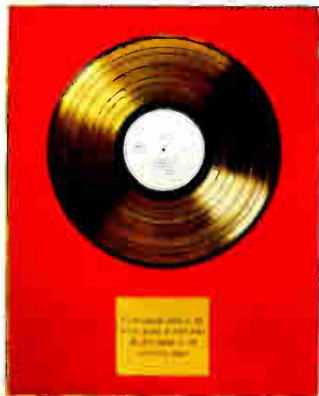
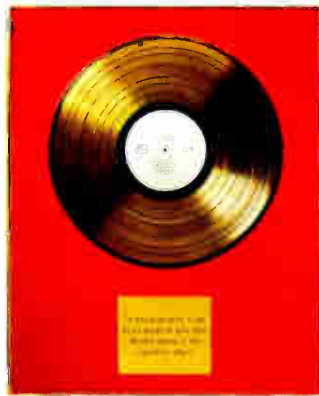
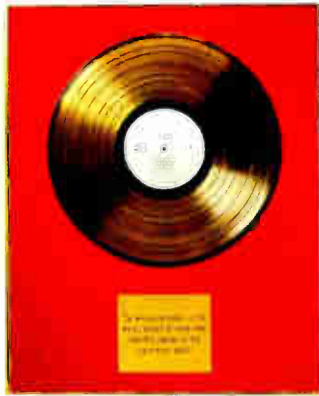
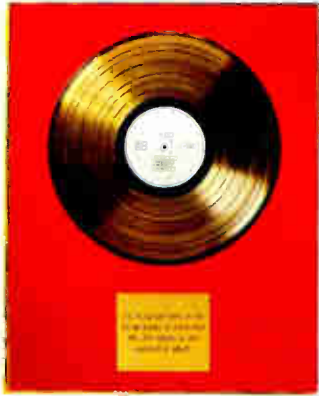


Analog multitrack recorder:  
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Electronic music production:  
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## TEF IN THE CLASSROOM

When Timothy Miller, Director of Audio/Recording at Northeast Community College in Nebraska, first came across the TEF System 12 Analyzer three years ago, he thought of it as the perfect tool to allow students to "take what once had been subjective—'Boy, that sounds good,' to helping them understand what it really was that sounded good. It was an objective view of what was considered subjective."

The TEF System is a portable computer designed to make quick, accurate measurements of room acoustics and sound systems. All settings are done through the keyboard and can be recalled and duplicated exactly whenever needed. While ten or 12 other schools are using the system across the country, Northeast Community seems to be the only college using it exclusively for teaching.

"Our view of TEF isn't just to teach students how to run TEF, but

to use it as a tool to better understand what's going on in the audio or acoustic or electro-acoustic medium that they're in," says Miller. "We're trying to use it as both a tool of instruction and as a tool of illumination with audio."

Instituted just this year, the TEF program takes the better part of one semester. So far, it's been fairly successful. "At first there's a hesitation," says Miller. "The technology is complex and there's a fear. But once the students get over that, they start seeing it in a whole new light. They have an understanding well beyond what any of my other freshmen have had.

"I think more schools in the future are going to be getting TEF and finding out how it can enrich their program. I'm just glad we're doing it now." At the end of the semester, Miller plans to sit down and evaluate the program. "It's been a real enriching year for me—learning TEF and working with it," notes Miller. "I have a long way to go and so do the students."

—Karen Margroff Dunn

—FROM PAGE 64, ICA

tional quality is recognized, then it won't matter whether students were trained on their particular board or equipment."

ICA's 16-track studio is a one-inch Tascam studio, using an 8516 multi-track mixing console, Tascam 52-2 mastering machine for mixdown and various outboard gear and mics. The 24-track room uses a combination Soundcraft/Studer for the board and houses a variety of outboard gear. Sculley and Allen & Heath are the boards and multi-track in the mobile unit.

But using on-campus studios exclusively can lead to great expenses. So the ICA, like most schools, has a range of criteria to meet before making any big purchases, like acquiring a new console. "First we look at the number of facilities in North America in particular that are using specific consoles. Maturability is another factor," says Hartvig-Nielsen. "Are we going to buy something now that is going to be current in five years? We don't want to buy something that is going to be outdated quickly."

## Middle Tennessee State University

Spring semester of 1990 may seem too far away for most people to think about, but Geoffrey Hull, chief administrator for the Recording Industry Management Program at Middle Tennessee State University in Murfreesboro, Tennessee, sees it quite clearly. That's when he expects the new \$10.8 million Center of Excellence for Recording Arts and Sciences to be up and operating.

MTSU has more recently added a 24-track digital room, equipped with a NEOTEK console, Sony 24-track and outboard hard disk-based system. This complements their 16-track analog room, which has a Harrison 2824 with Alison automation, MCI tape machines, a Mitsubishi X-86 and an assortment of mics and outboard gear. The digital LEIDE® room was designed by Bob Todrank of Valley Audio. They have SMPTE in both rooms and access to TV production facilities.

The school's Recording Industry Management program is a four-year Bachelor of Science program in music

—CONTINUED ON PAGE 168

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## SPEAK TO THE

# SCHOOLS

*picture. The engineer of the future is an all-around engineer. The music engineer, as the industry has known it, is on the decline."*

**T**he young audio engineer, proud bearer of a new bachelor's degree in recording arts, wanted to find work in the San Francisco Bay Area. She sent her resume to the region's top studios, including the Music Annex of Menlo Park and San Francisco, where she competed for studio head David Porter's attention with the 17 other resumes he typically receives each week. Music Annex only hires two people (average) a year, but Porter scheduled an interview with her. Porter, an active SPARS member, had spoken at her school and knew the program to be a comprehensive one, and the applicant was recommended by her professor. To top it off, the timing was right—one of Porter's tape copy employees was ready to move up the ladder into voice-overs, radio commercials and A/V work.

When the graduate arrived at the Music Annex, Porter took her into a control room and handed her a blank

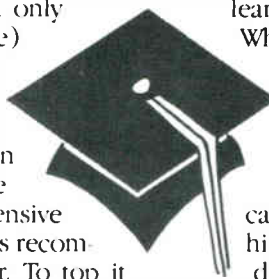
piece of 2-inch tape, an alignment tape and a screwdriver. Then he pointed to the console and tape machine and said to her, "Make it +5, 3 over 15k, 250 nanowebers. Here's the oscillator. I'll see you in a half-hour."

Porter would learn more about the applicant's capabilities, but the point of this first trial is, "Some people spent *four* years at a school and didn't learn how to align a machine.

When I get resumes from someone at a school that doesn't have a technical or maintenance program, I just circular-file it."

The aspiring engineer, capable and confident, was hired as Music Annex's first dubber/administrative assistant. She knew how to run the MS-DOS program that does the tape trafficking, how to align machines and make dubs, and possessed the skills to handle clients, book time and deal with Federal Express.

This audio engineer graduated from one of 200+ recording arts schools,



by Linda Jacobson

# Before After



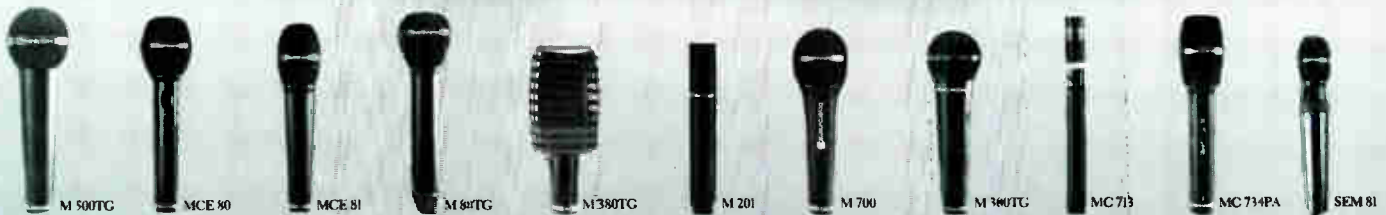
Before a microphone can qualify as a great road mic, it has to be a great mic, period. Above all, it must deliver the natural sound of voices and instruments accurately.

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More importantly, it's even harder to hear the difference. But that's something you'll have to prove to yourself. Fortunately, every time you put a TourGroup microphone to the test, you can take advantage of unparalleled Beyer sound.

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Canada: 4190 rue Seré St.-Laurent, Québec H4T 1A6 Tel. (514) 3 41 69 33

Australia: 356 A-358 Eastern Valley Way Chatswood N.S.W. 2067  
Tel. (02) 417 7088 Fax: (02) 417 7374

—CONTINUED FROM PAGE 70  
STUDIOS SPEAK TO THE SCHOOLS

workshops and seminars offered in this country. While their goals are similar, the educators and institutions all execute their programs differently. How do aspiring audio engineers decide what to look for in a school or program? And what do their potential future employers want to see coming out of these schools?

We called one leading production facility in each of six major markets—New York, Los Angeles, Chicago, SF Bay Area, Memphis, the Southeast—and posed those questions to the people who do the hiring and firing. The answers fell into three basic categories.

### Emphasize the Importance of Real-World Experience

Jimmy Dolan heads Streeterville, the diverse multi room facility in the heart of Chicago. His employees include former students from Berklee School of Music's engineering program, the University of Miami at Coral Gables, Full Sail near Orlando, Florida, and various seminar and workshop groups throughout the country. Streeterville also works with one to three student interns each year.

"Depending on whether they come from academic programs versus more hands-on or job experience," says Dolan, "they have a different understanding of the business. We've had

people from the big universities who are shyer around the interaction of people on a business level. Their technical approach is much less in-depth, while their discipline, theoretical knowledge and work attitude are well honed. They have to gain ground in the nuts and bolts of the day-to-day business world, understand the vulnerability of their environment. A person who starts off in a 4-track facility and moves up through 8- and 16-track, then works as an assistant in a multi-room facility with state-of-the-art gear is technically on a growth pattern, and has had to pacify clients so they got a firmer stance of dealing with somebody on a personal business level."

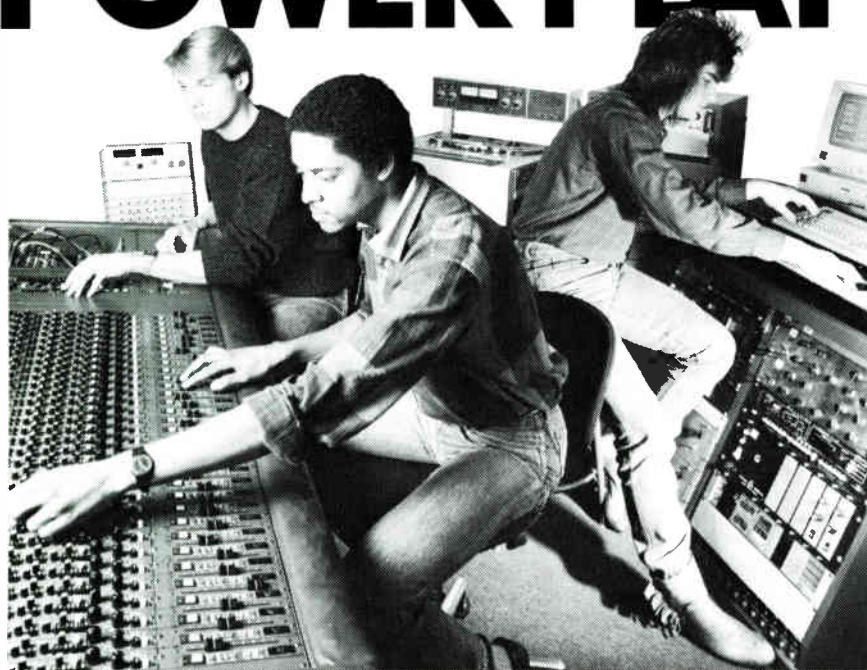
David Porter (Music Annex) also emphasizes the importance of experiencing the business world, particularly social dynamics. "What's really important in mixers is their personal skills and presence, which has to do with instilling confidence in the client. And that has to do with their own positive image of themselves. I don't care if the guy has the best ears this side of the Missouri, it doesn't matter if the client doesn't have confidence in him. So I think schools have to put students in real situations with clients.

"A big university doesn't want to consider itself a vocational school, yet indeed they're training someone for a vocation," Porter adds. "Say you were going to be a hairdresser. You'd be put in a situation where people get their hair done cheap by trainee hairdressers. Do schools set up a situation with real, paying clients? No, students practice on other students. So the situations are low-pressure, no money involved, therefore there's no feel on the part of the engineer of what is really going on."

Nicki Schiralli manages the Record Plant in New York City, where, he says, "Everyone here has graduated from those programs. We're very happy with the State University of New York at Fredonia. Four or five of our employees came out of there and have strong technical backgrounds. But there's no teacher at any of these universities who's going to match the input as well as the practical experience of being in the place where you can work with the greatest bands around."

When Margie Curry started in the industry 19 years ago, she did odd jobs around Florida studios and grossed \$50 a week. Today she manages Criteria Recording Studios in Miami, a multi-room complex which has hired

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Shelly Rusten

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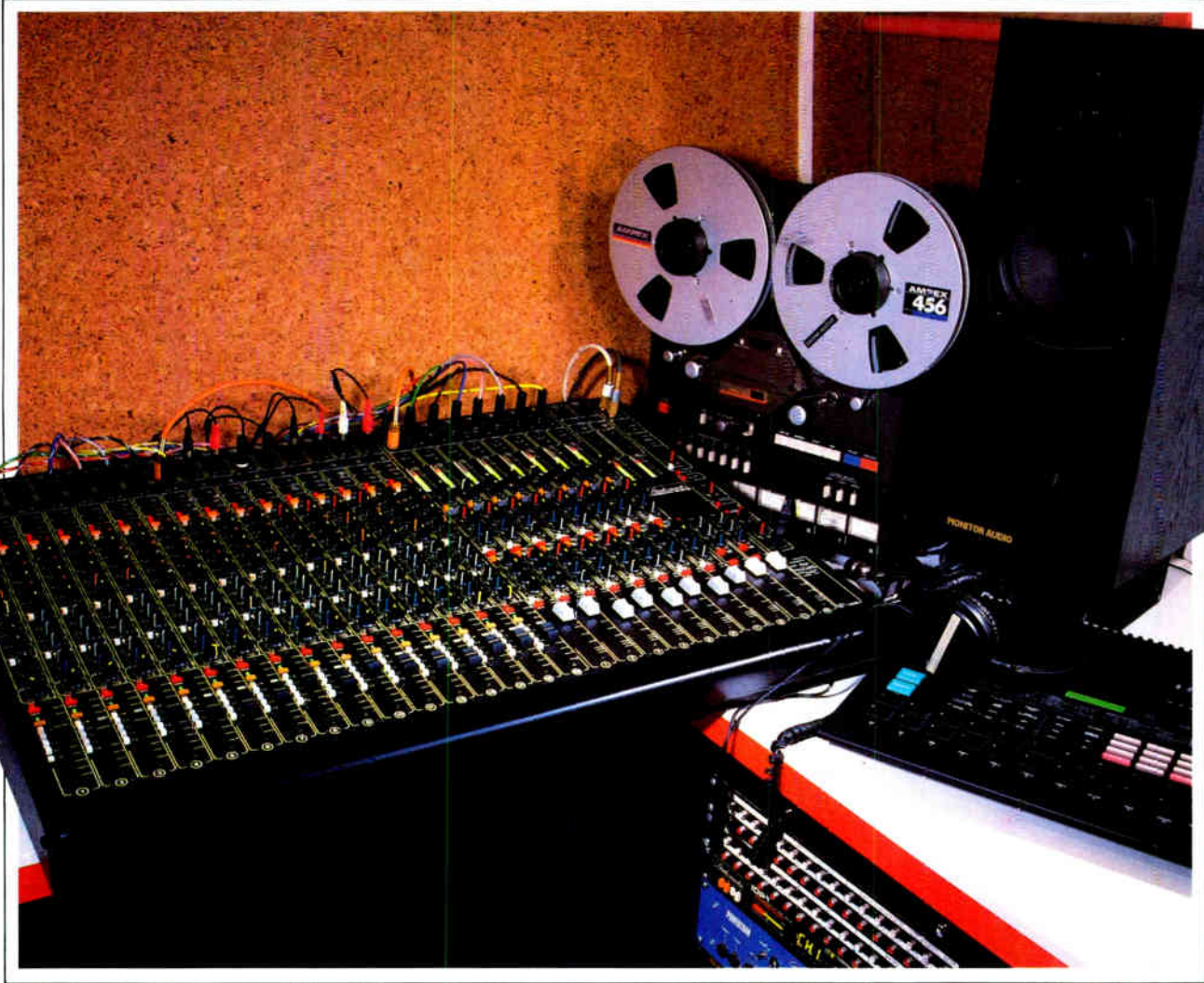
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For further details, contact Jim Giordano, Pau' Reeve or Tony Allen at STUDIOMASTER INC., 1340-G Dynamics Street, Anaheim, CA 92806. Tel: (714) 524 2227 Fax: (714) 524 5096.

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World Radio History

# RECORDING SCHOOLS, SEMINARS & PROGRAMS

## MIX 1988 DIRECTORY

### WESTERN

**THE ACADEMY OF RADIO BROADCASTING:** Course/Program Title: Radio Broadcasting; 8907 Warner Ave., #115; Huntington Beach, CA 92647; (714) 842-0100. Chief Administrator: Tom King



**ACADEMY OF RECORDING SCIENCES**  
Phoenix, AZ

**ACADEMY OF RECORDING SCIENCES:** Course/Program Title: Audio Recording and Production; 14447 N. 20th St.; Phoenix, AZ 85022; (602) 493-9898. Chief Administrator: Jacqueline F. Vican. Program: Career training for those interested in the recording and music industry. 144 hours of hands-on training held in 24-track studio. Entire recording process is studied including trips to mastering labs and pressing plants. Students are introduced to a variety of recording situations—commercial, music, post-scoring, etc., and must complete individual projects. Each applicant judged on aptitude and attitude. Groups are limited in size, individual interview suggested. Director of Education is gold album-winning engineer who is current professional in the recording/music business.

**AEA, INC:** Course/Program Title: Tape Recording Systems by Dale Manquen; 1029 N. Allen Ave.; Pasadena, CA 91104; (818) 798-9127. Chief Administrator: Wes Dooley.

**AIMS COMMUNITY COLLEGE:** Course/Program Title: Communications Media (Associate of Arts degree); 5401 W. 20th St.; Greeley, CO 80632; (303) 330-8008. Chief Administrator: Dr. George Conger.

**ASPEN MUSIC SCHOOL:** Course/Program Title: The Aspen Audio-Recording Institute; Box AA; Aspen, CO 81612; (303) 925-3254. Chief Administrator: Daniel Crak. Program: The institute is an intensive clinic/workshop combining work experience with lecture/demonstrations. The Aspen Music Festival offers a full range of recording opportunities from orchestra, chamber music and choral performances to opera, contemporary music and jazz. Students have full use of professional recording equipment. Students may enroll for either the introductory or intermediate workshops, or for both. The introductory session is designed for students with little previous experience. Completion of the introductory session or comparable experience is a prerequisite for admission to the intermediate

Following is a briefly annotated list of schools and programs offered in the areas of audio and music education, compiled from questionnaires received from those institutions earlier this year. The courses vary greatly in scope, intent and cost and we urge those interested in attending any program to investigate very carefully before making their decisions. *Mix* claims no responsibility for the accuracy of the information provided by the institutions.



CALIFORNIA STATE UNIVERSITY DOMINGUEZ HILLS  
Carson, CA

session. Each session is limited to ten students to allow maximum attention to each individual. Tuition for each session is \$325. Academic credit is available through the University of Colorado. Introductory session: June 27-July 10, Intermediate session: July 11-24.

**AUDIO SERVICES CORPORATION:** Course/Program Title: Professional Seminars in Production Sound for Film/TV; 10639 Riverside Dr.; North Hollywood, CA 91602; (818) 980-9891. Chief Administrator: Fred Ginsburg.

**KEARNEY BARTON'S AUDIO RECORDING SCHOOL:** Course/Program Title: Recording Engineer Class; 4718 38th Ave. NE; Seattle, WA 98105; (206) 525-7372. Chief Administrator: Kearney Barton.

**BATTLE GROUND HIGH SCHOOL:** Course/Program Title: Media/Video Productions; 204 W. Main; Battle Ground, WA 98604; (206) 687-5171 x293. Chief Administrator: Stephen Cox.

**BLUE BEAR SCHOOL OF MUSIC:** Course/Program Title: Home Recording, MIDI Basics; Building D-Fort Mason Center; San Francisco, CA 94123; (415) 673-3600.

**BRIGHAM YOUNG UNIVERSITY:** Course/Program Title: Sound Recording Technology; Department of Music; C-550 Harris Fine Arts Center; Provo, UT 84602; (801) 378-3083. Chief Administrator: K. Newell Dayley.

**CALIFORNIA POLYTECHNIC STATE UNIVERSITY:** Course/Program Title: Music Technology Program; Music Dept.; Cal Poly State University; San Luis Obispo, CA 93407; (805) 756-2406. Chief Administrator: Dr. Antonio G. Barata.

**CALIFORNIA STATE UNIVERSITY, CHICO:** Course/Program Title: Recording Arts (B.A. and minor); Department of Music; Chico, CA 95929; (916) 895-5152. Chief Administrator: Dr. Raymond Barker.

**CALIFORNIA STATE UNIVERSITY DOMINGUEZ HILLS:** Course/Program Title: Audio Recording and Music Synthesis (ARM:); Music Dept., 1000 Victoria St.; Carson, CA 90747; (213) 516-3543. Chief Administrator: David Champion, John Hill, David Bratfield. Program: CSU Dominguez Hills offers two music B.A. degrees and two certificate programs: in Audio Recording and Music Synthesis. The curriculum includes lecture and hands-on lab courses in Audio Engineering, Music Synthesis, Music Production, Studio Electronics and Maintenance. Labs are conducted in a studio complex which houses: (1) An automated, 24-track facility with state-of-the-art microphones, signal processors and analog and digital recorders. (2) A MIDI-based synthesizer lab (with SMPTE/MIDI sync) featuring an extensive array of sound modules (Yamaha, Roland, Oberheim, etc.), the ADAP sampling system, extensive music software for Macintosh/Atari and a Synclavier II. We invite potential students to visit the campus in person, contact us by mail or telephone for further information.

**CALIFORNIA STATE UNIVERSITY, LONG BEACH:** Course/Program Title: B.A. Radio/TV/Film; 1250 Bellflower Blvd.; Long Beach, CA 90840; (213) 498-5404. Chief Administrator: Dr. Robert Finney.

**CAREER EDUCATION CENTER/DENVER PUBLIC SCHOOLS:** Course/Program Title: Audio Engineering/Beginning and Advanced; 2650 Eliot St.; Denver, CO 80211; (303) 455-5966. Chief Administrator: Sharon Johnson, Joe Hall, Rick Nelson.

**CASPER COLLEGE:** Course/Program Title: Associate of Arts degree; 125 College Dr.; Casper, WY 82601; (307) 268-2532. Chief Administrator: Terry Gunderson.

**CITY COLLEGE OF SAN FRANCISCO:** Course/Program Title: Broadcasting Dept.; 50 Phelan Ave.; San Francisco, CA 94112; (415) 239-3525. Chief Administrator: Phillip Brown.

**CMX CORPORATION:** 2230 Martin Ave.; Santa Clara, CA 95050; (408) 988-2000. Chief Administrator: Susan J. Dressler.



## College for Recording Arts

COLLEGE FOR RECORDING ARTS  
San Francisco, CA

**COLLEGE FOR RECORDING ARTS;** Bi-Cultural Foundation Inc., 665 Harrison St., San Francisco, CA 94107; (415) 781-6306. Chief Administrator: Leo De Gar Kulka. Program: One-year course for recording engineers and others intent on a career in the music/recording industry. C.R.A. is accredited by the National Association of Trade and Technical Schools (NATTS), approved by the California Superintendent of Public Instruction, approved for veteran training and authorized under federal law to enroll non-immigrant alien students. Semesters start the first full week of June, October or February. Over 14 years of providing quality graduates to the music/record industry.

**CORNISH COLLEGE OF THE ARTS;** Course/Program Title: Electronic Music; 710 E. Roy St.; Seattle, WA 98102; (206) 323-1400. Chief Administrator: Jane Lambert

**CROW RECORDING WORKSHOPS;** Course/Program Title: Crow Recording Workshops, Level I, Level II; 4000 Wallingford N.; Seattle, WA 98103; (206) 634-3088. Chief Administrator: John Nelson

**EVERGREEN COLLEGE;** Course/Program Title: Beginning & Advanced Record Engineering & Production; Olympia, WA 98505; (206) 866-6000 ext. 6268. Chief Administrator: Ken Wilhelm

**FORT LEWIS COLLEGE;** Course/Program Title: Basic TV Production; College Heights; Durango, CO 81301; (303) 247-7417. Chief Administrator: Gary Penington

**FULLERTON COLLEGE;** Course/Program Title: Music Recording/Production; 321 E. Chapman Ave., Music Dept., Fullerton, CA 92634; (714) 992-7296. Chief Administrator: Alex Cirna. Program: 1985 Mix TEC award nominee. The college offers a one-year certificate in Music Recording/Production encompassing two semesters of Audio Recording, two semesters of Electronic Music, one semester of Music Business and other relevant music courses. The Music Dept. has a fully equipped 24-track studio w/automated board, digital reverb, digital mixdown and the usual complement of signal processors (Harmonizer, compressors, etc.) and microphones. Fullerton College is a public California Community College with minimal tuition for California residents. A great way to receive a college education and learn professional audio recording.

**GAVILAN COMMUNITY COLLEGE;** Course/Program Title: Audio Recording Techniques; 5055 Santa Teresa Blvd.; Gilroy, CA 95020; (408) 847-1400. Chief Administrator: Art Junker

**GOLDEN WEST COMMUNITY COLLEGE;** Course/Program Title: Recording Arts/Commercial Music; 15744 Golden West St.; Huntington Beach, CA 92647; (714) 895-8780. Chief Administrator: Scott Sleidinger, Evan Williams. Program: A fully comprehensive 12-year-old program of national reputation. The program features extensive "hands-on" experience in our three well-equipped studios. Studio A features MCI 24-track recorder, 40-channel NEOTEK Elite automated console, Q-lock synchronizer, Lexicon 224XL reverb plus extensive outboard signal processing. Studio B features Neve 16-channel mixer, MCI 16-track recorder, analog and digital signal processing. Studio C features: Ramsa WR1-820 mixer, Tascam Model 58 8-track recorder, extensive signal processing and an array of 20 MIDI-sequenced synthesizers (Yamaha DXs, TF modules, Kurzweil 250, Roland Juno, etc.) controlled by Macintosh computer and various software programs. High-

UNITED STATES

# RECORDING SCHOOLS, SEMINARS & PROGRAMS

WESTERN



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lighting each year is a student composed/arranged/engineered and produced CD. Each two-year certificate program cycle begins with the first semester in mid-August. Interested students are encouraged to apply as early as possible!

**GROSSMONT COLLEGE;** Course/Program Title: Telecommunications/Audio Studio Operations; 8800 Grossmont College Dr.; El Cajon, CA 92020; (619) 465-1700. Chief Administrator: Keith H. Bryden.

**GROVE SCHOOL OF MUSIC;** Course/Program Title: Recording Engineer Program; 14539 Sylvan; Van Nuys, CA 91411; (818) 904-9400. Chief Administrator: Paul Goldfield

**HORIZON RECORDING STUDIO;** Course/Program Title: Basic/Advanced Recording Engineering Classes; 1317 S. 295th Pl.; Federal Way, WA 98003; (206) 941-2018. Chief Administrator: Roger Wood

**HUMBOLDT STATE UNIVERSITY;** Course/Program Title: Audio Design/Audio Production; Theater Arts Department; Arcata, CA 95521; (707) 826-3566. Chief Administrator: John Heckel

**INSTITUTE OF AUDIO-VIDEO ENGINEERING;** Course/Program Title: Recording Engineering (Audio & Video); 1831 Hyperion Ave.; Hollywood, CA 90027; (213) 666-2380; (800) 551-8877 (outside CA); (800) 972-1414 (inside CA). Chief Administrator: Ted Shreffler, Ph.D. Program: The Institute of Audio-Video Engineering offers concise, expert instruction in audio and video engineering and is housed in a state-of-the-art recording studio, actively engaged in servicing the local community. The school is an accredited member of the National Association of Trade and Technical Schools. The eight-month, state-approved diploma program includes audio recording, video production, editing and studio maintenance. Elective classes offer students an opportunity to further their understanding and skills in specialized areas such as sound reinforcement, advanced mixing, advanced video editing and use of the CMI Fairlight music computer. New terms start approximately every ten weeks. The cost of the entire program ranges from \$4,880 to \$5,500, depending on electives selected. Approximately \$175 will be needed for books and supplies for the whole program. Classes are scheduled primarily during evening or weekend hours since instructors are working professionals currently active in the entertainment fields. Students are required to complete 72 hours of internship prior to graduation, as well as completing 492 clock hours of classes with 314 of those hours being hands-on experience. The Institute of Audio-Video Engineering has been established since '90. Financial aid is available to qualified students.

**C. KAYE BASS VIDEO;** Course/Program Title: Carol Kaye Elec. Bass Video w/Manual; PO Box 3791; Littleton, CO 80161; Chief Administrator: M. Stafford

**LONG BEACH CITY COLLEGE;** Course/Program Title: Commercial Music/Recording Arts; 4901 E. Carson St.; Long Beach, CA 90808; (213) 420-4517; (213) 420-4309. Chief Administrator: Dr. George Shaw. Program: 20 Macintosh-based stations, each with synths, drum machine, mixer and multi-track comprise a highly effective lab for the instruction of songwriting, programming, computer-controlled recording, sound reinforcement, etc. MIDI-based Macintoshes are also compatible with the 24-track and 16-track studio. Other studios with smaller rooms for demo production include 8- and 4-track facilities, video post-production and are linked to two large, acoustically good rooms where mic technique and acoustic recording are taught. The program offers six certificates or an "AA" degree in Commercial Music. Classes and labs run mornings, afternoons, evenings and Saturdays. For more information on starting dates, times, curriculum or prerequisites (if any) call the above phone number.



LOS ANGELES RECORDING WORKSHOP  
Studio City, CA

**LOS ANGELES RECORDING WORKSHOP;** Course/Program Title: Record Producing Program/Recording Engineering Program; 12268 Ventura Blvd.; Studio City, CA 91604; (818) 763-7400. Chief Administrator: Christopher Knight. Program: We offer two different hands-on training programs, the Recording Engineering Program and the Record Producing Program. Each contains 200 hours of intensive training. In the Recording Engineering Program, students train in six different studios: four 24-track studios, one 16-track MIDI studio and one rehearsal studio. Training includes comprehensive studio recording procedures, synthesizer and MIDI computers, extensive ear training and live concert sound. The Record Producing Program focuses on four main areas of production: The Producer as Musical Director, The Producer as Songwriter-Arranger, The Producer as Music Business Manager, The Producer as Engineer. Each student produces two different L.A. recording artists, one of which is then released on Workshop Records. Graduates leave with their first album-release production credit. Dorm-style housing, full-time and part-time schedules, job placement assistance and internships are available. Call or write for free program catalogs.



LOS MEDANOS COLLEGE  
Pittsburg, CA

**LOS MEDANOS COLLEGE;** Course/Program Title: Recording Arts; 2700 E. Leland Rd.; Pittsburg, CA 94565; (415) 439-0200. Chief Administrator: Frank Dorrite. Program: Los Medanos College in Pittsburg, California, offers a degree program in Recording Arts, including courses in multi-track recording, sound reinforcement, acoustics, MIDI-sound synthesis, producing and trouble-shooting. Theory, hands-on

experience, a state-of-the-art recording studio and a faculty honored with ten Grammy nominations make the Los Medanos Recording Arts program the finest in Northern California. Fees: California residents \$5 per unit (\$50 max. per semester), out-of-state \$92 per unit.

**LOYOLA MARYMOUNT UNIVERSITY;** Dept. of Communication Arts; Loyola Blvd. at W. 80th St.; Los Angeles, CA 90045; (213) 642-3033. Chief Administrator: Don Zirpola.

**MAY SCHOOLS - BROADCASTING & BUSINESS;** Course/Program Title: Multi-Track Advertising Production/Recording Engineer; 1320 Grand Ave., PO Box 127; Billings, MT 59103; (406) 259-7000. Chief Administrator: Michael May.

**MENDOCINO COUNTY SCHOOLS R.O.P.;** Course/Program Title: Radio TV; PO Box 226; Mendocino, CA 95460; (707) 937-1200. Chief Administrator: Bob Evans. Oleg Harenar

**MIXMASTERS RECORDING SCHOOLS;** Course/Program Title: Recording Engineer Program; 4877 Mercury St.; San Diego, CA 92111; (619) 569-7367. Chief Administrator: Garth Hedin.

**MONTANA STATE UNIVERSITY;** Course/Program Title: Curriculum in Film and TV Production; Dept. of Media and Theater Arts; Bozeman, MT 59717; (406) 994-2484. Chief Administrator: Paul Monaco

**MUSICAL/AUDIO SYSTEMS;** Course/Program Title: Consultation and Instruction in MIDI and Multi-track Applications; 3640 Meier St.; Los Angeles, CA 90066; (213) 390-2705. Chief Administrator: Kenny Dahle

**ON STAGE MUSIC;** Course/Program Title: Sing With a Band; PO Box 683; Kentfield, CA 94914; (415) 453-5361. Chief Administrator: Jan Tangen

**PACIFIC LUTHERAN UNIVERSITY;** Course/Program Title: Music and Technology; 121st and Park Ave.; Tacoma, WA 98447; (206) 535-7268. Chief Administrator: Bob Holden

**PORTLAND COMMUNITY COLLEGE;** Course/Program Title: Industrial Video Production Internship; 12000 SW 49th Ave.; Portland, OR 97219; (503) 244-6111. Chief Administrator: Michael Brinkman

**PORTLAND COMMUNITY COLLEGE;** Course/Program Title: Recording Technologies; Music Dept./Cascade Campus; 12000 SW 49th Ave.; Portland, OR 97219; (503) 283-2541 ext. 5226. Chief Administrator: Hal Lee. Program: Two-year Associate of Applied Science degree. Accredited by the Northwest Association of Schools and Colleges Commission on Colleges. Recording technology and record production classes make up the core of the curriculum which also requires instruction in commercial music theory. Topics covered include: engineering fundamentals, microphone techniques, multi-tracking, mixing, editing and MIDI recording applications. Additional classes cover: electronic media, histories of jazz, rock and folk, business for the musician and classes in basic instrumental instruction. Optional classes in performance, composition and improvisation are also available. Portland Community College has campuses located 15 minutes from the city center. Courses in over 80 career programs as well as hundreds of college transfer courses make it a good choice for quality education. Tuition costs are reasonable, averaging approximately \$250 per quarter for a full-time student

**RECORDING INSTITUTE;** Course/Program Title: Music Engineering & Video; 14511 Delano St.; Los Angeles, CA 91411; (818) 994-9976. Chief Administrator: Fred Munch, Larry Cook, Craig Durst. Program: Comprehensive training for first and second engineers. 24-track studio with over 20 gold/platinum records! Small classes taught by professional recording engineers, record producers, television directors, camera operators, editors and service technicians. Diploma program, six months, includes: video, sound reinforcement, digital, computers, MIDI, extensive 24-track recording plus mixing in world-class studios. 500 hours. \$5,000. Financing. High school diploma and a personal interview required for admission. Two short courses: Recording Engineering and Television Production. 100 hours (three weeks) each. \$990 each. Fred Munch, president. Larry Cook, executive director. Craig Durst, studio manager. All were formerly at Institute of Audio-Video Engineering. For a catalog and further information contact Recording Institute

**R.O.P. (REGIONAL OCCUPATIONAL PROGRAM) MENDOCINO COUNTY OFFICE OF EDUCATION;** Course/Program Title: Audio Recording & Radio Technician; PO Box 226; Mendocino, CA 95460; (707) 937-1200. Chief Administrator: Paul Tichinin, Bob Evans. Program: Mendocino County Schools' Regional Occupational Programs (ROP) audio recording studio for adult and high school students offers individualized instruction in recording techniques, sound reinforcement, introduction to MIDI, radio production, safety and studio etiquette. Equipment includes Tascam 16-track recording facility, 2- and 4-track mixdown, Tascam multi-channel mixing board, Yamaha SPX90, Korg DVP-1 digital voice processor, Macintosh Plus computer w/Opcode 2 Pro MIDI inter-

face, Opcode 2 54 sequencer, DX/TX librarian, deluxe music construction set, Roland SDE-3000 digital delay, Yamaha DX7, Sequential Circuits MAX, Korg DS8, Casio CZ-100, Yamaha DX100, SDS9 digital drums. Mics: Sennheiser 421, AKG condensers, Shure SM57s, Audio Technica Dynamic mics. Facility: drum isolation booth, large main tracking room, control room. No charge for training, although program requires a small materials fee for tapes, disks, books and equipment repair. Open entry/open exit. Sept.-June only. Certificate awarded to completers. 1,200 hours maximum. Contact Bob Evans, studio manager/instructor.

**SAN FRANCISCO STATE UNIVERSITY;** Course/Program Title: Music/Recording Industry; Extended Education; 1600 Holloway Ave.; San Francisco, CA 94132; (415) 543-4250. Chief Administrator: Mary Pieratt. Program: Music/Recording Industry. An accredited music industry program for students and professionals, with courses that range from record engineering, mixing, artist management, publicity, tour management, industry history and legal aspects to seminars like songwriting and music video. Expand skills with one or two workshops or earn a professionally recognized certificate with completion of a structured academic program taught by Bay Area pros. Formal University application is not required.

**SAN JOSE STATE UNIVERSITY;** Course/Program Title: Radio-Television-Film. Video (1/4"), Audio and Film (16mm); 1 Washington Sq., Theater Arts Dept., RTVF Program; San Jose, CA 95192; (408) 924-4530. Chief Administrator: Dr Charles Chess

**SCHOOL OF AUDIO ENGINEERING INC.;** Course/Program Title: Audio Engineer Certificate, Tonmeister Diploma; 3000 S. Robertson Blvd., Ste. 110; Los Angeles, CA 90034; (213) 559-0973; (213) 559-0974 FAX. Chief Administrator: Tom Misner, Mary Ready. Program: Tonmeister audio engineer. A complete program including classic mic technique, digital, MIDI and broadcast sound. The SAE studios can not be booked commercially and are available to students only. The program Tonmeister-two years, Audio Engineer-one year, Broadcast Assistant-six months. (L.A. has a fully set up 24-track studio, digital work station and MIDI. 8-track studios.) SAE is the largest audio training facility in the world with 15 international locations including London, Sydney, Berlin, Munich, Vienna, Brisbane, Adelaide, Frankfurt, Perth plus other locations. Apply by calling Dept. of Education, UK Dept. of Education, Australian Dept. of Education. Students can change to any of our campuses, government licensed. All locations of SAE have fully set up multi-track studios, mostly 24-track.

—CONTINUED ON THE NEXT PAGE

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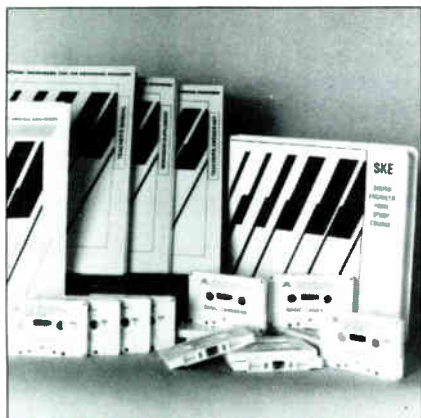
# RECORDING SCHOOLS, SEMINARS & PROGRAMS

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SCHOOL OF AUDIO ENGINEERING INC.  
Los Angeles, CA

unrestricted studio time. Shortly opening in New York and San Francisco



SKE PUBLISHING  
Sedona, AZ

**SKE PUBLISHING**; PO Box 2519-M; Sedona, AZ 86336; (602) 282-1258. Program: Recording School Curriculum Service. We publish a complete curriculum for schools and recording studios wishing to teach sound engineering. Based on the book *Practical Techniques for the Recording Engineer* (400 pp., over 350,000 words), these course materials are already in use at over 75 universities, colleges and studios throughout the world. The text (\$24.95), Teacher's Manual (\$45), Answer Key (n/c), Student's Workbook/Supplement (\$14.50) and three final exams (n/c) make up a 24-module course in three levels. Progressively intensive coverage. Homework questions in each module for verbal or written review. Suggested session content for hands-on studio work. Three comprehensive final exams. Course features real-world, practical, useful content. Text covers techniques and skills while Workbook/Supplement covers conceptual subjects. Write for more information. Program: Sound Engineering Home Study Course. A faster, more affordable way for the sound enthusiast to study the high-powered sound engineering course offered by SKE. Our home study program works faster and costs less because it does not include the dialog feature. Work on your own to master the musical and technical concepts of sound engineering. The home study cassette packages for Basic, Intermediate, or Advanced levels require the student also have the PTR E text and Workbook/Supplement. The cassette package contains the audio portion of an entire course level (Basic, Intermediate, or Advanced) on (12) 60-minute audio cassettes (\$145). Microphones, recorders, session and stage setup and breakdown, alignments, noise reduction, sound and audio theory, acoustics, editing, mixing techniques, tricks-of-the-trade, grounding, special effects and much more all covered in great detail. The eight lecture cassettes expand on the information in the books while the four answer cassettes complete the learning experience.

**SONOMA SOUND**; Course/Program Title: Sound Engineering/Record Production; PO Box 1623; Sonoma, CA 95476; (707) 996-4363. Chief Administrator: Arron Johnson.



SONOMA STATE UNIVERSITY  
Rohnert Park, CA

**SONOMA STATE UNIVERSITY**; Course/Program Title: Recording & Electronic Music; 1801 E. Cotati Ave.; Rohnert Park, CA 94928; (707) 664-2324. Chief Administrator: Arthur Hills, Warren Dennis, Ron Pellegrino. Program: Three semesters of recording studio plus tutorial. Career minor in Recording Technology also includes internship. One semester of Studio Musicianship and Production and Commercial Songwriting. All programs incorporate hands-on usage of a new fully outfitted 1" 8-track multi-track studio with two full isolation booths. Electronic music studio: courses in sound synthesis with computers and digital, hybrid and analog synthesizers. All courses have hands-on work with the DX7, Juno 106, AlphaSyntauri, Decillionix, DX 11 drum machine, MSQ-700 keyboard recorder and microcomputer controlled MIDI-networking. Studio includes two 4-channel tape machines and outboard processing gear.

**SOUND INVESTMENT ENTERPRISES**; Course/Program Title: Sound Shop I, Sound Shop II; PO Box 4139; Thousand Oaks, CA 91360; (805) 499-0539. Chief Administrator: Jean Tennesen.

**SOUTHWEST INSTITUTE OF RECORDING ARTS AND SCIENCES**; Course/Program Title: Audio Recording Engineering I, II, III/Business of Music; 4831 N. 11th St., Ste. A; PO Box 17010; Phoenix, AZ 85011; (602) 241-1019. Chief Administrator: Merel Bregante. Program: Audio Recording Engineering I, II, III: beginning thru advanced recording techniques with emphasis on microphones, analog and digital processing, analog and digital recording. Total hands-on training. Small lab classes. Fully equipped 16- and 24-track recording studios (advanced classes include audio production). Business of Music: music business with emphasis on the musician and his/her relationship with the business, legal as well as practical. Sound Production III: beginning and advanced sound reinforcement and lighting with emphasis on the club band. Tour Management: take your band on the road. From rehearsal thru budgets, thru hotels, complete overview of bands on the road.

**STANFORD UNIVERSITY**; Course/Program Title: Comm 114/141; McClatchy Hall, Rm. 560; Stanford, CA 94305; (415) 723-1941. Chief Administrator: Steve Chaffee.

**TREBAS INSTITUTE OF RECORDING ARTS**; Course/Program Title: Recording Arts & Sciences. Integrated Music Tech, Music Industry Management; 6602 Sunset Blvd.; Los Angeles, CA 90028; (213) 467-6800. Chief Administrator: David P. Leonard. Program: Two-year programs in the Recording Arts & Sciences w/specialization options in Integrated Music Technology and Music Industry Management. More than 100 courses to choose from in 11 tracks of study including: Music, Production, Synthesis and MIDI, Video, Computers, Digital, Audio Engineering Theory and Studio Recording, Electronics, Music Business, Management and General Education. Three majors available: Production/Engineering, Engineering/Electronics and Management. Diploma in Recording Arts & Sci-



TREBAS INSTITUTE OF RECORDING ARTS  
Los Angeles, CA

ences (w/specialization in one of the two programs above). One entrance scholarship offered at each of five campus locations across North America, valued at \$5,000 each. Memorial scholarship for second year studies at each location. Other awards of merit available. Consult admissions office. Transfer of credits between campuses. Facilities: professional multi-track recording studio, electronic music/synthesis/MIDI studios, electronics lab, computer labs, audio/video post-production mixing lab and analog/digital disc mastering rooms (at selected campuses). Resource Center including library of several thousand volumes (books, magazines, articles) on the music business, audio, video, recording and music production. Full- or part-time, day or evening studies. Limited number of internships available. Job placement assistance. Eighty percent of graduates placed. Financial aid available to qualified students. Government approved. Founded 1979. Internationally accredited by the ACCET.



UCLA EXTENSION  
Los Angeles, CA

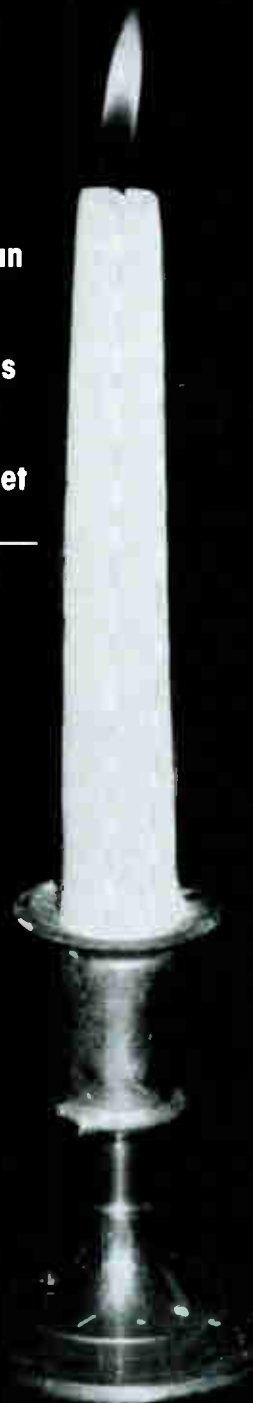
**UCLA EXTENSION**; Course/Program Title: Professional Designation in Recording Engineering; 10995 Le Conte Ave., PO Box 24901; Los Angeles, CA 90024; (213) 825-9064. Chief Administrator: Ronnie Rubin. Program: The UCLA Extension Professional Designation in Recording Engineering is a rigorous training program which prepares the student in both the art and science of sound recording. Drawing on the talent and studio facilities of Los Angeles, one of the music industry capitals of the world, we have created a sequential curriculum of required and elective courses which covers both theory and practice in audio technology, equipment, musicianship and business practice. All classes are taught by working professionals in the recording industry who bring a wealth of practical knowledge to the classroom and studio workshops. The objective of the program is to enable future engineers to acquire vision and problem-solving techniques that meet the challenge of rapidly evolving technology and a dynamic sound recording market. Prerequisite courses include basic physics, math and electronics plus ear training and sight singing or a music performance background. All prerequisite classes are available through UCLA Extension, the continuing education arm of UCLA. The Professional Designation certificate is a State of California-approved recognition of significant educational accomplishment in a professional field. All classes are held at night or on weekends, enabling working adults as well as full-time students to attend. Class fees range from \$250 to \$895 per quarter. Scholarships are available. A complete program brochure and class schedule may be obtained by calling or writing.

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(212) 819-0576**

**UNIVERSITY OF ARIZONA;** Tucson, AZ 85721; (602) 621-1655. Chief Administrator: Jeff Haskell. Program: A recording studio production class is offered to music and RTV students. The class includes a basic overview of studio equipment use and terminology, in addition to music production and music law. Courses in computer and MIDI applications are offered. The recording studio features an audiophile-quality 24-track facility with numerous signal processing equipment including: Lexicon PCM70, Drawmer gates, dbx 165A compressors, Pultec EQP-1A EQ, Prime Time delay, etc. The recording studio is very accessible to students for gaining experience writing, producing and performing in professional quality recordings.

**UNIVERSITY OF CALIFORNIA, RIVERSIDE;** Course/Program Title: Media Resources Dept.; Riverside, CA 92521; (714) 787-3041. Chief Administrator: Dr. Jerry A. Gordon

**UNIVERSITY OF CALIFORNIA, SANTA CRUZ;** Course/Program Title: Electronic Music Program; 133 Communications Bldg.; Santa Cruz, CA 95064; (408) 429-2369. Chief Administrator: Peter Elsea



UNIVERSITY OF COLORADO  
DENVER SCHOOL OF MUSIC  
Denver, CO

**UNIVERSITY OF COLORADO DENVER SCHOOL OF MUSIC;** Course/Program Title: Recording Technology & Sound Synthesis; 1200 Larimer St., Box 162; Denver, CO 80204; (303) 556-2727. Chief Administrator: Roy Pritts. Program: UCD School of Music offers a Bachelor of Science in Music degree with a strong emphasis on contemporary technology of studio recording, sound reinforcement and electronic music. The "Recording Technology and Sound Synthesis" area of study develops the skills necessary for each student to be competitive as a professional in his/her "home studio", as well as a professional in a chosen career as a recording engineer/producer. Students receive intensive "hands-on" training in recording studio technology and procedures, with individual instructor-assisted time in the college's four professionally equipped studios. Electronic Music Studies include synthesizers, samplers, MIDI and computer work stations utilizing Apple and IBM. The four-year program includes studies of music theory, performance, music business, music history including the "History of Rock & Roll" and general studies of the liberal arts. Contact program director Bill Porter. Accreditation is through the National Association of Schools of Music, (NASM) 1988 in-state tuition, fees and books are approximately \$700 per semester.

**UNIVERSITY OF DENVER;** Course/Program Title: Bachelor of Music in Commercial Music-Performance and Recording; 7111 Montview Blvd.; Denver, CO 80220; (303) 871-6400. Chief Administrator: David J. Genova

**UNIVERSITY OF NORTHERN COLORADO;** Course/Program Title: Jazz Studies Program; Greeley, CO 80639; (303) 351-2577. Chief Administrator: Gene Altken

**UNIVERSITY OF SOUND ARTS;** Course/Program Title: Audio/Video Eng Certificate Program, Video Prod., Rec. Tech; 1645 Vine St., Ste. 350; Hollywood, CA 90028; (213) 467-5256. Chief Administrator: Raghu Gadhoke

**UNIVERSITY OF SOUTHERN CALIFORNIA;** Course/Program Title: Recording Arts Program; USC/School of Music; MUS 212; Los Angeles, CA 90089; (213) 743-2627. Chief Administrator: Richard McIlvery

**USA AUDIO VIDEO;** Course/Program Title: Audio Video Engineering/Recording Engineering; 1645 N. Vine St.; Hollywood, CA 90028; (213) 467-5256. Chief Administrator: Sushie Godwin. Program: USA offers certificate programs in Audio/Video Engineering, Recording Engineering, Music Business Management, Maintenance Engineering and Commercial Music including MIDI & synthesizers. We have been in busi-

U N I T E D S T A T E S

# RECORDING SCHOOLS, SEMINARS & PROGRAMS

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ness for 12 years and are a nationally accredited school. We offer day and night classes. We have a state-of-the-art video production studio, video editing studio, MIDI room and a 24-track recording studio available to the student. Men and women of all ages are eligible if they pass our aptitude test. Our instructors are well-respected professionals in the industry. Students work on record and music video as part of their portfolio.

**VIDEO TECHNICAL INSTITUTE;** Course/Program Title: Video Production; 2828 Junipero Ave.; Long Beach, CA 90806; (213) 595-1660. Chief Administrator: Scott Jucha

**VOCAL DYNAMICS;** Course/Program Title: Vocal Instruction & Production; 1420 E. Edinger, Ste. 212; Santa Ana, CA 92705; (714) 834-3344. Chief Administrator: Thomas E. Appell

CENTRAL

**ALVIN COMMUNITY COLLEGE;** Course/Program Title: Communications Dept. (Recording and Sound Reinforcement); 3110 Mustang Rd.; Alvin, TX 77511; (713) 331-6111 ext.379. Chief Administrator: Cathy Forsythe. Program: The Communications department at Alvin Community College offers two separate programs in recording. For the student who is pursuing an Associate of Applied Arts degree in Recording and Sound Reinforcement, a four-semester degree program is available. Also available is a one-year certificate program. The Communications department at Alvin Community College also offers Associate degree and certificate programs in both Radio Broadcasting and Television. Classes begin three times each year. At Alvin Community College, small classes emphasize a practical hands-on approach to learning. Through these classes, the student will acquire a knowledge of the equipment and processes used in recording studios. Some of the topics covered will include tape recorder and console operations, microphone theory, microphone placement and signal processing. In cooperation with Houston-area recording studios, the student can gain practical working knowledge and related work experience through internships. The student will earn college credit by working part-time for recording studios in the fourth-largest city in the nation. The cost of instruction is extremely competitive, as Alvin Community College is a state-supported institution. The cost of the program consists only of normal tuition and fees. For those students who qualify, financial aid and work scholarships are available.

**ANDERSON UNIVERSITY;** Course/Program Title: Music Business (AB); 1100 E. 5th St.; Anderson, IN 46012; (317) 649-9071. Chief Administrator: F. Dale Bengtson

**THE ART INSTITUTE OF DALLAS;** Course/Program Title: Music and Video Business; 2829 W. Northwest Hwy.; Dallas, TX 75206; (214) 350-8874; (800) 441-1577. Chief Administrator: Deborah Wright, Lee Colker. Program: The Music and Video Business program at The Art Institute of Dallas is an intensive 18-month program in music-entertainment management. The program focuses on the specialized knowledge needed to begin a career in the business or technical side of the music, recording, video or entertainment industries. This unique program is geared to both the professional and the non-professional Musicians, songwriters and performers can redirect their careers with practical music business knowledge. Other students who start with only a love for music soon develop marketable skills and explore new career directions. The MVB program is taught by an experienced, energetic group of industry professionals. Students study recording and video with engineers and producers and concert promotions with concert promoters. They become familiar with how professionals develop a hit record and produce a live concert or music video. Students also learn the marketing, sales, promotion, legal, financial and business management sides of the music industry. The Institute also assists graduates in their job search by helping them determine their career goals and by offering assistance in preparing resumes, conducting interviews and establishing job leads. Financial aid (if eligible) and

housing assistance are available. Call the Institute for more information.

**BEACHWOOD STUDIOS;** Course/Program Title: The Recording Workshop; 23330 Commerce Park; Beachwood, OH 44122; (216) 292-7300. Chief Administrator: George A. Sipl

**BOWLING GREEN STATE UNIVERSITY;** Course/Program Title: Recording Studio/Services; College Of Musical Arts; Bowling Green, OH 43403; (419) 372-8405. Chief Administrator: Mark R. Bunce

**BRADLEY UNIVERSITY;** Course/Program Title: Music and Music Business; Constance Hall; Peoria, IL 61625; (309) 677-2595. Chief Administrator: David Wroman

**CAMERON UNIVERSITY;** Course/Program Title: Advanced Audio; 2800 W. Gore; Lawton, OK 73505; (405) 581-2425. Chief Administrator: Mark Norman

**CAPITAL UNIVERSITY CONSERVATORY OF MUSIC;** Course/Program Title: Commercial Music; 2199 E. Main St.; Columbus, OH 43209; (614) 236-6474. Chief Administrator: Paul Formo. Program: Bachelor of Arts degree with an emphasis in commercial music is a new, four-year program designed to provide undergraduates with a solid base of traditional and commercial musical training. This music core is supplemented with extensive studio recording techniques taught in conjunction with "The Recording Workshop" in Chillicothe, Ohio and a minor in the Arts & Sciences.

**CEDAR VALLEY COMMUNITY COLLEGE;** Course/Program Title: Commercial Music Recording Technology; 3030 N. Dallas Ave.; Lancaster, TX 75134; (214) 372-8127. Chief Administrator: Helen Spencer. Program: Commercial Music Recording Technology (two-year Associate's degree). This two-year program is designed to provide the technical and musical skills necessary in the field of recording technology. Musical skills include vocal, instrumental and MIDI-based computer-driven synthesis. Technical skills include electronic and acoustical theory, multi-track recording, automated mixing, session planning, session procedure, digital recording and troubleshooting.

**CENTRAL HIGH SCHOOL;** Course/Program Title: Audio Recording; 275 N. Lexington; Saint Paul, MN 55104; (612) 293-8700. Chief Administrator: Ben James

**CENTRAL MICHIGAN UNIVERSITY;** Course/Program Title: Broadcast & Cinematic Arts; 340 Moore Hall; Mount Pleasant, MI 48859; (517) 774-7284. Chief Administrator: BR. Smith

**CHAPMAN RECORDING STUDIOS;** Course/Program Title: Recording Workshop; 228 W. 5th St.; Kansas City, MO 64105; (816) 842-6854. Chief Administrator: Chuck Chapman

**CLEVELAND INSTITUTE OF MUSIC;** Course/Program Title: B.M., Double Major in Recording Engineering; 11021 East Blvd.; Cleveland, OH 44106; (216) 791-5165. Chief Administrator: David Cerone, Thomas Knab. Program: The Cleveland Institute of Music Recording Engineering Program offers studies in professional audio recording skills as an adjunct to instrumental performance, composition, theory or eurhythmics studies. Bachelor of Music degree. Sixteen courses in full Audio and Synthesis program, as well as a professional internship are offered. Fully equipped 8- and 16-track studios, including automated mixdown, video sync, digital 2-track, Lexicon reverb, Synclavier II, sampling and extensive MIDI implementation. Strong musical qualifications required. Joint program with Case Western Reserve University. Particularly strong in classical music recording with Adjunct Professor of Recording Engineering, Jack Renner. TELARC International.

**COLUMBIA COLLEGE CHICAGO;** Course/Program Title: Sound Engineering; 600 S. Michigan Ave.; Chicago, IL 60605; (312) 660-1600. Chief Administrator: Douglas R. Jones. Program: Columbia College offers two ways to get an education in audio. There is a four-year interdepartmental Bachelor of Arts program with an emphasis in sound engineering and a two-year Sound Engineering certificate program. The core curriculum consists of Intro to Audio, Basic Sound Practices, Electronic... for Audio, Sound Engineering Audio Processing, Radio Production, Acoustics for Microphones and Advanced Acoustic Design. In addition, there are approximately 20 other sound classes in various departments which may be taken as part of the degree or certificate program.

**DAYTON CAREER ACADEMY;** Course/Program Title: Radio/TV Broadcasting; 441 River Corridor Dr.; Dayton, OH 45402; (513) 223-0906. Chief Administrator: Mike Reisz, Deborah Pristick

**DETROIT PUBLIC SCHOOLS-CADILLAC MIDDLE SCHOOL;** Course/Program Title: Instrumental Music; 15025 Schoolcraft Ave.; Detroit, MI 48227; (313) 270-0157. Chief Administrator: Barbara Dent

**ELMHURST COLLEGE;** Course/Program Title: Music Business; 190 Prospect; Elmhurst, IL 60126; (312) 279-4100 ext. 357. Chief Administrator: Tim Hays. Program: Located in the



Chicago metropolitan area, Elmhurst College is a nationally accredited institution that offers both a B.S. and a B.M. in Music Business. In addition to class work in music, business and the business of music, students get hands-on industry experience through internships, industry speakers and course tours to locations as diverse as Los Angeles, New York City and West Germany. Resources include a 16-track studio which has just come on-line in the College's new (1988) Computer and Technology Center, recently expanded practice and recital facilities and an artist faculty of over 30. Industry support is provided in the form of scholarships from organizations such as NAMM and NARAS, corporate sponsorship, a student chapter of MEIEA and an intern/job bank. Offering students individualized instruction in music business for over 17 years, Elmhurst provides a specialized career track integrated within a four-year degree.

**HENRY FORD COMMUNITY COLLEGE;** Course/Program Title: Mass Communication Concentration/2-yr. A.A. degree; 5101 Evergreen Rd.; Dearborn, MI 48128; (313) 845-9634. Chief Administrator: Jay B. Korinek.

**FOSTER MUSIC;** Course/Program Title: Private & Class Instruction; 17194 Preston Rd., Ste. 221-C; Dallas, TX 75248; (214) 248-9006. Chief Administrator: Scott L. Whitfield

**GOODNIGHT DALLAS;** Course/Program Title: Goodnight Dallas Recording Classes; 2302 Joe Field; Dallas, TX 75229; (214) 241-5182. Chief Administrator: Ruben Ayala.

**HOUSTON COMMUNITY COLLEGE SYSTEM;** Course/Program Title: Commercial Music, Audio Engineering Technology; 901 Yorkchester; Houston, TX 77079; (713) 468-6891. Chief Administrator: Aubrey Tucker. Program: Fully accredited college offering two-year Associate degree and certificate programs in Audio Engineering. Cost of instruction is extremely competitive in this field, consisting of normal tuition and fees. Great emphasis is placed on practical hands-on experience. Two fully equipped studios. Studio A features MCI JH-536 automated console, MCI 24-track recorder with 24 channels of Dolby A noise reduction, two MCI 2-track recorders, Lexicon 200 and 224 digital reverb units, full Scamp rack and a wide variety of professional microphones. Studio B contains Tascam 520 20-channel mixing console, Fostex 16-track recorder, and similar outboard equipment and microphones. New inventory of keyboards, synthesizers, drum machines and sequencers.

**INDIANA UNIVERSITY;** Course/Program Title: Associate of Science in Audio Technology; School of Music MU 4C; Bloomington, IN 47405; (812) 335-1613; (812) 335-1900. Chief Administrator: Ted W. Jones, David A. Pickett. Program: The Associate of Science in Audio Technology, lasting approximately five semesters, offers training in audio recording, reinforcement and media production with emphasis on classical music recording techniques. Students record all official concerts ranging from solo and chamber music through symphony orchestras, jazz ensembles and opera. In total, about 1,000 performances are produced annually in a 500-seat recital hall and the 1,460-seat Musical Arts Center. Classes in recording techniques, electronics, acoustics, maintenance and musical styles. Professional equipment includes 2-track digital and up to 16-track analog. University financial aid and some work scholarships available. Departmental assistance offered in job placement.

**INTERLOCHEN CENTER FOR THE ARTS;** Course/Program Title: Recording Arts and Broadcasting Institute; Recording Services Interlochen; Center for the Arts; Interlochen, MI 49643; (616) 276-9221 x360. Chief Administrator: David E. Greenspan.

**IOWA STATE UNIVERSITY;** Course/Program Title: Telecommunicative Arts (Radio-TV-Film); 19A Exhibit Hall; Ames, IA 50011; (515) 294-5000. Chief Administrator: Richard H. Kraemer.

**JIMILLER MUSIC & RECORDING;** Course/Program Title: Recording Techniques, Arranging, Songwriting, Music Theory; 248 Muldrow Ct.; Norman, OK 73069; Chief Administrator: Janet Miller.

**KANSAS STATE UNIVERSITY-MUSIC DEPT.;** Course/Program Title: Analog & Digital Synthesis; Music Dept.; Manhattan, KS 66506; (913) 532-5740. Chief Administrator: Hanley Jackson.

**KLARR SATELLITE RADIO & TV;** Course/Program Title: Recording; PO Box 3842; Houston, TX 77253; Chief Administrator: Lawrence Herbst.

**LANSING COMMUNITY COLLEGE;** Course/Program Title: Media Technology/Audio; PO Box 40010; Lansing, MI 48901; (517) 483-1673. Chief Administrator: Dr. Lee Thornton. Program: A three track program with courses in audio production, audio recording and sound reinforcement. The courses are progressive and provide a balance between theory and practice. Lab facilities include modern analog and digital processing equipment. A two-year degree is available for students wishing to pursue an academic degree. Lansing Community College offers an open enrollment policy.

**LINCOLN INSTITUTE;** Course/Program Title: Recording Arts/Audio Engineering; 7622 Louetta Rd.; Spring, TX 77379; (713) 376-9679. Chief Administrator: Joy Kowalik.

**MCCLENNAN COMMUNITY COLLEGE;** Course/Program Title: Audio Technology; 1400 College Dr.; Waco, TX 76708; (817) 756-6551. Chief Administrator: David Hibbard.

**MICHIGAN STATE UNIVERSITY, DEPARTMENT OF TELECOMMUNICATION;** Course/Program Title: Telecommunication; 409 Comm. Arts & Sciences Bldg.; East Lansing, MI 48824; (517) 355-8372 (Dept. office); (517) 353-9753. Chief Administrator: Gary A. Reid, Bradley Greenberg. Program: An emphasis in audio production is available to students majoring in the Department of Telecommunication. Students must first complete a required sequence of core telecommunication courses. Upon completion of this core, students may opt into various areas of specialization. The Production Specialization Area consists of advanced courses in both audio and video production. The audio sequence is based around three courses with content ranging from basic, radio-orientated production, through full 24-track studio sessions. Emphasis is also placed on MIDI-based computer sequencing and SMPTE-based video sweetening. Independent study courses and internships are available to advanced students. A similar area is available for students specializing in video production. Students graduate with a BA in Telecommunication. A Master's-level Production Program is also available. The facilities include 2-, 4-, 8- and 24-track audio studios interfaced with two video production studios.

**MIDLAND COLLEGE;** Course/Program Title: Commercial Music/Audio Technology; 3600 N. Garfield; Midland, TX 79705; (915) 685-4648. Chief Administrator: Gerald D. Tubb.

**MILLIKIN UNIVERSITY;** Course/Program Title: Commercial Music; 1184 W. Main; Decatur, IL 62522; (217) 424-6300. Chief Administrator: Dean A. Wesley Tower. Program: Millikin University School of Music is the first accredited university in the Midwest to offer a Bachelor of Music degree program in Commercial Music with a vocal and instrumental emphasis. In addition to the traditional aspects of professional music training, course concentration includes commercial music performance, commercial music arranging, commercial music ensembles, traditional and commercial studio ensembles, recording studio engineering, record producing, jingle writing and producing, commercial vocal styles, commercial music theory, improvisation techniques and commercial/jazz history and forms. Scholarships, talent awards and financial aid are available.

**MINOT STATE UNIVERSITY;** Course/Program Title: Recording Arts Minor; Division of Music; Minot, ND 58701; (701) 857-3186. Chief Administrator: Robert Larson. Program: The Recording Arts Minor is a 34-credit program in recording techniques, multi-track recording and mixing, studio design and management, broadcast audio production, synthesis and multi-media production. Students have scheduled access to the University's 8-track and MIDI-controlled facility on a 24-hour basis. There is a full complement of outboard processing gear and five digital synthesizers controlled by a Macintosh Plus computer. They are actively involved in recording concerts and recitals, developing multi-media productions for the University and production programming for Public Radio in Western North Dakota. The studio is linked with the University's television facility and jointly prepares major productions with the Broadcasting Program. The Division of Music at Minot State University is a full member of the National Association of Schools of Music.

**NATIONAL MUSIC CAMP AT INTERLOCHEN;** Course/Program Title: Recording Institute; Interlochen, MI 49643; (616) 276-9221. Chief Administrator: Roger Jacobi. Program: Intensive live-in 2- or 3-week recording program at Interlochen, a long-established summer music camp affiliated with the University of Michigan. Active daily participation in recording concerts of full-size orchestras, symphonic bands, choruses, chamber groups and solo recitals alternates with small-group lectures in acoustics, audio and studio techniques. The program emphasizes natural-perspective stereo microphone techniques and direct-to-2-track mixing procedures using up-to-date analog and digital equipment. The goal of the program is to launch students into recording and related audio work with schools, colleges, orchestras, broadcast networks and arts organizations. High school graduates, no age limit. Persons with musical and/or audio backgrounds are especially encouraged to apply. Resident program on beautiful wooded northern Michigan campus. Enrollments accepted for summer 1989. Write for schedules and fees.

**NORTHEAST COMMUNITY COLLEGE;** Course/Program Title: Audio and Recording Technology; 801 E. Benjamin Ave., PO Box 469; Norfolk, NE 68701; (402) 644-0506. Chief Administrator: Timothy Miller. Program: Program offering a two-year Associate of Arts and/or Associate of Applied Science in Audio and Recording Technology. The Audio and Recording Technology program is a balanced mix of music, audio theory, MIDI, TEF™ training, equipment applications.

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and hands-on experience in professional modern facilities Northeast Community College is accredited by the North Central Association of Colleges and Schools and the Nebraska State Department of Education

**OBERLIN COLLEGE;** Course/Program Title: Winter Term Multi-Track Project/Private Reading in Audio; 173 W. Lorain St.; Oberlin, OH 44074; (216) 775-8272. Chief Administrator: Mark Bousek

**OBERLIN CONSERVATORY;** Course/Program Title: Electronic and Computer Music-Bachelor of Music; Oberlin Conservatory; Oberlin, OH 44074; (216) 775-8200. Chief Administrator: Conrad Cummings

**OKLAHOMA STATE UNIVERSITY MUSIC DEPARTMENT;** Course/Program Title: Bachelor of Music with Elective Studies in Business; 132 Seretean; Center for the Performing Arts; Stillwater, OK 74078; (405) 624-6133. Chief Administrator: Dr Gerald D. Frank

**OPUS RECORDING AND EQUIPMENT COMPANY;** Course/Program Title: Recording, Engineering and Acoustics; 4252 Grand Ave.; Gurnee, IL 60031; (312) 336-6787. Chief Administrator: Tony Pettinato Program: Students will gain exposure to the latest advances in audio equipment, including Amek consoles, Ampex and Otari recorders, Ceteq-Gauss monitors, four reverb units, three digital delays, 7.4" Yamaha conservatory grand piano, over 50 microphones. Hands-on instruction on operational theory and application. Pro-audio showroom, 24-track and 8-track recording facilities on premises. College-affiliated or private courses available. Topics include: multi-track recording, disc mastering, record pressing, audio/visual productions, acoustics, microphone techniques, tape recorder maintenance, peripheral equipment. Our students have graduated to become sound and broadcast engineers in the radio, recording studio and TV industries

**PHARR-SAN JUAN-ALAMO H.S.;** Course/Program Title: Media Technology, Television Production I & II; 1229 S. "I" Rd.; Pharr, TX 78577; (512) 787-4289. Chief Administrator: Adam Pharr

**FRANK PHILLIPS COLLEGE;** Course/Program Title: Radio Television; PO Box 5118, 1301 Roosevelt; Borger, TX 79008; (806) 274-5311. Chief Administrator: Bob Ramsey

**PURDUE UNIVERSITY;** Course/Program Title: Audio Production/Sound Design; Stewart Center, G59; West Lafayette, IN 47907; (317) 494-8150. Chief Administrator: Richard K Thomas

**RECORDING INSTITUTE OF DETROIT, INC.;** Course/Program Title: Recording Techniques; 14611 E. 9 Mile Rd.; East Detroit, MI 48021; (313) 779-1380. Chief Administrator: Robert Dennis Program: Established in 1976 the Recording Institute of Detroit offers a licensed educational program in 24-track professional and related musical theory. The program includes 270 hours of classes and interning that is taught in two 24-track, automated studios. State-of-the-art equipment is used including a Solid State Logic 4000G recording console and Mitsubishi digital recorder. Students complete courses in basic recording, applied music theory, advanced recording and complete a 100-hour internship in a specialty of their choice. The program includes six recording projects to expose the students to different musical styles and recording techniques. Actual experience as a 24-track second engineer is part of the curriculum. Twenty-one start dates per year, evening and weekend schedule. Job placement assistance and remedial study courses are offered. \$1,849 base tuition. Scholastic testing required for acceptance

UNITED STATES

# RECORDING SCHOOLS, SEMINARS & PROGRAMS

CENTRAL

**RECORDING STUDIO WORKSHOP;** Course/Program Title: Recording Studio Workshop; 117 W. 8th; Hays, KS 67601; (913) 625-9634. Chief Administrator: Mark Meckel



**THE RECORDING WORKSHOP**  
Chillicothe, OH

**THE RECORDING WORKSHOP;** Course/Program Title: Recording Engineering & Music Production Program; 455-X Massieville Rd.; Chillicothe, OH 45601; (614) 663-2544; (800) 848-9900. Chief Administrator: Jim Rosebrook Program: The Workshop's primary goal is to prepare qualified assistant recording engineers, but the training is also very useful for the aspiring recording artist or producer. The curriculum for the main program is an effective combination of 75 hours of in-depth lectures and 125 hours of hands-on experience in the Workshop's fully equipped six studios, including music recording sessions, mixing, media production utilizing SMPTE synchronization, MIDI seminars and editing techniques. Classes for this intensive program start seven times annually. To supplement the main program, two optional courses are available: Studio Maintenance & Trouble-Shooting program (40 hours) and the Advanced Recording Engineering & Music Production program (60 hours). In addition, students can earn a Bachelor of Music/Commercial Music degree through the Workshop's association with Capital University in Columbus, Ohio

**RED WING TECHNICAL INSTITUTE;** Hwy 58 & Pioneer Rd.; Red Wing, MN 55066; (612) 388-8271. Chief Administrator: Chuck Munson

**ROADSHOWS (THE SCHOOL FOR YOUNG PERFORMERS; 2 YRS.-20);** Course/Program Title: Pre-Recording Skills, Mics, Keyboards, Live Sound; 1923 FM2234/16403 Lost Quail Dr.; Missouri City, TX 77459; (713) 438-1477. Chief Administrator: Leo C. Dean Jr

**SCHOOL OF MUSIC, NORTHERN ILLINOIS UNIVERSITY;** Course/Program Title: Beginning and Advanced Recording; Dekalb, IL 60115; (815) 753-1551. Chief Administrator: Peter Middleton, Donald Funes

**SCOTTSOUND LTD;** Course/Program Title: Independent Production Services; 17194 Preston Rd., Ste. 221-C; Dallas, TX 75248; (214) 248-9006. Chief Administrator: Scott L. Whitfield

**SOLID SOUND RECORDING STUDIO;** Course/Program Title: Recording Engineer Class; 2400 W. Hassell Rd., Ste. 430; Hoffman Estates, IL 60195; (312) 882-7446. Chief Administrator: Judd Sager

**SOUND TRAX+;** Course/Program Title: Basic Recording; 1000 W. 17th St.; Bloomington, IN 47401; (812) 332-7475. Chief Administrator: Joe Wilson

**SOUTH PLAINS COLLEGE;** Course/Program Title: Performing Arts Production Technology; 1401 S. College Ave.; Levelland, TX 79336; (806) 894-9611. Program: Performing Arts

Production Technology program at South Plains College, Levelland, Texas. Innovative educational program trains you to work as production manager or technician of video production houses, entertainment and convention facilities, civic centers and theaters. Program provides training in video and audio production, lighting, stage crafts and business management. Training facilities include new Tom T. Hall Production Studio with Sony SP format 3/4" recording and editing equipment, Grass Valley switcher and Dubner character generator, 36-channel automated console with 24-track recorder. Studio features Strand-Century lighting system with mini Light Palette computer control and Sony CCD cameras. Two-year program awards Associate of Applied Science degree. Contact Pat McCutchin. Program: Sound Technology Program at South Plains College, Levelland, Texas, trains you for careers in the recording industry as recording engineers, sound reinforcement specialists, studio technicians. Excellent training facilities include the 5,000 sq. ft. Tom T. Hall Recording and Production Studio with 24-track, multi-track audio capabilities synchronized to high-grade 3/4" video. Professional gear includes full 36-channel automated console plus the Waylon Jennings Recording Studio with 16-track, multi-track recording capabilities. 2-, 4- and 8-track learning studios complement training opportunities. Two-year program awards Associate of Applied Science degree. Contact Randy Ellis.

**SOUTHERN ILLINOIS UNIVERSITY AT EDWARDSVILLE;** Course/Program Title: Jazz/Studio Music; University Dr.; Edwardsville, IL 62026; (618) 692-3900. Chief Administrator: Earl Lazerson

**SOUTHERN OHIO COLLEGE;** Course/Program Title: Audio Video Production; 1055 Laidlaw Ave.; Cincinnati, OH 45237; (513) 242-3791. Chief Administrator: Mark R. Turner

**TARRANT COUNTY JUNIOR COLLEGE;** Course/Program Title: Media Communications; 828 Harwood Rd.; Hurst, TX 76051; (817) 281-7860. Chief Administrator: Dr. Herman Crow

**TECHNICAL INSTITUTE OF HUTCHINSON;** Course/Program Title: Audio Technology; 200 Century Ave.; Hutchinson, MN 55350; (800) 222-4424 in MN; (612) 587-3636. Chief Administrator: Dick Lennes, David Igi. Program: Audio Technology. Two-year intensive technical audio program. Extensive hands-on training in audio electronics (analog and digital), studio and remote recording, systems design and installation, acoustics, signal processing and sound reinforcement for pro sound market. Music television training option available. Heavy on lab and practical applications. Personalized instruction allows students to enter throughout year, receive credit for previous experience, and work at accelerated pace. Graduates available throughout year. Extensive cooperation with employers for internships and supervised work experience. Students active in AES State school, low tuition. Our graduates have the mix of technical and production skills for today's pro sound market

**TEMPLE JUNIOR COLLEGE;** Course/Program Title: Music Business (Transfer Program and A.A. degree); 2600 S. 1st St.; Temple, TX 76704; (817) 773-9961. Chief Administrator: Bill Christy, Rodger Bennett

**TEXARKANA COLLEGE RECORDING STUDIOS;** 2500 N. Robison Rd.; Texarkana, TX 75501; (214) 838-4541 x257/x360. Chief Administrator: Murry L. Alewine. Program: Two-year Associate degree in Commercial Music, classes in MIDI, arranging and the recording studio. A state-sponsored college with two 16-track studios. Each 16-track studio has complete facilities with modern up-to-date equipment. Professional quality equipment with professional faculty. Classes begin each September, January and June. Fees/tuition schedule available on request. Hands-on instruction and lab time for all students beginning first semester. Fourth semester students have access to professional 24-track studio in city. Many clubs, lounges, restaurants available in vicinity for employment. MIDI studio available. Three courses (Elementary/Intermediate/Advanced) in MIDI instruction

**TEXAS TECH UNIVERSITY;** Course/Program Title: Telecommunications; Box 4710; Dept. of Mass Communications; Lubbock, TX 79409; (806) 742-3382. Chief Administrator: Dennis A. Harp

**TRANS AMERICAN SCHOOL OF BROADCASTING;** Course/Program Title: Broadcasting; 108 Scott St.; Wausau, WI 54401; (715) 842-1000. Chief Administrator: Chris Hutchings

**TRINITY UNIVERSITY;** Course/Program Title: Audio Production; 715 Stadium Dr.; San Antonio, TX 78284; (512) 736-8113. Chief Administrator: Dr. Robert O. Blanchard

**UNIVERSITY OF DETROIT;** Course/Program Title: Communication Studies; 4001 W. McNichols; Detroit, MI 48221; (313) 927-1000. Chief Administrator: Dr. Vivian Dicks

**THE UNIVERSITY OF IOWA-RECORDING STUDIOS, SCHOOL OF MUSIC;** Course/Program Title: Recording Techniques (academic year), Seminar in Audio Recording (summer); 2057 Music Building; The Univ. of Iowa; Iowa City, IA 52242; (319) 335-1664. Chief Administrator: Prof. Lowell Cross

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**UNIVERSITY OF MISSOURI-KANSAS CITY CONSERVATORY OF MUSIC;** Course/Program Title: Audio Recording; 4949 Cherry St.; Kansas City, MO 64110; (816) 276-2964. Chief Administrator: Tom Mardikes.

**UNIVERSITY OF OKLAHOMA;** Course/Program Title: School of Journalism/Mass Communication; 860 Van Vleet Oval; Norman, OK 73069; (405) 325-2721. Chief Administrator: Elizabeth Yamashita

**UNIVERSITY OF WISCONSIN OSHKOSH;** Course/Program Title: Music Merchandising-Recording Technology Emphasis; 800 Algoma Blvd.; Oshkosh, WI 54901; (414) 424-4224. Chief Administrator: Charles Isaacson Program: The Recording Technology emphasis is an option of the Music Merchandising program, one of the music majors offered by the University of Wisconsin-Oshkosh. This is a four-year program covering all aspects of the recording process, mixing to mixdown, production and contractual agreements. The final semester is spent in the field as an intern at a professional recording studio. The Music Department is accredited by NASM. Early application for admission to the University is advised. Classes begin after Labor Day

**VINCENNES UNIVERSITY;** Course/Program Title: Broadcast Production Technology; Davis Hall, 1200 N. 2nd St.; Vincennes, IN 47591; (812) 885-5727. Chief Administrator: Jack Hanes

**WEBSTER UNIVERSITY;** Course/Program Title: Media Communication Studies/Audio Program; 470 E. Lockwood; Saint Louis, MO 63119; (314) 968-7484. Chief Administrator: Dr. Art Silverblatt

**WEBSTER UNIVERSITY;** Course/Program Title: Bachelor of Music in Commercial Music Production; 470 E. Lockwood; Webster Groves, MO 63119; (314) 968-7032. Chief Administrator: Steve Schenkel

## EASTERN

**ART INSTITUTE OF FT. LAUDERDALE;** Course/Program Title: Music and Video Business; 1799 SE 17th St.; Fort Lauderdale, FL 33316; (800) 327-7603. Chief Administrator: John Morn Program: The Art Institute of Ft. Lauderdale offers an Associate degree program in Music and Video Business Management. The program prepares students to enter both the business and technical ends of the entertainment industry, including artist management, booking, concert promotion and production, retail, video production and audio engineering. The Art Institute of Ft. Lauderdale offers job placement assistance during the program and employment assistance upon graduation. NATTS accredited, financial aid available to those who qualify. Co-ed. School-managed housing available and apartment referral service. Personal counseling and student services. College has new multimillion-dollar facility with high-tech equipment.

**AUDIO RECORDING TECHNOLOGY INSTITUTE;** Course/Program Title: Theory and Practice of Audio Recording; 756 Main St.; Farmingdale, NY 11735; (516) 454-8999. Chief Administrator: Karen Fitzpatrick.

**THE AUDIO WORKSHOP SCHOOL (DIV. COMMUNICATIONS RESEARCH GROUP);** Course/Program Title: Studio and Stage Sound Production—SSP 300 + 400 series; 119 Fresh Pond Pkwy.; Cambridge, MA 02138; (617) 547-3957. Chief Administrator: Steve Langstaff. Program: Founded in 1972, the program offers comprehensive career-oriented training in Theory and Techniques of Sound Engineering, in cooperation with several 24- to 48-track area studios. Includes all the critical basics plus digital, MIDI, acoustics, equipment interfacing, vinyl and packaging production, business and financing guidance and considerable 24-track production access, with students choosing their own artists for final projects. State-certified principal instructor Steve Langstaff (Harvard, SynAudCon, Blue Jay Recording) is a respected engineer, designer and consultant with over 10,000 hours of teaching experience. Noted specialty guest speakers also participate. No prerequisites for SSP-301. Licensed by the Massachusetts Department of Education.

**BELMONT COLLEGE;** Course/Program Title: Music Business, B.B.A.; School of Business; Nashville, TN 37212; (615) 385-6483. Chief Administrator: Richardson R. Lynn.

**CAYUGA COMMUNITY COLLEGE-STATE UNIVERSITY OF NEW YORK;** Course/Program Title: Radio/Television/Audio Technology-Production; A.A.S. Degree; Franklin St.; Auburn, NY 13021; (315) 255-1743. Chief Administrator: Steven R. Keeler

**CENTER FOR ELECTRONIC MUSIC;** 432 Park Ave. S.; New York, NY 10016; (212) 686-1755. Chief Administrator: Howard Massey. Program: The Center for Electronic Music is a unique

UNITED STATES

# RECORDING SCHOOLS, SEMINARS & PROGRAMS

## EASTERN

nonprofit organization dedicated to providing low-cost educational and production services in the field of MIDI and music technology. Under the direction of well-known educator and author Howard Massey, CEM is open to the public and offers a comprehensive series of inexpensive seminars and workshops each month. The Center also boasts an extraordinary collection of state-of-the-art synth and MIDI equipment—including over 100 MIDI software programs—available for on-premises use at nominal cost. Staff members are also available for private instruction and consultation. Course titles include "Recording Electronic Music" (\$400 for four weeks of instruction, two nights a week), "MIDI/SMPTTE Synchronization" (\$200 for two weeks of instruction, two nights a week) and "MIDI-Controlled Signal Processors," (\$100 for two nights of instruction). Also offered are a number of beginning courses, including "Synthesizer Basics" (\$50 for two nights of instruction) and "Introduction to MIDI" (\$75 for two nights of instruction). For more information and a free brochure, call or write to CEM at the number/address above.

**CENTER FOR THE MEDIA ARTS;** Course/Program Title: Recording and Audio Arts Division; 226 W. 26th St.; New York, NY 10001; (212) 807-6670. Chief Administrator: Lee Stafford.

**COLLEGE OF ST. ROSE;** Course/Program Title: B.S. in Music Concentration in Studio Music; 432 Western Ave.; Albany, NY 12203; (518) 454-5178. Chief Administrator: Mary Ann Nelson Program: The College of Saint Rose's Studio Music program leads to a B.S. degree in music with a concentration in studio music. The studio music component focuses on strong musical performance, writing, arranging and improvisation, as well as studio production, recording technology and television production. Admission by audition. Catalog and application information: CSR Admissions Office (518) 454-5150.

**COMMUNITY COLLEGE OF THE FINGER LAKES;** Course/Program Title: Music Recording; Lincoln Hill; Canandaigua, NY 14424; (716) 394-3500. Chief Administrator: Frank Vergel

**CONVERSE COLLEGE SCHOOL OF MUSIC;** Course/Program Title: Electronic Music Laboratory I and II; Converse College; Spartanburg, SC 29301; (803) 596-9021. Chief Administrator: Dr. Henry Janiec

**DARTMOUTH COLLEGE;** Course/Program Title: Master of Arts degree in Electro-Acoustic Music; Dean of Graduate Studies; Hanover, NH 03755; (603) 646-3960. Chief Administrator: Prof. Jon Appleton

**DAVIDSON TECHNICAL COLLEGE;** Course/Program Title: Radio/Television Programs; 212 Pavilion Blvd.; Nashville, TN 37217; (615) 360-3300. Chief Administrator: Suzanne Davidson Program: The Radio/Television Division of the American Institute of Technology provides training programs in specialized areas of electronic communications, offering six month intensive hands-on training in either radio or video (12 months for both). Television course teaches video production including switching, lighting, studio and location camera operation and electronic editing. Radio course teaches disc jockey skills, newscasting, commercial production, programming and station operations. Financial aid is available to those who qualify. Job placement assistance is provided to our graduates. Accredited by the Association of Independent Colleges and Schools and licensed by Tennessee Higher Education Commission.

**DELTA STATE UNIVERSITY;** Course/Program Title: Bachelor of Arts degree-concentration in Commercial Music; PO Box 3252; Cleveland, MS 38733; (601) 846-4610.

**DIGITAL MUSIC CENTER;** Course/Program Title: MIDI Demystified; 37 W. 20th St., 8th Floor, New York, NY 10011; (212) 627-0840. Chief Administrator: Steve Friedman Program: Learn MIDI now! Take an exciting hands-on course in a major 24-track recording studio. Topics: computers and software, MIDI troubleshooting, SMPTTE synchronizers, sampling and synthesis. Learn and record on equipment by Kurzweil, PPG, E-mu, Oberheim, Sequential, Yamaha, Roland, Akai and Photon Computers, Macintosh, IBM and Atari. Software by Southworth, Opcode, Digidesign, Performer/Composer, Passport, Voyetra-Sequencer Plus and Hybrid Arts. One week in ten hours, Monday through Friday, 7-9pm, or Saturday and Sunday, 1-6pm. Fee \$250. Call now to register.

**DUQUESNE UNIVERSITY;** Course/Program Title: Multi-Media Production; Television Studio, 509 DPCC; Pittsburgh, PA 15282; (412) 434-6090. Chief Administrator: Melanie K. Dudash.

**DUTCHESS COMMUNITY COLLEGE;** Course/Program Title: Audio Production and Music Recording/Communications; Pendell Rd.; Poughkeepsie, NY 12601; (914) 471-4500 x2500. Chief Administrator: Rich Woods, Eric Somers

**EASTCOAST SOUND;** Course/Program Title: MIDI, Computers and Recording; 25 Hayestown Rd.; Danbury, CT 06810; (203) 748-2261. Chief Administrator: Larry Corrow

**EASTMAN SCHOOL OF MUSIC;** Course/Program Title: Audio Engineering Internships for advanced students or graduates; 26 Gibbs St.; Rochester, NY 14604; (716) 275-3180. Chief Administrator: David Peele.

**EMERSON COLLEGE;** Course/Program Title: Mass Communications/Audio Concentration; 100 Beacon St.; Boston, MA 02116; (617) 578-8800; (617) 578-8500.

**WILLIAM G. ENLOE HIGH SCHOOL;** Course/Program Title: Audio Production & Television Production; 128 Clarendon Crescent; Raleigh, NC 27610; (919) 755-6660. Chief Administrator: Diane Payne

**FIVE TOWNS COLLEGE;** Course/Program Title: Audio Recording Technology; 2165 Seaford Ave.; Seaford, NY 11783; (516) 783-8800. Chief Administrator: Dr. Stanley Cohen. Program: The A.A.S. degree program in Business Management with a concentration in Audio Recording Technology is intended for those students who wish to enter the recording field directly after completion of their studies at the college. Students will acquire a knowledge of the technical equipment and processes used in recording studios, the ability to produce both an artistically and commercially acceptable master recording for a record company, publishing company, broadcasting company, etc. and an understanding of the various financial aspects involved in establishing and operating a recording studio business. All courses are taught in the new 24-track state-of-the-art recording studio. The College also offers two-year degree programs in Jazz/Commercial Music, Music Business, Music Instrument Technology and Video Arts. It is fully accredited by the Middle States Association (MSA).



FULL SAIL CENTER FOR THE RECORDING ARTS  
Altamonte Springs, FL



FULL SAIL CENTER FOR THE RECORDING ARTS  
Altamonte Springs, FL

**FULL SAIL CENTER FOR THE RECORDING ARTS;** Course/Program Title: The Recording Arts Comprehensive Program; 658 Douglas Ave.; Altamonte Springs, FL 32714; (407) 788-2450. Chief Administrator: Jon Phelps, Garry Jones. Program: Full Sail features a ten-month course of study, The Recording Arts Comprehensive Program. The 1,356-hour course includes over 600 lab hours with student groups of six or less. Participants study eight vital areas of the audio/video recording industry: recording engineering, advanced recording and record production, studio maintenance and troubleshooting, music video, music business, MIDI music and the Full Sail/New England Digital School for Synclavier. Equipment used in labs includes three Synclaviers, Solid State Logic 6000E console, Studer and Otari tape machines and a 48-track mobile recording unit. After completing all academics, students are sponsored in a six-week internship arranged by Full Sail in the student's chosen career field (i.e. recording, video, live sound, etc.) Full Sail is accredited by The National Association of Trade and Technical Schools and offers financial aid to qualified students. Some modules of the Comprehensive Program may be taken individually.

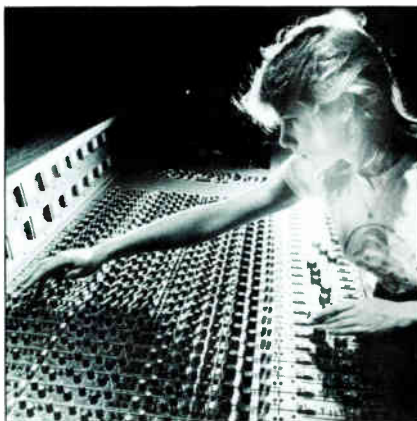
**GEORGIA STATE UNIVERSITY;** Course/Program Title: Bachelor of Science degree with a Major in Commercial Music/Recording; University Plaza, Atlanta, GA 30303; (404) 651-3513. Chief Administrator: Dr. Frederick J. Taylor. Program: The Department of Commercial Music/Recording offers the Bachelor of Science degree with a major in Commercial Music/Recording. The purpose of the program is to prepare properly qualified personnel for positions in all areas of the music industry, including that of top level management. Students may pursue either a two- or four-year program of study with a concentration in business or recording/production. The program offers practical experience, with hands-on experience in the University-owned 24-track recording studio and an internship program with the major recording companies. The program offers a sound liberal arts education coupled with courses in business, music, law, communication and commercial music. The program is unique in that all of the teachers possess the minimum degree requirement of a Master's and are actively engaged in some aspect of the music industry. If interested please call or write.

**HAMPTON UNIVERSITY;** Course/Program Title: Intro to Audio Recording; Dept. of Music, Recording Studio; Hampton, VA 23666; (804) 727-5514; (804) 727-5402. Chief Administrator: Bob Ransom.

**HART SCHOOL OF MUSIC/UNIVERSITY OF HARTFORD;** Course/Program Title: Sound Technology & Recording; 200 Bloomfield Ave.; West Hartford, CT 06117; (203) 243-4498. Chief Administrator: David Budries.

**HOUGHTON COLLEGE SCHOOL OF MUSIC;** Course/Program Title: B.A. Music, B.Mus.-Applied, Music Ed., Ch. Mus., Theory/Comp.; Houghton, NY 14744; (716) 567-2211 x400. Chief Administrator: Robert Galloway.

**INSPIRE PRODUCTIONS, INC.;** Course/Program Title: Recording Studio; 302 E. Pettigrew St., Ste. 101; Durham, NC 27701; (919) 688-8563; (919) 688-8565. Chief Administrator: Willie Hill, Sylvester Howell.



**INSTITUTE OF AUDIO RESEARCH**  
New York, NY

**INSTITUTE OF AUDIO RESEARCH;** Course/Program Title: Multi-track Recording Technology Program; 64 University Pl.; New York, NY 10003; (212) 677-7580. Chief Administrator: Philip Stein, Albert B. Grundy, Miriam Friedman. Program: The program features the technology and techniques of the multi-track recording studio. Students perform hands-on recording sessions with professional bands in the Institute's own control rooms/studio complex featuring 32-in/24-out MCI Series 636 console, MCI and Studer tape machines, Dolby and full complement of outboard equipment, as well as complete MIDI studio with 32-track digital sequencer. Emphasis is placed on

the technology of the equipment, with special courses in audio electronics, digital and systems design. Hands-on practice in editing technique and particular emphasis on circuit construction skills, are highlighted. Each student has the opportunity to serve a professional studio internship in some of the top recording facilities in and around the New York area. The Multi-track Recording Technology program is nine months for the full-time student. The special evening/week-end session takes fifteen months to complete. The Institute is fully accredited by NATTS and offers federal financial aid programs to eligible students, including loans and grants. Veterans benefits are also available for qualified students. The Multi-track Recording Technology program starts four times a year: September, January, March and June. Interested parties should contact the Admissions Department for further information at (212) 777-8550.

**INSTITUTO HISPANO DE AUDIO;** Course/Program Title: Recording Engineering-taught in Spanish; 130 W. 42nd St. (Variety #551); New York, NY 10036; (212) 221-6625. Chief Administrator: Jose Gallegos.

**BOB JONES UNIVERSITY;** Course/Program Title: Bachelor of Arts degree in Radio and Television Production; 1700 Wade Hampton Blvd.; Greenville, SC 29614; (803) 242-5100. Chief Administrator: Dr. Dwight Gustafson.

**JTM WORKSHOP OF RECORDING ARTS;** Course/Program Title: Learn Assistant Recording Engineering; Best Ave., Box 686; Knox, PA 16232; (814) 797-5883. Chief Administrator: Frank T. Battista.

**KINGSBURY JO TECH KINGS STUDIO;** Course/Program Title: Electronic Recording; 1328 N. Graham; Memphis, TN 38122; (901) 454-5676. Chief Administrator: Lumbo Hale.

**LEBANON VALLEY COLLEGE;** College Ave.; Annville, PA 17003; (800) 223-6181 (PA); (800) 445-6181 (out of PA). Chief Administrator: John J. Uhl. Program: The Sound Recording Technology program at Lebanon Valley College is a comprehensive course of study combining the art, science and philosophy of recording. The students follow a variety of disciplines involved in the field of audio engineering including: recording technology, music, physics, electronics, mathematics, computer science, business administration and selected courses in the liberal arts. Emphasis is placed on student usage of equipment in laboratory and level 500 courses. All applicants to the program must pass a musical audition for acceptance. The degree conferred is a Bachelor of Music. Sound Recording Technology and meets NASM standards.

**MEDIA ARTS-NICKEL STUDIO;** Course/Program Title: Modern Recording Techniques; 168 Buckingham St.; Hartford, CT 06106; (203) 524-5656. Chief Administrator: Jack Stang.



**MEMPHIS STATE UNIVERSITY**  
Memphis, TN

**MEMPHIS STATE UNIVERSITY;** Course/Program Title: Commercial Music; Dept. of Music; Memphis, TN 38152; (901) 454-2559. Chief Administrator: Larry Lipman. Program: Bachelor of Music in Commercial Music with concentrations in recording technology, music business, jazz and studio performance. Fully accredited by NASM. A thorough understanding of fundamental concepts and techniques are stressed within each concentration. Equal emphasis is placed upon the student's ability to quickly adapt to new practices, technologies and creative directions. The CMU's faculty have been carefully selected to provide students with a balance between faculty who are successful professionals actively working in the music industry and dedicated, experienced educators with a broad knowledge of music industry practices. Modern production facilities include a comprehensive 24-track studio, extensive MIDI-based and computer-equipped electronic music lab and complete video production facilities. (See March Southeast Studios or *Annual/Direct*.)



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tory for complete equipment list.) The Memphis music community offers a dynamic, growing environment providing students with diverse internship opportunities. CMUS students can even become involved in the University's own production and publishing companies. Enrollment is very limited and based on selective procedures.

**MIAMI SUNSET SENIOR HIGH SCHOOL;** Course/Program Title: TV Production, Electronic Music; 13125 SW 72 St, Miami, FL 33183; (305) 385-4255. Chief Administrator: Daniel B. Sell. Program: Sunset offers a three-year curriculum in television production and electronic music (recording engineering). Students in TV work in a four-camera color studio with computer-assisted editing, telecine and interformat dubbing. Students produce commercials, live closed circuit broadcasts, daily news and record schoolwide events including four-camera remotes. Students involved in audio use the 8-channel Tascam/Tapco studio complete with dbx and many outboard accessories. Students also study sound reinforcement using our Yamaha PA system. Most projects include combining the TV, recording and sound reinforcement equipment. These programs are open to all full-time students in the school.

**MIDDLE TENNESSEE STATE UNIVERSITY;** Course/Program Title: Recording Industry Management; PO Box 21, MTSU, Murfreesboro, TN 37132; (615) 898-2813. Chief Administrator: Geoffrey Hull. Program: Recording Industry Management (RIM) is a four-year Bachelor of Science degree program in music business and audio engineering. RIM offers 54 semester hours of courses in audio and the recording industry ranging from acoustics and maintenance and survey of the record industry to concert promotion. Audio students work in two studios on campus, a 24-track digital room and a 16-track analog room. Internships are available for senior level students in audio and the music business. Approved minors include Mass Communications, Business, Music and Electronics. Video instruction is also available.

**MOREHEAD STATE UNIVERSITY;** Course/Program Title: Professional Audio Practices/Radio-TV; Communications Dept.; Breckinridge Hall; Morehead, KY 40351; (606) 783-2134. Chief Administrator: Dr. Richard Dandaneau.

**MUSIC BUSINESS INSTITUTE;** Course/Program Title: Music Entertainment & Management; 3376 Peachtree Rd. NE; Atlanta, GA 30326; (404) 266-2662. Chief Administrator: Jerry Murphy. Program: For every musical performer, country to classical, there are hundreds of people working at important jobs behind the scenes. For every video produced, there's a lot of talent on the other side of the camera to bring the finished tape to the viewer. Graduates of the Music Entertainment management program are well prepared for their careers after 18 months of thorough training. This training, by instructors who are practicing professionals, results in a high percentage of employed graduates. Careers in the music and video business include a host of exciting jobs, from promoting new records to editing videotapes, from concert management to being a theatrical agent. Sales, administration, customer service, management, consulting, research and marketing—the opportunities for employment are interesting and diverse.

**MUSICATION;** Course/Program Title: Music Technology; 1600 Broadway, Ste. 1000A; New York, NY 10019; (212) 957-9100. Chief Administrator: Jaimie Blackman. Program: Musication offers courses with a comprehensive overview geared to the needs of the performer, composer, arranger, producer and engineer. Special emphasis is placed on understanding the language and implications of MIDI, SMPTE and Music Technology. Participants will work with a state-of-the-art audio/video digital music workstation and micro computers such as Mac, Atari and IBM. These courses include a review of current software for composition, voice editing, notation and film scoring. Individual and group instruction are available on all aspects of the new technology. For a free catalog please call or write.

**NEW YORK UNIVERSITY;** Course/Program Title: Music Business and Technology; Dept. of Music and Music Education; 35 W. 4th St., Rm. 777; New York, NY 10003; (212) 998-5424. Chief Administrator: David Sanders. Program: New York University offers specialized courses in analog synthesis, computer music, FM synthesis, MIDI, electronic music composition, film scoring, studio production and audio engineering. Four-year programs lead to Bachelor of Music degrees in Music Business and Technology, Composition, Performance, Jazz Studies and Music Education. Non-degree, special-student status is available to those wishing to enroll only in specific classes. Graduate studies leading to M.A., D.A., Ed.D. and Ph.D. degrees are also offered. NYU recording and electronic music studios are continually being upgraded. Current facilities include a 16-track recording studio, three 8-track studios and two 4-track studios. All are MIDI-equipped with computers (IBM, Atari, Macintosh, Amiga, Yamaha) and a varied selection of synthesizers (Yamaha, Korg, Fairlight, Voyetra, McClavier, Arp, Buchla, Serge), mixers, monitoring systems and a wide assortment of outboard gear. Research laboratories provide opportunities for the application of computers and MIDI in music education and music therapy. Advanced techniques in digital synthesis and computer-aided

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# RECORDING SCHOOLS, SEMINARS & PROGRAMS

EASTERN

composition are explored utilizing the school's DEC PDP-11-44 computer system.

**JOSH NOLAND MUSIC STUDIO;** Course/Program Title: Basics of Recording, Production and Engineering; 760 W. Sample Rd.; Pompano Beach, FL 33064; (305) 943-9865. Chief Administrator: Josh Noland.

**NORTHWESTERN CONN. COMMUNITY COLLEGE;** Course/Program Title: Visual Communications; Park Pl.; Winsted, CT 06098; (203) 379-8543. Chief Administrator: Professor Charles Dmyryn, Dr. Booker T. DeV Vaughn.

**OMEGA STUDIOS' SCHOOL OF APPLIED RECORDING ARTS AND SCIENCES;** Course/Program Title: Basic, Intermediate, Advanced and Advertising Production Courses; Electronic Music Synthesizers & MIDI I, Electronic Music Synthesizers & MIDI II; 5609 Fishers Ln.; Rockville, MD 20852; (301) 230-9100. Chief Administrator: Bob Yesbek. Program: The Omega Studios' School, presently in its twelfth year, offers a Basic program (32 hours, \$595), Intermediate program (32 hours, \$795), Advanced program (40 hours, \$995), an Advertising Production program (24 hours, \$695), plus a Basic Synthesizer/MIDI program, 32 hrs. (\$795) and an Advanced Synthesizer/MIDI program, 36 hrs. (\$995). The courses include comprehensive coverage of acoustics, microphones, signal processors, operation of various consoles, magnetic tape machine theory and operation, MIDI, SMPTE, audio-for-video, radio and TV commercial and jingle production, synthesizers, samplers, sequencing hardware and software, programming techniques for MIDI-based devices and extensive hands-on session and mix experience. Students learn in Omega's three professional control room/studio complexes using all professional equipment. Approved by the Maryland State Board for Higher Education and approved for veterans training.

**PEABODY CONSERVATORY OF MUSIC;** Course/Program Title: Bachelor of Music in Recording Arts and Sciences; 1 E. Mt. Vernon Pl.; Baltimore, MD 21218; (301) 659-8136. Chief Administrator: Alan P. Kelauber. Program: Sound recording has broken new barriers of technological and artistic achievement, creating a demand for a breed of skilled audio producer/engineers who combine technical expertise with a sophisticated knowledge of music. Peabody provides a unique five-year degree program that is conceived as an American counterpart to the European Tonmeister training. The degree draws its strength from the engineering program of the Whiting School of Engineering of the Johns Hopkins University and the entire theory and performance curriculum of the Peabody Conservatory of Music. Facilities include: full 24-track professional analog and digital studio; Sony 3036VF hard disk automated console, Ampex analog and Sony digital recorders; outboard processing equipment by Lexicon, Eventide, Drawmer, dbx, etc.; microphones by Neumann, AKG, Sennheiser, Beyer, etc. Second control room similarly equipped but not automated. For further information, contact the Admissions Office at 1-800-368-2521 (toll free).

**PENN STATE UNIVERSITY;** Course/Program Title: Sound & Recording Workshop, July 4-8; 220 Special Services Bldg.; University Park, PA 16802; (814) 863-2911. Chief Administrator: Peter Kiefer.

**PYRAMID RECORDING;** Course/Program Title: Audio Engineering; 449-51 Central Ave.; Orange, NJ 07050; (201) 678-1663. Chief Administrator: Louis Massa.

**ROAR PRODUCTIONS RECORDING AND MUSICAL SERVICES;** Course/Program Title: Roar Courses in Recording Technology; 6655-H Dobbin Rd.; Columbia, MD 21045; (301) 596-2600; (301) 381-1440. Chief Administrator: Andrea Weatherhead.

**SELECT SOUND STUDIO;** Course/Program Title: Recording Workshops I, II & III; 2315 Elmwood Ave.; Kenmore, NY 14217; (716) 873-2717. Chief Administrator: Charles N. Kothen.

**SKIDMORE COLLEGE;** Course/Program Title: Intro and Advanced Electronic Music/Recording Studio Technique; Music Dept., Skidmore College; Saratoga Springs, NY 12866; (518) 584-5000 ext. 2604. Chief Administrator: Charles Joseph.

**SONY PROFESSIONAL AUDIO TRAINING GROUP;** 1400 W. Commercial Blvd.; Fort Lauderdale, FL 33309; (305) 491-0825. Program: All courses are offered as either factory training in Fort Lauderdale or on-site at the customer's location. The curriculum is two fold: 1. Technical Service Training classes designed to provide technical service engineers with knowledge and confidence to service and maintain Sony Professional Audio products in the field. A two-year Electronics degree is required for this training. 2. Applications Engineering classes designed to provide the sales/recording/service engineers with the knowledge necessary to effectively recommend, demonstrate and specify Sony Professional Audio equipment. All courses stress hands-on time, enabling students to become confident with operating and/or servicing the specific equipment. Call our offices for course listings, prerequisites, tuition fees and latest schedule information.

**SOUND CELL INC./UNIVERSITY OF ALABAMA CONTINUED EDUCATION;** Course/Program Title: Recording Engineering; 601 Meridian St.; Huntsville, AL 35801; (205) 539-1868. Chief Administrator: Douglas Smith.

**SOUTHEASTERN LOUISIANA UNIVERSITY;** Course/Program Title: Electronic Music Lab; Box 683, SLU; Hammond, LA 70404; (504) 549-2334. Chief Administrator: Robert Priez.

**STATE UNIVERSITY OF NEW YORK AT PLATTSBURGH;** Course/Program Title: Audio Production/Television Production; 103 Yokum; Plattsburgh, NY 12901; (518) 564-2111. Chief Administrator: Al Montanaro.

**SYRACUSE UNIVERSITY;** Course/Program Title: Television-Radio-Film; Newhouse School of Public Communications; Syracuse, NY 13244; (315) 423-4004. Chief Administrator: Edward C. Stephens. Program: A concentration in audio production leading to a B.S. degree is available through the Television-Radio-Film Department. Core studies include beginning and advanced courses in music recording and sound production for TV and film. Courses complementary to the study of audio production are available in the Schools of Music, Engineering, and Arts & Sciences. Areas of study may include: marketing and economics of the recording industry, history of classical, jazz and rock music; film music; music theory, electronic music; perception; aesthetics; physics of music; acoustics; technical theory.

**TIDEWATER COMMUNITY COLLEGE;** Course/Program Title: Radio/TV Production, Media Production Technology; 1700 College Crescent; Virginia Beach, VA 23456; (804) 427-7294; (804) 427-7183. Chief Administrator: Samuel Ebersole.

**TRIX MUSIC PRODUCTIONS;** Course/Program Title: Mixing, Pre-Recording; 444 2nd Ave., Apt. 19D; New York, NY 10010; (212) 679-1629. Chief Administrator: Peter Paez.

**TROD NOSSEL RECORDING STUDIOS;** Course/Program Title: Modern Recording Techniques; 10 George St., PO Box 57; Wallingford, CT 06492; (203) 269-4465. Chief Administrator: Richard P. Robinson.

**THE TURNING MILL INC.;** Course/Program Title: MIDI and Recording; PO Box L; Palenville, NY 12463; (518) 678-9293. Chief Administrator: Lucy Swenson.

**UNIVERSITY OF LOWELL-COLLEGE OF MUSIC;** Course/Program Title: Sound Recording Technology; One University Ave.; Lowell, MA 01854; (617) 452-5000 ext. 2844. Chief Administrator: Dr. William Moylan. Program: Sound Recording Technology Programs: Bachelor of Music degree, minor in SRT for Electrical Engineering majors, minor in SRT for Computer Science majors. All disciplines within the audio recording industry are addressed by one of the three curricula. Fifteen recording-related courses form the core around courses in music, the sciences and math. Facilities include multi-track recording studio, 2-track recording studio/sound reinforcement facility, sound synthesis & MIDI studio, editing studio, equipment design and repair laboratory and video post-production studio.

**UNIVERSITY OF MIAMI;** Course/Program Title: Music Engineering; School of Music; Coral Gables, FL 33124; (305) 284-2439. Chief Administrator: Ken Pohlmann. Program: The Music Engineering program at the University of Miami offers a four-year Bachelor of Music Engineering degree, with a minor in Electrical Engineering, as well as a two-year Master of Music Engineering degree. Courses in the undergraduate curriculum include recording engineering, digital audio, acoustics and studio design, studio maintenance, video production, computer programming, circuit theory, music business, music theory, arranging and performance. The graduate curriculum includes study in advanced digital audio, video, psychoacoustics, logic design and a research thesis. The principle recording studio houses an automated Sony MXP-3036 console, MCI 24-track and Sony 2-track recorders, 3M and Mitsubishi digital recorders, dbx digital audio processor, Audio Kinetics synchronization system, Sony 34" video recorders, a Synclavier and other equipment. Our recent graduates enjoy a 100% placement rate in the professional audio industry and have engineered gold, platinum and Grammy-winning albums.

**UNIVERSITY OF NEW HAVEN;** Course/Program Title: B.A./B.S. in Music and Sound Recording; 300 Orange Ave.; West Haven, CT 06516; (203) 932-7101. Chief Administrator: Michael G. Kaloyanides.

**UNIVERSITY OF NORTH ALABAMA;** Course/Program Title: Bachelor of Arts/Science in Commercial Music; Box 5183, Univ. of North Alabama; Florence, AL 35632; (205) 760-4361. Chief Administrator: Dr. James K. Simpson. Program: General Studies: 44 to 55 semester hours. Music Core: Music Theory 12 to 15 sem. hrs., Music Literature & Music History 9 sem. hrs., Conducting 2 sem. hrs., Orchestration 2 sem. hrs., Musical Activities 5 sem. hrs., Class and/or Applied Music 7 sem. hrs., Music Electives 4 sem. hrs. Prescribed Business Administration minor and supporting courses (24 semester hours): Accounting 291, 292 (6) Elementary Accounting, Business Law 280 (3) Business Law I, Management 330 (3) Principles of Management, Marketing 360 (3) Marketing 373 (3) Principles of Advertising, Math & Computer Science (6), Commercial Music (18 semester hours): Music Publishing (3), Record Company I & II (6), Studio Techniques (3), Production (3), Commercial Music Production (3). Music Dept. is a member of the National Assoc. of Schools of Music.

**UNIVERSITY OF NORTH CAROLINA ASHEVILLE;** Course/Program Title: Music with Recording Arts; Music Department, Lipinsky Hall.; One University Heights; Asheville, NC 28804; (704) 251-6432. Chief Administrator: Dr. Wayne J. Kirby. Program: The Bachelor of Science in Music and Recording Arts degree program is designed for aspiring musicians interested in both the creative and technological aspects of music recording and production. This program includes practical experience in on-campus facilities which house a multi-track recording studio, computer-based electronic music/digital synthesis laboratory, digital editing lab and maintenance/repair room. Studies include MIDI, SMPTE, digital recording, synthesis, sound sampling, multi-track recording, acoustics, studio performance, music, physics, mathematics, computer science, electronics and other academic studies. Students can also choose from a wide variety of music electives including conducting, composition, computer music, jazz improvisation, arranging, music business and other profession-oriented courses. Internships are available to qualified students. In-state tuition and fees for one semester, approximately \$424, out-of-state, approximately \$1,962. Limited enrollment by audition.

**GEORGE WASHINGTON UNIVERSITY;** Course/Program Title: Electronic Music 160/161; Music Dept.; Washington, DC 21152; (202) 994-9037. Chief Administrator: Roy Guenther, Ulf Grahn.

**WESTERN CAROLINA UNIVERSITY;** Course/Program Title: Radio Production I, Radio Production II; Cullowhee, NC 28723; (704) 227-7491. Chief Administrator: Dr. Don Loeffler.

**WESTMINSTER THEOLOGICAL SEMINARY;** Course/Program Title: Westminster Media; PO Box 27009; Philadelphia, PA 19118; (215) 572-3834. Chief Administrator: James Klukow.

**WIDENER UNIVERSITY;** Course/Program Title: Media Studies; 14th & Chestnut Sts.; Chester, PA 19013; (215) 499-4339. Chief Administrator: John A. Vanore.

**YORK COLLEGE OF PENNSYLVANIA;** Course/Program Title: Radio Production; Country Club Rd.; York, PA 17403; (717) 846-7788. Chief Administrator: Thomas K. Gibson.

## OUTSIDE U.S.

**BULLFROG RECORDING SCHOOL;** Course/Program Title: Sound & Recording Engineering; 2475 Dunbar St.; Vancouver, BC, V6R 3N2 Canada; (604) 734-4617. Chief Administrator: Maggie Scherf.

**CAMTEK AUDIO PRODUCTIONS INC.;** Course/Program Title: Recording Engineering/Recording Producing, etc.; 15112-116 A Ave.; Edmonton, Alberta, Canada; (403) 452-6910. Chief Administrator: Maggie Guse.

**COLUMBIA ACADEMY OF RADIO, TELEVISION AND RECORDING ARTS;** Course/Program Title: Multi-Track Recording Arts, Broadcasting Arts; 1295 W. Broadway; Vancouver, BC, V6H 3X8 Canada; (604) 736-3316. Chief Administrator: George S. McNeill.

**I.C.A. INSTITUTE OF COMMUNICATION ARTS;** Course/Program Title: Audio Engineering/Production, Music Technology, Commercial Music; #12-12840 Bathgate Way; Richmond, BC, V6V 1Z4 Canada; (604) 278-0232. Chief Administrator: Niels Hartvig-Nielsen, Shannon Barker. Program: One-year, two-year and part-time programs in: Audio Recording, Music Production, Commercial Music Performance, Entertainment Business, Audio Production Technique for Video, Electronic Music and Synthesizers, Video Production, Music Theory and Arranging, Audio Electronics, Music Technology, Instrumentation. Student financing available, tuitions from \$1,250 U.S. per semester. Commencement October, February & June. I.C.A. Institute is recognized by the U.S. Dept. of Education and therefore eligible to participate in the U.S. Guaranteed Student Loan Program. G.S.L. #025403. Call or write for more information.

**MCGILL UNIVERSITY;** Course/Program Title: Master's of Music in Sound Recording; 555 Sherbrooke St. W.; Montreal, Quebec, H3A 1E3 Canada; (514) 398-4538. Chief Administrator: John Rea. Program: Master's of Music in Sound Recording degree. Duration: One preparatory undergraduate year plus two years graduate. Course titles: Sound Recording (Theory and Practice), Analysis of Recordings, Technical Ear-Training, Analog and Digital Audio Editing, Studio Equipment Maintenance, Digital Studio Technology, Computer Music/ Sampling/MIDI, Classical Music Production. Facilities: Two concert

—CONTINUED ON THE NEXT PAGE



UNIVERSITY OF NORTH CAROLINA ASHEVILLE  
Asheville, NC

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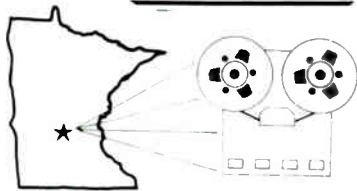
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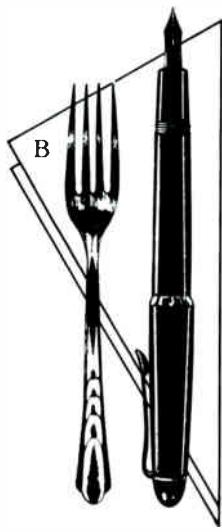
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by Mr. Bonzai

# JAPAN TOUR 88



OK, gang, all aboard the Bonzai Bullet Train for a whirlwind tour of Japan '88. We'll sample some food, some sake and some music, and we'll chat with some of the folks who just may be modeling the future of the planet.

After touching down at Narita Airport, Mrs. Bonzai (Keiko) and I took the Skyliner train to Tokyo's central Ueno station to catch the Shinkansen (Bullet Train) for her hometown of Sendai, a major city 200 miles north of the capital. Before each announcement is made on the train's P.A., a little synthesizer riff of traditional folk music is played. These musical interludes are a common part of Japanese life. When you buy a beer or a soft drink

from a vending machine, a short ditty accompanies your purchase. We sipped some hot sake in the buffet car, watched the countryside whiz by and in less than two hours arrived at our first destination.

Keiko's grandmother is 92 years old and has lived through the reigns of three emperors. She is the honored matriarch of the family and quite a well-known figure in town. Until the war, she and her husband ran the major hotel in Sendai, which has since been replaced by a bank. Grandmother treated us to a special meal of broiled eel at an old restaurant overlooking the city. After saying hello to the kitchen staff, our spry and diminutive hostess led us to our *tatami* mat dining room.

During the course of the luncheon I

**Premier jazz vocalist Mari Nakamoto goes on the record with the author.**



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## LUNCHING · WITH · BONZAI

learned that Grandmother was quite a rebel in her days. The mother of nine children, she took off three times for Tokyo to get away from the family. Each trip was by rickshaw, a rather slow form of transportation compared with the Bullet Train, which she tested during its first week of service in the early '60s. When I asked if she remembered seeing her first film, she answered "hai" (yes) and told us that the cost of the movie and a sweet cake was only ½ yen. Hirohito took the throne 63 years ago during an especially hot summer. When asked if she preferred the old or new Japan, she chose the former, telling us that new Japan is too full of stuff—material consciousness. She added that America played a big role in creating this situation.

She swings with the band and together they embody something the Japanese cherish: "mind conversation."

So much of modern Japan is the result of America's restructuring of the country after the war. Now there is a booming modern economy, baseball, McDonald's, 7-Eleven, Kentucky Fried Chicken, rock and roll. The Japanese work very hard for their yen—if you have any doubt, take a late night train any weeknight and feel the real crush of humanity. In our commutes in and around Tokyo, I have never felt such rapid transit terror as when the train would come to an abrupt stop and the herd of passengers would push the air out of my lungs. The only time I ever heard anyone yell in public was when passengers couldn't reach the door at their station and screamed "Oritain-dayo!" (I want to get off!)

Surprising musical moment: after using the toilet on my first morning in Japan; I heard recorded music announce that I was finished. I looked around for the hidden camera and

then realized that there was some sort of tiny chip playback device in the toilet paper roll which was activated when the paper was pulled.

After our family reunion, Keiko and I took an old slow train over the mountains to the west coast of Japan. Near the ancient town of Kanazawa we visited with a sculptor, Kazuo Kadonaga. At dinner, Kazuo suggested I try a delicacy: barbecued sparrow. Fortified with an extra cup of sake, I crunched down on the little bird—beak, brains and all. It was an experience I wouldn't have missed and one which I doubt I will repeat. I passed on the horsemeat *sashimi*. The next course was hand-made *soba* (buckwheat noodles) and a barbecued fish submerged and cooked in sake. You hold the fish down with your chopsticks and sip the sake, passing the bowl around the table. Then you pick the delicate, sake-soaked meat from the bones of the fish. *Oishii!* (Delicious!)

The next day, we boarded another train and meandered our way south to Koga, which is near the old capital of Kyoto. Koga is known as the old center of Ninja activity and today is famed for its fine ceramics. We stayed with our brother-in-law, Kuniaki Sato, who is quite a historian of modern American and Japanese music. Professor Kuni, as I like to call him, is a successful businessman today, but in his college days had long hair and played electric guitar.

From Kuni's record collection, we first listened to a mint-condition copy of Van Dyke Parks' debut album, *Song Cycles*. From there, we progressed to Makoto Kubota & The Sunset Gang. Kuni explained that back in the early '70s, The Sunset Gang was the first successful Japanese rock band to sing original tunes with Japanese lyrics as well as covering American songs. I checked out their album notes and found that some of the recordings were made in Hawaii with the participation of Ry Cooder. Their early Japanese hit, "Haisa Ojisan" ("Uncle Haisa"), is an Okinawan-style song, a light romp that sounded akin to Hawaiian and C&W music. The current incarnation of the group is Sandii and The Sunsets, a group worth checking out. I'd call it progressive pop, uptempo romantic material with a blend of Japanese and English lyrics, a tight rhythm section, a colorful command of synthesizers and a cozy female lead singer.

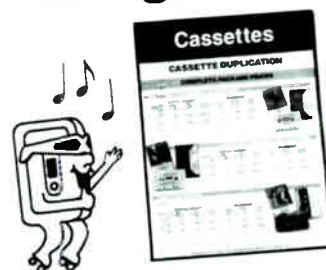
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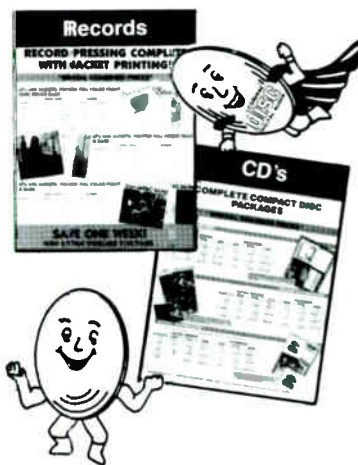
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## LUNCHING · WITH · BONZAI

Noteworthy in the old Sunset Gang is the bass player, Hosono Haruomi, who later formed the seminal YMO (Yellow Magic Orchestra) with drummer Yukihiro Takahashi and recent Oscar-winner Ryuichi Sakamoto.

Drummer Takahashi was also a member of The Sadistic Mika Band (a play on The Plastic Ono Band), which brought fame to Kazuhiko Kato. Kato's 1979 album, *Papa Hemingway*, is an outstanding piece of conceptual work, with a mixture of Japanese and English lyrics. Kato and Sakamoto are two of Japan's most respected musicians these days, as is guitarist Masayoshi Takanaka (Sadistic Mika Band), an original in his own right who has been dubbed the Santana of Japan. As a newcomer to Japanese rock, I hope I am getting this tangled history straight and spelling all the names correctly. It should also be known that I am following Kuni's lead and ignoring all of the popular Las Vegas-style entertainers and the ever-changing crop of bubble gum pop stars.

Interesting side note: in Japanese television commercials, it is not uncommon to see onscreen musician credits.

Late in the evening, Kuni introduced me to a group which could hold its own on any major American concert stage. We watched a tape of a recent televised concert with Ryudo-gumi (Ryudo means "children of the dragon" and gumi means "group"). Front-

ed by lead singer Uzaki Ryudo, this band soars from R&B to reggae, from ballads to funk to fusion, but Kuni pointed out that they also employ the most traditional Japanese music and words of any leading rock band. The drummer pounds the meat out of his skins, the electric violin is superb, the guitar work is impeccable and the horn section pumps and grinds. Ryudo has the samurai good looks of a young Toshiro Mifune and chills the crowd when he climbs to the giant *taiko* drum and pounds out the old heart-beat of Japan. The lyrics are mainly in Japanese, but you'll hear the occasional "We're movin' on" or "Play your guitar."

(Back home in the U.S. I played the show for the noted anthropomusicologist Dr. Buzz Bentley. He remarked that the Japanese have always excelled on a technical level, but this band represents what may be the second generation of Japanese rock. Now moving beyond emulation, the Japanese rockers are swinging in a new and true style of their own, blending the best of the West with the roots of the East.)

While in Koga, Kuni drove us to the site of the mountaintop castle built by the famed shogun Nobunaga four centuries ago. According to Kuni, Nobunaga was the visionary leader who separated the church from the state, something which had a profound effect on the history of Japan. As we walked through the park, the cherry blossoms were in full bloom, which is major cause for celebration in Japan. With

cramped living quarters the norm in Japanese life, they welcome the chance for an outdoor party—and party they do. They roll out the mats and the kegs of beer, crank up their generators and turn on the sound systems for *karaoke*, or live sing-alongs with prerecorded tapes. This craze still hasn't caught on in America but it is pervasive in Japan, with everyone from toddlers to senior citizens enjoying a few minutes in the spotlight.

The next morning, we drove the expressway to Kyoto to catch another Bullet to Tokyo. Kuni had the pedal to the metal, and because we were exceeding the 100-kph limit the car reminded us with a continuous ding-dong chime, something I think American motorists would immediately disconnect.

Our old friend Kitaro (see *Mix*, February '87) called from his studio near Mount Fuji, but unfortunately our schedules didn't cross during this trip. Kato was on tour, Sakamoto was in the States picking up his Oscar and Ryudo was only available on the eve of our departure. But fortunately, my Pacific bridge partner in Japan, Shinji Kurihara, arranged an evening with one of the country's most respected jazz vocalists, Mari Nakamoto.

Mari sings exclusively in English and has a firm grasp of material penned by such greats as Gershwin, Jobim and Billie Holiday, and even recorded a song written for her by Stevie Wonder. She was given top honors by the *Swing Journal* readers' poll for eight years. Her voice is heard on numerous Japanese TV show themes and in commercials for such companies as Mazda and Suntory.

For a little research, I picked up her latest collection, *Memories*. (Cassette price: 2,800 yen, or about 22 bucks.) I was surprised to see that it had been recorded last year in Hollywood at Capitol Studios. Her pianist for the sessions: jazz and swing veteran Jimmy Rowles.

Through the throngs of Friday night celebrants, students and salarymen enjoying the end of another brain-and-back-breaking week, we made our way to the famed Shinjuku district to a small jazz club called The Carnival. The walls were autographed by everyone from Rosemary Clooney to Lew Tabackin.

The show warmed up with Mari's combo: Mikio Masuda on piano, Berk-

### Ryudo-Gumi combines reggae, R&B and traditional Japanese music.



PHOTO BY TOR VASIC

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## LUNCHING · WITH · BONZAI

lee grad Keichi Ishibashi on bass, and Kurata-san (I didn't catch his first name) on drums. If you ever find yourself in Tokyo, and have the heebie-jeebies from the noise, the congestion and the frantic pace of modern Japan, I suggest dropping into this little jazz oasis.

Mari joined the band after three cool instrumentals and grabbed the audience with "I Love All of You," followed by "How High the Moon," "Send Me Someone to Love," "How Long Has This Been Going On," "God Bless the Child" and finished with a moving "Love For Sale."

She is a polished performer with complete command of the stage. She chooses great material and breathes new life into enduring classics. As I looked around the club, I saw young and old men enthralled, hypnotized, swooning to her romantic renditions. She swings with the band and together they embody something the Japanese cherish: "mind conversation," as Keiko calls it.

After the show, Mari left the stage

and honored us by coming immediately to our table while the band vamped on. As the applause died down, I asked if we could find a quiet place to chat. The club manager immediately grabbed a table and chairs and set up an impromptu cafe in the mall hallway where we could be relatively alone.

After listening to her English singing (she did make a few errors, like pluralizing a singular noun now and then, which only made me appreciate the lyrics anew), I expected an easy interview. But her conversational speech is limited, and we had to move slowly. I learned that she was originally trained as a ballerina, but learned classical piano and singing from her mother, who was a music teacher. As a teenager, she injured her back, and after rehabilitation she toured Vietnam as a wartime entertainer, rooming with an American dancer and learning our language. She was drawn to American jazz through records and radio. The picture she created made me feel like I was stepping back in time to the early days of the new Japan, when the American influence was strong and fresh. She added emphatically that she



PHOTO: AKI KASAI

**Mr. and Mrs. Bonzai with grandmother, who is glad her savings are in yen.**

doesn't want to be seen as a copy of the great jazz ladies. "I really hate it when people say I sing like someone else. I understand the feelings of jazz from singers like Sarah Vaughn, Billie Holiday, but I want to make originality."

Mari has performed occasionally in America, and told me she plans more tours in the future. "I'll wear a kimono and sing jazz," she confided with a smile. When I asked what she thought of the States, she said, "America is so alive, still young, powerful spirit. Tokyo is so busy—like a robot."

So there you have it: part one of this American's tour of Japan, guided personally by Keiko, without whom I would have been hopelessly lost in a land of strange wonders and signs I couldn't read. Next month we'll knock on the Atsugi door of that cosmopolitan bon vivant, Sony's pro-audio general manager, Dr. Roger Lagadec. If you recall the January '85 *Mix*, you remember what an outspoken visionary and playful character the good Doctor is. And beyond a techno excursion, he introduced me to the music of Andreas Vollenwieder and the literature of Russell Hoban. Tune in next month for some culture, some class, some pro-predictions and an odd story about a gorilla and a judge. ■

*Mr. Bonzai, a 15-year veteran of the music industry, is former manager of a major Southern California studio, and author of Studio Life: The Other Side of the Tracks (Mix Publications).*

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# SOUND REINFORCEMENT NEWS

The huge hardrocking **Monsters of Rock** tour [see *On The Road*] with **Van Halen, the Scorpions, Dokken, Metallica** and **Kingdom Come** started May 27 and ends July 30. Highly regarded **Audio Analysts** is handling sound reinforcement. **Bert Pare** reported that there will actually be two complete main P.A. systems, each with 150 HDS-4 speaker cabinets, that will leapfrog across the country for the scheduled 29 outdoor shows. While one system is being set up for a show, the other will be on the road traveling to the next city on the tour. This is necessary due to the amount of time required to set up the massive number of speaker cabinets used: 150 HDS-4 cabinets for the mains, 48 AA subwoofers, and 32 long-throws for the two delay towers are provided for each show. The High Definition System 4 cabinet is Audio Analysts' former S-4 cabinet that has been redesigned internally while maintaining the same outward appearance. Two Gamble HC 40 x 16 x 2 and two Soundcraft Series 4 40 x 16 x 2 house consoles are matched with two Gamble SC 32 x 16 and two Soundcraft Series 4 40 x 16 stage consoles. Mixing house for headliner Van Halen is **Dave Natale**. **Sean Webb** handles the stage mix. . . Audio Analysts recently purchased and modified the Crown amplifiers used on the Monsters of Rock tour. . . **Rush** ended their tour May 15th after three weeks in Europe. They were using the new **CADD DL-1** digital crossover that is scheduled to be released publicly at the L.A. AES convention. . . **John Cougar Mellencamp** has a monitor system in Australia. He is coming back to North America for a May 24 to July 3 tour. . . **Heart** is on tour across America May 26 to July 10 with the same system and personnel as the last tour. Fifty-six main cabinets, eight subs and

matching Soundcraft Series 4 consoles are being used. . . New teenage sensation **Tiffany** was on the road this spring doing a theater tour before taking a break from May 1 to June 5. She resumed her tour of North America and is now doing arenas and sheds.

**Showco** provided numerous consoles, a 270-degree Prism P.A., and a massive monitor system for the star-studded **Atlantic Records' 40th Anniversary** at Madison Square Garden held May 14th. It had a revolving stage to facilitate quick set changes. . . New tours to add to Showco's large client list are: new artists **The Church**, who are carrying a monitor system only, and **Rick Springfield**. . . The forever touring **Willie Nelson** [see *On The Road*] is using a small theater-size Prism system that is designed for flexibility, since Willie plays such a wide variety of venues. **Wil Sharpe** commented, "Willie will go from Las Vegas, to state fairs and all those in between. The smaller Prism system is ideal for this type of tour". . . Other Showco clients on tour include **George Michael, Dwight Yoakam, Linda Ronstadt, the Kinks, Ted Nugent, the Beach Boys, and Lynyrd Skynyrd**.

Ohio's largest sound reinforcement company, **Eighth Day Sound** completed a tour with Britain's **Jethro Tull** that ran from the end of May until the end of June. They provided sound for Tull's last tour also. . . In April, Eighth Day wrapped up the first leg of the **Richard Marx** tour. Marx took a short break and resumed touring in May. . . **Tom Jones** was out on a three-week mini tour. . . **Kool and the Gang** came back from touring Africa and the Caribbean, and immediately began rehearsals for their upcoming U.S. summer tour. Owner **Tom Arko** commented on touring Africa, "The

market is ripe, but it is very hard to do a production with the limited resources available. Power is a major problem. We took a special 40-foot trailer with big generators for sound and lights wherever the tour went. . . It's rare to see a tractor-trailer rig over there. All they have are straight trucks with no air-ride". . . Attention all barbecued rib fans! The well-attended **National Rib Cookoff** was held over Memorial weekend at the Cuyahoga County fairgrounds near Cleveland. Eighth Day provided sound reinforcement for **Willie Nelson, Miami Sound Machine, Jan & Dean, John Cafferty**, and others. Forty Meyer MSL3s and 20 Meyer 650R2 subs were used for the main P.A. In addition, delay towers with EAW three-way cabinets were provided. A Harrison console was utilized for the house mix and a Yamaha PM3000 for the stage. . . Other reinforcement dates include sporadic gigs with **Lever**, the NAACP convention in Detroit with the ageless singer **Billy Eckstein**, and national one-offs with **Johnny Mathis, the Four Tops** and **Robin Trower**. . . New equipment purchases include several more TMS-3 speaker cabinets and some Crown Macro-Tech 2400s.

Console manufacturer **TAC** has sold several SR9000 consoles in Asia and Europe. . . Japanese sound company **Hibino-Electrosound** now has six TAC SR9000 house consoles including two custom units with 24-channel extenders. . . **Tokyo Broadcast Systems** installed one in their live studio for rock and pop shows. . . Hong Kong's **TVB Broadcasting** just placed an order for the SR9000. . . In Germany, sound company **Rocksound** used their SR9000 on a **Jennifer Rush** tour. . . French P.A. company **Malpomen** reports satisfaction with their new console.

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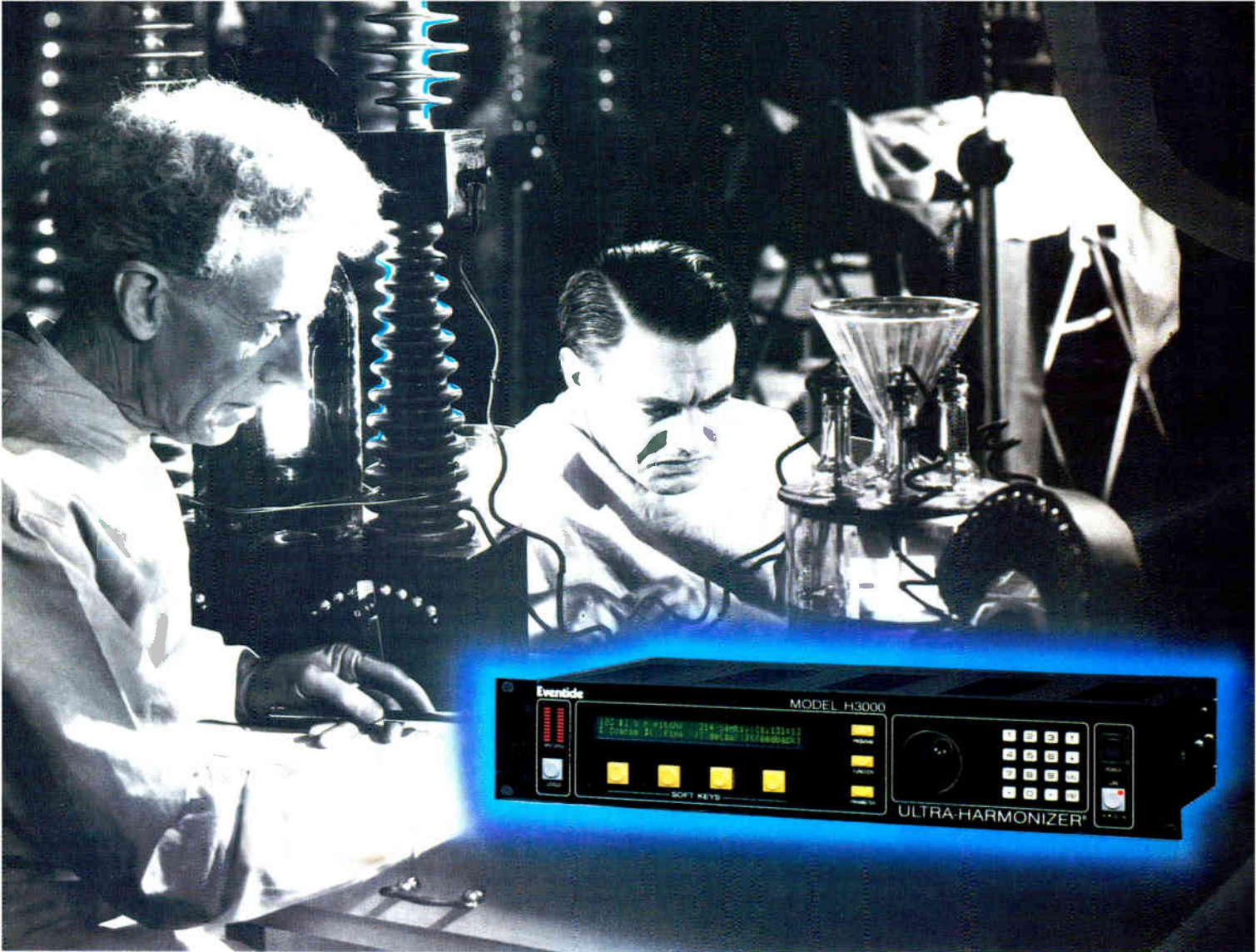
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# SOUND · ON · STAGE

by Mark Herman

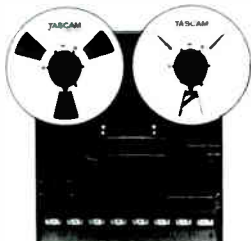
# ON THE ROAD

SOUND COMPANIES, EQUIPMENT, ARTISTS & PERSONNEL ON TOUR

Artist Sound Company Tour Dates & Region	House Console #1 House Console #2 Monitor Console #1 Monitor Console #2 Crossovers	Main Speakers Other Speakers Subwoofers Monitor Speakers	Main Amplifiers Other Amplifiers Sub Amplifiers Monitor Amplifiers	Engineers: (B) = band (H) = house (M) = monitor
John Denver Sound Image June-July U.S.	Ramsa 840 40x8x2 ---- TAC Scorpion 30x12 ---- Brooke-Siren Systems 340	16 PhaseLoc Series 4 ---- 4 PhaseLoc Sub Sound Image 2 x 15	QSC 3800,3350 ---- QSC 3800 QSC 1500, 1200	David Beechum (B,H) Mike Adams (M)
Manhattan Transfer A-1 Audio May-Oct U.S.	Harrison Alive 32x8x2 Harrison Alive 32x8x2 Harrison Alive 32x8x2 ---- Meyer Sound	28 Meyer MSL3 ---- 10 Meyer 650R2 A-1 Custom 2x12	Crest 4000 ---- Crest 4000 Crest 4000	Dan Kasting (H) Jeep Parker (B,M) Tom Martin
Richard Marx Eighth Day Sound May-Sept N. America	Soundcraft Series 4 40x16x2 ---- Soundcraft 800B 32x10	24 Turbosound TMS-3 ---- 6 Turbosound TSW-124 EDS Custom 2x12	AB 1200, Hafler P500 ---- AB 1200 QSC 3800	TBA TBA
Megadeth dB Sound Inc. March-May N. Amer May-June Europe June-Oct N. America	Yamaha PM3000 40x8x2 ---- Midas Pro4 36x10 ---- Electro-Voice HDX4	8 HD4 8 HD3 8 HDB E-V 2x12	Crown PSA2, Delta Omega Crown PSA2, Delta Omega Crown DeltaOmega Crown MA1200, PSA2 & Delta Omega	Neil Schaefer (B,H) Dave Rizzo (M) Bruce Knight
Monsters of Rock Vai Halen*Scorpions May-July N. America *(leapfrogging system)	2 Gamble HC 40x16x2 2 Soundcraft Series 4 40x16x2 2 Gamble SC 32x16 Soundcraft Series 4 40x16 CADD DL1	*150 AA HDS-4 32 AA long-throw 48 AA SW AA 2 x15,1x15	AA Crown MA2400 AA Crown MA2400 AA Crown MA 10000 AA Crown MA 2400	(Van Halen crew) Dave Nattle (H) Sean Webb (M) Mike Caron Bobby Huckaba Paul Parker
Willie Nelson Showco Ongoing—U.S.	Yamaha PM3000 40x8x2 ---- Harrison SM-5 32x16 ---- Showco	12 Prism ---- 4 Prism Subwoofer Showco 100, 200, 300 & 400	Crown PSA2, MT1200 ---- Crown MA2400 Crown MT1200	Mike Garvey (B,H) David Selg (M)
David Lee Roth Tasco March-August N. America	Midas Pro-5 40 ch Midas Pro-5 32 ch TAC Scorpion 40x12 ---- SG Engineering	102 Harwell (34 stacks) ---- 8 Meyer 650R2 Tasco Wedges 2 x 12, 2x15	Crown PSA2, DCA ---- Crown PSA2 Crown MT1200, DCA, & PSA2	John Godenzi (H) Brian Hendry (M) Jeff Williams Mike Sprague Art Freund
Conway Twitty & Loretta Lynn Roadwork Productions Ongoing N. America	Soundcraft 800B 32x8x2 ---- TAC Scorpion 40x12 ---- Ashly	24 EAW 400 ---- ---- EAW 222, 600	Crown MA1200 & Yamaha 2200 ---- Crown MA 1200, 2400	Jimmy Freeze (B, H) Bob Langlois (M) Eric Imler

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## SOUND · ON · STAGE

**Ultra Sound** has several new tours based out of their new East Coast office that is headed by **Sean McCormick** . . . The legendary **Bob Dylan** is using Gamble consoles, Crest amps, and 32 Meyer MSL-3s on his North American tour that started in early June. It is slated to run through September. . . **Debbie Gibson**, a new young star, is on a tour of North America that started at the end of June and is due to finish in September. The house console provided is a Yamaha PM3000 and the stage a TAC Scorpion 40 x 12. Crest amps power the 24 Meyer MSL-3 cabinets, 650R2 subs and Meyer monitors . . . The **Grateful Dead** still continue to tour. At one point during June, the Dead used 128 Meyer cabinets in a system. I saw them at an outdoor show at **Stanford University's Frost Amphitheatre** in early May. The sound quality was very, very good. What really impressed me was the fact that the vocals were incredibly clean and clear. The entire P.A. system reflects Ultra Sound president **Don Pearson's** commitment to excellence. Good gear and good people.

**dB Sound Inc.** is a major national sound reinforcement company located just outside of Chicago, in Des Plaines, Illinois. When asked how many clients dB can service when busy, **Harry Witt** replied, "Last summer we had 11 things happening at once." dB Sound is currently on a tour that is scheduled to continue until late fall with **Megadeth** . . . Other tours are with Christian rocker **Russ Taft**, and wild rockers **Guns and Roses** . . . A major system was in rehearsal with mega star **Prince** who is due to start touring during July in Europe. It will feature an in-the-round stage and an extensive P.A. system. The stage monitors will be built into the stage set, which was designed with the monitors in mind. . . dB's mixing console inventory includes two pairs of matching 40-channel Soundcraft Series 4, several Midas Pro4 and Pro40 monitor boards, and four Yamaha PM3000s. For main P.A. gear, dB has over 120 HD cabinets, over 60 MT cabinets and a Meyer system. Witt described his systems, "What we have mostly is our HD (High Density) proprietary cabinets that feature JBL components. There are three different versions: the HDB with four 15-inch speakers; the HD3, a 3-way cabi-

net that goes with the HDB. It has two 12-inch, two 2-inch throat drivers, and two special JBL 2405-02 bullets; and the HD4, a full-range cabinet with two 15 inches, one 12 inch, one horn and two tweeters. All the cabinets are 36 inches square and 30 inches deep which makes for easy packing, stacking and flying. There are rigging rails on all four sides of each box. We developed the rigging system ourselves. . . Basically all the design work that went into the HD cabinet has been transferred over to our new MT speaker system that uses **Electro-Voice** components" . . . The MT is a two-box system with enclosures the same dimensions and rigging as the HD. The MTL is a bass box with four E-V 18-inch speakers and the MTH4 is a three-way cabinet with four 10-inch speakers, four high-mid drivers, and four high drivers. Witt added, "The two cabinets time align perfectly and work together well. The main difference between the two systems performance-wise is that the MT has more output. The MT speaker cabinets were partly designed by us for Electro-Voice. We worked in conjunction with their engineers and facilities on the project. dB is the first company to prototype and test the equipment" . . . Witt discussed dB's amplifier choices, "For the MT system we mainly use the new Crest 8001 amplifier. The HD system is Crown powered with 2,400 watt mono Delta Omega for the low end, and either Macro-Tech 2400s or PSA-2s for the mains" . . . dB Sound is working with Electro-Voice in promoting a worldwide MT network to link the nearly 800 cabinets that have already been sold. Most likely it will be similar to British speaker manufacturer **Turbosound's** network that is designed to help touring acts and sound reinforcement companies maintain a steady supply of Turbosound equipment.

**Roadwork Productions** is one of the main sound reinforcement companies in Nashville. They were formerly located in Jackson, Mississippi before moving to Nashville four years ago. Throughout the years, Roadwork has toured regionally and nationally with many of the leading country acts. In addition to touring they also do many national one nighters around the Nashville region. . . Most of their main P.A. systems consist of EAW 400 Series speaker enclosures. Other speaker cabinets in their inventory include 12

of the big EAW 800 Series boxes. Amplification is all Crown. Mixing consoles used are two Soundcraft 800B house consoles, a new 40 x 12 TAC Scorpion stage console and a Soundcraft 400B stage console. . . Some recent excitement has been generated with the purchase of 16 **Master Blaster** powered speaker boxes. The amplifiers are built in and reportedly very compact. Master Blaster is made in Holland and is distributed by Applied Research and Technology (ART). "As far as we know we are the first company in the U.S. to purchase the Master Blaster," said Roadwork spokesman

**Bob Langlois**. "There are two different cabinets, a low box and a mid-high box. We now use a ratio of two subs for every mid-high cabinet. The cabinets are so compact we can put 16 of them in a single van. They are basically for our smaller shows but can be used to supplement our regular P.A. for big shows" . . . Roadwork also recently purchased most of the P.A. system that Nashville's **Carlos Sound** was selling. Carlos Sound is now down to just one P.A. system. It is used regularly by the ever-touring **Oak Ridge Boys**. . . Currently Roadwork is touring nationally with the ongoing **Conway Twitty** and

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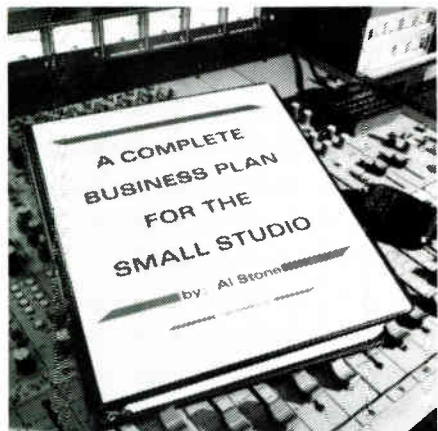
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**Loretta Lynn** [see *On The Road*], and the up-and-coming **Sawyer Brown**. The **Louisville Orchestra** is one of their ongoing local accounts and plans to use the new Master Blaster system throughout the summer.

Southern California-based **Sound Image** reported their summer season has taken off and looks to stay busy. Tours are with **Jimmy Buffet**, **John Denver** [see *On The Road*] and bluesman **Robert Cray**. After Buffet's tour ends in August the sound system will begin a tour with **Jackson Browne** . . . Sound Image has expanded their warehouse and office facilities. Spokesman **Dave Shadoan** announced, "We have just built from the ground up, a 15,000-square-foot two-story building here in San Marcos" . . . Equipment purchases saw the addition of a 40 x 18 stage and two 40 x 8 x 2 house Ramsa WR-S840 consoles.

**Schubert Systems Group** reported no progress on the release of their P.A. equipment that is being held for ransom in Nigeria, Africa. The equipment was seized after the promoter of the Sunsplash '88 tour failed to meet certain financial obligations unrelated to SSG . . . The **Whiskey A Go-Go** in Hollywood, CA, recently installed a Soundcraft 500B console for the nightclub's P.A. system . . . **Ancha Electronics**, Miami, was responsible for the sale and installation of a sound reinforcement system for the new **Joe Robbie Stadium** in North Miami, Florida. ■

Got any news? Call (415) 726-2428 or send press releases, photos, etc. to: *Sound Reinforcement News*, Mix Publications, 6400 Hollis Street #12, Emeryville, CA 94608

Author **Mark Herman** owns *Hi-Tech Audio*, a sound reinforcement company specializing in console rentals.

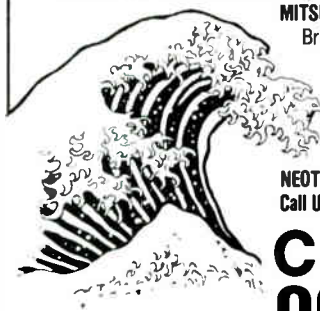
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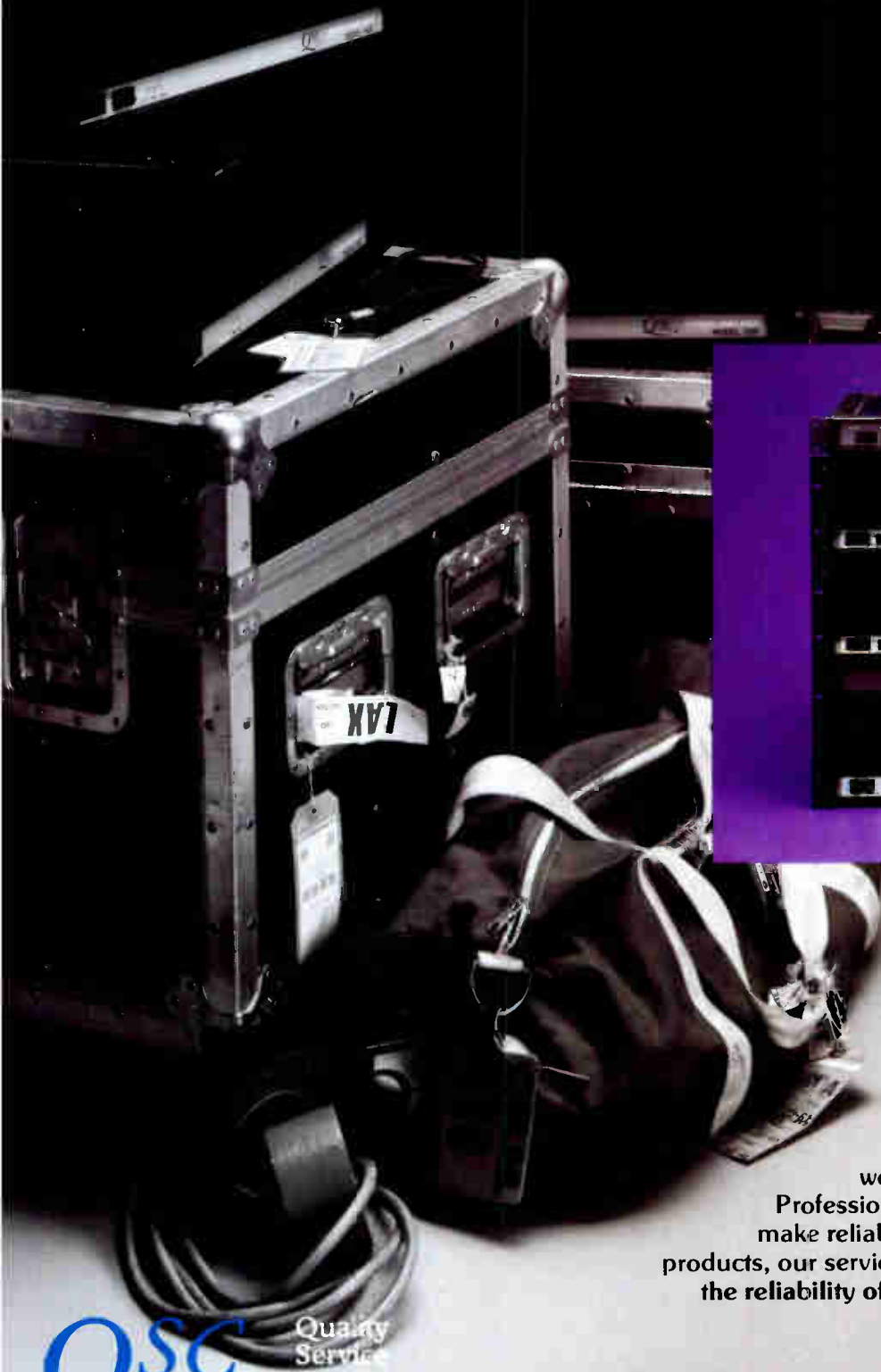
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World Radio History

—FROM PAGE 72, SCHOOLS

students from the programs at "Ohio State University and the Recording Workshop in Chillicothe," says Curry. "We've hired people who've come as student interns, too. We have interns from U. of M. and from Full Sail."

Curry echoes sentiments heard across the board: "I think students need more hands-on experience in a real responsible situation. It's one thing to go to school and have to make the grade because mom and dad are paying money, and it's another to go to school in a situation where someone you never met before is paying a tab and expects a good product, and you have to deal with him when you make a goof, rather than dealing with mom and dad when you don't make the grade."

Ardent Recording Studios in Memphis, the dual 32-track digital recording complex, has been recording major musical artists for almost 23 years. Today's night crew at Ardent includes three Memphis State University students in audio engineering internships, toiling under the leadership of technical engineer Pat Scholes. Memphis State has its own recording studio where students learn to function as recordists, mixers and machine maintainers. They are required to write and produce a jingle and voiceovers for a radio spot, and also must record a song. They do most of that at Ardent, which lets them have "employee sessions" where interns can record their bands or friends. Interns also get to sit in with Ardent engineers in session.

John Fry, the owner of Ardent, taught a class in Memphis State's commercial music program for five years, and currently serves on the university's music industry advisory board. He continues to speak frequently to classes. While Fry notes that internships are a valuable supplement to classwork, the students also need exposure to the nature of business dynamics. "We teach people theory and factual knowledge and practice, but often we really don't teach too much about what it's like to work, and what the elements of delivering service and excellence in work are. I think everybody who goes through vocational programs ought to be exposed to video tapes, audio tapes and books by people like Tom Peters and others who are experts on excellence in business, who can tell you what is wrong with the way people are

—CONTINUED ON PAGE 172

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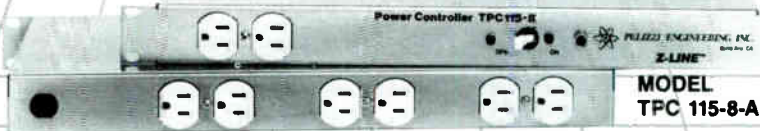
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Circle #149 on Reader Service Card

by Craig Anderton

# NEWS FROM EUROPE

**T**he Frankfurt Musik Messe is really quite a show. Being international in scope, it's larger than NAMM shows; it takes about 15 minutes just to walk from the main entrance to the heart of one of several large halls. Since it follows the Winter NAMM show by only a few weeks, there are seldom any breakthroughs at Frankfurt that weren't at least hinted at during NAMM, but there were a few exceptions. In this month's column, we'll cover some of the items of interest at Frankfurt, as well as some leftovers from NAMM.

The biggest surprise at the show was that Yamaha finally showed their G10 guitar-to-MIDI controller. This is a dedicated controller whose strings are all of the same gauge (the same as a normal G string). Yamaha uses three sensors to track three different aspects of one's performance. A pitch sensor sends ultrasonic waves down the string, measures the time of the reflected wave coming off your finger, then determines the pitch. This process occurs faster than with traditional hex pickup/pitch-to-voltage conversion; it's very similar to the process

used in the Beetle guitar (mentioned in last month's report). There's also an optical technology-based string-bend sensor, and a third sensor—a pretty much standard pickup—provides string velocity data. As is more or less de rigueur these days, there's an all-electronic vibrato tailpiece that doesn't actually bend the strings, but can be programmed to set pitch bend, modulation, volume, panning or portamento time; an additional programmable control wheel sets modulation, portamento time or pan.

The task of processing this data falls to the companion G10C, a rack-mount "brain." This is where you program 64 "performance memories" (with an optional 64 memories available via cartridge) that determine which string corresponds to which MIDI channel, open-string tuning, velocity curve, etc. In addition, Yamaha has included a set of voice data for the TX802 and TX81Z which can be downloaded from the G10C to either instrument. Clearly Yamaha recognizes that synth patches need to be programmed specifically for guitar, and this approach insures

**Making its first official U.S. appearance at last month's NAMM show in Atlanta was Yamaha's G10/G10C MIDI guitar system, shown below.**



that guitarists won't have to learn to program a bunch of parameters just to get "on the air."

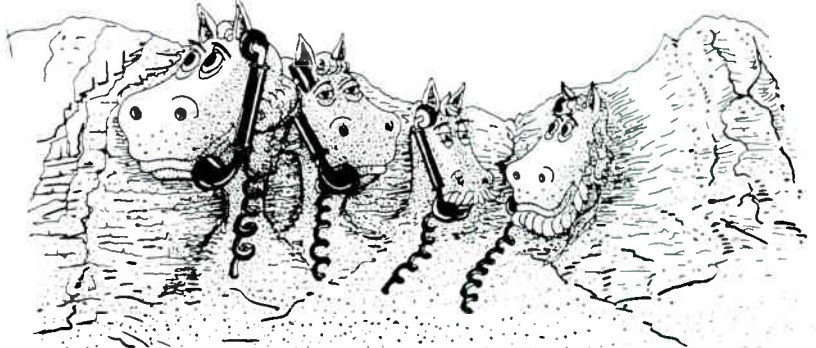
I had a chance to actually play the G10 for a few minutes. It was hooked up to a TX802 set to a percussive voice—no mushy strings to cover up attack glitches—and I was very pleased with the accuracy of the tracking. Based on playing the Beetle and Yamaha controllers, I'm starting to feel that this ultrasonic approach is the way to go. Unfortunately, neither unit is available for review yet, nor have prices been set; however, the G10 is obviously not going to be cheap—it seems that it must have taken a fair amount of tooling and research to get this baby off the ground.

Speaking of guitar controllers, I was saddened to find out that Stepp had gone into receivership just prior to the Frankfurt show, so we may have heard the last from them. It's a pity; even though the Stepp guitar controller was pricey, it was an extremely elegant and playable instrument. It's too bad they couldn't hold on long enough for other people (especially those with a fair amount of disposable income) to discover how well it played. RIP, and may all that they learned in the process of making that axe get put to use someday. *(Ed. note: At press time, we heard the good news that Stepp Guitars had been acquired by the Imagine Group of Goleta, California, with plans to resume manufacturing at some future date. Stay tuned for more developments.)*

Getting on to more cheerful subjects, just like last year the unquestioned "show-stopper" booth was by Ensoniq. The setup was designed by Dutch avant-garde artist Piet Jan Blauw, and featured several Ensoniq instruments located in an alien landscape with various moving creatures, changing spotlights, and the odd puff of smoke. The whole setup was computer-controlled, and served as a real attention-getter. Showgoers were quite taken with the EPS and SQ-80, although as of mid-March, people were still wondering when the EPS was going to be available in quantity.

Kawai put a big push on the K1 synthesizer. This is a very low-cost keyboard synth (I've heard around \$600) that is obviously designed to

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compete with the Roland MT-32 and Yamaha TX81Z. The principle of operation is similar to the Roland L/A synthesis concept in that various preset waveforms can be combined together to make an overall sound. The five-octave keyboard has aftertouch, velocity, and split; the sound quality is a bit dirty (what do you expect at this price?) but overall, this shapes up to be a very good synth for consumers and musicians who are just getting started. Kawai also showed the K1m, a keyboardless version of the K1 (it's not a rack-mount module, though, but sort of a wedge shape).

Dynacord's ADS 16-bit stereo sampler, shown to a select few at NAMM, went public at Frankfurt. It has some impressive specs: 1 Megaword (2 Megabytes) of RAM, which gives 25 seconds of sampling with a 20 kHz bandwidth; this can be expanded to 4 Megawords for extended sampling time. Other features include a SCSI port for connecting a 20 Meg hard disk; looping algorithms; 16-voice polyphony; a programmable on-board mixer; and a



**Officially unveiled at the Frankfurt Music Fair, Lexicon's LXP-1 offers reverb and effects in a compact, cost-effective package. Through MIDI System Exclusive commands, up to eight parameters for each of its 16 programs can be accessed, yielding over 4,000 sounds.**

matrix modulation scheme, similar to that used in Oberheim gear, so that parameters can easily modulate each other. This unit seems to be positioning itself as an upgrade from units like Akai's S900 sampler.

Speaking of the S900, Tom Oberheim of Marion Systems showed a 16-bit retrofit board for the S900. You just remove the S900 audio board, replace it with the upgrade, and voila—instant 16-bit sampler. When sampling, you can either store samples in Akai's 12-bit format, or use a proprietary encoding scheme developed by Marion Systems that takes advantage of the retrofit

board's 16 bit analog-to-digital converter. These encoded samples are said to preserve the dynamic range of the 16-bit data, yet look just like standard samples to the S900. So what do you gain? About 18 dB better signal-to-noise ratio, better and quieter anti-aliasing and output filters, and a cleaner sound. I like this trend of third party companies extending the useful life of equipment by making retrofits such as this available.

While we're on the subject of Akai, they showed the S1000, a 16-voice, 16-bit sampler that is compatible with the S900 sound library (smart move). It has a good-sized LCD, eight assignable outputs, and just under 25 seconds of sampling time at a 44.1 kHz sampling rate. I wasn't able to pin down a price, but I guess it will be somewhere in the neighborhood of \$3,000-\$3,500.

Finally, Lexicon went public with their LXP-1 Multi-Effects Processor, which had been shown privately at NAMM. All I can say is that Lexicon has done it again—they've taken the concept of a low-cost digital effects processor/reverb and turned it inside out by allowing for a great degree of preset modification. Each preset has two variable parameters (some of which affect more than one aspect of the sound), and these can be varied dynamically over MIDI. Using system exclusive lets you vary even more parameters within the program. Again, a firm price wasn't set, but all indications are that it's going to be extremely competitive.

Well, out of space again! There's always so much going on in this business... see you again next month. ■

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*Craig Anderton is the editor of our sister publication Electronic Musician, and is guitarist/keyboardist for the synth band Transmitter, as well as author of numerous books and articles for MIDI users.*

# BRYSTON



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## JIMMY CLIFF ON RECORDING IN THE THIRD WORLD

by Hank Bordowitz

"It's something that I've always wanted to do," Jimmy Cliff says of recording in Africa, with African musicians. "I love Zairean dance music. You'll notice that the most popular dance music, all over Africa, is from Zaire, where I recorded these, or actually where the musicians I used come from. I recorded these in the Congo, which is just across the river. I went across the river and recorded over there because they have better studio facilities."

Ostensibly, there are two tracks on Cliff's latest opus, *Hanging Fire*, that were recorded in the Congo with musicians from Zaire. Certainly, when you've been around as long as Cliff, you should be able to do what you want—he's been a reggae star for over 25 years, and an international reggae star for over 15, since he tore up screens as the outlaw, Ivan,

in *The Harder They Come*. He wanted to do it and he made it happen.

"I went there just to do this tour of Zaire for two weeks and then go home," he recalls of the project's genesis. "I didn't go to Zaire to record. I went to these clubs, and everywhere you go, you hear this music. I'd just hang out every night and start talking to the musicians, and suggestions of recording came up. So I started to find out how. I had some songs.

"It's difficult to record there, because you have to go across the river to the Congo. It's a hassle. You hire a boat to take you across the river. If you miss that boat you have to go on the regular big boat. It's a different mentality. It's like Jamaica in the '50s, the musician mentality. It's a happy-go-lucky, 'I-play-my-music-because-I-like-it' sort of thing. I went through hell to record those two songs."

Recording in Africa is generally a difficult proposition for artists, especially those working for Western companies. The quality of the studios just can't compare with what is happen-

ing in the West, where big paybacks mean big budgets for the latest equipment. In Africa, the paybacks aren't as great, so they make do without the board-of-the-month, let alone the outboard-miracle-of-the-week.

"But man," Cliff postulates, excitedly, "I know what's happening in Jamaica musically and if we had the technology, what we could do. But what if they had that technology in Africa? The amount of rhythms that they have there! That would be my great love—just to record them and bring them back here! Now, in Gabon they have a studio with a 48-track SSL board. I haven't used it, but I went there and saw it

and was amazed.

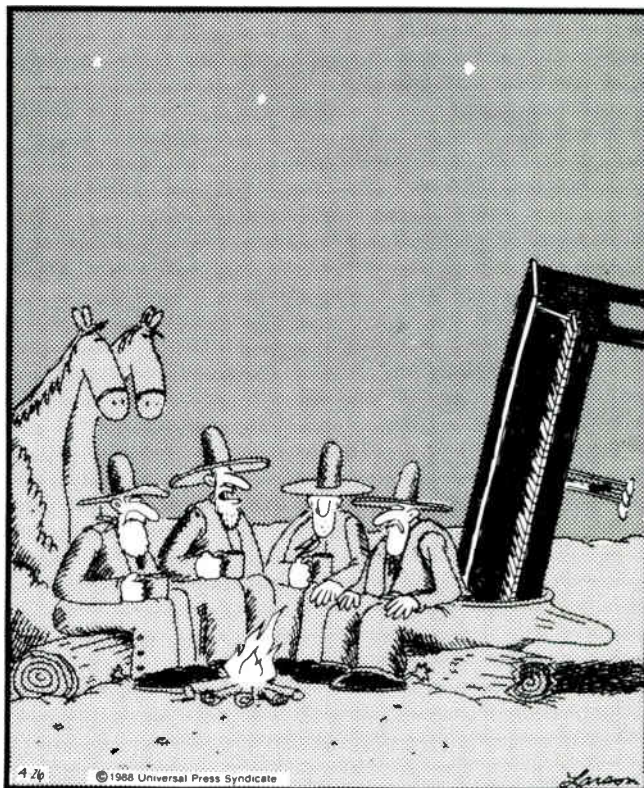
"In Nigeria there are some good 24-tracks, and in Senegal, too. I like the music all over Africa, but in Senegal, they have some great music. Some Senegalese music is popular now, in England. There is an African musical uprising in the underground in England. If you go to certain clubs, you can hear that kind of music.

"That music is so great, but one has to record it in such a way. The only way of getting exposure in America is if the sound, the technical sound, matches what [the Western studios] are doing."

Cliff is a recording citizen of the world. He's been in studios in Kingston, the Congo and New

## THE FAR SIDE

By GARY LARSON



"Say, Will — why don't you pull that thing out and play us a tune?"



Jersey and that's just for this album. In the past he's worked in New York, London, Paris, Munich—well, you get the idea.

"For me, it's vibes, the vibration of the environment," Cliff says. "Of course, all of these countries are on a different rhythm, the rhythm of the people is different. The rhythm in Africa is a very happy, carefree type of thing. It's loose *and* it's tight. The rhythm in America is similar to the rhythm of France and England, because people are more into high-tech, and they become a little more sensitive to how that is going to sound. Whereas in Jamaica and Africa, you just go for the feel, and if the feel is good, everything is all right."

Cliff recorded the remainder of *Hanging Fire* closer to home, in Kingston's Tuff Gong. This is the Jamaican studio equivalent of Yankee stadium—The House That Marley Built (which is fitting, as Cliff gave the 17-year-old Marley his entree into the music business, so the lore goes).

"I enjoy working out of Jamaica," Cliff comments. "If I had the technical facilities, like I could get in America, I would rather complete my albums in Jamaica, because it is my environment. I'm more used to it, but I still think that I gain something coming to do some of the work in America, because you get a different vibe over here again, and that vibe comes off in it."

Jamaican engineers, it seems, suffer from a technology gap similar to their African brethren. If this sounds strange, considering all the money that was pumped into these studios from the mid-'70s until the early '80s, just think of how much studios have changed in the last five years alone.

"One of the problems over the years with Jamaican music has been getting exposure in America," Cliff says. "If it goes to play on the radio, and it doesn't match up with their sound, it's gone. Whatever Jamaican music is recorded in England stands a better chance of getting exposure here in America, because, of course, England has the technology."

That said, Cliff hesitantly admits that, although he did in fact record "Girls

—CONTINUED ON PAGE 116



Bruce Kirkland  
of Second  
Vision

## SECOND VISION

Foreign Acts Find a U.S. Friend

by Hank Bordowitz

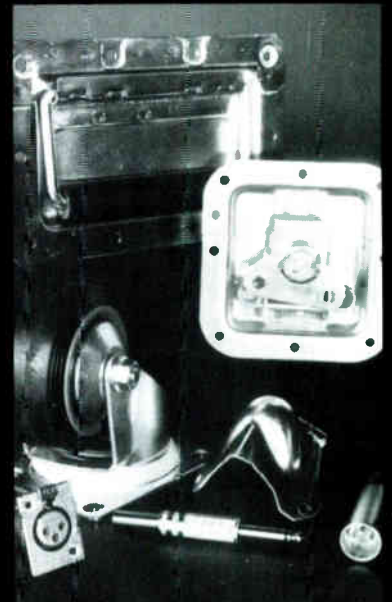
Once upon a time, foreign managers with acts crossing over to America faced a no-win situation.

"There is the experienced foreign-based manager who knows a lot about the American market," Bruce Kirkland says. "They can perform the basic management functions: put the band on the road, do merchandising deals, talk to lawyers, agents and accountants, but from a distance. But they can't really deal effectively with the record company as if they were in their own marketplace, so the artist suffers as a result of that.

"Then there is the other kind of manager—" he continues, citing another prevalent predicament, "the

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## MUSIC · NOTES

young kid who was the fifth member of the band, who's come up with the band. He might have been their road manager before, now he's become the manager. He's put five, six years of hard work and sweat and his life into the band. Now they have a hit in their domestic marketplace, and suddenly the American record companies are all over him. They fly him in, take him out to dinner. This kid knows nothing about America. The first thing he's confronted with is the record company telling him, 'You need American representation.' This has traditionally meant, 'You need American management.' Now, this guy is a little frightened, having put five years of his life into this band."

This sort of thing happens all the time, and until recently the foreign-based manager had a choice: either he/she could give up a goodly portion of the band's profits and control to an American manager, or try to keep a tab on things from halfway around the world. Neither of these situations is particularly satisfactory, but this was the way of the world. Now there is another option: Bruce Kirkland's Second Vision, which takes on a project for a flat fee, either monthly or for the life of the project, with bonuses (rather than a percentage) and works an act's record the way a manager would, if he were there.

"I'm very proud of the fact that we are an alternative," Kirkland beams from his office in New York's Soho district. "Because, if the band does have a big hit here, there's a lot of concern. I'm only reflecting the concern of these guys. I'm in touch with the situation. I travel to England all the time, and I know what their fears are. We've been able to cater to those two situations in the sense that we've been able to function, in a nutshell, as an extension of management.

"We represent ourselves to the labels as management representatives, but we restrict our function to the record company, to the product. We are not managers of bands, nor do we want to be. We want to work product. In that sense we're independent product managers, working outside the record company, but working for management, overseeing and supervising the release of the product, deal-

ing with the label."

To accomplish this end, Kirkland puts his vast chops in the international record business to play. He has credentials that stretch from stints with Mushroom Records in Australia to Stiff Records in England and America. To augment this hard-earned knowledge, Kirkland employs a battery of computers, hooked into many of the industry's information banks so he knows what's happening with the artists he represents at the same moment as the record companies, and is in a position to do something about it. In this way, he has it over many managers, who rely on the record company for their information.

"You don't want to deliver a record to the record company and say 'Good luck guys,'" he points out. "You have a responsibility to your artist as a manager. You want to have a certain degree of control in the process. I firmly believe that half a manager's function is working with the record company in breaking the record. If you sell a lot of records, then your ancillary income areas can be significant. You can tour big arenas, make a lot of money on merchandising, your publishing is worth money, etc, etc. But only if you sell records. If you don't sell records, you can't cut the big deals in the other areas. So a manager's focus should be that label. But most managers come up from the road. I'm not saying there's an archetypal manager, but generally a lot of manager's expertise is not in the record area. For that reason, we perform a viable function."

One of Second Vision's more recent clients is the Australian group Big Pig. They fit the first, experienced manager paradigm very nicely.

"The manager is Australian," Kirkland explains. "He is a very experienced guy, he definitely has a working knowledge of the U.S. market. He talks to the label regularly. In that respect, we don't replace management. I still expect managers to be in there talking to the label and being visible. They do not want American management, but they know they need help at the record company, so we've been hired, and we've had discussions with the label. We have our game plan worked out with the label. There is complete empathy between ourselves and the record company on this project. We know exactly where we're going with it. It's going to be a very successful



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project." [It was—Big Pig has broken in America.]

This hints at another of Kirkland's strengths. He prefers to be in there slugging even before the record comes out. He points out that many times a record will be on the street before a company has come up with any marketing ideas. One of the things Second Vision does for their clients is to prevent things like that from happening by working with the record company—prerelease—to make sure that all of their ducks are in a row when the

record actually comes out. His knowledge of the American and foreign markets also makes it possible to winnow out unreasonable behavior on the parts of both management and the record companies.

"Sometimes there are major philosophical differences between the record companies and the foreign-based manager and/or the foreign-based record company, who also have a major stake in this record breaking in America, about how a record should be worked," he explains. "Often we're the middle party, and we're in a position to mediate the approach on the

part of the foreign entity; because we do know the market. There's been a lot of cases where the foreign management will come in and say, 'Well, in London, we have billboards on the sides of double-decker buses. What are you doing about that here?' And we're in a position to say, 'Look, guys. It doesn't happen that way here.' A lot of labels appreciate our involvement for that reason. So it swings both ways."

One of the reasons most of the people who deal with Kirkland, on both sides of what he does, respect him is that he is a very level-headed guy. He is there with well-thought-out plans, ideas on how to make things work that are in the best interest of his client, the record company and the artists. The bottom line, after all is to sell records, and the quickest way not to is to have friction between any of these players. In a lot of ways, Second Vision acts as the grease.

"It's all about relationships inside the company," Kirkland stresses. "And being reasonable. There's one thing I pride myself on, and that's being realistic." ■

—FROM PAGE 113, CLIFF

and Cars" and "Love Me" in the Congo with two different groups of Zairean musicians, very little of what was laid down at the African studio survived to the records.

"Actually, what you hear on this record now is not exactly what we did," he concedes. "We took it to Jamaica, took things out, added things, and what you hear now is the final product of what we've done. But the actual thing that I did in Zaire is not really on record. I have it on tape, but it's not on this record here.

"The company didn't think the sound would work for the American market. The African studio I recorded it in, of course, doesn't have high-tech machines like we have here, so the quality wasn't like you get here. That was one thing. I think that really put them off the whole thing, so that's why we had to take things out.

"The main thing that survived was the voice. The bass line is gone. We have some of the horns on "Girls and Cars," you have a little bit of the guitars there, but the bass and drum, that part of it is gone. But the vibe is still there, because the voices are still there and everything followed the voice. So the whole vibe of it is still there." ■

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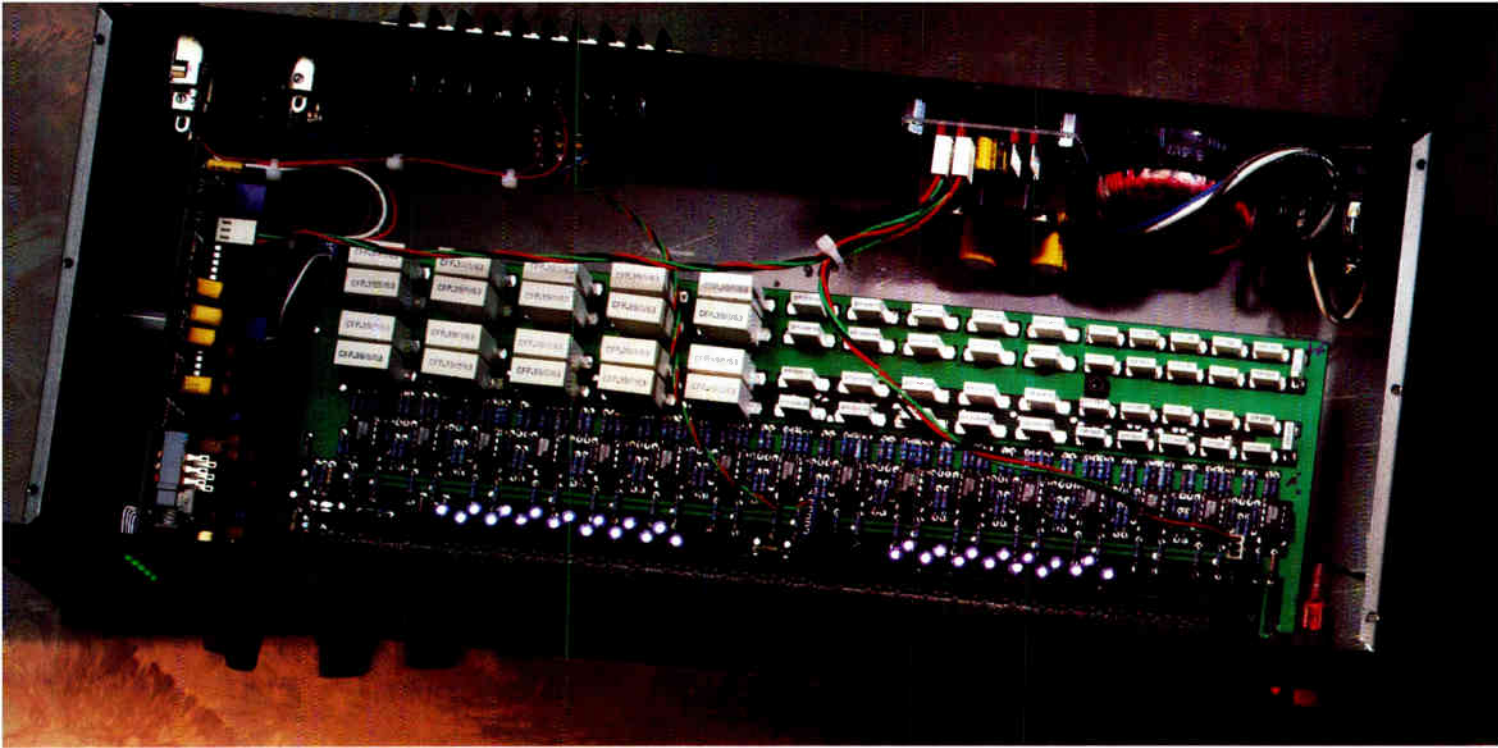
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by Iain Blair

# TALKING HEADS

**MIX WRITERS GET THE LOWDOWN FROM DAVID BYRNE, CHRIS FRANTZ & JERRY HARRISON**

W

hat's wrong with this picture? David Byrne of Talking Heads is sitting in a trendy L.A. restaurant, picking at a salad and pondering the problems of writing meaningful lyrics. "It's a lonely, introspective business," he sighs.

But the 36-year-old singer is neither dressed like the intellectual nerd he's purported to be (he's smartly attired in a black silk jacket and shirt), nor

does he twitch neurotically when a pretty waitress approaches and asks shyly for an autograph. Instead, he smiles happily and obliges, even pausing for a little small talk.

Can this really be the man who sang "Psycho Killer" so chillingly and effectively, and who has been characterized by many people ever since as aloof, bizarre, cerebral and totally divorced



**Talking Heads  
(L to R): Chris Frantz, David Byrne, Tina Weymouth, Jerry Harrison**

PHOTO DEBORAH FEINGOLD



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from such mundane star-fan interactions as signing autographs?

"Well, a guy did attack me in Germany recently for being too happy these days," comments Byrne cheerfully. "He told me the newer stuff is 'far

too pleasant, there's not enough suffering.' He much preferred our earlier records where there's lots of angst."

So what's wrong with this sound? Put on Talking Heads' intriguingly titled new album, *Naked*, and there are the trademark rhythms and infectious grooves percolating beneath Byrne's

familiar clenched vocal delivery. But listen to tracks like "Mr. Jones," "Flowers" or "Totally Nude," and it seems as though the German fan may be right. Where's the angst?

Instead of the stuttering, nervous explorations of emotional tension that Heads fans have come to know and



## JERRY HARRISON CASUAL GODS

by Robin Tolleson

There was concern in Jerry Harrison's camp about his solo album, *Casual Gods*, being swept under the rug in the wake of the Talking Heads' *Naked*. But in a tribute to Harrison's persistence and musicality, and the solid rock and funk-manship of his players, a jumping single called "Rev It Up" made sure *Casual Gods* is enjoying a healthy life of its own.

Harrison began his second solo project some four years ago, actually when the Heads were completing work on *Stop Making Sense*. It's a period of the band's life that he enjoyed quite a bit. "I really wanted to continue that exploration of rhythmic music during the time the Talking Heads was kind of going in its melodic direction," he says. Harrison notes that the band he's assembled reminds him of the Heads' *Remain In Light* band, with Adrian Belew helping on guitar.

There are a number of reasons why *Casual Gods* took the better

part of four years to make. Harrison, an only child, had flown home to Milwaukee in 1984 after the death of his father, to spend time with his ailing mother. He did most of *Gods* in Milwaukee at D.V. Recording, when he wasn't being called out of town on some other project.

Finding a studio in Milwaukee wasn't that difficult—there weren't many choices. But Harrison already had a connection. He grew up with the older brother of D.V.'s owner/engineer David Vartanian, and now found himself recording to 16 tracks in what used to be his friend's bedroom.

"This little studio in a basement basically did TV and radio commercials," says Harrison. "I knew this house, and in fact I knew this room. So I used to rent it by the week. It was like a workshop. [Guitarist] Alex Weir came and worked with me in the very beginning, and we just put down tracks, the two of us playing with a drum machine. Then Alex left, and I worked with some of the local musicians there."

"I was just getting the studio started," remembers David Vartanian, who is now the talk of the new age crowd, with several Narada Records projects under his belt, as well as the Bodeans and Violent Femmes. "It was a 16-track, 2-inch studio [Sony JH 24 16-track], and it was very bare at the time. But it was enough to cut tracks. That didn't last too long, as far as being bare. Actually both of us were so into it that we just started getting stuff." D.V. has an MCI 600 console, and added a Sony 24-track 2-inch midway through Harrison's project. The effects rack there includes various Lexicon and Yamaha reverbs, Roland delays, Orban and dbx EQs, and Eventide Harmonizers.

"I went for months with it booked solid," says Harrison. "David did his radio commercials at the same time. I basically had afternoons and eve-

nings. But if he had something else to do, he did it. That was the deal." There were the usual equipment breakdowns (with parts not readily available in Milwaukee), three Talking Heads albums to make, a single with Bootsy Collins, an Elliot Murphy record to work on, a Bodeans record to produce and a Fine Young Cannibals single to oversee, as well as a Violent Femmes record to sap time from his own project over the course of the four years. But from the sound of the end result, he never lost his vision of what the record was to be.

"I was paying to do the record myself," explains Harrison. "So when something else came along that I was going to be paid to do, I did it. And then sometimes starting up again took a while. It made the whole process longer. But in the end I think the extra time made it a better record."

For a multi-instrumentalist like Harrison, there is no set way of composing or recording. "If he hears something he'll grab an instrument and start playing it," Vartanian says. "He would show Alex things, and Alex would show Jerry things. Jerry's really open to try anything, if it sounds like a decent idea, which partially contributed to the time that it took to do the album. But he explores all the possibilities. He doesn't really go wild, he just tries a lot of things and then picks what he likes."

On the new Talking Heads record, Harrison is credited on Hammond organ, French piano, guitar percussion, vocals, and synth with samples of marimba, steel drum, machine, cello, frogs and flute. Adrian Belew described Harrison's role with that band as "a kind of invisible sound. You don't notice it until it's gone, which is very important to any band. You don't recognize it, it's not that blatant, but if

—CONTINUED ON PAGE 130



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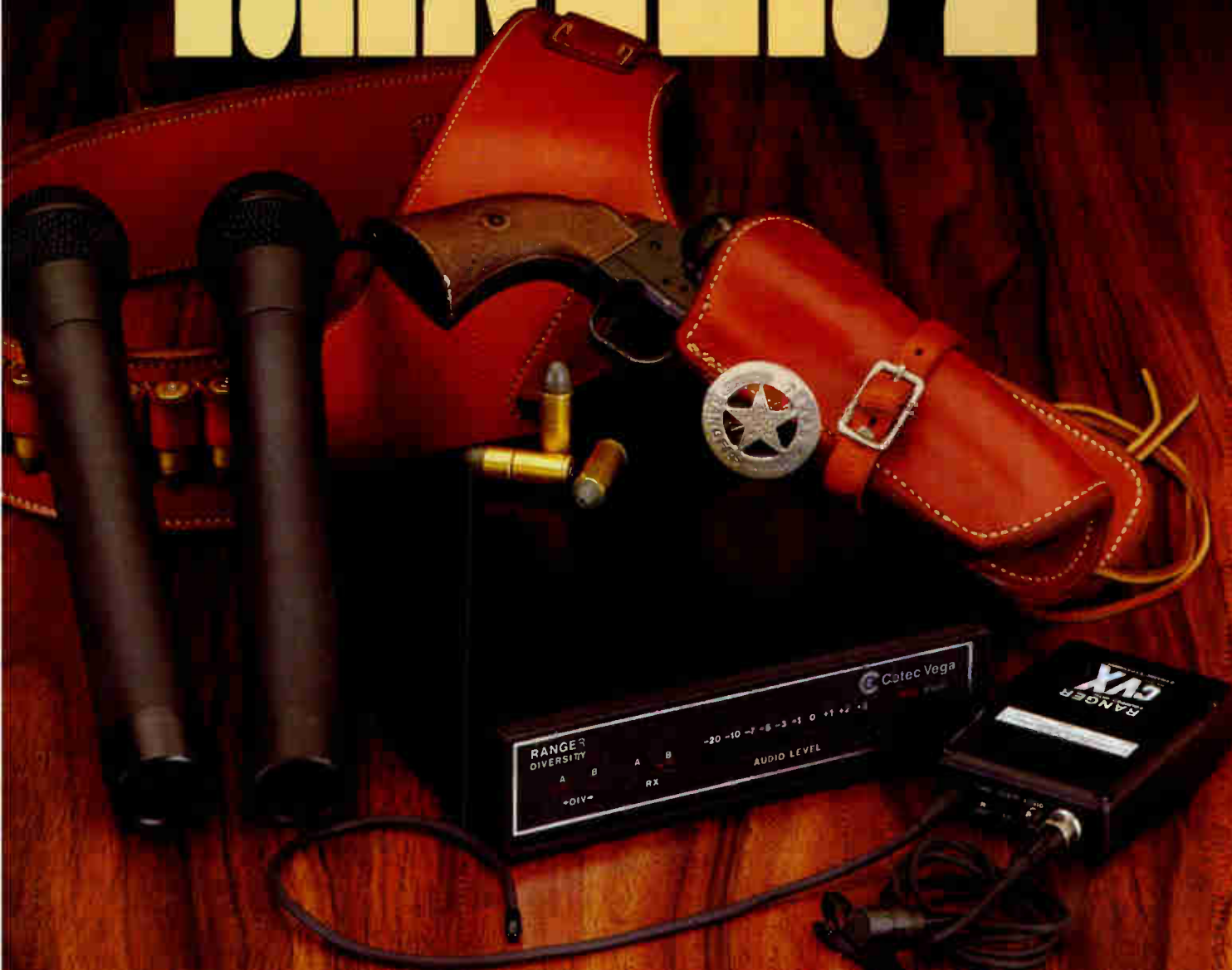
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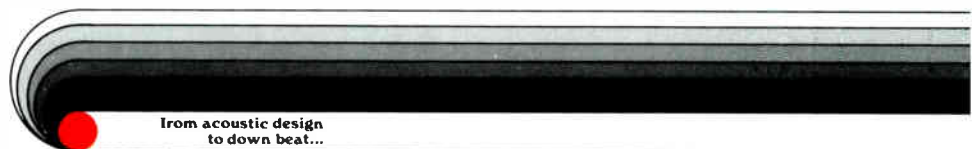
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## PLAYBACK

love, some of these songs softly sing in swaying African and Caribbean rhythms and exude a tropical warmth and happiness noticeably missing from the band's edgier early albums.

Even Byrne's lyrics are more relaxed for the most part. Consider these lines from "Flowers," a song he describes as, "a nostalgic look back at our civilization once Mother Nature has totally reclaimed the land": "Years ago/ I was an angry young man/ I'd pretend/ That I was a billboard/ Standing tall/ By the side of the road/ I fell in love/ With a beautiful highway." It's hard to imagine Byrne of a few years ago sounding so wistful, or seeing himself in such terms, even though they're clearly laced with irony.

Has domestic bliss (Byrne took time out from recording *Naked* to quietly marry his girlfriend of five years, designer Adelle Lutz) begun to mellow one of rock's most articulate angry young men? And with no plans to tour again in the foreseeable future, what's going on with the rest of the Heads? After inching their way from the cult status of their first few albums to the multi-platinum mainstream acceptance of *Little Creatures* and *True Stories*, is that hard-won acceptance now endangered by the band's increasingly splintered solo activities? Byrne and Chris Frantz give the lowdown...

**Mix:** Are you pleased with the new album?

**Byrne:** Yes, and I'm not always. For instance, *True Stories* should have had less of me singing and more of the cast to be an accurate reflection of what it was done for. Those songs were really written for other people, but I was talked into doing them myself. On *Naked*, all the songs were for me, but I also changed my voice on some tracks to give some variation to the sound of the album overall.

**Mix:** The overall sound of *Naked* seems lighter, almost happy. Do you agree?

**Byrne:** I'm not sure how happy the whole album is or sounds. Side one is definitely the more upbeat side, while side two paints a darker picture. It explores more familiar Heads territory, perhaps. But yes, it's true that we aimed for a lighter, less aggressive sound. It's much less aggressive than a

lot of what you currently hear on the radio. This record was a deliberate attempt to sound more muted, and cooler and smoother in the way the grooves are played.

**Mix:** Is that why you went to Paris to record?

**Byrne:** Yes, we wanted some fresh blood and a little jolt that would take us out of our normal environment. It was a very conscious decision to try something fresh and get away from our usual New York studio and recording methods.

**Mix:** Side one in particular is full of Caribbean rhythms and grooves.

**Byrne:** Yes, we worked with a lot of local musicians in Paris, and they're into a whole different scene, like Rai, which is this Algerian/Moroccan hybrid, and this Caribbean-sounding music called Zouk. So it all sort of rubbed off on us while we played around with ideas and grooves.

**Mix:** How did you organize and prepare the material for the sessions in Paris?

**Byrne:** What happened was we all got together in New York in a little rehearsal studio for a couple of weeks before we went over, and we just put down a bunch of sketchy, improvised ideas on a cassette recorder. That was the basis of the album. We also did our usual experiment of switching instruments around, just to loosen us up. So, I'd play bass, for instance, while Tina [Weymouth] would take over guitar, and Chris [Frantz] and Jerry [Harrison] would also swap. Then we'd play back these rough demos, rework the ideas, and gradually select material to work on in Paris.

Once we were in the studios, we also added other musicians, and gradually restructured and reshaped the ideas into distinct songs. I think we started off with about 40 basic instrumental ideas, and we'd fit some together, mix them up, and change them all around until eventually we ended up actually recording 15 master tracks. Of those, we then selected ten to put on the album, and there's one extra track on the CD, called "Bill."

**Mix:** Do you make your own home



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—CONTINUED FROM PAGE 123, TALKING HEADS

demos before even getting to the rehearsal stage with the rest of the band?

**Byrne:** I never used to, but for the last couple of albums I've gotten into doing them. I just sit down at home with a guitar or piano and sing along to a cassette player, in the traditional way you might expect.

**Mix:** Do you have a home studio?

**Byrne:** Not really. I just use a Fostex 4-track machine, which is incredibly convenient and efficient for my purposes.

**Mix:** Do you find that making home demos focuses your ideas more?

**Byrne:** For that kind of writing, yeah. It's good to have those kind of recording limitations, because then you can't sneak a song by on a great sound or flashy production. It's got to really work as a song with a strong structure when you record this way.

**Mix:** How did you hook up with all the musicians on the album? Was that intentional from the start, or did it just evolve during your time in Paris?

**Byrne:** It was a bit of both. We consciously planned to do something different and work with different people—we just didn't know what it would be. We knew that Wally Badarou, the keyboard player, and Yves N'Djock, the guitarist, were there, and Wally helped out as both a player and a contact to other local musicians. Then, it just evolved as we got more into the sessions. Keith Levine, the producer, recommended Johnny Marr, the guitarist from The Smiths, who plays on "Cool Water," and so on.

**Mix:** You also brought in an outside producer—Steve Lillywhite, of U2 fame—for the first time in several albums. Why?

**Byrne:** Again, it was a matter of getting some fresh blood and some objectivity about our sound, and the obvious thing to do was get a producer to help out.

**Mix:** Did you consider other producers?

**Byrne:** We knocked around a few names, but Steve was someone we all felt good about. It was odd because he's had a lot of success lately with his productions, but I don't think that's why we were interested in him. We were more intrigued by his earlier, more unusual stuff, like that record with XTC. I particularly enjoyed that.

**Mix:** Where did you record in Paris?

**Byrne:** A place called Studio Davout, a big converted movie theater.

**Mix:** Did you find much difference between European and American studios?

**Byrne:** Not really. We got a really good sound there, and most of the equipment seems to be universal these days.

**Mix:** In the States, you always seem to record at Sigma Sound in New York. Is that your favorite studio?

**Byrne:** Now that you mention it, I suppose it is, yeah. I guess we all feel comfortable there.

**Mix:** How much of a tech head are you?

**Byrne:** Just a little bit. I wouldn't say I keep up on every new piece of equipment that hits the market, but I know what I'm doing in the studio. For instance, to be sure nothing would go wrong with these sessions in Paris, we decided to record on digital 24-track; since you end up with nothing but bits on the tape, there'd be less likelihood of a later difference in the sound when we started adding stuff like vocals back in New York. With analog machines, you can line them up differently and end up with subtle but annoying differences in the sound.

**Mix:** How long did it take to put down the basic tracks?

**Byrne:** We did those pretty quickly—in about three weeks. We'd come in around 10 a.m. and just work through till 7 or 8 p.m. It averaged out at about one take a day. Sometimes we'd keep putting takes down, but for the most part we'd just keep running through a track until we all felt finally locked onto it, and then record it.

**Mix:** The album has a very live, group feel to it.

**Byrne:** Yes, and I think that's a direct

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result of everything getting played at once on the majority of tracks. It's now the usual practice to layer everything, and get your drum and bass sounds first and build up from there, and we've done a lot of that. But this time we felt that in order to preserve the interaction between all the players—and there were at least two or three other musicians on every track—we'd do it all live wherever possible.

**Mix:** There's a lot of percussion on every track. Did this cause additional problems?

**Byrne:** Only in that we still wanted to play everything live instead of laying down a basic rhythm track and then gradually adding talking drums or congas or whatever. So Chris would modify his parts to fit the percussion, and vice versa, and they'd work it all out. Basically, we did the album the old fashioned way, where the band runs down a song a hundred times until it's water-tight, and then records it. And I must say, it's a very enjoyable way of recording.

**Mix:** You mentioned that you now make home demos. Have your song-writing methods changed much over the years?

**Byrne:** The changes are kind of gradual, so I don't really notice them. But *True Stories* was much more of a traditional song format purposefully, and *Naked* doesn't rely on that verse/chorus/verse format. The melody and structure are much looser in most songs.

**Mix:** What usually comes first for you—the music or the lyrics?

**Byrne:** I've written both ways, but even where there's a musical base and I'm working on the words, like with this album, I need some key to unlock it, some little burst of inspiration.

**Mix:** So how did you go about finishing the lyrics and vocals?

**Byrne:** [Laughs] Basically, we did some overdubs in Paris where I'd just improvise sounds and sing gibberish—anything that fit the track. I've worked that way before, although I don't do it every time, and that way, I can get a melodic structure and an attitude that would determine any kind of subsequent instrumental overdub. So those could be done while I was finishing up the lyrics. I did some of

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those in Paris, but some songs I got stuck on. For instance, I just couldn't come up with anything for "Cool Water" in terms of melody, so I tried it again in London and then in New York before it happened. But others, like "Blind," I got on the first take, and even though I was singing gibberish, all the melody, attitude and phrasing was there.

**Mix:** How about some quick comments on the tracks? Let's start with "Blind" and "Mr. Jones."

**Byrne:** I think "Blind" sounds like Tom Waits singing James Brown. "Mr. Jones" is the same guy from the Dylan song, ["Ballad of a Thin Man"] maybe. It's about a businessman letting go of his inhibitions and cutting loose.

**Mix:** "Totally Nude?"

**Byrne:** It's a kind of tongue-in-cheek, back to nature song.

**Mix:** Are you a closet nudist?

**Byrne:** No, that's why it's tongue-in-cheek. It's a little fantasy I guess we all

entertain once in a while.

**Mix:** "Ruby Dear?"

**Byrne:** It's like an impressionistic painting of a rotten southern backwater. It also relates to "Big Daddy."

**Mix:** "The Democratic Circus?"

**Byrne:** It's about politics, but not just democrats.

**Mix:** "The Facts of Life," Mommy Daddy You and I" and "Cool Water?"

**Byrne:** The first has a mechanical, factory sound that evolves into something more country, and is about how we're related to our animal past. The second is about how we're all really immigrants of one sort or another. "Cool Water" was problematic, but I persisted 'cause I like the music. It's a very bleak view of life. You work all day, then you die [laughs].

**Mix:** The cover of *Naked* features a picture of an ape holding a flower. Any special significance?

**Byrne:** I guess it's just a statement that underneath, we're all still monkeys. Some people might interpret that as

cynical or jaundiced. But I think it's neither good nor bad, and it's not meant to be depressing or critical. It's just the way things are. It shouldn't deny you any enjoyment of living the way we do. It's just a little reminder.

**Mix:** What do you think of the current music scene?

**Byrne:** I think there are a few saving graces, but basically it's not very healthy—at least here in America, that is. I just feel that the younger audience today is disconnected from the production of music. It's not like it was when we started back in '76, and suddenly all these bands surfaced as a reaction to what was going on. We'll go on doing what we do, but I really think it's time for the younger generation to start shaking things up a lot more.

**Mix:** When you say "we'll keep doing what we do," it seems that means just records as far as the Heads are concerned. After all, you guys haven't toured since 1983's *Stop Making Sense* show. Are there any plans to tour *Naked*?

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**Byrne:** No. Jerry's already touring for *Casual Gods*, but that's partly 'cause he knew we wouldn't be, so it's unfair to blame him. I really like performing in front of a live audience, but yes, I have pulled back from that album-tour regime. It's possible we'll go back on the road sometime, but it's not in the works.

**Mix:** Does this mean you plan to spend more time doing films from now on?

**Byrne:** I hope so. I'm planning to direct another film this summer, called *The Forest*, which is something I wrote in collaboration with Robert Wilson. And I've also been busy finishing up a series of vignettes for the Heads' new compilation video, *Storytelling Giant*. I worked with a casting lady who brought in loads of people, and I'd just let them talk and tape them to see what kind of stories they'd tell. The most bizarre one was this girl who said she'd lived as a dog for two years. She's on the tape.

**Mix:** How did you hook up with Bernardo Bertolucci and become involved in scoring *The Last Emperor*?

**Byrne:** I knew him from an early screening of *Stop Making Sense*—I think it was Rome that we first met—and I'd read the script before he even went off to China. So I was pretty flattered when he suddenly called up and asked me if I'd be interested in contributing some music. My only regret is that I didn't have more time to do more on the project. I ended up doing 17 cues, of which five were selected, including the main theme.

**Mix:** Did he give you a strict brief as to what he wanted, or was it left very open?

**Byrne:** It was more back and forth. I'd do some demos, send them to him, and he'd respond, so it was very collaborative.

**Mix:** How did you go about scoring the scenes he wanted?

**Byrne:** I'd sit down at one of those keyboards that imitates the sounds of other instruments, and in front of a TV monitor, and the two of us would just sit there and play back scenes and I would try different ideas, using a variety of sounds and styles, until we were happy with the general direction.

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## PLAYBACK

**Mix:** I didn't realize you were such a keyboard ace.

**Byrne:** [Laughs] The truth is, I'm not much of a keyboard player, but it was enough to illustrate a variety of approaches and see how the sound would affect a particular scene. Then

once we'd agreed on something, I'd flesh it out and then re-record it using real instruments rather than machines.

**Mix:** Was it an enjoyable experience?

**Byrne:** Intense, but extremely enjoyable, yes.

**Mix:** If you're increasingly involved

## A Few Words with Chris Frantz

**Mix:** Did *Naked* turn out the way you expected?

**Frantz:** When we began, I'm not sure what any of us expected or were looking for, but we all knew what we *didn't* want—what we call "MTV rock." And while we were proud of the last two albums, they were also sort of old-fashioned, with traditional song formats. So we wanted to get away from that and into this cross-cultural music again.

**Mix:** Is that why you chose Paris?

**Frantz:** Yes, but it's also because when we're recording in New York, there are a million interruptions. David has his phone calls, Jerry his, and Tina and I have ours, and quite frankly, it just breaks the flow. But by going to a foreign city, we were really able to just get down to it and concentrate on making the album.

**Mix:** How do you go about choosing which ideas to develop? How democratic is that process in the studio?

**Frantz:** Usually, we all pretty much agree on a sound and a direction, but if one person feels very strongly about something, the rest of the band will defer. I insisted that we use a Bo Diddley beat on one track because that's one of those pan-cultural rhythms that people all over the world like, and it's also something we've never done before.

**Mix:** Although *Naked* features a lot of percussion, the drum sound is almost gentle on many tracks.

**Frantz:** As I was saying, we wanted to get away from that current MTV rock sound where every group's

drums sound like machines or that they were recorded at the bottom of the Grand Canyon. You know—huge, explosive echoes, tons of reverb, the Bryan Adams, Bruce Springsteen sound. And while I'm not putting that sound down, we wanted to try something lighter, and more organic and natural. So for most of the tracks I actually used brushes instead of sticks, and I purposely avoided using all that hi-hat stuff which is so prevalent in pop today.

**Mix:** Was this approach also used to accommodate all the percussion?

**Frantz:** Yes, because we immediately noticed that if you avoid all those cymbal crashes and rock and roll drum figures in favor of brushes, you pick up on all the nuances of the percussionists, and we had some amazing percussionists on the album, including some players from Senegal and Camaroon.

**Mix:** How did you go about organizing the rhythmic patterns?

**Frantz:** I'd work out the basic pattern for myself, then play it to the others, and just let them find suitable counter-rhythms and patterns. We also encouraged them to play in their natural styles, instead of dictating a feel.

**Mix:** So there were no machines used at all?

**Frantz:** [Laughs] Well, the truth is we did use a drum machine on one track, "Bill." But you won't recognize it as a machine, 'cause it isn't playing those predictable parts.

**Mix:** It seems that everyone in the group has also been busy with outside projects. What else have you and Tina been doing?

**Frantz:** The main thing right now is trying to finish our next Tom Tom Club album, which is the third one.



with film projects, what happens to the Heads? Will they keep talking?

**Byrne:** It'd be nice if it can happen. You know, jazz musicians work loosely like that, in a number of different formats. Obviously I'd like to keep going with the music and keep a balance. The problem isn't conceptual. It's the scheduling that gets tough with the

We've done six tracks, but our standards are pretty high and we can't just crank it out. It's also a matter of fitting it in between the Heads' projects, so we've been recording it for well over a year now. And on top of that, we've also produced the Ziggy Marley album and had a baby, so we've been busy!

**Mix:** Where have you been recording Tom Tom Club?

**Frantz:** We started off in the Bahamas, at Compass Point, and then moved to Sigma Sound in New York.

**Mix:** Are your working methods different from a Heads' project?

**Frantz:** Yes, because it's really just me and Tina, and we don't play any guitar or keyboards, so we put down the basic ideas and then bring people in to flesh it out. We brought Lou Reed in on this record and covered "Femme Fatale," which was on the first Velvet Underground album, but otherwise there are no celebrities. The other Heads helped out, and Wally Badarou also contributed.

**Mix:** What's the story behind the Ziggy Marley album? How did that come about?

**Frantz:** We got a call from Virgin Records to do it after the original producer was tragically killed in a car accident. We'd never met Ziggy before, but he was in New York, and then the following week we went down to see him play at a festival in Jamaica, and that was it. We all flew back to New York and cut three tracks as an experiment, and everyone was so pleased, we ended up doing the whole album.

**Mix:** Where did you record?

**Frantz:** At Sigma in New York, from October through November. That's our studio of choice. We always get a great sound, plus they're really

other band members. That gets to be a whole job in itself. ■

*"Count" Iain Blair, British writer, musician and author, was an original cast member of the Rocky Horror Show and the film version for 20th Century Fox. He's currently writing screenplays in Los Angeles.*

nice to us.

**Mix:** Does this mean that you and Tina will move more into production, especially as the Heads won't be touring this year?

**Frantz:** This is the first production Tina and I have done outside the band or the Tom Tom Club, and I think we're going to be very choosy about what we do. The other thing is, and I don't know if David mentioned this, but the Talking Heads have our own record label now, called "Sly." It's important, because each member of the band can bring one act per year to the label, so we're all starting a big talent hunt right now, and we plan to have a really varied roster. It's all been set up as part of our new contract with Warner Bros. and EMI, so that all future Heads' albums will also be on Sly, and the records that are commercial will help pay for other projects that are completely uncommercial. So there are a lot of other plans in the works, even though the Heads won't be on the road in '88.

**Mix:** Talking to David, it seems he might retire from touring altogether.

**Frantz:** Yes, I'm aware of that, and that's why Tina and I are also planning to put some Tom Tom Club dates together over the summer. I think we've already got some offers to play some European festivals, which would be fun.

**Mix:** Do you miss playing live?

**Frantz:** A lot. You need that input from audiences. I just hope that after such a long break, the Heads don't lose contact with our fans. That's always a danger. I'm just slightly worried that when we do eventually tour, it's going to look like a comeback tour. But maybe it'll be the comeback tour of the year.

—Iain Blair

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—FROM PAGE 120

you don't have it you'd recognize it. There'd be a big space."

"On *Casual Gods* I played much more keyboards than guitar," Jerry says, "because Alex was there for a lot of the recording, and he's such a fantastic rhythm guitar player. Only when I wanted a really different kind of sound did I play guitar." One such 'different' sound can be found on 'Let It Come Down.' We had some distorted, discordant guitar, and I ran it through an old Harmonizer. It was going to another track, and recorded live. I had two passes before I broke the Harmonizer.

The song "A.K.A. Love" features some great distortion effects. "That song began because I took this Roland rhythm machine and ran it through a distortion booster, and it created a melody. That's how that song started," Harrison laughs. "A lot of times I find that if you overload the equipment you get something really interesting, that doesn't even have any of the characteristics of what you started with. I use that sometimes as a kind of starting point. The trouble with those things is that you can't sync them to anything else, so you must use them as your basis and do all your work around them."

The polyrhythmic "Song of Angels" is another tune with an unusual genesis: "I had just bought this synthesizer from Sequential Circuits," Harrison explains, "and they had a very crude sequencer in it. There was a sequence in it, and I kept turning the speed up until it malfunctioned, and it created this kind of interesting skips in the rhythm. That's what started that track. I always thought that song was like Africa meets Vienna. It has a very sad, very classical music feel, and then it breaks into this kind of frenetic rhythm."

Harrison plays all keyboards on *Casual Gods* except for Bernie Worrell on one song. To date the project a bit, Harrison had just bought one of the first DX7s when he began *Gods*.

Besides Weir on guitar, Harrison brought in the flamboyant rocker Chris Spedding. Spedding played a nice part in "Rev It Up," but couldn't

duplicate it later in the tune where Harrison wanted it.

"Chris isn't that kind of player," Harrison says. "He's a real inspired player, but it's different every time." Harrison didn't have to cut tape—he sampled the lick in order to move it. "I used a Bell BD80, which is like an AMS, but not quite as expensive. It doesn't have quite the fidelity, but it's very easy to use for triggered sounds. It has a very fast trigger in it, so if you were trying to trigger in a new bass drum or snare you don't have to do all these offsets. You could just have the original sound trigger it."

The studio is Harrison's playpen. Nothing is out of bounds. There is no *too far*. "Sometimes you have to push yourself to that," he says. "I'm not always this wild person in the studio, because sometimes if you do that you end up making a mistake that you can't go back and fix. I'm trying to use it in a wild way but also in a way that if you have to retreat some of your steps you have the documentation and the steps there so you can get back."

Besides putting together a great band for his second solo album, and for the supporting tour, Harrison feels he's progressed as an artist. "I think I'm a much better singer, and I think I've learned more about making records. I think *Casual Gods* translates very well on any system you play it on, whereas I think *The Red and Black* lost something between the studio and the record.

"I think we came up with some interesting sounds here. That's one of the things I really like—doing different projects and coming up with different sounds. The Bodeans record is this big rock and roll sound. This record with Semi-Twang is like The Band, but updated. My album is kind of a popping, direct sound. And *Naked* is very ambient to me, but not ambience like The Bodeans, which is like you're in a small room with a lot of people playing. And then I did Fine Young Cannibals' 'Never Fall In Love,' where they wanted it to be kind of disco Madonna-like. On each of these records, which have all stood on their own, I've gone for a varied sound." ■

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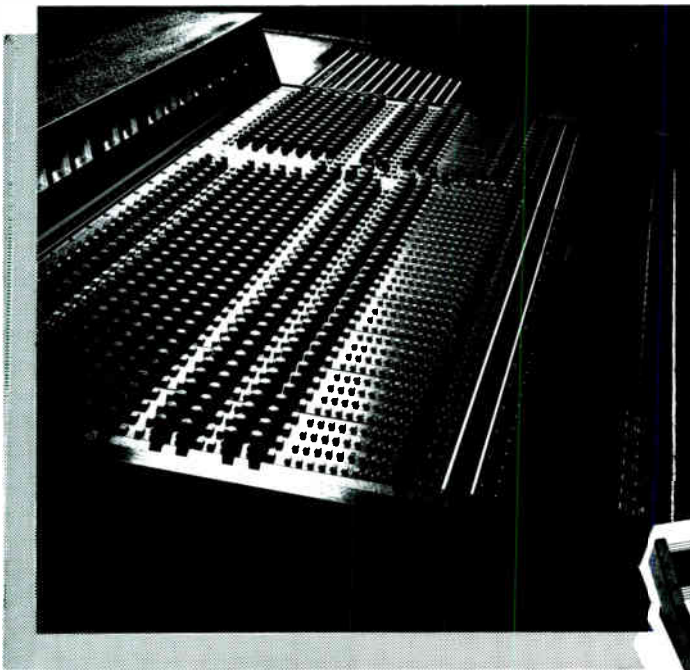
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## Synch Up...

Well, people, god only knows the synchronizers that we've seen. We've been selling synchronizers longer than some of our music store friends have been in business. Sometimes it feels that synchronizers need to be operated by an Apollo astronaut, serviced by Merlin the magician, and financed by Bank of America to maintain some level of reliability. But, now I think we finally have it. Not only is the ES 50/51 the most economical unit available, but it has all the features you'll ever need, and it will probably save you from entering the famous Synchronizer Recovery Course at the Betty Ford Clinic. It works right out of the box. Amazing.

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by Philip De Lancie

# 45's BIG SLIDE

## A LOOK AT THE REPLACEMENT RACE

**A**s the 7-inch vinyl single continues its steady decline in sales, a variety of new configurations have been proposed as heirs to its role in the pre-recorded music market. The cassette single has already been launched with some success on hit titles. Meanwhile, three optical disc possibilities have emerged, each with its own committed advocates: CD-3 (3-inch, audio only), CD-Video (5-inch, with full motion video information as well as audio) and the standard 5-inch CD with less material. Each of these configurations holds the possibility of exceeding the 7-inch single's limitation of one short program on each side, and thus raises the issue of whether and how the "single" of the future might differ in role and content from the current configuration. Given the variety of options available, a unified industry-wide approach may be difficult to arrange, leaving retailers and consumers with the glut of choices that has become the mixed blessing of technological advancement. For the next two columns, "After Mix" will examine these singles-related issues through comments solicited from some of the industry's important players, including CD manufacturers, record companies and industry trade groups. As evidenced by their remarks, unanimity of outlook is currently a distant goal.

**Jim Cawley, vice president of sales, Arista Records:** The success of a commercial single more or less verifies the public popularity of a given recording of a given song, especially in cases where an album is already out, so that you don't have to depend

just on album sales to know if that song is a hit. So in a big way the single is a feedback mechanism for the record companies. But the turntable has become, in the eyes of the teen world, old fashioned. In fact, you can find, in your travels today, a lot of teenagers who not only don't own a turntable, but have never even been around one. They're just not interested. That's really the reason that the 7-inch record market went down. A lot of people thought it was the price of 45s, but that really had nothing to do with it. The 7-inch 45 became obsolete in a big way. It still has a loyal fan base that can give you 300,000 sales on a record, so it is not completely obsolete as it stands today. But it has gone in that direction from a market in which, previously, singles could sell a million copies. And not because of the price or because of the packaging, but simply because of the fact that such a large percentage of the singles-oriented teens just don't have the hardware to play 7-inch 45s.

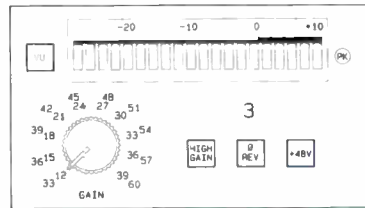
For the immediate future, the cassette single is definitely the heir apparent to the role played by 45s. It is the heir to the big sales simply because there are so many players. It is estimated that there are 325 million cassette players in the United States, and many people think that estimate is low. So there is a tremendous hardware environment in which the cassette single stands the best chance to prosper. The cassette single has been out now for about a year. The big hit records can already sell 150,000 to 200,000 cassette singles, in addition to the 300,000 sold on 7-inch vinyl. When you realize

how long it took CDs to occupy that percentage of a title's sales, that's incredible.

The material we put on the cassette single is the same two songs as those that have been put on the 7-inch record, with the difference being that on the cassette, we put both songs on each side of the tape. As far as bonus tracks or different versions of the same song, that comes up under the category of the "B" side, like having a previously unreleased version or a live version of a song on the flip side. We believe in that a lot, and we do that a lot at Arista, but that selection is really filling the function of the "B" side. So to us, the cassette single is still basically a two-selection product. As far as price, the \$2.49 list price is working out great, which means the stores are usually selling them for anywhere between \$2 and \$2.39.

In my view, the thing about the cassette single that really makes it preferable to the other proposals that have been made is, once again, the hardware availability. The CD player population in America right now is reported to be 8.5 million. When you compare that to the 325 million cassette players, it's just no contest. So the CD single has a very limited potential right now, primarily because of the hardware base, and also because singles are usually treated by the public as a disposable item. And that has never really changed. Certainly there are some people who have taken good care of them, and you will find people who still have those original Beach Boys singles or a Young Rascals single or whatever the case may be, but those people are few and far between. With most people, the way they've always used 45s is that they leave them lying around, and half the time after hearing them 20 or 30 times, they can't find them, or they're scratched or broken. The same thing is going on today with cassette singles. If a new Motley Crue cut comes out on the radio, and the album isn't out yet, these kids want to have the cassette single, and they'll take it and play it in their convertible 20 times. By the time the album comes out, they buy the album, and they don't even know where the single is half the time. That's

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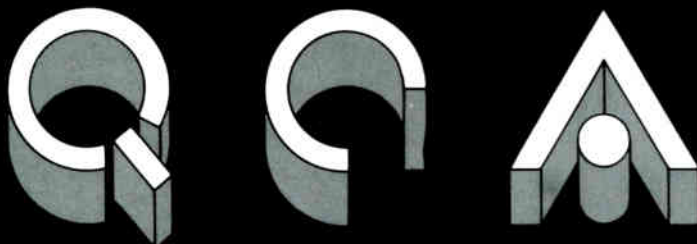
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why the idea of singles on compact disc is an odd fit for a lot of people to consider, because of that thing of disposability. CDs aren't something you want to leave laying around. It's just not that type of a configuration.

The only remaining hurdle I see to the complete acceptance of the cassette single as the heir of the 45 is that it needs to be handled in a more professional way by the retailers in terms of display and merchandising. The retailers are well aware of that, and to their credit they are looking into exactly what they need to do in their stores to merchandise them properly. But at this point, that's the only hurdle, that that's not being done correctly. If they insist on choosing between the 45 and the cassette single, carrying only one or the other, I would prefer the cassette, because I believe that it is more the configuration of the immediate future. I would still prefer to see them carry both. But there is some resistance among retailers to the proliferation of various formats, and I think that is one of the things that will hold back the CD single. People aren't going to want to carry three different configurations of the same song.

I think there is going to be very little controversy as to which configuration carries on the role of the 45. It's coagulating very nicely towards the cassette single, and I think that most people know that's the way things are going. The cassette single immediately fell into a very strong sales pattern. Everybody I have spoken to from every label is very, very impressed by that, and the industry has already rallied around it as being the configuration for the hit single. Some kind of optical disc single will be made available, and for a long time yet there will be 7-inch 45s available, but the real big configuration in the singles area will be the cassette single.

**Scott Bartlett, director of marketing, Digital Audio Disc Corporation (DADC):** The single, as I understand it, originally was designed to break new acts. And I still think it is important for that. It has been taken in different directions in recent years with the 12-inch maxi-single, the cassette single, and now the possibility of a single format in CD, which we have all decided to call CD-3. The terminol-

ogy "CD-3" was developed for one reason, and that was to get away from the "CD single" concept. That is not to suggest that there is not still a very valid place for the original hit-oriented role of the single, but the media itself should not be limited to two selections.

Now, as far as choosing a configuration to take over the original role of the hit 45 as it fades away, CD-3 is, to my mind, not only the best replacement, but the *only* replacement. From the perspective of the consumer, the consumer can see the big disc and relate it to an album, and see the small disc and relate it to the single. The whole message that we are trying to get across is: big disc = a lot of music, little disc = a little music. That is something you can't do with a cassette. A cassette is a cassette; it's all the same size. Some have a little music, some have a lot of music, but on a strictly visual basis, it's hard to figure it out. I think the consumer needs that kind of direct tie-in. It's visual stimulus: they see it and they recognize it. That approach also explains my preference for CD-3 over using the full-size CD in a single-type role. As far as CD-Video goes, I think that is a completely different format. I don't even consider it as being relevant to a singles format, because it takes additional equipment to complete the entire program. It is unique, and we are preparing to manufacture them, but we look at CD-3 as a music only format, while CD-Video is a music and video format. So it really is an altogether different animal.

Another thing about CD-3 is the fact that it can hold 20 minutes of program. So, while it can be used as a singles format, it also has valid application as an EP or for extended versions or whatever else. I know there are a couple of labels that are thinking of using it as a reissue format for older material, maybe as a compilation of three, four or five different cuts by different artists for back-catalog stimulation. A one-cut, 15-minute dance mix or disco version is also a possibility. As far as what pricing will be most effective for these various configurations, I wouldn't touch that for the world. I prefer to leave that kind of thing to the record companies.

One thing that people will bring up as a possible obstacle to CD-3 is the question of adapters. I just don't think it's going to be a big deal at all. In just

the last two weeks, I have personally been contacted by three additional manufacturers of adapters other than Sony [DADC's parent company]. So very shortly there will be a number of different companies—four that I know of—on the market with adapters in plenty of quantity. Consumers will just react as they did when they had to put centers in 7-inch 45s. Also, many of the hardware manufacturers have indicated a readiness to nest all the future players for the 3-inch CD. So the need for the adapter will ultimately go away.

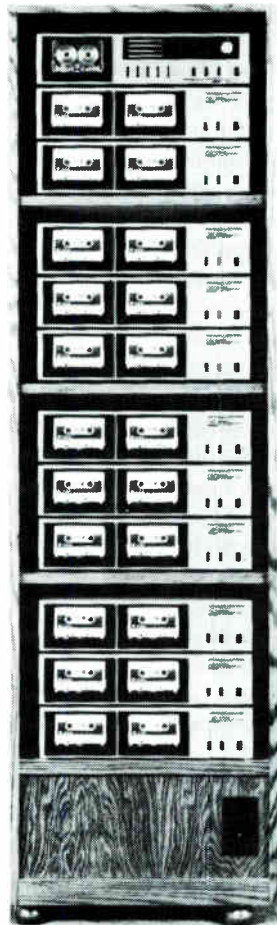
Regarding the unification of the industry behind one format for singles, I

certainly hope it doesn't drag out too long. I'd like to see the major labels using the CD-3 as the primary promotion piece, but whether or not they will is, of course, strictly up to them. If I knew the answer, I'd be a millionaire. One meeting has been held under the auspices of the RIAA involving most of the labels to talk about CD-3, and I have heard that another meeting is planned. I don't know if there was also discussion of any of the other singles formats. And I don't know why some of the other manufacturers have yet to get behind CD-3, though I understand from some of our clients that we share

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with other manufacturers that most of the major manufacturers are gearing to produce the 3-inch, even if they won't publicly come out and say it. In any case, we like the CD-3, and we are certainly prepared to be doing a lot of it.

**Jack Kiernan, senior vice president, marketing, Philips & DuPont Optical (PDO):** At one time, the 7-inch single probably accounted for 15% of the overall record industry in the U.S. At the time, singles were priced at 98 cents. Then there was a gradual increase in price all the way up to \$1.98. And as the list price rose on singles, there was a corresponding decrease in their sales level. There was probably a little more to it than just the price increase, but there was that direct correlation. So now, in the singles market, if you sell a half a million you are doing a lot. At the same time, you have to look at the cost end. At the time singles were 98 cents, they cost around 15 to 17 cents to manufacture. Now compare that with CDs, either 3-inch or 5-inch, it doesn't really matter. The 3-inch disc is 72 cents, I believe, and



**Jack Kiernan of Philips & DuPont Optical.**

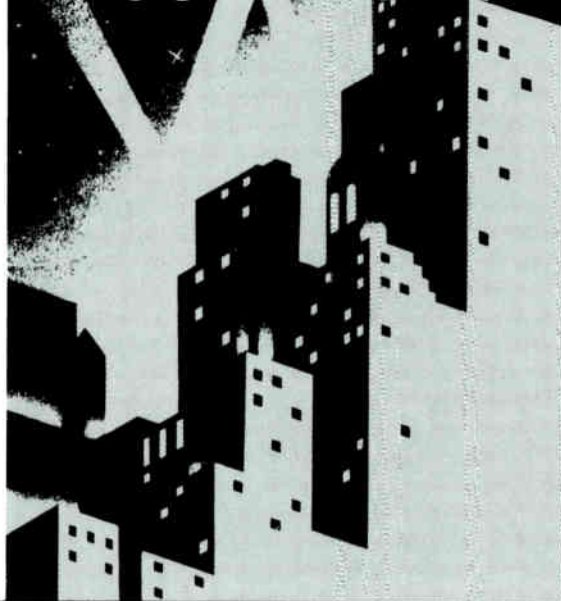
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## SPOTLIGHT ON NORTH CENTRAL RECORDING



you have to throw packaging on that, which is around 28 cents, which brings you up to about a dollar in raw costs. Now, how can a record company generate any kind of margin on something that is literally five times the raw cost of the vinyl? People say that it is a replacement for the single, but I've got to tell you it baffles me.

Where I see the value of a CD single is as an eventual replacement for the 12-inch dance record. I say eventual because, while there is equipment out there to enable the clubs, which is where these records get started, to be able to spin CDs forward and backward and all that kind of good stuff, I have heard that it is very expensive. So I'm not sure that is really do-able yet. So, if I eliminate either configuration (3-inch or 5-inch) as a replacement for the 45 because of the cost factor, and I think there are technical problems getting these discs started in clubs right now, I frankly don't see what all this hoopla is over. I just don't see a market yet.

That said, if you start talking about an alternative with 20 minutes of music, then I think you are out of the



realm of a single. What might come up in place of the single is the so-called maxi-single, or as DSDC calls it, the CD-3. There are all kinds of different names, but we are talking about 20 minutes of music, which I do not think will be a replacement for the 7-inch, but rather a whole other format which will be purely promotional as opposed to hit-driven. Hit-driven means the consumer says, "I want this cut, and I'm going to buy this one cut and take it home and play it." I don't think that's going to happen as far as CDs are concerned. I understand the cassette single is doing quite well for those companies that have gone after it. They are only retailing at \$2.98, which is still quite high, frankly. But I don't see how the heck you could retail anything at \$2.98 that has a manufacturing cost of \$1 when you have all the other costs to throw on top of that.

If some kind of CD maxi-single were to catch on, we would manufacture in whichever size there was a demand for. If it so happens that CD-3 becomes a configuration, we'll go after it, but right now I see no real evidence of that other than an enormous amount of pressure from Japan to go with the 3-inch format. Most of the retailers I talk to are concerned about it because of the size and the pilferage problem. And it is yet another configuration, so there is reluctance on the retailers' part. They are really the ones that are eventually going to make the decision, based on the demands they see at retail, as to which configurations to carry. So even if some company says that the 3-inch is like the Second Coming, I kind of shrug until I see some demand.

I think the 5-inch has several advantages. You've got the hardware out there already. The packaging has already been designed. In merchandising, you've got the browser boxes and all that other stuff which exist currently. And you've got a familiarity with the retailer and the consumer. I get a little concerned that with another configuration and another size, consumers are going to start to say, "What's going to happen next? Maybe I shouldn't buy that CD player after all." I'm afraid of consumer confusion. Don't forget, the CD still has a long way to go. The penetration is only at about 15%.

In terms of what kind of material might be on a CD maxi-single, I've talked to more than a few companies, and literally everyone has had a differ-

**"CD-3 is, to my mind, not only the best replacement, but the *only* replacement."  
—Scott Bartlett,  
DADC**

ent approach. People are talking about the hit, then the dance version of that hit, and possibly unreleased tracks. Some companies are talking about taking four tracks off of an album, which I think is silly. Others are talking about taking tracks from different albums, trying to promote the back catalog. Those basically are decisions to be made at the record company by the marketing people. Whatever they decide, I think the price point will probably be either \$4.98 or \$5.98. I think they can probably get away with \$5.98, but that depends on whether their mar-

gins are sufficient.

I hope that we don't get into a situation where we have a long, drawn out competition between various singles formats. Right now, there are no formal mechanisms through which the industry could come together to decide on a unified approach. There used to be the CD Group, which was disbanded after CDs were off and running. Now there is one for CD-Video, but other types of CD business are not discussed at those meetings. Actually, I'm really not sure about the legality of these types of things in terms of antitrust, whether you are really allowed to come up with a configuration and agree that this is it. In any case, everybody suffers in the long run when you have more than one configuration. It means double inventory and on and on. But I just don't know at this point how things are going to go.

*(continued next issue)* ■

*Phil DeLancie is our resident expert on record mastering and manufacturing, tape duplication, CD replication, storage and formats. He's also a mastering engineer at Fantasy Recording Studios in Berkeley, CA.*

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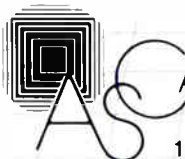
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# INTERACTIVE PRODUCTION UPDATE

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# A

s a follow-up to the recent HyperMedia supplement the following items detail news on the interactive media production and 3-D graphic fronts.

## SUN MICROSYSTEMS

Sun Microsystems Inc., the Mountain View, California-based computer workstation maker, is the number one player in the world of technical workstations. Projections are for nearly \$1 billion in sales for the company's sixth year, which closes in June.

In the midst of exponential corporate growth, the company's management team recently struck a far-reaching partnership with American Telephone & Telegraph whereby AT&T agreed to buy up to 20% of Sun for an estimated \$300 million. Competitors say that the Unix operating system—

which Sun and AT&T are working to simplify—could be turned into a barrier against them. Shortly after the Sun-AT&T announcement, representatives of 15 major computer makers flew to New York to meet with Vittorio Cassoni, president of AT&T's computer operations, to demonstrate their concern. AT&T insists it will remain neutral, and keep Unix an open standard that is licensed by all companies on an equal basis.

William Joy, vice president of research and development, is the key architect of Sun's technical strategy. Joy, 33, helped develop the Berkeley version and will lead the Unix development team. "I don't control Unix," Joy says. "This work is going to be available to everyone in the industry and I'll be happy to share it with them."

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World Radio History

## INTERACTIVITY

But he rejects the idea of opening up his technical team to numerous companies, as several critics advocate, because it would complicate the process.

The furor arrives just as Sun mounts an effort to turn a new breed of semiconductor chips and software into widely used standard products. Both AT&T and Sun have pledged to keep all interested companies and industry standards groups abreast of technical developments, and consider their design recommendations.

### OPERATING SYSTEM SWEEPSTAKES

Sun and its competitors are well aware of the huge developing market that awaits the winners. International Data Corp. estimates that computers based on Unix will account for 22% of a \$120 billion worldwide market by 1991. Hundreds of millions of dollars have been spent building computers based around the Unix operating system software.

Sun made waves in 1984 by introducing the first technical workstation for under \$10,000, and last year began to edge toward the personal computer business with a \$4,995 system. The company has plans to introduce a product that can calculate up to 7 million instructions per second for under \$15,000.

At least as important to Sun's success is its guiding philosophy of using widely available products as building blocks. The technology platform was built on Motorola's 68000 microprocessor chip family, Unix software and NFS (Network File System), a Sun system for sharing files that has become an industry standard.

Sun's standards strategy goes much further. There appear to be three key elements: Sun has licensed SPARC to at least three independent chip makers, who plan to develop even more powerful, competitively priced versions. The company's goal is to convince many electronics companies to use SPARC chips, in the same way that they have standardized on Motorola and Intel Corp. microprocessors.

The hold concept received powerful endorsements last fall in separate technology partnerships with Xerox Corp. and AT&T. Both plan to build SPARC-based systems, which could particularly help AT&T's sluggish computer business. Joy predicts the three-

part strategy will have a radical effect of freeing customers from allegiance to one computer maker because of the time and money they have invested in software. Equally important, it could stimulate more software firms to make Unix versions of programs common on IBM or Apple Computer's Macintosh—an essential feature if companies like Sun are to be successful in selling personal computers.

### THE SCHOLAR'S WORKSTATION

About two years after start-up, NeXT Inc. is almost ready to launch the "scholar's workstation" for the university market. Apple Computer Inc. co-founder Steven Jobs and his team have been joined by the founder of Electronic Data Systems, Ross Perot, who invested \$20 million in the NeXT vision.

The basis for the introduction of the NeXT computer is the need to serve the higher education market with an affordable desktop computer with the power of engineering workstations. Commitments by Sun, Apollo, DEC, Hewlett-Packard and Apple to this emerging marketplace, will provide an extremely competitive environment for the eventual introduction of the NeXT workstation.

The computer will take advantage of the cost/performance capabilities of the Sun Microsystems "SPARC" microprocessor chip technology. According to industry analysts, the NeXT computer will deliver about four times the speed of an old IBM PC, nearly twice the memory and five times the graphic resolution at a cost of \$15,000 to \$20,000.

One of NeXT's most important strategic goals is to persuade major software publishers to convert their software to run on the new computer.

One of the more important innovations the computer will be bringing to the market is a striking new computer graphics display. Adobe, the developer of Postscript Display Language, and NeXT have already announced that they are developing a new language for displaying graphics and text on a computer screen.

### PIXAR IN THE SPOTLIGHT

Pixar, a company created by Lucasfilm and purchased by computer entrepreneur Steven Jobs, recently broke a significant price barrier in a promising technology it calls image computing.

The San Rafael-based company introduced a \$29,500 version of its special-purpose computer systems, which can be used to create 3-D animation and enhance photographic images. For \$49,000 Pixar can deliver the performance of its first high-end model, introduced in May, 1986 at an original cost of \$122,000.

The price reduction should help broaden the market for such systems—now estimated at \$1.1 billion by Dataquest Inc. of San Jose—and help change Pixar from a kind of high-technology boutique to a volume manufacturing company. The closely held company has sold 120 systems so far.

Pixars are being used to make medical diagnoses, based on the creation of 3-D X-ray videos of human bones and muscles; to produce detailed topographic maps and aerial terrain simulations from photos taken by U.S. government reconnaissance satellites; and to simulate phenomena such as weather factors surrounding crashes of airliners. The lower price tag is expected to stimulate other applications such as color-page layout by graphic artists and a market called scientific "visualization," which uses simulations to make color renderings that include the internal features of objects.

Alvy-Ray Smith, cofounder and executive vice-president comments, "We have the unique capability to look at the volumes of objects instead of just their surfaces." Among the users of the new technology are researchers at John Hopkins Hospital who are creating images of diseased kidneys that can be viewed from any angle. North American Phillips Corp. is packaging the company's hardware with software for diagnosing muscle and skeletal ailments.

Pixar's special-purpose computers have an unusual parallel architecture that yields very fast computation speed, but they require a desktop workstation from vendors like Sun Microsystems and Digital Equipment Corp. Industry analysts estimate the market for such devices will grow by 17% annually to reach \$1.7 billion by 1991. ■

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*Lou CasaBianca is involved professionally in advanced music, film and TV production, interactive authoring and visual design, and computers in media production. He heads the New Media Learning Center in San Francisco.*

—FROM PAGE 61, MANUFACTURER'S ROLE

This year, optional fourth days have been added for people who want more intensive training in certain areas such as MIDI percussion, guitar, keyboard samplers and software.

Roland representative Barbi Clark explains, "These courses are primarily for retailers, store managers and salespeople, although we're making the piano course available to certain music teachers. We keep the classes to a maximum of 25 people per group."

The company provides all materials, instruction, transportation to and from the hotel, and meals for two days. Participants are responsible for their own transportation and hotel expenses.

### Tascam

Bill Mohrhoff, Tascam's marketing manager, reports that they are in the process of establishing an intensive training program with their regional salespeople. The first sessions took place at the end of April at the new Tascam training center

in Montebello, California. Current plans are to do one or two per month.

Mohrhoff elaborates on his company's approach, "One of the things that is lacking in the typical training sessions is the issue of accountability. Our format will be seminar-style, except it will be high-intensity, and the individual is held accountable for the information as soon as it has been put on the table. By working with five or six people, you can establish a highly involved, intensive learning environment with an objective of training these people to train the dealers."

### Sony

Sony's Professional Audio Training Group in Fort Lauderdale, Florida, offers two types of training courses: an applications course for people who aren't very familiar with the new Sony products, and a course in digital audio basics which gets more into theory. Says instructor Ray Callahan, "The courses are designed to give the analog people

the knowledge to cross over into the digital domain. Both are oriented towards sales and service people."

Sony also offers more advanced technical service training courses. These go right down to the component level, offering the students a lot of hands-on lab work. Here, the instructors try to duplicate the kinds of problems technicians might encounter in the field.

### Fostex

Fostex has been conducting seminars on home recording since its beginnings, on the dealer level as well as for the general public. Mark Cohen, vice president of Fostex, stresses, "In the consumer clinics we really downplay the Fostex name. The emphasis is on how recording equipment can help make them more money. They are organized by our reps and the music dealers."

Fostex Corp. also produces their own videotape product instruction manuals for both the consumer and the dealer. Cohen observes, "With all of this high-tech equipment, no matter how well they write the manual there's still just a ton of stuff to read. It's real hard to keep your attentiveness up. Videotape seems to be a better way to get the information across. The typical customer often finds it easier to watch a videotape than to read the manual."

Videotapes for training of dealers are available at no charge through the rep. "For those music stores that experience a high salesman turnover, videotapes are a much more effective method of addressing the problem of training," explains Cohen.

### Yamaha

Yamaha has a wealth of educational programs, from music schools for small children to technical training by their service staff. At the professional level, the Digital Musical Instrument (DMI) division has a product specialist program which employs three full-time people who conduct consumer shows and teach dealers how to work with products. These generally take place at music stores, where most of the day is spent with the sales-

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people, and the consumer clinic takes place that evening.

There's also a special program called the YDS (Yamaha Dealer Specialist) sessions. Yamaha flies dealers from all over the country at the dealer's request to attend three-day training seminars at their Buena Park, California, headquarters. A special staff of consultants and product specialists is equipped to help with the training. The seminar room is set up so that each person has a complete workstation of DMI products and other equipment. The subject matter covers everything from the basics of MIDI through FM programming. The YDS seminars are scheduled every month, and all expenses are paid by Yamaha.

Bob Davis of the Yamaha Professional Audio Division states, "In July, we will begin doing in-house seminars every two weeks. We have 22 scheduled, one every other week here in Buena Park. We will be training a class size of 18 to 20 people. For the most part, the participants will consist of dealer personnel.

This is what we like to call 'digital boot camp.' It's similar to DMI's program, which trains dealer staff from all over the country. We published *The Sound Reinforcement Handbook*, which will be used as a textbook for our seminars. The idea is to cover general theory in the first part of the seminar, with an increasing tendency toward application and systems in the latter part. They will be staffed internally with Yamaha product specialists."

#### **New England Digital**

New England Digital has had extensive involvement on the university level—Synclaviers are being used in more than 50 universities throughout the world. The flagship of the program is at Dartmouth College, which offers a complete degree course in music and technology. A large Synclavier Direct-to-Disk, networked with 20-some Macintoshes, is used by the students as a learning environment. (See the June, 1987 *Mix* article, "Dartmouth: The Ivy League Goes Digital.")

Dartmouth is also the site of NED's annual summer seminar, where people from all over the world convene for a one-week program of training on the newest hardware, software and techniques. Designed for equipment owners as well as for qualified interested people, the seminar is in a symposium format in which experts—such as Michael Jackson's keyboard player and performance artist Laurie Anderson, as well as big names in film scoring and sound effects—teach classes on practical applications of the products. The Dartmouth summer program is in its seventh year.

New England Digital's newest effort is their association with Full Sail Center for the Recording Arts in Orlando, Florida. Full Sail has just taken delivery of a Synclavier and Direct-to-Disk system, and they are making it an integral part of their curriculum for recording engineers. ♦

*Paul Potyten is associate editor of Mix.*

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- Lexicon Opus
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- Otari TMD DAT/Video Duplicator

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- EAW KF-850/SB-850 Speakers
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- Solid State Logic "G" Series Studio Computer
- Yamaha DMP7 Digital Mixing Processor
- DDA DCM 232 In-line Recording Console
- Amek APC 1000 Assignable Production Console
- Ramsa WR-S852 Modular Sound Reinforcement Console

### MUSICAL INSTRUMENT TECHNOLOGY

- Roland D-50 Linear Synthesizer
- Alesis HR-16 High Sample Rate Digital Drum Machine
- E-mu Systems Emulator III Digital Sound Production System
- Kurzweil PX-1000 Professional Expander
- Ensoniq EPS Performance Sampler

### COMPUTER HARDWARE/SOFTWARE

- Apple Macintosh II Computer
- Digidesign Q-Sheet Automation
- Blank Software Alchemy Sample Editor
- Passport Master Tracks Pro (Mac version)
- C-Lab Creator Atari Sequencer

### ANCILLARY EQUIPMENT

- Apogee 944-S/944-G Digital Filters
- dbx RTA-1 Real Time Analyzer
- Jensen Twin Servo Mic Preamp
- Crest 8001 Power Amp
- Yamaha PD2500 Power Amp

## OUTSTANDING CREATIVE ACHIEVEMENT

### RECORDING ENGINEER

- Bruce Swedien
- Humberto Gatica
- Kevin Killen
- Neil Dorfsman
- George Massenburg

### MASTERING ENGINEER

- Bob Ludwig
- Ted Jensen
- Greg Fulginiti
- Bernie Grundman
- Greg Calbi

### SOUND REINFORCEMENT ENGINEER

- Bruce Jackson
- M.L. Prociase
- Dave Kob
- Mark Deadmon
- Buford Jones

### RECORD PRODUCER

- Daniel Lanois
- Narada Michael Walden
- Quincy Jones
- Neil Dorfsman
- Jimmy Iovine

### FILM/VIDEO/BROADCAST PRODUCTION ENGINEER

- Randy Ezratty
- Biff Dawes
- David Hewitt
- Ron Estes
- Bob Liftin

### FILM/VIDEO/BROADCAST POST-PRODUCTION ENGINEER

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- Gerry Humphries
- Dominick Tavella
- Ken Hahn
- Richard Beggs

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- Tom Hidley
- Joiner-Rose Group, Dallas, TX
- Waterland Design, Hollywood, CA
- Benchmark Associates, New York, NY

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- Royal Recorders, Lake Geneva, WI
- Lion Share, Los Angeles, CA
- A&M Studios, Hollywood, CA
- Sync Sound, New York, NY
- Village Recorder, West Los Angeles, CA

### SOUND REINFORCEMENT COMPANY

- Maryland Sound, Baltimore, MD
- Showco, Dallas, TX
- Ultra Sound, San Rafael, CA
- Schubert Systems, North Hollywood, CA
- Audio Analysts, Plattsburg, NY

### MASTERING FACILITY

- Artisan Sound Recorders, Hollywood, CA
- Masterdisk, New York, NY
- Sterling Sound, New York, NY
- Bernie Grundman Mastering, Hollywood, CA
- Masterfonics, Nashville, TN

### REMOTE RECORDING FACILITY

- Le Mobile, North Hollywood, CA
- Remote Recording Services, Lahaska, PA
- Effanel Music, New York, NY
- Westwood One, Culver City, CA
- Fanta Professional Services, Nashville, TN

### RECORDING SCHOOL/PROGRAM

- Middle Tennessee State University, Murfreesboro, TN
- University of Miami, Coral Gables, FL
- Full Sail Center for the Recording Arts, Altamonte Springs, FL
- Grove School of Music, Van Nuys, CA
- Peabody Conservatory of Music, Baltimore, MD

The 1988 TEC Awards will be held November 3rd at The Biltmore in downtown Los Angeles. For more information, contact Karen Dunn or Rachel McBeth at (415) 653-3307.

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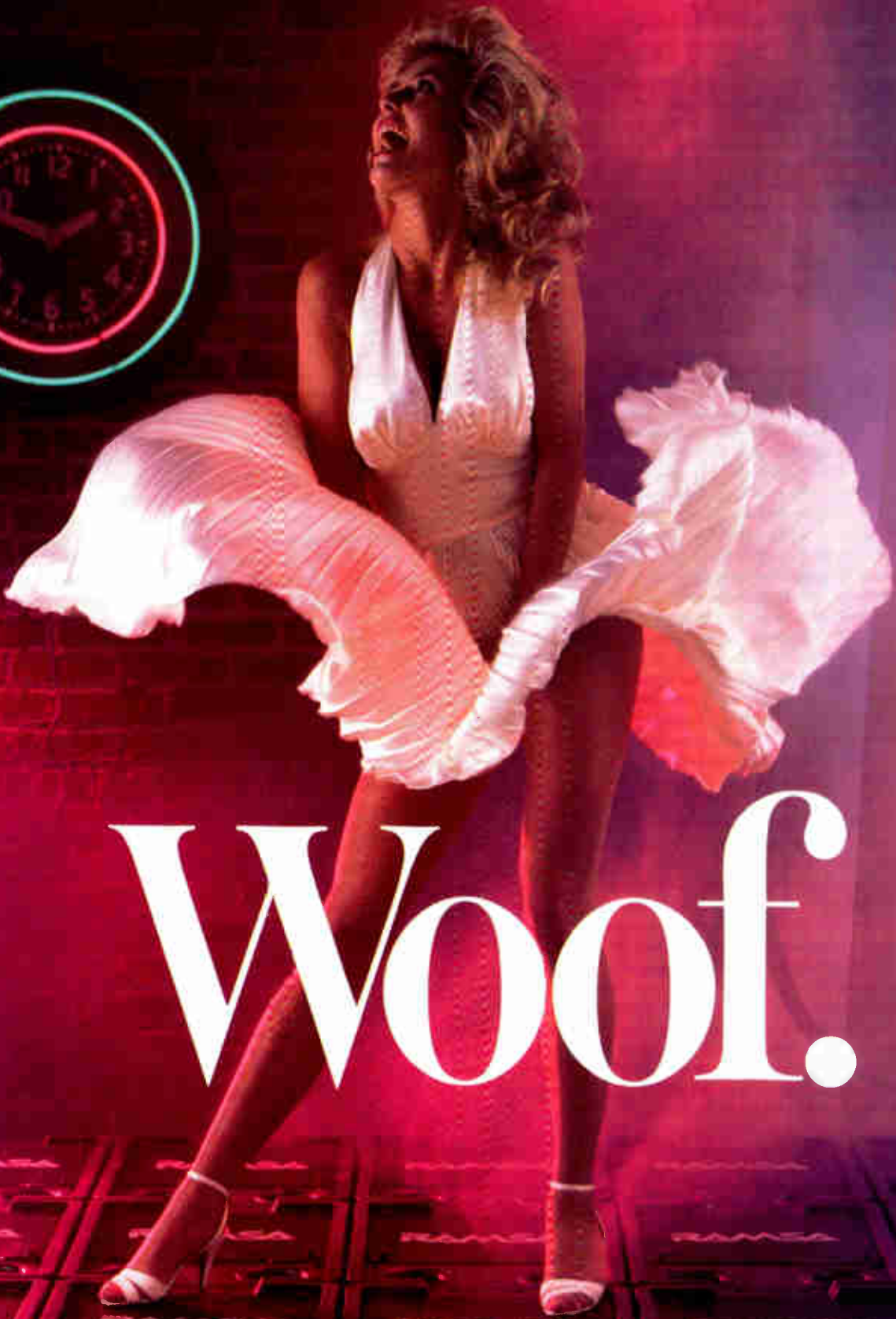
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World Radio History

The lifeblood of most Southwestern studios springs from corporate, industrial and retail spending—all of which took a nose dive with the Dow last fall. Yet life is good for those studios in the American Southwest



# THE SOUTHWEST RECORDING SCENE



by Linda Jacobson

**M**ix recently called upon a few, and found that they all adapted smoothly to the rough economy by devising varied approaches to take up the slack.

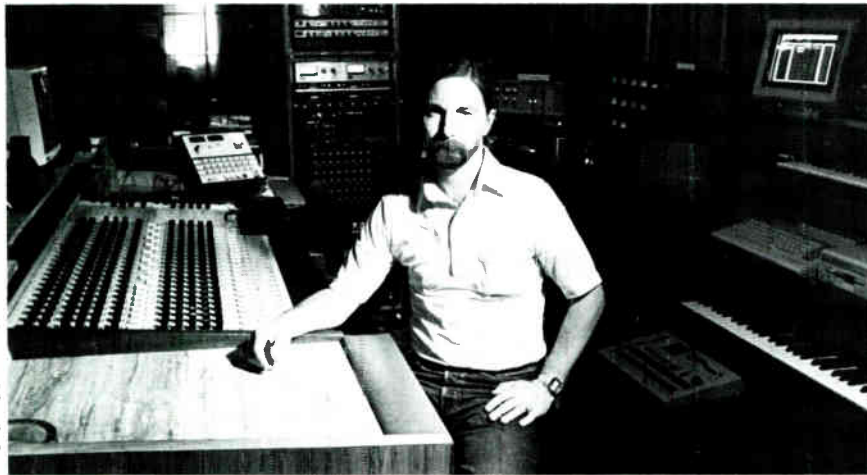
## Albuquerque

"For a long time this area was not really in tune to the major markets. They'd do a lot of inexpensive produc-

tion that other markets were doing in a more sophisticated way. But companies and people out here have reached a level where they decided this kind of work is necessary," says John Wagner. "I have two kinds of clients: the ones that used to go out of town, and the ones who've just decided they need to do this level of production and creativity to please their market."

Wagner owns John Wagner Recording Studios, "the only real SMPTE interlock post house in New Mexico," which receives half its income from out of state, primarily producing original music and effects for radio and TV campaigns. The facility offers two control rooms that share a studio, and six months ago added a budget 16-track studio for television/radio jingle production and band demos. Currently Wagner is building a 2-track voice booth that will double as a tape-dubbing room.

Wagner recently purchased a studio automation package, taking the on-screen automation approach. One of the first to install multiple Yamaha DMP7 digital mixing processors for



**Steve English at his Sound Factory in Tucson, Arizona, where business bodes well despite a slowdown in the local live music scene.**

terrific deals out here. The type of work I do would cost a lot of money if they went somewhere else."

### Houston

"During the fall of last year, for the first time we saw a decline in retail advertising, the number of people doing production for retail. They were doing more generic spots for sales and companies were letting them run a long time," says Dwight Cook. "At the same time, our original music work picked up with corporate people and independent filmmakers. Even during a soft economy, people always want to be entertained. The corporations are running lean and mean now, they've made their cutbacks and put their people into voluntary retirement; now they're back to business as usual and they have messages to get out to their people, whether employee motivation or a message to customers. Corporate marketing, safety and image relations are coming through here like gang-busters."

"Here" is Cook Sound & Picture Works of Houston, which added two new employees and the "Picture Works" part of their name last July, thanks to increasing success in attracting audio-for-video and film work. To their 8-track and 24-track rooms (the latter with an Alpha Audio BOSS editing system), they added a Synclavier suite last July, and have since upgraded it with an NED Tapeless Studio. The Synclavier and 24-track rooms have been joined by tieline, and together facilitate music scoring—they're cranking out music, much of it post-scored to picture, for local, regional and national ad agencies.

"The film industry is budding in this area," adds Cook. "Last year, about 800 independent and feature films were shot in the U.S., and in Houston we had over two dozen of them. So more people want to do their post-production while they're in town. We just finished our second feature, a film for Trans World directed by Pete Mastersson, *Blue Moon Over Deep Water* [for release this fall]."

Cook S&PW is also enjoying substantial corporate income these days, doing a couple of projects for IBM, work

multi-track automation (Yamaha even flew there to check it out), Wagner tied together three DMP7s for 24-channel mixing. "It's remarkable, especially in music for TV advertising," says Wagner. "We use it with the Steinberg/Jones *DMP7 Desktop* software for the Atari ST, which I also use for sequencing. It's made a world of difference in working on projects from all over the country. Usually after I finish it they want to hear it. If they make a minor change, they want an immediate mix to go. I can call up the mix and the

effects with total recall, make the change and deliver the project in 15 minutes. To be able to walk back into the studio three days after I worked on something, and in five minutes recall all the parameters, reverb, effects and EQ, is a miracle.

"If I'm doing production for out of state," concludes Wagner, "it's because they get a good deal coming here—our overhead and costs are not what they are in New York. So when things were getting tight for a lot of people, many clients thought they were getting

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to picture for Compaq Computers and Continental Airlines, which are both headquartered in the area, and work for McDonald's, Exxon, Conoco and other oil companies.

In addition to production work for clients, Cook S&PW has put a lot of energy into developing their proprietary product, "Fastrax," co-owner Karen Cook's new twist on an old idea. Released in December, Fastrax is a series of jingles customized for, and marketed and syndicated to, specific industries—shopping malls, automobile dealerships, and franchises in need of a corporate identity. The basic product is delivered on a 1/4-inch stereo master, but "We're also providing full turn-key packages, jingles plus a coordinated art campaign with print support," enthuses Dwight Cook. "We're also writing commercials here to fit with those jingles, inserts for back-to-school, Christmas, the traditional retail selling seasons."

Thanks to the capabilities of an in-house composition staff and the Synclavier (and ten years of experience in retail advertising production and post work), Fastrax is taking off, and Cook says he needs "some more help," inquiring, "We're looking for a good engineer right now, do you know of any?"

### San Antonio

The four-room, fully automated, 24-track Emerald in the south central part of Texas is partner to Taylor Media Productions, and together they created and market the eight-album Production Garden music library. Emerald opened in January of '87, and has managed to triple its income in an economically strapped region.

"The overall advertising activity from agencies to commercial production has definitely been off in San Antonio," says Taylor Media's Mel Taylor. "Mitchell does original music composition, jingle production and film scores, and also leases Emerald to local bands. But 60% of his clients are out-of-town, so he hasn't been affected much."

After composing in all genres of music for national jingles and feature films for 17 years, Mitchell Markham returned to his hometown of San Antonio, Texas, and built Emerald Studios, to "quit having to go to those hot-shot places on the West Coast and in Nashville, and get on a format where I could be compatible with them. I opened Emerald primarily for my own work,"

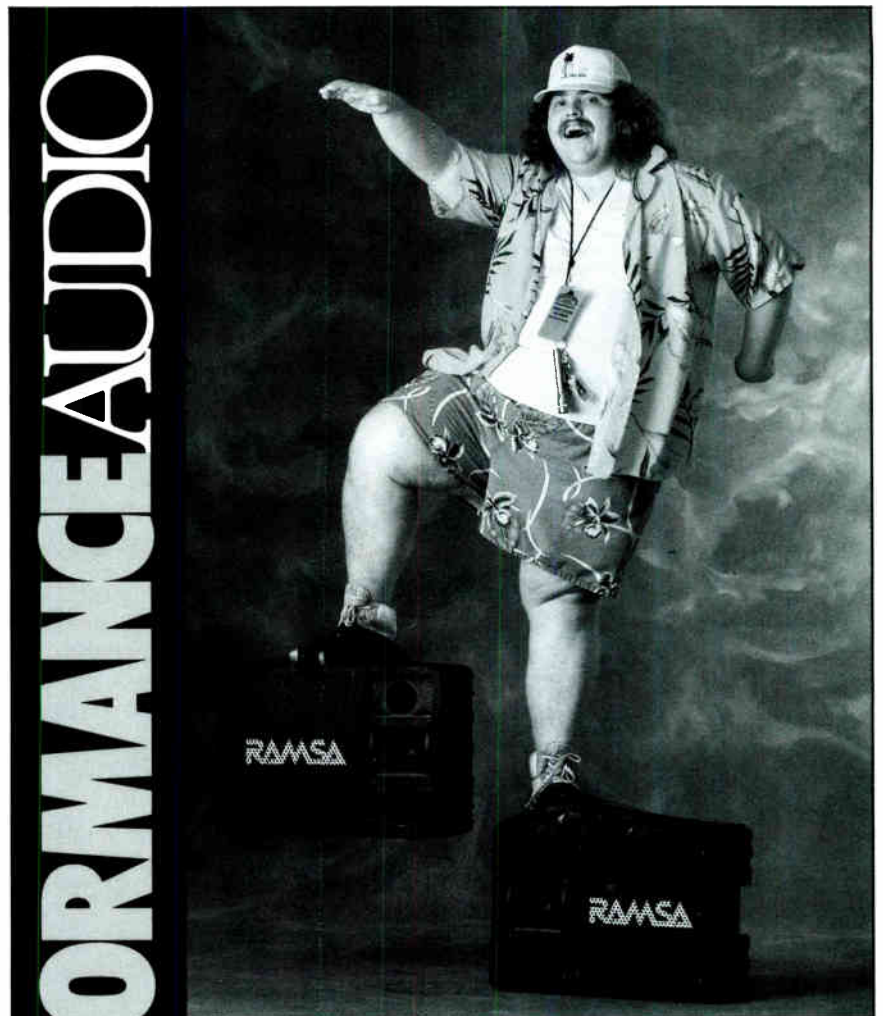
says Markham, "but now it's a combination of jingles, film scores, agency work and albums. Albums are a whole new thing for me; I'm used to thinking in 60- and 30-second spots.

"Most of the work is for ad agencies," adds Markham, "but because we're the only studio that can do video sync, we're getting some motion picture work. No one's done that in San Antonio before, but I've done a lot of film scoring and wanted to have that available. We offer a lot of MIDI equipment; we run off two Macintoshes wired into the Emulator, Roland D-50 and our other MIDI gear."

Markham notes that Emerald isn't doing many jingles for local clients, but he says, "We've been so busy I've had to bring in an extra engineer." Local work does include music for Norman Lear's Santikos movie theater chain and a Miller Beer trailer ad for that chain, but Emerald mostly handles major jingle projects out of New York, Chicago and San Diego. "Emerald Studios is based on the studios I've worked in, in other markets. For San Antonio, that's different."

### Dallas

The heavily MIDI-oriented Downtown



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Sound is in its second year of business, and today their full, original design is up and running. All the rooms are working, all the SMPTE interlock is running right, and they now offer the largest collection of vintage tube mics in the Southwest, according to owner Jonathan Cluts. "By September we were at break-even, and had good business through December. Starting around January and into February, the market slowed down tremendously in the area, which seemed to be true across the entire Dallas marketplace," says Cluts. "Most of our work has been advertising and industrial film work, and some Christian record and audio projects. Dallas does quite a bit of religious work. We don't have a particular bent towards the religious area, but we're comfortable doing it, and our staff understands the needs of that particular client." Downtown has also been handling the audio for the radio and TV campaigns run by the Petrofina (Fina gas) company, and audio for industrial films for the Dallas-based Southland Corporation (the 7-Eleven people).

"The end of the year always slows down, but this year was worse than before. A lot of our clients, large users of the studio, didn't have any work either. But in March it started to pick up and we shifted our focus to what's going on in the Dallas market, so we can work our way up the chain in the ad world."

To that end, Downtown joined the Dallas Chamber of Commerce a few months ago, "to try to get more local area industry awareness," says Cluts. "We're trying to support the producers by enhancing Dallas business—we try

**New Mexico's only full-service, SMPTE-savvy, recording and audio post house—John Wagner Recording Studios of Albuquerque.**

to send work their direction, as opposed to producers going to get the work, then coming in to rent time from us."

One reason this is so important now, according to Cluts, is that "the industry in smaller markets like ours, outside of New York and L.A., suffer a lot from the home studio. As producers get more sophisticated and gear becomes less costly, studios have to face the fact they're not getting as much demo work. In the Dallas market, that's a good chunk of your business. We've fought that by setting up and selling producers' systems with keyboards, synths and software—we consult on hardware, we don't directly sell it—so they can create their productions at home, then bring in their disk to the studio and rent the equipment they can't own."

#### Oklahoma City

Close to where the wheat is as high as an elephant's eye, you can find Ken Sarkey and his Cornerstone Recording. Sarkey—a native of Oklahoma City—was a trumpet and flute player when, 12 years ago, he built an 8-track studio in his basement. Soon it took on a life of its own, moving out and growing into the state's physically largest 24-track facility. "There's quite a bit of recording activity going on in Oklahoma City," says Sarkey. "There are five or six 24-track studios. But we're one of the few facilities with enough

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space and equipment to accommodate an orchestra, so we do a lot of work for choral music publishers."

Cornerstone's MIDI-oriented, scoring-to-picture business is on the rise, and this year Sarkey purchased the new Yamaha DX7II, Roland's D-50 and its companion programmer, Southworth's JamBox 4+, along with a digital Sony 501 processor for mixdown and a second 1/2-inch VCR. Cornerstone works on demo and album projects (mostly gospel music, especially contemporary Christian music) and Sarkey also composes and produces jingles for local/regional radio and TV commercials.

Cornerstone also recently added a large number of new disks to their Emulator II music and effects library. (Coincidentally, Optical Media International of Los Gatos, Calif., just released their new "Universe of Sounds" CD-ROM for the Emulator, containing a dozen floppy disks' worth of Sarkey's sounds.)

#### Tucson

Pedal steel guitarist and recording engineer Steve English has lived in Tucson for 20 years, since "it was a one-horse town, and there were a million places to play seven nights a week. Now I can count them on one hand. As Tucson grows larger, the music scene grows smaller. You'd think a studio couldn't survive without musicians getting paid to play some place, but every year more of these clubs die and our business picks up. It's been a wonderment."

English owns and runs the 8-year-old Sound Factory in Tucson, Arizona, a two-studio complex with 16- and 24-track recording and plenty of MIDI gear that keeps constantly busy, working 90% of the time with bands on demos, 45s and albums (the other 10% involves commercial production). The band clientele is mostly local/regional, although Louisiana and Nashville groups are sent their way by their record pressing company, National Tape Corporation (Nashville), as are customers from California via A&M, Capitol Records and Warner Brothers.

Generally booked a month in advance, Sound Factory averages three groups per studio per day, four albums per week. That's a lot of work for a town where "there were a half-dozen, solid rock and roll clubs, and now there's only one. And they don't hire many local bands."

So why is business so good? "I think it's been the influx of people from the East and Midwest—Tucson's lost its little cowboy-town identity." And the Sound Factory can always count on some cash coming in from their real-time cassette duplication facility, which English installed in response to requests from band members; today their 20 Technics machines churn out a wealth of self-improvement tapes for psychiatric and medical profession clientele.

Just getting into video, Sound Factory produced the theme music for the syndicated TV series, *The Great Chefs*

*of the West*, working on their newly installed PC-based console automation software and the SMPTE City device (by Entertainment Library), along with full video and BTX Shadow/Roland SBX80 sync capabilities. English says, "We have 3/4-inch video but are about to get a 1/2-inch system, geared for the economical market, so we can get a product into the hands of bands on smaller budgets."

"Tucson has a very active music scene, but we're starved for venues for bands," continues English. "I think someone could make a killing out here if they had the right club." ■

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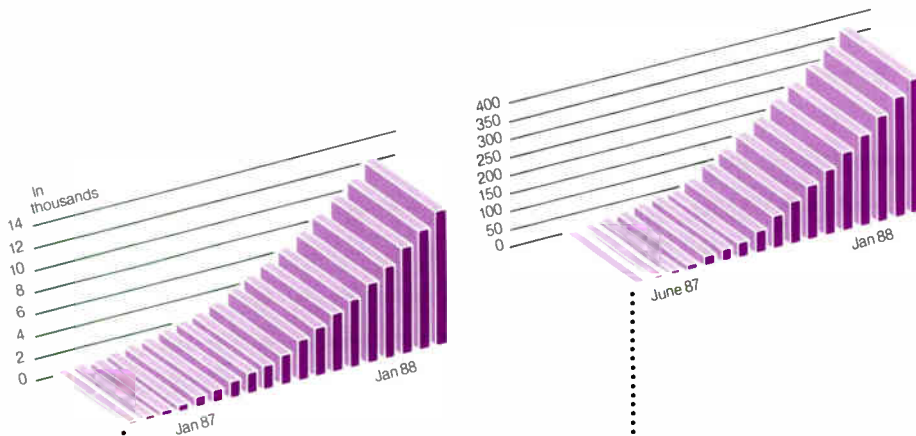
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# SOUTHWEST STUDIOS

Information in the following directory section is based on questionnaires mailed earlier this year and was supplied by these facilities listed. *Mix* claims no responsibility for the accuracy of this information. Personnel, equipment, locations and rates may change, so please verify critical information with the companies directly.



Universal Music and Post Studios in Tulsa specializes in post-production for film and video. Pictured here is Studio A, which is equipped with a Soundtracs CP6800 computerized console, Otari 24-, 16-, 4- and 2-track recorders, and an MCI JH110 one-inch 3-track layback machine. The room uses JBL 4430 monitors, powered by Hafler P500 amps, and near-field Fostex RM 765s for reference. The facility also includes a 16-track MIDI room and an off-line video editing suite. Photo by John Southern; Southern Photography & Recording.

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*Mix* listings procedure: every month, *Mix* mails questionnaires to recording studios and/or other vital facilities and services for the recording, sound and video production industries. There is a nominal charge to list a Boldface Listing (name, address, contact) and an Extended Listing (equipment, credits, specialization and photo or logo). If you would like to be listed in a *Mix* Directory, write or call the *Mix* Directories Department, 6400 Hollis Street #12, Emeryville, CA 94608, (415) 653-3307.

### Upcoming Directory Deadlines:

North Central U.S./Canadian Studios: **July 14, 1988**

AES/New Audio, Video & Music Products: **August 5, 1988**

Tape and Disc Manufacturing: **September 6, 1988**

# T TRIPLE CROWN



PHOTO BY CLAUDE ROLO

## TEC WINNER'S PROFILE

For three consecutive years, *Mix* readers crowned New York City's Power Station as the industry's top studio, by voting it winner of the Technical Excellence and Creativity Award. Power Station has earned the respect of professionals by helping major stars like Mick Jagger, Diana Ross and Bruce Springsteen record dozens of gold and platinum records. Founder and co-owner Bob Walters has obviously found the right ingredients for success:

**Power Station's Recipe:** "Power Station is a combination of the human factor and intelligent technical information. The way you get information is not only from book knowledge. You have to have that instinct."

**Working with superstars:** "The bigger they are, the easier they are to work with. I often say: 'God save us from the amateurs!' Professionals want things done professionally. They're your best friends when things go smoothly, the equipment works and everyone has the proper attitude."

**Best advice:** "You don't have a client until you get paid."

**The TEC Awards:** "They're a marvelous inspiration for people, because they let you know that you're working for something. That's a wonderful thing to strive for — the possibility of being the best in whatever you do."

**Mix magazine:** "I've been reading *Mix* since it came out. I'm very impressed with the way *Mix* has developed over the years. People who want to know what's going on read the magazine, because it gives them pertinent information."



PHOTO BY C.R. KING

**MIX** THE  
RECORDING  
INDUSTRY  
MAGAZINE

The 1988 Technical Excellence and Creativity Awards will be held Nov. 3 in Los Angeles. Call 415-653-3307 for information.

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All studio information listed has been supplied to *Mix* by studios responding to questionnaires mailed in March 1988. People, equipment and locations change, so please verify critical information with the studios directly. *Mix* does not take responsibility for the accuracy of the information supplied to us by the studios.

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# S O U T H W E S T

# 24+ TRACK

## STUDIOS

[24+] **ACCESSIBLE SOUND RECORDING STUDIO**; 5146 Kingfisher, Houston, TX 77035; (713) 723-ASRS. Owner: Kenneth Butnoch. Studio Manager: Herman A. Teale

[24+] **APRIL RECORDING STUDIOS/CRYSTAL RAM PUBLISHING B.M.I.**; also *REMOTE RECORDING*; 827 Brazil Pl.; El Paso, TX 79903; (915) 772-7858. Owner: Harvey Marcus. Studio Manager: Del Marcus.

[24+] **AUDIO-VIDEO RECORDERS OF ARIZONA**; also *REMOTE RECORDING*; 3830 N. Seventh St.; Phoenix, AZ 85014; (602) 277-4723. Owner: Floyd Ramsey. Studio Manager: Tim Ramsey

[24+] **AUSTIN RECORDING STUDIO**; also *REMOTE RECORDING*; 4606 Clawson Rd.; Austin, TX 78745; (512) 444-5489. Owner: Wink Tyler. Studio Manager: Wink Tyler

[24+] **AUTOMATA CDI PRODUCTION STUDIOS**; 1046 W. 42nd St.; Houston, TX 77018; (713) 680-2948. Owner: Harry Leverette. Penny Smith. Studio Manager: Harry Leverette

[24+] **BENSON SOUND, INC.**; 3707 S. Blackwelder, Oklahoma City, OK 73119; (405) 634-4461. Owner: Larry R. Benson. Studio Manager: Linda Groves

[24+] **BOYDSOUNDSTUDIO**; PO Box 682; Wylie, TX 75098; (214) 442-1620. Owner: Anthony D. Boyd. Studio Manager: Anthony D. Boyd

[24+] **JIM BRADY RECORDING STUDIOS**; 25 E. Glenn St.; Tucson, AZ 85705; (602) 791-3884. Owner: F. James Brady. Studio Manager: Diane J. King

[24+] **BRASSWIND RECORDING STUDIO, LTD.**; 2551 Texas Ave.; Shiloh Pl. Shopping Cntr., Ste. F; College Station, TX 77840; (409) 693-5514. Owner: David O. Cooper. Studio Manager: Candy Page. Engineers: David O. Cooper, James Haislet, Jeff Cowan. Dimensions: Room 1: studio 18 x 28, control room 13 x 16. Room 2: studio 20 x 50. Audio Recorders: MCI JH-24 24-track. (2) MCI JH-110B-VP 2-track, Sansui PC-X1 2-track Tricore digital PCM. Cassette Recorders/Duplicators: Nakamichi MR-a. Telex 6210 stereo duplicator. Synchronization Systems: Adams-Smith Zeta 3, Adams-Smith 2600 Echo, Reverb, & Delay Systems: Ursula Major 8 x 32 digital reverb, Lexicon PCM70, MIDVerb II, ART DR1, DOD Electronics DSP-128, DeltaLab Efectron, ADM 1024 digital delay, Eventide H949 Harmonizer. Other Outboard Equipment: (4) dbx 160X compressors, dbx 161 compressors, Valley People DynaMite stereo, Ashly parametric EQ, White 1/3-octave EQ w/active elec. crossovers, (2) Omni Craft GT-4A gates, BBE 802. Microphones: AKG, Beyer, C-ducer, Crown PZM, E-V, Neumann, Sennheiser, Shure, Sony. Monitor Amplifiers: Crown PSA2, Crown D75, BGW 150, QSC 1200. Monitor Speakers: JBL 4430, Auratone cubes. Musical Instruments: Kurzweil 250, Kurzweil 150, Yamaha DX7, E-mu Emax HD rack, Roland D-50 synthesizer, LinnDrum, Fender Precision bass, Gibson Les Paul Artisan guitar, Princeton Reverb II amp, Sonor Signature Series drums (8-pc. kit). Other MIDI Equipment: Mark of the Unicorn Professional Performer and Composer software, Southworth Total Music and MIDIpaint software, Jambox/4+, Digidesign Q-Sheet. Rates: Available upon request

[24+] **BUFFALO SOUND STUDIOS**; 910 Currie St.; Fort Worth, TX 76107; (817) 335-7733. Owner: Jim Hodges. Studio Manager: Buff Haskin

[24+] **CARAVAN OF DREAMS RECORDING**; 312 Houston St.; Fort Worth, TX 76102; (817) 877-3000; (817) 877-3332. Owner: The Caravan of Dreams, Inc. Studio Manager: Maria Golia

[24+] **CECCA SOUND**; 3198 Royal Lane, Ste. 104; Dallas, TX 75229; (214) 350-6945. Owner: Charley Pride. Studio Manager: Bob Pickering, Ric Web

[24+] **CEDAR CREEK RECORDING**; also *REMOTE RECORDING*; 5012 Brighton Rd.; Austin, TX 78745; (512) 444-0226. Owner: Austin Media Productions, Inc. Studio Manager: Fred Remmert

[24+] **CEREUS RECORDING**; also *REMOTE RECORDING*; 1733 E. McKellips Rd., Ste. 7; Tempe, AZ 85281; (602) 990-8163. Owner: Allen & Dianne Moore. Studio Manager: Dianne Moore



CHATON RECORDINGS  
Scottsdale, AZ

[24+] **CHATON RECORDINGS**; also *REMOTE RECORDING*; 5625 E. Nauni Valley Dr.; Scottsdale, AZ 85253; (602) 991-2802. Owner: Ed & Marie Ravenscroft. Studio Manager: Marie S. Ravenscroft. Engineers: Andy Seagle, Steven Escalier, Ed Ravenscroft, Marc Seagraves, Bob G. Frasier. Dimensions: Studio A: control room 13 x 17, room 1 13 x 24, room 2 13 x 15. Studio B: control room 15 x 18, room 1 20 x 20. Studio C: 25' mobile truck, control room 8 x 15. Mixing Consoles: Trident 80C 32 x 24 x 48 w/DISKMIX moving fader automation, Trident 80B 30 x 24 x 24, Soundcraft 600 16 x 16 x 8, Soundcraft 800 30 x 8 x 24. Audio Recorders: Otari MTR-90II 24-track, Otari MTR-90 16/24-track, Otari MX-80 24-track, Otari MX-70 8-track 1", (3) Otari MTR-10, Otari MTR-10C w/center-track SMPTE, Otari MTR-12II 1/2", (2) Otari MX-5050B, Tascam 42, (2) TEAC 1230S 1/4-track, (2) Sony PCM-F1 w/JVC VHS VTR, (2) Nakamichi DMP-100 w/JVC VHS VTR. Cassette Recorders/Duplicators: (3) Tascam 122 MkII, (7) Tascam 122 Noise Reduction Equipment: 2 channels Dolby SR Synchronization Systems: (3) Adams-Smith Zeta III, BTX Cypher Echo, Reverb, & Delay Systems: Lexicon 224X w/LARC, Lexicon 200, (7) Lexicon PCM70, (5) Yamaha SPX-90, (3) Lexicon PCM42, DeltaLab DL-4, Eventide 910, Eventide H949 w/keyboard, Lexicon PCM60, Lexicon Prime Time. Other Outboard Equipment: (2) Valley People DSP, (2) TC Electronics 2240 para EQ, (2) Valley People Maxi Q, (2) UREI 535 graphics, (2) dbx 900 rack w/assorted comp/limiters, gates, EQ, DSP, Aphex "C" line mixers, (4) dbx 166 dual comp/limiter, UREI 1178, TC Electronics dual para EQ, (2) Omni Craft GT-4 quad gates. Microphones: AKG, Neumann, Sennheiser, Shure, E-V, Beyer, Sony, Crown PZM, Crown PML. Monitor Amplifiers: Bryston, UREI, Ramsa, BGW, AB Systems. Monitor Speakers: Tannoy FSM, Yamaha NS-10M, Tannoy PBM 6.5, Tannoy LGM, Tannoy SM12B, Auratone Musical Instruments: Gretsch drums, E-mu Emulator II+HD, Gonbop congas, Kurzweil 250 RMX w/SUPERAMP/QLS/library, (3) E-mu Emax-HD, E-mu SP12 turbo DM, Oberheim Matrix-12, (2) Oberheim Matrix-6R, Roland D-550, Akai MPC-60 DM/Seq, Roland TR-707, LinnDrum w/MIDI, (2) Yamaha TX816 FM racks, Yamaha TX81Z FM, Sequential Circuits Prophet-5, Roland Keyboard Vocoder, Baldwin 7' grand, Steinberg bass, Baldwin 6'3" grand. Other MIDI Equipment: (2) Macintosh SE w/accelerator board, 4 Meg RAM and 20 MB HD, Kahler Human Clock, J.L. Cooper MIDI switchers, Roland Octapad, Yamaha KX76, Yamaha KX88 controllers, Oberheim XK controller, (2) Southworth Jambox/4+, Motu Performer and Composer, Blank Software Alchemy sample file editor, (2) J.L. Cooper 8-ch MIDI-to-CV/gate converter, Mark of the Unicorn, Southworth, Opcode, Digidesign. Video

Equipment: Sony WatchCam, (3) Ikegami monitors, Videotek monitor, JVC BR7700U 1/2" VHS, JVC CR850U 3/4" Beta w/remote, (3) Mitsubishi 1/2" VHS, Sony monitors. Other: Clear Com wireless, (2) Wireworks 27-ch. 2-way mic splitters, Technics SLP1200 CD player, Sound Ideas SFX/music libraries, Symetrix phone patch, Sony PCM-2500 R-DAT digital mastering. Rates: Upon request. Extras & Direction: 48-track capability; 1/2" mastering, PCM digital processors, R-DAT digital mastering 24- to 24-track 2" transfers, audio post-production for video, A.D.R., "C.A.T." 24-track mobile unit. Offering the finest in state-of-the-art recording by a dedicated staff. For further information, call Marie Ravenscroft at (602) 991-2802.

[24+] **THE CHURCH STUDIO**; 304 S. Trenton; Tulsa, OK 74120; (918) 582-0520. Owner: RGM Inc. Studio Manager: Steve Ripley, Ron Getman

[24+] **CONTADERO AUDIO**; Canada 131; Contadero Cuajimalpa, Mexico D.F. 05500; (905) 812-0750. Owner: Luis Gil, Eugenio Toussant. Studio Manager: Luis Gil

[24+] **COOK SOUND & PICTURE WORKS**; 4801 Woodway, #355W; Houston, TX 77056; (713) 960-8222. Owner: Dwight L. Cook. Studio Manager: Dwight L. Cook. Extras & Direction: Cook Sound and Picture Works of Houston, Texas is a full-service audio production company serving the motion picture, television, advertising and corporate communication industries. Cook's audio-for-video toolbox includes a Synclavier direct-to-disk tapeless studio and The Boss decision list computer editor. Cook Sound and Picture Works is the only facility in the Southwest using this technology of the future. Cook Sound and Picture Works is a true production company, we can help you with your creative ideas. Our chief engineer Mark Meyer and engineer Bill Wade are both producers in their own right. Ted Mason, our on-staff composer uses the Synclavier to score soundtracks with and without picture. Our original music is in great demand. We have achieved many awards and credits. Our strength as a production company is our staff. Contact Larry Zack director of marketing and customer relations for more information.

[24+] **CRYSTAL CLEAR SOUND**; 4902 Don Dr.; Dallas, TX 75247; (214) 630-2957. Owner: Merle D. Baker. Studio Manager: Keith Rust. Engineers: Keith Rust. Dimensions: Studio 45 x 35, control room 23 x 17. Mixing Consoles: MCI JH-636 automated 28 x 24. Audio Recorders: MCI JH-24 24-track, MCI JH-110B 2-track, Studer A-810 2-track, Ampex 440 2-track. Cassette Recorders/Duplicators: KABA, Denon DR-M3 Noise Reduction Equipment: Dolby SP Series 24-track, dbx 410 Series 24-track, Dolby 361 Series 2-track, Echo, Reverb, & Delay Systems: Lexicon 200 digital reverb, Yamaha SPX90, Lexicon PCM41 delay, Korg SDD-3000 delay, Eventide H910 Harmonizer. Other Outboard Equipment: Orban 526A de-esser, dbx 160X compressor, dbx 165 comp/limit, Kepex gate, Gain Brain compressor, Orban 622 parametric 2-channel Microphones: Neumann U87, AKG 414, Shure SM81, Sennheiser 421, Sennheiser 441, Shure SM57, E-V RE15, E-V RE20, Sony ECM-33, AKG 452, Neumann KM84. Monitor Amplifiers: BGW 750, Crown D150A, Crown D75. Monitor Speakers: UREI 811, JBL 4311, Auratone T-5, Yamaha NS-10. Musical Instruments: Baldwin SD-10 9' concert grand, Fender Precision bass, misc. percussion, Hammond B3 w/Leslie cabinet. Other: Macintosh based MIDI prod. room w/staff arranger/composer/programmer, real-time cassette duplicating. Rates: Very reasonable! Please call.



DALLAS SOUND LAB  
Irving, TX

[24+] **DALLAS SOUND LAB**; 6305 N. O'Connor Blvd.; Irving, TX 75039; (214) 869-1122. Owner: Russell Whitaker. Studio Manager: Johnny Marshall. Engineers: Tim Kimsley, David Rosenblat. Dimensions: Room 1: studio 46 x 52, control room 24 x 21. Room 2: studio 10 x 8, control room 16 x 14. Room 3: studio 24 x 12, control room 28 x 26. Mixing Consoles: SSL 6056 48 x 32 automated w/Total Recall, MCI

JH-636 24 x 24, MCI JH-536 28 x 24 automated Audio Recorders: Sony PCM-3324 24-track digital, Otari MTR-90 24-track, MCI JH-114 24- and 16-track, MCI JH-110 3-track 1" video layback recorder, (2) Otari MTR-10 4- and 2-track, (2) MCI JH-110 4- and 2-track Cassette Recorders/Duplicators: Studer Revox B710, Sony TC-K444, (8) Sony TCFX-45 Noise Reduction Equipment: Dolby 56-channels, dbx 24-channels Synchronization Systems: BTX Softouch, Audio Kinetics Q-Lox 3.10 Echo, Reverb, & Delay Systems: AMS RMS-16 digital reverb, AMS DMX-1580S digital delay/harmonizer/sampler, Lexicon 224 digital reverb, (2) Yamaha SPX90 digital processor, Yamaha REV7 digital reverb, Lexicon PCM41 digital delay, Lexicon PCM42, Lexicon PCM70 digital delay, Lexicon PCM70 digital reverb, Lexicon PCM60 digital reverb, Quantec room simulator. **Other Outboard Equipment:** Compressors, limiters, gates, expanders, EQs and exciters by: UREI, Allison, dbx, SSL, Valley People, Dietz, Aphex and Yamaha. Microphones: Full array of mics by Neumann, Sennheiser, Sanken, AKG, RCA, E-V, Sony, Crown, Beyers, Shure. Vintage tube mics by Neumann, AKG, RCA Monitor Amplifiers: Crown Delta Omega 200, assorted amps by Yamaha, Crest, Crown and BGW. Monitor Speakers: (2) UREI 813-B, (2) Sierra, (6) Yamaha NS-10, (2) Tannoy SRM-12, (6) Auratone 5L, (2) JBL 4330. Musical Instruments: Steinway 9' concert grand piano, 48-voice digital production system, Hammond B3 w/ Leslie, (2) Yamaha DX7 w/DX-Pro software, Yamaha QX5, Yamaha RX21, Yamaha TX7, Yamaha TX816, Kurzweil 250, Oberheim Xpander, Linn 9000, LinnDrum, (2) Sequential Circuits Prophet-5 w/1005 sequencer, Korg Poly-800, (2) Moog Minimoog. Video Equipment: Video monitors by Sony, NEC, MGA, Barco. Other: 16/35mm high-speed projectors, dubbers and master recorders by MTM. **Extras & Direction:** Studio A up to 48-track digital/analog recording with interlock to video or film. Services include 40-piece capacity orchestra scoring to picture, ADR, SFX assembling, video sweetening and album/jingle production with audio and video tie-lines to three sound stages (15,000/6,000/3,000 sq ft) for live TC shows, concerts, etc. Studio B: up to 24-track recording capability with iso-booth for voice-over work, overdubs and mixing. Studio C: up to 24-track digital/analog recording capability with interlock to video or film with large iso-booth. Services include synthesizer scoring to picture, ADR, SFX assembling, video sweetening and mixing to picture. Studio D: Synclavier hard disk-based digital music production system with 32-voice stereo synthesis/16-voice stereo sampling. System includes MIDI, SMPTE and guitar interface with up to 200-track capability. Dallas Sound Lab is designed to meet the complete needs of clientele dealing with any aspect of audio production ranging from simple voice-over recording to complex 48-track digital/analog recording to video or film.

## Digital Services

DIGITAL SERVICES REMOTES  
Houston, TX

[24+] **DIGITAL SERVICES REMOTES, also REMOTE RECORDING;** 2001 Kirby Dr., Houston, TX 77019; (713) 520-0201; (713) 664-5258. Owner: John A. Moran Studio Manager: Kathleen Taylor. Engineers: Gary Moon, Lizzie Harrah. Dimensions: Remote facility, control room 8 x 20 x 8. Mixing Consoles: MCI 636 36 x 24 (automated) Audio Recorders: Sony PCM-3324 24-track digital, Otari MTR-90II 24-track, Otari MTR-12 4-/2-track, Sony PCM-1610 2-track digital Cassette Recorders/Duplicators: Nakamichi Echo, Reverb, & Delay Systems: Lexicon PCM70, Yamaha REV7 reverb, others available. **Other Outboard Equipment:** dbx 160X compressor, dbx 166 compressor, RTS 12-ch dist amp, RTS Intercom, additional equipment as specified for job. Microphones: Full array of Neumann, AKG, Shure, Sennheiser, E-V, Countryman, Sony, Crown. Monitor Amplifiers: QSC 3500 w/White 1/3-octave EQ Monitor Speakers: JBL 4411, Yamaha NS-10, Auratone 5C. Video Equipment: 2-ch. color video monitoring w/ cameras, Lynx TimeLine synchronizer/Time Code generator, color bar generator, video distribution amp, Sigma video sync generator. **Extras & Direction:** 300' 54-pair snake plus 200' 9-pair snake, 16-line outputs from truck, 3-way mic split box using Jensen transformers. Truck can run on 208VAC or 240VAC, 1 or 3 phase and distribute transformer isolated

power The truck is configured for each remote per the client's needs. We have done remote audio for live satellite feeds, multi-track recording for record and video and mixing. Credits: 7th Van Cliburn Piano Competition, Edwin Hawkins Music and Arts Seminar, Red Hot and Blue, Norway in Texas PBS Special, *La Matrie Live!* more credits on request. Our rates are very competitive.

[24+] **DOWNTOWN SOUND; also REMOTE RECORDING;** 1701 N. Market St., Ste. 203; Dallas, TX 75202; (214) 747-0397. Owner: Oasis Productions, Inc. Studio Manager: Jonathan Cluts. Engineers: Jonathan Cluts, Brad McQuiddy. Dimensions: Room 1 studio 14 x 20, control room 14 x 30. Room 2: studio 14 x 20, control room 14 x 12. Mixing Consoles: Soundcraft Producer Series 1600 24 x 24, Studiomas-ter 16 x 8 x 2. Audio Recorders: Otari 24-track, Studer A80 Mk1 16-track, Sony/MCI JH-110 2-track (1/4" and 1/2"). Sansui Tricode PCM 2-track (F1 compatible), JVC VHS Hi-Fi video cassette, Beta Hi-Fi video cassette. Cassette Recorders/Duplicators: Tascam 122B, Nakamichi BX-1, Yamaha MT44 4-track Noise Reduction Equipment: dbx 8 channels, access to Dolby SR Synchronization Systems: Adams-Smith Zeta 3 system w/custom software Echo, Reverb, & Delay Systems: Klark-Teknik DN-780, Lexicon PCM60, Yamaha REV7, Yamaha SPX90, Lexicon Prime Time II w/MEOI digital delay, ADA 1 28 digital delay, (2) Efectron II 1024 digital delay. **Other Outboard Equipment:** LA 2A tube comp/limiter, dbx 900 rack, (2) para. EQs, (2) de-essers, (2) noise gates, comp./gate, UREI 1176LN, (4) Valley People Dyna-Mite (8 channels), Klark-Teknik dual 1/3-octave EQ, Klark-Teknik dual octave EQ, (2) dbx 165A comp/limiter, (2) dbx 160X comp/limiter, Eventide 910 Harmonizer, Scholtz Rockman rack mount. Microphones: (2) AKG C12 tube, (2) Neumann U67 tube, Telefunken U47 tube, Neumann 249C tube, Neumann 269C tube, Neumann KM54 tube, (2) Neumann UM53 tube, (2) AKG 414, (2) Neumann U87, (4) Sennheiser 421, plus assorted AKG, Sony, Shure, Countryman Monitor Amplifiers: (2) Crown Micro-Tech 1000, Crown DC150, Rane headphone amp. Monitor Speakers: Westlake BBSM10 (A), Westlake BBSM6 (B), JBL 4401, Yamaha NS-10 w/tissue of your choice, JBL 4312, (2) Auratone Musical Instruments: Yamaha DX7, Yamaha TX816 rack, Oberheim DXP1 sample player, Oberheim OBXa w/MIDI, Roland digital piano module, Roland Planet 5 module, Akai S900 sampler, Casio CZ-1000, Yamaha KX88 keyboard controller, E-mu SP12 w/Turbo and drum filler, Yamaha RX11, Roland DDR30 w/pads, Roland TR-727, Octapad, LinnDrum, Fender Rhodes suitcase 73 w/pre-amp. **Other MIDI Equipment:** Yamaha OX1, Apple/Macintosh II, IDS/XT PC (IBM compatible), Apple II Plus w/memory expansion, Yamaha CX5M music computer all software. All computers are fully equipped and MIDI compatible. We have numerous sequencing programs available. We also have custom software with MIDI/SMPTE synchronization. **Extras & Direction:** Downtown Sound is a full-service recording studio offering everything from sampling and MIDI sequencing to live band recording. We have an in-house equipment rental company so that we can service whatever needs a client has.

[24+] **EAGLE MOUNTAIN RECORDING STUDIO;** PO Box 699; Newark, TX 76071; (817) 489-2226. Owner: Kenneth Copeland Ministries. Studio Manager: Win Kutz.

[24+] **EL ADOBE RECORDING;** 5301 El Paso Dr., El Paso, TX 79905; (915) 772-7333. Studio Manager: Robert Hernandez.

[24+] **FUTURE AUDIO;** 7700 Carpenter Freeway, Ste. 1000; Dallas, TX 75247; (214) 630-8889; (214) 263-0746. Owner: Marcos Rodriguez. Studio Manager: Randy Adams. Engineers: Randy Adams, Tony Rodriguez, Conan Reynolds, Gerard Hairston, Doug Phelps and independents. Dimensions: Room 1 studio 42 x 51, control room 34 x 37. Room 2 13 x 8. Room 3 studio 20 x 35, control room 14 x 16. Mixing Consoles: NEOTEK Series IIC custom engineered 52 x 24 w/disk based SMPTE/MIDI automated faders, FX and FX returns. Audio Recorders: Otari MTR-90 24-track, Ampex ATR 102 2-track, Otari 5050 2-track, Stephens 821B 24-track Cassette Recorders/Duplicators: (2) Technics M85 MkII 2-track, (3) Nakamichi MR-II, (2) TEAC 518X Echo, Reverb, & Delay Systems: (2) Alesis MIDiver II, (2) Ursa Major 8 x 32 digital reverbs, Ecoplate III reverb, Lexicon Super Prime Time DDL, Ursa Major Space Station, Yamaha SPX90, Yamaha REV5, Ursa Major MSP 126 stereo processor, harmonizer. **Other Outboard Equipment:** Aphex processor, (2) ADR stereo pan modules, (2) ADR compressor/limiters, ADR parametric EQ, (4) UREI LA-4A compressor/limiters, UREI 1176 compressor/limiter, Eventide Ormpressor, Orban de-esser, 622B parametric EQ, 672A parametric EQ, 254 stereo synthesizer, UTP-1 tube preamp, Innovative tube DI. Microphones: AKG C-24 stereo tube, (5) Sennheiser 421, (5) AKG 414, (5) AKG 451, Beyer 201, AKG D-12, (4) Shure SM57, Neumann U87, (2) Crown PZM, (4) Countryman DI boxes, Crown GLM, (2) AKG 414ULS. Monitor Amplifiers: UREI 6500, (2) Crown PS200, Crown 75 Crest 5001 Monitor Speakers: (2) UREI 813, (2) Auratone cubes, (2) Yamaha NS1000, (2) JBL 4311, (2) Tannoy NFM-8. Musical Instruments: Kawai 7'4" grand piano, Fender Rhodes, Sequential Circuits Prophet-5, Yamaha TX modules, Yamaha DX7, Roland D-50, Casio CZ-101, Korg Poly-600. **Other MIDI Equipment:** Complete 16 x 12 MIDI studio w/vocal booth & main control room tie-lines. **Other:** Complete radio production room available.



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[24+] **GARZATIEMI INT'L MUSICAL PRODUCTIONS**; PO Box 10161, CUH Station, Humacao, PR 00661; (809) 850-7013; (809) 852-7136. Owner: Xavier & Yamira Garza. Studio Manager: Yamira Garza

[24+] **GOODNIGHT AUDIO, INC.**; 11260 Goodnight Ln., Dallas, TX 75229; (214) 241-5182. Owner: Gordon Perry. Studio Manager: Don Seay

[24+] **GRAVITY RECORDING STUDIO**; 141 Spur Pl.; Nogales, AZ 85621; (602) 281-1746. Owner: Miguel Crisantes. Studio Manager: Ed Pluess. Engineers: Miguel Crisantes, El Pluess, Bel Contreras, Bobby Astengo. Dimensions: Studio 19 x 39, control room 19 x 23. Mixing Consoles: Neve Series V 36 x 48. Audio Recorders: Otari MTR-90 24-track, Otari MTR-10 2-track, Tascam 36 2-track, Sony DTC-1000ES 2-track (DAT). Cassette Recorders/Duplicators: Tascam 122 2-track w/Dolby, Tascam 112 2-track w/Dolby C Echo, Reverb, & Delay Systems: Lexicon 224 reverb w/all programs, Lexicon 200 w/all updates, Lexicon Prime Time, Lexicon Prime Time II, Ecoplate II, DeltaLab DL-1, Eventide H949 Harmonizer. Other Outboard Equipment: Valley People limiter/gate, UREI 1178 limiter, dbx 162 stereo compressor/limiter, dbx 165 Over-Easy compressor/limiter, Aphex compeller, MXR doubler/flanger, EXR exciter, Omni Craft 4-ch gate. Microphones: (3) AKG 414EB, (2) AKG C451E, AKG P12E, (5) Sennheiser MD-421, (2) Neumann U89, Neumann U87, KMI 43665, (2) Shure SM57, (2) E-V CS-15E, Beyer, TEAC, E-V, Audio-Technica, Sony ECM-70. Monitor Amplifiers: UREI 6500 w/UREI filters, McIntosh 2200, Pioneer SA-3000. Monitor Speakers: (2) UREI 811, (2) Tannoy SRM12B, (2) E-V Sentry 100. Musical Instruments: Kimball 6'9" grand piano, Hammond B3 organ w/Leslie cabinet, Kurzweil 250 w/Macintosh computer, Linn 9000, Roland D-50 synth, Roland JX-10 synth, Roland JX-8P synth, Yamaha DX7 synth, Yamaha TX7 synth, Oberheim OB-8 synth, Synergy synth, Ludwig drum set, Alesis drum set, Roland TR-707 drum set, Linn drum set, Ovalton, Fender, Diamond acoustic/electric/bass guitars. Other MIDI Equipment: Linn 9000, Roland MSQ-100. Other: Gallien-Krueger amp, Peavey Musician amp. Rates: \$60/hr. call for package rates

[24+] **HOLMAN SOUND AND DESIGN**; 514 Fry Rd., Katy, TX 77450; (713) 579-2556. Owner: Skip Holman. Studio Manager: Skip Holman

[24+] **I AM THAT I AM RECORDS**; 2107 N. Haskell Ave., Dallas, TX 75204; (214) 826-0762. Owner: Arris D. Wheaton. Studio Manager: Chris Wheaton

[24+] **IMAGEN-INGENIERIA ELECTROACUSTICA DEL CENTRO**; also **REMOTE RECORDING**; Capitan Caldera, No. 408; San Luis Potosi, S.L.P. Mexico; (481) 303-50. Owner: Ing. Jorge Fernandez 6. Studio Manager: Jorge Fernandez Noyola. Engineers: Jorge Fernandez Noyola, Daniel Fernandez Noyola, J. Refugio Garcia Campos. Dimensions: Studio 30 x 40, control room 30 x 15. Mixing Consoles: TAC Scorpion 28 x 24, Tascam 320 20 x 8. Audio Recorders: Otari MTR-90 24-track, Tascam 80-8 2-track, hr, Studer PR-99 MkII 2-track, Philips Pro-12 2-track, Technics RS-1500 2-track. Cassette Recorders/Duplicators: Tascam 122, BIC-T-2. Noise Reduction Equipment: dbx 24-ch, (6) Dolby A361 Echo, Reverb, & Delay Systems: (2) Yamaha REV7, (2) Yamaha SPX90, MICMIX Master-Room, DeltaLab TimeLine. Other Outboard Equipment: Aphex Aural Exciter, Thompson VE-1 Vocal Eliminator, (6) Yamaha GC2020B limiters, (8) Loft 400B noise gates, (2) TEAC GE-20 equalizer, (4) TEAC MH-40 multi-headphone amplifier, (8) Tascam MU-40 meter unit, RCA power line monitor, JBL 5234 frequency dividing network, (8) Tascam LA-40 low-impedance adaptor. Microphones: (2) Neumann U87, (4) AKG D224E, (3) Sennheiser MD-441, (5) Shure SM81, (4) Sony ECM-33F, (9) Shure SM57, (4) Crown PZM-30GPG, (2) Sony ECM-989 stereo, Nakamichi CM-100, Nakamichi CP-2, Nakamichi CP-4, Nakamichi CP-1, (2) JVC M510, (6) Shure Super Pro. Monitor Amplifiers: Crown DC-300A Series II, Crown D75, Denon POA-1500, Nikko Alpha 3. Monitor Speakers: JBL 4333A, Auratone 5C cube, Yamaha NS-10M, Altec 755E, Altec 604E. Musical Instruments: Ensoniq ESQ-1, Yamaha CP30, Simmons drums, more instruments available. Video Equipment: (2) JVC CR-850 3/4" recorder, (3) Sony SL-300HF VCR, (2) Sony KV-2093R monitor. Other: Sony PCM-601ESD digital processor, TEAC PD-11 CD player, ADC 16/1 CD player, equip for outdoor recording and sound reinforcement. Rates: \$40/hr

[24+] **INSIDE TRACK STUDIOS**; also **REMOTE RECORDING**; 313 N. Locust; Denton, TX 76201; (817) 566-2367. Owner: Jay Miller, Lynne Miller, Jim Vincent. Studio Manager: Jim Vincent. Engineers: Jim Vincent, Jay Miller. Dimensions: Studio 20 x 30, control room 17 x 14. Mixing Consoles: Trident Series 70 28 x 24. Audio Recorders: Studer A80 2-track digital, Sony PCM-2500 2-track DAT, Sony 701-ES 2-track digital, Otari MX-5050 MkII-2 2-track. Cassette Recorders/Duplicators: Akai VX-912, (2) Tascam 122B Synchronization Systems: Adams-Smith Zeta III, Echo, Reverb, & Delay Systems: Lexicon 200 digital reverb, Yamaha REV7 digital reverb, Lexicon PCM60 digital reverb, Yamaha SPX90, Effectron 1024, Effectron 256, Korg SDP-3000. Other Outboard Equipment: Orban "Optimod" stereo comp/limiter/d-e-esser, (2) UREI LA-4A, (2) dbx 160 compressor, (2) dbx 160X comp/limiter, dbx 900 noise gate rack, Aphex Aural Exciter, Ashly SC-66 stereo parametric EQ, Eventide H910 Harmonizer Micro-

# S O U T H W E S T 24+ TRACK STUDIOS

phones: Neumann, AKG, Sennheiser, Crown PZM, Beyer, Shure, TEAC, E-V. Monitor Amplifiers: Crown, Akai, Hafler, Carver. NAD Monitor Speakers: UREI 813, Yamaha NS-10M studio, JBL 4312, Auratone, JBL 4425 Musical Instruments: Kawai 6" grand piano, Linn 9000 drum comp/sequencer, Yamaha DX7, Oberheim Xpander, Ensoniq Mirage-DSK, Roland D-50, Roland MTR-32 sound module. Other MIDI Equipment: Atari 1040ST w/full MIDI package and SMPTE, Yamaha DX Pro software. Video Equipment: JVC 6650 3/4", Beta and VHS 1/2". Sony KX-2501A 25" monitor

[24+] **INTERFACE ONE RECORDING STUDIO**; also **REMOTE RECORDING**; 914 Lake Air, Waco, TX 76710; (817) 776-7825. Owner: Bob Haley. Engineers: Bob Haley, Troy Von Haefen. Dimensions: Studio 24 x 35, control room 20 x 17. Mixing Consoles: NEOTEK Series II 56 x 24 (modified) Audio Recorders: Otari MTR-90 24-track, Tascam 8516B 16-track, Otari 5050B 2-track. Cassette Recorders/Duplicators: Onkyo TA-2058 3-head, Onkyo TA-2028, (2) Sony TC-FX25. Noise Reduction Equipment: (2) Valley People Dyna-Mite, dbx, Rocktron RX2H. Synchronization Systems: AMR, Sequential Circuits 440 w/Macintosh II/20M hard disk Echo, Reverb, & Delay Systems: Lexicon Prime Time, MIDVerb, (2) XTCS, Yamaha SPX90, AMR, ART Proverb, Master-Room 305. Other Outboard Equipment: EXR SP11 Exciter, (2) UREI LA-3A Microphones: Neumann U87, (2) Sony, (2) AMR, (2) Crown PZM (Black), (4) Sennheiser 421, (2) E-V PL95, AKG D12, AKG 451 Monitor Amplifiers: QSC A-42, (2) AMR RMA-200, (2) Crown D150 Monitor Speakers: (2) E-V Sentry 500, (2) AMR PRM-208, (2) Auratone. Musical Instruments: (2) Sequential Circuits Prophet-VS, Roland MKS-70, Roland MKS-20, Ensoniq EPS, Yamaha FB01, Scholz Rockman sustainer, Yamaha KX88, Sequential Circuits Studio 44, Chacking 7" grand. Other MIDI Equipment: Macintosh Mac+, Macker of the Unicorn Performer software. Rates: \$40/hr w/block rates available

[24+] **JAM CREATIVE PRODUCTIONS, INC.**; 5454 Parkdale Dr., Dallas, TX 75227; (214) 388-5454. Owner: Jonathan & Mary Lyn Wolfert. Studio Manager: Mark D. Holland. Engineers: Brian Hamilton, Jonathan Wolfert, Mark Holland. Dimensions: Room 1: studio 36 x 41, control room 24 x 21. Room 2: studio 24 x 32, control room 18 x 15. Tom Hixley designs. Mixing Consoles: Harrison MR4-52 44 x 24 automated, MCI JH-636 32 x 24 automated. Audio Recorders: MCI JH-24 24-track, (3) Studer A810 2-track (one w/center ch SMPTE), MCI JH-110A 4- and 2-track 1/2", (4) MCI JH-110 A/B 2-track, MCI JH-110A 1-track. Cassette Recorders/Duplicators: Yamaha C200, Technics, Akai cassette machines, Ampex 3200 high-speed reel-to-reel duplication system. Noise Reduction Equipment: (61) dbx 911 NR cards in dbx 900A main frames. Synchronization Systems: Adams-Smith 2600 synchronizer/reader/generator Echo, Reverb, & Delay Systems: Lexicon 200, (2) Klark-Teknik DN780, Lexicon Model 93 DDL, (2) Yamaha SPX90, Yamaha REV7, EMT gold foil plate. Other Outboard Equipment: (8) dbx 903 compressor/limiters, (4) dbx 902 de-essers, (4) Gain Brains, (2) Kepex, (2) UREI 1176LN, (2) Valley People Dyna-Mite, Orban 621B parametric equalizer, (2) Symetrix TI-101 telephone interface, (2) UREI 527-A graphic equalizers, Orban 526A de-esser. Microphones: (3) Neumann TLM1701, (3) Neumann U87, (4) Neumann U47, (2) Neumann KM88, (2) Neumann KM84, (4) AKG 414, (5) Sennheiser MD-421, (5) Shure SM57, E-V RE20 Monitor Amplifiers: (5) Hafler P500, (2) Crown D60 (alternates), (2) BGW 250C Monitor Speakers: (4) Hildy-Kinoshita System 2, (2) Westlake BBSM 6, (2) JBL 4331, (2) JBL 4313, (4) Auratone 5-C. Musical Instruments: Yamaha DX7, Roland Jupiter-8, (2) Kawai 6 pianos, Moog Minimoog Video Equipment: Proton 602M 25" monitor, Sony KV-1954R 19" monitor, Sony VO-5600 3/4" video recorder, JVC HR-7100U VHS VCR. Rates: Call Mark

[24+] **JAMA RECORDING**; also **REMOTE RECORDING**; 2217 C Michigan Ave., Arlington, TX 76013; (817) 265-4300; (817) 277-4341. Owner: Jane Alexander. Studio Manager: Craig Webb, Ira Wilkes

[24+] **JANUARY SOUND STUDIOS, INC.**; 3341 Towerwood Dr., Ste. 205; Dallas, TX 75234; (214) 243-3735. Owner: January Sound Studios Inc. Studio Manager: Dennis Lowe (contact Jan Parker for bookings). Engineers: Dennis Lowe, Robert Wechsler, Chris Green, Barry Dickey, Russ Alvey, Daniela DeStefanis. Dimensions: Room 1: studio 22 x 35, control room 18 x 22. Room 2: studio 12 x 15, control room 14 x 20. Room 3: control room 15 x 17. Mixing Consoles: (2) MCI 536 D AF/LM 36 x 32, Soundcraft Series 1600 24 x 16. Audio Recorders: 3M M-81-32 32-track digital, (2) 3M M-81-4 4-track digital (w/digital editing), Sony/MCI JH-24 4-track, (4) MCI JH-110B 2-track (1/2" and 1/4" heads), MCI JH-110A 4-track, Sony F1 2-track PCM digital, Sansui X-1 2-track PCM

digital, Tascam MS-16, Tascam 52 2-track (1/4"). Cassette Recorders/Duplicators: KABA duplication systems, (5) Akai GX-ASX, Technics M95, Nakamichi MR-1. Noise Reduction Equipment: Dolby A54 channels, dbx 30 channels. Synchronization Systems: MCI JH-45/48 interlock and SMPTE time code generator Echo, Reverb, & Delay Systems: Lexicon 224, Lexicon PCM70, Lexicon PCM42, Klark-Teknik DN780, Alesis Microverb, EMT140, EMT240 (Gold Foil), Eventide 1745M, Eventide H949, (2) Eventide H910, (2) Eventide F1201, Yamaha D1500, Yamaha REV7, Yamaha REX50, ART 01A, ART DR1, Sequential Circuits Pro-FX 500, Ursula Major Space Station SST 282, Ecoplate II, Rockman stereo chorus/delay. Other Outboard Equipment: (2) dbx 165A, (2) dbx 165, (4) dbx 160, (4) dbx 904, dbx 905 EQ, dbx 902, (6) Valley People Dyna-Mite, UREI 535 graphic EQ, UREI 530 graphic EQ, UREI 546 parametric EQ, Teletronix LA-2A, UREI LA-3A, (2) Orban 621B parametric EQ, US Audio Gate, Bercus-Berry Electronics 202R, ADR F769 X-R Vocal Stretcher, Burwen TNE 7000A, Burwen DNF 1210A. Microphones: (3) Neumann U87, Neumann U47, Neumann M49, AKG C24 stereo tube, (7) AKG C414EB, (4) AKG C451E, AKG The Tube, E-V CS15E, (2) RCA 77DX, AKG D112, AKG D12E, AKG CE2, AKG D320B, Beyer M201, (2) E-V RE20, (2) Schoeps MK-4. Monitor Amplifiers: (2) McIntosh MC2300, (2) Crown Micro-Tech 1000, (4) Crown 510A, (2) Yamaha P-2200, Yamaha PC-5002M Monitor Speakers: Sierra custom control monitors w/TAD components, JBL 4430, JBL 4411, (2) JBL 4401, Westlake BBSM-6, (2) Yamaha NS-10M, Auratone 5C Musical Instruments: Steinway 9" grand piano, Fender Rhodes w/Dyno-My-Piano modifications, Kawai acoustic piano w/lack modification, Yamaha DX7, Yamaha DX7IFD. Other MIDI Equipment: Ariga MIDI computer Video Equipment: Sony BVU-800 3/4" record/player, Sony U-matic player, (2) JVC VHS 1/2" decks, Sony KX-1901 A video monitor. Rates: Call for standard and block rates

[24+] **KNIGHT LIGHT STUDIO**; also **REMOTE RECORDING**; 1609 Tantor, Dallas, TX 75229; (214) 869-9405. Owner: Tim Miner. Studio Manager: Don Wallace

[24+] **LIMELIGHT RECORDING STUDIO**; also **REMOTE RECORDING**; 5116 34th St.; Dickinson, TX 77539; (713) 337-1272. Owner: Don Westmoreland. Studio Manager: Don Westmoreland. Engineers: Doug Groover, Terry Westbrook, Matt Westmoreland. Dimensions: Studio 30 x 26, control room 24 x 16. Mixing Consoles: Soundcraft Series 1600 24 x 24. Audio Recorders: Soundcraft 760 24-1/6-track, Tascam 80-8 8-track w/dbx, TEAC 3340S 4-track, Otari 5050-BII 2-track. Cassette Recorders/Duplicators: (3) Tascam, (6) Technics. Noise Reduction Equipment: dbx 8 tracks Echo, Reverb, & Delay Systems: Lexicon PCM70, Lexicon 200, Lexicon Prime Time II, Ursula Major Space Station, Master Room XL-305, MXR digital delay. Other Outboard Equipment: Orban 622B parametric EQ, (2) dbx 163 compressor/limiter, (2) Ashly SC-50 compressor/limiter, MXR Pitch Transposer, Omni Craft noise gate, Aphex Aural Exciter. Microphones: (3) AKG 414, Neumann TLM170, AKG 452, Shure SM81, (2) Shure SM98, (4) Shure SM57, Shure SM53, (4) Sennheiser 421, Sennheiser 441, Beyer M-500, E-V RE15, (2) Audio-Technica 813, (2) Audio-Technica 811. Monitor Amplifiers: (2) McIntosh MC-240. Monitor Speakers: (2) JBL 4311B, (2) Auratone cubes. Musical Instruments: Kurzweil K1000, Akai S900, Yamaha DX7, Yamaha DX100, Wurliizer studio piano, Korg EX-800, Roland TR-707, Roland TR-727, Tama Super Star 6-pc. drum kit, Fender Precision bass, Fender Telecaster guitar, (3) acoustic guitars. Other MIDI Equipment: Atari 1040ST, Commodore 64. Rates: Call

[24+] **LOMA RANCH STUDIO**; also **REMOTE RECORDING**; Rt. 1, Box 97A3; Fredericksburg, TX 78624; (512) 997-3521. Owner: John & Laurie Hill. Studio Manager: John Hill

[24+] **MARTIN RECORDING COMPANY, INC.**; also **REMOTE RECORDING**; 120 W. Castellano, El Paso, TX 79912; (915) 532-2860. Owner: Scott Martin. Studio Manager: Jan Sudderth

[24+] **MIDCOM, INC.**; only **REMOTE RECORDING**; 3 Dallas Comm. Complex, Ste. 108; 6311 N. O'Connor Rd., LB-50; Irving, TX 75039; (214) 869-2144. Owner: Mike Simpson. Engineers: Mike Simpson, Jeff Jones, Jim Reese, Bob Singleton, David Roberts, Don Worsham, Doug Nelson. Dimensions: Remote facility 8 x 20. Mixing Consoles: Soundcraft TS-24 32-ch 32 x 24 x 16 x 2 x 1 w/custom 8 stereo/16 mono submaster routing system, Soundcraft Series 200B 16 x 4 x 2. Audio Recorders: (2) Otari MTR-90L 24-track, Otari MX-5050BII 2-track, Studer A810 2-track w/ceniter time code track, Otari DTR-900 32-track digital (on request). Cassette Recorders/Duplicators: Nakamichi MR-1B. Noise Reduction Equipment: TTM 24-ch frame (accepts Dolby, dbx or Telcom). Synchronization Systems: Cipher Digital Shadow II w/Shadowpad, Cypher time code generator/reader. Echo, Reverb, & Delay Systems: Lexicon 480-L digital audio main frame, Lexicon 224XL digital reverb, both w/LARC, Lexicon Model 95 Prime Time II digital audio processor, Eventide H910 Harmonizer. Lexicon PCM70 digital reverb. Other Outboard Equipment: (2) dbx 160X compressor/limiters, (2) Aphex compellers, dbx 900 frames equipped w/903 comp/limiters, 904 noise gates, 905 parametric EQs. Microphones: Neumann U89, Neumann TLM170, Neumann KM84, AKG C414, AKG



MIDCOM, INC.  
Irving, TX

EBP/48, Schoeps CMC5, Schoeps MKV, Sennheiser MD-421, Sennheiser MD-421, Beyer M69, Beyer M88, Beyer M500, Beyer M201, Beyer MC734, Shure SM58, Shure SM57, Shure SM81, Shure SD85, Crown PZM GPB30, Crown 2LV, Ceteq Vega R42 hand-held/lavalier wireless systems avail w/extra charge. Monitor Amplifiers: Hafler P-505, Hafler P-230, BGW 150 for Auratone. Monitor Speakers: (2) JBL 4430 Bi-radial monitors w/White 1/6-octave EQ. (2) Auratone 5C near-field, Tannoy NFM8 near-field. Video Equipment: Sony VO-5800 3/4" U-matic, Panasonic AG-6800 1/2" VHS Hi-Fi, Sony CVM-1900 19" NTSC monitor/receiver, (2) Ball 9" B&W monitors, (2) Panasonic 12 x 1 routing switchers, (3) ADC Humbuckers, (8) external inputs. Other: Communications systems: RTS 3-ch. dual listen intercom, Clear Com 2-ch. intercom, both interfaced to full duplex FM on-board repeater system w/ business band and motion picture service. Frequency synthesized remote radios. 10-line key telephone system, RCC and cellular mobile telephone, RTS 414 distribution amp, RTS 416 distribution amp, Primus distribution amps, custom 1 x 1 buffer/distribution amplifier capable of driving at 28 dBm, Telco interface via 48-pair ADC Ultrapatch to dedicated patch panel, each pair w/ separate resistive termination and/or capacitive coupling, (4) RDS on board for auto answer, stand-by program feeds, 400' power and 42-pair snake on DC motor-driven reels. Extras & Direction: Past projects include: Great Performances Series for PBS, "Dolly" ABC-TV prime time, "The Texas Debates" presidential debates for American Public Radio, George Strait, MCA Home Video, 7th Van Cliburn Competition, American Public Radio, Benjamin Lees' Memorial Candles, American Public Radio, score for Texas, DramaX production at Palo Duro Canyon, Fashion Hit Revue, Sanger Harris live TV special, Mary Kay Cosmetics 1985, 1986 and 1987 seminars, League of Women Voters, 1984 Democratic Presidential Candidates Debate, PBS network special, Bob Banner Associates' Face of the '80s syndicated TV special: ACTS TV Network, Country Crossroads, two 13-week series, Bob Stivers Productions' Stars Salute the U.S. Olympic Team, NBC prime time special, Bugs Henderson live LP project, two live albums for The Vocal Majority, Miss Texas USA Pageant, network special, Carman in Concert, Word Records/Word Home Video

[24+] NATIONAL RECORDING CO.; 1614 Hampton Rd., Texarkana, TX 75503; (214) 793-4116. Owner: V E Howard Studio Manager: Chuck Richardson

[24+] NEVADA RECORDING STUDIO; also REMOTE RECORDING; 4665 S. Procyon, Ste. M; Las Vegas, NV 89103; (702) 798-3032. Owner: Santa Fe Inc. Studio Manager: Holly Sharpe Engineers: Lee Watters, Don Whitbeck, independents welcome. Dimensions: Room 1 studio 25 x 21, control room 20 x 17. Room 2 studio 20 x 26. Room 3 studio 19 x 13. Room 4 studio 19 x 13. Mixing Consoles: MCI JH-556D 56 x 32 w/JH-50 automation. Audio Recorders: 3M M79 24-track, Otari 5050 MkIV 4-track. (2) Ampex ATR800 2-track Cassette Recorders/Duplicators: (2) Nakamichi MR-1 Noise Reduction Equipment: Dolby A, Dolby SR, dbx. Synchronization Systems: BTX Shadow w/all software updates w/Softouch PC Echo, Reverb, & Delay Systems: Eventide H3000 Ultra Harmonizer, Lexicon PCM70 digital effects processor, Yamaha REVS digital effects processor, (2) Yamaha SPX90II digital effects processor, Roland DEP-5 digital effects processor, (2) Digitech 128 digital effects processor, (2) Alessi MIDverb II 16-bit digital effects processor, Yamaha D1500 DDL. Other Outboard Equipment: Aphex Type C Aural Exciter, dbx F900 rack w/2lea dbx 902/903/904/905, (2) dbx 160X compressor/limiter, Drawmer DS201X stereo gates, (2) dbx 160 compressor/limiter, Klark-Teknik DN 30/30 1/3-octave graphic equalizer, Technics SLP1200 professional compact disc player, Technics SL1200 MkII professional turntable. Microphones: (12) AKG K240M headphones, (2) Neumann TLM-170, (2) Neumann KM84, (2) Neumann U67 tube, (2) AKG C414E/ULS, (3) AKG C451EB, E-V RE20, (6) Sennheiser MD-421, (2) Crown PZM 30FS, (2) RCA DC 77/44 ribbon, (7) Shure SM57 Monitor Amplifiers: (4) UREI (main), (2) Hafler

(all), (2) Yamaha (cue) Monitor Speakers: UREI 809, JBL 4406, Yamaha NS-10M, Auratone T6, Auratone C5 Musical Instruments: E-mu E-Max sampling keyboard, (2) Ensoniq ESQ-1, Yamaha PCM1 electronic drums, (2) Roland GM-70 guitar synths, Roland GM-700 guitar synths, Yamaha RX11 drum machine, (2) Oberheim DX drum machines, Roland Octapad 8, Yamaha DX7IIFD keyboard, Roland TR-505 drum machine, Yamaha CP80 electric grand piano, Yamaha KXS controller keyboard, Roland S-50 sampling keyboard, (2) Yamaha TX7 modules. Other MIDI Equipment: Macintosh SE w/Performer version 2 sequencing, IBM w/Sequencer Plus MkII (computer), (2) Atari 1040ST, Atari 130XE w/Hybrid Arts MIDI Mate III sequencer, (2) Yamaha MEP4 events processor, Yamaha MCJ8 MIDI patcher. Video Equipment: JVC 6650 3/4" U-matic video machine, (2) Sony PVM-2030 20" color RGB video monitors, (2) Mitsubishi 1/2" VTR machines. Other: (4) sound effects and music libraries on compact disc, (4) sound stages equipped w/Carvin sound systems and lights, in-house tech shop and warranty service center, full MIDI production room, (2) lounges

[24+] NOMOUNTAIN RECORDING; also REMOTE RECORDING; PO Box 9866; Midland, TX 79708; (915) 682-9673. Owner: Nick Carlton Studio Manager: Diane Carlton (T.C.B.) Engineers: Nick Carlton. Dimensions: Studio 40 x 40, control room 28 x 17. Mixing Consoles: NEOTEK 28 x 24. Audio Recorders: Sony/MCI JH-24 24-track, Ampex ATR 2-track 1/2" Saki heads, Otari 5050 2-track Cassette Recorders/Duplicators: Nakamichi MR-1, (4) Nakamichi MR-II w/remote control Echo, Reverb, & Delay Systems: Lexicon 224, Lexicon PCM-70 (3.0), Lexicon PCM60, Ibanez SDR-1000, MICMIX 305, Effectron I, MXR DDII, DeltaLab CompuEffectron, DeltaLab HarmonComputer. Other Outboard Equipment: UREI LA-4, dbx 162, Valley People Dyna-Mite, Eventide 949, EXR Exciter, Aphex C, Audioarts 1202, Crown RTA2, UREI 539 graphic EQs, GateX Microphones: AKG C12, Neumann U87, Neumann U64, Sennheiser 451, AKG D112, AKG D12, Neumann TLM-170, Crown PZM, Shure SM57, Shure SM58, Shure SM85, Shure SM81 Monitor Amplifiers: BGW 750E balanced, (2) BGW 100 balanced, Crown 150 Monitor Speakers: (2) JBL 4435 bi-radial, (2) Yamaha NS-10M, (2) Klipsch Cornwall. Musical Instruments: Linn, Gretsch drums, Mesa/Boogie simul-class, (2) Peavey 130 special, Kimball baby grand, Ensoniq Mirage, Yamaha DX7, Roland Juno 60, Roland MKS-20, Scholz rack mount. Rates: For the poor and hungry Extras & Direction: Specializing in album projects w/national distribution. No rental fee on any instrument. Best set of drums in Texas, used to belong to Nitty Gritty Dirt Band. Credits: Jimmie Fadden (Dirt Band), Shake Russell, Steve Frohmolt, Bill Ervin, Johnny Blaine, The Marbles, Silent Majority, Scott White, Preston Springer, Midland College, Odessa College, Fitzco



OMEGA AUDIO AND PRODUCTIONS, INC  
Dallas, TX

[24+] OMEGA AUDIO AND PRODUCTIONS, INC; also REMOTE RECORDING; 8036 Aviation Pl.; Dallas, TX 75235; (214) 350-9066. Owner: Paul A. Christensen, Charles R. Billings Studio Manager: Donna Christensen. Engineers: Philip Barrett, David Buell. Dimensions: Room 1 studio 35 x 40. Room 2 studio 12 x 15. Control room 22 x 20. Remote recording truck 8 x 20. Mixing Consoles: Amek M2500 36 x 24, custom 24 x 24, API 2098 32 x 16 x 24. Audio Recorders: (3) Otari MTR-90 24-track, (4) Otari MTR-10 2- and 4-track w/CSTC, Mitsubishi X-80 digital recorder, Sony PCM-1630 w/DMR 4000 digital master recorder, Harmonia Mundi Acoustica digital conversions interface (PCM-F1/501/701/1610/1630/X-80), Audio & Design Recording Pro PCM-701, (2) Otari MX-5050B 2-track Cassette Recorders/Duplicators: Eumig, Technics, Autogram stereo cart. Echo, Reverb, & Delay Systems: Lexicon 224X digital reverb w/LARC remote, (2) Yamaha SPX90, LP140 reverb plate, Master Room reverb, (2) MXR digital reverb, DeltaLab DL-2 digital delay, (4) DeltaLab 2048. Other Outboard Equipment: CMX CASS I audio editing system w/disk-based mixing console automation. Eventide

—CONTINUED ON THE NEXT PAGE

## AUDIO EDITING TIPS #1

# Why Today's Hottest Studio Keyboard Belongs To The Audio Engineer.

It's the keyboard of the BOSS™ Automated Audio Editor. And it's revolutionizing audio post production. In just minutes the BOSS can easily finish tasks that used to take hours. Like perfectly synchronized edits in seconds. Or recalling and integrating a favorite sound effect with only a few keystrokes — without digging through the entire sound library. And the BOSS keeps an incredibly detailed record of every function with its exclusive Audio Decision List. Every time code. Every offset. Without a single calculation. So edits completed in a session weeks ago can be recalled and quickly changed. Which makes your studio more efficient. More creative. And more profitable.

Anything is possible because the BOSS Automated Audio Editor is really a sophisticated, computerized workstation that places absolute control over all your audio and video equipment in one studio-savvy keyboard — completing all your audio editing functions automatically. So instead of laboring over numbers, you can spend your time creating sound.



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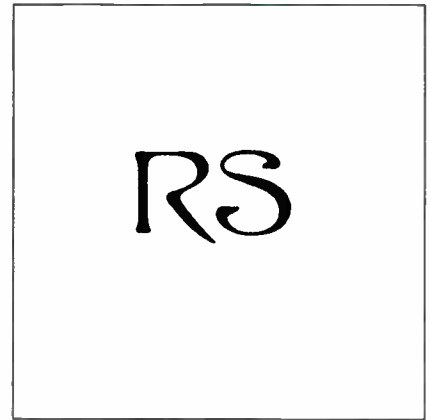
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S O U T H W E S T  
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 STUDIOS



**RAMPART STUDIOS**  
 Houston, TX

H949 Harmonizer w/De-Glitch card, Scamp rack w/17 modules, Gotham TIM NR rack w/dbx K9-22 cards or Dolby K9-22 cards, UREI 565T Little Dipper, UREI digital metro-nome, RTS stereo phone preamp, Denon DP110 turntable, Aphex Compellor, BBE Aural Exciter, Technics compact disc players. Microphones: Neumann U87, Neumann U47, Neumann KM84, AKG C12A, AKG 414, AKG 451, AKG D12E, AKG CK8, Shure SM81, Shure SM57, Shure SM53, Shure SM58, Beyer M201, Sennheiser 441, Sennheiser 421, E-V RE20, Sony 22-P, Sony ECM-50, Sony ECM-21, Crown PZM. Monitor Amplifiers: (2) Crown PSA2, (4) Crown D150A, Crown D40, (2) Yamaha 2200. Monitor Speakers: JBL 4435 Bi-Radial, JBL 4430, JBL 4313, JBL 4311, Visonik David, Auratone, Yamaha NS-10. Musical Instruments: Baldwin 7' grand, full range of instruments available by special arrangement, MIDI room available. Video Equipment: Co-located and interlocked with Video Post & Transfer, state-of-the-art 1" CMX video editing and film transfer facility. Omega offers CMX 46-track interlock to picture for computerized audio editing and mixing to picture. Rates: Studio audio only 24-track \$125/hr., 48-track \$175/hr., audio/video interlock 24-track \$150/hr., 48-track \$200/hr., CD mastering: quoted per project; remote recording: \$2,400/day for 48-track plus expenses. Extras & Direction: Two RIAA certified platinum albums, four RIAA certified gold records, two Grammy nominations, two Ampex Golden Reel Awards, three Dove Awards; partial credits: U2, REM, Lynyrd Skynyrd, Joe Walsh, Gladys Knight, Talking Heads, Prince, Helen Reddy, Anne Murray, Al Jarreau, Spyro Gyra, Willie Nelson, The Oak Ridge Boys, Quarterflash, Hall & Oates, NBC-TV, CBS-TV, PBS-TV (WNET), New Edition, Ray Charles, Paul Shaffer, Roy Orbison, Molly Hatchett, Cameo, Joe Jackson, Rita Moreno, Amy Grant, Johnny Cash, Bob Hope, Dizzy Gillespie, Emmylou Harris.

[24+] **ORIGINAL MUSIC MEDIA PROD. INC.:** 8377 Westview; Houston, TX 77055; (713) 465-6563. Owner: Yves Vincent, David Baer. Studio Manager: Yves Vincent.

[24+] **PEDERNALES RECORDING STUDIO:** Rt. 1, Briarcliff 22; Spicewood, TX 78669; (512) 264-2064. Owner: Willie Nelson. Studio Manager: Larry Greenhill.

[24+] **PLANET DALLAS STUDIOS:** PO Box 215029; Dallas, TX 75221; (214) 521-2216. Owner: Planet Dallas Inc. Studio Manager: Tracy Davis. Engineers: Rick Rooney, Tracy Davis, freelance Dimensions: Studio 40 x 45, control room 20 x 15. Mixing Consoles: MCI JH-528 28 x 24 w/JH-50 automation. Audio Recorders: MCI JH-24 24-track, Sony/MCI JH-110C 2-track, Tascam 422-track. Cassette Recorders/Duplicators: (2) Tascam 122. Noise Reduction Equipment: dbx. Echo, Reverb, & Delay Systems: Master-Room XL305 reverb, (2) Lexicon PCM60 reverbs, (2) Yamaha REV7, (2) Yamaha SPX-90 effects processor, DeltaLab DL-4 delay, Lexicon Prime Time delay. Other Outboard Equipment: (2) Valley People Dyna-Mite stereo compressor/limiters, (2) Orban 622B stereo parametric EQs, dbx 160X compressor/limiter, Dietz stereo parametric EQ, Brooke-Siren dynamic processor. Microphones: Neumann U87, (3) AKG 414, (2) AKG D12E, (3) AKG 461, (2) Sennheiser 441, (8) Sennheiser 421, (8) Shure SM57, (2) E-V DS35, E-V RE20, (2) Beyer 500, Neumann U47. Monitor Amplifiers: Yamaha 2002 Pro Series PC. Monitor Speakers: (2) Lakeside custom monitors w/TAD components, (2) Yamaha NS-10, (2) Auratone cubes, (2) Quadrallex 204L. Musical Instruments: Yamaha Recording Series 8-piece drum kit, Simmons SDS7 5-piece electronic drum kit, Yamaha BB300 bass guitar, Oberheim DMX drum machine, Gibson Les Paul Custom 6-string guitar, Kramer Pacer series 6-string guitar, Ensoniq Mirage, Casio CZ, Simmons EPB. Other: Sony CDP-110 compact disc player. Rates: \$65/hr., including engineer. Call for block rate.



**POWERHOUSE RECORDING**  
 Las Vegas, NV

[24+] **POWERHOUSE RECORDING:** 3111 S. Valley View Blvd., K101; Las Vegas, NV 89102; (702) 871-6200. Owner: Paul and Rulona Badia. Studio Manager: Rulona Badia. Engineers: Paul Badia, Jim Steffen. Dimensions: Studio 35 x 30, control room 18 x 22. Mixing Consoles: API 2488 24 x 16 x 24. Audio Recorders: Stephens 821 24-track, Scully 280B 2-track, Ampex 700 2-track, Studer/Revox A77 2-track 1/4". Cassette Recorders/Duplicators: Nakamichi MR-1. Noise Reduction Equipment: Dynaflex. Synchronization Systems: Adams-Smith Zeta III. Echo, Reverb, & Delay Systems: EMT 240 Gold Foil, Yamaha REV7, Korg SDD-2000, Roland SDE-3000, Lexicon Prime Time. Other Outboard Equipment: Eventide 910 Harmonizer, Scamp rack w/noise gates/comp/limiters/auto panner, Spectra Sonics 610 comp/limiters, Fairchild Instruments 663 limiters, (8) API 554 EQs, API 560 EQs, Pacific Audio VSO, Orban de-esser, Aphex Aural Exciter. Microphones: Neumann, AKG, Telefunken, Sennheiser, Crown PZM. Monitor Amplifiers: BGW, Crown, Haller. Monitor Speakers: Fostex LS3, Auratone. Musical Instruments: Kawai grand, Moog Memorymoog, Sequential Circuits Prophet-5, Yamaha TX816, Yamaha DX7, E-mu Emax, Korg MS-20. Other MIDI Equipment: Roland SBX-80 synch. box. Rates: On request. Extras & Direction: We're a young aggressive studio anxious to show you our superlative client service. Our clients include B.B. King, Engelbert Humperdinck, Larry Hart and all the ad agencies and production houses in our region.

[24+] **PRECISION AUDIO, INC.:** 11171 Harry Hines, Ste. 119; Dallas, TX 75229; (214) 243-2997. Owner: Precision Audio, Inc. Studio Manager: Rick Sheppard.

[24+] **THE PRODUCTION BLOCK:** 906 E. Fifth; Austin, TX 78702; (512) 472-8975. Owner: Joel Block. Bill Harwell. Studio Manager: Delaine Whiddon. Engineers: Joel Block, Bill Harwell, Patterson Barrett, Everett Caldwell, Delaine Whiddon, Phil Mezzetti. Dimensions: Room 1: studio 10 x 20, control room 16 x 16. Room 2: studio 8 x 15, control room 12 x 15. (Room 3 is a 10 x 10 preview/listening room.) Mixing Consoles: TAC Matchless 26 x 24, Yamaha RM1608 16 x 8, Tascam Model 5 8 x 4. Audio Recorders: Sony/MCI JH-24 24-track w/Autolocator II, Otari MkIII 8-track, (2) Otari 5050B-II 2-track, (5) Technics 1500US 2-track. Cassette Recorders/Duplicators: (2) Nakamichi BX-1, (2) Tascam 122, Tascam 112, Sony TCM-5000EV, (2) Marantz PMD360. Noise Reduction Equipment: dbx Type I. Synchronization Systems: Audio Kinetics "Pacer" system (2-machine lock-up), Q Lock system (3-machine lock-up). Echo, Reverb, & Delay Systems: (2) Yamaha SPX90 effects processor, (2) Roland SRV-2000 reverbs, Alesis XT digital reverb, MXR 1500 digital delay, MXR II delay system. Other Outboard Equipment: (4) dbx 160X compressor, Valley People 610 compressor/expander, (2) ART/MXR pitch transposers w/display, (2) Barcus-Berry Electronics 202R signal processors, (2) Orban de-essers, (4) Galax gates, MXR linear preamp (for turntable), (2) Denon PMA-750 preamp/amp (for monitoring), (2) Symetrix TI-101 telephone interfaces (for phone patch sessions), (2) Primus distribution amplifiers, White EQ (monitor). Microphones: (6) AKG 414, AKG The Tube, (2) AKG 451, (3) Sennheiser 421, (2) Shure SM57, (2) Shure SM58, (2) Shure SM59, Tascam PE-120, Isonax 11-H, Sony ECM-56F. Monitor Amplifiers: McIntosh MC2300, Crown D150A, Crown D75, (2) Technics SE-9060, Sony TA-1150. Monitor Speakers: Altec reference monitors, (2) Yamaha NS-10M, (4) Auratone S5, Polk Audio (bookshelf). Musical Instruments: Yamaha DX7, LinnDrum, Ensoniq Mirage, Roland Juno 60 synthesizer, Yamaha C3 Conservatory grand piano, Sequential Circuits drum machine. Other MIDI Equipment: Macintosh 512E w/MIDI interface, Macintosh SE. Video Equipment: Sony 13" monitor, Sony U-matic 3/4" VTR, Audio Kinetics Pacer audio/video 2-machine lock-up. Other: (3) Sony CDP-35 compact disc players, (3) Technics SL-1200 turntables, music sound effects library (on CD), Omni Craft music library (on CD), Network music library, Firstcom digital music library (on CD). Rates: \$65/hr., engineer included; \$115/hr. sweetening for video.

[24+] **RAMPART STUDIOS, also REMOTE RECORDING:** 6105 Jessamine; Houston, TX 77081; (713) 772-6939. Owner: Steve Ames. Engineers: Steve Ames, Dan Yeary. Dimensions: Studio 40 x 24 (drum room, vocal booth, iso room), control room 12 x 18. Mixing Consoles: Soundcraft 1624 16 x 24 x 2 56-channel remix (automated). Audio Recorders: Soundcraft 24-track, Sony 2-track (1/2" and 1/4"). Cassette Recorders/Duplicators: Revox PR99, Nakamichi. Echo, Reverb, & Delay Systems: Lexicon 200 digital reverb, EMT 140 plate, Lexicon PCM41, Lexicon 91, Lexicon PCM60, Korg SDD-2000, Yamaha SPX90. Other Outboard Equipment: Eventide Harmonizer, Aphex Aural Exciter, Aphex CX-1, UREI 1176 comp/limiter, UREI comp/limiters, Orban para EQ, Orban de-esser, dbx noise gate, GT-4 noise gate, Goldline RTA,

Dyna-Mite exp/comp, Crown SL2 pre amp, Denon T.T. Microphones: Neumann U67, Neumann U87, Neumann KM84, AKG 414, AKG 451 tube, Sennheiser 421, Sennheiser 441, E-V RE20, Beyer 201, Sony 22P, RCA 77. Monitor Amplifiers: Crown. Monitor Speakers: JBL 4430, Yamaha NS-10M. Musical Instruments: Kawai grand piano, Yamaha DX7, Yamaha TX7, LinnDrum, Oberheim OB8 synth, Yamaha drums, Fender amps, LP congas, percussion, etc. Other MIDI Equipment: Sonus software, Commodore SX64, Oberheim Prommer. Video Equipment: Scoring, sweetening, etc. Extras & Direction: Coffee bar, lounge area, etc. Rampart is a creative environment for both artists and producers, with an experienced professional staff. Specialists in record jingle and demo projects. Clients include: ZZ Top, Kings X, Night Ranger, The Judy's Shake Russell Band, Future, XOX, Ghetto Boys, Tokyo, Megalorpe, Atlantic Records, Columbia Records and many more.

[24+] **REAL TO REEL STUDIOS INC.:** 2545 N. Fitzhugh; Dallas, TX 75204; (214) 827-7170. Owner: Real to Reel Studios, Inc. Studio Manager: Ron Morgan.

[24+] **REELSOUND RECORDING CO., only REMOTE RECORDING:** PO Box 280; Manchaca, TX 78652; (512) 472-3325. Owner: Malcolm H. Harper, Jr. Studio Manager: Deborah Harper. Engineers: Malcolm H. Harper, Jr., Mason Harlow. Dimensions: 45' tractor-trailer Sierra/Hidley design remote unit. Mixing Consoles: MCI 636LM 36 x 36 disk-based automation, Ampex MX110 4 x 2 tube mixer, API 8 x 8 pre-amps. Audio Recorders: MCI JH-24 24-track, MCI JH-110B 2-track, PCM 2-track digital, PCM 3324 24-track (on request). Cassette Recorders/Duplicators: Nikko 2. Noise Reduction Equipment: (8) Drawmer 201 gates. Synchronization Systems: Q-Lock 4.10. Echo, Reverb, & Delay Systems: Ursula Major 8 x 32, AMS RMX1161, DL-1, DL-2, Yamaha SPX90. Other Outboard Equipment: (10) API 550A EQ, dbx 900 rack: (4) limiters, (2) DS, (2) parametrics, (4) UREI LA-3As, (4) Valley People Dyna-Mite, UREI Teletronix LA-2A, (2) API 525 limiters; (8) Drawmer 201 gates; RTS intercom system. Microphones: Beyer, E-V, AKG, Neumann, Shure, Countryman, Sennheiser. Monitor Amplifiers: Crown, Akai. Monitor Speakers: Westlake BBM-6, Auratone, JBL 4430, Radio Shack #9. Video Equipment: Sony TV system and switcher, Panasonic camera and recorder. Other: 600' mic snakes, Jensen 80-input transformer/splitter, system and stage distribution. Extras & Direction: Clients: Westwood One, DIR, World Records, Savoy Records, Capitol Records, Epic, Warner Bros., PBS network, MTV, StarSong Records. Artists: Tears for Fears, AC/DC, Ted Nugent, Journey, ZZ Top, Triumph, The Gap Band, Patti LaBelle, Kool and The Gang, Franky Beverly and Maze, Willie Nelson, Lee Greenwood, Ricky Skaggs, Merle Haggard, Roy Charles, Amy Grant, Dave Perkins, Servant, Ric Cua, Eric Johnson, Jay Aaron, Petra. We offer complete and total dedication to the clients' needs, from live recording for records, radio, TV and film to album projects in those out-of-the-way places. With 17 years of experience we have the best to offer in remote services.

[24+] **RIVENDELL RECORDERS, also REMOTE RECORDING:** 1195 W. Loop N., #110; Houston, TX 77055; (713) 686-3558. Owner: Rivendell Recorders Inc. Studio Manager: Chuck Sugar.

[24+] **RMS RECORDING STUDIOS (RELATED MUSIC SERVICES, INC.):** 4620 W. Blue Diamond Rd.; Las Vegas, NV 89118; (702) 361-1559. Owner: Lou & Joe Carto. Studio Manager: Lou Carto, Jr.

[24+] **THE SOUND FACTORY RECORDING STUDIOS:** 1120 S. Highland; Tucson, AZ 85719; (602) 622-1265. Owner: Steve & Kimberly English. Studio Manager: Steve English.

[24+] **SOUNDWORKS RECORDING STUDIOS:** 2570 E. Tropicana, #18; Las Vegas, NV 89121; (702) 451-6767. Own-



er: Nick Thorpe, Tom Lyons. Studio Manager: Bryan Haggerty. Engineers: Bryan Haggerty, Valles Crossley, Nick Thorpe. Dimensions: Room 1: studio 30 x 25, control room 18 x 20. Room 2: studio 18 x 15, control room 12 x 12. Mixing Consoles: API DeMedio custom 36 x 24, Tascam M520 20 x 16. Audio Recorders: 3M M79 24-track, Tascam MS16 16-track, Fostex 8-track, Otari 5050 4-track 1/2", MCI 2-track, (2) Otari 5050 2-track. Cassette Recorders/Duplicators: (2) Sherwood S6000, (6) Technics RS907, Tascam 112. Noise Reduction Equipment: (16) dbx Type I. Synchronization Systems: Adams-Smith 2600, Hybrid Arts SMPTE-track. Echo, Reverb, & Delay Systems: Lexicon 224, Lexicon PCM70, Lexicon PCM60, Lexicon PCM41, Lexicon Prime Time, Roland SDE-3000, Yamaha SPX90, EMT plate. Other Outboard Equipment: Orban parametric EQ, Eventide 910, (4) Kepex II gates, (2) UREI comp/limiters, (2) dbx 160 comp/limiters, dbx 166 comp/limiter, Orban de-esser, ADR Vocal Stressor. Microphones: Neumann U87, Neumann U47, AKG Tube, (4) AKG 414EB, (2) AKG 451, (4) Sennheiser MD-421, Sennheiser 441, (6) Shure SM57, AKG 202E, AKG D12, Shure SM11. Monitor Amplifiers: (2) Yamaha 2201, Yamaha 2050, Yamaha 2100. Monitor Speakers: (2) JBL custom 18", (2) JBL 4411, (2) Yamaha NS-10M. Musical Instruments: Roland D-50, Ensoniq ESO-1, Ensoniq Mirage DSK, Roland Juno 60, Yamaha TX812, (2) Yamaha FB01, Oberheim DMX, Alesis HR-16, Roland TR-505, Yamaha 6' grand piano, (2) Yamaha drum kits. Other MIDI Equipment: Atari 520ST computer w/Hybrid Arts SMPTE-track, Akai MIDI patcher. Video Equipment: (3) Sony 3/4" VCR, JVC 3/4" VCR.

[24+] **THE SPACE STATION SOUND STUDIO INC.**; 8377 Westview; Houston, TX 77055; (713) 465-6563. Owner: Original Music Media Prod Inc. Studio Manager: Yves Vincent.

[24+] **STUDIO D**; 1700 S. Lamar, Ste. 112; Austin, TX 78704; (512) 441-4001. Owner: Dennis Davis. Studio Manager: Peter Butcher.

[24+] **STUDIO SEVEN**; also *REMOTE RECORDING*; 417 N. Virginia; Oklahoma City, OK 73106; (405) 236-0643. Owner: Wayne Curtis. Studio Manager: John Rohloff.

[24+] **SUMET-BERNET SOUND STUDIOS**; also *REMOTE RECORDING*; 7027 Twin Hills Ave.; Dallas, TX 75231; (214) 691-0001. Owner: Ed Bernet. Studio Manager: Mike Pietzsch.

[24+] **SYNTONIC RESEARCH INC.**; also *REMOTE RECORDING*; PO Box 18626; Austin, TX 78760; (512) 441-5322. Owner: I.S. Teibel. Studio Manager: Michael Kron.

[24+] **TELE-IMAGE, INC.**; 6305 N. O'Connor LB 6, Ste. 103; Irving, TX 75039; (214) 869-0060. Owner: Bob Schiff. Studio Manager: Diane Barnard/contact: Mark Terry, Jack Johnston. Engineers: Gary French, Gerry Crivello, Olfert Kempff, Don Clark, Linda Haiges. Dimensions: Studio 28 x 35, control room 25 x 27. Mixing Consoles: SSL 4000E 34 x 32, Sony/MCI 618, Studer 169, Graham Patten 612. Audio Recorders: Studer A800 24-track, (2) Studer A800 8-track, (3) Studer A810 2-Center Time Code, Studer A820 2-Center Time Code, (2) Technics 2-track, (2) Otari 2-track. Cassette Recorders/Duplicators: Nakamichi MR-1. Noise Reduction Equipment: Dolby SP 24-channel, (14) dbx 411 modules, (5) Dolby 361. Synchronization Systems: (6) Lynx TimeLine, (3) Cipher Digital/BTX Shadow, Cipher Digital Softouch controller, Alpha Boss controller. Echo, Reverb, & Delay Systems: (2) Lexicon 224XL, Lexicon PCM60, (2) Lexicon 97MEO, DeltaLab CE1700. Other Outboard Equipment: (6) dbx 902 de-esser, (2) dbx 903 compressors, (2) dbx 904 noise gates, (3) dbx 905 parametric EQ, (2) Aphex 9001 Exciter, Dolby Cat 43, (3) UREI 565 DipFilter, (2) UREI 535 graphic EQ, (2) Studio Technologies AN-2 stereo simulator. Microphones: (2) Neumann U87, (4) AKG C141EB/P48, (4) AKG C460-CKI, (6) Beyers M-201, (2) Sennheiser 416, (2) Crown PZ-6LPG, (4) Crown PZM-65, (2) Sennheiser ME-88/ME-80/ME-40, (2) Beyers M88, (2) Tram TR-50. Monitor Amplifiers: (9) Crown Micro-Tech 1000, Crown DC300A, (2) Crown 150, (2) Crown D75, (2) Crown D60. Monitor Speakers: SOTA (Claude Fortier), MDM-TA3 time align, Westlake BBSM-6, JBL 4425, Auratone 5C. Video Equipment: (10) Sony BVH-2000/2500 VTRs, (7) Sony BVU-800/820 VTRs, (2) Sony BVW-10/40 VTRs, Grass Valley 300 switcher, Grass Valley 1680 switcher, Grass Valley 10 switcher, Grass Valley 51 editor, (2) Grass Valley 41 editor, (2) Ikegami 357A camera, (2) Ikegami HL 79EAL camera, (2) Sony CCD DXC-3000 camera, (2) Ampex ADO effects device w/Infinity, Abekas A-53D effects device, Abekas A-42 still store, Abekas A-62 digital disk recorder, Sony BVX-30 digital noise reduction, (3) Chyron Scribe character gen., Quantel Paintbox. Other: Studer A725 CD player, (2) Dynamax

DTR100 broadcast cart, Foley SFX set-ups, Magna-Tech 600 16/35mm mag dubber, 1-4 track. Rates: \$160/hr. with pix., \$130/hr. without pix., \$80/hr. voice. Extras & Direction: Sound assembly and mixing for a variety of national spots for The Bloom Agency, The Richards Group, Tracy-Locke as well as corporate and commercial audio for Radio Shack, corporate/industrial for GTE and Mary Kay Cosmetics. Production for Voluntary Hospitals of America Teleconferences.

[24+] **UNITED AUDIO RECORDING, INC.**; 8535 Fairhaven; San Antonio, TX 78229; (512) 690-8888. Owner: Robert H. Bruce. Studio Manager: Laura A. Calderon.

[24+] **UNIVERSITY OF NEVADA, LAS VEGAS/DEPT. OF MUSIC**; also *REMOTE RECORDING*; 4505 S. Maryland Pkwy.; Las Vegas, NV 89154; (702) 739-0819. Studio Manager: Curt Miller.

[24+] **VINTAGE RECORDERS**; 4831 N. 11 St., Ste. D; PO Box 17010; Phoenix, AZ 85011; (602) 241-0667. Owner: Billy Moss. Studio Manager: Merel Bregante. Engineers: Paula F.T. Wolak, Steve Counter, Billy Moss. Dimensions: Room 1: studio 30 x 22, control room 18 x 21. Room 2: studio 15 x 18, control room 18 x 26. Room 3: studio 6 x 10, control room 12 x 14. Mixing Consoles: Trident "B" range (The Davlen Trident) 28 x 24, Tascam Model 15 24 x 16, Studer 189-080 20 x 8. Audio Recorders: Studer A80 MkII 24- and 16-track w/close punch heads, Tascam 8516 16-track 1" w/dbx and autolocate, Tascam 80-8 8-track, Ampex ATR100 2-track 1/2", 2-track 1/4", 4-track 1/2", Sony PCM-701es digital, 3/4" U-matic, also Beta. Cassette Recorders/Duplicators: Revox B-215, TEAC 122, TEAC C-1. Noise Reduction Equipment: dbx 16 in studio 2, Echo, Reverb, & Delay Systems: Yamaha REV1, Yamaha REV7, Lexicon 200, Lexicon PCM70, EMT 140-plate (tube/ stereo), (2) Alesis Microverbs, Lexicon Prime Time, Eventide 949 Harmonizer, (2) Eventide 910 Harmonizers, UREI Cooper Time Cube. Other Outboard Equipment: (2) ITI ME-230 parametric stereo (Massenberg), (2) Aengus graphic, (2) Pultec EQP-1, (2) Pultec EQH-2, (2) Teletronix LA-2A, (4) dbx 165 over easy, (6) Dyna-Mite stereo, Drawmer stereo noise gate, UREI 545 parametric, (4) Aphex CX-1 compressor/expanders, (2) API 525 compressors, Klien-Hummel UE 100 tube EQ, (7) Roger Mayer noise gates, (2) Studer stereo compressors, (2) dbx 160 compressors. Microphones: Neumann M49b, (2) Neumann U47 tube and FET, (2) Neumann U67, (4) Neumann U87, Neumann U89, Neumann KM64, (6) RCA 77DX, RCA 44DX, RCA 77A, (3) AKG C12, (2) AKG 414eb, (4) AKG 452/451, (8) Sennheiser 421, Sennheiser 441, (4) Sony 37A. Monitor Amplifiers: UREI 6500, Klark-Teknik DN-27, BGW 750C, Crown EQ-2, Belles Research "A". Monitor Speakers: John Meyer "B33" w/Augsburger curve, Yamaha NS-10M, UREI 813 w/Altec 604s, Westlake BBSM-6. Musical Instruments: Yamaha C7 7'4" grand piano (ivory keys), Hammond B3 w/Leslie 122rv, Roland Jupiter-8 synth., E-mu SP12 drum machine, Simmons SDS-5 drums, Gretsch large drum set, Fender 1955 Stratocaster, (5) Fender pre-CBS Precision basses, Rickenbacker 1964 12-string, Marshall 1/2-stack 100-watt, Ludwig copper tympani, Fender 1964 Esquire, Fender tweed Champ. Video Equipment: Sony VO-2600 3/4" U-matic, Sony Beta. Extras & Direction: Stevie Nicks, Mick Fleetwood, Richard Dashut, Christine McVie, Billy Burnett, George Hawkins, Glen Campbell, Crusaders, Wilton Felder, Tom Kendzia, Peter McLean, Dear Enemy, Alice Cooper, Lindsey Buckingham, Steve Smith, Jimmy Iovine, Tubes, Tim Manion, Goose Creek Symphony, Huey Lewis, *Entertainment Tonight*, *Friday Night Videos*, Making It Big, Joe Jackson Prod., Rocket 88s, Norbert Putnam, Shayla, Kim Robertson, Peter Kater, The Monkees (Davy Jones), Cliff Sarde.

[24+] **VOICEOVER STUDIOS**; 8625 King George Dr., Ste. 335C; Dallas, TX 75235; (214) 688-0600.

[24+] **JOHN WAGNER RECORDING STUDIOS, INC.**; 12000 Candelaria NE, Ste. 1; Albuquerque, NM 87112; (505) 296-2766. Owner: John Wagner, Laura L. Zachery. Studio Manager: John Wagner. Extras & Direction: John Wagner Recording Studios is the only full service 24-track recording studio in New Mexico capable of SMPTE interlocked audio post-production for video. We recently installed the Adams-Smith SMPTE synchronizing system with compact computer controller and a 24-channel, 16-bit Yamaha digital automated mixing console. Our 25 years' experience in all aspects of audio recording along with our fully equipped 24-track studio have enabled us to produce product for the following major record labels: RCA, Capitol, MCA, Motown, CMH; create numerous award-winning jingle campaigns; record two Grammy-nominated albums and be the only studio in New Mexico with the audio/video interlocked capabilities necessary for sophisticated audio post-production. Recent post-production clients have included Sunn Classic Pictures, *Miss USA Pageant*, Wilson Learning Center IT Group, L.A. Law, Chevron, Telly Tea, Santa Fe Opera.

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## 12 &amp; 16 TRACK

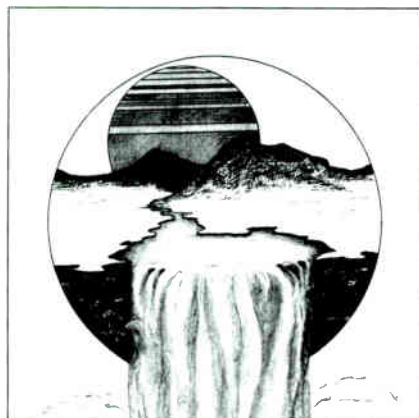
## STUDIOS

[16] **A PLACE OF PRAISE**; 2500 E. Vancouver, Broken Arrow, OK 74014; (918) 355-3020. Owner: Bruce Dinehart Studio Manager: Bruce Dinehart

[16] **ALTIM STUDIOS**; also *REMOTE RECORDING*; PO Box 330271, Fort Worth, TX 76163; (817) 346-1012. Owner: Tim Hood, Bill Gardner Studio Manager: Tim Hood

[16] **ARCA (AUDIO RECORDING CORPORATION OF ARKANSAS, INC.)**; 100 N. Rodney Parham Rd., Stes. 1A & 1B, (PO Box 5686, Little Rock AR 72215); Little Rock, AR 72205; (501) 224-1111. Owner: Dick Marendt, Clyde Snider Studio Manager: Clyde Snider

[16] **ARIZONA REMOTE RECORDERS**; also *REMOTE RECORDING*; 833 W. Main St., Mesa, AZ 85201; (602) 969-8663. Owner: Brent Gabrielsen Studio Manager: Wayne Mitchell



**AUSTIN'S RIVERSIDE SOUND**  
Austin, TX

[16] **AUSTIN'S RIVERSIDE SOUND**; also *REMOTE RECORDING*; 7617-A E. Riverside Dr.; (PO Box 33207 Austin, TX 78764); Austin, TX 78744; (512) 385-4060. Owner: Herschel Cunningham Studio Manager: Herschel Cunningham Engineers: Richard Mullen, Layton DePenning, Eddie Habib, Bill Johnson Dimensions: Room 1. main cutting room 30 x 40 Room 2 live corridor 30 x 30 Room 3 live sound room 14 x 30 Room 4 control room 15 x 20. Mixing Consoles: Ramsa WR-8816 16 x 16 Audio Recorders: MCI JH-24-16 16-track, MCI JH-110B-14-2 2-track, Sony PCM-701 2-track digital Echo, Reverb, & Delay Systems: Lexicon 224, MXR digital delay Other Outboard Equipment: (4) Lexicon Dyna-Mite noise gates, EXR Exciter, (4) dbx compressor and de-essers, (2) UREI 530, (3) UREI 535, (2) UREI 1176LN peak limiter, UREI LA-4 compressor, (2) parametric EQs. Microphones: Neumann U87, Neumann U47, (2) AKG 414, (5) Sennheiser 421, E-V RE20, (4) Shure SM57, (3) Beyer M88, Beyer 201, AKG 451, (2) Countryman, (3) Shure SM58, Beyer M500 Monitor Amplifiers: Crest, Biamp Monitor Speakers: E-V Sentry 500, Yamaha NS-10M, JBL 4311 Musical Instruments: Yamaha acoustic grand piano, Hammond organ w/Leslie, other instruments available for rental. Rates: Available upon request Ask for Herschel

[16] **AVALON SOUND**; PO Box 2691; Fort Worth, TX 76113; (817) 483-4722. Owner: David Hughes Studio Manager: Coral Hughes

[16] **AVATAR STUDIOS UNLTD.**; 5010 Woodway, #329; Houston, TX 77056; (713) 623-2369. Owner: Ron Nicosia Studio Manager: Steve Nicosia

[16] **GARY BECK'S RECORDING STUDIO**; also *REMOTE RECORDING*; 4817 Karchmer, Corpus Christi, TX 78415; (512) 854-7376. Owner: Gary Beck Studio Manager: Darren L. Beck, Jada Vaughan

[16] **BEE CREEK STUDIO**; Spicewood, TX; (512) 264-1379. Owner: Spencer Starnes Studio Manager: Spencer Starnes

[16] **C & L PRODUCTIONS**; also *REMOTE RECORDING*; 1511 N. 11th; Lamesa, TX 79331; (806) 872-7933. Owner: Lyle & Collin Roberts

[16] **CALVARY RECORDINGS**; Rt. 1, Box 11, Weslaco, TX 78596; (512) 968-2902. Owner: Enrique Garza Studio Manager: Enrique Garza

[12] **CASTLE PRODUCTIONS**; 6837 E. Sweetwater, Scottsdale, AZ 85254; (602) 991-5090. Owner: Anthony DiPardo Studio Manager: Ray Lucero

[16] **CAVE PRODUCTIONS/CREATIVE AUDIO VIDEO ENGINEERING**; 114 E. Union; Prescott, AZ 86301; (602) 445-0413. Owner: Jay Robertson Studio Manager: Joe & Jeff Robertson

[16] **CHRISTIAN BROTHERS RECORDING**; also *REMOTE RECORDING*; 125 Albert Pike; Hot Springs, AR 71913; (501) 623-6512. Owner: Dan Kellerby Studio Manager: Dan Kellerby Dimensions: Room 1: control room 14 x 15. Room 2. studio 14 x 13 Room 3 studio 12 x 13 Room 4 studio 20 x 15. Mixing Consoles: Hill B3 32 x 24 Tascam 216 16 x 4 Audio Recorders: Tascam MS-16 16-track w/autolocate and dbx, Tascam 388 8-track w/autolocate and dbx. TEAC 3340 4-track, Tascam 32 2-track, Sony PCM-F1 2-track, TEAC 1000SX 1/4-track Cassette Recorders/Duplicators: Tascam 122 MkII, (3) TEAC V-430 w/dbx, Pentagon 30 1 w/(8) cassette slaves Synchronization Systems: Adams-Smith Zeta III, Commodore SX-64, Tascam AQ-65 Echo, Reverb, & Delay Systems: Yamaha REV7, Yamaha SPX90, Yamaha SPX90II, (2) Alesis MIDiverbs, Roland SDE-1000, DOD Electronics 7 6 delay DOD Electronics SP128 MXR DDL, MICMIX XL-210, Ibanez HD-1000 Other Outboard Equipment: dbx 166 comp/lim/gate, CDT Champ comp/lim/gate/expander, Rane GE-14 graphic EQ, Aphex Type C, Akai EX70C comp/lim/gate, LP Sound Studio 1, Rane RA27 spectrum analyzer Microphones: Neumann U87, (4) Sennheiser 421, (4) Shure SM57, Shure SM58, (3) Sony FK-70L, Sony FK-80L, (3) Crown PZM 30GPB, E-V 120, (2) Whirlwind Directors, (6) Peavey EDI. Monitor Amplifiers: QSC 1200, Crown MT-600, Kenwood M-1 Monitor Speakers: JBL 4312, Akai MS-200, Yamaha NS-10M, Jensen Model 1 Musical Instruments: Kurzweil MIDBoard, Korg DW-8000, Kawai K-3M, Akai S900, Yamaha TX7, Casio CZ-5000, Kawai SX-240, Casio SK-1, Roland TR-707, Gibson Victory bass, Gibson ES 330 (1962), (2) Fender Stratocasters, several other instruments and amps available upon request Other MIDI Equipment: Akai ME10D MIDI digital delay/harmonizer, 360 Systems MIDI patcher, Master Tracks Pro, IBM PC/XT, Commodore 64 w/librarians Video Equipment: Sony 5850 3/4", Sony 5800 3/4", Sony RM-440, (2) JVC Hi-Fi VHS Other: Sony CD player, CB700 7-pc kit w/rototoms, extensive sample inventory Rates: 16-track \$50/hr., 8-track \$30/hr., block rates available

[16] **COPESTICK SOUND**; also *REMOTE RECORDING*; 403 E. Kerr; Midwest City, OK 73110; (405) 737-7024. Owner: Dave Copenhaver Studio Manager: Lisa Copenhaver

[16] **CREATIVE AUDIO/VIDEO ENGINEERING (CAVE PRODUCTIONS)**; 114 E. Union; Prescott, AZ 86303; (602) 445-0413. Owner: Jay C. Robertson Studio Manager: Joe P. Robertson

[16] **MIKE DE LEON PRODUCTIONS**; also *REMOTE RECORDING*; 14146 Woodstream; San Antonio, TX 78231; (512) 492-0613. Owner: Mike De Leon Studio Manager: Mike De Leon

[16] **THE DEMO SHOP**; 1505 Ronne; Irving, TX 75061; (214) 790-8700. Owner: Allen David Schram Studio Manager: Allen David Schram

[16] **DFQ STUDIO (DAVID FLACK QUORUM PRODUCTIONS)**; PO Box 79-0292; San Antonio, TX 78279; (512) 496-8092. Owner: David Flack Studio Manager: David Flack

[16] **DLR AUDIO RECORDING**; 2413 S. Eastern, Ste. 165; Las Vegas, NV 89104; (702) 641-6399. Owner: D. Durante, R. Menard Studio Manager: Brett Hansen.

[16] **EDITPOINT AUDIO AGENCY INC.**; 1241 W. French; San Antonio, TX 78201; (512) 737-EDIT. Owner: Donnie Meals Studio Manager: Judy Meals

[16] **EXPANDING UNIVERSE**; also *REMOTE RECORDING*; 2389 NW Military Dr., Ste. 602; San Antonio, TX 78231; (512) 493-5550. Owner: W.I. Davis Hankins Studio Manager: Bill Carey

[16] **FLASH INTERNATIONAL RECORDING STUDIOS**; PO Box 580058; Houston, TX 77258; (713) 488-1978. Owner: R.L. Boudreaux Studio Manager: Michael Boudreaux

[16] **GARZA SOUND STUDIO INC.**; 802 W. Patton; Houston, TX 77009; (713) 861-3976. Owner: Nacho Garza Studio Manager: Nacho Garza

[16] **HAI TEX STUDIO**; 2107 S. Edgelyfield; Dallas, TX 75224; (214) 946-7947. Owner: Hai Tex Productions Studio Manager: Andy Chiles Engineers: Gary Cook, Jeff Wrenn, Andy Chiles Dimensions: Studio 35 x 15, control room 17 x 15. Mixing Consoles: Tascam M16 24 x 16 Audio Recorders: Tascam 8516B 16-track, Tascam 32 2-track, Sony PCM-501ES 2-track digital Cassette Recorders/Duplicators: Nakamichi MR-2 Noise Reduction Equipment: dbx Echo, Reverb, & Delay Systems: Yamaha REV7, DeltaLab Effectron II Other Outboard Equipment: dbx 166 compressor, Symetrix CL100 limiter, UREI 1176L peak limiter, dbx 1531 equalizers Microphones: Neumann U89, Sennheiser 421, Shure SM57, Audio-Technica ATM-41, E-V, Shure SM58 Monitor Amplifiers: Crown DC-300, Crown D-150, Symetrix A-220 Monitor Speakers: JBL 4312, Auratone Musical Instruments: Fender bass and guitars, Roland JC-120, Fender and Carvin amps, Sequential Circuits Six-Trak synthesizer Other MIDI Equipment: Drum Traks and sequencer, Commodore 64 computer Video Equipment: Complete video production and photography services available. Call for rates and other information Rates: \$30/hr., block rates available at discount

[16] **HEADS UP STUDIOS**; also *REMOTE RECORDING*; 8601 Cross Timbers Dr.; Flowermond, TX 75028; (817) 430-1003. Owner: Dave Love Studio Manager: Dave Love

[16] **HONEYBEE RECORDING STUDIO**; also *REMOTE RECORDING*; 417 E. Crosstimbers; Houston, TX 77022; (713) 694-2971. Owner: Freddie Kober Studio Manager: Tommy Meider.

[16] **ITTI STUDIOS, INC.**; also *REMOTE RECORDING*; 4305 S. Mingo, Ste. A; Tulsa, OK 74146; (918) 663-7700. Owner: Michael Brown Studio Manager: Michael Brown

[12] **JIM'S GARAGE (FORMERLY THE DEMO STUDIO)**; 555 Cicero; San Antonio, TX 78218; (512) 656-1382. Owner: Jim Waller Studio Manager: Suzell Waller

[16] **LAMBCHOPS CREATIVE RECORDING SERVICES**; also *REMOTE RECORDING*; 323 W. McDowell Rd.; Phoenix, AZ 85003; (602) 254-3849. Owner: Rick Lamb Studio Manager: Shelley Standing

[16] **LINCOLN INSTITUTE**; 7622 Louetta Rd.; Spring, TX 77379; (713) 376-9679. Owner: Lincoln Foundation Studio Manager: Dan Yeane, Jeff Seal.

[16] **LITZMAN PRODUCTIONS**; 3712 Pictureline Dr.; Dallas, TX 75233; (214) 331-2371. Owner: Terry Litzman Studio Manager: Anita Litzman

[16] **LONE STAR RECORDING**; also *REMOTE RECORDING*; 1204 N. Lamar; Austin, TX 78703; (512) 478-3141. Owner: Ed Guinn, Stan Coppinger Studio Manager: Bill Anderson.

[16] **MARSOUND**; 915 N. Main; Tucson, AZ 85705; (602) 628-1554. Owner: Mike Reinhard Studio Manager: Mike Reinhard

[16] **MASTER PRODUCTIONS RECORDING STUDIO**; 407 S. Nebraska St.; Weslaco, TX 78596; (512) 968-5777. Owner: Jose A. Leal Studio Manager: Jose A. Leal

[16] **PATRICK MCGUIRE RECORDING**; 1402 Rockdale; Arlington, TX 76018; (817) 467-1852. Owner: Roy B. Watson Studio Manager: Patrick A. McGuire Engineers: Patrick McGuire Dimensions: Studio 20 x 22, control room 10 x 12 Mixing Consoles: Ramsa WR8118 18 x 4 Audio Recorders: Fostex B-16 16-track, Otari 5050-BII 2-track Cassette Recorders/Duplicators: Tascam 122 2-track Noise Reduction Equipment: Dolby C 16-track (internal on B-16) Synchronization Systems: Fostex 4030 synchronizer, Fostex 4035 controller, Fostex 8700 Time Code generator Echo, Reverb, & Delay Systems: ART 01A digital reverb, DeltaLab 1024 digital

delay, Yamaha REV5, Yamaha SPX90II Other Outboard Equipment: dbx 160X compressor/limiter, Aphex Type B Aural Exciter, Rane RA27 room analyzer/graphic EQ, Rane GE27 graphic EQ, Tascam PE40 parametric EQ Microphones: AKG 414EB/P48, AKG D12E, AKG D1200, E-V RE11, Shure SM57, (2) Crown PZM 30GP, (3) Audio-Technica ATM 63, (2) Audio-Technica ATM 10R, (2) Audio-Technica ATM 11R, Sennheiser MD-431 Monitor Amplifiers: Crown D150A, Rane HC-6 Monitor Speakers: JBL 4411, Auratone 5C Musical Instruments: Yamaha G3 6' grand piano, Yamaha DX7IIDF, Yamaha RX5 digital drum synthesizer, Yamaha FG335E acoustic/electric guitar, Alembic bass Other: Stewart ADB-1 Dis, Fostex T-20 headphones. Rates: \$35/hr plus tape Block rates available

[16] **MESQUITE RECORDING STUDIO**; 734 Oak Dr; Mesquite, TX 75149; (214) 285-3151. Owner: Don McKnight Studio Manager: Don McKnight

[16] **MOONDANCE STUDIOS**; also *REMOTE RECORDING*; PO Box 3318; Taos, NM 87571; (505) 758-9113. Owner: Morten Nilssen Studio Manager: Morten Nilssen

[16] **MUSHROOM STATION STUDIOS & SHARE-A-VISION**; also *REMOTE RECORDING*; 1913 Hoskins; Houston, TX 77080; (713) 973-7733; (713) 868-9724. Owner: Josh Freeman Studio Manager: Monica Alvarado

[16] **MUSICIANS SOUND LAB**; also *REMOTE RECORDING*; 1241 N. Brazosport Blvd; Richwood, TX 77531; (409) 265-9177 Owner: Dennis Blair, Buddy Morrow Studio Manager: Robert Kelley

[12] **NEW AGE RECORDING**; 8607 Wurzbach Rd., U-105; San Antonio, TX 78268; (512) 641-9818. Owner: Richard Veliz Studio Manager: Keith Harter

[16] **NORTHCREST STUDIOS**; also *REMOTE RECORDING*; 2504 Northcrest; Plano, TX 75075; (214) 422-7639. Owner: Northcrest Studio Inc Studio Manager: Martin Silverman Engineers: Edward Vakser, Roland Antoine, Vladimir Vakser Dimensions: Room 1 studio 25 x 30, control room 10 x 11 Room 2 studio 25 x 15 Mixing Consoles: Carvin MX2488 26 x 8, Kawai MX8R 8 x 2, Ramsa 16 x 4 Audio Recorders: Fostex E16 16-track Cassette Recorders/Duplicators: Nakamichi RX202, Fostex X-15, Hitachi DE2, Pioneer CT-7R Noise Reduction Equipment: Dolby C Synchronization Systems: Hybrid Arts SMPTE-track MIDI/SMPTE/FSK sync Echo, Reverb, & Delay Systems: Yamaha SPX90, Alesis MIDVerb, DeltaLab Effectron II, Omniflex PDX16 digital delay

Other Outboard Equipment: RockTron Hush II compressor/limiter, dbx 1BX spatial expander series II, Aphex Type E Aural Exciter, Numark 23-10 EQ, Ross 31-band EQ, Ana 522 EQ, ADC SA-1 real-time spectrum analyzer, Bluehaven 40 x 20, Emerson UPS800 battery backup and power conditioner/spike protector Microphones: Beyer M500, Beyer M380, Beyer M422, Beyer M300, Audio-Technica AT-813, Audio-Technica AT-814, E-V PL80, E-V PL95, (7) Shure SM57, (3) Shure SM58 Shure SM10. Monitor Amplifiers: Dencan AVPMA 700V. OSC, (2) Yamaha P2100, (2) Crown DC30C Monitor Speakers: UREI 809A Time Align monitors, (3) Carvin 790E studio monitors, Pioneer Cadenza 312 Musical Instruments: Ensoniq ESQ-M, Kawai K3M, Korg DW-8000, Roland DDR-30 digital drum machine, Yamaha RX11, Sequential Circuits Drumtraks, Pearl 11-pc drum set, Charvel 3A, E-mu Emax HD w/SE, G&L Superhawk, Dauphine classic guitar, Fleishman bass, Bond graphite fretless guitar. Other MIDI Equipment: Atari 1040ST w/SH204 hard disk, Hybrid Arts 60-track MIDI recorder, Oberheim xK controller, Korg RK-100 controller, Roland digital drums, J.L. Cooper MSB+ MIDI patch bay/merger Other: (2) Laney AOR Protube lead w/Mesa/Boogie and Laney 4 x 12, Fender Proverb amp, 2-octave MIDI bass pedals, Yamaha DX7 1,500-program library. Rates: \$25/hr (special project rates available)

[16] **O-TU STUDIOS**; 313 E. 15th St.; Tempe, AZ 85281; (602) 464-8443. Owner: Robert W. Lewis Studio Manager: Robert W. Lewis

[16] **OMEGA SOUND**; 1112 Garrison; Fort Smith, AR 72901; (501) 783-1131. Owner: Randy McFarland Studio Manager: Randy McFarland

[16] **OPEN TRACKS RECORDING STUDIO**; also *REMOTE RECORDING*; 1708 "K" SW; Miami, OK 74354; (918) 542-4562. Owner: Michael Palis Studio Manager: Michael Palis

[16] **ORANGWOOD RECORDING**; 2626 N. Home; Mesa, AZ 85203; (602) 835-7605. Owner: Michael Coleman Studio Manager: Michael Coleman

[16] **PLA-BACK RECORDING**; 2404 Salerno Dr.; Dallas, TX 75224; (214) 942-1387. Owner: Lew Blackburn Studio Manager: Lew Blackburn

[16] **POVERTY HILL RECORDING STUDIO**; PO Box 805; Cedar Hill, TX 75104; (214) 775-2222. Owner: Mark Giles Studio Manager: Mark Giles

[16] **PSALMIST RECORDING STUDIO**; also *REMOTE RECORDING*; PO Box 961; Whitehouse, TX 75791; (214) 581-5461. Owner: JW Bakwr Studio Manager: RL Baker

[16] **QUINCY STREET SOUND**; also *REMOTE RECORDING*; 130 Quincy St. NE; Albuquerque, NM 87108; (505) 265-5689. Owner: Eric Larson Studio Manager: Eric Larson

[16] **SALT RECORDING**; PO Box 3041; McAllen, TX 78501; (512) 383-2180. Owner: Sonny Salinas



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[16] **SCOTTSDALE CONFERENCE RESORT**; also *REMOTE RECORDING*; 7700 E. McCormick Pkwy; Scottsdale, AZ 85258; (602) 991-9000. Owner: Scottsdale Conference Resort. Studio Manager: Brian Court Engineers: Brian Court, Scott Meyer, Russ Graves, Mike Floor. Dimensions: Studio 21 x 26, control room 20 x 18. Mixing Consoles: TAC Scorpion 24 x 16, TAC Scorpion 16 x 8, Soundcraft 600 16 x 8, (2) Tascam M312B 12 x 4, Tascam M5 8 x 4 Audio Recorders: Atari MX-70 16-track, Tascam Model 3B 8-track, Otari MTR-12 2-track w/center track time code, Otari 5050 MkII 2-track, Otari 5050B 4-track, TEAC 3440 4-track, Cassette Record-

—CONTINUED ON THE NEXT PAGE

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**12&16 TRACK**

STUDIOS

—CONTINUED FROM THE PREVIOUS PAGE

ers/Duplicators: (2) Tascam 122, Nakamichi MR-1, Tascam 234, Tascam 133 Noise Reduction Equipment; (8) dbx 150X Type 1 Synchronization Systems: (2) Adams-Smith 2600 synchronizer, Adams-Smith reader, Adams-Smith writer Echo, Reverb, & Delay Systems: Lexicon 200, (4) Yamaha SPX90, Lexicon PCM42, Roland SDE-2000, ADA D640, Yamaha REV7 Other Outboard Equipment: Eventide H949, (3) Gate noise gates, (3) dbx 166 comp/limiter, (2) Symetrix 522, Scamp rack, Tascam PE40 parametric EQ, Aphex II Aural Exciter, Studio Technologies AN-2 stereo simulator, (20) dbx 903 comp/limiters, (3) Klark-Teknik DN360 graphic equalizers, (3) 10-band EQs, (2) comp/limiters, para EQ, (4) dbx 905 parametric EQ, dbx 902 de-esser. Microphones: (2) Neumann U89, Neumann U47, (4) Shure SM81, (2) Shure SM85, (2) Sennheiser 421, (2) E-V RE20, (2) E-V PL80, (30) Shure SM58, (3) Shure SM57, (2) Crown PZM, E-V BK1. Monitor Amplifiers: (2) Crest 3000, (3) JRE6300, (3) Symetrix A220 Monitor Speakers: (2) JBL 4430, (2) Tannoy SRM 12B, (2) JBL 4408, (6) JBL 4401, (2) Auratone 5C. Musical Instruments: Roland S-50, Roland S-10, Yamaha RX11, Roland TR-505, Yamaha DX7, Yamaha TX7, Yamaha TX812, Yamaha FBO1, (3) Fender guitars, GK guitar amp, Fender Pro Reverb, Ludwig Custom drum set, (2) Steinway 6' grand piano Other MIDI equipment: Apple Macintosh, Total Music software, Korg MIDI patch bay Video Equipment: Grass Valley 1600IL switcher w/interface, Convergence 204 editor, (3) JVC CR-850U ¼" recorders, (3) Sony 5850 recorders, Ikegami HL79, Ikegami ITC730, Quantafont graphics. Other: (30) Projector multi-image show, (2) AVL Genesis multi-image computer, complete darkroom, color, E-6, C41, printing, Oxberry Pro 3 pin-registered camera, 7-watt Argon laser. Extras & Direction: Specializing in original music composition, commercial production, audio/visual soundtracks, post-production audio-for-video and voice-over production. Also complete video production and industrial multi-image staging. Located in luxurious resort setting with golf, tennis, complete health spa and fitness center and easy access to Sunbelt activities.

[16] **SOMEWHERE RECORDING**; 7517 Tomlinson; Hobbs, NM 88240; (505) 392-4408; (505) 393-6188. Owner: Jim Abbott. Studio Manager: Jim Abbott.

[16] **SOOTHSAYER RECORDING**; 114 Barbara, San Antonio, TX 78216; (512) 826-5983. Owner: AG Pinson. Studio Manager: Eric L. Pinson. Engineers: Eric L. Pinson. Dimensions: Studio 18 x 23, control room 13 x 22. Mixing Consoles: AGP 24 x 24 w/4-band parametrics ea. channel. Audio Recorders: Fostex B-16 16-track w/4050 autolocator, Tascam 38 8-track, Dokorder 1140 4-track, Tascam 32 2-track. Cassette Recorders/Duplicators: TEAC C3RX, (3) TEAC R400. Noise Reduction Equipment: Dolby, dbx Type I, dbx Type II. Synchronization Systems: Fostex 4050 MIDI w/SMPTE Echo, Reverb, & Delay Systems: Roland SRV-2000, Lexicon PCM41, Yamaha SPX90, ADA Digitizer 4, Furman RV-1 Other Outboard Equipment: Orban 536A de-esser, dbx 160X comp/limiter, (2) Ashly SC-50 comp/limiter, GateX 4-ch gate/expander, Ashly SC-33 stereo noise gates, Aphex Type B Aural Exciter, (3) DOD R831B 1/3-octave EQs, dbx 166 stereo comp/limiter w/gating, Fostex 3070 stereo comp/limiter w/expansion. Microphones: AKG C414EB/P48, (4) Sennheiser MD-421, Sennheiser MD-441, E-V RE20, Audio-Technica ATM-813R, Audio Technica ATM-91, (5) Shure SM57, (2) Shure SM58, Countryman Type 85 direct box, AKG D100E. Monitor Amplifiers: Crown DC300All, (2) Cerwin-Vega A-200, Roland SPA-240, (2) Carver PM1.5, (2) Crown D75. Monitor Speakers: JBL 4411, Auratone 5C, AKG K-240 headphones. Musical Instruments: E-mu Emax 1000 sampler/keyboard, Marshall 4203 tube guitar amplifier, Roland TR-707 drum computer, Roland TB-303 bass computer, Epiphone 6- and 12-string guitars, Gibson Les Paul Artisan, Roland Juno 106 synthesizer, Carvin X-60B guitar amplifier, Fender Stratocaster, Tama 10-pc. drum set w/Evans heads, (2) Acoustic enclosures (one w/Celestions), Simmons SDS-8 electronic drums, ARP Quartet, assorted percussion. Other MIDI Equipment: Roland MC-500 MIDI sequencer. Other: AWS 20 MHz oscilloscope, Loftech TS-1 test set, Audiosource RTA w/pink noise, Sony CDP-203 compact disc player, Stewart PM-2, Stewart PS-1 phantom power supply. Rates: \$30/hr.

[12] **SOUND IDEAS/VOICEWORKS**; also *REMOTE RECORDING*; 1417 Main, Ste. 1, Little Rock, AR 72202; (501) 376-4332. Owner: Ed Nicholson, John Minick.

[16] **SOUNDS RIGHT SOUND**; also *REMOTE RECORDING*; Rt. 4, Box 354; New Caney, TX 77357; (713) 354-6055. Owner: Robert Clinkscales.

[16] **SOUNDTECH RECORDING STUDIO**; 2750 W. Osborn Rd.; Phoenix, AZ 85017; (602) 257-0444. Owner: Sarge Waldon. Studio Manager: Sarge Waldon.

[16] **SOUTHWEST RECORDINGS**; 2031 Libbey; Houston, TX 77018; (713) 681-7565. Owner: Jeff Smith. Studio Manager: Jeff Smith.

[16] **TIM STANTON AUDIO**; also *REMOTE RECORDING*; 1501 W. Fifth St., Ste 103; Austin, TX 78703; (512) 477-5618. Owner: Tim Stanton.

[16] **STRAWBERRY SOUNDS**; 5500 E. Loop 820 S., #203; Fort Worth, TX 76119; (817) 483-8611. Owner: Sam Stone. Studio Manager: Sam Stone.

[16] **STUDIO MOBILE**; 11226 Sagevale; Houston, TX 77089; (713) 481-2551. Studio Manager: Erik Sweet.

[16] **STUDIO ONE**; also *REMOTE RECORDING*; 8535 Selendine; San Antonio, TX 78239; (512) 650-0442. Owner: Timothy K. Gressler. Studio Manager: Timothy K. Gressler.

[16] **SUNRISE ART WORKS**; also *REMOTE RECORDING*; 5005 N. Ft. Buchanan Trail; Tucson, AZ 85715; (602) 299-3351. Owner: Tim Spencer. Studio Manager: Tim Spencer.

[16] **TANDEN PRODUCTIONS**; PO Box 382; Gainesville, TX 76240; (817) 665-6756. Owner: Bobby Dennis. Studio Manager: Bill Foshee.

[16] **TEMPEST RECORDING**; also *REMOTE RECORDING*; PO Box 1007; Tempe, AZ 85281; (602) 968-9506. Owner: Clarke Rigsby, Andy Baade. Studio Manager: Clarke Rigsby, Andy Baade.

[16] **TEXAS MUSIC STUDIO (VIDEO MEGA PRODUCTIONS)**; also *REMOTE RECORDING*; 2402 Broadmoor, Ste. 101A; Bryan, TX 77802; (409) 774-1123. Owner: Greg Phelps. Studio Manager: Don Pope.

[16] **TEXAS SUNRISE RECORDING STUDIO**; Rt. 4, Box 615; 1½ mi. N. Jackson Rd.; Edinburg, TX 78539; (512) 381-0077. Owner: Mike Lopez, Domingo Porras. Studio Manager: Mike Lopez.

[16] **TOMLYN RECORDING STUDIO**; also *REMOTE RECORDING*; Rt. 3, Box 405; Flint, TX 75762; (214) 894-7713. Owner: Tom Russell. Studio Manager: Jim Phillips.

[16] **TRIPLEX RECORDERS**; also *REMOTE RECORDING*; 3644 Gulfway Dr.; Port Arthur, TX 77640; (409) 985-9550. Owner: Wayne Dyess.

[16] **TRUE COLOURS RECORDING STUDIO**; 201 Cordoba St.; Arlington, TX 76014; (214) 243-4477. Owner: Barry Dickey. Studio Manager: Barry Dickey.

[16] **WALK ON WATER STUDIOS, INC.**; also *REMOTE RECORDING*; Rt. 2, Box 566-H; New Braunfels, TX 78130; (512) 625-2768. Owner: Ken Brazle, Bruce Weldy. Studio Manager: Ken Brazle.

[16] **WEDGEWOOD STUDIOS**; 7800 Westminister Pl.; Fort Smith, AR 72903; (501) 452-9057. Owner: Caruth Alexander. Studio Manager: Caruth Alexander.

[16] **WONDER VALLEY RECORDING**; Hwy. 264 W., Box 208; Cave Springs, AR 72718; (501) 248-1305. Owner: Paul L. Hughes. Studio Manager: Debbie Hughes.

[16] **WORLD WIN RECORDING**; also *REMOTE RECORDING*; 1707 High Meadows; Norman, OK 73071; (405) 321-1900. Owner: Kenneth R. Hughes. Studio Manager: Kenneth R. Hughes.

[16] **ZANBECK SOUND PRODUCTIONS**; Rt. 4, Box 1249; Little Rock, AR 72206; (501) 888-7045. Owner: Chuck Bailey, Bobby Gibson, Faye Beck.

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# S O U T H W E S T

# 4&8 TRACK

## STUDIOS

[8] **ACCUTRAK**; 2614 Aspen NW, Albuquerque, NM 87104; (505) 242-4309. Owner: Douglas Clifton. Studio Manager: Douglas Clifton, Jerry Rancier.

[8] **ADROIT RECORDING**; 5341 W. Banff Ln., Glendale, AZ 85306; (602) 938-2189. Owner: Bernard Anderson. Studio Manager: Gordon Anderson.

[8] **AMBASSADOR AUDIO**; also *REMOTE RECORDING*; PO Box 271; Euless, TX 76039; (817) 451-8967. Owner: Walt Beaulieu

[8] **AMBIENT SOUND PRODUCTIONS**; NW Oklahoma City, Oklahoma City, OK 73107; (405) 949-1602. Owner: Doug Matthews. Studio Manager: Doug

[4] **ANGELWING PRODUCTIONS**; also *REMOTE RECORDING*; PO Box 141; 16720 Stuebner Airline, Spring, TX 77379; (713) 893-2180. Owner: John Ebdon. Studio Manager: John Ebdon.

[8] **ARARAT SOUND PRODUCTIONS**; 23019 Tree Bright, Spring, TX 77373; (713) 443-6947. Owner: David Forbus. Studio Manager: David Forbus.

[8] **AUDIO CHAIN RECORDING**; also *REMOTE RECORDING*; Box 5236; Lubbock, TX 79417; (806) 792-3804. Owner: Dwaine Thomas, Rocky Johnson. Studio Manager: Dwaine Thomas.

[4] **AUDIO GENICS**; also *REMOTE RECORDING*; 5376 Stewart Ln., Mathis Field; San Angelo, TX 76904; (915) 944-1213. Owner: Rick Peebles. Studio Manager: Rick Peebles.

[8] **AUDIO-TECH**; 1708 Central Ave. SE; Albuquerque, NM; (505) 842-5989. Owner: Doug Blakely.

[8] **AYERPLAY RECORDING & PRODUCTION STUDIO**; 131 E. 57 St.; Tulsa, OK 74105; (918) 749-9225. Owner: Chuck Ayers. Studio Manager: Chuck Ayers.

[4] **AZBELL VIDEO PRODUCTIONS**; also *REMOTE RECORDING*; 1813 Speight; Waco, TX 76706; (817) 754-4689. Owner: Billy Azbell. Studio Manager: Billy Crocker.

[8] **BAND FACTORY**; also *REMOTE RECORDING*; 1414 W. Rosedale; Fort Worth, TX 76104; (817) 877-3391. Owner: Edward R. Stradley. Studio Manager: Edward R. Stradley.

[8] **BLANTON PRODUCTIONS**; 2900 Yale; Farmington, NM 87401; (505) 326-0021. Owner: Jamie Blanton. Studio Manager: Jamie Blanton.

[8] **BOSS MOSS PRODUCTIONS**; also *REMOTE RECORDING*; 1720 W. Clarendon; Phoenix, AZ 85015; (602) 279-4160. Owner: Randeë & Tom Mossburg. Studio Manager: Randeë Mossburg.

[4] **BOUNTIFUL PRODUCTIONS**; also *REMOTE RECORDING*; 3411 Duckview Ct.; Arlington, TX 76016; (817) 496-5199. Owner: Gordon & Maxine Wight.

[8] **BPL'S BANJO BRASS STUDIO**; 8088 N. 15th Ave.; Phoenix, AZ 85021; (602) 870-0351. Owner: Bruce P. Leland. Studio Manager: Shirley E. Leland.

[8] **BRIDGEPORT RECORDING STUDIO**; also *REMOTE RECORDING*; 11835 S. Perry Ave.; Houston, TX 77071; (713) 721-3440. Owner: Randy Kroupa.

[8] **BROOKSHIRE SOUND**; also *REMOTE RECORDING*; 3839 Maple; Odessa, TX 79762; (915) 362-8777. Owner: Gary Brookshire. Studio Manager: Danny Brookshire.

[8] **BUDDY FELLA PRODUCTIONS**; PO Box 594; Sulphur Springs, TX 75482; (214) 885-6128. Owner: Tracy Kite. Russell Riddle, Joey Baker. Studio Manager: Joey Baker.

[8] **BUNS-UP STUDIO**; also *REMOTE RECORDING*; Box 2393; Page, AZ 86040; (602) 645-9300. Owner: Jerry Edwards.

[8] **CANINE STUDIOS**; 2828 W. Villa Maria Dr., Phoenix, AZ 85023; (602) 439-3142. Owner: Roy Kim Weinberg. Studio Manager: Roy Kim Weinberg.

[8] **CAPTAIN'S TRACKS STUDIO**; 1 Robin Springs Pl.; The Woodlands, TX 77381; (713) 292-1745. Owner: Bruce G. Copp. Studio Manager: Bruce G. Copp.

[8] **CARUMBO RECORDING**; 1301 Magnolia St.; Norman, OK 73072; (405) 329-1765. Owner: Michael McCarty. Studio Manager: Michael McCarty.

[8] **CENTER STAGE PRODUCTIONS**; also *REMOTE RECORDING*; 200 NW Ellison; Burleson, TX 76028; (817) 447-2939. Owner: Wes Redden. Studio Manager: Deb Redden.

[8] **CHANNEL 8**; 15350 Peachmeadow; Channelview, TX 77530; (713) 452-7477. Owner: Buford Norris. Studio Manager: Buford Norris.

[8] **CHATEAU PRODUCTIONS**; PO Box 13802; Arlington, TX 76094; (817) 572-7502. Owner: Jeff G. Peters.

[8] **AL CLAUSER (ALVERA)**; 402 S. Broadway; Skiatook, OK 74070; (918) 396-1333. Owner: Al Clauser. Studio Manager: Al & Jim Clauser.

[4] **CLEAR AIRE AUDIO**; also *REMOTE RECORDING*; 1704 N. 2nd St.; Flagstaff, AZ 86004; (602) 774-5103. Owner: Greg Crosman. Studio Manager: Greg Crosman.

[8] **CREATIVE AUDIO PRODUCTIONS**; 326 Santa Isabel Blvd.; Laguna Vista; Port Isabel, TX 78578; (512) 943-6278. Owner: Ben McCampbell.

[8] **CRYSTAL RECORDING STUDIOS**; PO Box 733, #19 Tanglewood; Bryant, AR 72022; (501) 847-8215. Owner: Ray Brooks. Studio Manager: Ray Brooks.

[8] **DANMARK STUDIO**; 2800 Mimosa Pk.; Fort Worth, TX 76118; (817) 589-2567. Owner: Mark Singletary. Studio Manager: Carson Blair.

[8] **DINOSAUR TRACKS**; also *REMOTE RECORDING*; Rt. 4, Box 706; Flagstaff, AZ 86001; (602) 774-0474. Owner: Dan Costello.

[2] **DUNAMIS PRODUCTIONS, INC.**; also *REMOTE RECORDING*; 407 N. Joplin Ave.; Russellville, AR 72801; (501) 968-6247. Owner: John L. Terry III. Studio Manager: John L. Terry III.

[8] **EDWARDS HALL RECORDING**; 409 Tims; Crowley, TX 76036; (817) 731-9374. Owner: Dan Edwards. Studio Manager: Shelley Hall.

[8] **EIGHTRAX**; also *REMOTE RECORDING*; 1441 E. Edgemont; Phoenix, AZ 85006; (602) 266-5513. Owner: Jose G. Esparza. Studio Manager: Sam Esparza.

[8] **FIMECO STUDIOS**; also *REMOTE RECORDING*; PO Box 43543; Tucson, AZ 85733; (602) 881-2073. Owner: Jeff Robins. Studio Manager: Jeff Robins.

[8] **FIRST VIDEO PRODUCTIONS**; also *REMOTE RECORDING*; 4235 Centergate; San Antonio, TX 78217; (512) 655-1111. Owner: Odey Crabtree. Studio Manager: Manuel Corales.

[8] **FOXFIRES STUDIOS**; 1220 Cedarbrook; Lancaster, TX 75146; (214) 227-2727. Owner: Keith Croxton. Studio Manager: Keith Croxton.

[8] **GARMAN AUDIO/VIDEO**; also *REMOTE RECORDING*; 7701 N. Broadway; Oklahoma City, OK 73116; (405) 842-3230. Owner: Steve Garman. Studio Manager: Joy Neel.

[8] **GODEL PRODUCTIONS**; also *REMOTE RECORDING*; 330 E. Main St.; Nacogdoches, TX 75961; (409) 560-4282. Owner: GODEL Ministries. Studio Manager: Rick Smith.

[8] **GOOD SOUND SERVICES**; also *REMOTE RECORDING*; 8918 Bissonnet St., Ste. 406; Houston, TX 77074; (713) 988-5750. Owner: Alan W. Clarke. Studio Manager: Alan W. Clarke.

[8] **BOB GREEN PRODUCTIONS INC.**; also *REMOTE RECORDING*; 7950 Westglen; Houston, TX 77063; (713) 977-1334. Owner: Bob Green. Studio Manager: Marilyn Fee.

[8] **HIDDEN FOREST STUDIO**; also *REMOTE RECORDING*; 421 Hidden Forest N.; Longview, TX 75605; (214) 663-3365; (214) 663-1817. Owner: Gary & Pam Boren. Studio Manager: Gary Boren.

[4] **HORIZON STUDIOS**; also *REMOTE RECORDING*; 2015D E. 51st Pl.; Tulsa, OK 74105; (918) 749-4155. Owner: R. Shank.

[8] **HUNT ENTERPRISES**; Box 18023; Tucson, AZ 85731; (602) 885-7836. Owner: John Hunt. Studio Manager: John Hunt.

[8] **HYPER SOUND**; also *REMOTE RECORDING*; 2924 B5 W. Division; Arlington, TX 76012; (214) 298-5531. Owner: Steve Cramer. Studio Manager: Jerry Collins.

[8] **IRVING PRODUCTIONS**; 3202 E. 21st St.; Tulsa, OK 74114; (918) 744-1221. Owner: Dick Schmitz. Studio Manager: Leslie Swaney.

[8] **J AND L STUDIOS**; 4514 Temple Hill; San Antonio, TX 78217; (512) 637-1466. Owner: Jodie Lyons. Studio Manager: Jodie Lyons. Engineers: Jodie Lyons, Luz Atherton. Dimensions: Studio 10 x 12, control room 20 x 12. Mixing Consoles: Ramsa WR-1820 20 x 8 x 16. Audio Recorders: Tascam 38 8-track. Otari MX-5050BII 2-track. Cassette Recorders/Duplicators: Akai GX912 2-track. Synchronization Systems: Southworth Jambax 4+ SMPTE-MTC-FSK. Echo, Reverb, & Delay Systems: Roland DEP-5 digital effects processor. Microphones: Beyer M88. Shure SM96. Monitor Amplifiers: Crown D75. Monitor Speakers: (2) Akai MS200. Musical Instruments: Casio CZ1 w/disk library, Casio CZ1000 w/disk library, Yamaha RX5 w/carl library, 360 Systems MIDIBass w/chip library. Other MIDI Equipment: Akai S612 sampler w/disk library, Akai ME10D MIDI digital delay, Akai ME30P MIDI digital patch bay, Passport interface/tape sync for Apple IIe. Other: Technics SL1200MK turntable, Macintosh Mac SE Performer sequencing software, Apple IIe Master Tracks Pro sequencing software, ImageWriter II/III Engraver music printing software. Rates: \$35/hr. bulk rates for 10am to 6pm \$200.

[8] **J-ROX RECORDING STUDIO**; 1407 E. Golfcourse Rd.; Midland, TX 79705; (915) 685-0675. Owner: Sidney C. Jackson. Studio Manager: Mr. J.

[8] **JIMMERS AUDIO SERVICES**; 2926 E. Highland; Phoenix, AZ 85016; (602) 956-6963. Owner: James Holm, Russ Graves. Studio Manager: Russ Graves.

[8] **JORDAN SOUND PRODUCTIONS**; also *REMOTE RECORDING*; 200 Green Ln. Trail; Whitehouse, TX 75791; (214) 839-6623. Owner: Gary & John Jordan. Studio Manager: Gary & John Jordan.

[8] **JUNIPER PRODUCTIONS**; also *REMOTE RECORDING*; 2726 E. Juniper; Phoenix, AZ 85032; (602) 867-7354. Owner: John Benson. Studio Manager: John Benson.

[8] **JUS-FRESH STUDIO**; 1106 Brenford; Houston, TX 77047; (713) 433-1276. Owner: Clay James. Studio Manager: Clay James.

[8] **KEN-KHORT MUSIC SCHOOL**; 11955 Bissonnet; Houston, TX 77099; (713) 530-3290. Owner: Jeanie T. Rodgers. Studio Manager: Leslie "Bandman" Rodgers.

[8] **KLARR SATELLITE RADIO & TV DIV. REC. DEPT.**; also *REMOTE RECORDING*; PO Box 3842; Houston, TX 77253; Owner: Dr. Herbst. Studio Manager: Dr. Herbst.

[4] **KNIGHT SHAYD STUDIOS**; also *REMOTE RECORDING*; 2526 E. Towner St.; Tucson, AZ 85716; (602) 323-6758. Owner: Wilhelm Michael Gerken. Studio Manager: Wilhelm Michael Gerken.

[8] **K104 PRODUCTIONS**; 621 NW 6th St.; Grand Prairie, TX 75050; (214) 263-9911. Owner: Service Broadcasting. Studio Manager: Jerry Vigil.

[8] **LAKEDOG STUDIOS**; 2116 E. Arapaho, #167; Richardson, TX 75081; (214) 853-2574. Owner: A.M. Johnson. Studio Manager: A.M. Johnson.

[8] **LOST PERSON PRODUCTIONS**; also *REMOTE RECORDING*; 2102 Bayou Dr.; Lake Jackson, TX 77566; (409) 798-5462. Owner: Gregory R. Leach. Studio Manager: Tamara Conrad.

- [8] **MAJOR MIX STUDIO**; 10502 Breeds Hill; San Antonio, TX 78245; (512) 674-3469. Owner: J. Mark Major. Studio Manager: J. Mark Major
- [8] **MEDIA SOUND**; 1717 W. 6th, Ste. 160; Austin, TX 78703; (512) 474-4483. Owner: Glenn M. Wolfe
- [4] **MIDI MANIA**; also *REMOTE RECORDING*; 103 Wynnwood; Palestine, TX 75801; (214) 729-8957. Owner: Randy Cookston. Studio Manager: Randy Cookston
- [8] **MONKEY ISLAND RECORDING**; Rte. 3, Box 1625; Afton, OK 74331; (918) 257-5755. Owner: Ace & Carolyn Moreland. Studio Manager: Ace Moreland
- [8] **MUSIC LANE RECORDING**; 1100 Music Ln.; Austin Opera House #5; Austin, TX 78704; (512) 447-3988. Owner: Wayne Gathright. Studio Manager: Wayne Gathright
- [4] **THE MUSIK FAKTORY**; 1812 Procter St.; Port Arthur, TX 77640; (409) 982-7121. Owner: Lois & Floyd Badeaux. Studio Manager: Floyd Badeaux
- [8] **NASH ST. MEDIA**; also *REMOTE RECORDING*; 603 N. Kentucky; Roswell, NM; (505) 624-0466. Owner: Carl F. Erdmann. Studio Manager: Randell Pearson
- [4] **NCTV**; also *REMOTE RECORDING*; 3200 W. 7th Ave.; Corsicana, TX 75110; (214) 874-6501 x234. Owner: Navarro College. Studio Manager: Jerry V. Zumwalt
- [4] **NESMAN STUDIOS**; also *REMOTE RECORDING*; 3108 York St.; Wichita Falls, TX 76309; (817) 696-1629. Owner: Lewis Nesman. Studio Manager: Sally Nesman
- [4] **NEW MEXICO AMBISONICS**; also *REMOTE RECORDING*; PO Box 40316; Albuquerque, NM 87106; (505) 265-1660; (505) 277-5235. Owner: K.R. Campbell. Studio Manager: K.R. Campbell
- [8] **NIGHT TRAIN RECORDING STUDIO**; also *REMOTE RECORDING*; 12511 Moore Meadow; Houston, TX 77024; (713) 980-4802. Owner: Kurt Zech, Clifford Fry. Studio Manager: Kurt Zech
- [8] **NYEMA NETWORK PRODUCTIONS LTD.**; c/o 916 Palomas SE; Albuquerque, NM 87108; (505) 268-3883. Owner: J.D. & J.M. Geist, Jr. Studio Manager: J.D. Geist, Jr.
- [8] **OAKRIDGE MUSIC RECORDING SERVICE**; 2001 Elton Rd.; Fort Worth, TX 76117; (817) 838-8001. Owner: Homer Lee Sewell. Studio Manager: H.L. Sewell
- [8] **OB STUDIOS**; also *REMOTE RECORDING*; 5932 N. Grove; Oklahoma City, OK 73122; (405) 721-3727. Owner: Larry G. O'Rear. Studio Manager: Pam Parks
- [8] **OMNI RECORDING STUDIO**; 2109 E. Jensen St.; Mesa, AZ 85213; (602) 834-3535. Owner: John LaFalce
- [4] **ON-SITE RECORDING SERVICES**; also *REMOTE RECORDING*; 1610 Scottsdale Dr.; Arlington, TX 76018; (817) 472-7256. Owner: Gary D. Ballard
- [2] **PARAGON AUDIO PRODUCTIONS**; also *REMOTE RECORDING*; 119 Holly; Levelland, TX 79336; (806) 894-9238. Owner: David Noles. Studio Manager: David Noles
- [8] **PARALLEL IMAGES LTD.**; also *REMOTE RECORDING*; 2044 Robin Hill Ln.; Carrollton, TX 75007; (214) 492-2121. Owner: John L. Hurd. Studio Manager: John L. Hurd
- [8] **PARROT TRACKS STUDIO**; 5201 Meadow Creek Dr.; Austin, TX 78745; (512) 441-4314. Owner: George Coyne. Studio Manager: George Coyne
- [8] **PEAK RECORDING STUDIO**; also *REMOTE RECORDING*; 42 Caddo Peak; Joshua, TX 76058; (817) 645-8385. Owner: Yvonne Mann. Studio Manager: Gary A. Mann
- [8] **POSTING BROTHERS STUDIOS**; also *REMOTE RECORDING*; 6800 Gateway E.; El Paso, TX 79915; (915) 775-1401. Owner: Paul Newell, Buzz Mayfield. Studio Manager: John Weitz
- [8] **PRODUCER'S SOUND STUDIO**; also *REMOTE RECORDING*; 7701 N. Broadway, A-6; Oklahoma City, OK 73116; (405) 842-3230. Owner: Steve Garman. Studio Manager: Joy Neel
- [8] **THE PRODUCTION CO.**; also *REMOTE RECORDING*; 510 N. Mt. Olive; Siloam Springs, AR 72761; (501) 524-4626. Owner: Ken Flory. Studio Manager: Ken Flory
- [8] **RAGUSE RECORDING CO. (EVOLUTION STUDIO)**; PO Box 470507; Tulsa, OK 74147; (918) 250-9749. Owner: Craig & Jo Ann Raguse. Studio Manager: Jo Ann Raguse
- [8] **RAPA SOUND**; also *REMOTE RECORDING*; PO Box 1017; Jerome, AZ 86331; (602) 634-9607. Owner: Walter Rapaport. Studio Manager: Walter Rapaport
- [8] **RED SUN RECORDING**; 9907 Harwin; Houston, TX 77036; (713) 977-5781. Owner: Rick Marks. Studio Manager: Rick Marks
- [8] **REELWORKS RECORDING STUDIO**; 11819 Lippitt Ave.; Dallas, TX; (214) 328-3912. Owner: Jimmy Lowrance, Steve Dupuis. Studio Manager: Jimmy Lowrance
- [8] **ROAD TRACS RECORDINGS**; 1923 Texas Pkwy.; Missouri City, TX 77459; (713) 499-9301. Owner: Kenneth (KC) Rodgers. Studio Manager: Leo Dean, Les Cross
- [4] **ROSE STATE COLLEGE RECORDING LAB**; also *REMOTE RECORDING*; 6420 SE 15th; Midwest City, OK 73110; (405) 733-7380. Studio Manager: Craig White
- [8] **S-E AUDIO PRODUCTION SERVICES**; PO Box 12445; Oklahoma City, OK 73157; (405) 942-6156. Owner: Gregory Smith, Graham Easterly. Studio Manager: Gregory Smith
- [2] **SCHOOL OF MUSIC, THE UNIVERSITY OF NORTH TEXAS**; also *REMOTE RECORDING*; PO Box 13887; Denton, TX 76203; (817) 565-3769; (817) 565-3780. Owner: The University of North Texas. Studio Manager: Richard DuPree
- [8] **SCRATCH-N-SNIFF STUDIO**; also *REMOTE RECORDING*; 232 E. Orchard; Clute, TX 77531; (409) 265-7168. Owner: Charles Balczó. Studio Manager: Chazz
- [4] **SELLERS COMPANY-RECORDING STUDIOS**; also *REMOTE RECORDING*; Box 1087; Van Alstyne, TX 75095; Owner: Jack Sellers. Studio Manager: Jack Sellers
- [8] **SEQUENTIAL LAB STUDIO**; also *REMOTE RECORDING*; 3329 NE 20th; Oklahoma City, OK 73121; (405) 424-8612. Owner: Kerwin L. James. Studio Manager: Kerwin L. James
- [8] **DAN SESSIONS PRODUCTIONS, INC.**; also *REMOTE RECORDING*; 202 Knox, Ste. D; Houston, TX 77007; (713) 863-0056. Owner: Daniel Sessions
- [8] **SMITH SOUND RECORDING**; 7015 Villa Del Sol; Houston, TX 77083; (713) 498-0297. Owner: Dennis Smith. Studio Manager: Dennis Smith
- [4] **SNOW BIRD JUNCTION REMOTE RECORDING/SOUND REINFORCEMENT**; also *REMOTE RECORDING*; 3501 Atarisco Rd. NW, #5-06; Albuquerque, NM 87105; (505) 839-0610. Owner: Mike Craig. Studio Manager: Tina Craig
- [8] **SOC RECORDING**; 200 N. Montclair Ave.; Dallas, TX 75208; (214) 942-3781. Owner: Dave Hughes. Studio Manager: Dave Hughes
- [8] **SOUND CUBE STUDIOS**; 401 Willow Dr.; Converse, TX 78109; (512) 658-4356. Studio Manager: Ronald Thomas
- [8] **THE SOUND LAB**; also *REMOTE RECORDING*; PO Box 785; Hot Springs, AR 71902; (501) 624-3032. Owner: Terry L. Taylor. Studio Manager: Terry L. Taylor
- [8] **STELLAR WINDS STUDIO**; also *REMOTE RECORDING*; 2501 Sublett Rd., #995; Arlington, TX 76017; (817) 465-4780. Owner: Joe & Mira Shaw. Studio Manager: Joe Shaw
- [8] **STUDIO 3**; 2800 Routh; Dallas, TX 75231; (214) 871-2933. Owner: Theatre 3 (parent company). Studio Manager: Tristan Wilson
- [8] **STUDIO WORKS**; also *REMOTE RECORDING*; 2058 Western Village; Houston, TX 77043; (713) 461-1961. Owner: Danny Erdeljac. Studio Manager: Danny Erdeljac
- [8] **SUNBURST STUDIOS**; 1906 Westmoreland Ave.; Las Cruces, NM; (505) 522-1837. Owner: Daniel V. Bishop. Studio Manager: Daniel V. Bishop
- [8] **SUNSHINE HIGHWAY PRODUCTIONS**; 3483 Coronado Ct.; Fort Worth, TX 76116; (817) 244-5378. Owner: Air Burst Publishing. Studio Manager: Jon Cunningham
- [8] **SURVIVAL STUDIO**; PO Box 417; Carson City, NV 89702; (702) 246-5229. Owner: Joseph DeRosa. Studio Manager: Joseph DeRosa
- [8] **SWILLSOUND PRODUCTIONS**; 2413 S. Eastern Ave., Ste. 245; Las Vegas, NV 89104; (702) 641-6116. Owner: Bill Bauman. Studio Manager: Bill Bauman
- [8] **SWORD RECORDS RECORDING STUDIO**; also *REMOTE RECORDING*; 1019 N. Halagueno; Carlsbad, NM 88220; (505) 887-3825. Owner: Rees Lucas. Studio Manager: Rees Lucas
- [8] **TAYLOR'S**; 524 S. Saginaw Blvd.; Saginaw, TX 76179; (817) 232-1833. Owner: Robert & Donald Taylor. Studio Manager: Robert & Donald Taylor
- [8] **TRASH BAGGS STUDIO**; 12 Walnut Hill Rd.; Flint, TX 75762; Owner: John Lasater. Studio Manager: Shannon Lasater
- [8] **THE 25TH TRACK**; also *REMOTE RECORDING*; 309 E. Vicksburg; Broken Arrow, OK 74011; (918) 455-2459. Owner: Walt Bowers. Studio Manager: Walt Bowers
- [8] **UNREEL RECORDERS**; also *REMOTE RECORDING*; PO Box 426; Decatur, TX 76234; (817) 62-SOUND. Owner: Barry Eaton, Kenneth Wilson. Studio Manager: Barry Eaton
- [8] **VISION RECORDERS**; also *REMOTE RECORDING*; 605 W. Storey Ave.; Midland, TX 79701; (915) 687-3711. Owner: Jerry W. Jackson. Studio Manager: Jerry W. Jackson. Engineers: Jerry W. Jackson. Dimensions: Room 1 studio 12 x 14, control room 14 x 15. Room 2 studio 14 x 17. Room 3 studio 6 x 8. Mixing Consoles: Allen & Heath 24 x 16 w/patch bay. Audio Recorders: Otari MX-5050 MkIII 8-track, Sony PCM-2500 2-track digital, Tascam 5R 2-track. Cassette Recorders/Duplicators: Nakamichi SR-2. Noise Reduction Equipment: (10) dbx 150X. (2) Rocktron Hush II Echo, Reverb, & Delay Systems. Lexicon PCM70, Lexicon PCM60, Yamaha SPX90. (3) Furman QN-4A quad noise gates. Symetrix 522 2-ch comp/limiter/expander/ducker. (2) Rane PE-15 5-band parametric equalizers, Aphex Aural Exciter. Pro Co DB-4 4-ch DIs. (2) Furman PL-Plus power conditioners. Audio Source 2-ch spectrum analyzer. Microphones: AKG C414EBw/H17A suspension/windscreen, (2) Audio-Technica ATM11. (10) Shure SM57, Shure SM58. Monitor Amplifiers: Crown Micro-Tech 600. (2) Eddor HA400A 4-ch headphone amps. Monitor Speakers: (2) Acoustic Research BB, AKG K141 headphones. (5) AKG K240M headphones. Musical Instruments: Tama Superstar xtras kit w/24" basses/Rosewood snare/toms-8" to gong bass, (11) Zildjian cymbals, Rickenbacker 360/12 stereo 12-string guitar, E-mu Emax sampling keyboard and sequencer, 360 Systems Professional MIDibass, Kurzweil 1000-PX. Other MIDI Equipment: J. L. Cooper MSB Plus. Other: (2) Ernie Ball volume pedals, RAT distortion box, (14) microphone booms. Rates: Package only. Extras & Direction: I offer a relaxed atmosphere within which there is no ticking clock. I am a drummer, keyboardist and guitarist, and offer these abilities as well as copywriting, publishing, producing, writing and arranging as part of the package if so desired. My experience ranges from country to jazz to heavy metal, and I specialize in providing everything you need to make your dream a reality. At Vision Recorders, there is more to music than meets the eye.
- [4] **VOICE-OVERS AUDIO PRODUCTION**; 4809 N. Cypress St., PO Box 4197; North Little Rock, AR 72116. Owner: Dave McCree. Studio Manager: Dave McCree
- [8] **TRAVIS WEST RECORDING STUDIO**; 1922 N. Ave. G; Freeport, TX 77541; (409) 297-3274. Owner: Travis West. Studio Manager: Travis West
- [8] **WHITE DOVE STUDIOS**; 118 Old Windmill Rd.; New Braunfels, TX 78132; (512) 438-7135. Owner: Wayne Whittier. Studio Manager: Wayne Whittier
- [8] **WHITE ROOM STUDIO**; PO Box 200937; Austin, TX 78720; (512) 339-7664. Owner: Kris Clendinning
- [8] **WHITE ROSE STUDIO**; also *REMOTE RECORDING*; 1901 Crested Butte; Edmond, OK 73034; (405) 282-2729; (405) 348-2173. Owner: Craig C. White. Studio Manager: Scott Minor
- [8] **WING AND A PRAYER MUSIC**; also *REMOTE RECORDING*; 1200 S. Gary; Monahans, TX 79756; (915) 943-6524. Owner: Walter L. Black. Studio Manager: Walter L. Black
- [8] **DANA WOODS RECORDING**; also *REMOTE RECORDING*; PO Box 631485; Nacogdoches, TX 75963; (409) 569-1485. Owner: Dana Keith Woods. Studio Manager: Gary Goss
- [8] **YELLOW PINES STUDIOS**; 6219 N. Crystal Cove Dr.; Rosharon, TX 77583; (713) 489-1646. Owner: Michael E. Moyers. Studio Manager: Michael E. Moyers



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## USC: World Class in the Classroom

The University of Southern California's Recording Arts program is faced with an ideal situation: it's located in a world-class recording center. The School of Music has long been thought of as one of the country's finest institutions. Distinguished alumni include Herb Alpert, Lionel Hampton, Lee Ritenour and Marilyn Horne.

During the 1970s, the School of Music became more involved in contemporary areas in addition to its classical music tradition. It created a jazz/studio guitar program, a jazz department, an electronic music program, and in 1975, the Recording Arts Workshop.

In 1983, USC's Recording Arts program director Richard McIlvery began assembling the elements to offer a major degree in professional audio. "We wanted to provide a select number of students the opportunity of the vast resources at USC and the recording industry in Los Angeles," he says.

To accomplish this, McIlvery and his faculty began putting together a Bachelor of Science in Music Recording program. It combined elements of a full music curriculum, a broad general education and a series of professional audio courses.

They hired a part-time faculty of pro audio experts in different fields. "It would be impossible for regular full-time university faculty to have in-depth and up-to-date knowledge in each of the important areas of audio," says McIlvery. Featured instructors include engineers, former studio managers and research and development heads for SSL, JBL/UREI, Disc Mastering and KUSC-FM Classical Radio Service.

To round out the program, McIlvery wanted to provide a situation where a student could get individual access to the best equipment available. "Most studios that purchase an SSL or Neve console would rather be booking studio time than have an engineering student sitting there trying to find out where the mic gain is," says McIlvery. With that in mind, he approached the dean of the School of Music with a budget large enough to purchase current

state-of-the-art equipment to be used only for instructional and student-oriented projects. "Lucky for me, he is as keen on technology as he is on traditional music," says McIlvery.

The department purchased an SSL 4056G with Total Recall ("The SSL has remained virtually unchanged for many years; students can become familiar with the layout and have access to hundreds of consoles around the world. The computer system is consistent with current technology, and we already have a Neve 8128 in the School of Cinema," explains McIlvery.) The faculty also chose Studer A800 tape machines, a Mitsubishi X850 multi-track and X86 2-track and JBL/UREI speakers.

Along with top-of-the-line equipment, the department wanted an acoustically accurate environment. With the help of Thomas "Benno" May from A&M Studios and Grayhill Construction, they built a control room large enough for 20 students. Because they were unable to build from the ground up, they converted an existing 28 x 26-foot jazz and ensemble performance room. Other recording sites are an orchestral hall with a capacity of 70 and the electronic music studios on the third floor, which house a variety of synthesizers including a Synclavier. The major recording areas are linked by video.

Immediately next door to the School of Music is the School of Cinema's Steven Spielberg Scoring Stage. This 40 x 60-foot recording area has a control room that houses a 32-input Neve 8128 with Necam II, a Studer A800 24-track, Studer A810 2-track, UREI monitors and a full complement of outboard gear, also available to the recording arts department.

This May, the School of Music will graduate its first recipient of the Bachelor of Science in Music Recording. Future plans for the program include seminars in multi-track recording, sound reinforcement and video lock-up/SMPTE. Another control room/classroom is also on the drawing board. ♦

—FROM PAGE 69, MTSU

business and audio engineering, and it places 60% to 75% of its graduates.

"Since we're a state school, we have budget limits," says Hull, explaining how they got the money for the new studio and the new facility, "but the new room was made possible through a special grant to create the center."

For other acquisitions, price is a big factor, says Hull, and the equipment must be fairly easy to learn. "Even though it may be great equipment, if it's incredibly difficult to learn, we tend to shy away from it, because students have a limited amount of time that they can be exposed to it and learn it. If it's more straightforward and easier for them to grasp, then that helps them."

### The Recording Workshop

Founded in 1971, and in its current structure since 1979, The Recording Workshop in Chillicothe, Ohio, offers four programs of study, from the five-week main program with 200 hours of study (primarily in the studio), to a music studies program in conjunction with Capital University that is part of a Bachelor of Arts in Music/Commercial Music degree.

Students have six studios available to them: an 8-track media production room; two 16-track rooms; two automated 24-track rooms; and a 24-track music recording and mixing room. Equipment includes two Sony MCI 600 Series consoles, both automated, two Amek/TAC Scorpion boards in the 16-track rooms, a Sound Workshop Series 30 in one 24-track room, a Logics 8 and a Fostex 8-track in the Media Room, and a Sony MCI JH-24 and UREI Time Line monitors in all the 24-track rooms. The rooms also feature all major brands and models of mics, and extensive outboard gear, with each room housing at least four or five digital effects devices.

With so many studios, how does program director Jim Rosebrook make his equipment choices? "Most things have a cycle through here of about three years," he says. "We try to get stuff that is most prominent in the marketplace, that's going to be most typical of what our students will encounter when they go out and find work. To use a car analogy—the Fords and Chevys of the industry. It might be nice to teach someone on a Rolls Royce, but to be realistic about it, they're not going to typically find a job on a Rolls Royce. So





**Program director Jim Rosebrook takes a break at The Recording Workshop.**

we try to give students the most practical, real world training possible. And that really is the basis of most of our equipment decisions: the stuff that sells units, that tends to stand out in the marketplace in large quantities, is what we try to have here for our students to learn on."

**Recording Institute**

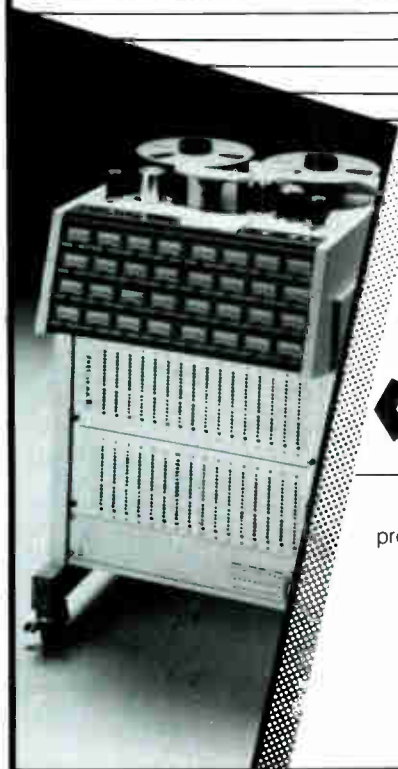
"Our primary emphasis is on the record-making process, 24-track recording and some 48-track as well. That's augmented quite extensively with video post-production, video editing and studio electronics. Essentially, the program is music engineering and

video," says Fred Munch of the Recording Institute in Van Nuys, California.

The Institute, just about to celebrate its first year, holds all its classes in its studio, Salty Dog Recording Studio, which has earned 28 gold and platinum records. The 1,500-square-foot studio has a 22 x 18-foot control room. The school also has a video studio, small computer lab and room for some synth programming and tape editing, according to Munch. To augment the program, students also go to outside facilities. "We make sure they get some practice on consoles that are even more sophisticated than we have. We'll work on at least four boards—SSL, Neve and whatever the two other hot boards are."

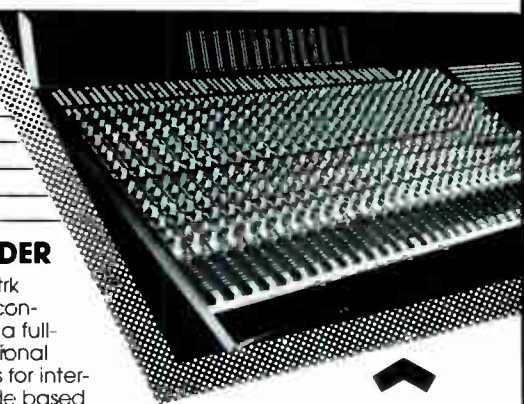
In house, the Institute has an Amek 2500 console, 3M-79 24-track, 2-track 1/4-inch and 2-track half inch recorders, and the full gamut of outboard gear, along with video editing and production equipment. They will also rent equipment for special occasions. "For example, we have classes in the video

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suite, adding sound to pictures. For that, we'll rent whatever the popular synchronizing system is, like the Lynx in L.A. is quite popular and commonly used. So we'll rent it for a couple of days and have all-day workshops," says Munch.

In determining what type of equipment to buy, Munch relies heavily on advice from his instructors, "all working professionals," he says. "If they get a new piece of gear where they work, they generally bring it in, explore it a bit with the students, and then we sit down and decide whether it's something we should try to acquire, and if so, when. We try to stay ahead of it to the extent that we can afford it."

### Los Angeles Recording Workshop

"We train on everything current. That's one of the reasons for having all the different studios. Each one has slightly different equipment, so instead of students walking out of here saying, 'I didn't get to use such and such reverbs,' they can realistically say they've used all of them," says Christopher Knight, director of the Los Angeles Recording Workshop, in Studio City, Cali-

fornia. In existence for five years, the Workshop plays host to 200 students a year, and boasts 85% to 87% job placement within the first six months.

Offering two hands-on training programs, the Workshop utilizes four different outside 24-track studios, and an in-house 16-track MIDI studio and rehearsal studio. The six studios also offer six different boards: the Harrison 3042, Trident Series 80, Trident Series 80-B, Sony MCI JH-600, Yamaha KM1000 and Ramsa T-820, along with just about everything in outboard gear, mics, etc.

"The whole idea is if we train students on one console, there's a chance they'll learn it by rote. The only way around that is to train them on lots of consoles. Then they get the idea that when they walk out of here, they can operate a console anywhere."

Knight expects to keep adding to the MIDI realm. "Our consoles are pretty much set up," he says, "but in MIDI, we tend to see what new hardware and software is available."

### Academy of Recording Sciences

The Academy of Recording Sciences, which opened this past spring in Phoenix, Arizona, is still in the process

of change. Currently in an existing 24-track studio with a Soundcraft board, the Academy is moving into a brand new facility this summer, according to chief administrator, Jacqueline Vlan.

"We're going to change almost everything," she says. "We may go automated with a Scorpion board or MCI. We're doing a leasing deal right now, so it depends on what's there, what we can get our hands on."

"We've owned studios before," she continues, "so we have an idea of what we want. As long as it's an industry standard, frankly, I don't care whether I have an Otari machine or an MCI/Sony. I'm familiar with them all. They're all good brands. We just want to train people on things that are industry standards."

The new facility will feature 24-track and 8-track studios and a MIDI room. "Computers will be very much a part of the MIDI room. We stress new technology. Even in our beginning courses we talk a lot about synthesizers, interfacing and MIDI, etc. You can't walk into a studio today and not have an understanding, whether it's a computerized board or a room full of MIDI equipment. You really need to have at least a foundation in that field."

### Institute of Audio Research

The Multi-Track Recording Technology program, offered by the Institute of Audio Research in New York City, homes in very specifically on the technology of the recording studio, and just about all the 600 hours are in focused study of technology, says Miriam Friedman, chief administrator of the Institute.

The Institute has two studios available for its 400 students. The newest room, Control Room B, offers a Sony/MCI Series 636 32-in., 24-out automated console, a 24-track Sony/MCI tape machine, a 2-track Studer, Dolby, "and all kinds of outboard gear. You name it, we've got it," says Friedman.

"Control Room A is our 'old room,'" continues Friedman. "It's our original room. What's interesting about Control Room A is that it has a 16-track split console which is a wonderful teaching tool. It's a customized RCA console that's basically student-proof. Students must do their first project in A before going to B, and in working with a split console, they're learning manually all the things the MCI does automatically, which is an invaluable learning tool."

Control Room A also has a full MIDI

## Omni/Atlantic Signs Group With Help From Columbia College Students

In 1982, Chicago's Columbia College founded the non-profit AEMMP Records as a tool for students of its Music and Entertainment Business program. Each year the student-run label selects an artist, produces a record and markets it. Last year's efforts with ATM, an urban/dance trio, resulted in the signing of a multi-year contract with Omni Records, an independent Philadelphia-based record label distributed worldwide through Atlantic Records' WEA.

The psychedelic dance group The Gloryhounds have been signed to an exclusive marketing and distribution agreement by this year's class of students enrolled in "Decision Making: The Music Business." The signing marks the culmination of a two-month nationwide search by AEMMP Records which attracted 150 mastered tape entries. "The

group's unique sound will offer a new style to the Chicago music scene, and we look forward to AEMMP Records' greatest success yet with them," remarks Cindy Wells, president of AEMMP.

A group of new students at Columbia will start the process over again this fall as they solicit professional quality tapes from contemporary artists and bands in an area-wide talent search. "Our first goal is to give real experience to students in how a record company works by having them operate one," comments Irwin Steinberg, former chairman of the board at Polygram Records, who established AEMMP Records at Columbia. "Our second goal is to have the chosen musical group do so well through AEMMP's efforts that they will attract a major recording opportunity. We've done that." ◆

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ISSUE: JULY 1988

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studio with 64-track digital computer software and a full array of outboard gear.

When asked about equipment choices, Friedman says, "We feel like we have to reflect what's happening in the real world, so our equipment acquisition decisions are based largely on feeling that we provide the students with enough of an equipment complement to prepare them for what they're going to find in the industry."

Now almost 20 years old, the Institute is not content to rest on its laurels. "We're adding special courses in response to what's new and happening in the industry," notes Friedman, citing the new digital audio systems and studio acoustics courses offered to working professionals, and their expansion into the video realm. "It's the video equivalent of the Multi-Track program. We've had two graduating classes, and we've had enormous success, with 100% placed in the industry to date."

### School of Audio Engineering

Tom Misner's School of Audio Engineering—offered in 14 locations throughout the world, including Sydney, London, Frankfurt, Berlin, Vienna and Amsterdam, and opening a new facility in Los Angeles this fall—offers a one-year Audio Engineer program and a two-year Tonmeister program. "In addition to the lecture time, we offer unrestricted amounts of studio time in any of what we call our 'practical workstations,'" says Misner. "My major schools are equipped with a number of workstations, meaning a 24-track studio, editing room, digital hard disk studio, MIDI studio and usually a small 8-track studio as well. The equipment includes Neve, Amek, Harrison—all no more than three years old."

The L.A. studio, slated to open in September, is a little different than other SAE schools, according to Misner. "It's a fairly large school, and it's well equipped. It has complete video synchronizing equipment, which only Sydney has as well. It has an Adams-Smith time code synchronizer and a Neve console with full automation. We have a studio that will rank among the top studios in the state. It's not a backyard operation. I've spent well above a million dollars in one room there." And it's only open to students.

The facility also has an 8-track recording studio with TAC board. "We bought the TAC so students would have access to two types of boards.

And then we have a hard disk digital studio able to record 14 minutes of stereo on hard disk. There's only about three or four rooms in America that have that facility. And we have two mixdown rooms as well."

And how does Misner pick equipment for his 15 studios? "We have various deals with various manufacturers, in some instances, and we buy our equipment through them," he says. "In the past, we have also broken products into the market. We have 4,000 students around the world, and the power of the marketing is quite big.

"It's very important that the equip-

ment is reliable, because as soon as the school opens up, students start using the equipment at least 12 hours a day, usually more, and if we have failures continuously, the students start complaining, and that ends up in a lot of trouble for us."

Not content to stop at one school in the States, Misner has a three-year plan to open up six more schools, starting with San Francisco, then going into Nashville, New York and Atlanta. SAE is definitely a school on the move. ♦

*Karen Margroff Dunn is an assistant editor at Mix magazine.*

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—FROM PAGE 107, STUDIOS SPEAK

treated in American business, and how you can make it right. None of these things relate to specific skills or factual knowledge; they relate to the individual's attitude, orientation and motivation towards their work."

### Technology & the Industry Itself are Changing— Change With Them

David Porter has come to expect some skills from people who apply for a Music Annex job: "They should be Apple Macintosh-literate and MS-DOS/IBM-literate, and to be really hip, literate in programming. That's going to become mandatory, especially when you start integrating computer music systems with recording environments. A new question on an application might be "What Macintosh programs do you know?"

"Another skill has to do with knowledge of computer music systems, particularly the interface between various types of systems," Porter adds. "And not just being able to rattle off product numbers. Know the MIDI systems, how to lash them together and make them work—and *fast*. Also important is the ability to lash anything to video, and to know the hardware interface and the software that controls it. To be really valuable, they need to know about the various video formats, *before* they get out of school."

Nicki Schiralli, who hires Record Plant employees, agrees. "These days, having a background in computers becomes necessary with automation and the digital domain. It's not so much to know acoustically what's going on, on a sonic level, but know the basic technical concepts of how computers work, because automation is keyed into that."

Jimmy Dolan (Streeterville) comments, "In the last three to five years, the computer-based consoles of Solid State Logic and Neve have changed the chops and frame of reference that you need to be even an assistant engineer. SSL has created a distinct approach to engineering sessions with a different logistical interface, and if you don't know that as an assistant, you can't be any benefit to the session. There's got to be hands-on experience with this equipment and that's not been part of an apprenticeship or internship program. Seek out places where there's an SSL and make an arrangement.

"All the technology is moving the

engineering consciousness to that diverse position," continues Dolan. "People can be dedicated and earnest about being in the business, but they get into a diverse place dealing with corporate creativity, TV programmers, ad agencies, film scorers, and record people, so they've got to be prepared for many different approaches. Be interested in the total package—profitable in mixing music, integrating it

"Some people spent four years at a school and didn't learn how to align a machine."

with sound effects, working that with picture. The engineer of the future is an all-around engineer. The music engineer, as the industry has known it, is on the decline."

When we called Hollywood's Cherokee Studios, an advertising client was working in one room, the band Suicidal Tendencies in another, and singer Eydie Gorme in a third. What Cherokee co-owner Dee Robb thinks is lacking in audio education relates not to new technology, but to traditional technical concepts: "There are two things you need to understand before you can be really effective in the control room: gain structure and signal flow. Every studio is different and if you have a problem, you have to improvise. If you don't understand gain structure and signal flow, you're lost and doing things by memory. As basic as those things are, from what I can see

in people we're getting out of schools, they're sadly overlooked."

### Communicate With Studios, And Let Students Know What to Expect

"Once you get into this business, you find out it's nothing like what you learned out of a book," comments Margie Curry (Criteria). "One guy you have to work with is really okay and at the next session you work with a real slimebucket. You have to smile through both. A lot of people would probably be very good but don't have the personality. You have to be a people person. They can't teach that in school. Technically, yes, if you can understand what's going on and be a maintenance person, it will help you in being a recording engineer. You can go to a school to learn all those things and then still have to put time in a studio to make things function as a recording engineer."

Dee Robb (Cherokee) points out that it's hard for schools to teach specific system setup, which is unique to each studio. But he adds, "As long as I've been in the studio business, I've never had a representative of any school call us to discuss philosophy or job psychology. The only calls we get are when they want to take a group through the studio. A lot of schools are operated by people with backgrounds in the business, but everyone has subjective ideas of how a studio should be operated, and I think the schools are very subjective in the way they teach people; out of touch with what's going on.

"Most of our assistant engineers have gone to these schools," Robb continues, "but the schools give the impression that people are going to leave with a diploma and walk into engineering positions. As an assistant engineer, we *expect* you to know technical aspects of the job. But we have to teach them what their responsibility is. Most of our engineers started here in the plant operations or business maintenance departments. They spend six months to a year doing light work in the studios, helping with setups, and learning what will be expected of them. Where the students are lacking is in knowing what's expected of them in dealing with clients, and what their job as an assistant engineer is really about. The schools aren't training them to be assistant engineers, per se. Maybe they should be, because no one's going to

walk out of a school and go on-line as a first engineer.

"Basically, the most difficult part about the job is interfacing with the people you answer to," Robb notes. "Ultimately you try to understand what it is that people really want, which with any art form is difficult to articulate, so you have to become proficient at that."

Nicki Schiralli (Record Plant) muses, "Some things required to be a great engineer are ephemeral. It's hard to teach someone how to deal with someone who's artistic and sensitive, and on the other hand very egotistical. Psychology courses wouldn't be a bad idea. Humility courses, if you will. If I have one job applicant who's a PhD in electronics, and one who doesn't have that heavy education but can deal with people, has the right look in his eyes, and can bend with it yet be true to himself—I would go with that person."

Through SPARS, David Porter (Music Annex) has talked to educators across the country, and for seven years has taught recording and audio classes to music and radio/TV students at Bay Area colleges. He says, "Many schools tend to think they're training mixers,

and I'm not convinced they should be doing that. Schools need maintenance programs. Everyone wants to be a mixer, but the industry is made up of people who come in two flavors, fixers and mixers. Out of those groups, individuals evolve into managers, sales people and other jobs in the industry. But what we're looking for, nine times out of ten, is someone technical, a good fixer. If you combine a fixer with someone sincerely interested in audio, then you have someone who's eventually the chief engineer."

Finally, Porter wants schools to "let people know that it's extremely competitive out there, but there are jobs if you are really qualified. And I don't think the schools are aware of the needs concerning 'technical' versus 'creative' mixer. I get so many resumes that say 'I have great ears.' Fine, my ears are pretty good, too, but can you fix an MTR-10?"

*Mix assistant editor Linda Jacobson earned a Bachelor of Science degree in journalism from Boston University, but learned about the real business world when laid-off from her first job at the now-defunct BTX Corp.*



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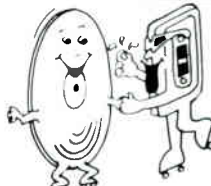
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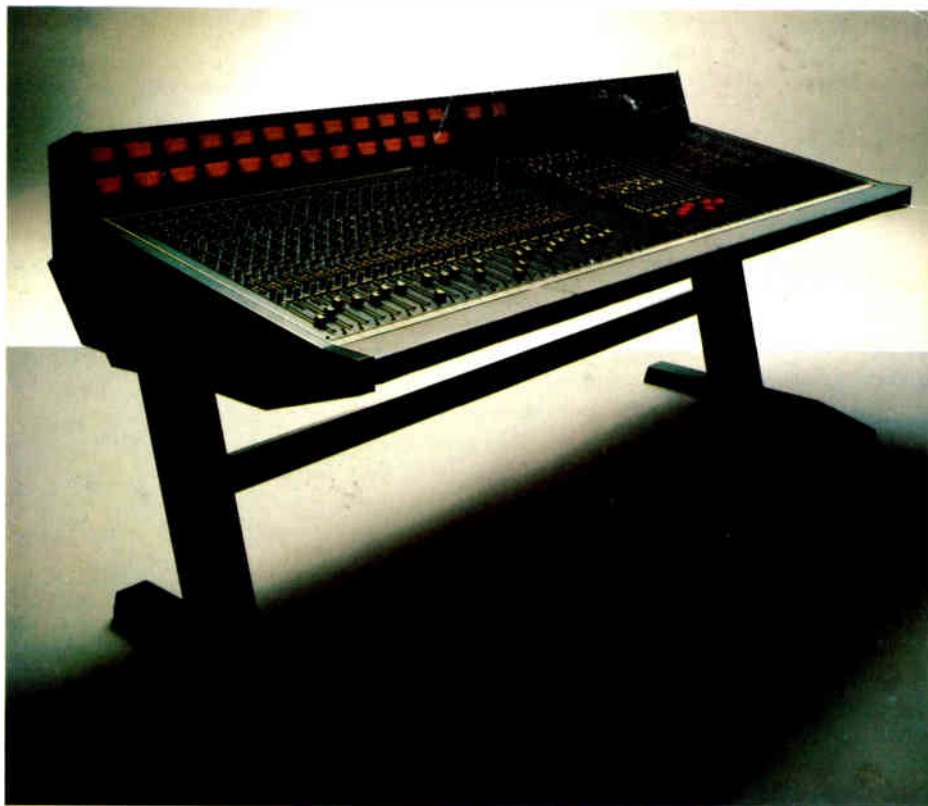
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