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THE RECORDING INDUSTRY MAGAZINE

# Mix

Interview: Steve Miller



**AES Convention  
New Products Directory**



**Commercial Production  
N.Y. Soundstages  
Pavarotti in Concert  
Digital Forum  
Lindsey Buckingham  
Optical Disk Update**

**T**hree hundred years ago, it took the hand of a master craftsman to create a concert violin. It also took commitment—a commitment to producing the highest quality, purest possible sound.

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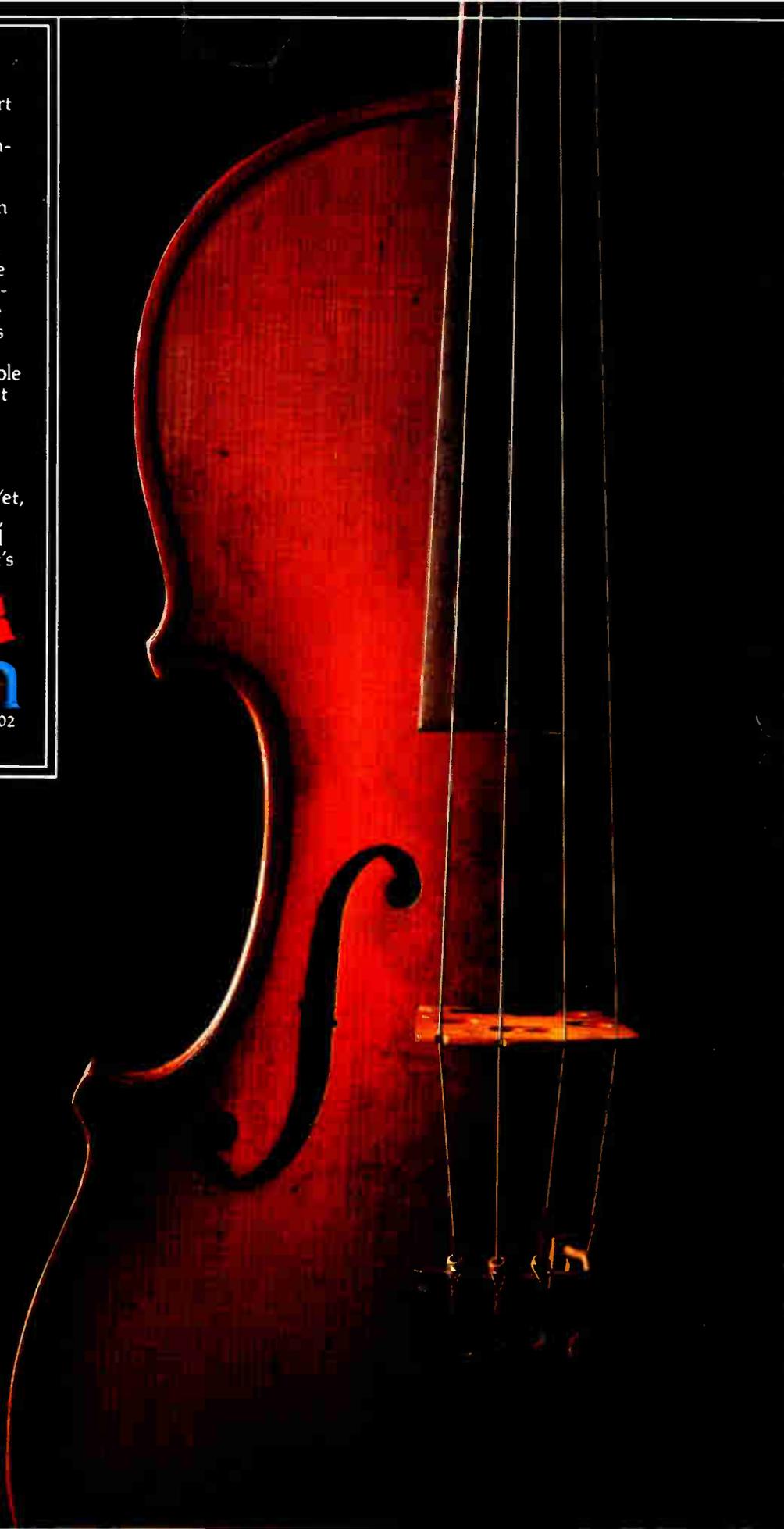
  
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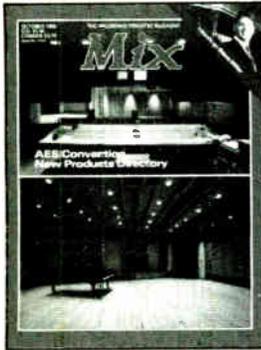
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See us at AES Booth #414  
and SMPTE Booth #822

COMMITTED TO A SOUND FUTURE

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World Radio History





Cover: Radio Denmark Headquarters, Copenhagen Photo by Dan Popescu

A large multi-purpose music studio at Copenhagen's Radiohus is the 4th project completed for Danish Raido by the American designers Tom Hidley Design /Sierra Audio Acoustics, of Burbank and Dallas. Control room response of  $\pm 3\text{dB}$  is achieved broadband without the use of monitor equalization. The studio employs a phase coherent rhythm area with a multiple-decay isolation room featuring variable walls and ceiling louvres, thus allowing wide capability of operator-achieved mid-band tuning, while recording is in progress.



The world's most famous dog was born exactly 100 years ago, and Oliver Berliner, grandson of the inventor of the disk record recounts the tale of this immortal hound in *The Story of Nipper* on page 18.

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The primary focus of this, our largest issue of *Mix* to date, is our *Directory of New Products for 1985*, with nearly 70 pages of the latest technological offerings from dozens of manufacturers. Page 131.



In *Sound on Stage*, our music editor David Gans examines the sound reinforcement system used by opera star *Luciano Pavarotti* for his appearance at the mammoth Madison Square Garden last August. Page 214.

Our *Playback* section is full of surprises this month, including: an interview with *Lindsey Buckingham*, who talks about his new solo album, a look at a recent Concord Jazz release; and the latest from Catervo Records. Page 264.



# AMPEX GRAND MASTER® 456

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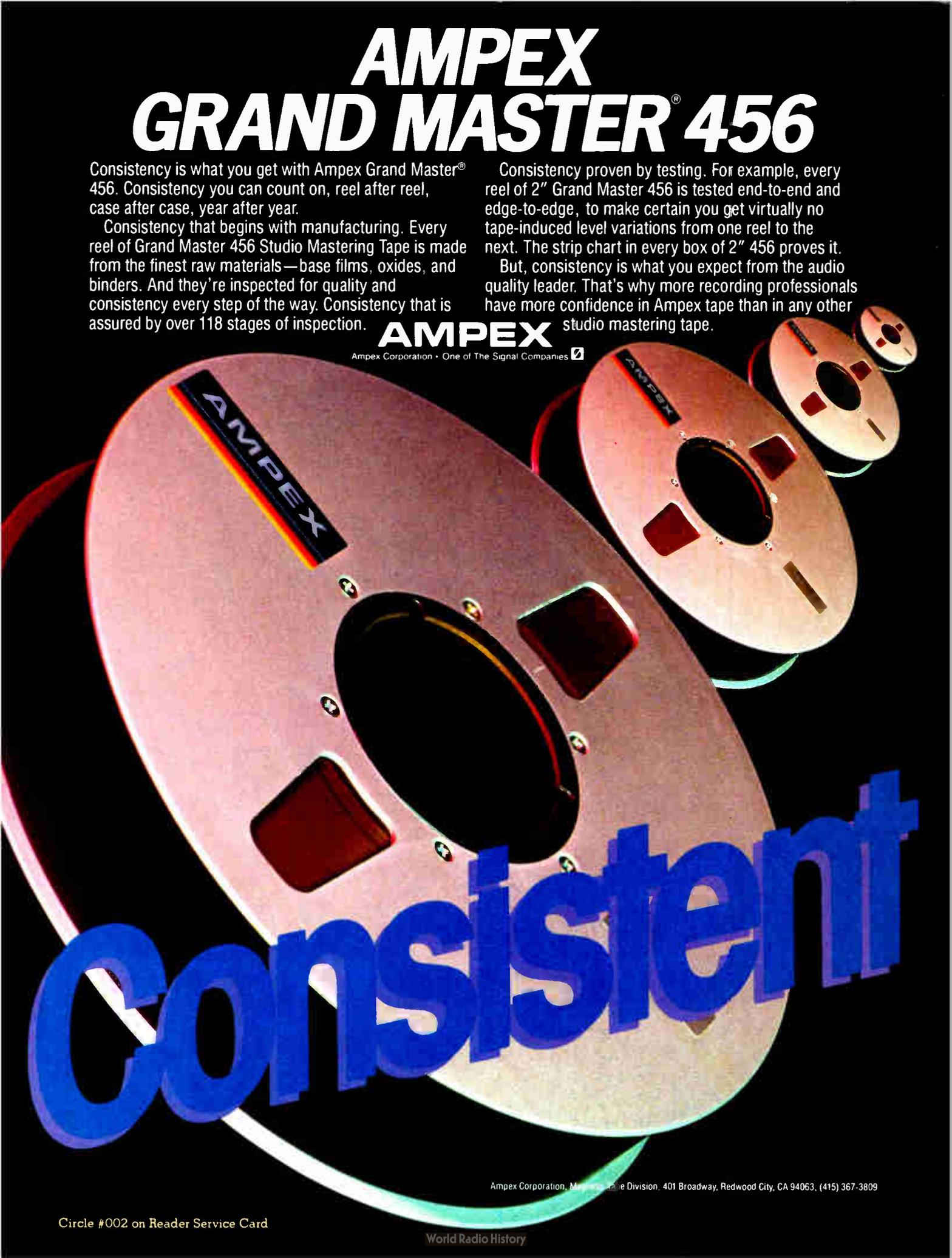
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World Radio History



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Dear *Mix*:

I have enjoyed your magazine over the years, and as a freelance engineer it has been a great source of information for me. There is one thing I hope you might help me with. I am looking for engineering work in countries other than North America. I was hoping you might have compiled a list of studios and sound companies in other countries. If not, maybe you might know where I could write to get such information. But it seems to me I remember such a listing in a past issue, but I could not find it. I sure would appreciate your help, for I'm looking forward to the challenge of engineering in another part of the world.

Sincerely,  
Will Lewis,  
Great Falls, Montana

Dear Will:

The Digital Supplement in our September 1984 issue lists most of the studios worldwide which are equipped with professional digital recording gear. You could also check the Billboard International Studio & Equipment Directory, which is published annually by Billboard Publications Inc., 1515 Broadway, New York City, NY 10036.

Dear *Mix*:

Thanks to David Gans for reviewing the Seymour Duncan Convertible Amp in your September issue. We've already received a number of queries about it so far. It's always nice to get support from others in the industry, and your review was very credible because it was direct and truthful. Keep up the good work.

Sincerely,  
Ron Colantonio  
Marketing Manager  
Seymour Duncan

Dear *Mix*:

I am a college student seeking a bachelors degree in modern recording studio techniques. It is my understanding that some universities have multi-track studios on campus. Do you know of any? Do any of these universities offer a graduate degree in this field? Any assistance you can provide regarding this matter would be greatly appreciated.

Sincerely,  
R. David Murphy  
Covina, California

Dear Mr. Murphy:

Much of the information you seek is contained in our July 1984 issue of *Mix*, which includes listings of over 125 recording education programs in the U.S. and Canada. If you don't have a copy, it can be ordered by sending \$3.50 to Mix Back Issues, 2608 Ninth St., Berkeley, CA 94710.

Dear *Mix*:

In response to your recent article on computerized music by Joe West, I would like to point out that Mr. West projected in one to two years systems with the power of the Synclavier and Fairlight will be available at a lesser price. While I do agree that there is going to be a growing number of computerized products available for the music industry, I do not agree with his statement. There may be systems that have some of the capabilities of these instruments and thereby the price can be reduced; but, to really compare, they must have all the capabilities of an instrument such as the Synclavier, i.e. number of notes available in sequences, complexity of timbres, sampling rate and time available for sampling, resynthesis, SMPTE interface etc.

Let's face it, instruments such as the Synclavier have been pioneers in this technological revolution and will continue to do so. While Mr. West is on the right track to what is going to be available in the future (although most of what he mentioned is already available on the Synclavier) I do believe he was off track on this implication.

Sincerely,  
Richard Head  
Atlanta, Georgia

Dear *Mix*:

In our September studio listing the wrong prices were printed for our services. They should be: 8 track \$30/hour, 4 track \$23/hour, tape dubbing \$18/hour and vocal elimination \$25/hour.

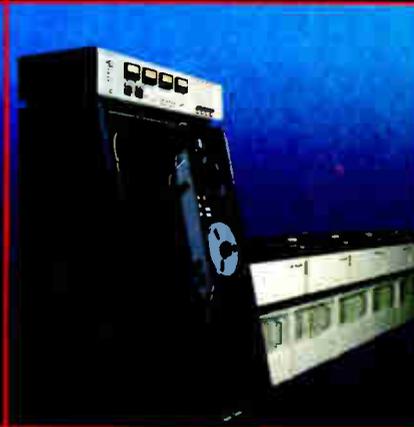
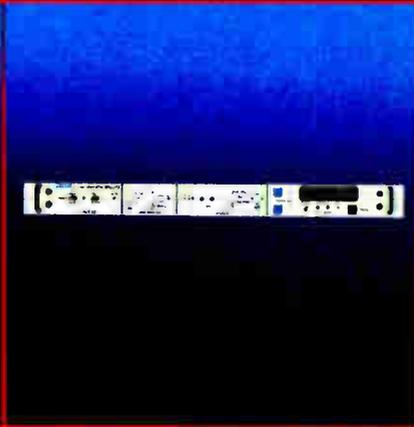
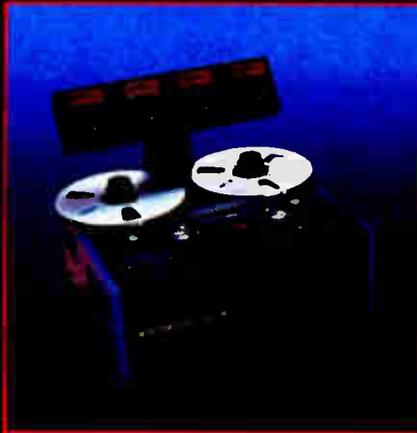
Sincerely,  
Randy Tobin  
Theta Sound  
Los Angeles, California

**Correction:** Our August Studio Design Forum erroneously stated that Sonic Landscapes is located in Sausalito, CA. They are now located in San Rafael, CA.

The **DP-4050 DM** is an open reel master reproducible. Capable of driving up to 20 cassette drive units at 7.5 and 15 ips. The DM is fully automatic, with remote stop and repeat functions, and is available in versions drawing 7.75 and 7.5-watts at 7.5 and 15 ips.

The **MARK III/4**, an affordable but 4 channel recorder for professional broadcast and news post production. It can play, insure for future and speed for tape, with many more features to 4 channel recording. And for top quality audio visual programs, the **POV (V)** version of the **MARK III/4** is the world's best 4 channel recorder.

The **DP-4050 C2** cassette-to-cassette duplicator with two drive units, copies cassettes at 4:1 speed duplicating both sides simultaneously in one pass, providing full stereo duplication. The **C2** can be combined with additional slave units to reproduce up to 17 cassettes per pass and will process a **C-60** in under 4 minutes.



The **MARK III/2** tape recorder delivers high performance at a price that will surprise you. It excels as a broadcast editing machine, or in studio mix down and tape applications. The **MARK III/2** features a simple interface connector to SMPTE time code-based editors, injects and tracks its synchronizers.

The **EC-400 Series** controls for dual time source operations and the **EO-100 Series** (infrasonic) cross synchronizer modules, are designed to optimize the superior high performance capabilities of Otari tape transports. These options are another example of Otari's engineering and development program designed to meet your audio business needs for the future.

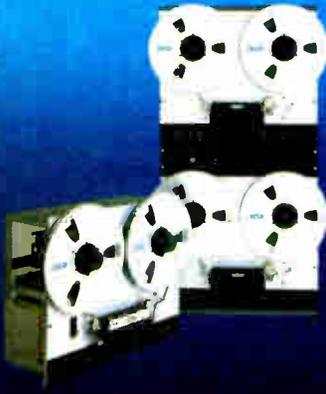
The **Otari DP-30** is the only 60:1 wide tape duplicator system that is capable of running a 7.5 ips master tape. The system can be configured with from 1 to 20 slave units, producing up to 2000 C-45 cassettes per hour.

**The "Super Analog" MTR-12**  
 The MTR-12 combines the advanced features of the MTR-10 with expanded reel capacity to 12 5 inches - important for recording studio and post production applications. It is available in several formats, including the state of the art 12" 2 channel for record mastering.

**The MARK 1000** The most widely accepted 12" multi-track recorder for broadcast production, recording studio, and audio post production applications. The MARK 1000 is available with a remote controller and an auto-locator for quick cloning and punch-ins.

**The MTR-20** Offer a new "Super Analog" with completely controlled Record and Playback. The MTR-20 features 4 channels and 12 inch reels, with a built-in electronically engineered for audio post production. An application where precise machine control is a must.

**The MTR 80 Master Tape Recorder**, with its flawless multi-track transport is well able for multi-channel music recording and audio post production. Its precisionless servo-controlled transport sets it apart from all other 8" 16" or 24 channel recorders.



**The ARS-1000 and BGM-1000 series reproducers** are the most widely accepted reproduce only tape machines. They offer long-term reliability and simple operation under the toughest conditions.

**The SCS-800** The industry standard audio machine for 12" 2-channel stereo recording. The 800 is unmatched for its sound performance and its durability under demanding broadcast use.

**The MTR-10** is the most advanced broadcast production recorder available from Otari. It gives you features and performance for tomorrow's audio, and is available in half- and quarter-inch formats, mono 2 channels or 4 channels.

The new Otari MK 70, the MTR 80's little brother. Fast, accurate and affordable for recording studio and audio post production. The 70 sets the road for the future. High performance, high quality and low cost.

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We realize that your job can often be summed up by the phrase: "problems, problems, problems". For 20 years our job has been to provide solutions. Our unique size and structure allows us to do that better than anyone else in the business.

We're large enough to support a leading-edge research and development facility to keep our customers at the forefront of technology. At the same time, we're small enough to provide concentrated product support and

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We're also small enough to be close to you and your job, so it's no accident our products reflect your needs. In fact, your ideas often end up in our new products. You could say our customers are our best designers. We're pleased to say they're also our best sales people.

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# CURRENT

## 76th AES Convention Convenes

The 1984 AES Convention, held October 8 through 11 at the Hilton Hotel in New York City, has been designed to meet the informational and educational needs of today's changing audio industry.

A special series of eight seminars are planned for attendees desiring a smooth transition into the digital age, ranging from "Basic Digital Information" to "Console Automation," "Time Codes" and "MIDI Interface." Workshops to be given include: tape machine maintenance, portable digital recording equipment, acoustic measurements for sound reinforcement, the economics of recording studio operation, and an in-depth study of recording techniques. A broad spectrum of technical papers from international authors will provide a diversity of subjects pertaining to the leading edge of tomorrow's technology. Also not to be missed are the three floors of exhibits and

product demonstrations by dozens of audio manufacturers.

On-site registration fees for the four-day event range from \$15 to \$95, depending on one's membership status (non-members may also attend) and the programs selected. For more information, contact the Audio Engineering Society at (212) 661-8528. See you at the show!

## SPARS Goes On Line

The Society of Professional Recording Studios (SPARS) has established a computer telecommunications network, in cooperation with IMC Communications, to link SPARS members for rapid information regarding technical problems and solutions, equipment needed for sale, replacement parts needed, rental needs and other studio operation factors.

The on-line service is distributed electronically via IMC International Communications Network, which has been specifically geared to the needs of the entertainment industry, according to SPARS. Other applications of the system will include distribution of the SPARS

Newsletter and maintenance of a stolen equipment hot-line. In support of the system, Digital Entertainment Corporation has donated a Leading Edge computer for use at headquarters in Los Angeles.

## Billboard Video Music Conference

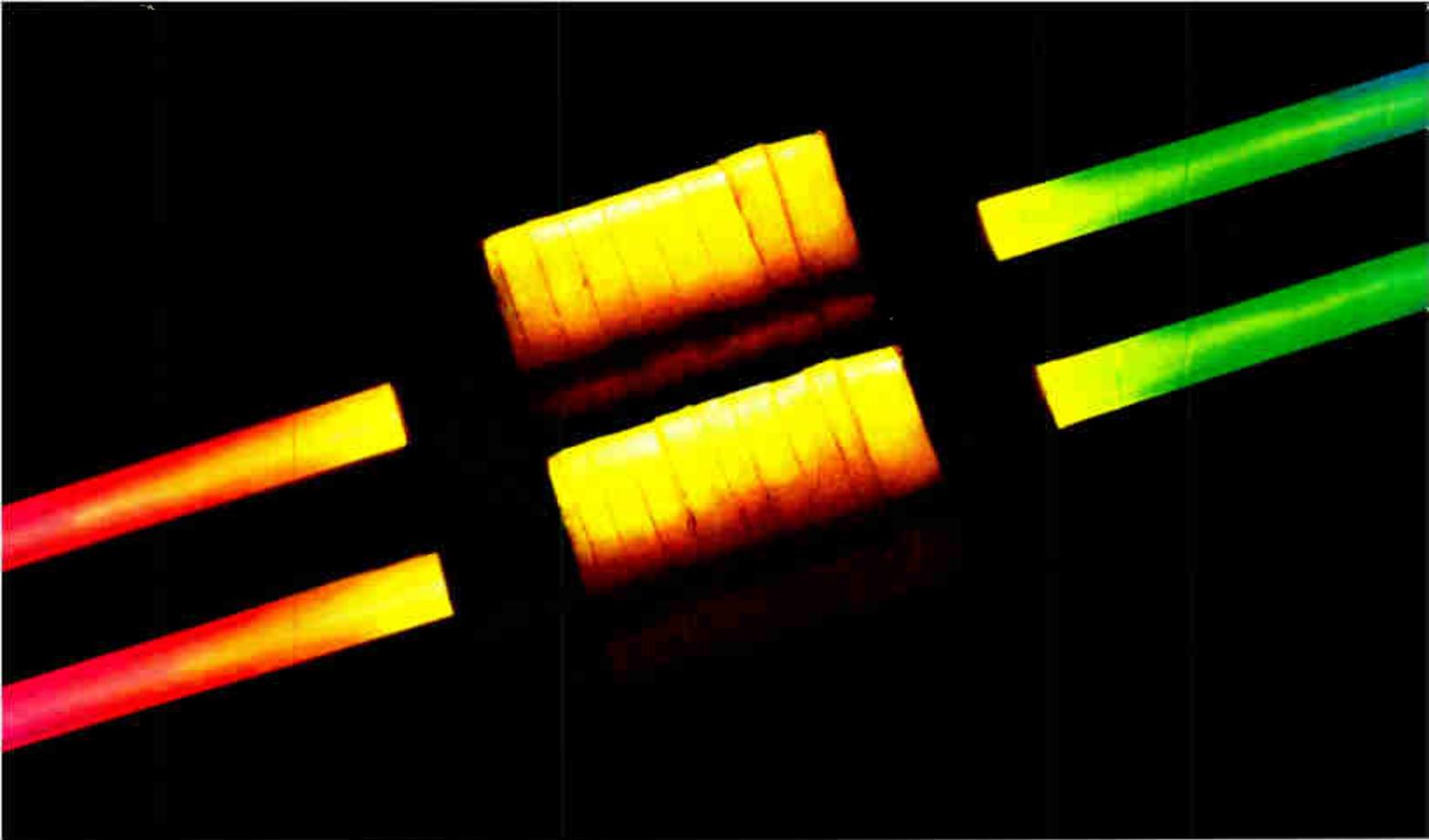
Billboard Magazine has set November 15-17 as time for their Sixth Annual Video Music Conference, to be held at the Sheraton Premiere Hotel in Universal City, California. Panel discussions for the event will include "Shopping the Record Labels," "Creating a Support System," "The Marriage of Finance and Creativity," "The Behind the Scenes Team" and "The Artist's Perspective." There will be a screening of foreign and independent (under \$10,000 budget) productions, in addition to the final evening's Video Music Awards Presentation. For more information, contact Billboard at 9107 Wilshire Blvd., Suite 700, Beverly Hills, CA 90210.

## NOTES

*Compusonics Corporation* has signed a letter of intent with *Nissho Iwai American Corporation* to market *Compusonics'* floppy disk-based series of professional digital records/mixers in Japan. . . . *Tom Mintner* has been appointed vice president and general manager of *Studer Revox America, Inc.*, replacing *Hans Batschelet* who has left the company to return to his native Switzerland. . . . New *Sony Pro Audio* division appointments include *Richard Lee* as national product and systems manager, *Andrew S. Munitz* as eastern regional manager and *Scott Spector* as west coast engineering manager. . . . *Crown International* has announced the addition of *D.B. (Don) Keele Jr.* to the post of manager of software development for the Tecnor Division. . . . *Dave Teig*, former *SPARS* eastern coordinator, has been named national coordinator for regional meetings. . . . *Ron Kramer* has been elected president of the Los Angeles Chapter of the National Academy of Recording Arts and Sciences. . . . *Scott Schuman* has been named director of market development for *Dolby Laboratories*. . . . *Rupert Neve* has added two regional sales managers: *Jeff Evans* in the western U.S. and *Geoffrey M. Langdon* in the

eastern half. . . . *Maxell Corporation* has named *Barbra Tendler* northeast regional sales manager. *BASF Systems Corporation* has appointed *Rocco J. Roto* its regional sales manager for the Midwest and *Gay F.S. Spiegel* its new product manager for audio magnetic products. . . . *Norman Rosenshein* has been named vice president/ chief engineer at *Unitel Video, Inc.*, in New York City. . . . *Paul W. Krueger* has been chosen to manage market support for *Ampex'* audio-video systems division. . . . *John Pivrotto* has joined *Positive Video*, in San Carlos, CA, as operations manager. . . . *Steve Kartholl* has recently joined *Communications Concepts, Inc.* to head up their Orlando, Florida operation. . . . *Tor Sivertsen*, president of *Tandberg of America*, received the Export Council of Norway's annual award in recognition of his "Outstanding contributions to the development of trade relations with Norway". . . . *Rick Rosen* has joined *International Music Corporation* as district sales manager for the northern California territory. . . . *Clifford J. Eggink* has been appointed president of *Robert Bosch Corporation*, video equipment division, in Salt Lake City, Utah. . . . *John L.*

*Moss* has been appointed international sales manager for *Music Media International*, the representative of All Europe Radio, Laser 558, which broadcasts from international waters to nine European countries. . . . *Keith Myers* has been named vice president/sales and marketing of *Cassette Productions Unlimited, Inc.*, of Pasadena, CA. . . . *Chuck Prada* of *Lienau Associates* and *Paul Ackel* of *Triad Marketing Associates* have been named manufacturer's representatives for *Sound Code Systems*. . . . *Roy Gattinella* has been appointed marketing manager for *Monster Cable*. . . . *Charles C. Jennings* has been named president of *Barcus-Berry Electronics, Inc.*, the newly-formed subsidiary of Barcus-Berry, Inc. . . . *Mike Hoffman* has joined *Florida Vidcom* as audio engineer and music director for the Pompano, Florida firm. . . . *Scientific Audio Electronics (SAE)* has moved their corporate offices to 1734 Gage Street in Montebello, CA 90640, phone (213) 726-9999. . . . *Family Light*, the ten year old alternative music school in the S.F. Bay Area, has changed its name to *On Stage Music*.



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This process gives us impeccable control of transformer function and quality. Which gives you the assurance of the most efficient transfer of power possible, and an end to the acoustical "buzz" that so often fights sound purity.

To a lot of manufacturers the lowly transformer is far down on the list of priorities. For us, every element in the sound system relies on the exacting performance of every other element, and must be painstakingly attended to.

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## NORTHWEST

In Santa Cruz, CA, the **Fane Productions** studio was busy with many projects, including *Lacy J. Dalton & the Dalton Gang* working on new material, Doobie Brothers' founder **Patrick Simmons** recording songs for his solo album and Kirking Mule artist **Bob Brozman** in recording the soundtrack to the Australian film *The Secret that Exploded*. Recent projects at Menlo Park's **Music Annex Recording Studios** included an album project by **Nancy Vogl**, produced by **Suzanne Shanbaum** and engineered by **Russell Bond**, and **Ronnie Montrose** and **Steven Halpern** doing sessions with chief engineer **Roger Wiersema**. At **Fantasy Studios**, Berkeley, CA, **Jeffrey Osborne** has finished up some vocals and mixed his latest album for **A&M Records** in Studio D. **George Duke** produced and **Tommy Vicari** engineered, assisted by **Dave Luke**; and **The Tubes** were in working on their new album with **Todd Rundgren** producing and **Wally Buck** engineering. **Tom Size** is assisting on the project.

At **Montage Recording**, Newark, CA, sessions include a new project by **Roy Storm** called "Great Going Forth" with **David Hartzheim** engineering and **Louise Singleton** assisting. In San Francisco, at **Russian Hill Recording**, **The Dave Brubeck Quartet** were in scoring a feature film entitled *Ordeal by Innocence*, which stars Donald Sutherland and Faye Dunaway. **Donald Sutherland**, **Jenny Craven** (producer of the film) and **Russell Gloyd** (Brubeck's manager/producer) all attended the sessions. Also in San Francisco, **Different Fur Recording Studios**, Windham Hill solo pianist, **George Winston**, recorded a 32 track digital album based upon the music soundtrack he recently completed for Walt Disney movie entitled *Country*, music composed by Charlie Gross, **Will Ackerman** producing, **Howard Johnston** engineering and **Kim Foscatto** assisting. **Anderson Jones**, a San Francisco-based production and recording company finished music for five more new I.D.'s and openings for MTV. The animated spots are produced by **Colossal Pictures** and include the wild 20 second open for "MTV Saturday Concert" which will appear weekly. Session activity remains heavy at San Rafael's **Tres Virgos Studios**, where the **Question Men** worked on their 2nd independent album with **Stacy Baird** engineering and **Gordon Lyon** assisting, and **Murphy's Lawyers** completed eight songs for Nightmare Productions' **Pat Morrow** with Gordon Lyon at controls. Also in San Rafael, at **Patchbay Productions**, **Yanks** have been in Studio "A" putting the final overdubs on their upcoming EP for D.T.I. Records. **Karl Derfler** is engineer/producer on the project. **C'ductions Advertising and Production Co.** of Stockton, CA recently completed original synthesized music for the opening of KVIE's "Arts Alive" program, and also scored the



*Dave Brubeck (standing third from left) and friends listen to a playback of the score from "Ordeal by Innocence," at Russian Hill Recording. The score was created by improvising the music live to the picture.*

music for an American Savings slide show presentation. **Steve Scott** is hard at work on his second album for Waco-Texas-based Exit Records. Tentatively titled *Emotional Tourist*, the album is being recorded at **Sangre Studios** in Sacramento, CA. Engineering the project are **Steve Griffith** and **Daryl Zachman**. Producers are a couple of other Exit regulars: **Mike Roe** and **Charlie Peacock**. At **Triad Studios**, in Redmond, WA, projects include a single release by artist-producer **Robert Puff**, EMI recording artists **Queensryche** in for 2 track work, and **Dave Burgess** completing a dbx digitally recorded album project. **Al Swanson** on the board.

**ker** recording music for a Southwestern Bell industrial film. At **Dallas Sound Lab**, **Clint Allen** was in with the popular group **Diamond Romeo** working on their next album project with **Ron Cote** as engineer. Also, noted rockers **Jimmy Wallace & The Clue** mixed two more songs for their upcoming album release with producers **Russell Whitaker**, president of Dallas Sound Lab, and **Jimmy Wallace**. Ron Cote was chief engineer on the project.

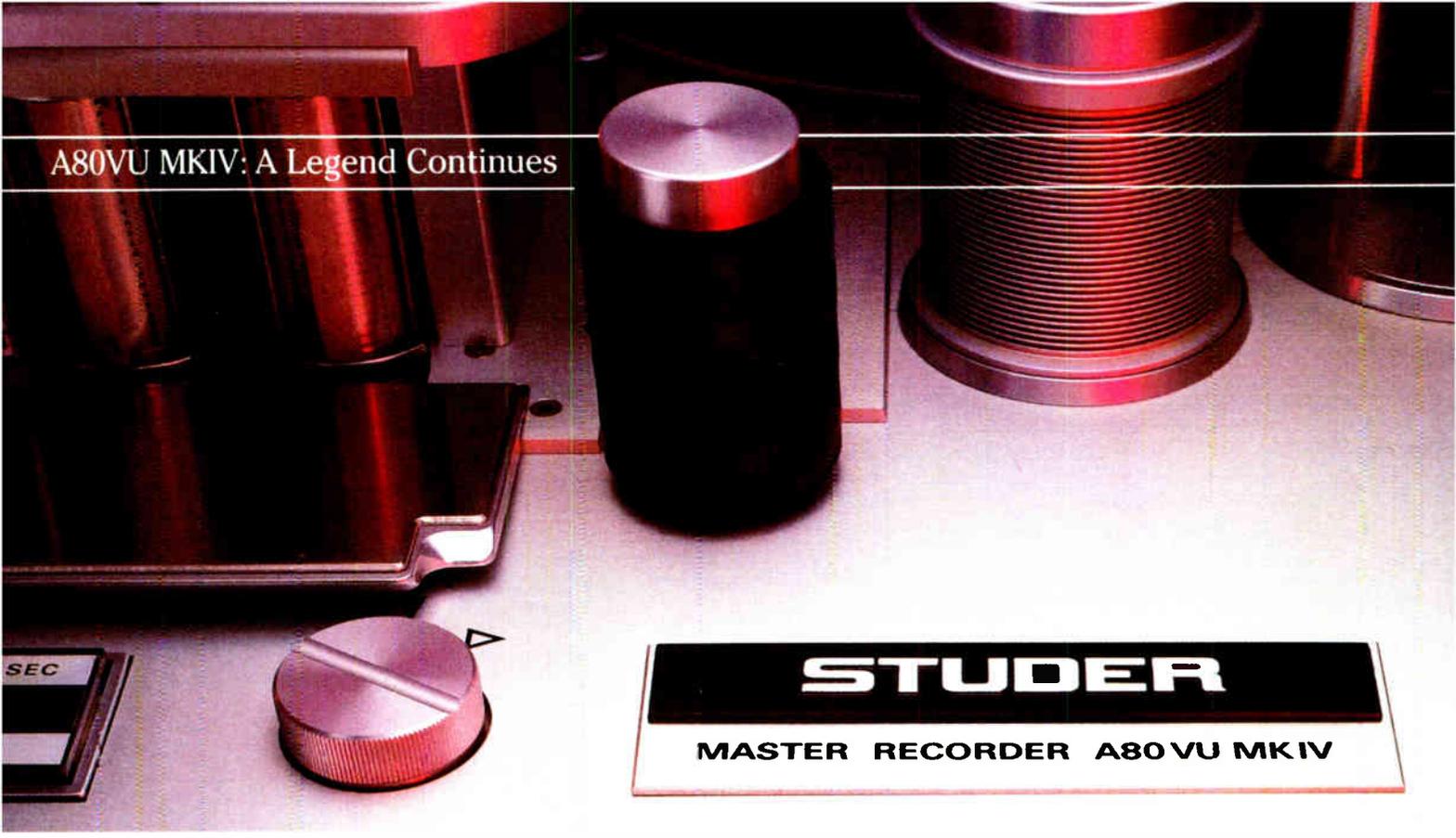
## SOUTHWEST

At **Rivendell Recorders** in Pasadena, TX, the staff producers and arrangers have been busy: **Paul Mills** worked on string arrangements for a variety of projects as well as producing a CCM album release for **Donna Landry**. **Brian Tankersley** completed all the overdub work and final mixing on **Jim Tucker** and CCM artist **Michael Murphy** releases. **Eric Johnson** worked on overdubs for the projects and strings are being cut in Dallas. MCA/Churchill Records recording artist **Ronnie Dunn** cut some demos at **Infinity Recording Studios** in Tulsa, OK. **Al Cahen** of Infinity engineered for Dunn performances. Recent activity at **Lone Star Recording** in Austin, TX included recording and mixing songs for the first album by **Dino Lee**, the "King of White Trash." The project was produced by **Stan Coppinger** with engineering by **Stuart Sullivan** and **David Hough**. Also finishing tracks for a fall European release was **Joe "King" Carrasco & the Crowns**. **Joe Gracey** and **Roger Harris** engineered the songs, which they co-produced with the band. The summer was hot both in and out of the studio at **Crystal Clear Sound** in Dallas, TX. Sessions included **Gary Brock** cutting demos with **John Salem** producing, more demos by Dallas' **The Elements** produced by the band, and **David Ba-**

## SOUTHERN CALIFORNIA

At **Monterey Sound** in Glendale, CA, **Joe Sample** was laying tracks for MCA Records, produced by the **Crusaders**, and **The Dazz Band** in overdubbing for Motown Records with **Reggie Andrews** producing. **Frank Clark** engineering and **Frank Brown** assisting on both projects. At **Group IV Recording** in Hollywood, **Shadowfax** mixed their new Windham Hill LP with producer **Chuck Greenberg** and engineer **Harry Andronis**, assisted by **Andy D'Addario**. A&M recording artist **Alan Gorrie** was in at **Skyline Recording** in Topanga Park, CO with producer **Jay Gruska** and engineer **Frank Wolf**. Assisting was **Shantih Haast**. **Dick Quincer** of **Cine-Video West** and editor **Dennis Gross** completed a sales education tape for Bushnell, a division of Bausch & Lomb at **Horizontal Editing Studios** in Burbank, utilizing Horizontal's 1 inch online editing system and Chyron VPI. Recording artist **Dave Mason** completed work on his latest project at **The Complex Studios** in West Los Angeles. Mason produced the album himself, laid down vocals and mixed in studios B and C. **Ed Cherney** was co-producer and engineer on the project with **Murray Dvorkin** assisting. At **Hit City West** in Los Angeles producer/arranger **Patrick Henderson** and engineer **Joel Moss** recently completed tracks for **Mr. T's** album debut on D.B.S. Records, also **Wall of Voodoo** was in working on a self-produced project with **Avi Kipper** engineering, assisted by Bruce Rockwell.

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**STUDER REVOX**



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World Radio History

calMedia Recording Services in Anaheim, CA has now employed **Dennis Anderson** as head engineer for the in-house studio, **Oak Recording**. Anderson is currently working on a project with **Scott Reich** who flew in from New York to work with Anderson. Ollie Mitchell and Bruce Es-covitz did the horn work on Scott's four-song project. Recent sessions at **Mad Hatter Studios** in Los Angeles included Motown's **Phylis Saint James** first LP produced by **Ray Bunch**, 1st engineer was **Warren Dewey**, 2nd engineer was **Richard McKerran** and Capitol artist **Mirror** cutting tracks with producer **Todd Cochrane**. The engineers were **Bernie Kirsh** and **Bobby Brooks**.

In Orange, CA, Geffen recording artists **Berlin** were in at **Advanced Media Systems** recording eight new songs, with **Daniel Van Patten** and **Steve Anderson** at the console. At **Skip Saylor Recording** in Los Angeles, A&M artist **Gary Taylor** was in cutting a single for his soon to be released LP and producers **Ron Rogers** and **Alex Moran** were in mixing tracks on metal group **Roran**. **Skip Saylor** engineered and **Tom McCauley** assisted on both projects. Producer/engineer **Jackson Schwartz** was in at **Sound Image** in North Hollywood, recording Midwest rock group **Saint** for their upcoming album release with **Steve Hug** assisting. Recent activity at **One on One Studios** in North Hollywood included **Richie Zito** producing, **Mick Guzauski** engineering and **Peter T. Lewis** assisting on the song "The Concrete Jungle" with artists **The Motels** for the soundtrack from **Teachers**. At **Larrabee Sound** in Los Angeles, producer **Richard Burgess** mixed several sides for **America** with engineer **Ed Thacker** for Capitol Records, assisted by **Sabrina Buchanek**, said to be the first time a 32 track digital recorder had been interfaced with a Solid State Logic console. Also in Los Angeles, **Sound Arts Music Productions** recently put its 24 track studio, Fairlight and full complement of other synthesizers to the test, creating 40 minutes of music in only three weeks for the Chrysler Corporation 1985 Debut Show and Ross Roy Advertising.

## NORTH CENTRAL

**Sound Summit** in Lake Geneva, WI opened August 1, 1984 with **John Hunter** producing his own debut album for Private ICBS Records, engineered by **Phil Bonanno**. **The Kind** were also at Sound Summit with Bonanno mixing their next single for 360 Records, and **Bad Boy** began laying tracks with producer/engineer **Paul Klingberg**. At **Eden Productions Recording Studio** in Detroit, Luckywood Records finished the final mixes on a new single, "D.E.T.R.O.I.T. is IT," with **Dave Sanders** and **Phil Lewis** producing. The groups **Chaz**, **Sommerset**, and **Prime Cut**, and artist **Darryl Christian** recently cut demos to send to interested labels. Dave Sanders engineered all sessions. Recording activity at **Studio A**, Dearborn Heights, MI included producers **Jimmy Hall** and **Ralph Leach** overdubbing vocals on **Bobby Ray** for Hen Cen Records, **Eric Morgeson** engineered; and the techno-pop group **The Technotics** laid tracks for their first EP with production handled by **Jim Vitti** and **Tony Ray**. At **Lansing Sound Studios, Inc.** in

Okemos, MI, recording artists **The Flying Tigers** worked on their second album, a follow-up to their cassette-only release. Lansing Sound's chief engineer **David A. Joslyn** engineered the sessions. Engineers Neil E. Gorov and Marc C. Moore assisted. Activities at **5th Floor Recording Studios** in Cincinnati included **Walter Morrison** recording his next album for Ze Records with **Gary Platt** at the controls; Epic recording artists **The Elvis Brothers** working on their next album with **Adrian Belew** producing, **Gary Platt** engineering and **Brad Kuening** assisting; and the **Ohio Players**, with **Byron Byrd** producing their next album for Air City Records. Gary Platt engineered those sessions. Veteran engineer and producer **George Luif**, owner of the Orland Park, IL studio **Star Trax** has been working at that studio with ex-Badfinger member **Joe Tansin** on his first solo project. Star Trax has only been in operation about a year, but has been booked steadily. **James Cotton** returned to **Streeterville Studios** in Chicago to continue work on his blues/funk album, with label president **Bruce Iglauer** and Cotton at the producer's end, and Streeterville's engineer **Justin Niebank** at the controls; **Sonny Seals** laid down tracks at Streeterville, as did 1984 Grammy-winner **Clifton Chenier**, "The King of Zydeco," who worked with Niebank and Iglauer.

## NORTHEAST

Recently recording at **Blue Rock Studio**, NYC was **George Benson**, produced by **Russ Titelman** for Warner Bros. Records, engineered by **Eliot Scheiner**, and **Evelyn King**, produced by **David Frank** and **Mike Murphy** with **Mario Salvati** engineering. At **Evergreen Recording Alfonso Ribeiro** (the Tap Dance Kid) was in recording his debut album for Prism Records with **Ted Hayes** and the team of **Lottie Golden** and **Richard Scher** producing various songs. Recent happenings at **Quadrasonic Sound Systems**, NYC included new recording artist **Andy White** laying down tracks for his new album, produced by **Rupert Holmes**, and engineered by **Don Hunnerberg**. Engineer **Steve Thompson** has recently completed re-mixing the following songs: **Illustrated Man's** "Head Over Heels"; **Ultravox's** "Dancing With Tears in My Eyes"; and **Little Steven's** "Undefeated" and "Checkpoint Charlie". At **Secret Sound Studio** in New York City **Mario Kazama** of Japan is recording his first album for PMC International. The session players include Anthony Jackson, Hiram Bullock, Buddy Williams, Clifford Carter, Mark Egan and Charlie Drayton. **Hiram Bullock** is producing with **Scott Noll** engineering and **Warren Bruleigh** assisting.

Also in the City, at the **Platinum Factory**, the production team of **Patrick Hibbert** and **Tyrone Evans** completed mixing an upcoming single by artist **Vic Taylor** entitled "For All Times." Hibbert and Evans are also laying tracks for several other tunes with production assistance from former Falckback Band member, **George Victory**. **Jon Evans** is engineering. At **Greene Street Recording**, NYC, **John Robie** produced a mix for Atlantic artist **Laura Brannigan**. **Rod Hui** engineered and **Erika Klein** assisted. Recent sessions at

**MusicAmerica Studios** in Rochester, NY included **Jack Starr** (formerly of Virgin) completing a solo project, and metal pioneers **Blue Cheer** cutting some tracks at the studio. **Digital** by **Dickinson's** new all digital multi-track studio in Bloomfield, NJ finds **Kashif** producing **Whitney Houston** for Arista Records with **Mike O'Reilly** engineering and **Joe Marno** assisting. In Fairfield, New Jersey, at **The Broccoli Rabe Entertainment Complex** the following recording artists doing projects: **Sybil Thomas** being produced by **Lenny White** and engineered by **Howard Lindeman**; and **Blue Magic**, produced by **Ted Mills**, engineered by **Mitch Zelezny**. Some interesting projects at **Studio 4** in Philadelphia, PA—**George Thorogood** cutting a Buick commercial and **T Lavitz** of the Dregs, **Eli Konikof** and **Chet Cattalp** of Spyro Gyra, and **Dave Larue** of Stretch were in cutting track for T Lavitz's solo record, T producing, **Phil Nicolo** engineering. Also in Philly, at **Sigma Sound Studios**, **Grover Washington Jr.**, producing himself, recently completed the mixing for his upcoming album. **Peter Humphreys** engineered with **Barry Craig** assisting. Grover Washington also produced a new single for **Pieces of a Dream** while working with the same engineering team. At **Normandy Sound**, Warren, RI, **Phil Greene** and **Ron Saint Germain**, in association with executive producer **Phil Gerhardt** of Interplanetary Productions, engineered and produced "Back on the Streets" performed by **3-Speed** for the "Voyage of the Rock Aliens," soundtrack. **Lion & Fox Recording** in Washington, D.C. recently recorded and mixed a big band version of the Datsun Major Motion TV commercials which air nationwide. The commercials are produced by **George Callaghan** of Annapolis, MD.

## SOUTHEAST

At **A.M.I.** in Hendersonville, TN **Brien Fisher** worked on projects for **Joe Sun** and Australian artist **Johnny Chester**, and working on a new album was **Johnny Paycheck**, with co-producers **Tommy Jennings** and **Miles Sillis**. Mastered at the **Criteria Cutting Center** in Miami was the second single release from the **Bellamy Brothers** LP **Restless**. The single, titled "World's Greatest Lover," was mastered from the digital format by engineer **Mike Fuller**. At **Criteria Studios**, Atlantic Recording artist **Janice Koffman** recorded her debut album under the direction of producer-engineers **Ron** and **Howard Albert** of Fat Albert Productions. The assistant engineer on the project was **Lee Shapiro**. At **Hummingbird Studio** in Nashville, **Billy Crocket** completed overdubs for his debut album for Word Records, **Neal Joseph** produced and **Jim Baird** engineered. At **Scruggs Studio** in Nashville, **Herb Pederson** laid down tracks for Blue Ridge Production's movie, **Hearts Desire**, featuring various bluegrass artists from the Nashville area. **Tom Brown** engineered the lively sessions. At Nashville's **Woodland Sound Studios**, producer **Bud Logan** did string overdubs on recording artist **John Conlee's** new release, with independent engineer **Rick McCollister** at the controls and **Ken Criblez** assisting. **Disc Mastering Inc.**, Nash-

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## Clinton and Digital

For owners Ed Rak and Bruce Merley the planning and development of Clinton Recording Studios was a challenging process, the goal of which was to achieve a critical balance in addressing several key issues. Included were state-of-the-art technology, exacting room acoustics, thoughtful ergonomics, sensitivity to producers' and artists' needs, efficiency and service. Rak and Merley invested three years in design and construction to build a facility that would successfully address each of those issues and integrate them into an ideal whole.

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Digital recording was seen early on as integral to the scheme that ultimately became Clinton Recording Studios. Market analysis, consumer trends and the like were examined along with the various professional digital recording systems available. Each system was considered throughout the studio's development against each of the issues cited above. For Clinton the ultimate was clear: the Mitsubishi system met each demand and passed every test. It was clearly the best choice for Clinton's ongoing quest for studio excellence.

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32  
64



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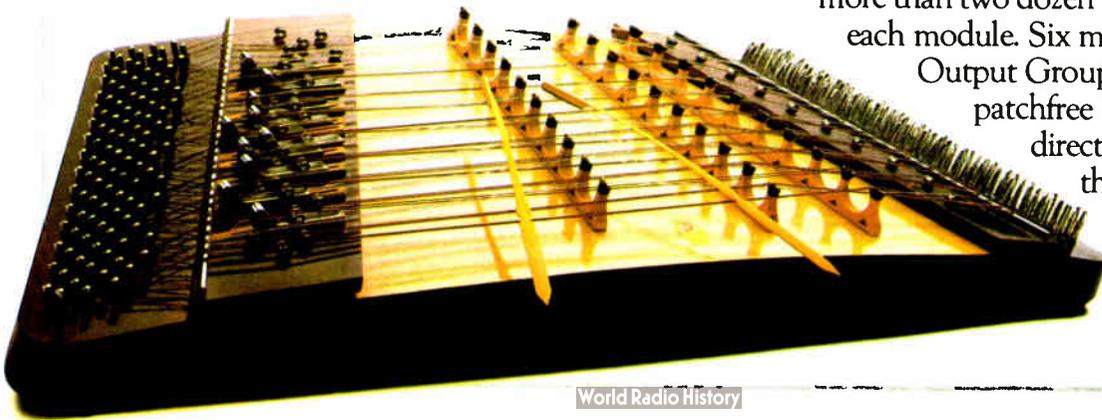
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ville, saw a flood of releases on pop artists of the '50s and '60s, with discs by the **Platters**, **Oliver**, **The Kinks**, and **The Yardbirds** to the studio's credit. **Hidden Meaning Studios** in Warner Robins, GA handled the recording of **Didi Stephenson's** new single for Toll-Free Records. **Rayze** completed tracks for their upcoming EP. And **Tony Dorsey**, formerly of Paul McCartney & Wings, was in finishing tracks for some personal demo work. At the **Music Mill** in Nashville, **Harold Shedd** produced new tracks on **Reba McEntire** for MCA Records; **Jim Cotton**, **Joe Scaife** engineering. **Creative Workshop** in Nashville has been busy with recent sessions by the **Rex Nelson Singers** for Word Records. **Brent Maher** produced and engineered the sessions. **Joe South** was also in, working with producer **Sande Brown** and engineer **Joe Funderbunk**.

## STUDIO NEWS

**Bill Marino** and **Ken Hahn** have formed **Sync Sound**, a new facility specializing in postproduction audio mixing and editing, located at 450 W. 56th Street, New York City, 10019. Contact Elissa Kline for more information at (212) 246-5580.

**Unique Recording** of NYC have updated their facilities for audio/video sweetening with the addition of two BTX Softouch systems for Studios A & B, Sony BVU 800D 1/4-inch and SL-2750 Beta VTRs, an RCA VKT550 VHS recorder and a Sony Pro Feel 2501 25-inch color monitor. Also added was a Sony PCM 701Es with the Audio + Design modifications for PCM 1610 compatibility and balanced +4 inputs and outputs. **The Power Station** in New York City has upgraded its Studio A with a new 40-input customized Neve 8088 console. Also in the apple, **JM Communications**, at 231 W. 58th Street, is now offering a comprehensive tube microphone and ancillary equipment rental service. All microphones are available in large quantities and at low rates. **The Sound Shop** in New York City has complete-

ly redesigned its Studio C and installed a new custom 36 input Neve 5116 console designed specifically for video sweetening and re-mixing large-scale music productions down to stereo videotape or film. **Onomatopoeia** in New York City has announced the addition of **Eric Eckstein** and **Ray Hopper** to its senior staff as engineer/producers. **Automated Sound Studios** has completed a major upgrading program for its two-room New York facility. New equipment purchases include two Studer A800 24-track recorders, Dolby SP24 noise reduction, and 4 Studer TLS4000 modular SMPTE synchronizer units. Automated also updated its Studer A80VU multi-tracks with the newer "quick-punch" head-block assemblies. In addition to locking two multi-tracks together for 46 channel capability, Automated's new TLS4000 synchronizers will be used in conjunction with a 1/4 inch IVC video system for audio/video postproduction applications.

**Greene Street Recording**, NYC, has updated their synth/sequencer inventory by adding the following equipment: Roland MSQ 700, Oberheim DSX, SCI polysequencer, Custom Drumulator, Roland 909, Juno 106, OB8, Prophet 5, and the new Simmons SDS7. Also in New York City, **Clinton Recording** has completed the installation of a Mitsubishi Digital Audio system, including an X-800 32 channel multitrack recorder and X-80A digital master recorder. Outfitted with the latest modifications, the X-800 recorder was recently being used for underscoring chores on Francis Ford Coppola's upcoming film, **Cotton Club**. Engineer **Tom Jung** worked on the project at Clinton's Studio A, as well as some of his own recordings for his Compact Disc label, Digital Music Products. The world's first mobile Necam 96 console automation system has just been installed in **Le Mobile**, Guy Charbonneau's million dollar remote vehicle. Owner Charbonneau remarked, "A remote truck may seem to be an unusual place to install an automated mixing system, especially a Necam, but this is a very unusual recording vehicle." After thirteen years in the same location, **Robert Berke Sound**

has opened their new facility, featuring two professionally equipped studios and a music library audition room. The facility is now located in India Basin Business Park, minutes from downtown San Francisco, and the company will continue to specialize in all types of commercial sound production with an emphasis on sound for video with their new BTX Softouch computer and 3/4" VTRs.

**Larrabee Sound** in Los Angeles has continued to update their equipment to complement their Solid State Logic 56 channel computerized console, with the following new gear: two Studer A800 recorders; a Mitsubishi X80 digital 2-track recorder, AMS digital delay unit, Lexicon 224 and Super Prime Time, and Kexex II noise gates and dbx 160X compressors. **AVC Systems, Inc.** in Minneapolis, who recently took over the complex formerly occupied by Sound 80 Recording Studios, have been involved in a number of new projects of interest: installing and supplying the Sound System for the new **Ordway Music Theatre** in St. Paul, Minnesota, and the firm has completed installation of a 24 track recording studio for **Jesse Johnson**, an A&M Records artist, formerly of the Time. **Lion Share Recording Studios**, in Los Angeles has completed renovation of Studio B with the installation of a 48 input Neve 8128 mixing console, featuring Necam II. In response to the growing demand for digital recording facilities in Los Angeles, **The Village Recorder** has purchased a Mitsubishi X-800 32-track and two X-80A (console version) two track mastering machines, according to senior engineer Jeff Harris, who is also the director of the studio's video department. Although the recorders are to be used mainly in Studios B and D, the machines will also be available to outside clients. **Lion & Fox Recording** in Washington, DC recently added a Lexicon 224X digital reverb unit to its rapidly expanding Studio A.

Berklee College of Music alumni **Douglas Boughter** and **Brian Magill** has established **Reel Production Studios**, a commercial music production firm in Fullerton, CA. George Massenburg Labs has completed installation of the first of three new moving fader automation systems at **Conway Recorders** in Hollywood. Two other systems are slated to be installed at leading audio and film studios in the near future. The custom-built Conway system includes automated operation of 40 input faders, eight echo returns, six groups and a stereo fader, all with automated muting. GML engineers installed the system on a Neve 8108 console. **Hidden Meaning Studio** in Warner Robins, GA, has upgraded with a Tascam 520 console, Tascam 85 16 B 16 track with autolocator, a second Eventide harmonizer, Simmons drums, and some AKG 414 microphones.

Following the purchase of a new Studer A80 VU MKIII 1/2 inch two-track recorder, **Red Label Recording Studio** in Waukegan, IL has become the first Chicago area facility to offer Studer 1/2 inch stereo mastering. The studio also purchased a Quantec Room Simulator and expanded remix capabilities on its Harrison console to accommodate up to 44 channels. The Los Angeles **Record Plant**, one of the country's largest recording operations, has purchased the Sony PCM 3324 digital multitrack recorder. The studio has the new machine slated for record projects, remote recording and film scoring. ■



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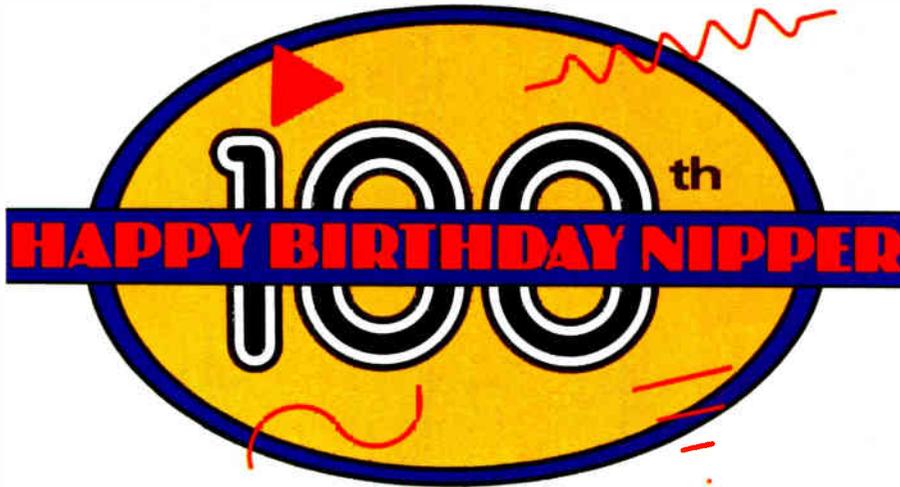
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World Radio History



(Left) The author with Canadian model "A" gramophone and rare papier-mache Nipper. At this table the deal was made for the acquisition by Victor of the Berliner Gramophone Co..



by Oliver Berliner

The world's most famous dog was born a century ago. The grandson of the inventor of the disk record and creator of the famous "His Master's Voice" trademark tells some tales of the immortal hound, as only a wag would.

On October 21, 1972 my friend Frank Andrews became the first person in nearly three quarters of a century to see a photograph: no one else believed even existed, and which no one else had been astute enough to search for. It depicted a fox terrier with a cylinder phonograph. The photo had been received by Her Majesty's copyright office on February 11, 1899 in connection with an application for Memorandum of Assignment of Copyright of "Dog looking at and listening to a Phonograph." The artist and copyright claimant was a Mr. Francis Barraud (pronounced *bar-*

*row*) The photo of his oil painting had been taken by his brother Philip, a professional photographer, for the purpose of making a copyright registration of the concept.

Although the painting was, the dog was not a figment of the artist's imagination. The beast was born in Bristol in 1884 and as a puppy he came to live with the five children of Francis' brother Mark. They named him Nipper because he would nip playfully at the children's heels. Curiously, Nipper became more attached to Mark, a talented scenic designer at a popular theatre, The Princess, and went regularly with him there. Often, when Mark would be called on-stage to receive applause for a particularly fine set design, Nipper would come out for a bow, too—much to the delight of the audience who made the hound somewhat of a celebrity. But Nipper would have remained merely a local favorite had fate not stepped in via the

untimely 1887 death of Mark Henry Barraud. Nipper did not then remain with Mark's children who may have been without sufficient funds to care even for themselves, but instead took up residence with Mark's brothers Philip and Francis in Liverpool, another west coast British seaport 150 miles to the north that seven decades later would come to boast of yet other "favorite sons" in the music world.

The Barrauds were descendants of Huguenots who'd fled France in the late 1600s to escape religious persecution. Francis' contemporaries and many of his predecessors were extremely accomplished and artistic: Paul Philip Barraud was the celebrated chronometer maker. One of his sons had a coveted appointment in the Long Room at the Custom House. In turn, two other sons were well-known animal painters with over 72 pictures at the Royal Academy. One son, Henry George, sired 9 children, one of whom was Francis James Barraud, at 96 Gloucester Place, London on 16th June 1856. After art studies at an academy in Antwerp, Francis returned to England, going first to Liverpool and then to London. His first acceptance by the Royal Academy was a portrait of his uncle, George Rose in 1881. Later the painting of Nipper was among those refused acceptance by the Academy. It was similarly refused when Francis tried to sell it to the Edison-Bell Company. After all, their product was in the picture. (Frank Andrews points out that what made the original picture difficult to comprehend was that Barraud apparently had turned the horn 180 degrees so that it faced Nipper who was shown sitting behind the machine—not the normal user's position.) Edison-Bell rejected the painting because, as James E. Hough had put it, "Dogs don't listen to phonographs." (Ho ho!)

He was only partly correct. Frankly, I think lots of dogs listen to phonographs, although Nipper was not one of them. Furthermore, none of Nipper's masters (he had at least three) ever made a recording, thus Nipper was never seen listening to such sounds, nor to any phonograph. But the posture—the head cocked to the left, the right ear raised inquisitively, the puzzled (according to Francis) expression—was typical of Nipper, who often would strike such a pose when something attracted his attention. Philip photographed Nipper precisely in this position. Francis later had every possible photo of Nipper destroyed so

that no one would suggest that he'd copied a photograph. Instead, he painted Nipper from memory.

In the cockney parlance of those times, Nipper was known as a "ratter." He chased rats and lost an eye in one escapade, crashing headlong into a bunch of thorns. As a bull terrier with powerful jaws, wide chest and shoulders, he had no fear of dogs much larger than he, though he was normally friendly. But once his teeth clamped onto something it was all one could do to get him to release his grip. The animal Nipper loved to hate was a large toy camel upon which children were often placed when they came to Philip Barraud to have their pictures taken. After often being teased by someone pushing the camel towards him, Nipper, biding his time, one day took matters into his own hands (mouth would be more appropriate) and ripped the toy to shreds. He was found sitting, unconcerned, surrounded by the fragments. He wasn't even repentant.



Upon completion of studies at St. Charles College, young Mark Bernard went to live with Uncle Francis and Nipper at Liverpool. But in 1893 Mark moved to Kingston-on-Thames to live with his mother, Louise, and brother, Henry George Frederick. Ironically, Nipper thus spent his waning days with two of Mark Henry's children for whom he'd been acquired in the first place. Of Nipper's 11 years, Mark Barnard spent a total of 8 with him. He says, "After a stroke Nipper was paralyzed in his hind quarters when I carried him to the works and got Edwards the vet to see him—he was buried under a mulberry tree in Durham's garden, Eden Street."

Francis stated that he'd painted the famous picture of Nipper in December 1898 or January 1899, at least four years after Nipper had died, and some

six years after Nipper had moved away. Thus, the dog was never to know that he'd be immortal, the symbol of not only giant manufacturing companies, but really of an entire industry. More famous than Lassie, Rin Tin Tin, Fala and Checkers combined, few of those who recognize him know his name or that he really lived.

It is now essential that we recognize that the original painting—the one whose copyright photo Frank Andrews uncovered for us—shows Nipper with a cylinder machine of the type produced by Thomas Edison. But the painting that was to become world famous shows Nipper with a disk gramophone. You see, the problem is that in France and the Americas we call gramophones "phonographs," while the rest of the world uses the word for a disk machine—gramophone, meaning *sound of letters*, coined by my grandfather, Emile Berliner, inventor of the microphone (1877) and the disk record and player (1887). Edison

The original "His Master's Voice" painting as submitted by the artist for copyright in 1899. Photo courtesy Her Majesty's Copyright Office.

didn't invent sound recording with his cylinder machine, either. Sound *recording* was invented in 1856 by the Frenchman Edouard Leon Scott de Martinville. Twenty years later, Thomas Edison invented sound reproduction by making Scott's phonautograms playable. He coined the word "phonograph" by dropping the "aut" from Scott's "phonautograph". Curiously, according to Prof. Ray Wile of Queens College, Edison was even challenged over the word phonograph, because it had been coined earlier by the developer of a stenographic system called "phonography" wherein

what the secretaries wrote down via this system was a phonograph. Leon Scott's phonautograph is in the Smithsonian Institution, as is the first Edison phonograph and the Berliner gramophone and microphone.

On May 31, 1899, Francis made the tedious journey to the No. 31 Maiden Lane offices of The Gramophone Company Ltd. His intent was to borrow one of the beautiful brass horns used on their Berliner gramophones so that he could paint over the ugly japanned black Edison horn in his picture and make it more attractive and saleable... but certainly less authentic (not that anyone cared). Unable to see Barry Owen, whom my grandfather had sent to England to establish British Gramophone, Barraud left a photo for him to see, along with his request to borrow a horn. Shortly thereafter a deal was struck, one that would make history, for Owen suggested that if Barraud replaced not just the horn but the entire cylinder phonograph with a disk gramophone, the Company would buy the painting. On September 15, the Company sent an offer to Barraud—50 pounds for the painting and another 50 for the copyright, the amount Francis had desired and which he deemed to be high. But the repainting took Francis longer than expected. In fact, he enlisted the assistance of one more nephew, Cyril Henry, son of another of Francis' four brothers, Herbert Rose Barraud. Cyril was outstanding when it came to depicting technical things—like gramophones—exhibiting too at the Royal Academy between 1912 and 1934. On October 17, 1899, The Gramophone Company received the "final" painting, along with the right of "reproducing the picture on trade circulars, catalogues and heading of note paper." The slogan, "His Master's Voice," created by the artist, went along, too. Before New Year's Eve of 1899, prints made by Rembrandt Intaglis Printing Co. of Lancaster were in general circulation to the Trade. Apparently in sepia tone, later the Company in a July 20, 1900 letter stated "...we are not thinking of issuing any tinted prints, although we have reproduced them in a small size on postcards in colours". The copyright Memorandum of Assignment had been applied for on February 6th.

Emile Berliner, visiting his European affiliates in the spring of 1900, was awestruck by the HMV painting. He had been busy introducing his disk records in America, his new home since 1870, and was checking on overseas activity. British Gramophone, curiously, produced only master recordings which were shipped to Hanover, Germany, to be pressed by Deutsche Grammophon. The Gramophone Company's record players came from Berliner's National

Gramophone Company, manufactured actually in Camden, New Jersey under subcontract by Eldridge Johnson's Machine Works. (Mr. Johnson had designed the clockwork spring motor used in the "improved gramophone" soon to be famous as the "trademark model". Eldridge Johnson actually made all such machines sold in Canada, Britain and the U.S.A.)

As my grandfather stood to the left of Barraud's final painting, he could see beneath his gramophone the outline of the archrival Edison-Bell dictaphone. What irony if the new painting were to aid the disk record in its battle to overtake the cylinder! (The death knell of the cylinder was actually sounded two years later when a young Italian tenor, later to be acclaimed the greatest singer in the world, declared that he would record only on disks, never again on cylinders. Every other major artist soon followed the lead of Enrico Caruso.) Emile Berliner returned to Washington with an HMV Print under his arm. He began using the design on May 24, 1900, applying for a trade-mark registration two days later. On July 10th the registration was completed. A new epoch in the history of sound recording was about to begin.

Yet this new era was not to be as my grandfather has envisioned. The Columbia Graphophone Co., anxious to manufacture both the old cylinders and the new disks, was desperate to break the Berliner disk patent monopoly. Having acquired rights to the so-called floating stylus, developed by Charles Sumner Tainter and Chichester Bell (Alexander Graham Bell's cousin) at AT&T's Volta Laboratories (now Bell Labs) via Volta Prize money won by Dr. Bell with his telephone invention, Columbia sued Emile Berliner, claiming violation of the floating-stylus patent. Incredibly, they obtained an injunction preventing my grandfather from making disks and gramophones.

In Camden, New Jersey, Eldridge Johnson expressed great concern over this turn of events. After all, it was affecting his best customer. So he proposed to my grandfather that while the latter was prevented from producing the very products he had invented, there was nothing to stop him from permitting the Johnson firm to produce them. So was born the Consolidated Talking Machine Co. of Eldridge Johnson. Curiously, Columbia made no effort to stop Johnson from making Emile Berliner's products.

These products consisted of disk records and players. My grandfather had taken his disk idea from the French poet, Charles Cros, who in 1876 had envisioned a disk recorded with lateral modulation, whereas his countryman, Leon Scott, had utilized a cylinder. Ironically, Cros' discourse was revealed by the French Academie of Science almost simultaneously with the American announcement of Edison's invention. Edison's previously garnered fame (for the electric lamp), the fact that his device "talked" (it reproduced sound for the first time; something Scott's machine couldn't), Cors' obscurity and the fact that his invention was in the form of a written idea and drawn designs, relegated the Cros proposal to obscurity. It was overwhelmed. No one paid it any attention—except Emile Berliner who at the time was primarily occupied in inventing the microphone which in 1877 he sold to the then-fledgling Bell System. This not only provided the improvement Bell needed in its deficient "telephone transmitter" design, but it also saved Bell from destruction at the hands of the then-powerful Western Union Telegraph Co. which, relying on a later-invalidated Edison patent, was desirous of entering the telephone business too. My grandfather, for the handsome sum of \$50,000, paved the way for Bell System's becoming the world's largest corporation (until this year, that is). (It has been calculated that had Emile Berliner taken AT&T stock instead of cash in 1877 and bought more stock with all of the dividends over the years, that stock would be worth today in excess of one billion dollars.)

Covering the Cros-envisioned disk with lamplblack, moving a laterally modulated cutterhead via a feedscrew assembly located under the turntable, then allowing acid to eat into the disk and thus deepen the groove where the stylus had cut away the lamplblack, Emile Berliner in 1877 had created a playable and duplicatable disk recording. But ironically, an invention made possible by development funds from the firm Emile Berliner's microphone had saved...the Bell System...was to prove to be his nemesis.

Bell-Tainter's floating-stylus was designed to track the grooves of a cylinder regardless of the displacement between the head location on the feedscrew and the groove position on the cylinder. Columbia was claiming that the Berliner method of having the groove itself propel the stylus was, in effect, a floating stylus. It took a federal court to recognize that in the cylinder system, the stylus—floating or not—is propelled by a feedscrew. With the disk, the stylus is propelled by the groove. No infringement. Case dismissed. Injunction removed. Emile Berliner, though vindicat-



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World Radio History



*A scene from Giorgio Moroder's  
rescored version of Fritz Lang's  
1926 film classic, "Metropolis,"  
which includes the world's first  
totally digital sound track.*

ed, was financially ruined. But Eldridge Johnson was not. Consolidated had been merrily making disks and gramophones (Mr. Johnson called them talking machines as he did not want to use Emile Berliner's word, gramophone) all this time. What were these two men to do now that it was all over—or just beginning? They formed a new company in 1902 with Emile Berliner, his backers and Mr. Johnson as principal shareholders. The Berliner Gramophone Company (U.S.A.) and his National Gramophone Company ceased operations. The new business would acquire all Emile Berliner patents—and trade-marks. Mr. Johnson named the firm the Victor Talking Machine Company. Now, there have been rumors over the years as to the origin of Johnson's "Victor." Could he have named it after his favorite bicycle, used when he was a boy? Could he have named the company after his general manager's wife, Victoria? No! For as his son, E.R. Fenimore Johnson told me, "My father selected the name, 'Victor' because it meant 'winner.'"

Happily, the Berliner and gramophone names did not disappear altogether. The Berliner Gramophone Co. of Canada, owned by my grandfather and operated by my uncle Herbert in Montreal, controlled the HMV and Angel trade-marks in Canada and was the Victor licensee there. In 1907, my father, Edgar, was brought fresh from graduation at M.I.T. to take over in Montreal, for his father had become dissatisfied with Herbert's management of the business. (Herbert immediately formed the Compo Company, Decca Records' licensee, to compete with his father and brother, who never spoke to him again.) In 1924 Edgar Berliner sold the company to Victor and it changed its name to Victor Talking Machine Co. of Canada Ltd. He personally assigned the Canada HMV trade-mark to Victor, with my mother as witness. In the late '20s, Victor profits were so great that during one year, Eldridge Johnson's *extra* dividend alone was one million dollars—tax free.

In 1929 the fledgling Radio Corporation of America, financed with bank money and formerly owned jointly by General Electric and Westinghouse, bought Victor. (RCA was headed by David Sarnoff, who'd gotten the job via influence of certain directors of the Cunard Steamship Lines for his "discretion" in informing them before anybody else knew that their flagship Titanic had sunk one night off the Jersey shore.) Why? Because they wanted Victor's manufacturing/distribution capability, its reputation, famous name and trade-mark. Edgar Berliner had the distinction of serving as president of all three Canadian companies: Berliner Gramophone, Victor Talking Machine, and RCA Victor. Although it

The trade-mark registration that launched "His Master's Voice" on the road to international fame and its position as the world's second-most-famous trade-mark.

No. 34,890. **TRADE-MARK.** Registered July 10, 1900.

**EMILE BERLINER.**  
**GRAMOPHONES.**  
(Application filed May 26, 1900.)



"His Master's Voice."

Witnesses:  
*J. M. Fowler*  
*H. J. Chapman*

Proprietor:  
*Emile Berliner*  
By *Lawson & King*

## UNITED STATES PATENT OFFICE

EMILE BERLINER, OF WASHINGTON, DISTRICT OF COLUMBIA.

TRADE-MARK FOR GRAMOPHONES.

STATEMENT and DECLARATION of Trade-Mark No. 34,890, registered July 10, 1900.

Application filed May 26, 1900.

### STATEMENT

To all whom it may concern:

Be it known that I, EMILE BERLINER, a citizen of the United States, residing at No. 1717 P street northwest, Washington, District of Columbia, and doing business at No. 1023 Twelfth street northwest, in said city, have adopted for my use a Trade-Mark for Sound-Producing Machines, their Appurtenances, and Records, of which the following is a full, clear, and exact specification.

My trade-mark consists of the picture of a dog in the act of listening to a sound-reproducing machine. This picture has been generally arranged as represented in the accompanying facsimile, which shows a sound-reproducing machine and a dog apparently listening to the sounds issuing from the horn of said machine. Underneath said picture appear the words "His Master's Voice;" but this is unimportant and may be omitted, since

the essential feature of my trade-mark is the picture of the dog listening to the sound-reproducing machine.

This trade-mark I have used continuously in my business since May 24, 1900.

The class of merchandise to which this trade-mark is appropriated is sound-reproducing machinery and the appurtenances thereof, such as sound-records and the like. The particular description of goods comprised in said class upon which I use the trade-mark is gramophones.

I may apply my trade-mark to the boxes enclosing the driving mechanism for the sound-reproducing machinery or to the back or front of the record-tablets.

EMILE BERLINER.

Witnesses:  
F. T. CHAPMAN,  
E. C. MARSHALL.

### DECLARATION.

City of Washington, District of Columbia, ss: EMILE BERLINER, being duly sworn deposes and says that he is the applicant named in the foregoing statement; that he verily believes the foregoing statement is true; that he has at this time a right to the use of the trade-mark therein described; that no other person, firm or corporation has the right to such use, either in the identical form or in any such near resemblance thereto as might be calculated to deceive; that it is used by him in commerce between the United States and

foreign nations or Indian tribes, and particularly in commerce between the United States and Canada; and that the description and facsimile presented for record truly represent the trade-mark sought to be registered.

EMILE BERLINER.

Sworn to and subscribed before me this twenty-fifth day of May, 1900.

[L. S.] EDWIN S. CLARKSON,  
Notary Public, D. C.

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ceased to exist 60 years ago, the Berliner Gramophone Co. is still to be found listed in the Montreal telephone directory.

But what had happened to Nipper in the land of his birth? Well, (by 1903) he'd become so famous that the Gramophone Company, some eight years after acquiring the painting, adopted it as their principal trade-mark, having been loathe to acknowledge its "superiority" over their "recording angel" (actually, a cherub shown apparently scribing a record, the symbol of Angel Records). So popular was Nipper that the company became commonly referred to as His Master's Voice rather than by its true name. As for artist Francis, one evening he was at a large dinner party (he was very "social") in London where a guest was expounding upon one of the common topics of the day—"His Master's Voice". He remarked that the artist of that painting of such extraordinary value to the Company must have made a fortune. He was shocked to be introduced to Francis who explained that he'd not made a fortune and didn't even own an HMV machine. The guest, a Gramophone Company director, invited Francis to come to the showroom and select a machine, and to accept a pension of 250 pounds a year (later raised to 350). Victor and HMV eventually shared the cost of

the pension.

Francis was also given a studio at Hayes, the company's factory in Middlesex shire, where he made a total of 24 replicas of his original painting during the ten years after 1913 (he died in 1924, the year the Berliner Gramophone Co. of Canada merged with Victor of Camden, New Jersey). Some paintings came to America, where they went into the hands of people like Emile Berliner and Eldridge Johnson. The price for virtually every oil was 35 pounds. One of these, known as the "Chinese Copy," actually depicted the Edison-Bell phonograph beneath the Berliner gramophone. So accurate was Barraud's copy of his own original that it was necessary to place a code mark on the original to identify it. During World War II, the Chinese copy (so-called because of the Chinese, and the Japanese, reputation as "copycats") hung in the Gramophone Company's board room in place of the original which was heavily insured and placed in a bomb-proof vault. Prior to World War I, Francis found time to use Nipper in advertisements for Reid's Stout (owned by Watney Mann., Ltd.). In this pair of paintings the dog is shown on a chair sniffing at a glass of good brew and wondering, "What is it Master likes so much?" After knocking over the glass, Nipper slinks

away fearing, "What will Master say?"

Nipper's likeness has not been limited to printed reproductions. He's been produced in the form of a pen, paper-weight, bookends, ink bottle, pen tray, belt buckle, mirror, ashtray, salt-and-pepper shaker set (Nipper holds the salt, the gramophone the pepper), paper clip and, of course, in life-size and larger-than-life three-dimensional models. RCA commissioned Old King Cole Co. to make papier-mache Nippers in standard (lifelike 16-inch) sizes as well as giant (36-inch) and mini (12-inch) versions for dealer use. A lifesize original is worth more than \$1,000 today, while the modern polyethylene version sells for less than \$50. Myriad firms make HMV trade mark reproductions under license from the various trade-mark territorial proprietors—RCA Corp. (the Americas); EMI, now Thorn-EMI (Europe, Africa, Australia); Nippon Victor (JVC), controlled by Matsushita Electric Co. and no relation to RCA Victor (Japan). The slogan, His Master's Voice, has been produced in 50 languages. There's even a London pub named The Dog & Trumpet, where Sir Joseph Lockwood, Chairman of EMI/Gramophone Co. Ltd. "drew the first pint" to inaugurate the renamed establishment.

Though born exactly one hundred years ago, Nipper lives on. For as long as the world enjoys recorded music, Nipper will remain immortal. Happy birthday, Nipper!

In closing I should like to make the following acknowledgements. Thanks to Ray L. Thompson, president of Old King Cole, a division of Concorse, Inc. for all those Nippers. Compliments to Ernie Bayly, publisher of The Talking Machine Review and the guide book "The Story of Nipper..." by Leonard Petts; as well as to Miss Enid Barraud, author of "Barraud, The Story of a Family." To the late Miss Enid's brother, Philip and to E.R. Fenimore Johnson and professor Raymond R. Wile for tidbits of background information that helped to tie up the loose ends of "our family" history, my deepest appreciation. ■

The Publishers of Mix would like to dedicate the foregoing article to the memory of Aquarius, an audio dog. (1969-1984).



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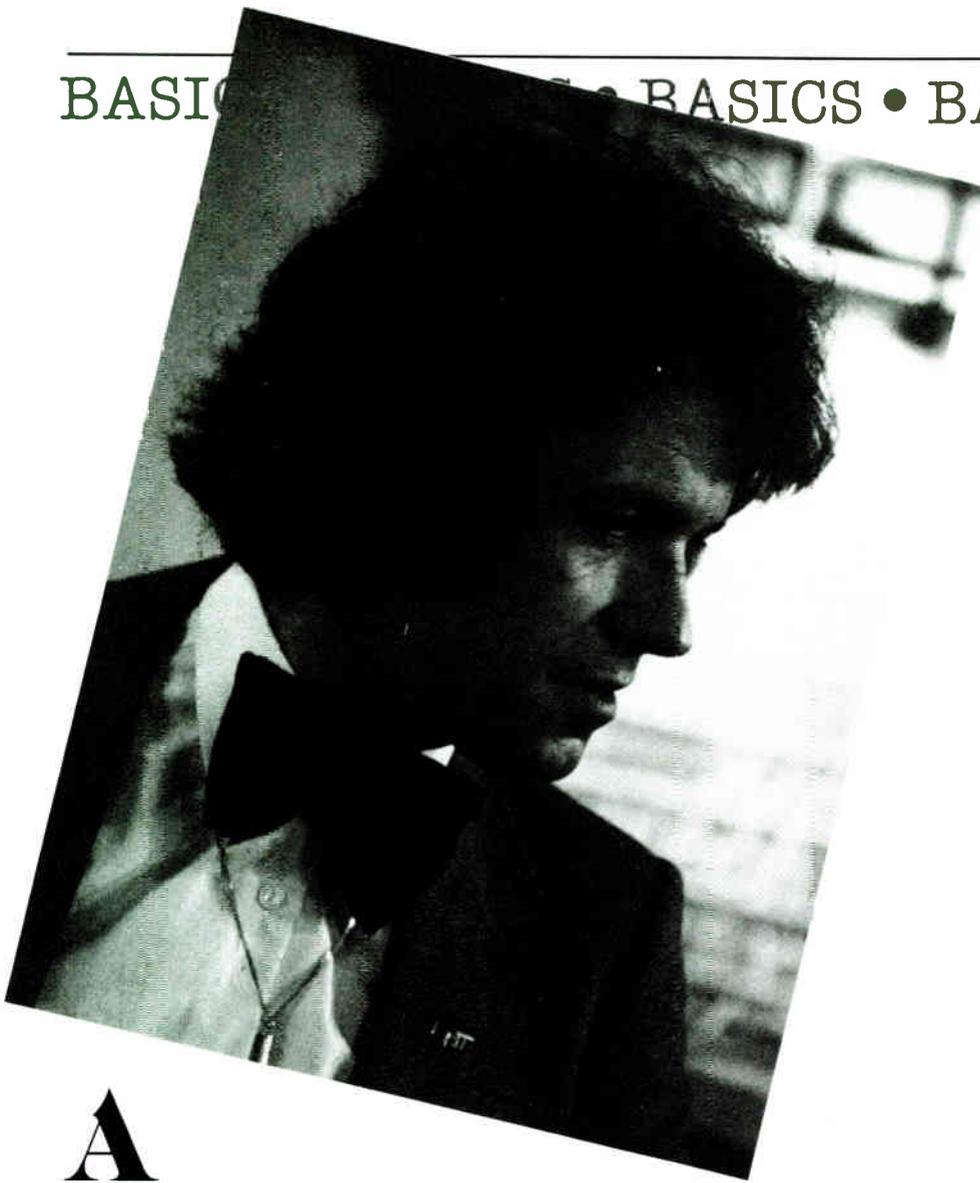
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**The Publishers**

*Dan Berry Hill*



# A QUESTION OF BALANCE

by Phil A. Dunne

Though the term "balance engineer" is probably more widely used in Europe than in the U.S.A., its true meaning, in my opinion, very definitely embraces more than just the technical or artistic meaning of the title.

My concern here deals with the relationships that should, or could, exist between artist and engineer. Whether a well-seasoned, multi-million selling artist or one about to embark on the first recording deal, I believe the responsibilities of the engineer are equally great to the artist and producer's intent and the

engineer's own professional integrity.

Assuming that the sessions take place in the fairly standard climate of a studio costing X dollars per hour, plus musicians' expenses, hire of instruments, etc., it is easy to see why both the engineer and artist start to view the producer in a somewhat different light than he would wish to be seen. After all, he is the producer, the *boss*. What does that mean? He is engaged by the record company, the artist, or both to ensure the best possible end product. This then is where the engineer truly comes into his own. By this I mean he must assume the mantle of advisor, diplomat, guide and most often the "outside opinion." Ho! Ho!

It's obvious that communication is the very heart of music. This must start with the people writing, performing and recording the music! I have been an engineer for 16 years. During this time I have noticed that certain gaps render this communication less than perfect. Of course, the great shame is that the only person to really suffer, finally, is the artist. The project is at risk. The engineer could, on most occasions, have had a genuinely helpful input and influence, thus avoiding the chance of some of these gaps having a detrimental effect of the main event, namely a set of sessions that reflect from start to finish care, quality and a "spirit" that is most surely a large part of the "great" record. Here then are some basic guidelines which may be of help to some of you newer to the "hot-seat" than I.

From the start, make yourself available for pre-production meetings, rehearsals, etc. If you can get involved with a project early enough, perhaps you can even help the artist with his demos. They are his first chance to show his material and style. Your presence can only improve his chances of getting better "models" to be re-created "full size" on the session. Of course, sometimes this work has been completed even before the producer signs or agrees to work with the artist. The point is "get out from behind the board," spend time with the artist *outside* the studio, try to establish rapport before the glass comes between you. Discuss his music, the music of others. Talk about anything—but talk. Get to know the person behind the material, it will pay off time and time again once the work begins. His comfort and ease with you will show. Now you can "move around" a little more within your function. If this is achieved with due care and respect for the producer's position, the producer can only benefit. You are now able to help him on a much broader basis than just "fader pushing."

With a number of musicians in the studio at the same time, it sometimes happens that while concentrating on giving directions to one guy, say, the drummer, the producer may have missed that "neat guitar lick in the second verse." You can tactfully insure that at least it is noted. Result? Two happy people in one shot taking one more step toward the knit which results in great playing. If you have an idea for something, a treatment, an effect, etc. try to offer it up in an effortless and smooth manner. Don't hold up the flow while you screw around plugging things up. Get it happening

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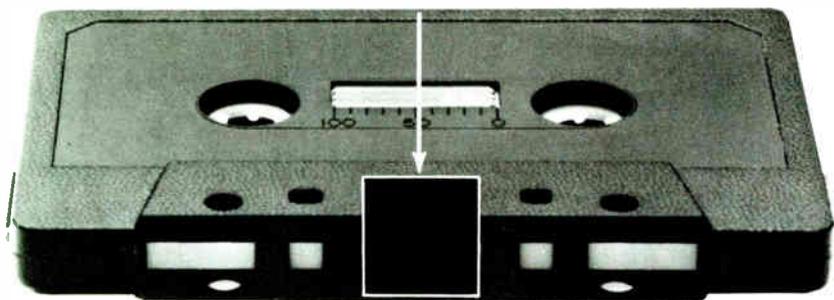
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quietly, until you're sure it's correct, perhaps on spare channels. The famous "it'll only take a minute" can seem like an hour when musicians are "hot to trot." Don't do it!

An artist or musician can sometimes be a little afraid to ask about certain things, or feel they just have to accept what you say or do. Try to watch closely, notice the things that produce quizzical or slightly baffled looks. If handled correctly, with your help he will never have to ask. Find a way for him to see clearly and understand why you did whatever it was that you did. He will once again be more comfortable feeling that *he* got it. Your ease in getting around a large console can be intimidating to certain people. At this point I must stress that the greatest care must be taken *never* to appear to be usurping or undermining the producer's authority. That's the art of occupying your chair properly. With care, tact, graciousness and sensitivity your input will only enrich and benefit the proceedings.

Again, the word "balance" comes to mind. On several occasions over the years I have been at a complete loss to understand where certain moves or requests on the part of the artist were leading. Now *you* relax a little, indulge him, go with it and most of the time you'll be pleasantly surprised when it all slots together into something you could not have imagined while doing it. It's often up to you to make it possible for the artist to try something that he wishes to demonstrate to the producer. Once again *your* planning can make it easier for everyone involved. When dealing with studio "regulars," rental companies, tuners, fixers, orchestra leaders, etc., take a moment to introduce the artist properly. This is a courtesy often ignored. When that piano note needs "pulling in" at 10:00 at night you will reap the rewards. The tuner is more likely to feel "involved" in the session and the artist will love you for it. He will feel a little more "special."

Finally never lose sight of the fact that the talkback is the artist's only way of knowing what's going on in the control room. It's so easy to exclude him from hearing what's being planned or decided. The placement and general quality of the T/B mike dictates that when more than one person speaks at the same moment, the guy in the studio will have difficulty understanding what's being said to him. Do everything in your power to ensure the maximum contact and intelligibility for him. It's so very basic yet almost always neglected. Time taken to cultivate your feel and understanding of the chemistry of your sessions will be rewarded in something that you can take and apply to any studio, with any artist at any time. It's called Professionalism and it's yours for the taking! ■

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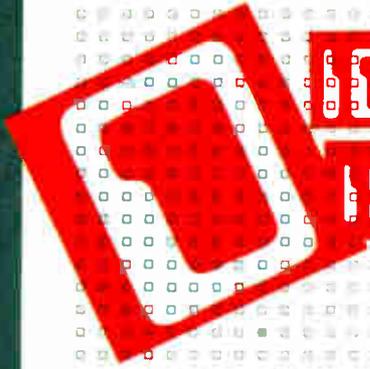
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DIGITAL

DISCUSSIONS

Mix  
2608 NINTH STREET, BERKELEY, CALIF. 94710, (415) 843-7901

All Photos by John Woram

July 16, 1984

Mr. David Schwartz  
Mix Publications  
Berkeley, CA 94710

Dear Dave:

Maybe we should forget about doing a story on digital maintenance problems for *Mix's* October AES issue. I've questioned quite a few studio owners and operators about their maintenance problems, and about the only thing I've come away with is the feeling that I'm out of touch with what's going on out there. But just so you don't think I'm trying to cop out on the assignment, here's my notes on this non-story.

I started out chatting with Chris Stone from the Record Plant in Los Angeles. He says he got his first digital

THE RECORDING INDUSTRY  
2608 NINTH STREET, BERKELEY, CALIF. 94710, (415) 843-7901

June 24, 1984

Mr. John Woram  
Rockville Center, NY 11570



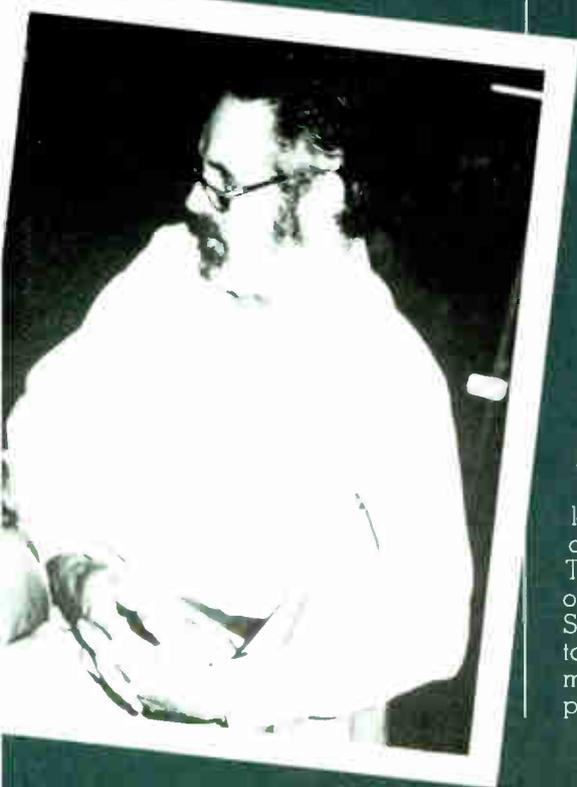
Dear John,

We are looking for a special Digital Discussions article for our October AES issue. We were thinking something along the lines of a forum with owners of multitrack digital equipment on what kind of maintenance problems they have encountered, any special servicing requirements . . . you know, problems and solutions. We've got space for about 1,500 words and I'd need it by August 1. Interested?

Regards,

David Schwartz

Chris Stone got his first digital multitrack in 1979



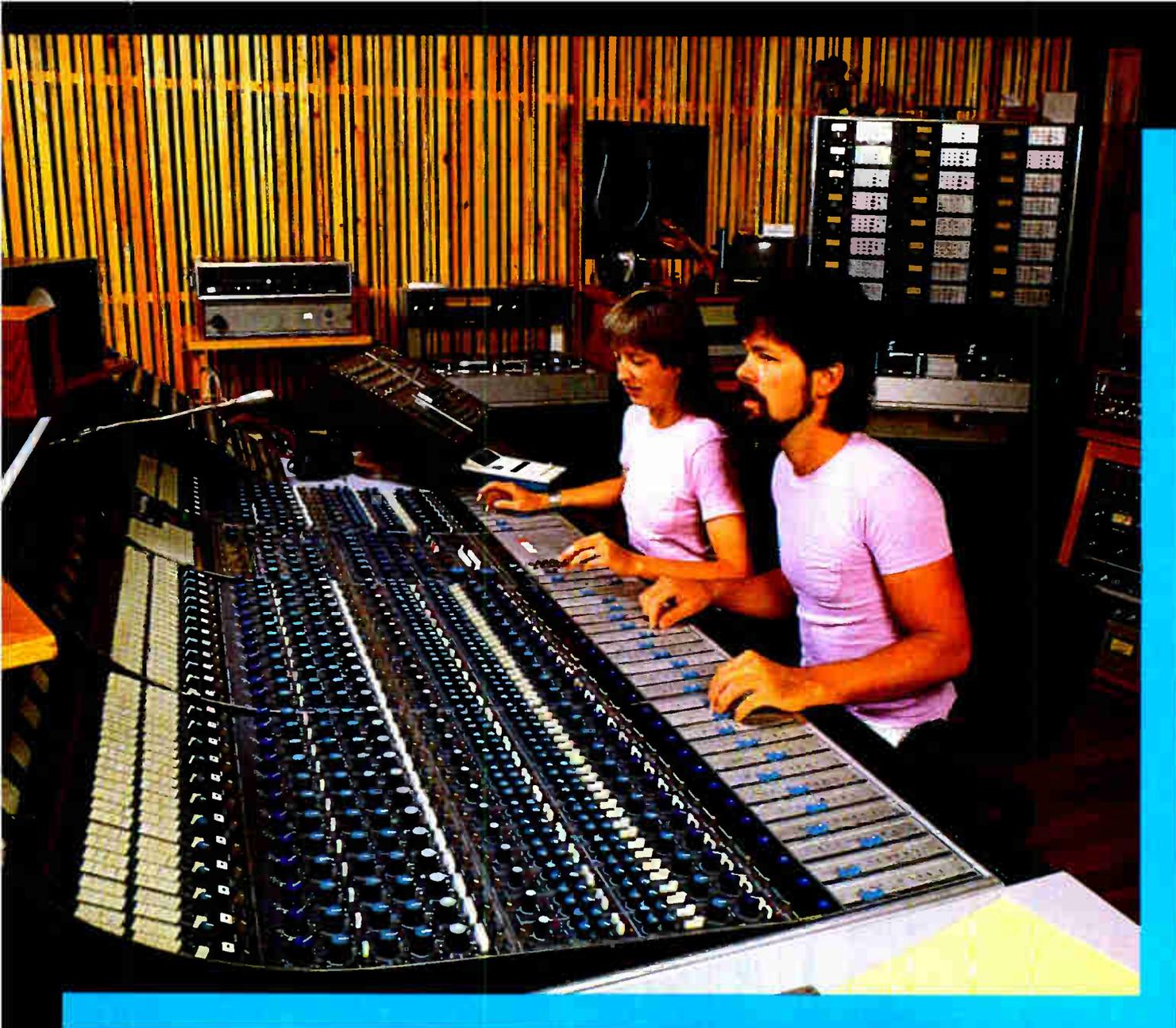
multitrack in 1979—in those days, each machine was delivered with a built-in technician. It had to warm up for about four hours, and even then it would drift. It was generally erratic, extra fans were necessary, and it wanted to be kept in a clean room and treated like a computer.

I said, "Thanks for the history lesson Chris, but this is 1984. What kind of problems are you having today?" That's when I got the first of a long series of blank stares. Earlier this year, he got a Sony 3324 which was shipped directly to the Record Plant from Japan. The maintenance crew took it out of the case, plugged it in, and it worked—it met all its

specs. Since then, they've been bouncing it all over the country, and haven't had any problems. In fact, Stone is now renting digital multitracks to other studios, and doesn't even consider maintenance as a problem. About the only thing I could get from him is that in the last five years, digital multitracks have gone from being completely unreliable to being completely reliable. So there's no story here.

Out in Chicago, Universal's Murray Allen got his first machines about a year after the Record Plant did, and learned from Chris' experiences. He started out by moving them into a clean room and never turned them off. In other words, he made a computer-type setup from the start. He says he's had very good luck ever since.

Then he started telling me about



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all his analog machines. He says there's no such thing as a totally perfect azimuth alignment—close, but never perfect. So, he has them checked and tweaked every day. I told him everybody does that, and this is supposed to be a story about how to keep digital machines operational. I asked him to give me something to report on.

He says, "What's to report? On digital, the machines are right on, all the time. But still, we do check them out every month or so, whether they need it or not." Big deal.

"Maybe this will help. Every now and then, there's a few error detection glitches and the LEDs blink, so the offending card can immediately be swapped. However, most of these errors don't really affect the recording, and even if the tape is copied, the errors aren't."

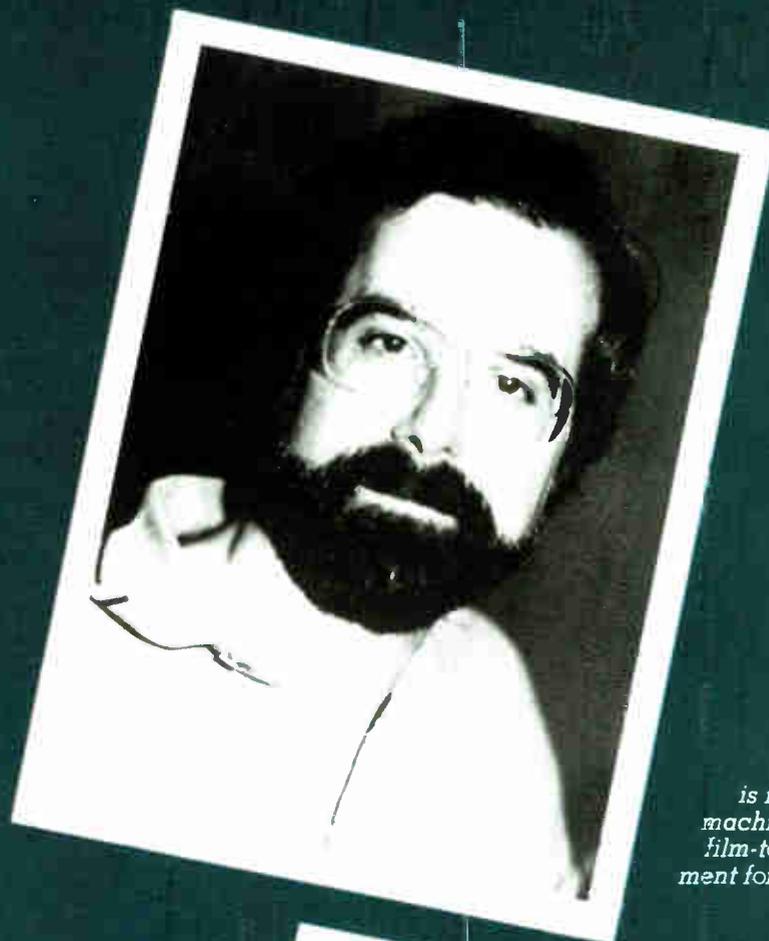
Universal's earliest digital machines are now a few years old, and about the only problems that show up are related to mechanical components—for example, worn bearings. Allen's second generation machines are now Mitsubishi, and he says they worked perfectly out of the box. He's waiting for the third generation, which should be a real snap. Or so he says.

I told him he wasn't being much help to me in putting together a maintenance story. I think he started to feel guilty about giving me a hard time; anyway, he finally admitted that his digital hardware needed really good, clean, well-grounded 20 amp lines, or they get confused. But when they had a brownout a little while back, the Mitsubishi ran along on 87 volts, while everything else died.

I was obviously getting nowhere here, and decided to try my luck elsewhere. Over at Editel, Len Pearlman has been using some Mitsubishi X-80s for a few months. He's interfacing them in Editel's film-to-tape department for digital audio transfer work. He says that when they came through the door, they were plugged in and turned on, and that's all there was to it.

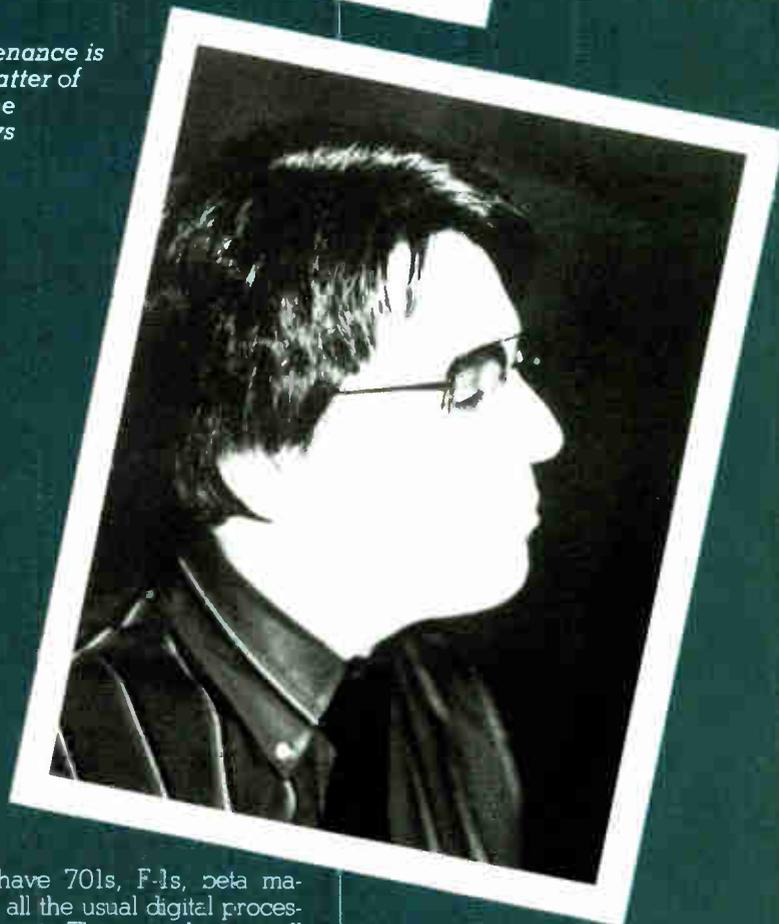
I thought I might have better luck back in California. At the JVC Cutting Center in Hollywood, Larry Boden sells and also uses second generation JVC digital machines. The older machines had 14 cards inside, but with LSI technology, there's only six in the new hardware. That makes maintenance even simpler, but he finally admitted there were a few basic offset adjustments that need to be performed periodically. He even suggested checking the high-frequency response every five or six months, using a reference tape that comes along with the machine. Beyond that, it's just a matter of keeping the machines in good mechanical condition.

Over at Motown, Guy Costa has two complete Sony 1610 systems, including DDLs and digital audio editors.



*Len Pearlman is interfacing his machines in Editel's film-to-tape department for digital audio transfer work.*

*"F-1 maintenance is mostly a matter of cleaning the heads," says Guy Costa.*



They also have 701s, F-1s, beta machines, and all the usual digital processing equipment. The consoles are all Neve Necams. The biggest potential problem might be the level of expertise

required of the maintenance department, if they attempted to do all mainte-



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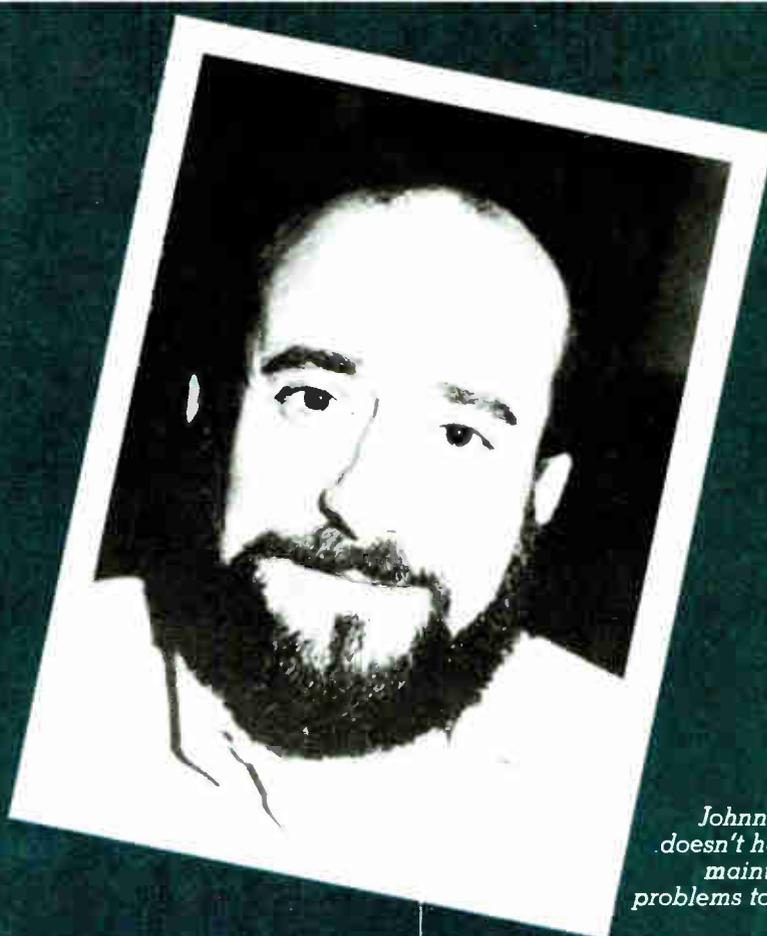
rance work in-house. However, for the really complex items, they rely more and more on the manufacturers—especially for something as sophisticated as the Sony editor. This doesn't increase the downtime, since turnaround is good, and it would take too long for the in-house staff to do the servicing. In the case of disk drives, it's also more practical to send them out for alignment. As for the rest of the system, it usually is maintained in-house. However, this is mostly a matter of routine cleaning, and simply verifying that everything is working properly.

For example, Costa says that F-1 maintenance is mostly a matter of cleaning the heads, and that doesn't make for much of a story. As for frequency response, Motown does a multi-level input-to-output run that should show up any irregularities. So far, the biggest problem seems to be tracking alignment on the half-inch video decks. At the moment, they're developing their own in-house tracking-standard tape. Most analog-style frequency response tests went out with the analog tape recorders. However, like everyone else they still surround the digital machines with analog at the front and back ends. So there are still some analog considerations to think about, such as terminations, and other interface-related problems. Otherwise, Costa says they tend to treat their digital recorders about the same way they do their equalizers. They don't even consider the storage details. Maybe I'll have better luck in Florida.

Oh well, maybe not. At Miami's Criteria Recording Studios, Mack Emerman says his Mitsubishi recorders are the most cost-efficient machines he's ever used. He says the maintenance is nil, and he doesn't think any of his two trackers have even been in the shop at all. There's no alignment, no different types of tape to deal with, and no pre-session tweaking. The machines get rolled around a lot, but it doesn't seem to bother them. He says "We just assume everything works, and it does—it's a dream, and we're saving a fortune in maintenance over the year." He's also saving on white gloves; his editors don't even wear them any more when they do razor blade editing.

Up at Fanta Sound in Nashville, Johnny Rosen has rented a few digital machines and doesn't have any maintenance troubles to report. He says the X-80 is by far the easiest machine to work with. His last one was delivered by the airlines in a crushed box. Although the container was a disaster, the machine worked fine.

Back here in Fun City, I figured Bob Liftin at Regent Sound would be good for a few digital horror stories—I even heard he'd had some kind of trouble with a microprocessor. So I asked him about the expense of maintaining digital tape recorders, as compared to



*Johnny Rosen doesn't have any maintenance problems to report.*

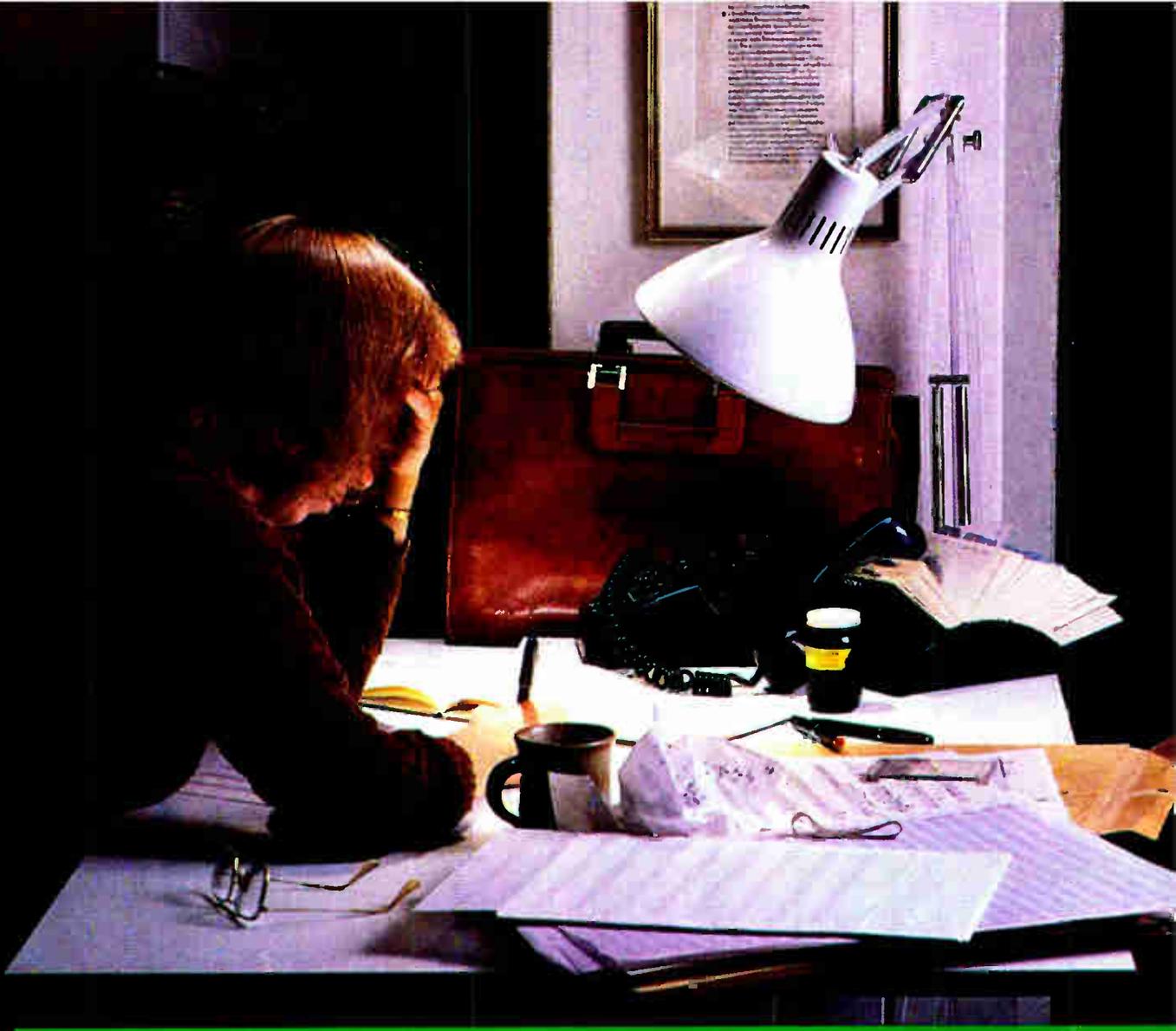
*Mack Emerman says his digital recorders are the most cost-efficient machines he's ever used.*



the latest generation analog machines.

Forget it. That bad microprocessor was in one of his analog multi-tracks. As for his digital equipment, he says that most problems can be traced to

connectors, and maintenance usually consists of unplugging a ribbon connec-



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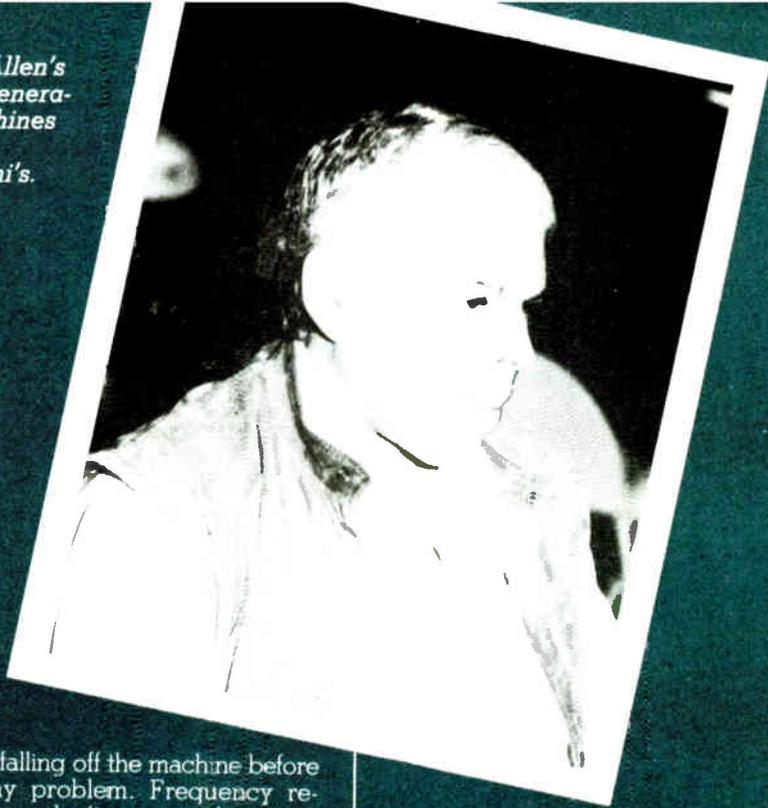
tor and plugging it back in again. Sometimes, erratic behavior comes from a circuit board that needs to be reseated. (That's not much of a story, is it?) Regent keeps an 'A' level spare parts supply, and when something really goes, they just send it back to the manufacturer, who usually turns it around within a week or so. Liftin says that makes a lot more sense, and is certainly less costly, than trying to fix it themselves.

For the most part, equipment malfunctions usually occur within the video cassette machines, which are fixed in-house. This is no more expensive than maintaining new analog hardware. Most of the new digital F.I type hardware seems inherently reliable. It usually functions as soon as you plug it in.

By now, I'm beginning to realize that there's no story here. Digital tape recorders either work well, or they don't work at all. Corrective maintenance seems to be pretty much a matter of remembering Newton's First Law of Recording Physics, which says "If it works, don't fix it." And if it doesn't work you just pull out a card and put it back in again. If that doesn't fix things, you send the card back to the manufacturer, and let him worry about it.

As for preventive maintenance, there's nothing left to prevent. The damn things don't even need their bias adjusted—which just isn't fair. Azimuth? Forget about it. Apparently, the head has to

*Murray Allen's second generation machines are new Mitsubishi's.*



be almost falling off the machine before there's any problem. Frequency response tapes don't seem to be given much thought any more. I suppose that makes sense though: after all, when was the last time you heard of someone checking the frequency response on an amplifier—or of a digital delay line?

Maybe I could do a story about something else instead. How about an in-

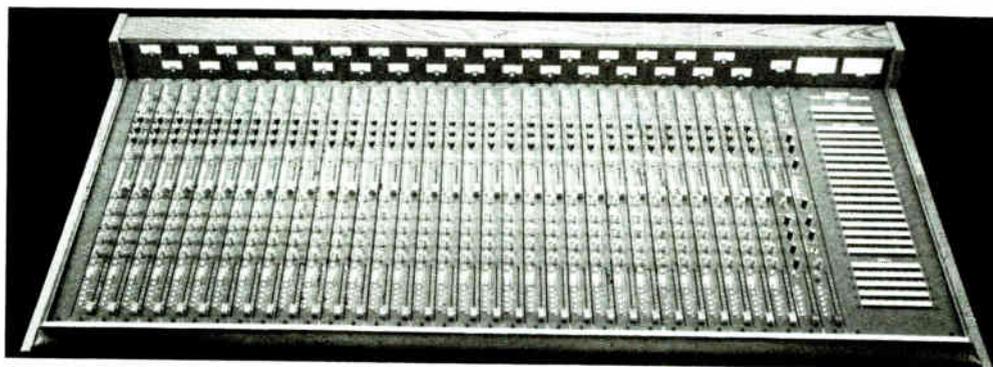
depth survey of the recording studios on Maui?

Best,  
John

P.S. I'm including photos of some of the folks I surveyed. ■

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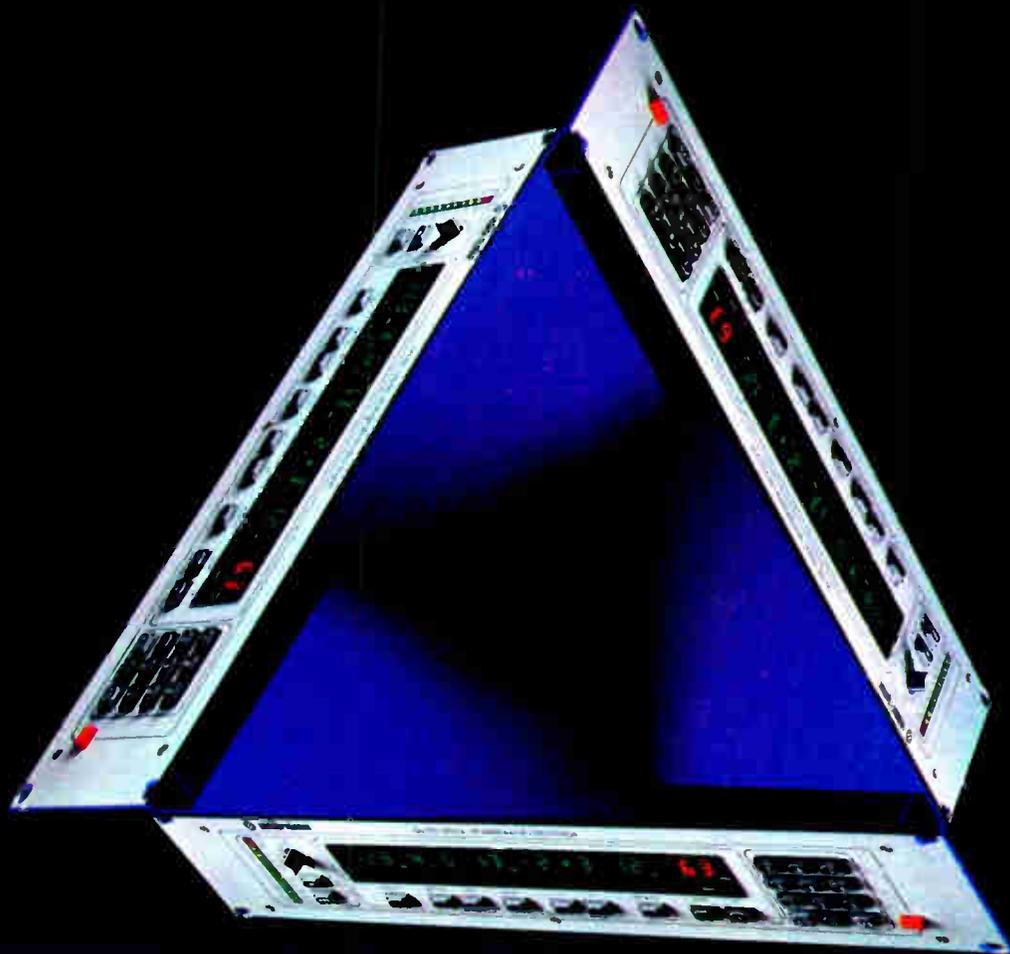
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# Commercial Music

## A Production Primer



*From left to right: Marnie Moore (RHR engineer), Richard Green (RHR engineer), Michael Boyd and Gary Remal (Remal Music Design) working on a commercial session at Russian Hill Recording in San Francisco. Charles Judge on the synthesizer in the background.*

by Jerome Gilmer

**T**his article will attempt to describe the roles of some of the people and processes involved in the production of music for commercials, industrial films and audio/visual programs from marketing and inception through all phases of production to final delivery. Many of the procedures described will also be valid and applicable in the areas of commercial and demo records and feature film scoring. Among the general areas we will look at will be the marketing and sale of these kinds of productions and the organization, production and administrative functions which are involved.

Let's begin with a definition of just what commercial music is: music which is written and recorded for use as a commercial jingle, the sound track to a documentary or industrial film, music used by broadcast media for their own promotion, etc. Areas that are related with regard to compositional aspects are records, feature films, theatrical and industrial stage productions, etc.

A wide range of people and skills come into play in each of these kinds of productions. In rare instances one person may handle all of the jobs involved in a production, from marketing and sales right on through final production and delivery. More often, though,

the many tasks which must be performed will be handled by a number of people—each a specialist in one or more areas. These people may all work for the same company or quite often a team of “freelancers” will be formed for a given project under the direction of a producer, sometimes called a “packager,” whose primary function is to coordinate all of the facets of production and exercise quality control over the project.

### THE PRODUCER

Since the producer plays a primary role in our scenario, let's look first at his or her responsibilities. A producer will usually be a musician or musically-

oriented person who has developed a talent and an affinity for being an administrator. Good producers will have a knack for detecting and anticipating problems in a production and will be adept at finding the shortest route to solutions. They must also have the tact and diplomacy to handle people well in tense situations and "draw out" their best possible performances.

Most producers are independent contractors, although in some cases they may be employed by production companies. In the former situation the producer would probably be the person who handles or supervises all the various phases of a project including going out into the marketplace and finding or creating the jobs through marketing efforts. In the latter, duties would probably be limited to actual production activities, which would typically include putting together the best combination of composer, arranger, performers and engineers to get the optimum product. It is a producer's responsibility to see that a project is well managed, that it achieves the result that the client is seeking, that it stays on schedule, within budget and remains profitable. This is of the utmost importance because the financial burden of failure in any of these areas rests on the producer (ultimately, his company if he is employed by a production company).

A producer has to target a market in which his work can find accep-

*Jingle composer/producer Sid Woloshin, president of the New York based Sid Woloshin, Inc., at a recent recording session. Mr. Woloshin wrote the popular "You Deserve A Break Today" for McDonald's and "For Once In A Lifetime" for Pan Am.*



*Chico O'Farrill (center) conducts an orchestra during a recent jingle session.*

tance and command a price which will allow him to cover his costs and make a profit. His clients will probably consist of advertising agencies if he deals in jingles, or audio/visual production companies if he deals in film scores.

Advertising agencies create advertising, marketing strategies and public relations campaigns for their clients. Their clients may be any kind of business with any type of product or service to sell (and worse, any kind of name to be sung!) Typically, the agency creative team will have a staff of ad copywriters, graphic artists, heads of each of these

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## CHICO O'FARRILL: A WINNER IN THE JINGLE JUNGLE

If fame is what you're after, composing jingles is not the route to take. Sure, Barry Manilow, a former jingle writer, is a household name, but only because he successfully moved from jingles to light pop. He still includes a few of his commercial themes in his concerts and it makes for an amusing contrast with his love ballads. It also points up the fact that the line between songs that sell products and songs that sell emotions is really a fairly thin one.

Arturo "Chico" O'Farrill is probably a name unfamiliar to you, yet he is widely regarded as a top commercial composer/arranger/producer, as well as the #1 advertising music specialist in the lucrative Hispanic market. Whether or not he has the aspirations of Barry Manilow, he has time and again shown that he can create music that people—millions of people—enjoy. You might have heard his spots for such giants as Colgate, Pan Am, McDonald's, Michelob and Kentucky Fried Chicken.

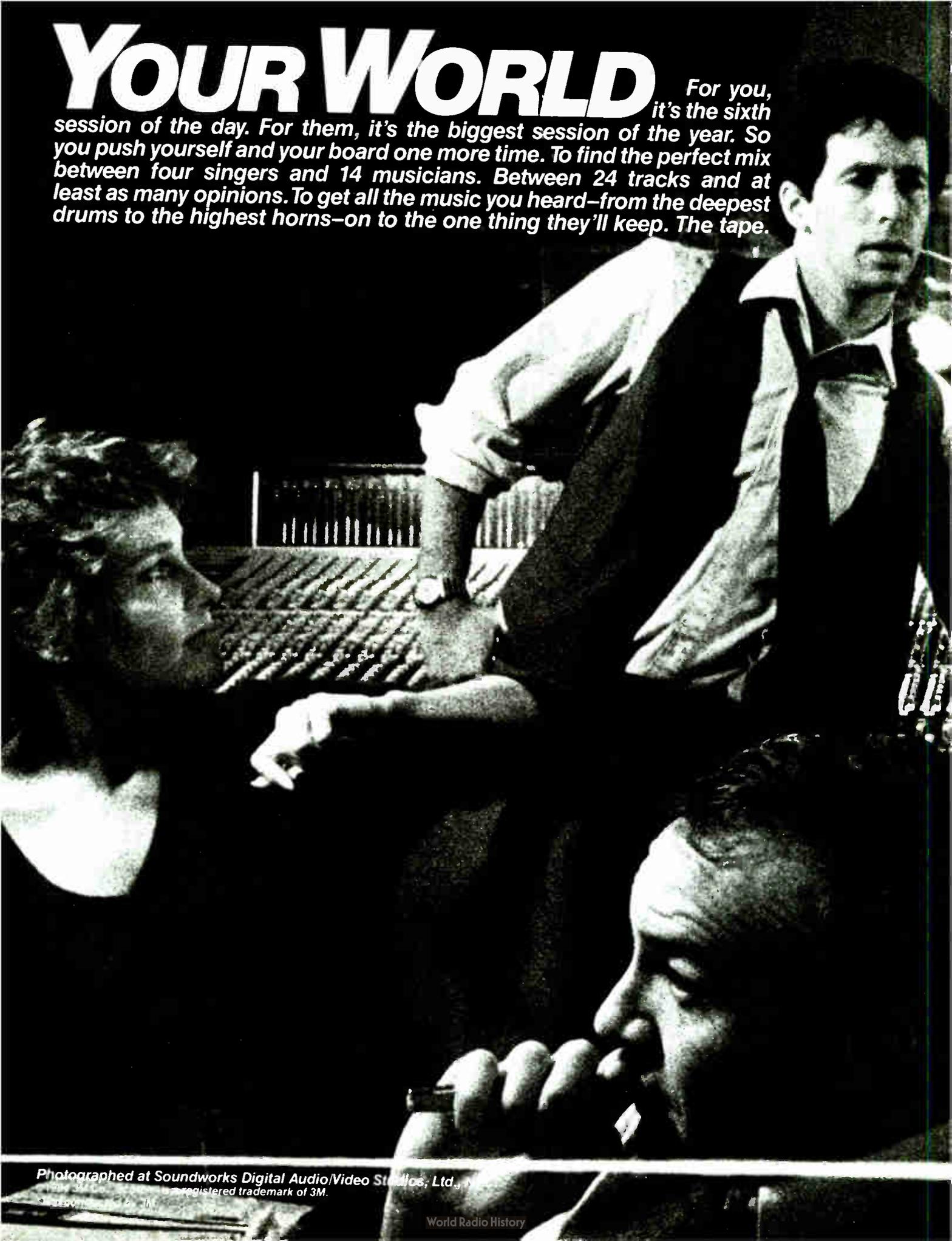
Just a little more than a decade ago, O'Farrill was struggling as a composer and arranger for various big-band and jazz groups, while doing occasional film soundtrack work on the side. Then he did some production work on a Kent cigarette campaign and that entree into the world of advertising led to other jobs and his rapid rise through the ranks in the jingle jungle.

"In this fast-paced advertising business," he told *Back Stage* maga-

—PAGE 56

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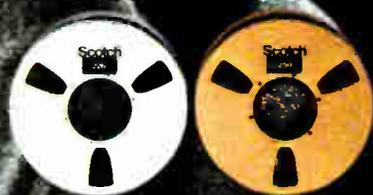


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# Commercial Music

—FROM PAGE 43

areas and a creative director who will usually be a vice president or other senior officer whose function it is to coordinate the agency's creative efforts to achieve and communicate the desired advertising image or message to the consumer. The creative director is usually the object of the producer's solicitations, as he has the final word on all creative decisions, including the hiring of outside talent, i.e., music producers.

The producer may have several avenues of approach to the agency. These would include reputation, referral by other agencies, direct mail and/or direct contact. If a producer has become well established and reputable in his area he might be called for an assignment on that basis alone. As in all trades, he may or may not be called upon because at a luncheon one creative director tells another of his experience with said producer, etc. Most producers will use a combination of marketing techniques on their own behalf. Direct mail campaigns coupled with thorough planning and good follow-up can be effective. A direct mail



(Left to right) Jeannie Filip, Bonny Herman, and Bob Bowker, join Alan Barcus of OPUS III in singing a single produced for Partners Real Estate at Streeterville Studios Chicago.

campaign might consist of the mailing of a package of materials including a demo tape, resume, press releases from the trade magazines about the producer's work and letters of reference from satisfied clients. This kind of package might be preceded by a "tickler" piece which

either invites the recipient to request these materials via a business reply card—or alerts the recipient that the package is coming soon, solicited or not. The next step is a follow up phone call, which hopefully gets the producer an interview. If the call is successful, then the

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producer goes to the agency to present his case as to why the agency should use his services. Usually no other business will transpire at the first interview unless the producer has been called specifically to consult on a project. In any case, the producer's cause is best served by first trying to develop a warm, friendly relationship with the agency personnel. These are just a few of the ways that a producer tries to get his foot in the door; the permutations are many.

Some jingle producers prefer to bypass the advertising agencies and deal directly with their clients, but this carries additional risk. It can quite often be difficult to communicate musical ideas to a person who has no experience in such matters. It may also be difficult to determine the credit worthiness of a new client. When working with an agency these kinds of problems are taken care of for you, to a great extent. The producer will be working with "agency creatives," usually a team consisting of a copywriter and an art director, and/or the creative director. Chances for effective communication of each person's creative responsibilities and a clear understanding of the advertising concept are greatly enhanced in this environment as opposed to one where a producer is trying to deal directly with a client. With regard to credit worthiness, an agency will quickly establish whether a client is able and willing to pay his bills. In addition, most larger advertising agencies pay vendors (such as the producer) directly out of their own funds within 30 days of invoice, which helps solve cash flow problems for the producer.

Dealing with film producers is quite similar to dealing with ad agencies in many respects. One difference is that quite often on TV commercial projects, the music producer will be hired by the film production company which has, in turn, been hired by the ad agency. This puts the music producer in a position that is sort of like being a subcontractor once removed. In such instances it is very important to establish just who will dictate creative policy and who will be paying the bills. A great deal of awkwardness can arise from an unclear chain of command.

Among the types of productions in which a music producer might work with a film or A/V production company are commercial jingles, corporate image films, motivational or training films, etc. The principal difference between composition of music for these types of projects are that films require that music be written to very strict timing requirements—often to split-second accuracy, and A/V projects (slide shows), while not devoid of timing requirements, are much less stringent.

—PAGE 48

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—FROM PAGE 47

In working with film companies the people the music producer will normally deal with are the producer (of the film or A.V. project), the director, and the film or music editor. As with music production there can be anything from slight to total overlapping of these roles.

## THE BIG MEETING

The day finally comes when the producer receives a call from the agency or film company. A project is in the

—PAGE 50



## THE POWER OF JINGLES

by Neal Weinstock

Ever think about writing jingles? Recording jingles? Stoking the star-maker machinery behind breakfast cereal, or deodorant, or...?

It pays the bills, agreed a recent panel of jingle writers at the Production East conference in New York City. "It gives you a chance to support other work," says Marek Norman of Radio Band of America.

"It's instant gratification," says Ralph Schuckett, who's scoring work includes a Robert Altman film or two. "You hear your work on the radio or TV a week after you record it."

Schuckett also says that commercials give him the chance "to break styles." For a composer who's be-all/end-all is not pop music, commercials do allow a rare money-making venture into the less well-paying genres. He says, "Ad agencies are much more accessible than the music or film industries. You have to start out on spec, knock on doors, and hope somebody dies, but there is a lot more work out there, and it pays more regularly."

Part of the process of breaking into jingle biz, for songwriters or for studios, is the realization that this is a different country than the record industry. The language is different, for one: says Schuckett, "Some guys from Revlon told me they wanted something that sounded hip. Well, to Revlon, the word 'hip' equals Blossom Dearie."

"'Funky' is a word that really got me in trouble," admits John Lefler of Grey Advertising. "To a musician it means something very specific, a sort of sound. Never mind who, but I was told to make a piece of music sound funkier, and I did, but what they had in mind, was definitely not something funky."

The ad world is structured in a wholly different—and wholly more logical—way than the music biz. Agencies may center in New York, Chicago, and Los Angeles, but they can be easily found all over the country. (In fact, ad practices are not so different in the other English-speaking countries as to prevent an American jingle composer from picking up freelance work across the seas.) The vast number of possible employers out there is staggering.

Finally, commercials are a fine proving ground for those who would score for TV and films. The challenges are obviously similar; but surprisingly, commercials can be a lot tougher, the panel agreed. "Thirty seconds is a pretty short cut," says Scott Schreer of Not Just Jingles. "You've got to match mood changes and visuals that may only last for a second." ■



Betsy Zagar and Gary Remal of Remal Music Design discussing a commercial session.

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World Radio History

# Commercial Music

works and they would like the producer to look at their script and story boards and come back with a bid. His three favorite competitors are also being considered and yes, they would like a demo. Media time has already been bought and air date is in three weeks so the producer must submit his demo in three days and, if selected, deliver a full production within ten days. The producer asks if the spot will be for TV and radio, is it being shot in film or video tape, is it to be pre- or post-scored, to what degree of completion must the demo be, how long is it to be used, in what markets, is it to be a buyout?

What does all this mean?

The first order of business is to arrive promptly on the scene, appropriately dressed and groomed to do business, with sharp eyes and ears, an open mind and a high level of resistance to the inevitable shock that will assail you once the agency creatives have laid their grand scheme on the conference table. That moment arrives when everyone sits back and the creative director looks up at the producers and says, "Well, what do you think?"

The producer has been sitting placidly but all the while his heart has been racing, his palms sweating, his mind is screaming "This is ridiculous, it's impossible! Only three days to develop a

piece that has to be post-scored to video with a dozen critical timings and a client name that rhymes with nothing and is totally unsingable," and with a calm, poker face he says to the creative director, "Sure, I think we can handle this nicely."

This little bit of melodrama is not entirely untypical of the way commercial production works. Through all of its phases there can be a great deal of pressure from unreasonable deadlines, personality conflicts, power struggles, budget problems, scheduling problems and the like. But that is not the subject of our discussion. Let's look at some of the elements referred to in the beginning of this section.

The script and story board are among your best clues as to what the agency is really trying to do. The copywriter creates the script, which is typed in a two column format having all of the dialog or announcer copy that is to be in the spot (the commercial) on one side and a description of the visual action in the other column along with cues for what should be happening in the music and sound effects (abbreviated SFX). The storyboard, which is the work of the art director, is a sort of cartoon presented on a large art board. In rough sketches it depicts the action as planned in the script. Beneath each box in the cartoon there will be printed the appropriate sections of the ad copy from the script and references to the SFX. Sometimes there will also be estimated timing references to help the producer get a sense of the pace of the action. The producer will present all of this information to the composer, but don't forget—he may very well be the composer.

The producer will be asked to bid on the project. There are a number of factors he must weigh in arriving at a price. Most producers will not allow their work to be sold outright. Such an arrangement, called a buyout, eliminates the opportunities for further income from the composition. A more favorable arrangement is to license the composition for usage within limitations specified by contract. Such limitations might include the length of time the client would be allowed to use the piece, the geographic boundaries within which the piece might be used, whether the piece could be used for radio or TV or both, etc. These factors might also weigh in estimating the cost of talent for the production, i.e., musicians and vocalists, especially if the producer or the agency are signatory to union agreements. In any case, putting limitations in the contract opens many options to the producer. If a client finds that a spot is particularly successful, he may opt to use it for additional periods of time and a reuse payment is negotiated. A similar situation arises when a client decides to expand his marketing efforts into

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new locations, or when he desires to broadcast a spot on radio which was only licensed for use on TV.

Media time refers to air time sold by TV and radio stations to advertisers for the running of their spots. Air time is sold in blocks and the cost is closely tied to a station's ratings in the Arbitron (radio) and Nielsen (TV) surveys of who is watching or listening to those stations and when. The air date is the date on which a commercial is scheduled for its "first flight" or first airing. That date and time are frequently reserved before the commercial is ever produced. A music producer will have to deliver his finished master tape to the agency or film producer in time for all the phases of post-production to be completed so that the spot will be ready for its reserved air date. Postproduction is usually done at a videotape editing facility or sometimes a film editing facility where music and sound effects are combined with the visual and spoken portions of the spot. If the air date is missed for any reason, the time must still be paid for by the advertiser. This, of course, would seriously jeopardize an agency's credibility with its client and therein lies one of the chief reasons for the high pressure associated with commercial production. Sound like fun?

The main reason a producer needs to know whether a project is being done in film or videotape is because of the effect each of these mediums will have on the overall timing of the spot. A 30 second commercial for TV done in film can only have a 28 second audio track. This discrepancy has to do with the fact that in a film projector the audio playback head is located after the film gate along the film path. In other words, the picture arrives its gate before the sound signal arrives at its playback head. In videotape productions you have the capacity for a full 30 second sound track. However, most editors allow 1/3 second at each end for a total length of :29 1/3.

#### THE COMPOSER

The composer may enter the scene either before or after the producer has made a production deal. He may be brought into conferences with the ad agency to discuss the creative objectives, such as the ways in which the music must interlace with the visuals and dialogue—both mechanically and aesthetically. He may only be brought in after the sale is made, and given the assignment along with all the pertinent data which the producer has gleaned from his meetings with the agency creative team. And, he may have been there all the time because, as we said earlier, he may be the producer.

The composer must write the music for the session, get it approved and have score and parts ready and thor-



Tom Hannaford, Dixieland Productions, Atlanta, GA

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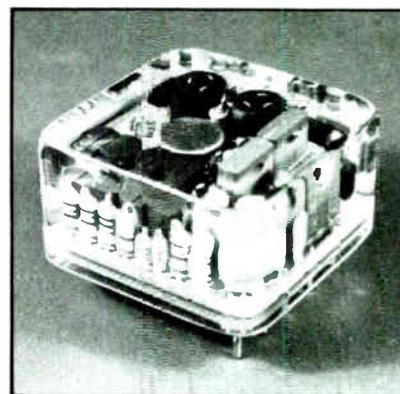
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# Commercial Music

oughly checked for accuracy prior to the recording session. If he is lucky, he will have a trusty music copyist around. If he is very lucky, he will also have the services of reliable vocal and instrumental contractors available. On small budget projects he may have to cover both jobs himself, in addition to writing the music.

A commercial composer must have required all of the skills you would expect of any composer, plus a remarkable degree of flexibility. Not only must he write catchy tunes (and lyrics, usually) on a daily basis, he must do so within time limitations which are figured in film and

video frames per beat and which must be resolved to fractions of a second. He must also be able to make a valid and complete musical statement (in the case of TV and radio commercials) within the brief space of 60, 30 or even ten seconds. The best commercial composers have a virtually unlimited mastery of popular and classical musical styles and can produce pieces which can communicate a broad range of feelings and emotions, literally "painting" an aural picture without going over the heads of the intended listeners.

We should note here that there are some distinctions as to the different kinds of composers working in the commercial field. There are people who "do

it all" and there are those who don't. Many composers prefer not to write lyrics, feeling that this is really outside their area of expertise. They will often hire a freelance lyricist to come up with a lyric and then build their composition around it. Another variation is the songwriter/arranger team. This can be a very successful arrangement if the two are personally compatible. In such a situation a songwriter, who may be gifted at putting words and music together but lacks the training and technical skills to do lead sheets and orchestra arrangements, teams up with an arranger, who possesses these more formal skills. In addition, there are composers who specialize in scoring, who deal only in instrumental music of the type you would hear as background to a film or TV show or commercial without singing.

## PERFORMERS

Performers are usually hired by producers, contractors, or someone who has assumed one of these roles. "Breaking in to any facet of the recording business can be a long and difficult process, because to get the work you must capture the attention of a producer without becoming an irritation. Many producers will not try out new talent without the personal recommendation of another producer or a performer who is already working for him and whose judgment he trusts. Some are willing to hear new people in live auditions or will allow performers to submit demo tapes. Others are reluctant to try any new talent unless they lose some member of their "clique" of performers.

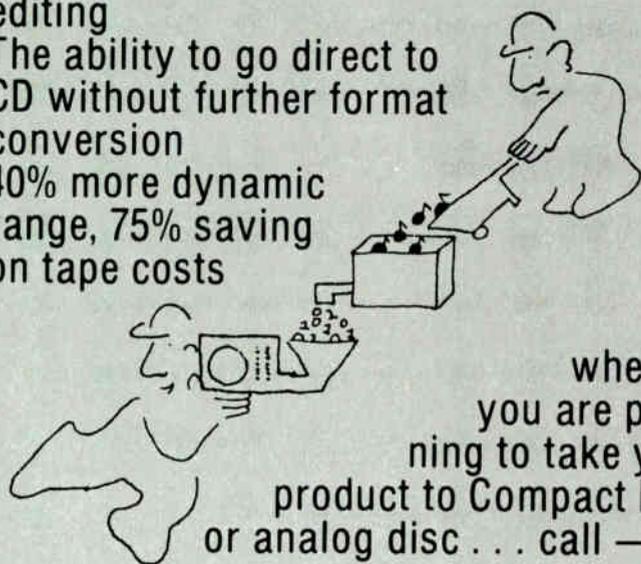
The reason underlying all this is that the producer is always under great pressure to keep a project running smoothly, efficiently, on schedule and on budget. A weak member in a brass, string or other section can cost a producer hundreds, even thousands of dollars to correct. In addition, if embarrassing situations develop while the client or his agency representatives are present, it may appear that the producer is incompetent and this could jeopardize his future relations with the client or agency.

Notwithstanding all this, people do make it into the recording field. What are some of the qualifications that help them succeed? Good all around musicianship is, of course, a prerequisite. In particular, a performer should be a good sight reader, have a firm grasp of as many styles of popular and classical music as possible and have the discipline to be able to play a piece over and over with great consistency. Recording is a very tedious, repetitious and high-pressure medium on the whole. There are no crowds to cheer you on, only a producer and engineer who will pick your performance apart in ways heretofore unimag-

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ined. Improvisation skills can be helpful but will seldom be called for except in rhythm sections. The great virtues in commercial recording are consistency of performance.

Beyond the musical skills are some personal ones which are important in almost any profession. Reliability is essential. Any performer who is late for a session without an excellent reason will very likely find himself struck from that producer's talent list. It is also important to be able to keep a pleasant attitude throughout a session, even when the going is tough. Everyone on session must function as a team member and understand his proper role. There is only one objective to be met in a recording session and that is to satisfy the producer. Egos are left at the door.

## THE ENGINEER

The role of the recording engineer is as crucial to the success of a project as that of any other member of the production team. He must be able to concentrate on all the technical aspects of the session for long periods at a time and must be able to deliver the kinds of



*Shelly Elias of TMK/Elias reads over music with Lou Rawls for Chicago's WGN Channel 9 theme song at Streeterville Studios, Chicago.*

sounds the producer is looking for quickly and efficiently. Like the other people involved in recording, he must be familiar with the kinds of sounds that are characteristic to a wide variety of musical

styles and must continually work at keeping current on new trends in music and recording.

Another critical thing that an engineer must be able to anticipate is the effect on the music that the medium of intended use will have. Everything that is broadcast must first pass through a station's master compressor. This is to protect the integrity of the station's broadcast signal and keep it within legal limits set by the F.C.C. It can do nasty things to your music, though, and a good engineer will anticipate such problems and correct for them. Knowing that much of your music is likely to be mixed under ad copy, he will also help you mix in such a way that as much music as possible will be heard without stepping on the announcer.

## THE SESSION

Since most people reading this text will have at least a basic knowledge of the recording process, we will present a brief overview of common procedures as practiced in the field of commercial production rather than trying to get into the specifics of engineering which would take up an entire book of its own. If your primary interest is engineering, there are many helpful books on the subject. One fine book which I recommend is Robert E. Runstein's *Modern Recording Techniques*.

On the day of the recording session, the producer and composer will arrive first to discuss with the engineer the general plan of attack. Among the things to be covered are the tracking requirements of the production, the click tracks, the schedule and budget.

Tracking requirements should be looked at to make sure that the engi-

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neer will not run out of tracks on the multitrack recorder before the production is finished. Believe it or not, you can run out even if you have 24 or more tracks and the less you have available, the more careful you have to be!

The first track to be recorded will almost always be the click track. The click track is taken from the output of a very special type of electronic metronome which is calibrated in film frames per beat rather than beats per minute as a regular metronome would be. The most common unit of this type in use is the UREI Digital Metronome. As most commercial productions have at least some timing restrictions, click tracks are used to provide a reliable tempo reference, against which all timing requirements can be mathematically worked out in advance by the composer. This click track will always be available to the performers in the headphones. If the composition has a constant rhythmic feel, the click track may not be needed or desirable for the other performers once the rhythm section tracks have been recorded. Quite often a pitch reference will also be recorded at the head of the same track as the click track. This could be a piano note or the output of an electronic tone generator. As with any band or orchestra the pitch will be a concert "A" or "B flat."

Schedule and budget are directly related. Time is money in the studio. You can imagine what would happen to your budget and anticipated profits if, for whatever reason, an overdub session with a dozen string players at \$65 each per hour and a studio at \$120 per hour were to run a couple of hours overtime: The net result would be that the producer would lose \$900 per hour out of his own pocket. Such a situation could usually only arise from poor pre-production planning or the total lack of it. In scheduling sessions throughout the day, it is important for the producer to allow enough time for each section of players to render a quality performance and enough time for the engineer to set up for the following section. Allowing too much time, however, means that he may end up paying for an excessive amount of "dead" time between sessions. This is an area where experience may be the best teacher, and the lessons can be expensive.

There are, of course, infinite variations on the kinds of ensembles you might use on a commercial recording and the schedule that would be required to deal with each of them properly, but a typical day's schedule for the recording of one kind of commercial might go like this:

**PRODUCTION SCHEDULE**  
10/24/84

Title: "Another Great Product"  
Client: Great Products, Inc.

—PAGE 56

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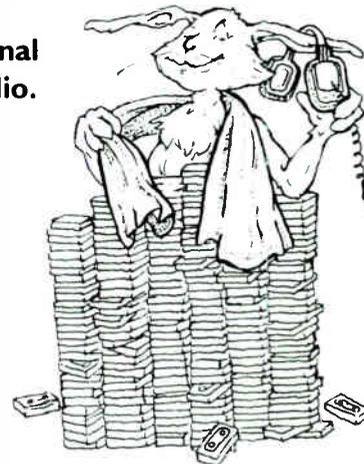
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# Commercial Music

—FROM PAGE 55

Agency: Marketing Maniacs, Ltd.  
Production Co.: By The Book, Inc.

- 8:00 AM Producer, composer & engineer pre-production meeting
- 9:00 AM Drummer set-up, get drum sounds, record click track
- 10:00 AM Bass, guitar, pianist arrive: set-up & tune-up
- 10:15 AM Rehearse and record rhythm tracks
- 11:30 AM Set-up for strings
- 12:00 AM Lunch
- 12:30 PM String session
- 1:45 PM Set-up for brass
- 2:00 PM Brass session
- 3:15 PM Set-up for percussion, harp
- 3:30 PM Percussion, harp session
- 4:15 PM Set-up for vocal session
- 4:30 PM Vocal session
- 6:00 PM Supper
- 7:30 PM Mix
- 9:00 PM Clock out

As you can see, on most commercial recording sessions the orchestra and vocalists are recorded one section at a time. By being able to concentrate on smaller groups like this the production team is able to exercise greater control over the performance and the method of recording of each of the various ensembles. By contrast, feature film and television scores are usually recorded with the full orchestra playing at once. This requires more personnel and a larger and more highly specialized facility than would be found at most recording studios.

### DELIVERY AND WRAP-UP

Once the project has been recorded and mixed to the producer's satisfaction he presents a copy to the agency. The agency will in turn make a presentation to its client—extolling the virtues of their campaign and, hopefully, the producer's music. Problems do sometimes arise at this point. The client may find some amazingly subtle fault in the way his company's name was sung. The agency's legal department may find something questionable in the lyrics that was previously overlooked. The creative director may dislike the level at which the vocal

—PAGE 43, CHICO O'FARRILL

time, "people who create and produce music such as I, rarely have time to experiment with a variety of musical forms, and consequently it's very easy to fall into a creative rut." To fight against that and to keep his creativity high, "I now spend two or three hours each evening at the piano, just trying out new ideas and studying new styles. This enables me to bring beyond my years of classical training and big-band experience to get a feel for the music I'm called upon to compose or arrange for commercials." O'Farrell says he also listens regularly to the current hits of the day because consciousness of the latest trends will make his commercial music seem fresher and more up-to-date. If you've listened to commercials on FM radio recently, you've probably noticed that most jingle composers try to stay current—sometimes it's difficult to distinguish the songs from the commercials, the jingles are so cleverly contemporary.

Although O'Farrell prefers to write, arrange and produce spots because it gives him maximum control over the way the music will ultimately sound, he also does a considerable amount of work producing and arranging others' music. "There are times I've had to perform plastic surgery on an original composition," he told one writer. "Arranging sets the tone of the spot. The composer's melody may be pretty, or

forceful, or whatever, but intros, transitions and voiceovers challenge the arranger to work with the most basic aspects of the composition, and often rebuild it to make it work effectively. Also," he noted, "a skillful arranger can take a terrible composition and make it sound fresh and interesting."

An acknowledged success in his field, O'Farrell has a number of tips for aspiring jingle producers, including committing to a total involvement in each project rather than giving the ball to someone else and letting him or her handle everything; making sure the musicians are reliable and the studio in good working order before a recording date is scheduled; arranging for adequate financial remuneration for those involved in the date; and keeping in mind that union working conditions are fairly specific and should be respected. In addition, O'Farrell has often gone out of his way to endorse a book that has helped him in the business, *The Use of Click Track Techniques for Television and Radio Commercials*, by Mark Fredericks. "It helps me deal effectively with cuts and computations," he said. "In addition, I have become freed from a mountain of math and am now able to concentrate fully on the music." And that, after all, is what has sold client after client on O'Farrell's skills.

—Alex Medford

was mixed, or perhaps an instrumental solo in the bridge was mixed too hot.

Sometimes such things are unavoidable. There are, however, preventative measures which a producer can use to his advantage. First, he can specify in his contract that the agency must have a representative at the recording session to assure that the agency's objectives are met and the client's interests are protected. Failure of the agency to send a representative would relieve the producer of responsibility for the costs of redoing any portion of the production. Furthermore, it should be made clear that once the demo version of a production has been approved by the agency and its client and a full production has been ordered (in writing) and produced, the cost of any changes whatsoever are the responsibility of the client.

Let's assume that the producer has exercised caution in these areas and the production is accepted without a hitch. Next order of business is to invoice the agency (rarely would you bill the client directly) and wait for the proverbial check in the mail. If he is dealing with honest and above-board people, the money will usually arrive within 30 days. The producer will then have to do a talent payroll which may involve the filing of union contracts, payment of work dues, pension, health and welfare contributions, etc.

The producer should have some sort of logging system to keep up with expiration of production agreements so he can exploit the re-use angle for additional income from his productions. He should also practice good library techniques for keeping track of his half-track masters and two inch tapes. It is also a good idea to study productions after they've been finished for a while. A thorough critiqueing of a project after you've had time to recover your objectivity can help you find ways of improving future projects.

There is also the matter of the producer's own demo tape. This tape will contain edited samples of his best and most recent work. The demo tape would hardly ever exceed ten minutes in length and around seven seems to be standard. Demos are usually made and distributed on quarter inch tape, although more and more demo's on cassettes are being seen. The demo is the primary tool that a producer has for selling his wares. There is a tendency to want to add every new production to a producer's "reel." This is, of course, impractical from both a cost and time consuming aspect. A producer should endeavor to keep his reel fresh, but one or two updates a year should suffice.

#### TO PROSPECTIVE PRODUCERS

Being in the business of producing commercial music has a great deal in

common with being in any kind of business. Proper books and records must be kept at all times. It is vital to know at any given time whether you are making a profit or not. You can go into the music business for any number of aesthetic and other reasons but if profit is not high on the list then your chances of survival are thin. You must also be prepared at any time to give an accurate accounting of your financial position to potential investors, creditors and the Internal Revenue Service. You will need efficient billing and collecting procedures to insure that you have optimum cash flow. You should endeavor to do all work under contractual agreements, giving you and your client the proper safeguards and giving

you specific legal remedies in case of default or breach of contract. It is important to keep accurate data files on performers, clients, and prospects. Having good talent records will insure that you can find performers quickly when you need them—and a growing client and prospect base is the lifeblood of any business.

Intelligent, ethical business practices combined with a good musical product will show the community that you are, in fact, in business and behaving as a business should. Thus, with talent, a little luck and lots of perseverance, you may gain the respect of the musical and business communities and a healthy living besides. ■

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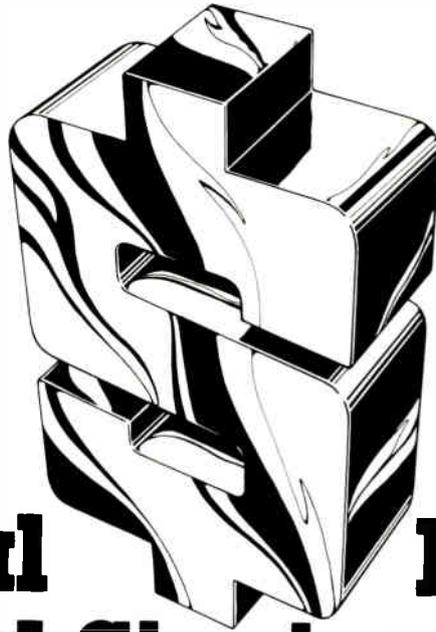
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Circle #033 on Reader Service Card

by Bob Jakobsen

**M**any of us have been programmed to think that only saving is good, and that debt and risk-taking are bad. In our efforts to gain security, we disqualify ourselves from ever making a substantial amount of money.

By developing a wealthy mindset, you can launch yourself into financial self-reliance. The prerequisite for making a lot of money is *want* to make a lot of money. The bigger the goal, the



## Financial Planning and Strategies

A good idea becomes more profitable once you've picked the right people to carry it out. You can use people leverage to build your business. People leverage can provide you with instant knowledge, talent and capacity that would take you years to acquire on your own. As long as there is demand for your product, your profits can increase with each additional person you put to work producing that product. By using people leverage to farm out certain tasks, you can concentrate on the money-making aspects of your business that really do require your attention. And if you can run

bigger your income. Opportunities for making big money have never been greater. Success breeding success is the key to building a good business into a *great* business. You can start developing your money mind by learning how to spot opportunity in everyday occurrences, adapt current trends to new circumstances, find important needs and fill them, and expand your business cycle.

The person who succeeds has developed the ability to see profit situations where the average person would merely *see problem* situations. Opportunities for tremendous profit appear before us every day. What it takes is looking at things with a new perspective—a *money perspective*. Every time you see a *need*, jot it down on a piece of paper. While your first success can lead naturally to other successes you don't presently envision, you should begin preparing for that now. Even as you begin your first venture, insert ideas and plans for future expansion and diversification.

How do you speed the flow of profits? No one has yet discovered an improvement to the old rules that the business which builds fastest is the one that offers *quality* and *value*. But after you've developed quality and value, there are other profit-building techniques that can greatly add to your income. A good one is to re-invest your initial profits. Re-investing profits can allow quicker ex-

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Is it really possible to start a business with no cash? Many successful recording studios have started that way. Naturally, if you have a bit of cash to invest your start can be bigger.

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pansion, save on tax payments, make your business more secure and build a far bigger fortune. The profits you use to invest back into the business are tax free, providing you with windfall investment cash. It's sort of like having the government as a financial backer.

Another good technique is to never give up on a good idea. Remember, your idea is good enough to pursue if it fills an important need. Ask yourself, does my recording business fill an important need by providing something essential, desirable or useful?

one business profitably, you have the springboard to operate similar concerns in other locations.

Is it really possible to start a business with no cash? Many successful recording studios have started that way. Naturally, if you have a bit of cash to invest your start can be bigger.

But you can start at the bottom with no cash, even with no way of getting cash advances. As soon as possible start to use other people's money, and continue to use it throughout your financial career. No matter how little or how much capital of your own you have available, the greater part of your investment should and will come from outside sources.

Leverage means using a little of your own money to control a lot of somebody else's money. You use leverage every time you buy something on *time*—whether it's a car, a home or an appliance. Your down payment gives you full use of the item purchased, even though the bulk of the money was put up by some sort of financial institution. But there's an important difference when you use leverage in business. When you buy a product for your personal use, *you* have to make the monthly payments. When you borrow money for business purposes, your *customers* make the monthly payments.

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ing business will come from these resources: time available for your project, experience, working space, family and/or friends able to conduct some of the business, loan eligibility (you have more than you think!) and visualization.

How do you start with no capital and no perceived loan eligibility? One: customer financing. Two: financing from partners or stockholders. Three: bank-roll building through on-the-job training. You can use one or several of these techniques to build a successful business. Money is loaned not on the basis of your personal ability to repay it, but on the projected income of the business. The lender has the equipment as collateral, to assure getting his money back. Your customer, who rents your property, provides the cash for your loan payments. It pays to think in terms of customer financing.

Many recording businesses have begun with partners. Although partnerships do not always work out in the long run, they are an excellent means of obtaining start-up capital. The investment by your partner or partners can range from a small percentage all the way up to 100%. But a partner who puts up 100% of the cash need not own even a controlling interest in the business.

On-the-job training can build two bankrolls for you. One is in cash and the other is valuable experience. You may want to launch a type of business that requires a personal investment and you can see no way of obtaining the start-up money. By taking a job with another company that is already involved in the line of work you've chosen, your pay will be cash you need and inside knowledge of the field. So not having the needed cash or a way of getting it can actually be a boost to your wealth building career. It can give you the type of on-the-job training that helps you move with more confidence and ability when the time does come to launch your own business.

Most traditional articles and books on business warn of getting in too deeply too soon. They warn that most business failures are caused by under capitalization—which means the owner didn't have enough money to survive the early getting-established period. When a plan has been tested and you're convinced it will work, you can borrow with confidence, and that will keep you from having to be 'under-capitalized'. Success breeds success in borrowing too. The first reason for using other people's money as early as possible is that it gives you a bigger start than would otherwise be possible. You immediately begin to build a business credit record. Establishing a good credit record in business means that more money will become available to you sooner. And remember, you'll be using credit as long as you are in business.

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- 64dB (68dB S/N) PGM Master volume control at maximum and one CH Fader at nominal level.
- 73dB (77dB S/N) STEREO Master Fader at maximum and all CH STEREO level controls at minimum level.
- 64dB (68dB S/N) STEREO Master Fader at maximum and one CH STEREO level control at nominal level.
- 80dB (70dB S/N) ECHO SEND volume at maximum and all CH ECHO volumes at minimum level.
- 75dB (65dB S/N) ECHO SEND volume at maximum and one CH ECHO volume at nominal level.

### CROSSTALK

- 70db at 1kHz: adjacent Input.
- 70db at 1kHz: Input to Output.

### MAXIMUM VOLTAGE GAIN (INPUT GAIN "-60")

PGM	74dB: MIC IN to PGM OUT.	ECHO	70dB: MIC IN to ECHO SEND.	
	24dB: TAPE IN to PGM OUT.		C/R	74dB: MIC IN to C/R OUT.
	34dB: ECHO RETURN to PGM OUT.		STUDIO	24dB: 2 TRK IN to C/R OUT.
14dB: PGM SUB IN to PGM OUT.	74dB: MIC IN to STUDIO OUT.			
STEREO	74dB: MIC IN to STEREO OUT.	24dB: 2 TRK IN to STUDIO OUT.		
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egg in the bank to help you get started, there are a number of outside money sources that may be open to you. There are personal loans, collateral loans, business loans, leasing, the Small Business Administration, and Small Business Investment Companies. If you haven't already borrowed to the hilt on your personal credit rating, ready cash may be available to you from banks, finance companies, credit unions, and friends & relatives. Personal loans are just what the name implies. They are made to you personally, on the basis of your credit standing. Projected business profits are not taken into account. Many banks offer ready reserve checking accounts allowing you to overdraw up to a set limit which could be as much as \$5,000. Personal unsecured loans usually carry a higher interest rate than other kinds of lending. But if your business plan is a good one, the power of leverage can far outshine the extra cost of the loan.

Your home may now have increased in value and this, combined with the fact that you've paid off some of the principal, may enable you to increase your mortgage. If you have funds in a savings account that you don't want to touch, you can get a passbook loan at a relatively low interest rate, while continuing to earn interest on your savings. Loans can also be obtained on other items of value that you own, such as stocks or insurance policies.

Generally, you have to have a proven business record to obtain a business loan from a bank. But even at the outset it's worth trying for because of one advantage...you repay what is known as **simple interest**. In many types of loans, you repay the principle plus interest on a monthly basis. This way you don't have full use of the money for the full period of the loan, even though you must pay interest as if you did. With a typical business loan, you borrow a lump sum and repay the lump sum when the term is expired. You have full use of the money for the entire period. That can substantially cut your interest cost.

For the most part, a recording business requires expensive equipment, property, or buildings to get started. In this case, give serious thought to **leasing** instead of buying. There are companies around that could virtually lease you everything you'll need to get started in your business operation, including recording equipment, office equipment, cars, trucks, even furnishings and computers. Leasing is a "pay-as-you-go" deal. No large down payment is needed. This arrangement allows you to deduct the **entire cost** on your income tax returns, instead of merely the depreciation that is allowed on equipment owned.

If you can't find money elsewhere, the Small Business Administration is run by the Federal Government,

and can be a last resort helper. In some cases, they will make a full, direct loan, and sometimes they will make up the difference between what a bank will lend you and what you need. Whether or not you borrow through the SBA, you may want to make use of its other services, which include business counseling by its own experts, and by active and retired businessmen who have volunteered their services. You can write to the Small Business Administration, Washington, D.C., 20416, for the address of the office nearest you.

Small business investment companies (SBIC) are groups of private investors interested in making direct loans to small enterprises. They were created by Federal legislation to encourage the flow of funds to businesses showing good potential. These funds are called risk capital, and may cost you more to borrow than some other types of financing. The extra cost could be in the form of consulting or service fees, or the SBIC you deal with might require some equity in your business (meaning a partial stock interest). The Small Business Administration can put you in touch with the SBIC that might be of help to you.

From the start of your career you must become familiar with tax angles, because the graduated tax system forces those in the upper income brackets to turn over the majority of their earnings to the government. There are many legal ways of removing yourself from these upper brackets without losing money, including: depreciating property and equipment, extensive use of tax shelters, timing capital losses to offset gains, investing in tax-free municipal bonds, and utilizing government approved tax incentives. The way you go about setting up a business, how you log your earnings, and what you do with them will have an important effect on the amount of taxes you pay. So, contact an accountant as soon as your plans to set up shop have been made final. And as your empire starts to grow, upgrade the level of tax advice that you obtain. The bigger you are, the bigger the expert you should consult.

When you reach the state of being very successful, indulge yourself in the joy of helping others, not only in business projects designed for the public good, but in totally non-profit ventures into the world of financial good deeds. Goodwill is the one and only asset that the competition cannot undersell or destroy. ■

Bob Jakobsen has recorded the preceding, as well as other related topics, in an eight cassette package entitled "How to Make Money in the Recording Business", available from Studio Management Systems of Minneapolis, MN.

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## An Optical Optimist Sheds Some Light on Laser Technology

# ED ROTHCHILD

by Elizabeth Rollins

Ed Rothchild carries 274 cassette tapes in his car, and he plays them on a \$1500 stereo. Still, when I spoke to him in July, he cursed this deluxe system for its inherent technological inferiority. News . . . but somehow limited by its magnetic gene pool.

"It's wretched when it jams my tapes!" he exclaimed.

Ed Rothchild wants nothing short of a Compact Disc player for his car. He's been waiting for this for ten years—since he first became fascinated with what the laser can do for music, video, graphics and data storage.

Since 1979 when Rothchild started his own consulting firm, he's published 38 market research reports—20 of which have concentrated on optical disk tech-



*"This is the first time that you've been able to mix digital data, images, motion video and audio in the same medium."*

nology. Companies such as IBM, Storage Technology, Kodak, and 3M compose his client roster.

In January, 1982, Rothchild started a bi-monthly newsletter, "Optical Memory News," which this year waves the slogan, "The Year of the Small Disk" next to the date on the cover. At \$295 a year, you won't see OMN in your doctor's waiting room. It contains highly

targeted R&D news which is often several steps ahead of the major manufacturers' publicity departments.

"The Optical Memory Report" is an annual package that, for \$2,000, supplies the subscriber with profiles of all the companies involved with the technology, and specs and statistics that serious geniuses and businessmen can use as a bible. In short, you pay for Rothchild's

services if you *have* to know what's going on. If you've got money at stake.

The private consultancy sprang from 20 years of experience in marketing and product planning for electronics companies such as Litton Industries, Rockwell International, and National Semiconductor. In 1975, Ed and his brother Paul formed a company to distribute video disk recording and mastering

# UPWARDLY MOBILE MULTITRACKS



System shown: Sony JH-24 multitracks, JH-110C recorder/reproducer, JH-636 AF/LM console, PVM 1910 monitor.  
Facility: Reelsound Mobile Recording Unit, Austin, TX.

When your business is the rough and tumble world of remote recording, you need a multitrack you can trust...a recorder which has proven itself time after time, hit after hit, in studios around the world. Sony's high performance JH-24 series fits the bill perfectly for upwardly mobile studios and remote trucks. That's why the JH-24 remains at the "top of the charts" (see *Billboard* Equipment Surveys 1980-1983) in user acceptance.

If you're thinking about upgrading to 24-track, going dual 24-track or replacing an older multitrack recorder, look to Sony for a proven performer. And see how upwardly mobile your studio can be.

For more information contact: Professional Audio Products, Sony Communications Products Company, Sony Drive, Park Ridge, NJ 07656.

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World Radio History

equipment. Success was elusive, however, in a market that simply did not exist at that early date. (Both Rothchild brothers are used to success. Paul is an internationally known record producer, credited on classic albums from the Doors, Janis Joplin, The Outlaws, Bonnie Raitt and many more.) After that, while the market was getting up to speed, Rothchild did quite well with a sound reinforcement and electronic instrument distribution company.

There's one more service Rothchild Consultants provides: On October 15-17, the "Second International Conference on the Future of Optical Memories, Videodisks, and Compact Discs to the Year 2000" is happening at the Loews Summit

Hotel in New York. \$795 buys three days of lectures from 15 of the most accomplished minds in electronics today. And there you will meet Ed Rothchild. In any case, here is an introduction...

**Mix:** How do you envision Laser technology affecting the music industry by, say, 1990?

**Rothchild:** Well, it will affect it in a number of ways...it already is affecting it. The Compact Disc—the laser digital audio disc is already one of the most spectacularly successful products in consumer electronics history, and it's causing a real boomlet in the disk distribution business.

Obviously, you know that LP sales have been depressed for about ten years,

primarily because of the great success of cassette recorders.

For every ten records people used to buy, now they buy three, and let their friends tape them. The biggest change to that scenario is the Compact Disc, which is so spectacularly better sounding, with lower distortion than any of the analog LPs out, that when people listen to Compact Disc on good equipment it almost immediately results in a sale of the equipment. Then people tell their friends about it, and demonstrate it to their friends, and their friends wind up going out and buying players and disks.

The impact to the record industry is that, rather than conventional analog LPs going on for about ten years, the industry is now estimating that they will probably stop pressing vinyl 33s in seven or eight years, because the transition to the laser optical Compact Disc is happening so soon. The prices of the Compact Disc players have dropped to less than a third of what they were a year-and-a-half ago when they were first introduced. That's never before happened in consumer electronics product. They're down to around \$300 apiece now, and they'll be even lower before the end of this year. The disk prices should be dropping fairly soon. The reason that disk prices are still fairly high is that demand is far outstripping the production capability, because as of right now there's only one plant open in Europe. There're six open in Japan. There will be two or three open by the end of this year in the United States.

**Mix:** As far as other uses of the technology, do you envision experimental technology becoming a reality, for example, in the optical recording and mixing of an album using multi-track recording?

**Rothchild:** Well, you certainly could. But the thing that mixing requires is erasability, and the erasable optical disks are still in the laboratories. The first ones will be available next spring. I've seen them demonstrated, both for digital data and image data, or audio. The recordable Compact Disc will be out first for the professional market, for mixing. The one for the home consumer market, although it could be released right now, won't be for at least two years, for marketing reasons...because the manufacturers don't want to kill the sales of the Compact Disc players, or the disks. They want the technology to be launched with professional best-quality equipment so the technology gets a good name...rather than launching a technology which immediately degenerates into a do-it-yourself home technology, such as video tape recording, where the manufacturers of the format have no control over the quality of the image that goes on the tape. That



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depends on how well the user reads the instruction book, if they read it at all, and how well-tuned their equipment is, which is far from broadcast quality. So, for good reasons they want to get the technology out professionally, with read-only players and professionally recorded disks, so people know all the benefits of digital audio recording.

**Mix:** Of course, the erasability question that you brought up a moment ago is something skeptics have been talking about for a long time in regard to every aspect of the optical recording area. The skeptics say that this technology will not be able to become widespread until an erasable disk is perfected—and affordable.

**Rothchild:** Well that depends upon who is saying it and what the application is. If the application is audio, then I agree that you have to have erasability for it to be widespread. But it turns out that for digital data recording, or image recording in many cases, you don't want erasability. Such as: storing office documents, records of transactions like credit card slips at the bank, or payroll records. You don't want those erasable, you want them on a write-once, non-erasable medium. Many applications are better off without erasability. So it depends on who you're talking to. We take an overview of the whole industry, of course.

But I agree that by 1990, two-thirds of the optical disks sold will be erasable disks. But the market for write-once disks will be huge—it just happens that the market for erasable disks will be twice as large. And much of the demand for erasable disks is not only for small computer use but, of course, for home recordable, and professionally recordable audio or video.

This year, you'll see several manufacturers release optical video disks with digital sound on them...digital sound such as is used on the Compact Disc, but on the video disk. So you'll have stereo receivers that will be able to give you a beautiful color image, and full digital stereo sound at the same time—rather than the current video disks, which have good sound, but not digital sound.

**Mix:** Getting back to the erasable disk, when do you see the affordability, and the marketability...

**Rothchild:** You give me a price for affordability. Is \$5,000 for a professional broadcast quality recorder that's erasable too much money? That's a fraction of what the current magnetic tape recorders cost. They'll be priced no more than the magnetic recorders. They'll very quickly fall below that because it's much cheaper once the basic technology is developed—and it is—to build a video digital, or an audio disk recorder than a tape recorder; because there are

fewer moving parts—and it requires less labor time to build a disk recorder than a tape recorder. The mechanical tape transport assemblies, even though they're in large production now, have so many more parts and there are so many more critical adjustments to them that can go wrong, and take so much more assembly time—that there's really no comparison.

So very quickly the video disk and audio disk recorders will come down to be lower priced than the corresponding audio or video tape recorders. In fact, the Japanese government's Ministry of International Trade and Industry, MITI, which is the governing body for Japanese industry, has identified recordable

video disk and audio disk technology as being the next hot consumer product in Japan; because they see the market for audio and video tape records slackening by the end of this decade. The market will be saturated. So the inherent advantages of disk over tape, which are: rapid random access, and no wear on the media so you don't have to keep re-recording optical disks as you do with... well... I keep 274 audio cassettes in my car, and I'm constantly having to re-record them every six to twelve months because they degrade horribly in a car. Not to mention the fact that I spent half-an-hour this morning taking a cassette apart because the tape jammed and it's music I could not re-record, so I spent

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the time to straighten out a tape mess inside a cassette—which could not happen with a disk. These are all advantages a user will quickly come to know. Within about two years, you'll see the home-recordable laser audio disks coming out, and the home market will await erasability before the products are introduced.

**Mix:** Do you think optical recording technology will be more successful during the next ten year transition period if it is combined with magnetic technology?

**Rothchild:** Yes and no. There're two answers to that. As long as optical technology is write-once, read-many-times, not erasable—it will complement magnetic technology in that you would see an optical disk for write-once applications, and you'd see a magnetic disk or tape for the erasable stuff *in the same system*. But as soon as the erasable optical disks come out—the first ones will be out within a year, and they'll be widespread within two years—then optical technology will start to impact all areas of magnetic technology, because it's inherently more advantageous as we said earlier. At anywhere near the volume that the magnetic products are being manufactured, optical disks should be cheaper to build and maintain. So it's inherent-

ly a superior technology. Most of the public, of course, is not aware of the advantages yet, so it's an educational problem that needs to be overcome.

**Mix:** Speaking about the consumer again, how do you think this optical technology will affect a household user in other ways? For example, with computer and graphics systems and high density storage?

**Rothchild:** Well that's going to be the largest area of use for the technology. The wild card is the consumer entertainment area. No one knows for sure whether the recordable audio disks using this technology will outstrip the digital data applications of the technology. It's unknown at this point. You can only guess because there is no experience in this area—there're no products on the street—so you just interview manufacturers' products planning types and get some good hunches and compare notes.

But in the digital data area we're projecting a 1990 world-wide market of 12½ million optical memory drives primarily for data or document filing applications. We don't yet know how many there will be for recordable audio and recordable video, because those products could be somewhat slow to be coming

out of the laboratory. Not for any technical reason—they're ready now. The reason is, in the area of recordable video, no one wants to kill the golden goose of the video tape recorder, which is another spectacularly successful consumer product. So it's marketing reasons in the big corporations that will slow down the introduction of laser recordable audio disks or video disks. They will start to occur in the professional market much before they hit the consumer market because the professional market wants the rapid access of disk, and the fact that there's no media wear. You know, when you go to a National Association of Broadcasters convention (NAB) almost all of the manufacturers displaying high-quality pictures use as their source material video disk, rather than video tape, or film, or anything else. Video disk offers the highest signal quality, the purest, clearest signal you can get. And it's just the inherent advantages of the technology which professionals know. Professionals are ready for it.

**Mix:** I know you're talking about audio and video disk and the market being already established...those are marketing concerns. But, for example, with computers—why should the computer industry be slow to incorporate this sort of high-density storage capability?

**Rothchild:** Oh, they're not, they are not at all! They're champing at the bit for it. You'll see optical disks integrated into computers by the end of this year. By the end of this year you will see a 5¼ inch optical disk drive built into a microcomputer where there will be one floppy disk and one optical disk in the same box. And on the floppy disk, you'll be able to store about one megabyte of data—that's about one million characters. On the optical disk, you'll be able to store several hundred million characters.

**Mix:** ...which would be wonderful for graphics...

**Rothchild:** Yes, that's exactly the point. Graphics take a lot more storage space than just computer code, or word processing output. For example, if you take one page of word processing output, one typed page, that takes about 4k, about 4000 bytes of information. If you take the same thing as a document and you scan it and store it as an image, and you compress the document, which means you take out all the white space between the letters, and you basically condense it as you condense orange juice. You take out the water earlier, and put it back in later. You do the same with the white space. You're left, after you take the white space out, with about 50k bytes, or roughly 12 times as much storage after compression to store the same information. Before storage, before

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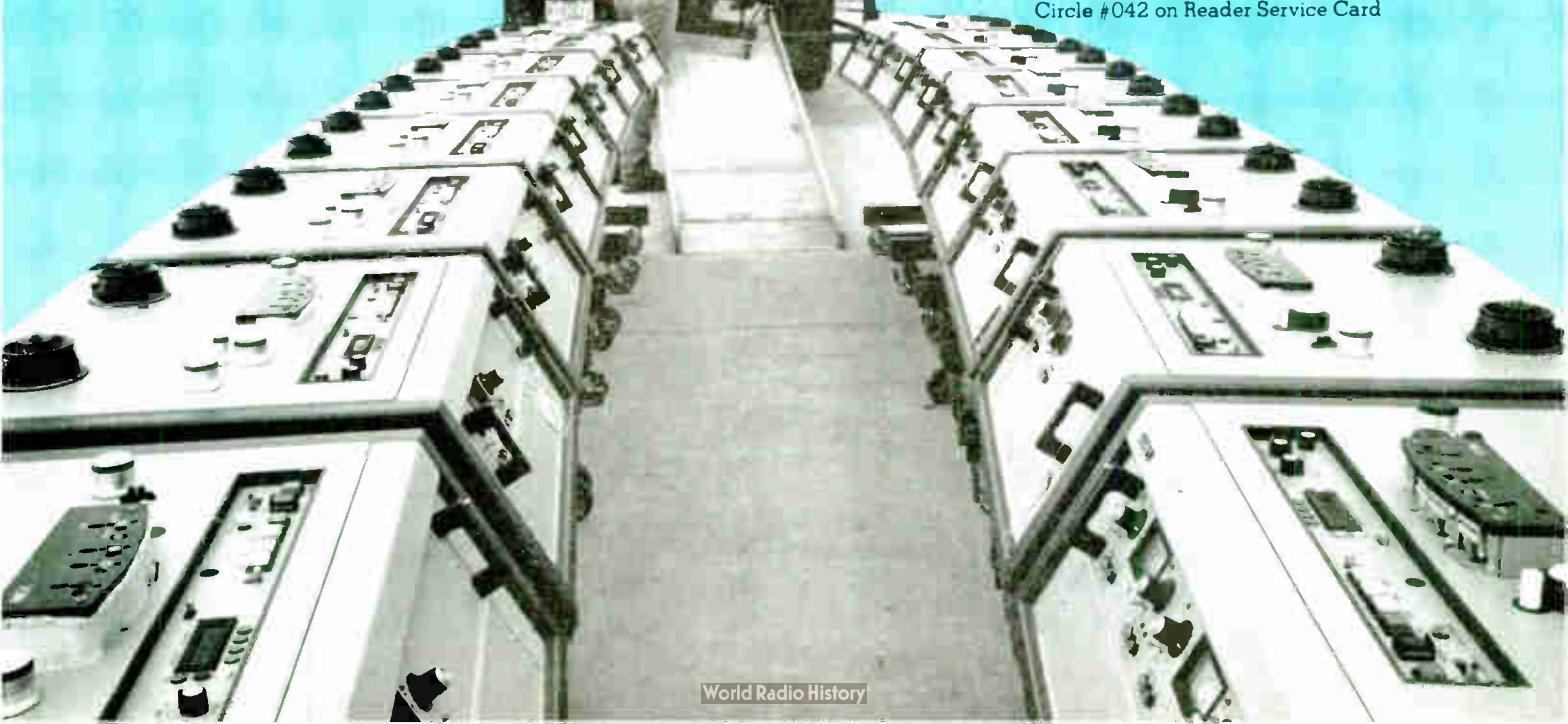
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compression, you're looking at about 500k, or half-a-million bytes of information. So the compression is necessary, but optical disk is really necessary to store lots of graphics, images, pictures.

**Mix:** From your writing, you are an optimist on optical technology. You've predicted that by the end of this decade, sales in the U.S. alone will reach five billion dollars. What are some of the obstacles that have to be overcome before sales could explode like that?

**Rothchild:** Well, the figure I gave was primarily for digital data storage—it did not include audio or video—that's the wild card. With audio and video, the sales figures could be much higher. But the point is that the marketing leaders in the major corporations may decide not to release recordable—erasable—optical audio and video disks, to protect the very prosperous market that already

*"...By the end of this year you will see a 5¼ inch optical disk drive built into a microcomputer where there will be one floppy disk and one optical disk in the same box."*

exists in magnetic products... you know, video tape and audio tape. So, that's one obstacle to overcome. Other technological obstacles are: for read-write applications, there needs to be a much higher level of production of high-powered diode lasers. They're still in fairly small supply and companies are having a little difficulty in wrapping up production in time to produce hundreds of thousands of millions of them.

Another problem is the cost and the care that has to be taken in building the erasable optical disk factories. The disks that have been shown so far are, of course, handmade by PhDs in laboratories. There's a big difference between a

few prototype products, whether they're disks or drives, being shown, and putting them into a real factory environment and getting them built by the hundreds of thousands. So getting the technology into mass production will have some problems, but no more problems than any other high technology product does. The TV set was a real problem in 1946 but now there are millions a year produced. The public is ready for the technology, it's a question at this point of getting the manufacturers and the buyers lined up. They fairly quickly ramped up production of the Compact Disc. Just today I found out that one of the major laser manufacturers is now gearing up to build a hundred thousand lasers a month, whereas last year, they were doing ten thousand a month. That's because of the success of the Compact Disc.

Other makers of critical components of the CD and the recordable optical disks are gearing up accordingly to make more lasers and more of the integrated optical heads. The pickup is the single-most critical element inside a Compact Disc player. That's really the heart of the system. The rest of it is just simply motor drives and electronics and servo-tracking mechanisms.

But if you put a more powerful laser in the optical pickup and let the device write as well as read, becomes an optical head. And that is being developed, not only in Japan as you might expect, but also here in the States, mostly in California and to some extent, in Europe as well.

Also coming in the next few years will be holographic lenses, and that will make it possible for the players to be smaller, much lighter weight and cheaper. And the access time, the time it takes to go from one track to another will be much quicker, because the weight of the optical head will be greatly reduced. We should see those things happening within about two years.

**Mix:** Is standardization required for great penetration into a market? I know it took a long time to develop interchange standards for the magnetic industry, and there's still squabbling that goes on about that. But do you view interchange standards for the optical industry as something that will facilitate penetration into the mass market?

**Rothchild:** Yes, and by coincidence I happen to be on the optical disk standard committee. I go to all the meetings. First of all, there are already standards in optical disk...in read-only disk. There is a LaserVision standard. All the laser video disks in the world, with one exception—that being Panasonic—all are playable on each other's machines. That means you can buy a Pioneer video disk and you can play it on a Sony player, or an Hitachi, or a Magnavox, or a Sylvania, and vice versa. So there's the

LaserVision standard, which is a world-wide standard that was really pushed by Philips. In Compact Disc, Philips and Sony jointly developed the standard, and at last count there were 53 companies around the world who had licensed that technology. And all the disks are interchangeable. You can buy a disk that is pressed by Sanyo in Japan and you can play it on a Magnavox player that's made by Philips—or a Sony player, or Yamaha, or what-have-you. That's not a problem. That exists.

Where the battle is taking place right now. In writeable disks, standards are being set up by disk sizes: 12cm, which is the Compact Disc format; 5¼", 8", 12" and 14". There will be separate standards for write-once disks, and additional standards for erasable disks. Now, the good news is that the trend has already started occurring for people to develop what we'll call the "universal drive." That is, a drive, or a player, that can handle read-only disks like Compact Discs, or video disks, write-once disks, and erasable disks all in the same drive.

Both Canon and Nikon, the two camera manufacturers—arch rivals—have each independently shown products of this type in Japan within the last few months. Now I happened to see the Canon one when I was in Japan last month. Theirs works with an 8" disk but they'll make them any size; they'll definitely do a 12cm model, because the Compact Disc size is also very convenient for the small computer disk. Nikon showed the first of the universal drives that handles read-only, Compact Disc, write-once, and erasable disks in the same drive. But the same kind of interchangeability is going to be found in other disk formats. There are quite a few expansions of the Compact Disc format being proposed. Sony just announced that they will be able to put almost 3,000 color graphic images onto a Compact Disc along with the audio. It turns out that 3% of the disk capacity is unused. There are six separate subcarriers that haven't been used, though they can be used to contain graphic images—video still-frames, or pictures, or what have you. So with a little extra gadget...

**Mix:** Would this be a decoder?

**Rothchild:** Yes, a decoder so you can play the images through your TV set, and of course, through your stereo set. It's a decoder for video. In other words, on the audio disk you'll be able to put 3,000 still video images. That enables you to get into things such as talking encyclopedias. As an example, suppose you're not just putting audio on the disk, but you're putting on interactive instruction. And let's say you're doing an eighth grade lesson on birds, and the subject of cardinals comes up. Well, rather than just talking about cardinals or putting up

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boring text of cardinals, you could have a picture of a cardinal, and you could have the sounds of a cardinal, and you could have a map showing the demographic distribution of cardinals in North America or the world.

**Mix:** So you will be able to achieve what we've already achieved with larger disks...video disks...only using the CD.

**Rothchild:** Still frame only; no motion video. Because the Compact Disc spins at a varying speed between roughly 200 and 500 rpm. Full motion video in North America or Japan—wherever you have NTSC video—you need 30 frames per second, or 1800 rpm, and it has to be constant speed. The audio disk is not designed for that. It's designed to cram a lot of audio on, but you just can't put motion video on the disk unless you spin the disk faster—but then, you'd only get a few minutes of audio if you did that.

**Mix:** There are so many exciting applications in this field. Which application is most interesting to you?

**Rothchild:** Well, there's the professional interest, there's also the personal interest as a music lover. I've already got a hundred Compact Discs! I want a Compact Disc player for my car as soon as possible, to get rid of the wretched tape system I have in it. Even though it's a \$1,500 system, when it jams tapes, it's wretched! You can't jam disks. But then I also want a recordable Compact Disc player, because I have about 2000 LPs, many of which I'd like to transfer to disk to play in my car.

But that's just a personal point of view. The most interesting professionally, and let's talk about the broad concept—whether it's digital data, audio or video you put on it—you can put all three of those on one format. This is the first time that you've been able to mix digital data, images, motion video and audio in the same thing. So you have the possibility of not only entertainment, of course, but interactive instruction, visual and digital data bases, computer storage, electronic publishing. You're going to see magazines published on Compact Disc very soon. Electronic publishers are keying-up to do this because with the Compact Disc format, you have several very interesting options. For audio, you can put 75 minutes on one side. You can also, while having 75 minutes, have 3,000 still frames. But if you use that same disk for digital data only, you could get 556 megabytes, or 556,000,000 characters of information on the disk; or you could store 200,000 pages of computer text or word processing text. That's roughly the content of 400 novels.

**Mix:** You could sell all of the *Mix* magazines in the last eight years on one disk, if you were to find a way to market

it, and a price to put on it.

**Rothchild:** That's the key point. The cost of squishing out the plastic is less than three bucks but what's the value of having, say 200 thousand pages of information on it?!

The prices will vary tremendously according to the value the owner of the copyright perceives for the information on it. So it's going to have profound effects on everything from home entertainment, to education, to training, to computer use—whether it's digital data, or

*"Other obstacles are: for read/write applications, there needs to be a much higher level of production of high-powered diode lasers. They're still in fairly small supply..."*

graphics or images. The fact that people will have tremendous storage capability to do computer graphics at very low cost will mean the next computer explosion, because of the fact that graphics takes so much more space than just digital data does. And the optical disk, whether it's video or audio will make all those things possible.

**Mix:** Perhaps you could give some advice to people who want to gear themselves up to understand how this will affect them. Copyright laws...there's the problem of figuring out how to present a data base...

**Rothchild:** Copyright law is a very grey area. A lot of this has not been adjudicated yet. People are waiting for test cases. I've heard presentations by people from the Copyright Clearance Center and the U.S. Justice Department, and no one really knows. There are informed opinions as to what will and will not be copyright issues. But one of the things that the recording industry is looking for is—if you can keep the home recordable

Compact Discs off the market for a number of years, you will keep the pirates out of the business. Because software piracy of audio records as well as computer software programs is a major, major problem. It's so easy to rip-off software, whether it's audio or computer programs when you're dealing with magnetic media, because anybody can copy it. But right now, there are no recordable Compact Disc players on the market. The professional ones, when they come out, will be expensive. But as soon as they do come out some of them are going to fall into the hands of unscrupulous people, and you'll undoubtedly find the same kind of copyright mess going on in Compact Discs as you do in audio disks right now...where you have the sleazy garage operators in Taiwan selling rip-offs of Top Ten albums. And the artists and publishing companies get no money for their property.

**Mix:** Now as far as data storage or office filing systems and things like that, do you see that as being affordable for the average medium-sized business by 1990?

**Rothchild:** They'll be affordable for college kids by the end of this year.

**Mix:** Really?

**Rothchild:** Rich college kids!

**Mix:** College kids who go to Stanford!

**Rothchild:** Not on scholarship, either. If you went out today to buy an automated document filing system based on microfilm or microfiche, you could expect to pay about 50 to 60 thousand dollars for the cheapest system—and it wouldn't handle computer data. It would be just handling microfilm. You'd have to store the index to your documents on a computer disk.

With an optical system, they all go on the same disk—the images and the index. And by the end of this year, you'll be able to buy a system that will have a scanner to scan your documents, a high-resolution display, and output printer, the computer to control it, the optical disk drive, and media to store the stuff on, and application software—and it will sell in the United States to end users for under \$15,000.

**Mix:** And who will be manufacturing this?

**Rothchild:** I won't tell you. That information we sell as part of our consulting service. But it will be from a major household-name, worldwide-known company.

**Mix:** And we can expect this by the end of the year?

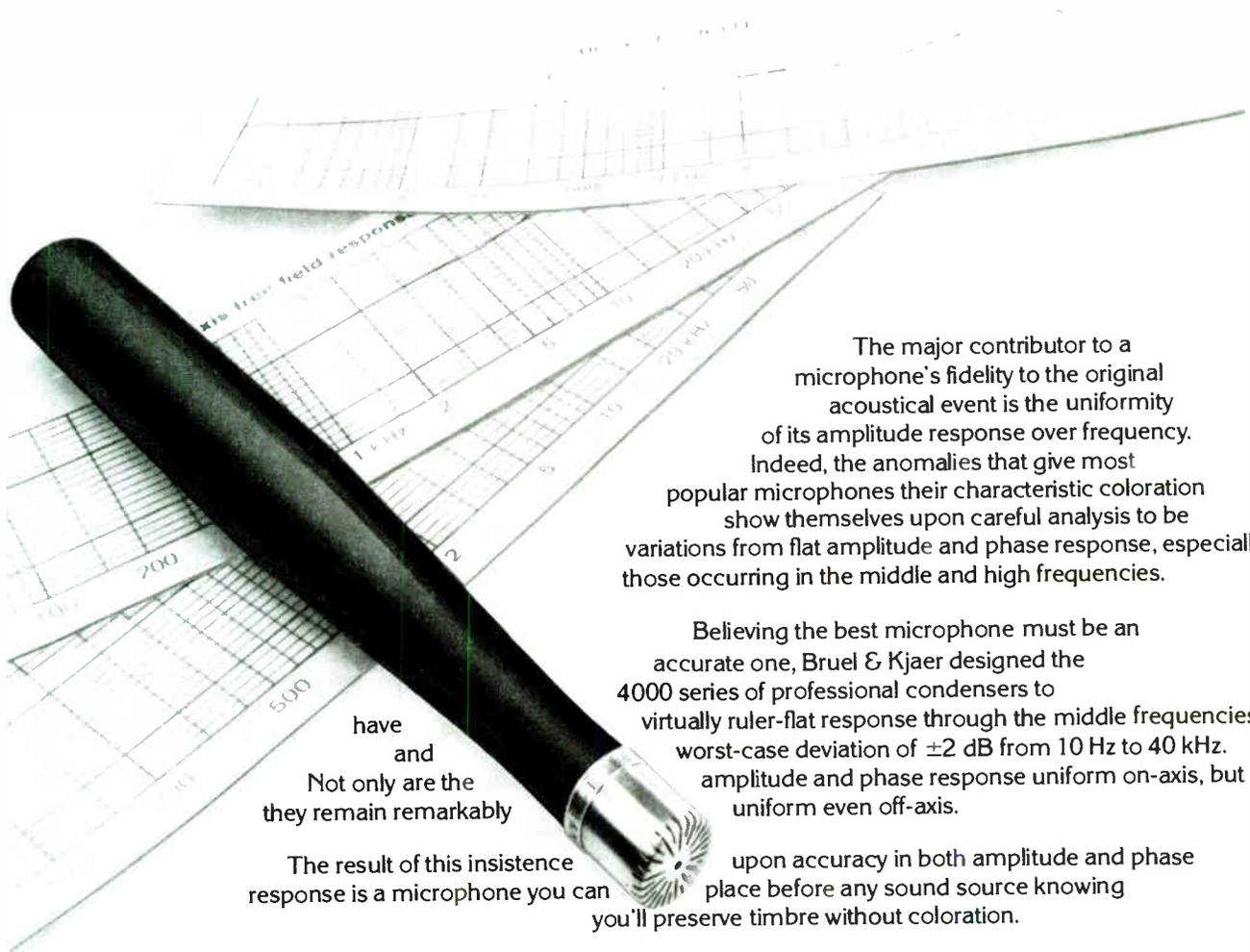
**Rothchild:** Yes.

**Mix:** Well, I'll have to keep in touch and start reading your newsletter regularly!

**Rothchild:** (laughs) There you go! ■

# A few words on microphone accuracy

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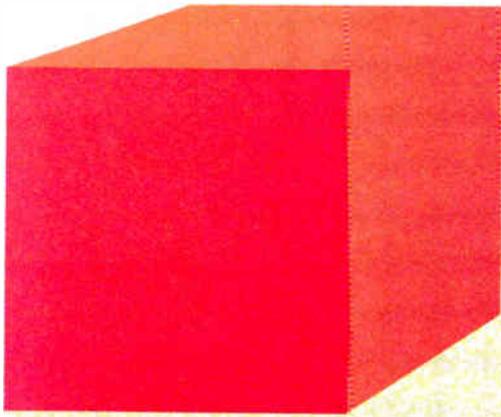
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# AUDIO STUMBLING BLOCKS

## Part One

# FUNDAMENTALS OF AUDIO TRANSMISSION

by Don Davis

In the recording industry, the volume indicating instrument (VI) and the volume unit (VU) have undergone a transformation into a voltage amplitude indicator.

This instrument is often miscalled the VU meter and the reference "O VU" is thought by a majority to be the "O" on the scale of the instrument. Perhaps worst of all, they call this voltage amplitude "a level."

If engineering were politics, then the majority would rule and we could simply write it off as a new fashion or fad. Because the words "level," "gain," "loss" and "reference" are vital terms that must be correctly understood if optimum performance is to be obtained from modern audio equipment, we are publishing the following tutorial on the fundamentals of audio transmission measurements and the correct way to read a VI instrument.

Back in 1924, W.H. Martin of the Bell Telephone Laboratories wrote: "It should be noted particularly that the change in output power of the system is the real measure of the effect of any part of the circuit on the efficiency of the system and that the ratio of power leaving any part to that entering it is not necessarily the measure of this effect... For example, a pure reactance placed in series between the transmitter and the line may change the power delivered to the line by the transmitter and, hence, the output of the receiver, the magnitude and direction of change being determined by the impedance relations at the point of insertion... The ratio of the power leaving the reactance to that entering it is, of course, unity, as no power is dissipated in a pure reactance... In other words, the transmission efficiency of any part of

a circuit cannot be considered solely from the standpoint of the ratio of output to input power for that part, or the power dissipated in that part, but must be defined in terms of its effect on the ratio of output to input power for the whole system."

### **THE IMPORTANCE OF THE AVAILABLE INPUT POWER LEVEL CONCEPT IN AUDIO MEASUREMENTS**

Because "the change in output power of the system is the real measure of the effect of any part of the circuit on the efficiency of the system...", we encounter a concept that allows us to predict what the result of inserting of any part into a sound system will be. This concept is predicated on being able to take the rated level at the input port of a device and subtracting it from the rated level at the output port of the device, resulting in the gain or loss of that device at the system's output.

Remembering that "the ratio of power leaving any part to that entering it is not necessarily the measure of this effect... In other words, the transmission efficiency of any part of a circuit cannot be considered solely from the standpoint of the ratio of output to input power for that part, or the power dissipated in that part, but must be defined in terms of its effect on the ratio of output to input power for the whole system," we can appreciate the concept constructed to allow us to accurately calculate and measure the values that do tell us the output to input power ratio effect for the whole system of any part of that system.

### **THE AVAILABLE INPUT POWER CONCEPT**

This concept is called the available input power concept (AIP). The AIP

is defined as, "The maximum available power at an input port of a device." When one device inputs another device, the output of the first device is the AIP for the second device; therefore, we would use the AIP figure as the output power of the first device. Note carefully that we are not talking about actual power developed but rather maximum available power under ideal circumstances. We do this because when these powers are turned into power levels they result in gain and loss values that correlate directly with what occurs at the system's output port.

### **USING THE TERM "LEVEL"**

The term level should always be used only with power levels in decibels. It should never be used with voltages, currents and sound pressures. Voltages, currents and sound pressures have amplitudes not levels. When voltages, currents and sound pressures are converted into levels, they are first converted into power. The multiplier 20 in the equation:

$$20 \text{ Log } \frac{E_1}{E_2} \text{ or } \frac{I_1}{I_2} \text{ or } \frac{Pa_1}{Pa_2}$$

is the squaring of the E, I or Pa values.

The following is the same equation:

$$10 \text{ Log } \left( \frac{E_1}{E_2} \right)^2 \text{ or } \left( \frac{I_1}{I_2} \right)^2 \text{ or } \left( \frac{Pa_1}{Pa_2} \right)^2$$

which is a power level.

### **THE DERIVATION OF AIP**

$$\text{AIP} = \frac{E_s^2}{4R_s}$$

Note particularly that the calculation of AIP depends only upon source voltage and source resistance and is not dependent upon what is connected to it as a load. While the real device may indeed be load dependent, the value of AIP is not. Again, note that the input power of the next device is the AIP of the device just before it. Finally,  $R_s$  may be any value and the  $R_{IN}$  of the following device may be of any value. There is no constraint requiring matched  $R_s$  and  $R_{IN}$ . While this concept treats them as matched in the calculation, it is vitally important to realize that they are not required in actual fact to be anything of the sort. The AIP concept applies perfectly to a 30Ω source driving a 1 megohm input.

### **AVAILABLE INPUT POWER LEVELS ( $L_{AIP}$ )**

The most widely used and specified level system is the dBm system.

$$0 \text{ dBm} = 10 \text{ Log } \frac{\text{measured power}}{0.001 \text{ watt}}$$

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The reference power is 0.001 watt or one milliwatt (i.e., 1/1000th of a watt). Therefore, if we wish to calculate the  $L_{AIP}$ , we do the following:

$$L_{AIP} = 10 \text{ Log } \frac{\text{AIP}}{0.001 \text{ watt}}$$

and because,

$$\text{AIP} = \frac{E_o^2}{4 R_s}$$

we can write:

$$L_{AIP} = 10 \text{ Log } \frac{\left( \frac{E_o^2}{4 R_s} \right)}{0.001 \text{ watt}}$$

or

$$L_{AIP} = 10 \text{ Log } \frac{(E_o)^2}{0.001 R_s}$$

= 6.02 dB +

\* We can separate the "4" out of

$$\frac{(E_o)^2}{4 R_s}$$

because  $10 \text{ Log } 4 = 6.02 \text{ dB}$ . (See Figure No. 1)

### THE $L_{AIP}$ OF MICROPHONES

One of the most useful applications of the AIP concept is to apply it to the sensitivity rating of a microphone. The most common practice today is to impress on the microphone diaphragm a sound pressure of 1.0 pascal (i.e., 1.0 Pa or a sound pressure level,  $L_p$ , of 94 dB) at some test frequency, usually 1000 Hz. The electrical open circuit voltage caused by this acoustic sound pressure level is used to compute the electrical  $L_{AIP}$  at the input of any amplifier the microphone may be connected to. The microphone's  $E_o$  may be thought of as  $E_o = E_s$  and the microphone's internal source impedance becomes  $R_s$ ; therefore, we can rewrite the  $L_{AIP}$  equation into:

$$L_{AIP} = 10 \text{ Log } \frac{(E_o)^2}{0.001 (R_s)}$$

for an acoustic input of  $L_p = 94 \text{ dB}$ .

A further very useful manipulation is to subtract the test  $L_p$  from the  $L_{AIP}$  for a 0  $L_p$  acoustic input. This is called the EIA sensitivity value.

Why is this useful? Because now if you merely add the  $L_p$  any performer creates on a sound level meter to the  $L_{AIP}$  (EIA), you then have the correct  $L_{AIP}$  at the electrical input of your sound system for that performer.

### HANDLING THE SYSTEM OUTPUT

While each part of a device in the total system has both inputs and outputs, the system output is that where the electrical energy terminates—the output of the final electrical device in the system.

In this case, for example, a loudspeaker, the normal practice is to specify the output power in watts as a given voltage across a given resistance and then apply this "power" to the actual load. The preferred loudspeaker sensitivity rating is that which describes the  $L_p$  at a specified test distance for an input power of 0.001 watt (i.e., an input power level of 0 dBm). This is called the loudspeaker EIA sensitivity. Then, if the output power of the system is given in dBm

$$L_{LSP} = 10 \text{ Log } \frac{\text{electrical output power in watts}}{0.001 \text{ watt}}$$

the loudspeaker's EIA sensitivity can be added to the  $L_{AIP}$  and the  $L_p$  at the test distance is then correctly calculated.

### THE SYSTEM GAIN CHART

Once these calculations or measurements are made, we can then "map" the contribution of each and every part of the system to our final result at the listener's ears.

Performer's Level	100 dB
Microphone's $L_{AIP}$	-148 dB
Electrical Level at Mixer's Input	-48 dB

Mixer's Working Gain	47 dB
Power Amplifier's Working Gain	48 dB
Total Electrical Gain	95 dB

System's Electrical Output Level	
(95) - (-48) =	47 dB
Loudspeaker Sensitivity $L_{LSP}$	
(example value) =	56.5

Sound Pressure Level $L_p$ at Test Distance	103.5 dB
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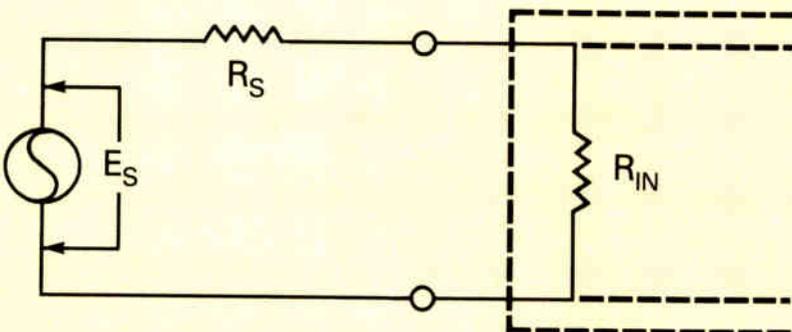
Inverse square law:

Level Change from Test Distance to Listener Distance (example value)	-10.5 dB
Final $L_p$ at listener	= 93 dB

Now note how simple the "book-keeping" can be using these fundamental concepts: —PAGE 297

Figure No. 1

**CALCULATING AVAILABLE INPUT POWER (AIP) LEVEL IN dBm**



AIP is defined as the *maximum* available power (i.e., the *matched* impedance case).

$P = I^2 R$       Where: P is the power developed across  $R_{IN}$  (i.e., the R in  $I^2 R$  is  $R_{IN}$ )

$I = \frac{E}{R}$       Where: E is  $E_s$  (the source voltage) and the R in  $E/R$  is  $(R_s + R_{IN})$

$I^2 = \frac{E^2}{R^2} = \frac{(E_s)^2}{(R_s + R_{IN})^2}$       Then:  $I^2 R = \left( \frac{(E_s)^2}{(R_s + R_{IN})^2} \cdot \frac{R_{IN}}{1} \right)$

But because this is the matched impedance case       $R_s = R_{IN}$   
Therefore, we can write:

$$\text{AIP} = \left( \frac{(E_s)^2}{(2 R_s)^2} \cdot \frac{R_s}{1} \right) = \frac{(E_s)^2 R_s}{4 (R_s)^2} = \frac{(E_s)^2}{4 R_s}$$

$$\text{AIP in dBm} = 10 \text{ Log } \left( \frac{(E_s)^2}{4 R_s} \right) = 10 \text{ Log } \left( \frac{(E_s)^2}{0.001 R_s} \right) - 6.02 \text{ dB}$$

# The Composer Package



Paul Bliss bought his first Soundcraft console in 1978. As a song writer and record producer, he has always enjoyed the benefits of composing straight onto tape – that's why so many of his songs have been hits for performers as varied as Uriah Heep and Olivia Newton John.

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"I recorded the master of 'Casualty' for the Hollies in my studio, and we overdubbed the vocals with Graham Nash over in the States. The engineers in the studio in LA were quite amazed at the quality of my recording.

"Where the Series 1600 really scores for me is the patchbay. That lets me connect up my keyboards,

synthesizers and drum machine to the console and tape machine with just 5 multicore cables. And lets me patch anything to anything without leaving my chair.

"Soundcraft call the 1600 and 760 the Producer Package. It really feels like it was designed especially for me. So perhaps they should call it the Composer Package too."

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# AMADEUS

by Nicholas Pasquariello

The atmosphere at the Saul Zaentz Film Center in Berkeley has been quite heady lately. Last fall the much awaited \$15 million film production of *Amadeus*, directed by Milos Forman, headquartered itself here after many months of shooting in authentic Central European locations. Earlier this year, Academy Award nominations poured into the full service postproduction facility for two films, *Never Cry Wolf* and *The Right Stuff*. The culmination came when *The Right Stuff* won this year's Academy Award for Best Sound.

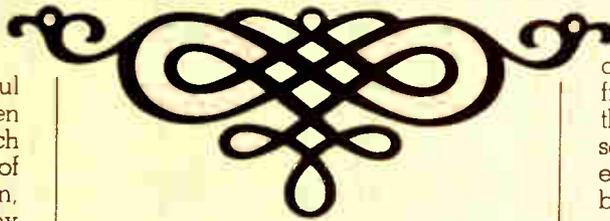
Although the Zaentz Center continues to be one of the best outfitted Northern California postproduction fa-

PHOTO: GEORGE PETERSEN



(Above) Engineer Mark Berger keeping an eye on console, cue sheet and picture during a recent session at Fantasy's film mixing theater. (Right) Director Milos Forman (sitting on box with striped sweater sets up a scene with actress Christine Ebersole (left) as Katherina Cavalieri and F. Murray Abraham (right) as Salieri.

ilities, its reputation must be largely attributable to its freelance craftsmen. Chief among these is two-time Academy Award-winning sound mixer, Mark Berger [*Apocalypse Now* (1980), *The Right Stuff* (1984)].



## SOUND MIXER MARK BERGER ON WORKING WITH MILOS AND MOZART

As is so often the case in this industry, Berger did not come fully hatched from some great sound mixing school in the great beyond. Instead, his work in sound finds its origins in a youthful interest in (and many years playing) trombone and a healthy dose (mostly self-administered) of college classical music appreciation courses. He capped this pre-professional period by working four years in radio documentaries at the University of California's Radio Television Theater, where he helped produce two half-hour documentaries a week. In retrospect, his next job seems to have been the perfect transition for Berger in his sound career: the often innovative world of public television documentaries at KQED-TV, San Francisco.

As with so many skilled film craftsmen in the San Francisco area, Mark Berger's career got a considerable boost from Francis Coppola's filmmaking here in the late '70s and early '80s on pictures such as *Godfather II* (1972) and *Apocalypse Now*. Berger's other major theatrical credits include: *One*





PHOTO: JAROMÍR KOMÁREK

*Flew Over the Cuckoo's Nest* (directed by Forman 1974), *Invasion of the Body Snatchers* (directed by Phil Kaufman 1977), *No Nukes* (1979) (a concert film), *Dragonslayer* (1982), *Plague Dogs* (1982) and *The Right Stuff* (1983). This very accomplished sound mixer attributes his success not only to a life-long pursuit of what interests him most, but also to something he had no control over: his genes. As Berger describes it, his ability to concentrate on and remember endless details of the complex sound mixing process on little or no sleep—in a word, his physical constitution—accounts for his success as much as years of work at his craft. For instance, during the last few months of sound work on *Amadeus*, weeks would go by without a day off or less than a 15 hour work day (that's 9 a.m. to midnight!). Through it all, Berger says, he is able to maintain a high level of ear/hand coordination ("...you hear something and you react to it...") on little or no sleep.

**Mix:** Would you describe your job on *Amadeus*?

**Berger:** My job on *Amadeus* was basically to be responsible for the way the final soundtrack sounds and how it re-

**Actor Tom Hulce, (above center) as Wolfgang Amadeus Mozart conducting for Emperor Joseph II.**

lates to the picture, which involves mixing the sound.

A lot of people in the audience are aware of picture editing in that they know that the picture's been manipulated and that the sets have been manipulated and that various cuts are artificially made to create a particular effect. People are even demanding that now in terms of more special effects and more flashy visual things. So, there's a lot of visual sophistication in what people see on the screen.

But along with that, people still are very naive about what they hear in that they subconsciously expect that what they hear is what it really sounded like when the picture was shot; with the obvious exception of things like the space movies and *Star Wars*, when you're in outer space and it's obviously special effects and created. But in realistic dramas people don't bring to the soundtrack the same critical faculties and sophistication they do to the picture. But actually the soundtrack is just as highly manipulated and just as artificial and just as contrived

as any picture cut.

So, my job is to take all these sound elements that go into a track—which is usually broken up into dialogue and music and the sound effects, which are added later—and mix them and blend them in such a way that it seems perfectly natural, doesn't call attention to itself as apart from the picture but yet creates whatever desired effect we're after. So, if our work in creating the sound is invisible and doesn't draw attention to itself then it's successful. If it starts to draw attention to itself then we're not doing so well.

**Mix:** At the start of this project what were the guidelines and elements that you were given to work with?

**Berger:** Well, I have worked with Milos [Forman] before [as sound mixer on *One Flew Over the Cuckoo's Nest*], so I knew that the dialogue he basically likes to hear is exactly what was recorded at the sound filming without any special effects. He's very much after the straight realistic presentation of what goes on, as opposed to adding in a lot of background voices, creating things happening off-screen in the room—when you're inside Mozart's apartment and there's street noise going on outside, we don't

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hear the street because we're really not interested in it. Even though we've just been outside and had seen a very active street scene with jugglers and dancing bears and yellers, when we go into the apartment all that disappears. Milos doesn't want to hear it because that's not part of the drama; the drama's happening inside the room.

**Mix:** That distinction is not clear to me.

**Berger:** Well, as director, you have a choice: you can either continue the street sounds as you would hear them inside Mozart's apartment through the windows, so that the following scenes play with the street sounds in the background, or you could just drop the street sounds completely and play the scene entirely as though it were nowhere and there was nothing at all happening outside. His choice was that he didn't want any sense of what we've just seen once the film moves inside.

And that's a purely stylistic approach. When we're in a dialogue scene and we're focusing on the dialogue and the interaction between two principal characters, he's not interested in any sort of background sound that refers to anything that's gone on previously or might be going on outside.

**Mix:** Do you see that as relating to a larger aesthetic that he has which relates to other ways he treats sound?

**Berger:** It's a very focused aesthetic and some people could say it's a rather two-dimensional aesthetic in that what you see on the screen is all you hear. And it's very specifically used to create a contrast between cuts, that he really is only interested in going one layer deep and what you see is what you hear. But his filming is like that, too, in that in the dialogue scenes the costumes are very rich and very wonderful but the action is generally focused only between two people at once. It's a very focused approach so you only pay attention to what the people are saying.

**Mix:** Can you contrast that with any other director you've worked with?

**Berger:** Take Francis Coppola on *Apocalypse Now* [Berger was a sound mixer, and the picture received an Academy Award for sound.] In the scene when they're landing on the beach to go surfing, Francis will have 47 different things happening in the frame at the same time. It's like reading the old MAD magazine where there's the main action on screen and then in the middle foreground there'll be another action. In the background there'll be 14 other things happening. So, everytime you see the movie, you look in a different part of the frame and there's something you didn't notice before.

Well in the same way, we can devel-

op the sound for each one of those layers. So, you have the foreground action that's happening, then in the background there'll be people marching and a couple of helicopters landing and there'll be some guy yelling at somebody else, and somebody's digging a trench and there's a shell coming in. So you have many more layers of sound. It's a very different approach.

**Mix:** Did you have to make a major mental transition working with Forman after working with a director such as Coppola? Does it affect the way you work?

**Berger:** No, it doesn't involve a major shift. It's as if I said: "You know I'm going to paint this picture blue so use blue paint. I'm going to paint this picture red and I'll use red paint." But what you're doing is you're still painting a picture. You're always keeping in mind the director's particular philosophy. If it comes down to a question of, "What can we do to make this scene sound more interesting?" With Francis you could think of 14 different ways of creating interesting background—something that's happening off-screen. With Milos the answer is: nothing. He says, "Just keep the dialogue clean and understandable."

**Mix:** Would it be fair to say, therefore, that your work on something like *Amadeus* is more technically oriented—involves less of your creative imagination—than on something like *Apocalypse Now*.

**Berger:** Well, there's certainly a lot more room for creative expression on something like *Apocalypse Now* than there is on *Amadeus*, where we were more concerned with maintaining the subtlety of performance that exists, in no way compromising any of the expressiveness of the actors or any of the subtleties of the performances.

**Mix:** Can you tell me what you were given to work with at the outset of your work on *Amadeus*?

**Berger:** We had the original quarter-inch tapes of dialogue that were recorded on location, the 24 track tapes of the music that had been recorded [with Neville Marriner], and there were also guide tracks that had been made from the music that were used when they would play the music on the set while they were filming and the actors would pretend as though they were hearing the music as it would later be put in the film. For example, all the operas, all the musical numbers, were done to playback. It's like the old *American Bandstand* where somebody would get up and mouth the words but what you really heard was a record.

**Mix:** Did Milos give you any guidelines regarding how the music was going to be cut?

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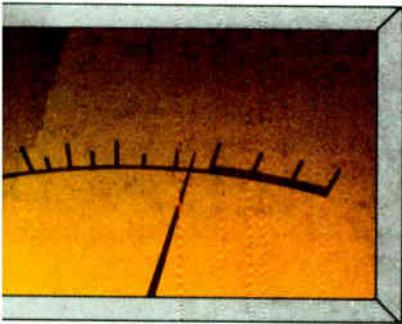
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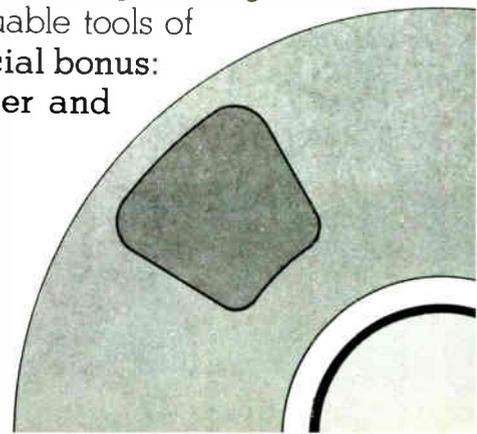
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**Berger:** The person who did all of the music cutting and editing was John Strauss, who'd worked with him on *Hair* and *Ragtime*, but Milos was the one who would cut the music. When they cut the picture they cut the picture and the music together. So, what we get is a guide track that has the music on it where they want it and the dialogue where they want it and any special effects that they have where they want it.

So, in the beginning we would be doing these scratch mixes where he would say: "Alright, reel 13 is ready." We'd go downstairs, he'd play it, he'd play the music that he'd cut and he'd play the dialogue. And he'd say: "Now here I want knocks on the door: here, here and here. And then I want to have very, very quiet footsteps and the music has to be very loud. And then on this cut the music goes down and we should hear his voice very clearly saying this." And then we'd go downstairs and we'd do these scratch mixes which later became the guides for people to work on during the final mix. And then as the picture changed, each time there was a picture change we had a screening, we had to do a new scratch mix. So, it was constant evolution of the effects and the music and the dialogue.

Strauss was the music editor. He took care of all the music, he made all the music cuts. He determined how pieces of music would go together. He made suggestions for cutting to the director. And he sat with me and we did all the mix-downs from 24 track together. He was basically responsible for the musical quality of the film. For example, the music is edited: you have a piano concerto that runs ten minutes when only three minutes of it is used in the film, the beginning section, the end section and, maybe, a middle section. So, somebody has to make those cuts.

**Mix:** Did you have a lot more hardware to work with this time than on *Cuckoo's Nest*?

**Berger:** Oh yeah, but that was about ten years ago, before Dolby stereo. We had a completely different studio. *Cuckoo's Nest* was done mono, at Fantasy, but at Studio "A." *Amadeus* we're doing 70mm, stereo opticals, and monos and we've got a much larger board. We're using 24 track [Ampex] at the same time we're using film locked up together. Instead of recording onto just three tracks of a master, we're recording onto 12 tracks—two six-track 35mm full coat recorders—to keep the dialogue, the music and the effects all separate so we can make changes. [Berger noted that six tracks is the greatest number of audio tracks that currently can be recorded on 35mm fullcoat].

**Mix:** How are you using the 24 track machine?

**Berger:** We use it as playback, not for recording masters onto. For example, we have a 24 track that has nothing but applause on it. So there's maybe a hundred kinds of applause—start, stop, of all lengths, of all intensities, of all numbers of people. And if we need an applause, say, in the middle of "The Magic Flute," the "Queen of the Night" aria, and the one that the editors have cut for us isn't very good, we'll put up the 24 track and lock it up and just take it off the 24 track directly onto the master. But you can't start and stop recording on a 24 track the way we can on film, so we don't use it for mastering. Plus the whole industry is set up to work on film.

**Mix:** Can you see any disadvantages in working on film versus 24 track audio?

**Berger:** No. The advantage of working on film is that the whole industry is set up to do it all the way down the line; because it has to go out of our studios into the real world at some point to be made into 70mm and optical. Making changes is a lot easier because you can edit the film to correspond to the picture changes where you can't do that with 24 track. You can move individual elements around a lot more, like if you've got four tracks of dialogue and three tracks of music and you want to advance the mu-

sic a frame or two to change the synch slightly, you just advance the music a frame or two. If it's all on 24 track you can't do that because everything's locked together.

**Mix:** How many six-track machines do you have available at Fantasy?

**Berger:** Seven or eight. But those are used for masters. See, the individual elements before they have been mixed on are single track or three track. There are 18 of those machines.

**Mix:** Who assembled the applause tracks on the 24 tracks?

**Berger:** We went out and recorded them. Dave Parker took them off of our Nagra and laid them onto the 24 track. We recorded stuff at Hertz Hall [University of California], we went to KQED-FM and got some of their recordings of performances at Davies Hall and Herbst Theater; took the applause sections out of that.

**Mix:** How did you distinguish between them?

**Berger:** You know: "Davies 40 seconds, mild," "Davies 20 seconds, intense," "Davies 35 seconds, polite." They also have numbers like DP 406-2; a card catalog numbering system.

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**Mix:** Do you have any anecdotes you would like to tell about the mixing of *Amadeus*?

**Berger:** There's one scene where Mozart indicates his disdain for another composer [Salieri] by replacing a piano cadence at the end of a piece that he's playing with a rather loud passing of wind from severe flatulence. It was a subject of a lot of fun to (a) record the effect, and (b) to try to guess who's it was, and (c) whether or not it was actually real or just blowing on your arm or something. To this day we don't really know where the effect that we used came from or who made it or how it was made.

**Mix:** But was it made in this building?

**Berger:** Well, we're not even sure of that because various people took the tape recorders home for various periods of time. And certain restaurants were called upon to provide... well, we would go out to restaurants and have certain meals with the idea that we'd come back and record a lot of effects.

**Mix:** What other effects were recorded here at Fantasy?

**Berger:** Foley was done to video in another studio. Foley is all of the movement and the footsteps. That runs the length of the film because from the very first reel when people are walking up the stairs, to the end of the film as Salieri's being wheeled off in his wheel chair, there are background movement effects. Every scene will have something in it, even where there's just a close-up of Salieri in his wheel chair talking to us. Whenever he moves, there's the sound of silk or linen or a creak of his wheel chair that has to be added in.

**Mix:** When was that done?

**Berger:** As they're cutting the picture we're doing that. Before we get to the final mix. [Berger says that all of the Foley work took three weeks to do.]

**Mix:** Would you comment on how changes in technology have affected your work as a sound mixer?

**Berger:** Mostly it's the change from Academy mono, which is one speaker with a very limited frequency response. It's like the difference between 78s and LPs in stereo. One system is a single channel with limited frequency response and the other is four channels—in the case of Dolby stereo— or six channels—in the case of 70mm. It just gives you more variables to work with, more room to move around in. Even though the sounds that you put in may be the same, they're highlighted a lot more and they become a more enveloping experience. So while there's more parameters to work with, more variables to control, there's also more space to move around in.

Given the same sounds in the days

before Dolby all you had was basically how you mixed it: loud, soft, bass, treble; stuff like that. When Dolby came along with their four track stereo optical all of sudden you add left, center, right and surround. [One of the first Dolby stereo features was *Nashville* around 1975.] And the frequency response has opened up to match a lot closer the home recordings.

Of course, 70mm always existed, which was and still is the highest fidelity format around. But those pictures were pretty limited before because they were very expensive. They were limited mostly to roadshow musicals like *Oklahoma* and *South Pacific*. The vast majority of films that people went to see were strictly mono.

**Mix:** What brought the expense down?

**Berger:** I think when Dolby started on their stereo optical, along with that went an increase in attention people paid to sound, which made it more feasible for people to release more in 70mm. Also, the fact that before it was limited mostly to musicals but now every large budget film that has a lot of sound effects in it wants to get a 70 release because it's a big show-piece thing and they can charge a lot of money for it and people like to see it.

Basically the technical changes meant you have a larger canvas to paint on and you have more brushes. The canvas is the speaker system behind the screen, the four tracks of sound; instead of being a small canvas that sits in the middle of the theater, now wraps all the way around you, because you've got the surround speakers and the left, center and right. So now you can do things in true stereo more like what people are used to hearing at home.

Things had gotten to the point where everybody's home stereo was better than the best theater, so people got used to hearing very high quality sound. So the theaters did something to catch up. And that was the appeal of the stereo. It's gotten to the point now where the name "Dolby Stereo" to a lot of people means "loud," in some ways. And people want to hear things coming from behind them or they want to feel that there's stuff going on all around them. That's sort of a degradation of what it's really about, but those are the marketing appeals of it.

**Mix:** If you had to single out one piece of hardware that's made your job easier since you worked on *Cuckoo's Nest* what would it be?

**Berger:** The biggest single advance was the ability to punch in and out of recording without hearing where you started and stopped recording. Before they had punch-in and punch-out you used to have to mix all the cues, all the changes live. Everything had to be done as you

Actor Tom Hulce as Wolfgang Amadeus Mozart (at the piano) presents his opera to Emperor Joseph of Austria.

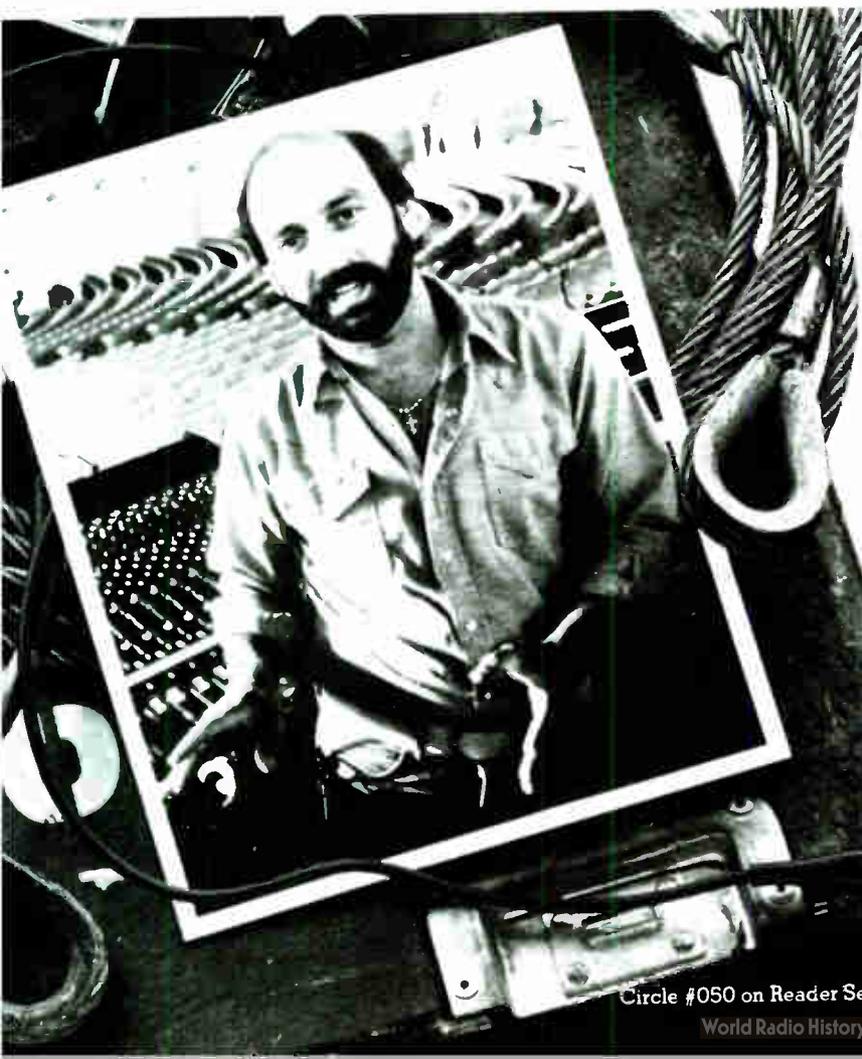
were going because if you made a mistake that was it. You blew it. You had to go back and start all over again. When I was working at KQED-TV [PBS/San Francisco] doing 16 mm documentaries, we'd mix in half-hour reels. And it's a lot to remember a half-hour's worth of changes. So we used to write out very elaborate cue sheets and we'd try to confine it to three and four, five tracks at most.

We'd have all sorts of people at the consoles who's only job it was to change certain controls at certain times. We'd get editors and assistants and gaffers and everybody in there. And we'd say: "Alright, at 300 feet you take this and you turn it back to there." And so we'd do hours and hours and hours of rehearsals trying to get it down. And then we'd say: "Everybody take a deep breath. Let's go." And we'd start and try to make it all the way through the reel without blowing it. And if somebody did make a mistake you either had to accept it or start over again, or maybe find a place where you could stop and make a splice but that was sort of hard to do.



And when they got this punch-in, punch-out recording, all that went away. You could work on very short sections. If you made a mistake you just went back and matched your levels to where you had been before and hit the record but-

ton and it started to record. You didn't hear the machine start to record. It just kept on going and it was very smooth. And the same for stopping to record. You didn't then have to go all the way to the end of the reel. ■



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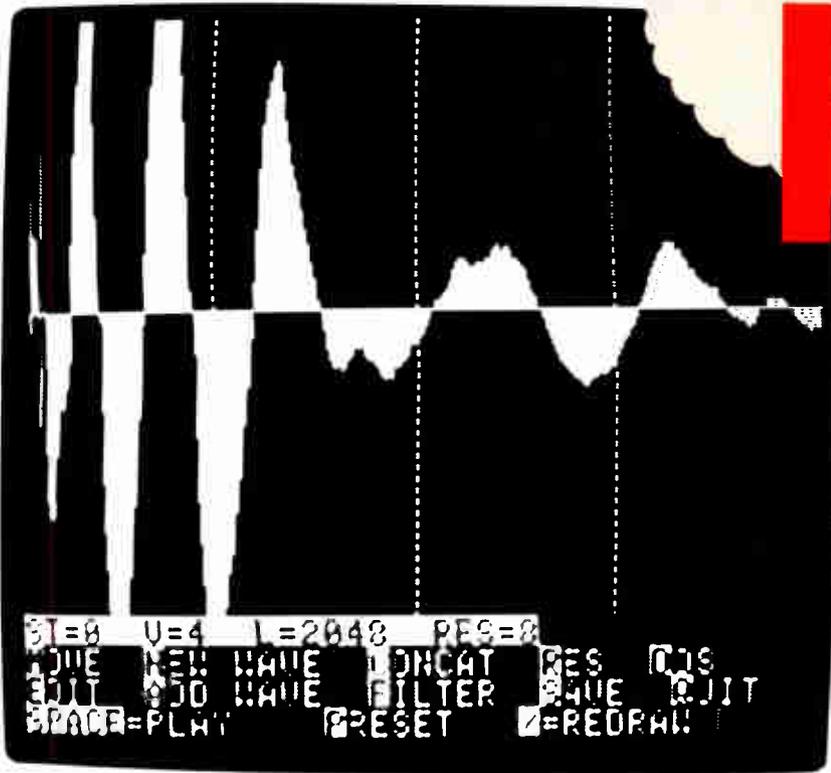
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## HOW TO KEEP AN APPLE FROM SPOILING

### Getting the most from your Apple II Computer

by Joe Van Witsen

**N**ew hardware and software products for the Apple II+ and IIe have been developed recently which expand Apple's use beyond basic word processors and accounting machines, to provide sound control and sound production capabilities unequalled by other micro computers. In the recording studio, now more than ever, the Apple II+ and IIe are cost-effective state of the art instruments. Certainly these new capabilities could be applied to the IBM PC and eventually they probably will. But so far, the IBM PC has basically been a business-oriented system as opposed to a tool controlling system. This is in part due to the fact that when the Apple first came out in the late 1970s, there was no developed marketplace for personal computers. Among the first purchasers of these devices were engineers and artists working in adjacent technical fields like

electronic music and video animation who needed a new level of automation, storage and retrieval in their work and developed custom software routines and expansion cards to handle their particular needs. Many of these developments have been refined into new consumer products for Apple users.

#### MIDI

A popular development in the use of microcomputers in music production is MIDI, or Musical Instrument Digital Interface. Through the use of a MIDI interface, several new synthesizers can be controlled and synchronized by a micro. Originally developed by Roland and Sequential Circuits to allow synthesizers made by different manufacturers to be synched together, MIDI is now available on many diverse synths and drum machines. These devices can all be synchronized or controlled by a microcomputer.

#### PASSPORT & SYNTAURI

There are synthesizers, as well, that rather than being controlled by the computer, actually reside inside the computer itself in the form of expansion cards and diskette software. Two such systems are the Soundchaser by Passport Designs and the alphaSyntauri by Syntauri Corp. These systems are similar in sound and function. Originally, both Passport and Syntauri used synthesizer expansion cards manufactured by Mountain Computer. The Mountain cards are actually two cards tied together and require two slots on the Apple motherboard. Passport has recently introduced its own single card for its system which they feel is an improvement on the Mountain cards while taking up less room. Syntauri has concentrated on developing more software and also a card which allows storage of 20,000 notes as well as a new MIDI interface.

—CONTINUED ON PAGE 90

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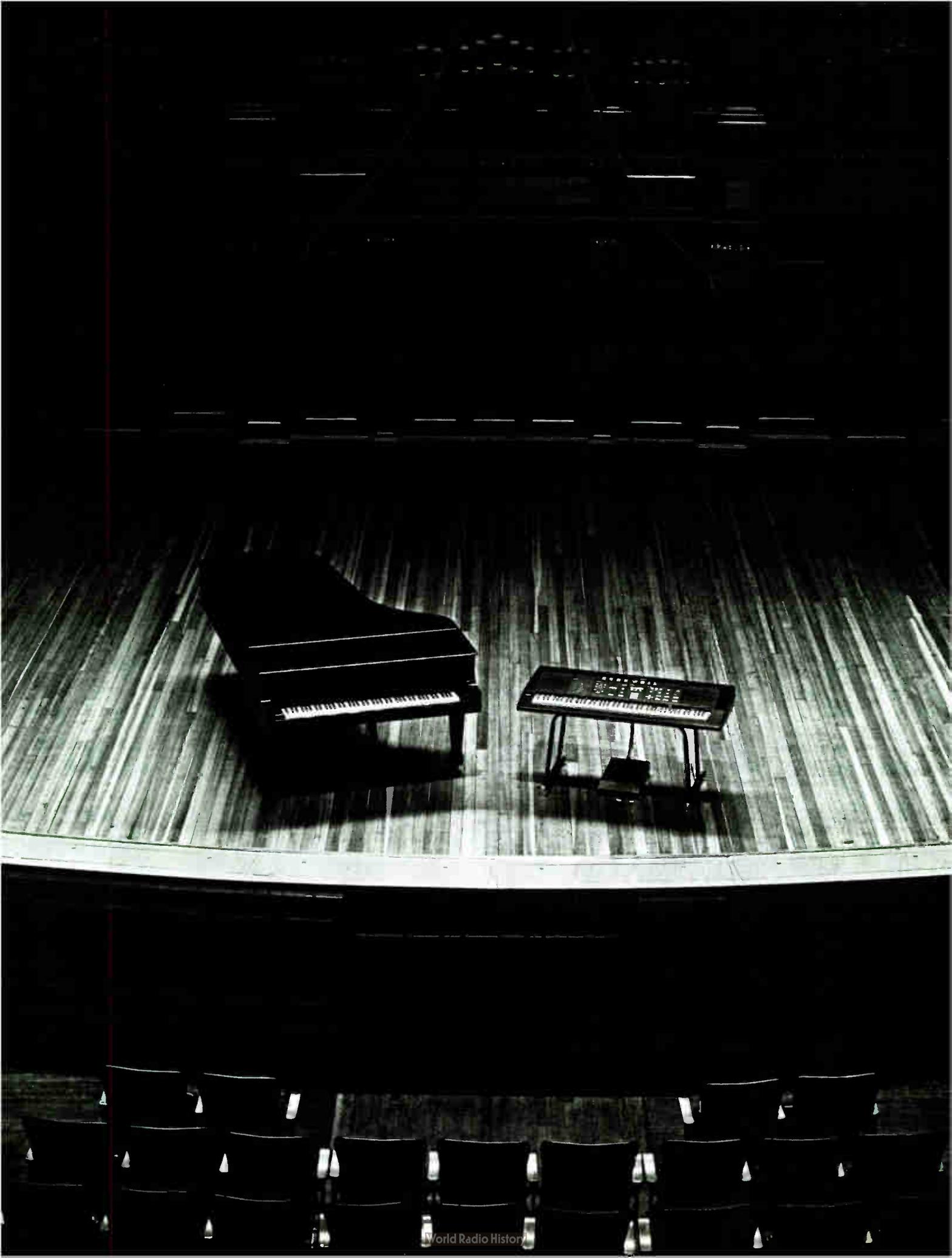
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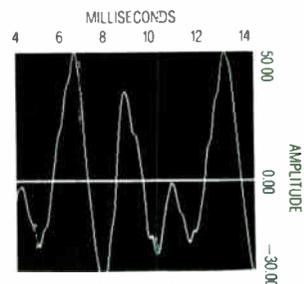
For example, a middle C on the piano activates a very different set of overtones than an F# two octaves above it. The Kurzweil 250 takes this into account and accurately duplicates this changing harmonic structure across its entire keyboard.

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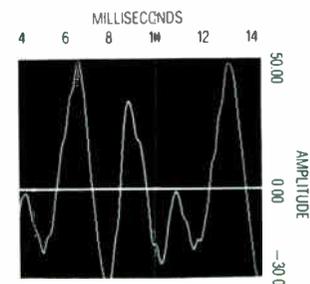
Also, through the use of Artificial Intelligence technology, the Kurzweil 250 "knows" that changes in loudness affect the timbre of a note. This means that notes played softly on the Model 250 sound mellow; the same notes played loudly sound bright. (And the Model 250's exclusive, velocity-sensitive keyboard action further helps you capture the feel and dynamic response of a grand piano.)

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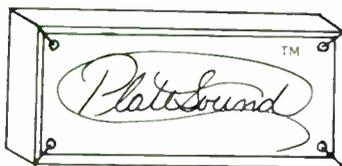
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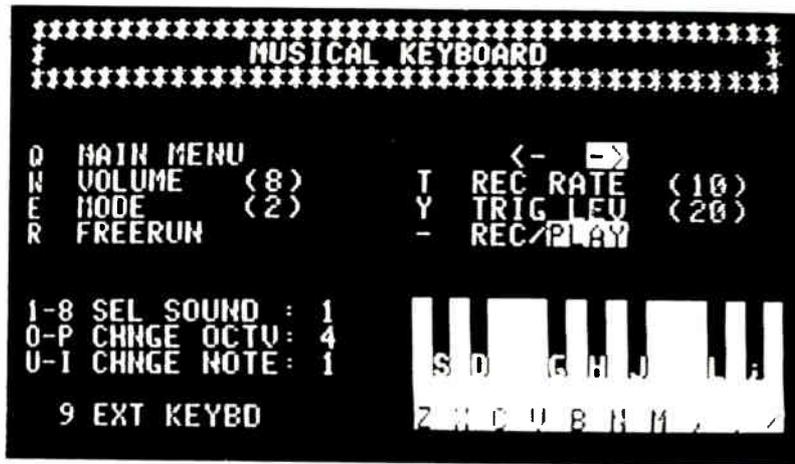
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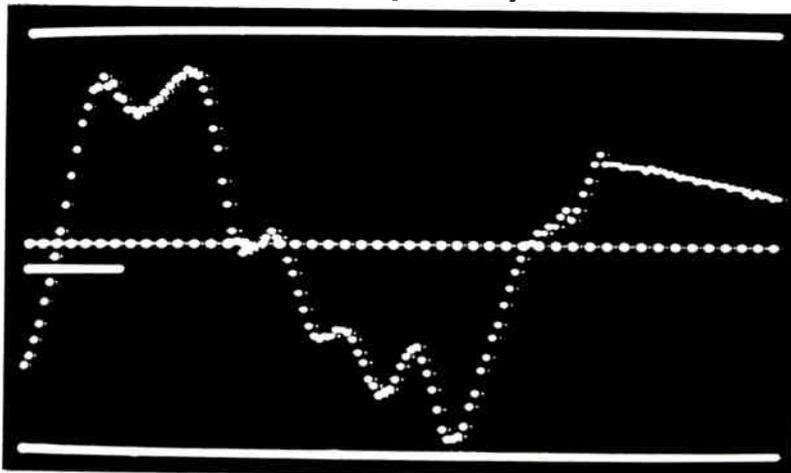
**Multitrack recording:** A four or five octave keyboard is connected to the computer. Software lets the user select a particular instrument or sound, play it into the computer's memory, play back, correct and make changes, then commit that "track" to diskette for storage. The process is repeated, recording subsequent tracks while playing along with previous tracks to create a multitrack master on diskette. A mix-down process involves playback of all tracks together while adjusting the volume of different tracks and sections as well as introducing special effects.

**Arranging:** The notes, instruments, and track assignments are stored separately on the diskette, allowing any of their parameters to be changed independently. For example, the notes file can be edited to change the tune, or the tune can remain the same but played with different voices, and specific voices or instruments can be assigned to any of 16 tracks. This allows several of the same instrument to be assigned to a series of tracks to create a "string section" or "horn section" for example.

**Scoring:** Each track stored on diskette can be printed out using a dot matrix printer connected to the Apple. The printout is in the form of sheet music with all the accents and signatures used in scoring. A full polyphonic score can be created by printing out the contents of all tracks in a composition. In this way, a composer or arranger can create music "off-line," without tying up a group of musicians and instruments. Charts can be produced instantly.

Decillionix of Sunnyvale, California has created a new product for the Apple. The DX-1 is an Apple card with associated software. The user can record real sounds into the computer by means of a microphone or any line level signal; the sounds can then be stored on diskette. Once loaded into memory from diskette, the sound can be played musically on a Syntauri or Passport keyboard. This sound sampling capability can be used in music production, allowing virtually any sound to become an instrument voice. It is also ideal for soundtrack production where normally sound effects records or tapes must be cued. Decillionix sounds require no cuing, so a sound can be repeated or looped instantly. The software includes string commands, to edit together a group of sounds into a pattern,

Decillionix "Splash Graphics"



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preset rhythms, to allow the system to be used as a drum machine, and enough room to store any sounds on a diskette to create an archive of voices and effects. The company has created a library of prerecorded sound diskettes. These include various acoustic instruments, drums, percussion, animals, party noises, sounds around the house and electronic sproings and splatts. The Decillionix system offers two additional pieces of software. One turns the sampling card into an audio effects unit providing echo, reverb, pitch alteration and a variety of sequencing routines to create new sounds. The other is Splash Graphics which creates an animated visual display of any music or sound fed into the system in real time. Several different patterns can be called up at the touch of a key. One pattern looks like an oscilloscope, creating audio waveform displays. Other patterns range from pulsating starfields to undulating neon patterns.

Although the DX-1 can sample real sounds and let the user play them on a keyboard, it is a monophonic device, allowing only one note to be played at a time, which prevents chords from being played.

Recently, new software from Lehrware in Cambridge, Massachusetts has been introduced which promises to be the missing link between the Decillionix sound sampling and the alphaSyntauri synthesizer. Metawave, written by Paul Lehrman, allows sound recorded by the DX-1 to be displayed as waves on the screen. These waves can be spliced with other waves to create unusual sounds. The waves can be manipulated and built up, then finally loaded into Syntauri's wave tables to create a new polyphonic voice on a Syntauri diskette which sounds like that which was sampled by the DX-1. Metawave does not require the DX-1 to operate on waves. I can edit and filter waves created with the Syntauri as well. With the wave building routine, the user can start with any wave, natural or synthesized, add other waves to it, specify the relative amplitude, pitch, and phase of each wave. Editing is done using on-screen high resolution graphics and a single game paddle. Two or more waves can be linked together, segments can be pulled out of complex waves, and noisy waves can be cleaned up. Filtering smoothes out waves and eliminates noise with the low-pass filter, creates powerful high harmonics with the high-pass filter, or performs strange spectrum modifications with the combo filter.

These features make the Apple computer a useful tool for audio production. Other sound and music software products are under development by different designers. In coming issues we will review these exciting new programs as they are introduced into the marketplace. ■



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# MAKING SENSE

## OF THE NEW TALKING HEADS FILM



David Byrne

PHOTO: DAVID HILLMAN



John Moran

When moviegoers leave their local bijou after seeing *Stop Making Sense*, the concert film featuring the Talking Heads, they will not only remember Jonathan Demme's

sharply defined direction which perfectly captured the band's energetic stage show, but also the superb quality of the audio track, from both artistic and technical standpoints. And since sound comprises such a large proportion of an audience's total experience when viewing any musical performance, it is refreshing to note the extraordinary amount of care

taken during postproduction to insure audio excellence.

One major factor contributing to this was the decision to use digital recorders for all of the post sound work, rather than analog multitracks or conventional 35mm magnetic film recorders. In this manner, the losses inherent with several generations of transfers would be avoided. Also, the optical sound negatives would be made directly from the digital mixes, a process which is hardly standard today, yet has much to offer in terms of improved sound quality—especially when dealing with the bandwidth limitations of optical film sound releases.

The final release format was a

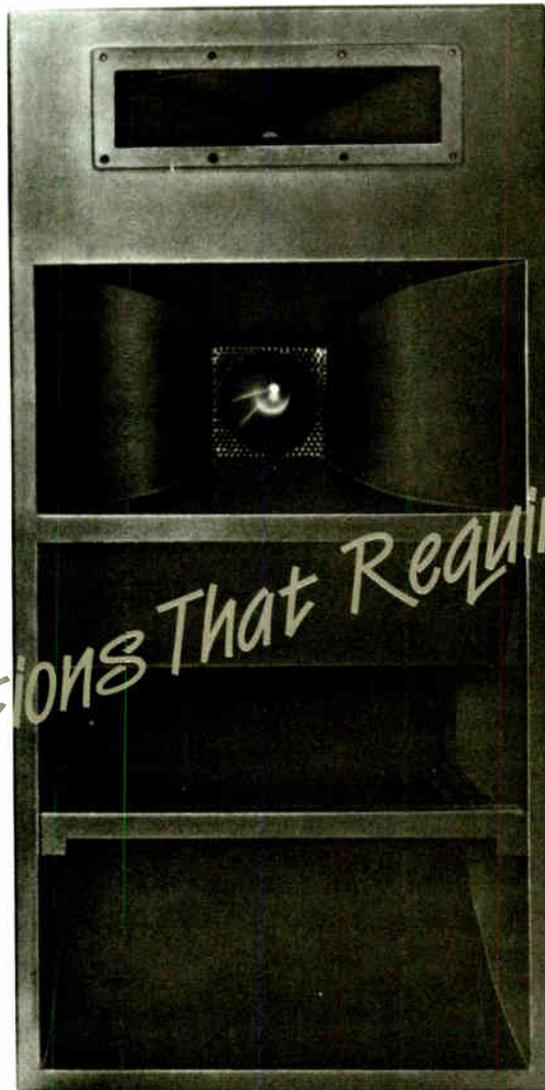
standard Dolby 35mm stereo optical track, with left, right, and center channels for the proper large screen perspective. The fourth audio channel, which the Dolby system utilizes for an in-theater surround sound track was left unused in this particular production, to heighten the effect of watching a live performance where all the sound would emanate from the stage.

*Stop Making Sense* was shot over a three-day period during January 1984 at the Pantages Theater in Los Angeles, and the sound was recorded analog, by engineer Alan Chinowsky with the Record Plant remote truck and crew. John Moran, of Houston, Texas-based Digital Services was later brought in to supply the digital recorders used during postproduction and to act as an advisor

by George Petersen

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PHOTO DEBORA FEINGOLD

## The Talking Heads

during digital transfers. Overdubs were cut at Ocean Way Recorders by music mixer Joel Moss, who also did much of the mixing at Glen Glenn Sound and Warner Hollywood Studio with the assistance of re-recording engineer Steve Matlow.

Digital advisor John Moran explained how the audio postproduction process began: "It was our job to find the live analog tape, and conform that to the video, using a [Sony] BVU-800 VCR, an [Ampex 24 track] ATR-124, and the Sony 3324 24 track digital machine. These were all driven by an Audio Kinetics Q-Lock system, with the video deck as the master. We were given rough edits of the film on 3/4-inch videocassettes, having time codes burned into two windows—one was the time code which was going on during that particular segment of the film, and the other had what was to become our master time code. We followed the edits by following the live edit windows—whenever that time code would change, there was an edit.

"Basically," he continued, "what we were doing was punching in all 24 tracks on the digital machine and doing a transfer across in sync with the video, and we would punch in at the edit point. Interestingly, this is pretty much like doing a digital mixdown, but by retaining everything on the 3324, we were not getting a generation loss."

At this point several complications appeared, about the differences between the various references involved, with the video operating at 29.97 frames (59.94 Hz), and the film at 30 fps (60 Hz). "There was some concern," Moran noted, "about getting the two speeds to resolve to each other and not have a pitch shift or have to varispeed things; also digital machines don't varispeed—if you take a digi machine off speed you won't get anything out of it. I came up with the

idea of using a [Sony digital processor PCM] 1610 to essentially act as a master generator—a master video generator



PHOTO: HITCH BROWN

and as a master word sync generator. Now one of the great things about a 1610 is that it has two sampling frequencies, 44.1 MHz and 44.056. These speeds correspond to 59.94 and 60. So I set the 1610 to drive the playback servo of the BVU-800 at film speed; that same master composite output also drove the Q-Lock, which was both synchronizing and generating the master time code being laid down on the 3324. Since our final

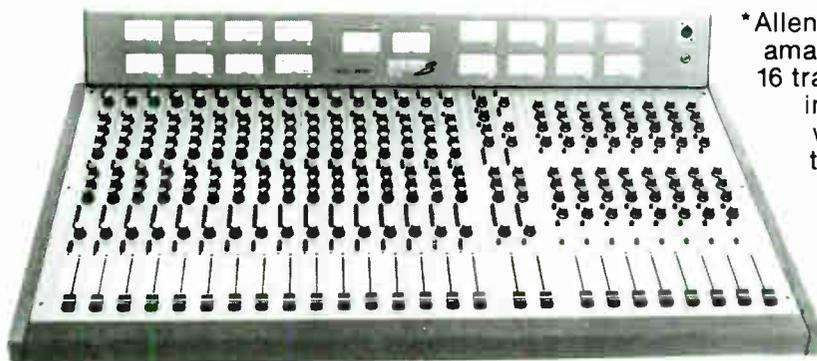
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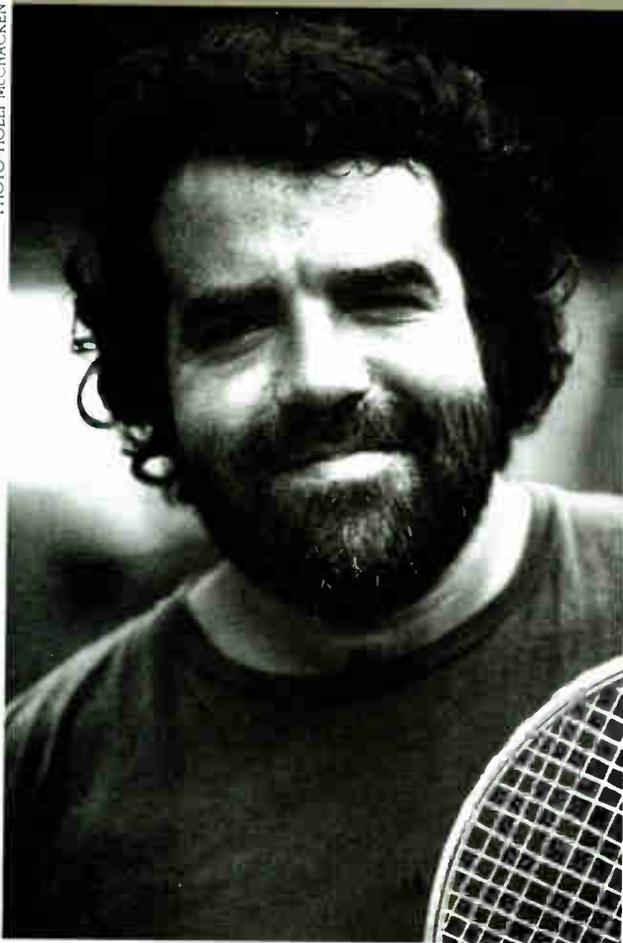
# SESSION PROS

*FOUR PATHS TO SUCCESS*

*It takes more than just talent and expertise to make it in the Big Apple. It takes tenacity, flexibility, and above all, 'feeling.'*

by Brooke Comer

PHOTO HOLLY McCRACKEN



*Don Grolnick*

What does it take to become a top session musician? Four New York-based pros, keyboardist Don Grolnick, bassist Will Lee, drummer Andy Newmark, and guitarist Hugh McCracken agree that it takes more than talent and expertise. Whatever it is, these session players have got it. A recent article in *Billboard* noted a six-consecutive-year decline in the amount of session wages paid to union musicians. 1983 saw a 17.5 percent decrease from the 1982 pay scale, a drop that leaves Grolnick, Lee, Newmark and McCracken unfazed. "When you're seeded in the top ten, there's always work," notes Newmark. But if you're not established in that privileged enclave, competition for session work, in an advent of computerized studios, is increasingly fierce. The insights and advice that these pros share help to illuminate the session industry, and assist aspiring colleagues.

• • •

Don Grolnick's first love is jazz, but his most commercially successful work has catered to rock and pop. His keyboards have accompanied James Taylor, Linda Ronstadt, and Steely Dan, among others. "I wanted to be a jazz player," explains Grolnick. "I didn't know what a session player was. I fell into studio work and it turned out I had a tal-

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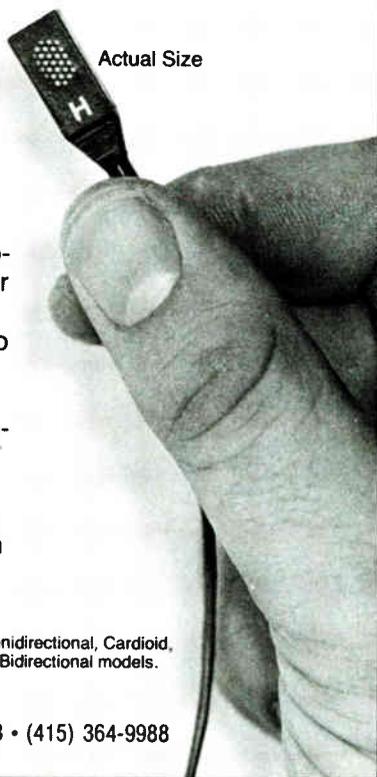
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ent for it. Certain things essential to session work were, without my knowing it, my strengths. My particular strength is my ability to step back and see everything from the outside, as a big picture. Most people have an understandable desire to shine on their particular instrument. What I decided, at some point, is that shining as an individual is not the important thing. It can be detrimental to the record as a whole. It's something session musicians should know, and some of them don't. Linda Ronstadt has worked with a lot of keyboardists. She likes me because she can sing freely and know I'm behind her, that I'm not going to throw her off. Time has always been the main thing for me. I almost don't care what the notes are, time gives it the swing, the pulse. It's my obsession."

Session work was never Grolnick's goal. He studied philosophy at Tufts, met Mike Brecker at a jazz festival, and eventually joined Brecker's band, Dreams in New York. Fellow members Billy Cobham and Bob Mann were doing session work. "Bob knew someone who was looking for a piano player for a jingle," Grolnick recalls. "That was my first date. After that, they generally call you. There isn't a lot you can actively do to get that next date. My father's advice was to put on a suit, and take a resume around to all the studios. I intuitively knew it wasn't done that way. All you can do is work on your instrument, and be able to bring something to the field that they want. My strong point is being able to understand what someone's dream is and help them project that dream." Grolnick finds time to project his own dreams as well. He's just completed a self-written, self-produced LP, tentatively titled *Act Natural*.

The main problem Grolnick finds in the studio is narrow-mindedness, but he also has a solution. "People are too concerned with their own part, but the cure for that is to produce, to see a whole project, not just a hit lick." Although Grolnick recommends practice and discipline, he admits, "I'm lazy, I never practiced much. I have my own technique that doesn't involve practicing. In most session work you don't need to practice much. You need concentration, attention and you need to know how to play in a rhythm section. I encourage people to find their own voice first. That's the important thing."

Appearing nightly in David Letterman's Paul Shaffer Band gives Will Lee more public exposure than most session players. The two-hour a day, four-day-a-week gig gives Lee financial security, leaving him plenty of time for jingles, recording sessions and live acts. The youngest of the four interviewees, Lee, like Grolnick, got his start in

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## SESSION PROS

(Left) Will Lee and (below) Andy Newmark



Dreams. When the band broke up, Grolnick, who was Bette Midler's organist, brought Lee in to play bass. The break launched Lee's career. He played on most of Barry Manilow's records, Diana Ross' latest, yet untitled L.P., and Peter Wolf's single, "Light's Out."

Lee was a drummer before he began to play bass. "No one was playing bass then, when I was 12 or 13," explains Lee. "The bands were all horns, drums and guitars. I took up bass to satisfy a harmonic need. I wanted to bang, but I wanted to play notes too. I also sing, which is hard to do while you're playing. You have to move the notes around; it's not like strumming a chord. You can only give 50 percent to each." What he does give has won Will Lee a name as a top session assist at an age when most studio players are struggling to get established.

Dreams' Randy Brecker invited Lee to audition while the latter was a sophomore at the University of Miami. "I was in Big Band class, and someone handed me a note that said 'Call Randy Brecker.' I thought it was a joke. Dreams was my favorite band. I thought they were superstars, the next Beatles. When I got to New York, I found out they were really obscure. I passed the audition because I could sing. When the band broke up, I was ready to go back to Miami, but Brecker talked me out of it. Grolnick got me the gig with Bette Midler. No one had heard of me yet, but they took Grolnick's word. I really wanted to play funk, my first love, that drastic rhythm."

Practice and discipline aren't particularly factors in his success, either.

"What I call practice is playing with people," he says. "I wouldn't even know how to go about practicing, if it means playing scales. The only thing I worry about is staying in tune. I used to be late for everything. Hugh McCracken and I were notoriously late; sometimes Hugh wouldn't even show up. My only advice is keep your standards high. Listen to people you like and try to figure out why they play the way they do. If you come to New York and you can play, you're going to work. Someone always needs a sub. The sub thing in New York is restricted to horns though. When they hire a rhythm player, they hire someone for what he does. I read, I have a good feel. You have to read to play jingles. Develop your sound. I like it when you can feel the bottom of the bass, but also hear a crisp attack sound. You get that by playing with a pick, or by using your thumb, or your fingers, if you have new strings."

Studio work appeals to Lee because, "I'd hate to play the same music every day." Rather than catering to someone else's sound, he plays his own version, after assessing the style of the artist. "It's a drag that most of the studio work for records moved out to L.A. five or six years ago. It happened when more self-contained bands came along, and also because there are more studios out there. But New York is getting hip, building more studios. I like all this state-of-the-art computer equipment. It may just be a passing thing, but I like the music that's coming out of it."

Andy Newmark has a style that is distinctly his own. When he's called to play a session, it's because they want him to be Andy Newmark. "I don't change my style," he explains. "I play drums essentially the same, whether it's for John Lennon or Roxy Music. It comes from the same place in my gut. I can change technically, but not on a gut level. In rock and roll in the past 10 years, it's about feeling, not technical expertise."

Both feeling and technical expertise give Andy Newmark his "analytic approach" that always wins in the studio. "Studio work requires an exactness, a geometry, the ability to dissect a song or your part in a song, and find the common denominator. It's very different from playing live. I chose session work, as opposed to forming a band, because I was more interested in becoming a great drummer and marketing me. The people I liked, Russ Kunkel and Jim Gordon, were session players. I didn't want to be restricted to playing in a band, wondering if we'd get a record contract. I thought if I was let loose, I could manipulate myself much better. I did. It takes a secure individual to be constantly huddled into situations where you could be rejected. It takes an inner faith. You also have to be able to cater to anyone's needs, whoever you're working with, even if it's a lunatic or a drug addict."

Tact and talent won Newmark his first major gig with Carly Simon when he was only 21. "I knew a guitarist, Jimmy Ryan, who was playing with Carly. He told me she wanted a drummer who could play like Russ Kunkel. I thought, I'll play like Russ, I'll play like anyone I have



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to play like. Carly and I connected immediately, and I played with her for a year. *Anticipation* was my first calling card; it gave me a springboard. When I heard Sly Stone was looking for a drummer, I knew I could nail the gig. Sly didn't know who Carly Simon was and he didn't care, but I got it anyway. Sly's funky R&B was what I really loved. *Fresh*, the record I did with Sly, was what really made people say 'who *is* this drummer?' I went on to play with Ronnie Wood, John Lennon and Roxy Music, but after those first major gigs, I was established."

Newmark is a valuable commodity, but no studio player is valuable enough to get a percentage of record

sales. "Studio musicians will play things on a record that will become a hit, but since this is before the record is made, and no one knows it will be a hit, the musician can't say 'my contribution is so invaluable, you have to give me a percentage.' "

After 15 years of "living in a tunnel," Newmark sees a change coming. "A door is going to open. I can feel it. Not that I don't enjoy what I'm doing, but I'd like more control over my life. For years the whole drive was to be number one, drums, kill, the competitive thing. The fact that drum machines are putting drummers out of work doesn't bother me. Drum machines make records all sound the same. All it will take is one hit

record with a live band to swing things back around. I've played over lots of drum machines, and I think they sound fantastic. I haven't gotten involved in programming because I couldn't get the same joy that I get out of playing. Programming's too easy "

Hugh McCracken is grateful. "I've been able to make contributions to artists, producers and engineers that I respect and love," he says. No doubt it's mutual. McCracken's album credits include work by Donald Fagen, Aretha Franklin, Paul McCartney, Billy Joel, B.B. King, James Taylor and John Lennon. His wealth of diversity within the industry distinguishes McCracken from his session colleagues. Best known as a studio guitarist, he expands his craft to include writing, producing, and artist development.

The decrease in session work facilitates McCracken's pursuit of other musical projects. "With the drop off in hiring, I can get closer to my goals. I've been too busy to do anything else before. Session work just happens to be what I do, but what I really love is making records. I've always been song conscious and concept conscious. I just never put it to work. It was too easy to be a studio player, to go in and have them say 'We want this sound' and do it, or 'We're not sure what we need here. Can you suggest something.' "

Los Angeles, according to McCracken, has always been "a step ahead of New York in technology, in the consciousness of sound. New York work consists basically of jingles. A guitarist may do three jingles in a day, with a record date in between. There's no way you can have a lot of equipment unless you carry it around with you. In L. A., they get into rack mounted effects and outboard equipment because projects take weeks, as opposed to one day. It's fun to go from a film score to a jingle to a recording session. Variety is exciting. I'd like to have been more creative, but I've been limited. Still, I'm not sorry "

In the McCracken school of musicianship, talent and determination are secondary to listening. "Determination is important, and talent is more so. People who hire session players want the best possible ingredients, to get the ultimate excellence in whatever they're doing. Being a great player is not just having technical facilities and knowledge of your instrument. It's being able to hear. If two people listened to the same records, played the same instruments, and took the same lessons the same way, they would still be totally different players because of how they hear, what the ear selects. Listening is the most important thing. You cannot expect to respond or play without listening first.



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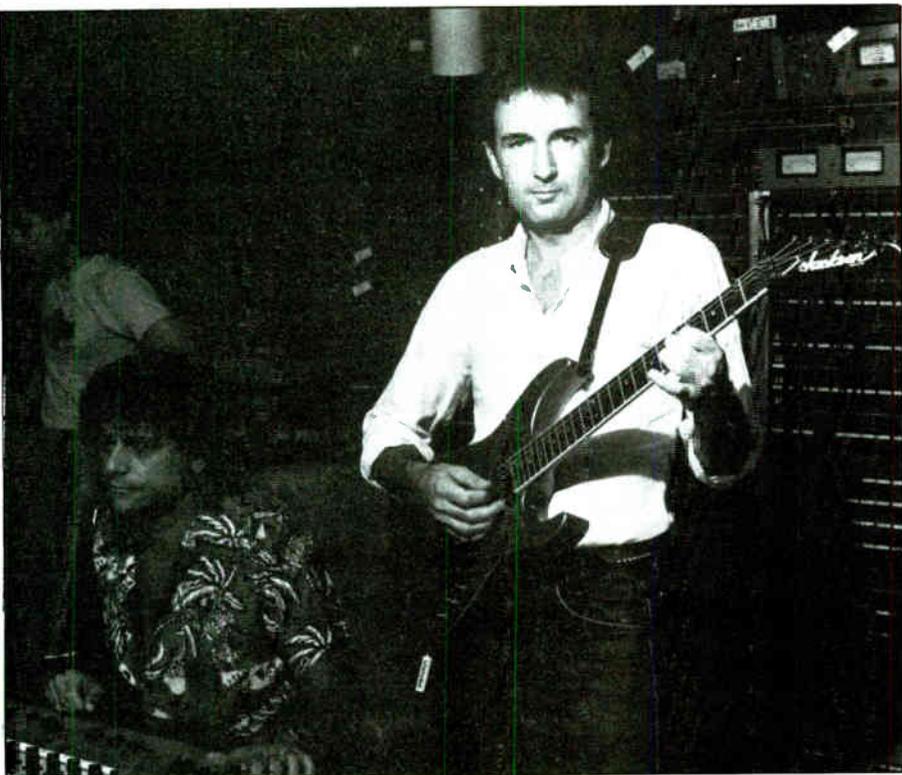
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*Hugh McCracken*

Modern technology thrills McCracken. The new preciseness of sound is an "exciting addition. Drum machines enhance live drummers. When a writer can't afford to go out and hire musicians, it's great that he can program his own machine. Technology is enhancing the live stuff. There's nothing like a new sound to inspire creativity. Everyone's trying to formulate it, create it, recreate it. But it can't be explained. There's not a person in the world who can explain what it is about music that makes them feel as great as they can feel when they're listening to it."

In an industry as competitive as the session field, where musicians like Grolnick, Lee, Newmark and McCracken may charge triple scale and make as much as \$1,500 a day, there are bound to be personal idiosyncracies that guide and motivate each musician. Only by examining a synthesis of their goals, experiences, and ideas, can one begin to formulate a personal strategy for success. If McCracken is right, and no one in the world can explain music's unique power, then perhaps it's a good thing. There's nothing like an unexplainable sense of excitement to foster motivation and innovation in any field. ■



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Engineer

# Frank Filipetti

PHOTO: WOLF SCHNEIDER



Frank Filipetti at Right Track Recording studio.

## Talent and Tenacity in New York

by Wolf Schneider

Talent and tenacity took him half way there. Then producer Peter Asher and Right Track Recording Studio owner Simon Andrews gave him his shot in the spotlight. He delivered. From the streets of New York to *Streets of Fire*, from a struggling songwriter to a top-

flight engineer, 35-year-old Frank Filipetti is finally attaining the recognition and accomplishments he's spent his life striving for. Foreigner. Linda Ronstadt. James Taylor. Carly Simon. Cyndi Lauper. Kiss. If an engineer's clients determine his standing in his profession, 6'4" Frank Filipetti, chief engineer at Right Track Recording, is indeed standing tall these days.

New York City was more than a little intimidating to Filipetti when he wandered into the metropolis after a quiet childhood in the rural Connecticut town of Bristol. "I started out as a musician in high school and college, playing in bands. Then I came to New York in 1972 with my band," Filipetti reminisces. The name? "It was called Genesis. We put out a record and immediately got a

phone call saying, 'There's an English group with that name already, soon to put out a record in America and we'd appreciate it if you'd change your name. So we did,' he chuckles. "We changed it to Park."

Filipetti spent two years with Park, drumming, writing songs, arranging and singing. Then he went out on his own. In 1974 he won first place in the American Song Festival with one of his tunes. A two-year contract with Screen Gems as a staff writer followed. Then came a spell of production work over at the Power Station. Finally Filipetti got a recording contract with Lifesong Records as a singer/songwriter and was about to release his first single when Lifesong lost their distribution deal with Epic.

"It was 1978," Filipetti sighs with a shake of his head and a rueful laugh. "They said to wait. Not to make any moves. They were going to get something else happening. So I waited about nine months. During that time a friend of mine found a phenomenal girl singer in Long Island playing with a copy band. He worked up a management contract and I started to produce them. The girl was Cyndi Lauper and we put together Blue Angel, her first band. Then she fired my friend as manager and I ended up leaving."

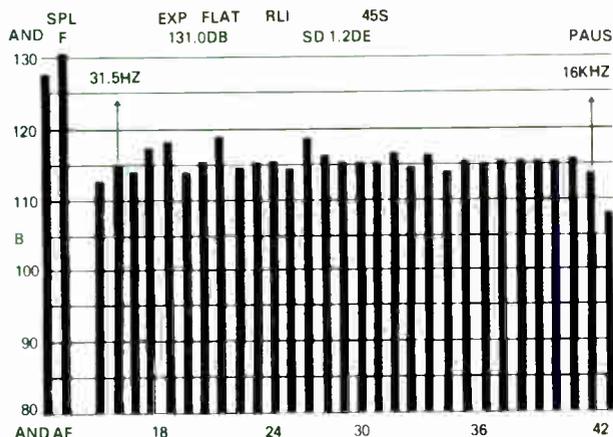
Neither time nor luck seemed to be on Filipetti's side. During a conversation with producer Rich Landis and Capitol Records head of A&R Mitch Schoenbaum, it was suggested to him that since his tapes always had such a good sound to them, he should try his hand at engineering.

Filipetti approached Right Track owner Simon Andrews, with whom he had done some work. "I went to see Simon and I said, 'Simon, I'm 30 years old and I've been doing this for ten years now. I'd like to try engineering. I'm too old to be a tea boy. Give me a couple of months to prove myself.' He said, 'Let's try it.' That was December of 1979. A month later I did my first gig as an engineer. It was for Nancy West. Simon produced and we did some demo tracks at the 24th Street studio."

The tide turned. Andrews opened a larger 48th Street property a year later, and Filipetti enjoyed his own share of Right Track Recording's growing popularity. "The following year, around September, the biggest break of my career occurred: *The Pirates of Penzance* soundtrack. Peter Asher was producing it. He decided to try us rather than bringing Val Garay over from L.A. Val's apparently very expensive to bring to New York. It was probably the most pressure I've ever been under," Filipetti recalls. "The project went to England for

—PAGE 106

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final mixing. I spent six months in England working on postproduction at CTS Recording in Wembley.

"I came back in '82. The next major thing to happen to me was probably the biggest thrill I've ever had. Peter called me up and said, 'James (Taylor) is ready to go into the studio, he wants to do it in New York, and we're thinking about having you do it.'"

Basic tracks were recorded in Montserrat—instead of New York—but Filipetti engineered. Complications arose with Taylor's voice and the project was postponed until the fall of 1984. But Asher quickly referred Filipetti to Carly Simon, who was having problems finishing her album, *Hello Big Man*. Filipetti mixed the LP along with producer Mike Maineri. At the same time, he and Simon Andrews designed Right Track's Studio B on 48th Stret and equipped it with an SSL console. It became the second room in New York with an SSL.

A candid Filipetti reveals how Kiss became his next client. "I was very reluctant and I told them so. Kiss to me was like a blight. But I started working with them and immediately took to Gene Simmons and Paul Stanley. They have amazing senses of humor. We finished *Lick It Up* around September of '83."

Wendy Williams was the next

artist that the versatile Filipetti worked with; he engineered her current LP. Then he did "Tonight Is What It Means to be Young," Jim Steinman's rousing finale to the *Streets of Fire* soundtrack.

Foreigner came to Filipetti via referrals from Peter Asher to Mick Jones, and from mastering house Sterling Sound to their producer Alex Sadkin (Duran Duran, Thompson Twins). Filipetti joined the project at the Hit Factory in February of this year. While he was working with Foreigner during the day, he and Andrews were also redesigning Right Track's studio A at night.

"Technically, it's a large control room which is comfortable for everyone," he says. "Getting a large control room to sound good is the hardest part, though. It has a lot of reflections. We very carefully selected wall treatments with listening tests. We had 16 guys, the whole crew, holding up live surfaces, and dead surfaces to check which sounded the best. For the live surfaces, we used pecky cyprus covered with fabric. For the dead surfaces, we used Sonex covered with fabric. For the medium surfaces, we used sound board covered with fabric."

They put in quad-amped, four-, Westlake monitors, positioned 10 feet apart and 10 feet from the engineer, in

an equilateral triangle. An SSL 6000 console with 56 inputs and Studer A800 tape machines completed the new Studio A. In June, Foreigner moved over to use it.

Foreigner's theme song for the Olympic marathon event was recorded in a 110-hour work week, but Filipetti judges that 50 to 60 hours a week has been more the norm during this project (on which he was still working as we went to press.) The music on this new album—Foreigner's first in several years—is, in Filipetti's estimation, "Typical Foreigner—There's hard rock, ballads, and it's always melodic."

After trying out so many roles in the music industry, Filipetti says he is quite happy with his current position. He cautions, "I think a mistake a lot of engineers make is they're so anxious to produce that they jump into it and don't fully understand the concept. It's much more than getting a good sound. That's the easiest part. The hardest part is the arrangements, finding the right musicians for the project, making the songs happen." Living in New York suits Filipetti as well. He reckons, "You can't live in New York and not be hyper. New York's sound is rawer than L.A., but not as raw as London. It's a good hard sound with an edge. I love it here."

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## Filipetti Recommends

Those who've worked with him say it's Filipetti's ears that do the magic. Filipetti also attributes his sound to some of his engineering techniques:

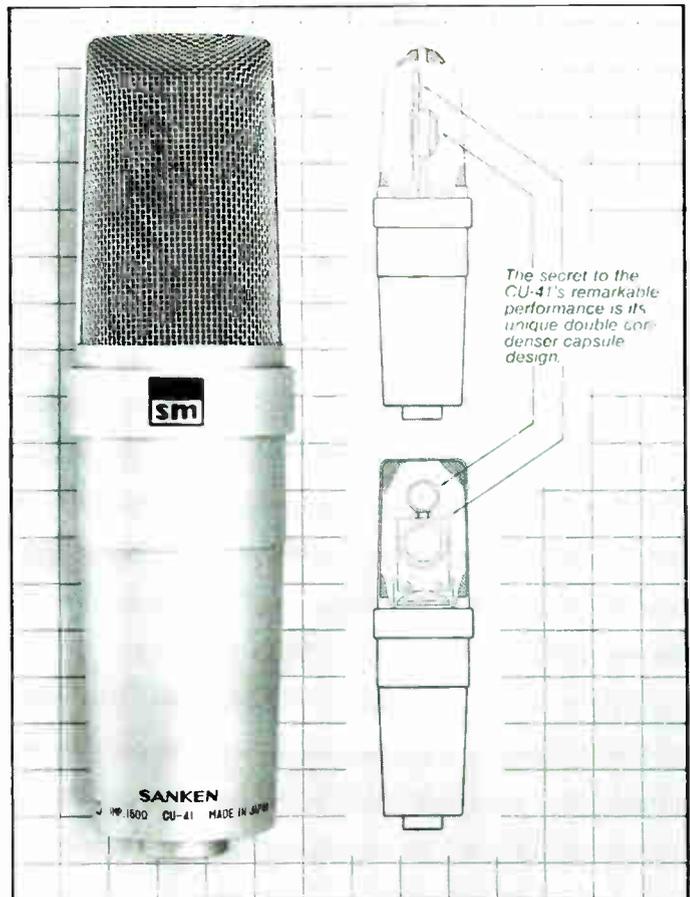
"I wish more engineers would use the Haas effect," he suggests. "It can be used in a variety of ways. It has to do with how we hear things. When you hear a sound, you hear it differently depending on where it comes from. It arrives at one ear a minute amount of time earlier. The ear originally hears it as one sound, but then localizes the information.

"When you're using digital delay lines and you pan the main signal left and the delayed signal right, although you get a stereo spread it appears to be coming from the left because of the Haas effect. However, if you delay the original signal three-to-five milliseconds and sweep the delayed signal around that, then the signal appears to shift from left to right. I do that a lot. I use it on keyboards a lot.

"Another thing," he continues, "is when recording a guitar or bass with an amp and direct signal, again delaying the direct signal to coincide with the distance from the amp to the mike gives you deeper, more in phase information.

"I've very much been into recording using the MS microphone technique," Filipetti adds. "MS is an old technique used for years in classical music, but not in rock. It's a stereo miking technique developed by Blumlien. You use a cardioid pattern facing center and a figure eight pattern facing the left or right. You matrix it using a sum and a difference signal and you get the most realistic stereo you've ever heard, which is why they use it in classical music. All the nuances of balance are preserved. I'm using it for the drums on Foreigner. I used it for the vocals on 'Tonight Is What It Means To Be Young.' ORTF miking is also very valuable."

Wolf Schneider is an L.A.-based writer who specializes in the entertainment industry. The associate editor of the computer trade magazine, *Software Merchandising*, she also produces a talk show on radio station KMET. ■



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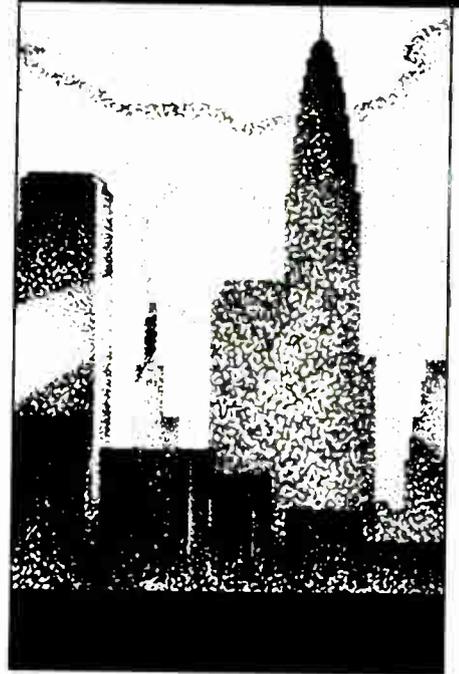


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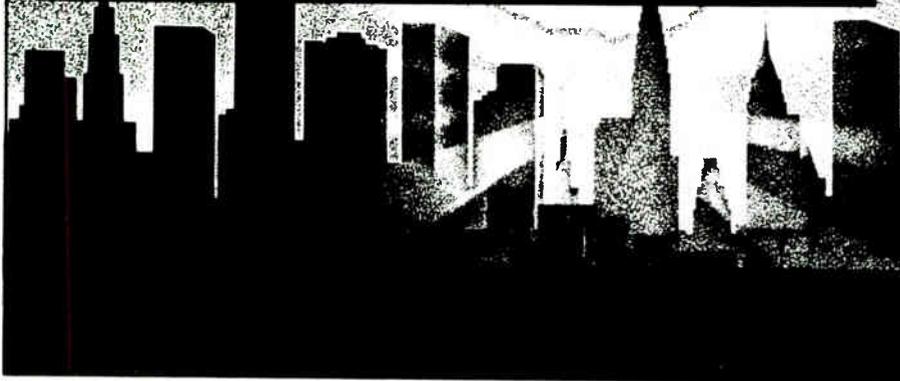
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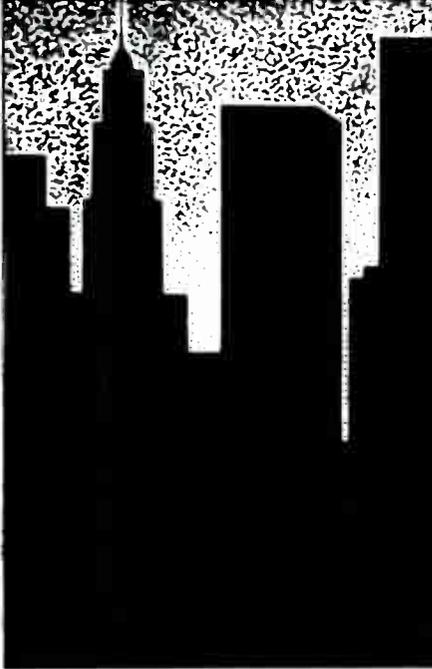
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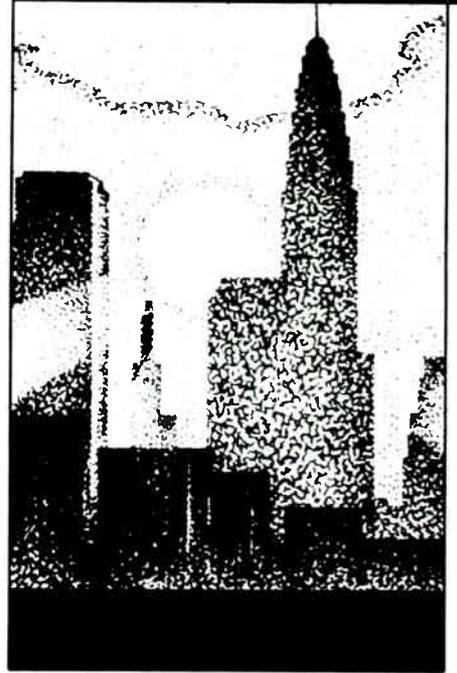
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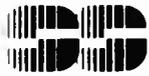
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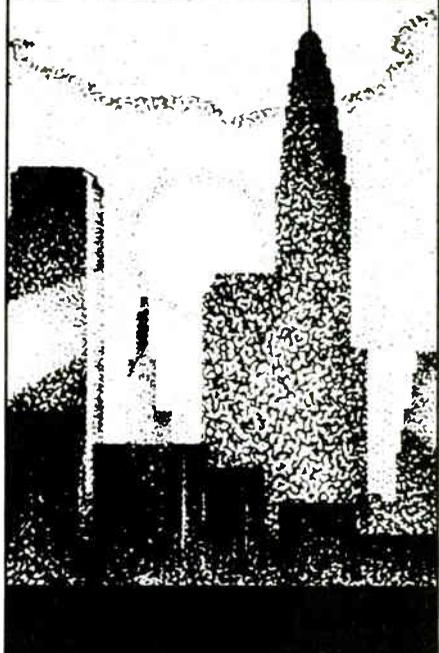
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# A Guide to NY Sound Stages

by Neal Weinstock

**A**ny way you want to slice it, the Big Town has seen it all. Slice it into film, video, and audio production, and Gotham has gone from rags to unmeetable demand to a glut of studio space. Now we're in a post-glut age for film and video. Supply of studio facilities has roughly stabilized at a level perhaps 10 percent above demand. Both are growing, as New York's 25 to 50 percent share of the national market for all types of motion picture production continues to grow. Compared to this estimated one billion dollars of motion picture production work in '84, music video is certainly a drop in the bucket. Yet music video can help fill up that marginal 10 percent vacancy rate, and studio people seem to want us quite a bit.

In fact, the "music video dollar" is being talked about in almost the same terms as the "cable dollar" of a couple of years ago. The cable dollar turned out to be just about that, one dollar—after several multimillion dollar studios were built (a few abandoned partway through) to attract it. Well, they got it. Now they are looking to the music video dollar to replace it. This time, however, there is an industry-wide cognizance that a clear end payback is crucial to a healthy business. Studio owners have learned to ask, "Where's the beef?" Even if there's not much of a clear answer yet, the question itself is a healthy one for those who would make music videos.

What the sound stages of New York have to offer is, in two words, excellence and proximity. Many facilities offer either one-stop shopping for all production requirements, or are located very close to everything needed. The city can be a maddening mess of traffic, crowds, weather and noise, but at least the city fathers and mothers and unions are squarely on your side. The world's largest pool of talent of all sorts is willing to work at less than reasonable rates. And shooting here can have a musical and visual energy like no place else. At the

low budgets that most music videos are made on, these street plusses outweigh any negatives.

We've tried to list every sound stage in the metropolitan area that is capable of hosting a music video production. Some of these may have the benefits of size and cheapness, while being not quite soundproofed, air-conditioned, or even heated; we've listed a few anyway, in consideration of the low budgets among us. Some others may have a lot more story to tell than can be represented on a ready-reference chart; there are eight million stories in the Naked City, these are too few, but all that space allows.

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**T**en minutes from midtown Manhattan or LaGuardia Airport the past is coming back to life. Paramount built the Astoria studios in the '20s to accommodate Broadway stars who preferred not to travel by train for a week to

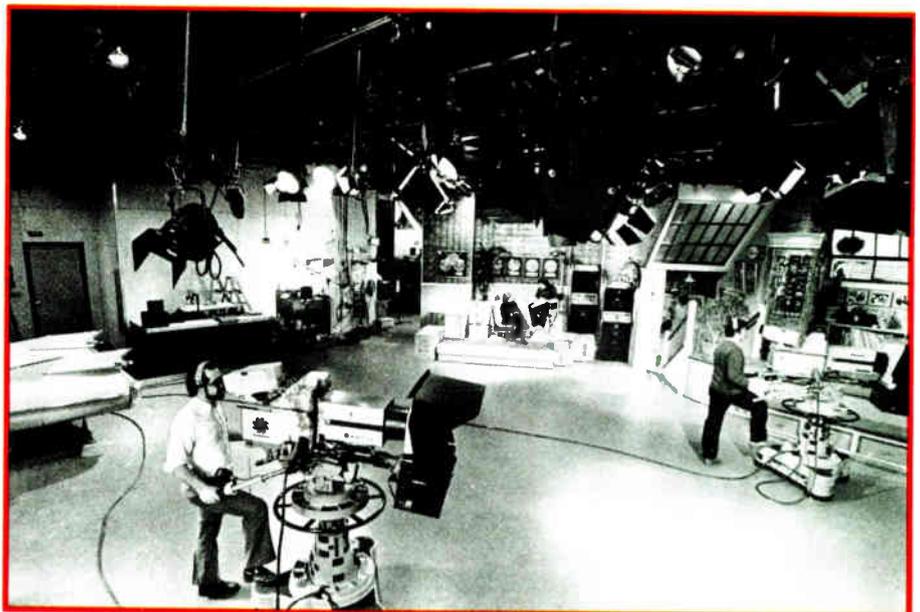
get to Hollywood. A museum and film series on site keeps the past alive, but a look at the secret stairway to Jesse Lasky's old office can be even livelier than celluloid. Stage E may be the largest sound stage in the world, or it may not; in any case, a single anecdote that tells it all for the rebirth of the movie industry in New York concerns a complete Beverly Hills mansion, with landscaping, built on the stage. Have Larry Barr tell it to you.

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—PAGE 120



VCA Teletronics Center. All photos by Neal Weinstock and Audrey Korelstein.

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And in the mixdown, you'll have access to all 16 inputs without having to repatch or reset the board.

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To make the WR-8616 even more compatible, we've given it a dual set of meters. Eight LED bar graphs will monitor the 16 input signals. While the six VU meters handle the Master, Group, Send, Echo outputs and Solo level.

And the balanced Mic and Line inputs and Main outputs won't let any unwanted noise come between you and your sound.

The Ramsa WR-8616. A post-production/recording mixer designed to treat you like an individual.

# RAMSA



Please send me more information about the Ramsa WR-8616.

Name \_\_\_\_\_ PLEASE PRINT

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone ( ) \_\_\_\_\_

Return Coupon To: Panasonic Industrial Company, Professional Audio Systems, One Panasonic Way, Secaucus, N.J. 07094.

MX

**Panasonic**  
PROFESSIONAL AUDIO SYSTEMS



Supplier of Sound Systems for the 1984 Olympic Games

# The Major NY Sound Stages: A Comparative Chart

Studio Name	Phone	Contact	Dimensions	Height to Grid	Fully Soundproofed	TV Floor
<b>BOKEN</b> 513 West 54th Street New York, NY 10019	581-5507	Evelyn McGavin	75 x 66	18 ft.	•	•
<b>CAMERA MART</b> 456 West 55th Street New York, NY 10019	757-6977	Cindi Becker	Stage 1: 75 x 94 Stage 2: 64 x 78	(1) 33' (2) 23'	•	•
<b>EMPIRE STAGES OF NY</b> 50-20 25th Street Long Island City, NY 11101	392-4747	Phyllis Restaino	A & B: 125 x 100 C: 100 x 50 D: 100 x 75	A & B: 25' C: 22' D: 22'	A, B, & C: yes	•
<b>KAUFMAN-ASTORIA</b> 34-31 35th Street Astoria, NY 11101	392-5600	Larry Barr	A: 32 x 50, B: 87 x 37, E: 120 x 217, F: 120 x 40, G & H: 132 x 86, I: 44 x 38	A: 15' (no grid) B: 14' E: 40' F: 20' G: 31' H: 31' I: 16'	•	•
<b>MTI</b> 105 East 106th Street New York, NY 10029	355-0510	Phil Mancino	80 x 75	30'	•	•
<b>NORTH RIVER STUDIOS</b> Pier 62, West 22nd Street & 12th Ave., New York, NY 10011	807-0827	Dan Repoli	240 x 130	16' 8"	•	•
<b>REEVES TELETAPE</b> Ed Sullivan Theater, 219 West 53rd Street, New York, NY 10019	573-8888	Bob Moscone, Joe DiBuono	80 x 80	70' (fly system)	•	•
<b>REEVES TELETAPE RT3</b> 841 9th Avenue New York, NY 10019	573-8888	Bob Moscone, Joe DiBuono	95 x 70	18'-24' (fly system)	•	•
<b>REEVES TELETAPE</b> Studio "81", 234 West 81st Street New York, NY 10024	573-8888	Bob Moscone, Joe DiBuono	100 x 70	22' (floating system)	•	•
<b>SECOND AVENUE STAGES</b> 2475 Second Avenue New York, NY 10035	572-7436	Bonnie Egan	East: 100 x 95 West: 87 x 83	East: 20' West: 20'	•	•
<b>SILVERCUP STUDIOS</b> 42-25 21st Street Long Island City, NY 11101	784-3390	Harold Rand	1: 80 x 140, 2: 106 x 135 4: 90 x 120, 9: 78 x 87	1: 42', 2: 42' 4: 42', 9: 22'	•	•
<b>STUDIO B</b> 524 West 23rd Street New York, NY 10011	807-0664	Mark Breitrose	96 x 56	19' 6" to ceiling	•	•
<b>UNITEL VIDEO SERVICES</b> 510 West 57th Street New York, NY 10019	265-3600	Ed Levine	118 x 48	14-20' (floating system)	•	•

Balcony/Catwalk  
Dimmer Boards  
Air Conditioned  
Air Can be Run While Shooting  
Hard Cys

Soft Cys

Lights Available  
Control Room

Direct Street Access to Stage

Vehicle Access on Stage

Camera Pit

Film Editing

Video Editing  
Transfer

Color Correction  
Duplication  
Lab

Audio Mixing/Dubbing  
Projection Theater

Equipment Rental

Equipment Repair

Set Design Repair

Construction Service

Parking

Truck Loading

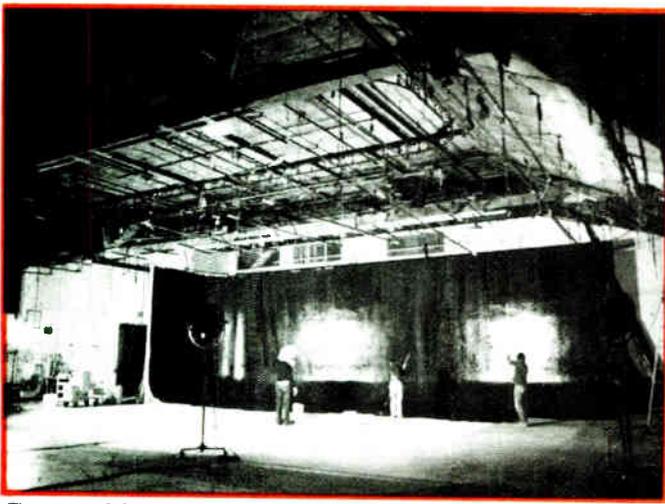
Crew Available

Union Production  
Requirements

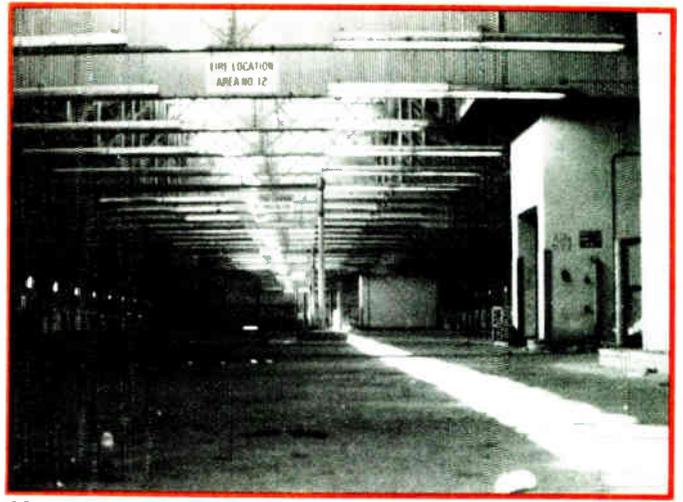
Balcony/Catwalk	Dimmer Boards	Air Conditioned	Air Can be Run While Shooting	Hard Cys	Soft Cys	Lights Available	Control Room	Direct Street Access to Stage	Vehicle Access on Stage	Camera Pit	Film Editing	Video Editing	Transfer	Color Correction	Duplication	Lab	Audio Mixing/Dubbing	Projection Theater	Equipment Rental	Equipment Repair	Set Design Repair	Construction Service	Parking	Truck Loading	Crew Available	Union Production Requirements				
•	•	•	55l x 18h x 10r	•	•	•	•	any size	2								•	•	•				†	indoors	†	no dock				
•	•	•	(1) 65l x 18h x 25r; (2) 49l x 16h x 13r	•	•	•	•	any size	2 (each stage)		•	•						•	•	•	•	•	•	†	indoors	†	no dock	•		
		•		•			•	any size	A & B, 1														§	indoor		no dock				
•	•	•	3	•	•			10,000 lb. max	yes, for each stage 2 pools	•	•	•	•	•	•	•	•	•	•	•	•	•	†	stage	†	dock	•	•		
•	•	•	yes, adaptable size	•	•			8,000 lbs. max		•	•	•	•	•	•	•	•	•	•	•	•	•	§	indoor		no dock	•			
•	•	•	**		**			18,000 lbs. max			•						**	**	•				§	indoor		stage		dock		
•	•	•		56 x 22	•	•	•	minibus			•	•	•	•	•	•	•	•	•	•	•	•	†	from street			•	•		
•	•	•			•	•	•	minibus			•	•	•	•	•	•	•	•	•	•	•	•	†	stage		loading		dock	•	•
•	•	•			•	•	•	minibus			•	•	•	•	•	•	•	•	•	•	•	•	†	from street			•	•		
•							•	any size	East: yes West: no														†	indoor		no dock				
	•	•	•		•	•	•	1 & 2	any size	1, 2, & 4 yes	•	•	•				•	•	•	•	•	•	§	stage		loading		dock	•	
	•	•			•	•		15,000 lb. max										lights only					†	stage		loading		dock		
	•	•			•	•	•	any size			•	•	•	•	•	•	•	•	•	•	•	•	†	stage		loading		dock	•	•

\* Call for information  
\*\* Planned

**Parking Key:**  
† Neighborhood garage  
§ Private lot  
‡ Street



*Camera Mart*



*North River Studios*

located in the heart of the filmmaking district, and owned and run by Camera Mart. Since C.M. is one of the city's basic resources for rental equipment, that these are fully equipped goes without saying. They fit perfectly into the fabric of commercial production, and thus tend to be busy even when other stages are dark. The studio rental fee includes any necessary equipment. Stage 2 has a pool, there's a carpentry shop and four floors of adaptable rooms. The Camera Mart catalog is also famed as one of the best "where to find it" city shooting guides.

### EMPIRE STAGES OF NY

**C**are to shoot on the same stage as Menudo? OK, how about Katherine Hepburn, DeNiro or Streep? A few years ago, Empire was a warehouse; no stardust, just sawdust. However, it belonged to Variety Scenic Studios, one of the world's larger set design and construction companies. The space wasn't greatly used and whenever production companies saw it, they asked to use it. Thus, Empires are born. There are several suites of brand-new make-up and dressing rooms, green rooms, wash-rooms, offices and the like, and 1,600 feet of scenery storage. Commercials and features are the dominant use; Empire welcomes music videos, but does not welcome video shoots. Film stages only; three large ones.

### MTI

**M**odern Telecommunications purchased the old Pathe studios in East Harlem just a few years ago, and renovation of the gorgeous 11 story, full block, art nouveau complex is proceeding quickly. Since traffic moves much more swiftly uptown than cross-town in Manhattan, MTI is far closer than it might seem to midtown. The studio once belonged to RKO, too, and the classic RKO commissary is now being restored. Support services are available

on premises, and MTI also has editing and production services at its main, mid-town office.

### NORTH RIVER STUDIOS

**N**orth River is a former United States Lines shipping terminal, a monstrous complex of warehouses built not all that long ago at public expense, and never used. Partly on landfill and mostly on piers over the Hudson is a fairly unique phenomenon: humongous space in Lower Manhattan. The price is probably right, too. North River's owners do not pretend to possess the ultimate production facilities. The cavernous rooms are not soundproofed and they do tend to sway with the tides. A few support services have chosen to locate in the complex, taking advantage of the space, so this is hardly a case of totally roughing it. However, North River is caught in an existential bind, located in the path of the proposed Westway—the still hypothetical underwater highway that just may never be built. Until the controversy is resolved, one way or another, North River will probably survive, unrenovated. Truck access, post-production on premises, and these are the only stages in town with boat access. They also do duty as parking lots; Malcolm Forbes parks his yacht there, winters.

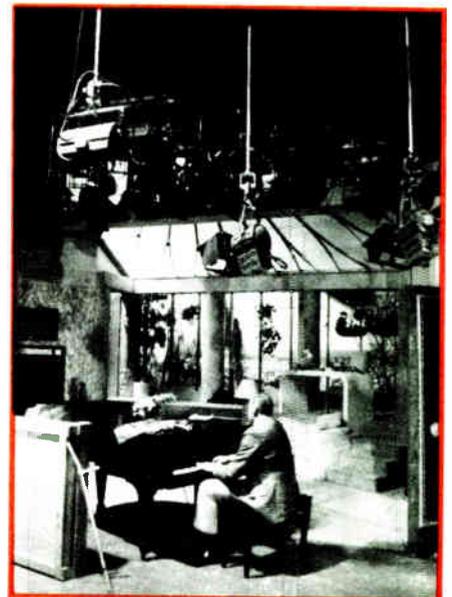
### REEVES TELETAPE

**R**eeves has three large video stages around town, all in former theaters (these are the only sound stages for rental with marquees). They also have mobile facilities, Reeves Sound Shop, and postproduction at 303 East 44th Street. All three stages have full equipment repair services on site, dressing rooms, offices, etc. The Ed Sullivan Theater (where The Beatles made their America TV debut) offers seating for 420. The 81st Street stage is currently leased full time to *Search For Tomorrow*. Between the three locations and

Reeves' headquarters, all video and audio services are represented: says marketing VP Joe DiBuono, "I can get it for you."

### SECOND AVENUE STAGES

**F**ilmways abandoned these two stages several years ago, through the building is still emblazoned with their name. A community group now does what it can with the space since it costs too much to turn it into basketball courts. All other things being equal, they'd probably prefer the courts; but it's no small compensation that this is Woody Allen's favorite stage. They get a lot of features here, and commercials too. The stages were subject to a few years of vandalism before the current wave of reuse, so these are good rooms, but offer nothing more. Besides location, that is, at the foot of the Triborough Bridge, five minutes from LaGuardia or your East Side townhouse.



*Reeves Teletape with marketing VP Joe DiBuono at the piano.*

# Digital Power

## Reflections Of The Future

Digital Energy Conversion Amplification™... A new standard of power. Brought to you by Peavey via the DECA™-700 and DECA™-1200 power amps. The world's first (and only) 90 percent efficient and truly digital power amplifiers.

Because linear amplification allows at best between 40 and 60 percent efficiency, we knew that in order to manufacture a 90 percent efficient power amp, we would have to depart from conventional technology. DECA™ is not magnetic field nor is it analog. It's a totally new discovery on which we have applied for six patents.

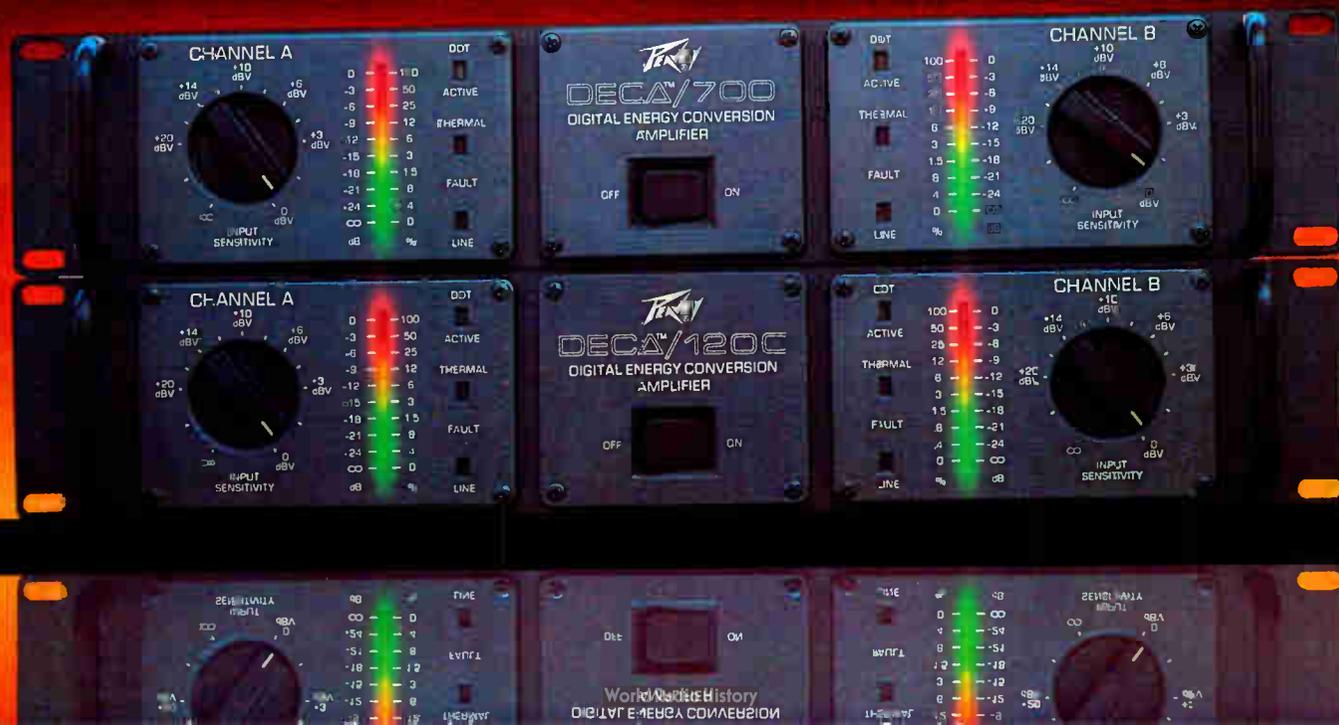
The DECA-700 and DECA-1200 power amps deliver time after time with virtually no heat, very little mass (24 and 26 pound units) and 90 percent efficiency. The DECA-700 specs out at a rated minimum power output of 350 watts RMS per channel into 4 ohms and 700 watts RMS into 8 ohms (in bridge mode). Our DECA-1200 is rated at minimum power of 600 watts RMS into 4 ohms and 1200 watts RMS into 8 ohms (in bridge mode). Other features include DDT™ compression circuitry to prevent amplifier overload, absolutely no measurable TIM or slew rate induced distortion, multiple overload output and load protection features. They are both available in a 19" rack mount (two space) configuration.

DECA Technology. Yesterday our competitors said it couldn't be done. Today they're wanting to know how we did it.

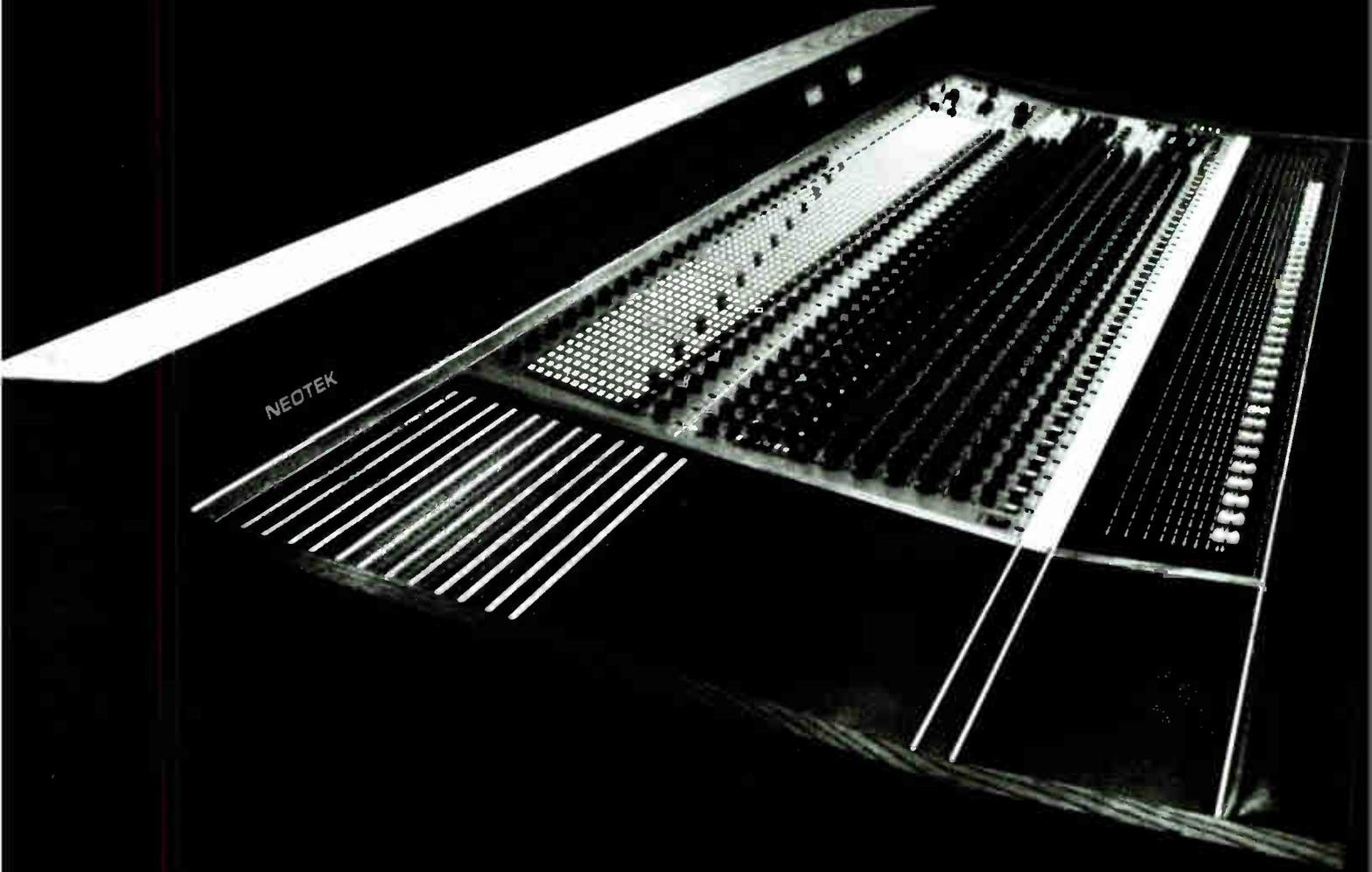
Discover for yourself our exclusive DECA power amps by visiting your nearest authorized Peavey dealer or writing us at Dept. DECA, Peavey Electronics, 711 A Street, Meridian, MS 39301.



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*It's not only  
what we make,*



# *it's what we know.*

The choice of a console is one of the most important you will ever make. You want more than just a pretty top plate and lots of knobs and switches. You know that the sonic performance of the console is absolutely critical to the quality of the product you produce, and to your own reputation for performance. NEOTEK consoles are the choice of studios who know that performance means value, and who demand the best of both.

**Advanced technology** NEOTEK consoles have always been at the cutting edge of analog design, with completely transformerless consoles and mic preamps five years ahead of any other manufacturer. NEOTEK offered the first, and still the best, state variable equalizers and the first consoles with three way solo systems. The latest NEOTEK consoles employ hybrid circuits and active compensation topologies that won't be seen on other consoles for years. When it comes to console design, NEOTEK is the definition of state of the art.

**Sonic Performance** The legendary sound quality of NEOTEK consoles is a major reason that they are owned by the greatest orchestras in the country: Chicago, Cleveland, St. Louis, Philadelphia. They are at the Lincoln Center, the Metropolitan Opera, the Julliard School of Music, the Berkeley Repertory Theater, the Rome Opera. They are used by audiophile labels like Delos and Varese Sarabande and exclusively for the superlative TELARC CDs. It is just as important to have this performance in your studio, because it is a superiority that everyone can hear and none can afford to ignore.

**Technical specifications** The measured performance of NEOTEK consoles is unsurpassed. In terms of noise, distortion, and signal bandwidth they exceed the specifications of 16-bit digital recorders. In a time when others are claiming to be 'ready for digital,' NEOTEK continues to improve designs that were ready for digital long before digital was ready for the best in analog. As the result of striving for the ultimate sonic performance, NEOTEKs produce the finest specifications ever measured on production consoles.

**Essential intangibles** If you can appreciate the driving quality of a Porsche, you can understand why engineers like working on NEOTEK consoles. The signal flow is easy to follow, controls do what you expect, and the equalizer is musical even when cranked to extremes. The construction quality of these consoles maintains their performance and resale value in the long run. You will find shielded cable wired to metal frame jacks instead of ribbon cable to plastic, and instrument grade components are used exclusively. Console frames are made of solid hardwood, with the feel of fine hand finished furniture.

**Made to order** NEOTEK manufactures a full range of consoles designed for specific applications. There are console series for multitrack recording, four and eight channel recording, broadcast production, theater effects and sound reinforcement, film and television post production, and sophisticated sound reinforcement. Each is built to individual order in the United States. Engineers at the factory are available to tailor each console to the most demanding installation.

If you are about to choose a console, choose NEOTEK.

**Let others compromise.**

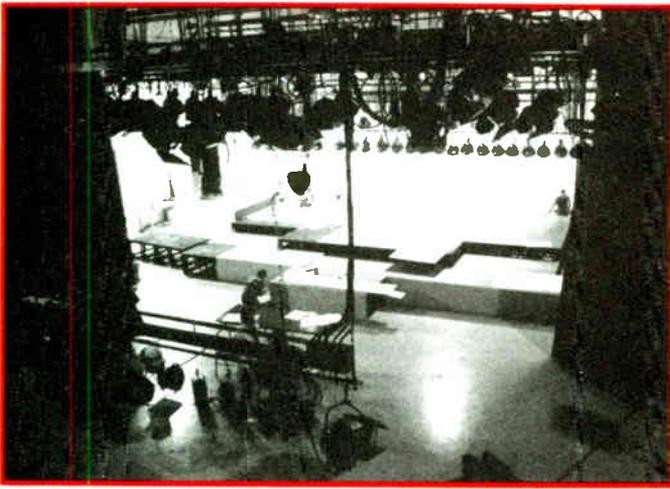
## **NEOTEK CORPORATION**

1154 West Belmont Avenue Chicago, Illinois 60657 U.S.A. 312-929-6699

**AES booth 404**

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World Radio History



*The Ed Sullivan Theater stage, owned by Reeves Teletape.*



*Kaufman-Astoria*

## SILVERCUP STUDIOS

**S**ilvercup's Alan Suna recently confessed that his company was far more interested in a real estate development all along than a film studio. He could afford to confess it: Silvercup has turned into an unmitigated success. Of all the new studio projects planned to be everything to everybody while built on the ruins of old factories, warehouses, and schools, Silvercup is one that has actually delivered on its promise. The former bread factory has already seen several commercials, features and videos. Studio 5, a former grain elevator, is what they think of as the hottest video room—because its five story ceiling allows wonderful crane shots. Just off the Queensborough Bridge, and costume supplier Eaves/Brooks is in the neighborhood.

## WEST COAST STUDIOS

**T**he incongruous name denotes the "west coast" of Manhattan. Once the home of the Packard Motor Car Co., the fortress-like structure will be the home of at least one large sound stage. The project is to be complete this summer, and is being shepherded by New York's largest real estate company—so they ought to be able to keep to most of their forecasts. The developers expect several large production-house tenants, but none have been announced yet.

## UNITEL VIDEO SERVICES

**U**nitel has only small video studios available for rental; its brand-new large stage has been leased full-time by MTV. MTV also leases other production facilities from Unitel. Still, Unitel has attracted a reputation for great adaptability, and as a video-only facility, it handles more than its share of rock videos. Lots of dressing, meeting, eating rooms, offices, washrooms, etc., surround the stages. Unitel has a fleet of mobile

facilities, and scenery storage, too; they've squeezed quite a bit into this central location. Equipment of all sorts is for rent, too, but must be used with Unitel's stages or mobile vans.

## MEDIUM SIZED AND SMALL STAGES

### A & G Video

245 East 84th Street  
(212) 288-3883  
40' x 50' = 2000 sq. ft. stage  
lighting, video production and post-production equipment, audio production and postproduction equipment, mobile van, crew available. Post-production in 3/4-inch video only.

### All Mobile Video

630 Ninth Avenue  
(212) 757-8919/446-3535  
1000 sq. ft. stage  
four mobile vans, full video equipment rental, some audio, crew available, duplication and postproduction.

### Atelier Stage

295 West 45th Street  
(212) 243-3550  
36' x 25' = 900 sq. ft. stage  
18' to grid  
air conditioned, soft cycs, control room, video equipment, van, film and sound equipment, film and 3/4-inch video postproduction, screening dressing, make-up rooms, crew available.

### Beach St. Video Center

8 Beach Street  
(212) 925-4364  
two sound stages.  
both 30' x 70' = 2100 sq. ft.  
video equipment, effects equipment, full audio equipment, lights, dimmers, mobile van, full video and audio post-production.

### C & C Visual Ltd.

12 West 27th Street  
(212) 684-3830  
22' x 40' = 880 sq. ft. stage  
soft cyc, video equipment.

### Thomas Cestare

188 Herricks Road, Mineola, NY  
(516) 742-5550  
50' x 60' = 3000 sq. ft. stage  
12' height to grid  
hard cyc 16 l x 12 h x 16 r, two kitchen sets, make-up room, production office, lighting and grip equipment including crab dolly, three mobile trucks with generators.

### East Coast Teleproductions

3200 Expressway Drive South,  
Central Islip, NY  
(212) 895-6700/(516) 582-6700  
Stage A: 50' x 70' = 3500 sq. ft. stage  
Stage B: 40' x 60' = 2400 sq. ft. stage  
height to grid 18'  
video and audio equipment.

### Group W Cable

5120 Broadway  
(212) 942-7200  
1000 sq. ft. stage  
cyc, video equipment, van, video post-production, transfers.

### HBO Studio Productions

120A East 23rd Street  
(212) 477-8600  
36' x 42' = 1512 sq. ft. stage  
hard cyc, video and audio production and postproduction equipment, duplication, color correction, shipping service.

### International Production Center

514 West 57th Street  
(212) 582-6530  
50' x 50' = 2500 sq. ft. stage  
hard cyc, video production, special effects, and postproduction equipment, duplication.

—PAGE 286

# INNOVATION



**Weststar**<sup>TM</sup>

*A triumph of engineering  
forethought and attention to detail.*

The **WESTAR** is a 24 mixing bus, in-line, dual path, multi-function recording/post-production console featuring:

- A modular frame — assembled to 20, 28, 36, 44, 52 or more inputs, and easily expandable.
- Plug-in interchangeable preamplifiers — differential or transformer, with single or dual inputs.
- A choice of plug-in interchangeable equalizers — 4-band, switched frequencies; 4-band, fully parametric; or 10-band graphic EQ.
- A plug-in VCA card, with choice of VCA.
- An interchangeable fader system — audio fader, VCA fader, or an automated fader using the Q.E.W. Intelligent Digital Fader module.

**WESTAR** — world class, yet affordable; the technology of tomorrow can be yours today.

**quad eight/ Westrex**

#### INTERNATIONAL HEADQUARTERS

11929 Vose Street, North Hollywood, CA 91605 U.S.A.  
Telephone: 818-764-1516 Telex: 662446

#### QUAD EIGHT/WESTREX LTD.

Unit 1, Fairway Drive, Greenford, MIDDX UB6 8PW U.K.  
Telephone: (01) 578-0957 Telex: 923003



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World Radio History

# AUDIO APPLICATIONS

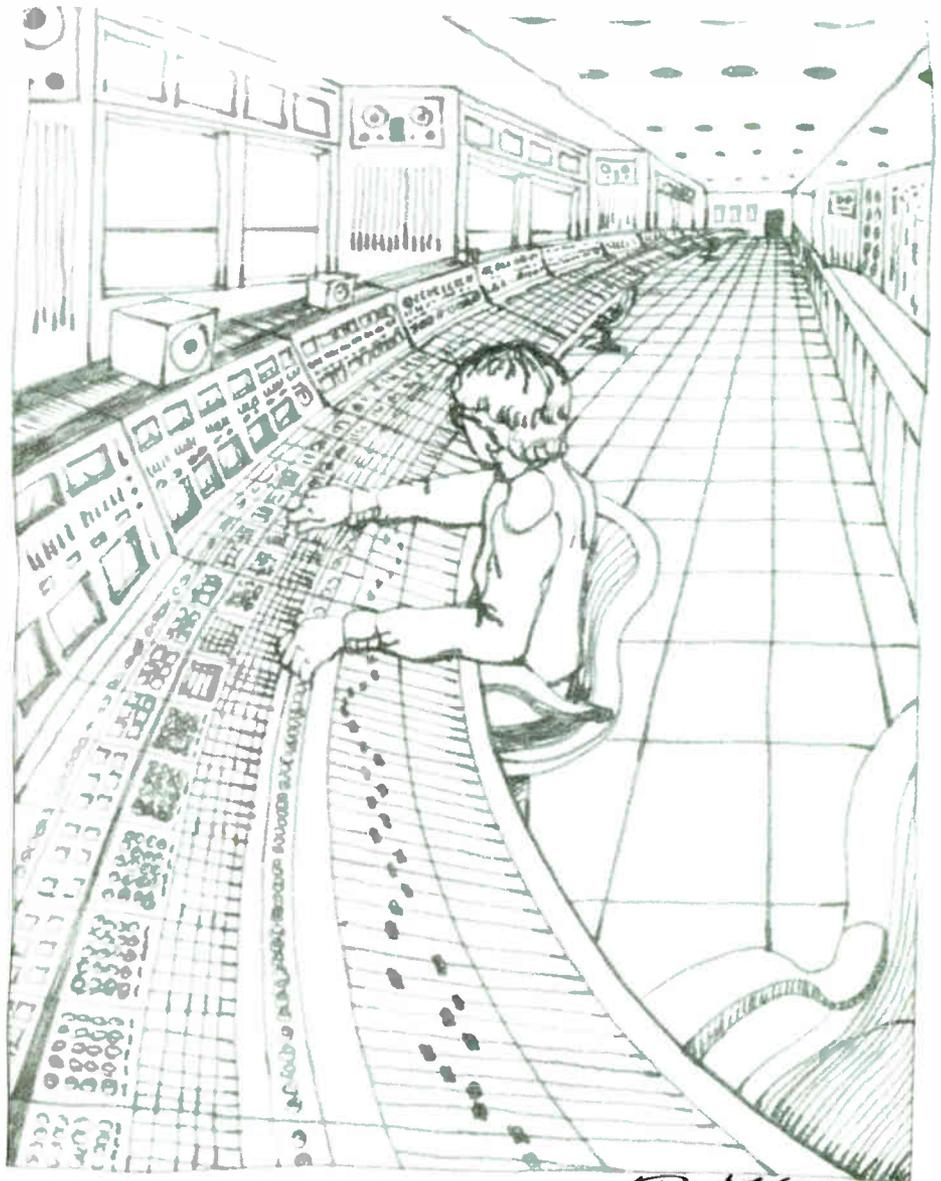
by Ken Pohlmann

The audio community is richly blessed with many marvelous examples of technology. Studios everywhere are graced with the latest products designed to promote creativity and productivity

alike. Control rooms are like sacred subtly-lit shrines with the highest of high technology, the ultimate example of beauty and functionality. Highly-skilled engineers, collaborating with dedicated artisans, utilize electronic instruments carefully constructed and tuned to perform under the demands of artistic per-

**U**nfortunately, not all products are created equal. There is a lot of crap out there, equipment that is real junk. . . Some of these products are so bad that only a government agency would think of buying them.

## DON'T BUY THESE PRODUCTS **DIRECTORY**



fection, laboring to create music as beautiful as the conception of the midwife technology. There is also a lot of crap out there, equipment that is real junk, not to mention music that isn't so great either. I mean real dogs, gear that the old studio manager bought just before he was fired and now it shows up in the mail, comes out of the box greeted by groans and cries of derision. Then you plug it in and the power supply immediately shorts out and you put it up on the top of the shelf in the maintenance room, a sad memorial to poor judgement.

Okay, okay, most products out there are pretty good. This month's *Mix* features many of the newest and hottest products which really could turn the trick of paying for themselves and making a buck too. But let's face it, some products stink. And to make things worse, someone out there buys them. Let's be honest—we've all made mistakes. The studio needs a new parametric equalizer, so you check the ads in all the magazines, telephone for sales brochures and finally choose the best deal. Then it arrives and it sounds like a bass cabinet with a bad woofer and you call the company and their phone has been disconnected and you end up using only the detachable power cable, on another piece of equipment, a real deal at \$299.99 plus shipping.

Friends, I am philosophically convinced that nothing we do in this life will make this world a good place to be, but nevertheless we have to keep trying. Hence this directory. I have combed through the new products being released this fall and tried to identify the marginally-conceived, poorly-produced and obviously-smelly offerings. Thus I have compiled a "definitely don't buy this product" list. I mean, these products are so bad that only a governmental agency would think of buying them. On the other hand, if you read through this directory, and you find yourself enamored of these products, call me immediately; I have a number of items in my maintenance shop for sale cheap.

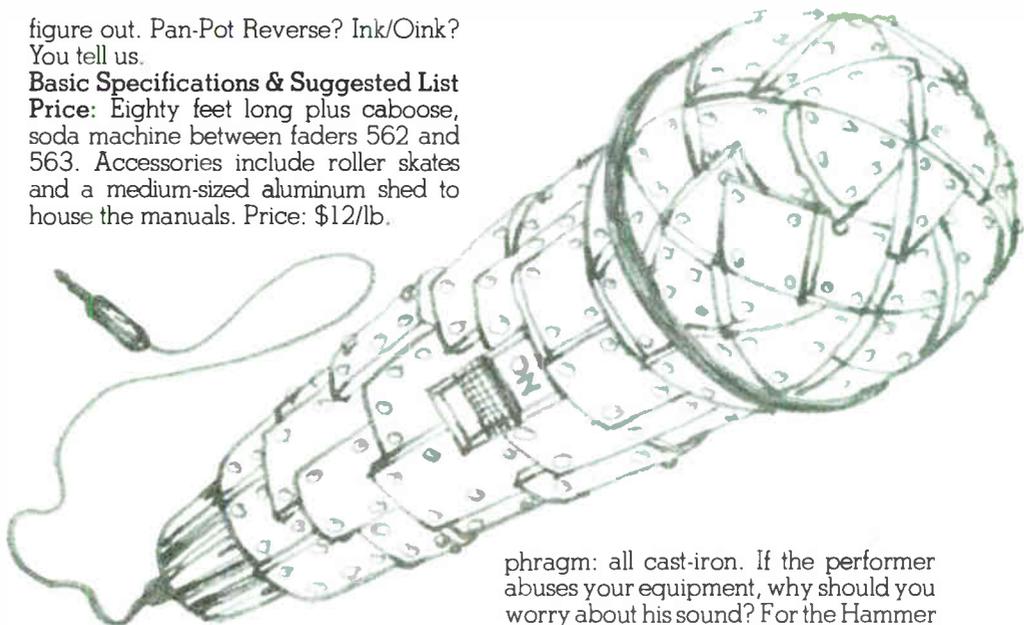
**Gargantua Console Company**  
Toledo, Ohio

**Product Name:** Big Fella

**Product Description:** For those studios where the visual impression is worth more than performance, this is the console. The Big Fella console is 80 feet long and has a special meter light show left over from the last Genesis tour. This console has it all: built-in cigarette lighter, AM-FM radio, 8 track tape, white side wall tires, rear defogger, and buttons, buttons, buttons. This baby has buttons that even our design engineers couldn't

figure out. Pan-Pot Reverse? Ink/Oink? You tell us.

**Basic Specifications & Suggested List Price:** Eighty feet long plus caboose, soda machine between faders 562 and 563. Accessories include roller skates and a medium-sized aluminum shed to house the manuals. Price: \$12/lb.



**Bullet Proof Microphone Company**  
Miami, Florida

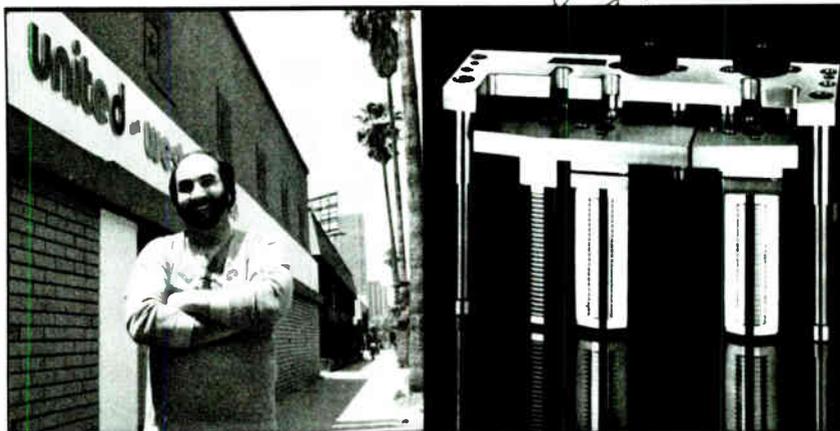
**Product Name:** "The Hammer" Microphone

**Product Description:** For those performers who insist on bouncing the microphone off the stage as part of their act, this is the microphone. This exceptionally rugged microphone features all cast-iron construction. Case, magnet, dia-

phragm: all cast-iron. If the performer abuses your equipment, why should you worry about his sound? For the Hammer Microphone, sonic considerations have been severely ignored to produce the most indestructible microphone ever. This product has been tested and approved by the U.S. Army Corps of Engineers.

**Basic Specifications & Suggested List Price:** Frequency response: 400 to 450 Hz, S/N ratio: 12 dB, shock tolerance: 12,000 G's. Case not included, or needed. Shipping weight: 87 lbs. Price: \$566.

**"The sonic quality of Saki heads, makes them the #1 choice on all our multitracks"**



Chief Engineer Cary Fischer  
United Western receives no compensation for this endorsement

SAKI MCI 24 Track

After 16 years of technological leadership in one of the most demanding and ever-changing fields, you can depend on Saki's commitment to service your future needs long after the competition is gone.

SAKI heads are made in the USA

**SAKI** **SAKI MAGNETICS, INC.**  
A California Corporation Since 1968

8650 Hayden Place, Culver City, CA 90230 213 / 559-6704 (TWX-910-328-6100)

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*Pictured at left:*  
**Gargantua's Big Fella Console**

**Behind the Dixie Motel Audio, Inc.**  
122299 Dixie Highway, Ft. Lauderdale,  
Florida

**Product Name:** Magic Fingers  
Automation

**Product Description:** The Magic Fingers Automation System provides instant automation for any console, thanks to our non-patentable totally mechanical fingers which can be easily attached to any console armrest. Controlled by a complicated series of levers, cams, push-rods, pulleys, and windmills, these fingers realistically move faders and drum impatiently between takes. A special option, the Magic Hand System, can be used to keep time by tapping on the producer's desk.

**Basic Specifications & Suggested List Price:** As many fingers as you need. System installed anywhere, cost 25 cents/half-hour, sorry—correct change only.

**Approximation Test Gear Corp.**  
Hozitgoin, Japan

**Product Name:** Measure Master

**Product Description:** This incredibly sensitive meter measures things previously thought to be unmeasurable. Influence of cosmic rays on tape machine calibration? Measure it! Wow and flutter on Compact Disc players? We know what it is! Other measurable signals include radar speed traps, drug use by athletes, fluorescent lights, early warning signs of digital madness, and bad vibes.

**Basic Specifications & Suggested List Price:** Specifications are disclosed only 90 days after purchase. The price is right.

**Mail Order Fraud Inc.**

PO Box 688, Joliet, Illinois

**Product Name:** "Digital" Tape Machine

**Product Description:** Your chief competitor just purchased a professional digital tape recorder, but you're unable to afford the high cost? Cheat. Our "Digital" tape machine is sleek, modern-looking, has "Digital" nameplates in six highly visible places and is affordably analog inside. Here's the gimmick: replace your air conditioner louver with our special high turbulence noise model, and the clients will never hear your analog noise floor. With rock and roll, who cares about the S/N ratio anyway? Who's kidding who? Enjoy the best of digital, without the cost. Only you and your tech will know and neither of you wants to lose your job.

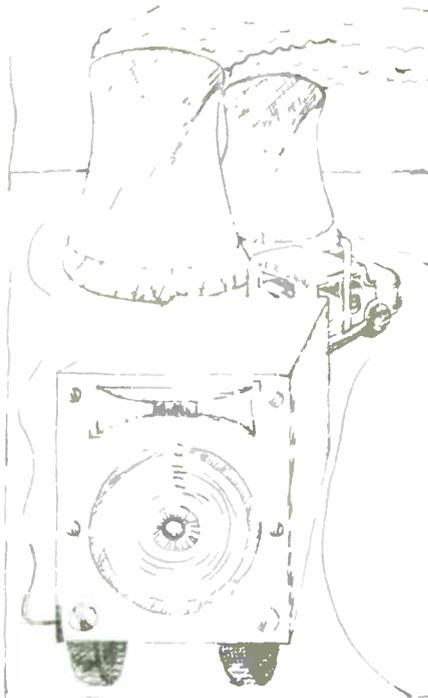
**Basic Specifications & Suggested List Price:** Convincing-looking appearances. Optional: "Famous Name" manufacturer's cabinetry. Price: \$3,999.

**Effectsco.**

Rudy Valley, California

**Product Name:** Model 55ZX Audio Processor

**Product Description:** This amazing



*Hearing Loss Stage Monitor*

new concept in signal processors features the most realistic cardboard-tube sound ever developed. Rather than rely on artificial simulation techniques, this processor uses a specially designed cylindrical acoustic modifier constructed with specially designed wood product fiber which fits over the microphone itself to produce this unbelievable effect.

**Basic Specifications & Suggested List Price:** Assorted sizes and lengths, price \$9.95.

**Effectsco.**

Rudy Valley, California

**Product Name:** Model 999Z Special Effects System

**Product Description:** This unique set of transducers produces some of the most exciting effects ever devised. Special metal alloy transmitter/receivers with almost magical acoustical properties transduce signals along a special "string" which accomplishes the special effects processing. Special psychoacoustic phenomenon brings back childhood memories; an incredible effect.

**Basic Specifications & Suggested List Price:** Regular or Hi-C sized transmitter/receivers, replacement "string" included. Price \$39.95.

**Accessories Unlimited, Ltd.**

Bristol Meyers, England

**Product Names:** Ultra-Shear Windscreen, Non-Slip Capstan Roller Protector.

**Product Descriptions:** The new Ultra-Shear Windscreen ends high-end roll-off

caused by conventional windscreens with a uniquely-conceived miracle fabric contoured around a coat-hanger frame. The Non-Slip Capstan Roller sheath protects the roller against harmful dust, dirt, fungus, bacteria, and disease. A unique non-lubricated polymer material keeps tape on track.

**Basic Specifications & Suggested List Price:** Windscreens and protectors available in a variety of decorator colors, one size fits all.

**Bombs Away Inc.**

Ground Zero, Arizona

**Product Name:** Hearing Loss Stage Monitor

**Product Description:** Yes, friends, at last there is a stage monitor so loud that it can cause hearing loss. Gone forever are the days of complaining musicians, unhappy about low monitor levels. Special sound pressure level sensors and built-in amplifier (see below) adjust loudness to maintain a monitor level 30 dB higher than stage level. Amazingly, during a recent test, a heavy metal rocker complained that his monitor was too loud.

**Basic Specifications & Suggested List Price:** Loudness 195 dB-SPL. Price \$102,500.

**Bombs Away Inc.**

Ground Zero, Arizona

**Product Name:** Critical Mass Amplifier

**Product Description:** This audio amplifier produces over 500,000 kilowatts of power thanks to the surplus nuclear reactor inside. This unit comes on its own flatbed truck and can be operated safely if a large water source such as Lake Erie is available for cooling purposes. Special applications include the Hearing Loss Monitor (see above), sending acoustic messages to the moon, and concerts for folks who have recently died.

**Basic Specifications & Suggested List Price:** \$350,000,000 (not available in Russia).

**Fun Time Inc.**

Anaheim, California

**Product Name:** Fun Box

**Product Description:** Engineers, is your work constantly being hampered by producers trying to interfere in the decision-making aspects of record production? Do you have to put up with endless comments like "What do you think?" "Now let me hear it without EQ," or "I told you we shouldn't have recorded it wet." The Fun Box can end those petty annoyances! This brightly-colored box has lots of switches and lights to attract the producer's attention and keep him occupied while you work. Guaranteed for hours and hours of productive concentration.

**Basic Specifications & Suggested List Price:** Recommended for ages 3 through 7 and producers of any age. Requires 4

# SYNCON series B

Shopping for a Desk these days can be a chancy business. Limited budgets all too often mean limited equipment, limited performance – and limited potential for future expansion. It's a story that many smaller studios know to their cost.

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The in-line modular concept of the SYNCON B means that you can start with a basic 8 or 16 track configuration and, without factory modification, expand to a 44 input, fully automated console with patchbay. And even the patchbay is totally modular – totally expandable.

For more than 10 years AHB has earned the confidence of the World's audio fraternity. With the SYNCON Series B we have proved that it is possible to build a low-cost desk with a performance equal to one twice its price. With a sound-handling capability unmatched in the price range.

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- 

ALL NEW PRODUCTS INFORMATION LISTED HAS BEEN SUPPLIED TO THE MIX BY MANUFACTURERS RESPONDING TO QUESTIONNAIRES MAILED EARLIER THIS YEAR. SPECIFICATIONS CHANGE, SO VERIFY CRITICAL INFORMATION WITH MANUFACTURERS DIRECTLY. THE MIX DOES NOT TAKE RESPONSIBILITY FOR THE ACCURACY OF THE INFORMATION SUPPLIED TO US BY THESE MANUFACTURERS.

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# EW PRODUCTS AMPLIFIERS

# 1 . 9 . 8 . 5

**BGW SYSTEMS, INC.**  
13130 S. Yukon Ave., Hawthorne, CA 90250  
(213) 973-8090

**Product Name:** BGW PROLINE II 7500

**Contact:** Hamid Hajj, Sales Manager

**Date Product Introduced:** Summer 1984

**Product Description & Applications:** New cost effective 200 watt per channel power amplifier features exclusive BGW Ultra wide power transistors and styling to match its big brother the Model 8000. The Model 7500 is built using modular construction and welded steel chassis. DC speaker protection is provided. Three types of thermal circuit breakers are used insuring reliable operation even under worst case conditions. Optional BGW accessory circuits include electronic crossover, high performance balanced and transformer inputs.

**BGW SYSTEMS, INC.**  
13130 S. Yukon Ave., Hawthorne, CA 90250  
(213) 973-8090

**Product Name:** BGW PROLINE II 8000

**Contact:** Hamid Hajj, Sales Manager

**Date Product Introduced:** Summer 1984

**Product Description & Applications:** The Model 8000 is the flagship of the all new Proline II series of power amplifiers featuring toroidal power transformer, 24 BGW Ultra wide power device forced air cooling and modular construction. 2 ohm loads can be driven and with 1 channel operation, 600 watts continuous power is available. The Model 8000 is truly the best value in a power amplifier for portable sound reinforcement applications, equally suited for use in recording studios or home monitor applications. BGW air out board accessories, providing electronic crossover, high performance balanced or transformer inputs can be added.



**CARVER CORPORATION**  
PM-1.5

**CARVER CORPORATION**  
P.O. Box 1237, 19210 33rd Ave. W., Lynnwood, WA 98036  
(206) 775-1202

**Product Name:** PM-1.5

**Contact:** D.H. Carver, Executive Vice President

**Date Product Introduced:** April, 1984

**Product Description & Applications:** Weighing only 21 pounds, this amplifier puts out 450 watts per channel (18-ohms, 450 w/channel, 20 kHz, both channels driven with no more than 0.5% THD). Highly sophisticated circuits protect against over voltage, excessive high frequency (non musical) signals, out of phase ultrasonic oscillation, significant DC off set, over heating.

**Basic Specifications & Suggested List Price:** Input, balanced to ground, XLR or phone, Impedance, 15k ohm each leg, balanced to ground, Bridging, 1200 watts into 8-ohms, 1000 watts into 16 ohms, 800 watts into 4-ohms, accessed through rear panel recessed switch. 19" wide x 3 1/2" high.

**CROWN INTERNATIONAL**  
1718 W. Mishawaka Rd., Elkhart, IN 46517  
(219) 294-5571

**Product Name:** CROWN MICRO-TECH 1000

**Contact:** Bruce Bartlett, Technical Writer

**Date Product Introduced:** September, 1984

**Product Description & Applications:** It took Crown's expertise to make this miniaturized, yet high technology, stereo power amplifier. The Micro-Tech 1000 provides enormous performance in a 9" profile (9 1/2" tall) unit. Patented Crown circuitry allows extreme voltage swings without putting output transistors in series. This provides lower distortion and greater reliability. A unique cooling system reverses the air flow as needed. Has output protection circuitry to prevent overheating and overload. Redundant power supply protection against shorts, overload, etc.

**Basic Specifications & Suggested List Price:** Power 250 watts into 8 ohms at 1.0% THD, 350 w/ch into 4 ohms at 1% THD, 1000 w mono into 1 or 4 ohms at 1% THD. Hum & noise: 110 dB @ 20 kHz. IM distortion: under 0.05%. 19" x 19" x 9 1/2" deep. Under \$1000. Deluxe model under \$1200.

**DUKANE CORPORATION, COMMUNICATIONS SYSTEMS DIVISION**

2900 Dukane Dr., St. Charles, IL 60174

(312) 584-2300

**Product Name:** PACKAGE AMPLIFIER, MODEL 1A1420

**Contact:** Donald Coil, Communications Systems Division

**Date Product Introduced:** June, 1984

**Product Description & Applications:** Dukane Package Amplifier Model 1A1420 is ideal for public address, background music, microphone and telephone paging. Model 1A1420 has a rated capacity of 20 watts and less than 0.3% distortion from 20,20,000 Hz. Amplifier has two low impedance, balanced microphone inputs—one of which also functions as a 600 ohm telephone line-level input and auxiliary input. Outputs are 4 to 16 ohms, 25 or 70 watt.

**Basic Specifications & Suggested List Price:** Model 1A1420 has front panel controls, built in LED for monitoring output. Features a resettable overload protection circuit breaker, and both XLR and screw terminal input connectors. Amplifier weighs 9 pounds; in a measures 5 1/2" (H) x 9" (W) high x 10 1/4" (D) (26.5 cm) wide x 7 1/2" (20.3 cm) deep.

**DUKANE CORPORATION, COMMUNICATIONS SYSTEMS DIVISION**

2900 Dukane Dr., St. Charles, IL 60174

(312) 584-2300

**Product Name:** AM/FM RECEIVER/AMPLIFIER MODEL 1A2001

**Contact:** Donald Coil, Communication, System Division

**Date Product Introduced:** June, 1984

**Product Description & Applications:** Model 1A2001 is an AM/FM Receiver/Amplifier designed for background music, telephone and microphone paging. Model 1A2001 has a rated capacity of 40 watts, with less than 1% distortion through full range. A sensitive high or low impedance microphone input, a magnetic phono input, two auxiliary inputs and a line input allow flexibility in operation. Ideal for background music and voice paging in stores, restaurants, clubs, lodges and small factories, the 1A2001 can be adjusted to larger areas simply by adding a booster amplifier.

**Basic Specifications & Suggested List Price:** Model 1A2001 has front panel volume controls for music and paging, a digital readout displaying AM/FM frequency, an LED signal strength indicator, and muting capability for paging. Power Source: 120VAC, 60Hz. Power Required: 105 watts maximum. Cabinet Dimensions: 17 1/4" (44.1 cm) wide x 9 1/8" (23.1 cm) high x 14 1/4" (36.5 cm) deep. Net Weight: 15 pounds. Finish: Char. Red baked enamel.

**EDCOR**  
16782 Hale Avenue, Irvine, CA 92714  
(714) 863-1529

**Product Name:** GLA SERIES (GREAT LITTLE AMPS.)

**Contact:** Larry Weston, President

**Date Product Introduced:** May, 1984

**Product Description & Applications:** Seven amplifiers consisting of GLA 10 (10 watt), GLA 10DC (DC only), GLA 45 (45 watt mixer amp), GLA 60 (60 w. mixer amplifier), GLA 100 (100 watt mixer amplifier), GLA 60B & GLA 100B (booster amplifiers). All units have a new unique positive protection circuit. Each amplifier has 4,

8 16 ohm voice coil outputs and 25 & 70 volt line level. Applications are primarily for commercial sound, background music and music training.

**Basic Specifications & Suggested List Price:** Full continuous rated RMS power, THD less than 1 percent at any power level, low noise, built in pre-emphasis and voice coted operation on mixer amplifiers, designed and constructed for peak or table operation, appear in our outstanding Price range \$155 to \$574.

**JBL INCORPORATED/UREI**  
8500 Balboa Blvd., Northridge, CA 91329  
(818) 893-8411

**Product Name:** POWER AMPLIFIERS - 6230, 6260

**Contact:** Herbert Wahl, Applications Engineer

**Date Product Introduced:** May, 1984

**Product Description & Applications:** JBL power amplifiers are rugged and road worthy, conservatively rated, and can handle highly reactive loads with ease. The engineering design approach stresses the optimization of each stage, allowing high slew rate and relatively low loop gain. Overall feedback has been held to a minimum and is employed only to stabilize the gain and the operating point. This design approach results in amplifiers with excellent performance under the most demanding dynamic input and load conditions. An evaluation of the stress on dynamic rather than static or steady state distortion mechanisms. Transient intermodulation distortion measures less than 0.3% by the DIM test.

**Basic Specifications & Suggested List Price:** 6230 retail price \$618 (retail price \$470). Output power per channel into 8 ohms: 75 watts (150 watt), bridged into 16 ohms: 150 watt (300 watt), with THD or IM no greater than 0.1%. Output power per channel into 4 ohms: 150 watts (300 watts), bridged into 8 ohms: 300 watts (600 watts), with THD or IM no greater than 0.2%.

**MESA/BOOGIE, LTD.**  
1317 Ross St., Petaluma, CA 94952  
(707) 778-6565

**Product Name:** MESA/BOOGIE M-180

**Contact:** Frank Goodman, Sales

**Date Product Introduced:** February, 1984

**Product Description & Applications:** The updated MESA/Boogie M 180 is an all tube, rack mount, power amplifier intended for studio playback, musical instruments, and sound reinforcement applications. Six MESA/STH 415 output tubes plus a proprietary driver circuit furnish a dynamic musical performance that appears to go far beyond rated output. By direct comparison the M 180 has characteristically natural musical ambience while sounding louder, clearer, warmer and more articulate than transistor amps boasting more than triple the power.

**Basic Specifications & Suggested List Price:** The MESA/Boogie M 180 accepts foreign AC power (including Japan). It has 180 watt mid band power capability into 4 or 8 ohms, a 3 speed cooling fan, extremely rugged seven inch rack construction and is hand built in the U.S.A. It is available direct and is unconditionally guaranteed \$650.

**MESA/BOOGIE, LTD.**  
1317 Ross St., Petaluma, CA 94952  
(707) 778-6565

**Product Name:** M-190

**Contact:** Frank Goodman, Sales

**Date Product Introduced:** February, 1984

**Product Description & Applications:** The updated MESA/Boogie M-190 is an all-tube fully featured version of the M 180, and includes balanced low Z input XLRs and switchable attenuator, 22-step precision hi Z input attenuator, LED power status indicator, XLR output connectors, 3/4" phone jacks and gold binding posts, plus a totally separate and regulated high voltage screen supply. Intended for studio playback, PA and keyboards, the M 190 is extremely articulate, well focused and achieves a new standard of sonic performance.

**Basic Specifications & Suggested List Price:** The MESA/Boogie M 190 accepts foreign AC power (including Japan) and furnishes 190 watts mid band output power with extraordinary dynamic range. Regulated, direct cooled tube driver circuitry has no phase shift between 30 and 10 kHz. Hum and noise is audible. Available direct and unconditionally guaranteed \$850.

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Most amplifiers only have 8 and 4 ohms stereo power ratings. Not Crest Audio! We design our amplifiers\* to have the electrical and thermal capacity to achieve an FTC 2-ohm stereo power rating from 10Hz to 20kHz with less than 0.10% THD. This ability to operate safely under such extreme conditions is a major factor in our amplifiers' reliability. Combine this with our no-compromise design philosophy of optimizing *all* audio specifications, and the "bottom line" is an amplifier that sounds great and won't fail.

Four years' experience with many of the world's leading sound companies has taught us how to build amplifiers that will stand up to the most rigorous conditions, night after night, tour after tour. Today, over 1000 Crest Amplifiers are on tour with such major sound companies as Maryland Sound, dB Sound, Ultra Sound, and See Factor.

Listen to a Crest, examine its construction, talk to the many professionals who use Crest Amplifiers, and you'll be convinced that we really do build superior amplifiers—the direct result of a no-compromise design philosophy applied to a very serious business.

\* FTC Ratings, 10Hz to 20kHz, continuous sine wave at one-third output. Both channels driven, distortion <0.06% at 8 and 4 ohms stereo, <0.10% at 2 ohms stereo and 4 ohms mono.

Model #	3000/3001	4000/4001	5000/5001
8 ohms stereo	225W	300W	375W
4 ohms stereo	400W	500W	650W
2 ohms stereo	600W	700W	800W
4 ohms mono	1100W	1400W	1700W

NEI

934 N E. 25th Ave., Portland, OR 97232  
(503) 232-4445

**Product Name:** A100 PROFESSIONAL POWER AMPLIFIER

**Contact:** Bud Garrison, President

**Date Product Introduced:** January, 1984

**Product Description & Applications:** The A100 is a highly compact two channel audio amplifier designed and built specifically for professional commercial applications. In stereo mode, the A100 delivers 100 WRMS per channel into 8 ohms with both channels driven. In bridged mode, its power output increases to 350 WRMS. The A100 uses both balanced D3Fs and unbalanced phone jack inputs. Output connections are made via two pair of 5 way binding posts and 1/4" phone jacks, ensuring compatibility with all commercial wiring schemes. The A100's thick aluminum front panel bolts directly into any standard 19" equipment rack. Removable in slatted feet permit shelf or bench mounting.

**Basic Specifications & Suggested List Price:** Continuous output, both channels driven 20Hz-20kHz 8ohms, 100 WRMS/FTC rated 4 ohms, 160 WRMS/FTC rated 2 ohms, 250 WRMS Mono Bridged 16 ohms 200 WRMS 8 ohms, 350 WRMS 4 ohms, 550 WRMS (limited by line fuse) s/n ratio: Better than 95 dB at 1 watt reference level. Slew rate: Better than 40V/micro sec. both channels driven. Better than 80V/micro sec. mono bridged. Size: 19"x3 1/2"x11". Weight: 19 lbs. Price: \$649.

PEAVEY ELECTRONICS

711 A St., Meridian, MS 39301  
(601) 483-5365

**Product Name:** DECA 700 & 1200

**Contact:** Amy Sincletary, Advertising Manager

**Date Product Introduced:** January, 1984

**Product Description & Applications:** Greater than 90% power transfer efficiency, 19" rack mount configuration, DDT compression circuitry (patented by Peavey) to prevent amp overload, LED status and level indicators, DDT compression delevel circuits, multiple output and load protection features, absolutely no measurable THD or slew rate induced distortion. Rated at less than 0.1% THD. DECA 700 weighs 26 lbs. and DECA 1200 weighs 24 lbs.

**Basic Specifications & Suggested List Price:** Suggested list on DECA 700 is \$699.50 and DECA 1200 is \$999.50.

## NEW PRODUCTS

### AMPLIFIERS

1 • 9 • 8 • 5

PHOENIX SYSTEMS INC.

P.O. Box 628, Manchester, CT 06040  
(203) 643-4484

**Product Name:** MODEL P-100 REFERENCE PHONO PREAMP

**Contact:** John H. Roberts, President

**Date Product Introduced:** June, 1984

**Product Description & Applications:** High accuracy phono pre-amplifier for monitoring or broadcast applications, with front panel mono/stereo switch.

**Basic Specifications & Suggested List Price:** Playback EQ: IEC +/- 1 dB, will drive 600 ohm to +18 dBV (775). Input Impedance 47k & 100pF. Output Impedance 50 ohm. Input Overload 100 mV at 1 kHz S/N, 86 dB IHF "a" wtd re (5 mV) P 100 mm (kit) \$99, p-100-mma (assembled) \$149.

SHURE BROTHERS INC.

222 Hartrey, Evanston, IL 60204  
(312) 866-2200

**Product Name:** FP11 MIC/LINE AMP FP12 HEADPHONE AMP

**Contact:** John F. Phelan, Market Manager

**Date Product Introduced:** October, 1984

**Product Description & Applications:** The FP11 allows a low impedance microphone or high impedance aux signal to be amplified to true, balanced line level (+18dBm). The FP11 has 84dB of gain in 6dB steps, is battery powered, and can be hung on a belt with the supplied clip. The FP12 is a headphone bridging amp that allows

monitoring via headphones, or mike or line level signals. Either mini or enclosed headphones can be used. The FP12 has switchable hi or low impedance headphone circuits, is battery powered, and can be belt worn.

**Basic Specifications & Suggested List Price:** FP11 - Frequency Response: 20-20kHz. Max Gain: 84dB. Limiter: on/off switch. Power: (1) 9 volt battery. FP12 - Frequency Response: 40-15,000 Hz. Max Gain: 96dB. Input: Mike or line level. Output: Hi or Lo Z. phones. Power: (1) 9 volt battery.

SONTEC ELECTRONICS

Audio Drive, Goldbond, VA 24094

(703) 626-7256

**Product Name:** PPP-1

**Contact:** Burgess MacNeal, President

**Date Product Introduced:** August 18, 1984

**Product Description & Applications:** Stereo phonograph pre-amplifier. All discrete direct-coupled circuitry. Accurate passive high-frequency equalization. Variable input stage gain and loading optimizes performance for different cartridges.

**Basic Specifications & Suggested List Price:** 1 1/4"x19"x16" rack mount. 115 VAC 50/60 Hz. Maximum output: +26 dBm.

SONTEC ELECTRONICS

Audio Drive, Goldbond, VA 24094

(703) 626-7256

**Product Name:** MB-1

**Contact:** Burgess MacNeal, President

**Date Product Introduced:** September, 1984

**Product Description & Applications:** Dual microphone pre-amplifier for use anywhere. Specifications exceed those of even the best microphones. All discrete signal processing in direct coupled configuration. Phantom powered. Front panel phase switch, gain control, + level indicators.

**Basic Specifications & Suggested List Price:** Package 7.5x5.4x2.7". 115 VAC 50/60 Hz. Frequency Response:  $\pm 1$  dB 10-100,000 Hz. Gain Variable: 15-70dB in 5dB steps. Distortion at 70dB Gain = 0.27% at +20dBm output. Slew rate greater than 200 V/u Sec. \$685.

SOUNDCRAFTSMEN

2200 So. Ritchey, Santa Ana, CA 92705

(714) 556-6191

**Product Name:** PR1800 POWER AMP

**Contact:** Hoop Haagemeyer

**Date Product Introduced:** September, 1984

**Product Description & Applications:** The new PR1800 professional amplifier was designed for the utmost in reliability even under the most demanding conditions and installations, with the understanding that load impedances in commercial sound applications are well under 8 ohms, many times at or below 2 ohms. The new Phase-Control-Regulation technology allows the amplifier to perform flawlessly under these most demanding conditions.

**Basic Specifications & Suggested List Price:** Continuous RMS power, THD: 0.05% (per channel). 4 ohm stereo: 600 watts, 2 ohms stereo: 700 watts, 8 ohms mono: 1200 watts. IM Distortion: Less than 0.05%. Frequency Response: 20Hz to 20kHz,  $\pm 0$  dB. Hum & noise: -105dB. Rise time: 2.2 microseconds. Price: \$1199.

ZETKA - NORTH AMERICA

PO Box 6493, Thousand Oaks, CA 91359

(805) 496-2969

**Product Name:** ZPE SERIES Professional Power Amplifier

**Contact:** Professional Audio Services & Supply (RIB) 8436420

**Date Product Introduced:** January, 1984

**Product Description & Applications:** ZETKA ZPE Series are Mos Fet Technology. Three models are available: ZPE 500, ZPE 600 and ZPE 1000. ZPE 600 and 1000 have a 3 LED display, true stepped attenuator and dual speed fans. All models usable to 2 ohms. Model numbers signify 8 ohm power rating, both channels combined. Superior audio quality, massive construction, 3 year warranty parts and labor.

**Basic Specifications & Suggested List Price:** Product Description & Applications: ZPE 500 - \$879, ZPE 600 - \$1,299, ZPE 1000 - \$1,449.

# BRYSTON



## Bryston's 2B-LP

Bryston has been known and respected for years as the manufacturer of a line of amplifiers which combine the transparency and near-perfect musical accuracy of the finest audiophile equipment, with the ruggedness, reliability and useful features of the best professional gear. Thus, Bryston amplifiers (and preamplifiers) can be considered a statement of purpose to represent the best of both worlds - musical accuracy and professional reliability to the absolute best of our more than 20 years' experience in the manufacture of high-quality electronics.

The 2B-LP is the newest model in Bryston's line, and delivers 50 watts of continuous power per channel from a package designed to save space in such applications as broadcast monitor, mobile sound trucks, headphone feed, cue, and any installation where quality must not be limited by size constraints. As with all Bryston amplifiers, heatsinking is substantial, eliminating the requirement for forced-air cooling in the great majority of installations. This is backed up by very high peak current capability (24 amperes per channel) and low distortion without limiting, regardless of type and phase angle of load. In short, the 2B-LP is more than the functional equivalent of our original 2B in spite of the fact that it occupies only half the volume, and will fit into a single 1.75" rack-space.

The usefulness of the 2B-LP is extended by a long list of standard features, including: Balanced inputs; female XLR input jacks; dual level-controls; isolated headphone jack; and individual two-colour pilot-light/clipping indicator LEDs for each channel. In addition, the channels may be withdrawn from the front of the amplifier while it is in the rack, vastly facilitating any requirement for field-service, including fuse-replacement.

Of course, in keeping with Bryston's tradition of providing for special requirements, the 2B-LP can be modified or adapted to your wishes on reasonably short notice, and at nominal cost.

Best of all, however, the 2B-LP is a Bryston. Thus the sonic quality is unsurpassed. The difference is immediately obvious, even to the uninitiated.

Other amplifiers in Bryston's line include the model 3B at 100 watts per channel, and the model 4B at 200 watts per channel. All ratings continuous power at 8 ohms at less than 0.1% IM or THD.

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## More Bass, More Output, More Value. The New KLIPSCH KSM-2.®

The new KLIPSCH KSM-2 is an outstanding monitor value. Its horizontal, slant configuration makes it ideal for use as a stage monitor, yet it can be turned upright for use as a front system in small clubs. Polars remain essentially smooth and constant, either way.

It's a ported two-way system with a 15" woofer and horn loaded tweeter. The measured frequency response of 45 Hz to 14 kHz provides plenty of bass for the monitoring needs of keyboard and drums.

The special input panel allows

easy field change from a parallel wiring configuration to a bi-amp configuration. Separate filters for each driver eliminate the need for an additional electronic crossover network – you can feed full bandwidth into both the tweeter and the woofer without undue problems. And the speaker is conservatively rated at 200 watts power handling.

Yet if you do blow a driver, you don't have to replace a driver. Now driver diaphragms are easily replaced in the field. This feature saves you time, money, and headaches.

Hear the new KLIPSCH KSM-2 at your nearest dealer for KLIPSCH® Professional Products. He's in the Yellow Pages. You'll find a rugged box that arrives on time, ready to go to work.

You'll love this monitor. And you'll love its price.



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# N

# EW PRODUCTS AUTOMATION AND CONTROL SYSTEMS

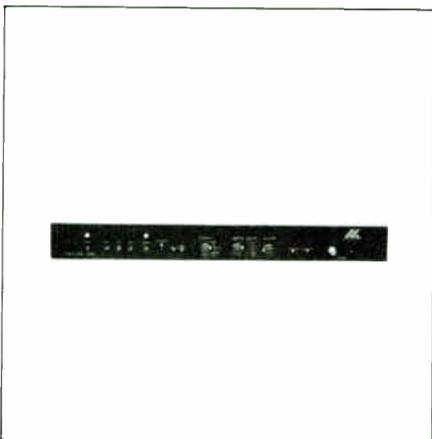
## 1 . 9 . 8 . 5



**ADAMS • SMITH**  
System 2600 Event Executive Module/Event Edit Controller

**ADAMS • SMITH**  
34 Tower St., Hudson, MA 01749  
(617) 562-3801  
Product Name: SYSTEM 2600 EVENT EXECUTIVE  
MODULE/EVENT EDIT CONTROLLER

Contact: Harry F. Adams, V.P. Sales  
Date Product Introduced: August 1984  
Product Description & Applications: Event Executive is a SMPTE EBU time-code-based module with LTC reader and (6) user-settable, sub-millisecond resolution event outputs, each with variable activation. The companion Event Edit Controller is a remote-control panel used to capture, set, trim and control the outputs. Products are used to reference and record video for video editing, turn wild sources on and off, cue take, cue automated switchers and mixers, either alone or as part of a time-synchronization system. External computer control is also possible.  
Basic Specifications & Suggested List Price: Event Output: six frames per relay, each a set of ten pairs of time-code address (1-20) on off commands in all. Accuracy and Resolution: 1/100 TV frame; Record Advance: individually settable to 1/100 TV frame; Reverse Commands: continuous; Record Commands: momentary; in 40 ms time push-out without stop/pause ATH.



**AUDIO KINETICS**  
Time Link

**AUDIO KINETICS**  
4721 Laurel Canyon Blvd., Suite 209,  
N Hollywood, CA 91607  
(818) 980-5717  
Product Name: TIME LINK  
Contact: John Frazier, Vice President  
Date Product Introduced: SMPTE October 1984 New York  
Product Description & Applications: Time Link has been designed to solve problems associated with time code and other types of reference frequency. It contains: 1) A time code reshaper for poor quality code; 2) An electronic gearbox to convert from one standard to another; 3) Six source inputs for various types of reference frequency. Time Link can be used to restripe tapes, generate a different standard frequency from house video sync or lock a time-code generator to an external reference, such as FM Palotone, etc.  
Basic Specifications & Suggested List Price: \$2,000

**THE BTX CORPORATION**  
75 Wiggins Ave., Bedford, MA 01730  
(617) 275-1420  
Product Name: SOFTOUCH EXTENSIONS  
Contact: Michael Padovano, Marketing Director  
Date Product Introduced: May 1984  
Product Description & Applications: Softouch Extensions Extension products for the popular Softouch Audio Editing System allow off-line storage of programmable Softkey content in system memory, as well as the printing of this information. Both the off-line editor code and program capabilities will be supported on a single Softouch.  
Basic Specifications & Suggested List Price: \$2,500



**THE BTX CORPORATION**  
The System

**THE BTX CORPORATION**  
75 Wiggins Ave., Bedford, MA 01730  
(617) 275-1420  
Product Name: THE SYSTEM  
Contact: Michael Padovano, Marketing Director  
Date Product Introduced: May 1984  
Product Description & Applications: The System: A low cost digital transport editing system employing the new Showpad console with a Shadow II intelligent synchronizer. The System provides control, synchronization and autolocation of VTR, ATH and film transport; for post production applications. Features pre-programmed loops with 1/100th frame accurate control of record window for both Master and Slave. The Digital Control System version interlocks Mitsubishi, Sony, A-M and other digital audio VTR units to video, audio and film transports.  
Basic Specifications & Suggested List Price: \$7,995-\$14,950

**RUPERT NEVE INCORPORATED**  
Berkshire Industrial Park, Bethel, CT 06801  
(203) 744-6230  
Product Name: NECAM 96  
Contact: Barry J. Roche, President  
Date Product Introduced: June 1984  
Product Description & Applications: A new approach to console automation employs all the traditional advantages of Nevefilm with its moving faders and straight wiring operation, together with the Data software and hardware now available. A totally new system, Nevecam 96 includes a color video display showing clever mix information such as label positions, names, preset fader positions and even information with Neve's new "finger touch" faders for the faster cue response. The setup with its simplicity allows current Nevecam users to convert existing system and yet still playback previous system mixes and transfer them to the new system.  
Basic Specifications & Suggested List Price: Master processor controls console automation by time code, data software, Nevecam 96 includes: multi-intelligent playback, intuitive mixing and edit capability. System can work in time code or foot frame mode. All information shown on an RGB high resolution color monitor both in still and real time playback.



**OPTIMIX**  
Optimix 1 Automation Computer

**OPTIMIX**  
127 Rue Amelot, Paris 75011, France  
1-258-4667  
Product Name: OPTIMIX 1 AUTOMATION COMPUTER  
Contact: Jean Pierre Lafont  
Date Product Introduced: Late 1983  
Product Description & Applications: Optimix 1 is a room-automatable, rack-mountable system in a rack-mountable chassis. It is well suited to fitting into conventional rack room-automatable rack console. Designed for versatility, compactness, and low cost, it offers a range of facilities from conventional program and level control and data storage to time and DC control and integration with an automatic loading and floor control and a new method of cueing through a rack-mounted accommodation for pre-manned, frame-advance and location time faders and mute switch.  
Basic Specifications & Suggested List Price: Number of channels: 10 to 40; Data Storage: tape; Playback speed: 999.99 bands at 14kHz = 15 dBVU; Digital Resolution: 81 = 256 steps; 0.4 dB accuracy; 16-bit step. Suggested Price: \$10,000 approx. for a complete 32 channel system with VCA cards. Acct. in USA: Trident (USA), Inc., 652 Glenbrook Rd., Stamford, CT 06906

**OTARI CORPORATION**  
2 Davis Dr., Belmont, CA 94002  
(415) 592-8311

—LISTING CONTINUED ON PAGE 138

# power TOBOR

computer jingle machine

**Start time**  
0.03 sec

**Spooling time**  
60 sec (cassettes C 60)

**Frequency response**  
25 Hz/23 kHz  
(± 3 db)  
record + replay  
(metal - 20 db)

**S/N ratio**  
58.5 db A  
(comp. off)  
more than 80 db A  
(comp. on)  
reference 0 db (250 nW)

**Wow and flutter**  
DIN 45507  
less than ± 0.1%

**Speed**  
4.75 cm



**Programming**  
Jingles coding and  
automated search  
**Fast search and  
automated cueing**  
**Random program play**  
**Edit function**  
**TBR 01 module  
(optional)**

- Cancellation
- Insertion
- By-Pass

**Real time features**  
**TBX 310 (optional)**  
Coding/decoding interface  
module provides for the  
control of motion and play  
commands of three spare  
recorders  
**RS 232 interface  
(optional)**  
TOBOR offers RS 232  
interfacing facility to be  
driven by any computer either  
directly or remotely via modem

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## NEW PRODUCTS

### AUTOMATION AND CONTROL SYSTEMS

**1 . 9 . 8 . 5**



OTARI CORPORATION  
Model EC-101 Synchronizer

**Product Name: MODEL EC-101 SYNCHRONIZER**

Contact: Ron Neilson, Publicist (408) 444-0598

Date Product Introduced: Proview NAB, Office of Invention Fall AFS New York

**Product Description & Applications:** The EC-101 is a high performance in-machine synchronizer module designed to take advantage of the unique capabilities of the MTR 90 Series transport. With the EC-101, the MTR 90 transport is capable of maintaining frame lock in both forward and reverse directions from 0.2X to 2.5X play speed. It will park within 2 frames (typically within 30 frames) of the master machine. The EC-101 plugs into the MTR 90's electronics bay. Optional VTC reader/master interface and SMPTE/EBU interface to RS422 standard are available also.

**Basic Specifications & Suggested List Price:** 16-bit wide lock maintains phase lock of +/-50 microseconds over a +/-50% play speed range, proprietary time code readers read from 1/25th to 60X play speed (@ 15 g/s), external speed reference selectable (house sync), offset storage in 1/40th frame increments, RS 232C interface port. Price: less than \$4,500 (U.S.).

**QUAD EIGHT/WESTREX**

225 Parkside Drive, San Fernando, CA 91340  
(818) 764-1516

**Product Name: INTELLIGENT DIGITAL FADER**

Contact: William E. Windsor, Sr. Vice President

Date Product Introduced: October, 1984

**Product Description & Applications:** A true digital fader with a 256 Step linear position encoder. Each fader contains a micro processor that controls the front panel, communications with other faders, and transmission of data to a storage computer. The processor also changes the 8 bit encoder data to 10 bits for extended control range, and a tapered 1/2 bit number for use by the precision digital-to-analog converter. Mutes are accurate to 1/400 second. Any fader can be a master or slave with 16 master/slave groups.

**Basic Specifications & Suggested List Price:** Metallic panel technology with tactile feedback membrane switches. Models for "Westar" console, custom consoles, and retrofit systems. Price: \$6 inputs approx. \$40,000 with 10 megabyte hard disk computer.

**SOLID STATE LOGIC**

Stonesfield, Oxford, England OX7 2PQ

(099 389) 8282

200 West 57th St., New York, NY 10019

(212) 315-1111

**Product Name: SYNCHRONISER CONTROLLER**

Contact: Antony David, Sales Office Manager

Date Product Introduced: March, 1984

**Product Description & Applications:** To enhance the SSL 6000 E Series Stereo Video System, Solid State Logic have introduced their Synchroniser Controller. This consists of a computer display with select and de-select buttons for control of up to five different machines. A micro processor controls data transfer between the control interface, which communicates with the synchroniser, and SSL's Primary Studio Computer. This enables the engineer to use SSL's powerful autolocation and list management software to assist with multiple machine control.

**Basic Specifications & Suggested List Price:** The synchroniser controller currently operates with Audio Kmetics C Lock 310 and Adams Smith 2600 Series synchronisers. To operate the Synchroniser Controller, software has been incorporated into version E54 of the SSL Programme. The Synchroniser Controller in conjunction with SSL's Master Transport Selector allows any one of three machines to be remotely selected as "Master". List price: 4,500 British pounds.

# Camera Mart and Milab<sup>TM</sup>

Whatever your professional needs Milab makes the right microphone at the right price. Each model is engineered with special capabilities to give you top performance and versatility in all your PA, broadcast and recording requirements. *And each is the best in its class for the money.*

**LC-25 Transformerless Cardioid:**  
For extraordinary purity of sound. Very low inherent noise for the most demanding studio work such as direct-to-disc or digital recording.

**DC-63 Variable Pattern:**  
For general studio and concert hall use, where the ultimate fidelity and ambient sound pick up is required, from close-in vocals to full orchestra and chorus.

**DC-21 Cardioid:**  
Small, rugged, lightweight. For podium, PA use, and as choir/orchestra pick up in close to long range. Good definition for strings and brass.

**VM-41 Cardioid:**  
For acoustic instruments, overhead percussion, cymbals, snare and brass. Close to medium range PA and ENG work.

**DC-96B Studio Cardioid:**  
For all studio and line recording use. Low noise, high output. For instruments, narration or choir. Close or distant work.

**XY-82 Coincident Stereo Cardioid:**  
Top of the line dual cardioid stereo/mono with separate outputs. Two single membrane condenser capsules, smooth on and off-axis frequency response, two separate preamps, two separate output signals. Unmatched fidelity and versatility.

**BM-73 Cardioid:**  
For live hand held vocals, drums and amplified instruments. Built-in "pop" filter with LF roll-off. Close to medium range studio or outdoor work.



LC-25



DC-63



VM-41



DC-96B



XY-82



DC-21



BM-73

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# N

# EW PRODUCTS MICROPHONES AND PICKUPS

## 1 . 9 . 8 . 5

**AKG ACOUSTICS, INC.**  
77 Selleck St., Stamford, CT 06902  
(203) 348-2121

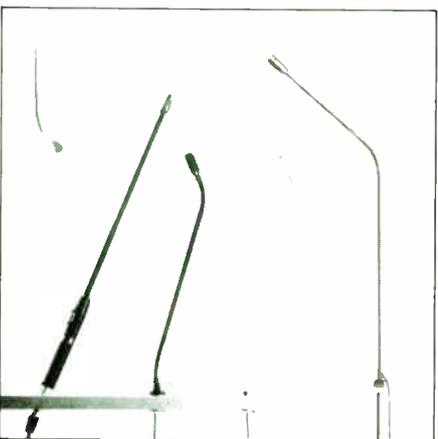
**Product Name:** C-460B "ULS" COMBO  
**Contact:** S. Richard Borch, V.P. Marketing  
**Date Product Introduced:** Fall, 1984  
**Product Description & Applications:** A new modular combination microphone system incorporating all new electronics designed to meet the demands of dental recording. Available as a cardioid microphone with Ultra Line™ frequency response and directionality. Extremely low noise, distortion and power consumption. A CK 62 omnidirectional capsule available optionally.  
**Basic Specifications & Suggested List Price:** Frequency range: 20-20,000 Hz ± 1dB. Sensitivity at 1kHz: 7mV/Pa, -63dBV. Boost filter: 12dB/octave. Frequency noise: 17dB SPL (maximum sound pressure level) at 0.5% THD. 1.34dB SEL. Total dynamic range: 110dB. A weightless Phantom powered 9.52 volts. Suggested retail price: \$492.50. CK 62 capsule: \$145.

**AKG ACOUSTICS, INC.**  
77 Selleck St., Stamford, CT 06902  
(203) 348-2121

**Product Name:** C-568EB  
**Contact:** S. Richard Borch, V.P. Marketing  
**Date Product Introduced:** Summer, 1984  
**Product Description & Applications:** A short shotgun condenser microphone with integrated impedance inverting preamp in a rugged metal housing. Built-in variable output switch enables the user to adjust low frequency rumble floor noise. Built-in pickup attenuator pack is rated 1V, 100mV, 10mV, or 1mV.  
**Basic Specifications & Suggested List Price:** Frequency range: 20-20,000 Hz ± 3dB. Sensitivity: 8mV/Pa, -62dBV. Maximum sound pressure level: 110dB. 1.29dB SEL. Phantom powered 9.52 volt. Suggested retail price: \$295.

**ASTATIC CORP.**  
P.O. Box 120, Conneaut, OH 44030  
(216) 593-1111

**Product Name:** 827 GOOSENECK MIKE  
**Contact:** Tom V. Johnson, Nat'l Sales Mgr.  
**Date Product Introduced:** May, 1984  
**Product Description & Applications:** Electro-Cartridge permits mobility and best low profile goose-neck phantom powered only microphone for 1/4" or 1/8" connectors. Ideal for folk bands, lecterns, etc.  
**Basic Specifications & Suggested List Price:** 80-18,000 Hz frequency response. Output: 25dB at 1000 Ohm. 0dB = 1mw/10mPa. Suggested retail price: \$98.95.



AUDIO-TECHNICA U.S., INC.  
UniPoint

**AUDIO-TECHNICA U.S., INC.**  
1221 Commerce Dr., Stow, OH 44224  
(216) 686-2600

**Product Name:** UNIPOINT  
**Contact:** S. Richard Borch, V.P. Marketing  
**Date Product Introduced:** April, 1984  
**Product Description & Applications:** The UniPoint microphone system is a direct technological concept resulting in a series of miniature unidirectional cardioid electrodynamic microphones with exceptional performance. The series consists of the AT851, a dynamic neck (permanent mount), AT853, a condenser mike, AT855, a ribbon mike, AT827, the UniPoint AT857, a dynamic neck, AT859, a dynamic neck, and the AT859, a condenser microphone.  
**Basic Specifications & Suggested List Price:** Frequency response: 50-15,000 Hz. Sensitivity: 40dB/1000 Hz. Frequency response: -50 dBm sensitivity.

**AUDIX**  
P.O. Box 265, San Carlos, CA 94070  
(415) 368-8060

**Product Name:** AUDIX  
**Contact:** Cliff Castle, V.P. Sales  
**Date Product Introduced:** June, 1984  
**Product Description & Applications:** Two models of air suspension dynamic microphones designed for vocal applications in a professional live or silent location. Both are very rich in quality and performance specifications.  
**Basic Specifications & Suggested List Price:** Unidirectional. Full frequency microphone. Naturally cardioid. Suggested retail price: \$249.

**BEYER DYNAMIC, INC.**  
5-05 Burns Ave., Hicksville, NY 11801  
(516) 935-8000

**Product Name:** HM-560  
**Contact:** Paul Murphy, Gen. Mgr.  
**Date Product Introduced:** September/October, 1984  
**Product Description & Applications:** Drummer and keyboard player boom head of ribbon microphone.  
**Basic Specifications & Suggested List Price:** 20-10,000 Hz frequency response. Figure-eight ribbon mike element. 0.4 mV/Pa (2.0 mV/Pa output gain).

**COUNTRYMAN ASSOCIATES, INC.**  
417 Stanford Ave., Redwood City, CA 94063  
(415) 364-9988

**Product Name:** ISOMAX SERIES MICROPHONES  
**Contact:** Carl Countryman  
**Date Product Introduced:** 1984  
**Product Description & Applications:** Tiny electrodynamic microphones for recording and sound reinforcement, especially developed for drum, guitar, saxophone and trumpet. Four pickup patterns are available: Cardioid, Hypercardioid, Bidirectional and Omni. Cartridge can be powered or battery powered with the Isomax Battery Power Module.  
**Basic Specifications & Suggested List Price:** Extremely wide dynamic range, 25-150 dB. Frequency response at Cardioid, Hypercardioid & Bidirectional: 40Hz to 20kHz, Omni: 100Hz to 25kHz.

**SEYMOUR DUNCAN**  
203 Chapala Street, Santa Barbara, CA 93101  
(805) 963-0676

**Product Name:** ALNICO II PRO SERIES PICKUPS  
**Contact:** Ron Colantonio, Marketing Manager  
**Date Product Introduced:** January, 1984  
**Product Description & Applications:** Complete line of single coil and humbucker replacement pickups for popular guitar models. All Alnico II magnets with a steel magnetic pole to allow for more natural string vibration for greater sustain. The tone is both smooth and warm. Each is specially calibrated for neck or bridge positions. Humbuckers available in three colors: black, white, chrome, zebra, red, light blue, dark blue, pink, yellow, and turquoise.  
**Basic Specifications & Suggested List Price:** AFS 1 and AFS 11 for Stratocaster guitars, list \$56. AFTL 1 and APTL 1 for Telecaster guitars, list \$56. APTL 11 and APTL 11b humbuckers, list \$88.

**EDCOR**  
16782 Hale Avenue, Irvine, CA 92714  
(714) 863-1529

**Product Name:** ECOM 1 & ECOM 3 MODEL 2000  
**Contact:** Larry Weston, President  
**Date Product Introduced:** June, 1984  
**Product Description & Applications:** Transmitter and receiver are operated on the high VHF band. Design is completely new using solid state circuitry. Special HF, low noise high performance active circuitry. Transmitter is a uniquely small rugged extruded package with an easily accessible battery compartment. Demanded for broadcast battery life. A receiver battery pack available for long-life. Receiver has a carrier lock output to operate control circuits that would be keyed by the receiver's modulated output.  
**Basic Specifications & Suggested List Price:** Noise floor: better than 70dB. Bandwidth: greater than 1000 cps (good condition). Output: 100 watts. Input: 1000 cps. Crystal: 1000 cps. THD: less than 1 percent. List price: ECOM 1 Model 2000, \$428. ECOM 3 Model 2000 \$490.

**HOHNER, INC.**  
P.O. Box 15035, Richmond, VA 23227  
(804) 798-4500

**Product Name:** HH1481 HOHNER BLUES PICK-UP SYSTEM  
**Contact:** Jack C. Kavoujian, Director of Marketing  
**Date Product Introduced:** 1984  
**Product Description & Applications:** For electric blues and blues playing, this model provides an output signal capable of meeting the unique demands for a design that is a harmonic rich, sustain rich pickup with impact. Used with a horn or it provides freedom of movement while performing. Provides up to 90% of the output with any standard 9V battery and a tone control and volume control.

**Basic Specifications & Suggested List Price:** Components include a tone control, output, input, and connection plug, power supply preamplifier unit with input and output picks, output control, and a horn. Frequency response: 100-10,000 Hz. Output: 100mV. Input: 100mV. Suggested retail price: \$149.50.

**HOHNER, INC.**  
P.O. Box 15035, Richmond, VA 23227  
(804) 798-4500

**Product Name:** HH1480 HOHNER HARMONICA PICK-UP SYSTEM  
**Contact:** Jack C. Kavoujian, Director of Marketing  
**Date Product Introduced:** 1984  
**Product Description & Applications:** The compact design of this pickup system, combined with its excellent response, is a true and true solid state microphone perfect choice for those who value the traditional harmonica sound. The unit is designed to be clipped to the neck of your harmonica. Volume and tone controls are built into the pickup. The 1480 features a built-in volume control, tone control, and will operate up to 500 mV. It is powered by a standard 9V battery.

**Basic Specifications & Suggested List Price:** Components include a tone control, output, input, connection plug, power supply, 100mV output, and a horn. Frequency response: 100-10,000 Hz. Output: 100mV. Input: 100mV. Suggested retail price: \$109.50.

**ELECTROSONICS, INC.**  
2100 Atascadero Dr., N.W., P.O. Box 12617  
Albuquerque, NM 87195  
(505) 831-1010

**Product Name:** FREEDOMIKE PERFORMER FM SPACE DIVERSITY WIRELESS SYSTEM  
**Contact:** Keith H. Phillips, Marketing Mgr.  
**Date Product Introduced:** January, 1984  
**Product Description & Applications:** Freedomike Performer series FM space diversity wireless systems ensure drop out free performance in tough operating environments. Receivers are available in AC only or rechargeable battery versions which makes the system suitable for either indoor or outdoor use. Both compression and compander/expander techniques are used for distortion free performance over a broad range of audio input levels. Trans-

—LISTING CONTINUED ON PAGE 142

# SOUND CHOICE.

Professionals around the world have chosen AKG microphones for their unique combination of performance, application oriented design and technical excellence.

Suitable for the most sophisticated recording techniques, whether in-studio or live performance, XY/MS single-point stereo or multi-track pick-up, AKG's large diaphragm and small diaphragm condenser microphone systems are proven representatives of excellence.

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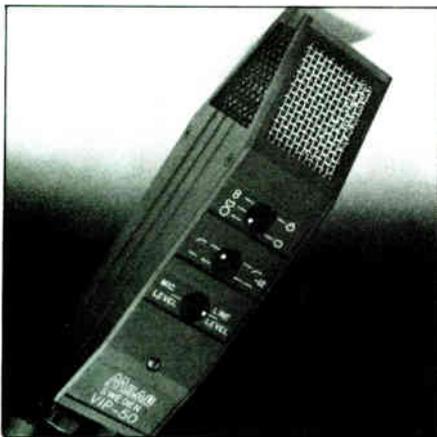
77 Selleck Street  
Stamford, CT 06902  
203/348-2121



**LECTROSONICS, INC.**  
Freedomike Performer FM Space Diversity Wireless System

mitters feature internal antennas, adjustable audio gain and may be used with microphones or instrument pickups.

**Basic Specifications & Suggested List Price:** Transmitter to receiver operating range is up to 500 feet. Audio frequency response is 20Hz to 14kHz,  $\pm$  4dB. Signal to noise ratio is greater than 105dB and distortion is less than 2% at 8kHz. Suggested list price is \$949.50 including two antennas and carrying case.



**MILAB/Ctab**  
VIP-50

**MILAB/Ctab**  
Knutsgatan 6, S-265 00 Astorp, Sweden  
+46 42 51521, 597 56

**US AGENT**  
**CAMERA MART INC.**  
456 West 55th Street, New York, NY 10019  
(212) 757 6977

**Product Name:** VIP-50  
**Contact:** Hans Rosander, President  
US Agent: Mr. Laszlo Dencs

**Date Product Introduced:** March, 1984

**Product Description & Applications:** VIP-50 transformerless condenser for 48 volt systems with multi pattern, pad and high pass selection controlled on the microphone body. Also a selection between mike and line level, unique rectangular dual membrane full condenser capsule, dual OP amp active balanced pre-amplifier with dual FET stages, no transformer in circuitry, balanced, differential, signal out, easy access to all selectors on the mike body, LED on front showing "mike on".

**Basic Specifications & Suggested List Price:** Each membrane on the dual membrane capsule has its own pre-amplifier to ensure the most essential part of the microphone—the capsule—gives you lowest possible inherent noise, smoothest frequency response, both on and off axis. A 12 dB pad gives the microphone capability to handle very high pressure levels. US \$1470

**MOJAVE AUDIO**  
254 Loma Street, Long Beach, CA 90803  
(213) 433-0184

**Product Name:** V-100 TUBE MICROPHONE  
**Contact:** Bill Sullivan, National Sales Manager  
**Date Product Introduced:** July, 1984  
**Product Description & Applications:** Revolutionary new design

## NEW PRODUCTS

### MICROPHONES AND PICKUPS

1 • 9 • 8 • 5

vacuum tube microphones at an affordable price. Sounds like a vintage C12 or C24 (AKG) maybe even better, according to some engineers who have tried it. Why risk thousands of dollars buying used mikes? Get that great "tube" quality you've always wanted at one-quarter the price. Great for vocals, piano, drums, strings, choral groups, overheads, etc. Replacement tubes and capsules are readily available and inexpensive. Try one—Be amazed.

**Basic Specifications & Suggested List Price:** Frequency response 30-15 kHz, low impedance. Power supply: 110 VAC (included). Mono and stereo models available. M/S application is extremely good. Prices range from \$649.50 to \$1159.50. For more information please send self-addressed, stamped envelope. Will work with semi-pro (-10 dBm) or pro equipment (+4 dBm).

**NADY SYSTEMS, INC.**  
1145 65th St., Oakland, CA 94608  
(415) 652-2411

**Product Name:** NADY VHF, NADY 501 VHF, 601 VHF, 701 VHF, EASYTALK

**Contact:** Joyce Krilanovich  
**Date Product Introduced:** June, 1984

**Product Description & Applications:** Nady 501 VHF Economy VHF wireless microphone/instrument system. Handheld, lavalier, instrument transmitters available. Nady 601/701 VHF Nady's top line VHF wireless microphone instrument system. Handheld lavalier instrument transmitters available.

**Basic Specifications & Suggested List Price:** 501 VHF 5 channels available in VHF highband 601/701 VHF Highband VHF frequency: 701 is a true diversity system.



**SANKEN c/o PAN COMMUNICATIONS, INC.**  
Sanken CU-41

**SANKEN c/o PAN COMMUNICATIONS, INC.**  
5-72-6 Asakusa, Taito-ku, Tokyo, Japan 111  
Telex: J27803 Hi-tech; Telephone 03-871-1370

**Product Name:** SANKEN CU-41  
**Contact:** Mat Konomi, Sales Manager  
**Date Product Introduced:** March, 1984

**Product Description & Applications:** The Sanken CU 41 microphone delivers a completely natural, uncolored sound and features a cardioid pattern double condenser capsule design. Suited for a wide variety of applications in recording, broadcasting, television and motion picture studios (in both on-mike and off-mike settings), it delivers a functional transparency and distortion-free performance with a flat ( $\pm$  1dB) frequency response from 20Hz to 20kHz. With a dynamic range of 119dB (and a maximum SPL for 1% THD of 140dB) it will capture everything from the faintest whisper to the most deafening percussive sound without any distortion or clipping.

**Basic Specifications & Suggested List Price:** Transducer type: Two way condenser capsules. Directional pattern: Cardioid. Frequency response within  $\pm$  1dB: 20Hz to 20kHz. Nominal impedance: 150 ohm or higher. Equivalent noise level (a weighted RMS): 15dB or less. Maximum SPL for 0.5% THD at 1kHz: 144dB, 1.0% THD at 1kHz: 140dB. Connector: Gold plated 3-pin XLR type. Supply voltage: 48  $\pm$  6V Phantom.

**SHADOW OF AMERICA ELECTRONICS INC.**  
22-42 Jackson Ave., Long Island City, NY 11101  
(212) 392-2114

**Product Name:** SHADOW 1990 RECORDING BRIDGE PICKUP SYSTEM FOR WESTERN GUITAR

**Contact:** Herb Haehl  
**Date Product Introduced:** June, 1984

**Product Description & Applications:** Replaces standard 2.3 mm bridge saddle in most guitars without modification. Senses vibrations of each string separately and of guitar body. Complete with instructions and necessary hardware. Preamp not required. White saddles: 6 mm height.

**Basic Specifications & Suggested List Price:** Permanent Mount 72 mm long, 6 mm height, 2.3 mm wide. 12 M ohms impedance, 180 mV output voltage, 1600 pF capacity. \$94.95 list.



**SHADOW OF AMERICA ELECTRONICS INC.**  
Shadow Maxibass System 963

**SHADOW OF AMERICA ELECTRONICS INC.**  
22-42 Jackson Ave., Long Island City, NY 11101  
(212) 392-2114

**Product Name:** SHADOW MAXIBASS SYSTEM 963

**Contact:** Herb Haehl  
**Date Product Introduced:** June, 1984

**Product Description & Applications:** The Shadow System 963 produces a new full range Maxibass sound. This is an additional pickup to be added to the Fender Jazz Bass<sup>®</sup> or Fender Precision Bass<sup>®</sup> without drilling or soldering. Permits a choice of original sound or a new total frequency range. The Shadow Maxibass System consists of four special direct replacement saddles, each with a built in ceramic pickup. Easy installation by the player. Also included is a Shadow plug-in preset equalizer which contains electronics and a volume and midrange tone control. 9V battery required (not included).

**Basic Specifications & Suggested List Price:** Power consumption: 0.14mA, Output: 180mV, Impedance: 16M ohm, System Impedance: 10k ohm. Suggested list \$149.95.

**SHURE BROTHERS INC.**  
222 Hartney Ave., Evanston, IL 60204  
(312) 866-2200

**Product Name:** SM91 LOW PROFILE UNIDIRECTIONAL MICROPHONE

**Contact:** John F. Phelan, Marketing Mgr  
**Date Product Introduced:** August, 1984

**Product Description & Applications:** The SM91 microphone is the first directional microphone to operate in the boundary layer where a pressure zone exists. The unidirectional pattern permits use in live sound reinforcement systems with minimum feedback. The low profile design permits use of the microphone where a conventional microphone would look out of place. The electronics houses a low cut switch and the battery supply.

**Basic Specifications & Suggested List Price:** Frequency response: 20-20,000Hz. Output level: -69 dBV. Maximum SPL: 144dB. Power: 2.9 Volt batteries or 11.5V volts phantom. Suggested net price \$300.

**TELEX COMMUNICATIONS, INC.**  
9600 Aldrich Ave. So., Minneapolis, MN 55420  
(800) 328-3771, In MN: (612) 887-5550

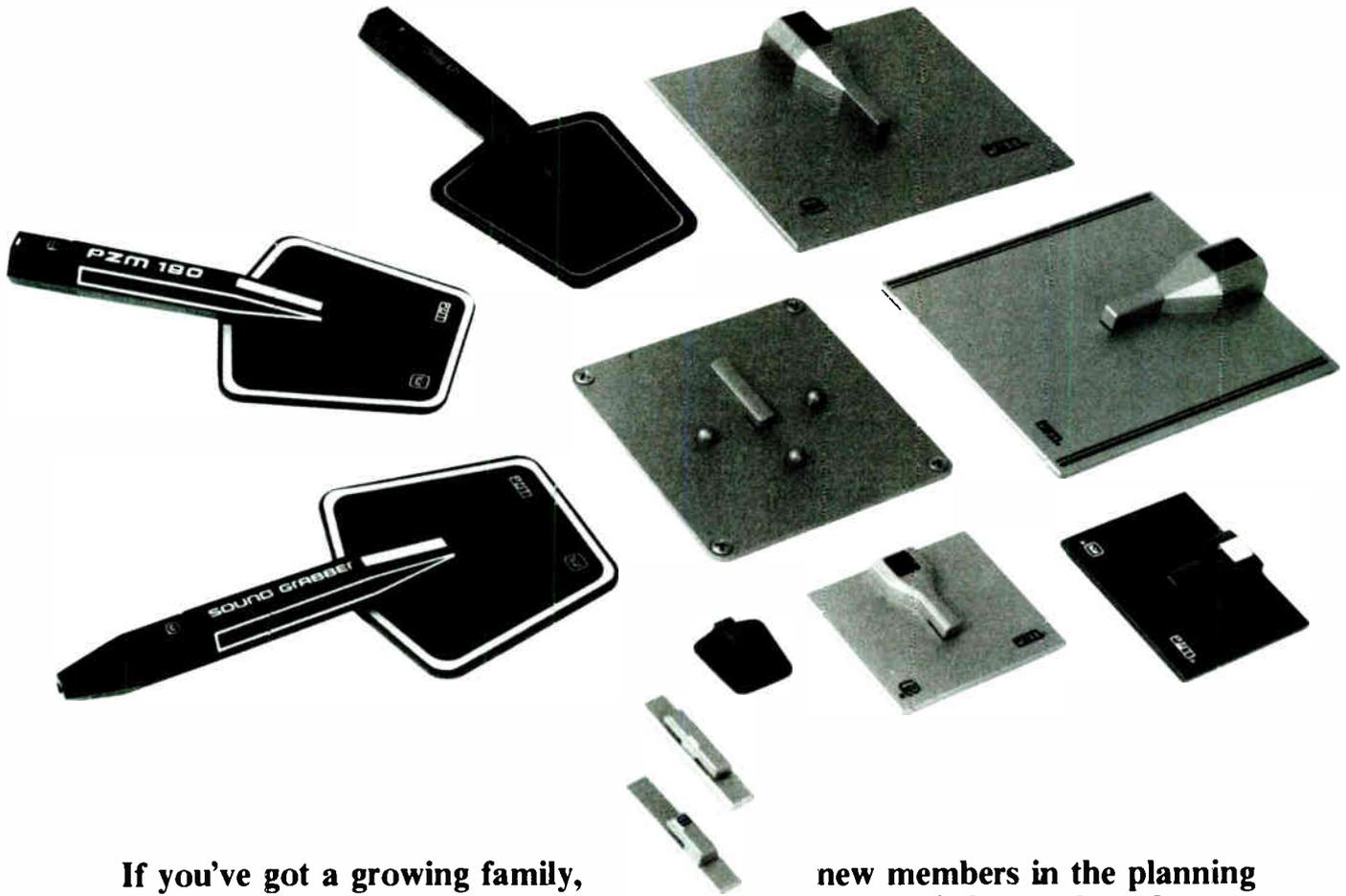
**Product Name:** UNIDIRECTIONAL MICROPHONE

**Contact:** Steve Lichtenauer, Sales Mgr  
**Date Product Introduced:** April, 1984

**Product Description & Applications:** The Model TE10 is a unidirectional condenser microphone with a wide flat response curve ideal for recording and broadcasting. It has an attractive matte black finish and is made of rugged die-cast metal. Handling noise is very low because of a new unique suspension mounting.

—LISTING CONTINUED ON PAGE 144

# Family Portrait



If you've got a growing family, sooner or later you need a picture with everybody in it. It's a statement of family pride, and we humbly admit that we are pretty proud of this group.

There was a time when most people didn't recognize a Crown PZM® as a microphone - even when they looked at one. Times have changed. Billboard Magazine reports in their most recent brand usage survey that 37.5% of U.S. recording studios use Crown PZMs.

This sort of demand, multiplied by many other applications, has made the family grow, with new microphones tailored for new users. In fact, the number of

new members in the planning process is larger than the number in the picture. Since a lot of our friends have only used one or two models so far, we thought we'd better introduce the family. The next time we may not be able to get them all in one picture.

Keep an eye on this family. Right now it's one of the newest and best. It just might get to be the biggest.

PZMs from Crown. Call or write for your family tree.



**CROWN®**

1718 W. Mishawaka Rd.  
Elkhart, IN 46517  
(219) 294-5571

—FROM PAGE 142

technique for the element. Phantom power can be supplied from either the sound system console or the Telex PS2 portable phantom power supply.

**Basic Specifications & Suggested List Price:** 200 ohm impedance — 75 dB output level (open circuit response at 1 kHz dB re 1 volt/microbar) Frequency response: 40 to 20,000 Hz



TELEX COMMUNICATIONS, INC.  
Unidirectional Microphone

TELEX COMMUNICATIONS, INC.  
9600 Aldrich Ave. So., Minneapolis, MN 55420  
(800) 328-3771; In MN: (612) 887-5550

**Product Name:** UNIDIRECTIONAL MICROPHONE

**Contact:** Steve Lichtenauer, Sales Mgr

**Date Product Introduced:** April, 1984

**Product Description & Applications:** The TD11 is a unidirectional dynamic design especially for the vocalist. It has a newly designed smaller and lighter dynamic element that delivers a wide

## NEW PRODUCTS

### MICROPHONES AND PICKUPS

1 • 9 • 8 • 5

frequency response with extended high end. The curve was also tailored with a slight "presence" rise in the mid frequencies. Made of heavy duty die-cast metal to contend with travel abuse.

**Basic Specifications & Suggested List Price:** 250 ohm impedance — 76 dB output level (open circuit response at 1 kHz dB re 1 Volt/microbar)



## SPARS 5th ANNIVERSARY PARTY

at AES  
Convention

MONDAY, OCT. 8  
7:00 P.M.  
at  
STUDIO 54

## HAVE A RECORDING STUDIO PROBLEM?

Call DataLine  
(213) 651-4944

The Society of Professional Audio Recording Studios, a non-profit organization, offers SPARS members, and non-members referred by a SPARS member, a national telephone "hot-line."

Questions regarding any area of recording studio operations including business practices, audio engineering, and technical maintenance will be answered by SPARS-approved sources at no charge.

Want a problem solved?  
Call SPARS—  
(213) 651-4944



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New York

## USED RECORDING EQUIPMENT FOR SALE

### MICROPHONES

AKG: C61, C28, C24 stereo, C12a, C414e, C29, C60, C535, D15, D19, D202, D24, D160, D30

NEUMANN: KM54, KM53, KM64, KM66, KM56, U47, U67, U64, SM2, SM69 stereo

SONY: ECM377, C500, C37a, ECM22p, ECM51

RCA: BK5, 77a, 44a, 77dx, Skunk Mic

SENNHEISER: MD211, MD413, MKH405

BEYER: M101, M500

### EQUALIZERS

API 550 • ITI Parametrics • Melcor GME 20 • MAP (replaces API) • Altec Graphic • Dalcon Custom EQs (5) • UA 550 Hi Low Filters • White 3400 Graphics

### MIXERS

30 Input Trident B Range • 20 Input API • 24 Input Electrodyne • Teac Model 1 • 4 Input Pultec Mixer • 32 Input Trident series 80 **CALL FOR AVAILABILITY OF NEVE, TRIDENT AND HELIOS CONSOLES**

### AMPLIFIERS

MacIntosh 2105 • MacIntosh MA230 • Marrantz 240 • Citation 12 • Symetrics Head Phone Amp

### TAPE RECORDERS

Otari MTR-90 MK2 24 track • 3M M56 2 track • Scully 280-1 • Ampex 351-2 • Ampex/Haeco Playback Only 2 track/ full track • 3M M79 16 track

### OUTBOARD GEAR

MXR Phaser Flanger package • Roland Stereo Phaser • Micmix Dyna Flanger • Marshall Time Modulator • Delta Labs DL1 DDL • Eventide Omnipresser

### LIMITERS

Allison Gain Brains • Electrodyne Limiter • API 525 Limiter/De-esser

### NOISE REDUCTION

Dolby Cat-44 cards • Dolby A 301 unit • Dolby A 361 frame (no Cat-22)

### CROSSOVERS

Crown VFX-2a • Mastering Labs (for 604) • BGW

### MISCELLANEOUS

API575 Oscillator • Stevens VSO (as is) • Stemco (Ampex) 8 track 1" • Urei 1109 preamps • API VU meters • Sennheiser Mic Power Supply • Lagnevein & UA Tube Mic preamps • Allison LX100 • MCI 16 track (play-head only) • 3M 8 track heads 1" (3) • Ampex 8 track head assembly • Neumann 66 lathe with 68 cutter head complete with all solid state computer and amplifiers

### MUSICAL INSTRUMENTS

Fender 6 string Bass (pre CBS) • Gibson Les Paul 1970s sunburst • Martin M38 • Baldwin 9' Concert Grand • Fender Rhodes • Wurlitzer Electric Piano

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# JOURNEY

## First, you have to hear yourself!

Now Journey depends on new ATM63 dynamic microphones for full control of their monitor and live concert sound. With better rejection of not just off-axis sound, but everything else on stage.

Even with a stack of Marshalls up close, the monitor mix is cleaner, with better separation than ever before.

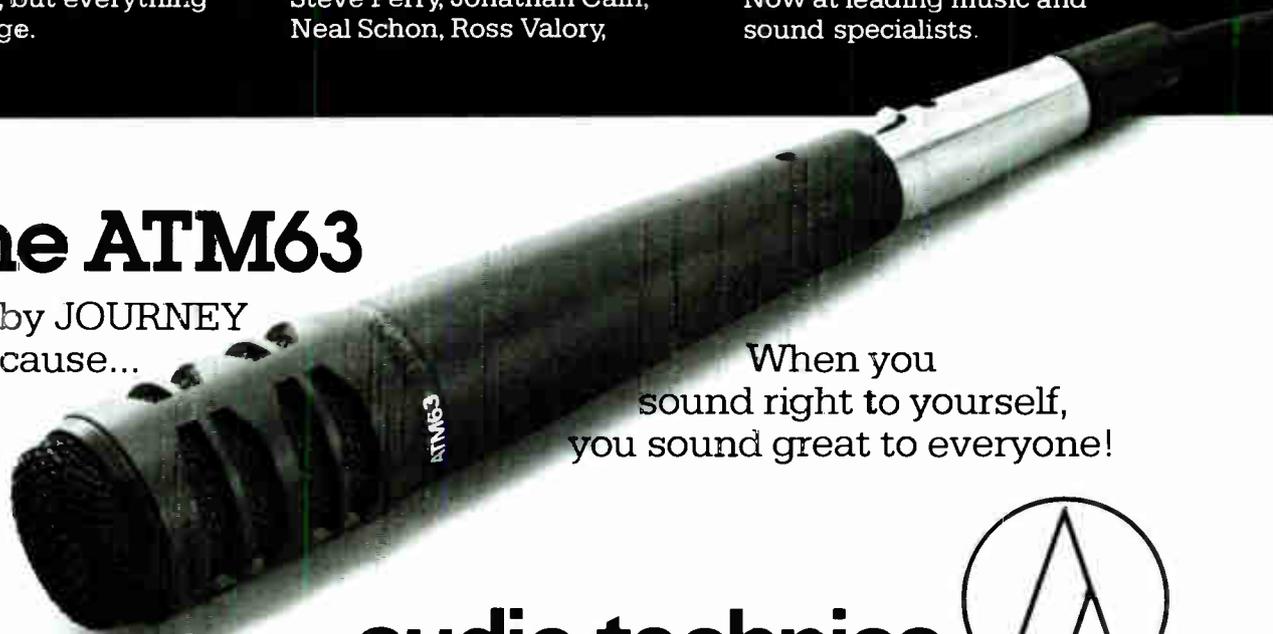
Find out what Journey's Steve Perry, Jonathan Cain, Neal Schon, Ross Valory,

and Steve Smith heard on stage...and why monitor mixer Chris Tervit and producer/live mixer Kevin Elson insist on the ATM63. Now at leading music and sound specialists.

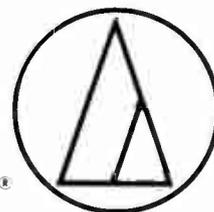
## The ATM63

chosen by JOURNEY  
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When you  
sound right to yourself,  
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# N

# EW PRODUCTS

## MIXING CONSOLES

# 1 . 9 . 8 . 5

**ADM TECHNOLOGY, INC.**  
1626 E. Big Beaver Rd., Troy, MI 48084  
(313) 524-2100

**Product Name:** BCS/9000

**Contact:** Richard S. Hajdu, Nat'l Sales Mgr

**Date Product Introduced:** 1984

**Product Description & Applications:** The BCS/9000 are ADM's full stereo consoles. Included are mike and line preselect, aux busses, slider VCA attenuators, sub-master and master outputs. Stereo and mono modules are available and all functions on the stereo modules (aux busses, preselect, balance controls, etc.) as well as the masters and sub masters are full stereo. The 9000 is computer controlled with input routing and console set-up storage and retrieval. This series of consoles is specifically designed for operation in a television facility.

**Basic Specifications & Suggested List Price:** As with all ADM consoles the following specifications apply: Frequency response  $\pm 1$  dB, 20Hz to 20kHz, Crosstalk: Better than 72dB between adjacent channels, Maximum output: Clip level +27dBm @30Hz to 20kHz. Prices \$50,000 up.

**ALLEN & HEATH BRENNELL USA LTD.**  
Five Connair Rd., Orange, CT 06477  
(203) 795-3594

**Product Name:** CMC-24

**Date Product Introduced:** June, 1984

**Product Description & Applications:** Microprocessor controlled 16 Bus mixing board. Microprocessor controls all bus assignment and 2nd muting of 24 input channels and 16 monitor channels. 16 input channels feature 3 band sweepable equalization and 6 auxiliary sends. 8 additional line inputs have 2 band EQ and 2 auxiliary sends. Output operating levels are -10dBV for use with home type multi track tape machines.

**Basic Specifications & Suggested List Price:** Suggested list price \$5,000.

**ALLEN & HEATH BRENNELL USA LTD.**  
Five Connair Rd., Orange, CT 06477  
(203) 795-3594

**Product Name:** SR SERIES

**Contact:** Chuck Augustowski

**Date Product Introduced:** June, 1984

**Product Description & Applications:** Low cost sound reinforcement mixers available in 8x2x1, 16x2x1 and 24x2x1 formats as well as 16x4x2x1 and 24x4x2x1 formats. All input channels feature 4 band fixed frequency EQ and 4 effects sends. Two being pre-fader and 2 being post-fader. These can be changed to any configuration by moving internal jumpers. LED metering is employed as is an external power supply. Phantom power supplied as standard.

**Basic Specifications & Suggested List Price:** Suggested list prices: SR 8 (8x2x1), \$1,100; SR16 (16x2x1), \$1,800; SR24 (24x2x1), \$2,500; SR416 (16x4x2x1), \$2,500; SR424 (24x4x2x1), \$3,200.

**AMEK CONSOLES INC.**  
10815 Burbank Blvd., North Hollywood, CA 91601  
(818) 508-9788

**Product Name:** SCORPION

**Contact:** Bob Owsinski, National Sales Manager

**Date Product Introduced:** July, 1984

**Product Description & Applications:** The TAC Scorpion is a versatile low cost high performance mixing console derived from the highly acclaimed TAC 16/8/2 system which the Scorpion replaces. Principle features include fully modular construction in a strong welded steel frame, 16 routing busses plus a separate stereo buss, 4 band EQ with swept mids and selectable turnover points, 4 aux sends, 2 assignable aux returns, fader reverse function on group masters, built in 3 frequency oscillator, LED metering with switchable peak/VU ballistics, and stepped chassis with horizontal fader section, 10 degree module angle and penthouse meter hood.

**Basic Specifications & Suggested List Price:** The Scorpion is available in 2 frame sizes, a 27 position and a 43 position. A 16/8/2 with 8 track monitor is a short frame will retail at \$5,950. The same configuration short-loaded into a large frame will carry a retail of \$6,950. A 24/16/2, 32/8/2, or 40/2 will all carry a retail price of \$8,950. Short loaded mainframes of any configuration will also be available.

**AMEK CONSOLES INC.**

10815 Burbank Blvd., North Hollywood, CA 91601  
(818) 508-9788

**Product Name:** MATCHLESS

**Contact:** Bob Owsinski, National Sales Manager

**Date Product Introduced:** February, 1984

**Product Description & Applications:** The "Matchless" is a scaled down version of the highly successful "Angela" series console utilizing the same circuit design and many of the same operational features but in a smaller, more compact package. The console offers such standard features as full 24 buss routing, 4 band EQ with swept mids and selectable Q, 8 sends, 8 returns, 8 mono subgroups, 2 programmable mute groups, and line return facility through the monitor section during remix.

**Basic Specifications & Suggested List Price:** The Matchless comes standard in a 26/24 mainframe configuration with larger frames and retrofit extenders also available. The Matchless complete with full patchfield and producers desk retails at \$24,950 while the standard Matchless without the patchfield retails at \$21,500.

**AMEK SYSTEMS & CONTROLS LTD.**

10815 Burbank Blvd., No. Hollywood, CA  
(818) 508-9788

**Product Name:** AMEK TAC CONSOLES

**Contact:** Tim Munzovan

**Date Product Introduced:** June, 1984

**Product Description & Applications:** Amek TAC Matchless recording console, 26x24; M 2500 TV recording & teleproduction console, 46x24; M 3500 TV recording & teleproduction console, 56x48; M 5000 film re-recording and video production, M 6000 live to tape recording 96x48x24x2x1; M 1000, 8 Bus teleproduction, stereo or film re-recording, BC'01 & EC'01. Small production mixers and editing from video, Scorpion cost-conscious 16x8 & 24x16 recording consoles.

**Basic Specifications & Suggested List Price:** All Amek TAC consoles are hard bussed mother board design & construction, socketed IC's and have outstanding sonic transparency. Prices range from \$5,950 to \$48,000.

drums. Each channel incorporates individual volume control, stereo panning and lo, mid and high equalization. Two low impedance outputs and two high impedance outputs.

**Basic Specifications & Suggested List Price:** Mikes handle an amazing 161 + dB SPL. Shock proof clamps eliminate boom stands. No phasing problems! No overloading. Mikes and mixer must be used as a system. Suggested list price = \$1,495, includes 6 + 6 Mixer, six mikes, six clamps and cords.

**AUDIOTECH**

96 Lafayette Ave., Hawthorne, NJ 07506

**Product Name:** DYNAMIC & MITEC

**Contact:** Manfred Kayser, General Mgr

**Date Product Introduced:** June, 1984

**Product Description & Applications:** Dynamic consoles offer a full range from a small 6x2 to fully modular consoles. The small 6x2, 12x2, 16x2 offer line or mike input, three band EQ, two aux, two illuminated VU, smooth 60mm fader and an external power supply. The D 3000 modular consoles offer mike input, line input, phantom power, phase reversal, -20dB pad, mike and line gain controls, four band EQ, two band sweepable, 4 aux, smooth 100mm faders, 26 segment LED display on subgroup master and PFL/solo. The Mitec 16/8 monitor console has four band equalization (active). It provides 8 monitor cues for each channel to satisfy the individual tastes and demands for the musician on stage.

**Basic Specifications & Suggested List Price:** Mitec 16x8 Monitor, \$3,246; Dynamic 6x2, \$599; 12x2, \$899; 16x2, \$1,249; 20x4x2 St or R, \$1,200; 16x8x2 St or R, \$1,400; 24x8x2 St or R, \$4,400; Modular D 3000 16x8x2A, \$4,995; 24x8x2A, \$6,495; 32x8x2A, \$8,695; 16x16x2A, \$6,695; 24x16x2A, \$8,295; 32x16x2A, \$11,495.

**BOGEN DIVISION, LEAR SIEGLER, INC.**

Box 500, Parmus, NJ 07653

(201) 343-5700

**Product Name:** BOGEN AMM-4

**Contact:** Emily R. Sobin, Mgr. Public Relations

**Date Product Introduced:** April, 1984

**Product Description & Applications:** 4-channel AMM-4 offers simultaneous use of multiple microphones with more usable gain before acoustic feedback, minimal background noise, and no need for an operator. Automatic sensing of a signal's presence at a mike input activates that channel instantly and smoothly. When no signal is present, the channel automatically deactivates. Bridge up to ten AMM-4s to use up to 40 microphones at a time. Solid-state bar indicator uses LEDs to show output level and is screwdriver-adjustable for relative settings. Master volume and separate bass and treble controls. Built in circuit for remote control and/or precedence for any microphone, plus remote control of master volume level.

**Basic Specifications & Suggested List Price:** Transformer isolated, rated output is +18 dBm into 600 ohms with less than 1% THD. Frequency response of +1dB, 20-20kHz at rated output. Mike sensitivity is 300uV, noise is 75dB below rated output. Accessory plug in compressor board also prevents possible overdrive. Equalizer or reverb can be inserted before final circuits. Self-resetting circuit breaker. Rack mountable with bracket kit. Suggested retail price \$1,187.50.

**CALREC AUDIO (AUDIO & DESIGN CALREC, INC.)**

P.O. Box 786, Bremerton, WA 98310

(206) 275-5009/5010

**Product Name:** "M" SERIES MINIMIXER

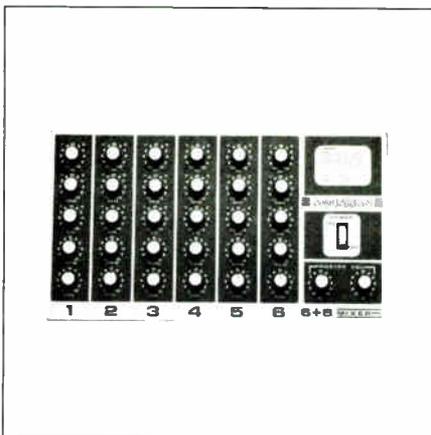
**Contact:** Nigel Branwell, President

**Date Product Introduced:** July, 1984

**Product Description & Applications:** From 8 to 16 inputs into 2 outputs plus mono sum with four aux sends. Optional compressor-limiters are available. The Minimixer has been designed for professional broadcasting and recording where a small, compact, and portable mixer of the highest quality is required. Other features include Mike/line input selection with 10dB/step switching, Phase reverse, high and low pass filtering plus 3 band equalizer, pan to stereo output, PFL and AFL, full throw P&G faders, talkback mike, oscillator, headphone monitoring, 48V phantom power, etc.

**Basic Specifications & Suggested List Price:** Power 120/240 V AC or 16 VDC; battery, Clip level input +32dB output 22dB; Fre-

—LISTING CONTINUED ON PAGE 148



**AQUARIAN ACCESSORIES CORP.**  
6+6 Stereo Drum Mixer

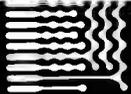
**AQUARIAN ACCESSORIES CORP.**  
1140 N. Tustin Ave., Anaheim, CA 92807  
(714) 632-0230

**Product Name:** 6+6 STEREO DRUM MIXER

**Contact:** Hoy Burns, owner

**Date Product Introduced:** June 23rd at NAMM Show

**Product Description & Applications:** 6 Channel Stereo Drum Mixer, designed and balanced to work with Aquarian's Hi-Energy Mikes. Circuitry eliminates overloading and input attenuation. Each channel accepts two mikes when equalization will be essentially the same, such as, 2 bass drums, 2 rack toms, 2 floor toms or 2 conga



**AUDIOARTS ENGINEERING**

A DIVISION OF WHEATSTONE CORPORATION

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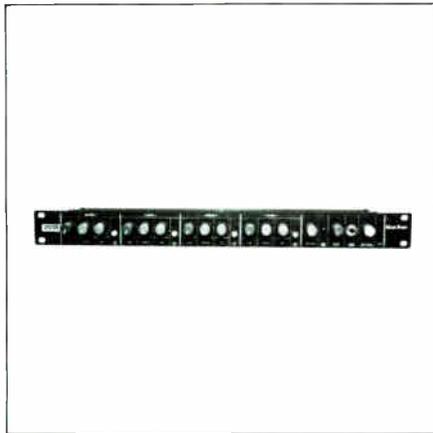
RED LAYER IS RIGHT READING ON THIS SIDE  
BE THE LAYER IS RIGHT READING ON THIS SIDE  
BE THE LAYER IS RIGHT READING ON THIS SIDE  
18 55"

 **Wheatstone**

World Radio History

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**DOD ELECTRONICS CORPORATION**  
**R-855 Mixer**

balanced line-level instrument, or microphone signal sources. The effects loop features both mono and stereo returns and auxiliary inputs are provided for line-level sources that can'tape deck. The built-out desiphonic amplifier with independent level control is accessible from the front panel, and both 1/4" and XLR output connectors are provided. All the in a 1/3" rack mount unit, and it's also available with XLR input connector.

**Basic Specifications & Suggested List Price:** Frequency response: 10Hz to 50kHz; OADR: -0.5dB; THD: 0.033%; 1kHz: -20dBV input; 0dBV output; Hum & noise: -85dB; Maximum gain: 30dB; Input impedance: balanced 200k ohms; input impedance: unbalanced 100k ohms; Input impedance: effects return: 470k ohms; Output impedance: balanced 940 ohms; Output impedance: unbalanced 470 ohms; Output impedance: effects return 680 ohms.

**ELECTRO-VOICE, INC.**  
600 Cecil Street, Buchanan, MI 49107  
(616) 695-6831

**Product Name: ELX-1 MIC/LINE BROADCAST MIXER**  
Contact: Greta Silaby, Market Development Manager, Professional Markets

**Date Product Introduced:** July 1984

**Product Description & Applications:** The ELX-1 is a compact, high performance, four channel microphone mixer designed for professional applications both in the studio and in the field. Suitable for broadcast, PA, recording or film production, the versatile ELX-1 mounts in a single rack space. A rugged, all aluminum chassis, a weight of only five pounds, a detachable AC power cord, and internal batteries offer portable convenience. Other features include phantom power, a dependable LED PPM bar graph output monitor and high quality push button switches.

**Basic Specifications & Suggested List Price:** The ELX-1 has a frequency response of 30Hz-20kHz  $\pm 0$  -1dB. Equivalent input noise is -129dB. Total harmonic distortion (THD) is less than 0.15% from 20Hz-20kHz at +4dBu and less than 0.15% from 50Hz-20kHz at +18dB. The mixer measures 1.34 by 12.78 by 11.34 inches. Suggested retail price is \$515.



**ELECTRO-VOICE, INC.**  
**ELX-1 Mic/Line Broadcast Mixer**

**INTERFACE ELECTRONICS**  
6710 Alder, Houston, TX 77081  
(713) 660-0100

**Product Name: MODEL 200BLS**

Contact: Louis Stevenson, President

**Date Product Introduced:** May 1984

**Product Description & Applications:** Mixer console featuring very high performance, compact design. 8 or 12 inputs, 2 outputs (stereo) plus 2 Cue Aux outputs, three equalizers on each input, operator's phones jack with solo from inputs and switch to play back 100 mm P&G sliders, connectors on rear panel, optional float pot limiters.

**Basic Specifications & Suggested List Price:** High performance location, portable recording, or sound system mixer. 1984 price: \$4,900.

**NEI**

934 N.E. 25th Ave., Portland, OR 97232

(503) 232-4445

**Product Name: SR 61 & SR 62**

Contact: H.C. (Bud) Garrison

**Date Product Introduced:** June 1984

**Product Description & Applications:** The SR 61 and SR 62 powered mixers both feature 6 electronically balanced input channels with both DFE and 1/4" phone inputs. Each channel has monitor and reverb effects sends and high mid and low equalization. Master control features and functions include 1/4" phone line level inputs and outputs for main, monitor and effects. The SR 61 and SR 62 both feature an extremely stable amplifier, FCC rated at 100 WHMS at 8 ohms and 160 WHMS at 4 ohms. The SR 62 contains 2 of these amplifiers which are mono bridable to produce over 500 WHMS into 4 ohms. Both the SR 61 and SR 62 feature a full octave 10 band graphic equalizer on standard ISO centers.

**Basic Specifications & Suggested List Price:** The SR 61 and SR 62's rugged steel chassis bolts directly into any standard 19" equipment rack. If more portability is desired, the mixers are available in a soft carrying tolex covered enclosure or flight case. Suggested list price: \$749.

**NEOTEK CORPORATION**

1158 W. Belmont, Chicago, IL 60657

(312) 929-6699

**Product Name: NEOTEK SERIES 100**

—LISTING CONTINUED ON PAGE 150

—FROM PAGE 94, MAKING SENSE

product was film, and the video workprint was just a reference guide for us to follow, then having the video at speed was not critical. So we had speeded-up video running at film speed, and everything cranked along rather handily, although everybody had told us that a monitor wouldn't lock up to it."

After the track conforming was completed, then the overdub sessions at Ocean Way Recorders began. "It was kind of like dialog replacement," Moran explained. "The players would watch themselves on the video and overdubbed directly onto the digital machine."

Following that process the film mixing sessions began at Warner Hollywood Studios. Here again, the 1610 was used as a master video source for Warner's BTX system. Westlake Audio supplied a Magnatech 9-F, which Moran described as a "wonderful little device that converts time code to footage and vice-versa—this allowed the film chain to talk to the digi machine via the BTX. At this point, we considered mixing onto a 1610, but we had spare tracks on the 3324 and we mixed back onto those two tracks using a Dolby movie sound encoder for the left-center-right matrix."

After the film had been run for a few selected preview audiences, pro-

ducer Gary Goetzman still felt a bit of soundtrack tweaking was necessary, so a record mastering-style approach was used. "We took another pass through the theater," Moran explained, "and put an overall curve on the track to fit the theater with a pair of UREI graphic equalizers. It really made a difference—the balancing and mixing was good before, but after the tweaking, it was phenomenal!"

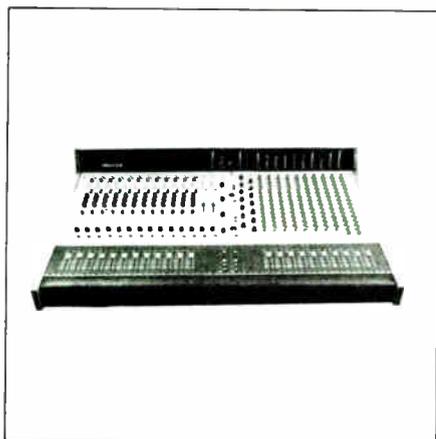
By the beginning of April, the sound was ready to be shot onto 35mm optical sound negatives, usually made from sprocketed magnetic tracks driven by a playback unit which operates on the 60 Hz AC line sync that also guides the optical negative recorder. However, transferring the digital audio to 35mm mag would have meant another generation loss, so the opticals were shot directly from the digital, which by this time had been tried, tested and proven for sync, and now had all the necessary start tones. However, Moran recalls that one unexpected problem did show up: "Your main concern in film audio, especially in L.A., is that the Hoover Dam [the main hydroelectric source] doesn't drift. Theoretically, it doesn't drift, but in practice, it does. For some unknown reason, reel four was out of sync, so we re-shot it and it was right on the button. Evidently,

Hoover Dam must have burped during reel four, and since the reel ran too long, the dam must have sped up to about 61 or 62 Hz."

Not surprisingly, Moran feels that digital audio has much to offer for the film industry. "I think the use of digital multitracks is something film people should get into as soon as possible. The key to good film sound is saving as many generations as possible before going to the optical. If you knock your music, effects and dialog onto a multitrack digital, you'll end up with a much crisper transfer, and that is that." ■



**David Byrne**



NEOTEK CORPORATION  
Neotek Series 100

## NEW PRODUCTS

### MIXING CONSOLES

1 · 9 · 8 · 5

—FROM PAGE 149

Contact: Greg Braithwaite, Sales, Jerome Mills, Mktng  
Date Product Introduced: 7/7th AES, October, 1984  
Product Description & Applications: The new Series 100 consoles meet the highest quality standards for audio recording. The system offers eight main mixing buses with a separate monitoring section. It is available in 8, 16, and 24 track formats with a large number of options that include patch bays, integral producer's desks and custom cabinetry and leas, VCA and automation laders, machine remotes, stereo line input modules, and custom interlaces. The flexibility of the Series 100 system makes it ideal for music recording, broadcast production, and high quality sound reinforcement, its technical performance makes it the perfect console for

audiophile digital recording, an area in which its predecessor was unsurpassed.

**Basic Specifications & Suggested List Price:** Input modules offer four-band multi mode parametric EQ as well as a switched high pass filter, 4 auxiliary sends, a second line input, and 2 main stereo bus outputs. Stereo line input modules are also available. All major inputs and outputs are electronically balanced. List prices begin at \$9,950.

#### NEOTEK CORPORATION

1158 W. Belmont, Chicago, IL 60657

(312) 929-6699

#### Product Name: NEOTEK SERIES 200

Contact: Greg Braithwaite, Sales, Jerome Mills, Mktng

Date Product Introduced: 7/7th AES, October, 1984

**Product Description & Applications:** The new Series 200 consoles provide 24 bus assignment with in line monitoring and a unique signal flow system that brings tremendous flexibility and ease of control to high quality music recording and sophisticated production applications. Series 200 consoles meet the present and future needs of the new generation of multi purpose studios which emphasize quality and flexibility. Fader options allow VCA grouping or a variety of automation systems, the stereo line input module option serves as a stereo subgroup master in systems without VCAs. All metal patch bays with fully shielded cabling are standard.

**Basic Specifications & Suggested List Price:** Input modules of the Series 200 offer 4 band multi mode parametric equalization and a sweep high pass filter, there are 6 auxiliary sends, one a stereo pair. Frames are available with up to 56 inputs, with prices starting at \$18,000.

#### NEOTEK CORPORATION

1158 W. Belmont, Chicago, IL 60657

(312) 929-6699

#### Product Name: NEOTEK SERIES III

Contact: Greg Braithwaite, Sales, Jerome Mills, Mktng

Date Product Introduced: July, 1984, 32 bus version

**Product Description & Applications:** The Series III is a full featured lower configured multitrack recording console system now available in 12 track as well as 24 track versions. The entire console is electronically switched, with key functions overrideable on individual input modules. The unique signal flow system allows 3 solo modes, 2 methods of group muting, stereo subgrouping without VCAs, and up to 32 effects buses accessible from each input channel. The proven Series III system makes possible fast, professional operation with full flexibility available when needed.

**Basic Specifications & Suggested List Price:** Input modules offer 4 band multi mode parametric equalization that includes a continuously variable high pass function, 6 stereo auxiliary sends that include a stereo pair, and an associated high resolution Peak/VU meter. Formats to 56 inputs are available along with an extensive list of options and custom cabinetry. Suggested retail for a 36x32 console is \$4,000.

#### NEOTEK CORPORATION

1158 W. Belmont, Chicago, IL 60657

(312) 929-6699

#### Product Name: NEOTEK PRODUCTION CONSOLES

Contact: Greg Braithwaite, Sales, Jerome Mills, Mktng

Date Product Introduced: N/A 1984

**Product Description & Applications:** NEOTEK Production console into the highest standards of sonic performance with the operational system features which broadcasters demand. Input modules sense live mike conditions and provide individually programmable studio and control room mute logic with a master logic output for a tally light or skimmer control. Input modules produce start pulses on fader lift or ON, and the stereo line input also accepts remote mute logic. The comprehensive monitor section accepts a dozen balanced stereo line and expander stereo line select modules are available.

**Basic Specifications & Suggested List Price:** Numerous options are available in modules, formats, cabinetry, patch bays, and machine remotes. Prices for fully equipped consoles begin at \$11,000.

#### NEOTEK CORPORATION

1158 W. Belmont, Chicago, IL 60657

(312) 929-6699

#### Product Name: NEOTEK THEATER SYSTEMS CONSOLES

Contact: Greg Braithwaite, Sales, Jerome Mills, Mktng

Date Product Introduced: January, 1984

**Product Description & Applications:** The newly developed Theater Systems consoles have an operating system that is easily understood by audio technicians yet which can be configured to suit the most complex installations. A systems designer may literally specify a custom console which has the availability, serviceability, and reliability of a standard manufactured unit, and which also offers the high Neotek standards of technical performance. Neotek will warrant that its consoles will meet acceptance.

**Basic Specifications & Suggested List Price:** Any number of input and output channels may be specified, with inputs assigned to 14 preset masters for distribution to output masters through a pot matrix. There is a comprehensive list of wiring, metering, insert point, and output options, with complete system prices starting at \$14,000.

# SUCCESS STORY CONTINUES:

ADVANCED MEDIA SYSTEMS	40x24 S-III C
PUGET SOUND AUDIO	36x24 S-III C
METRO MOBILE LOCATION RCDG.	32x24 S-II
LOMA RANCH STUDIOS	28x24 S-II
A&R RECORDING SERVICES	28x24 S-II
TRINITY BROADCASTING NETWORK	24x4 S-I PROD.
KCRW-FM	16x8 S-I PROD.
KWGN-TV	24x4 S-I PROD.
KNAC-FM	20x8 S-I PROD.
TOBY ARNOLD & ASSOC.	28x24 S-II

**THEIR FUTURE IS CLEAR!**

# NEOTEK

For over six years, **Neotek West** has been assisting people like these in making NEOTEK audio consoles a part of their success. While other consoles claim superlative audio, NEOTEK consoles have consistently delivered unsurpassed audio quality and flexibility.

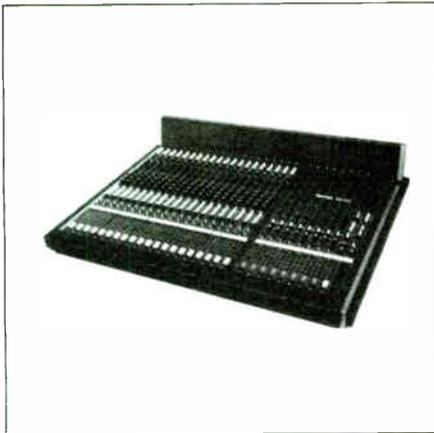
If you haven't yet auditioned a NEOTEK, please call us for a demonstration, and start on your own "success story!"

## NEOTEK WEST

4007 West 6th Street, Los Angeles, CA 90020 · (213) 387-7999

SALES AND SERVICE OF NEOTEK CONSOLES

Circle # 106 on Reader Service Card



PANASONIC INDUSTRIAL CO.,  
PROFESSIONAL AUDIO SYSTEMS  
RAMSA WR-T812, WR-T820 Recording Mixers

PANASONIC INDUSTRIAL CO.,  
PROFESSIONAL AUDIO SYSTEMS  
1 Panasonic Way, Secaucus, NJ 07094  
(201) 348-7470

Product Name: RAMSA WR-T812, WR-T820 RECORDING MIXERS

Contact: Gene Juall, Product Mgr.

**Product Description & Applications:** Two models offered: WR-T812 has 12 input sections, 8 input sections, 2 master outputs and 4 send outputs. WR-T820 has 20 input sections, 8 group sections with 16 outputs, 2 master outputs and 14 send outputs. Input sections feature 3-band variable EQ, mike, line, tape inputs, phase inversion, w/45V gain, 40mV power, stereo tap, mono, 4 mix sends, chain ON/Off, solo/sw, 100mm fader. Standard metering is 12 LED bargraphs, optional meter includes:

**Basic Specifications & Suggested List Price:** WR-T812 (12x8x2+4) \$3,995; WR-T820 (20x8x2+4) \$4,995

PANASONIC INDUSTRIAL CO.,  
PROFESSIONAL AUDIO SYSTEMS  
1 Panasonic Way, Secaucus, NJ 07094  
(201) 348-7470

Product Name: RAMSA WR 8616 MIXING CONSOLE

Contact: Gene Juall, Product Mgr.

Date Product Introduced: January 1984

**Product Description & Applications:** A modular mixer consisting of a mainframe capable of accommodating up to 16 input modules, mono or stereo, 4 group outputs, 2 master outputs (L/R), 1 monitor module, 1 talkback oscillator module. Mainframe includes 6 VU meters and 8 LED bargraph meters, 6 channels of remote start/stop, witness provided for running turntables, cart machines, etc.

**Basic Specifications & Suggested List Price:** WR 8616 Main frame includes power supply, 2 master modules, 1 monitor module, and 1 talkback module \$4,125. WU 8101 mono input module \$225, WU 8106 stereo input module \$215, WU 8102 tape monitor group module \$200, WU 8107 basic group module \$140, WU 8104 talk module \$35.

PULSAR LABORATORIES INC  
3200 Gilchrist Rd., Mogadore, OH 44260  
(216) 784-8022

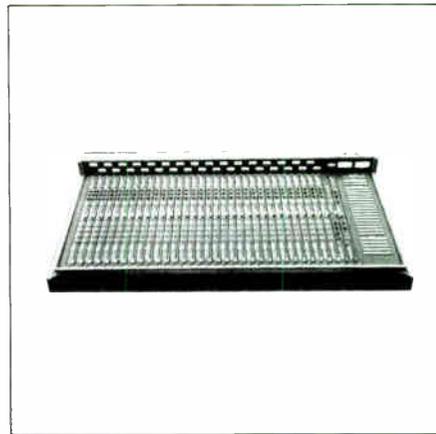
Product Name: "ON TRACK" SEMI-AUTOMATED RECORDING CONSOLE

Contact: Sales Dept.

Date Product Introduced: June 1984

**Product Description & Applications:** The "On Track" console line is a semi-automated console with all the goodies as standard features: 24 input channels, 8 VCA, 4 bus outputs (any channel or master), 8 group outputs, 2 master outputs, a fully balanced patch bay, balanced and unbalanced stereo master outputs, PWC faders, PFI, AFI and 1/2 speed 3-band sweep FCO, separate microphone trim, mute and talkback, calibration oscillator, stereo monitor sends, stereo effects return, 42 track monitor, 4 channel power solid oak frame and leg cast, as well as VU meters on all inputs, left, right and solo.

**Basic Specifications & Suggested List Price:** Equip. imp. noise -1.9dB, frequency response +5dB, THD 0.1% cross talk, greater than 80 dB, input impedance is balanced, 2.6K, output impedance 75 ohms, mixer input level w/ pad +42dB, max. output level +26dBm. Price: 10x16x8 1/2 \$17,000, 24x24x8 1/2 \$21,000, 42x42x8 1/2 \$26,000



PULSAR LABORATORIES INC  
"On Track" Semi-Automated Recording Console

QUAD EIGHT WESTREX  
225 Parkside Dr., San Fernando, CA 91340  
(818) 764-1516

Product Name: "WESTAR"

Contact: William E. Windsor, Senior V.P.

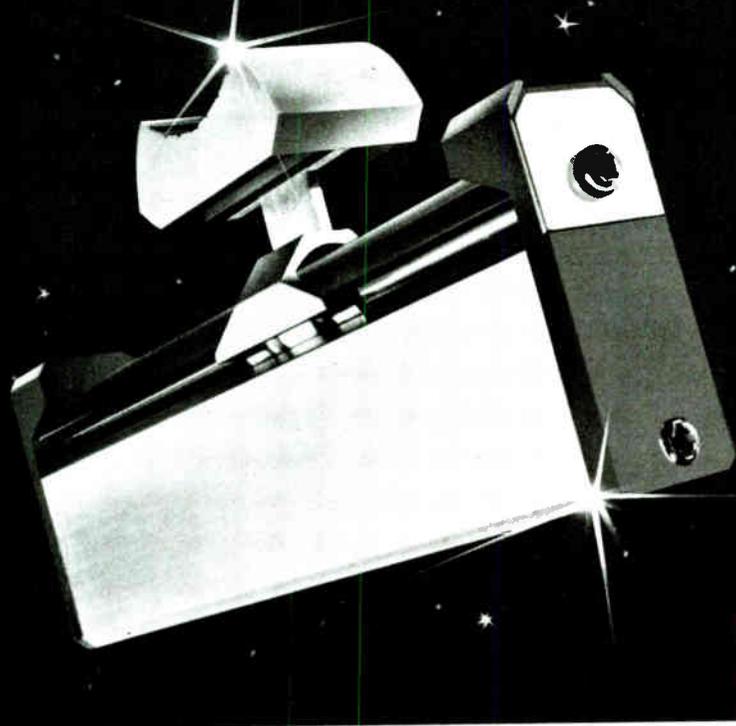
Date Product Introduced: March, 1984

**Product Description & Applications:** World class multitrack in-line, dual path recording and post production mixing console. It features a modular field expandable frame, using sections of 8 modules each to build 20, 24, 36, 44, 52, or more, input consoles. All windows plug in shielded ribbon cable, including the jack bay. Each module also has plug in interchangeable microphone pre-amplifiers (transformer, transformerless, single or dual), plug in interchangeable equalizers, interchangeable VCA types, and interchangeable faders (vacio VCA or the intelligent digital fader for automation).

**Basic Specifications & Suggested List Price:** -130dBm E.I.N.

-LISTING CONTINUED ON PAGE 152

# Penny & Giles launches the fader of the future



## A New Standard in Fader Technology

Penny & Giles totally new 3000 series sets a new standard in fader technology.

The 3000 combines the world famous Penny & Giles smooth-as-glass feel and total reliability with a breakthrough in cost effective mechanical design.

## Nothing Comes Near Our Faders

Technically, nothing approaches Penny & Giles faders. Our 3000 series have full environmental shielding. They provide stroke lengths from 2.5 inches to 4.094 inches in the smallest body size ever, integral switches, linear, audio taper or VCA outputs, a smoothly positive linear action—in fact all you'd expect from the world's leading fader company.

Get the full details about the fader of the future, now. Call or write.

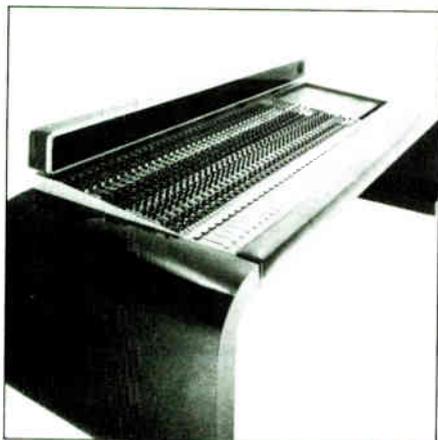
**Penny & Giles** 

Penny & Giles Conductive Plastics Ltd.  
1640 Fifth Street, Santa Monica, California 90401  
Tel: (213) 393-0014 • Telex: 652337

Circle #107 on Reader Service Card

—FROM PAGE 151

+1.8dBm output, frequency response  $\pm 5$ dB 20Hz to 20kHz, cross talk  $-70$ dB 20Hz to 16kHz, distortion less than  $0.5\%$  THD, 4 mono channels and 2 stereo sends. Price: 46 inputs approx \$65,000.



QUAD EIGHT WESTREX  
"Westar"

RADIO SYSTEMS, INC.  
5113 W. Chester Pike, Edgemont, PA 19028  
(215) 356-4700

**Product Name:** ESA-10 BROADCAST CONSOLE

**Contact:** Neil C. Asmon, Broadcast Sales

**Date Product Introduced:** January, 1984

**Product Description & Applications:** The Radio Systems ESA-10 is a 10 channel, 40 input main output console built for radio broadcast studios. The console features complete DC control and internal remote control facility, speaker monitoring, standard features include: equal, clock and timer, 3 stereo LED meters, make preamplifiers and 2 auxiliary audio switches. The console houses an internal stereo monitor and headphone amplifier as well as provide 3 monitor amplifiers.

**Basic Specifications & Suggested List Price:** Distortion:  $0.2\%$  max THD and  $1M$  ref.  $+22$ dBm into 600 ohm. Frequency response,  $\pm 1$ dB 20-20 kHz. Signal to noise:  $-80$ dB, ref.  $-50$ dBv input below  $+8$ dBm output line.  $-90$ dB, ref.  $0$ dBm input below  $+8$ dBm output. 20 kHz bandwidth. Professional list price: \$4,450.

SLM ELECTRONICS  
2063 Congressional, St. Louis, MO 63146  
(314) 569-0141

**Product Name:** CRATE

**Contact:** Monte Lamb

**Date Product Introduced:** April, 1984

**Product Description & Applications:** SLM Electronics new Crate PA 600 (6 channel) and PA 800 (8 channel) powered mixers offer a wide variety of features at very low prices. Each channel has a balance and a channel gain control and 2 band EQ pre-EQ monitor send, post-EQ comb effect send and individual gain control. 5 band graphic EQ and LED and meter are included in the master section.

**Basic Specifications & Suggested List Price:** Each unit has a power amp, impedance 25 watt into 4 ohms or 190 watts into 2 ohms. The PA 600 has a suggested list price of \$559.95 and the PA 800 is \$629.95.

SLM ELECTRONICS  
2063 Congressional Dr., St. Louis, MO 63146  
(314) 569-0141

**Product Name:** AUDIO CENTRON

**Contact:** Monte Lamb

**Date Product Introduced:** June, 1984

**Product Description & Applications:** SLM Electronics announces the new affordable line of Audio Centron stereo mixers. Each channel features a variable trim control, LED indicator, 3 band of EQ, 2 sends (pre-EQ and post-EQ), pan control and 60mm faders. Balanced and unbalanced inputs are available with individual channel preamp. Balanced and unbalanced outputs are included. The master section includes assignable graphic and output indicators, power effect sends with separate returns, monitor send, 2 aux inputs and effects to monitor.

**Basic Specifications & Suggested List Price:** These units come in unpowered 16, 12 or 8 channel units and a dual powered (125 watt) 8 channel unit. The suggested list price for the 8 channel is \$859.95, the 12 channel is \$1,049.95, the 16 channel is \$1,259.95 and the powered 8 channel is \$1,449.95.

## NEW PRODUCTS

### MIXING CONSOLES

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SLM ELECTRONICS  
Audio Centron

SONY PROFESSIONAL AUDIO DIVISION

Sony Drive, Park Ridge, NJ 07656

(201) 930-1000

**Product Name:** K-1105 8-CHANNEL DIGITAL MIXING SYSTEM

**Contact:** Jim Garahan

**Date Product Introduced:** September, 1984

**Product Description & Applications:** A modular 8 channel mixing system that performs major operations of conventional consoles such as mixing and equalization digitally. The K-1105 consists of a rack-mounted section of processor and level controls and an AD and D/A conversion units. Both rack mountable applications include Compact Disc mastering location by a 16 channel track and in a monitor plus a 4 track track position.

**Basic Specifications & Suggested List Price:** A complete digital mixing console and provides three types: 1 channel output, 2 channel main, 2 channel sub and 8 channel direct. Mixes 16 bit linear, multibit digital signals with uniform sampling and frequency detection for 44.1 and 48kHz.

SOUNDCRAFT ELECTRONICS  
1517 20th St., Santa Monica, CA 90404  
(213) 453-4591

**Product Name:** SERIES 600 CONSOLES

**Contact:** Wayne Freeman V.P.

**Date Product Introduced:** September 15, 1984

**Product Description & Applications:** Series 600 Multitrack Recorder Cons. has a mediate interface with multitrack recorder with levels of either  $-10$  or  $+4$ dB. Available in 16, 24 or 32 inputs, 8 group outputs, 6 auxiliary returns, 6 stereo outputs, 1 stereo LED meters on tape returns, stereo buss and aux returns. Price to be announced.

SOUNDCRAFT ELECTRONICS  
1517 20th St., Santa Monica, CA 90404  
(213) 453-4591

**Product Name:** SOUNDCRAFT SERIES 200 B

**Contact:** W. Freeman V.P.

**Date Product Introduced:** September 15, 1984

**Product Description & Applications:** Series 200B live recording mixing console. Available in 16, 24 and 32 inputs, 41 aux plus stereo bus, 4 aux sends, 8 track monitor outputs and 8 stereo returns. Price to be announced.

SOUNDCRAFT ELECTRONICS  
1517 20th St., Santa Monica, CA 90404  
(213) 453-4591

**Product Name:** SOUNDCRAFT 400C

**Contact:** Wayne Freeman V.P.

**Date Product Introduced:** September 15, 1984

**Product Description & Applications:** Series 400C live mixing console available in 16, 24 and 32 inputs, 8 group outputs, 8 stereo

outputs, 6 aux sends and 8 effect returns in group outputs. Price to be announced.

SOUNDTRACS

262a Eastern Parkway, Farmingdale, NY 11735

(516) 249-3669

**Product Name:** SOUNDTRACS

**Contact:** Jack Kelly

**Date Product Introduced:** May/June, 1984

**Product Description & Applications:** CM4400 Microprocessor based digital routing system with 32 input, 24 channel monitor, 24 line 2 meter, 4 band equalization, 6 auxiliary sends, phantom phasing, high pass filter. Designed for broadcast TV, radio and recording. SMTF interface, software available. Order # 1984.

**Basic Specifications & Suggested List Price:** 4x12x4x2 with patch bay in 120 element meter. Price to be announced.

SOUNDTRACS INC

262a Eastern Parkway, Farmingdale, NY 11735

(516) 249-3669

**Product Name:** SOUNDTRACS M SERIES

**Contact:** Jack Kelly

**Date Product Introduced:** May, 1984

**Product Description & Applications:** Microprocessor based 32 input, 8 bus with 4 band equalization, 6 auxiliary sends, 4 meter.

**Basic Specifications & Suggested List Price:** 4x8x4x2 modular. \$9,500.



STUDIOMASTER, INC  
Studiomaster 6x2x1 Mixing Console

STUDIOMASTER, INC c/o INTERNATIONAL MUSIC  
1316 E. Lancaster, Ft. Worth, TX 76102  
(817) 336-5114

**Product Name:** STUDIOMASTER 6x2x1 MIXING CONSOLE

**Contact:** Jim Cowan, Director of Electronics

**Product Description & Applications:** This unit offers features and performance normally obtained from mixers costing twice the price. It is convenient rack mountable 6x2x1 console included with every mixer. The 6x2x1 professional key-locked modular PA monitor and summing platform, required to ensure proven reliability and construction. A 6x2x1 rack mountable expansion units which are simple to connect and provide for future expansion.

**Basic Specifications & Suggested List Price:** 1 x 6x2x1 rack balanced inputs, high impedance line input, effects and monitor send, left and right aux output, 2 effect returns with an stereo monitor, 8 channel 111 bus, 6 channel rack mountable 6x2x1 band EQ module  $\pm 20$ dB at 15kHz, balanced input  $\pm 10$ dB at 15kHz, 6x2x1 rack mountable 6x2x1 effect return. Suggested list price \$2,995.

TASCAM, PROFESSIONAL DIVISION OF TEAC  
7733 Telegraph Rd., Montebello, CA 90640  
(213) 726-0303

**Product Name:** 500 SERIES MIXERS

**Contact:** Bill Mohrbath, Sales Mgr.

**Date Product Introduced:** May, 1984

**Product Description & Applications:** The 500 Series are designed primarily for the professional audio production and post production market. The M 512 is a 12 input, 8 bus, 8 monitor design while the M 520 is a 20 input, 8 bus, 16 monitor design with 4 independent, selectable signal sources plus a separate effects send. Both units can accept balanced and unbalanced line inputs. The outputs are both  $-10$  and  $+4$  dB with a maximum output level (no load) of  $+8$  dB. The M 512 has an internal power supply, while the M 520 is supplied with a rack mount PSU.

**Basic Specifications & Suggested List Price:** M 512 (12x8x8) \$3,995. M 520 (20x8x16) \$5,495.

—PHOTO ON PAGE 154

# THAT BRITISH SOUND



**ACES TR-24:** 2" 24 track Recorder/Reproducer \$19,300.00 (2" 16trk., pre-wired 24trk. available)

**BOTH TAPE MACHINES FEATURE:** +4dbm IN/OUT • 15/30ips • Full-function 9 cue position remote-autolocator • Stand • 50% range vari-speed •



**ITAM #1610:** 1" 16 track Recorder/Reproducer \$12,999.00 (1" 8trk., pre-wired available)



**ACES ML24:** I/O console, 32 in x 24 buss, Wired patch bay. \$16,800.00

**ACES SM16:** Split console, 32 in x 16 buss \$14,400.00

**BOTH CONSOLES FEATURE:** Fully modular • +4dbm IN/OUT • AudioFad long-throw conductive plastic faders • 5 Aux sends • 5 band switchable EQ • Input LED PPM'S • Stand • +48v phantom power • LED display (optional) • Two year parts warranty • Other frame sizes available •

**EAST COAST DEALER:**

**AUDIOTEK**

182-35 Jamaica Avenue  
Hollis, New York 11423  
(212) 526-1456

**WEST COAST DEALER:**

**PROFESSIONAL  
AUDIO SERVICES  
AND SUPPLY CO.**

99 East Magnolia, Suite 215  
Burbank, CA 91502  
(818) 843-6320

## UNIQUE AUDIO EQUIPMENT FOR SALE

**Consoles:** Neve 8078 40/24/32 130K, Neve 8038 36/16/24 75K, Neve 8108 56/32/56 Nec. ready 145K, Neve 8108 48/36/32 Nec. 1 140K, Neve 8108 32/34/32 Nec. II 135K, Neve 8016, 3 position film, 3 lim., 6 graphic 12/3/12X4 Panner 35K, (2) Neve 5422 8X2 portable 7.5K, Neve 8068 32/16/32 85K, Harrison MR2 48/40/32, Allison 75K, Harrison 4032 Allison 55K, Harrison 3232, Allison 40K, Harrison 3624, Allison 38K, Neve BCM 10-2 8.5K, MCI 528B LM, 8 return 40K, MCI 528C, LM, 8 return 45K, MCI 556C, LM, 8 return, 80K, MCI 636, Vu 35K, Soundcraft 3B 24/24/24 18K, Trident TSM 40/24/24 65K, Trident Series 80B 32/24/24 32K, Trident Series A 40/24/32 110K, API 40/16/24 40K, API 2488 32/8/24-Mint 55K, Quad 8 Coronado, 40/24/40 Auto 70K.

**Tape Machines:** Ampex ATR 104, new 11K, 3 Ampex ATR 102 used 6.5K, (2) Ampex MM1200 24T 24K, (3) 3M-M79 24 Auto K Loc, 19.5K MCI JH-100 24T Loc II 17K, MCI JH114 24T Loc II 19K, MCI JH-24 Loc III 23K, Studer A80 II, 24T Loc, Rem 24K, (2) Studer A80II 2T 7.5K, (2) Scully 280 B, 4T, Servo 2.5K, assorted 4T, 8T, and 16T heads.

**Gear:** (2) Dolby M24H 13.5K, (8) Dolby 361 .850 K, (3) EMT 140, ST (2) 5.5K, (2) EMT 240 6.5K, EMT 250 21K, (2) Eventide 1745M, pitch, 1.5K, (2) Lexicon 224, 4.1 Ver 4.9K, Lexicon 200 4.4K, (2) ADR, Voc, Strs 1K, (2) Lang, PEQ 1, PEQ 2 .8K, Bluthner Piano 7'6" 9K, Eventide H 949 2.2K, much more gear—please call.

**Microphones:** (Tube) (6) C12 2.2K, (4) M249 1.6K, (4) U67 1.4K, (1) U47 (Fet) .5K, (2) SM69 Stereo 1.7K, (8) KM 53 .3K, (4) M250 2.2K, (1) Elam 251 .3K

Call OCEAN AUDIO (213) 454-6043

Circle #124 on Reader Service Card

## API CONSOLE UPDATE:

Wolff Associates is now an authorized dealer for API and Datatronix audio products. We can supply your facility with anything from a used equalizer to a complete new recording console.

Wolff Associates will also keep your present API/Datatronix equipment running with factory replacement parts. We do on-location repair of control room grounding and signal flow problems, etc.

### USED EQUIPMENT FOR SALE:

(2) 1604 API Consoles; (2) API console frames; 550A EQs; 440 Series faders; 3M M-79 w/16- and 24-track heads.

**WOLFF ASSOCIATES**  
1378 NORTHGATE SQUARE  
RESTON, VA 22090  
(703) 689-0448

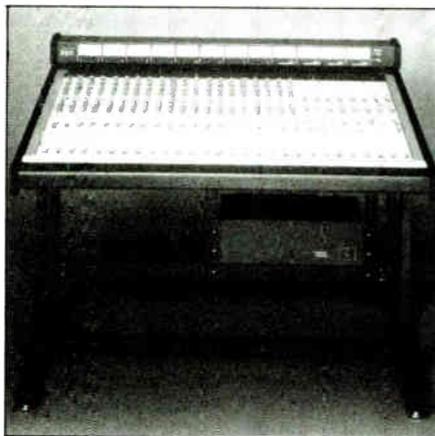
Circle #125 on Reader Service Card

## NEW PRODUCTS

### MIXING CONSOLES

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TASCAM, PROFESSIONAL DIVISION OF TEAC  
500 Series Mixers

## TASCAM TEAC Professional Division

TASCAM, PROFESSIONAL DIVISION OF TEAC

TASCAM, PROFESSIONAL DIVISION OF TEAC  
7733 Telegraph Rd., Montebello, CA 90640  
(213) 726-0303

**Product Name:** 106 MIXER

**Contact:** Bill Mohrhoff, Sales Mgr.

**Date Product Introduced:** October, 1984

**Product Description & Applications:** The 106 is a 6 input, 4 output, compact mixer designed specifically for small audio applications, or those situations where extreme physical limitations must be considered. The 106 can accept mike or line signals, provides 2 bands of channel EQ, channel patching, an assignable aux send, plus a separate effects send buss. The 4 program busses each have separate faders and outputs, and also provide signal to the stereo monitor system. The 106 also has 2 stereo RIAA phono pre-amplifiers built in.

**Basic Specifications & Suggested List Price:** 6 mike/line inputs, 4 RIAA (stereozed) phono inputs, channel direct outputs and patching, 4 program outputs, 4 program sub-ins, 4 program patch points, 2 effect and aux outputs. Output levels are 0 dBu and -10 dBu. Price \$665.

TASCAM, PROFESSIONAL DIVISION OF TEAC  
7733 Telegraph Rd., Montebello, CA 90640  
(213) 726-0303

**Product Name:** M 300 SERIES MIXERS

**Contact:** Bill Mohrhoff, Sales Mgr.

**Date Product Introduced:** October, 1984

**Product Description & Applications:** The 300 Series are designed to meet the requirements of the small to medium size production facilities. The series consists of 3 models, the 308 eight channel, 312 twelve channel, and the 320 with 20 inputs. All 3 are 4 buss designs with full stereo and mono master sections derived from the program busses. There are 4 assignable, selectable aux sends plus a dedicated effects send. Sweep EQ, solo, AFL, tape return mix, full talkback, and comprehensive monitoring are also provided.

**Basic Specifications & Suggested List Price:** M 308 (8x4x2x1), \$1,600 M-312: (12x4x2x2), \$2,600 M-320 (20x4x2x1), \$4,500

## TASCAM TEAC Professional Division

TASCAM, PROFESSIONAL DIVISION OF TEAC

TOA ELECTRONICS, INC.  
480 Carlton Ct., So. San Francisco, CA 94080  
(415) 588-2538

**Product Name:** MCX-106 POWERED MIXING/RECORDING SYSTEM

**Contact:** Terry Taylor, Nat'l Sales Mgr.

**Date Product Introduced:** June, 1984

**Product Description & Applications:** A portable, self-powered mixer with microprocessor controlled stereo cassette deck. Basic components: 6 channel main mixer, 6 channel on stage monitor mixer, 6 channel special effects mixer, 6 channel recording mixer, tape deck, 9 band graphic EQ, patch bay, headphone cue/monitor, 300W RMS power amplifier. Each input channel has balanced XLR unbalanced phone jack. Records a live demo tape, performs with pre-recorded audio records sound-on-sound with external tape source and simultaneously performs as main sound system and independent monitor mixer.

**Basic Specifications & Suggested List Price:** Mixer Section: frequency response, +0 - 3dB, 30-20kHz, THD, 0.05% + 4dBm at 1kHz, peak indicators: one red LED per channel turns on at 3dB below clipping. Power Amp: frequency response, +0, -1dB, 5-40kHz (200W RMS, 4 ohms). Stereo Tape Deck: track format, 4 track 2 channel, 17.8 ips, +/-1%, pitch control, +/-10% normal tape speed, frequency response, 40-12.5 Hz (metal)

TRIDENT U.S.A. INC.  
280 Mill Street, Ext. Lancaster, MA 01523  
(617) 365-2130, (617) 368-0508

**Product Name:** TRIDENT

**Contact:** James Camacho, President

**Date Product Introduced:** APRIL May, 1984

**Product Description & Applications:** The Trident Series 65 is a new range of fully modular compact, mixing consoles for sound reinforcement, theater sound broadcast, mobile recording and multi-track studio work. The 65 is available in many configurations from 16 into 4 w/8 track monitoring up to 40 into 8 w/16 track monitoring. The heart of the system when used for multitrack is the "group assign" facility, located on each dual section group output module.

**Basic Specifications & Suggested List Price:** 4 band EQ (incl. 3 SWRPT mid-ranges), SWRPT high pass filter on each input, balanced transformerless separator mike and line inputs, 8 aux. sends, channel auto mute system, in place stereo solo 3 band EQ on monitor w/sweep mid, assignable to groups, 48V phantom power, separate power supply. List from \$6,750 to \$15,250

WHEATSTONE CORPORATION  
5 Collins Rd., Bethany, CT 06525  
(203) 393-0887

**Product Name:** 8X RECORDING CONSOLE

**Contact:** Gary Snow, Console Sales

**Date Product Introduced:** NAB, 1984

**Product Description & Applications:** Designed for the 8, 16 and

24 track recording profession. This console series provides features and technical excellence previously available only in larger track formats: 3 band sweepable EQ (semi parametric), full 24-track monitoring capability, mixdown sub-grouping, stereo monitor sends, truly flexible effect send and return functions, pre-, post-, buss and tape monitor solo circuitry, comprehensive slate, talkback and calibration oscillator functions, switchable phantom power, continuously variable mike and line input gain controls, phase reverse, pfd, HPE, EQ bypass, extensive peak clip LED monitoring, precision conductive plastic linear faders. Optional patch bay available.

**Basic Specifications & Suggested List Price:** Technical specification match or exceed digital recording parameters, an ideal console for critical recordings. Frequency response +/- 1dB, 20-50kHz, THD < 0.05% 20-20kHz at +20dBm out, noise less than -90dBm, 20-20kHz/mike -129dB, 20-20kHz, crosstalk less than -90dB at 1kHz, dynamic range line 110dB, mike 100dB (typ). IC complement selected NE5534, TL072, LM394, LF353, 8038. Price (24 input configuration) \$17,500.

**WHEATSTONE BROADCAST GROUP**  
5 Collins Rd., Bethany, CT 06525  
(203) 393-0887

**Product Name:** SP-5 STEREO PRODUCTION CONSOLE

**Contact:** Gary Snow, Console Sales

**Date Product Introduced:** NAB 1984

**Product Description & Applications:** Modular and specifically designed for stereo broadcast production, the SP-5 offers true stereo sub-grouping for mix minus and stereo program work. Optional configurations allow mono sub-groups and outputs, dual stereo line or mono mike/line inputs, and a wide variety of main-frame sizes accommodating 18 to 52 input modules. Input module signals are assignable to the 4 stereo sub-groups which in turn assign to the master stereo output module. Flexible switching also allows sub-groups to operate as independent stereo outputs. Four send busses provide auxiliary signals for special monitoring, fold back and processing. A communications module (w/oscillator) provides monitor, talkback and solo functions.

**Basic Specifications & Suggested List Price:** Frequency response: 20-20kHz, +/- 1 - 25dB, THD < 0.05%, 20-20kHz at +18dBm out, crosstalk -90dB at 1kHz, SMPTE IMD < 0.03% at +18dBm out, noise: line -90dB below +4dBm, mike EIN -129dB. Price (24 input configuration) \$19,400.

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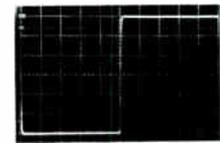
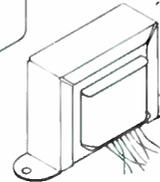
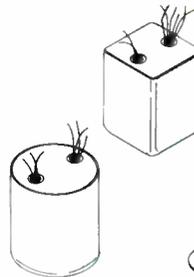
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JE-16A  
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## INPUT TRANSFORMERS AND SPECIAL TYPES

Model	Application	Impedance Ratio Pri-Sec	Turns Ratio Pri:Sec	20Hz Max Input Level <sup>1</sup>	Typical THD Below Saturation (%) 20 Hz / 1 kHz	Frequency Response (dB ref. 1 kHz) 20 Hz / 20 kHz	Band-Width <sup>2</sup> -3 dB @ (kHz)	20 kHz Phase Response (degrees)	Over-Shoot (%)	Noise Figure (dB)	Magnetic Shield <sup>4</sup> (dB)	Number of Faraday <sup>4</sup> Shields	Package <sup>5</sup>	PRICES		
														1-19	100-249	1000

### MICROPHONE INPUT

† JE-16-A	Mic in for 990 opamp	150-600	1:2	+8	0.036 / 0.003	-0.08 / -0.05	200	-8	<1	1.7	-30	1	A=1 B=2	64.21 68.86	42.89 45.99	29.60 31.74
† JE-13K7-A JE-13K7-B	Mic in for 990 or I.C.	150-3750	1:5	+8	0.036 / 0.003	-0.09 / -0.21	85	-19	<2	2.3	-30	1	A=1 B=2	64.21 68.86	42.89 45.99	29.60 31.74
JE-115K-E	Mic in for I.C. opamp	150-15K	1:10	-6	0.170 / 0.010	-0.50 / +0.10	115	-5	<7	1.5	-30	1	3	42.03	28.07	21.92

### LINE INPUT

JE-11P-9	Line in	15K-15K	1:1	+26	0.025 / 0.003	-0.03 / -0.30	52	-28	<3		-30	1	1	103.47	69.13	47.69
JE-11P-1	Line in	15K-15K	1:1	+17	0.045 / 0.003	-0.03 / -0.25	85	-23	<1		-30	1	3	40.05	26.76	20.90
† JE-6110K-B JE-6110K-BB	Line in bridging	36K-2200 (10K-600)	4:1	+24	0.005 / 0.002	-0.02 / -0.09	125	-12	<1		-30	1	B=1 BB=2	62.86 71.52	42.01 47.79	30.83 32.97
* JE-10KB-C	Line in bridging	30K-1800 (10K-600)	4:1	+19	0.033 / 0.003	-0.11 / -0.08	160	-9	<2		-30	1	3	41.56	27.76	19.16
JE-11SSP-8M	Line in repeat coil	600 / 150-600 / 150	1:1 split	+22	0.035 / 0.003	-0.03 / -0.00	120	-9	<3.5		-30	1	4	151.90	101.47	70.01
JE-11SSP-6M	Line in repeat coil	600 / 150-600 / 150	1:1 split	+17	0.035 / 0.003	-0.25 / -0.00	160	-5	<3		-30	1	5	79.22	52.91	36.51

### SPECIAL TYPES

† JE-MB-C	2-way <sup>3</sup> mic split	150-150	1:1	+1	0.050 / 0.003	-0.16 / -0.13	100	-12	<1		-30	2	3	34.60	23.13	18.06
† JE-MB-D	3-way <sup>3</sup> mic split	150-150-150	1:1:1	+2	0.044 / 0.003	-0.14 / -0.16	100	-12	<1		-30	3	3	60.09	40.15	31.35
JE-MB-E	4-way <sup>3</sup> mic split	150-150-150-150	1:1:1:1	+10	0.050 / 0.002	-0.10 / -1.00	40	-18	<1		-30	4	1	96.90	64.73	44.66
JE-DB-E	Direct box for guitar	20K-150	12:1	+19	0.096 / 0.005	-0.20 / -0.20	80	-18	<1		-30	2	6	43.57	29.11	22.73

- (dBu) Max input level = 1% THD; dBu = dBv ref. 0.775 V
- With recommended secondary termination
- Specifications shown are for max. number of secondaries terminated in 1000 ohm (typical mic preamp)
- Separate lead supplied for case and for each faraday shield
- Except as noted, above transformers are cased in 80% nickel mu-metal cans with wire leads.

### PACKAGE DIMENSIONS:

W	L	H
1 = 1 1/16" Diam.		× 1 3/16"
2 = 1 3/16" × 1 3/16"		× 1 3/8"
3 = 1 1/8" Diam.		× 1 1/16"
4 = 1 1/2" × 1 3/4"		2 1/2" w/ solder terminals
5 = 1 5/8" Diam.		× 1 3/4"
6 = 1 1/8" Diam.		× 1 3/16"

## NIKKEL CORE OUTPUT TRANSFORMERS<sup>6</sup>

Model	Construction	Nominal Impedance Ratio Pri-Sec	Turns Ratio Pri:Sec	20 Hz Max Output Level <sup>7</sup> (dBu)	600 Ω Load Loss across (n) windings (dB)	DC Resistance per Winding	Typical THD Below Saturation (%) 20 Hz / 1 kHz	Frequency Response (dB ref. 1 kHz) 20 Hz / 20 kHz	Band-Width <sup>2</sup> -3 dB @ (kHz)	20 kHz Phase Response (degrees)	Over-Shoot <sup>8</sup> (%)	Package <sup>9</sup>	PRICES			
													1-19	100-249	1000	
* JE-123-BMCF	Quadfililar 80% nickel	600-600 / 150-600	1:1 / 1:2	+28	2	-1.1	20 Ω	0.002 / 0.002	-0.02 / -0.02	>450 / 160	-2.1 / -4.1	<1	7	87.41	44.17	30.47
* JE-123-DMCF	Quadfililar 80% nickel	600-600 / 150-600	1:1 / 1:2	+21	2	-1.0	19 Ω	0.004 / 0.002	-0.02 / -0.00	>450 / 230	-1.2 / -2.5	<1	8	50.71	33.88	23.38
JE-123-BLCF	Quadfililar	600-600 / 150-600	1:1 / 1:2	+32	2	-1.1	20 Ω	0.041 / 0.003	-0.02 / -0.01	>450 / 170	-1.9 / -4.0	<1	7	61.30	35.79	24.70
* JE-123-DLCF	Quadfililar	600-600 / 150-600	1:1 / 1:2	+27	2	-1.0	19 Ω	0.065 / 0.003	-0.02 / -0.01	>450 / 245	-1.2 / -2.5	<1	8	39.61	26.45	19.42
JE-123-SLCF	Quadfililar	600-600 / 150-600	1:1 / 1:2	+23.5	2	-1.1	20 Ω	0.088 / 0.003	-0.03 / -0.01	>450 / 245	-1.2 / -2.8	<1	9	33.48	22.35	15.43
JE-112-LCF	Quadfililar	600-600 / 150-600	1:1 / 1:2	+20.4	2	-1.6	29 Ω	0.114 / 0.003	-0.03 / -0.01	>450 / 205	-1.2 / -3.2	<1	10	25.48	17.01	12.49
JE-123-ALCF	Quadfililar	66.7-600	1:3	+26.5	3	-1.3	8 Ω	0.125 / 0.003	-0.04 / +0.06	190	-4.6	<6	8	42.14	28.15	19.42
JE-11S-LCF	Bifilar w/ split pri.	600-600 / 150-600	1:1 / 1:2	+30	1 (sec)	-1.7	63 Ω	0.058 / 0.002	-0.02 / +0.01 / -0.02 / -0.05	>10MHz / 155	+1.1 / -4.1	<1	8	42.14	28.15	19.42

- Multifilar construction has no faraday shield; cannot be used as input transformer. All specifications are for 0 Ω source, 600 Ω load.
- Max output level = 1% THD; dBu = dBv ref. 0.775 V
- Source amplifier -3 dB @ 100 kHz
- Output transformers are horizontal channel frame type with wire leads, vertical channel frames available.

### PACKAGE DIMENSIONS:

W	L	H	Mounting Centers
7 = 1 1/2" × 2 5/16"		× 1 15/16"	2 13/16"
8 = 1 5/16" × 1 11/16"		× 1 5/8"	2 3/8"
9 = 1 1/8" × 1 11/16"		× 1 3/8"	2"
10 = 1 1/16" × 1 7/16"		× 1 3/16"	1 3/4"

Prices shown are effective 6 1 84 and are subject to change without notice. Packing, shipping, and applicable sales taxes additional.

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# N

# EW PRODUCTS

# NOISE REDUCTION

# 1 . 9 . 8 . 5

ANT TELECOMMUNICATIONS Ltd., c/o SOLWAY, INC.  
P. O. Box 7647, Hollywood, FL 33081-1647  
(305) 962-8650

**Product Name:** TELCOM C4 MODELS 122, 231-233  
**Contact:** Martin Munzer, President, N. American Agent  
**Date Product Introduced:** NAB 1984

**Product Description & Applications:** Telcom C4 Model 122 compander for encode/decode only application for existing STLs for line and satellite transmission. Models 231-233 Telcom C4 noise reduction units for use with type C 1" video tape recorders using only 1 unit of a 19" rack for 1, 2, or 3 channels, simultaneous encode/decode

**Basic Specifications & Suggested List Price:** Model 122 2 channel STL: \$2,030 Model 222 2 channel ART: \$2,400 Model 232 2 channel VTR: \$2,435 Model 233 3 channel VTR: \$3,630



ANT TELECOMMUNICATIONS LTD.  
Telcom C4 Models 122, 231-233

D&R ELECTRONICA B.V.  
Chassestraat 26, 1057 JE Amsterdam, Holland  
(020) 183556

**Product Name:** HIGH-COM

**Product Description & Applications:** Noise reduction without side effects. ICs developed by Telefunken. No mechanical switching. Noise suppression of more than 20 dB. Unique system of choosing the in/output levels.

**Basic Specifications & Suggested List Price:** Level of in/output tape: -10 dBV, 0 dBu, +4 dBu, +6 dBu. Noise reduction more than 20 dB. Noise: -86 dBu.

LT SOUND, INC.  
P. O. Box 338, Stone Mountain, GA 30086  
(404) 493-1258

**Product Name:** NR-8 EIGHT CHANNEL NOISE REDUCTION, NR-2 TWO CHANNEL NOISE REDUCTION

**Contact:** Lacy Thompson, Jr., President

**Date Product Introduced:** June 20, 1984

**Product Description & Applications:** Simultaneous encode/decode 2:1 companding tape noise reduction. Is compatible with the dbx system, though not manufactured under license of dbx, Inc. User calibration for +4 or -10 operating levels. Hard wired version available with balanced in, unbalanced out capable of driving 600 ohms at final output. Hard wire version wires into computer-type connector allowing easy removal from system.

**Basic Specifications & Suggested List Price:** Over 30 dB of noise reduction less than 0.09% THD at 1kHz. S/N ratio: better than -90 dBV A wtd. Price: NR-8, \$795; NR-4, \$475; NR-2, \$275.



LT SOUND, INC.  
NR-8 Eight Channel Noise Reduction, NR-2 Two Channel Noise Reduction

MICMIX AUDIO PRODUCTS, INC.  
2995 Ladybird Lane, Dallas, TX 75220  
(214) 352-3811

**Product Name:** DYNAFEX MODEL DX-2

**Contact:** Bill Allen, President

**Date Product Introduced:** May, 1984

**Product Description & Applications:** The DX-2 is a stereo Dynafex noise reduction product that also incorporates a proprietary exciter-type circuit that is designed to replace the upper harmonic signal content often lost during the recording and noise reduction process. The Dynafex circuitry provides up to 30 dB of noise reduction without the encode/decode process. This device can be used in the recording studio during recording, during audio sweetening, or during mixdown to eliminate source noise. The DX-2 can also be utilized on line in broadcasting, video production, sound reinforcement, and virtually any other audio application where noise is a problem.

**Basic Specifications & Suggested List Price:** Price: \$650. Noise reduction: 30dB. Input: Elect. Bal., 20k Ohms. Output: Unbal., 15 Ohms. Frequency response: 20-20k Hz, +/- 5 dB. Distortion: Less than 0.1%.



SOLID STATE MICRO TECHNOLOGY FOR MUSIC, INC.  
SSM 2200 - Dynafex Noise Reduction System

SOLID STATE MICRO TECHNOLOGY FOR MUSIC, INC.  
2076B Walsh Ave., Santa Clara, CA 95050  
(408) 727-0917, Telex 171189

**Product Name:** SSM 2200-DYNAFEX NOISE REDUCTION SYSTEM

**Contact:** Dan Parks, Sales Mgr.

**Date Product Introduced:** Late 1983

**Product Description & Applications:** The SSM 2200 is a single-channel noise reduction system utilizing the proprietary Dynafex circuitry developed by MICMIX Audio Products, Inc. (patents pending). The monolithic device provides up to 30 dB of noise reduction without the encode/decode process and can be used to eliminate noise from virtually any audio source. The circuit incorporates dynamically variable bandwidth limiting and a unique type of downward expansion. The bandwidth limiting portion continuously analyzes and responds to signal amplitude. By utilizing these two types of noise reduction simultaneously, a greater amount of noise reduction can be realized than in typical dynamic filtering schemes. By being a single-ended system, the dynafex circuitry provides a much wider range of applications than a companding type device. The device is available to qualified OEMs who complete a royalty free licensing agreement. Contact the factory for details.

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Noise problems are encountered every day that conventional encode/decode systems or noise gates cannot deal with. Having the capability of being used on virtually ANY audio signal, along with providing a dramatic amount of noise reduction is what makes the Dynafex a vital tool in any audio facility.

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"...Performs what might be called 'sonic miracles'..."  
Len Feldman, *Modern Recording & Music*

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# NEW PRODUCTS

## RECORDING DEVICES AND TAPE

### 1 . 9 . 8 . 5

**ACCURATE SOUND CORPORATION**  
3515 Edison Way, Menlo Park, CA 94025  
(415) 365-2843

**Product Name: AS-400 MASTER AUDIO RECORDER**

Contact: Ronald M. Newdell, President

**Date Product Introduced:** AES October

**Product Description & Applications:** AS 400 Master Audio Recorder. Similar to an Ampex ATR 100 in that it uses a 180 wrap direct drive capstan. The System is all DC Servo controlled. Offering 7 1/2/15/30 ips speeds with a variable speed of  $\pm 10\%$  around each of these three speeds. Will also feature a digital readout to indicate with a return to zero 14" reel or 10" reel capability plus we will have a 1/2" 2 channel 14" reel system at 30 ips for high quality master recording.

**Basic Specifications & Suggested List Price:** Turn drive price per ipr \$5,800

**AGFA-GEVART**

275 North St., Teterboro, NJ 07608

(201) 288-4100

**Product Name: DIGITAL MASTERING TAPE**

Contact: Andrew Da Puzo

**Date Product Introduced:** Summer 1985

**Product Description & Applications:** Precision specifications to be announced.

**AKAI c/o INTERNATIONAL MUSIC**

1316 East Lancaster, Ft. Worth, TX 76102

(817) 336-5114

**Product Name: AKAI MG-1212, MICRO STUDIO SYSTEM**

Contact: Jim Cowser, Director of Electronics

**Date Product Introduced:** June 1984

**Product Description & Applications:** A combination 12 channel mixer/12 track recorder using the latest technological computerized digital features found in major recording facilities. The world's first 12 inch cassette tape developed for high sound quality in a compact design, improving the ease of handling and tape storage. With many useful and convenient time saving functions for personal multi-track recording, music impact, and also makes location editing and cross-complicated process. See your dealer in this or for more information.

**Basic Specifications & Suggested List Price:** 12 track 12 channel format tape speed 15 cm/s and 9.5 cm/s, parameters: EQ high = 9kHz 15kHz mid = 450Hz 9kHz low = 40Hz 450Hz all frequencies  $\pm 15$ dB auto punch in punch out auto playback multi-programmable channel track selector, computerized multi-function locator, auto and manual memory, search repeat effects A and B. Suggested list, \$6,995

**DIGITAL ENTERTAINMENT CORPORATION**

555 W. 57th St., Suite 1530, New York, NY 10019

(212) 581-6100

**Product Name: MITSUBISHI X-800 DIGITAL RECORDER**

Contact: Lou Dollinger, Marketing Manager

**Date Product Introduced:** 1983 (Update 1984)

**Product Description & Applications:** Fixed Head 32 Channel Multi Track Recorder with extra channels for analog audio 2) SMPTE Code (1) and extra channel for (2) Option for mixer bridges in digital and analog versions. Variable speed operation plus or minus 10% auto manual punch in punch out memory to store set channel status 4) take times (99) group memory 4) ability to utilize internal external SMPTE clock or 1/4 pulse

**Basic Specifications & Suggested List Price:** Dynamic Range Better than 90 dB Sampling Frequency 48kHz Quantization 16 bit linear Frequency Response 20Hz 20kHz Distortion Less than 0.05% Line Input +4 dBm nominal +19 dBm max Line Output +4 dBm nominal +24 dBm max Digital Audio Channels 32 Tape Width 1" Tape Speed 30 ips Record Time 1 hour Analog Cue Channels 2 SMPTE Channel 1 Data Channels 1

**DIGITAL ENTERTAINMENT CORPORATION**

555 W. 57th St., Suite 1530, New York, NY 10019

(212) 581-6100

**Product Name: MITSUBISHI X-80 DIGITAL MASTER RECORDER**

Contact: Lou Dollinger, Marketing Manager

**Date Product Introduced:** 1981 (Update 1984)

**Product Description & Applications:** Fixed Head Digital Master Recorder, allowing color bleed editing synchronization with video and film sources with optional VCO Interface, variable speed operation, electronic editing with optional XE-1 Electronic Editor utilizing 14" tape at 15 ips, with extra channels for SMPTE Code and analog cue audio.

**Basic Specifications & Suggested List Price:** Dynamic Range Better than 90dB Sampling Frequency 48kHz Quantization 16 bit linear Frequency Response 20 Hz 20 kHz Distortion Less than 0.05% Line Input +4 dBm nominal +19 dBm nominal Line Output +4 dBm nominal +24 dBm max Digital Audio Channels 2 Tape Width 14" Tape Speed 15 ips Record Time 1 hour Analog Cue Channels 1 SMPTE Channel 1 Data Channels 0

**DIGITAL ENTERTAINMENT CORPORATION**

555 W. 57th St., Suite 1530, New York, NY 10019

(212) 581-6100

**Product Name: XE-1 ELECTRONIC EDITOR**

Contact: Lou Dollinger, Marketing Manager

**Date Product Introduced:** 1982 (Update 1984)

**Product Description & Applications:** Full Feature Electronic Editor used with X-80 Series Recorder. Utilizes SMPTE Time Code Editor offers edit rehearsal 20 or 30 second durations real time editing through use of a dual channel serial digital ladder auto locator memory to store 20 edit points automatic editing synchronization of 2 recorders for 4 channel recording, editing with X-800.

**Basic Specifications & Suggested List Price:** Pre-Roll 5 + seconds Editing Accuracy 833 microseconds Cross Fade Duration 5 to 100 milliseconds Digital Editor +6 dB to infinity

**FIDELIPAC CORPORATION**

P.O. Box 808, Moorestown, NJ 08057

(609) 235-3900

**Product Name: DYNAMAX CTR 100 SERIES**

Contact: Art Constantine, V.P. Sales

**Date Product Introduced:** Availability October 1984

**Product Description & Applications:** An innovative tape cartridge machine with professional features. Variable speed playback, permit synchronization, aborts to reel to reel or video tape transport. Real Time digital tape counter permits auto locate for precise tape position, also not available on other VHS tapes. On board precision timing system for automatic conversion to elevated level recording, matrix recording, mono alternate or dual layer.

**Basic Specifications & Suggested List Price:** CTR 111 A size mono play \$1,900, CTR 112 A size stereo play \$2,060, CTR 124 B size mono record/play \$3,145, CTR 124 B size stereo record/play \$3,465

**FIDELIPAC CORPORATION**

P.O. Box 808, Moorestown, NJ 08057

(609) 235-3900

**Product Name: MASTER CART DX**

Contact: Art Constantine, V.P. Sales

**Date Product Introduced:** Availability September 1984

**Product Description & Applications:** The Fidelipac Master Cartridge Tape Cartridge is now available loaded with the highest reciprocity bar k linear ultra microfilm tape ever produced. The Master Cart DX handles 400 nanoWatt minimum levels achieves the widest dynamic range of any cartridge ever produced and lasts 10 times longer than the average tape cartridge due to cross linked urethane oxide bonding and superior back lubrication system.

**Basic Specifications & Suggested List Price:** Available in 7.5 ips play times from 20 seconds to 10.5 minutes. Contact your Fidelipac Distributor for price.

**ITAM**

Enfield, Middlesex, U.K.

**Product Name: ITAM 1610 MARK II**

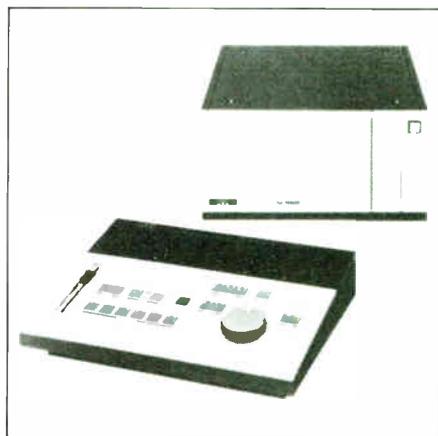
Contact: Professional Audio Services & Supply (818) 843 6320

**Date Product Introduced:** March 1984

**Product Description & Applications:** ITAM 1610 Mark II is a high quality cost effective 1" 16 track 1/4 inch machine which boasts many professional features: 2 speed operation 15/30 ips +4

dBm in out dual syn play output 10 memory auto locate remote with full shuttle locate search to zero facilities. Variable speed module electronic.

**Basic Specifications & Suggested List Price:** ITAM 1610 Mark II is supplied standard complete with auto locate remote at a price of \$12,995



**JVC COMPANY OF AMERICA**  
AE-900C Digital Audio Editor

**JVC COMPANY OF AMERICA**

41 Slater Drive, Elmwood Park, NJ 07407

(201) 794-3900

**Product Name: DIGITAL AUDIO MASTERING SYSTEM (DAMS)**

Contact: Larry Botton, Special Effects Manager

**Date Product Introduced:** NAB 1984 April

**Product Description & Applications:** The JVC digital audio system comprises two main components. The VP 900 digital audio processor and the AE 900C digital audio editor. The VP 900 is a professional two channel pulse count mode (PCM) processor, using several 16 bit microprocessors. The second major component of the JVC system is the AE 900C, a precision electronic audio editor with accuracy with 180 microseconds. The AE 900C confirms edit in and cut out points by recalling the signals stored in memory. The JVC Digital Audio Mastering System uses video cassette recorders, usually 1/4 in, but because the new JVC DAMS incorporates a unique binary (BF) recording format and new error detection circuits, VHS recordings can also be used.

**Basic Specifications & Suggested List Price:** The VP 900 processor has a dynamic range of more than 90 dB, frequency response from 10 to 20,000 Hz ( $\pm 0.5$  dB) and low recording bit rate of 4.087 Mbit or 44.1 kHz. It is errorless in locating and editing points further improve sound quality. The analog to digital interface on a D/D A/D converter minimizes distortion by less than 0.02 percent, while in-circuit processing improves signal to noise ratio.

**KUDELSKI S.A. NAGRA**

route de Geneve, 22, CH-1033 Cheseaux/Lausanne, Switzerland

(021) 91.21 21

**Product Name: NAGRA IV-S TIME CODE**

**Date Product Introduced:** May 1984

**Product Description & Applications:** By using the technology we developed for the Ampex Nagra VHS video recorder we were able to fit the world famous NAGRA IV-S self contained stereophonic recorder with a complete generator record playback time code circuit in accordance with the international SMPTE EBU 80 standard.

—LISTING CONTINUED ON PAGE 162

$$\frac{480 \text{ ips}}{7.5 \text{ ips}} = 64:1$$

# The new math.

480 ips bin-loop speed. 7.5 ips master speed. 64:1 duplication speed.

With these numbers, Otari's new DP-80 duplication system takes pre-recorded music out of the 1960's and into the 80's.

If you've been delivering marginal, 60's-quality cassettes to your customers, it's time to look at some new numbers for the 80's. Doubling the master speed means increased frequency response and dynamic range. It also means you can take full advantage of other new tape technologies: Extended range CrO<sub>2</sub> formulations and the Dolby\* HX Pro headroom extension process. Without these, you may soon find your customers looking elsewhere.

The DP-80 system offers other im-

pressive numbers too: 144 C-45 s/hour/ slave, 2800 C-45 s/hour with a 20 slave maximum. These are real-life figures from a machine built for the real world. You won't find any unnecessary bells and whistles on the DP-80, just solid features for day-in, day-out production:

- Dual-capstan DC servo drive with vacuum assisted tape guides for reduced tape skew and wear on the master reproducer.
- Switchable equalization and bin loop speed, 240/480 ips, to accommodate existing 3.75 ips masters.
- Fully modular construction.
- Normal and chrome tape capabilities.
- Dolby\* HX Pro option.
- Optional Fail-safe detection system.
- GSA scheduled.

Today's audience demands today's audio. If you're not delivering it, you'll soon be passed by. Contact Mike Pappas, Manager, Industrial Products Division, at (415) 592-8311. Otari Corporation, 2 Davis Drive, Belmont, CA 94002. Telex: 910-376-4890.



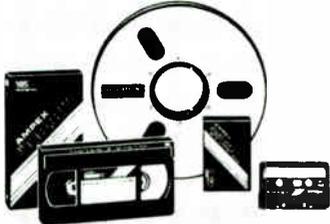
*The DP-80 Master Reproducer and Slave Recorders.*

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Chrome  
Cassettes**

**AMPEX  
Blank Recording Tape**



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COMPANY**

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**(818) 980-6700**  
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<p><b>RAB BROADCAST CARTRIDGES</b></p>	<p><b>CASSETTE BOXES, LABELS, ALBUMS</b></p>
<p><b>ACCESSORIES</b></p>	

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**(312) 298 - 5300**

35

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**NEW PRODUCTS**

**RECORDING DEVICES  
AND TAPE**

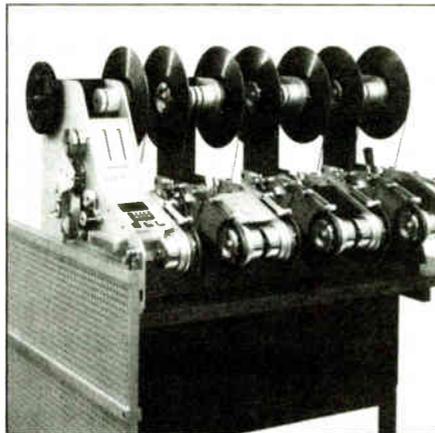
**1 . 9 . 8 . 5**

--FROM PAGE 160

**Basic Specifications & Suggested List Price:** Four switch matrix recording standard (24, 25, 29, 97 and 30 frame per second). Time code track width of 0.5mm centered on tape. Time code read back of 0.5 to 6 times the nominal speed. Generator stability of  $\pm 1 \mu\text{m}$  from  $-10$  to  $+50^\circ\text{C}$ . Can be used as master track to generate final speeds. Price: Sw. Fr. 1,4400 ex works.



**KUDELSKI'S A NAGRA  
NAGRA IV-S Time Code**



**MAGNEFAX INTERNATIONAL, INC.  
7500 Series Loop Bin Cassette Duplicator**

**MAGNEFAX INTERNATIONAL, INC.**  
Rt. 1 Box 764, Rogers, AR 72756  
(501) 925-1818  
Product Name: 7500 SERIES LOOP BIN CASSETTE DUPLICATOR  
Contact: Dennis W. Tallaksen  
Date Product Introduced: July 1984  
Product Description & Applications: Featuring the proven common mandrel capstan design, the Magnefax 7500 (7 slave) high speed cassette duplicator records in excess of 49000 copies of 49000 copies per 24 hour day. Some of the features include digital metering systems with peak hold, low noise circuitry, and complete coupling of all switch functions.  
**Basic Specifications & Suggested List Price:** Frequency response is given from 30Hz to 15KHz  $\pm 2\text{dB}$ . One year warranty on parts in labor. Price: (turning at) \$44500.

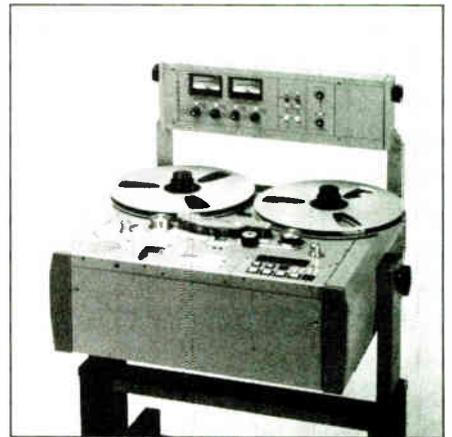


**OTARI CORPORATION  
Model MX-70 1" Multichannel Recorder**

**OTARI CORPORATION**  
2 Davis Dr., Belmont, CA 94002  
(415) 592-8311  
Product Name: MODEL MX-70 1" MULTICHANNEL RECORDER  
Contact: Ron Neilson, Publisher (408) 448-0598  
Date Product Introduced: Preview --NAB Official intro. Fall AFS.

**Product Description & Applications:** The new 1" microprocessor controlled MX-70 Recorder Series are available in the full width format: stereo (4 channel), 8 channel, pre-recorded for 16 and 16 channel. Speeds are 24, 25, 29, 97 and 30 FPS. 15 & 15.75 ips. Transport control: DC servo direct drive and reel motors are DC servo operated. The machine is equipped with two separate auto loop tension control. The machine offers built in speed dial and time tape control. In case of tape wear, control dump-out spot or use an external frequency speed control. The sophisticated stereo time base is given by a 100 kHz compensation are correct low to medium speed operation, high speed motor bias are in 100 kHz.

**Basic Specifications & Suggested List Price:** Simple interface with the MX-70 Recorder Series are available in the full width format: stereo (4 channel), 8 channel, pre-recorded for 16 and 16 channel. Speeds are 24, 25, 29, 97 and 30 FPS. 15 & 15.75 ips. Transport control: DC servo direct drive and reel motors are DC servo operated. The machine is equipped with two separate auto loop tension control. The machine offers built in speed dial and time tape control. In case of tape wear, control dump-out spot or use an external frequency speed control. The sophisticated stereo time base is given by a 100 kHz compensation are correct low to medium speed operation, high speed motor bias are in 100 kHz.



**OTARI CORPORATION  
Model MTR-20 Mastering Recorder**

**OTARI CORPORATION**  
2 Davis Dr., Belmont, CA 94002  
(415) 592-8311  
Product Name: MODEL MTR-20 MASTERING RECORDER  
Contact: Ron Neilson, Publisher (408) 448-0598  
Date Product Introduced: Preview --NAB Official intro. Fall AFS (New York)

**Product Description & Applications:** The MTR-20 is a sophisticated Mastering recorder available in both 1/4" & 1/2" formats for 2 channels with 14" reel size capability. The machine features computerized self-alignment which automatically sets the bias and EQ to the tape selected. It has a transport section, 4 point cue storage in 1500th, return to zero, and a Master select panel which allows 2

--LISTING CONTINUED ON PAGE 164



# THE ROAD TO PLATINUM IS PAVED WITH BASF PURE CHROME.

The only place to be in the recording business is #1. And with cassettes taking over nearly 50% of the industry's pre-recorded sales this year, the best way to get to the top is on BASF Pure Chrome duplicating tape.

BASF Pure Chrome helps you climb the charts faster because it duplicates your sounds more perfectly than any other brand. Technically speaking, BASF Pure Chrome offers extended high frequency Maximum Output Level (MOL), plus the world's lowest background noise. And our exclusive Pure Chrome formulation is extremely clean and stable at even the highest duplicating speeds. The payoff? Audio performance that's virtually indistinguishable from a studio master recorded at 15 I.P.S.



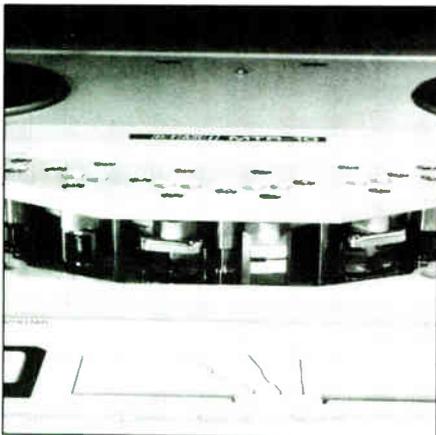
Best of all, just about anyone can change over from ferric oxide to BASF Pure Chrome with the greatest of ease —and without any need for additional equipment or expenses.

Find out why such major names as RCA Red Seal Digital, Sine Qua Non, Vanguard and Inner City all put their trust in us. Switch to BASF Pure Chrome duplicating tape. Because when you put "CrO<sub>2</sub>" on your label, you're not just guaranteeing the public the pure music they're paying for. You're paving your way to platinum with BASF Pure Chrome.



—FROM PAGE 162

equalization settings per speed, per channel. The transport is under microprocessor control and features reverse play, controlled wind for library spooling and a wide selection of special user-selectable modes. A cue speaker with headphone amp is included and options are a photo sensor, edit scissors and a full function autolocator. **Basic Specifications & Suggested List Price:** Specifications are not ready to be announced. Price for the 1/4" two channel version is \$9,954.



OTARI CORPORATION  
Model MTR-10/3

**OTARI CORPORATION**  
2 Davis Dr., Belmont, CA 94002  
(415) 592-8311  
**Product Name:** MODEL MTR-10/3  
**Contact:** Ron Neilson, Publisher (408) 448-0598  
**Date Product Introduced:** AES/Fall, 1984  
**Product Description & Applications:** The MTR-10 is a version of the 1/4" two channel formatted existing Series machine with a

## NEW PRODUCTS

### RECORDING DEVICES AND TAPE

# 1 · 9 · 8 · 5

special head assembly which accommodates the IEC standard centre-track SMPTE/EBU time code. The head assembly will plug into existing machines and requires no special modifications.

**Basic Specifications & Suggested List Price:** The additional cost for an MTR-10 two channel recorder fitted and is ordered from Otari with the special head assembly will be \$1,771.



SONY PROFESSIONAL AUDIO DIVISION  
PCM-3102 Digital Audio Stationary Head Recorder

**SONY PROFESSIONAL AUDIO DIVISION**  
Sony Drive, Park Ridge, NJ 07656  
(201) 930-1000  
**Product Name:** PCM-3102 DIGITAL AUDIO STATIONARY HEAD RECORDER  
**Contact:** Jim Guthrie  
**Date Product Introduced:** September, 1984  
**Product Description & Applications:** A two channel dash format recorder/reproducer with microprocessor controlled transport, built in time code generator, serial and parallel machine control ports, dedicated time code channel and two analog channels to facilitate razor blade editing. Provides 4 hr. consecutive recording on 1/2 5 inch reel 1/4-inch tape.  
**Basic Specifications & Suggested List Price:** 44.1 and 48 kHz switchable sampling frequencies. Frequency response with  $\pm 0.5$  dB and  $-1.0$  dB from 20 Hz to 20 kHz. Signal to noise ratio greater than 90 dB.

**SOUNDCRAFT ELECTRONICS**  
1517 20th St., Santa Monica, CA 90404  
(213) 453-4591  
**Product Name:** 760 Mk II MULTITRACK RECORDER  
**Contact:** Gary Lynn, Product Mgr.  
**Product Description & Applications:** Bringing several mechanical and electronic improvements over existing SCM 760 series including a new Paper built high speed motor, the 760 Mk II is available in 16 wired for 24 or 24 track versions. Price to be announced.

**STUDER REVOX AMERICA, INC.**  
1425 Elm Hill Pike, Nashville, TN 37210  
(615) 254-5651  
**Product Name:** PR99 MKII  
**Contact:** Lawrence Jaffe, Dir. of Marketing  
**Date Product Introduced:** April, 1984  
**Product Description & Applications:** The PR99 MKII is a compact professional recorder designed for a wide range of studio, remote, and general broadcast applications. Features include a microprocessor controlled real time counter with LED display and are relocate, zero locate, automatic repeat of any length tape segment, built in variable speed control ( $\pm 1/2$  octave), repro trouble act

# PIN POINT TRACK POSITION WITH "BUZZ TRACK"

Norton Associates announces the availability of three 35 mm precision, multi-track test films designed to facilitate accurate and rapid lateral alignment of magnetic reproduce heads with respect to the guiding edge of the film.

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- Norton TFA/4T35 for four track heads
- Norton TFA/6T35 for six track heads

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What was once a time consuming and inaccurate procedure, is now positive and unambiguous. The adjustments that must be made can now be accomplished in minutes with extreme accuracy.

Every Norton precision test film is produced with the same meticulous attention to detail that has made Norton heads synonymous with quality for over twenty-seven years.

Contact us today for additional information, specifications and pricing policy.



## TEST FILMS



3 Track



4 Track



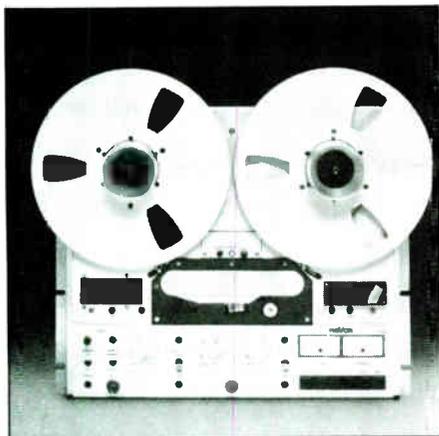
6 Track

Norton multitrack heads and test films are manufactured to conform to all applicable American National Standards.



**NORTON ASSOCIATES, INC.**  
10 DI TOMAS COURT, COPIAGUE, NY 11726 • (516) 842-4666

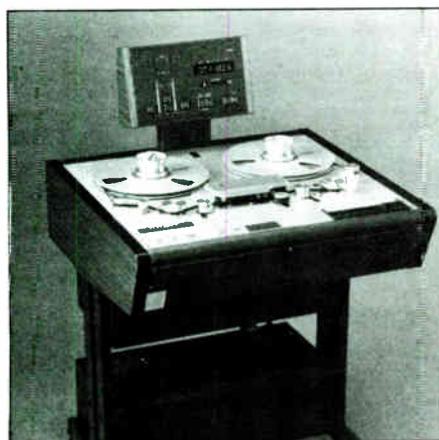
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STUDER REVOX AMERICA, INC.  
PR99 MKII

Adjustment, serial remote for access to microprocessor function, balanced +4 input and outputs, soft sync, edit mode switch, direct phone, microphone inputs, input mode switching, Roll-around turn sole monitor panel, and remote control available as option.

**Basic Specifications & Suggested List Price:** Frequency response: 40 Hz to 22 kHz (+2 - 3 dB). Wow and flutter: 0.06% w/o peak. Signal-to-noise: 67 dB. Output level: 0.775 V, 0 VU. Distortion: less than 0.3% at 0 VU. List price: \$2,250.



STUDER REVOX AMERICA, INC.  
Studer D820 Digital Audio Recorder

STUDER REVOX AMERICA, INC.  
1425 Elm Hill Pike, Nashville, TN 37210  
(615) 254-5651

**Product Name:** STUDER D820 DIGITAL AUDIO RECORDER

**Contact:** Thomas F. Mintzer, Dir. of Studer Products  
**Date Product Introduced:** Oct. 1984

**Product Description & Applications:** The Studer D820 is a 4-channel DASH format digital audio recorder. The transport is a full new design made for the specific requirements of digital audio recording. Single stack heads cover all 4 tracks of the DASH format for 44.1 kHz. The D820 is designed for both 2-head and 3-head configurations with mono or two-reel heads to allow for edit after write in all recording modes including editing. A separate D A box contains all digital circuitry, all wiring the deck to be constructed as a console or table-top recorder.

**Basic Specifications & Suggested List Price:** Specifications to be announced. List price under \$20,000.

TANDBERG OF AMERICA, INC.  
1 Labriola Court, P.O. Box 58, Armonk, NY 10504  
(914) 273-9150

**Product Name:** TD50

**Contact:** Joel Rosenblatt, Dir. Sales & Marketing  
**Date Product Introduced:** January, 1985

**Product Description & Applications:** Studio/Broadcast reel-to-reel, available in edit and broadcast and studio configurations. 4" tape, 3/4", 7/8", 15 ips, 10 1/2" reels, 12" pancake interchangeable head blocks. Transport built for maximum performance and serviceability. Any component can be replaced in under 10 min. time. 8-bit microprocessor with 64K memory for control functions such as variable speed wind and cue, return to zero, return to start and search cue, leader start, real time count, etc. All audio electronics are

IC less with minimum negative feedback and mounted to plug-in boards. Options include RS232 interface and frame track sync.

**Basic Specifications & Suggested List Price:** 110, 220V, all 4" track formats. Wow and Flutter: 15 ips, less than 0.4% P, 7%, less than 0.5% P, 3% less than 0.1% P. Wind re-wind 25C motor type 120 S. Stoptime: 5 seconds, from wind/rewind. All motors direct drive. Frequency response:  $\pm 4$  dB 15 ips; 30.2, kHz; 7%  $\pm 30$  20 kHz; 3%  $\pm 40$  16 kHz. S/N/NAB ref. (+6 dB REF. 1.25 nW/P) 15 ips: 57 dB; 7%  $\pm 57$  dB; 3%  $\pm 55$  dB. Distortion 15 ips, 7%  $\pm 1%$ ; 3%  $\pm 1.5%$



TANDBERG OF AMERICA, INC.  
TD50

TANDBERG OF AMERICA, INC.  
1 Labriola Court, P.O. Box 58, Armonk, NY 10504  
(914) 273-9150

**Product Name:** TCD 910/911

**Contact:** Joel Rosenblatt, Dir. Sales & Marketing

**Date Product Introduced:** October, 1984

**Product Description & Applications:** Reel-to-reel cassette deck (TCD910) play-only version (TCD911) 4 motor, transport dual capstan, closed loop, 90 degree discrete, 4 heads design with built-in auto-reverse, auto-reverse current, saturation equipment. TCD911 has manual play head azimuth adjustment plus pitch control. Both units features Dolby B/C, all discrete audio circuitry, phase-locked loop, peak reading equalizer meters, 8 bit processor w/ 64K on-chip memory for control functions, XLR connectors, external sync input. Option includes RS232 interface, X-tormer balanced, wind wireless remote.

**Basic Specifications & Suggested List Price:** Frequency response:  $\pm 2$  dB REF. 250 nW/P Type IV Dolby on 20, 20 kHz  $\pm 3$  dB. Output:  $\pm 8$  dB REF. adjustable -2 to +14 dB. Distortion type IV: 1 dB at 20 nW/P in Dolby on, under 1.5%. S/N A WT: 20, 20 kHz 3% THD. Type IV: 73 dB. Dolby off, wow & flutter DIN 45507 IEC 486 peak WT: 0.1% type speed 1.78 ps  $\pm 0.5%$ , wind speed Control 5 sec.  $\pm 0.55$  sec.



TANDBERG OF AMERICA, INC.  
TCD 910/911

TASCAM, PROFESSIONAL DIVISION OF TEAC  
7733 Telegraph Rd., Montebello, CA 90640  
(213) 726-0303  
**Product Name:** 40 SERIES, 42, 44 & 48



TASCAM, PROFESSIONAL DIVISION OF TEAC  
40 Series, 42, 44 & 48

**Contact:** Bill Mohrhot, Sales Mgr.

**Date Product Introduced:** Late 1983

**Product Description & Applications:** The 40 Series consists of 4 microprocessor controlled professional type transports with full servo systems allowing complete SMPTE interfacing. The 40 series is comprised of a 2-track, 4-track and a 1/8-track. The 42 and 44 have selectable tape speeds of 7 1/2 and 15 ips, while the 48 has tape speed of 15 ips. Standard transport controls allow accurate Return To Zero, Search To Cue, Dump Exit, Spooling and One Finger Rocking.

**Basic Specifications & Suggested List Price:**  $\pm 4$  dBm balanced and  $\pm 10$  dBm unbal. outputs,  $\pm 28$  dBm max output. 40 Hz 20 kHz track response,  $\pm 3$  dB at 15 ips. in Record, Repr. and Sync, wow and flutter: 0.05% at 15 ips (NAB wtd). Prices: 42 \$2,295; 44 \$2,995; 48, 44, 495.



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Loading Re-loading

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City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

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Ulmed, Texas 76708  
817-756-5303

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TASCAM, PROFESSIONAL DIVISION OF TEAC  
122-B

## NEW PRODUCTS

### RECORDING DEVICES AND TAPE

1 · 9 · 8 · 5

—FROM PAGE 165

TASCAM, PROFESSIONAL DIVISION OF TEAC  
7733 Telegraph Rd., Montebello, CA 90640  
(213) 726-0303

Product Name: 122-B

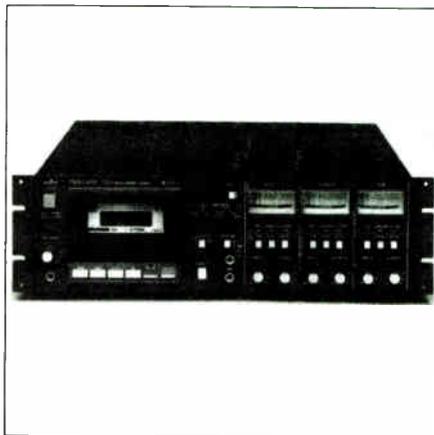
Contact: Bill Mohrhoff, Sales Mgr.

Date Product Introduced: April, 1984

**Product Description & Applications:** The 122-B is a 2-speed, production quality cassette recorder/reproducer designed to meet the critical needs of the professional user. The 122-B can accept balanced line level signals as well as unbalanced —10 dBV level signals. Its 3 1/2 ips speed allows greater freq. response over standard cassette machines. The transport is a 3 motor, 3 head design, and has a DC

servo controlled capstan. This, combined with the microprocessor controls, allows the 122-B to be used with external triggering systems when used in automated applications.

**Basic Specifications & Suggested List Price:** Wow and flutter 0.04% at 3 1/2 ips; THD 1% at 3 1/2 ips; rd to OVU, 1.5% (freq response 35Hz 14kHz (OVU at 3 1/2 ips) 35Hz 24kHz (-20VU at 3 1/2 ips) metal tape S/N at 1kHz 3%THD 34.7A, wtd 6) dB, with abx, 9) dB Dolby B, 11X and dbx NRS standard. Price \$425



TASCAM, PROFESSIONAL DIVISION OF TEAC  
133-B

TASCAM, PROFESSIONAL DIVISION OF TEAC  
7733 Telegraph Rd., Montebello, CA 90640  
(213) 726-0303

Product Name: 133-B

Contact: Bill Mohrhoff, Sales Mgr.

Date Product Introduced: April, 1984

**Product Description & Applications:** The 133-B is a professional production quality cassette recorder/reproducer with 3 track capability. The 133-B is designed to allow normal 2 track stereo recording along with a third track for a 25Hz tone or control tone. The 133-B is designed to accept and reproduce both balanced and unbalanced line level signals at either +4 dBm or -10. The line circuit allows the 133-B to be used to record and play multi-image programs, radio spots, special effects, or any other type of audio information used in a professional application.

**Basic Specifications & Suggested List Price:** 2 speed, 1.7 Hz/3 1/4 ips — Dolby B NRS plus provisions for external mix. Wow and flutter 0.04% at 3 1/2 ips (NAB wtd) THD at 1kHz, 0VU, 1.5% (freq response 35Hz at OVU) 30Hz 15kHz ± 5dB (Nom. output level, +4dBm) 10dB S/N — 10dBV unit d. Max. output level, +18dBm. Price \$1,400.

3M/MAGNETIC AUDIO/VIDEO PRODUCTS DIVISION  
3M Center, Building 223-5S-01, St. Paul, MN 55144  
(612) 733-2975

Product Name: SCOTCH 275 DIGITAL AUDIO MASTERING TAPE

Contact: Stan Page, Market Development Supervisor

Date Product Introduced: October 8, 1984

**Product Description & Applications:** Scotch 275 Digital Audio Mastering Tape has been designed for high density digital recording. Because of Scotch 275's durability, it is capable of exceeding 1000 passes. Laser inspection virtually eliminates errors. Every roll of Scotch 275 is factory inspected on the 3M Digital Mastering System to assure the finest performance.

**Basic Specifications & Suggested List Price:** Available on 1 1/2" and 1" by 7200' lengths on 12 1/2" reels. There will be no change in list price over Scotch 265 Digital Tape.

3M/MAGNETIC AUDIO/VIDEO PRODUCTS DIVISION  
3M Center, Building 223-5S-01, St. Paul, MN 55144  
(612) 733-2975

Product Name: SUPER HIGH GRADE VIDEOCASSETTES

Contact: Stan Page, Market Development Supervisor

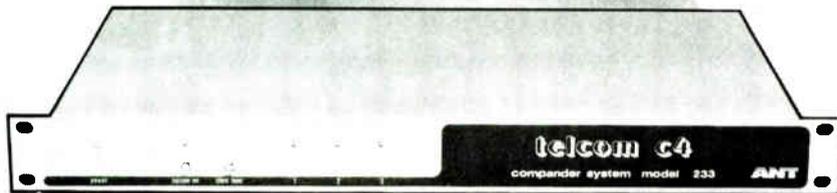
Date Product Introduced: October 8, 1984

**Product Description & Applications:** Scotch Beta or VHS SHG videocassettes are the perfect choice for rotary head digital audio recording applications. The durability of the tape, its extremely low dropout count, and the improved mechanisms of the cassette will assure you state-of-the-art recordings. Scotch SHG videocassettes are Anti-Stat treated to greatly reduce attraction of dropout causing debris.

**Basic Specifications & Suggested List Price:** To be determined

# The Battle ...is won

Most of today's 1" type B VTRs  
are equipped with **telcom c4**



Users already selected telcom c4 as the most suitable NR System for type C VTRs. The new telcom c4 units are now designed to improve the sound of type C VTRs. telcom c4 creates lower distortion from tape, better crosstalk attenuation, improved headroom plus a 25 dB gain in dynamic range. No line-up procedures. telcom c4 units for VTRs

are available for 1, 2 (stereo) and 3 channels, for simultaneous encode/decode and automatic switching.

Furthermore, telcom c4 is used in connection with ATRs, line and satellite transmission. Don't you also need super sound for stereo or copying?

Just contact us for further information.

Contact:

Solway Inc., P.O. Box 7647,  
Hollywood, FL 33081  
Phone (305) 962-8650, Telex 467257

Authorized Dealers: Commercial Electronics Ltd., Vancouver, B.C.; Everything Audio, Los Angeles; Hy James, Michigan; J-Mar Electronics Ltd., Toronto, Ontario; Martin Audio/Video Corp., New York, NY; Milam Audio, Illinois; Prof. Recording & Sound, Boston; Sound Genesis, San Francisco; Straight Wire Audio, Virginia; Valley Audio, Nashville

**ANT**  
Telecommunications

ANT Nachrichtentechnik GmbH  
Lindener Str. 15 D-3340 Wolfenbüttel  
Phone (05331) 83-0 Telex 95651 ant d

Circle #132 on Reader Service Card

# PLAIN TALK by magnifax

## Q: Aren't the Magnefax duplicators obsolete?

A. Magnefax is an "old" company which has been serving the needs of the duplicating community for the past 25 years. The design of the common mandrel capstan has been used since the beginning and still constitutes the backbone of all Magnefax machines. This design has been time-tested and is now proven, this is far to be the definition of obsolescence! Since 1959 the machine has been continuously refined in terms of design and production. Magnefax uses the most recent technology including digital metering, optocoupling and Large Scale Integration circuitry. State of the art equipment is used in all phases of the production and all components used in the machines are of the highest quality available.

## Q. How does a Magnefax compare to the competition?

A. Although the duplicating ratio of a Magnefax is only of 16:1, the output in terms of tapes/hour is comparable to machines costing three to four times more. Because our machines come with a seven slaves configuration as standard, in term of cost/output the Magnefax are unbeatable. The main advantages of the "low" 16:1 duplicating ratio of a Magnefax system are found in the quality of the final product: The dynamic range in the high end of a Magnefax is unequalled and would be impossible to achieve at 64:1 or even 32:1, the slower speed resulting of the 16:1 ratio translates into reduced mechanical wear and the lowest maintenance of any machine on the market today.

Comparing a Magnefax duplicator to the competition is being unfair to the competition, a Magnefax duplicator is a standard by itself.

## Q. Why does the machine look like that? I mean weird.

A. The common mandrel design dictates the overall look of the system and the advantages of such a design outweigh the machine's unusual appearance. While other manufacturers are using so called sophisticated techniques to achieve constant speed and minimum wow and flutter between master and slaves (PLL, feedback dc motors etc..) Magnefax uses the common mandrel design which solves all of these problems: The common capstan between master and slaves reduces relative speed variations to 0% with only one heavy duty motor driving the capstan thus leading to the lowest possible maintenance. A conventional duplicating machine with seven slaves will use at least eight motors to perform the same job than a Magnefax with its single, reliable motor...In addition, Magnefax has a lower floor space requirement than the conventional duplicating systems: a Magnefax duplicator is at home with only 20 square feet...most brands require this much for the master unit only. As to the vertical handling of the pancakes in the Magnefax vs. the horizontal positioning of the competition's units: we do not say that they are wrong but we do say that we are right to position the tape vertically in the machine when we see the end result: a perfectly packed pancake.

Who said that the machine looked weird anyway?

## Q. How expandable is the Magnefax duplicating system?

A. A Magnefax system is not expandable because too many compromises would have to be made in terms of performance and reliability. The fact is that equal or superior output in terms of tapes/hour can be achieved with one Magnefax for up to 75% savings when compared to the competition. If you need more output, buy a second Magnefax machine. By doing so you are still ahead financially, you doubled your output, you can run two different jobs simultaneously and in the very improbable case that something goes wrong with one of your machines your business is not completely dead.

How is that for expandability?

## Q. Is the Magnefax system upgradable or am I stuck with what I bought?

A. Good question, here is a good answer: First of all, when you buy a Magnefax duplicator you are not "stuck": you have purchased the best possible machine. Yes the system is upgradable. Although all Magnefax duplicators reflect the best available technology, we are continuously evaluating upgrades to our machines through active research and development. Our modular design for the electronics is a proof of our commitment. Some options will be provided soon for the 7.5 IPS machine but any existing 7.5 IPS Magnefax can be upgraded at any time.

## Q. How much maintenance is required on a Magnefax machine?

A. Our favorite question. Near zero is the answer, a drop of oil once in a while for the bearings of the shaft, normal head maintenance (cleaning and lapping) and that is basically it. It is not uncommon to have customers say to us that in years of normal use all that they ever changed were the pinch rollers...Once a customer complained that one of the motor belts broke and he was wondering if it was a sign that things would be starting to go downhill for his machine. After we reassured him we asked how long he had been using the duplicator prior to this unfortunate accident, the answer was 17 years...

## Q. Do we need specialized personnel to run a Magnefax duplicator?

A. No. After a normal training phase anyone can load and run the system.

## Q. Most Magnefax machines are used for voice duplication and not for music. Why is that?

A. Until now Magnefax provided only a 3.75 IPS stereo machine for cassette tape duplication. This fact seriously limited the market to the voice business although spectacular results are obtained with music recorded at 3.75 IPS. The new machine answers the needs of companies using 7.5 IPS masters and teams unsurpassed quality of music duplication with the legendary Magnefax reliability.

## Q. What about field support?

A. As previously mentioned, near zero maintenance is required. Every machine is thoroughly tested prior to shipment but in the unlikely event that something goes wrong we can provide technical support by phone (most of the problems can be field corrected after talking to one of our engineers) or have one of our representatives contact you for further action. In any case the problem will be corrected within a very short period of time.

## Q. If the machine is this good how come I don't hear more about it?

A. In order to keep the quality of the production very high we have to work on a small scale. It takes a full two days for a skilled worker to finish by hand the shaft used for the common mandrel to our specifications (and this is the final phase for a piece which first has been hardened and rectified to very close tolerances on the finest machines available. Another fact is that you cannot find too many used Magnefax duplicators on the market since users tend to keep them forever (98% of the Magnefax systems ever built are still in operation). Finally the fact is that since the Magnefax duplicators are a standard by themselves we do not need to advertise the product aggressively. When all things are taken into account we really don't have any competition.

## Q. Why should I buy a Magnefax duplicating system?

A. Did you listen to what I said?

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# magnifax

International, Inc.

Route 1, Rogers, AR 72756

(501) 925-1818    TELEX 53-6433 AIDC LRK

Circle #133 on Reader Service Card

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# EW PRODUCTS SIGNAL PROCESSING DEVICES

# 1 . 9 . 8 . 5

## ADA SIGNAL PROCESSORS

2316 Fourth St., Berkeley, CA 94710  
(415) 548-1311, (800) 241-8888

### Product Name: S1000 DIGITAL DELAY

Contact: Lorry Marcus

Date Product Introduced: February, 1984

**Product Description & Applications:** ADA's lowest cost, full-functioned digital delay processor. Up to 1024ms of delay at 10kHz bandwidth. 8 to 1 sweep for wide range flanging and chorusing effects. Remote footswitch of Effect Bypass and Repeat Hold. Input/Output controls and a Phase reversal switch.

**Basic Specifications & Suggested List Price:** Delay Range: 0.5ms to 1024ms. Bandwidth: delay 20Hz to 10kHz. Dynamic Range: 90dB. Sweep speed: 0.1sec to 25sec. Accessory FS 2 dual footswitch. Effect and direct outputs. List, \$299.95.

## ADA SIGNAL PROCESSORS

2316 Fourth St., Berkeley, CA 94710  
(415) 548-1311, (800) 241-8888

### Product Name: 2FX DIGITAL MULTI-EFFECTS

Contact: Lorry Marcus

Date Product Introduced: June, 1984

**Product Description & Applications:** Produces 2 effects at once. The 2FX Digital Multi Effects has a separate group of controls for flanger, chorus, and digital delay. ADA's exclusive Patch switch system can select the position of the effects in the signal processing chain. DM 2 Footswitch Controller's Memory Bypass function remembers any combination of pre-set effects.

**Basic Specifications & Suggested List Price:** Delay range: 0.5ms to 1024ms. Bandwidth: delay 20Hz to 17kHz. Dynamic range: 90dB. Modulation depth: Flanger 10%, Chorus 8%, Digital delay 4:1. List: \$599.95, DM 2 \$119.

## ADVANCED MUSIC SYSTEMS

Wallstreams Lane, Worsthorne Village, Nr. Burnley,  
Lancashire, England BB10 3PP  
(0282) 57011/5 - 36943

### Product Name: KEYBOARD INTERFACE FOR DMX 15-R05 PITCH CHANGER

Contact: Stuart Nevison, Director

Date Product Introduced: July, 1984

**Product Description & Applications:** A keyboard interface is now available for DMX 15-R05 units. The interface allows DMX 15-R05 systems to be connected to keyboards with a Volt per octave output for control of both pitch changing & loop editing functions. Information can be captured in the unit's memory, edited and played using the keyboard. The audio specification of the DMX 15-R05 offers an 18kHz bandwidth and 190dB dynamic range.

## ADVANCED MUSIC SYSTEMS

Wallstreams Lane, Worsthorne Village, Nr. Burnley,  
Lancashire, England BB10 3PP  
(0282) 57011/5 - 36943

### Product Name: TIMEFLEX

Contact: S. Nevison, Director

Date Product Introduced: August, 1984

**Product Description & Applications:** Timeflex is a dual channel high quality pitch changing system for use when compressing film or video. When varispeeding film or video material Timeflex can provide a proportional pitch change in order to correct the pitch of the audio signal.

## APHEX SYSTEMS, LTD.

13340 Saticoy St., No. Hollywood, CA 91605  
(818) 765-2212

### Product Name: APHEX AURAL EXCITER MODEL 900B

Contact: Paula Lantz, Marketing

Date Product Introduced: October, 1984

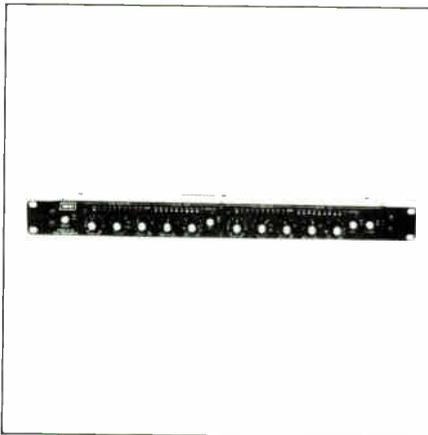
**Product Description & Applications:** The Model 900B Aural Exciter is a modular product designed in the dbx 900 Series format. It uses the latest Apex interface circuits, being equally at home in balanced or unbalanced situations. The Apex 900B makes it practical to use a different setting of Aural Excitement for each audio channel, using the 900B's drive, tune, filter and mix controls.

**Basic Specifications & Suggested List Price:** Max I/O level

+24dBm, Noise = 100dHV THD (max I/O) = 0.2%, Size: 5 1/4" H x 1 1/2" W x 9 1/2" D



APHEX SYSTEMS, LTD.  
Apex Aural Exciter Model 900B



ASHLY AUDIO INC.  
SC-52 Dual Compressor/Limiter

## ASHLY AUDIO INC.

100 Fernwood Ave., Rochester, NY 14621  
(716) 544-5191

### Product Name: SC-52 DUAL COMPRESSOR/LIMITER

Contact: Gregory A. Green, Sales Mgr

Date Product Introduced: June 23, 1984

**Product Description & Applications:** The Ashly Audio SC-52 provides 2 channels of clean, accurate gain reduction in one compact package. Combining our proven peak detector circuitry with improved metering, it may be used either as 2 independent peak limiter compressors, or may be strapped for stereo tracking. The amount of gain reduction, attack and release times, and output gain matching are all precise and independent adjustments, making the SC-52 ideal for such diverse applications as loudspeaker protection, broadcast limiting or compression, recording, tape-to-tape transfer, special effects, and vocal level control.

**Basic Specifications & Suggested List Price:** Maximum in/out level: +20dBm. Frequency response:  $\pm 2dB$  20Hz-20kHz. Hum and Noise: -95dHV, unity gain. Distortion: Under 0.15% THD, 0dBV, 20Hz-20kHz, no limiting, under 15% +18dBV worst-case. Suggested list: \$659.

## BRICK AUDIO

102 S. Porter St., Elgin, IL 60120  
(312) 742-7425

### Product Name: REMOTE DELAY CONTROL (RDC), REMOTE DELAY ANALYZER (RDA)

Contact: Dan Myers, Engineer, Bill Beth, Sales

Date Product Introduced: June, 1984

**Product Description & Applications:** H/D interfaces with any Brick Audio reverb plate (D suffix) to provide remote control and 10 segment LED indication of damping panel position. This hand held device will find a nearby notch on any console. RDA is housed in a 1 1/4" rack space and features 10 segment LED display and control switch. Upon command, the analyzer extends the plate at 500Hz and measures delay time directly, displaying a read out in seconds. This unit will work with any plate spring or flat-plate unit with mike by speakers. It can be used in any room.

**Basic Specifications & Suggested List Price:** HDX is about 1 1/2" x 3" x 5". Plate interconnect is by user supplied ring type 14 twisted pair line. List price: \$125. RDA also works with any type reverb; displays delay times from 1 to 99.99 seconds. Selectable cutoff is adjustable from -10 to +40dB or switchable to -60dB fixed. List price: \$695.



BRICK AUDIO  
Remote Delay Control (RDC); Remote Delay Analyzer (RDA)

## AUDIO & DESIGN [AUDIO & DESIGN CALREC, INC.]

P.O. Box 786, Bremerton, WA 98310  
(206) 275-5009/5010

### Product Name: SCAMP S30 EXPANDER-GATE MODULE

Contact: Kathleen Mallory, Sales Asst.

Date Product Introduced: March 1984

**Product Description & Applications:** Standard features of this latest generation expander-gate include variable ratio, ratio attack, release time (including a unique anti-log auto model) and maximum theoretical attenuation within the ratio selected; the side chain can be frequency filtered by up to 20 dB in the HF or LF (especially useful when used in drum tracks or vocals), a hold to duty delays release for 0 to 2 seconds in the gate mode allowing a whole new generation of effects.

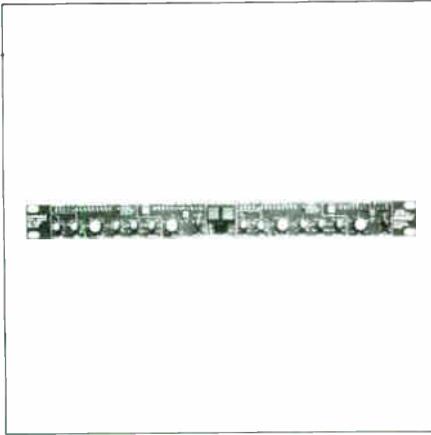
**Basic Specifications & Suggested List Price:** Balanced input & outputs, Clip level +24dBm, Frequency response: +0 to 0.5dB 20Hz-20kHz. Signal to noise: -100dB ref: +8dBm, distortion less than 0.1% THD measured at 100Hz to 20kHz, computer control mute input is also provided. Suggested retail price: \$485.

## BROOKE SIREN SYSTEMS, LTD.

262a Eastern Parkway, Farmingdale, NY 11735  
(516) 249-3660

### Product Name: BROOKE SIREN DPR 402

Contact: Jack Kelly



**BROOKE SIREN SYSTEMS, LTD**  
Brooke Siren DPR 402

**Date Product Introduced:** October 1984

**Product Description & Applications:** The DPR 402 is a 2 channel compressor limiter, de-esser and peak limiter. The internal arrangement allows all of these facilities to be used simultaneously or separately. The rear panel barrier strip allows side chain insertion, expansion, or other frequency dependent compression effect. The true LED metering allows monitoring of gain reduction, input and output levels, including side chain. Attack and release times are variable but can be switched to automatic. The de-esser is frequency selectable from 700Hz to 20kHz and also enables the DPR 402 to be used as a multi-band limiter. The peak limiter (dynamic) can be switched for fast or slow operation depending on program material.

**Basic Specifications & Suggested List Price:** Input and output connectors are XLR type with inputs electronically balanced. Suggested list: \$4,995

**CORNERSTONE SYSTEMS**

703 South 2nd St., Milwaukee, WI  
(414) 643-0879

**Product Name:** Pendulum Reverb Plates

**Contact:** Dave

**Date Product Introduced:** 1984

**Product Description & Applications:** The Pendulum Plate reverb system is unique in that the plate and hammer mechanism are each suspended from one end and hang freely. This exclusive design, with no other springs, and a high frequency decay characteristic associated with larger conventional plate systems.

**Basic Specifications & Suggested List Price:** Cornerstone is presently manufacturing the two vertically standing units in two different sizes. The X-3000 measures 49 x 36 x 12". Its smaller counterpart, the X-1500, is 49 x 28 x 10 x 8". Both units are mono and stereo, preserve unbalanced inputs and outputs. Frequency response is rated 80 to 20kHz.

**dbx INC.**

Professional Products Division  
71 Chapel St., Newton, MA 02195  
(617) 964-3210

**Product Name:** dbx MODEL D700 DISC-MASTERING DELAY

**Contact:** Professional Products Sales Mgr

**Date Product Introduced:** Fall 1984

**Product Description & Applications:** The D700 is a disc master ing delay for use with the dbx Model 700 Digital Audio Processor for stereo channels. The D700 takes the digital bitstream from the 700 and converts it to audio after a selected delay. The six delays are of 100, 60, 5, 5, 5, 5 revolutions at either 33 1/3 or 45 rpm (equalling 1.81, 0.80, 0.95 at 33 and 1.33, 0.80, 0.67 at 45). The data are relayed digitally with no signal degradation whatsoever.

**Basic Specifications & Suggested List Price:** Connection is made to the 700 by its 25 pin D-connector, cabling is supplied with the D700. Specifications are the same as for the 700, including 644 kHz sampling into anti-aliasing filters only - 3dB at 47 kHz and a dynamic range of max rms gain at 1 kHz to A weighted noise 20-20kHz typically 110dB. Price: To be announced.

**DOD ELECTRONICS CORPORATION**

5639 So. Riley Lane, Salt Lake City, UT 84107  
(801) 268-8400

**Product Name:** GRAPHIC EQUALIZERS R-815B, R-830B, R-831B

**Contact:** John Johnson

**Date Product Introduced:** June 1984

**Product Description & Applications:** The DOD R-815B, R-830B, R-831B Graphic Equalizers were designed for both professional sound reinforcement and studio use. With high slew rate, low noise circuitry, each DOD EQ is perfect for improving sound

quality in a variety of live performance and recording situations. All DOD Graphic Equalizers contain the latest materials and circuit technology for the best possible performance, and modular plug-in circuit boards with socketed IC's for quality and reliability. No other equalizer has these features at any price.

**Basic Specifications & Suggested List Price:** All DOD Graphic Equalizers contain (L.F. 453) Bi-Fet Op Amps in the main signal path, electronically balanced input and output stages, isolated (Duo) regulated power supply for no hum operation, all high tolerance low loss filter capacitors used throughout.

**DOD ELECTRONICS CORPORATION**

5639 So. Riley Lane, Salt Lake City, UT 84107  
(801) 268-8400

**Product Name:** R-825 COMPRESSOR LIMITER

**Contact:** John Johnson

**Date Product Introduced:** June 1984

**Product Description & Applications:** The R-825 is really two compressors, one for low frequency and one for signal frequency. You can use vocals without any other compression, you can compress the entire signal, or you can use a different compression ratio for each signal. Input and output level controls as well as attack and release time adjustment provide plenty of flexibility when you

-LISTING CONTINUED ON PAGE 170



**DOD ELECTRONICS CORPORATION**  
R-825 Compressor Limiter



**THE POWERFUL AND VERSATILE HEADPHONE CONSOLE**

**SIX POWERFUL STEREO HEADPHONE AMPLIFIERS** are neatly tucked into this single rack-space, all-steel chassis. Each of the six amps can deliver up to 1 watt per headset (.5 watts per channel), depending on the impedance of the headphones. Ask for a free copy of Rane Note 100 from your local dealer; it lists the actual SPL that the HC 6 will deliver into some 115 different makes and models of headphones.

**BOTH MASTER STEREO AND INDIVIDUAL INPUTS PROVIDE FLEXIBILITY** unattainable with any other multiple channel headphone amplifier. Each of the six amps can be driven either from the Master Stereo inputs or from its own Direct Mono input which automatically bypasses the master stereo feed. Use any combination of inputs to satisfy a wide variety of custom applications involving both distributed and independent programs. The built-in Signal Present LEDs will help you to quickly determine which channel is handling which program.



**DUAL OUTPUTS ON BOTH FRONT AND REAR PANELS** make the HC 6 easily accessible while rack mounted, for additional control-room patching, or the use of up to 12 headsets from a single HC 6.

The HC 6 delivers an incredible amount of performance and flexibility for its size, and its cost: only \$349 suggested list. Try one out at your local Rane dealer.



6510 D 216th SW (206)774-7309  
Mountlake Terrace, WA 98043

Circle #134 on Reader Service Card

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ling up. The VCAs used are manufactured by dbx and the entire product is backed with the DOD reputation.

**Basic Specifications & Suggested List Price:** Frequency response: 10-20kHz +1dB. Attack time, variable from 1 ms. to 40 ms. Release time: variable from 170 ms to 1 second. De-esser crossover frequency: 1800 Hz. THD (typical): Under 0.02% at 0dB gain reduction. S/N ratio: above 85dB at 0dB gain reduction. Maximum output level: 20dBV. Maximum input level: 20dBV. Output impedance, unbalanced: 680 Ohms. Output impedance, balanced: 1360 Ohms. Input impedance, unbalanced: 100k Ohms, input impedance, balanced: 400k Ohms.



DOD ELECTRONICS CORPORATION  
R-835 Crossover

DOD ELECTRONICS CORPORATION  
5639 So. Riley Lane, Salt Lake City, UT 84107  
(801) 268-8400  
Product Name: R-835 CROSSOVER  
Contact: John Johnson

## NEW PRODUCTS

### SIGNAL PROCESSING DEVICES

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Date Product Introduced: June, 1984

**Product Description & Applications:** The R-835 is a functional hassle-free crossover at an incredible price. It's switchable from stereo two-way to mono three-way and the front panel is marked for both modes. Crossover frequencies can be anywhere from 100 Hz to 10,000 Hz continuously adjustable in two ranges. Filter slopes are 18dB/octave and the gain is variable from 0dB to +15dB. There are no gimmicks on the R-835, just rock-solid performance at a rock-bottom price.

**Basic Specifications & Suggested List Price:** Stereo two-way or mono three-way switchable (patching not necessary). Crossover points adjustable from 100 Hz to 10kHz. 18dB/octave state variable Butterworth filters. THD: 0.03% (worst case). S/N ratio: -90dB. Input impedance, unbalanced: 100k ohms. Input impedance, balanced: 400k ohms. Output impedance, unbalanced: 680 ohms. Output impedance, balanced: 1350 ohms.

FURMAN SOUND, INC.  
30 Rich St., Greenbrae, CA 94904  
(415) 927-1225

Product Name: RV-2 STEREO REVERBERATION SYSTEM

Contact: Diane Poole, Marketing Director

Date Product Introduced: March, 1984

**Product Description & Applications:** Each channel features a 16" triple spring reverb tank, limiter circuitry, and Input Level, Equalization and "Wet" and "Dry" level controls. Also included are a ground lift switch, power on indicator, and limiter threshold LEDs. With the Stereo Mono switch in stereo position, lifelike stereo reverberation can be derived from a mono source. The two channels can also be used independently or they can be patched in series to deliver an extremely dense mono reverb. In addition to line level inputs, the RV-2 features instrument level inputs for direct connection to guitars, keyboards, etc. Balanced inputs and outputs are avail-

able as an option in addition to the standard 1/4" phone connectors.  
**Basic Specifications & Suggested List Price:** Input impedance: line, 33k ohms, instrument 57k ohms, balanced 20k ohms, output impedance, 47 ohms, balanced 100 ohms. Frequency response, dry: 20-20kHz +0.5dB, "wet": 45-7kHz, decay time, 1.8 seconds, with 3 initial delays of 33, 37, and 41 ms, signal to noise ratio: 82dB unweighted.

FURMAN SOUND INC.  
30 Rich St., Greenbrae, CA 94904  
(415) 927-1225

Product Name: QN-4 QUAD NOISE GATE

Contact: Diane Poole, Marketing Director

Date Product Introduced: September, 1984

**Product Description & Applications:** The QN-4 is a professional 4 channel noise gate. Each channel contains two controls: one adjusts the threshold, the other controls the rate at which the channel turns off and is variable from 5 ms to 5 sec. There is also an LED channel on indicator which indicates the channel's status. The QN-4 incorporates advanced variable pulse width modulation technology, providing excellent signal-to-noise and ultra low distortion. The QN-4 is superb for general noise reduction, for reducing or eliminating leakage from unused microphones and for combating hums and buzzes from noisy guitar and other musical instruments electronics.

**Basic Specifications & Suggested List Price:** Frequency response:  $\pm 0.5$ , 20-20kHz, Dist: 0.5% at +10dBV. 20-20kHz, Input impedance: 10k ohms, output impedance: less than 100 ohms, max. output: +18dBV unbalanced, +24dBV balanced (optional) into 25k ohms, threshold: infinity to +5 seconds, slew rate: 13 v/microsecond.

GOTHAM AUDIO CORPORATION  
741 Washington St., New York, NY 10014  
(212) 741-7411

Product Name: EMT 252

Contact: Russ Hamm, V.P.

Date Product Introduced: Spring, 1984

**Product Description & Applications:** EMT Digital Reverberation unit in rack mount package with remote control unit. Features all programs and functions of EMT 251 plus the reverberation program of the famous EMT 250. Remote unit has 64 memory locations for storing program settings.

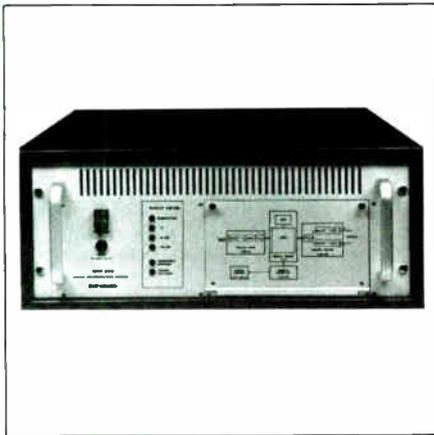
**BOX**

**CLEVER**

There are clever DDLs & clever pitch changers but none has survived and remained as popular as the DMX system. The completely modular nature has allowed optional hardware & software updating of these units for over 5 years now. Currently the DMX 15-80S, a programmable true stereo unit offering 18kHz bandwidth and 90dB dynamic range, can support up to 33 seconds of delay, two pitch changers and de-glitch module complete with the new digital sampling/editing LES software. And there is more to come. Box clever with clever A.M.S. Boxes.

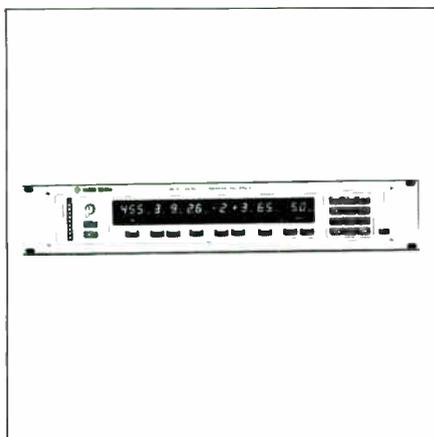
England: Advanced Music Systems  
Tel. (0282) 57011  
Telex 63108 AMS G  
Harris Sound  
(Los Angeles)  
For Nationwide Sales,  
Rentals or Service  
Tel. (800) 637-5000

U.S.A.



GOTHAM AUDIO CORPORATION  
EMT 252

Basic Specifications & Suggested List Price: Full 15kHz-band width, dynamic range greater than 75dB in reverb modes and 90dB in delay modes. Price approx. \$17,000. Delivery from stock.



KLARK-TEKNIK ELECTRONICS, INC.  
DN-780 Digital Reverberator/Processor

KLARK-TEKNIK ELECTRONICS, INC.  
262a Eastern Parkway, Farmingdale, NY 11735  
(516) 249-3660

Product Name: DN-780 DIGITAL REVERBERATOR/PROCESSOR

Contact: Jack Kelly, President

Date Product Introduced: October, 1984

Product Description & Applications: The DN780 Digital Reverberator uses a high-speed digital processor, allowing accurate and natural reverb on all programs. Programs include: Hall, Chamber, Plate and Room with 20 factory set variations and an effects program for echo, chorus, and sound on sound. The DN780 has facilities for input or reverb mute, and can recall up to 16 programs in a user determined order.

Basic Specifications & Suggested List Price: Pre-Delay 0-999 usec., delay 0 to 70 sec., L.F. & H.F. delay adj. 14 steps, bandwidth, 20Hz-12kHz, one input, two outputs THD distortion 0.3%, dynamic range 85dB early reflections 10 patterns plus adj. level, memory 50 user locations (N.V.). Suggested list, \$5,500.

LEXICON, INC.

60 Turner St., Waltham, MA 02154  
(617) 891-6790

Product Name: PCM 60 DIGITAL REVERBERATOR

Contact: Lance Korthals, Director of Marketing

Date Product Introduced: June, 1984

Product Description & Applications: Lexicon will exhibit the new PCM 60 Digital Reverberator. Features include two reverb programs, Room and Plate, from which users can tailor reverb characteristics on the basis of size, reverb time, and bass and treble contouring to produce over 100 distinct reverb effects.

Basic Specifications & Suggested List Price: \$1,495

LEXICON, INC.

60 Turner St., Waltham, MA 02154  
(617) 891-6790

Product Name: MODEL 200 DIGITAL REVERBERATOR PROGRAM UPDATE

Contact: Lance Korthals, Director of Marketing

Date Product Introduced: Fall AES, 1984

—LISTING CONTINUED ON PAGE 172

Get: tight drums, better isolated tracks, less feedback and muddiness... get our

## QN-4 Quad Noise Gate



### THE PROBLEM:

Hiss. Buzz. Leakage. Muddy Sound. They come from noisy guitar amps, from rooms that are too echoey, from bad cables, from open mikes on a stage or a studio that pick up the wrong drum, P.A. splatter, or even footsteps. The noises - they threaten to spoil that clean, tight, professional sound you need. Don't compromise your sound to try to hide it. Now, there's a better way.

### THE SOLUTION:

Introducing the QN-4 Noise Gate: easy to use,

inexpensive, and well... smart. In addition to a wide range threshold control, each channel features a fade time control which adjusts the muting action from a slow fade to a tight dramatic drop. Its advanced pulse-width modulation technology works flawlessly with microphones, instruments, almost any audio source, so you concentrate on the music, not the noise.

### THE BONUS:

Key inputs for super special effects. Add pizzazz by letting one track's sound control another.

For more information write or call:

Furman Sound Inc.  
30 Rich Street  
Greenbrae, CA 94904  
(415) 927-1225  
Telex 172029 SPX SRFL

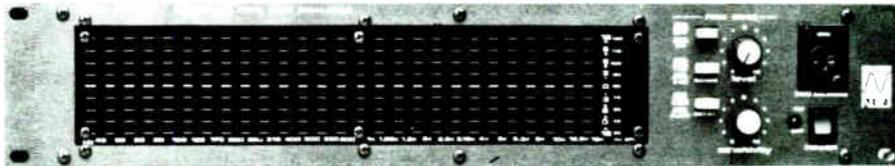
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Quality. Reliability. Guaranteed!

Circle #136 on Reader Service Card

# When you analyze the situation...



## N.E.I. has the answer!

High quality signal processing and mixers that don't cost an arm and a leg. Check out the complete NEI line at

### FILAMENT PRO AUDIO

143 E. Arrow Highway • San Dimas, California 91773  
818-339-0081 • 714-592-2848

Circle #137 on Reader Service Card



VCA per channel. The complex dynamic range manipulations (equivalent to cascading up to 3 separate processors) are actually "computed" in real time to allow real-time control voltage. The final control voltage is the sum of the compressor, expander, and limiter control outputs. This gives you similar performance to separate processors without the signal distortion occurring through VCA's. Compressor and expander chains are chain switching is provided to allow for 4:1 keying and de-essing. FM pre-emphasis filter: on switch-in position. The Lof Model 410 is also factory professional signal processor requirements. Suggested retail price: \$699.

**PHOENIX SYSTEMS, INC.**  
P.O. Box 628, Manchester, CT 06040  
(203) 643-4484  
**Product Name: MODEL P-250-DL DELAY ENHANCED L-R DECODER**  
**Contact:** John H. Roberts, President  
**Date Product Introduced:** July 1984  
**Product Description & Applications:** Built-in L-R decoder. Mid-amb-effect for ambient surround sound recovery, with adjustable delay on assignment. All on a 1500 Hz 100 Hz band is seen center fill or driving mono sub woofer.  
**Basic Specifications & Suggested List Price:** Delay 5ms to 50ms (40Hz to 1.2kHz = 3dB). Output impedance 50 ohm, impedance 600 ohm, to +18dBV (775). Back mount kit available. P-250-DL (for \$180). P-250-DLA (assembled) \$250.

**PUBLISON AUDIO PROFESSIONAL**  
7 to 9, Rue Crespin du Gast, 75011 Paris, France  
35764-07  
**Product Name: INFERNAL MACHINE 90**  
**Contact:** Mr. Peter Doan  
**Date Product Introduced:** Late 1983  
**Product Description & Applications:** The Infernal Machine 90 from PUBLISON is a stereo digital audio computer which is very versatile and powerful. Its principal features are: 1. digital alpha numeric 64 character display allowing two-way communication with the user and giving him any information he needs. Principal functions: sequenced pitch bending, reverb/echo with parametric mode, and pre-programmed modes (delay, echo, reverb, and memory) sound up to 5 minutes (depending upon selected option). RS232 interface available. On option: Synchro by SMPTE, remote interface MIDI, Winchester Disk Drive (up to 950 different patterns can be memorized in a non-volatile memory). Adaptability: future improvements can be easily updated by changing a few boards on the common bus slot cable.



**PUBLISON AUDIO PROFESSIONAL**  
*Infernal Machine 90*

**Basic Specifications & Suggested List Price:** Balanced input and output on XLR connectors. Basic model: 2 inputs, 2 outputs. One optional input, 4 outputs. A variable bit-noise is used for tone, such as digital multiplier, 32 bit ALU are integrated and provide powered in a computer A/D and D/A converters. 16 bit linear frequency response, 20 kHz. Easy in operation, all parts including complete power supply, in front panel and simply repairable and adjustable.  
**QUANTEC/MARSHALL**  
1205 York Rd., Ste. 14, Lutherville, MD 21093  
(301) 484-2220  
**Product Name: QUANTEC ROOM SIMULATOR**  
**Contact:** Pirko Polso, Customer Relations  
**Product Description & Applications:** Dual channels only reverberate, simulating the way sound interacts with the room. A true room simulation, the next generation. The only such device on the market. The Quantec Room Simulator actually generates "virtual" rooms in real time, with two speakers in a room, producing

in a room. No special trick programs are needed to handle transients, as the QRS automatically handles them flawlessly (as a good "hammer would). Rooms over one million cubic meters are possible.  
**Basic specifications and List Price:** 16 bit 100,000 linear reverbs at a 20.48 MHz clock frequency and a full 2 megabit of reverb RAM allow for decay times from 100 milliseconds to 400 seconds with flawless reverb tails at 94dB. Over 10,000 reflections per second (20 times as dense as most other units).

**QUANTEC/MARSHALL**  
1205 York Rd., Ste. 14, Lutherville, MD 21093  
(301) 484-2220  
**Product Name: QUANTEC INFRA-RED REMOTE**  
**Contact:** Pirko Polso, Customer Relations  
**Product Description & Applications:** The Quantec wireless remote is in a compact and controls all functions including edit storage in a recall and the special effects such as freeze and only once. The package consists of the remote, the infra-red eye, and the processor interface. The interface is simply plugged into the QRS and also provides another computer control port. ICM infra-red data transfer. The remote need not be aimed at the QRS or the eye, but at the processor, on such to work over air and not wires. The QRS front panel instantly display all changes from the remote.

**RANE CORPORATION**  
6510 216th SW, Mountlake Terrace, WA 98043  
(206) 774-7309  
**Product Name: MODEL GE 14 STATE VARIABLE DUAL 2/3 OCTAVE GRAPHIC EQUALIZER**  
**Contact:** Larry Winter, V.P. Marketing  
**Date Product Introduced:** June 1984  
**Product Description & Applications:** Two independent channels each contain 14 constant Q state variable filters on 2.3 octave ISO center from 40Hz to 16kHz, level control with up to 6dB additional gain, hard bypass with LED indicator, signal present and overload LEDs and 45mm slider with +12 - 15dB of boost cut. Inputs and outputs are active balanced unbalanced. The constant Q filter performance allows greater flexibility control with minimal effect on overall sound quality while reducing adjacent band interaction and resultant "ringing" through minimal filter overlap.  
**Basic Specifications & Suggested List Price:** THD + noise less than .005%, IM distortion less than .05%, S/N ratio greater than 80dB re +4dBm output. Suggested list price is \$449.

*PHOTO NEXT PAGE*



# If you could always count on perfect recording... You wouldn't need a Dyna-Mite!

The truth of the matter is that perfect recordings just don't occur in reality. Thus, the need for high quality signal processing exists. And, that's exactly what the Dyna-Mite delivers.

The Dyna-Mite Model 430 offers two independent channels, each capable of performing expansion, noise-gating, peak limiting, average limiting, FM pre-emphasis limiting, de-essing, ducking (voice over), keying and a host of other functions for a total of 18 operating modes. Due to the employment of revolutionary proprietary circuitry and our patented TA-101 voltage controlled amplifier, Dyna-Mite is capable of outperforming even the best

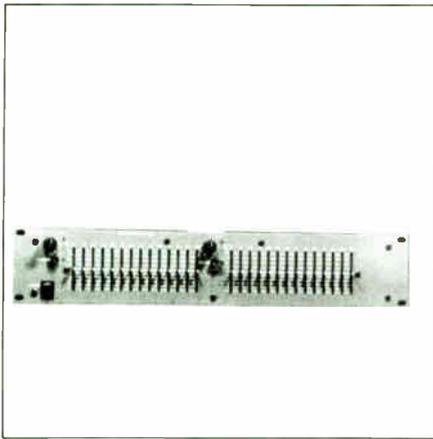
dedicated-purpose signal processors. So, a formidable peripheral equipment budget is no longer required.

You'll find the Dyna-Mite easy to understand and implement. Best of all, the enhancement it affords your recordings is readily apparent.

Dyna-Mite ... an essential element in your quest for the perfect recording.



**VALLEY PEOPLE, INC.**  
P.O. Box 40306 2817 Erica Place  
Nashville, Tenn. 37204 615-383-4737  
TELEX 558610 VAL PEOPLE NAS  
Export: GOTHAM EXPORT CORPORATION, NY, NY TEL EX 129269



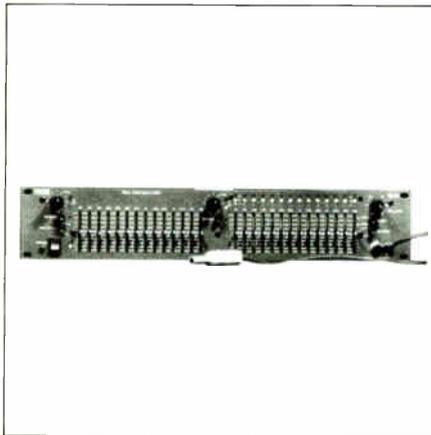
**RANE CORPORATION**  
Model GE 14 Dual 2/3 Octave Graphic Equalizer

**RANE CORPORATION**  
6510 216th SW, Mountlake Terrace, WA 98043  
(206) 774-7309  
Product Name: MODEL RE 14 DUAL 2/3 OCTAVE REALTIME EQUALIZER  
Contact: Larry Winter, V.P. Marketing  
Date Product Introduced: June, 1984  
Product Description & Applications: The RE14 is a combination 2/3 octave equalizer and realtime analyzer consisting of two channels of 2/3 octave constant Q graphic equalizer, a single 2/3 octave color-coded realtime analyzer, built-in pink noise generator and a flat response condenser microphone with 40-foot cable and case. Included also are independent EQ level controls, calibrated RTA level control, hard wired, LED indicated bypass switches and automatic balanced/unbalanced/floating inputs and outputs.  
Basic Specifications & Suggested List Price: 2/3 octave filters on ISO centers from 40Hz to 16kHz, switchable display window  $\pm 1$ dB or  $\pm 3$ dB, selectable house curve, 45mm sliders, color coded display, ANSI Class II display filters and state variable constant Q EQ filters. Suggested list price is \$699 for the complete system.

## NEW PRODUCTS

### SIGNAL PROCESSING DEVICES

# 1 . 9 . 8 . 5



**RANE CORPORATION**  
Model RE 14 Dual 2/3 Octave Realtime Equalizer

**SOLID STATE LOGIC**  
Stonesfield, Oxford OX7 2 PQ  
(099 389) 8282  
200 West 57th St., New York, NY 10019  
(313) 215-1111  
Product Name: PROGRAMMABLE EQUALIZER

Contact: Antony David, Sales Office Mar  
Date Product Introduced: March, 1984  
Product Description & Applications: The Solid State Logic Programmable Equalizer control panel contains two independent three-band parametric equalizers with variable Q, which can be linked to work as a stereo unit. It includes a programmable pan pot for each channel and has a visual display of the actual control value of every variable element. All movements of controls are remembered with reference to time-code as part of the dynamic mixing system and can be replayed and updated subsequently.  
Basic Specifications & Suggested List Price: The Programmable Equalizer is fully variable and can be used for remixing voice-over or effects tracks from multitrack where multiple changes of equalization are needed. The programmable pan pot allows the controlled positioning of any effects occurring serially on the same track. List price, 3,250 British pounds.

**STUDIO TECHNOLOGIES**  
6666 N. Lincoln, Lincolnwood, IL 60645  
(312) 676-9400  
Product Name: STEREO SIMULATOR MODEL AN-1  
Product Description & Applications: The AN-1 creates a stereo "spread" from a mono source closely resembling that obtained from a pair of stereo microphones. The unit is mono compatible, employing randomly spaced interleaved comb filters. A stereo width control is provided along with modulation controls for vibrato and chorusing effects.  
Basic Specifications & Suggested List Price: Input-output levels +4dBm, balanced, frequency response  $\pm 2$ dB 20Hz to 15kHz (mono), signal to noise 75dB wid. Price, \$549.50.

**SYMETRIX, INC.**  
109 Bell St., Seattle, WA 98121  
(206) 624-5012  
Product Name: MODEL 201 TELEPHONE INTERFACE  
Contact: Dore Butcher  
Date Product Introduced: October 15, 1984  
Product Description & Applications: The model 201 is a device designed specifically for connecting telephone lines to professional mixing consoles in broadcast and production studios. The 201 connects directly to two telephone lines and offers the following: line conferencing, automatic mulling, line seize and release, automatic caller gain control (AGC), and separate mike and line inputs. Telephone connections are transformer isolated and overvoltage protected. All other audio connections are balanced, transformerless.

# LT Sound

## Tape Noise Reduction

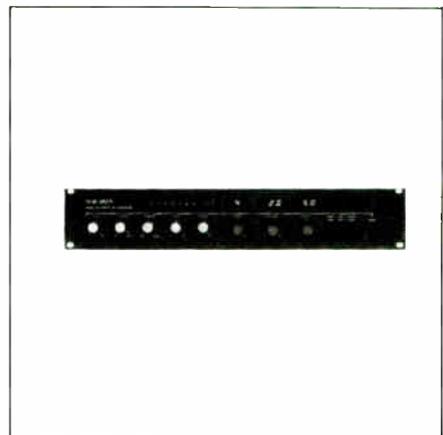
### The Professional Alternative

- Simultaneous Encode/Decode
- dbx® Compatible \*
- Adjustable for +4 or -10 Levels

If you're looking for a truly Professional and Affordable tape noise reduction system, we have the answer! Whether you have a Tascam® or Studer® machine; a two track or a 24 track, we can meet your needs. Write or call for a free brochure and demo album.

Write to: **LT Sound, Dept.8-MX PO Box 338, Stone Mountain, GA 30086 Phone (404) 493-1258**

\* Not Manufactured under license of dbx®



**URSA MAJOR, INC**  
StarGate 323

**URSA MAJOR, INC.**  
Box 18/50 Trapelo Rd., Belmont, MA 02178  
(617) 489-0303  
Product Name: STARGATE 323  
Contact: Gerard Abeles, V.P. Marketing  
Date Product Introduced: February, 1984  
Product Description & Applications: The new StarGate 323 is a very high performance digital system, capable of synthesizing a range of acoustic environments ranging from tiny chambers to echoing spaces. The StarGate 323 has typically superb Ursa Major control panel engineering. All important reverb parameters can be adjusted, with full simultaneous display of settings. (Engineers who are already familiar with plate or spring reverb will find the StarGate 323 especially easy to operate.)  
Basic Specifications & Suggested List Price: Full bandwidth 15kHz, all rooms, all decay times. Low noise. 80dB dynamic range. 8 room simulations. plates to large spaces. Pre-delay. 16 choices, from 0 to 320 ms. Decay time. 8 choices from 0 to 10 sec. Full, simultaneous display of Room, Pre-Delay, and Decay Time. 8 LED peak level indicators. HF & LF Decay. continuously adjustable controls. Separate Direct and Reverb mixing controls. Three special functions controlled by push buttons or foot pedals: Input Mute, Reverb Clear, and Dry Only. Fully balanced stereo inputs and outputs using XLR-3 connectors. Suggested list price: \$2,500.

# CHECK OUR REFERENCES.

First trust your ears. Then trust the experts. That's a reliable way to judge speaker systems. Especially reference monitors.

We make this point because of the response our studio monitor speakers have received from recording engineers at top studios like A&M, A&R, Hummingbird, Universal and Westlake. As well as Yamaha's own music research and development facility and professional studio in Glendale, California.

And that response has been extraordinary. Here's why: accurate reproduction.

Which brings us to the new NS200M and NS500M.

The NS200M is compact without compromise. It can easily handle the wider dynamic range and frequency response of today's sources. Its 10" pure spruce woofer

cone is made of the same material that goes into the soundboards of our fine pianos. Its titanium carbide dome midrange and tweeter produce crisp, clear highs. And its low-loss crossover makes sure signals get to the drivers unscathed.

The larger NS500M's 12" woofer is made from our exclusive carbon fiber technology. The result is a near-perfect balance between damping, rigidity and strength-to-weight. Which translates to remarkably natural bass response.

Our titanium carbide midrange approaches perfection in transient and frequency response, without break-up. And our beryllium dome tweeter reproduces extremely high frequencies with ease, accuracy and natural realism.

So check our references. Both the speakers and the experts. You'll like what you hear.



*Known for its exceptional accuracy and consistent response over a wide range of frequency, beryllium is the material of choice for our NS500M tweeter dome.*

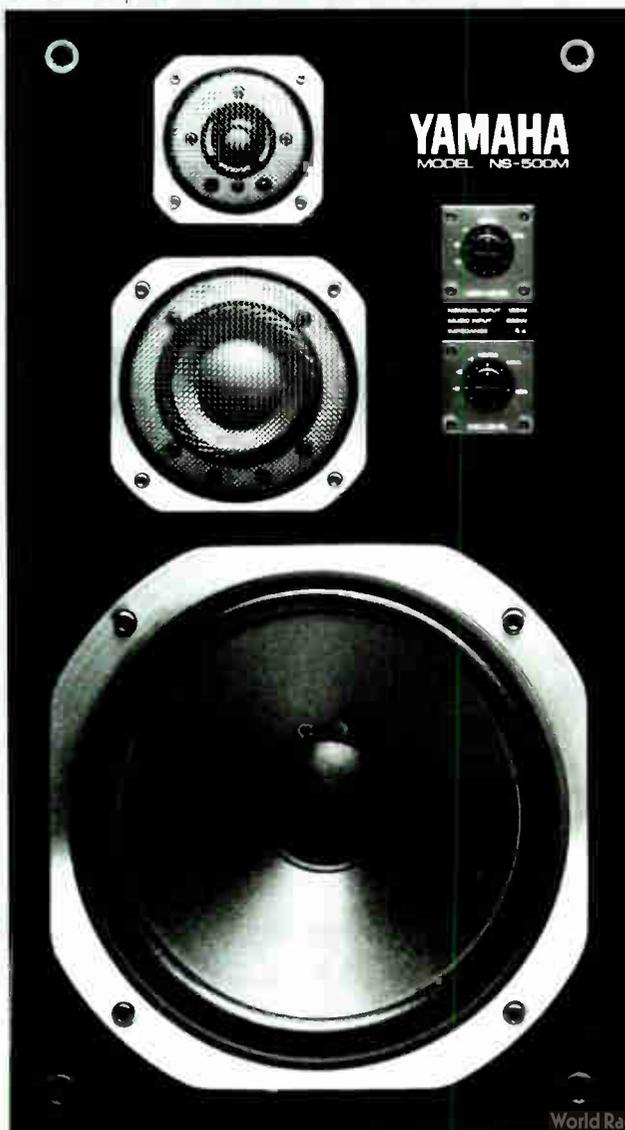


*Yamaha monitor speakers pictured in our RE-D studio.*

Suggested U.S.A. retail prices—NS500M, \$385 each; NS200M, \$285 each



Yamaha Electronics Corporation, USA, P.O. Box 6660, Buena Park, CA 90622



Circle # 140 on Reader Service Card

# N

# EW PRODUCTS

# SPEAKERS

# 1 . 9 . 8 . 5

**AMERICAN ACOUSTICS LABS**  
629 W. Cermak Ave., Chicago, IL 60616  
(312) 243-1310

**Product Name:** AAL ROAD SYSTEMS

**Contact:** Jim Straus, V.P.

**Date Product Introduced:** June 23, 1984 (NAMM EXPO)

**Product Description & Applications:** AAL Road Systems five model loudspeaker line for professional applications features four premium sound reinforcement loudspeaker systems and a dynamic tweeter array. Each system housed in carpeted enclosure designed to enhance acoustic performance. Comprised of models RS-115, RS-215, RS-TA4, RS-112, and RS-110, features include quality components such as polypropylene and paper drivers.

**Basic Specifications & Suggested List Price:** Power handling capability is 100 to 200 watts per channel RMS. Each system has thermal protected midranges and high frequency components. For protection against transit damage, drivers feature metal mesh grills which are also fastened by four "quick clips" for fast maintenance. AAL Road Systems are priced from \$749 to \$699.



**AMERICAN ACOUSTICS LABS**  
AAL Road Systems

**AURA SYSTEMS, INC.**  
2215 Anniversary Lane, Newport Beach, CA 92660  
(714) 642-4349

**Product Name:** KT 6000

**Contact:** Tim Shepard, President

**Date Product Introduced:** January, 1984

**Product Description & Applications:** Custom Sound Sculpture—appearance and shape can be altered to suit location and client's tastes. Used in studios, theaters, clubs, and homes.

**Basic Specifications & Suggested List Price:** Four way active system with crossovers and amplifiers. 2,000 to 20,000 watts; 20Hz to 30kHz  $\pm$  3dB, \$4,000 to \$100,000.

**BOSE CORPORATION**  
100 Mountain Road, Framingham, MA 01701  
(617) 879-7330

**Product Name:** MODEL 102C LOUDSPEAKER SYSTEM

**Contact:** Paul McKinley, Marketing Mgr.

**Date Product Introduced:** Spring, 1984

**Product Description & Applications:** The Bose 102c Loudspeaker is a high performance, cost effective loudspeaker system designed for installed sound applications including foreground music. The contemporary styled, vented enclosure includes a Bose 4 1/2" HVC driver, factory installed line transformer, and multiple mounting options. An active electronic equalizer (available separately) provides precise spectral control, multiple outputs for zoned systems and eliminates the cost of individual crossovers in each loudspeaker.

**Basic Specifications & Suggested List Price:** Taps, 2, 4, 8, 15 watts. Line transformers available for 25v, 70v, and 100v systems.



**BOSE CORPORATION**  
Model 102C Loudspeaker System



**CETEC GAUSS**  
3588 CoAxial Loudspeaker

**CETEC GAUSS**  
9130 Glenoaks Blvd., Sun Valley, CA 91352  
(213) 875-1900, ext. 208

**Product Name:** 3588 COAXIAL LOUDSPEAKER

**Contact:** Peter Horsman, Director of Marketing and Sales

**Date Product Introduced:** May, 1984

**Product Description & Applications:** The new Gauss 3588 represents the first fresh approach to coaxial loudspeaker design in over 40 years. Gauss' exclusive CATS computer program, and many of the most experienced ears in the business combined to create a loudspeaker for today's more stringent requirements in phase coherence, low distortion and high output levels. The unique hyperbolic cosine (cosh) horn design loads accurately to crossover. The exclusive triple spider construction ensures smooth performance from crossover down to the incredibly firm bass that has become a Gauss trademark.

**Basic Specifications & Suggested List Price:** Power 200 W RMS. Bandwidth 40Hz-18kHz; Sensitivity 96dB; diameter 15 inches; depth 8 1/4"; weight 25 lbs. Suggested retail \$625 (\$850 including 200W passive frequency dividing network).

**CROSSROADS AUDIO INC.**  
2623 Myrtle Springs Ave., Dallas, TX 75220  
(214) 358-2623

**Product Name:** CROSSROADS C48 CONCERT SPEAKER

**Contact:** Tom Fowlston, Chuck Conrad

**Date Product Introduced:** January, 1984

**Product Description & Applications:** The Crossroads C48 is a compact tri-amplified speaker system designed for flying (hanging hardware is permanently mounted) or stacking. They can be used individually or in clusters for proper coverage from the smallest to the largest venue. A great deal of attention has been paid to construction and finish. Sturdy recessed handles, heavy duty casters and grey indoor outdoor carpet finish are standard equipment.

**Basic Specifications & Suggested List Price:** A horn loaded design, it includes a 200 watt woofer, a 300 watt midrange speaker and a 100 watt aluminum diaphragm 1" high frequency driver. Frequency response 42-16,000Hz. Dimension: 48"x22"x24"; weight 140 lbs. Price \$1,050 each.

**CROSSROADS AUDIO INC.**  
2623 Myrtle Springs Ave., Dallas, TX 75220  
(214) 358-2623

**Product Name:** CROSSROADS C33 LOUDSPEAKER

**Contact:** Tom Fowlston, Chuck Conrad

**Date Product Introduced:** June 1984

**Product Description & Applications:** The C33 is a full range playback loudspeaker. The C33 has enjoyed success in sound reinforcement systems and club/recreational systems. It is light weight and compact and features sturdy recessed handles, grey indoor outdoor carpet covering, metal mesh grill, over 1.5 driver and 2" in diameter tweeter.

**Basic Specifications & Suggested List Price:** The C33 is a 3 way front loaded system with a 15" woofer, midrange horn with 1" horn, recessed tweeter, 1" tweeter, impedance 8 ohm, power 150 watts. Size: 33" high x 22" wide x 18" deep. Price: \$495.



**DAHLQUIST INC.**  
DQM-9 "N"

**DAHLQUIST INC.**  
601 Old Willets Path, Hauppauge, NY 11788  
(516) 234-5757

**Product Name:** DQM-9 "N"

**Contact:** Doug Henderson, Field Support Mgr.

**Date Product Introduced:** January, 1984

**Product Description & Applications:** 3 way studio monitor utilizing zinc alloy cast frame drivers. Woofer and midrange voice coils are wound from a flat ribbon of wire for a 40% in winding density. "Un box" enclosure is constructed from 5 layer graded density composition board and features double sidewalls. Crossover is sat-

- LISTING CONTINUED ON PAGE 178

# At Last, a 200 Watt Coax!

Everyone knows the benefit of a well designed coaxial loudspeaker... a single-point sound source. Until now, the most popular coaxes presented severe power limitations... had to have "trick" crossovers... and needed time compensation. Gauss technology has changed all that.

The new Gauss 3588 is the first computer designed coaxial. But, we *know* computers can't hear, so we used a panel of "golden ears" at the fall AES to help determine the final sound of the loudspeaker. This combination of computer design and great ears gives you a coax with the sound *and* the power you want!

With a conservative power rating of 200 watts RMS, this new Gauss coaxial has been tested to 750 watts delivering clean sound... and can "coast" along at control room levels still delivering great sound. Metric sensitivity is 95dB for the low frequency and 109dB HF.

Because of our proprietary design parameters, both drivers are virtually in the same acoustic plane, eliminating the need for costly time compensation networks. For bi-amp operation, you can use any standard professional quality crossover.

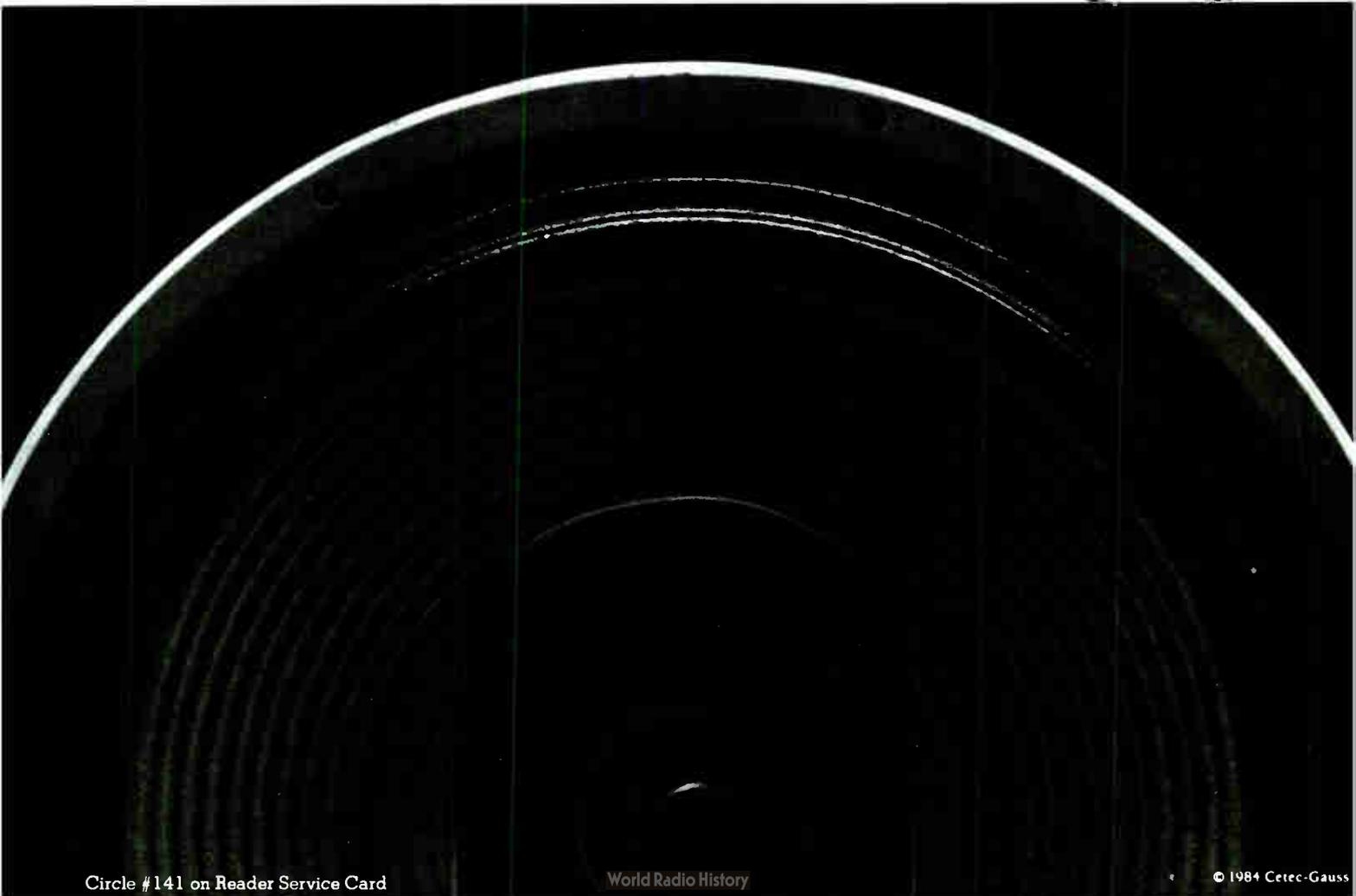
The unique *cosh* horn was designed using

Gauss's exclusive Computer Aided Time Spectrometry (CATS™) program. This design provides an extremely stable image... reduced second harmonic distortion... and virtually no midrange shadowing.

For additional information on the new Gauss coaxial loudspeaker, call or write Cetec Gauss, 9130 Glenoaks Blvd., Sun Valley, CA 91352, (213) 875-1900. Or better yet, hear it at a selected sound specialist soon.

Sound Ideas for  
Tomorrow... Today!

**gauss**  
by Cetec



—FROM PAGE 176

elite mounted and uses only low distortion, high precision components. Engineered for high accuracy, linearity of response, and exceptional SPL capability.

**Basic Specifications & Suggested List Price:** Sensitivity at 1kHz, 1 watt, 1 meter—95dB; frequency response: 28-22,000 Hz; power handling: 200 watts RMS; impedance: 8 ohms nominal, 6 ohms minimum; width: 1 1/2", height 25", depth 1 3/4"; Price: \$600 each.

**DESIGN DIRECT SOUND (DDS)**  
6850 35th N.E., Ste. 1, Seattle, WA 98115  
(206) 527-4371

**Product Name:** CFD2-110

**Contact:** Bob Rice, President

**Date Product Introduced:** October, 1984

**Product Description & Applications:** The CFD series of horns are designed to provide consistent decibel level for the full rated frequency band over a designated area. The CFD series design eliminates high frequency beaming and midrange lobing by incorporating several flare rates into a single part. The CFD2-110 is an excellent choice for near field applications. The easy baffle mount design allows for use in small monitor or main cabinets.

**Basic Specifications & Suggested List Price:** The pattern is 110H x 40V, frequency band width is 1.2kHz up to 16kHz. The construc-

## NEW PRODUCTS

### SPEAKERS

1 • 9 • 8 • 5

tion material includes DDS exclusive spun glass fiber throat and flange and extensive balsa core. 10"H x 21"W x 8"D. Price S/L \$155.

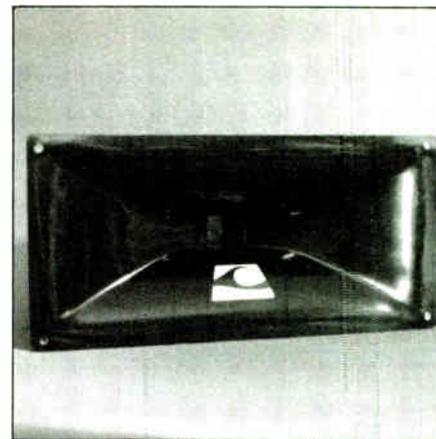
**DESIGN DIRECT SOUND (DDS)**  
6850 35th N.E., Ste. 1, Seattle, WA 98115  
(206) 527-4371

**Product Name:** CFD1-100

**Contact:** Bob Rice, President

**Date Product Introduced:** October, 1984

**Product Description & Applications:** The CFD series of horns



*DESIGN DIRECT SOUND (DDS)  
CFD1-100*

are designed to provide consistent decibel level for the full rated frequency band over a designated area. The CFD series design eliminates high frequency beaming and midrange lobing by incorporating several flare rates into a single part. The CFD1-100 is an excellent choice for many near field applications. The small size and easy baffle mount design allows for use in small monitors or foreground speakers.

**Basic Specifications & Suggested List Price:** The pattern is 100H x 40V, frequency band width is 1.6kHz up to 17 kHz. The construction material includes DDS exclusive spun glass fiber throat and flange and extensive balsa core. 10"H x 17"W x 5 1/2"D. Price S/L \$147.



## The New ASTATIC Performers

**Three Dynamic Cardioid Microphones for Sound Reinforcement, Recording, and Broadcast.**

The new Astatic Dynamic Cardioid Microphones out-perform anything in their class.

Each Features:

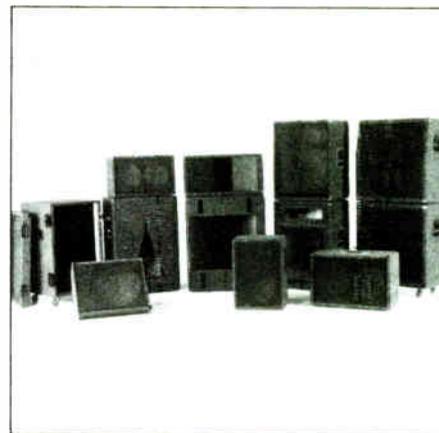
- Wideband Frequency response with slight presence boost.
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- Superior shock mount system designed by Astatic.
- Natural proximity effect.
- Multi-stage wind/"pop" filter.
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Call or write for details.



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Commercial Sound Division,  
P.O. Box 120  
Conneaut, OH 44030-0210  
(216) 593-1111

In Canada:  
Canadian Astatic, LTD.  
1220 Ellesmere Rd., Unit 2  
Scarborough, Ontario  
M1P 2X5  
(416) 293-2222



*DeCuir SAMPLE CASE COMPANY  
DeCuir Speaker Enclosure Cabinets*

**DeCuir SAMPLE CASE COMPANY**  
4012 So. Broadway Place, Los Angeles, CA 90037  
(213) 233-4184

**Product Name:** DeCuir SPEAKER ENCLOSURE CABINETS

**Contact:** Frank M. DeCuir, President

**Date Product Introduced:** June, 1984

**Product Description & Applications:** Recently introduced by DeCuir Sample Case Company is a quality line of sound enclosures that enables dealers or their customers to create their own customized sound system at an affordable price. These empty enclosures come in 14 popular styles which include monitors, stacks, and P.A. enclosures. Additional models will soon be available.

**Basic Specifications & Suggested List Price:** All solid plywood construction with premium carpet covering, metal corners for a rugged performance. Most models come complete with phonejacks, recessed handles and fiberglass. Completely constructed and assembled in the U.S.A. Prices for the enclosures range within an affordable \$60 to \$135.

**ELECTRO-VOICE, INC.**  
600 Cecil St., Buchanan, MI 49107  
(616) 695-6831

**Product Name:** DL15W and DL18W VERY-LOW FREQUENCY REPRODUCERS

**Contact:** Jim Long, Director Marketing, Professional Sound Reinforcement

**Date Product Introduced:** June, 1984

**Product Description & Applications:** The DL15W and DL18W

very low frequency reproducers are 15 and 18 inch, 8-ohm drivers designed for professional high fidelity monitoring and sound reinforcement, especially sub woofer applications. Unique design assures linear, low distortion output, high power capability and improved heat transfer. High excursion drive is augmented by three EV exclusives: the Thermo Inductive Ring, TIR, the Flux Demodulation Device, FDD, and PROTEF coating. The DLW's complete the DL woofer family which features DLX low frequency reproducers for maximum efficiency and DLW's for more extended bass response.

**Basic Specifications & Suggested List Price:** Specifications for both the DL15W and DL18W include a power handling capacity of 400 watts (EIA RS 426A) and a sensitivity of 95 and 197 dB/1 meter, 1 watt, 100-800 Hz averaged, respectively. The DL15W is priced at \$205 and the DL18W at \$320.



ELECTRO-VOICE, INC.  
DL15W and DL18W Very-Low Frequency Reproducers

**FOSTEX CORPORATION OF AMERICA**  
15431 Blackburn Ave., Norwalk, CA 90650  
(213) 921-1112

**Product Name:** REFERENCE MONITOR SERIES

**Contact:** Ted R. Telesky Nat'l Sales Mgr

**Date Product Introduced:** May, 1984

**Product Description & Applications:** The RM765 and RM780 are a new series of compact, coaxial, time coherent playback monitors which offer a point source reference. Designed from the ground up, the RM765 (6" woofer) and RM780 (8" woofer) use high power double spider technology for high power and low distortion. The tweeter is a new regulated phase design providing very smooth response (with no break-up). A 2P/4P switch gives optimum performance in both soffit and console locations.

**Basic Specifications & Suggested List Price:** Response: RM765 (70Hz-20kHz  $\pm$  3dB) RM780 (58Hz to 20kHz  $\pm$  3dB) Sensitivity: RM765 (2P1=91dB, 4P1=88dB) RM780 (2P1=93dB, 4P1=90dB) Distortion: RM765/780, less than 3% THD at 10 watts. Price: RM765, \$219 each, RM780, \$299 each.

**GLI/INTEGRATED SOUND SYSTEMS, INC.**  
1227 Walt Whitman Rd., Melville, NY 11747  
(516) 351-2100

**Product Name:** AV-1P

**Contact:** Mr. Ira Moskowitz

**Date Product Introduced:** June, 1984

**Product Description & Applications:** Self contained powered speaker, individual level controls for its line & microphone (1/4" & XLR) inputs plus bass & treble controls. Ideal for sales presentations, exercise programs, auctions, and public address requirements.

**Basic Specifications & Suggested List Price:** Mike input mono, accepts low or high impedance. Fuse resettable. Line input mono, unbalanced. Weight: 20 lbs. Frequency response: 20 Hz-20kHz. Finish: Black vinyl. SPL: Maximum SPL at 1m, full power: 110dB. Rated: 35 watts RMS. Suggested list price: \$319.

**HECO OF AMERICA**  
703 Heinz Ave., Berkeley, CA 94710  
(415) 548-4009

**Product Name:** PCX-4

**Contact:** Heca Jackson, NSM

**Date Product Introduced:** June 3, 1984

**Product Description & Applications:** 3 way loudspeaker system. Well suited for monitor applications. Tweeter protection. Excellent dynamic capability. Excellent clarity and imaging.

**Basic Specifications & Suggested List Price:** Frequency response: 20-25kHz. 89dB efficiency. Power handling of 200 watts (peak).

**JBL INCORPORATED**  
8500 Balboa Blvd., Northridge, CA 91329  
(818) 893-8411

—LISTING CONTINUED ON NEXT PAGE



## HERE'S $\pi$ IN YOUR EYE

In any monitor, especially a near-field type, response will vary from a  $2\pi$  (wall/soffit) to a  $4\pi$  (free field/console) environment.

The better the performance, the more noticeable the phenomenon. In our case, with more than 20 international patents so far, this field select switch was absolutely necessary.

So that you could have the same flat response in either field or both fields.

These are Point Source reference monitors. Coaxial, and time compensation adjusted in a true concentric design. Stereo imaging the way it happens in nature.

They also take lots of power without distortion or complaint. They are stunning.

Audition the Near-Field Point Source Reference Monitors. From Fostex. RM-765 (6½" woofer) and RM-780 (8" woofer). Both with patented RP Technology. For flat response in both  $2\pi$  and  $4\pi$  environments.



FOSTEX RP TECHNOLOGY



RM765



RM780

# Fostex<sup>®</sup>

Pro Sound Division

FOSTEX CORPORATION OF AMERICA  
15431 Blackburn Avenue, Norwalk, CA 90650 (213) 921-1112

Circle #143 on Reader Service Card

—FROM PAGE 179

**Product Name: 4660 DEFINED COVERAGE LOUDSPEAKER SYSTEM**

Contact: Juergen Wahl, Applications Eng.  
Date Product Introduced: Prototype introduced October, 1983. New product available August, 1984.

**Product Description & Applications:** The Model 4660 Sound Reinforcement Loudspeaker System is the first of its kind. It is designed to provide controlled coverage in a normal rectangular space so that at frequencies above 1kHz, the coverage is very uniform in both the front and back of the room. The 4660 System is ideal for moderate to large meeting rooms and moderate size houses of worship. In most cases, it will provide a degree of speech coverage, which if achieved with conventional components would require three or more high frequency drivers.

**Basic Specifications & Suggested List Price:** 4660 retail price \$1,984, with grill \$99. Frequency range: (-10 dB) 40 Hz to 15 kHz, frequency response: ( $\pm 4$  dB) 40 Hz to 12 kHz, power capacity: 150 W continuous pink noise; sensitivity: 99 dB SPL, 1W, 1m (3 ft); nominal impedance: 8 ohms; crossover frequency: 800 Hz.

**KLIPSCH AND ASSOCIATES, INC.**  
Route 4, Oakhaven Rd., Box 688, Hope, AR 71801  
(501)777-6751

**Product Name: KLIPSCH KSM-2**

Contact: P. Woody Jackson, Nat'l Sales Mgr.

Date Product Introduced: May 15, 1984

**Product Description & Applications:** The KSM 2 is a two way speaker system designed for high output, extended low frequency response, and low distortion. In a horizontal placement position, the KSM 2 is ideal as a stage monitor in performance arts applications. The KSM 2 can also be positioned in an "upright" manner for use as a full range PA system.

**Basic Specifications & Suggested List Price:** Frequency response: 45Hz to 14kHz  $\pm 4$ dB, electrical power input (maximum continuous): 200 watts, average beamwidth: 58° horizontal, 60° vertical, impedance: 8 ohms nominal (4 ohms minimum at 150 Hz), dimensions: 24" high by 25 1/2" wide by 20" deep, weight: 75 lbs. Prices starting at approximately \$550.



MTX  
PL-5 and PL-5G

**MTX**

One Mitek Plaza, Winslow, IL 61089  
Chicago Sales Office, (312) 243-1310

**Product Name: PL-5 and PL-5G**

Contact: Hob Landsberg, Nat'l Sales Mgr.

Date Product Introduced: June 23, 1984 (NAMM EXPO)

**Product Description & Applications:** The PL 5 and PL 5G are direct replacement drivers for full range loudspeaker models in professional and commercial applications. Ideally suited as a direct replacement driver for in-line arrays and ceiling installations, these can also be used as midrange driver in monitor systems. Utilizing rugged die cast basket design, features include 4 1/2" black paper cone with plastisol surround. Midrange is driven by 1" ferruloid Kapton voice coil with a 1.2 ounce magnet.

**Basic Specifications & Suggested List Price:** Power handling capacity is 100 watts per channel RMS with a 6 dB per octave dividing network or 60 watts RMS pink noise as a full range system. Frequency response is 164 Hz to 13.5 kHz. Suggested retail price of the PL-5 is \$49 and the PL-5G is \$59.

**MTX**

One Mitek Plaza, Winslow, IL 61089  
Chicago Sales Office, (312) 243-1342

**Product Name: PRO LENSES AND COMPRESSION DRIVERS**

Contact: Hob Landsberg, Nat'l Sales Mgr.

Date Product Introduced: February 15, 1984 (EDS Show)

**Product Description & Applications:** MTX Pro Lenses are two new constant directivity horns, made from non resonant poly-

**NEW PRODUCTS**

**SPEAKERS**

**1 • 9 • 8 • 5**

**LENSES & COMPRESSION DRIVERS**



MLX ONE MITEK PLAZA • WINSLOW, ILLINOIS 61089 • 815 367-3811  
CIRCLE 5 ON CARD OR 1-800-368-7842

**MTX**

**Pro Lenses and Compression Drivers**

urethane for clearer sound reproduction with less colorization. Designed with MTX's latest tourer transform analyzer, the result is a high frequency beaming and irregular frequency coverage associated with most typical horns. For smooth, even frequency response with extremely low distortion, the new CD 60W 8" compression driver is offered for combination with new horns. The driver features fold replaceable diaphragm made from high temperature phenolic impregnated paper to eliminate tracking and shattering found with use of metallic diaphragms.

**Basic Specifications & Suggested List Price:** MTX CD 60W 8" horn measures 4 3/8" x 7 3/4" and has a 100 degree dispersion pattern. The MTX 18 8 1.0 horn measures 18 1/8" x 7 3/4" x 8 1/2" and has a 120 degree dispersion pattern. The MTX CD 60W 8" compression driver has a 25 ounce magnet and a 1.2" aluminum voice coil. Power handling capability is 60 watt, RMS.



PANASONIC INDUSTRIAL CO.,  
PROFESSIONAL AUDIO SYSTEMS  
RAMSA WS-A70

PANASONIC INDUSTRIAL CO.,  
PROFESSIONAL AUDIO SYSTEMS  
1 Panasonic Way, Secaucus, NJ 07094  
(201) 348-7470

**Product Name: RAMSA WS-A70**

Contact: Gene Jull, Product Mgr.

**Product Description & Applications:** WS A70: A compact studio monitor of high efficiency: 87 dB (1W/1M on axis) and capable of high quality sound. A two way system consisting of a high frequency driver and a twin baffle horn tweeter (1.20" x 1.20").

**Basic Specifications & Suggested List Price:** WS A70: 50 to 18,000 Hz.



TAD

TSM-1

PIONEER ELECTRONICS INC.  
TAD TSM-1

PIONEER ELECTRONICS INC.  
5000 Airport Plaza Rd., Long Beach, CA 90815  
(213) 420-5700

**Product Name: TAD TSM-1**

Contact: Randy Dowis, Sales Mgr.

Date Product Introduced: January 1984

**Product Description & Applications:** The TSM 1 is a high performance studio monitor system. The use of high quality TAD components insures that this speaker system is able to meet the rigorous demands of studios. The system is characterized by wide dynamic range, smooth response, and low distortion. The TSM 1 is a two way monitor system employing a 15" woofer and a horn loaded compression driver. The tweeter network is a sophisticated third order type with delay compensation for the woofer. The TSM 1 is appropriate for situations demanding the most accurate reproduction of audio signals.

**Basic Specifications & Suggested List Price:** Nominal impedance: 8 ohms, maximum output SPL: 126 dB (1M), frequency response: 29 Hz-20 kHz, crossover frequency: 550 Hz, rated input power: 300 watts, maximum power: 600 watts, sensitivity: 98dB. Suggested list: \$5,000 each.

PIONEER ELECTRONICS INC.  
5000 Airport Plaza Rd., Long Beach, CA 90815  
(213) 420-5700

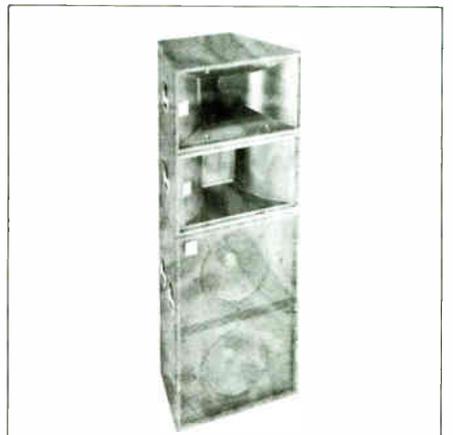
**Product Name: TAD TSM-2**

Contact: Randy Dowis, Sales Mgr.

Date Product Introduced: January 1984

**Product Description & Applications:** The TSM 2 is a high performance studio monitor system. The use of high quality TAD components insures that this speaker system is able to meet the rigorous demands of studios. The system is characterized by wide dynamic range, smooth response, and low distortion. The TSM 2 is a two way system employing a 15" woofer and a horn loaded compression driver. The tweeter network is a sophisticated third order type with delay compensation for the woofer. The TSM 2 is a compact monitor system suitable even in small rooms without sacrificing performance.

**Basic Specifications & Suggested List Price:** Nominal impedance: 8 ohms, maximum output SPL: 120dB, frequency response: 29 Hz-20 kHz, crossover frequency: 600 Hz, rated input power: 150 watts, maximum power: 300 watts, sensitivity: 95 dB. Suggested list: \$3,500 each.



PROFESSIONAL AUDIO SYSTEMS  
Modular Reinforcement System 1 (MRS-1)

PROFESSIONAL AUDIO SYSTEMS  
1224 W. 252nd St., Harbor City, CA 90710  
(213) 534-3570

Product Name: MODULAR REINFORCEMENT SYSTEM 1 (MRS-1)

Contact: Roger DuNaier, Sales Mgr  
Date Product Introduced: April 1984

Product Description & Applications: The MRS-1 brings a new dimension of performance and simplicity to PA systems. This 3-way modular system consists of a double 18" bass module, a single 12" mid bass module, and a constant coverage high frequency horn with 2" compression driver. The accompanying one rack System Processor has been internally calibrated and controls the Time Off set Correction, the x-over points, the x-over slope, the turn on/turn off protection, the limiters and the subsonic and supersonic filters. Additional x-overs, limiters and equalizers are not necessary.

Basic Specifications & Suggested List Price: 2x18BM double 18" Bass Module \$750, 1x12BM single 12" Mid Bass Module \$440, HF 30x60 CC 2 Constant Coverage 2" HF Horn \$640, Systems Processor (for MRS-1) \$500



PROFESSIONAL AUDIO SYSTEMS  
Systems 2000

PROFESSIONAL AUDIO SYSTEMS  
1224 W. 252nd St., Harbor City, CA 90710  
(213) 534-3570

Product Name: SYSTEMS 2000

Contact: Roger DuNaier, Sales Mgr  
Date Product Introduced: March 1984

Product Description & Applications: Sharing some quality and power handling characteristics with the PAS line, these are the most cost-effective models to date. All units are finished in a black high density weave exterior for maximum durability and protection from chips, scratches, and dents. All units are recommended for use as side fill monitors, layback music systems, or full range PA applications where light weight, portability and smooth response are required (the S12.2m is designed as a wedge monitor for stage use).

Basic Specifications & Suggested List Price: S12.2m 12" 2-way monitor with bullet tweeter \$249, S12.2 12" 2-way with bullet tweeter \$279, S15.5 15" 2-way with die cast horn tweeter \$379, S15.5 15" 3-way horn load with fibreglass midrange horn and bullet tweeter \$559



RENKUS-HEINZ, INC.  
"Smart" Sound Systems

RENKUS-HEINZ, INC.  
17891-B Sky Park Circle, Irvine, CA 92714  
Product Name: "SMART" SOUND SYSTEMS

Contact: George Meeks, Sales Mgr  
Date Product Introduced: June 24, 1984

Product Description & Applications: Microprocessors provide enhanced and "tail sale" sound system operation with increased acoustic output. Individual speaker signals are constantly monitored to provide complete dynamic protection against excessive cone or diaphragm excursion as well as against excessive heat build up. R H Smart Systems reduce the need for "headroom" and allow the design of very compact, arrayable speaker systems. Accurate high and low frequency visualization, automatic loudness compensation, and time coherence deliver studio quality sound at all output levels.

Basic Specifications & Suggested List Price: Model S1 800 W (2 x B1 enclosures, X1 x over) \$4850, S1D (dual channel) \$5,110, S2 400 W (2 x B2 enclosures, X1 x over) \$3,770, S2D (dual channel) \$4,040, S3 400 W (2 x B3 enclosure, X2 x over) \$3,450. For optional flying hardware \$500

TANNOY  
97 Victoria St. No., Kitchener,  
Ontario, Canada N2H-5C1  
(519) 745-1158

Product Name: LYNX

Contact: Bill Calma, Marketing Mgr  
Date Product Introduced: June 23, 1984

Product Description & Applications: Twin 12" dual concentric monitor for smaller hi-profile venues and audio-visual. Made in UK. Basic Specifications & Suggested List Price: Dimensions 19" H x 28 1/2" W x 16" D, frequency response 50-20kHz, sensitivity full band 95dB/1 watt/1M, P.H. 200 watts RMS \$1,498

TANNOY  
97 Victoria St. No., Kitchener,  
Ontario, Canada N2H-5C1  
(519) 745-1158

Product Name: TANNOY SR-840

Contact: Bill Calma, Marketing Mgr  
Date Product Introduced: August 15, 1984

Product Description & Applications: High power amplification for precise studio application. MOSFET design with separate power supply rails for outputs and drivers.

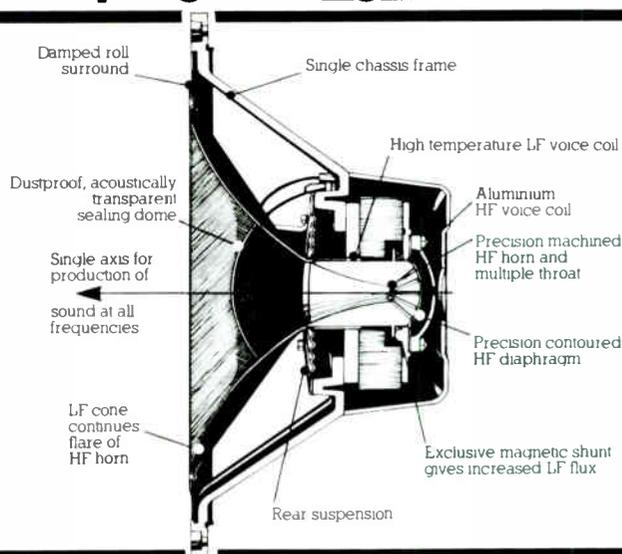
Basic Specifications & Suggested List Price: 480 W P.C. at 8 ohms Dynamic headroom +9dB 1490 watts mono \$2,898

# TANNOY®

## Dual Concentric with SyncSource

- ? Are they phase coherent . . . . . YES
- ? Are they time aligned . . . . . YES
- ? Do they handle high power reliably . . . . . YES
- ? Do they provide wide dispersion at all frequencies . . . . . YES
- ? Do they provide accurate stereo image at all angles . . . . . YES

...ask some questions, and make sure you get the right answers.



TANNOY NORTH AMERICA INC.

97 Victoria St. N. Kitchener, Ont., Canada N2H 5C1 (519) 745-1158 Telex 069-55328

Circle # 144 on Reader Service Card

TOA ELECTRONICS, INC.  
480 Carleton Ct., So. San Francisco, CA 94080  
(415) 588-2538

**Product Name: 380SE THREE-WAY SPEAKER SYSTEM**

Contact: Terry Taylor, Nat'l Sales Mgr

Date Product Introduced: June, 1984 (NAMM Show)

**Product Description & Applications:** The 380SE is the result of TOA's observation that speakers meant only for "traditional" sounds cannot live up to the various levels and timbres of digitally created, direct-to-disk, and synthesized music. It accurately reproduces all sounds (sibilant, flutey, brassy, percussive, reedy, human, special effects) at all levels, adding virtually no coloration to original audio. A powerful 3-way system that illuminates subtle variations in pitch and volume (whether handling one note or a full chorus) designed for pros in electronic music and sound.

**Basic Specifications & Suggested List Price:** Smooth, extended frequency response, controlled directivity pattern, exponential horn tweeter; Thiele-Small aligned bass reflex design. Continuous power handling: 360 watts RMS. Full range inputs, hi-amp/tri-amp connectors, 4 bridging connectors. Two level controls flush-mounted on upper side, one for mid-, one for high-frequencies, to tailor output to performance requirements, room acoustics. Suggested list, \$895.

WESTLAKE AUDIO, PROFESSIONAL PRODUCTS MFG. GROUP

2696 Laubry Ct., Unit 18, Newbury Park, CA 91320  
(805) 499-3686

**Product Name: BBSM REFERENCE MONITORS**

Contact: Tom Whitaker, Glenn Phoenix

Date Product Introduced: Late 1983

**Product Description & Applications:** Portable reference monitors with total horizontal symmetry, low THD distortion and good spectral balance. Units may be used as close as 24".

**Basic Specifications & Suggested List Price:** BBSM 6, \$795; BBSM 12, \$1,395 (in black, no grill. With grill: \$100 extra for each).

## NEW PRODUCTS

### SPEAKERS

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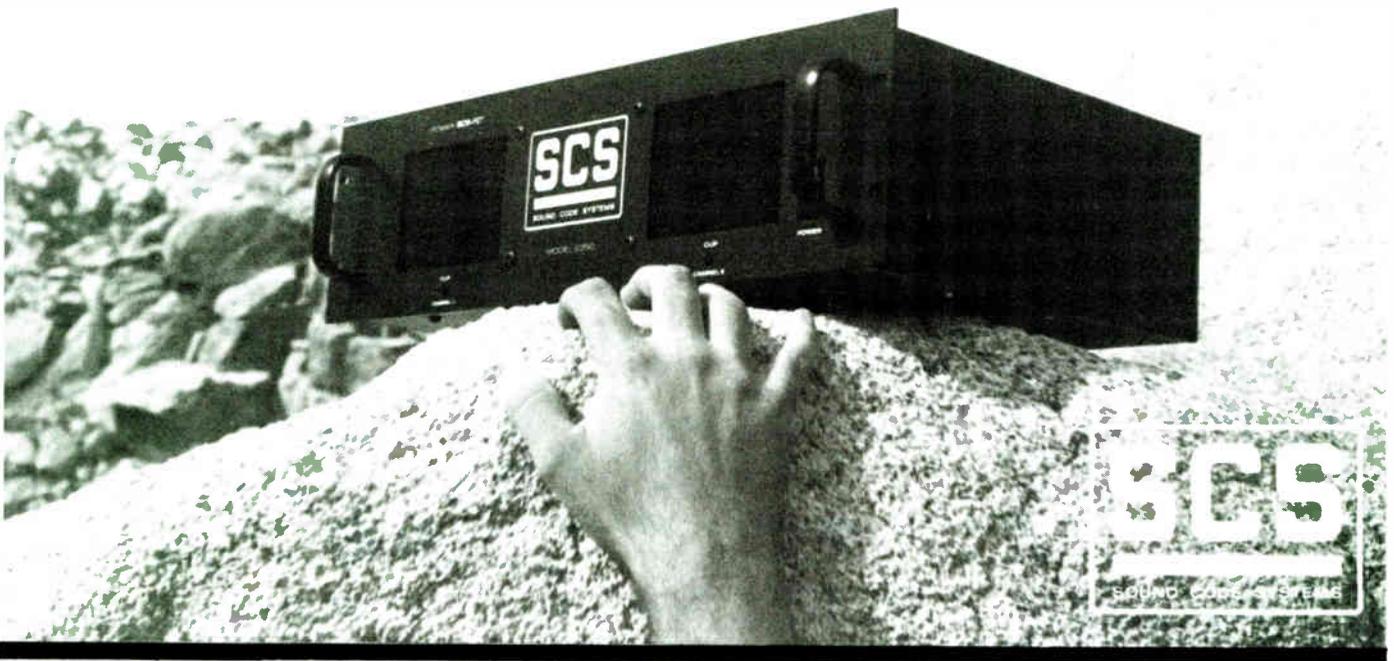
WESTLAKE AUDIO, PROFESSIONAL PRODUCTS MFG. GROUP  
BBSM Reference Monitors

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Mix Magazine  
2608 Ninth Street  
Berkeley, CA 94710

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## 700 Watts of Pure MOS-FET Power

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# N

# EW PRODUCTS TEST EQUIPMENT

# 1 . 9 . 8 . 5



**DORROUGH ELECTRONICS**  
Dorough Loudness Monitor

**DORROUGH ELECTRONICS**  
5221 Collier Place, Woodland Hills, CA 91364  
(818) 999-1132  
**Product Name:** DORROUGH LOUDNESS MONITOR  
**Contact:** Mike Dorough  
**Date Product Introduced:** 1983  
**Product Description & Applications:** This program level meter offers an operator-controlled solution to the problem of inconsistent loudness that results in varying discrepancies of end product as seen in recording and broadcast. The meter features a dual function on a single LED display. The LED bargraph shows normally weighty RMS material which the operator is directed to hold at center 0 dB, and a dot mode for Peak indication which has a normal operator range at +13 dB. Red LEDs are at these two maximum points and the operator simply adjusts level up to the red. Equal perceived loudness is achieved by riding maximum gain to either point of reference.  
**Basic Specifications & Suggested List Price:** Inputs: two (stereo), input level: -30 to +20 dBm, shipped calibrated to -8 dBm, input impedance: 20k balanced, 10k unbalanced, power: 110/220V, 50/60 Hz, weight: 2.4 lbs., price: \$475



**ELECTRO SOUND, INC.**  
ES4320 Precision Slave Calibrator

**ELECTRO SOUND, INC.**  
160 San Gabriel Dr., Sunnyvale, CA 94086  
(408) 245-6600  
**Product Name:** ES4320 PRECISION SLAVE CALIBRATOR  
**Contact:** David Bowman, Sr. V.P.  
**Date Product Introduced:** March, 1984  
**Product Description & Applications:** The Electro Sound 4320 Precision Slave Calibrator is a portable, four channel, high speed cassette tape reproducer. The 4320 will accurately reproduce the complete frequency spectrum of audio signals recorded by a cassette duplicating slave while the slave is recording. The Precision Calibrator will adapt to most high-quality cassette duplicating systems operating at 321 or 641, including all Electro Sound 8000, 5000, 6400 and 6000 systems, all Gauss 1200 Series systems, and most Ampex (and Ampex style) systems.  
**Basic Specifications & Suggested List Price:** Equalization: 3180 and 120 microseconds. Frequency response:  $\pm 1$  dB, 20Hz to 15kHz (1200Hz to 960kHz actual). Level switched output: +5dBm (1.377 volts) for 200 nanoWebers per meter at 25kHz. Direct output: 0dBm (0.775 volt) for 250 nanoWebers per meter at 25kHz. Azimuth calibrated adjustment of  $\pm 0.5$  degrees. List price, \$4,750

**JHD AUDIO**  
1370 Logan Ave., Ste. E, Costa Mesa, CA 92626  
(714) 540-2372

**Product Name:** BIASPROBE  
**Contact:** Hunt Dabney, President  
**Date Product Introduced:** June, 1984  
**Product Description & Applications:** JHD's BiasProbe is a device to allow fast, accurate biasing of the majority of tube type amplifiers in current use. Used with a DVM, the BiasProbe allows direct measurement of plate current which may then be set to the recommended value. A guide to the correct settings and proper procedure are included with the probe.  
**Basic Specifications & Suggested List Price:** Tube types supported: 5881, 6V6, 6L6, 6CA7, EL-34, 6550, 7027, KT-88. Output: dual banana plug to be used with DVM, reads mA directly as mV. Supplied with amp biasing guide—how and why to bias amps, tables of proper bias settings for most amps. Available directly from JHD for \$42 plus s/h. A DVM is available for \$65 plus s/h.

**NEUTRIK PRODUCTS**  
77 Selleck St., Stamford, CT 06902  
(203) 348-2121

**Product Name:** MODEL 3332 PHASE and GROUP DELAY MODULE  
**Contact:** S. Richard Ravich, V.P. Marketing  
**Date Product Introduced:** Fall, 1984  
**Product Description & Applications:** The 3332 is a new module for the Autograph 3300 System by Neutrik. This module allows for the measurement of the Phase angle between two voltages, sweeping with the same frequency and the associated group delay time as a function of frequency. The phase delay unit has calibrated delay times up to 87.3 milliseconds for compensating time delays when measuring phase characteristics of loudspeakers and tape recorders. Permanent hard copy plots can be made in four colors.  
**Basic Specifications & Suggested List Price:** For complete specs consult literature. Suggested retail of the model 3332 only is \$975.

**NORTON ASSOCIATES, INC.**  
10 Di Tomas Ct., Copiague, NY 11726  
(516) 842-4666  
**Product Name:** 35mm BUZZ TEST FILMS FOR 3, 4, & 6 TRACK HEADS

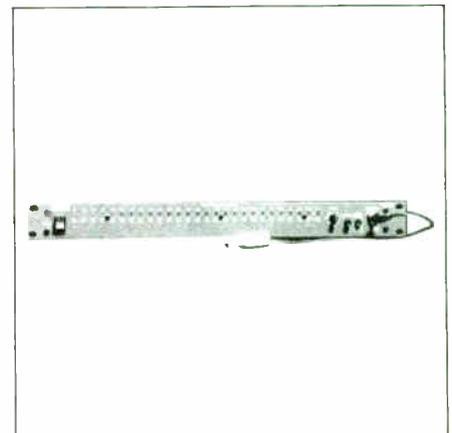
**Contact:** Helen Stamford, Sales  
**Date Product Introduced:** January, 1984  
**Product Description & Applications:** 6, 8 and 12 track 35mm Buzz films facilitate rapid accurate lateral adjustment of 3, 4 and 6 track heads. These films relate to the reference edge of the film, emulsion position and direction of film travel. Buzz films have two distinctly identifiable tone tracks, one pair of tone tracks per track on the head. The recording engineer adjusts the head to the null point for either tone. That is the point of correct adjustment.  
**Basic Specifications & Suggested List Price:** Films 325 feet long recorded on Scotch 35mm polyester 35mm film. TFA/4T35-6 Buzz Tracks for alignment of 3 track (or mono) heads. TFA/4T35-8

Buzz Tracks for alignment of 4 track heads. TFA/6T35-12 Buzz Tracks for alignment of 6 track heads. Price, \$275 each or 3 for \$742.50.



**NORTON ASSOCIATES, INC.**  
35mm Buzz Test Films for 3, 4, and 6 Track Heads

**NORTON ASSOCIATES, INC.**  
10 Di Tomas Court, Copiague, New York 11726  
(516) 842-4666  
**Product Name:** NORTON DISK DRIVE ANALYZER  
**Contact:** Ken Lubitz, Nat'l. Sales Mgr.  
**Date Product Introduced:** March, 1984  
**Product Description & Applications:** Diagnostic diskette checks four (4) crucial areas of disk performance within minutes: radial alignment, disk speed, disk clamping ability and read/write accuracy.  
**Basic Specifications & Suggested List Price:** Versions available for use with IBM PC XT. Contains (1) 5 1/4" software diskette and instructions. Suggested retail price: \$39.95.



**RANE CORPORATION**  
Model RA 27 Realtime Analyzer System

**RANE CORPORATION**  
6510 216th SW, Mountlake Terrace, WA 98043  
(206) 774-7309

—LISTING CONTINUED ON PAGE 184

## PERFORMANCE GUARANTEE

In the high pressure, fast paced audio industry, survival means maintaining your competitive edge. You demand every ounce of performance from your equipment and its uncompromised operation is vital to your success!

Regular alignment of precision audio equipment is an absolute must. The LofTech TS-1 is a simple to use, inexpensive, quality test instrument which helps you perform important alignment procedures. What you get are accurate results, quickly and easily. The LofTech TS-1 is your performance guarantee.



**\$299.00**  
Suggested Retail

Manufactured in the U.S.A.  
by Phoenix Audio Laboratory, Inc.  
91 Elm Street, Manchester,  
CT 06040

(203) 648-1199

# LOFTECH

## TS-1 AUDIO TEST SET

Circle #146 on Reader Service Card

## NEW PRODUCTS

### TEST EQUIPMENT

1 · 9 · 8 · 5

—FROM PAGE 183

#### Product Name: MODEL RA 27 REALTIME ANALYZER SYSTEM

Contact: Larry Witter, V.P. Marketing

Date Product Introduced: June, 1984

**Product Description & Applications:** This state-of-the-art system consists of a color coated red-green-yellow LED 14 octaves analyzer display with switchable  $\pm 3$ dB  $\pm 1$ dB window, a full rated RTA level control, built-in pink noise generator, flat response condenser microphone with 40' cable and case, auxiliary XLR type microphone input with 9dB gain, and separate line input automatically activated by removal of the front panel microphone plug.

**Basic Specifications & Suggested List Price:** The RA 27 analyzer: 27 ANSI Class II filters in ISO centers from 40Hz to 16kHz, calibrated sensitivity control with 70 to 120dB SPL range, adjustable pink noise output, automatic balance and float inputs and output. Suggested list price is \$449 for the complete system.

#### ROSS SYSTEMS c/o INTERNATIONAL MUSIC

1316 East Lancaster, Fort Worth, TX 76102

(817) 336-5114

#### Product Name: ROSS E-Z CHECK CABLE TESTER, MODEL E-Z1

Contact: Jim Cowser, Dir. of Electronics

Date Product Introduced: June, 1984

**Product Description & Applications:** Small compact box which can be packed in cable carrying case. Professional sound reinforcement cable tester. Capable of testing all 1/4" and 1/8" cables on the spot immediately locating the source of the problem. You can now test your custom cables that use completely different end plugs.

**Basic Specifications & Suggested List Price:** Features 2 & 4 XLR indicators, RCA plug, Coax cable, 1/4" phone plug and custom cables. List \$79.95.

#### SOUND TECHNOLOGY, INC.

1400 Dell Ave., Campbell, CA 95008

(408) 378-6540

#### Product Name: MODEL 170 PRECISION AUDIO FILTERS

Contact: Cindy Alderson, Sales & Marketing Coordinator

Date Product Introduced: June, 1984

**Product Description & Applications:** The Sound Technology Model 170 Precision Audio Filter Set contains the following filters: "A Weighting", Hi-Freq. Hi-Pass, 20Hz Hi-Pass, 200Hz Hi-Pass, 15kHz Lo-Pass, 20kHz Lo-Pass, and 30kHz Lo-Pass. Band pass measurements can be made very easily with the Model 170. By selecting a high pass and a low pass filter simultaneously, the user has at his disposal numerous band pass filter combinations.

**Basic Specifications & Suggested List Price:** A stereo phone plug cable connects the 170 to the Sound Technology 1700 series of Distortion Measurement System, or it can interface with other distortion analyzers with external filtering capabilities. The Model 170 is priced at \$495.

#### TEKTRONIX, INC.

P.O. Box 500, Beaverton, OR 97077

(503) 627-7111

#### Product Name: 1740 Waveform/Vector Monitor

Contact: Marty Boyesen, Public Relations Manager

**Product Description & Applications:** Provides all the basic waveform monitoring and vector scope functions in a single compact instrument. Typical applications include video signal monitoring and in VTR studios, camera control units, production switcher van sales, and in mobile vans and field productions.

**Basic Specifications & Suggested List Price:** \$4,000. Available in NTSC, PAL, and PAL M. R-Y (V Axis) Mode. VITS monitoring, RGB Y/C/B Display. Remote control capability.

#### WIREWOKS CORPORATION

380 Hillside Ave., Hillside, NJ 07205

(201) 686-7400

#### Product Name: TE-3 (MICROPHONE CABLE TESTER)

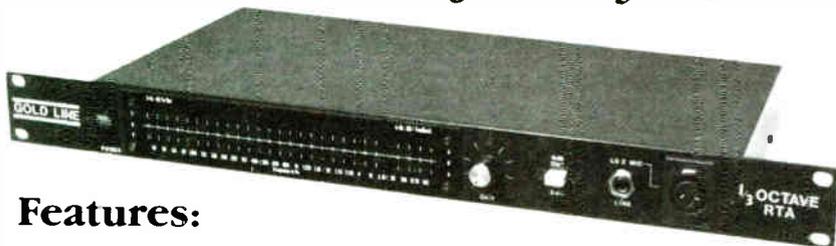
Contact: Gerald J. Krulowicz, President

Date Product Introduced: April, 1984

**Product Description & Applications:** Wireworks TE-3 Microphone Cable Tester takes the guesswork out of checking mike cables and microphone multicables. The TE-3 is unique. It not only indicates cable failures, it isolates and identifies the problem, allowing you to correct it immediately. Out of phase wiring, shorts, and open circuits are all instantly identifiable.

**Basic Specifications & Suggested List Price:** The TE-3's new design features end-mounted XLR's and phone jacks for more convenient direct plugging and testing. Smaller size and lighter weight make the TE-3 more portable than ever. It's the perfect pocket audio accessory. List price: \$94.

## Real Time at Real Value *The Affordable 27-Band Analyzer for Only \$498.*



### Features:

- Rack mount with 27 double-tuned ANSI Class II filters.
- Input for microphone via XLR connectors.
- Input for line via 1/4" jack.
- Switch selectable window of  $\pm 3$  or  $\pm 6$  dB.
- Measurement range from 55dB to 129dB SPL.

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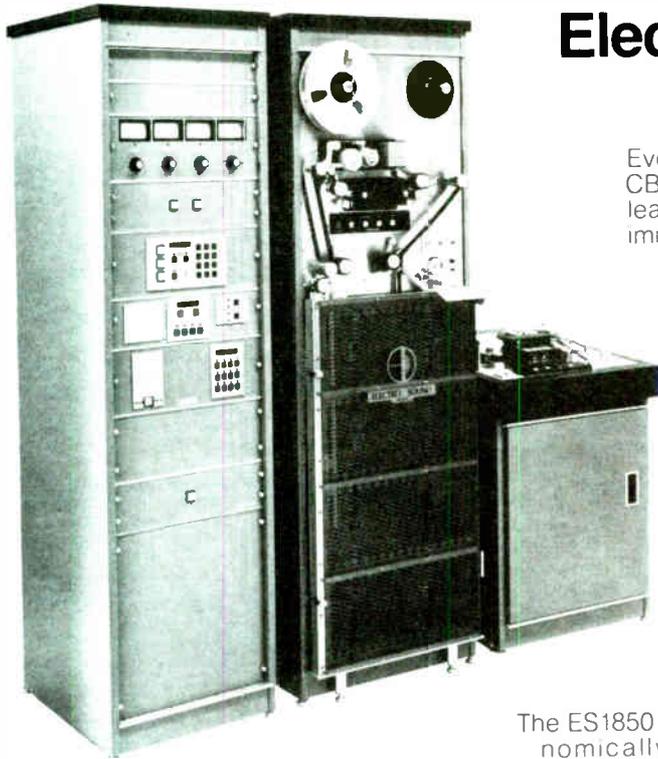
**GOLD LINE**

P.O. Box 115 MX  
West Redding, CT 06896  
(203) 938-2588

Name \_\_\_\_\_  
Company \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Circle #147 on Reader Service Card

# Technical excellence. Reliable performance.



## Electro Sound duplicators, used by the leaders

Every major duplicator uses the Electro Sound 8000—CBS, RCA, WEA, MCA and many more. Because they get leadership performance now and on-going innovative improvements to stay out front. The ES 8000 System, at 128:1, 64:1 and 32:1, was first with microprocessor architecture, Dolby\* HX and automated process and quality control. Its audio is superlative. Precision automatic control, monitoring and diagnostics are integral parts of the system.

These trend-setting features are also available in the ES 5000 System, at 32:1.

## A superior value cassette loader



The ES1850 Cassette Loader is economically priced to provide superior, cost-effective operation in medium-volume loading applications – a million cassettes a year or less, pre-recorded or blank.

The ES1850 combines this kind of better value with technical excellence and solid,

reliable production-line performance. Its microprocessor provides automatic performance monitoring and control and the equipment is simple to operate (three machines to an operator), easy to maintain and can stamp each cassette automatically.

## Calibrate your slaves while they're recording with ES4320

You can completely align an operating cassette duplicating slave with this portable 4-channel high-speed reproducer. The Electro Sound 4320 Slave Calibrator adapts to most systems, including Electro Sound and Gauss 1200 Series, at 64:1 or 32:1, and gives consistent, accurate measurement of slave bias, equalization and level.



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October AES show.

**Electro Sound. Technical excellence and production-line performance.**



Electro Sound, Inc.  
160 San Gabriel Drive  
Sunnyvale, California 94086  
Telephone: (408) 245-6600

Represented internationally by  
Audiomatic Corporation  
400 Madison Avenue  
New York, New York 10017  
Telephone: (212) 308-6888  
Telex: 12-6419

\*Dolby is a trademark of Dolby Licensing Corporation.

# N

# EW PRODUCTS

## VIDEO PRODUCTS

# 1 . 9 . 8 . 5

**AUDICO, INC.**  
219 Crossen Ave., Elk Grove, IL 60007  
(312) 640-1030

**Product Name: 619-R VIDEO CASSETTE REWINDER—UMATIC, VHS & BETA**

Contact: Bill Hinkle, President  
Date Product Introduced: 1984

**Product Description & Applications:** Interchangeable modules allow this unit to rapidly rewind all three formats, and to perform the operation under safe, cooler conditions. Also, VCRs are spared the wear and tear of more productive use. Unit can also be used as a component of video tape loading system—either a take-up unit or a pay-off unit to transfer tape directly between cassette housings. In addition, the 619 can be used with the unloader to remove old tape from cassette housings.

**Basic Specifications & Suggested List Price:** Wt., 15 lb., 11" x 11" x 8" deep. Price for one format (Umatic, VHS, or Beta) \$1,125. Additional formats are \$700 each. Rewind time is Umatic, 60 min.; 105 sec.; VHS/T-120, 105 sec.; Beta I, 500/75 sec.

**AUDICO, INC.**  
219 Crossen Avenue, Elk Grove, IL 60007  
(312) 640-1030

**Product Name: VIDEO CASSETTE LABELS—UMATIC, VHS AND BETA**

Contact: Bill Hinkle, President  
Date Product Introduced: 1984

**Product Description & Applications:** Pressure-sensitive sheets of die-cut video labels that are suitable for printing, typing and copying machines. Available in sand parchment, pewter parchment and white on matte 60 pound paper. Labels per sheet are Umatic standard 2, VHS 10, and Beta 9. Available in packages of 100 sheets, and in mixed packages with audio cassette labels.

**Basic Specifications & Suggested List Price:** Packages of 100 sheets (200 Umatic, 1,000 VHS or 900 Beta). Price per package is \$17 for white and \$21 for parchment. Lower prices for five- and more-packages.

**CINEMA PRODUCTS CORP.**  
2037 Granville Ave., Los Angeles, CA 90025  
(213) 478-0711

**Product Name: MINI-MOTE**

Contact: Jesse Garfield, Domestic Sales Mgr  
Date Product Introduced: February 1984

**Product Description & Applications:** Remote controlled pan and tilt head designed to handle popular 16/35mm film cameras and EFP/electronic cinematography video cameras. Provides 360° pan and tilt of the camera. Allows camera to be placed in remote positions without need of an operator at the camera head.

**Basic Specifications & Suggested List Price:** Powerful, smooth silent drives provide 7 ft/lbs. of torque in both axes, quick disengagement permits free movement in pan and tilt, operated with either Worrall type handwheels for film style operation, or optional joystick for video operation. Powered by battery pack, (18.30VDC), included. Price, \$27,500.

**FUJI PHOTO FILM USA, INC.**  
350 Fifth Ave., New York, NY 10118  
(212) 736-3335

**Product Name: H521 BR U-MATIC VIDEOCASSETTES**

Contact: Thomas Daly, Industrial Products Mgr  
Date Product Introduced: April, 1984

**Product Description & Applications:** The H521 BR is an up graded version of Fuji's standard H521 U Matic Videocassette. It comes in four lengths: BR KCA 60, 60 min., BR KCA 30, 30 min., BR KCS-20, 20 min., BR KCS-10, 10 min. This tape fulfills all stringent criteria imposed by professional broadcasters and producers.

**Basic Specifications & Suggested List Price:** Dropouts are reduced to less than 4 per minute. Both video and color s/n performance has been increased by a maximum of +2dB over H521. Excellent stop motion capability of up to 180 minutes "Duroback" backcoating increases tape strength for editing purposes.

**FUJI PHOTO FILM USA, INC.**  
350 Fifth Ave., New York, NY 10118  
(212) 736-3335

**Product Name: H421/H321 SUPER X6 VIDEOCASSETTES**

Contact: Thomas Daly, Industrial Products Mgr  
Date Product Introduced: January, 1984

**Product Description & Applications:** Fuji Super X6 is a master recording videocassette that has the highest possible quality in image and sound recording and reproduction. Used for camera shooting, dubbing and editing, and for recording with hi-fi VCRs and stereo sound. The special soft case insures long term storage protection.

**Basic Specifications & Suggested List Price:** Lengths H421 VHS T-60, VHS T-120; H321: Beta L, 250, Beta L, 500. Stop motion capability is capable of exceeding 1 hour.

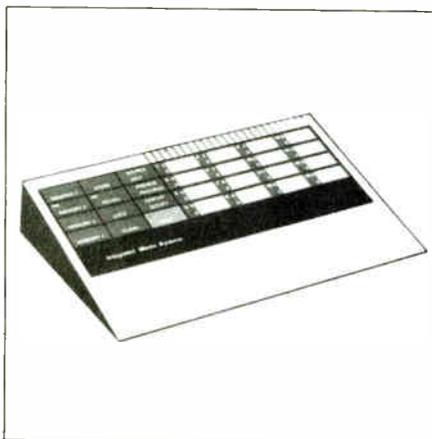
**INOVONICS, INC.**  
503-B Vandell Way, Campbell, Ca 95008  
(408) 374-8300

**Product Name: INOVONICS' "TVU"**

Contact: Brian Fogarty, Sales Mgr  
Date Product Introduced: July 15, 1984

**Product Description & Applications:** The Inovonics "TVU" is a stereo audio level metering device for TV and video production applications. The "TVU" is connected in line with the video monitor and inserts a black box in the picture with a pair of vertical bars which represent stereo audio levels. Properly designated scales match the switchable VU (with peak flasher) and PPM response characteristics. The box may be positioned anywhere in the picture, reduced to a mono display or bypassed altogether. Application in broadcast, post production, cable distribution and industrial/educational TV.

**Basic Specifications & Suggested List Price:** Separate inputs for balanced studio lines and single-ended equipment. Transparent to composite video. \$500.



**INTEGRATED MEDIA SYSTEMS, INC.**  
The Model 200 Smart Switcher

**INTEGRATED MEDIA SYSTEMS, INC.**  
1552 Laurel St., San Carlos, CA 94070  
(415) 592-8055

**Product Name: THE MODEL 200 SMART SWITCHER**

Contact: Jerry Kearby, President  
Date Product Introduced: July, 1984

**Product Description & Applications:** The Model 200 Smart Switcher (SSS) from IMS is an advanced audio routing/mixing system featuring the most versatile control system in the industry. Configurations include 32x8, 8x32 or 16x16 in 3RU. The system utilizes 8x8 JIC cards with optional 8x8 VCA cards. The comprehensive communication capabilities include RS 232 serial port, MIDI port, RS 422 controller port, optional RS 422 SMPTE port, contact closure parallel port, and composite sync input.

**Basic Specifications & Suggested List Price:** Frequency +3dB 10Hz-20kHz, max. tilt -85dB 10Hz-20kHz; S/N -110dB, THD -01% IM (15%), max. output +26dB balanced into 600 ohms, CMR -80dB, channel gain loss +10dB. Suggested list price: \$4,995 w/o controller, \$5,995 w/controller.

**OPAMP LABS, INC.**  
1033 N. Sycamore Ave., Los Angeles, CA 90038  
(213) 934-3566

**Product Name: NETWORK FEED MODEL VA-16**

Contact: B. Losmandy, Mgr  
Date Product Introduced: April, 1984

**Product Description & Applications:** The Model VA-16 is a 16-out Video Audio Distribution System is useful as a network feed for courtroom or as a classroom feed for up to 16 monitors and audio amplifiers.

**Basic Specifications & Suggested List Price:** Video: HNC Connectors, DC to 8 MHz (-1dB), diff gain 0.1%, diff phase 0.2 deg, tilt & overshoot under 1%, hum & noise -60dB, isolation over 40dB at 3.58 MHz, R<sub>i</sub> = 75 ohms, R<sub>o</sub> = 75 ohms, unity gain, in-phase Audio: XLR type connectors, bal in (10K), bal out (600 ohms), 30 Hz to 15 kHz (-1dB), output level +18dBm, THD: 0.05% signal noise over 70dB. Size 10"x12"x5" "Halliburton" black alum case. Weight 8 lbs. Price \$600.

**SHARP ELECTRONICS CORPORATION,**  
PROFESSIONAL PRODUCTS DIVISION  
10 Sharp Plaza, Paramus, NJ 07652  
(201) 265-5548

**Product Name: XC-800 MKII SATICON II COLOR CAMERA SYSTEM**

Contact: Bruce Pollack, Mktng Services Mgr  
Date Product Introduced: August, 1984

**Product Description & Applications:** A professional color camera system with 3 Saticon II tubes for use in broadcast, cable TV and critical video production applications. Specs include 650 lines resolution, 57 dB signal to noise ratio, +9 and +18 dB gain switches, an on-board microcomputer, digital auto white and auto-black balance, die cast chassis with weather-proof side covers and RF protection. Optional triax system (XC 800 TX) allows camera to be operated up to one mile from its base station using lightweight (and low cost) triax cable.

**Basic Specifications & Suggested List Price:** Suggested list price under \$8,000, (USA) for ENG package, less lens.

**STANTON MAGNETICS INC.**  
200 Terminal Dr., Plainview, NY 11803  
(212) 445-0063

**Product Name: THE NARRATOR**

Contact: Jean Kapen, Mgr. Adv. & Promo Services  
Date Product Introduced: June, 1984

**Product Description & Applications:** An exciting new product from Stanton for use with video cameras. Now you can narrate all your important video event, for fun, graduations, sports events, parties, sightseeing tours, for business, sales meetings & classroom presentations. The Narrator's use is limited only by your imagination.

**Basic Specifications & Suggested List Price:** Headphone specs: 20-20kHz, sensitivity 105 dB SPL, max input 0.1, impedance: 32 ohms, weight 2.0 ozs. Adjustable lightweight headband (folding) with foam cushions. Microphone 20-20kHz, sensitivity -84dB, impedance: 600 ohms. Adj. boom, 4' cord with mono mini plug. List, \$59.95.

**TEKTRONIX, INC.**  
P.O. Box 500, Beaverton, OR 97077  
(503) 627-7111

**Product Name: 110-S SYNCHRONIZER**

Contact: Marty Boyesen, Public Relations Mgr  
Date Product Introduced: July, 1984

**Product Description & Applications:** A high quality 10 bit, 4x lisc synchronizer. The 10-bit architecture, adaptive clamping combine to provide a synchronizer that performs well on noisy signals, minimizes horizontal picture shifts, and is virtually transparent to the processed signal.

**Basic Specifications & Suggested List Price:** \$14,975



# MILLER

## The Professional Video Source

### Panasonic **VHS** Hi-Fi Recorder

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#### AG-6800



- Audio dynamic range greater than 80 db

- Loop-through connection allows for simultaneous control of up to 500 units

- Flat frequency response from 20Hz to 20kHz

- Fully compatible with standard VHS programming

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- Time code IN and OUT

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# N

# EW PRODUCTS

# OTHER EQUIPMENT

# 1 . 9 . 8 . 5

## APPLIED CREATIVE TECHNOLOGY INC.

2156 W. Northwest Hwy. Ste. 303, Dallas, TX 75220  
(214) 556-2916

### Product Name: ACT 1.8 CONSOLE INTERFACE

Contact: Tim Wilde

Date Product Introduced: June, 1984

**Product Description & Applications:** 8 channel active direct box suitable for connecting drum machines, synthesizers and other electronic instruments to the balanced microphone inputs on a console. This device makes up for the lack of extra line inputs on most consoles, allows instruments to set up further away from the console, and reduces noise by eliminating the need to "crank up the gain" in the console due to weak instrument signals.

**Basic Specifications & Suggested List Price:** 8 independent low noise, high impedance inputs feeding 8 balanced low impedance outputs. Each channel can be set for unity or -30 dB gain, and has a ground lift. Retail price is \$279.00.

## ATLAS SOUND

10 Pomeroy Road, Parsippany, NJ 07054  
(201) 887-7800

### Product Name: MSB-21 ("2 in 1 Stand")

Contact: Rich Matyskiel, marketing/communications

**Product Description & Applications:** Two-in-one" converts easily from conventional floor stand to stand-with-integral microphone boom without disassembly. Economical and convenient for transportation ease and compact storage. A patented Atlas Sound Stand, and the ideal "starter" for many schools, churches, catering establishments, civic organizations, clubs and studios. Heavy die-cast base for optimum stability.

**Basic Specifications & Suggested List Price:** Height: 40" by 70" (101.6 cm to 177.8 cm), Boom extension to 30" (76.2 cm), Base 12" dia (30.5 cm) black baked epoxy, Tube: 7/8" lower by 5/8" up per, Dia: cold rolled steel with heavy duty chrome plating, 5/8" by 27 thread size for microphone holders, Weight: 14.5 lbs (6.6 kg).

## AUDIOTEC

96 Lafayette Avenue, Hawthorne, NJ 07506

### Product Name: AUDIOTEC, PENN, AUDIO TEKNIK

Contact: Manfred Kayser, general manager

Date Product Introduced: June, 1984

**Product Description & Applications:** PENN: Casters, corners extrusions, speaker grills, catches, handles, etc. Audioteck Mike Stands: A variety of mike stands from bass drum stand to vocal stand, Audio Teknik Cable: High quality cable, instrument cable, mike cable, speaker cable to Multico cable.

**Basic Specifications & Suggested List Price:** For pricing on Audio Teknik cable, Audioteck mike stands, and Penn fittings—write to the above address.

## AUDIOTEC

96 Lafayette Avenue, Hawthorne, NJ 07506  
(201) 423-4404

### Product Name: MFB

Contact: Manfred Kayser, general manager

Date Product Introduced: June, 1984

**Product Description & Applications:** MFB offers a variety of models—1001, 1005, 2001, 2002, and 2005. These units all contain digitally stored sounds (A/B), playable dynamics, tunable sounds, cv input, dynamic pitch change, A/B switch for quick alteration between sounds, adjustable trigger input, and footswitching capabilities. The MFB System 1000 is above all "user-friendly" — the sounds can be triggered by merely tapping the button on the front panel or they can be triggered externally. The external trigger inputs are "pressure sensitive" and thus allow the player the effect of natural dynamics. Many trigger sources are possible: microphone, pad, drum computer, computer, and other sources.

**Basic Specifications & Suggested List Price:** Control units: The 1001—\$328, two digitally stored sounds A/B, The 1005—\$1,338, ten digitally stored sounds, 5 on A and 5 on B, The 2001—\$565, two digitally stored sounds A/B, changeable via master cassette, The 2002—\$1,150, four digitally stored sounds, 2 on A and 2 on B, changeable via master cassette, The 2005—\$2,340, ten digitally stored sounds, 5 on A and 5 on B, changeable via master cassette.

## AUDIOTRONICS

7428 Bellaire Avenue, North Hollywood, CA 91605  
(818) 781-6700

### Product Name: SPECTRA SD MULTI-IMAGE PROGRAMMER

Contact: R F. Schaub, director of marketing

Date Product Introduced: January, 1984

**Product Description & Applications:** Multi-image programmer lets you turn your two-projector slide show into an exciting professional multi-image production with a variety of fast cuts, slow dissolves, flashes, superimpositions and program stops at the touch of a lever or button. All these spectacular effects are easily recorded and programmed to a built-in synchronized tape recorder to play back automatically. Less than \$600.

**Basic Specifications & Suggested List Price:** Infinite rate dissolve control. Flash Superimposition Program tape stop. Built-in sound/slide sync tape recorder. \$595.95.

## BELDEN ELECTRONIC WIRE & CABLE

PO Box 1980, Richmond, IN 47375  
(317) 983-5200

### Product Name: COLORED MICROPHONE CABLES

Contact: Jeff Later, marketing specialist

Date Product Introduced: June, 1984

**Product Description & Applications:** Microphone cable with red, yellow, and blue thermoset jackets for easy identification of individual microphones is available from Belden. Belden 8412 and 8413 color jacketed cables enhance the appearance without sacrificing physical or electrical properties of the cable.

**Basic Specifications & Suggested List Price:** 8412 available in 25, 50, 100, 250, 500 and 1000 foot lengths. Representative price for 1000 feet is \$419.40, 8413 available in 15, 25, 50, 100, 250 and 500 foot lengths. Representative price for 500 feet is \$201.70.

## CLEAR-COM INTERCOM SYSTEMS

1111 17th Street, San Francisco, CA 94107

(415) 861-6666

### Product Name: SB-800

Contact: Peter Giddings, marketing director

Date Product Introduced: August, 1984

**Product Description & Applications:** The SB-800 is a versatile eight-channel main station with regulated power supply and selectable monitoring system. It contains a mike preamp with limiter and a four-watt power amp so it can drive two dynamic headsets/handsets and an external speaker. Drives a standard Clear-Com headset to levels greater than 110 dB SPL. Provides power for up to 100 remote headset stations or 20 speaker stations.

**Basic Specifications & Suggested List Price:** Assigns channels individually to "cue," "party-line" or private modes stage announce, visual signalling, all page, balanced program input assignable to any or all channels, separate intercom, program, and side-tone level controls for headset/speaker, external speaker jack, can be ganged together with other SB-800s for multiple eight-channel systems. \$1600.

## CLEAR-COM INTERCOM SYSTEMS

1111 17th Street, San Francisco, CA 94107

(415) 861-6666

### Product Name: CS-210

Contact: Peter Giddings, marketing director

Date Product Introduced: July, 1984

**Product Description & Applications:** The CS-210 portable main station supports two channels containing as many as 60 remote headset stations or 12 speaker stations. It features a regulated power supply and versatile monitoring system. It has Clear-Com's excellent speech intelligibility in high and low noise environments. The CS-210 contains a mike preamp with limiter and drives a standard Clear-Com headset to levels greater than 110 dB SPL.

**Basic Specifications & Suggested List Price:** Visual call signal level, program assignable to either or both channels, accepts mike level or line-level program input, stage announce to external systems, mike limiter, separate intercom, program, and sidetone level controls, lightweight, weather-proof, portable enclosure, circuit breaker protected with short circuit indicator and re-set button. \$450.



DEAN MARKLEY ELECTRONICS  
Signature Series Amplifiers

## DEAN MARKLEY ELECTRONICS

3350 Scott Blvd., #45, Santa Clara, CA 95054

(408) 988-2456; Toll Free (800) 538-8330

### Product Name: SIGNATURE SERIES AMPLIFIERS

Contact: Bill Heath, sales manager

Date Product Introduced: January, 1984

**Product Description & Applications:** Dean Markley Electronics' new "Signature Series" offers a comprehensive collection of all tube and hybrid amplifiers. The self-contained amplifiers include single and foot switchable two channel amps in 40, 80, and 150 watt power groups, with a tube driven pre-amp (foot switchable from clean to overdrive), active tone controls, and built-in reverb. Designed for professional sound versatility and reliability, two all tube Signature Series rack mountable power heads are available in 50 and 100 watts with a wide mid range control. Also a selection of pre-amps that can be tailored to the rack system.

**Basic Specifications & Suggested List Price:** Features include foot switchable overdrive, effects loops, active tone controls, built-in reverb, and (with the dual channel model) foot switchable channel selection. A broad selection of custom cabinets and power stacks round out the Signature Series. All are constructed with hardwood laminates, and rugged outer Tolex covers to Dean Markley's rigid design specifications. Dean Markley's exclusive Micrum Power speaker, are standard, and Electro Voice EVMs are optionally available.

## DIGITAL SOUND WORKS

12077 Wilshire Blvd. Suite 515, West Los Angeles, CA 90025  
(213) 478-3956

### Product Name: DRUMWARE

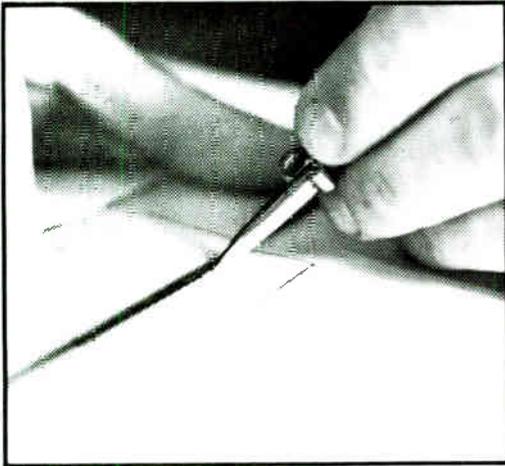
Contact: Scott Morgan, director

Date Product Introduced: March, 1984

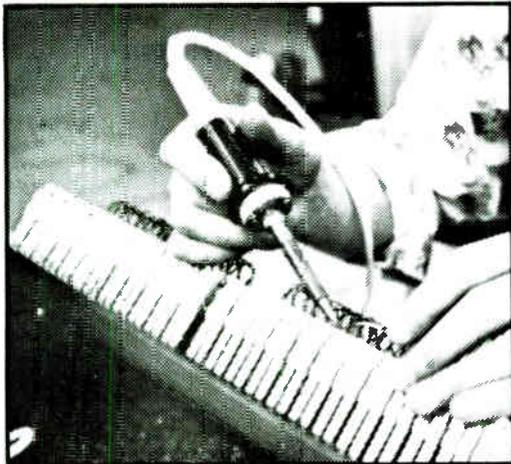
**Product Description & Applications:** Drumware consists of alternate sound chips for most popular drum machines. Drumware replacement chips can have sounds from the expanding Drumware sound library or are available for custom sounds. The current Drumware sound library consists of standard electronic drums, a wide variety of acoustic sounds, special "digital synthesizer" percussive sounds, and sound effects.

**Basic Specifications & Suggested List Price:** High quality 8 bit sound samples. Memory lengths of up to 42k ions. Drumware chips will fit LinnDrum, Oberheim DX and DMX, SCI Drumtraks, and Simmons SDS 7 Custom sounds should be supplied on 40 ips 1/2 track, 1/4 inch tape with no noise reduction. Drumware chips cost from \$50 for one chip sounds to \$125 for four chip sounds, Simmons SDS 7 slightly higher. Custom sounds start at \$75 for one chip sounds.

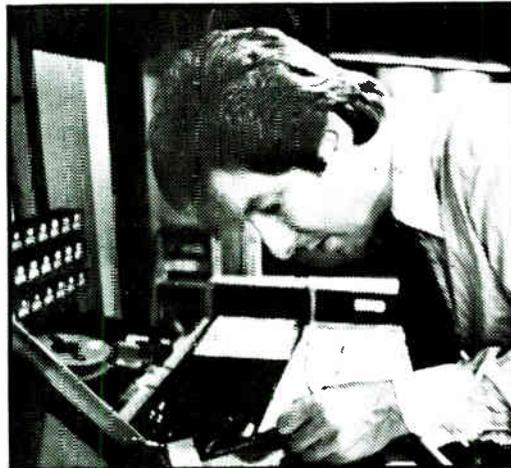
Custom Design



Installation



Maintenance



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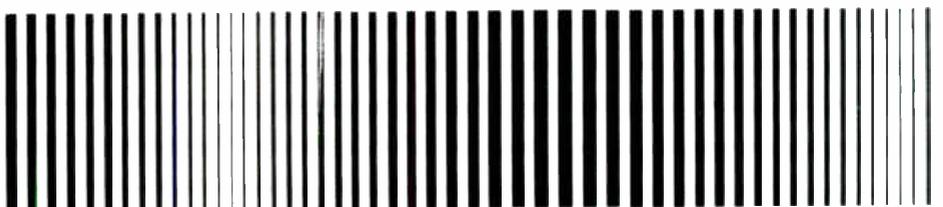
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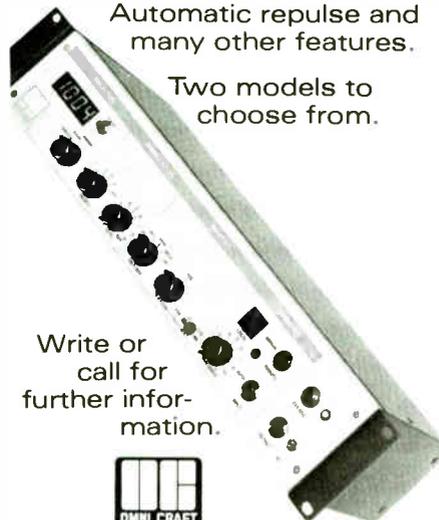
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## NEW PRODUCTS

### OTHER EQUIPMENT

1 . 9 . 8 . 5

EDCO  
2862 Old North, Farmers Branch, TX 75231  
(214) 484-7385

Product Name: MAGNA-MARKERS

Contact: Wayne Ziegler, sales manager

Date Product Introduced: January 1984

Product Description & Applications: Magna Markers are a highly visible magnetic label for sound board channels. No mess of masking tape and magic marker. Many popular titles are available and the high quality silk screened flexible magnets will add that professional touch. Magna Markers are 1/2 inch by 1-3/8 inch and are .060 inches thick. They are available in six assortments of six pieces and a drum packages of eight.

Basic Specifications & Suggested List Price: Some other titles are available on request. Choose between black and red with white letters. Drum packages suggested retail is \$5.49 and the remainder are \$4.95. Wholesale in lots of 24, drum sets are \$2.70 and the rest are \$2.45 each. For non steel panels order Magna Stick, a 3 foot roll of steel tape with an adhesive backing. In lots of 24 they are 35 cents, retailing at 79 cents. Pre-paid orders will be shipped free, all others C.O.D. please.



ELECTRO SOUND, INC.  
ES1850 Semi-Automatic Cassette Loader

ELECTRO SOUND, INC.  
160 San Gabriel Drive, Sunnyvale, CA 94086  
(408) 245-6600

Product Name: ES1850 SEMI-AUTOMATIC CASSETTE LOADER

Contact: David Bowman, senior vice president  
Date Product Introduced: March 1984

Product Description & Applications: The Electro Sound 1850 cassette loader winds either blank or prerecorded tape into cassettes. The 1850's production rates make it ideal for medium size loading operations. Extremely simple to install and operate, the 1850 requires little training and up to three machines can be assigned to one operator. Microprocessor based electronics provide automatic performance monitoring for maximum uptime. Complete diagnostic and maintenance programs speed routine adjustments.

Basic Specifications & Suggested List Price: Winding speed—460 inches per second. Cue tone placement—adjustable from zero (i.e. cut in cue tone) to 2.4 cm (9 in.) after cue tone. Production rate 150 C-60's per hour. Power requirements—117 volts, 60 Hz, or 220 volts, 50 Hz, 150 VA. Pneumatic requirements 1 CFM at 70 psi. List price \$7,450.

FORTE MUSIC  
PO Box 6322, San Jose, CA 95150  
(408) 262-8866

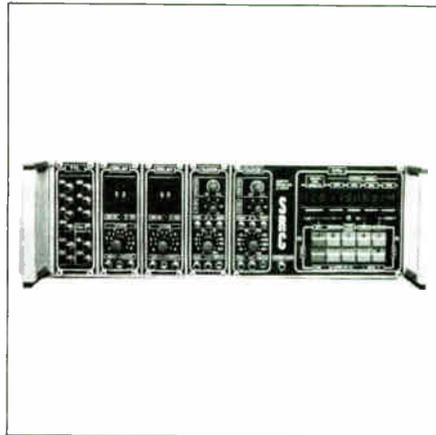
Product Name: MIDI ADAPTER

Contact: Steve Salani

Date Product Introduced: April 1984

Product Description & Applications: The Forte Music MIDI Adapter is an internally installed modification for acoustic and electric pianos. It provides a MIDI (Musical Instrument Digital Interface) output signal compatible with any MIDI equipped synthesizer, sequencer or accessory. The MIDI Adapter gives the stage musician the powerful sound of real piano doubled with synthesized timbres.

In the studio, tedious (and expensive) overdubs can be eliminated, as synthesizer lines can be perfectly doubled live from the piano. Basic Specifications & Suggested List Price: The MIDI Adapter will be available for Yamaha and Kawai electric grands, Fender Rhodes, and most acoustic grands. Installation of the MIDI Adapter will be performed by selected music dealers and service centers. The Adapter is available with or without velocity sensitivity. Suggested retail price (including installation) \$795 to \$1495.



FRIEND-CHIP  
SRC (SMPTE Reading Clock)

FRIEND-CHIP c/o Europa Technology, Inc.  
1638 W. Washington Blvd., Venice, CA 90291  
(213) 392-4985

Product Name: SRC (SMPTE Reading Clock)

Date Product Introduced: April 1984

Product Description & Applications: The SRC (SMPTE Reading Clock) is a unique modular device designed to solve problems which can occur when trying to synchronize synthesizers, sequencers, and drum machines to SMPTE time code. The SRC reads and generates 30 frame or drop frame time code (software for European SMPTE code also available). A built in metronome insures that all instruments are locked in to the same beat with tempo adjustable from 40 to 255 beats per minute. Up to 32 cue points as well as tempo changes can be programmed into the CPU's memory.

Basic Specifications & Suggested List Price: CPU Module reads and writes SMPTE code with 30— or drop frame, and also reads video speeds  $\pm 30$  percent, —1 out, CLOCK MODULE form of clock signal is adjustable from 0.3 ms to square wave. Voltage swing of clock signal adjustable from 0 to  $\pm 15$  volts, DELAY MODULE adjustable in steps of milliseconds 0 to 63, TTL MODULE output module, INPUT MODULE reads clicks or triggers of other systems and lets the CPU calculate all outputs. SUGGESTED PRICE: Basic version includes 1 CPU, 2 Clock, 1 Delay, 1 TTL, \$3,995.

GARFIELD ELECTRONICS  
PO Box 1941, Burbank, CA 91507  
(213) 840-8939

Product Name: DOCTOR FLICK

Contact: Dan Garfield

Date Product Introduced: June 1984

Product Description & Applications: Combination digital metronome and click track reading synchronizer for computerized musical instruments. Operates in 24, 25 and 30 fps calibrations with .001 percent crystal based accuracy. 1/32 frame resolution in all calibrations. Also synchronizes all brands of sequencers and drum machines including MIDI units to click tracks through their clock or sync inputs.

Basic Specifications & Suggested List Price: \$1195 list

GARFIELD ELECTRONICS  
PO Box 1941, Burbank, CA 91507  
(213) 840-8939

Product Name: TIMEBASE METER

Contact: Dan Garfield

Date Product Introduced: June 1984

Product Description & Applications: Four function synchronization utility package which includes a timebase meter, pulse counter, incidence detector and clock to FSK converter. Timebase meter function measures clocks per beat and is used to confirm proper timebase generation. Pulse counter function displays elapsed pulses or clicks. Incidence detector function shows when timing offset of differing makes of sequencers or drum machines have been nulled. Clock to FSK conversion function changes any clock to the FSK sync to tape codes used by Roland, Linn LM and Oberheim.

Basic Specifications & Suggested List Price: \$495 list

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**GARNER INDUSTRIES\***  
4200 North 48 Street, Lincoln, NE 68504  
(402) 464-5911

**Product Name: GARNER BULK TAPE ERASERS**

Contact: Bruce A. Alerman, sales manager  
Date Product Introduced: May, 1984

**Product Description & Applications:** For over twelve years Garner has set the standard for tape erasers. The Model 1200 is the latest in a full line of reliable and dependable audio and video erasers. The basis of Garner's superiority is a revolutionary coil design that overcomes the wasted energy and the limited erasure effectiveness of other erasers. The Garner 1200 uses a coil design that concentrates all generated flux into a single, high intensity field right where the tape passes. This concentrated flux delivers maximum erase effectiveness and negligible heating of reel flanges. Efficient, quiet operation and complete tape erasure characterize the new Garner 1200.

**Basic Specifications & Suggested List Price:** Maximum tape capacity: 1.6-inch x 10 1/2 inches, 208 VAC, 9 amp; 3 1/2 inches x 20 3/4 inches x 11 inches, 140 lbs. \$4,850

**G.R.M.**  
PO Box 388127, Chicago, IL 60638-8127  
(312) 229-1924

**Product Name: MISSING LINK PASSIVE DIRECT BOX MODEL TX-1**

Contact: John Covich, George Miral, owners  
Date Product Introduced: July, 1984

**Product Description & Applications:** The Missing Link TX-1 is a passive direct box built in a rugged 1 8" anodized aluminum housing on a 3/32" anodized aluminum chassis. All connectors and switches are recessed for protection against breakage. Unbalanced input and output are standard 1/4" phone jacks and the balanced mike output is a male XLR connector. The unit has a ground lift switch and a speaker line input select switch. The TX-1 carries a two year limited warranty.

**Basic Specifications & Suggested List Price:** Input Z: Approximately 150K ohms mike level output Z: Approximately 150 ohms balanced. Frequency response: 20 Hz to 20 kHz  $\pm$  1 dB at +20 dB input level. Maximum input level +20 dB. THD less than 1 percent w +15 dB input. Mike output level 0 dB in approximately -29 dB. Suggested list price \$79.95

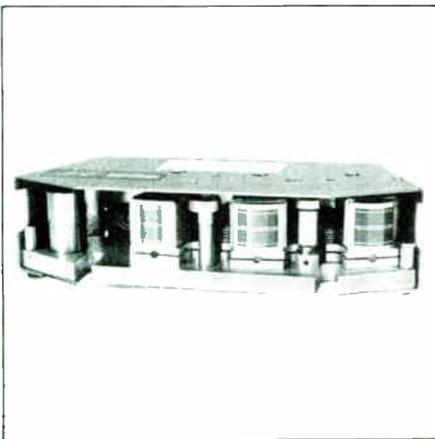
**INOVONICS, INC.**  
503-B Vandell Way, Campbell, CA 95008  
(408) 374-8300

**Product Name: FILM RECORDER ELECTRONICS**

Contact: Brian Fogarty, sales manager  
Date Product Introduced: October, 1984

**Product Description & Applications:** Inovonics Magnetic Film Recorder Electronics are for replacement/retrofit or original OEM use in 16 35mm insert film recorders and dubbers. The Inovonics units feature increased signal and bias headroom to accommodate newer film oxides in full coat or multitrack machines. Dentally controlled insert timing and use of high bias frequencies result in quiet inserts. Retrofittable to Magnatec, Westrex, RCA and many other film recorders.

**Basic Specifications & Suggested List Price:** Priced from \$470 depending on track format and options required.



**JRF MAGNETIC SCIENCES**  
1/2" 2 track head assembly for Ampex ATR-100

**JRF MAGNETIC SCIENCES**  
101 Landing Road, Landing, NJ 07850  
(201) 398-7426

**Product Name: JRF/SAKI 1/2-inch 2 track head assembly for Ampex ATR100**

Contact: John French, president  
Date Product Introduced: July 1984

—LISTING CONTINUED ON PAGE 192

# No Frills...



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## CAIG LABORATORIES INC.

1175-O Industrial Ave., (P.O. Box J) Escondido, CA 92025 0051 U.S.A. • (619) 742-7143

Circle #153 on Reader Service Card

—FROM PAGE 191

**Product Description & Applications:** Complete 1/2 inch 2 track head assembly for Ampex ATR100 analogue tape machines. The assembly features precision adjustments for azimuth and head wrap, direct retrofit design and quality Saki long life magnetic recording heads. Optional are 1/2 inch roller tape guides for converting from 3/4 inch formats.

**KIMBALL PIANO AND ORGAN**  
PO Box 460, Jasper, IN 47546  
(812) 482-1600

**Product Name:** BUCHLA 400 by Kimball

**Contact:** Van Zieckler, professional electronic production manager

**Date Product Introduced:** June, 1984

**Product Description & Applications:** Multifunctional electronic instrument offering composers, musicians, and educators total access and musical freedom with unbounded resources, combining the marketing and production expertise of Kimball with the superior inventiveness and knowledge of Don Buchla. An ideal performance instrument for the musician, who can rely on either pre-programmed formal parameters or design and program his own. Excellent for a development system in a computer music program or recording studio situation.



**KIMBALL PIANO AND ORGAN**  
Buchla 400 by Kimball

**Basic Specifications & Suggested List Price:** Velocity sensitive keyboard, six simultaneous voices, three software banks, includes (more in various stages) 4 patch slots, 16 three-on-board computer controlled voice inputs, 9 outputs, 10 basic outputs, 8 100 program, 16 programmable touch activated keys, including 61 standard keyboard configuration. Price: \$784



**LEMO U.S.A., INC**  
EHG1B302CNL (electronic cylindrical connector receptacle)

**LEMO U.S.A., INC**  
PO Box 11006, Santa Rosa, CA 95406  
(707) 578-8811

**Product Name:** EHG1B302CNL (electronic cylindrical connector receptacle)

**Contact:** D.A. Barthelemy, sales manager

**Date Product Introduced:** June, 1984

**Product Description & Applications:** EHG1B302CNL receptacle for limited space behind patch panel or in instrument box available in two sizes with 2 to 7 contacts, 1.5 to 3.0 mm diameter, circular OD 1.0 mm, .040 to .60 mm, with precision machined slots for pins and plated with copper, nickel and tin. Also available in aluminum or stainless steel. Contact: LEMO, manufacturer of all connector systems.

**Basic Specifications & Suggested List Price:** Price varies with configuration specifications, available upon request.

**MAGNEFAX INTERNATIONAL INC**  
Rt. 1 Box 764, Rogers, AR 72756  
(501) 925 1818

**Product Name:** HP-110 HIGH SPEED TAPE DEGAUSSER

**Contact:** Dennis W. Tallakon

**Date Product Introduced:** July, 1984

**Product Description & Applications:** The HP-110, the latest addition to the Magnifax line of tape degaussers. Features include the unique rotary film solid state rotor with the unique two-way thermal protection resettable circuit breaker, dual line of line and the ability to use as a degaussing device or as a tape eraser.

**Basic Specifications & Suggested List Price:** The unit will erase in excess of 100 (105) tapes per 45 minutes in tapes with level 1 erasure comparable to that of our HP-100. Price at \$120 (the HP-110 is a key drive, however, with drive options available).

**METROGNOME, INC.**  
602 West Iris Drive, Nashville, TN 37204  
(615) 298-4948

**Product Name:** TOUR PLUS

**Contact:** Mark S. Augelli, president

**Date Product Introduced:** June, 1984

**Product Description & Applications:** For financial information for artists and groups on the road, TOUR PLUS offers a low cost, flexible, durable and easy to use, hand-held, microfilm-based management inventory, promotional inventory, experienced personnel contact, contact list. Complete record keeping system for artists with touring and the ability to search and print out information in any form desired within 15 seconds.

**Basic Specifications & Suggested List Price:** Runs on Apple and IBM computers in any compatible system. \$149.

**METROGNOME, INC.**  
602 West Iris Drive, Nashville, TN 37204  
(615) 298-4948

**Product Name:** LABELS PLUS

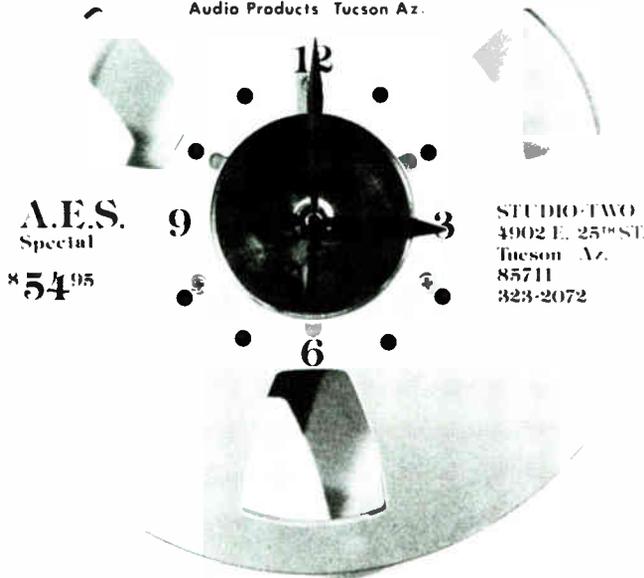
**Contact:** Mark S. Augelli, president

**Date Product Introduced:** June, 1984

**Product Description & Applications:** Will print out 12,960 labels for 1000 records, 1000 inserts, 1000 1000 labels and 1000 labels. Easy data entry of information with automatic formatting by system. Also includes manual rate of 1000 per hour.

## STUDIO-TWO

Audio Products Tucson, Az.



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**(602) 323-2072 85711**

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**Basic Specifications & Suggested List Price:** Runs on Apple and IBM computers, and any compatible systems. \$149

**MONSTER CABLE**

101 Townsend Street, San Francisco, CA 94107  
(415) 777-1355

**Product Name:** PROLINK CABLES

**Contact:** Roy Gattinella, marketing manager

**Date Product Introduced:** January, 1984

**Product Description & Applications:** Monster Cable's first line of professional cable and connector products including microphone cables, interconnect cables, speaker cables, connectors and chassis mounts. Monster Cable's extensive research into the electromagnetic behavior of audio signals has produced a new generation of interconnecting cables that align the signal in both amplitude and phase for an improvement in sound quality not thought possible by a simple change in cables.

**Basic Specifications & Suggested List Price:** Prolink 1, 2, & 3 mike cables list from \$1.50 to \$6.00 per foot, unterminated and from \$4.50 up per 10 foot terminated cable.

**MULTIVOX**

370 Motor Parkway, Hauppauge, NY 11788  
(516) 231-7700

**Product Name:** STARMAKER

**Contact:** Frank Goldstein, promotional director

**Date Product Introduced:** February, 1984

**Product Description & Applications:** A self-contained recording studio complete with record and playback audio components, special effects, PA and speaker system in one compact cabinet, STARMAKER offers you the opportunity to sing or play along with a pre-recorded orchestral background and capture the performance on a cassette recorder.

**Basic Specifications & Suggested List Price:** Pitch control, echo control, equalization, cassette recorder, eight track playback deck, (GPK 40-recorder player) (GPK300, 500, 800 cassette player with random access memory, wireless mike channel) (GPK 800 2nd B track player)

**NETWORK PRODUCTION MUSIC, INC.**

4429 Morena Blvd., San Diego, CA 92117  
(619) 272-2011 and (800) 854-2075

**Product Name:** NETWORK SOUND EFFECTS LIBRARY

**NEW PRODUCTS**

**OTHER EQUIPMENT**

**1 . 9 . 8 . 5**

**Contact:** Michael Anderson, sales manager

**Date Product Introduced:** January, 1984

**Product Description & Applications:** The Network Sound Effects Library contains more than 3,000 sound effects on 27 WhisperDisc stereo records. The library has been categorized for quick and easy access. All effects are individually slated and banded. 12,000 cross-references are listed in alphabetical and sequential indexes. The Sound Effects Library is available for a one-time payment. Satisfaction guaranteed.

**NEUTRIK PRODUCTIONS**

77 Selleck Street, Stamford, CT 06902  
(203) 348-2121

**Product Name:** NC3FX, NX3MX

**Contact:** S. Richard Ravich, vice president/marketing

**Date Product Introduced:** Fall, 1984

**Product Description & Applications:** New Swiss Crafted XLR type audio connectors with the well-known and proven Neutrik strain relief. These new connectors are simple to assemble and are compatible with all 3 pin XLR-type connectors. One of the many unique features of these connectors is the elimination of all retaining screws. Available in nickel finish with silver contacts or black chrome finish with gold plated contacts.

**Basic Specifications & Suggested List Price:** Suggested list prices: NC3FX \$3.50, NC3MX \$3.20, NC3FX-B \$4.90, NC3MX-B \$4.50

**NORTRONICS COMPANY, INC.**

8101 Tenth Avenue North, Minneapolis, MN 55427  
(612) 545-0401

**Product Name:** NORTRONICS DISKETTE HEAD CLEANING KITS

**Contact:** Ken Lubitz, national sales manager

**Date Product Introduced:** January, 1984

**Product Description & Applications:** Software guides user through the process of cleaning read/write heads on computer by telling how to prepare cleaning disk, stopping the head to a clean spot on cleaning disk and stopping the cleaning action after 30 seconds.

**Basic Specifications & Suggested List Price:** Kit contains software, 2 cleaning disks, reusable jacket and cleaning solution. Versions available for IBM PC and Apple IIe/IIplus, Commodore 64/Atari 800, 800X1.

**PASSPORT DESIGNS, INC.**

625 Miramontes Street, Half Moon Bay, CA 94019  
(415) 726-0280

**Product Name:** POLYWRITER

**Contact:** Katie Oltman, director of public relations

**Date Product Introduced:** January, 1984

**Product Description & Applications:** Polywriter music printing software for MIDI, translates musical performances into standard notation and prints out hard copy. The software combines full polyphonic notation with accurate, auto-corrected transcription. Polywriter gives a print of anything that is played including simple lead sheets, piano concertos, choral scores, jingles, vocals and individual instruments. Included in Polywriter is a full screen editor which lets you add notes and correct errors. Split stemming, correct beaming and ties are all handled automatically.

**Basic Specifications & Suggested List Price:** The equipment requirements to use Polywriter are, an Apple II type computer with 1 disk drive, any instrument with MIDI jacks, the Passport MIDI Interface, and a dot matrix printer. The program retails for \$299.

**PASSPORT DESIGNS, INC.**

625 Miramontes Street, Half Moon Bay, CA 94019  
(415) 726-0280

**Product Name:** MIDI / 4

**Contact:** Katie Oltman, director of public relations

**Date Product Introduced:** January, 1984

**Product Description & Applications:** MIDI/4 allows performers to custom design their own recording studio. The software operates like a multitrack tape recorder with unlimited overdubs, real-time editing, transposition, external sync and tempo control. Four independent MIDI channels and a variable drum clock lets you record

CONTINUED ON PAGE 194

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| Ampex             | Maxell        |
| Anchor            | Micmix        |
| Anvil             | MRL           |
| Ashly             | MXR           |
| Atlas             | Nady          |
| Audio Technica    | Nortronics    |
| Auratone          | Omnicraft     |
| Beyer             | Omnimount     |
| Blamp             | Orban         |
| B&K               | Otari/MTR     |
| Brooke Siren Sys. | QSC           |
| C-Ducer           | Ramsa         |
| Clearcom          | Rane          |
| Community         | Rankus-Heinz  |
| Countryman        | Roland        |
| Crest             | RTS Systems   |
| Crown             | Ruslang       |
| Crown PZM         | Scotch/3M     |
| dbx               | Sennheiser    |
| DeltaLab          | Sescom        |
| Electrovoice      | Shure         |
| Eventide          | Soundcraft    |
| EXR               | Tapco         |
| Fostex            | Tascam        |
| Gauss             | TOA           |
| GLI               | Turbosound    |
| Goldline          | UREI          |
| HME               | Ursa Major    |
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**DEALER INQUIRIES INVITED!**

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## NEW PRODUCTS

### OTHER EQUIPMENT

1 • 9 • 8 • 5

—FROM PAGE 193

and playback on four or more different MIDI synthesizers all in perfect sync with the drum machine. MIDI/4 records all controllers including key velocity, pitch bend, aftertouch, modulation and much more.

**Basic Specifications & Suggested List Price:** The equipment requirements to use MIDI 4 are: an Apple IIe or Commodore-64 with 1 disk drive, 1 Passport MIDI Interface, and one or more MIDI equipped synthesizers.

#### PHILIPS' EXPORT B.V.

Building DBD, Lodewijkstraat, 5600 MD Eindhoven, the Netherlands  
40-723715

**Product Name:** PROFESSIONAL CD PLAYER SYSTEM LHH 2000

**Contact:** N. La Bate, PTSL, 900 Corporate Drive, Mah Wah N.J. 07430 Phone 201-529-1550, product manager

**Date Product Introduced:** October, 1984

**Product Description & Applications:** The Philips LHH 2000 series of professional CD Player systems have been designed for continuous round-the-clock operation in radio broadcasting. The player systems allow fast and accurate access to any part of the information on a disc, provides high quality stereo audio output signals and enables on-air editing in a multi drive configuration. Operation of the CD Drives can be controlled either directly from a keyboard or via a computer bus interface.

**Basic Specifications & Suggested List Price:** An LHH 2000 System consists of either a single, dual or triple CD Player system. Its design is modular, allowing easy conversion from one configuration to another. The CD Drives have a width of 12 1/4", enabling side by side rack mounting. The keyboard has a command section, plus a functional section for each drive.

#### PIGNOSE INDUSTRIES

1745 W. 134 Street, Gardena, CA 90249  
(213) 770-4444

**Product Name:** PIGNOSE 7-100

**Contact:** Howard Chait

**Date Product Introduced:** July, 1984

**Product Description & Applications:** A result of the legendary 7-1001 range practice studio performance amplifier.

**Basic Specifications & Suggested List Price:** The amplifier now lists at \$99.95.



**NO MIKING**

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# Stewart

Why spend thousands of dollars for equipment to create just the right sound from your instrument only to lose that sound because of poor feed to the mixing console caused by conventional miking. The Stewart Active Direct Box Model ADB-1 has the ability to be used directly in line with a speaker enabling more faithful reproduction than conventional miking.



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PPG c/o EUROPA TECHNOLOGY, INC.  
PPG Music Computer System

#### PPG c/o Europa Technology, Inc.

1638 W. Washington Blvd., Venice, CA 90291  
(213) 392-4985

**Product Name:** PPG MUSIC COMPUTER SYSTEM

**Date Product Introduced:** March, 1984

**Product Description & Applications:** The Music Computer System consists of four PPG components: the Wave 2.3 eight voice digital synthesizer, the Wavelerm computer, which offers sampling, processing and 24 track sequencing, the PRK Processor Keyboard, a six octave weighted piano action keyboard with optional naturalized natural voice boards available, and FVU expansion eight voice digital synthesizer. The unique sound quality is due to digital sound



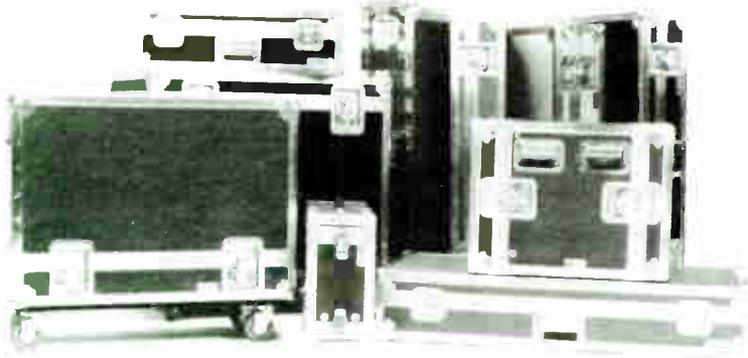


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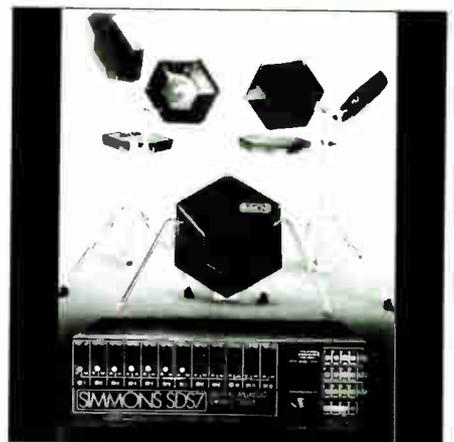
ments without arrows or dampers and is powered by a 9V cell battery. Additionally, the device is designed to accept either standard 1/4 mono or stereo type phone plugs, and can be used with multiple amplifiers or an input switch wired in parallel.



*SIMMONS GROUP CENTRE (INC)  
Simmons S.D.S.8 Analog Electronic Drums*

**SIMMONS GROUP CENTRE (INC)**  
23917 Craftsman Road, Calabasas, CA 91302  
(818) 884-2653  
Product Name: SIMMONS S.D.S.8 ANALOG ELECTRONIC DRUMS

Contact: Dave Thomas, president  
Date Product Introduced: 1984  
Product Description and Applications: The S.D.S.8 is a complete professional electronic drum kit with two separate channels for toms and drums, from high, medium and low tom toms. Each channel has a master function, pre-set and a pre-set user programmable option with individual control over sensitivity, patch filter, resonance, head up and down, decay, noise base, kick, snare, kick, snare, kick, snare. Basic Specifications Suggested List Price: S.D.S.8 five piece kit—\$1,599.



*SIMMONS GROUP CENTRE (INC)  
Simmons S.D.S.7 Digital Analog Electronic Drums*

**SIMMONS GROUP CENTRE (INC)**  
23917 Craftsman Road, Calabasas, CA 91302  
(818) 884-2653  
Product Name: SIMMONS S.D.S.7 DIGITAL ANALOG ELECTRONIC DRUMS  
Contact: Dave Thomas, president  
Date Product Introduced: 1984  
Product Description & Applications: The S.D.S.7 is a complete

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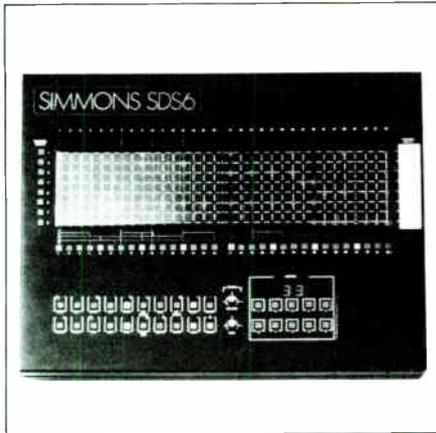


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sum of twelve modules. Each has two independent sound sources. The analog section which generates the classic "Simmons" sound and the digital section which is a 16-bit digital area from stereo in memory.

**Basic Specifications & Suggested List Price:** S.D.S.7 has 16 modules kit—list \$4,400.



**SIMMONS GROUP CENTRE (INC)**  
Simmons S.D.S.6 Sequencer—MIDI Interface

**SIMMONS GROUP CENTRE (INC)**  
23917 Craftsman Road, Calabasas, CA 91302  
(818) 884-2653

**Product Name:** SIMMONS S.D.S.6 SEQUENCER  
—MIDI INTERFACE

**Contact:** Glynn Thomas, president  
**Date Product Introduced:** 1984

**Product Description & Applications:** Features a 2x8 channel L.F.D. matrix which enables the player to see visually each "hit" as it is programmed. Memory capacity of 64 patterns allows programming

mod to 64 notes and assigned to 250 sequences of notes will give the user many hours of usable tracks.

**Basic Specifications & Suggested List Price:** S.D.S.6 Sequencer—list \$2,800.

**SOLID STATE MICRO TECHNOLOGY FOR MUSIC, INC.**  
2076 B Walsh Avenue, Santa Clara, CA 95050  
(408) 727-0917, Telex 171189

**Product Name:** SSM 2014—OPERATIONAL VOLTAGE CONTROLLED ELEMENT

**Contact:** Dan Parks, sales manager  
**Date Product Introduced:** Late 1983

**Product Description & Applications:** The SSM 2014 is a general purpose VCA building block which will substitute for any VCA circuit presently available in addition to possessing power that is not available using any other device. It may be configured as a voltage or current VCA or V.P.V. (voltage controlled potentiometer). In most applications it will replace a standard VCA and two or more op amps. The performance of the SSM 2014 is equal to or better than the best integrated VCA's available and closely approaches the performance of modular devices.

**Basic Specifications & Suggested List Price:** Configured as a standard VCA circuit it provides a maximum of 50 dB with excellent specifications at any signal level or gain. It provides the function of a voltage controlled pump for both high impedance and balanced low impedance inputs simultaneously. Class A or class AB operation may be selected at the user's option.

**SOLID STATE MICRO TECHNOLOGY FOR MUSIC, INC.**  
2076 B Walsh Avenue, Santa Clara, CA 95050  
(408) 727-0917, Telex 171189

**Product Name:** SSM 2110—LEVEL DETECTION SYSTEM

**Contact:** Dan Parks, sales manager  
**Date Product Introduced:** May 1984

**Product Description & Applications:** The SSM 2110 is a precision level detector, by design specifically for radio applications. It features both linear and logarithmic (dB) outputs, and unlike previous designs the dB output can be internally compensated for scale factor changes with temperature. Two linear outputs, true RMS and a half-wave average, can be simultaneously selected, or can be alternatively configured to give a peak function. The dB output can provide a 0.01 RMS (0.01 absolute value) or 0.01 mV value function. In either case, full on-chip temperature compensation is available. A dynamic range of 100 dB is achievable, and a unit

price is circuit enables dynamic range to be traded for faster response time at low signal level.

**SOLID STATE MICRO TECHNOLOGY FOR MUSIC, INC.**  
2076 B Walsh Avenue, Santa Clara, CA 95050  
(408) 727-0917, Telex 171189

**Product Name:** SSM 2134—LOW NOISE OPERATIONAL AMPLIFIER

**Contact:** Dan Parks, sales manager  
**Date Product Introduced:** April 1984

**Product Description & Applications:** The SSM 2134 is an improved circuit replacement for the industry standard 5534 A grade, which has been developed and tested specifically for such applications. Several key specifications including input voltage noise and input offset have been improved without affecting the overall performance of the device.

**Basic Specifications & Suggested List Price:** Specifications include a typical very low input noise and a slew rate of 1.4 V/μs.

**SOUNDOLIER**

9380 Watson Industrial Park, St. Louis, MI 63126  
(314) 962-9870

**Product Name:** SELECT SERIES VERTICAL RACKS

**Contact:** Julie Klose, sales department  
**Date Product Introduced:** July 1984

**Product Description & Applications:** The Select Series vertical multi-rack, are the result of our best technical knowledge using an air-tight design and our superior construction techniques. Assemblies were a major consideration in producing these modern, plus hi-lux and cabinets. Sizes and door appearance. The many color combinations offered will complement any decor. Doors are easily removed through the use of spring pull-in type hinges. Castor plates provided are tapped for easy floor installation.

**Basic Specifications & Suggested List Price:** The Select Series consists of a 16 gallon CRS frame and 11 gallon CRS mounting rails. The modular concept utilizing standard 19", 24" and 30" rack panels and easy assembly of units offer maximum flexibility. The open side approach makes wiring convenient. Contact Soundolier for additional information.

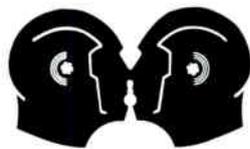
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**SOUNDOLIER**  
Select Series Verticle Racks



**STUDER REVOX AMERICA, INC.**  
Studer Revox A725/B225 Professional CD Player

STUDER REVOX AMERICA, INC.  
1425 Elm Hill Pike, Nashville, TN 37210  
(615) 254-5651

**Product Name: STUDER REVOX A725/B225  
PROFESSIONAL CD PLAYER**

Contact: Thomas E. Mintner, director of Studer products

**Date Product Introduced:** June, 1984

**Product Description & Applications:** Digital Compact Disc Player designed for professional/broadcast applications. Features include 176.4 kHz oversampling with digital filtering, twin D/A converters for full stereo imaging, cueing time of less than .3 seconds to any point on the disc, and a full range of programming modes (start, stop, pause, loop, track select, mixed time & track boundaries, etc.) with 19 steps programmable. Program may be entered while disk is playing. Revox 225 version has "10" unbalanced outputs. Studer A725 version has balanced "4+" outputs, ladder start, and rack mount standard. Units otherwise identical.

**Basic Specifications & Suggested List Price:** Frequency response: 20 Hz-20 kHz (+/-0.6 dB) Dynamic range: 96 dB Channel separation: 90 dB at 1 kHz Harmonic distortion: 0.006 percent at 1 kHz B225 list \$1150 A725 list \$1450

**SWITCHCRAFT INC.**

5555 N. Elston Avenue, Chicago, IL 60630  
(312) 792-2700

**Product Name: BIT MAP GRAPHICS TABLETS**

Contact: Joe Jesson

**Date Product Introduced:** June, 1984

**Product Description & Applications:** These systems operate with vector graphics, i.e. picture vectors can be defined by the positioning of graphic cursors, which in conjunction with basic graphic functions (line, polygon line, circle, square, etc.) allow the creation

of computer graphics. Applications include: CAD, CAE, office communications, CNC controls, process control and supervision, home computers, video games, electronic media.

**Basic Specifications & Suggested List Price:** Contact Switchcraft for pricing and specifications.

**SYNTAURI CORPORATION**

1670 S. Amphlett Blvd., Suite 116, San Mateo, CA 94402  
(415) 574-3335

**Product Name: PROXIMA MIDI/16, PROXIMA MIDI/16X (extended memory)**

Contact: Joy Weigel, sales manager

**Date Product Introduced:** September, 1984

**Product Description & Applications:** Superset of Metatrak, allowing recording of note information from any MIDI keyboard. Playback to any combination of up to 16 MIDI instruments plus the Mountain Computer Music System Transpose, re-orchestrate, change speed, loop, punch in/out, rewind, synchronize drum machines. Polyphony limited only by number of MIDI keyboards and their individual limits, plus 8 simultaneous voices from Mountain Music System. Records velocity, pressure, system exclusive information on MIDI bus.

**Basic Specifications & Suggested List Price:** Software \$250. Syntauri keyboard not needed if user has a MIDI keyboard. 16 MIDI channels PB, receive on MIDI or Syntauri keyboard. 16 track recording, transposition to all keys, re-orchestration, 1 percent to 800 percent original speed, drum and tape sync, 3100 notes Proxima MIDI/16. 21,845 notes Proxima MIDI/16X (with Synetix 288 K Flash Card RAM board).

**TENSEGRITY, INC.**

2424 W. Addison Street, Chicago, IL 60618  
(312) 935-9714

**Product Name: CADD/86-87 Computer-Aided-Drafting**

Contact: John M. Christy, president

**Date Product Introduced:** Update with new features, 1984

**Product Description & Applications:** CADD/86-87 is a 2D drafting program for Hewlett-Packard HP 86 or HP 87 computers. Functions include: drawing, editing, plotting, windowing, transformations (scale, rotate, move, replicate, delete), auto-dimension, mass storage, digitizing, searching, user symbols, test, circles, arcs, polygons, lines, boxes, area calculations, zoom, angular cursor movement, and more. CADD/86-87 is useful for a broad spectrum of design & drafting applications.

**Basic Specifications & Suggested List Price:** Price: \$700

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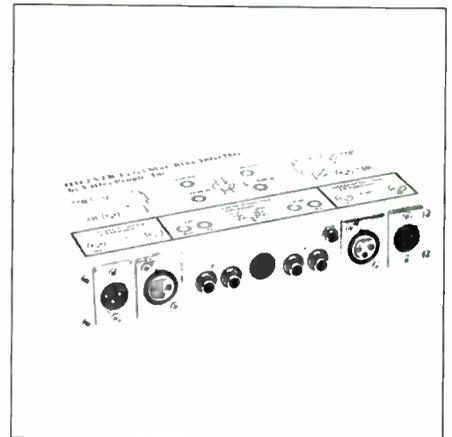
**Product Name: ULTIMATE BOOM SYSTEMS**

Contact: Diana Valentine, national sales manager

**Date Product Introduced:** Fall, 1984

**Product Description & Applications:** Ultimate Support Systems has stepped into a new area of product support. Ultimate Boom Systems are now available for high miking and lighting applications. This new modular system allows you to build booms from 4 to 12 feet.

**Basic Specifications & Suggested List Price:** Our "Black Beauty" Profile will be introduced this fall. All USS products will be available with a black anodized finish for a truly professional appearance.



**VALLEY PEOPLE, INC.**  
HH 2 x 2B Balanced Level Matching Interface

**VALLEY PEOPLE, INC.**

PO Box 40306, 2817 Erica Place, Nashville, TN 37204  
(615) 383-4737

**Product Name: HH 2 x 2B BALANCED LEVEL MATCHING INTERFACE**

Contact: Ray Updike, sales manager

**Date Product Introduced:** January, 1984

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**Product Description & Applications:** The HH 2 x 2B Balanced Level Matching Interface resolves the level and impedance matching problems associated with interlacing -10 dB equipment to the studio and broadcast equipment standards of +4 dB and +8 dB. It also ensures immunity from RF pickup and hum thanks to electronic balancing of the +4 +8 inputs and outputs. The electronically balanced outputs of the HH 2 x 2B offer extremely low source impedances, resulting in excellent waveform fidelity and freedom from transformer ringing. Each HH 2 x 2B is a complete stereo system. XLR connectors are provided for the inputs and outputs of +4 +8 line level devices and both RCA phono jacks and a 5 pin DIN connector afford easy connection to -10 dB equipment. Power supply is included.

**Basic Specifications & Suggested List Price:** Amplifier input impedance: 100 kohm in parallel with a 10 pF, unbalanced. Attenuator input impedance: below 44 kohm, balanced. Amplifier output impedance: 40 ohm balanced. Attenuator output impedance: under 60 ohms nominal unbalanced. Amplifier maximum output: +27 dBm balanced (600 ohm). Amplifier IM distortion: under 0.015 percent at +21 dBm output (600 ohm) at any given setting, 1 kHz. Amplifier THD: 0.0045 percent at +21 dB output (600 ohm) at any given setting, 1 kHz. Attenuator IM distortion: 0.007 percent at +6 dB output (10 kohm). Attenuator THD: below 0.004 percent at +6 dB output (10 kohm). List Price: \$250.

WIREWORKS CORPORATION  
380 Hillside Avenue, Hillside, NJ 07205  
(201) 686-7400

Product Name: MULTIPIN INPUT  
MICROPHONE SPLITTERS

Contact: (Gerald J. Krulwicz, president)  
Date Product Introduced: April, 1984

**Product Description & Applications:** Like Wireworks XLR input microphone splitters, these new components provide your system with transformer isolated splitting with the added feature of all multipin input. These mike splitters are suitable for use in stage monitoring, remote recording, and broadcast applications. Utilizing only Jensen transformers provides uncompromising performance in these critical applications.

**Basic Specifications & Suggested List Price:** Stage box or rack mounting splitters. Available in all 9 Wireworks channel sizes, 1, 2, or 4 isolated outputs. Lamp thru models available. New low profile stage box design. Price range: approximately \$640 to \$17,000.

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# LUNCHING WITH BONZAI

by Mr. Bonzai

# STEVE MILLER

## IT'S MILLER TIME



PHOTOGRAPH BY RICH FISHER

**A**bracadabra! The reclusive Joker himself, Steve Miller, has emerged from the studio after a seven-month odyssey into computers, digital recording and Synclavier sound sculpting. The first-ever exposure of his new album, *Italian X-Rays*, was attended only by Miller's engineers, musicians, friends, the Capitol studio staff and your editor-at-large. For the lunching celebration, the artist called for barbecued chicken and ribs.

This album is number 16 for Miller. Drawing from his Texas roots, his Chicago days, and his San Francisco heydays, he has whipped up a record with that unmistakable stamp of swirling, dreamlike musical landscapes punctuated with the whip-cracking Miller snap. He beamed with unbridled pride as we stepped into the isolation chamber to get away from the hijinks brewing in the control room at Capitol's Studio B.

*Rich Fisher, Steve's technician, works with him to find the right sound on the Synclavier II.*

**Bonzai:** Did you learn anything new while making this album?

**Miller:** It was a complete re-education for me. We started with basic tracks at a

brand new studio in Idaho, Sun Valley Recording, using the Sony digital multitrack. I used a Lisa computer to write the lyrics—which was a new process for me. From there I got into the Emulator, and next the Synclavier. After recording all the tracks, using two digital multitracks, we mixed and edited everything digitally. I'm the kind of guy that finishes an album, and then wants to fiddle with the master tape. It's all finished, but you say, "it would be great if I could just add one thing." With digital you can do that. Last night we took the stereo mix and transferred it digitally to the 24 track and it was like we could start all over again. You don't hear any generation noise. I've been recording for 15 years and this is exactly what I needed. The people who really enjoy quality recording—the ones who like to sit right on the "x" in the con-



PHOTOGRAPH BY RICH FISHER

*David Cole with Steve in Studio C at the Sony 3324 digital recorder.*

trol room—are going to love it.

**Bonzai:** What is it about Texans that sets them apart from other human beings?

**Miller:** Well, Texans have run their state with a pride and an integrity and a certain hardness that they've developed from the land that they live on. It makes them different from everybody else. Texas is like a country. Texans firmly believe that if they ran the United States, it would really run well. Everybody feels that way there, and for the most part they're right.

---

“There’s a lot of humor involved with what we do. In fact, there’s so much that I’m constantly having to tell people to knock it off and get to work. I’m one of the worst offenders.”

---

**Bonzai:** What is it about Les Paul that sets him apart from other musicians?

**Miller:** He’s a designer, an electrician—a brilliant mind.

**Bonzai:** You met him when you were quite young, didn’t you?

**Miller:** I was about five years old. I remember Les, and Mary Ford very well. It’s well known that he was in the forefront of electric guitar and recording. I learned about multitracking in 1948—I knew that Mary Ford could sing with herself three times and I understood how it was done.

**Bonzai:** Were you at any of their recording sessions?

**Miller:** No, but Les used to come over to the house and sing all the time. He used to play at a club my dad used to go to. We used to go down with my dad’s tape recorder and they became friends. My dad made him a plexiglass pickguard for his guitar. I saw it as show biz, but Les

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Assistant engineer Steve Himelfarb (left) with Steve Miller and Capitol engineer David Cole.

PHOTO: LESTER COHEN

was my first taste of something that was really fun. It was always exciting when we would go to see him play. He was a great comedian, too. I remember one night, a guitarist/friend of his, Tal Farlow, came in and Les put a handkerchief over his hand so that Tal couldn't steal any of his licks. His guitar is still a great instrument, and he's still out there playing. He's a great guy.

**Bonzai:** How 'bout Chicago—what did that do for your musical education?

**Miller:** Chicago was like graduate school for me. I grew up in Texas. After Les Paul, I met and played with T-Bone Walker at a very young age. I got exposure to the blues that was really important to me. I learned to play lead guitar from T-Bone at my house when I was 11. My father was a doctor, and T-Bone was one of his patients. He used to come over and play at parties. Texas had its own radio, too—which was great. The charts in Texas in the early '50s had Jimmy Reed, Bo Diddley, Muddy Waters, Little Milton, Bobby Blue Bland, Ray Charles.

When I started college I went to Chicago, an environment that had Muddy Waters, Howlin' Wolf, Junior Wells, Buddy Guy, James Cotton—just working on a regular basis. I'd play; they'd play; we'd play together. I was deeply involved for about three years in a mature

musical scene. Later on, I realized what a phenomenal experience it was.

**Bonzai:** How did you land your first record deal?

**Miller:** My first record deal was the only record deal I ever made—with Capitol. I was in the right place at the right time—San Francisco—and I had a good band. I'd had some experience dealing with record companies, so I was prepared. We were playing in San Francisco and the record companies were just drawn to the scene. I really wanted to make records—Capitol saw me and signed me up.

**Bonzai:** Why do you think you became one of the handful of musical heroes of the psychedelic generation?

**Miller:** It took a lot of people to make that movement happen—people like promoters Chet Helms and Bill Graham, bands like the Jefferson Airplane, Quicksilver Messenger Service, Big Brother & the Holding Company, The Steve Miller Band. There are lots of other people—Mouse and Kelley as artists—the list goes on and on—the Diggers, the *Free Press*. It was a social phenomenon and I was able to take part, and add to it by having a good musical organization. The music was the vehicle for the social phenomenon.

**Bonzai:** Who's the most amazing talent you've ever worked with?

**Miller:** Chuck Berry—he was like a gazelle; he was that delicate playing on stage.

**Bonzai:** What new territory have you entered with this album?

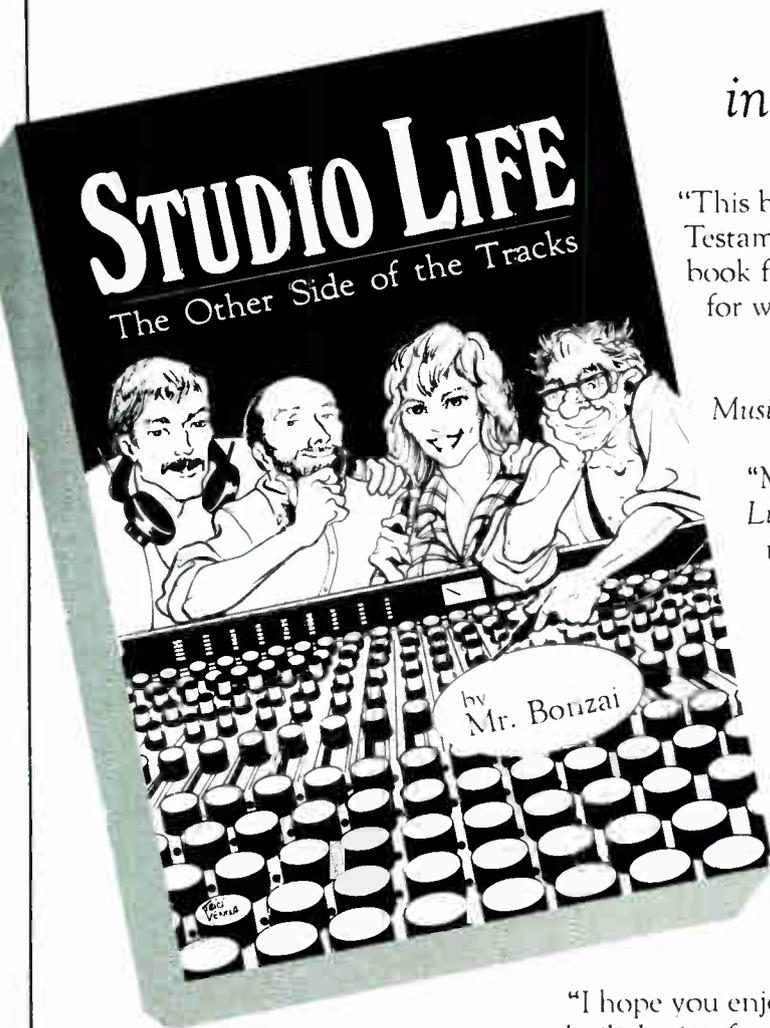
**Miller:** Well, it's a step into a new world for me, that's for sure—and writing with new people: Kenny Lewis, my guitar and bass player, Gary Mallaber, the percussionist, Chris McCarty, who I've written with before, and Tim Davis, who was in the original San Francisco band, Byron Allred, the keyboardist. It's a combination of a lot of people—a very successful creative effort. I've always tried to create situations where people can be creative together. We started off isolated in Sun Valley for seven weeks—it was like music camp. We had everybody's full attention away from the distractions of home. David Cole, the engineer with Capitol, came up and has stayed through the whole project. We had Norton Buffaio on harmonica. Steve Himelfarb, our second engineer here at Capitol, and Randy Young, our second in Idaho, have done a great job. It was just a good creative experience.

**Bonzai:** How would you describe yourself to a visitor from outer space?

**Miller:** I'm a singer in the valley. (Laughs) I used to live on a ranch in

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—Ken Pohlmann

Music Engineering Department Head, University of Miami

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—Chris Stone, President  
Record Plant, Los Angeles

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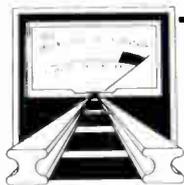
—Phil Austin  
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"I hope you enjoy your copy of *Studio Life* as much as I did mine. I boiled mine for dinner." —Stan Freberg, *Humorist/Recording Artist*

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*Miller explains the record biz to England's Princess Anne.*

Oregon where I did some farming. I was once introduced to a farmer there, and he said, "Oh, yeah, you're the singer in the valley." Is that who I am? OK.

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

**Miller:** Quickness, attention, ability, agility, intelligence and commitment to a project. Dave has all that and a lot more. You want an engineer to be a better engineer than you are.

**Bonzai:** Do you consider yourself a good engineer?

**Miller:** Not really—in some situations I am. [David Cole explained later, "We had an interesting situation during the vocals. I'd be running the tape machine and Steve would be sitting at the console, pretty much running the board. He knows what balance he needs to hear while he's stacking vocals. He likes to sing with a handheld U-47 while he stands at the board."]

Sometimes it's much easier for me to engineer—to set my levels, do the stereo pan, spread myself out and get my tones. That's no problem, but when it comes to EQ-ing, calibration, metering—I leave

all that to Dave. [At this point in our conversation, Kenny Lewis appeared on the other side of the glass holding up a poster for *Sex Sirens*, with Vanessa Williams' face pasted over the face of the star. After seven months in the studio, the band was starting to cut loose.]

**Bonzai:** Do you know any clowns?

**Miller:** Well, there's Kenny right there. Gary, my drummer, is a clown. I'm surrounded by clowns. Norton Buffalo is the biggest clown of them all. It's like living with Knucklehead.

**Bonzai:** Does this fit into your creative style?

**Miller:** Absolutely. We kid around a lot and there's a lot of humor involved with what we do. In fact, there's so much that I am constantly having to tell people to knock it off and get to work. I'm usually one of the worst offenders. But when we work, we work hard.

**Bonzai:** If you could choose any story to score, what would it be?

**Miller:** *The Red Shoes*—a modern day version of the story of the girl with the ballet shoes.

**Bonzai:** When you think music in your mind, do you hear it played on a certain instrument?

**Miller:** Usually my voice. I hear things in three-, four-, five-part harmonies.

**Bonzai:** What instrument do you use to compose?

**Miller:** Guitar and piano—and voice.

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

**Miller:** Yes, when I finished this album this morning at 6 a.m.—that was a miracle.

**Bonzai:** Whose music do you listen to for kicks?

**Miller:** The Tom-Tom Club. I really like them...and Lene Lovich.

**Bonzai:** If you could be any woman, who would it be?

**Miller:** Someone who is really happy—Ella Fitzgerald.

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

**Miller:** My aggressiveness—my drive.

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

**Miller:** A journalist probably—a writer.

That's what I studied in college. That's what I was going to do, and then I went, "Who am I kidding?" I'd been playing music all my life. I might have become a painter. I write, I paint—I still do those things.

**Bonzai:** Who are your best musical friends?

**Miller:** Kenny, Gary, Byron, Norton—the guys who worked on this album.

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

**Miller:** This record. It was a big gamble—a long, expensive project. We really didn't know what was going to happen.

**Bonzai:** Have you triumphed?

**Miller:** Yeah, I think so. I feel like I've not only triumphed, but that I've learned a lot too. I'm glad we did it.

**Bonzai:** Are you as successful as you would like to be?

**Miller:** I'm more successful in some ways than I ever thought I would be, and I'm not as successful as I would like to be in the overall picture of my life. [Laughs] I can see room for a lot of improvement.

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

**Miller:** Flash paper. It's great—what magicians use.

**Bonzai:** What do you do—write checks on it?

**Miller:** No—if you're negotiating for something, say, you're going to buy a new car. You just take the flash paper and put it in the ash tray all wadded up when no one is looking. A few minutes later, you light a cigarette and if you drop the match on the flash paper, you get this big "flaroom"—this big flash that instantly disappears. Your opponent is so taken off guard that he can't even be sure that he saw it. It's a great business trick, taught to me by a great businessman here in town. It's also a good way to get waiters to come to your table in a restaurant.

**Bonzai:** I understand that you had a visit from Princess Anne during the sessions for this album...

**Miller:** Yes, she came to visit Capitol and I happened to be the artist working here, so Charles Comelli, the studio manager, and the guys in the Tower asked me if I would show her through the studio. We had just started working with the computer and I had a guitar routine I wanted to do. We were going to do a little "dog and pony show" for the Princess. You are supposed to address royalty in a formal way, so when she walked in I picked up my guitar and had it say, "Hello, your Royal Highness." The interesting thing is that when we were setting things up, Rick Fisher, who programs my com-

---

"I'm more successful in some ways than I ever thought I would be, and I'm not as successful as I would like to be in the overall picture of my life. I can see room for a lot of improvement."

---

puter, was sampling his voice and programming. He said "Bongo, Bongo" and we were just about to do some overdubs on "Born to Dance" and dropped this "Bongo, Bongo" in. I could play it on the keyboard any way I wanted, and it changed the whole tune. It was just an accident, but we ended up reworking the entire tune.

•••

After the interview, we all assembled in the control room for a listen to the complete album. The record has some lush, symphonic, futuristic instrumentals that could be used for an Einstein/PBS special. There are plenty of odd, new sounds blended in and around the distinctively warm Miller vocal presence. He has stretched the canvas that began in San Francisco and painted into new high-tech territory with an Old Master's touch. There are visions of hot women and a continuation of the search for the female vitality. There are slow, dark grooves, slashing power surges, and layered planes of sound expressing the Miller view. Sometimes he gets friendly and cozy, tropical and romantic; other times he soars off into deep space. Organic elements are sent into synthesized dreamscapes. And if you can stand still during "Bongo, Bongo," your feet are asleep. ■

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# TEX ♦ RUDLOFF

# A REEL MIXER



PHOTO: DAVID GOGGIN

by David Goggin

**T**he climax in the creation of a motion picture is the sound-track mixdown. In a full-scale theater/studio, the film is projected while the director, the producer, the sound editor and creative peanut gallery call for the re-recording finale. Behind the scenes is a team of engineers racking up the reels of audio that will be combined for the final mix. A triumvirate of mixers (dialogue, music and sound effects) then pool their talents as a three-headed engineer. The chief mixer, usually the dialogue engineer, mans the central command position.

One of the most respected mixers in the motion picture industry is Tex Rudloff, a soft-spoken veteran of 38 years in the business. Tex told me with a hint of a front porch drawl that nobody had ever been interested in writing his story. Granted, it doesn't have the glamour of shooting in Sri Lanka with Duran Duran, but Tex has excelled in a grueling career through a combination of special qualifications. It was no whim when he was offered a fortune to mix *Close Encounters of the Third Kind* (which he had to turn

down). Tex has the patience and craftsmanship of a Persian carpet weaver. He has the diplomatic touch of a hostage negotiator. He has ears that can see into the future and the feature that will end up in your neighborhood theater. You think mixing for the car radio is tough? Try mixing a film that might play anywhere from the splendiferous Chinese Theater in Hollywood to a Bijou in Brazil.

I asked Tex to describe the job of film mixer. "You have to get that sound reproduced," he replied, "and make it sound like it was recorded where the scene is taking place." Sounds simple enough, but when you realize that the bits and pieces of the soundtrack come from location recordings, scoring stages, dialogue studios and Foley (sound effects) stages, you begin to understand how intricate and complicated the procedure can be.

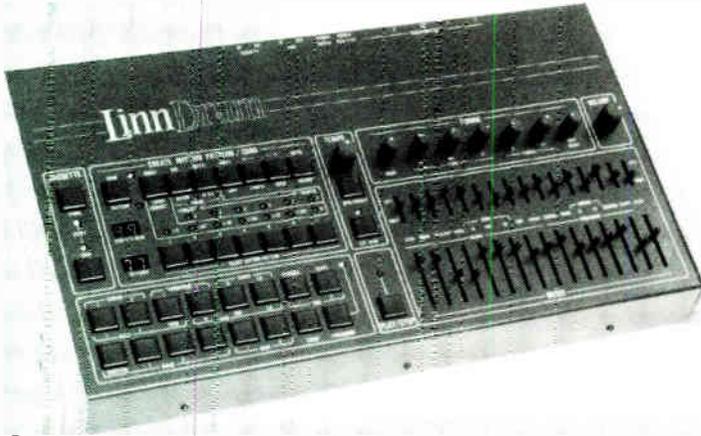
For a Sam Peckinpah film, *The Ballad of Cable Hogue*, Tex had to smooth out dialogue from Jason Robards that had been recorded in 11 different studios in eight different countries. A film mixer must be a master of ambience and electronic trickery.

I first met Tex at the old Goldwyn sound studios (now Warner Holly-

wood) when he was mixing *The Warriors*, a film with a lot of punch. It was my first trip to a re-recording stage, and being a record engineer, I was wide-eyed and wide-eared with curiosity. Tex gave me a hearty welcome and I sat down to watch a scene of perhaps 30 seconds duration played over and over ad nauseum as he fine tuned the sound of someone getting hit on the head with a baseball bat. While the recording apparatus was shuttling back and forth, and different tracks were tried out, the director, Walter Hill, and executive producer Lawrence Gordon would occasionally bat a few rounds of ping pong. The producer, Frank Marshall (who has since gone on to *Raiders* and *Gremlins* fame) conducted last minute production business on the phone. Tex directed the sound team with such understated finesse that the tedious work appeared as a pleasurable exercise in Swiss precision.

Tex's mastery of the console came as the result of a very traditional, old-style Hollywood education. In 1946, he landed a job in the MGM shipping department, checking prints and shipping them out. Next came a stint as a film printer in the lab, where he moved on to become a sound densitometrist. In those

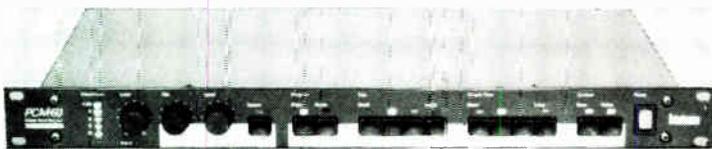
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days, all soundtracks were recorded optically, and of course, there had to be someone who could evaluate the optical negative and transfer the sound to the distribution prints. Through this position, Tex met the recordist and offered to apprentice after his workday to learn their craft. His hard-earned experience in the delicate handling of film paid off and in 1955 an opening appeared in the union roster. His first job was in the machine room during the postproduction for *Oklahoma*. He recounted his early role as a sound man:

"There would be four or five of us in the machine room loading the dubbers. We would alternate for the recordist position, where the responsibility was. This was long before back-up recording, or 'rock and roll' as it's called, so we had to work with a lot of pre-dubs. The audio was largely on optical tracks. If there was a problem in the mix, you had to stop and take everything down and start all over again. While individual tracks were being re-sprocketed and synchronized, you sat down for a half hour or 45 minutes. It was very slow and easy going in those days in comparison with the way we do it now."

Two years at MGM and a seasonal lay-off led to a few days at an independent sound facility, Glen Glenn, and then a one-day call at Paramount that lasted

"While individual tracks were being re-sprocketed and synchronized, you sat down for a half hour or 45 minutes. It was very slow and easy going in those days..."

six months. Tex's presence was his resume, and his bosses liked him to stay on. His three days at Glen Glenn were remembered and in 1956 he received a call to work there at double his existing salary.

"I thought everybody got paid scale," he remembered. "When they offered double, I told them I could start the next day."

Life at Glen Glenn Sound proved profitable and educational under the near-dictatorship of its legendary founder. "Glen was something else," Tex recalled. "He was a tyrant with a helluva

temper. There were some pretty funny incidents, because we were all young, and probably gog-eyed from working such long hours. One morning, one of the engineers had been in such a hurry to get to work on time that he had left his pajamas on under his work clothes. You could see his red BVDs hanging out at the cuffs so we told him he would get in a lot of trouble if Mr. Glenn spotted him. When he took his britches off, somebody grabbed them and called the secretaries back. We were having a good time when Mr. Glenn himself walked in. He threw a takeup reel through a window and then a heavy three-head stack went flying by. He said he would be back in two hours with white gloves and he didn't want to find a speck of dust anywhere. Needless to say, when he came back there was no dust anywhere—and nothing laying around that could be thrown.

"He was an interesting boss—a self-made man. I understand that when he was in college he would use his lunch money to buy amplifiers so he could tear them apart and learn how they ticked. He was a sharp individual, and a real taskmaster. I worked there for over seven years with Joe Kelly and Shorty Campbell, who more or less wired the place together. I don't think there was a schematic around—Joe and Shorty had it all in their minds."



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In 1964, Tex joined Charlie Douglass, the inventor of The Laugh Machine. Prior to Douglass' invention, the supplemental laughs and audience reactions were physically cut from 35mm magnetic film tracks and audio postproduction proceeded in the normal, tedious fashion. The actual cuts of The Laugh Machine are a closely guarded secret that has been kept a mystery to this day. The engineer operated a typewriter keyboard to call up the yok library, but the most that I could pry from Tex was that it used magnetic film.

When I asked Tex about the fun he must have had as a laugh track virtuoso, he admitted, "At times you got awfully tired of it, but it took me through a lot of studios in the States, Canada and Europe. The reason for the success of The Laugh Machine was its speed and the fact that audiences never found the shows quite as funny as the writers and producers. It made postproduction relatively effortless and we got bookings everywhere. I once had a couple of writers try to hire me to follow them around at parties to provide the laughs for their jokes, but we didn't have a portable version."

The success of TV Westerns dealt a hard blow to the sitcom format, and the need for laughs was severely diminished. Tex joined Hanna-Barbera for a year mixing cartoon tracks and then returned to the film industry for a tour of the major studios that lasted until his 1979 retirement.

"I got burned out," he confessed. "Eighty hours a week, year after year, is just too much. I have many friends in the industry and I didn't feel that I could do one show and not the other without making enemies, so I quit completely."

At the time, Compact Video, a major production and postproduction house, was breaking ground for a new film division and approached Tex to supervise the facility. He refused the offer, but was told that it wouldn't be finished for two years and by that time he would be ready to return to work. Tex scoffed but made a verbal agreement, dependent on his boredom quotient. Two years later he took over as director of Compact Sound Services.

Today, Tex rides herd on wild soundtracks from behind his executive desk rather than from behind the mixing console. His facility is state-of-the-art and has gained a sizable reputation in Hollywood for innovative use of multitrack recorders and the introduction of music industry technology into the film business. Tex's firsthand experience with virtually every job in the postproduction field has given him a special empathy for his audio crew, which he recruited from all over town. As we finished our discussion he alerted his secretary that he could start taking calls again.

A cameraman had shot some

footage in Europe at the wrong frame rate and needed an emergency conversion. A feature film in the last stage of re-recording had gone overtime and the next feature had to be rescheduled. Somebody's tape had stretched and lost sync. With his office door open once again, a stream of engineers and technicians began popping their heads in and asking for advice on production tidbits, schedules, or just waving and saying howdy.

You have to understand that Tex Rudloff is not the kind of man who blabs about the famous people he has befriended, but I couldn't resist asking for a little gossip before I left.

"You mean like a Sam Peckinpah story?" he chuckled. "Well, I worked on *The Wild Bunch* and *Cable Hogue*

for Sam. He walks that fine line between being a genius and being crazy. He'd come into work with his big bull whip, snapping it around while we were putting together the soundtrack. One morning, he had his frog sticker with him and George Groves, the head of our department at Warner Bros., came in during a session. Sam threw the frog sticker into the wall for a laugh and missed George's nose by about an inch and a half. The man turned white.

"The job has its interesting moments, but you know, the funny thing is that you usually can't just sit back and relax and watch a film that you've worked on. You remember how hard it was. You find yourself wishing for a back-up button so you could change something." ■

—FROM PAGE 128, DIRECTORY

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# PRODUCERS-DESK

by Anthony DeCurtis

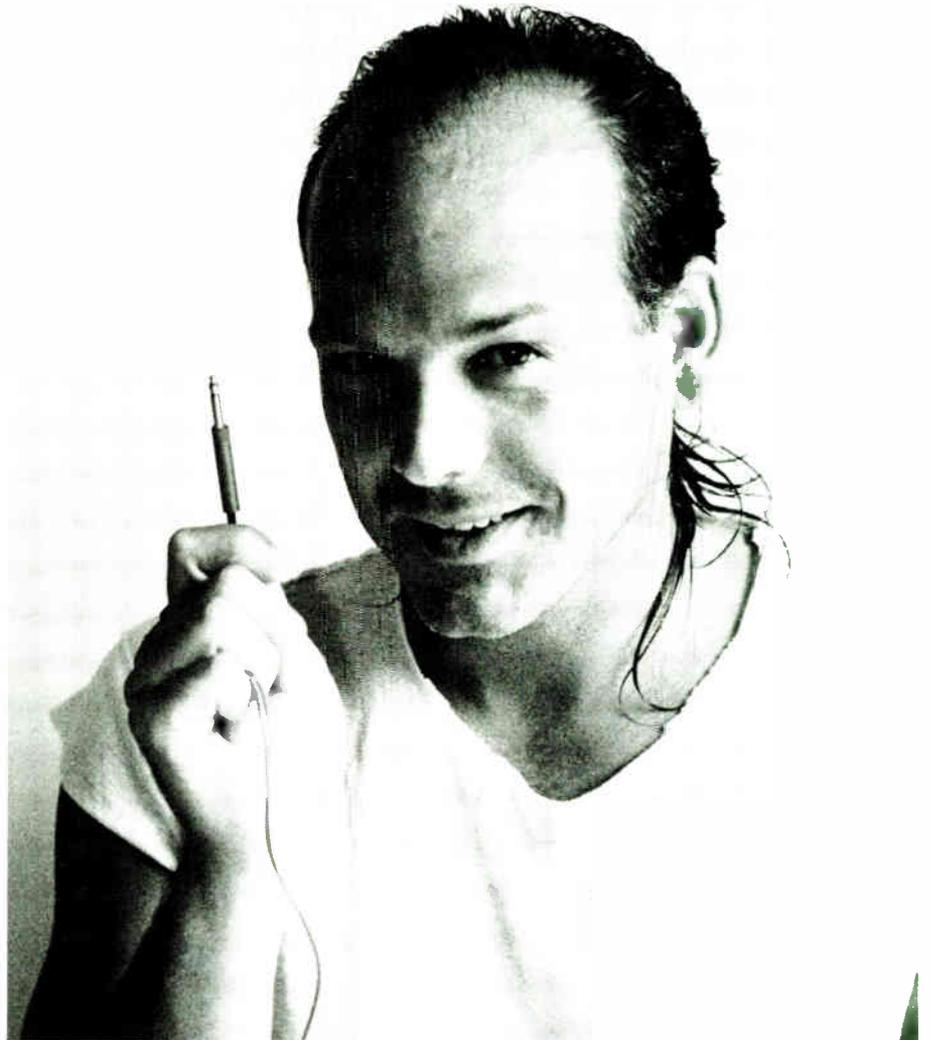
**T**he kinds of things we talk about are like, 'Gee, didn't Lesley Gore have a great voice.' We don't sit around saying, 'Weren't those M-83 microphones with tube resistors perfect on the Zildjian little boy high-hat played with B-5 drum sticks.' We just don't think about the technical aspect of it in that way. I'm sure there are people who do, but I don't and Mitch certainly doesn't."

Thirty-three-year-old Don Dixon is explaining the studio philosophy that has earned him and fellow North Carolina Producer Mitch Easter the rep as sound architects of the Southeastern pop renaissance. Dixon and Easter manned the board on both of R.E.M.'s distinctive and highly acclaimed LPs, and Dixon has already produced or engineered for Beat Rodeo, Chris Stamey, the Accelerators, Buzz of Delight, The X-Teens, The Graphic, Arms Akimbo, Shirley Caesar, and Easter's own combo, Let's Active.

Most of these sessions were done at Easter's cult-renowned 16 track Drive-In Studio (described by Dixon as "state-of-the-art 1970") in the garage of his parents' home in Winston-Salem, N.C., or the 24 track Reflection Sound Studio in Charlotte, where R.E.M. recorded their two albums. These unpretentious digs help Dixon maintain a characteristic down-to-earth distance about his studio role.

"I think the value of producers has really been blown out of proportion in the past few years," Dixon asserts. "It's real easy for record companies to start having faith in somebody because they know they're going to bring a project in for 'x' amount of dollars or because there's a certain marquee value in a guy's name. This allows people who are willing to play that game to get their own contributions exaggerated. And sometimes it makes artists cave in in a way that they *shouldn't*."

Dixon's artist-centered approach results from his studio education in the personable Southeast—far from the techno-playlands of New York and L.A.—and his unpleasant experiences recording LPs for Vanguard and Warner Bros. in the 1970s as bass player with the band Arrogance. "What I learned working on the Vanguard records were the things I hated about the way they



## DON DIXON

and

the sounds

of the

NEW

Southeast

were making records—what I didn't ever want to do," states Dixon about the sessions Arrogance completed with producer John Anthony. "It was a bad time in general for the sound of records, the mid-70s. Records were real dead-sounding, and by 'dead' I don't mean lack of reverb or echo—a lot of Beatles albums that sound wonderful don't have any echo on them at all. It was a blah, close-miked sound that's different from an ambient, but not particularly reverby sound. Our record is a classic example of one of those unexciting sounding records."

*Murmur* and *Reckoning*, the two R.E.M. disks Dixon produced with Mitch Easter, are decidedly not ex-

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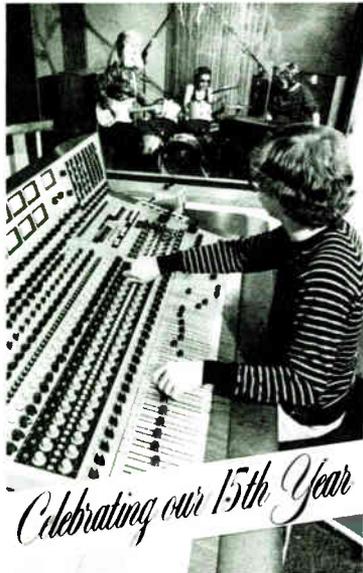
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amples of unexciting sounding records. R.E.M. came to Reflection to record with Dixon and Easter after a trial run with a Boston producer who intimidated and humiliated the inexperienced combo in an effort to browbeat a high-gloss, high-tech version of "Catapult" out of them. "They were like whipped dogs," recalls Dixon about the emotional state of the Athens, Georgia-based quartet. "Mitch and I had to build their confidence back up to the point where they felt they could play their instruments at all, because this guy had really put them through the wringer."

Despite Dixon's regard for the band's integrity and the fact that Easter had already produced R.E.M.'s debut single ("Radio Free Europe"/"Sitting Still") and their *Chronic Town* EP, the issue of what *Murmur* should sound like sparked conflict between the band and the boardmen. "There were lots of compromises made," states Dixon. "Mitch and I were constantly attempting to pull them toward a more commercial sound. We pushed them toward certain sounds that weren't what was going on live, things that weren't necessarily obvious but would texture the sound: a lot of piano/bass overdubbing, some drum track looping, more boom and crack overdubbing than had been done on their EP. We recorded 'Pilgrimage' first, finished it completely before we did anything else, and then we referenced everything else to it throughout the sessions."

On the crest of *Murmur's* success, Dixon, Easter and the combo all agreed from the start about the direction for the follow-up album. "On *Reckoning* Mitch and I decided, totally independent of each other, that the new R.E.M. album should sound like *Led Zeppelin II*," Dixon laughs. "We thought R.E.M. could sound really great with the sound that record had, a simple sound with a lot of controlled space."

"The biggest single difference [on *Reckoning*, as opposed to *Murmur*] is there are not traditional overhead drum mikes. There is a binaural miking set-up in a chair about nine feet from the drum set. There is one real strange corner room mike that we occasionally used. I built a long, skinny baffle area for [bassist] Mike Mills, miked it from about seven feet away and just had him turn up as loud as he felt like and play. That's what we ended up using on the record: no directs on the bass or anything, just a microphone in front of his live stage rig making as much racket as he wanted."

The bottom end has proven the primary focus of sonic controversy in the new Southeastern sound. While chiming electric and acoustic guitars, clever percussive effects, vocal overlays, and keyboard embellishments add texture to the high end of many of these records, the

bass and particularly the drums tend at times to sound thin and isolated. Less subtly put, a musician friend recently described the drums on a demo Dixon did with ex-dB Chris Stamey as sounding like "somebody hitting a tin cup with a pencil."

Dixon deflects this criticism in a defensive manner: "I think the bands tend to play in a way that makes the bottom seem less emphasized. The parts that somebody like Mike Mills plays, there just aren't that many low notes in them, and when he does hit a low note, it's got a lot of harmonics."

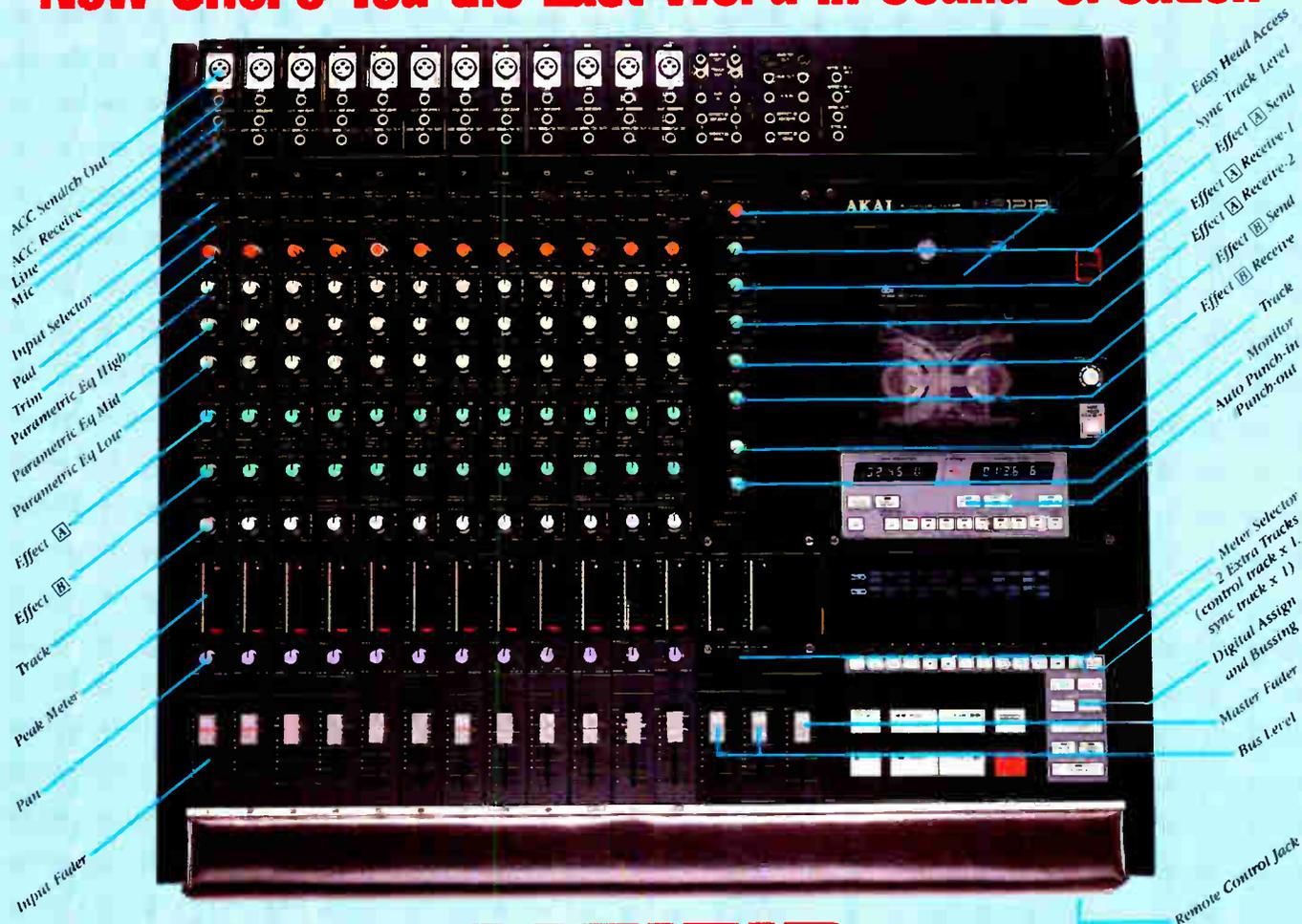
"Also, a lot of the racket aspect is a quotation of the high-end racket that you have on period-piece pop songs and a reaction to those big, fuzzy gross snare drums that were so popular in the mid-70s. And the more jangling guitars you have, the more top you seem to have. Records are getting more top, too. If you listen to a Rolling Stones record from the mid-'70s right beside the new Thomas Dolby album, you'll really be surprised at how those tweeters rip on Thomas."

A native of Lancaster, South Carolina, Dixon reports that his earliest memory of recording is doing a Voice-o-Gram of the song "Tutti Frutti" when he was four. He played a trombone in marching band, taught himself some rudimentary piano and guitar, and bought his first bass from Sears when he was in junior high. As a high schooler, he got an upright bass and began doing jazz sessions around Charlotte. Through most of the '70s, his main gig was playing bass for Arrogance, with studio work—as session man, producer, and engineer—filling up lean or inactive times.

Dixon continues to write songs and recently signed a publishing deal with Bug Music, an L.A.-based outfit that boasts Marshall Crenshaw and John Hiatt among its stable, and that's helping Dixon shop for a record contract. "Songwriting—I can't think of anything cushier," he laughs. "To do your job in however many hours it takes you to write a song—although it *could* take up to four—and rake in those millions!"

But Dixon's flippant dismissal of songwriting rigors belies the almost mystical reverence for pop music that inspires the care he takes with the work of every band that comes to him for studio help. "I prefer a shadowy existence," he asserts about his producer's role. "To me, specific records and specific songs are even more important than the artist. There's something about pop music that makes you not really care that much about Buddy Knox—I don't care when he was born or what he thinks or whether he had capped teeth—but you really want to hear 'Party Doll.' That's the magic of pop records: they go in and out of style, but they really do last forever." ■

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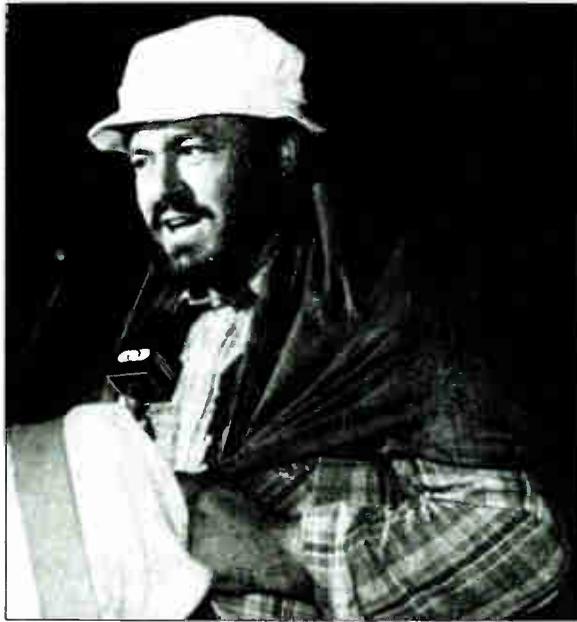


PHOTO: DAVID GANS

## *Classical music comes to Madison Square Garden.*

by David Gans

Luciano Pavarotti's concert at New York's Madison Square Garden last August was the first time a full program of classical music has been presented in the 22,000-seat sports arena. And it was a resounding success, judging by the enthusiastic response of the audience. Despite challenging acoustical conditions, nobody in the sold-out house appeared to have had trouble hearing the world-famous tenor, the 75-piece New Jersey Symphony Orchestra (under the baton of maestro Emerson Buckley) and the assisting artist, flautist Andrea Griminelli.

Whereas in most contemporary music performances the house mixer has virtually total control over the sound heard by the audience, in classical situations the sound reinforcement system should be as transparent as possible. In the intimate acoustical environments where orchestral music and opera have traditionally been presented, amplification has been unnecessary; bringing a singer into a cavernous space such as Madison Square Garden obviously makes a PA mandatory, but it has to be the right one if the event is to be an artistic success. This is sound reinforcement in the purest sense of the term: its sole function is to faithfully replicate the character of the concert hall in the less sympathetic acoustic environment of a larger venue.

Delivering the sound of Pavarotti and the orchestra to 22,000 spectators with the dynamics and clarity of an intimate hall required the combined skills

of a veteran recording engineer who has been working with Pavarotti for nearly 20 years, an experienced operator and theatrical sound designer, and a sound contractor with a state-of-the-art system specifically assembled for this show.

James Lock, classical recording manager for Decca/London Records, has supervised an estimated 50 to 60 of Pavarotti's recordings since his first, a four-title, 45 rpm EP of arias. He has also worked with Dame Joan Sutherland, Marilyn Horne, Sir Georg Solti and the Chicago Symphony, Leotyne Price, Plácido Domingo, and many others. He became involved with Pavarotti's live performances because of his thorough knowledge of the tenor's voice and style.

He was asked to supervise the sound system for Pavarotti's first large-scale performance, in Montreal in 1982. "I got there the day before the concert," he recalls, "and there was very limited time to do anything about what I considered to be a pop approach to sound reinforcement." Still, "the concert didn't go too badly." A similar approach was taken for the sound system at a subsequent performance in Houston, he says, with similar results.

When Lock accompanied Pavarotti to San Francisco for a piano and vocal concert at the Civic Auditorium in April of 1983, he was heartened to find the sound man's approach to be "of a very high caliber, much to my way of thinking as regards classical recording."

That sound man was Roger Gans, who in six years as the San Fran-

isco Opera's sound designer has developed a straightforward approach to classical sound reinforcement using the most modern transducers available at both ends of the signal path and an absolute minimum of circuitry in between.

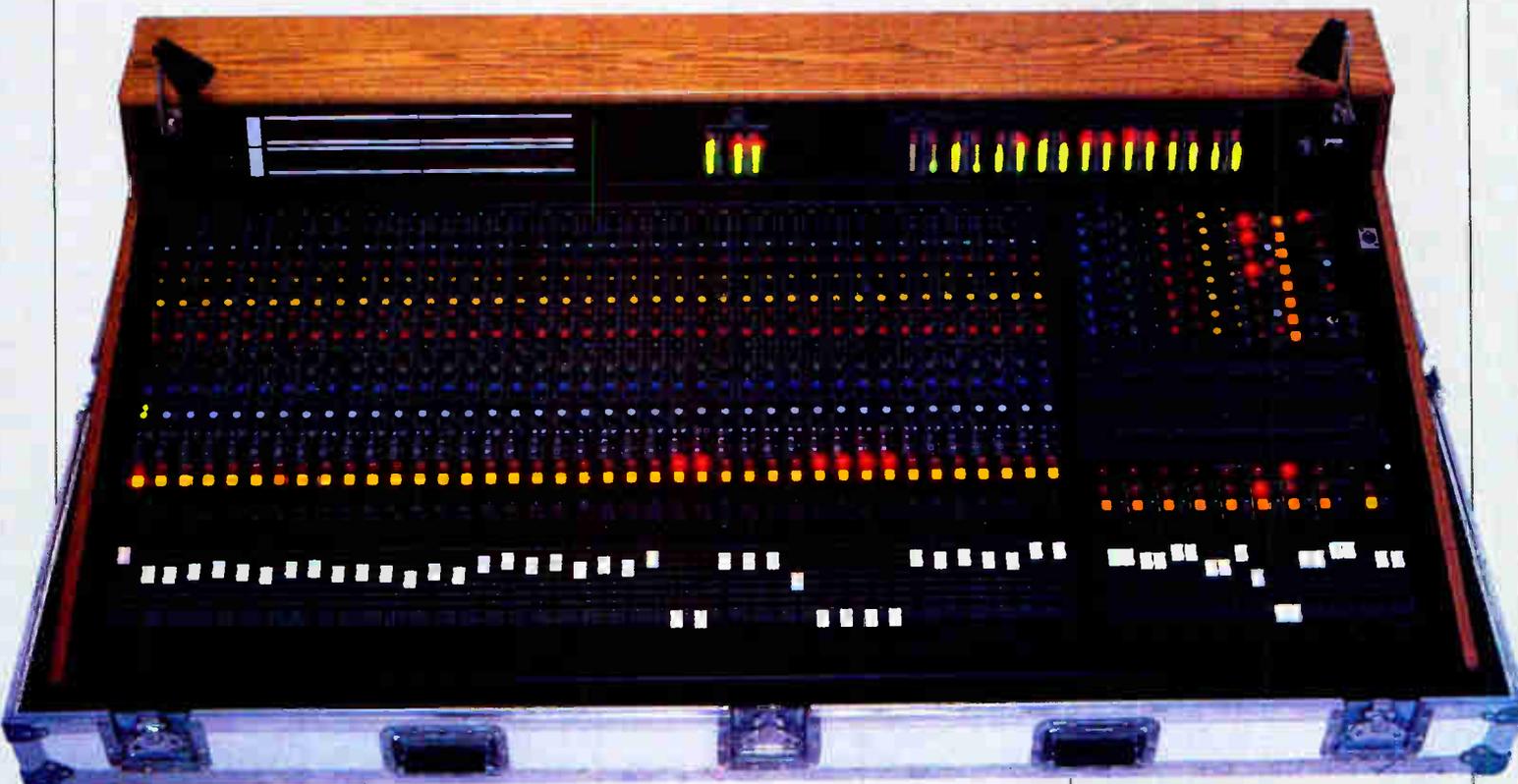
"I'd only had two experiences in the field before I came to San Francisco," says Lock. "I was tremendously impressed with the cleanliness and naturalness of the sound in the [San Francisco] hall. The cluster of Meyer Sound MS1-3 loudspeakers was quite different from the other systems I'd heard. You can boost the sound without distorting, and with their directionality you're not wasting any sound.

"I was delighted having once heard a sophisticated system—very simple, but very, very good. What I immediately liked about Roger's approach is that he keeps it as simple as possible, but whatever equipment is used is in impeccable condition. That is the secret of being able to handle these events."

The success of the San Francisco Civic Auditorium concert has led to the formation of an ongoing creative effort among Lock, Gans and Pro Media's Drew Serb, whose company has invested over \$280,000 in the equipment used for these shows. The result of their collaboration is a system that serves Luciano Pavarotti and his audiences well, making it possible for the tenor to perform happily and effectively in facilities which before now were thought to be acoustically unsuited to his music.

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the team has provided the sound for Pavarotti performances in several large venues, including an 8,000-seat tent outside the Resorts International casino in Atlantic City. The relationship that has developed between them has been a boon for the artist, Gans points out. "Working with the same team every time spares us a lot of unnecessary advance work and onsite anxiety; we know our tools and we know who we're working with, and that ensures the overall quality of the show."

Advance planning is a key factor in Gans' method. He insists on seeing architectural drawings of each venue well in advance of the performance date, and he calculates coverage angles using the detailed specs supplied by Meyer



James Lock (left), Roger Gans.

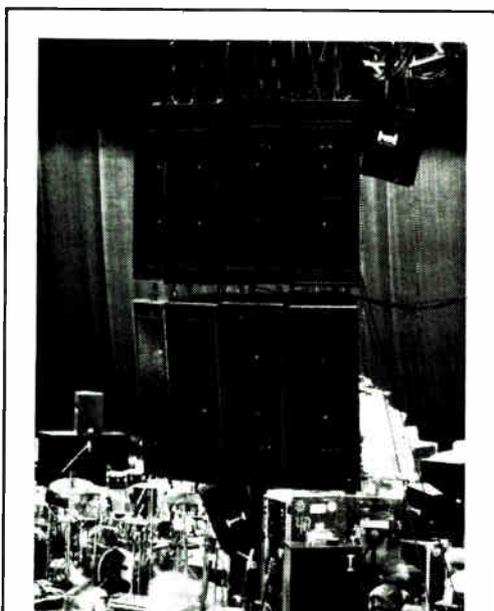
Sound with their speakers. The goal is to provide even sound at adequate levels to the entire arena, so that "from the standpoint of sound coverage, there are no 'cheap seats.'"

The size and shape of Madison Square Garden, and a seating plan that included portions of the audience at the sides and behind the stage, required use of four groups of speakers, all of which were flown above the platform where Pavarotti and the orchestra would be. It was determined that the main cluster would consist of ten MSL-3 cabinets (in two rows of five each), with four MSL-3s suspended below them for downfill to the seats nearest the front. Pro Media built an aluminum frame to hold the speakers in precisely the right position. The downfill group was suspended separately to provide flexibility in the angle for optimum coverage. A few weeks before the concert, the two groups of speakers were test-flown at Oakland's Paramount Theater so the sound people and the rigger (Mark Hannon of Stage Rigging, Inc., of San Carlos, California) could determine how best to arrange the suspension system so the clusters could be hoisted so they'd hang right the first time when they went into the Garden.

For the Madison Square Garden performance, the orchestra was miked with six Schoeps BLM-3s (Boundary Layer Microphones), which are mounted on 40-inch square plexiglass plates and operate on principles similar to pressure-zone mikes. These were placed a few feet above the musicians, toward the center of the arc formed around the conductor. The even, predictable pickup pattern and frequency response of these microphones makes for even coverage of the orchestra, leaving the balancing of the instruments up to the conductor. A few "sweeteners" were used—AKG 451s and Schoeps MK-5s on the basses, percussion and harp. Some selections in the second half of the program (from Pavarotti's recent *Mamma* LP, with arrangements by Henry Mancini) featured accordion and guitar, and these instruments were miked with 451s.

Pavarotti was miked with two Schoeps MK-5s. Although the second mike is primarily there in case of failure, Lock notes that the sound is "slightly richer" when both are in the mix. Flautist Griminelli was miked with a single MK-5.

The mixing console is a new Trident Trimix (30x8x8), extensively modified by Pro Media for road use. A Yamaha power supply has been installed, along with an Inovonics 500 real-time analyzer which is built into the meter bridge and wired to the source mic/PFL (pre-fade listen) buss. This feature is useful for locating buzzes and other anomalies quickly, says Gans, since channels can be examined individually and/or in groups. An AKG 451 omni at



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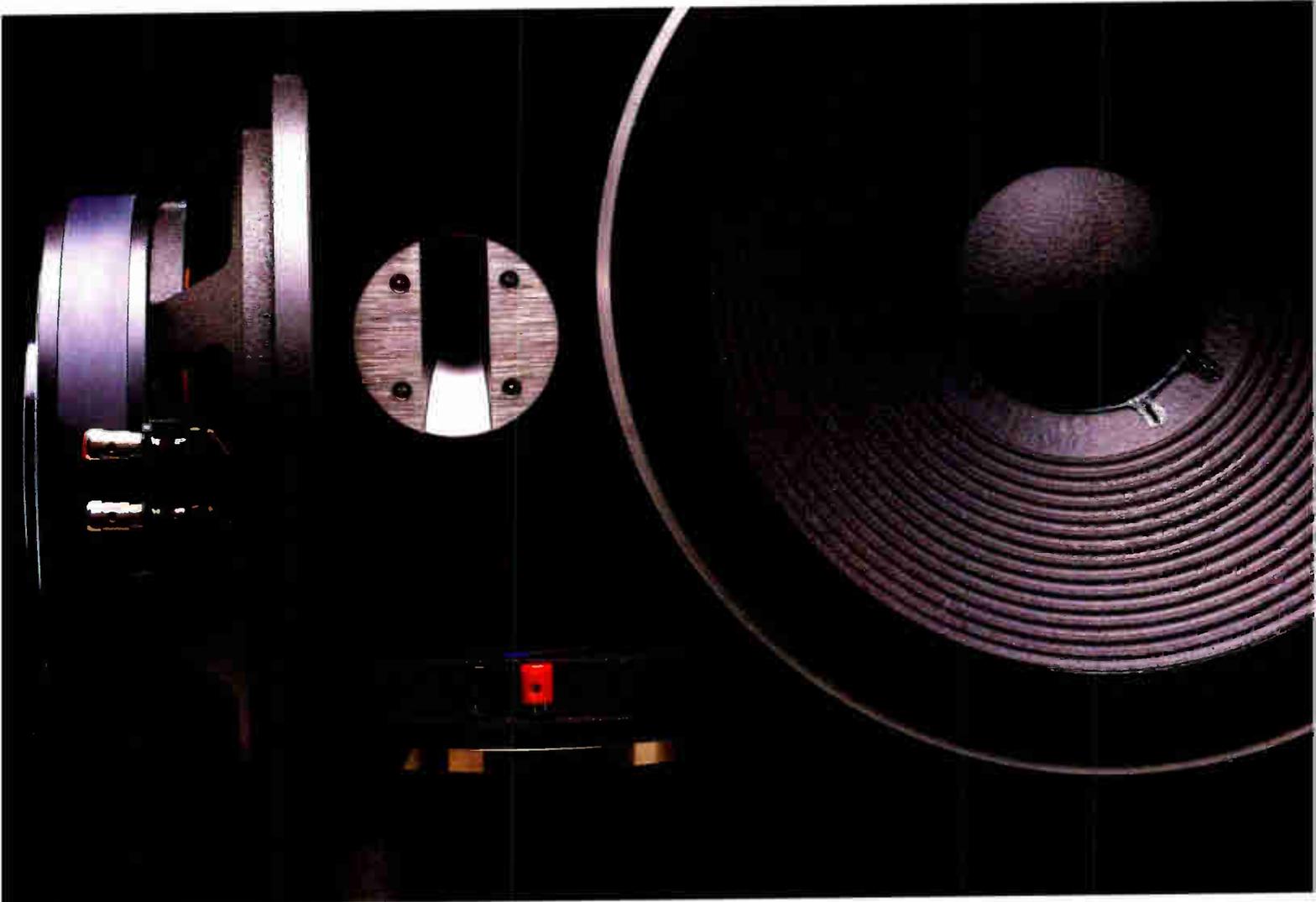
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**Concert sound director James Lock (left) listens as Luciano Pavarotti rehearses with the New Jersey Symphony Orchestra, under the direction of Emerson Buckley (right). Also shown are three of the six Schoeps BLM-3 microphones placed over the orchestra in a zone miking scheme.**

the console is used with the RTA to look at room response.

Five Altec 1650 third-octave graphic equalizers are used ("minimally," Gans states) to shape the curves of the mains, front downfill, sides (both on the same circuit), rear, and monitor groups. One attractive feature of this cut-only unit is its hardwired bypass: "If there's a failure, you're not killed," says Gans. The system also includes a Lexicon 224XL digital reverb, although it wasn't needed for the Madison Square Garden application.

The matrix masters on the Trident and the level controls on the Meyer processors are calibrated in 2-dB increments for accurate gain-structure adjustments. For example, if after the system is balanced the board is close to being overdriven, the processor levels can be increased and the matrix masters decreased by precisely the same amounts without any guesswork or time-consuming measurements.

The speakers, driven by AB 1200 power amplifiers, were all suspended above the stage and arranged as follows: the aforementioned 2x5 main cluster of MSL-3s (in the long-throw configuration—one row inverted in relation to the other, with the tweeters adjacent in the middle) and downfill group of four MSL-3s; facing the balcony behind the stage, four MSL-3s, and four Meyer UPAs for downfill; and on each side of the stage, a pair of MSL-3s and a pair of UPAs for downfill.

Although the Meyer speakers were always Gans' preference (he bought the very first MSL-3s for the San Francisco Opera House several years ago), he did find it necessary to ask the company for a new electronic feature: time correction for the tweeters. Meyer

obliged, and the result is an appreciable improvement in clarity in the critical high frequencies.

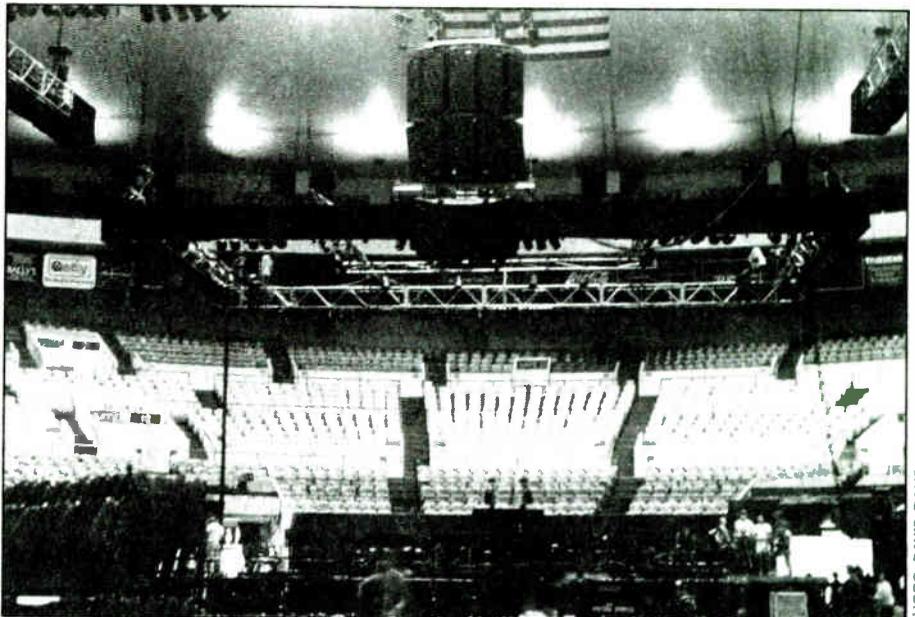
(Note: Readers familiar with the Meyer Sound MSL-3 loudspeaker system are aware that the system includes the M-3 Controller, which contains active crossover circuitry and proprietary SpeakerSense (TM) driver protection circuitry. The TC-3 provides approximately one millisecond of delay to frequencies above 10 KHz. This has the effect of repositioning the tweeter array and improving the coherence of high-frequency propagation. Unlike a triamplified system, the TC-3 requires no ex-

tra wiring or amplification; it is simply inserted between the high frequency output of the M-3 and the tweeter's power amplifier.)

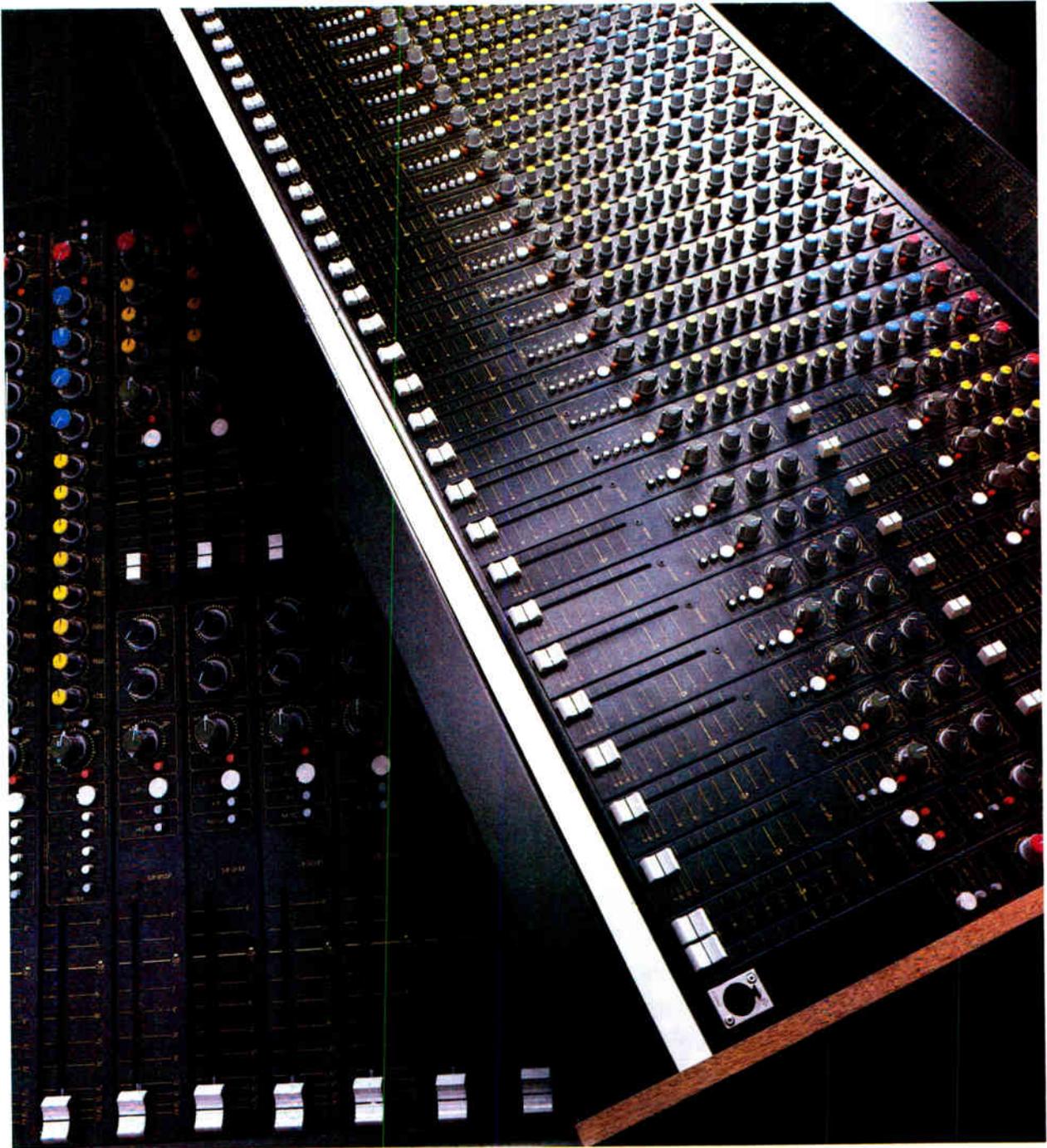
Pavarotti's stage monitor was a Meyer Sound Ultra-Monitor, with a Lexicon 200 digital reverberator providing a more natural sound to the singer. "It's very unsatisfactory to sing in a one-way direction," Lock explains. "What we're trying to get is the ambience that Luciano would hear ordinarily. We have to create it, because generally there is no ambience in the room; the drier the acoustics, the more we have to create."

With a big voice like Pavarotti's, Lock observes, it's quite a delicate matter "working six to eight feet away from the microphone, then putting foldback in and not getting a howlback situation. It had to be worked out very, very carefully. Any resonant frequencies that were going to start feeding back had to be filtered out." Lock adds that they sometimes have another singer assist in preparing the monitor before Pavarotti arrives.

There were two rehearsals at Madison Square Garden the day before the concert. In the afternoon, while conductor Buckley and the orchestra rehearsed, the sound team balanced the microphone mix and began tailoring the sound to the acoustics of the arena. The teamwork of Gans, Lock and Serb came into play here; at various times each man went for a walk around the hall, listening and reporting to the others via HME 150 Series wireless intercoms. Levels and equalization were fine-tuned for each of the speaker clusters, and the settings on the board and amplifiers were adjusted to leave room for changes that might



**Madison Square Garden with main speaker array in place. Additional groups of MSL-3s and VPAs were suspended behind and on each side of the stage.**

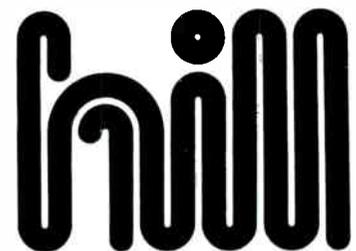


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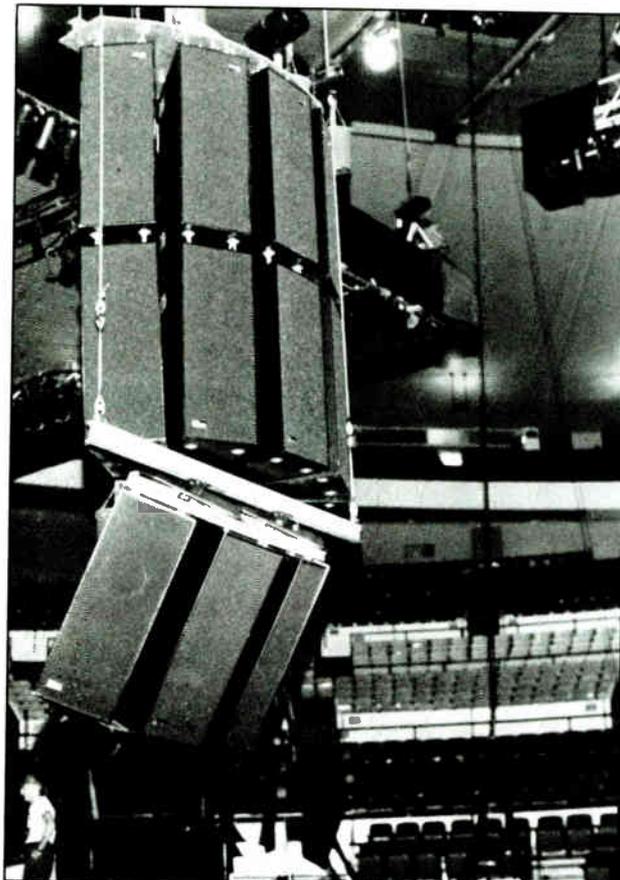


PHOTO: DAVID GANS

(Below) Pro Media president Drew Serb measures the angle of main cluster downfill array as sound designer Roger Gans looks on.

(Above) Main speaker array being raised into position at Madison Square Garden.



PHOTO: DAVID GANS

become necessary during the performance. "We use the rehearsal to find the limits," Gans explains.

In the evening, Pavarotti and the orchestra ran through the entire program, stopping here and there to go over fine points in the music. Pavarotti sang softly most of the time, conserving his strength for the real thing. He sang a few pieces at full volume, giving the sound men an opportunity to balance his microphones with the orchestra, adjust the equalization and make sure the monitor sound and level were correct.

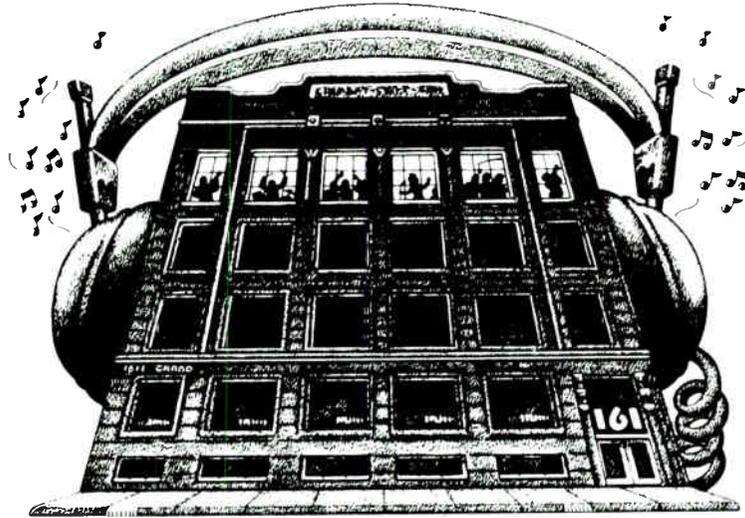
The concert, broadcast live on New York's public television station and shown later on other PBS stations, was a success, if the pleasure on Pavarotti's face is a valid indicator. It was obvious that the audience heard what they'd come

to hear, and the star heard what he had to in order to give his finest performance.

"The more we do these things, the more attuned we get and the more sophisticated it becomes," says Lock. "We're always analyzing and looking for improvements. The best sound system in the world isn't going to make a bad hall sound that good, but you can make it sound very, very decent and give everybody a good shot at the sound."

Madison Square Garden will host more classical music events in the future, and Luciano Pavarotti will continue to perform in large venues. The success of this venture proves that through careful planning and advanced technology, the traditional artistic values of music can be preserved in non-traditional concert facilities. ■

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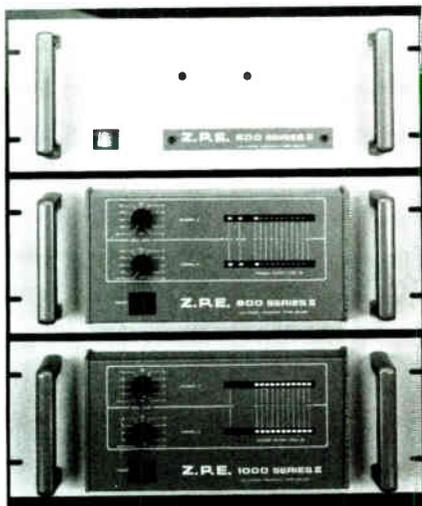
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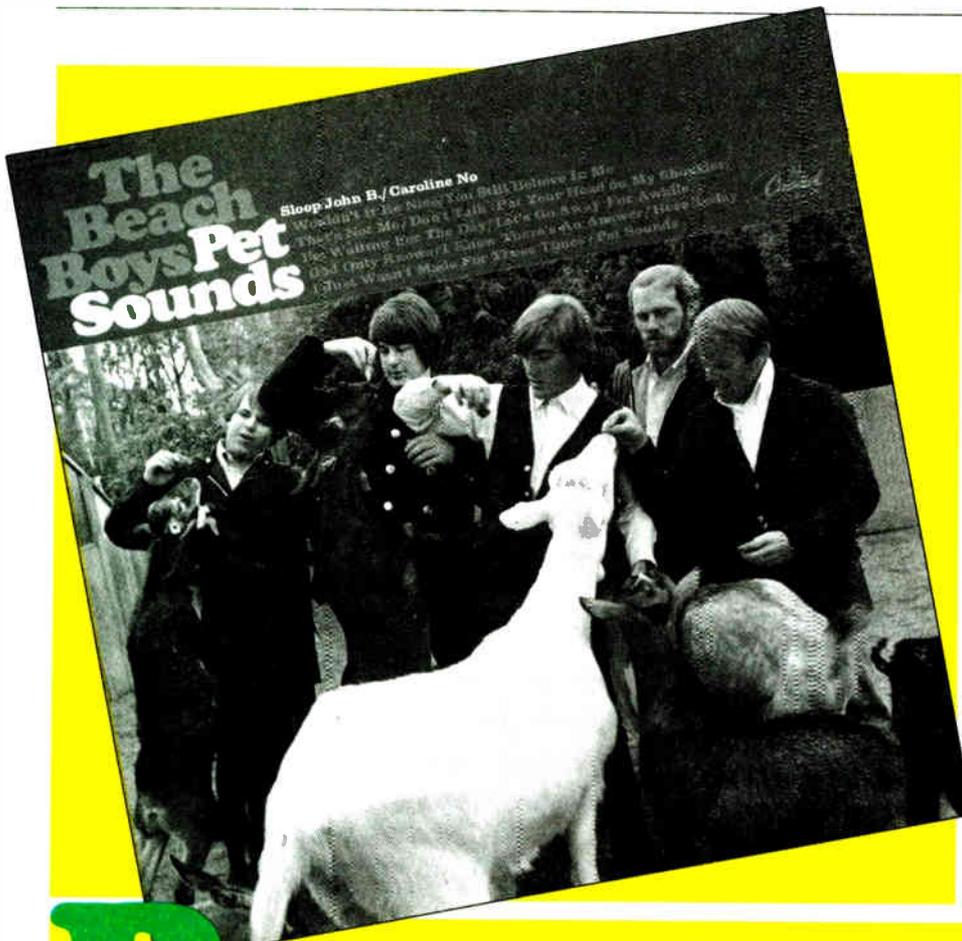
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song! And you could just see yourself sailing along in a ship and having a great time; that's the musical and lyrical picture he painted.

Perhaps as busy L.A. studio musicians at the time, we didn't realize how important this album was to Brian. When I recently spoke to Chuck Britz, who was Brian's engineer for many years, he summed it up in this way: "*Pet Sounds* was a totally different bag for Brian; it was something he wanted to prove to himself. He wanted to prove he could write something that wasn't car or surf. I'm not sure that even Brian himself realized how musically perfect that sound would come out. I think at the time he was doing something to please himself—and if it came out, fine—if it didn't, it wouldn't matter..."

# Pet Sounds Remembered

by Carol Kaye

I once saw George Harrison on television talking about his favorite album. When he said *Pet Sounds* by the Beach Boys, my heart jumped because not only is it also my favorite, but I had the privilege of playing on all but two of its songs.

You won't see my name on the cover—but you won't see any of us: Hal Blaine on drums; Barney Kessel, Bill Pitnam, Glen Campbell nor Al Casey on guitar; Lyle Ritz on string bass; Jay Migliori on saxophone; nor will you see that Gene Estes played vibes on those sessions. I loved working with producer Brian Wilson all those years, and he always let us know he admired our work. But I guess it's sort of a "pet peeve" about *Pet Sounds* that we didn't get listed on the album cover. It was just part of the scene back then.

In the studio when we cut the album, to us it was just another string of songs. But when you look back at the music and what survives and sounds great even today—then you realize, hey, that stuff was better than we thought it was. Naturally, at the time I was listening to the *music*, but now when I go back to *Pet Sounds* I hear the way the words complement the mood of the sounds Brian created.

On "Don't Talk (Put Your Head on My Shoulder)" Brian superimposed one chord on another—which was unusual for pop music, and according to traditional schools of thought, maybe you shouldn't be doing that. There's a point where the lyrics simply say, "listen..." and a musical break continues the story.

"Sloop John B" is one of my all time favorite records. It's fun to listen to. The bass lines that Brian wrote were brilliant—just listen to the bottom on that

The sessions themselves were fun, for the most part, but they were grueling at times. When Chuck Britz was trying to explain his recollections of Brian's sessions, his first reaction was, "Pure Hell! A lot of hard work! No, I'm really kidding. But what *he* heard, he wanted the *people* to hear. And he knew exactly what the hell he wanted."

That he did! He was pretty nice to work for, except some of those *endurance* dates...over and over and over! Brian didn't seem to realize that sometimes the fingers get blisters and the muscles get sore. I can remember one time—the first time I played bass instead of guitar. Now this was during the "Help Me Rhonda" sessions (recorded before *Pet Sounds*). When I walked out of that studio, and Brian was at the door saying, "Great Carol, thanks!" my attitude was, "Don't call me ever again!" I was mad. But with all families and people that you

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care about, there have to be some times like that.

We spent 60 hours in a small studio at Western Recorders on the basic tracks for *Pet Sounds*. (Just to give you an idea of how it *could* have been...we spent 36 hours on "Good Vibrations" alone on the *Smiley Smile* album.) One of the things that took so long was copying the music and occasionally re-writing so the band could play it. You see, Brian had no formal musical training. He would even put the stems on the wrong side of the notes sometimes. Or he might write a song in the key of B, which was hard for us to play. Frequently, Ray Pullman (who also played guitar on some of the sessions) and the rest of us would copy correctly what Brian heard in his head.

But the genius was there even if the education wasn't. If he had gone on to school to figure out what he was already doing, I think it might have sent him in a completely different direction; he might have attempted a symphony or something of that scope.

Hal Blaine was one of the busiest session drummers during the '60s and '70s. For a six year stretch, Hal played on songs that won Song of the Year awards. (The song the next year, by the way, that broke that winning streak was "Classical Gas" by Mason Williams; it had no drums at all.) Hal worked a lot for Brian, too, and as he remembers it, "The more we got into the Beach Boys, the more I realized we were working with someone who knew what he was doing."

As Hal and I were talking recently, we remembered one time we were all in the booth, and Brian was playing something solo, and how thrilled we were at its beauty. At the end, Barney Kessel stood up and said, "Wow! I take back everything I ever said about you." meaning what, I don't know!

After we cut it and it was released in 1966, I knew *Pet Sounds* was one of the greatest albums of all time. But ironically, it was the first taste of commercial "failure" the Beach Boys had ever known. Marilyn Wilson, who was married to Brian at that time, used to spend a lot of time at the studio while we were working. She told me recently how important that album was to the Wilsons back then: "When they finally got the tracks done, after we took the album home, we just laid in bed, lights out, and listened to it top to bottom—and just cried and cried and cried...Then when *Pet Sounds* didn't make a hit—wasn't a giant hit in the beginning, that's what killed him. I don't think it went Top Ten; it only went Top 20, maybe. And when you're used to having Top Ten records, and here you make the greatest thing you've ever made, and you think it's going to blow the roof off everything—and it doesn't do it—he just lost all confidence in the business, in people, in everything."

But Marilyn went on to say that the *Pet Sounds* album seems to hold lots of clues to Brian's personal struggles through that period. "The song that really knocks me out more than anything is 'I Just Wasn't Made for These Times.' That always kinda made me think of Brian—like the way he kinda felt he never fit in... Music was the easiest thing in the world for him—life was the hard part."

When you have that kind of talent you need support. He had a lot going on in his personal life, but he didn't talk to everybody about it...he was cool. But I think when Hal Blaine and Barney Kessel and I would all walk into the booth and we'd just be astounded by the sound he'd created—Brian loved that. That kind of approval really seemed to make him happy. I think the calibre of what Brian was doing at that time, however, surpassed anything we could have said.

But I really feel that we should have been a little closer, just to be there on a personal level to support him. Sometimes in Hollywood people get so busy, they forget to return phone calls, and that can be deadly when someone is going through a trying time. We just took it for granted that the good music would go on and on. But it didn't.

The studio was his grand stage. That's where he would create. From my personal experience, I put Brian Wilson's genius in the same category as that of a Bach or a Beethoven. I also believe that his best work could very well be ahead of him. ■

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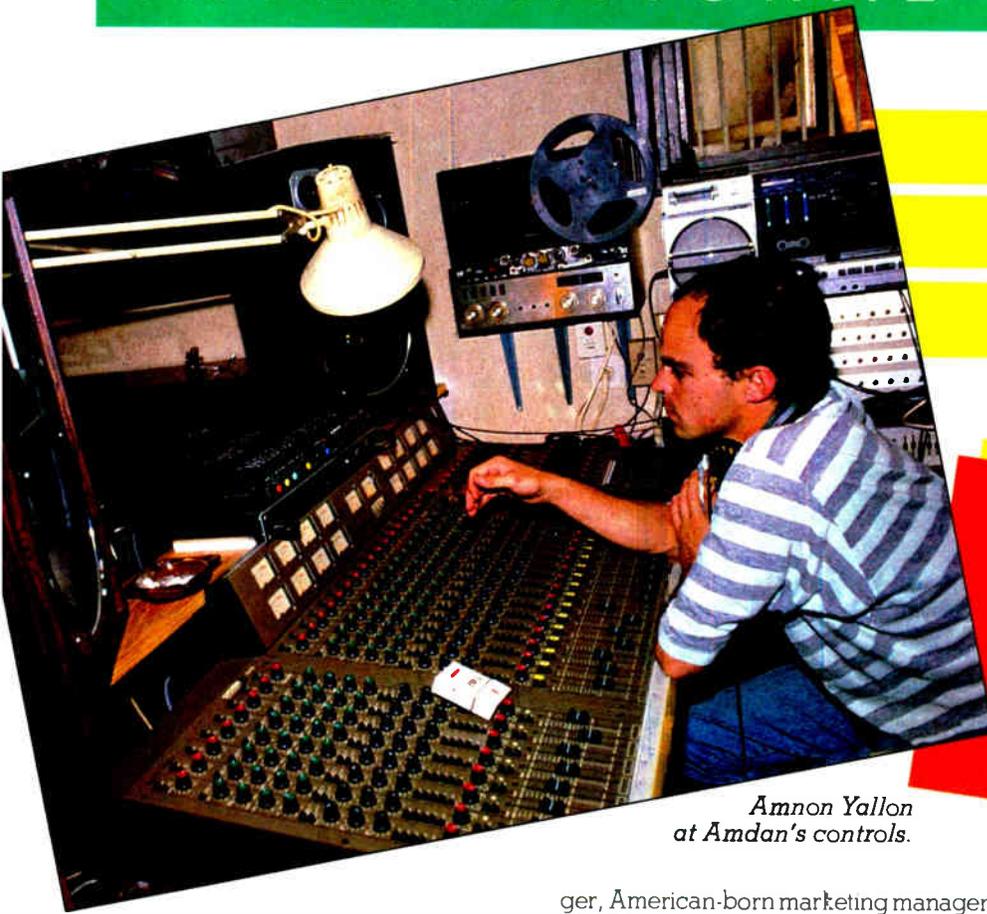
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*Lots of talent but not  
enough money in  
the land of milk  
and honey.*

by David Kriss

Take 4.1 million people—most of them Jews—originating from 90 different countries, mix them up for 36 years and guess what type of music they listen to? Well, the answer lies within a range represented by say, Michael Jackson at one extreme and traditional Kurdish folk music at the other, with Mozart sitting happily hand-in-hand with Julio Iglesias somewhere in the middle.

On the one hand, such a diversity of musical tastes further fragments Israel's already tiny market, but on the plus side it does make for a vibrant and refreshing musical atmosphere. This is a paradoxical situation which is understandably a source of frustration for many of Israel's music makers.

Right now, Israel's music industry—like the country's economy—is under pressure. Inflation is running at a mind-boggling 400 percent a year and although this is offset somewhat by a complicated system of linkages, there is a prevalent atmosphere of economic uncertainty. With a record costing about \$8 and the average wage about \$400 a month, record sales are down and the companies are being forced to fire staff. Part of the problem stems from piracy, mainly in the form of cheap cassettes which are sold quite openly in both record stores and outdoor kiosks. Paul Bur-

ger, American-born marketing manager of CBS Records Israel told me that piracy now accounts for sales of about \$15 million annually, which is higher than the turnover of the entire legitimate industry. Apart from the loss in sales to record companies, piracy also means less cash for local productions and less income for local artists, writers and producers.

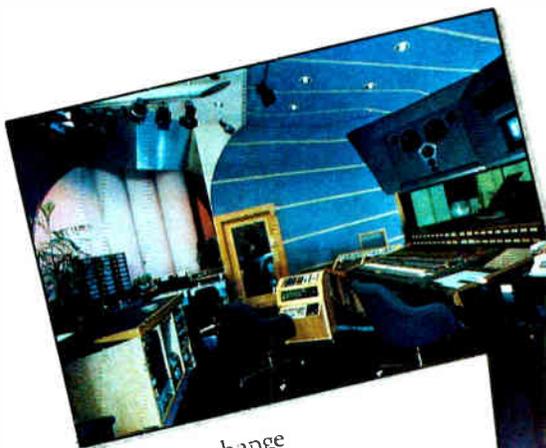
Not that the legitimate industry ever made many millionaires. A gold record is awarded in Israel for sales of only 20,000 units, a platinum disk takes 40,000. CBS Israel artist, David Broza made record industry history about two years ago by selling an unprecedented 130,000 units (as well as an estimated 250,000 pirated cassettes) of "The Woman with Me," a romantic album of Spanish songs translated into Hebrew and lushly produced by early-Springsteen producer Louis Lahav. But successes like these are few and far between and in the present economic climate it is hardly surprising that Israeli companies and producers are thinking harder and harder before investing \$10-20,000 in an album that might sell at best 10,000 units.

Yet, somehow, local albums do get produced, sometimes song by song, session by session over a period of months and even years. In the absence of singles, individual tracks are offered to local radio stations to test response before taking the plunge on an entire album. Despite the difficulties, local productions now account for about 45 percent of the

market and the percentage share is rising.

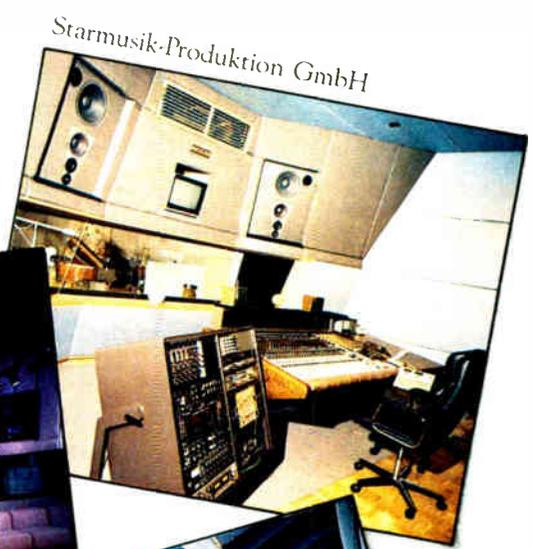
Israelis love music and are getting better and better at making it. This has to do partly with the increased standard of living over the past decade, which has led to more cross-cultural interchange and a higher level of sophistication in every area of life. Local radio, too, has made an important contribution. Since there are relatively few stations (only four playing pop music) there is less pressure to conform to a tight musical format. The result is a refreshing, though sometimes disconcerting, pot-pourri. For example the programmer of an early morning show might schedule The Stranglers, a Brazilian record, Willie Nelson and an Israeli song in Hebrew without batting an eyelid. Ears are open here to anything that sounds good, and this is why Israel is now firmly positioned on the concert tour map. Simon & Garfunkel and Rod Stewart easily filled 25,000-seat stadiums not long ago, and artists like Elton John and Eric Clapton pack the big concert halls, while Joe Cocker, Ian Dury and a bevy of ECM jazz artists have been playing the smaller halls and clubs. Nearly every visiting artist expresses surprise at the enthusiasm and sophistication of Israeli audiences.

But back to Israeli music. A lot of people claim that there is no such animal. And indeed the practiced listener will be able to pick out so many different influences in "Israeli" music that there is some justification to this argument. In



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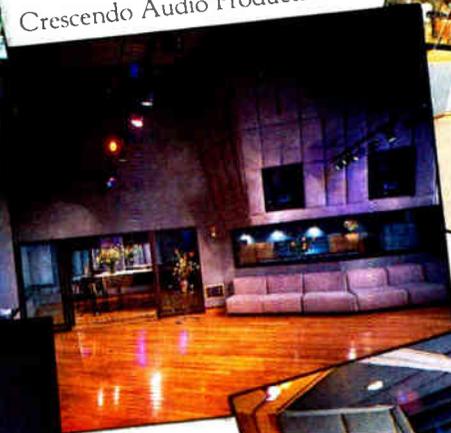
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World Radio History



A session at Kolinor Studios, Tel Aviv.

general terms, Israeli music, reflecting the ethnic sources of Israel's population, is split down the middle between Israeli-Western music and Israeli-Eastern music. That is to say between Israeli music drawing on European-American musical sources with something indefinably local thrown in, and Israeli music deriving from Middle Eastern-Mediterranean sources, often with a dash of Greek bouzouki music for dancing.

Without wishing to denigrate Israeli-Eastern music, it does seem to be trapped in a very confining tradition and tends to be fairly indigestible to Western ears. Israeli-Western music, on the other hand, has developed extraordinarily over the last ten years and many industry insiders believe that it is only a matter of time before Israeli artists are accepted in the international arena. After all, Israel experienced a few moments of glory when it won the Eurovision Song Contest (almost unknown to Americans, but a European tradition) two years in a row in the late '70s. The winning songs, "Abanibi" and "Halleluya," went on to sell millions of copies throughout Europe, so it can be done. But can it be done outside the context of a song festival? Paul Burger believes that Israel is just "one click away" from attaining international success. He points out that the international marketplace is becoming more homogenous and that if Australian, German and Swedish artists can conquer foreign markets, there is no reason why the right Israeli artist with the right repertoire and sound should not do the same.

The best Israeli music has always tended to be melodic and thoughtful with an inclination towards melancholy. However the last couple of years has seen the burgeoning of an authentic local rock scene and promising bands

like T-Slam and Benzine have created the type of hysteria which only a few years ago would have been unthinkable for a local group. At the same time, popular artists like Shlomo Artzi, David Broza, Shalom Hanoach, Yehudit Ravitz and Matti Caspi—all singer-songwriters—have consistently produced distinctive and finely crafted music while producers Jaroslav Jacobovich and Louis Lahav, both of whom have worked extensively in the States, have spearheaded what amounts to a revolution in production quality and techniques. So, given that Israeli writers, and artists, musicians and producers are capable of creating international hits, what kind of service can they expect from Israeli studios?

Arik Rudich, one of the country's leading producers and winner of last year's Israeli "Oscar" for his score of the local movie *Nagua*: "I've done a lot of work in studios in London and the facilities available in Israel are only comparable to those of a mediocre London studio. We still lag behind in acquiring the latest gadgets, especially echo and delays. Cutting here is also of a pretty low standard. Having said that, I do want to say that you can get good results from Israeli studios and I believe that an international hit can be recorded here. After all, the British are making hits with quite ordinary equipment."

At last count there were 43 studios in the entire country, the vast majority of them in the Tel Aviv area, which is the undisputed center of Israel's entertainment industry. Of these, only two offer both 24 track and 16 track facilities and a further five are equipped for 16 tracks. The remainder are small, often one-man four or eight track operations. I took a closer look at four successful studios.

Kolinor Studios, owned and operated by Emil Bar and Amnon Roberman, and one of Tel Aviv's oldest facilities, is now celebrating its 20th anniversary. With the recent addition of its popular Studio C, it is also the biggest studio complex in Israel. The 200 square meter Studio A can accommodate 65 musicians as well as a grand piano. Studio A features a 24 track Studer recorder with auto locator; JBL monitoring; a UREI power amp; a Lexicon 224X reverb unit; Valley People outboard equipment; EMT plates and a Lexicon Super Prime Time. The smaller Studio B (50 square meters) includes a 32 channel control desk; 16 & 24 track Studer recorders, and a synchronizer. This studio also contains video equipment and a monitoring system for video postproduction and overdubs.

As well as work for local television and film companies, Kolinor's video projects have included the Hebrew language versions of *Sesame Street* and *The Smurfs*, both big favorites here, as well as the Perry Como Christmas Special in Israel and Simon and Garfunkel's Israel concerts, which are planned as a TV special.

However, the pearl in Kolinor's crown is undoubtedly the new and comfortable Studio C. Although the recording area is small, Studio C features an LEDE control room equipped with a Studer 24 track recorder with auto locator; a 48 channel Harrison automated mixing console; UREI 813A speakers; a Lexicon 224X reverb system and Super Prime Time; Eventide Harmonizer and Valley People outboard equipment. Studio C costs \$65 an hour, (A & B are cheaper). David Broza recently recorded his successful follow-up album here, and The Dolphins, a local M.O.R. band, recorded a new album in Hebrew and English from which Teldec Records in Germany has chosen to release a single.

Asked for his opinion on the standard of recording in Israel, owner Emil Bar said that the standard of engineers, equipment and musicianship was improving daily, especially since more Israelis were travelling abroad to learn their craft. One of the things Israel had going against it, he said, was the general misconception that the country was a battlefield, which does nothing to encourage outside investments or foreign artists from recording here, despite the cheaper studio time.

Roli Studios, situated just off Tel Aviv's fashionable Dizengoff Street, only opened its doors in March 1983 and is already one of the country's most popular studios. Roli was originally envisioned as a rehearsal studio for Hashagririm (The Ambassadors) a popular Israeli cabaret band lead by Ya'akov Eliezerov. Shoshana, Ya'akov's wife who

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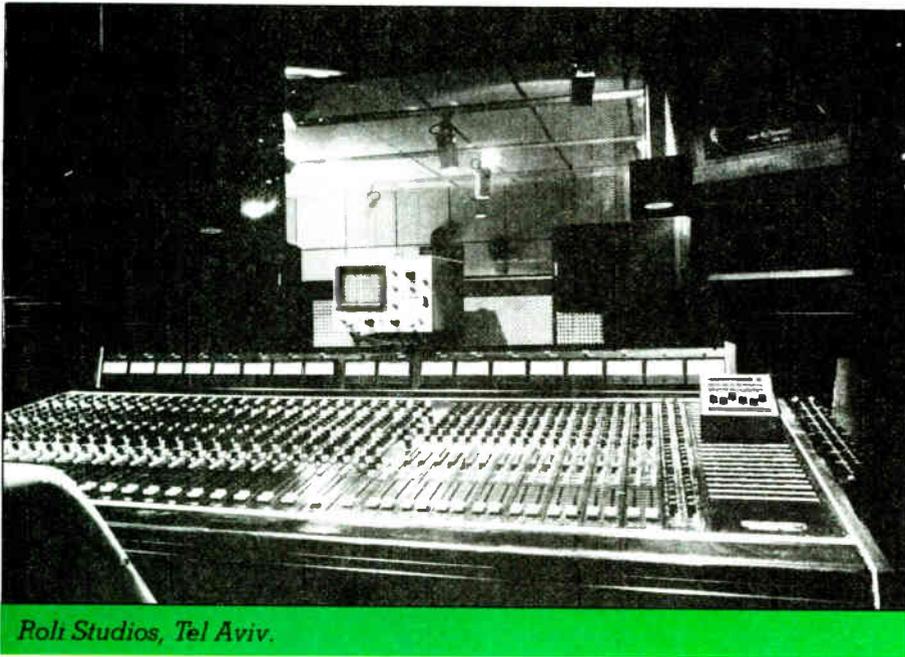
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*Roli Studios, Tel Aviv.*

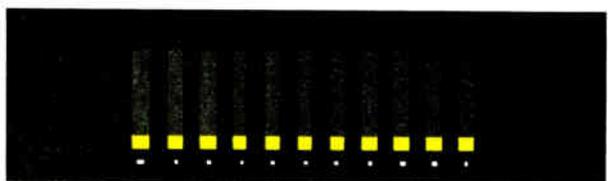
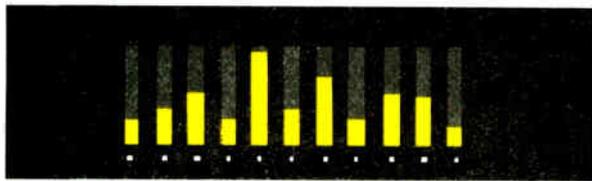
takes care of Roli's day-to-day administration told me that the group wanted to use the studio to work on a long overdue LP. Beginning with a second-hand Studer, they slowly began to collect equipment until three young engineers discovered this "goldmine" and volunteered to put it all together. They did such a good

job that in the process the concept of the studio was changed from a family affair to a commercial operation, and the three youngsters stayed on to work. Roli has been so busy ever since that The Ambassadors are still waiting to make their album. Today, the 22-square meter studio features 24x24 Soundcraft mixing con-

sole, a Studer A80 16 track (with a 24 track on the way); Otari and Revox 2 tracks; Tannoy, SRM15X, David 9000 and Auratone monitors; UREI 6500 amplifiers; a UREI Dual Maxi A parametric equalizer; Klark Technik and MXR graphic equalizers; a Lexicon digital reverb and Fostex and Super Prime Time PLM42 delay systems.

I talked to Yoav Geyra, Roli's chief engineer, who had just risen from his bed (he lives above the studio) after a gruelling all-night session with an enthusiastic but undisciplined rock band. Yoav, who got his experience working in New York studios, was coldly objective although not unhopeful about the state of Israeli recording as compared to his American experience. He told me that in American studios, apart from the obvious advantages of state-of-the-art equipment, the different roles (artist-producer-engineer) are more tightly defined, the general standard of professionalism is much higher and studio maintenance is also more exacting. On the other hand he said that Israelis are fast learners and that the standard of studio musicians is high. He also pointed out that the more informal atmosphere in Israel meant that he as an engineer has more room to express his personality through sound, although he is aware that

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*The Jerusalem Music Center.*

in a more professional environment this would not, and should not, be the case. Also, within its objective limitations, he is happy with the results Roli is achieving. And so he should be. This year's top selling album, Shlomo Artzi's *Dance*, as well as a big slice of this year's local hits, were recorded here. Yoav will shortly be conducting a six month recording course which he hopes will spawn a new generation of engineers and producers.

Amdan Productions, owned and operated by Amnon Yallon and Danny Granot, is also a new baby on the Israel studio scene. Amdan started recording two years ago and now claims "25 percent of the two to three hundred radio jingles recorded here each year." All this has been accomplished in a 4x5 metre studio with no separate control room. Amnon Yallon assured me that apart from the fact that you have to keep quiet behind the console, this poses no appreciable technical difficulties. Amdan features an Allen Heath & Burnell (24x8x2) mixing console; a TEAC/TASCAM 1-inch 16 track recorder with dbx ("a success"); JBL monitors; Dynacord and

Leslie digital delay; an MXR digital reverb unit and a self-made spring reverb unit.

With a thriving jingle business behind them and their own "producer's" studio at their fingertips, Amdan's two young owners have also begun to record their own compositions—in English. First off the line was "In Beirut," a haunting electro-pop comment on the Lebanese situation. Although there are no imminent release plans, response from overseas has been encouraging and more such projects are in the pipeline and hopes are high. However in the fast-paced jingle market Amnon saw less chance of competing internationally since, although potential clients abroad were impressed by the standard of the studio's work, they wanted their recording facilities on their own doorstep. Geoff Christie, of "Yellow River" fame, recently visited Amdan and was reportedly knocked out by the quality of the music he heard there and promised to return soon to record some of his own material. So maybe we'll be hearing more from this small but dynamic operation.

There is one studio in Israel which over the last eight years has quietly produced more albums released overseas than all the others put together—the Jerusalem Music Center, a recording and video studio and center for master classes given by world famous classical musicians to promising Israeli youngsters. Situated in Jerusalem's beautifully restored Mishkenot Sha'ananim, a guest house for renowned artists in all disciplines, the Jerusalem Music Center was dreamed up and turned into reality by violinist Isaac Stern and Jerusalem Mayor Teddy Kollek. Today it is a combined project of the Jerusalem Foundation and the Rothschild Foundation. The studio (11.50x13 meters) can accommodate up to 70 musicians for rehearsals, 30 for recordings and 45 for videotaping. Nineteen revolving panels on two sides of the studio can be adjusted to vary reverberation time. Equipment includes a 24x8 Neve desk, B&W monitors with a Studer amplifier, four Studer tape recorders, a Lexicon 224 digital reverb and a large selection of microphones. The center's recording engineer, Victor Fonarov, told me in a thick Russian accent that he makes an average of about ten recordings a month, of which two are videotaped for TV and for use in music conservatories. To date some 40 classical LPs recorded at the center have been released abroad.

Israel may be a small country, but it has a highly sophisticated population, some of whom dream big dreams. In the process of researching this article, I came across two groups of investors who are actively working on the establishment of ultra-modern, ultra-comfortable state-of-the-art studios. Although they prudently refrained from giving too many details before opening their doors, both claimed that their studios will be able to compete with any other facility anywhere in the world.

Whatever the fate of these projects, Israeli studios are working hard against the difficult odds of a tiny market and limited resources to keep abreast of the fast pace of technological change, and standards are improving from production to production. Perhaps Israel is not going to provide the world with the next "new wave," but my feeling is that the country's musicians have reached the point where they have absorbed so much of the world's music that they are ready to contribute something in return—and Israeli studios are doing their level best to help. ■

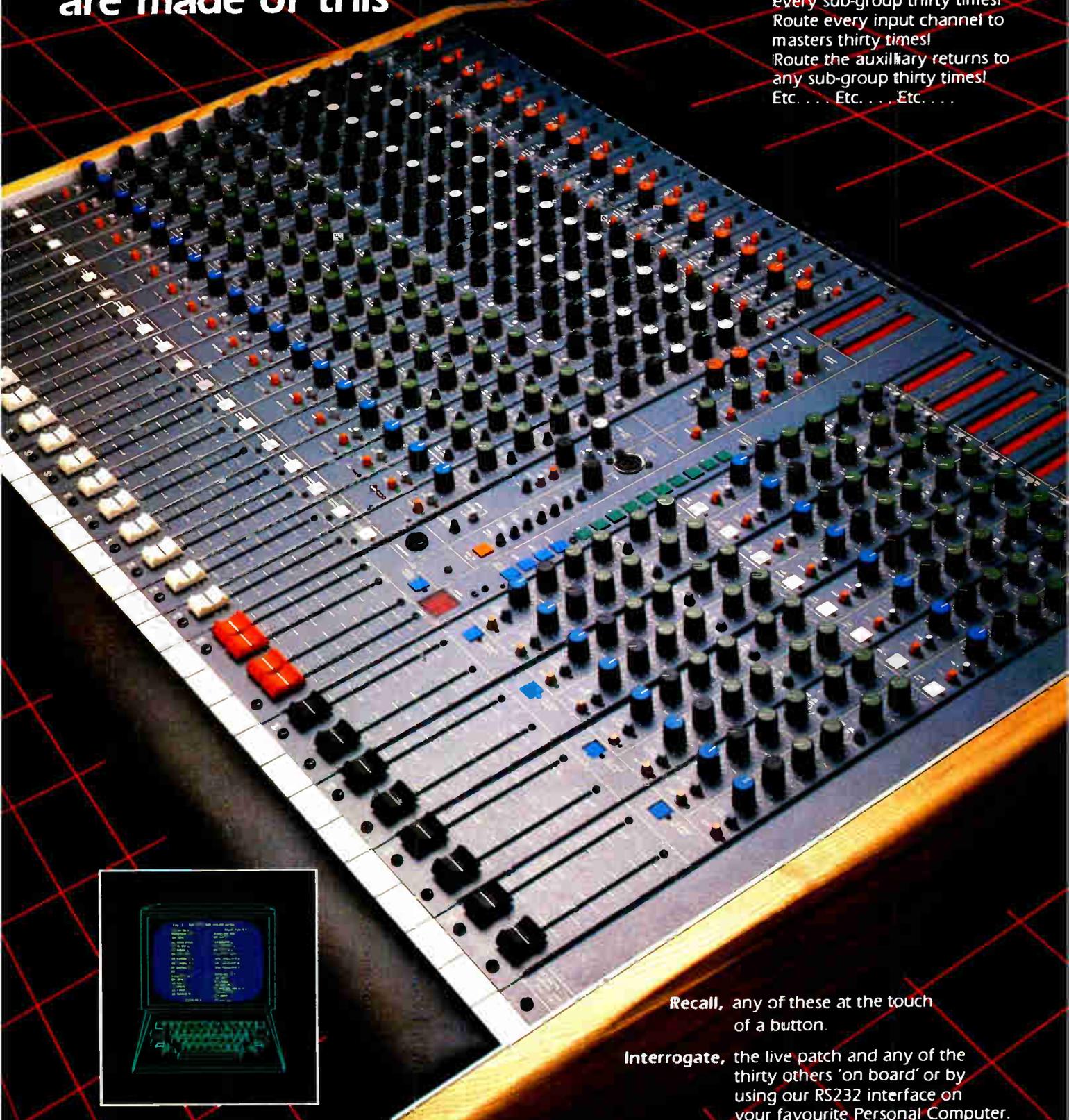
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**David Kriss, formerly International A&R Manager for CBS Records Israel is now a freelance writer, translator and English language lyricist.**

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# Herb Wong

*The thinking man's producer*

by Hillel Resner

Few independent jazz record labels to emerge upon the national scene in recent years have met with either the critical acclaim, radio airplay or sales that have greeted Palo Alto Jazz, the label based in the city of the same name a few miles south of San Francisco. Launched in late 1980 with two releases (Full Faith & Credit Big Band's *Debut* and Paul Robertson's *The Song is You*), PAJ's catalog will number, by the end of the year, nearly 90 releases by more than 50 artists. Sales of PAJ product have been good, chart action impressive, and judging by some of the jazz "names" the label has attracted, the future looks rosy for this home-grown operation.

Palo Alto's fast start out of the gate must be attributed in no small part to the vision, talents and energy of Dr. Herb Wong, PAJ president and co-founder. The somewhat unusual route by which Wong arrived at his present position makes the Palo Alto story all the more interesting.

While most record producers seem to begin their careers as either musicians or engineers, Herb Wong came to his craft by neither of these avenues. Though he studied classical piano as a child (and even gave recitals at the age of 6), that musical direction was aborted by the arrival at his parent's house of a box of jazz records. Wong, then 10 years old, was fascinated by the new sounds and became a self-described "precocious jazz discographer." In his spare time he picked tomatoes, bused tables, and did other odd jobs in his home town of Stockton, California to buy 78s of Jimmy Lunceford, Count Basie, Art Tatum and other jazz greats.

Wong's early fanaticism led to a distinguished career as a jazz scholar,

writer and educator. Dr. Wong (he holds a PhD in environmental sciences) has devoted years to the cause of first-rate jazz education in the public schools, and is currently president of the National Association of Jazz Educators. He has also been a popular (and highly independent) disk jockey for many years on San Francisco Bay Area station KJAZ-FM, as well as the author of countless album notes. And just in case he runs out of things to keep him busy, Wong is also an ornithologist and author of various writings on birds.

It was Wong's work as a writer that led to his involvement with Palo Alto Jazz. Contacted by the leaders of Full Faith & Credit—Jim Benham and Paul Robertson—to author the liner

notes for their first album, Wong encountered some talented musicians with little knowledge of the mechanics of making records. This minor shortcoming was compensated for, however, by the fact that the musicians in question were officers of Benham Management Corp., which runs one of the country's largest money market funds, Capital Preservation. While the intention of getting into the record business was not there, the means to do so and the business acumen clearly were. All that seemed to be needed was someone with credentials in the jazz world to direct the operation. Enter Dr. Wong.

"The origin of PAJ was *ad hoc*," Wong says. "It wasn't the product of a lot of pre-planning and ideational, con-



Herb Wong (right) with drummer Elvin Jones.

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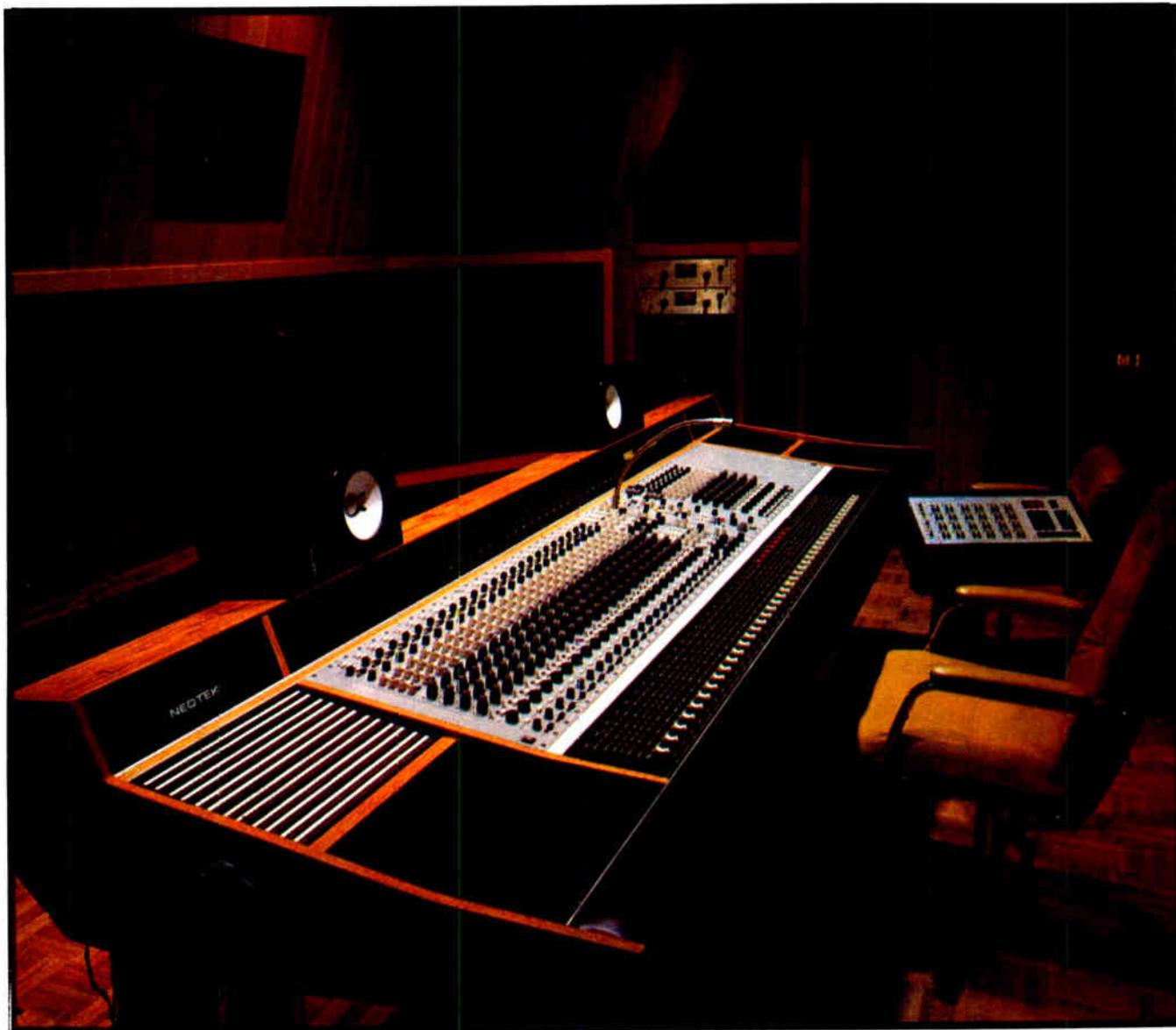


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ceptual work between a bunch of people saying 'Let's see what we can find that's feasible as a potential business.' It was serendipitous."

"Serendipitous" seems to be one of Wong's favorite words, and it suits his style to a T. Though diminutive in stature, Wong exhibits a boundless energy and infectious enthusiasm that remind one of a bebop saxophone player stepping up to solo. Herb Wong is *into* what he does—which seems to be a little of everything at PAJ. He concerns himself with almost every aspect of the label's operation—from negotiating contracts and producing sessions, to overseeing marketing efforts and consulting on the cover art for forthcoming releases. Wong seems to have translated the spirited, improvising attitude indigenous to jazz to the running of PAJ—apparently all to the good.

The output of PAJ in a little over three years would be impressive even for a much larger label. Releases have included widely acclaimed albums by jazz drum legend Elvin Jones, alto saxist Richie Cole, classical-jazz fusion ensemble Free Flight, trumpet virtuoso Maynard Ferguson, pianists Mal Waldron and Victor Feldman, bassist David Friesen, and stellar guitarists John Scofield and John Abercrombie. Most recently, PAJ has seen soaring cross-over successes from the Generation Band (*Call of the Wild*) and soprano saxist George Howard (*Steppin' Out*), albums that have not only topped the jazz charts but scored on pop and black music playlists as well.

In addition to established jazz talent, PAJ has introduced new or lesser-known artists to a wider audience. These include vocalists Dianne Reeves, pianists Larry Vuckovich and Mary Watkins, saxist Scott Scheer, multi-instrumentalist David Diggs, and several others.

"A lot of record companies will say, 'We only want name talent—period,'" Wong says. "But I don't think 'names' automatically develop. I understand why that perspective is practiced—because labels don't want to take the time experimenting and taking a bigger risk. Okay, then you lower your risk by not spending as much money perhaps, with entry talent, and see what happens to it."

In relations with all his artists—be they Maynard Ferguson or an unknown, Wong is similarly idealistic. He stresses the need for communication between artist and label, based on a mutual understanding of each other's needs.

"The feedback to me for decades, being involved in so many different segments of the jazz community, made it very clear that humanism was something to be set aside, that it was purely a business. I don't think any

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# DELAY

kind of social system can operate successfully unless the people involved—which are the resource, and contributors to the product—have access to an exchange of ideas.”

This philosophy is key to Wong’s approach to producing, which he illustrated while recounting a recent live date with the Elvin Jones Quintet, recorded at New York City’s Village Vanguard during the Kool Jazz Festival. The performance was taped using Steve Remote’s Aurasonic remote truck, with Gene Perla engineering for PAJ.

“The group was Elvin with two tenor players—Frank Foster and Pat LaBarbera; Chip Jackson on bass, and Fumio Karashima from Japan on piano—a monstrous talent. They had just returned from a very successful tour of Europe. This was a launching period for them, and I recorded them on the very last day of their gig.

“What do we do on a live date like that? Shall we just tape it and let the guys do whatever they want? You can’t produce something that’s that *laissez faire*; you have to have some discipline... There is an overwhelming tendency among jazz players in a club setting to blow as long as they want. So the best way of handling that is to say, ‘Hey, we’re producing a record, but I don’t want just two tunes.’

“We have here a consideration of possible dilemmas that can give us a nice balance. There should be some things like we’ve done in our studio recordings; since we’ve done two of them [*Earth Jones* and *Brother John*], there should be a balance of material, and so forth.”

The project in question turned out to be all that Wong could have hoped for. “I think we got at least two records worth of tape. It was pretty well organized because the group had the previous evenings to work over the material live. And having Gene Perla as my engineer was a huge asset, because he was Elvin’s regular bass player for several years and is really into the music.”

Where newer artists are concerned, Wong observes that the communication process may be influenced by other factors. “We have some emerging artists who need a lot of career direction. It’s interesting that they are the most open people, because they are arriving at a period when there is a greater spectrum of musics than ever before in human history. Because of that, and the correlated breadth of the marketplace, they are very bewildered.

“The university jazz education programs today provide a very comprehensive background for a music major coming out as a jazz player, composer or arranger. And most of

them come out playing a variety of styles. That also provides them with the capability of going into studio work, commercial music work, or if they decide they want to be a road rat, okay, do it.

“So a young person’s biggest problem is which way to go. With those artists we have here who thought they wanted to pursue a ‘jazz career,’ when we have seen the potential of widening their horizons we have exposed them to other things.”

Not surprisingly, Dr. Wong also has strong feelings about studios and engineers. He is especially partial to Mad Hatter Studios, Chick Corea’s facility in Los Angeles, and engineer Bernie Kirsch.

**“There is that spark that happens only when the musicians are able to see and relate to each other. If you have too much isolation, the feeling of the inspiration and communication is changed.”**

“I like the physical environment of that studio,” Wong says. “You can see everybody and work very well. There is that spark that happens only when the musicians are able to see and relate to each other. If you have too much isolation—not only from the sound standpoint—the feeling of the inspiration and communication is changed.”

As to engineer Kirsch: “He’s extremely sensitive to the particular genre of the music. Whatever it is, he knows what it needs and he’s very responsive.”

The best engineers, Wong says, “have that sixth sense, which is an undefinable quality, that is deeply insightful. They have a pretty good idea of what you’re looking for, which is not to compromise their technical expertise or their standards. It’s a kind of comfortable meeting area of our mutual needs. It’s not just a personality, but the particular ability to be able to find that balance.”

As 1984 draws to a close, Herb

Wong appears to be busier than ever. Besides the Elvin Jones live album, new LPs are in the works by Maynard Ferguson (recorded at San Francisco’s Great American Music Hall), Chico Freeman, Phil Woods and Sheila Jordan, among others. A new Victor Feldman album, produced by Feldman under a production agreement with PAJ, will feature Chuck Mangione, Dave Grusin, Chick Corea and Lee Ritenour.

Wong is also busy launching two subsidiary labels. The first, TBA Records, debuted earlier this year and features contemporary artists such as George Howard, the Generation Band, Dianne Reeves, David Diggs and Scheer Music. The second, called Tall Tree, will specialize in releases of jazz classics, and as might be expected, is a pet project of Wong’s. Tall Tree will be launching this fall with six releases, including rare recordings of Woody Herman, Cannonball Adderly with Nancy Wilson and Lou Rawls, and an album entitled *Trumpets on High* featuring Miles Davis, Dizzy Gillespie and Maynard Ferguson.

Wong is also nearing completion of a very special project: an album commemorating the first 25 years of the Monterey Jazz Festival. Scheduled for release in time for the festival in September, the 2-record set is both an historical document and a labor of love.

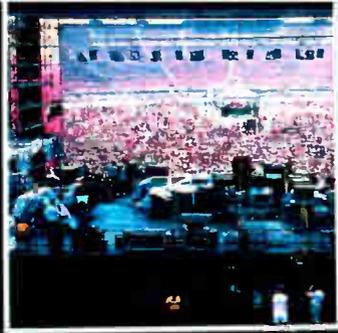
“The album is aimed at supporting the jazz education program of the Monterey Festival. That program is something I’ve supported from its inception, and it’s part of my other professional work as a jazz educator. Many of the student jazz bands that are the final bands that go to play at the festival are bands that I hear while I’m judging around the country. I judge maybe 15 or 20 festivals a year.”

Wong says that despite the numerous recordings made over the years at Monterey, “There’s never really been a representative album about the festival, featuring the highlights. For this album there will be 13 cuts, spanning the years from 1958 to 1980. It’s taken almost two years to put together.

“I took the raw tapes of the Monterey material that I selected and transferred them to digital with the help of Don Osaski at Ampex.”

The album features a variety of artists, styles and contexts. Locating the tapes and securing releases for 13 different performances was a monumental task, but Wong feels the result was well worth it.

“Entertainment can also be educational. We should never lose sight of that. I would like to see this label contribute so that in years to come people will say that Palo Alto Jazz made at least a significant crimp in history.” ■

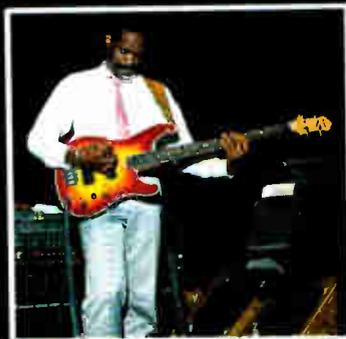


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by Josef Woodward

# Conlon Nancarrow

*Are you ready for avant-garde  
player piano?*



PHOTO: JOSEF WOODWARD

GREAT THINGS COME FOR CREATIVE MISFITS. Conlon Nancarrow, the reclusive mastermind of the player piano, discovered long ago that his stark rhythmic radicalism didn't quite mesh with the currents of his contemporaries, but he has pursued his own leanings more or less out of the public eye for over 40 years. Only recently has the "outside" world tuned in to his startling private reserve of musical experiments, and regardless of one's opinion of Nancarrow's studies, it's hard to deny that he has forged a musical language expressly his own.

The sorts of things Nancarrow was hearing in his head back in the early '40s, refracting off his composition training and his days as a jazz trumpeter, were aural thunderstorms in a time of relatively blue classical music skies. He made his own rules—clustering polytempos, aggressive polytonalities (emphasis on the "poly")—as he went along, and in his own way he waged a musical revolution in the soundproof studio in Mexico City which has been his workshop/home for four decades.

Nancarrow's recent coming-out can be credited to the efforts of Berkeley's 1750 Arch Records, a small but large-minded label which sent a recording entourage down to the artist's lair to capture some 40-odd studies on tape (Bob Shumaker handled the actual engineering). The first volume, *Complete Studies for Player Piano, Volume One*, came out in 1977; by the time the fourth installment was shipped early in 1984 Nancarrow had developed a rep as one of the *causes celebres* of 20th Century music. On *Volume Four* the studies are arranged in a cross section of Nancarrow's evolution; his earlier studies evince the love of jazz and other unabrasive sonorities he still harbored, although they were thrown just slightly off center. The stylistic warpage gets more intense and willful in later studies as he utilizes the pliable potential of the instrument to a greater degree—the player piano is ever open to such perversions as

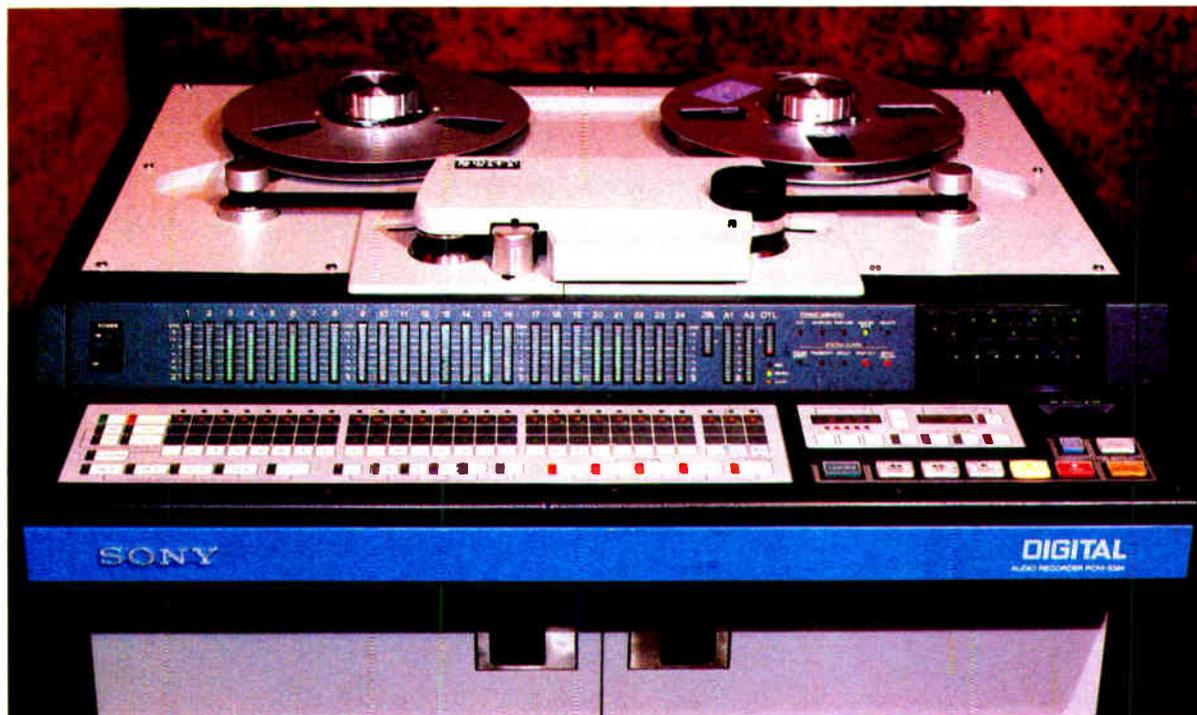
blinding speed and clashing tempos and never demands double pay.

Nancarrow's first releases drew applause from all quarters of the classical and avant-garde music realms, but audiences had to wait until 1981 to embrace him in person. In 1981, Nancarrow was granted an underground hero's welcome at the New Music America Festival in San Francisco. Since then he has made several short "promotional tours" to the U.S. and Europe, the most recent of which occurred earlier this year. That visit included a stop in Los Angeles, where Nancarrow heard some of his work transcribed for non-player piano formats.

There was also a visit to IRCAM in Paris in November of 1982. According to staff member Dave Wessell, Nancarrow gave a "quite spectacular concert... presented on very high-quality audio tape... At the end of the event there was a panel with Nancarrow himself, John Cage, Roger Reynolds, and myself. [Nancarrow] said that jazz was a big source of inspiration. He likes Cecil Taylor." But Nancarrow seems to take these road trips grudgingly, since they take him away from his secluded drawing board.

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World Radio History

The essence of Conlon Nancarrow, a sort of sketchy hybrid of Scott Joplin, Igor Stravinsky and a very tipsy Liberace, amounts to a wonder of avant-garde self-reliance. Even in this age of spiralling synthesizer technology and computer-assisted music, it's impossible to remain unimpressed by the aural frontiers Nancarrow has delved into with his ingenious yet primitive instrument; with his dense battles of rhythm and tempo, he has given the mere player piano a new lease on artistic life.

And who is the man behind this revolution? Nancarrow's background, though peppered with ambiguities, gives some clues. He was born in 1912 in Texarkana, Arkansas. He first took up the trumpet, scoffing at the piano. After some scholastic weaning he joined the Abraham Lincoln Brigade in the Spanish Civil War during the late '30s. After returning home, he felt some governmental harassment—so he exiled himself to Mexico, and there he stayed, working with the two player pianos and the hand-operated punching machine he picked up in New York.

He took up residence in a Mexico City suburb, on a plot of land which originally contained only his studio. He later built a house there for his archaeologist wife, Yoko, and their son, Mako (now 12). I caught up with Nancarrow there, on a sweltering April afternoon; fingering a glass of cognac, he talked freely but a little elusively about his life and work. He decried the uglier realities of Mexico City life—the political murk and the murk in the air—but seemed satisfied in this place, removed from the relentless static of American culture. Well, *almost* removed: as we talked, we heard the muted purr of that global villager leaking out of Mako's room—there is no escape from Michael Jackson's *Thriller*.

**Mix:** Do you feel that your self-imposed isolation had a central impact on the shape of your music? Could you have done the same work in New York?

**Nancarrow:** I don't know. I doubt it very much.

**Mix:** Where do you trace your interest in layering things, your extensive poly-rhythms and all?

**Nancarrow:** Originally, my main interest was in rhythms as such. Then it developed into more and more complex relationships: rhythms, then poly-rhythms, and finally polytempo.

**Mix:** I've read that you have a strong interest in African music, which is of course reliant a lot on polyrhythms. That music seems to be working around a cyclical, trance-inducing effect. Yours is not that way at all; you're not out to hypnotize anyone.

**Nancarrow:** No, that's certainly not my intention.

**“When I write for piano, I write things that player piano can do. There are certain things humans can do better than player piano; of course, player piano can do a lot of things that humans can't.”**

**Mix:** To make a broad generalization, your music is more of the expressionist ilk than the romantic. Have you always leaned that way?

**Nancarrow:** Oh, yes, between the two choices.

**Mix:** I know there are melodies interwoven in your pieces, but it almost seems like you want to avoid the recognizable, repetitive motif or memorable bit of melody.

**Nancarrow:** It's not deliberate—I just don't have much melodic talent, that's all [laughs]. I don't avoid melody, I'm just not very good at it.

**Mix:** In trying to piece together the sequence of your work, the more traditional pieces came at the beginning when you were just perhaps testing the waters with this new machine. As time goes on, the studies get progressively more abstract. Do you see your own musical progression as traveling from the traditional to the experimental?

**Nancarrow:** In the early '30s I wrote quite a few pieces that I guess you could say were “traditional,” if musically very crude. A year or two ago someone dug up a score in some library, a scherzo and sarabande for oboe, bassoon and piano. I recognized the handwriting on the score, but I didn't recognize the music—a complete blank—but obviously I did it. And it was a very conventional thing.

Naturally one develops and grows, or it's nothing. You go from one thing to another.

**Mix:** It's hard to pinpoint musical parallels in your work, but I've noticed a few. There's the sort of warped honky-tonk piano of the earliest studies, for instance. How much do you feel that jazz figures into your work?

**Nancarrow:** When I write for player piano, I write things that the player piano can do. There are certain things humans can do better than player piano; of course, player piano can do a lot of things that humans can't.

When I was writing music for people to play—40 years ago or more—there was an enormous difference in what performers could do as opposed to now. Back then, anything slightly out of the ordinary got neglected. I wrote a string quartet, and a very well-known quartet—they lived here for a while—promised me they'd at least give me a reading. Of course, they never did. For them it was just too much. I heard it for the first time last year in Los Angeles, very well played.

The musicians are much better now, partly because composers over the years have been presenting more and more difficult things and they've just had to learn to play them. But now I'm stuck with player piano, so I'll stay with it. As a matter of fact, I've gotten into things that—even *with* what performers can do today—are just unthinkable away from the player piano.

**Mix:** I hear shades of Gershwin and even Villa-Lobos on the records at various points, but the most coherent and insistent comparison is with Stravinsky, who, like yourself, really pulled out the percussive personality of the piano.

**Nancarrow:** Stravinsky is my favorite composer, I guess. Stravinsky and Bach. Stravinsky always maintained that the piano is a percussive instrument. Of course, all of the virtuoso pianists say it is a “singing instrument.” They want it to sing. But it is a percussion instrument, no matter how much you make it sing or whatever.

As a matter of fact, Stravinsky was always sort of interested in player piano. He did one little piece, but it had no point in being for the instrument. It was just a piece. But he was always interested and at times thought about doing something and never did. But Robert Craft, who was practically his full-time assistant, secretary, conductor and everything else, would get hysterical when Stravinsky would even hint that he might do something with player piano. He put up a violent block against it. I don't know if that influenced Stravinsky, but he never did anything, unfortunately.

**Mix:** “Rite of Spring” was certainly light years ahead of the musical standards of the day, and he found orchestras to play it. He must have experienced the same problems you did in finding musicians who could handle the stuff.

**Nancarrow:** That was, I guess, my first introduction to contemporary music. I heard that in Cincinnati when I was 17 or 18, and I was just bowled over. I still like it.

**Mix:** After that piece Stravinsky retreated a bit and went into his neo-classical phase....

**Nancarrow:** Well, that's what everyone says. Retreated in one sense—from this violent aggressiveness—but what they call his "neo-classical" work has very subtle and extremely sophisticated things. In fact, Stravinsky is one of those composers who I feel through his whole career always put the right note at the right time. No matter what style he was writing in, it was always just right, which is something. How many composers have done that?

**Mix:** On the subject of influences, are there any musicians or idioms that you're listening to now?

**Nancarrow:** No, I don't listen much any more. I've got an enormous collection of records, but I haven't really kept up with modern currents in music.

**Mix:** Is that the result of your search for your own musical voice, or is it that music got less interesting?

**Nancarrow:** Probably a little of both.

**Mix:** I read somewhere that you sometimes write pieces with only rhythmic configurations and then assign notes later.

**Nancarrow:** No, that was a simplification of something I once said. When I decide I'm going to do a piece in a certain temporal relationship, I take a blank piano roll and draw—not rhythms; just, let's say, 16th notes in each time. Then I take that, mark it off into sections and transfer those marks onto music paper the same size. It's as if I were writing a piece in 4/4 and I had a piece of paper that marked off all the measures in 16th notes. Then I just write the piece based on those marks.

**Mix:** So it's just to give you a metric bearing?

**Nancarrow:** Right. It's not the rhythm or the melody or anything—that all comes later. [With this system] I have some ideas of what it's going to be, especially for length and proportions.

**Mix:** Is this a technique that just came about through experimentation?

**Nancarrow:** Yeah. Little by little I drifted into it. The early pieces were written in standard notation, whatever the relationships were. As I got into more complicated tempo relationships, I got into the thing of drawing the proportions out first.

**Mix:** Some of your studies seem almost arrhythmic—without apparent rhythmic pulse.

**Nancarrow:** Well, there's one piece—#26, a canon—that is just one-to-one,

**"In the early part of the century, a lot of famous pianists, not to mention famous composers—Debussy, Strauss—transcribed things for player piano."**

first species counterpoint. Naturally there's no complication rhythmically there. I decided after doing more complex things that I would do something as basic and simple as possible, and that was that piece.

**Mix:** In general, would you say that rhythm is your mistress, so to speak—over harmony or melody?

**Nancarrow:** Oh, definitely. I said I don't have much melodic talent; I don't have much harmonic talent, either. In fact, I use melody in a rhythmical sense, to accentuate certain rhythmical contours. To me, melody is just a crutch [laughs].

**Mix:** You rarely use chords *per se*; there might be incidental connections of notes and intervals, but that seems just the collision of linear parts in the music.

**Nancarrow:** Well, I use blocks of notes, but they're usually not chords in the functional sense of 19th-century harmony. For me, chords are just blocks of notes I can use to make a rhythm. Of course, I select the blocks I want.

**Mix:** Does the monophonic character of your first instrument—the trumpet—have something to do with your non-chordal leaning?

**Nancarrow:** You know, I stayed on trumpet. I don't play piano.

**Mix:** You just play a device that does the playing.

**Nancarrow:** Right. My piano plays it for me.

**Mix:** In your formative years, did you have what you could call a composer's disposition? Were you inclined toward writing music early on?

**Nancarrow:** I guess I started in the early '30s. That ["traditional"] piece I told you about was a long time ago.

**Mix:** I understand you had a player piano in your home as a child.

**Nancarrow:** Oh, yes. We had everything; I remember Chopin, all kinds of things. It really fascinated me, watching it playing music like that. It was a long time before I actually started using it, but I guess it made a big impression on me. At that time, I wasn't even dreaming of composing, let alone composing for player piano, but I guess deep down it hit me. When I finally got fed up with the difficulties of writing things that people couldn't play, it began dawning on me that this player piano could do it. And it could.

**Mix:** How about a brief history of the player piano?

**Nancarrow:** In the early part of the century, a lot of famous pianists, not to mention famous composers—Debussy, Strauss—transcribed things for player piano. In those days, they had a special technique; they'd get a famous pianist to play while a roll went through the piano. As the roll went through and the pianist played, it would make an ink mark where each note was played and let up. So they had a perfect record of the time of the notes. They punched that, and afterwards they'd get an expert to do the dynamics. They did a very good job of reproducing what they played.

Most of the player piano industry survived with popular music, although at one time they sold a lot of these rolls of the famous pianists, say 50 or 60 years ago. They were very well done. At present, the player piano has seemingly fallen from musical grace and has a reputation as a novelty item, unfortunately.

They're still made. There's a big factory in Buffalo called QRS. The company has been around for 80 or 90 years. But most of its business is in popular music—standard things, not even jazzy or anything. Apparently there's been a big revival of Scott Joplin. (Incidentally, he was from my home town. I never knew him, naturally.)

QRS used to be in the Bronx. In fact, that's where I went in the '40s when I was looking for a machine for punching. This factory making piano rolls had enormous machines turning them out by the thousands. But I wanted just a little thing to punch rolls for myself.

I found a man there who had a curious thing. It was quite primitive. He had someone there take measurements; I spent months getting someone to copy it, then I took it back to Mexico and found it wasn't quite what I wanted. I found someone here to make the modifications, and it turned out very well.

**Mix:** Have you had much trouble with your two pianos?

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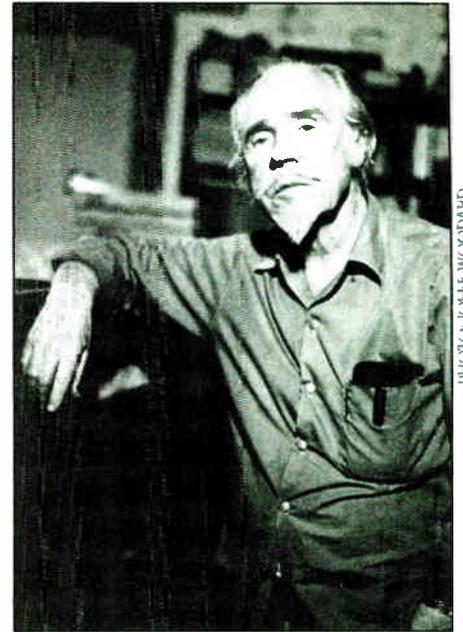


PHOTO: KEITH WOODWARD

**Nancarrow:** Oh, I should say so. In the first place, I have these hardened hammers on both of them. They create a powerful blow, which is sort of hard on strings. You have to take a player piano apart to replace a broken string; it's a major production, and it happens fairly often.

There was another invention, in Europe, that played a piano with sort of artificial fingers. It was a separate instrument—you put the roll in and pushed it up to the piano. These fingers played the keys as programmed. You used it with ordinary pianos. There were only about a thousand of these things made; imagine how scarce they are. I don't even know how to look for one, and at this stage I'm not going to try and go into something like that anyhow.

**Mix:** Are the hardened hammers part of your desire to make the piano even more percussive?

**Nancarrow:** Not only percussive. A normal piano is basically a harmonic instrument. All the sounds blend. I wanted a sharp distinction between the sounds, like a harpsichord, for example.

Having mine stand out sharply is for rhythmical reasons more than melodic, but it's the same idea. The other tends to blur.

**Mix:** That seems your natural inclination—to make things distinct and angular. Have you ever been frustrated by the limitations of that sort of timbral set-up? I notice sometimes you create smears of notes that almost conquer the percussive effect. Have you ever wanted a smoother sound, more sustain or notes?

**Nancarrow:** Occasionally, but on the whole I prefer it this way. There used to be a thing called a mandolin attachment for the piano. It's a bar with little strips hanging down, a little leather strip with metallic things in it. You could get similar to the sounds I get, and if you wanted a regular piano you just raised the bar. But this thing never worked right, because especially in loud passages, the leather strips would get tangled up in the strings. It was a mess, so I dropped that. Of

course it would be better to have a regular piano sound for certain effects, but...eh...I just don't have it.

**Mix:** In a way, the player piano is like a prototype of the synthesizer, in that the programming is equal in importance to the actual performance. Do you feel an affinity for electronic music? Have you dabbled in it?

**Nancarrow:** Before I went into the player piano thing, I always dreamed of something like electronic music. The limitation of this player piano is the sound of the piano; that's all you have. Of course, you can do a lot of things with those sounds, but that's it. Electronic music is a whole world of sounds. When it first started, it was so primitive. It's getting more and more sophisticated. I wouldn't dream of trying to learn a new technique, a new technology and everything else now. I'm into player piano. But I think the future of music probably is electronic music. Unfortunately, I'm sort of disappointed that it hasn't developed more than it has. It has unlimited possibilities. Unlimited.

**Mix:** It seems to have already found musical ruts.

**Nancarrow:** Ruts is the word. They just got into their rut and they stayed there. Oh, the things they could have done. Maybe someday they will. I hope so.

**Mix:** For example, you could take one of your scores and have it programmed for synthesizer in a different sound, or four different sounds.

**Nancarrow:** As a matter of fact, IRCAM in Paris—an electronic experimentation center where I did a concert—has all this unbelievable equipment, but apparently they don't have much in the way of composers. They've got technicians who are unbelievably sophisticated, and they want to take something of mine and play around with it—program it. I'm delighted. I'd be very curious to see what they could do with it. They could program it for all kinds of sounds. That's much more practical than arranging a piece for orchestra.

**Mix:** Do you have any immediate ambitions or projects you're working on?

**Nancarrow:** I've gotten so far behind in doing legible scores of my pieces, I'm taking some time off to catch up. You know, they've been publishing these things and they can't publish it from my punching scores—it's kind of shorthand that no one else could read. Years ago I had a spell of several years when I didn't feel like composing, so I took that time to make legible scores. I'd already had quite a number of them. The main point of the scores is so that people can hear the recording and see actually what's happening. This IRCAM thing, they wanted to transcribe directly from the roll, which is very accurate, for the temporal relationships. The ones transcribed on paper are not quite that accurate. The roll is exact all the way.

**Mix:** Precision is paramount, in terms of the interlocking rhythms. It is extremely precise, and yet your music has an air of primitive appeal. Did you always have that dichotomy in mind?

**Nancarrow:** I never thought of it as a dichotomy.

**Mix:** Are there any specific studies that stand out in your mind over the rest in terms of depth or musical success?

**Nancarrow:** No, none which you could call my favorite.

**Mix:** I guess what I'm trying to get at is: Were there certain points in your writing that you felt were creative peaks, like "hey, that is *it*, my definitive piece of work?"

**Nancarrow:** No, I never thought of it that way. Maybe I peaked a long time ago. Who knows? ■



## David Knopfler: A Kid Brother On His Own

If anyone had thought Dire Straits co-founder David Knopfler left what had become his big brother's band for musical reasons, one listen to his solo album would dispel the notion. *Release* sounds precisely like middle-period Dire Straits.

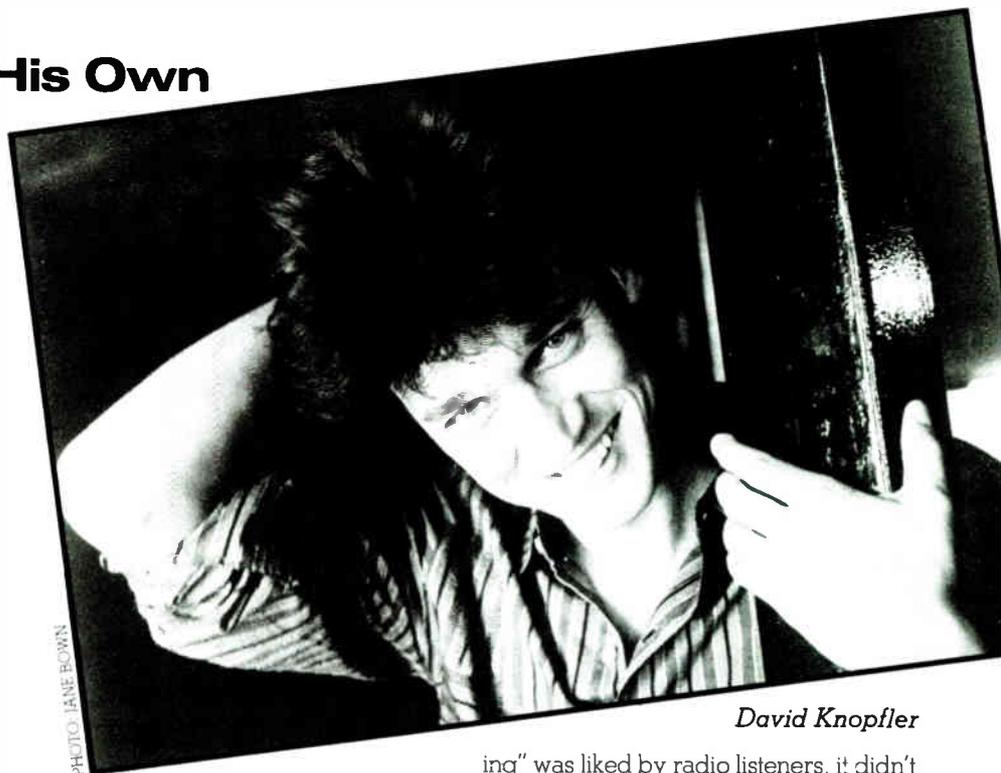
"The first song I wrote after leaving the band was 'Madonna's Daughter,'" says David, "and, to me, it sounds obviously like the Straits, that doubled guitar thumping away and all. And it was intentional—I even make oblique references to 'Expresso Love' on it, which was a song on *Making Movies*."

"I didn't leave the band for musical reasons," he continues. "*Making Movies* is my favorite Straits album; I lived it. The only Straits album I have misgivings about is *Communicue*. The songs didn't come out like rock songs; it should have been a rock and roll album, and it came out like something else."

You have to listen between the lines a bit to find the rift that split David and brother Mark. The two are buddies once again; big brother even added a few trademark guitar licks to David's album. But when David stormed out of the studio in 1980, halfway through making *Making Movies*, he was exploding after years of pressure.

"It was an emotional decision, and a fairly instantaneous one. I just decided to get out from underneath what I felt was a very oppressive situation. Mark's four years older than me, and... wasn't treating me very well."

So he left. Produced a band in Amsterdam, looked into producing another in America. Made some demos in Boston and some demos in New York.



David Knopfler

Wrote songs. Bought a grand piano and a house to put it in. Got married. A big 26 when he left the Straits, David Knopfler was set up quite comfortably, financially speaking. But it was time to get on with it.

David's second attempt at rock stardom hasn't gone quite as smoothly as his overnight success with the Straits. He produced and recorded *Release* himself, then arranged distribution in England through Peach River Records—which promptly went belly-up. "We paid the pressing bill ourselves at one point," he remembers.

Although the single "Soul Kiss-

ing" was liked by radio listeners, it didn't make a major dent in the U.K. Knopfler felt that had a lot to do with the fact that it was being independently distributed.

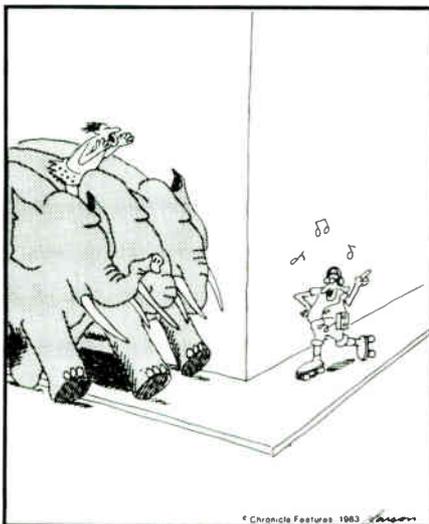
"It went to number 83 the first week, and the following week the sales increased but it went down the chart. A lot of angry independents have told us they've had the same experience. It's as if the majors are monopolizing the top 75 positions, one way or another."

In America, the disk is once again on an indie label: Passport/JEM. Knopfler is sanguine about the possibility of repeating a mistake. Passport put money on the table and a signature on

—PAGE 256

### THE FAR SIDE

By GARY LARSON



Brian has a rendezvous with destiny

## James Newton's Flute-Driven Vision

In the hallowed scrolls of jazz history, the flute commands barely a footnote. Few musicians have chosen to make their expressive splash on the instrument, gravitating instead toward the more legendary arsenal of the genre.

James Newton, the present sovereign of the elite cul-de-sac known as jazz flute, is aware of the deficiency. "I think it's still kind of a strange instrument as far as jazz is concerned," he says with a bemused smile, this man who has spent half his 31 years mastering his tubular trade. "The flute doesn't have the illustrious tradition that the saxophone or the trumpet or even the bass has at this

point. But I think that will change in maybe the next 10 years."

Whether or not the flute will enjoy an upward climb in popularity is subject to speculation; the ascent of Newton's own musical path is a continuing reality etched in critical accolades, the respect of his peers and a string of increasingly ambitious albums. His most recent release, *Luella*, is his second for the rising Gramavision label, and a sterling, well-rounded record it is. Newton has a unique command of his instrument, drawing on the spirits of jazz, classical (underline modern) and assorted ethnic music (no-

—PAGE 250

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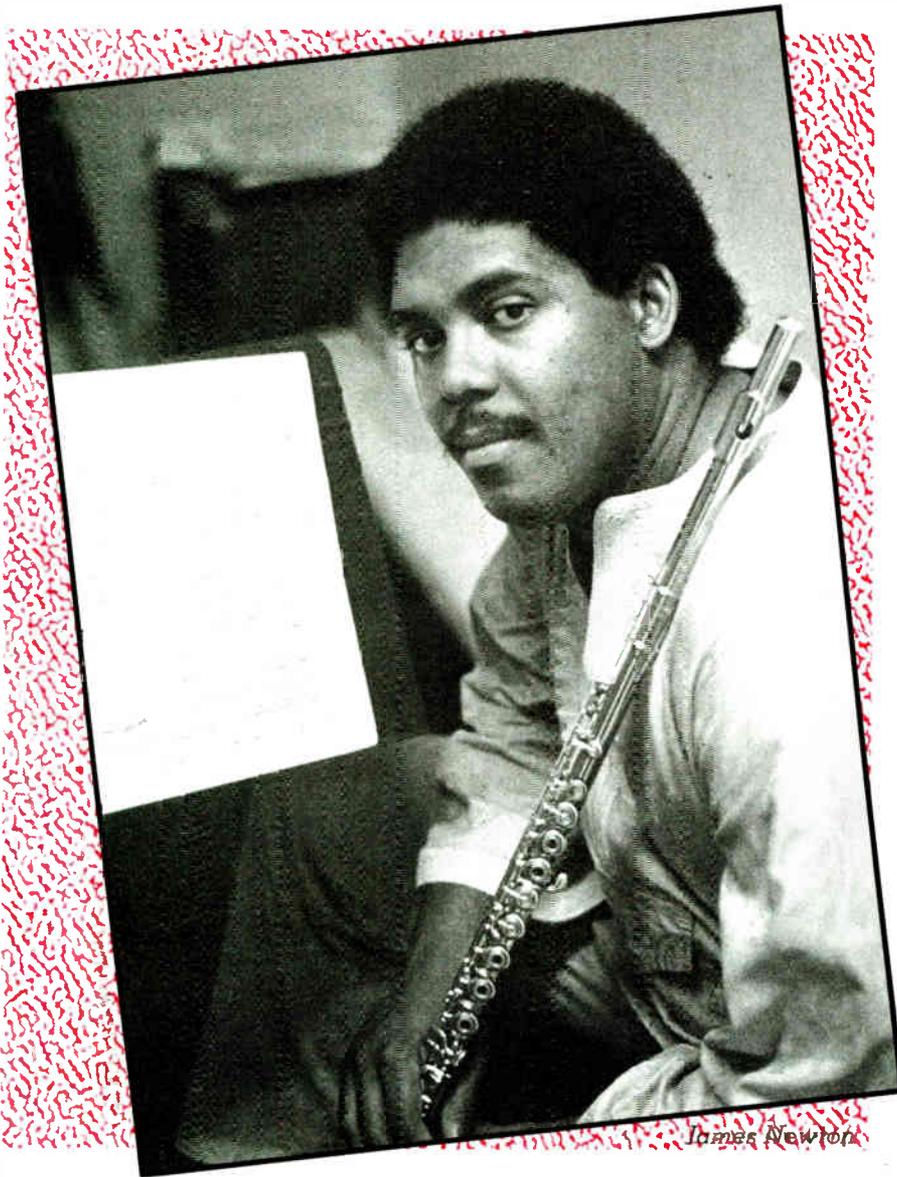
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James Newton

—FROM PAGE 248, NEWTON

tably African and Japanese), and he freely deploys such insubordinate techniques as singing while playing and extending the tonal spectrum through multiphonics.

Such rich deposits of talent would warrant lots of flute in the foreground of the sound, right? But no—Newton is more of a musical expansionist, interested in the larger picture. He gives generous solo space to his flexible band, particularly pianist Kenny Kirkland and vibist Jay Hoggard. Stylistically, eclecticism is the bottom line; the title cut, a terse string quartet-like work dedicated to an aunt murdered in Texas, nods to Newton's love of Ravel and Bartok and contains only minimal flute (he explains: "One of the reasons I didn't use much flute is that I ended up conducting the piece.") Newton the romantic has his way with ballads on his own "Not With-

out You" and Wayne Shorter's lush "Anna Maria." The dragon within the group is unleashed in the pristinely chaotic "Mr. Dolphy," an apt tribute to one of Newton's mentors.

"It is an eclectic album," Newton confesses as we talk in the living room of his home overlooking San Pedro Harbor. "I wanted to express what I felt as a composer. Sometimes I feel a lot of people just look at me as a flute player, and that can be upsetting because I spend a lot of time working at composition. *Luella* is eclectic because the broader my aesthetic and the more I learn, the more diverse things get. I want to do a lot of different things, and I think if anything my music is going to get broader yet—which makes it very difficult for record companies in a certain kind of market. I hope I will one day have my own niche and people will just say, 'This is James Newton' and not necessarily 'This is jazz

or 'this is jazz influenced by classical,' or New Music or Third Stream Music. That's a lot to ask in a certain way but, that's what I'm trying to do."

Versatility is no unheard-of trait in Los Angeles, where jazz players are naturally drawn into the lucrative session scene, but Newton has steered clear of that commercial Easy Street. Instead he has burrowed into the lower-stakes, higher-integrity circles of avant-garde jazz and New Music. With his current Gramavision contract and outside commissions for pieces—such as one for a string quartet from Ottawa—Newton looks to be achieving his goals without commercial concession.

Not that Newton has been impervious to the pulse of pop music; as fledgling bass player in L.A., he leapt from church music to the considerable influence of Jimi Hendrix. It was at the ripe age of 16 that Newton, inspired by Eric Dolphy, took up the flute. "I just really fell in love with the sound," he remembers fondly. As word of his burgeoning talent spread, Newton found himself in the company of young jazz greats, both in L.A. and later in New York, where he lived in the mid-'70s. He made a couple of well-touted albums with pianist Anthony Davis, but his first widely-distributed record was the memorable *Axum* on ECM—solo flute given a new muscularity.

It was his only brush with Manfred Eicher's label. Why? "Well, as they would say down south, 'there were too many roosters in the barn,'" Newton chuckles. "I needed a little more breathing space. Who knows what will happen? I like ECM; they've done a lot of important things."

Gramavision is a happier home for the time being. "They are interested in presenting art, and they feel art can be marketed profitably, which I believe and always have. I've always felt that a lot of music marketing today insults the public and the business end sets the standards much lower than they really are. It's just a matter of getting some exposure and giving people a chance to hear what this music is really about.

"My own objective with the record company was to be treated as a musical artist, and I think they have done that."

What now? Newton has already completed a third album for Gramavision, this one incorporating a wind quintet, koto and harp. Other large-scale works beg to be released from his buzzing musical imagination—and then there's his teaching schedule at the L.A.-based Wind College he helped found. Newton is in the eye of a hurricane with only his wits, creativity and the lowly flute to pull him through.

—Josef Woodard

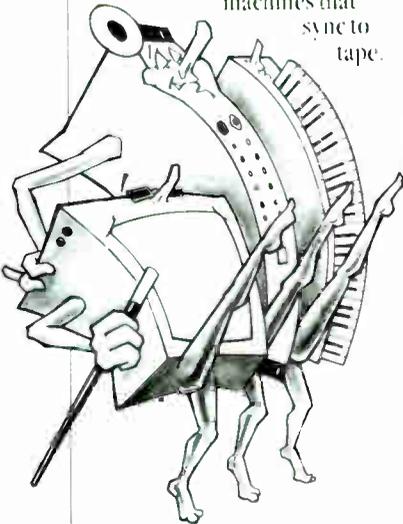
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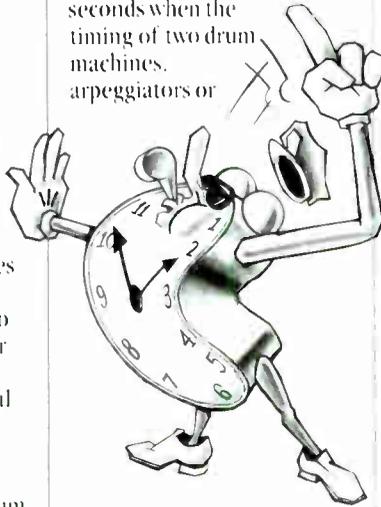


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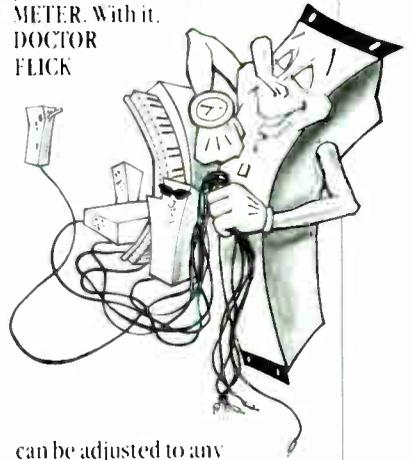
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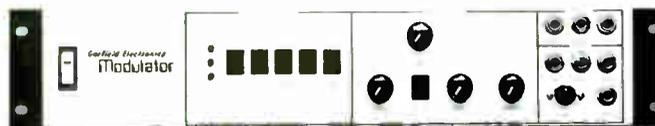
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**Our Only Business Is Getting Your Act Together.**

I just roped it into a heavy reggae stack, and it worked." Not that Lydon is a big synth fan: though he is fond of bending and changing these toys to his will, he calls most synthesized music "a load of squeaks and twiddles."

Lydon is pontificating about the devious accounting procedures involving import disks (he has suffered badly from his import popularity) when the luncheon arrives—deli sandwiches. He goes through a *Spinal Tap* song and dance about his total inability to consume such garbage, then sends out for tacos. Not the nasty crunchy ones, mind you—soft tacos. Thank goodness for rock and roll consistency.

The first single for *This is What* . . . is "Bad Life," and Lydon has already made a video. "I don't believe in spending fortunes for videos," he says. "I think it's throwing money down the drain. I think you get much better effects cheaper. I think 15,000 should do quite nicely. Pounds. And that's what I call a lot of money."

The pill of PiL is, as it happens, very fond of money. "It's a shame," he says, "that the financial rewards aren't in line with my popularity."

—Ethlie Ann Vare

#### How'd They Do It?

### The Ultimate Patch

"You can do anything you want," asserts engineer Niko Bolas. "You've just got to figure out how to patch it."

Bolas had an adventure in patching while recording Journey vocalist Steve Perry's solo album, *Street Talk*, when it was decided that a live chamber was needed for the right reverb sound. Unfortunately, Record One in Sherman Oaks, California, doesn't have an echo chamber.

It was decided that Frank Sinatra's chamber was the one they wanted, and an inquiry to Capitol Studios revealed that Number Five was the one. So during the mixing of Perry's record, some Class A phone lines were set up to send the echo across the Hollywood Hills to Capitol. "They shot it through chamber #5 and sent it back to us," says Bolas. "There was a little bit of delay, but that was about it."

The reverb isn't prevalent on any particular tune. "It's on a lot of things," Bolas notes. "It's part of the color of the album." Both Pacific Bell and Capitol Studios are credited on *Street Talk's* sleeve.

—Quint B. Randle

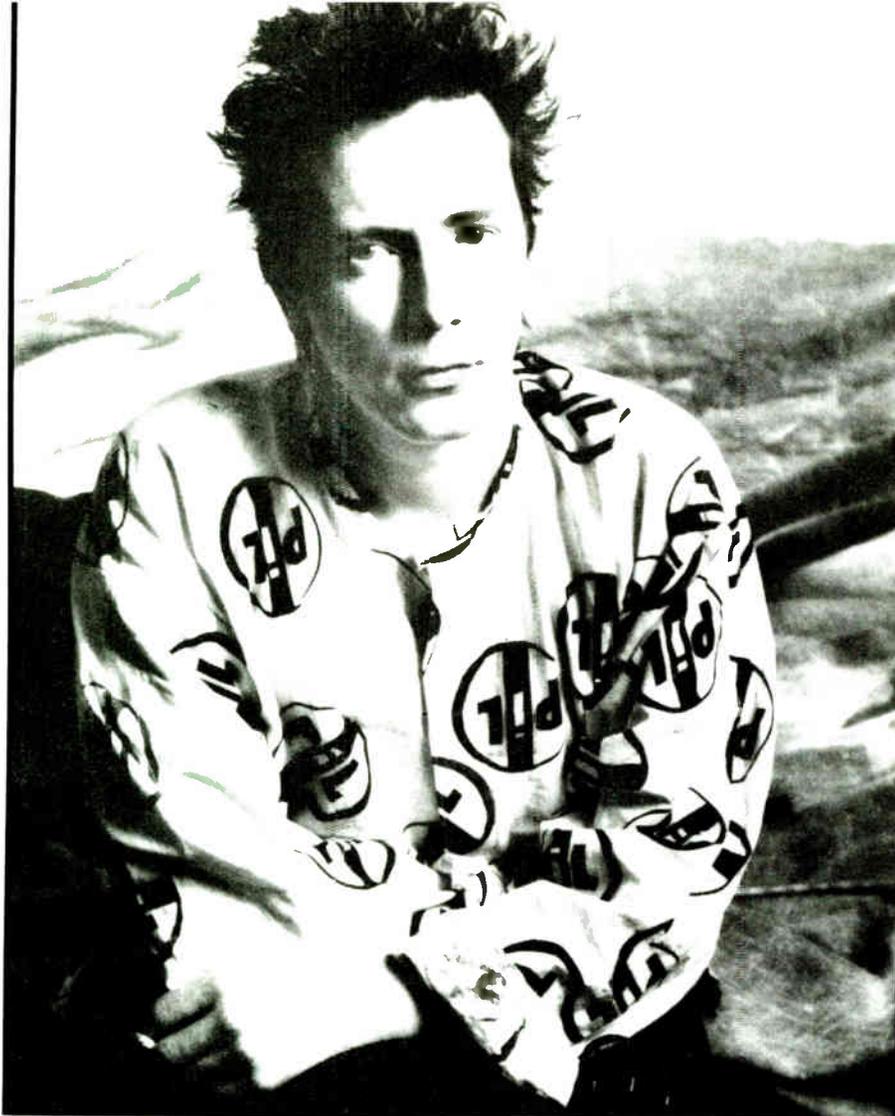


PHOTO: NORMAN SEEFF

Johnny Lydon

## John Lydon: PiL's Pill Opens His Mouth

Johnny "Rotten" Lydon is hardy England's favorite son. Maggie Thatcher and the Queen were no doubt more than pleased to see the former Sex Pistol emigrate to America three years ago. But Lydon went back to his land of anarchy to record the latest album by Public Image Ltd., *This is What You Want This is What You Get*.

"The studios in England are really advanced," says Lydon, 28 and now living outside Los Angeles. "They're always updating their equipment. We recorded at Maison Rouge, which is a really excellent studio. To get the technological equivalent here, you'd have to pay four times the price. It cost us only about 70 quid an hour (approximately \$100) for excellence."

Lydon works with no producer but himself—he can't stand to have someone else impose another concept on his vision—and no musicians but himself, drummer Martin Atkins and a session sax player. He's currently teaching a new band the material so he

can take it on the road. Lydon is just that kind of guy; he has to be in charge.

"I know what I want," he says, a crooked grin belying the intensity of the statement, "and I know how to achieve it. I see a record company as someone to distribute my product, not someone to dictate terms to me. That's always been my major battle, I suppose, because they see themselves as something else."

Okay, Lydon, if you're so smart, why ain't you rich? Fact is, John Lydon doesn't do too badly for himself. He's got a loyal—not to say fanatical—following, and his name is certainly familiar all but worldwide. He's huge in Japan ("*Everybody's* huge in Japan," he cracks) and his celebrity makes it tough to remember that he considers himself first and foremost a musician.

"Most of the bass stuff on the record," he enthuses, "I did on a Yamaha GS-1, which is a keyboard. It's excellent; it sounds totally like a bass guitar. I discovered a new way of using it which isn't what you're supposed to be doing with it.

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**Dez Dickerson:  
Compassionate Rocker**

There's a scene in *Purple Rain*, Prince's hit film debut, in which Prince as Minneapolis rock star "The Kid" and members of his band, the Revolution, are hashing out business within the confines of their club dressing room. Outside, rival band the Modernaires are laying down pumped-up lyrics from their signature tune "Modernaire" while the crowd goes wild.

It's an all-too-brief appearance for the Modernaires, who in real life are Dez Dickerson and band. Guitarist/vocalist Dickerson, 29, is the latest alumnus of His Royal Badness' touring band to hit the road as a headliner in his own right. But while Prince's boyhood pal and original bassist, Andre Cymone, offers a singular version of the avant-funk Wave Town sound, Dez's music is lean, melodic and left of center but indisputably rock and roll.

Dickerson is currently label-less, although that situation could be changing even as this is written: wife/manager Becki says a certain major label has been sniffing around for a while now. But it's clear that Dez's five-year stint as Prince's flamboyant axeman hasn't turned out to be a trip to the big time on gossamer coattails. In fact, it's been as much a liability as an asset, he says. "Some labels that had gotten demos of mine were out and out disappointed that I wasn't doing what Prince does, or that I wasn't doing disco or funk. One irate record executive told my former manager, 'Your client is black, and he's playing white music... He shouldn't be doing that.'

"To me, music has no color. You like it or you don't. I think I should be able to play what I play without some executive telling me, 'You're black, and that's not black music.'"

The Twin Cities' modest black population (around 1 percent) and attendant lack of black radio, in fact, is what's often credited in the development of the "Minneapolis sound": influenced both by white rock and roll on the radio and classic R&B records at home, Prince and his cohorts fashioned the resultant radical rock/funk fusion that's become a trademark of the Twin Cities.

St. Paul-bred Dez has been a devotee of rock and roll as long as he can remember. He served time in local power trios with names like Whalebone and Skychurch from junior high onwards, developing his own ideas about what a rock group should be.

And then one day in late 1978 Dez glimpsed an ad in the *Twin Cities Reader* that read, "Warner Bros. recording artist seeks guitarist for touring band."

"There was only one Warner Bros. recording artist in town, so it wasn't too hard to figure it was Prince," Dez smiles. He auditioned, and soon found himself as Prince's guitarist on the road and on video—but never on record. The Royal Rocker, as everyone knows, is a one-man studio band. There were times when he resented that situation, "but I understood why that was the way things had to be."

Dickerson's stint in Prince's court wasn't meant to last, a fact clear to both parties at the outset. "The first day we met," Dez recalls, "he asked me what my long-range goals were, and I said, 'I eventually want to have my own band and do my own music.'

"When the time came to leave  
—PAGE 262



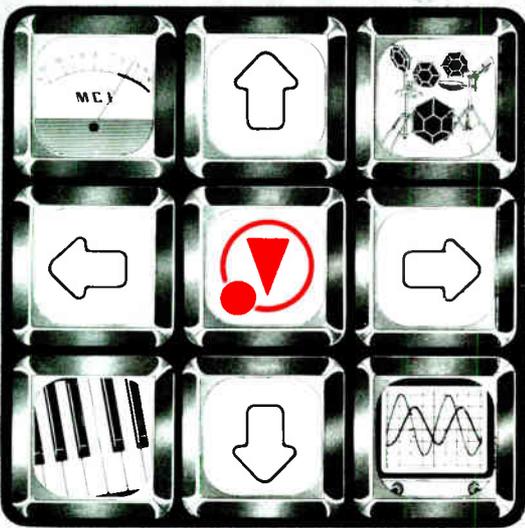
## All About What Is This

Pop music seems to be moving into a very civilized, almost polite, era of clean, pressed wardrobes, streamlined synthesizer parts and competent professionals fresh from assertiveness training, delivering our entertainment commodity efficiently and on time. This is to be expected in this age of computer literacy, but what of rock and roll's underbelly? What of the rogues-on-society's-edge theory, the rebel seed guitarslinger mythology? Has it been pasteurized into obsolescence?

As sure as Newton's Law, an upsurge of avowedly raw emotional rock is afoot, intent on regaining the nas-

ty innocence that once was the foundation of rock and roll. It's damn the circuitry and pass the six-string ammunition for bands such as What Is This, a classic 4-man, 2-guitar lineup. Guitarist singer Alain Johannes has some lucid ideas about the current reign of the synthesizer in pop music. "The worst thing about it is that there's a formula and it tends to be such a homogenized thing. I'm sure there's a way to be creative with synthesizers, but I prefer the sound of strings and drums. It's very obvious that it's human: you got your hands hitting it, you got your flesh doing it, you know?"

—PAGE 256



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—FROM PAGE 248, **KNOPLER**

the dotted line, so Passport got the record. Knopfler is a prolific songwriter; there will be other albums, other contracts.

It was because of his songwriting productivity that David's debut is a ten-track LP of radio-length songs. Sure, Knopfler nods to commercial reality and knows that unless you're, say, Dire Straits, you're not going to get many 10-minute cuts played on the radio. But, he adds, "I had a lot of material, and I sort of wanted to get it all in. Anything I could say in eight bars, I wasn't going to spend 16 on."

David Knopfler is an unusually articulate musician, business-minded and (if it matters) much better looking than his brother. His thick dark hair and broad white smile will serve him well in videos, but business sense will make or break him.

Having formed Paris Records (located, logically, in London), David plans to expand into some modest production projects as well as overseeing his own career. The firm has its own management arm and is responsible for the paychecks of David's first touring band.

"I've never fronted a band before," he smiles. "It's going to be an ex-

perience—maybe the worst experience of my life. Who knows? I'm looking forward to it in some ways, but in other ways I'm saying, 'What a stupid idea, to get up onstage and start all over again.'"

Though he flatly refuses to tour unless his label ponies up some support, David does plan to hit the U.S. club circuit shortly. He tested the waters with a brief European whirl, and found them palatable. ("They enjoyed it!" he says, as if surprising himself.)

*Release* may already be a lost cause as far as unit sales go, but it's a record that will garner Knopfler a following. There's a dearth of rock music for people with IQs exceeding that of a philodendron; *Release* fills a necessary niche. And David Knopfler, who put a big piece of himself on vinyl (there's even a song titled "Little Brother"), is satisfied with his first solo steps.

"It's basically a songwriter's album," he says. "A lot of good songs. It's not a bad first album. I can live with it."

"The first Straits album made me go 'yechh.' After it sold three million, I thought 'Maybe there's something in this after all.'"

—Ethlie Ann Vare

—FROM PAGE 255, **WHAT IS THIS**

That fallible, urgent human element is obvious on the group's introductory "mini-LP," *Squeezed*, on San Andreas Records; there is a blood-and-guts, hands-on sense of life to the cuts, from the slashing Hendrixian flair of Hillel Slovak's guitar playing on "I Am a House" to the hypnotic, looping "Days of Reflection," the record's gem. Though there are echoes of modern bands from REM to the Talking Heads—especially their nods towards mental derangement filtered through funk—the musical parallels seem to dip back through history to the days of psychedelia. In the music of What Is This are subtle reminders of what attracted us to Hendrix and Cream, heroes back when introspection and intuition weren't dirty words and click tracks and chromatic tuners weren't mandatory tools.

But, although What Is This (no question mark, please) has thus far in their green career been channeled into the New Psychedelia sub-genre that includes Los Angeles bands Dream Syndicate and Green On Red, Johannes shrinks from the classification. "I relate to it, the sheer mental involvement—talking about the headlong-into-the-fire type of thing. But I wasn't here at the time and, from the drug aspect, I'm very clean. A lot of people I know who are extremely aware get that way without drugs—through music, for instance. I find a very ecstatic state when my music is really happening," says Johannes on the phone from a cabin in Michigan where the entire band is vacationing, warming up for the initiation rites of a young band whose debut record has just begun to get attention.

"I don't think we'll burn out for many years," Johannes boasts in his fast-tongued patter, a composite accent of Chile, Mexico, Europe and LA's Fairfax High—homes during his formative years. "I'm like a ball of fire creatively." Despite Johannes' high-yield ambition and pivotal spot as lead singer, songwriter in the band, he is quick to stress the *bandness* of What Is This. "It's definitely a very democratic band in terms of creative input. If one person doesn't agree with what goes on creatively, a song won't go through; it has to be unanimous. That gets to be pretty wild sometimes, but it's the way that works out best because it's not like two individuals running a band or one individual fronting a band it's a group. We're basically best friends and we like to get a group consciousness going."

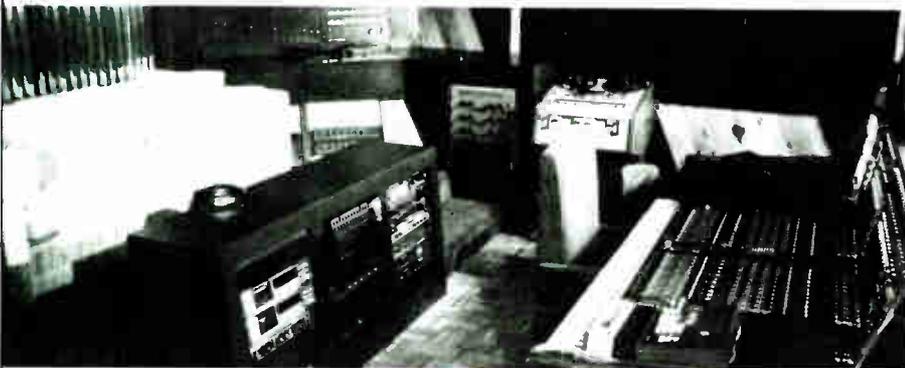
Johannes is the veteran player in the group, having picked up a guitar at age 9, thrilled by the work of Paco De Lucia. Both guitarist Slovak and drummer Jack Irons had a simultaneous vision



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of rock grandeur at 14; they both picked up their respective instruments on the same day, inspired by, of all things, KISS. Irons clarifies these dubious beginnings: "We've changed a lot since then, of course. But we used to dress up like them. Basically, we just wanted to be rock stars. I don't think we thought much about musicianship back then. After high school, we realized that's what we wanted to give our life to." It was at Fairfax High School that a three-way alliance was forged, dubbed Anthem and aimed at the LA club circuit.

Johannes describes Anthem's sonic palette: "We were a heavier rock kind of band, but even then we were different, coming from left field. It was a very subconscious approach for us. We just ended up sounding the way we did because of our cumulative influences; Hillel was really into the Ohio Players and Hendrix and Gang of Four, I was into more '60s jazz—the frantic energy of Erick Dolphy and John Coltrane. We didn't try to emulate anybody. "When the group began to work and think in earnest, it came time for a name change; in 1981, the days were numbered for a name like Anthem. "The name 'What Is

This' popped out of the mouth of our dear guitarist Hillel," Johannes explains. "There was no reason for it. We immediately said 'ok, that's it.' What I like about it is that the meaning is very open."

Grit, determination and making the rounds in LA finally caught the attention of MCA in the summer of '83. With record contract in hand, What Is This found Chris Hutchinson to fill in the fluctuating bass seat and secured producer David Jerden, whose credits include engineering for the Talking Heads, *Remain in Light* and the David Byrne-Brian Eno aural odyssey *My Life in the Bush of Ghosts*. "We wanted somebody who would be the eye over the project, someone just starting out. Dave hadn't produced much up to that point, although I know he's going to be doing a lot more in the future. And he really loved the band, which is important. It wasn't just because of the money. He put aside projects at the time that might have been more lucrative for him, because he really got into the band," Johannes says with a note of pride. The group burrowed into Hollywood's Eldorado Studio in January and squeezed out *Squeezed* in the space of about four weeks, with an

emphasis on capturing the live spirit of the band.

There was no fastidious slickness in the recording process; most of the tracks were laid down on a first-take basis, including a good portion of the vocals. "Jerden was really for the direct approach, just slapping you in the face with the music," Johannes asserts. "It comes on real strong and it's very clear, even though it's not clinical. When I hear our record on the radio next to another song, it's really alive; it bursts out of the speakers." Part of the explosive quality has to do with hot mastering, and part of it has to do with hot music in and of itself.

While the band steered clear of excessive outboard effects or external sweetening, they did run up against some inspired accidents. A particularly quavering guitar frazzle in the midst of "I Am a House" turns out to be an inherent tic of Johannes' Fender Jazzmaster. "That sound, like horses neighing, happens when you shake the guitar real hard," he explains, "and all the springs for the tremolo bar rub against each other and it conducts through the pickup." A manual reread of the Mellotron occurs with the

—PAGE 260

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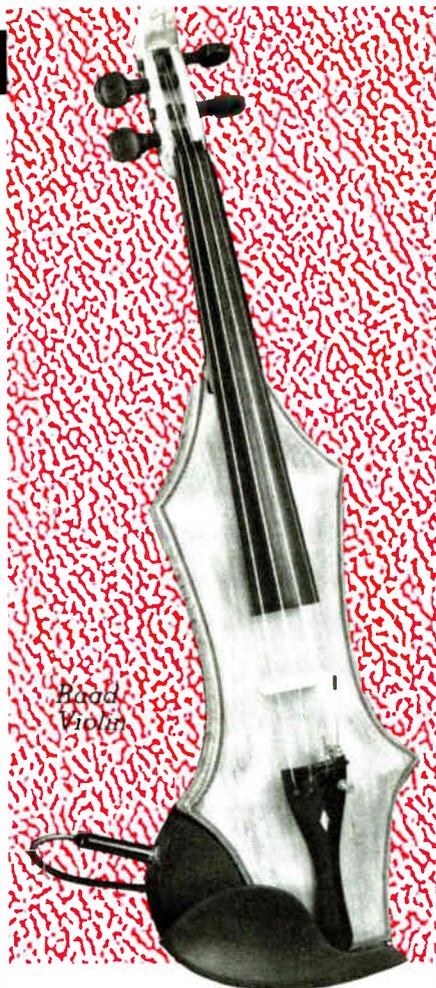
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# Product News

## Raadical New Violin

The Raad integrates a novel tone-producing element with an advanced transducer system to retain the dynamic, transient and frequency response of acoustic violins. Designed for digital recording as well as high-SPL stage situations, it can be used with only a direct box in the studio and requires amplification equipment capable of reproducing frequencies up to 16 kHz. There are no onboard volume or tone controls; these are controlled by the bow, as with acoustic instruments. Raad plans to make violas and cellos as well as the violin, and basses will be built on custom order.

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shares 15 of the Prophet-5 sounds he uses on the band's albums.

Danny Seiwell's LinnDrum set includes pop rhythms in one-bar, two-bar, and eight-bar phrases which can be strung together with the drum machine's programming section; similar rhythm "modules" are available from Mark Evans, who does a lot of TV soundtracks and commercial work. Anderton has put together keyboard and stringed instrument sounds for Oberheim's OB-8 and the Korg Poly-6 and Poly-800 (each sold separately).

In addition to these "Artist" and "Studio" series, MusicData's "General Library Series" features patches for a number of popular synths, and the "Accompaniment Series" of LinnDrum patterns features whole drum tracks for current pop hits.

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## Steinberger Refines Its Bass and Guitar

Without increasing the price of the two instruments, Steinberger Sound Corp. has modified its bass and guitar and changed their designations to XL-2 and GL-2, respectively. Both instruments feature a redesigned headpiece and modified bridge, a new circuit board, smoother and longer-lasting pots, and the facility for external powering via a stereo guitar cable. Active onboard EQ will be available as an option.

The headpiece now completely covers the string ball and twist-end and extends to the zero fret to help keep the string from moving laterally; this change also improves the look of the instrument. Enhancements to the bridge include simplified string loading (from the top) and a new intonation/action adjustment system. The phantom power supply will be available from Steinberger Sound as an option.

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## MusicData: A Software House for the Music Industry

Copping a lick from the computer industry, MusicData is a "second source" company which supplies software for electronic musical instruments, personal computers and combinations of the two. The "authors" of the programs, which are distributed via digital audio cassettes, diskettes, ROM cartridges and computer interfaces, include such illustrious stage and studio personages as Jeff Baxter, Ray Manzarek, Nicky Hopkins, Clark Spangler, David Diamond, Craig Anderton and others.



# MUSIC NOTES



## Attention Trivia Buffs!

If the pursuit of good clean party games is your goal and rock music is your forte, Pressman Toy Corp. has just the thing for you. Rock Trivia, for two to six players (or teams), involves traveling through the groove of a record, answering questions as you go. The eight categories are: Rock General 1, Rock General 2, Roots of Rock, Heavy Metal, Art Rock, Album Titles/Artist, Song Titles/Artist, and Beatles.

Questions range from extremely esoteric to the "Who's buried in Grant's Tomb" variety (can you guess who recorded the album *Warren Zevon*?), and the time span covered is from well back into the early '50s to 1983. I can't imagine too many people having all thirty years' worth of facts in this kind of detail—those who know all the '50s and early '60s stuff probably don't care much for vid rock, and anybody who knows a lot about Motorhead or INXS wouldn't flinch if you told him Clyde McPhatter was a Platter—which means that parents and their kids might be able to compete on an even basis.

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## Korg Offers Programmable Digital Percussion

Two new products from Korg, the DDM110 SuperDrum and the DDM 220 SuperPercussion, feature digitally recorded sounds, memory for 32 patterns and six songs, 32nd-note resolution, and SYNC jacks for simultaneous operation (which can also be used with Korg's KMS30 MIDI Synchronizer for MIDI and sync-to-tape).

The SuperDrum has bass drum, snare, high and low toms, open and closed hi-hat, rim shot, handclaps and crash cymbal. The SuperPercussion unit features high and low congas, timbale, high and low agogo bells, cowbell, wood block, tambourine and cabasa. Other features include cassette load/dump, stereo signal output plus headphone and trigger outputs, coarse and fine tempo adjustment, metronome and accent functions, and battery or AC power.

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## Ross Minimonitor Debuts

Ross Systems have unveiled their Minimouth Amplifier, Model G-515, a compact minimonitor system. The unit, designed for stage monitoring and instrument amplification, contains a 15 watt RMS amp, integral speaker, three band EQ, pre/post gain controls, headphone output jack, high/low level inputs, and can be AC or DC driven. Priced at \$139, the Minimouth comes with two mike stand mounting adapters and is distributed by International Music Company, Box 2344, Fort Worth, Texas 76113, (817) 336-5114.

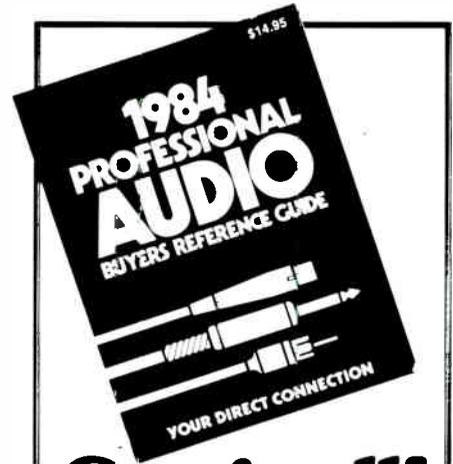


## A Second Source for Drumtraks Chips

Digidrums Drumtraks sound chips (approved by Sequential Circuits, maker of Drumtraks) are studio quality digital recordings that can be installed in place of the originals. Sounds available include electronic drums, conventional drums, ethnic percussion instruments, and sets of four chips that contain one very long sound to replace a cymbal.

The company also sells quick-release sockets that make chip changing faster and easier; additional sounds are being made available on Digidrums chips on a regular basis.

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—FROM PAGE 257, WHAT IS THIS

droning vocal chord down in the mix on "Days of Reflection"; it is Johannes' voice multitracked and looped. What Is This utilizes low-tech in the most complimentary way, stripping away unnecessary technical baggage and getting straight to the rock and roll essence.

And the refreshingly lean, hungry attitude that sputters off the vinyl, the broad funk swipes of "My Head Is a Drum" (how many of us have felt that way?) and the skittering pop/rock twongue-tister of "Mind My Have Still I"—watch for that video—makes a bold statement. What Is This may claim, humbly I might add, more influences than Elvis Costello has tunes, from Charles Ives to Elvin Jones to Bartok and The Police, et al. But their impact is to the gut—no musicology necessary. To hear Johannes tell it, they've only just begun. "The record is just sort of a meeting ground of all four of us at a particular phase with these particular songs. I'm really into improvisation, just trying to go out as far as you can, mistakes and all. You know, without risks there is no gain."

The risk at this juncture is a commercial one—the proverbial fight to check out this thing called group consciousness while selling the wares. "We sell 100,000 copies and that's great for us," Johannes points out. "Somebody else sells 100,000 and it's kind of a bum record. It's really difficult for us now, because there's such a monopoly on the radio. You've got twenty or so stars that are huge—your Billy Idols and Springsteens and all these people—and every time they come out with a record, they're guaranteed a top twenty spot. To get really good exposure, you have to be in that privileged position."

Whatever commercial fate the group brushes up against, What Is This is poised for flight, dressed down for the occasion.

—Josef Woodard

## Queen's Roger Taylor Gets Serious

Since 1971, when Roger Taylor shared an art-seller's stall in London's Kensington market with Freddie Mercury and the pair decided to form a band, Queen's drummer has written a lot of songs with nowhere to go.

A lucky few have appeared in Queen's 13 or so albums. Taylor tunes like the wry "I'm in Love with My Car" (from 1975's *A Night At the Opera*) and "Fun It" (from *Jazz*, 1978) provide

PHOTO SUSANNE WHATLEY



Roger Taylor

good breathers between the more pompous contributions of his bandmates: the lead vocals do not bulldoze to the front of the mix, and Taylor's lyrics seem to reflect a more real world. But with competition for album space fierce between the group's four songwriters, Taylor had to wait until this year to hear one of his efforts become a Queen hit single.

"Radio Ga-Ga," from *The Works* (Queen's first LP since switching from Elektra to Capitol in America) is Taylor's lament of musicvideo overkill—propelled, ironically, to the Number One spot in 19 countries partly on the strength of a video steeped in quick edits from Fritz Lang's bizarre 1926 silent, *Metropolis*.

It was a long-awaited boost for the blond, sprite-like Taylor, whose first outlet for self-penned tunes outside of Queen was a 1981 solo LP that "certainly didn't make much of a dent," he says. The experience taught him that although a Queen solo effort may enter the charts midway up the top 100, it may ultimately be just as easy to flip past as the next guy's debut LP. *Fun in Space* was a mishmash which Taylor now regards as rushed and flawed, and whose cover

—PAGE 263

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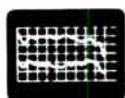
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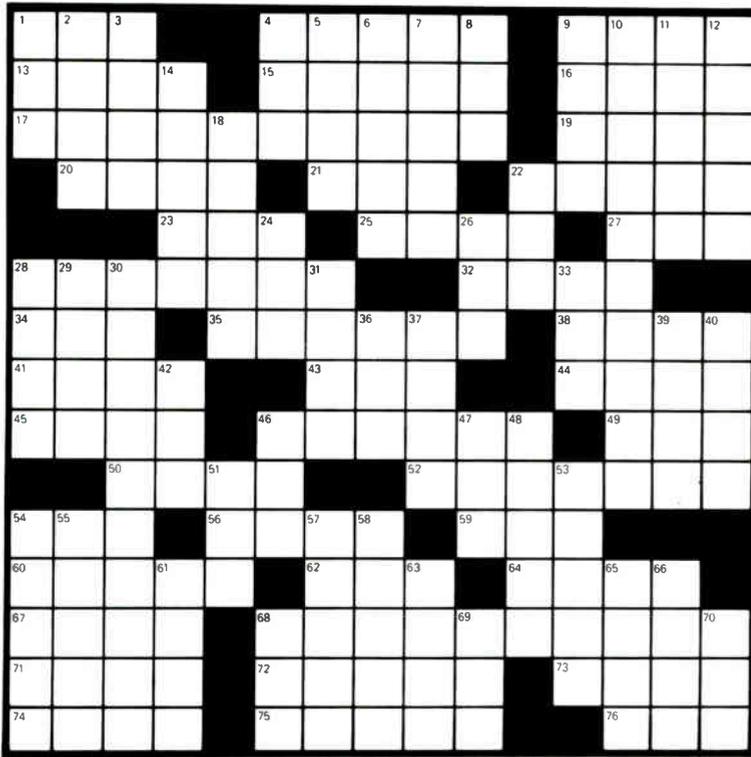
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# MIX WORDS

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## "DE BOIDS AND dB'S"

—FROM PAGE 254, DICKERSON

(just over a year ago), Prince was very supportive. He told me, 'if you're gonna do this right, you can't stay in the band and do it.' We're still good friends, although we don't see each other—he's the hardest-working guy I know of, and I'm becoming the second-hardest-working guy."

Not that departing the ranks of one of the hottest tickets in the country, and a guaranteed meal ticket, was a move Dez made without qualms. "It was scary," he admits. But it seems to be paying off in the long run. Dickerson and band (rhythm guitarist Joe Hunt, keyboardist Dave Moulton, bassist Paul Cassidy and drummer Michael Sandell) recently finished opening up a chunk of a Billy Idol tour, and Dez continues to draw bigger and bigger crowds as a headliner. And there's the *Purple Rain* cameo, which should count as further favorable exposure. (Interestingly, observers close to the Minneapolis scene seem to agree that the movie character played by Revolution guitarist Wendy Melvoin was based almost entirely on Dez.)

Dickerson's songs exhibit that exclusive combination of being danceable and thought-provoking at the same time. Dez is acutely aware of what he terms his "responsibility" as a rock songwriter.

Rock and roll songs in general, he opines, and rock video in particular, are guilty of "a great degree of manipulation. One thing that rock and roll's been responsible for, in a negative way, is espousing this viewpoint among young people that what matters is the moment. I think the art of being a compassionate human being is being lost—kids don't have the opportunity to know what it's like to be in a real relationship 'cause they're force-fed the idea that indiscriminate sex is cool. . . . I think it's leaving us with a society of shallow, shattered human beings, and I don't want to be a part of it." Hence tunes like "Mouths Without Minds" and the Thomas Dolby-esque "She Loves To Video," which questions the validity of "spending nine hours glued to the television."

A recent opening spot at Chicago's Park West proved Dez's unconventional rock and roll could captivate even the chilliest of the techno fashion plates that were awaiting Icicle Works. The band's red and black color scheme, well-placed touches of choreography, and stylized couture provided a riveting visual focus, while the mixed bag of tunes elicited a strong response from the Park West mavens.

"It's 1984 and it's all been done," philosophizes Dez on the current state of rock and roll. "So the best thing you can do is try to find different ways to combine things."

—Moira McCormick

### ACROSS

1. High mountain
4. Presses down
9. Captures
13. Namesakes of a Stoooge
15. Write music
16. Needle case
17. \_\_\_\_\_ EQ
19. Memo abbr.
20. Prank
21. Type of pioneer house
22. E. Mediterranean Isle
23. Collection of anecdotes
25. James Mason role, in the deep, for Disney
27. \_\_\_\_\_ England
28. Part of VCO
32. Biblical brother
34. Amin
35. Sense, as a microphone
38. No different
41. Per \_\_\_\_\_
43. Stadium sound
44. Famed public school
45. Words of perceiving
46. Sea between U.S. and U.S.S.R.
49. Sean's mom
50. Memory \_\_\_\_\_
52. Certain voltages
54. Feminine pronoun
56. Pertaining to 36D
59. Damage the finish
60. Know-it-all
62. Scottish refusal
64. \_\_\_\_\_ board
67. One kind of school
68. U-boat drivers or console section
71. Distance prefix
72. What a boat needs, absent an engine
73. Herb
74. Being
75. Symbol for change
76. Poppycock

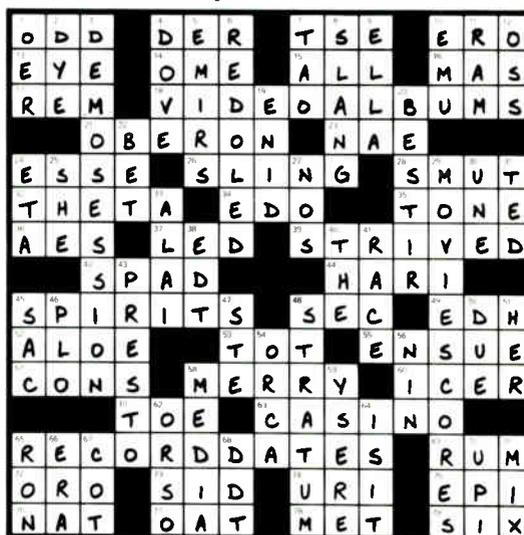
### DOWN

1. Bi- \_\_\_\_\_
2. Wide \_\_\_\_\_
3. Prefix meaning around or near
4. Half of a fly
5. Biblical book
6. Dodo

### 7. Group of lions

8. Wall street regulator
9. At hand
10. Device to reduce current in a circuit, measured in dB
11. Montana sight or site
12. Muscle
14. Anwar
18. Unit; atom
22. Trig. abbr.
24. Iron \_\_\_\_\_
26. Encountered
28. Part of Caesar's succinct saying
29. Lyric poems
30. Certain voltages
31. Raison d'
33. Enzyme suffix
36. Audio/brain interface
37. Nile & Nard's band
39. Old-fashioned recording
40. Chemical compound
42. Type of party for Alice
46. OTB action
47. \_\_\_\_\_ de plume
48. Pests
51. Persona \_\_\_\_\_ grata
53. Gaits
54. Time code acronym
55. Guest at 42D and family
57. Not down, as equipment
58. Secret organization
61. French foil
63. Send out
65. Lachrymal secretion
66. It follows
68. Certain sack
69. \_\_\_\_\_ mode
70. Tennis term

### Solution to September Mix Words



—FROM PAGE 261, TAYLOR

was misleading. "I made the cover too humorous," he says. "It gave the album a flippant air."

Roger Taylor is now ready to be taken seriously. On *Strange Frontier*, his new solo album, he takes on the heavyweight champion of international concerns—global nuclear war—along with other themes of losses both real and potential. Side One focuses on urban anger ("Man on Fire," the first single) and media distortion ("It's an Illusion," written with Rick Parfitt of Status Quo) and settles for a moment on the melancholy of Bruce Springsteen's "Racing in the Streets" before plunging into Dylan's "Masters of War." Side Two deals with the loss of innocence in the face of an uncertain future. Taylor nails it in the title tune: "No more tears and no more fun/ Someday soon they'll drop the big one/ No more Dad and no more Mum/ This is a strange frontier."

*Strange Frontier* began when Taylor got a break from touring and recording and did something he never does before a Queen audience: he picked up a guitar, perhaps one of the 20 collector pieces (including the 17th Fender ever made) which EFR Guitars back home in England has dug up for him. He fashioned eight songs that bespeak his broiling social conscience and headed for Montreux, Switzerland, to Mountain Studio—where much of Queen's work has been done.

"It's like a playground," Taylor enthuses. "Our studio has a huge store of equipment—big old kettle drums, a seven-foot marimba, giant glockenspiels, good stuff like that." He and David Richards (who shares production credit with Taylor and Queen's longtime producer, Mack, and engineered with the latter) spent weeks programming the Roland Jupiter-8 sounds which were the backbone of the album, aided by a Fairlight and Publison digital delays. "Finding new sounds is one of the most enjoyable bits," says Taylor, who composes on synthesizer as well as acoustic guitar.

For percussion he used a basic Gretsch drum kit, a Simmons kit and Simmons' new sequencer, plus a pair of linked LinnDrum machines. Queenmate John Deacon played bass; Taylor did nearly all the guitar work himself.

Queen is back on the road for the first time in two years, playing in England and Europe. Taylor's outside work will "fit 'round it," he says. "I'd hate to be the one to break up the band."

Could Queen still reign if its drummer spun off to a solo career? "No," laughs Taylor, as if the mere suggestion were absurd. "It just wouldn't be the same chemistry."

—Susanne Whatley



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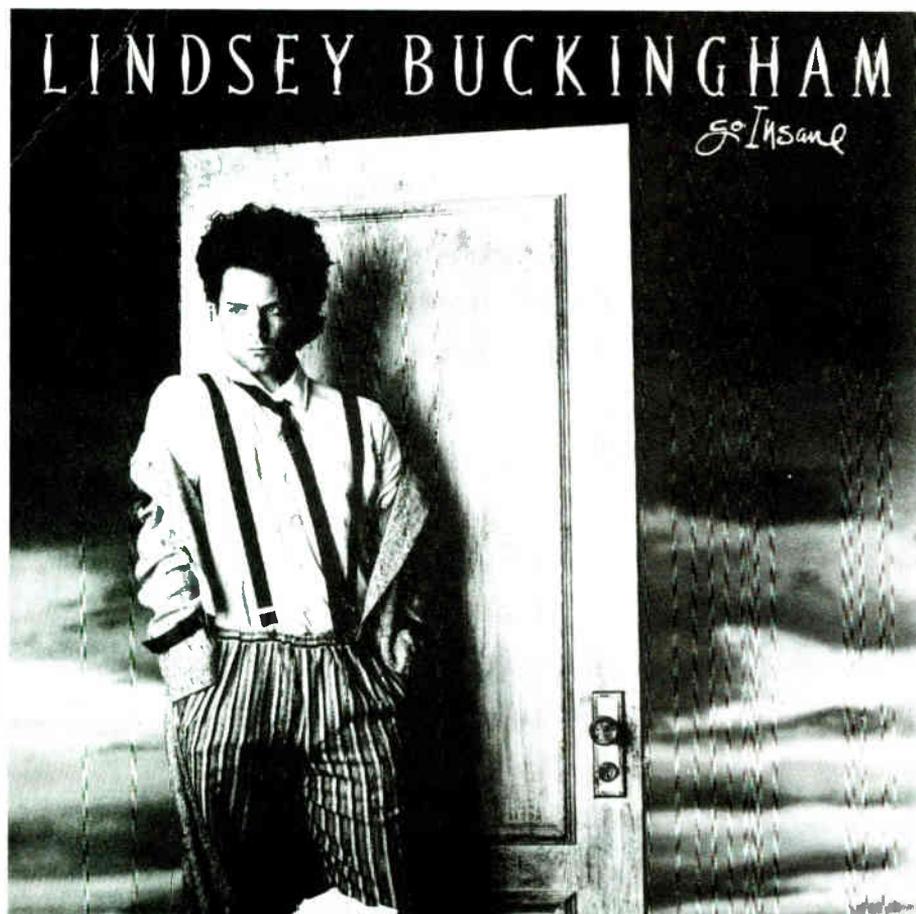
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## *Lindsey Buckingham dares to be strange.*

**LINDSEY BUCKINGHAM**  
**Go Insane**  
 Elektra 60363-1

Produced by Lindsey Buckingham and Gordon Fordyce; recorded by Buckingham and Fordyce, assisted by John Boghosian at Cherokee Studios, Los Angeles, and Lindsey Buckingham's garage studio; mastered by George Marino, Sterling Sound.

That Lindsey Buckingham has made one of the most adventurous and satisfying pop albums of the year should come as no surprise to those who have closely followed his career in and out of Fleetwood Mac. Even at the peak of Fleetwood Mac's success, when *Rumours* became, for several years, the best selling rock album ever, Buckingham's songs were different than most of those in the Top 40 mainstream. As accessible as Buckingham compositions like "Go Your Own Way" and "Second Hand News" sounded, with their pleasing melodies and bright harmonies, they showed an odd rhythmic invention and a highly original arranger at work. From that commercial peak, Buckingham mustered his courage and jumped confidently into various musical experiments that took him through *Tusk*, with its bold redefinitions of the roles traditional rock instruments could play in a pop song; his first solo album, *Law & Order*, which spanned an incredible range of styles, from '40s-sounding ballads to ultra-modern dance music; and the last Fleetwood Mac album, *Mirage*, which though conservative by *Tusk* standards, still boasted some outrageous material from Buckingham, full of great production touches, offbeat uses of voices and strange instrumentation. Few popular artists flaunt the supposed "rules" of their craft the way Buckingham does, and his new record, *Go Insane*, still shows a rebel in action.

This is one of the few "solo" albums that is literally that—Buckingham sang all the vocals and played all the instruments on the record, save for one bass and one keyboard line. Much of it was created on Buckingham's Fairlight recorded in his home studio, with overlays of various guitars, an antique lap harp and synthesized percussion. There

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are no natural drums on *Go Insane*, yet it is an album that derives much of its strength from the use of multi-textured rhythms, most generated by the Fairlight.

It is as eccentric as *Law & Order* was, yet it just may prove fairly commercial. The title song was a bona fide hit single even before the powerful video for it began airing on MTV, and at least two other songs could be expected to snare some play—"Slow Dancing" and "I Must Go" (which has faint echoes of "Second Hand News"). Now, none of these are "normal" songs, by any means, but then neither is "When Doves Cry." Buckingham's most ambitious experiment this time around is a song called "Play in the Rain" which begins on side one and then is actually continued at the beginning of the second side. It features no traditional instruments at all; rather it is dominated by various natural and electronic sounds generated by the Fairlight, and a spoken/sung vocal. It's more *musique concrete* than pop, but it is successful in that it creates definite moods as it progresses.

"It's not lyrical and melodic the way you think of those terms," Buckingham comments of the song, "yet it has formal sections. I was lying in bed and I started hearing these sounds which I later tried to approximate on tape. It has some visual aspects to it, and that's perfect for the Fairlight. I consider myself a colorist, and suddenly there's a device that gives you as many colors as you want."

Side two consists of largely uncommercial fare, but it is here that the patient listener will likely find the most rewarding music. "Bang the Drum" is a beautiful, breathy tune that I read as being about fortitude in the face of seemingly insurmountable personal pain. It's chorus is a nearly whispered choir of voices that was clearly inspired by Beach Boys harmonies; in fact it slightly resembles the Fleetwood Mac live album's most overlooked gem, a transcendently gorgeous version of Brian Wilson's "Farmer's Daughter." "Bang the Drum" is a perfect lead-in for the nearly seven minute "D.W. Suite," written a week after the death of Beach Boy Dennis Wilson. It is divided into three distinct sections linked by the ethereal sound of lap harp's high strings (an effect Buckingham first used on *Mirage's* "Empire State"). Though Wilson inspired the suite, its concerns are far more general, apparently dealing with loss and transcendence in this world and the next. Part two of the suite, "The Prayer," has an almost hymn-like quality, and part three, "The Reflection," is an inspiring instrumental that builds off the old Scottish bagpipe theme, "The Banks of Loch Lommond."

"I've been sort of hesitant to

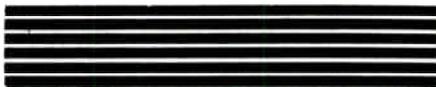


PHOTO: MATTHEW BULLSTON

own up to what the 'D.W. Suite' is about to me because if it means something to someone else, I hate to impose an interpretation on them," Buckingham says. He has acknowledged, though, that the Beach Boys had inspired him as much as any group, and that he knew Dennis Wilson through Christine McVie, Wilson's girlfriend for several years.

"I didn't know Dennis well, but I had been around him enough to know he was a creative and very human individual who didn't have the tools to channel some of his energies in the most constructive ways. I think next to Brian he had the most creative sense, but he didn't have Brian's ability to get it out."

Getting this particular group of songs out and onto record wasn't an easy task for the prolific Buckingham. He started recording in early 1983, working alone in his garage studio, which is equipped with Studer and MCI 24 track recorders, an old Neotek console, an impressive selection of outboard gear and, of course, his guitars and his Fairlight, which he's owned for several years but really only began to use extensively on the new album. "Go Insane" was among the first songs he wrote for the record, and he'd executed skeletal version of several others but was delayed when his usual engineer, Richard Dashut, had to spend much more time than expected working on Mick Fleetwood's second solo album.



"I had about ten tracks in development but I didn't want to finish them without getting some input from Richard, who knows me real well and who I trust a lot with my music," Buckingham recalls. "Finally, Mick's album was finished and Richard came up to the house. He said, 'Lindsey, I'm sorry, but I just *can't* bring myself to go into the studio again right now.' I was disappointed, of course, but I understood."

With his longtime colleague out of the picture, Buckingham found himself looking for fresh input. Through his manager, he hooked up with Elektra's head of A&R, producer Roy Thomas Baker, who introduced Lindsey to engineer Gordon Fordyce, with whom Baker had worked on several projects, including a recent Devo album. The two hit it off immediately, and in Fordyce, Buckingham found someone who, like Dashut, was sympathetic with his more experimental side. "In fact," Buckingham says, "he liked the stranger stuff better and encouraged me to go along those lines even more. Working with Gordon was a real kick in the ass for me. When you work with someone you new you get a fresh approach and new insights. I don't want to take anything away from Richard at all, but when you work with someone for ten years you can begin to think too much alike and the checks and balances aren't quite as effective as they once were."

"Gordon had a lot of valuable input right away," Buckingham continues. "He had a great handle on where to EQ, and he had a number of studio tricks I wasn't really hip to—gating things, having it triggered so that if you wanted to you could have a keyboard part triggered with 16th notes. He had a lot of updated techniques I'd missed."

"I came away from working with Gordon feeling like we'd really pulled something off outside of the Fleetwood Mac microcosm. After ten years it's not as easy as you might think to punch your way out of that. Having done that and established a good relationship with Gordon, it's represented something of a catharsis for me."

Of Roy Thomas Baker's involvement with the record (he's credited as executive producer) Buckingham says, "Even though Roy wasn't the producer, he says he spent more time on the project than anything else since the second Queen album. He really helped keep it on course. Certainly Gordon and I were the core of what was going on and having the track to track experience, but Roy was great. He made a lot of valuable suggestions that helped the record. He helped us get the vocals tighter. He helped edit the bridge on 'Go Insane,' which improved it a lot. And there were

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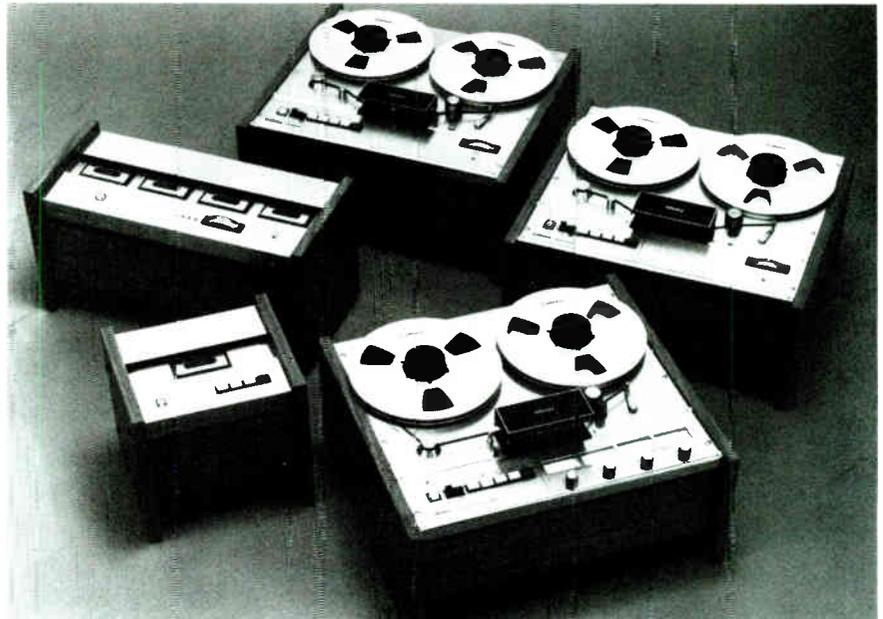
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also a lot of times he and Gordon were doing most of the mixing, which freed me to concentrate on other things. And beyond that, it was Roy who suggested using the 40 track machine at Cherokee, which monitors we'd use in the studio, and various general things that influenced how smoothly the project went."

When Fordyce first became involved with the album, he and Buckingham initially worked in the garage studio, refining tracks Lindsey had cut there. After about two-and-a-half months, though, they went down to Cherokee for another two-and-a-half months. "The idea was that we could get a little more control over the quality of the vocals if we were in a decent studio because there are certain limitations in the garage," Buckingham says. "There were two other reasons: one—when we started filling up tracks here we transferred them to the Stephens 40 track that Roy rents. I just have a small Neotek console, which is good and very reasonably priced for what they do and the kind of EQ they've got; two—we were getting a little stale up here and needed a new environment. Cherokee worked out really well."

Even with the addition of Fordyce and Baker to the project, *Go Insane* remained essentially a one-man project, a style of working that Buckingham insists he likes just fine. Still, it has an amazingly full sound, with layer upon layer of vocals, guitar and Fairlight. "This album is a little more orchestrated by virtue of the Fairlight," Buckingham notes. "Frankly I'm surprised I got as much guitar on it as I did, because a de-

vice like the Fairlight can lock you into a certain way of working—it definitely colors the way you write because it tends to make you think about textural things instead of melodies and it's easy to forget about playing guitar. Actually, though, there are more guitar solos than on *Law & Order*, but there is less guitar in the sense of it being an integral part of it all. I want to play more guitar. I just got a Roland guitar synthesizer and I think there will be a lot of ways I can use that, although so far it doesn't always respond the way I wish it would. Something I'm going to force myself to do is sit around the studio for a couple of hours a day and just play guitar and see what emerges. I still write primarily on guitar."

Buckingham says that working alone for the most part is deeply satisfying in ways that being in a group just can't match. One senses that years of working with the disparate personalities and fragile egos of the players in Fleetwood Mac has driven him to this self-imposed isolation to a degree.

"I had plenty of interaction with Fleetwood Mac," he says. "Making a Fleetwood Mac album is like making a movie because all the things you do are verbalized and talked out and you go through 'X' number of places or channels to go from point 'A' to point 'B'. It's not a subconscious or intuitive process at all; it's more like a political process.

"When you're on your own, it's more like painting—you've got this painting in front of you and you take some paint and throw it up there and see what it looks like and then you keep go-

ing. As you continue, the work begins to take on a life of its own and it starts to lead you in a certain direction if you allow your subconscious out and you don't try to exert your will over the canvas. That's very exciting. The intuitive aspects come out more and you develop a much more personal and intimate relationship with the work.

"You can still say 'This sucks' and paint over it, but it is much more politically difficult working with a band. I always felt that the process of creating was to *create*, to experience the process of creating and not necessarily the end result."

Art as action rather than aesthetic, *a la* Jackson Pollock?

"I hadn't thought of it that way, but yeah. It has to do with tools. Have you ever seen Pollock's earlier paintings, when he still used brushes? They look like he's trying to get to this place but he can't quite get there and then one day he learns to throw paint and he has this tremendous sense of release which you can both see and feel in his later paintings.

"At the same time," he continues, "The end should reflect what you've learned in the process, so you can apply it to your next undertaking. You can always be better and really, it's your responsibility as an artist to work constantly and relentlessly towards improvement. As soon as you attain some sort of ideal, just by the fact that you've done that, you've transcended that ideal and you have to go further."

"All of those feelings about creativity are more reaffirmed in the singular process—in the painting process rather than the movie-making process—though there is certainly room for both."

Buckingham says that there were pressures within Fleetwood Mac to make *Mirage* more overtly commercial than *Tusk*, and clearly that experience left its mark on this artist who always wants to be moving forward. And so *Go Insane* is a leap into left field, a challenging work that should remind everyone that one of rock and roll's premier rule-breakers refuses to be complacent, refuses to be sealed in a soft-rock coffin with Stevie, Christine, *et al.*

"There are so many things you can do that are far more interesting than resting on your laurels," he says. "I like to try new things, to experiment, and hopefully what I'm doing will be as interesting to other people as it is to me. But in the end you have to satisfy yourself." And that's one reason why *Go Insane*, and virtually everything Lindsey Buckingham has recorded, is filled with passion and heart.

—Blair Jackson

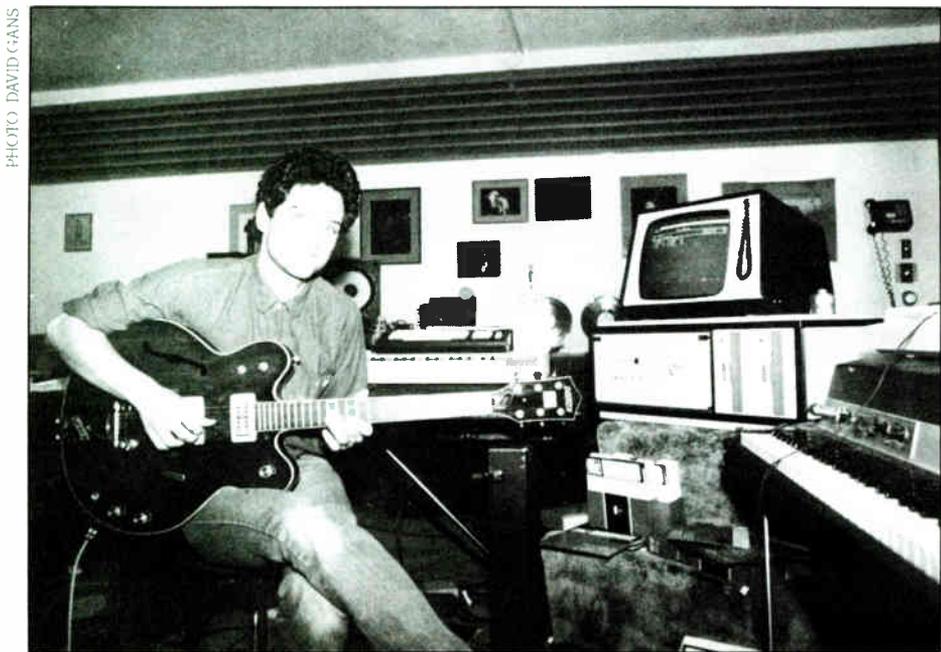


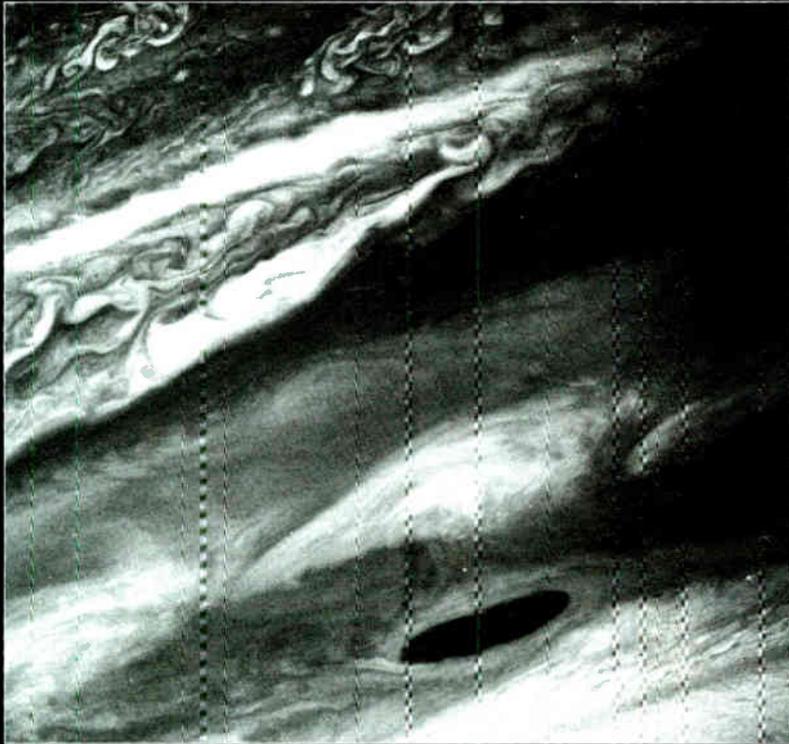
PHOTO: DAVID GANS

Buckingham works in his home studio, April 1983.

Catero

Paul Speer

Collection 983: Spectral Voyages



**PAUL SPEER**  
**Collection 983: Spectral Voyages**  
Catero Records 005

Produced and engineered by Paul Speer at Nova Recording Services in Seattle, WA, and Fisher Studios in Woodinville, WA. Mixed by Paul Speer and Fred Catero at Music Annex in Menlo Park, CA. Mastered by Leo de Gar Kulka at Sonic Arts in San Francisco, CA. Pressed in West Germany by Teldec.

In the world of hybrid music forms, this record might best fall into the category of Power-Meditation. *Collection 983: Spectral Voyages*, composed, recorded and produced by Paul Speer, is a new age symphony in four movements: vivace, lento, allegro and andante. Each movement provides a fragile, yet dense weaving of rhythms and tonal patterns, wapped around a droning axis tone.

The bass stands firmly at this monotonic core, dominating, though playing only one note. This central theme doesn't really go anywhere, it just *is*, staying in one place as if providing a frame of reference for all that is going on around it, such as soprano sax flourishes, bass clarinet figures, Prophet 5 textures

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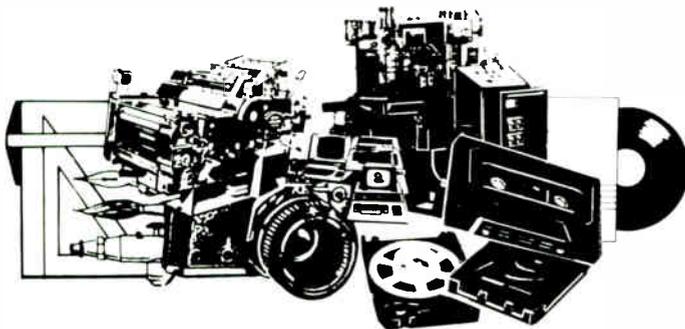


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and a variety of percussion and guitar layers. The silent pauses between tracks are replaced by running water on side one and thunder with crickets on side two. While these sonic images pin the music at Earth origin, the cosmically attractive album package makes no bones about the special connotations of the contents, showing us closeups of Jupiter as seen from Voyager 2 in 1979.

Speer, who also produces an Emmy winning rock video program in the Seattle area, says that he started with a click track and layered each instrument one at a time onto his MCI 8 track, at 30 ips with time code. As he filled up his available space he would go over to Mike Fisher's (manager of Heart) studio and dump the tracks onto a 24 track at 30ips with Dolby, and then go back and continue building his tracks at home, drums being added late in the tracking stage. When he brought the 24 track down to Music Annex to master, he and Fred Catero mixed the music down at 15 ips with dbx. Then the sound effects (nature sounds recorded on a Sony TCD-5) were combined with the music master for a final master using dbx at 15ips (15ips to avoid head bump, according to Speer.)

While this kind of music aims to

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**Paul Speer**

soothe, whether as a soundtrack for an introspective mood or as a backdrop for other activities, the sonic joys of the record will have your stylus cruising down the grooves like a 911 on the Shoreline Highway. Though not marketed as an audiophile disk, Catero Records has put the kind of manufacturing care into this (\$10 list) record more commonly found on those higher priced esoteric releases. I'd be surprised if this doesn't turn up on the Best Engineered nominees' list for the 1985 Grammy Awards.

—David Schwartz

**BEBOP AND BEYOND**  
**Bebop and Beyond**  
 Concord Jazz CJ-244

Produced by Mel Martin; recorded at Tres Virgos Studio, San Rafael, CA, February 1984; recording engineer: Robin Yeager; assistant engineer: Gordon Lyon. Mastered by George Horn.

Remember the old Blue Note sound—its cool urgency and elaborate harmonic geometry? Those extended heads and piercing solos which, on the right night, could almost turn dishwashing into a surreal task? If you want an updated installment of the same, consider *Bebop and Beyond*, the name (and album title) of a year-old San Francisco-based jazz sextet led informally by saxophonist Mel Martin and ennobled by some of the area's classiest players.

Spanning styles from Thelonius Monk to Woody Shaw-like smokers, it achieves a rich, large-ensemble intensity with Martin on tenor and soprano saxes, John Handy playing alto, and Warren Gale on both trumpet and flugelhorn. George Cables (piano), Frank Tusa (bass) and Eddie Marshall (drums) back up the horns with the crisp punctuation

of a big-band rhythm unit. In addition to two powerful arrangements by Martin, the album features compositions by both Tusa and Marshall (who add the "Beyond" to the rhythmic structures) as well as two striking Monk tunes and a Tadd Dameron piece.

Capturing jazz dynamics poses difficulties in even a simple trio setting, and doubling that to sextet calls for both a conceptual goal and some sober engineering. Martin, who also engineers at his four track studio in Novato, California, aimed for a "live, in-person" texture as opposed to the sometimes hyper-realistic blend found in highly processed or overdubbed jazz albums—"I wanted to capture the impact, the punch of a good rock and roll recording." Engineer Robin Yeager of Tres Virgos Studios took advantage of the LEDE design of the studio to place the three horns together in a live acoustic space, in visual proximity of the bassist and drummer, who were side-by-side, as in a typical playing situation. The studio is especially kind to acoustic bassists, with the phase-aligned lower frequencies passing easily through the transformerless system. Keeping the purity of the signal in mind, no compression or limiting was used throughout the

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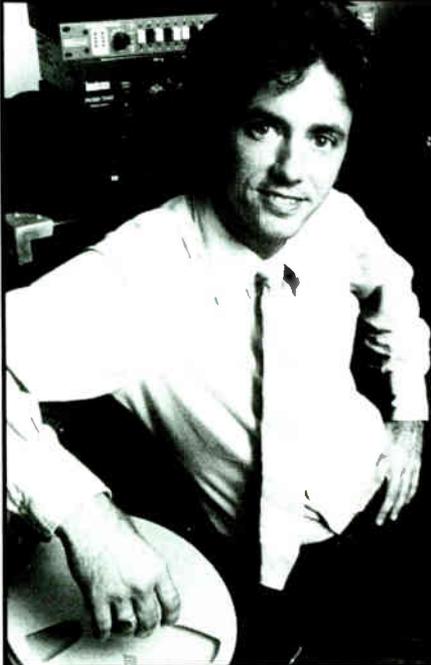
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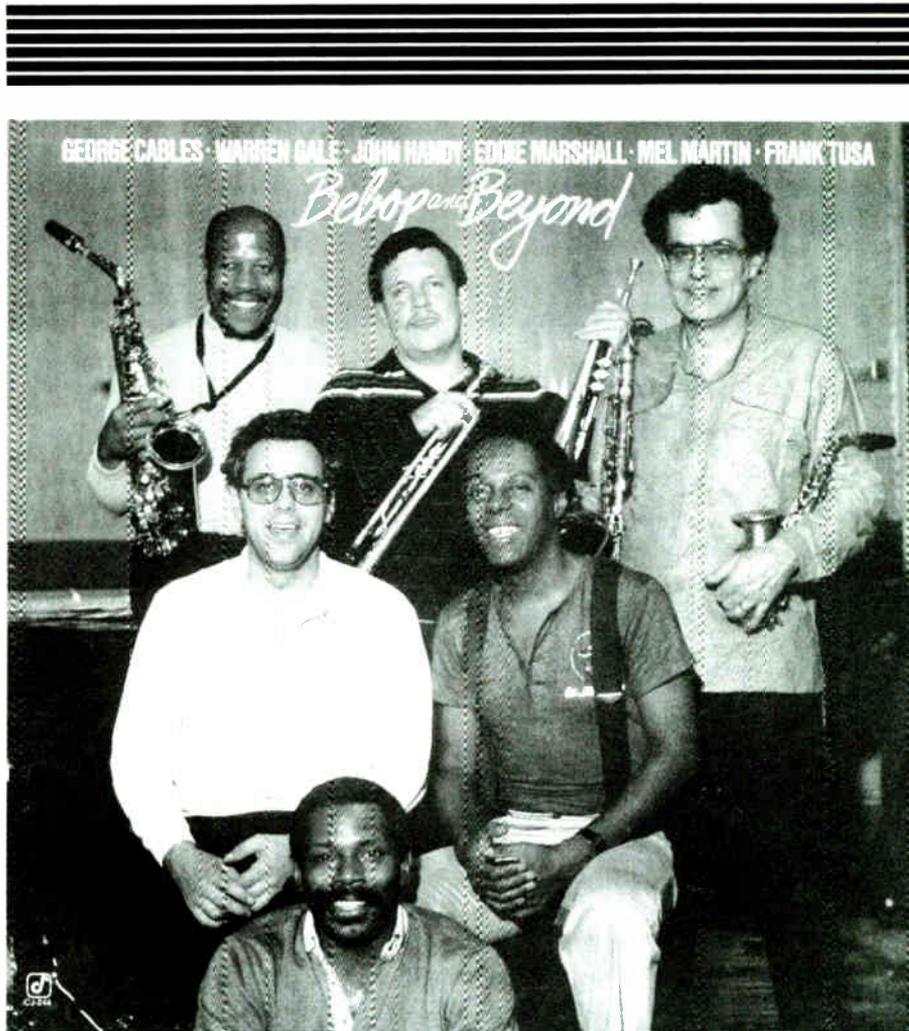
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recording process, and equalization was used only on the kick drum and tom tom mikes. And recording live to two track aptly captured the musical interaction of a well-rehearsed jazz group and succeeded, in Martin's words, in the music sounding as if it were all "cut from the same cloth."

The musical result is a consistently engaging set of intricate compositions which should be of particular interest to arrangers seeking the maximum out of a small ensemble. Background horn figures materialize frequently throughout the album, either bridging two soloists, or else acting as a jungle gym for a soloist to swing around. Tusa's "Moon Magic" contrasts a simple melody against a seductively more active root-movement, while Marshall's "Super Trooper" evokes the urgency of some of Wayne Shorter's compositions, and uses unexpected chordal extensions and abbreviations to keep the listener in motion. Martin's "One For All" (the album's closer) is both wired and giddy, as any cooker should be, with the soloists keeping within the changes as if by centrifugal force. Warren Gale's horn work throughout the album is of a wild precision, contemporary and prone to shapes bordering on the electrical. And Handy, who shines here, always able to commu-

nicate humor, uses his full alto register to affirm that freedom of thought is indeed infinite in even a detailed, tight structure.

As for the two Monk tunes ("Evidence" and "Monk's Mood")—they come across as clean as a '50s mohawk. The horns blend intimately, and each fuses with the other without losing its identity. George Cables has the ability to weave in and out of changes like a relaxed driver, sometimes accelerating and sometimes putting on the brakes. Unfortunately, in the higher-intensity cuts, his sound is obscured, though probably not any more than it is in your average jazz club. The piano also lacks some richness, despite a successful attempt to keep it from being too deeply buried. (Miked by two Crown PZMs, it is crisp, bright, and a touch too clean.) It may be nostalgia, but I found myself wanting to hear that muffled, "wooden" sound from the Blue Note era, especially on the up-tempo pieces.

This is an assertive album which intends to capture the attention of its listeners. It is a big-band album without the density, and with enough variety to keep even the longer tracks seeming well-trimmed. For intricate arrangements, seasoned musicianship, and some dizzying solos, hear this jazz.

—Ron Ward



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# VIDEO NEWS

by Mia Amato

## NEW YORK REPORT

One of the brightest lights on Broadway is *Tower Video*, an outpost of video cassette sales and rentals on 67th Street, open late each night and is just bustling on weekends and whenever Lincoln Center hosts an evening performance. It also caters to upscale mommies from the Upper West Side picking up a

*Club interior (right) with two video projectors and 30 color monitors, Private Eyes on West 21st Street is the sleekest video club in the Big Apple. DJ booth (below) The Private Eyes VJ booth mixes sound and picture with studio-quality switcher and stereo VHS videocassette players.*



cheap fix on rented movies for the home VCR, for those nights when one can't get a sitter. Don't smirk; it seems the new baby-boomers make up a hefty percentage of the video rental public because the technology works even better than cable TV for them: when the baby cries, just put the movie on pause and get back to it later . . . nearby: Columbus Avenue caterers advertising made-to-order feasts "for your video party."

Recording execs have been throwing their video parties at *Private Eyes*, a video bar so gorgeously appointed it was the cover story for last month's *Interiors* magazine. Thirty Sony Profeel color monitors line the

PHOTO: RONALD L.C. KIENHUIS



walls, with eight-foot and ten-foot Barco video projectors fore and aft. White for mica tile on the walls, curved wood bar surfaces and white pipe railings around the seating areas give the room, designed by *Sam Lopata*, a light, resort feeling, a shipboard airiness.

Equally well-designed is the VJ booth created for live, tune-by-tune mixing by Steve Sukman, who hails from the Los Angeles club scene. "Nothing is pre-programmed, it's all spontaneous and live-switched by the VJ each night," says Steve, who heads a staff of five VJ's. The booth is L-shaped, the front part a tape library and the rear resembling a recording studio with console, monitors, sound and lighting boards, and a glass window overlooking the dance floor. Playback format is VHS stereo, surprisingly crisp and with quite good sound.

"We have two ¾-inch decks and four JVC VHS videocassette players, the 'professional' models BR-5300U and BR 6400U, which are, in my opinion, the best of anything that's been manufactured," Sukman says. There is a small Sony SEG 2000A special effects switcher for wipes and color effects, character generator, and time base correctors. "Some clubs may feel that it's cost-prohibitive to buy a TBC," Sukman adds, "but we feel it's an investment in

quality, and it shows on the screen." In addition to the video feeds, there are two turntables, a Ramsa 16-input audio console to tie everything together, and a programmable "disco lighting" system from Light.ab.

The VCRs, stacked to the left of the video switcher, are controlled at the console by remote control boxes stuck on the wall above with Velcro. "Everything here is modular," Sukman says, peeling one of the remotes off the wall. "Everything is connected by patch panel so things can be reconfigured. If one of



the tape decks goes down, we can pull it out and replace it immediately from downstairs."

Downstairs, by the club offices, is the VJ room, with its board of weekly rotation suggestions and two complete

¾ to half-inch editing setups, which are used to dub cassettes received from record companies and *Telegenic's* club video pool onto VHS. ("I find the best way to control the quality of dubs is to do it yourself.") The VJs also create their own videos, from public domain material, for turntable tunes that do not have a clip.

Sukman has completely computerized his video clip library with an IBM XT personal computer, which can be accessed by a terminal in the VJ booth.

"If I want to play something by *Nina Hagen*, for example, I just call up "search" and "artist". Then I type in the act's name and get a rundown on all the clips we have for that artist, what compilation reel it is on, where on the reel it is and the duration." On the terminal screen, each listing also shows beats per minute and what type of intro or outro occurs, even which other clips might make a good segue. Demonstrating, he's able to call up a clip, locate it, find the reel, locate the clip start point, and get it on-line for live play in just over one minute.

**Robert Shalom**, owner of Private Eyes, says his clientele is an older, upscale crowd whose first introduction to the club may well have been a party or presentation hosted there. "We've spent two years putting the concept together," he explained, "as not just a nightclub, but as a multipurpose room." Recently, Private Eyes has been used by *Friday Night Videos* as a setting for interviews with the *Thompson Twins* and other acts. Shalom adds that the club is available for video shoots and that anyone interested in using Private Eyes as a backdrop may contact Steve Sukman.

### Rockamerica Seminar

"We believe that rock and roll belongs to *MTV*. I don't think there is room for two or three rock channels and if there are going to be other music video



channels I think they should consider other formats." Thus did *MTV* programmer **Les Garland** take up the gauntlet at *Rockamerica's* New York Video Music Seminar and defend the cable channel's exclusivity agreements with record companies for clips in the light of competition for viewers from new 24-hour video music services promised by *Turner Broadcasting* and *Discovery Network*.

"I think 'window of exposure' might be a better term than exclusivity, which has such negative connotations," Garland offered. But fellow panel member **David Benjamin**, producer of *NBC's Friday Night Videos*, charged that pay-for-play will ultimately hurt the music video industry, because the slower release of clips to TV outlets will dilute video's ability to push record sales. But he did add that *MTV's* strategy must be understood in television terms.

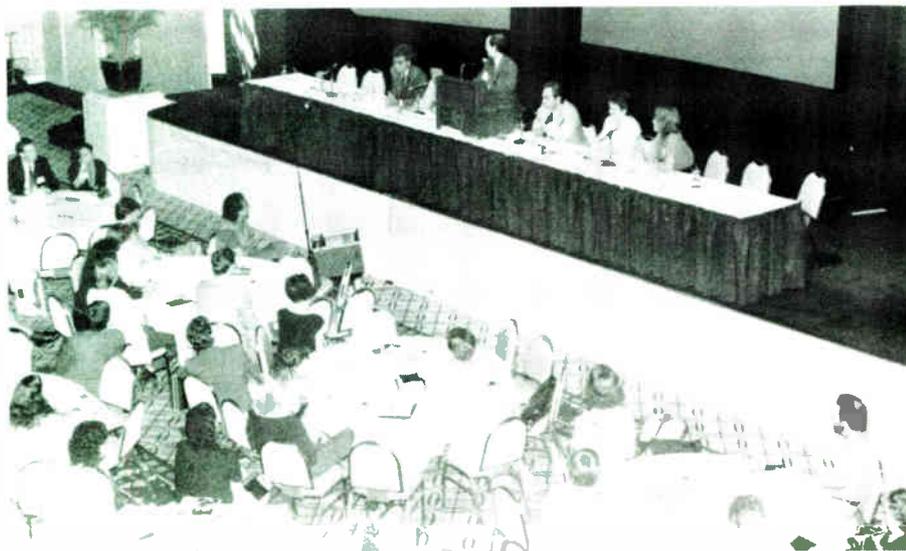
"This is a business where ratings are everything," Benjamin stressed, "and perhaps *MTV* can be accused of reaching too far. But I think there will be

a problem with the length of these exclusivity windows. I think it will hurt the music, and I think that it will hurt the sale of records."

Other *Rockamerica* panels touched on the future of long-form music programming ("We haven't the slightest idea of what's going to make it," said one frank panelist) and club video management. Big hits on screen were snippets from "Dominatrix Sleeps Tonight," a typical bondage clip with a feminine touch produced for *Dominatrix* by underground filmmaker **Beth B.** ("If you show a controversial video people will stop dancing and watch. That's what's important to me: to be able to expand videos beyond the formula, to make people stop and think") and British director **Tim Pope's** musical debut, "I Want To Be a Tree," a fun clip with a *Rutles* flavor. Said Pope, "In every film I make I try to do something I've never done before, or there's no point in my doing it."

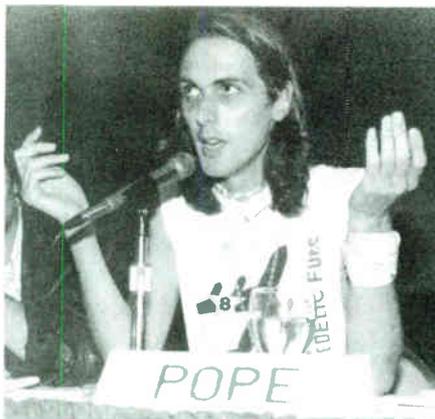
Few in the industry can match Pope's track record of over 150 rock clips, and *Epic Records' Harvey Leeds* may have aptly summed up the music field as "an adolescent — clumsy, loud, experimental, and slow to learn." Yet more than half of the audience represented nightclubs and this year's panels were more focused on clips as a marketing tool for records and were businesslike in tone. Said our photographer, "I can't get over how well dressed everybody is."

Also in town: *Stagefright*, the London firm which produced the clip "Relax" for *Frankie Goes to Hollywood*, has opened a New York office at 51 E. 42nd Street, under the direction of **John Reid**. The venerable film processing house *Movielab* recently sold off most of its film editing equipment to rival firm *Technicolor* — the better, says *Movielab*, to concentrate new gear and resources to its growing video postproduction services. *Ingalls Inc.*, the Brooklyn clip production company, re-



recently completed a "performance and concept" clip for *Bobby and the Midnites* (featuring *Bob Weir* and *Billy Cobham*). "I Want To Live In America" was styled as a documentary on the plight of recent immigrants by director *Nigel Nobel*, a 1982 Academy Award winner in the documentary category.

*John Scher's* Monarch Entertainment has launched a monthly series on MTV, "Rock Influences," sponsored by *Clairol*. Hosted by *Karla DeVito*, the first episode taped *REM* in concert at



the *Capitol Theatre* along with performances by *John Sebastian* and *Roger McGuinn*, singers acknowledged to have been an influence on the band. Also appearing: *Jesse Colin Young*, *Levon Helm*, *Rick Danko* and *Richie Havens*.

Video remote facilities at the Capitol were provided by *Unitel's* 45-foot mobile video studio. *Clarke Santee* directed.

*Windsor Total Video* recently completed postproduction on two rock video projects headed overseas. Four hour-long programs on the 1983 *US Festival* to air on French Television

were edited and subtitled for client *Centerpoint Distribution*. For *CBS* artists *Los Jaivas*, a Chilean band, *Windsor* cut a concert shot at *Macchu Picchu* to an hour which will run on the Spanish-language Pay-TV service *Galavision*. Both projects were edited by *Rich Cohen*.

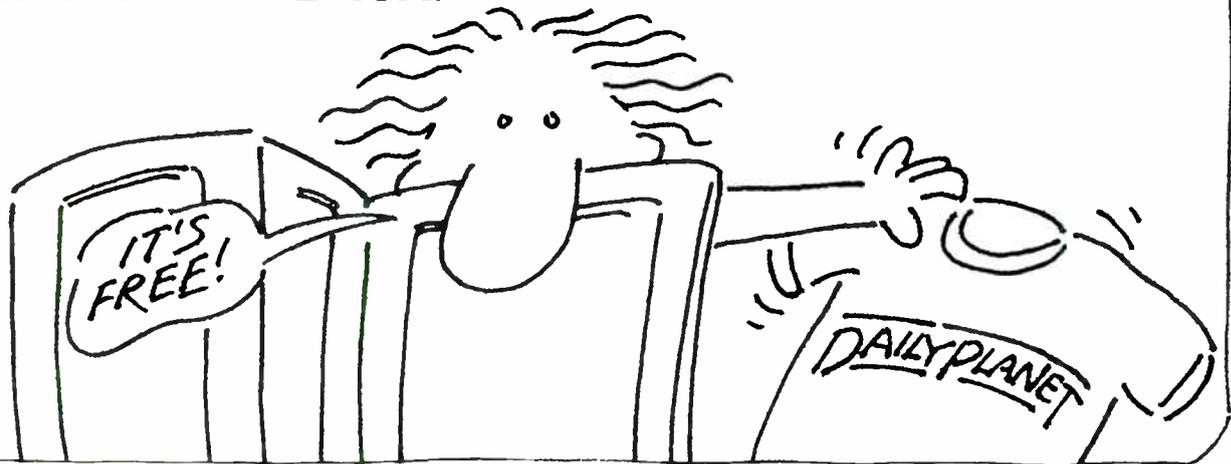
### Other News: Big Changes in TV

That gulping sound you are about to hear marks the beginning of a new era of corporate broadcasting, a feeding frenzy of station acquisition brought on by the demise of the "7-7-7 rule" regarding limits on station ownership by the FCC.

Under the old rule, no one company or person could own more than seven TV stations, seven AM and seven FM radio stations. The Commission plans to extend the bag limit to twelve each, eventually easing out all ownership limits by the end of the century.

And broadcasting companies, big and small, are eager to purchase more stations; several "closet deals" came to light recently and sale prices for television stations are sky high. What will the future bring? Increased conglomeratization, fewer individual voices in broad-

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casting as ownership of this powerful medium becomes concentrated in a few large firms. Renewed interest in purchasing LPTV stations by small and medium station groups anxious to increase signal. And for TV program sellers, fewer buyers in the long run, and in the short—well, program buying may well be skewed to short-term ratings gains for stations where the bottom line becomes not better programming but merely the ability to attract a buyer.

The phenomenon of UHF TV stations turning to all video-music formats is a new strategy by struggling independent broadcasters. The stations air video clips (cheaper than those reruns of *Barney Miller*) and find their ad sales able to compete with local radio, if not local TV. The switch is most successful, it seems, when the clips stress black acts on stations in areas with a large black viewership—they provide something for the young black audience that traditional telecasting and MTV don't offer. Two notable examples: *WVEU-TV* in Atlanta, and *WLXI-TV* in Greensboro, North Carolina.

From a music point of view, what the new UHF music formats offer is TV exposure for local acts, as well as a solid advertising and promotion medium for clubs, record stores, and regional record labels.

(Note: we'd like to publish a list of the new music-format TV stations in a future Video News. If one has started in your area, please drop us a line at *Mix*, 2608 Ninth Street, Berkeley, CA 94710.)

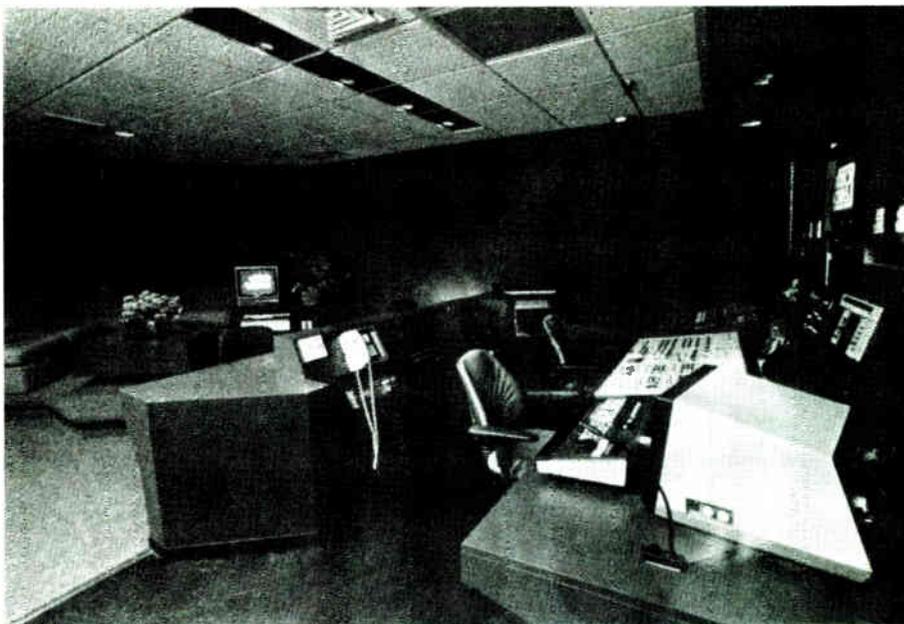
## Festivals & Shows

West Coasters: Mark on your calendar *The San Francisco International Video Festival*, October 5-12, with screenings planned at Video Gallery, clubs, cafes, and other amusing sites around the city. A festival of true video art and truly avant garde, a world class event. (For info call 415/863-8434.)

In France, the First Festival International Du Video Clip De St.-Tropez promises nights of glamour October 8 through 11. (For more information call 212/223-0044.)

*Video Culture Canada* presents its second event of seminars and screenings in Toronto, Canada, November 2-4. "High-Tech Cabaret," video installations, video music and computer graphics will be included. (For info, 416/961-3424.)

*AMIP* (American Market for International Programs) plunges into its second year in Miami November 17-20 at the Fountainbleu Hotel. This is the place where European TV producers bring their wares to sell to American TV. Very educational. (Info: 516/364-3686.)



Videoworks Inc.

## New York Edit Suites: The Second Generation

"Workin' late at the studio?" asks the security guard as he lets me out of the service door and into the grubby seven p.m. Manhattan twilight. "That place never quits, 24 hours a day."

The night clerk isn't kidding. *Videoworks Inc.* is one of the fastest-growing postproduction companies in the city, with three shifts of editors and a staff of 35. Principals *Ken Lorber*, *Eliot Tuckerman*, and *Frank Herold* launched the firm just a few years ago, specializing in animatics (test commercials on video) and recently expanded to three computerized editing suites.

The new rooms are plush. Clients can stretch out in the sleek grey edit suites and repair later to a gourmet meal from house chef *Stephanie*. Besides two dual-channel ADOs and DVE for special effects, each on-line suite has its own animation standup and its own tiny Moog synthesizer.

"I'm a keyboardist," explains Herold, "and I've found they are very useful in editing sessions. To create sound effects or room tone; to quickly do some music if needed."

Videoworks doesn't plan to expand to sound mixing ("The assumption is that the track you've brought in is a good track, done properly in a recording studio") but considerable attention was given to designing the room for the best possible audio and video mix. Edit Room 1 has a Yamaha 16-channel console, quarter-inch reel-to-reel and cassette deck; Edit Room 2 offers a Yamaha 32 input console with reverb, Dolby noise reduction, MCI half-inch ATR,

Otari decks and time compression. Walls are slightly baffled.

Says editor *Dick Seebach*: "One of the things we've done that's different is put *two* sets of audio monitors over the edit console. Normally if you're working on the left side of a long edit desk, the left speaker will sound great, but you can't hear the right channel. We have four speakers, which are assignable, depending on what part of the room is being worked in."

Videoworks is an example of what the New York production community has begun to call the "second generation" studio; new firms aggressively challenging the older full-service facilities. The staff is young, non-union; a high percentage of the technical staff is female. (One of the hallmarks of a "second generation" facility is that, typically, no editor or staff will regale you with tales of the good old days when quad tape was cut physically with a razor blade.) Videoworks has attracted series work: *Lifestyles of the Rich and Famous*, *Celebrity Chefs*, *U.S.F.L. Today*, and *Women Watch* (the first syndicated show to be sponsored by Campbell Soup since Lassie). They've cut two rock clips, one for *Pal Joey*, which used a great deal of animation-stand effects gleaned from the animatics days, and one for the Japanese band *Moto*.

"We'd like to do more," Herold says, "simply because the clientele is so incredible—you can get everything from the most outrageous genius and, of course, some of the lowest slimeballs! I think we are approaching in television

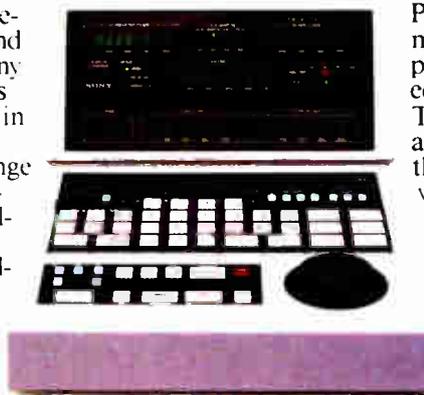
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what audio became in the Fifties, high fidelity, particularly with HDTV on the horizon. We're ready to try anything, to give the best image quality, and a comfortable atmosphere to work."

**Technisphere**, for nearly a decade one of downtown's best kept secrets in low cost production, burst onto the New York scene last month with two one-inch computerized edit rooms in a new location on 19th Street—which came about when owner **Mark Brownstone** sold his building and used the real estate bucks to expand his postproduction services. Unlike Videoworks, Technisphere's style is no frills, no special effects black boxes. Let's talk *serious* editing here.

"The decision was made to avoid dropping a half million bucks for effects equipment," explained Brownstone, "and I don't have to worry about paying it all off and consequently our rates here are *very* competitive." The two edit suites offer a Paltex editor or Videomedia 6000, with a CEL switcher for effects with color-correction.

The physical setup is compact. The two edit rooms share a common machine room (allowing access to backs of equipment racks for each suite for maintenance) which is the the main 'cooling zone', an advantage, says Brownstone, "because you can keep the editing rooms at a more comfortable temperature to work in."

Technisphere also handles videotape duplication; upstairs is a complete video sales and service division. Soon, there will be tape-to-film transfer and an announce booth, also built between the two on-line rooms, for instant voice-overs.

Current work includes nineteen shows of American pop music for Italian broadcasting company **RAI**, and completion of a **Wang Chung** special for **Black Tie Network**.

Production services director **John Gams** is also a composer and lately a member of the band **People Falling**. Brownstone, a fervent guitar player, says his staff's familiarity with music "has helped us form long-lasting relationships with our clients who do music projects."

He added, "Anybody knows enough to cut on the the beat for a rock video. Most rock songs are 4/4 time and the tendency is to cut on the downbeat, or the upbeat. What I often do is cut against the beat; I locate the up and down beats on the computer time code, intentionally add or subtract a few frames. It gives it enough imbalance to be interesting."

Brownstone also has a young staff and has noticed, in his ten years in the business, that his clients also seem to be getting younger. "People know that when they come here they won't find some engineer saying 'it can't be done.'

We have, and I think most of the new houses have, a different attitude, to say, 'It can't be done, but give me five minutes and I'll think of something.'"

"Spacious" is the word that best describes **Imagemix Inc.**, a new post-production house which opened last month on East 46th Street. It spans 20,000 square feet on two floors "and we'll be getting a third entire floor soon," says principal **Vinnie Violande**.

With partner **George Sharp**, Violande says the new facility is aimed at TV commercial and telefilm editing. To that end they've installed VPR-3 VTRs in the two on-line one-inch editing suites equipped with ISC editors, dual-channel ADOs and Chyron IV graphics.

"Eventually we'll be adding a recording studio for film sound recording," Violande says. "And there will be three or four sound studios up here, all 24-track." At present, Imagemix is shiny-new and airy, and beginning to attract the agency crowd.

**Steve Rutt** of **Rutt Video** is putting the finishing touches on a new edit room which boasts a CMX-3400 computerized editor and E-Flex effects unit.

"Our clients have been editing with the stuff on milk cartons," he explains. "The carpeting isn't down and the room has already been booked for half a year."

Like Technisphere, Rutt Video was a "second generation" facility with a low profile—in this case, for high-quality graphics. Cutting on one-inch or quad, clients using the new room have at their disposal the tabled Rutt-Etra analog video synthesizer, which can "warp out titles in 3-D" and spin off other effects when tied into the digital E-Flex unit. According to Rutt, "other toys" of a computer nature are due soon.

"The key to the future in video is faster editing," he claims. "The best editors are usually the fastest".

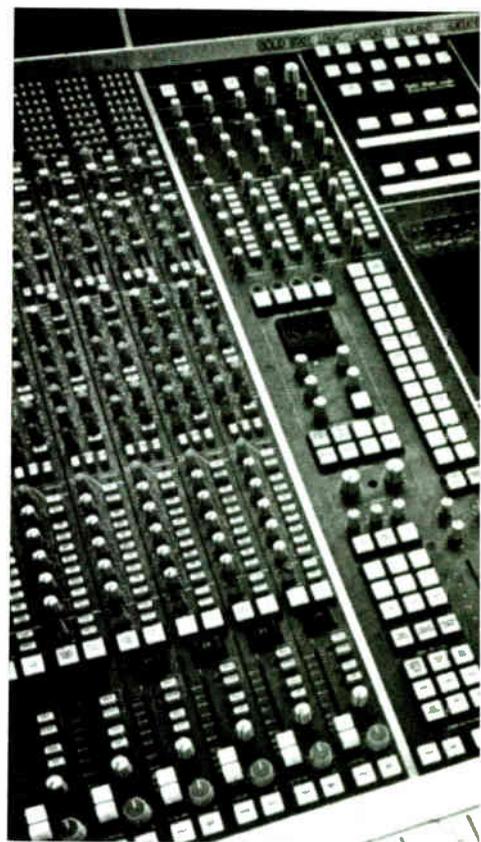
"As far as audio is concerned," he adds, "besides an ADM mixing board we haven't done much. But acoustically, this room is as good as any in town."

### **Home Video: A "Devo" Package Deal**

**Sony Video** and **Warner Bros. Records** are testing an advertising insert for Devo's video cassette "We're All Devo" tucked into jackets of their recent album **Shout**.

"Since the band has achieved so much fame and notoriety for their videos, we're anxiously waiting test results," says **Andrew Schofer** of the Sony home video wing. In the meantime, there's some kind of success story to be told of Miami entrepreneur **Scott Wilding** who's marketing a video cassette on how to dance like **Michael Jackson**. His first direct-response ad on MTV

netted 700 orders for the tape, produced with the help of a local choreographer. Inside each cassette package he sends out a single sequenced glove.



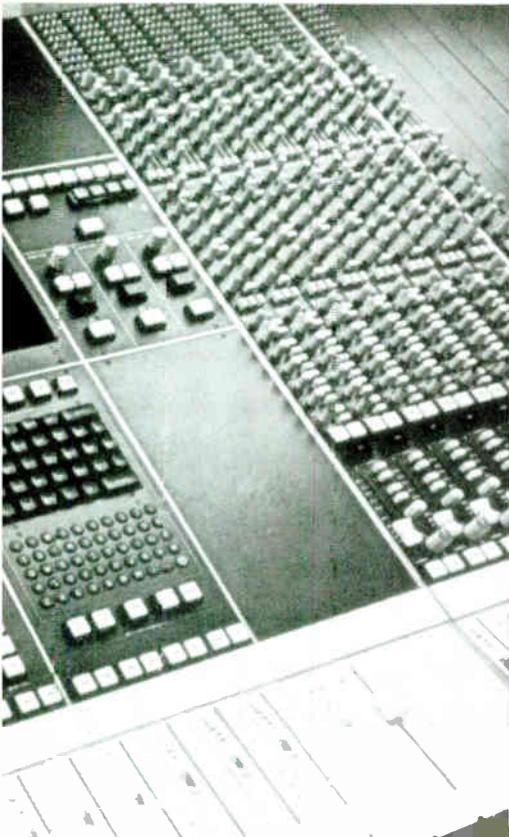
by Lou CasaBianca

### **AUDIO FOR FILMS & VIDEO**

Traditionally, audio for video has been treated with benign neglect by most film and video post-production facilities. Editel New York, one of the largest videotape postproduction facilities in the country wanted to change that situation. In early 1982, Editel commissioned the design of a state-of-the-art sound mixing facility that would be able to handle not only commercials, industrials, and entertainment programming, but also music video.

For audio recording for film and video layback, the company decided that computer controlled multitrack recording would offer the most flexibility and be able to handle the widest range of projects. The company selected Solid State Logic of Stonesfield, England to develop the specifications for a six-buss mixing console. By modifying Solid State's series 4000 console with the addition of control panels designed specifically for video mixing they produced the first series 6000 E. Six busses allow greater adaptability in

# EDITEL'S NONTRADITIONAL APPROACH



*The Solid State Logic 6000 Series console at Editel. Note the switch above each I/O module pan pot that routes to either the A, B, or C Stereo Bus, for Dialogue, Music and Effects, the left hand center section is the 651 Master Electronics Section. The middle center section starts off with the keyboard, then the video display, then the controls for the SSL Video Switcher, then the SSL Events Controller. The right hand center section holds the mix matrix and 8-track recorder controls, plus space for future SSL developments.*

the preparation of tracks for stereo recording. SSL developed software specifically for television post-production.

They created a new product called The Events Controller which operates up to 16 devices, and can also deliver an unlimited number of commands to digital processing devices, countdown cues for ADR (Automatic Dialogue Replacement), cue audio cart machines, or non-synchronous tape machines. By storing and activating mixing pre-sets at given SMPTE time codes, the board is capable of scene by scene dialogue equalization from off-line edit decision lists or from cues executed on the fly. Programmable punch-ins and punch-outs are virtually gapless, permitting unlimited possibilities in the mixing of short sections of programming. The engineer can compile pertinent data as needed while creating an edit decision list by using the system's automated functions.

Editel's ATRs are all Studer and include an A800 4/8 with 14-inch reel capacity as the master recorder. The machine has a time

synchronizer system was chosen to lock all machines in the room. The system has an unusually large capacity and can be used in laying out and performing electronic edits and special effects. When not in use the system is virtually transparent. The synchronizer will take commands from the SSL keyboard, and chase and synchronize however many machines are in use, while allowing the engineer to concentrate on the mix.

## **THE EDITEL GROUP COMPUTER GRAPHICS NETWORK**

In another innovative move to provide expanded services to the industry, the company has created the Editel Group Computer Graphics Network among its facilities in New York, Chicago and Los Angeles. The first Computer Image System IV in the United States went on line at Editel in Los Angeles in September, 1983. System IV is a

*Animator Ed Kramer working with digitally controlled System IV installed at Editel's LA fax.*

room and eliminates potential problems in using time code on tape. The same feature was designed as a modification and installed on the studio's Studer A80 2/track. The suite is also outfitted for mag playback (35mm or 16mm). Audio Kinetic's ers and hold the original patents for the manipulation of video images by computer. They are also the inventors of scanimate (the first analog video animation system), which has been used extensively on broadcast television for years.

The system IV could be viewed as the hub of the Computer Graphics Network which includes Ampex ADO, the Bosch 4000 Animator/Paint system, the Qantel Mirage and the Dubner CBG computer graphics systems, located at Editel's various facilities. A number of projects have successfully been completed by shuttling artwork and clients among the various facilities. Richard McDougall is the manager of marketing/production for video animation for the Editel Group's Los Angeles facility. Also, recently Larry G. Kingen was appointed



digitally controlled, analog electronic animation system which enables animators to work in real time, producing images directly onto videotape. Computer Image, based in Denver, Colorado, are the develop-code channel which simplifies the signal path requirements in the

president of the L.A. facility. He moves to Editel from the presidency of Vidronics, Inc., (L.A.) and One Pass in San Francisco where he was vice president of sales. The Computer Graphics Network manager in Chicago is Olita Kins and in New York, Alfie Schloss.



PHOTO: COURTESY OF ©LUCASFILM LTD.

# EDITDROID

by Lou CasaBianca

## A Brief History

**Y**ou might think the videodisk is a new technology, but in fact the first videodisk patents were granted to Paul Gipkow in Germany in the early 1880s. During the same period, Alexander Graham Bell produced the first optically recorded 12-inch audiodisks. Bell's audio-recording patents were licensed to Thomas Edison, who introduced wax-cylinder audio players, which were replaced by 12-inch audiodisks developed by Deutsche Grammophone. Later, Westrex, founded by Edison, developed talking movies, matching the running length of a reel of movie film to a 12-inch audiodisk spun at 33 $\frac{1}{3}$  revolutions per minute. In the late 1920s in England, John Logie Baird invented a mechanically scanned video system which used 12-inch pressed-wax audiodisks. A few years later, the British

*The development of the videodisk and computer and optical memories as storage mediums for images, has created a whole new scenario for the editing of audio, film, and video.*

Broadcasting Corporation (BBC) advanced the technology by developing an electronic scanning television system. Westrex also developed stereo recording and playback. The Germans were using magnetic audio recording during the 1940s. After World War II, the Ampex Corporation further enhanced magnetic-tape recorders and went on to develop the first successful videotape recorder. The practical relationships between the videodisk player and the computer has been forged principally by applications in the broadcast and interactive video areas.

### The Videodisk

The modern videodisk is a blend of converging technologies. The first working videodisk players were funded by 3M Corporation, which deserves special recognition for pioneering this technology. In the early 1960s, the company used a lightbulb illuminating source to optically read silver-halide

media. 3M's patent had the videodisk spinning at 1800 rpm and was almost immediately recognized as a potential video-image storage peripheral for computer systems. Today, the videodisk is literally a miracle of technology. The disks are laser etched with grooves 1½ microns in width and each frame approximately ¼-inch square.

**LucasFilm's EditDroid: Some Day, in an Edit Suite Far, Far Away...**

"A few years ago a filmmaker who had spent many hours in an editing room, got together a small group of specialists to design a new machine and teach it about editing so that film editors wouldn't have to learn about computers. Those specialists spent long hours studying the ways of picture editors—how they refer to scenes and takes; how they log camera reports and dailies; how they prepare opticals.

"And when the team was finished, they introduced a postproduction system so transparent you can practically hold the image in your hands...as quick as thought, and so easy to use that most editors already know how to use it."

That's how the folks at LucasFilm describe their motivation for entering the hardware wars with EditDroid, an ad-

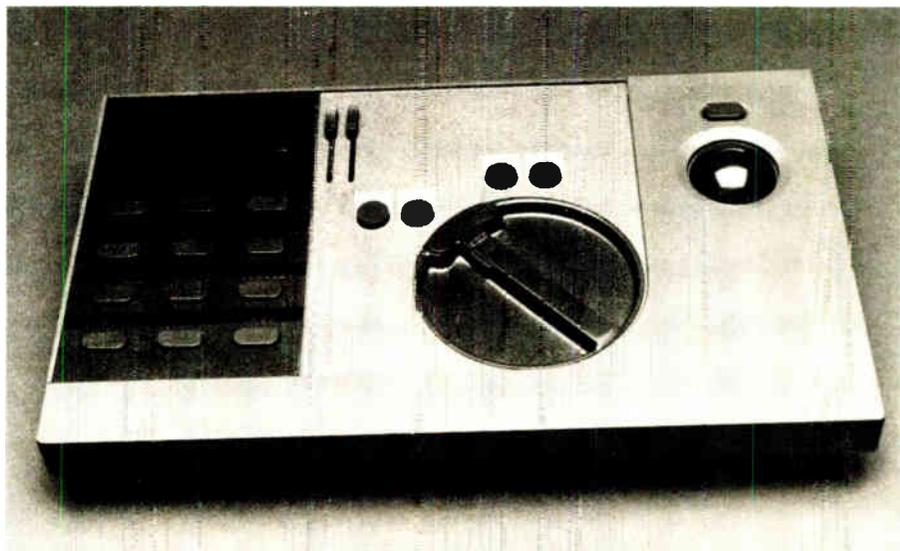


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usually edits as a creative contributor to the filmmaking process. Video editors tend to come from video engineering backgrounds and usually work under the direct supervision of a producer or director. Increasingly, the editor has become captive to the process of identifying shots and sequences by frame edge or time code numbers. The designers at the LucasFilm Computer Division view themselves as postproduction toolmakers blending the new technology with

operators have attempted to preserve and open up to new possibilities. Before EditDroid, time and motion were the apparent irreducible constants in the editing process. Entering numbers, shuttling tape and waiting for the tape to roll to the next shot are the main activities in the traditional editing process. LucasFilm and Convergence have created an editing system that not only uses advanced technology but is also human engineered to be a pleasure to work with.

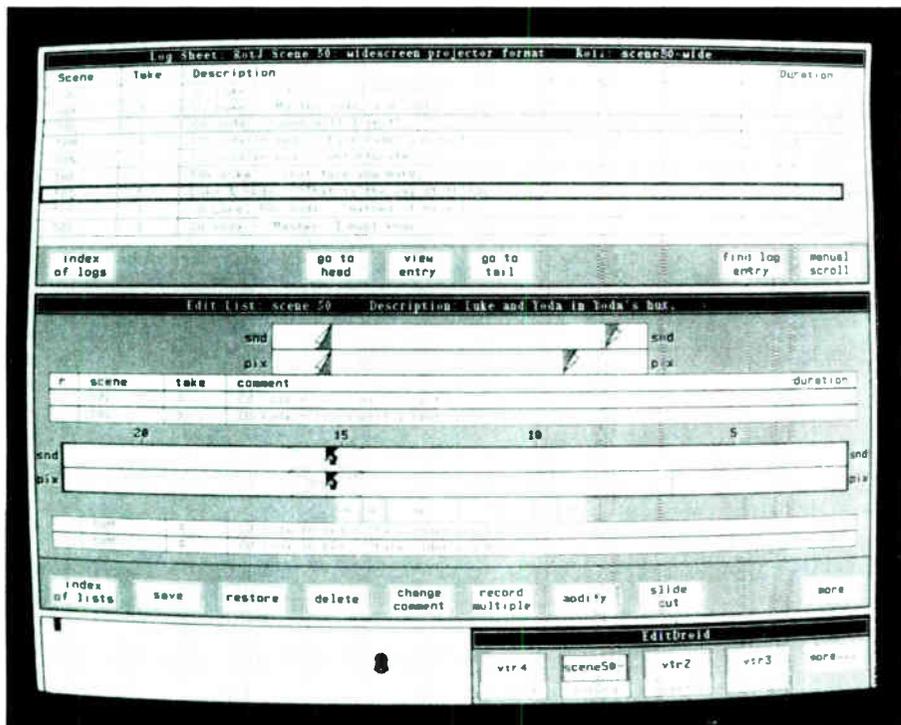


PHOTO COURTESY OF ©LUCASFILM LTD

vanced editing system co-developed with Convergence Corporation of Irvine, California. In many respects there is good justification to look at EditDroid in epic terms...an editor's fantasy come true.

Editing as a professional skill has traditionally meant different things to film and video editors. In film the editor

aesthetic, human engineering.

The challenge that the developers and manufacturers of EditDroid have accepted is to develop a system that won't force editors to think in new ways. Each editor approaches the editing process from a different point of view. It is this unique point of view that the devel-

(Left) EditDroid Screen and (Above) is the control unit for the Edit Droid.

**EditDroid & the Videodisk**

EditDroid was designed to work with videodisks to maximize editing speed. The refining and polishing part of the editing process is enhanced by the ability to make changes easily and quickly while having the ability to create and review different versions of a scene. Existing videodisk machines have the ability to locate any frame in 30 minutes of program material within 3 seconds, and new machines will be even faster. Several minutes of edited material can be reviewed in real-time, without recording the selections on tape. In some cases it will be able to review an entire edit list in real time.

Due to the latest innovation in videodisk replication technology, single copy workprint disks can now be lasered in with a 24 hour turnaround for about \$300. The disks can be mastered one at a time with direct NTSC color using devices like the Optical Disk Corporation's videodisk recorder. The disks are compatible with consumer and commercial laserdisk players in the 30 frame standard. Film or tape can be dumped to disk and used with EditDroid as a disposable part of the editing process. Spectra Image in Los Angeles is one of the facilities

providing this service. The Panasonic DRAW System can actually write and read videodisk and is commercially available for about \$35,000.

### **The EditDroid System**

The system components are configured to be flexible and expandable. The basic system components are as follows:

**Sun Computer Controller:** the system's central processor is a 10 megahertz 68010, capable of demand paging and virtual memory addressing. Developed by Sun Microsystems, it controls the NotePad Display, along with two megabytes of RAM and a 40 megabyte Winchester disk. The hard disk is used for all computer operations, and a 5¼-inch floppy disk is used for backups and edit list transfers to other systems. The Sun will store over 3,000 lines of edit list and an additional 3,000 lines of log sheet actively available.

**Planet Controller:** EditDroid uses five Motorola 68000 microprocessors. One of the most widely accepted microprocessors in use today, the 68000 is a 16 bit micro with a 32 bit internal architecture, capable of executing one million instructions per second. The 68000 runs three times as fast as the Z80 and other 8 bit micros. Real-time machine control in EditDroid is handled by a set of dedicated 68000 microprocessors, each with 128k of RAM. The processors supervise one or more machines under serial or parallel control. The Smart Interfaces are housed in the EditDroid Planet, which communicates with the Sun Computer via an Ethernet interface. Ethernet is a popular multi-drop communication network developed by Xerox that has been in use for over 10 years. Its ability to transmit messages at high speeds (10 megabits/second) make it ideal for an editing system allowing EditDroid to control videodisk and videotape equipment and communicate with other EditDroids.

The standard EditDroid configuration can control a maximum of 32 machines. The tape machines currently interfaced are the Sony 2000/2500 and BVU 800 series. The Sony LDP 1000/LDP 1000A disk machines are currently interfaced with plans to interface other machines, like the Panasonic DRAW System. EditDroid will control both tape and videodisk machines simultaneously.

**TouchPad:** The TouchPad is the editor's primary link to EditDroid. It contains touch controls for the most commonly used functions. These controls are easily learned so that there is no searching for keys while editing. The center of the TouchPad is the shuttleknob. This knob functions in the same manner as a

***EditDroid speeds up  
and enriches the  
editing process  
allowing the editor  
and the production  
team to experiment  
and look at different  
cuts of the same  
scene while creating  
the definitive edit  
decision list.***

speed controller on a flatbed film editing table or CMX Editor, controlling speeds forward and reverse. A switch on top of the shuttle knob permits the editor to easily pause or jog forward or backward a frame at a time. The Cut Head/Cut Tail buttons above the shuttle knob are for edit marking, with adjacent keys for splicing or recording a clip.

On a visit to the LucasFilm's offices, EditDroid project leader Ralph Guggenheim showed me several of the prototype TouchPads that were experimented with before George Lucas and the research team finalized the current design. I had the opportunity to demo the system at NAB and found the TouchPad a very natural and responsive controlling device, extremely ergonomic and user friendly. The Trackball and its single button are located on the top right corner of the TouchPad, allowing the editor to make selections from the NotePad display. Moving the Trackball causes the screen's cursor to move and the button selects from the NotePad screen. The left section of the TouchPad contains twelve soft keys that relabel themselves and change function for different activities.

**NotePad:** ASCII keyboard for NotePad entry of text and numbers. The

NotePad Display uses a 19-inch 1024 x 800 pixel bitmap screen producing high resolution textual information along with a graphic representation of edit decisions.

All EditDroid software is written in C, a high level programming language, and runs under the Unix operating system. Unix was developed in 1969 at Bell Laboratories. It has become the standard for operating systems, and is particularly appropriate for local area network intercommunications.

The key to EditDroid's power is the database management system (DBMS). Designed by LucasFilm's Computer Division, it is used primarily to store log sheets and edit lists as well as the cross-reference between them. The database for example can hold information relating to the correspondence between film frames and video frames, making it possible to generate a film-based cutting list from any video edit list.

An editor can store and cross reference masses of information on a log sheet form, displayed by scene, take, shot description, duration, sound roll, lab roll, and continuity. On a functional level, this is the key to the significant result oriented benefits that the EditDroid system can deliver.

It should be clear that EditDroid is an off-line edit system delivering an edit decision list in form of a floppy disk or hard copy. It speeds up and enriches the editing process allowing the editor and the production team to experiment and look at different cuts of the same scene while creating the definitive edit decision list.

### **The Bottom Line**

What about the bottom line? The basic system as described above is listed at \$87,000 exclusive of the work station. (The custom work station presented at the NAB looked and functioned like a private screening room.) It's difficult to assign tangible value to the deep sense of satisfaction that an editor and production team experience when they know that every creative option worth trying has been pursued to resolution. The reality is that in most cases, most productions are so tightly budgeted that even in an off-line context, compromises are made because of the time it would take to find a specific shot, or try another take. Because of the efficacy of the relationship between its software design and the use of videodisk technology, no system even manufactured has been able to provide the real time "what if?" capability of EditDroid. The basic processes of organizing, choosing and refining have been elevated to a new level of simplicity and efficiency. The pay-off should be higher quality work completed in less time with a greater sense of accomplishment. ■

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hard cyc, video and full audio produc-  
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25' x 40' = 1000 sq. ft. stage  
hard cyc, video and audio equipment  
for production and postproduction,  
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27' x 17' = 459 sq. ft. stage  
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van, crew, transfer and duplication.

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885 Second Avenue  
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(212) 355-0510  
45' x 60' = 2700 sq. ft. stage  
hard cyc, street access, video equip-  
ment, computer animation, full video  
and audio postproduction, mobile  
facilities, transfer, duplication, satellite  
distribution or teleconferencing, color  
correction, crew.

**Magno Sound & Video**

212 West 48th Street  
(212) 757-8855  
27.5' x 44' = 1210 sq. ft. stage  
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video and audio production and post-  
production equipment, lights, hard  
cyc, special effects, duplication, trans-  
fer, color correction, crew.

**Manhattan Transfer/Edit**

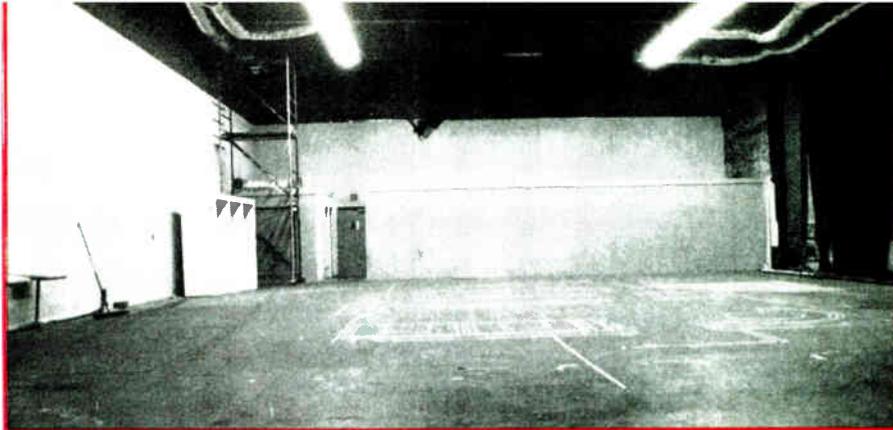
545 Fifth Avenue  
(212) 687-4000  
10' x 18' = 180 sq. ft.  
video production, postproduction  
equipment, transfer, duplication, color  
correction, crew.

**Manhattan Video Productions**

215 Park Avenue South  
(212) 460-5655  
20' x 20' = 400 sq. ft. stage  
soft cyc, video equipment, mobile  
facilities, video postproduction, lights.

**Matrix Video**

727 Eleventh Avenue



**Empire Stages of New York**

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hard cyc, lights, video equipment,  
special effects, postproduction, mobile  
truck, audio postproduction, crew.

**National Video Center**

460 West 42nd Street  
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hard cyc, drive in access, full video,  
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equipment, mobile facilities, crew,  
screening, dressing, make-up rooms,  
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rection, special effects, lights, control  
room, air-conditioning.

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50' x 50' = 2500 sq. ft.  
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conditioning, lights, control room,  
video equipment, construction service,  
video and audio postproduction,  
duplication, screening room.

**The 95th Street Studio**

206 East 95th Street  
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**Northeast Video**

420 Lexington Avenue  
(212) 661-8830

20' x 20' = 400 sq. ft. stage  
lights, video and audio equipment,  
video and audio postproduction,  
duplication, transfer, color correction.

**Panavideo**

248 East 35th Street  
(212) 725-2211  
25' x 30' = 750 sq. ft. stage  
16' to grid  
25' l x 16' h x 25' r hard cyc, video  
and audio equipment, video and audio  
postproduction, lights, uplink for tele-  
conferencing, special effects, duplica-  
tion, color correction, crew.

**PrimaLux Video**

30 West 26th Street  
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40' x 35' = 1400 sq. ft. stage  
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production, mobile van.

**Rebo Associates**

530 West 25th Street  
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25' x 40' = 1000 sq. ft. stage  
lights, video and audio equipment  
and postproduction, duplication, color  
correction.

**Rutt Video**

137 East 25th Street  
(212) 685-4000  
30' x 30' = 900 sq. ft. stage  
hard cyc, lights, video equipment and  
postproduction.

**Splice Is Nice, Ltd.**

141 East 44th Street  
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50' x 80' = 4000 sq. ft. stage  
hard cyc, lights, audio and video  
equipment, postproduction for film,  
video, and audio, mobile van, duplica-  
tion, transfer, crew.

**TVC Video**

225 East 43rd Street  
(212) 599-1616  
19' x 34' = 646 sq. ft. stage  
hard cyc, video and audio equipment  
and postproduction, crew, lights,  
special effects, duplication, color  
correction, transfer.

### Teletime Video Productions

3 Grace Avenue, Great Neck, NY  
(516) 466-3882  
20' x 40' = 800 sq. ft. stage  
semi-pro video and audio equipment  
and postproduction, lights, mobile  
van, duplication.

### Today Video

45 West 45th Street  
(212) 391-1020  
40' x 45' stage  
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postproduction, special effects,  
duplication, color correction.

### Transvideo Broadcast Center

506 West 57th Street  
(212) 265-4141  
25' x 60' = 1500 sq. ft. stage  
22' to grid  
hard cyc, crew, lights, video equip-  
ment and postproduction, mobile van,  
duplication, transfer, color correction.

### Tulchin Studio/The Directors Centre

240 East 45th Street  
(212) 986-8270  
(213) 661-4703/(301) 360-1450  
60' x 40' = 2400 sq. ft. stage  
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audio equipment, special effects, video  
and audio postproduction, duplication,  
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### Unitel Video

515 West 57th Street  
(212) 265-3600  
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(for other information see  
large stage listing).

### VCA-Teletronics

503 W. 33rd Street  
(212) 736-7677  
62' x 50' = 3100 sq. ft. stage  
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### Video Center

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Northern Boulevard, Old Westbury, NY  
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### Windsor Total Video

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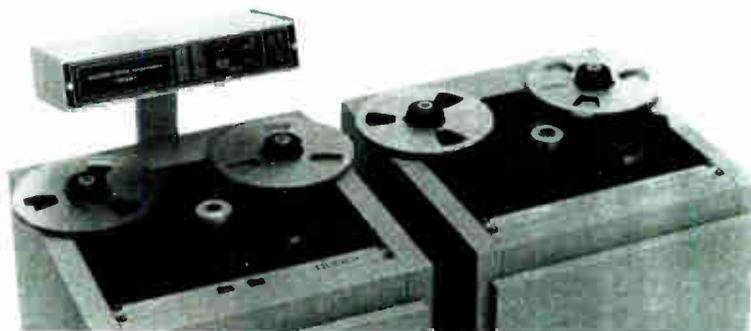
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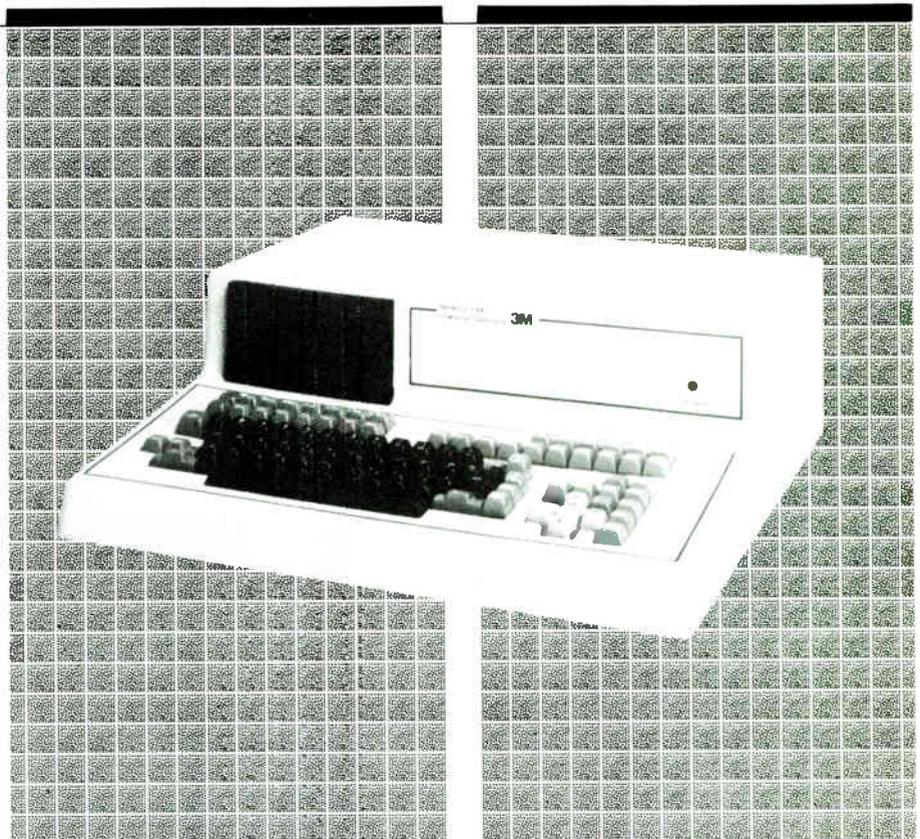
- AS-400** Audio Mastering Recorder. DC Servo with 180° wrap direct drive capstan.
- AS-200** Loop Bin Master for Cassette Duplication. ½"x¼" tape. 240/480 IPS.
- AS-300** Common Mandral Duplicator. Reel-to-Reel ¼" or with optional ¼" Loop Bin.
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Over the years, character generators have grown up and now have capabilities which far surpass those available just a few years ago.



# GENERATING CHARACTER

by Neal Weinstock

When Video Interface was a lad he was an "artsy fartsy" type, as the first girl he kissed put it. She became a surgeon. Any readers who share a similarly alliterative childhood rep—and don't we all, or wouldn't be reading Mix Mag today—will surely remember all those straightjackets big bad society tried to put us in to repress our originality and generate character.

We speak, particularly, of stencil forms and tracing paper, crayons of limited color, and other insidious ways to limit the imagination and development of manual dexterity. You don't get the backbone it takes for a life in the fast lane of the creative arts by taking the easy way in second grade. However, you just may take that easy road to an adulthood as a compositor.

(Heaven help what the layout and typesetting folks are going to do with this text! Yes, we venture into controversies here which have never, since Gutenberg, seen print. It is a sad fact, to a columnist, that the mechanicals department

of a magazine has the same final control over the work of the imaginers in their grasp as the lowliest assistant gopher at a recording studio, who may, with a seemingly accidental slip of a coffee cup, demolish a whole session merely because he or she prefers jazz to heavy metal. Of course, by the time the studio gophers ever get to think they are reading what this columnist is now writing, their jealous, minimum wage counterpart over here will have deconstructed a message wholly different out of what you can be sure VI meant to say.)

But instead of pondering how many lead-fingered typesetters once loved the iron grasp of the stencil, which allowed a shaky hand no deviation from the perfect letter, a more productive thought pattern might delve into those conventions of childhood art that none but the true artist dared to cross. Remember the way a blue line at the top of the page invariably represented the sky? Doubtless, your peers, as well as Video Interface's, had established only one permissible crayon to be used for this blue line sky. Woe to the youngster whose parents were too penny-pinching

to buy a new box because that one crayon had run down. The blue line was a stencil built into the mind.

The character generator is a stencil built into the TV studio. In its own childhood, the character generator was forced to wear a horrible straightjacket. You may remember the dot matrix type that was used only for batting averages; anything more complicated necessitated an "art card," mounted on an easel before the camera. The TV studio had a full file of stencils, tracing paper, paints and crayons in the kindergarten that was TV graphics; but baby char/gen wasn't allowed to play. It was only allowed baseball stats, and in VI's home town, they were pretty lousy stats at that.

And now the little character generator has grown up. Just as we have all adulated, it has grown artsy fartsy from its repressed beginnings. Neither the character generator's nor Video Interface's life now revolves around the sad averages of the Chicago Cubs. Some character generators have made it really big—every year's National Association of Broadcasters Convention functions as a class reunion, and the success stories at 1984's show included MCI/Quantel's Cypher (which brags of earning \$102,000 every time it makes a sale—reminds us of that jock who's now into real estate in Hilton Head). But there is, akin to those who grew up in VI's neighborhood, a definite trend toward making it small: this year, Laird Telemedia, Knox, Mycro-Tek, 3M, and Wilk all displayed micro-

—PAGE 290

*Pictured above is the Model D-1000 Character Generator*

# NO DROPOUTS

Samson's "Phase-Reflex" technology solves wireless' biggest problem.



The total freedom of movement promised by wireless mic and instrument systems is a very attractive option for most modern musicians and singers. Unfortunately, the stratospheric prices of the more "professional" systems exceed their ability to eliminate problems like *drift*, *interference* and *dropouts*—so many of the most adventurous performers have gone back to messy cabling.

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—FROM PAGE 288, GEN. CHARACTER

computer-based generators welfare recipient-priced in the \$3,000 range.

Some confusion is justified, concerning the difference between a character generator and a graphics generator. Yes, one makes words and the other makes pictures. Confusion begins with the desire to make words that are as pretty as pictures, accompanied by the common-sense desire for just one device to generate type and pix. The goods discussed in the previous paragraph are all basically meant to gratify the desire for type; the other type of machine, the graphics generator, may indeed be able to produce many typefaces even though its main emphasis is elsewhere.

Let's face it, then: logically, character generators are usually additions, bought after a studio already has invested in a graphic generator and found that it won't do quite the glitzy print effect needed for the one production that will make another purchase worthwhile. Why are graphics generators usually bought first? Because there is, generally, more call for pictures in music videos than words. Unless you are into subtitles—or almost any other sort of teleproduction: commercials, with their ubiquitous closing price quote, disclaimer, copyright notice, or some other printed matter; TV news, all words, words, words; or independent shows of any sort—with lotsa credits at the beginning and end that, considering independent budgets, are often in lieu of wages.

So you're making a stab at one of the above artsy fartsy "line extensions" (as they say in the very un-artsy fartsy packaged goods industry, meaning a branch out into a nearby business) and you now need to throw some good-looking type up there on the vidscreen. Let-raset is no longer quite enough of an answer, and you used stencils too much as a child to trust your own calligraphic skill. Want some advice? Well, you get what you pay for...

We can do a little better than that. So many char/gens are clumped around the \$3,000 mark that these deserve active investigation. They all do basically the same stuff, but so do a Maserati and a Le Car. For instance, the Knox K-100 Chromafont features a "fluid memory" architecture, which allows for several features more sophisticated than one might expect for the price. Based around a Z-80 microprocessor, it has an 8,000 character memory that can be organized as either 64 pages or 256 lines. Resolution is 60 nanoseconds. Two options packages allow for character-by-character color control, and an interactive computer interface for design and loading of custom fonts.

Mycro-Tek's Mycro-Vision Max goes the K-100 better with 70 ns resolution, 32,000 character memory that can

be configured in 120 pages, 32 characters per line, eight lines per page. Only two fonts are standard, however, and options are not yet available (but are promised soon).

Obviously, a big selection of fonts is not easy to find in the low price range, and a big selection of fonts is just what viewers are used to seeing. Wilk's slightly pricier 4400 CG offers four fonts, along with 295 pages of memory, 256 colors and shades, automatic page rotation, cycling, centering, and full word processing capabilities. There are several options, including Apple computer interface, remote keyboard control, second channel (two channels allows one for editing and one for the program currently running) and disk drive, multiple fonts, and graphics tablet. In other words, here is a system to expand with.

Expansion capabilities are clearly on the collective mind of 3M in their new entry to the lowball char/gen derby. The D-1000A comes with eight background and character colors, a keyer with genlock, edge and drop shadows, four character sizes, three-speed roll and crawl, 22 characters per row, and two channels. The previously available 3M cheapie, the D-8800, can now be tricked out with options such as software that interfaces with any monochrome camera, and "billboard" software to automatically present prerecorded displays on the program channel while you edit other matters on the edit channel—like having two and a half channels.

Quanta's new Q8 probably has the neatest tricks of any device that can strictly be called a character generator (that is, no real graphic applications), but you're going to have to pay a bit more than three grand for it. Try 33 grand. What you get for this still quite reasonable sum (compare it with graphics generators, Slackjaw) is the ability to load type faces, as opposed to type fonts. Meaning that once the basic type style is loaded, it can be enlarged, slanted, and manipulated in sundry other ways. This sure is easier to work with than constantly changing fonts just to make the type a little different—and we're talking fonts you may not even have available, with one of the above stripped down systems.

Where do we go above and beyond the delightful Q8? To the certainly more artsy (and let's do away with the pejorative additive by now) world of graphics generation. Now, you can get a graphics generator for as little as \$2,500, added onto your already amortized personal computer (you *do* have one, yes? —the Jones next-door do), but it's not going to do much for your character(s). The art + print, top to bottom, \$2,500 to \$2,500,000 story of affordable graphics generation will be generated by this column next month.



## CED Editor

Calaway engineering has developed the necessary software and hardware to convert the IBM-PC into a computer assisted editing system that is compatible with either Calaway Engineering or CMX VTR interfaces. The CED Editor includes instruction manual, editing software, and two add-on cards needed to provide the special hardware support needed. One card provides the communications to the VTR interfaces (maximum of 4 interfaces), the second card provides the TV realtime clock, 2 serial ports for switcher control, and the electronics needed for motion control. The CED List Generator provides an instruction manual and special software needed to quickly generate an edit list.

A disk interchange option is available which includes the necessary hardware and software to read or write a disk in the format required by the CMX or ISC system. Other options include the CED Keyboard which is a PC-type keyboard with the keys engraved and color coded like a CMX keyboard, making the system much easier to use. The CED Motion Control includes the motion control box, necessary software, and has mark in and mark out keys, variable speed selection, frame advance and a speed control knob. The CED Switcher provides the necessary preview switching as well as a six input audio and video switcher, which accommodates video and two audio channels. The CED expanded list provides additional listing functions in addition to allowing the system to handle wipes and keys. The CED Auto-Assembly provides a simple linear assembly capability.

Circle #234 on Reader Service Card

## Metawave

LehrWare has introduced Metawave, a new sound making, manipulating, and visualizing program for the alpha-

Syntauri Computer Music System. The program gives the alphaSyntauri sound synthesis capabilities previously available only on systems costing much more. With a Decillionix DX-1 card installed in the Apple computer, real sounds can be sampled from a mike, or a line source such as tape or another synthesizer and loaded into the Syntauri to create natural sounding polyphonic voices.

Wave building allows the user to complex waveforms out of simpler waves and specify amplitude, phase, and pitch of each wave. Splicing and editing uses on-screen high resolution graphics and a single game paddle to link waves together or pull individual segments out of waves or clean up noisy waves. Filtering smoothes out waves, eliminates aliasing noise, and can produce powerful harmonics or perform spectrum modifications. While Metawave is running, the Syntauri keyboard and pedals are completely playable, so the user can hear the program work in real time. All waveforms and control parameters created with Metawave can be saved to disk and immediately used in Syntauri's MetaTrak, Alpha Plus, and Simply Music programs.

Metawave is totally menu-driven, is designed to be easy to use, and full documentation is included. Hardware requirements are an Apple II-compatible computer with 64K RAM, one disk drive and a game paddle, and any version of the alphaSyntauri Computer Music System. For sound sampling, a Decillionix DX-1 digital recorder card is required.

Circle #235 on Reader Service Card

## Splash Graphics

The Splash Graphics system from Decillionix is a graphics program that enables the Decillionix DX-1 sound sampling system to display several types of graphics displays on the Apple II computer. Six displays are provided, each with unique characteristics. Graphics displays are controlled by ordinary sound, digitized by the DX-1 sound sampling hardware and fed to the computer monitor by the Splash Graphics program. All are high resolution displays, with characteristics ranging from fine dot patterns to oscilloscope-like horizontal readouts.

Displays can be fed to a color or monochrome monitor. With a color monitor, repeated presses of any particular selection will randomly change the selected color. On the oscilloscope pattern, a special trigger sensitivity display is provided to allow adjustment of input levels. Each of the six Splash displays responds to different aspects of the input signal. Splash "A" plots points in an X-Y plane with X position indicating current level and Y position indicating approximately 20 milliseconds delay. A sine wave will generate a circular pattern. Splash "B" simulates a simple oscilloscope by plotting amplitude vertically against a horizontal time axis. Splash "C" through "F" use complex algorithms based on data from the input signal in different ways, along with some controlled randomness. Splash requires an Apple II with 48k of memory, Applesoft Basic, at least one disk drive with DOS 3.3, and the DX-1 sound sampling hardware which can be installed in any slot of the Apple II.

Circle #236 on Reader Service Card



## EELA Reportophone S 22

Made in Eindhoven, The Netherlands, the EELA Reportophone S 22 allows high quality field audio transmission over standard telephone lines. Up to two phone lines can be connected in several configurations of send and return modes. A tape output jack permits a separate split for audio or video recorders at the scene, and the unit can also be used as a mike/line field mixer.

The Reportophone S 22 can be powered by the phone line itself or via two standard nine Volt batteries, and standard features include XLR mike/line connectors and a built-in headphone amp. The unit measures 190 x 140 x 85 mm, weighs 1.5 kg, and is distributed in the U.S. by ESL, Inc. of Fort Lauderdale, Florida.

Circle #237 on Reader Service Card

## New Ampex 1-inch VTR Debuts

Introduced at last month's International Broadcast Convention (held September 21-25, in Brighton, England), the Ampex VPR-6 1-inch video recorder is a mid-priced machine which combines many of the features of the VPR-3 with the transport/mechanical design of the VPR-80. Also unveiled at the show was a companion time base corrector (TBC-6), which is performance matched to the VPR-6. The recorder/TBC combination is base priced at \$72,000.

The VPR-6 transport is microprocessor-controlled, and automatically adjusts tape tension for dissimilar reel sizes and slows down the transport before the end of shuttling to avoid tape and head damage during unthreading. The maximum shuttle speed approaches 500 ips, and the unit offers both single frame jog and slow motion capability. Built-in diagnostics display fault codes to assist in trouble shooting and an edit optimize feature automatically rephases the scanner to match the phase of incoming video signals.

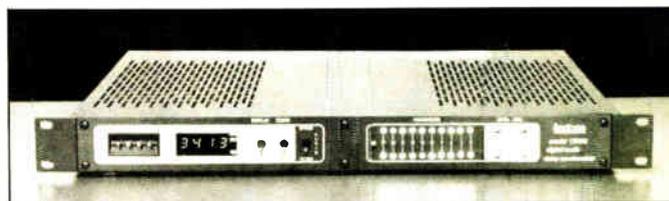
A full range of editing capabilities include video confidence, split audio-video auto edit, and auto tag (automatic transfer of edit entrance and exit points). The VPR-6 also features RS-422 serial communications capability, and readily communicates with Ampex switchers, ACE editing systems and the ADO special effects system.

The audio system includes audio confidence playback, high quality stereo phase and audio processing ports are available to allow easy connection of the VPR-6 to noise reduction or compression devices. Options and accessories for the VPR-6 include sync channel, EBU fourth channel audio, diagnostic probe kit, time code reader/generator and character display, parallel and/or serial remote connectors and audio processing ports. The recorder is available in four consoles, as well as tabletop and rack mount versions.



The TBC-6 time base corrector features a 32-line memory and a 28-line correction window, the largest available in any present time base corrector, to provide a useable picture at all slo-mo and shuttle speeds.

Circle #238 on Reader Service Card



## Lexicon Digital Audio Delay Synchronizer

Lexicon's Model 1300 Stereo Digital Audio Delay Synchronizer synchronizes audio and video signals in all broadcast environments, providing accurate lip synchronization for one or two channels regardless of video delays introduced by video processing equipment or satellite transmission. The unit detects frame offset information from any video synchronizer and automatically establishes a compensating audio delay. It is available in versions that are compatible with all domestic and international television transmission standards.

The Model 1300 uses 16-bit audio encoding to maintain transparent audio processing. It can be configured with one of three removable control modules to accommodate three delay/sync decoding schemes; these include wild feed vs. genlock video, pulse width, or RS 422 serial data interfaces. Front-panel switches can be set for a fixed delay offset value in milliseconds, and total compensated delay can be displayed in either milliseconds or frames in the 1300's display window.

Manufacturer specs include 20 kHz bandwidth, 0.02 percent harmonic distortion, silent delay splicing, and a channel phase match better than 10 degrees at 15 kHz. Input/ out-

put levels are +24 dBm maximum. In addition, four delay options are available for both stereo and mono units: stereo delay is from 0 to 340, 680, 1365, or 2048 ms; and mono delay is from 0 to 680, 1365, 2731, or 4096 ms.

Circle #239 on Reader Service Card

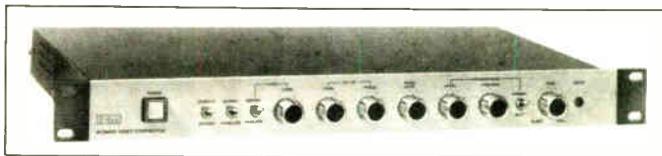


## Inovonics TVU Stereo Audio Metering

The Inovonics TVU system puts audio metering where it can't be overlooked. Connected in-line with a video monitor, the TVU inserts a black box in the picture with a pair of vertical bars which represent stereo audio levels. Properly designed scales match the switchable VU (with peak flasher) and PPM response modes which conform to appropriate standards. The audio box may be positioned anywhere in the picture, reduced to a mono display or bypassed altogether.

The TVU is self-contained and easily mounts to the side of the monitor, or may be rack-mounted in 1 3/4 inches of space with an accessory panel accommodating one or two TVU units. With 8-bit digital conversion, the TVU has 0.25dB resolution around zero-VU and is accurate for precise level matching. The unit, priced at \$500, is transparent to composite video and has separate inputs for both balanced studio lines and single-ended equipment.

Circle #240 on Reader Service Card



## Video Corrector from ICM

ICM Video, of Oklahoma City, Oklahoma, have introduced their VC-2000P, a video corrector which carries a user net price of \$695, and is designed for the professional, broadcast, and cable TV markets. The unit regenerates all sync, blanking and color burst signals, and automatically corrects a variety of stability and color problems. Suggested applications include videotape editing, duplication and camera control uses.

The VC-2000P is designed to be used by either skilled or non-technical personnel, and features a full set of user level controls, image enhancement, fade to black control, built-in audio and video distribution amplifiers, copyguard stabilizer, and a "split" mode for enhancing only a single portion of the picture (i.e. the top half of a split screen image).

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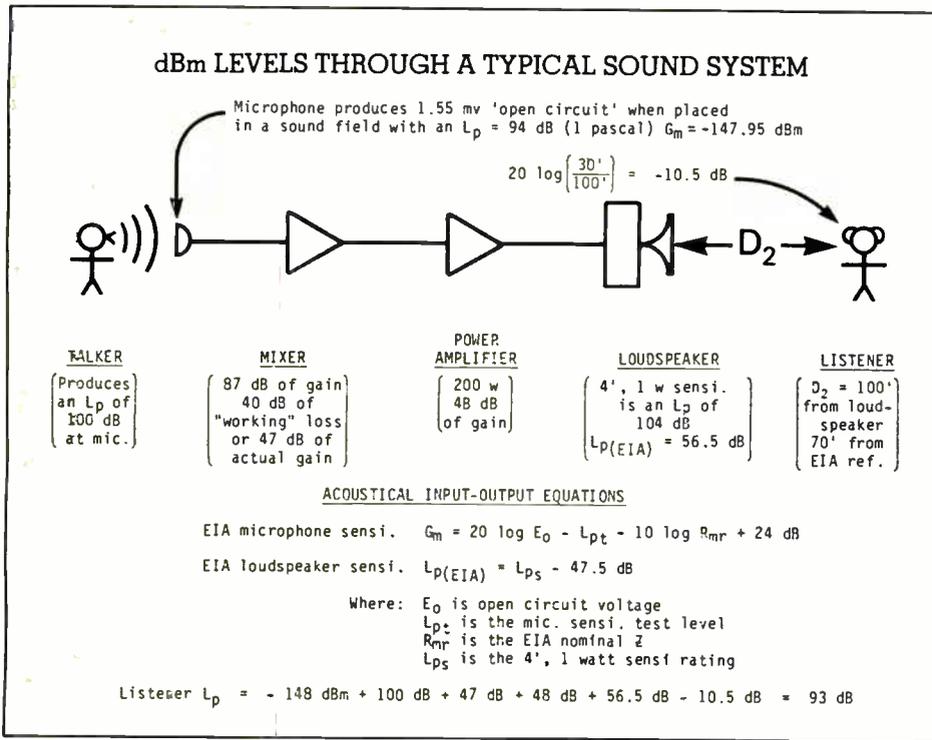
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(See Figure No. 2)

**CONCLUSION**

Most of today's well-trained engineers are those who are self-taught from the better older literature or those fortunate enough to have apprenticed to an earlier experienced worker. Many competent "circuit designers" have constructed their own laborious voltage measurement systems and naturally prefer their self-creations even when inappropriate. The AIP concept came out of the best system engineering minds in the world and provides the easiest, most accurate and most versatile method available. We commend this concept to your careful study. ■

Figure No. 2

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