

NOVEMBER 1981

THE RECORDING INDUSTRY MAGAZINE

\$1.50

# Mix<sup>®</sup>

**AES: 1982 New Products**  
**Special Report:**  
**Studio Monitors**

**Al Kooper**  
**Drum Synthesizers**  
**Larry Carlton**





# EXPAND YOUR HORIZONS

You've got the talent! So why let the console you're about to buy limit your potential? As your studio grows and your demands increase, the **TAC 16/8/2** grows right along with you. It's State of the Art technology, designed and built with expandable capabilities to accept additional 8 channel expansion modules up to a maximum of 48 in/24 monitor. The **TAC 16/8/2** is a professional standards, low impedance console with exclusive features previously available only in full 24 track consoles.

SPFCs: 16 mic./line inputs, 4 position EQ with 2 swept mid sections, 8 sub groups, stereo output, 8-track monitor mix (also usable as 8 line returns to the stereo mix buss), 4 auxiliary sends from each channel with one auxiliary return, 11 LED ramp meters (reading pfl, solo, the 8 groups, and stereo mix), monitor facility with selectable inputs, talkback and communications facility, oscillator.

The **TOTAL AUDIO CONCEPTS, TAC 16/8/2** is everything you want in a mid-size console.

PRICE: \$8000 Now \$7200 thanks to the current strength of the U.S. dollar versus the British pound.

You can get all the details and information with a phone call to one of our dealers... They'll be happy to help you "Expand Your Horizons"

## EVERYTHING AUDIO

16055 Ventura Boulevard, Suite 1001  
Encino, California 91436  
Phone (213) 995-4175 • Telex 651485

## MARTIN AUDIO VIDEO

423 West 55th Street  
New York, NY 10019  
Phone (212) 541-5900

## WESTBROOK AUDIO

11836 Judd Court, Suite 336  
Dallas, Texas 75243  
Phone (214) 699-1203

## AMEK

AMEK SYSTEMS AND CONTROLS, LTD.

Islington Mill, James Street  
Salford M3 5HW, England  
Phone 061-834 6747 • Telex 668127

Cover:  
The Winery Recording Studio  
Maui, Hawaii

Photo:  
Richard Brush  
Wall painting:  
David Sheridan

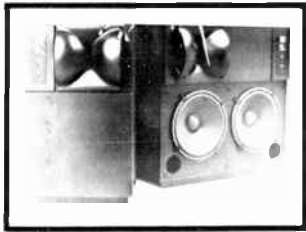

Maui, Hawaii's Winery  
Recording Studio is two  
years old having evolved  
from 8 track to 16 track to 24  
track in its first year of opera-  
tion. It is now a full service 24  
track facility located within  
an historic converted winery  
on 1.5 acres of Maui's prefer-  
red up country.

# Mix



VOL. 5, NO. 11

NOVEMBER 1981

DEPARTMENTS	FEATURES	FEATURES
4 CURRENT/NOTES	26 BOOK REPORT by Steven Michaels	52 VIDEO INTERFACE by Ed Engberg
6 SESSIONS/STUDIO NEWS	TOM SHEPARD: PUTTING BROADWAY ON VINYL	HOW TO GET THE MOST OUT OF VIDEO TAPE by John Dale
10 PROGRESSIONS by Larry Blakely	27 by Bruce Pilato	56 CARLA BLEY: RECORDED VERY LIVE by Derk Richardson
STUDIOSCOPE by Dennis Buss and Chris Haseleu	30 MIX SPECIAL REPORT: STUDIO MONITORS	60 LISTINGS
14 PRODUCER'S DESK AL KOOPER by James Riordan	42 THE SYNTHESIZED DRUM FACTOR: PART I by Bob Hodas	NEW PRODUCTS FOR 1982
16 ARTIST STUDIOS LARRY CARLTON by Tom Lubin		66 AMPLIFIERS
22 VIDEO NEWS by Mia Amato		68 EQUALIZERS
50 OTHER SIDE OF THE TRACKS by Mr. Bonzai		70 MICROPHONES
64 READER SERVICE/ AD INDEX		72 MIXING CONSOLES
95 CLASSIFIEDS		74 SIGNAL PROCESSING
		80 SPEAKERS/MONITORS
		87 TAPE RECORDING
		89 OTHER EQUIPMENT

PUBLISHER/EDITOR  
David M. Schwartz

PUBLISHER/MANAGING EDITOR  
Penny Riker Jacob

ART DIRECTOR  
Tim Gleason

ADVERTISING DIRECTOR  
Hillel Resner

CONTRIBUTING EDITORS

DESIGN/PRODUCTION  
Debbi Russell

CLASSIFIED DEPARTMENT/  
STUDIO SERVICES  
Gale Rosenberg

Larry Blakely  
Mr. Bonzai  
Dennis Buss  
Chris Haseleu  
Tom Lubin  
Ken Fay  
James Riordan  
Bruce Dancis  
Bruce Pilato

TYPESETTING  
Mary Jo Bezat

ADMINISTRATIVE ASST.  
Mary Holland

RESEARCH/TRAFFIC  
Ellen Goldstein

CONTROLLER  
Mike Stevens

OFFICE ASSISTANT  
Christine Lacey

The Mix is published at 605 Ninth St., Berkeley, CA 94710 and is © 1981 by Mix Publications, Inc. This is Volume 5, No. 11, November, 1981.

The Mix ISSN: 0043-9577. Published monthly. Subscriptions are available for \$3.80 per year. Single or back issue price is \$2.50. Subscriptions outside U.S.A. are \$7.50.

Please address all correspondence and changes of address to the Mix, P.O. Box 01590, Albany Station, Berkeley, CA 94706 (415) 843-7901.

Controlled circulation postage paid at San Francisco, CA (USPS 473-870) and at Berkeley, CA (USPS 445-070).

The Mix is distributed in recording studios, pro audio stores, music stores and other related businesses. If you have a recording or music related business and would like to distribute the Mix, please call us at 415-843-7901.

Display advertising rates, specs and closing dates are available upon request.

Mix Publications, Inc. © 1981. All Rights Reserved. This publication may not be reproduced or quoted in whole or in part by mimeograph or any other printed means without written permission of the publisher.

# 1982 Editorial Schedule

## JANUARY

N. Cal., Northwest Studios/  
Console Technology

## FEBRUARY

Southeast Studios/Synthesizer  
Interface

## MARCH

Northeast Studios/Microphone  
Special

## APRIL

Video Production Services  
Broadcast & Video Special

## MAY

Southwest Recording/Digital  
Recording Update

## JUNE

Remote Recording & Sound  
Reinforcement Special

## JULY

Studio Design Special

## AUGUST

Mix 5th Anniversary Issue  
Recording History Special

## SEPTEMBER

Southern Calif. Studios  
Film Sound Special

## OCTOBER

AES/New Products  
Studio Maintenance Special

## NOVEMBER

North Central Studios  
Studio Monitor Update

## DECEMBER

Tape-to-Disk/Mastering,  
Pressing, Duplication



# CURRENT

## SPARS Road Shows

The SPARS Road Show rolled into Nashville for the first of several stops. Meeting in the soon to be completed, audio video facilities of Bullet Recording Inc. the show was sponsored by Solid State Logic and Studer-Revox. The Road Show included a SPARS board meeting, a seminar and a tour of four of SPARS member studio facilities. The main event was the day long seminar dealing with various aspects of studio diversification. The seminar attracted over 200 participants.

The first session of the seminar prompted a lively discussion of the problems and potentials of diversifying studio services. These included film scoring, jingle production and video post production. One thing that all the panelists agreed upon is that market research is the key to successful diversification. The discussion also produced information on a number of trends in studio operation. For instance, renting rather than selling clients tape seems to be becoming a common practice. The use of independent engineers also is increasing. While using independent engineers does not necessarily reduce the studio's overhead, it does help to keep the clients costs down. The use of rental equipment is also increasing. This has prompted some studios to go into the rental business themselves.

The last session of the seminar was a look at the facilities being built by Bullet Recording and an explanation of the research and problems involved. Bullet features a multi purpose video and audio recording studio. The design is such that the video and audio equipment and control rooms can work together or separately.

The second stop in a national series of SPARS (Society of Professional Audio Recording Studios) Road Shows will take place Thursday, October 29, in New York.

The SPARS/New York Road Show is open to **all industry professionals** and features one admission for breakfast, all seminars, lunch and a concluding cocktail reception. Registration for SPARS members is only \$25.00; non-members, \$125.00—with \$100.00 of that fee applicable toward SPARS membership dues if subscribed to within 30 days. Registration is mandatory.

The SPARS/New York Road Show is presented in cooperation with RCA Recording Studios, Inc. and sponsored by Ampex/Magnetic Tape Division; Rupert Neve, Incorporated; and Sony Corporation of America/Professional Digital



PHOTO: BETH GWINN

Audio Division.

The two-pronged seminar will take place at RCA Recording Studios, Inc., Studio B, 1133 Avenue of the Americas, New York, and will feature discussions and plausible alternatives/solutions to problems intrinsic to the recording studio industry beginning at 8:30 am on Thursday, October 29.—by *Chris Haseleu*

### notes...

People on the move: **Rupert Neve Incorporated** has announced the appointment of Mr. David A Purple to the position of Regional Sales Manager headquartered in Nashville, Tennessee. Purple comes to Neve from **Harrison Systems Inc.** of Nashville where he held the position of Vice President of Sales...**Harold F. Jones** has been named National Sales Development Manager for **Ampex Corporation's** Magnetic Tape Division, it was announced recently by Division General Manager **Stanley W. Faught**...**Edwin W. Hatfield** has been appointed General Manager Operations of the **BTX Corporation**, according to an announcement by **David Krumholz**, President. Mr. Hatfield succeeds **Ronald C. Barker**, who has left the company...**Mr. John Carey** has been appointed Product Manager for **Otari Corporation** in Belmont, California...**Shure Brothers Inc.**, Evanston Illinois, has announced the promotion of **Stanley M. Weiss** to Director of New Products Coordination and Long Range Planning...**Phil Hart**, Eastern Zone Manager of **Sony Video Communications Division** has announced the appointment of **William Deegan** as district Manager and **Leroy White** as Southeast Regional Manager...**Wally Hayman** has been appointed Director of Media Services for **Sigma Sound Studios**, Philadelphia and New York, according to President **Joseph D. Tarsia**... **Ms. Wolf Schenider** has been named Promotional/Technical Writer at **James B. Lansing Sound...**

Hands-on demonstration of the **SSL Master Studio System** is given by (seated, c) **Randy Holland** and (seated, r) **Piers Plaskit**, president and studio manager, respectively, of **Bullet Recording, Inc.**, as (seated, l) **Murray R. Allen**, **SPARS** president and president/**Universal Recording Corp.** and (standing, l to r) **Joseph D. Tarisa**, **SPARS** chairman of the board and president/**Sigma Sound Studios**; **Mack Emerman**, **SPARS** regional vp and president/**Criteria Recording Studios**; **Nick Colleran**, **SPARS** regional vp and president/**Alpha Audio**; **Robert Liftin**, president/**Regent Sound Studios**; **Christopher Stone**, **SPARS** assistant to the president and president/**Record Plant, LA**; and **Guy Costa**, vp and general manager **Motown/Hitsville, USA**, observe the procedures at the **September 18 SPARS/NASHVILLE ROAD SHOW**.

### Sony Building Major U.S. Plant

Construction of **Sony Corporation of America's** new National Operations Headquarters in **Park Ridge New Jersey**, is on schedule, according to an announcement by **Kenji Tamiya**, executive vice president.

The initial construction of 225,000 square feet is scheduled for completion by summer, 1982 according to Mr. Tamiya, and will house the administrative and marketing components of **Sony Corporation of America** including **Sony Consumer Products Company**, **Sony Video Products Company**, **Human Resources**, **EDP**, controller's office, **Service Division**, **Engineering** and general administration. An additional 175,000 square feet will be added in the future. Approximately 650 employees are expected to occupy the building in 1982, and 800, or full occupancy, by the end of 1983. Mr. Tamiya stated that the corporate headquarters for **Sony Corporation of America** will remain at 9 West 57 Street in **New York City**.

# TDK SUPER AVILYN NOW MAKES OPEN REEL GO TWICE AS FAR.



No doubt you've heard of Super Avilyn before. It's the remarkable formulation that goes into TDK's outstanding SA and SA-X audio cassettes and Super Avilyn videocassettes. Now TDK's advanced Super Avilyn technology has been applied to open reel.

It's called Super Avilyn EE (Extra Efficiency) open reel. SA was specially developed for use with the new open reel decks with the Extra Efficiency EQ/bias setting. On these decks, this brand new formulation actually lets you record and play back at half the normal speed. And keep all the full, brilliant sound the finest open reel delivers. Which means that you get twice as much music from a single reel of tape as you could before.

This is due to the Super Avilyn high density formulation. It offers higher MOL and lower bias noise; virtually double the coercivity of standard ferric oxide tapes.

TDK, the company that's redefined the standards of recording tape, now brings you twice as much as you expected. You'd expect nothing less from TDK.

 **TDK**®



# SESSIONS

## NORTHEAST

Recent sessions at **Stillwater Sound** in Stamford, CT, include a self produced album by **Flyte**, and demo work for **Killerwatt**. Both sessions were engineered by **Dominick Costanzo**.

Recent sessions at **Trod Nossel Recording Studios** in Wallingford, CT, included **Plan** a recording an EP For **Bomp Records**; **Margaret Thatcher** and **The Supply Side** recording an EP, self-produced and manufactured.

At **Eastern Artists Recording Studio** in East Orange, New Jersey, the **Asbury Jukes 'Horns'** have recorded tracks for **Savoy Records** with **Milton Biggum** producing.

The **19 Recording Studio** of S. Glastonbury, CT, has recently completed recording and mix-down of a debut live album for **Fountainhead**. The album was recorded at **Toad's Place** in New Haven Ct. by the 19's Mobile Unit. Engineering by **Kurt Kinzel** assisted by **Ron Scalise**, **Jon Freed**, **Bill Dest**, and **Norman Campbell**.

At **Boogie Hotel** on Long Island, **Lucy Simon** is working on **In Harmony** for **Columbia Records**. **Lucy** and **David Levin** producing, **Jim Blyer** engineering and co-producing. **Billy Joel** and **Band** in recording tracks. **Billy Joel** band member **Russell Javers** doing an independent project with **Don Berman** and **Jeff Kawalek**.

At **Sorcerer Sound** in New York City, **Steven D'Acquisto** has booked all the full moons for the upcoming year for his music projects with **Albert Basslin** and **Christian Genest**. **Larry Levan** and **Michael DiBenedictus** are putting the finishing touches on their new single, "Don't Make Me Wait", on **West End Records**.

At **Alpha International Studios** in Philadelphia, PA, **Bill Neale** is mixing tracks he produced of **Brandy Wells** for **WMOT Records**. **Gene Leone** and **Jason Lyle** are the engineering team for the mixdown. Meanwhile, additional tunes by **Brandy Wells** are being cut by engineer **Al Alberts, Jr.**, with assistance from **Duke Forrester** producing is **Nick Martinelli**.

At **Music Designers, Inc.**, Hudson, Mass, **Skeeter Davis** has recorded an album with **N.R.B.Q.**; they are doing overdubs and mixing, **Tom Mark** engineering, **Fred Mueller** assisting. **Crockett** is busy recording an E.P. with **Jeff Gilman** engineering and co-producing.

**Mountain Sound** in Stroudsburg, PA has recorded Delaware Water Gap-Celebration of the Arts Festival for National Public Radio—Jazz Alive.

The 2 hour program features the **Phil Woods Quartet**, **Bill Goodwin's Solar Energy**, **Bob Dorough**, and **Kim Parker**. Air date to be announced. Produced by **Bill Goodwin**. Engineered by **Chris Fichera**.

## SOUTHEAST

**Hank Williams, Jr.'s** road band, 'Bama', were in Jackson, MS at the **Mississippi Recording Company** recently. They recorded a song written by **Jacksonions**, **Johnny Crocker**, **Bill Boutwell** and **Jerry Puckett**. The song is titled "Dallas". **Jerry Puckett** was producing.

From **Woodland Sound Studios**, Nashville, Tennessee, **Brenda Lee** is working on her new album for **MCA records** with producer **Ron Chancey**. **Les Ladd** is the engineer with assistance from **Russ Martin**. **Barbara Mandrell** has been cutting tracks for a new album for **MCA records** with her producer **Tom Collins**. **Les Ladd** is behind the board with assistance from **Steve Ham**.

At **Muscle Shoals Sound Studios** in Sheffield, Alabama **Glenn Frey** is working on a solo album...**Steve Melton** engineering, **Mary Beth McLemore** assisting...**Barry Beckett** is wrapping up **Delbert McClinton's** album for **MSS/Capitol**...**Gregg Hamm** and **Mary Beth** at the board, **Pete Greene** assisting.

Producer, **Tom Allom** (**Judas Priest**, **Def Leopard**, **Tourist**, **Kix**, **Whitford St. Holmes**) returns to **Bee Jay** in Orlando, Florida to produce **A & M** artists **Doc Holliday**. This marks **Doc Holliday's** second album (both recorded at **Bee Jay**) and continues in the same high energy southern rock vein as their first project. **Bee Jay** staffer **Andy de Ganahl** is handling the engineering chores with assistance from **Dana Cornock**.

Projects recently completed in **Shoe Production's Studio A** in Memphis, Tenn., include: **Debra DeJean's** debut album on **Handshake**, co-produced and engineered by **Carl Marsh** and **Bo Bohannon**...**Minglewood Band** for **RCA Canada** produced by **Donald "Duck" Dunn** and engineered by **Bobby Manuel**.

Activity at **Reflection Sound Studios**, in Charlotte, North Carolina, includes, **Brice Street** recently mixed new single for **Dolphin Records**, **Steve Haigler** engineer. **Savannah Jack** completing tracks for **Mainstreet**, **Mark Williams** engineering.

## NORTH CENTRAL

Recent recording projects at **A&R Recording** in Ames, IA include **Allen/Carlson's Test Patterns**, **Agency**, **Roze**, **The Wapsie River Band**,

and **Granger/Williams**.

Recent Activity at **University Recording Studio's**, Columbus Ohio, includes: **A&M** artist **Willie Phoniex**, **The Motorboats-John Lyon-Rich Kids-Mad Max-The Bombadairs-and Melvin McGary**. All above sessions engineered by **Chief Engineer David Sheward**, **Tom Howard** assisting.

At **Tantus Studios** in Detroit, Mich., **David Gough**, **Do-Rohn** records second single, from the **L.P. Good News**, strings arranged by **Johnny Allen**. **Sarabande** finishing production for group and single **Platinum Rider** and **Messenger of Love**. Executive Producer **Tanis Tramontin** and Head Engineer **David Schreiner**.

## SOUTHWEST

**Digital Services/Recording** from Houston, Texas recorded the first digitally recorded pop/rock album made in Texas. **Dr. Rockit** and the **Sisters of Mercy**, a Houston based rhythm and blues ensemble, were recorded during their scheduled August and September performances at **Rockefeller's** the Nightclub, in Houston. Engineering the sessions was **John Moran** assisted by **Chuck Fitzpatrick**.

**Reelsound Recording's** remote bus out of Austin Texas, has been working on a video special for **Carole King**. The project is being produced by **Free Flow Films** of Austin. Engineering were **Chet Himes** and **Malcolm Harper, Jr.** assisted by **Mason Harlow** and **James Tuttle**. **Third Coast Video** of Austin handled the video.

**Omega Audio's** 24-track remote rig, based in Dallas, Texas was recently at **Whiskey River** in Dallas for a video shoot of a performance of **Vince Vance and the Valiants**. **Omega** recorded the show 24 track with **SMPTE** time code for later mixing and sweetening on their **BTX** interlock equipment. Video facilities were provided by **Clearwater Teleproductions** of Arlington, Texas. Producer was **Nick Felix** with engineering by **Paul Christensen & Russell Hearn**.

## NORTHWEST

**Pearl's Place** recording studio, in Fremont, CA, recently recorded their first album tracks at the medium security prison, **Duel Vocational Institution**, in Tracy. This is the first time a studio has been allowed to record, remote, an inmate band in prison. The band, named "Prisoner", recorded eight songs in four days. The album was done on eight tracks in a makeshift control room the prisoners constructed. **Dave Humrick** engineered, **Joey Horten** assisted.

At **Oasis Recording Studio's** new 16 track facility in San Francisco, **JD Reilly** of the **JD Borman**

Band, has just completed a solo project, produced and engineered by Greg Goodwin.

Recording activity at Bear Creek Studio in Woodinville, WA, includes a second LP for Pam Moore produced by Art Ford for First American Records and engineered by Tim Killeen.

Sessions in Studio B at Russian Hill Recording in San Francisco include: Locals Pamela Rose and The Eights recording four new tunes for 2 upcoming singles, produced by Richard Greene with Neil Schwartz at the board and Sam Lehmer assisting...Chrome Dinette recorded a platter of 5 tunes for their new demo project. Neil Schwartz engineered.

Recent activity at Heavenly Recording Studios: in Sacramento, CA, Doobie Brother Cornelius Bumpus was in mixing tracks for his solo album with engineer Larry Lauzon. Ebony Express recording their new project with producer Ike Paggett and engineer Larry Lauzon.

### SOUTHERN CALIFORNIA

Elektra Records artist, John Klemmer, was at Mama Jo's in North Hollywood, CA doing final mixes on his solo sax Lp with Ron Malo at the controls and Gene Meros assisting. Also mixing at Mama Jo's was George Johnson of the Brothers Johnson who is producing John & Wendy with Jack Joseph Puig engineering.

At Soundcastle in Los Angeles, CA, Chris Bond is producing the debut project for Steve Wood on Bad Land Records. John Mills engineering, David Marquette assisting. Weather Report has been busy working on overdubs and mixing their

new album for CBS Records. Joe Zawinul producing, Brian Risner engineering, Mitch Gibson assisting.

At Realife Productions in Agoura, CA, Producer Bill Cuomo laying tracks for Rue Morgan, Cuomo arranging. (Cuomo is the arranger/keyboard player for Kim Carnes' latest,) and Mundy Loss recently working on a demo and video for cable T.V. release. Bruce Jackson engineering. Rhythm team includes Craig Newton on guitar and Carol Sudderth on keyboards.

Recent activity at Kendum Recorders, in Burbank, CA, includes producers Christopher Cross and Micheal Ostin supervising instrumental and vocal overdubs for The Alessi Brothers on Warner Bros. Chet Himes engineered, assisted by Les Cooper.

At Rusk Sound Studios in Hollywood, CA, Marlene Ricci, for Bloody Hehl productions with Juergen Koppers engineering and producing. Assisted by David Clark.

sessions were engineered and mixed by Bob Yesbek, Omega's owner. The Washington-based Fusion group "Tim Eyermann and the East Coast Offering" plans to promote this Digital Album during their upcoming South American Tour. Larry Boden of JVC editing the digital tapes and will do the mastering.

Studio A Recording of Dearborn Heights, MI announces the installation of a 24 track MCI JH-114 recorder and JH-528 fully automated mixing console. The installation was accomplished by Ray Rayburn, Gary Rotta, and Michael O'Hora. All activities were coordinated by Audio techniques' Matt Brosious. This equipment was installed in a new, 190 square foot control room with design advice supplied by Dave Clark.

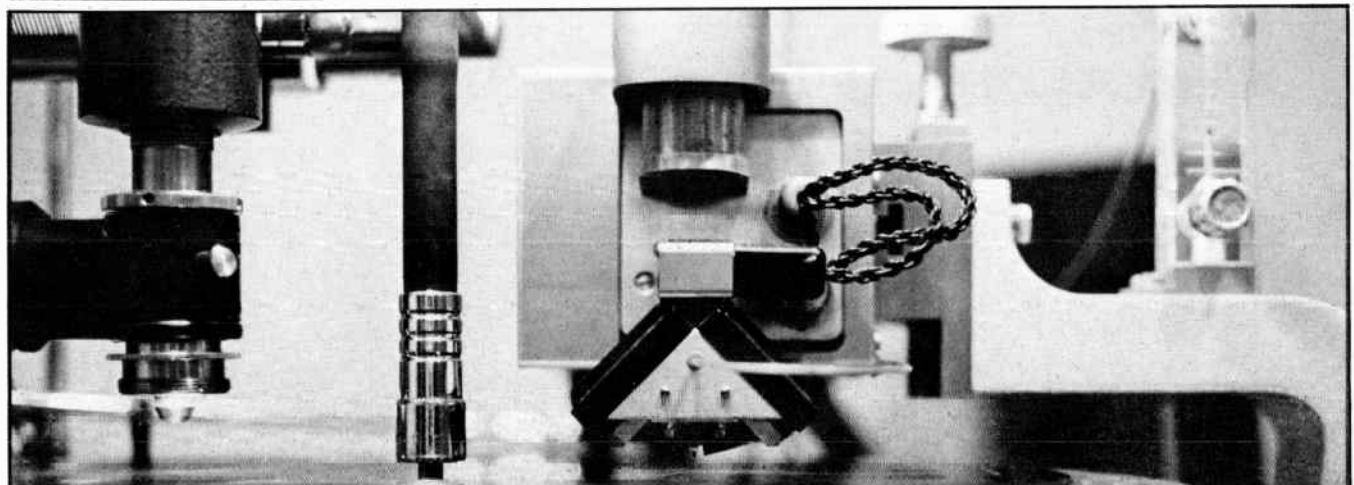
Del Sol Recording Studio of Alice, Texas has recently opened its' doors for business. The studio is equipped with the new Tascam 85-16 sixteen channel recorder and Tascam 16x8 Model 15 Console. JBL studio monitors, Crown power amplifiers and signal processing by UREI, Delta Lab and Orban complete the facility. Sales, Studio Design and installation were handled by ASi Pro Audio of San Antonio.

Tres Virgos Studios announces the opening of their new 24-track facility in San Rafael, California. Utilizing the latest developments in Live End/Dead End™ technology, the studio and control room were designed by Chip Davis, LEDE Designs, Las Vegas, with electronic design and interface by Ed Bannon. Equipped with an MCI JH-24, MCI 528 Console (transformerless),

## Studio News

### STUDIO NEWS

Omega Recording Studios of Washington, D.C., in conjunction with JVC Cutting Center of Los Angeles, has recently completed the first in-studio Digital recording in the Washington, D.C. area. Using the JVC DAS Series 90 System, the



**masterdisk ... a cut above the competition.**

Our tradition of excellence in master and reference disk cutting has brought us artists masterdisk is proud of...

JOURNEY	ROLLING STONES	RUSH
THE KINKS	HALL & OATES	IAN HUNTER
MEATLOAF	SPYRO GYRA	Z.Z.TOP
.38 / PECIAL	DEF LEPPARD	TRIUMPH
	AC/DC	

**masterdisk** 16 West 61st Street N.Y., N.Y. 10023 (212) 541-5022

MIX Fall '81  
AES  
Studio  
Spotlight



Ampex ATR-102, Otari 5050B's, and an extensive selection of outboard gear, instruments and equipment plus an 8-track production room, the new facility will open at \$100/hour including full engineering services.

**Audiocraft Recording Company**, Cincinnati, Ohio announces a complete upgrading of its Studio A facilities from 16 to 24-tracks. As it expands its operation to provide audio sweetening services for video, Audiocraft will continue jingle, A/V, film, music and voice over production. The recently remodeled Studio A, is centered around an Allen-Heath 28 x 24 Series B console and features 34 tracks of dbx noise reduction and a full compliment of outboard gear.

**Micheline Kalfa** has been appointed assistant Studio Manager, Traffic manager at **Rusk Sound Studios** in Hollywood, CA. Previously Micheline held the same position at **Crystal Sound** for two years.

**Valley Recorders** announces the opening of their 16-track studio in Red Hook, NY. New equipment includes an Ampex MM 1100 and an APSI 26 x 24 console. **Black Sheep** are currently recording an album in the studio with **Paul Antonell** and **Rick Jones** engineering.

Houston Recording formerly of Cucamonga, CA has moved its 24-track remote truck to the Bay Area. Houston is now located in Guerneville, CA, north of San Francisco.

**Criteria Recording Studios** in Miami has just opened a new international division that will focus on recording artists from around the world, especially from Mexico, Brazil, Chili, Ecuador,

Europe and Canada, according to **Mack Emerman**, Criteria president. Emerman named **Osni Cassab**, a 33-year-old businessman and producer from Brazil, to head up the new division. For the past 10 years Cassab has been promotion director for Nelson Ned, one of the three top international recording artists in the world.

**Bullet Recording**, opening for business on Nashville's Music Row early this Fall, will be the first U.S. facility to offer simultaneous 46-track state-of-the-art audio and 3 camera, 1" video recording all in house. It will be the only fully video capable studio in the U.S. with two of Studer's computer-controlled A800 24-track recorders and be the first studio in the U.S. with a 48-input Solid State Logic Master Studio System console equipped with full plasma metering and the Total Recall Computer.

**Luxury Audio Workshop**, Las Vegas, Nevada, now has a custom API Console, and a MCI 24 track tape recorder. Working in Studio A is **Kay Shannon**, doing tracks for upcoming debut album, with producer/engineer **Lee Watters**.

Session activity at **Kajem Recording Studio** in Gladwynne, PA was highlighted by the purchase of Sony's DRE 2000 reverberator, a new device being utilized by all projects.

**Studio Orange**, Orange CA, has just completed video taping an in-house production called **Studio Orange Presents**, and is now in the editing stage. The two shows feature one band per show with a indepth interview. **Karen Dark** hosts the show with special guest **Paul Fuhr**, Program Director-KNAC as co-host. These shows are slated for air-

ing in late October/early November. This may be the first of a weekly series showcasing signed and unsigned acts.

**Broadway Sound Studio** in Sheffield, Alabama is upgrading its studio facility from 16 tk. to 24 tk. New equipment includes a new MCI 24 tk. transformerless recorder, MCI 600 series console, 2 Otari 2 tks., Eventide Harmonizer and Instant Flanger and a host of other gear and microphones. Also just completed are two new isolation booths and other cosmetic improvements.

**Corasound Recording** operating for six years in San Rafael, CA., is currently involved in a major upgrade. They have ordered a new Neotek model Series II Console with 28 input mainframe, complimenting an Ampex 16 Track and a new Otari 8 Track. The new equipment will be in operation by November.

**C.ED Boutwell**, president and Chief Engineer, **Boutwell Recording Studios Inc.**, in Birmingham, Alabama has named **Tony Wachter**, Director of Commercial Jingle and Music Production. Since joining Boutwell Studios 2½ years ago, Wachter has engineered many successful jingle and record packages. Prior to that, he sang jingles for several area studios and was lead vocalist with "The Homestead Act".

The **Mix** welcomes press releases from all studios on session activity, new equipment, changes in personnel and other interesting information.

Send to: Sessions/Studio News

**Mix Magazine**  
2608 Ninth St.  
Berkeley, CA 94710

## Want Much More Than Just A Digital Reverb? See Eventide At A.E.S.

**DIGITAL REVERB • SUPER PHASING, FLANGING, CHORUSING  
16 kHz BANDWIDTH DELAY • DIGIPLEX® ECHO • 2 IN, 2 OUT  
AUTOMATIC DOZENS TRACKING • DIGITAL AUDIO FILTERS  
SELECTIVE BAND DELAY • 90dB DYNAMIC RANGE • MULTITAP**

Eventide's incredible new SP2016 Effects Processor is here! And you can see it at the New York A.E.S. convention—booth 54. This new unit costs no more than an ordinary digital reverb (and thousands less than some), but its capabilities just begin where other digital reverbs leave off.

Of course, the SP2016 is first and foremost a superb digital reverb, featuring true two-channel operation, 90dB dynamic range, non-volatile user presets and user control of all parameters. But there's so much more...

You get Eventide's exclusive Digiplex® echo, with incredibly stable operation. There's 16kHz bandwidth digital delay to 1.6 seconds. ADT takes on a whole new meaning, as the SP2016 creates literally dozens of voices, each varying randomly in time, amplitude and space. Wait until you hear selective band

delay—an incredible new effect. And phasing, flanging and chorusing too—the best you've ever heard.

Best of all, there's much more to come, because the Eventide SP2016 Effects Processor is totally software programmable via convenient plug-in ROM's. We'll be adding exciting new effects all the time! You'll even be able to create your own exclusive effects with our optional software development system.

Eventide's SP2016 has been in development for over three years. When you see and hear it at the AES show (and soon at your Eventide dealer), you'll know why—Building the best digital reverb was easy, but bringing you the best of everything took a little longer.

265 W. 54th St.  
N.Y. N.Y. 10019  
(212) 581-9290

**Eventide**  
the next step



Currently at  
reduced  
prices

From  
the **Neumann  
Collection**



Thirty-five years ago Neumann's U 47 revolutionized the audio world.

For the last twenty years, the equally famous U 87 has been the standard of the industry.

And coming on strong is the U 89 — a milestone in capsule and amplifier technology — that's already become a favorite among performers and sound engineers.

Everyone involved in the sound production of hit records, major motion pictures and broadcast and television shows, recognizes Neumann as the top of the line.

Now, we're also helping your bottom line with a sizable reduction of prices. Write or call today for our new brochure and a listing of the dealers near you.



**GOTHAM**

AUDIO CORPORATION  
741 Washington St., NY, NY 10014 (212) 741-7411  
West Coast Office: (213) 874-4444  
Audio Export Georg Neumann & Co. GmbH  
P.O. Box 1180, 7100 Helbronn,  
West Germany

GA-19

# PROGRESSIONS

## PART ♦ TWO

**I** **by Larry Blakely**  
*In September we began our interview with Bill Robinson, a unique and highly respected name in the recording industry. This month, Bill wraps up his story of the last fifty years in the audio business with some more anecdotes and observations of how things have progressed, while remaining remarkably the same in so many ways.*

"I started as an outside consultant while I was at Capitol. We had affiliates in South America so they could manufacture our records there. I started getting requests to go to South America to assist them in building recording studios. I would look at their buildings and sketch out the design and size and tell them what materials to use. I also designed reverberation chambers in addition to specifying the equipment for them. The word got around and other companies down there also desired my services. I went to Argentina, Rio de Janeiro and a number of other places in South America.

"I also did consulting for various other companies over the years. One of these was Century Records. They had a franchise program and would set up people all over the country to make custom recordings of local school bands, choirs, orchestras or anybody who wanted to make a record. These franchisees would record and edit the tapes and send them to Century Records to have the records manufactured and packaged in album jackets. Many of these individuals knew little or nothing about professional recording, so we had to teach them. I gave training seminars and did a lot of corresponding with the people to help them out with their problems.

"In 1966, Capitol asked me to be their director of engineering, so I moved from the tower to Andrita Street, where their research and development offices were. I was there until I left Capitol in 1968. When I left Capitol, I took several



## Bill Robinson's Golden Anniversary in Audio

months off and went back to South America to visit my friends and do some work down there. When I got back there were a number of telephone messages from Sunset Sound.

I went over to see them and had a meeting with the owner, Tutti Camarata. He asked me to go to work for him and I accepted.

"I had always admired Tutti as a





# AGFA

## Sound-sational!

AGFA has been answering the high level requirements of a demanding professional U.S. and European market for many years. And surpassing it everytime - with quality, performance, reliability and availability.

Our Studio Mastering Tape has

### Studio Mastering Tape

been accepted on the highest level as "the tape" for top quality original recording. It's available to the discerning in a low-noise, high-output, low print tape in 1/4", 1/2", 1" and 2".

When it comes to sound - come to AGFA for Studio Mastering Tape. It's sound-sational!

**AGFA-GEVAERT, INC.**

275 North Street, Teterboro, N.J. 07608  
(201) 288-4100

# “What’s Your Budget”

Knowing your budget is your first step. At Westbrook Audio, Inc. we design and equip full audio facilities within your budget requirements. In a sea of audio confusion, consult with a company second to none in complete services. Large facility or small, you get the most for your money at Westbrook Audio.

Pictured: Star Track Recording Studio,  
Tulsa, Oklahoma.

**westbrook  
audio, inc.**

11836 Judd Court Suite 336 Dallas, Texas 75243 (214) 699-1203

World Radio History



musician. When I took the job I said to myself that this was going to be the best studio in Los Angeles. The transition was a little bit difficult for me, because I was changing from all of the big bands that we had recorded at Capitol into the rock music of the Sixties, which was a little tough for me to take at the time. But I didn't let it bother me and went storming ahead. I put in 12, 14 or 16 hours a day—boy, those were tough times. However, I fell right in with the rock groups—I guess maybe it was a father image. One of the closest friends that I had in those years was Mick Jagger. He used to come into the disk mastering room when I was making the masters and talk to me all night long. I think the only thing that bothered me was the total disregard that most of the kids had for equipment in those days. They seemed to take delight in breaking things. All my life I have been around equipment. I respect equipment and take care of it.

"Sunset Sound became very successful. We started replacing things and expanding our facilities. Over the next 12 years we replaced the consoles in studios 1 and 2, redid the disk mastering room, and built and equipped additional new studios. I met a lot of terrific friends at Sunset Sound—producers, artists and musicians.

"Because of my many years in this business, I am often asked what I feel about today's recording industry and where I see it going. I would like to make a few comments on this.

"When you talk about equipment, I wish that we had some of the equipment that we have today back when we were recording the big bands and things like that. I could have done the job ten times better. I could have used many more microphones than just three or four.

"I have always felt that the way most multi-track machines are used today is a crutch. Most do not use it as a tool. It seems absolutely ridiculous to me to record eight hours of a guy playing an electric guitar solo, put it on 15 tracks of a multi-track machine, and sit there and decide which is the best one. Whether this is a question of musicians not being as good as they were I'm not sure.

"Being in the recording business, I am torn as a studio manager who wants the guy to record as many hours as he can, because that will bring the studio revenue. On the other side, what they are doing is often pure waste. The recording studio is not a place to rehearse. If you want a rehearsal hall, go rent one for \$10.00 an hour.

"I think the biggest problem with the industry today is that the technology of the equipment is getting beyond the people who use it. In my time, when we didn't get a good sound we would either make the musician move or move the microphone. Now, if they don't get the sound they want, they will either put another microphone out there or equalize the hell out of the one they've got. They are becoming more equipment operators than recording engineers.

"Technology is growing and growing, and if you think it's tough now just wait 'til digital comes in. This will eventually change the way that everything is done, and nobody knows a thing about it. We are going to be forced into digital when a few of the major studios start to use it. As in the past, everybody will follow.

"I think that there are three things wrong with digital right now. In my opinion there is high frequency distortion, there is the lack of compatibility, and the price is too high. However, some of the records that I have heard that have been done digitally are very fine sounding records even with the high frequency distortion. Once they get this and the compatibility corrected, and get the price down, I think it will go sailing off into never, never land. It is a big advance in the art of recording. It will be something that is easily marriageable to the video concept. I think that the recording studios will get more and more involved in video. We are the experts in recording music and the people in video are the experts in making the picture. It seems to me that it would be logical and natural for these two people to get together and make a marriage.

"Another problem is that the technical and maintenance people are not keeping up with the technology. Half of them don't even understand the principle of the equipment. The way of fixing things today is to replace it. They don't repair it; they send it to the factory. When you do this you don't know anything about equipment and you don't learn anything about it either. To me, this is a very serious problem in the industry, and it is not getting better. Some design engineer out there is designing some piece of equipment that will do everything; but nobody knows how to run it or fix it.

"There is a big need for education in the industry. I always tell the people who came to me for jobs that we are in the music business and you should know a little bit about music; we use electronic equipment

and you should know a little about electronic equipment. I sure wouldn't want a ditch digger to give me a brain operation.

"There will continue to be changes in music. Different types of music come and go. But to me there will always be a recording business, [because] people must have this to listen to entertainment. It is up to us in the recording business to produce that in its most natural form. To me, the recording business is transmitting the emotion of the recording into a little black record. In the future there will be a new and different product than what we know today as a medium for recorded sound. It might be a cartridge or a disc or whatever. But I think the archaic way we make records today has got to go. We have been making records the same way for 50 or 75 years. There has been little change in the way we manufacture records. We will be able to give the listener a high fidelity product with a better audible quality that does not wear rapidly and stores easily.

"I think that it is going to get tougher for the commercial recording studios. There are too many recording studios in the business today that are all after a small market. The studios with the best personnel, good equipment, and who operate efficiently will be able to give the customer a friendly price. You cannot operate a studio at cut rates. There is no way to do that. The first sign that a studio is going under is when they start chopping the rates to get business in. You can't have continuous business by lowering the rate. There is a sort of a delicate balance between your capital investment and what you charge for your rates, and still being able to make a profit. Studios must be operated efficiently, or you are going to lose your tail. To operate a studio successfully you must be totally involved in the business to be able to understand what you are doing. You cannot run it from the outside. This is why large corporations are rarely successful in operating recording studios. It is a creative business, and you as a studio must be a part of that creative process.

"There is more to the business besides sitting behind the glass and turning the knobs. People need to know what they are doing to operate the equipment; and if they don't, they can get into big trouble. If you prepare yourselves, the recording business is one of the most satisfying and fulfilling careers there is. I can attest to that. The industry has been good to me. ■

# STUDIOSCOPE

## *Customer Sampling* Discovering the Who, What and Why of Client Behavior

by Dennis Buss  
and Chris Haseleu

It doesn't take a seasoned recording studio owner to realize that the business environment of the studio is changing very rapidly: new technology, increased competition, diversification opportunities, etc. For a studio to operate profitably during times of change, it is necessary to establish effective operational goals to assure that the needs of the present customers are being met. The question is: How does the studio manager know for sure if the studio is adequately satisfying its clients needs; and, if not, what is needed to do so? Quite likely, consumer sampling could be the answer.

Maybe the owner of a commercial studio feels that his agency clients use his facility because of low hourly rates and available studio services (tape duplication, etc.), and his advertising campaigns reflect this. In actuality, a majority of the agencies use this particular studio because it is felt the engineers are more competent—thus, the end result is a better product. Customer sampling might have been able to identify the correct studio services for the studio owner to advertise. The purpose of this article is to describe a simple sampling procedure appropriate for most smaller to medium-sized studios.

Customer sampling takes the form of a questionnaire involving a series of questions that the client answers concerning their experience with the studio. The questions should cover three areas: target in-

formation, related information, and customer demographics. Each is discussed below.

**TARGET INFORMATION.** To be effective, the questionnaire should be kept short, and questions should emphasize one central topic that concerns the studio manager: the studio's pricing policies, the quality of the support help (engineers, secretarial, etc.), do the clients find the available studio services adequate, etc. By keeping the questionnaire centered around one topic (maybe two, at the most), the questions don't get extensive and the clients are more likely to complete the questionnaire properly. A second and third questionnaire can be developed and distributed later for other topics of concern to the manager.

**RELATED INFORMATION.** Although the Target Information section will represent most of the customer sampling form, a few related questions might be appropriate. It would be advantageous to discover what the overall image of the studio is, as perceived by the clients. Or, how effective is the studio's advertising activities? Maybe a question can be included asking for suggestions on how to improve the studio. The Target Information section tries to identify customer feelings, comments on a specific area of studio operation. The Related Information section tries to discover broader perceptions on why the clients view the studio in a certain way.

**DEMOGRAPHICS.** Once conclusions are formulated in the first

two sections, it is imperative to identify who is filling in the questionnaire—not by name, but by client demographics. Examples of these are: Client's profession (ad agency, musician, other studio, etc.), how often the client uses the studio, location of the customer (local, out-of-the-city, etc.), income level, possibly the client company's yearly sales level, plus many other possible areas. The purpose of identifying customer demographics is to separate and analyze the customer sampling information by market. Other uses could be to effectively direct advertising efforts, or to pinpoint a customer group not being reached.

How do you get this survey questionnaire to the sample of past clients? Although the most expensive, mailing the forms (with a return envelope enclosed) is effective. The task could also be accomplished by having the questionnaire available to be filled out at the studio. Another method would be to have the studio's secretary call on the phone and verbally ask the client the questions. To be done properly, the survey sample must involve an objective, representative group of people. The mail survey method seems to accomplish this best.

If the customer sampling forms are properly written, emphasize a central topic, and are kept short, valuable client information can be discovered: WHO are the studio's clients (and potential clients), WHAT studio service(s) do they like, dislike, or desire, and WHY do they feel this way. ■



# Pick a number from 9 to 52!

You've just chosen the ideal DC voltage to phantom-power these new ATM electret microphones.

ATM11R

ATM10R

ATM31R

AT8501

ATM91R



Introducing four "universal" phantom-powered electret microphones. Designed to work from external power, internal regulation automatically handles any voltage from 9 to 52 VDC without adapters, switches, or rewiring. Just plug in and enjoy. With current drain a mere 0.3 mA at 9 volts (4 mA at 12-52V) a 9V battery lasts thousands of hours, not just the 60 or 70 hours typical of other mikes.

When your power supply isn't available, or isn't enough, use ours. The new AT8501 Dual Battery Supply holds two 9V batteries. One to use, and one in reserve. Instant switchover and test LED eliminates guesswork. And spares are as near as the closest shopping center. Neat!

But convenience and versatility are just two of the advantages of the new ATM models. All-new electronics provide plenty of headroom inside the microphone with no more than 1% THD even when used in acoustic fields of 141 dB SPL. Which sets new standards for clean sound even close-up to big brass or inside a powerful drum kit.

And the sound you hear is wide-range and *musical*. Presence without peaks. Highs to 20,000 Hz but without a raspy "edge." Yet despite their responsiveness, these new ATM microphones have the "Road Tough" reliability proved so often on stage and in the studio.

Before you add another microphone, compare our sound, our convenience, our reliability, and our cost. Write for literature and list of nearby ATM microphone specialists. Get great sound...right from the start! AUDIO-TECHNICA U.S., INC., 1221 Commerce Drive, Stow, Ohio 44224. (216) 686-2600.

audio-technica®

# PRODUCERS DESK



Al Kooper & Mike Bloomfield recording *Super Session*.

PHOTO © 1981 JEFF MARSHALL

# AL KOOPER

by James Riordan

Al Kooper's career as a musician and a producer has often been stormy, but he has continually been at the forefront of new developments in popular music. As vocalist and keyboardist with New York's Blues Project in the mid-1960s, Kooper helped pioneer the merger of electric blues and rock & roll. He contributed memorable keyboard licks to Bob Dylan's historic *Highway 61 Revisited* and *Blonde on Blonde* sessions. After the Blues Project broke up, Kooper helped found Blood, Sweat & Tears, perhaps the first of the rock & roll "big bands." And

later, as the organizer, producer and featured artist (along with the late Michael Bloomfield and Stephen Stills) on the legendary *Supersession* LP, Kooper learned a new field while at the same time garnering a platinum album.

Besides his own projects, Kooper has produced groups and artists as diverse as the Tubes, Nils Lofgren, Lynyrd Skynyrd, David Essex, Eddie and the Hot Rods, and most recently, Texas rockabilly singer/songwriter Joe Ely. "I just did a Joe Ely live EP for MCA," says Kooper about his latest project, "that's being put out as a package

with his English album. The personnel in the band has changed. We feel it's much better, so we wanted to reflect that by having the EP. In October I'm going in to do a studio album with Ely. I think he's a giant." Kooper will also be producing another band from Texas called the Blame.

Such diversity reflects Kooper's wide musical interests. "I like a lot of music," he explains, "but the music I like the best—R&B—I haven't really had much chance to produce. I should be doing more of that because I have a tremendous understanding and feeling for it."



# SONY DIGITAL. THE EQUIPMENT MORE AND MORE PROS ARE USING TO MINE FOR GOLD AND PLATINUM.



If you've heard digital audio and the experience left you less than bowled over, but you haven't yet heard Sony Digital, observe what happened when other leading professionals did.

Over the past two years, they've made Sony Digital Audio a leader in the industry.

That's why the only way to judge Sony is through a personal introduction to our ever expanding family of digital products.

To arrange that, phone the L.A. headquarters, (213) 537-4300 or the NY office (212) 371-5800. Just ask for Digital Audio.

**SONY**  
Digital Audio



Kooper applies different criteria in deciding whether to produce a new act. "If I see an act I think is great and I feel I can contribute something," Al says, "it really motivates me to produce. The Blame is a good example. They had a great singer and great material, but not the arranging. That was their missing link." Kooper notes that he has turned down projects "because I didn't feel I could really add to what was already being done. I turned down the Charlie Daniels album that wound up being their turn-around album, and I passed on the Elvin Bishop 'Fooled Around and Fell In Love' album because I didn't know they had a new lead singer. [Ed. Note: Mickey Thomas, now with the Jefferson Starship.] Had I heard the singer I would have done it, but without hearing him I didn't think there was anything I could do for them that they weren't already doing."

"The songs are the key thing for me," Kooper continues. "You can have great arrangements and a great singer and go nowhere without the song. If there's a great packet of songs and a singer that communicates them, I can usually cover the rest."

Kooper believes that his respon-

sibilities change with each performer. "My role is subjugated in each project. There are some things where I have to call on everything that I know to make it happen, and there are others where I can play it more by ear. For me, the producer's role is to fill in where the artist is deficient in getting his thing across to the public on vinyl. A good producer, therefore, has to be well versed in all the areas. In the case of a band like Lynyrd Skynyrd, the act can have the material, the singer, and the arrangements, but not know how to get it on in the studio. That then becomes the main part of the producer's gig. In my spare time I try to raise my consciousness in the areas I feel less efficient so that I can deal with any project."

Al credits Blood, Sweat & Tears producer John Simon as an important teacher. "He was sort of my guru as a producer," Kooper says, "and much of his style and methods were incorporated into my early work." As someone who came to producing from being a musician, Kooper admits that "my area of deficiency was the engineering side. When I started producing I worked very hard on engineering. And for my 'graduation' I engineered an album at the same time I was pro-

ducing it. Fortunately for me it went platinum. I did one more like that and then I quit doing it because it really doesn't serve my purposes. All I wanted to do was prove to myself that I had acquired the necessary knowledge. I certainly wasn't a good producer when I started with the *Supersession* album. I still can't believe you can buy that record on the street, but I was very ambitious at that point."

Despite his major successes as both an artist and a producer, Kooper's career has had its down points as well. "What I had to and what I always swore I would do," he says, "was get out gracefully. If you want to survive and not drive yourself nuts, you have to be a total realist. And no matter what I thought about the records I was making, the fact is they weren't selling. There is nothing I would rather do than keep recording. It's the most enjoyable process for me, but I just have to control myself."

Kooper has always been an accomplished songwriter, and he continues to regularly practice his craft. "I'm always writing. I write at least ten good songs a year, and I feel I'm a better writer than I ever was. When I feel the urge to write, I'll go to the piano or the guitar and just



**OUTER EAR INC.**

### THE NEW CONCEPT IN DISC MASTERING

The Image Recovery System Master Series is a new stereo signal processor that "opens up" and spreads the image, creating greater width and depth perception. The Master Series subjectively increases high frequency response and recovers lost ambience, "bright-

ening" the sound without frequency tailoring. The Master Series creates a remarkable psychoacoustic effect that can be encoded on disc and requires no decoding to be appreciated on any stereo playback system.

The Master Series adds the extra "edge" so often looked for in mastering. Records acquire an extraordinary new dimension that simply must be heard to be appreciated. Join us and share the experience.



**Image Recovery System  
Master Series**

Contact Tom Nist at 213/462-8940, P.O. Box 1566, Hollywood, CA 90028 or  
504/943-7105, P.O. Box 3429, New Orleans, LA 70177

See us  
in Rm. 621  
at AES/New York



Introducing  
the audio processor that remembers.

# Super Prime Time™

The first **Microprocessor-based** special effects device. It has non-volatile memory storage for special effects . . . recalls them on command . . . in the studio or **on stage**. Now, with Lexicon's Super Prime Time digital delay — the **first programmable, microprocessor-based audio processor** — you can create . . . store . . . and effects for any given piece of music, frequency response of 20 Hz to 20kHz. There's never been an audio processor like it. For the performer, Super Prime Time opens a whole new world of virtually unlimited musical enhancements. This remarkable system stores 8 factory preset programs and 32 user programs of effects . . . recallable at any time. Programs may be off-loaded to audio tapes or cassettes providing unlimited off-line storage. Super Prime Time. The first microprocessor-based delay . . . the audio processor that remembers. Write for full details today.



Lexicon, Inc., 80 Turner Street, Waltham, MA 02154/(617) 891-6790/TELEX 923468  
Export: Gotham Export Corporation, New York, NY 10014

World Radio History

# FOR THE BRIGHTEST STARS.



AWARDED TO: Barbra Streisand  
 FOR: GUILTY  
 STUDIO: Criteria, Middle Ear, Sound Labs & Mediasound

A reel of recording tape is awarded to an artist making it priceless by performing.  
 This GOLDEN REEL is a symbol of one such priceless performance, recorded on Ampex professional  
 studio mastering tape, that has joined the ranks of the world's greatest hits.  
 Ampex Corporation, Redwood City, California

The talents of recording stars and their studios provide the magic that turns a reel of recording tape into an outstanding creative achievement.

The Ampex Golden Reel Award honors those achievements which were mastered on Ampex professional recording tape. They have earned a place in the ranks of the world's most successful recorded albums and singles.\*

Included in the award is a gift of \$1,000 to the recording artist's favorite charity.

Over the past three years, there have been more than 200 Golden Reel recipients. And more than \$200,000 donated on their behalf.

Congratulations to all of them on a masterful performance.

## AMPEX

Ampex Corporation, Magnetic Tape Division, 401 Broadway, Redwood City, California 94063 415/367-3889



start playing until I can lock myself into some kind of a groove. Then I just start singing stream-of-consciousness lyrics and it's usually the first line that triggers me. Sometimes, I'll think of a title and try to write that song from that, but usually I just build the song off of what comes out."

Still regarded as a premier musician, Kooper continues to play sessions, recently working on George Harrison's *Somewhere in England* LP. Al views working as a sideman as "an egoless situation" that he enjoys, gaining a great deal of satisfaction "in being able to play what someone wants me to play." Kooper continues, "One of my good friends in England is Herbie Flowers, who is somewhat of a legend in Europe as a bass player. He was a big influence on Paul McCartney, and his band, Sky, sells millions of records over there. John Williams, the classical guitarist, is also in the band. Herbie was playing on the Harrison album and he had George call me. It worked out very well."

Upon meeting Al Kooper, I was struck by the obvious difference between the warm, intelligent man I was speaking with and his image as a crazed autocrat. Kooper attempted to explain what happened:

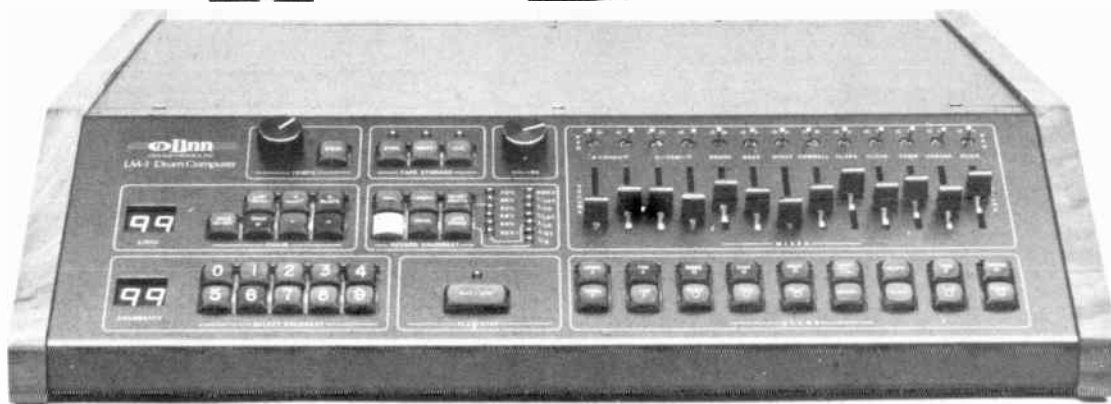
"When I left Blood, Sweat & Tears, they put out an image of me as a person which was very far afield from what I was, and it stuck. It was the bane of my existence for many years. I was always thought of as this wild-eyed, Hitler-type egomaniac. I felt terrible about that. I even hired a press agent to counteract that image, but there's not much you can do once the die is cast. I just wanted to play my music and I really wanted people to understand that I was never totally serious. There was a sense of humor behind everything. I've never fooled myself. I always knew I wasn't a great singer or keyboard player, but I knew I was a great arranger, and when I hit my stride, I knew I was a good producer. Fortunately when I reached the age of 28—I'm 37 now—I overcame that fabulous plateau where I stopped caring what people thought about me and that made my life a lot less complicated."

Kooper, like so many artists of his time, was repeatedly shafted financially. He maintains that he made no money off projects such as the first Blood, Sweat & Tears album or the *Supersession* project. "Producers get shafted as well in some ways," he continues, "like not getting writing credits. I've just come to

accept that I won't get credit for anything I rewrite on an album I produce. It's an interesting situation that usually doesn't get talked about, and I let it happen to preserve my relationships with the artists. I don't want to hurt the artist's image by receiving credit on the album cover for the songs, but I really would like to receive the remuneration that's coming to me. Another terrible situation for a producer is to work hard on a record and then have it held back by the record company and never put out. That's a crusher."

Kooper's advice to anyone entering the record business is to remain true to one's goals: "I think ambition is the key, because you have to be able to suffer so much indignity. You have to make up your mind to do something no matter how long it takes and how much hassle it gives you. When I started I had 10% talent and 90% ambition. Now I have very little ambition in that sense, because I have actually fulfilled all my goals. Everything I do now is either a regression or a repeat. The only thing that turns me on now is being able to help someone who is in the position I was in when I started. To take someone who is truly talented and make them a household word gets me off." ■

# REAL DRUMS



## The LM-1 Drum Computer — a new breed of rhythm machine.

- ★ Real Drum Sounds—digital recordings stored in computer memory
- ★ 100 Drumbeats—all programmable in real time
- ★ Easy to understand and operate, requires no technical knowledge
- ★ 12 Drums: bass, snare, hi hat, cabasa, tambourine, two toms, two congas, cowbell, clave, and hand claps!
- ★ All drums tunable in pitch
- ★ 13 input Stereo Mixer

- ★ Separate Outputs
- ★ Automatic error correction in programming
- ★ "Human" Rhythm Feel made possible by special timing circuitry.
- ★ Able to program flams, rolls, build-ups, open and closed hi hat, etc.
- ★ Programmable dynamics
- ★ Any time signature possible.
- ★ Plays Entire Song (intro, verse, chorus, fills, ending, etc.)
- ★ All programmed parts remain in memory when power is off.
- ★ Readout of speed in beats-per-minute

- ★ Versatile editing
- ★ Programmed data may be stored on cassette tape to be loaded back in later
- ★ May be synced to tape

For a free demo record and the name of your local dealer, call or write today:

## Linn

LINN ELECTRONICS, INC.  
4000 West Magnolia  
Burbank, California 91505  
(213) 811-1945

See us at AES,  
New York

Artist  
Studios

# Larry Carlton

by Tom Lubin

Considering the diverse acts with whom Larry Carlton has worked—from Joan Baez to Steely Dan, from the Crusaders to Christopher Cross—it is no surprise that this leading session guitarist knows his way around a recording studio. Yet Carlton wasn't content to remain solely an itinerant musician working in other people's studios; in order to further his own experimentation and to gain production experience, Carlton decided to build his own.

Larry's studio, located in his home overlooking Hollywood and the San Fernando Valley, currently features an automated MCI 528 console and a JH-124 tape machine. The rack behind the console contains a wide selection of signal processing equipment, and there is a full complement of Dolby's. For reverb, Carlton has two EMT plates, a 140 and a 240, and for mixdown he uses an ATR-100. The speakers are mounted in a specially designed, custom cabinet. The studio and control room, which were designed by Howard Weiss and George Augspurger (and recently re-designed by Gary Starr), both feel quite live and acoustically spacious.

If Larry's studio is today a modern, well-equipped establishment, it did not become one overnight. Its development paralleled Larry's career. In 1972, Carlton was one of L.A.'s busiest session guitarists, frequently playing on three or four sessions a day. He and his wife were living near Torrance, about 30 miles from most of the studios. Larry often had to be out of the house by 8:30 am for a 10:00 am call, and would not get home until 1:00 am the next day. It was obvious to him that he needed to move to a more central location near the studios, and he wanted to find a house that could also eventually accommodate some sort of studio for his own use.

Larry found the house he needed in 1972, but with the excep-

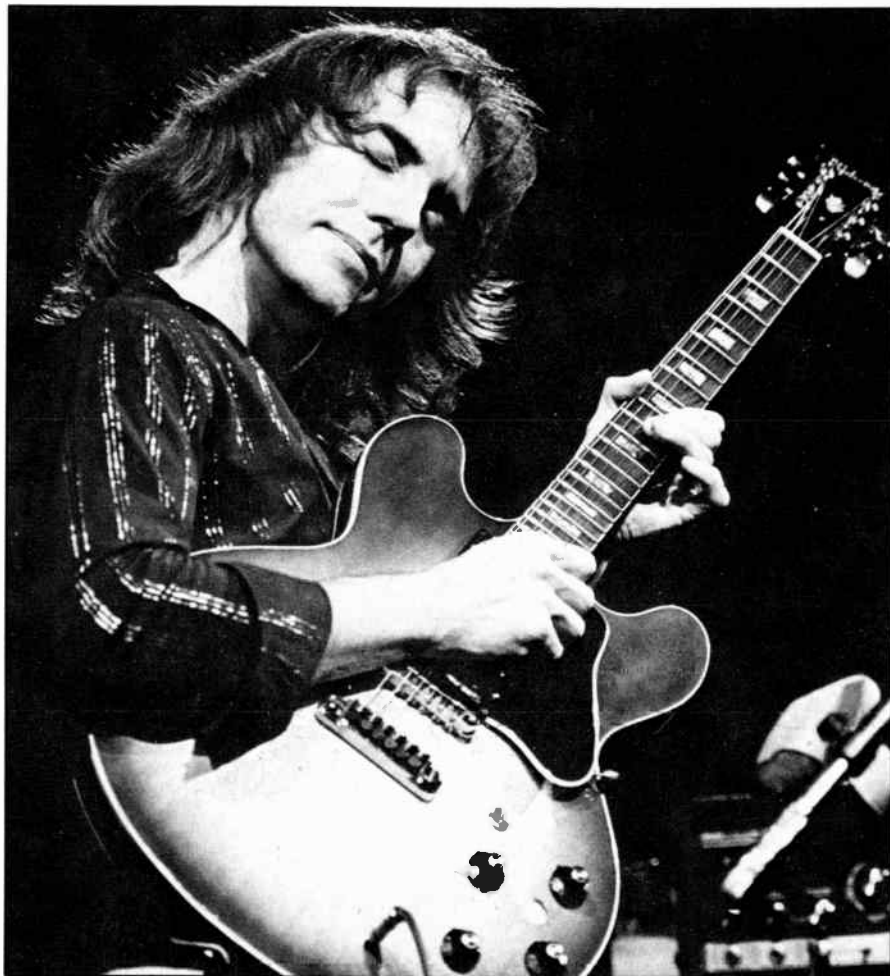


PHOTO: MARK MANDER

tion of several Revox's he used for occasional recording, did little to put together his studio until 1976. In that year, assisted by his cousin Steve, also a guitarist, Carlton rearranged his rumpus room and extra bedroom, equipping it with a Quantum board and a 16 track. They began to put down some tunes on tape and made a few commercial demos.

By this time, Carlton wanted to try his hand at production. Although he had already played on hundreds of records and many hits, he had a tough time finding a label to give him a chance at producing. He

eventually took his own money and produced an act in Chicago, using the engineer who had previously worked with the act. Larry then brought the tapes to L.A., hired Hollywood Sound for an evening, and asked to be left to his own devices in the control room. If he needed help, he called someone in; but essentially, he took the time to learn how to get the sound he wanted.

By 1977, Larry and Steve had outgrown the Quantum board, and they acquired a used MCI 416 which was installed into a more permanent control room. The studio space was also made more acoustically cor-





PHOTO TOM LUBIN

rect. One year later, they purchased an MCI 528.

Finally, in 1979, Carlton decided to enlarge the studio and create a more live acoustic environment. A wall was removed, and the living room floor joists (or the basement ceiling) were raised slightly and then lowered once the new steel truss was in place. The control room proportions forced the console

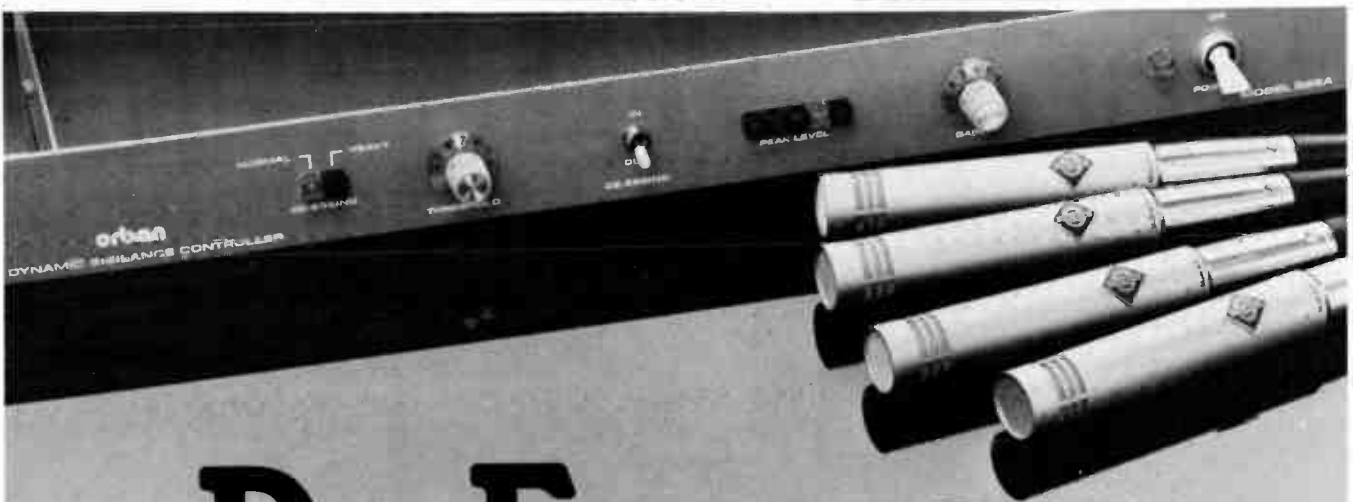
to be situated European style in relation to the studio. The sliding glass doors that separate the studio from the control room are to the left of the console, with the speakers mounted eight feet directly in front of the console. The most limiting factor in the studio is its height—typically 10 feet. However, George Augspurger was able to create a ceiling that seems much higher acous-

tically.

Having a quality recording workshop in his home has allowed Larry to do a great deal of experimentation. "When I'm producing and I want to try out different mixing approaches, or try out a new piece of outboard equipment," says Larry, "I'm off the clock. The client knows they're never paying for that, but they get the benefit of me taking the time to develop ideas and uses for the equipment. If I had to pay an engineer, I wouldn't be able to do that."

"I charge a hundred dollars an hour," Larry continues, "and bill what I feel is used. I've built a reputation as a studio player for being on time and honest with my talent charges, so the labels I work with know I'm not going to overbill them for studio time. They know I'm more interested in creating a hit than getting an extra hundred dollars. An additional advantage for someone working here is that we have the use of all the guitars, keyboards, and drums that I own. I bill a rental fee, but it's less than if you booked it from SIR, and there is no cartage. Obviously, if we try something out and it doesn't fit, there is no charge."

Carlton has found that the automation gives him the additional



# De-Esssss

The Orban 526A single-channel Dynamic Sibilance Controller is a *simple*, economical dedicated de-esser—without the complexity and compromises of multi-function processors. It sets up *fast* to produce sibilance levels that sound natural and right. Features include mic/line input, fully balanced input and output, LED level meter, GAIN control, compact size and more. Special level-tracking circuitry assures consistent results with varying input levels. And our control technique doesn't emphasize residual IM when de-essing occurs.

De-essing doesn't have to be complex, expensive, and time consuming. The 526A does it *fast* and *right* in recording studios, cinema, broadcast and cassette duplication.

The 526A De-Esser is available at your Orban pro-audio dealer.

**orban**

Orban Associates Inc.  
645 Bryant Street  
San Francisco, CA 94107  
(415) 957-1067

hands that would not be available in a regular studio situation. "When we had the first two boards, if there were quick changes Steve would always be here. Now that his career includes working with other clients, there are times when he isn't around. So the automation lets me do whatever I want. If we work the whole evening on one tune and we think we've got a final mix, we'll leave everything set up. The next morning, if it still sounds good, great. If it doesn't, then everything is ready to go from the night before."

How much does having a studio in one's basement affect home life (and the neighborhood)? According to Larry, "Because most of the studio is below ground, there is very little sound that gets outside the building, and all of the neighbors live quite a ways away. Plus, none of the clients I work with are that rowdy, so the neighbors are not that aware of what we're doing here. The only thing they might hear is a radio if we're in the back yard. What someone who has a studio in their home should remember is that they control the situation. If we get cabin fever we take the day off and go fishing. And needless to say, there's no cancellation charge or problems with getting time the next day."

The paper work involved in doing the billings can be a problem. But Larry has simplified the procedure by contracting it out to Talent Payments, a company that specializes in bill processing for independent producers.

Larry did express concern that working in a vacuum can present a bit of a hazard. "In a large studio," Carlton explains, "there are three sessions a day and many different engineers. If a room has a problem, then all the engineers put their heads together to cure it. In our case, in order to get a second opinion on how the system sounds, I'll ask somebody like Keith Olson to come over and do a mix so I can tell how he hears the system. Everything seems pretty true now, but in the beginning we had some speakers that were not right and didn't have any top end. When we took it to master, I told the mastering engineer that it was the first record I had engineered and that I knew the music was there . . . He told me he couldn't hear anything on the tape above 8K. We were just learning. Now that we've done quite a lot of work here, Steve and I have learned a great deal. Someone who is contemplating a home studio must make the commitment to learn the equip-

ment functionally, and to a degree, its maintenance. Alignment procedures have to be faithfully and professionally followed, otherwise there's no way the home studio will compete technically with a commercial operation."

"For difficult maintenance problems," Carlton continues, "we have an independent maintenance engineer (Phil Medelson) who we can call at any time, and in many cases, he can tell us what's wrong over the phone. Steve knows enough about the technical aspects to diagnose most problems and make the needed adjustments. In most cases, however, there are few problems that can't be worked around and fixed the next day."

Although at this time Larry is producing and engineering on most of his productions, he will occasionally play on a track for one of his friends. "If they bring the tape here," Carlton says, "I usually get double scale plus studio time. But if I have to leave the house and shlep my amps and guitars, it costs them a lot more. But most everyone brings the tapes up here."

Then again, why shouldn't they? The rates are competitive, as is the quality, and the engineer definitely knows what the musician wants. ■

# AKG

## The best digital recordings start here.



The advantages of digital recording can now be realized as never before with the new AKG C414 EB/P48 microphone.

The famous gold plated dual-large diaphragm CK-12 capsule shown here is in use in AKG's total line of professional quad stereo and mono condenser microphones. And these microphones have been used to produce some of today's very best recordings.

The C414 EB/P48 maintains all the features of our highly acclaimed standard model C414 EB—but incorporates new electronics designed to open the door to truly outstanding digital recordings.

Now you can work with an AKG microphone with allowable sound pressure levels of 142 dB (162 dB with selectable attenuation) and the lowest self-noise figure of any microphone we know.



To learn more about this vital link to the best digital recordings, we recommend a visit to your AKG dealer.



**AKG ACOUSTICS INC.**  
A NORTH AMERICAN PHILIPS COMPANY  
77 Selleck Street, Stamford, CT 06902

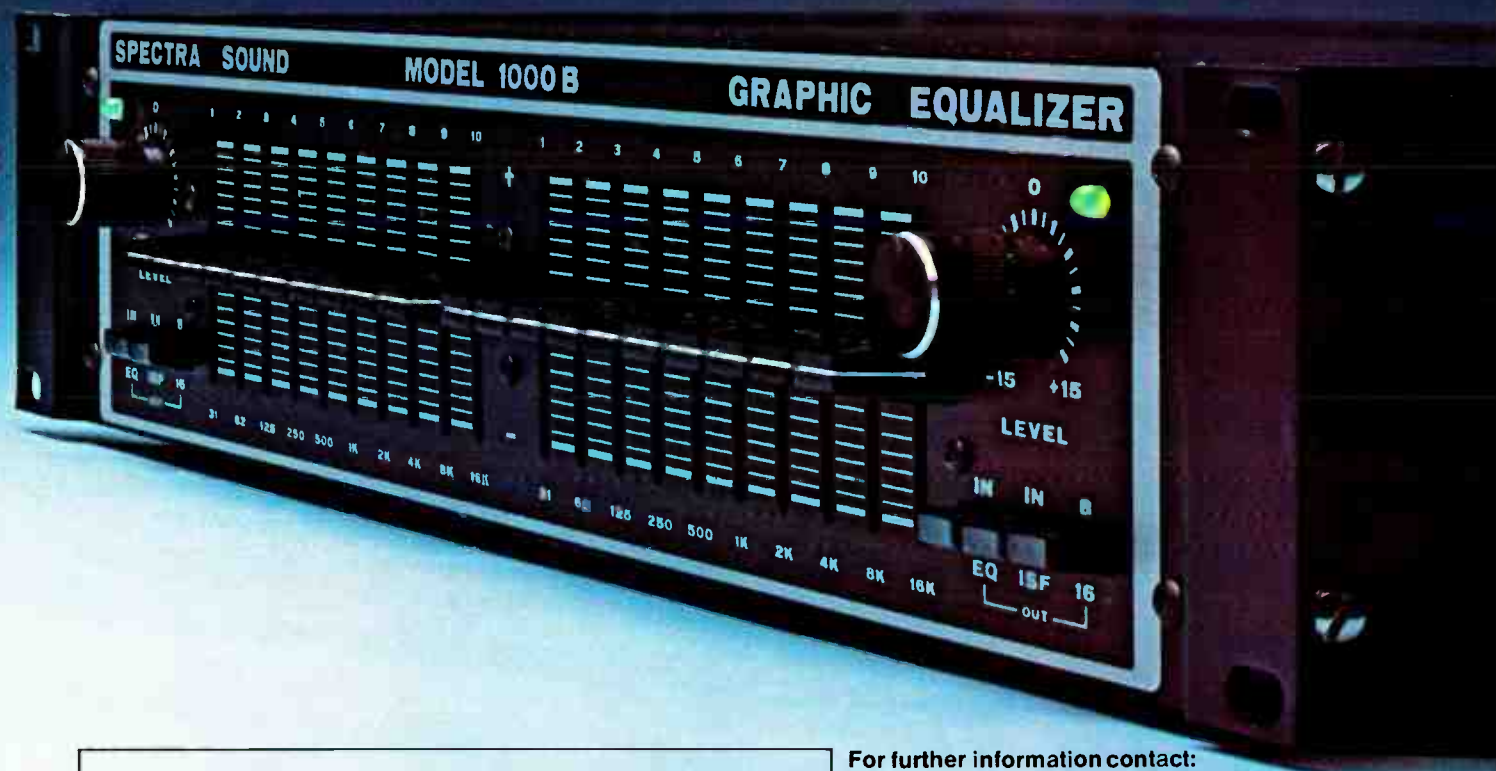
© AKG Akustische und Kino-Geräte GmbH, Austria © AKG 1981



**The  
Spectra Sound 1000B,  
a new industry  
standard in graphic  
equalizer performance,  
reliability,  
and versatility.**

To be an audio industry standard requires unequaled performance, reliability and versatility. The Spectra Sound 1000B 10 band graphic equalizer excels in these realms with improvements not previously available to the professional audio industry. The unmeasurable distortion and extremely low noise of the 1000B did not happen by accident, but are the result of design and manufacturing techniques developed over the years.

In recording, broadcast, and sound reinforcement, the audio professional relies upon the equalizer to maximize sonic performance. The 1000B can ease equalization problems while insuring years of trouble free operation.



**Specifications**

T.H.D.	.0018% (Test Equipment Residual)
I.M.	.0018% (Test Equipment Residual)
*Signal/Noise Ratio	104 dB below +4dBv
Frequency Response	20 Hz to 20kHz, $\pm .5$ dB, +18dBv
Input Impedance	Balanced, 10k ohms, Unbalanced, 100k ohms
Output Impedance	Less than 1 ohm, typically .3 ohm
*Specification unweighted, 20 Hz to 20kHz.	

For further information contact:

**Spectra  
Sound**



3750 Airport Road  
Ogden, Utah 84403  
(801) 392-7531

Spectra Sound is a wholly  
owned subsidiary of Spectra Sonics.

# Sherman Keene's Practical Techniques for the Recording Engineer

by Steven Michaels

I read this book through the eyes of one whose studio experience was gained by the proverbial seat-of-the-pants. When you think about the complexity of an engineer's task, from initial set up to final mix, you realize just how many activities are involved. If you believe that there is generally a right way and a wrong way to do things, then you realize it would take the better part of a lifetime to "get it right" with experience as your only teacher. For this reason alone I recommend this book as a valuable instructional guide to the student of the engineering/producing arts.

The book is separated into three categories; beginner, intermediate and advanced. Those who have a firm grounding in basic audio can skip the first section, making the text more accessible. (This way you don't have to wade through yet another discourse on the logarithmic nature of the decibel scale).

In Keene's grand design of things, you would be reading this book as part of your curriculum in the Sherman Keene Course for the Study of Recording Engineering. It seems to me that insofar as this book could represent a long term investment as a source and reference to all aspects of recording, its objectivity is not enhanced by the recording school pitch which is bound into the text. 'Nuff said.

My overall opinion of the text is very positive. Keene's down-to-earth approach to the minute by minute activities and decisions of the recording

engineer are, I think, superb, and bring book publication of studio knowledge out of the realm of theory and solidly into the real work-a-day studio world. Beginning with chapter one in the 'Basic' section (Setting Up The Studio), Keene leads you by the hand through every activity that comprises the engineer's job. He also gives you the benefit of his own experience, through tongue-in-cheek anecdotes, that add warmth and dimension to the topic.

Page one offers a good example of the author's practical approach... "When wiring in the mikes, remember to start at the floor and work your way up. If you are going to use rugs, then these must be laid first. Set up the things that are likely to be moved around by the artist last (headphones, baffles, music stands, etc.) so that these items and their cables will be on top. When the wires and amps get pulled to make way for alterations, mikes and stands and the like won't come tumbling down. Always protect the mikes. If there's any way to damage the mikes due to your set up, then you can rely on the artist to find the way."

To my knowledge, no book has ever dealt with the recording studio at this level of detail. For those fortunate enough to cut their teeth in a major studio where the apprentice system gives you comparable experience, fine. But for so many who have grown up with the growth of their own studios, this attention to the real life details is much appreciated.

One of the most impressive things about this book is that Keene maintains the same level of candor when it comes

to the more artistic aspects of the engineer's job. How many times have you read something about mike placement only to be told that "when it comes to the choice of mike and its particular placement, individual preference is the key. Experiment! Try all your mikes out on all the different instruments and see which sounds you prefer!" Hmmmmm. The studio has twenty microphones. There are at least fifty different types of musical instruments currently in use on recording sessions. With perhaps five different placement techniques per task, you are looking at the prospect of 5,000 experiments. Give me a break, fellas.

Keene, whose credits include Frank Zappa, Linda Ronstadt, Buffalo Springfield and Alice Cooper, just to name a few, is willing to come out and put his techniques on the line. He tells you what particular mikes placed in which ways with which pick-up pattern will give what kind of sound. Obviously one can't cover all of this mike placement in detail, but he gives you many guidelines on the basic do's and don't's so that you won't start your experiments with the Neumann U-47 on the kick drum placed a quarter-inch from the beater head. Another valuable result of this level of detail is that in the sections where he delves into his producer's bag of tricks, he tells you exactly how to set up certain sounds and special effects. Everything from the "twin spinning mikes trick to get the flying lead guitar sound" to a step by step procedure on how to record a backwards instrumental track. Here, I feel that Keene is perhaps at his finest.

One note of criticism here, and it may be an unavoidable function of his style, but I feel that to dwell on the particular functions of certain types of equipment won't stand the test of time very well as products change so rapidly in the audio world. Assume that the engineer has access to the operating manuals of his particular collection of equipment and you have freed up quite a few pages which could amplify more generalized topics. Many pages are copied directly from the user's manuals of much of the popular pro audio gear from the Ampex ATR-200 to the Lexicon 224 Digital Reverb Unit. Since you can't cover all the stuff anyway and the data is available to anyone who already uses those machines, why bother? Suffice it to say, I skipped over those sections.

In summation, I feel that though the book tries for too much in places, the advantages far outweigh the short comings. The inciteful, no-nonsense writing style and the level of candor revealed here make this book a must for the student, as well as a valuable reference for the working engineer. ■





---

# PUTTING BROADWAY ON VINYL

---

by Bruce C. Pilato

Trends in popular music change as quickly as the weather, but one type of recording seems to remain continually current—the Broadway Original Cast album. The demands this type of recording make on a producer are different than those facing producers of rock, jazz, R&B, or country, requiring the special talents of people like Tom Shepard.

Shepard is a vice president of RCA Records and heads RCA's Red Seal classical division, but he is perhaps best known as one of the most honored producers of Broadway musical recordings in the industry. Among the records that Shepard has produced in recent years are the revivals of

*Oklahoma* and *The King & I*, the jazz flavored *Ain't Misbehavin'* and *Sophisticated Ladies*, the 1979 smash *Sweeney Todd* and this year's newest Broadway hit, *42nd Street*. And as it was in the Fifties and early Sixties, the market for Broadway Cast albums has grown strong again.

"Broadway is very, very healthy right now," says Shepard, who now produces between two and three cast albums each year.

At 45, Shepard has become the leading person in theatrical records. Classically trained in piano at Julliard, Oberlin College, and Yale University, he began work as a trainee producer for Columbia Records in 1960. During his 14 years at CBS,

Shepard produced recordings by Leonard Bernstein, the New York Philharmonic, and the London Symphony, and became director of the label's Masterworks Division. In 1974, he moved to his current position with RCA.

Shepard has composed and arranged two full length musical shows, and provided the music for Otto Preminger's film *Such Good Friends*. He has won 12 Grammys, including Album Of The Year, Opera Of The Year, Original Cast Album Of The Year, Best Orchestral Performance, and Best Engineering. He is also a former Governor of the National Association of Recording Arts & Sciences.

In the early 1960s, when

---

PHOTO ABOVE: Tom Shepard (left) with Stephen Sondheim, creator of 'Sweeny Todd'.

Shepard was a trainee at Columbia, he had the chance to decide whether to go into producing either pop records or classical and Broadway records. At the same time he was editing tapes for the Masterworks Department, he was also helping Ted Macero produce pop records. Eventually, he chose to work exclusively in the Masterworks Division and for several years produced only Broadway albums.

According to Shepard, recording and producing original Broadway cast albums is nothing at all like doing rock, R&B, jazz or even classical. "In pop records," says Shepard, "you're usually dealing with singers. In Broadway cast albums, more often than not, you're dealing with actors who, also by the way, sing. When you look at the prevailing cast of Broadway shows you're not generally dealing with professional vocalists. You're dealing with actors. They may be very good singers, but that's not where their career is. Their career is on the stage. There are very few recording artists in Broadway shows."

Shepard expanded on that in a recent interview: "I like working with casts; with Broadway people. I like actors, their willingness to take chances, to take risks. Also, I understand working in a studio extremely well. Most Broadway performers don't understand it at all, so I guess I have a particular advantage. I feel very much that there is something that I can contribute to their experience, to help make for a more interesting recorded involvement and that's a very personal feeling with me. I enjoy what I can do to make a musical work better on records. It's something I'm very comfortable doing."

Shepard's belief and enthusiasm for his work is easily noticed when listening to his production techniques on the many Broadway cast albums he has done. About his newest work, *42nd Street*, one critic recently wrote: "The production, by Thomas Z. Shepard, has the style and dash few recorded musicals deserve these days—and even fewer get."

"There are three things that come into play when you turn a Broadway show into an original cast album," Shepard asserts. "First of all, reshaping the performance so that those things

that were visually important now have audio equivalence. The second thing is knowing what to record and what not to record. How do these items get re-routed for the purpose of making the most effective and self-evident phonograph record? What do you put in, what do you cut, what do you re-orchestrate, what do you sequence? The third leg, or third trick, is to take this cut and reshape and readapt the show with somewhat remodeled performances, and come out of all this with attempted theater as opposed to attempted recording."

Shepard points out that in the creation of a Broadway cast LP a tremendous amount of planning is involved. "In making the recording of a Broadway show, I generally see it enough times so that I know it by heart. I usually find some way to get ahold of a tape of the show and I study it and I determine as best I can what works and what doesn't work. I also go over the script. Then I'll have a planning meeting with the conductor, the orchestrator, the director and anyone who is involved directly with the show. We'll sit around a big table for several hours with the orchestration and the script. And out of my thoughts and their thoughts will generally evolve a workable record album."

It is at these meetings that nearly every detail is worked out, including what exactly will be covered at each recording session for the album. And although a show is sometimes dramatically reshaped for the recording at these conferences, Shepard claims his ideas "hardly ever" meet with any resistance.

Although Shepard recognizes the advantages offered in today's highly sophisticated recording studios, he points out that the vast majority of Broadway cast albums are recorded live. "I'll tell you," he explained, "mostly you're dealing with people who don't have any previous significant recording experience. And if you start putting headphones on them they start losing some of their theatrical spontaneity. They're harder to work with; they become mike shy. They're better if they work with a live band. They'll deliver with more energy."

Shepard did note that in some cases where the singers have had extensive recording experience he is able to use overdubbing. "In the case of *Sophisticated Ladies*, I

was working with people who had recorded before, primarily Phyllis Hymen. So in that case I was able to record the orchestra first and track the vocals. But that was really an exception. Generally I go live, and if you're doing dancing, as in the case of *42nd Street*, putting a whole chorus of people in headphones psyches them out, and secondly, they almost can't move." Pausing slightly, Shepard finishes his thought: "They'd probably strangle themselves!"

Recording without headphones or monitors of any sort seems hard to imagine, but for the actors and the band of a Broadway show, such items are never even used. "The P.A. at a show is so that you, the audience, can hear it. That's not for their benefit, that's for your benefit. You see, the singers are almost on the same level as the band."

The recordings are always done in a studio (as opposed to remote recording in the actual theater in which they're performing) and Shepard says he rarely has separation problems with the band and the singers. "You'd be surprised how little we have to do. Generally we record 16 track; that is usually enough. I can usually count on 11 for the band and 5 for the cast. We're not talking mikes, but rather tracks. You need a lot more mikes, especially for the chorus."

Although the records are always done in a studio and usually recorded live, there are variations in the type of sound Shepard goes after. Not all recordings are meant to sound like they were recorded live in the theater. "It all depends on the recording," says Shepard. "Take *Sophisticated Ladies*. I almost went out of my way *not* to achieve that [live theater sound]. Because in that case I really tried to get back to the essence of Duke Ellington. But mostly, I do go to great lengths to get a theatrical sound, and I guess the best example of that is *Sweeney Todd*."

"There is always a big decision on where to put the primary mikes and how and when to use stereo. For example, in the most elementary sense, when characters on stage move when not speaking, you can follow them with your eyes. But on a recording it's different. If you're gonna move people on a record without creating confusion, you better move them while they're



speaking. You can't have them move without them speaking, or at least footsteps. Or else the listener is going to say 'How did they get over there?' So you have to make records, in a sense, for the blind."

Shepard stressed the point that just because someone buys a recording of a Broadway musical doesn't necessarily mean they've seen it. "You can't count on people reading the liner notes or having seen the play. When I make a record [of an original cast] I have to know that it can stand on its own. As a matter of fact, I rarely watch the people while I'm making the records."

The Broadway cast albums that Shepard produces generally average 25 to 30 minutes per side and can, according to him, "take anywhere from 10 days of rather hard work up to 30 days. I'm talking about at least four recording sessions or at least 12 hours of recording time. And I would say about 80 hours for everything else—mixdown, mastering, etc. That is not a lot of time compared to the time it takes to make an average pop record. That's because the issues of lines to add or lines to suppress generally don't enter in at the remix as they do in pop records where you might have a whole lot of additional tracks to lay down. That generally is not an issue.

"The balance, however," said Shepard, "is very critical. The part I hate about *42nd Street* is that the taps [tap dancers] are so loud as compared to the orchestra." For that, Shepard blames the show's producer David Merrick, who insisted on having it that way.

Shepard's involvement with Broadway cast albums doesn't just end in the studio. "I have to watch everything," he told me, "including what the liner notes look and read like. I don't do all these things; I have tremendous back-up here. I have a great art department, but for sure, nothing happens without my getting involved in it. I feel very fatherly about it. It's my baby and in the end it's got my name in nice pretty big letters."

Although Shepard's main commitment to RCA remains in directing and producing much of that label's classical recordings, it is the Broadway projects that he really enjoys. "It just happens to be my own interest," he says. "It's a reflection only of what I like to do. There's no message in it... you know what I mean?" ■

**ALL NEW,** We took an industry work-horse—the dbx Model 160 **WITH**—and made it even more versatile. We gave it Over Easy® so you can choose **OVER EASY** soft knee or hard knee compression **TOO.** at the touch of a button. We've also made it strappable for dual channel compression. **\$420.\*** Added dual LED meters, Infinity +™ compression, and the provision for a Jensen output transformer. And, we've put it all into a new slim-line rack mount package with phone jack and barrier strip connectors. Voila! The new Model 160X. See your dbx Pro dealer, or write for information.

\*Manufacturer's suggested retail price.



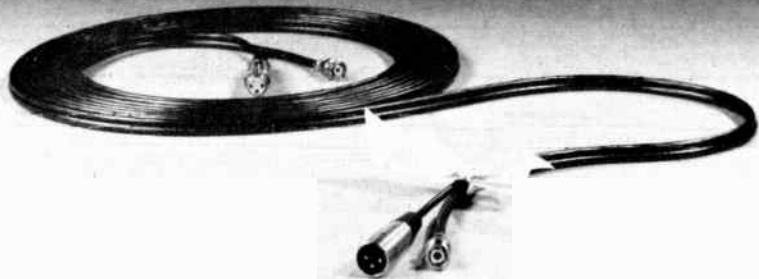
Model 160X Compressor/Limiter

dbx, Incorporated, Professional Products Division, 71 Chapel St., Newton, Mass. 02195 U.S.A. Tel. (617) 964-3210, Telex: 92-2522. Distributed in Canada by BSR (Canada) Ltd., Rexdale, Ontario.

**dbx**®

**wireworks**

*your source for professional audio cabling systems proudly announces the birth of siamese cables.*



*Our HVT Series Multicables, incorporating audio and video lines in the same cable, are made exclusively for you.*

*at Wireworks we make wire work for you*

**WIREWORKS CORPORATION**

380 Hillside Avenue, Hillside, New Jersey 07205  
Telephone: (201) 686-7400 TWX: 710-985-4675

*See us at booth no. 320, AES show, N.Y.C.*

***SPECIAL REPORT:***

---

---

**Control  
Room  
Monitor  
Systems**

---



**M**onitor speaker systems are perhaps the most subjective element of the recording chain. Specifications alone tell relatively little about the qualities of a monitor. Just as we may all hear the same sound in slightly different ways, currently popular monitor systems vary to some degree in their sonic description of a sound source.

Choosing a monitor involves a difficult assessment of accuracy, collective taste of the prime listeners, and a thorough evaluation of the performance, size and cost requirements for the intended situation. The variety is great and the technology is rapidly evolving.

Over the next few pages the manufacturers of some of the more popular monitor systems will, in their own words, describe some of the design criteria behind their top-of-the-line systems.

• • •  
**JBL Models 4430 and  
4435 Bi-Radial  
Studio Monitors**

Developed to meet the challenge of digital and advanced analog recording technology, the JBL Model 4430 and Model 4435 represent a significant new approach to two-way studio monitor design. The incorporation of the unique JBL Bi-Radial horn in a monitor loudspeaker provides constant vertical and horizontal polar coverage, control of the reverberant field, flat power response, image stability, and coherent sound. The two models also feature improvements in compression driver, low frequency transducer, and dividing network technology. Both systems exhibit the traditional JBL attributes of wide bandwidth, smooth frequency response, high efficiency, wide dynamic range, and exceptional reliability.

The practical benefits of the Bi-Radial monitors include stable imaging that remains fixed over a wide range of horizontal position, the result of unusually smooth off-axis response. The design allows considerable latitude in physical placement. The wide vertical response, identical to the horizontal, includes both standing and seated listeners within the coverage angle, even in proximity to the monitors.

The key to the performance is the JBL Bi-Radial horn (patent applied for) and its integration in a monitor design.

The horn provides constant coverage over its operating bandwidth. Both on-axis and off-axis pressure response are flat, and the vertical coverage angle is identical to the horizontal. This angle is wide, 100° x 100°, but very tightly controlled, and it matches the coverage angle of the low frequency driver at the crossover frequency. Additionally, the horn's rapid flare rate reduces second harmonic distortion, and its reduced depth puts its driver in the same acoustic plane as the low frequency driver. The Bi-Radial monitors present a coherent sound source, with extremely stable stereo imaging over a wide variety of listening positions. The monitors offer a high degree of placement flexibility, and the listening position can be quite close with no loss of stereo imaging.

The Bi-Radial horn is coupled to a compression driver which is crossed over at 1000 Hz. The driver features an aluminum diaphragm with a three-dimensional diamond-pattern suspension (patent applied for). Developed by JBL, this diamond surround offers an extended frequency response normally associated with exotic materials, while retaining the ruggedness and high power capacity of its aluminum construction. The diaphragm is pneumatically drawn to shape to

eliminate stresses that cause fatigue, and a phasing plug of concentric exponential horns eliminates phase cancellation.

The 380 mm (15 in) low frequency loudspeakers used in the Bi-Radial monitors incorporate the latest technology to deliver smooth response, extended bandwidth, and extremely low distortion. The magnetic structures feature JBL's Symmetrical Field Geometry (SFG) design to reduce second harmonic distortion to inconsequential levels. New adhesives technology and coil former construction improve power handling. A careful choice of suspension elements helps to completely eliminate dynamic instabilities. The 4430 uses a single low frequency driver, and the 4435 uses two; the second operates below 100 Hz.

Crossover frequency in both models is 1kHz, and the dividing network provides a nominal slope of 12 dB per octave. The cutoff slope and shape have been chosen to provide the smoothest possible response over the widest bandwidth, restricting any off-axis anomalies to a very narrow portion. The network also provides equalization of the compression driver to lower distortion and give greater dynamic headroom. The equalization is



**JBL's new 4430 and 4435 Monitors**

# SPECIAL REPORT:

provided in two stages, allowing separate adjustments (via front-panel level controls) for the midrange and high frequencies.

For more information, contact:  
Fred Neeper  
James B. Lansing Sound, Inc.  
8500 Balboa Blvd.,  
Northridge, CA 91329

## RWO/Fostex Monitors

There is no magic nor any heretofore unknown law of physics involved in the design and manufacture of RWO/Fostex Monitors. Only the application of rational, consistent, design engineering coupled with the belief that a monitor should impart no characteristic of its own into its acoustical performance.

The three models in the RWO/Fostex Laboratory Series are each optimized for a specific low-frequency cut-off, to suit various sized installations, while maintaining a uniform standard of

performance. The hallmark of the Laboratory Series Monitors is extremely accurate, time-coherent, high-efficiency reproduction. This performance is identical from model to model, one indistinguishable from the others in all but the lowest registers. The unique Mid-High Frequency array used in the series is common to all models. Only the Low Frequency transducers and enclosures differ. Employing the same high-quality components in all models is obviously not the economical way of designing such a series, but definitely provides superlative, consistent performance from all models, regardless of size.

These monitors are manufactured entirely in our own factories, from the cones and magnet assemblies through to the crossover components and enclosures. Such total manufacturing control assures the total performance required.

The Laboratory Series Monitors

are designed to provide the level of efficiency and acoustic output required for digital and "direct-to-disc" applications. Typically, the RWO/Fostex Monitors provide two to four times the acoustic output of ordinary monitors, resulting in an available dynamic range barely matched by a few tri- or quad-amplified systems.

High-power, passive, integral dividing networks are included in all models. The LS/4, four-way system, has additional provisions for bi-amplification. (Low-level active crossovers will be available for all models early in 1982.) Unusual attention has been applied to the design and selection of the 12dB/octave dividing networks, an area often given but passing consideration. High performance and low loss are guaranteed through the use of close-tolerance film capacitors and oversize wire in the inductors, making multi-amplification unnecessary in most applications. High temperature



RWO Fostex Monitor



porcelain variable attenuators, calibrated in dB, are standard, with stepped attenuators optionally available.

Alnico motor structures are used exclusively, in all transducers. Although higher in cost, such units provide more natural and accurate performance than even the most exotically engineered ceramic-magnet design. Coil formers are manufactured from mica, a material which, due to its stable high temperature operation, allows the use of extremely tight tolerance magnetic gaps, resulting in very high efficiency operation.

Through these and other methods, we have limited the dynamic power compression characteristics of these monitors to the theoretical minimums.

The flagship of the series, the LS/4 Monitor, features special superlow frequency drivers, using multi-layer voice-coils and coated-cone material for optimum low-frequency bandwidth and linearity. The computer-aided-designed 24 cubic foot enclosure is constructed with minimum 1½ inch materials and exhibits extremely low spurious dynamic noise. A Chebeshev C4 alignment is used. Multiple large area vents are used to maintain the physical integrity of the enclosure and minimize duct noise.

The Mid-bass transducer is enclosed in a special internal enclosure which exhibits a minimum overshoot Butterworth alignment, and is capable of phenomenal transient accuracy in the difficult upper bass range.

The critical Midrange is handled by a low-mass, wide-bandwidth compression driver coupled to a "no-compromise" radial horn milled from solid Eurasian Teak, which eliminates resonances from the passband. This horn is much superior to other types of wooden horns, in that the flare is accurate to the mathematical model, not a simply mitred affair.

A unique High-Frequency super tweeter features an unusual diffraction lens which provides an unprecedented wide dispersion, approaching theoretical Constant-Q performance.

All parameters of operation, including efficiency, distortion and time/phase amplitude response have been optimized in the design of the RWO/Fostex Laboratory Series Monitors.

For more information, contact:  
Paul Gardock  
RWO/Fostex  
2432 North Cedarwood Circle  
Simi Valley, CA 93063

## MORE POWER TO YOU!

The new alternative in high power, high quality sound reproduction for the critical recording environment is here.

Introducing "The Blaster" professional recording monitor.

By the exclusive use of Technical Audio Devices (TAD™) drivers and a proven SPL RESEARCH enclosure, a very high degree of performance and reliability is obtained.

Plus, phase alignment is maintained by locating the transducers in an equidistant arc to the focus when mounted in a suitable flush soffit configuration, which also provides a very low angle sound image localization to the mixer's ear.



Impedance: 16 ohms hi,  
4 ohms low  
Rated input: 30 watts hi,  
300 watts low  
Maximum input: 60 watts  
hi, 600 watts low  
Output SPL @ 1 meter  
(with 1 watt input):  
110 dB hi, 100 dB low  
SPL output at 8 feet with  
rated input: 124 dB  
Crossover frequency:  
800 Hz @ 12 dB / octave

Frequency response:  
±3 dB 20 Hz - 20 kHz  
(for control room  
applications in music  
recording studios, a  
rolloff of 6 to 9 dB per  
octave from 5 kHz is  
recommended.)  
Dimensions:  
44" W × 30" H × 20" D  
Weight: 202 lbs.  
Finish: Flat black or  
natural birch

The Blaster is shipped as  
components, with complete  
assembly and installation  
instructions.

### GUARANTEE

Every BLASTER is unconditionally guaranteed by SPL Research to meet or exceed specifications when installed in accordance with manufacturers instructions.

EVERYTHING  
AUDIO

16055 VENTURA BLVD., SUITE 1001  
ENCINO, CA 91436 • (213) 995-4175

# SPL RESEARCH

(Formerly Screen Door Music)

NORTHRIDGE, CALIFORNIA

# SPECIAL REPORT:

## The UREI Series A Time-Aligned\* Studio Monitors

Since their introduction in 1977, the UREI 800 Series monitors have steadily replaced older monitor designs. In studios throughout the world, UREI monitors have become the accepted standard. Series A is the second generation of UREI monitors, featuring extended frequency response and even greater dynamic range than its predecessors.

Most loudspeaker systems, both for the studio and home, utilize multiple drivers to properly cover the entire frequency spectrum. Low, midrange, and high frequencies are generally handled by separate transducers, displaced from each other on the enclosure baffle. The sound image may shift from driver to driver, depending on its harmonic

balance, causing unnatural stereo imaging and "smear."

Each UREI Series A monitor uses a coaxial loudspeaker for the full audio range—literally two loudspeakers in one. Additional low frequency drivers are used in the 813A and 815A, operating in the frequency range where the ear is relatively insensitive to component displacement. Therefore, sound images do not move from place to place on the baffle and stereo placement is stable.

The new UREI high frequency horn (patent applied for) assures broad dispersion, while slots in the horn eliminate the problems of midrange shadowing caused by traditional coaxial loudspeaker horns. A new diffraction buffer at the mouth of the horn improves the impedance transformation to the air and minimizes the acoustic reflections which can occur in the

crossover region. The result is improved dispersion and response smoothness.

New ceramic magnet structures in both the coaxial loudspeaker and the 813A and 815A low frequency drivers provide greater sensitivity, particularly over the long term in high-level applications.

Even though a coaxial loudspeaker delivers the entire frequency spectrum from one source, the voice coils of the two transducers are displaced from each other, and the low and high frequency portions of a sound do not arrive at the listener's ear at the same time. This phenomenon, called "time smear," can be extremely fatiguing, particularly after several hours of critical listening.

UREI, in a joint engineering project with E.M. Long Associates, perfected the first professional utilization of the Time-Align technique, which adjusts driver placement and crossover network parameters to achieve simultaneous arrival of the sounds from both sections of the coaxial loudspeaker at the listener's ear. The result is a uniform sound which is not fatiguing, even at the high levels required in recording studio control rooms.

For stereo applications, all UREI Series A monitors are available in mirror imaged stereo pairs for superior stereo image centering at the listening position.

Every UREI Series A monitor features a BNC connector on the rear panel to accommodate the Conductor Compensation feature of UREI's Model 6500 power amplifier. This unique, patented circuitry eliminates ringing and other problems originating in the hookup wiring, providing extremely high damping and outstanding transient response at the loudspeaker terminals, not just at the amplifier output.

UREI Time Aligned studio monitors are used in hundreds of recording studios and broadcast production facilities throughout the world. Performers and engineers are demanding the finest in monitor technology, and the UREI Series A monitors are the latest advancement in critical listening technology.

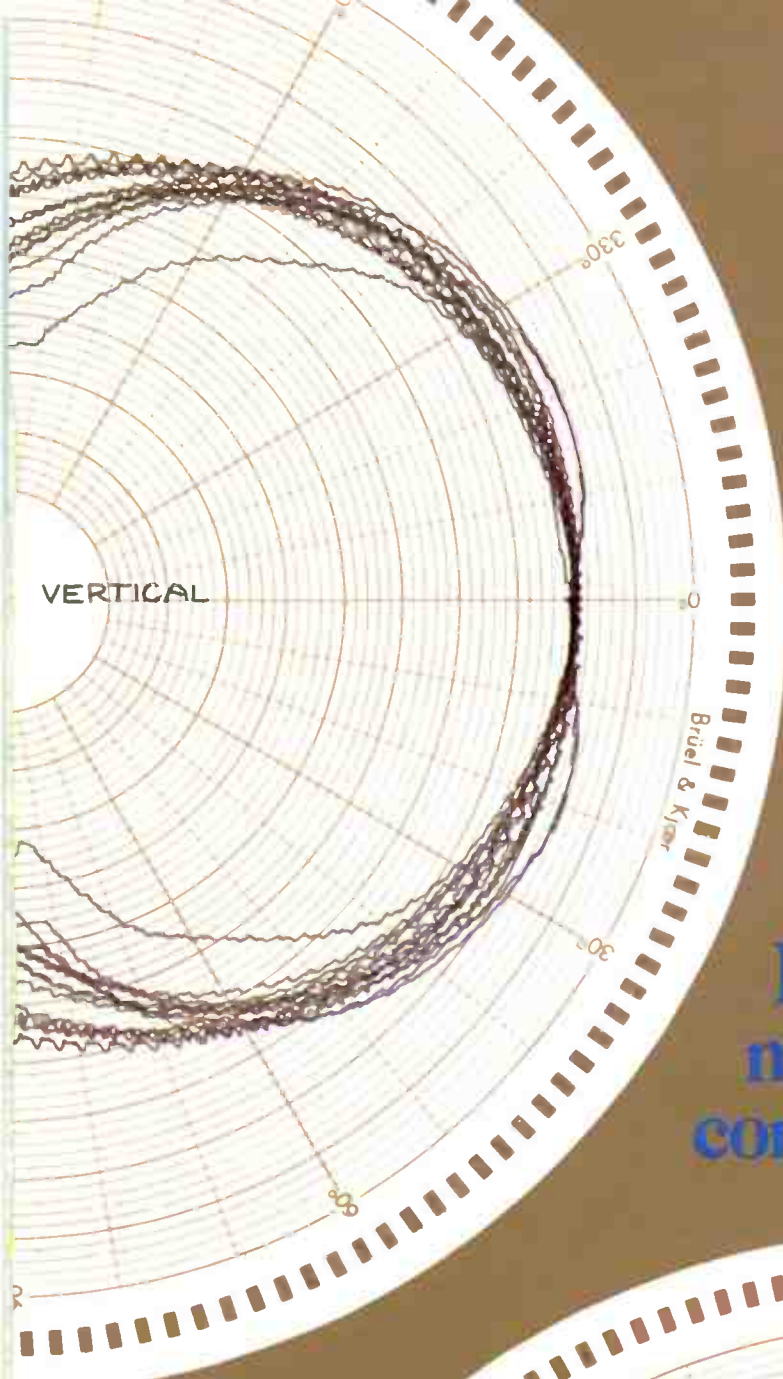
For more information, contact:  
Garry Margolis  
United Recording  
Electronics Industries  
8460 San Fernando Rd.  
Sun Valley, CA 91352



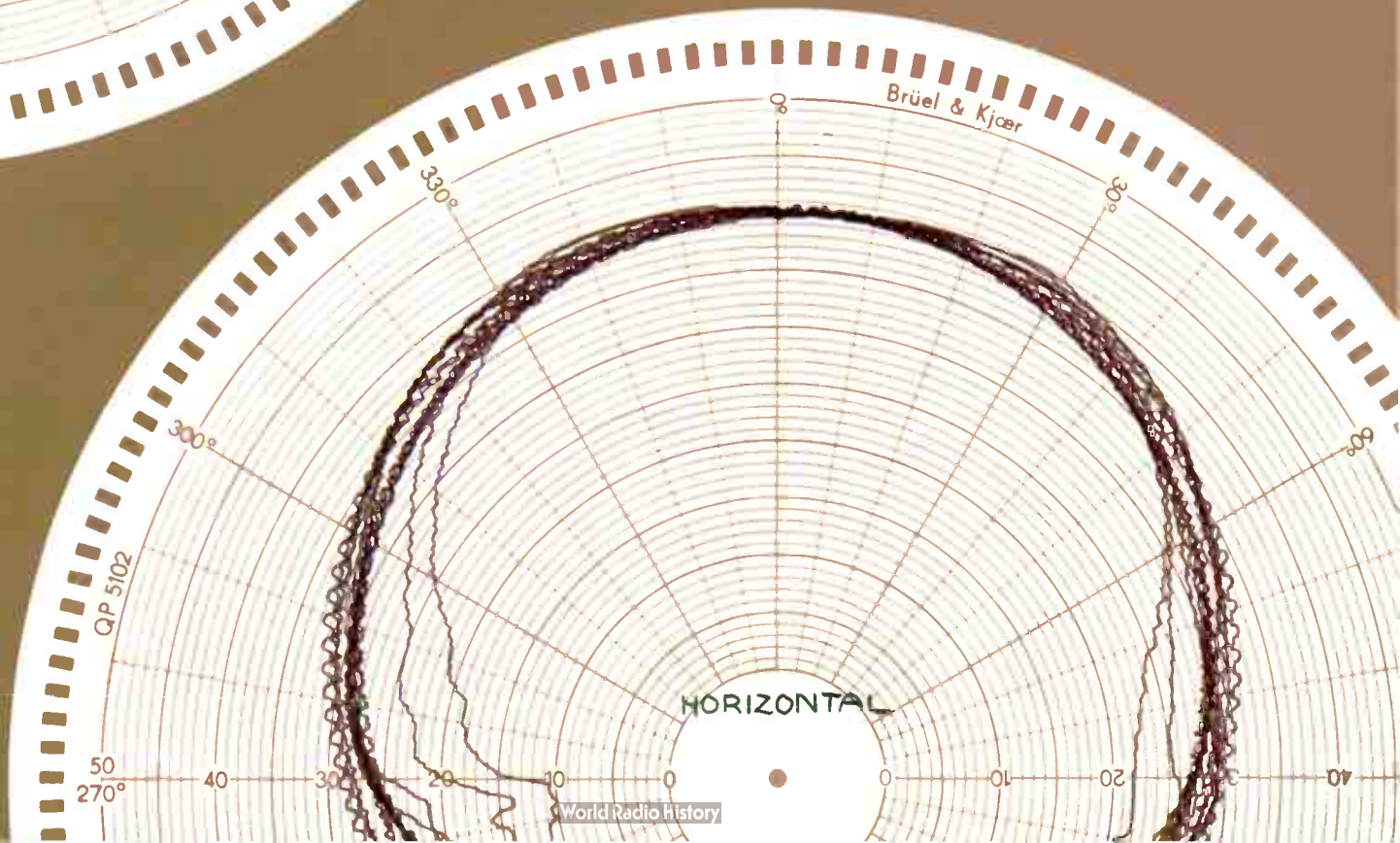
UREI's 813A Monitor

\*Time Align™ is a trademark of E.M. Long Associates, Oakland, CA.

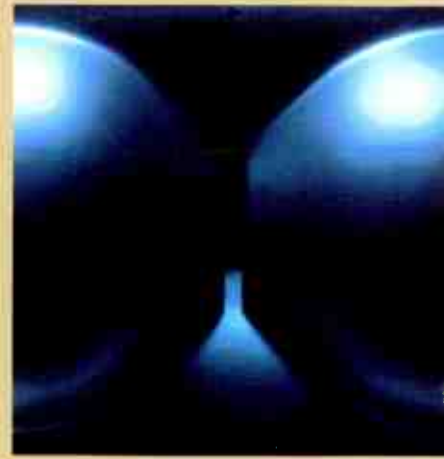




Before you invest in new studio monitors, consider all the angles.



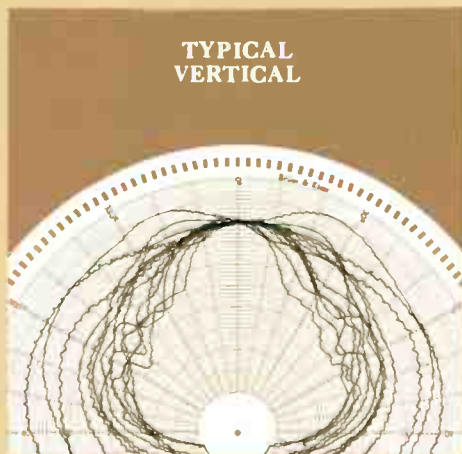
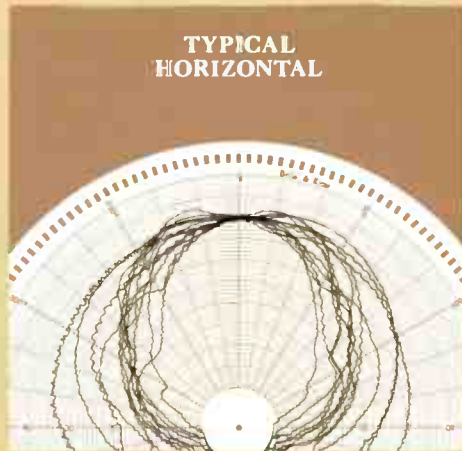
# Introducing the JBL Bi-Radial Studio Monitors.



No one has to tell you how important flat frequency response is in a studio monitor. But if you judge a monitor's performance by its on-axis response curve, you're only getting part of the story.

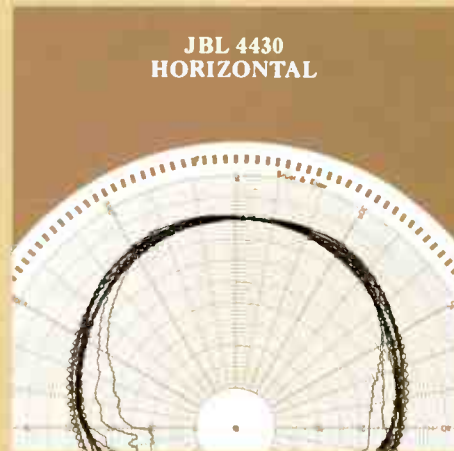
Most conventional monitors tend to narrow their dispersion as frequency increases. So while their on-axis response may be flat, their off-axis response can roll off dramatically, literally locking you into the on-axis "sweet spot." Even worse, drastic changes in the horn's directivity contribute significantly to horn colorations.

*Polar response of a typical two-way coaxial studio monitor:*



At JBL, we've been investigating the relationship between on and off axis frequency response for several years. The result is a new generation of studio monitors that provide flat response over an exceptionally wide range of horizontal and vertical angles. The sweet spot and its traditional restrictions are essentially eliminated.

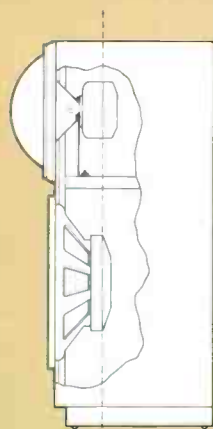
*Polar response of a 4430 studio monitor:*



## The Bi-Radial Horn

The key to this improved performance lies in the unique geometry of the monitors' Bi-Radial horn! Developed with the aid of the latest computer design and analysis techniques, the horn provides constant coverage from its crossover point of 1000 Hz to beyond 16 kHz. The Bi-Radial compound flare configuration maintains precise control of the horn's wide 100° x 100° coverage angle. Since this angle is identical to the coverage angle of the low frequency driver at crossover, the transition from driver to driver appears seamless and the monitors present a fully coherent sound source.

And the Bi-Radial horn's performance advantages aren't limited to just beamwidth control. The horn's rapid flare rate, for instance, dramatically reduces second harmonic distortion and its shallow depth allows for optimal acoustic alignment of the drivers. This alignment lets the monitors fall well below the Blauert and Laws criteria for minimum audible time delay discrepancies.



*Acoustic alignment of drivers (4430)*

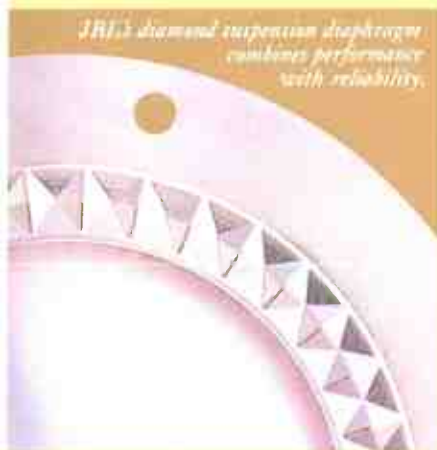
The practical benefits of the Bi-Radial horn design include flat frequency response and remarkably stable stereo imaging that remain valid over a wide range of listening positions. The design also allows considerable latitude in control room mounting. Finally, the flat on and off axis frequency response of the horn means that less high frequency equalization will be required to match typical house curves.

But while the Bi-Radial horn offers outstanding performance, it's only part of the new monitors' total package.

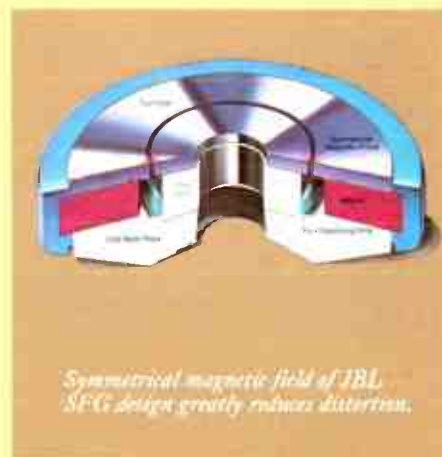


## Extended Response in a Two-Way Design

Coupled to the horn is a new compression driver that combines high reliability and power capacity with extended bandwidth and smooth, peak-free response. The driver features an aluminum diaphragm with a unique three-dimensional, diamond-pattern surround! Both stronger and more flexible than conventional designs, this surround provides outstanding high frequency response, uniform diaphragm control, and maximum unit-to-unit performance consistency.



To ensure smooth response to the lowest octaves, controlled midband sensitivity, extremely low distortion, and tight transient response, the Bi-Radial monitors also incorporate the latest in low frequency technology. The loudspeakers' magnetic structures feature JBL's unique Symmetrical Field Geometry (SFG) design to reduce second harmonic distortion to inconsequential levels. Additionally, the speakers utilize exceptionally long voice coils and carefully engineered suspension elements for maximum excursion linearity, and complete freedom from dynamic instabilities for tight, controlled transient response.



## Blending the Elements—The Dividing Network Challenge

Tailored to the acoustical characteristics of the Bi-Radial monitors' high and low frequency drivers, the dividing network provides the smoothest possible response over the widest bandwidth while restricting any anomalies to an extremely narrow band. During the network's development, JBL engineers paid considerable attention to on-axis, off-axis, and total power response. As a result, the electrical characteristics of the network are optimized for flat response

over the monitors' full coverage angle.

The network also provides equalization of the compression driver for flat power response output. This equalization is in two stages with separate adjustments for midrange and high frequencies.

## Judge For Yourself

Of course, the only way to really judge a studio monitor is to listen for yourself. So before you invest in new monitors, ask your local JBL professional products dealer for a Bi-Radial monitor demonstration. And consider all the angles.

1. Patent applied for.



4430

4435

<b>Specifications</b>	<b>4430</b>	<b>4435</b>
Frequency response ( $\pm 3$ dB)	35 - 16,000 Hz	30 - 16,000 Hz
Power Capacity (Continuous Program)	300 W	375 W
Sensitivity (1 W, 1 m)	93 dB	96 dB
Nominal Impedance	8 Ohms	8 Ohms
Dispersion Angle ( $- 6$ dB)	100° x 100°	100° x 100°
Crossover Frequency	1 kHz	1 kHz
Network Controls	Mid Frequency Level High Frequency Level Switchable Bi-Amplification	



**Professional  
Products  
Division**

**James B. Lansing Sound, Inc.  
8500 Balboa Boulevard,  
P.O. Box 2200  
Northridge, California 91329 U.S.A.**



# SPECIAL REPORT:

The system is manufactured in Great Britain by Tannoy Products, Ltd. and distributed in the U.S.A. by BGW Systems, Inc.

For more information, contact:  
Hanif Haji, BGW Systems  
13130 South Yukon Ave.  
Hawthorne, CA 90250

## Altec Lansing 9813 High-Accuracy Studio Monitor

Altec Lansing's new 9813 High-Accuracy Studio Monitor is a compact, three-way vented loudspeaker system designed specifically for applications requiring critical audio judgements.

Introduced at the Spring 1981 AES Convention in Los Angeles, the

combination of acoustic and aerospace science. A new Altec Lansing compression driver utilizing a lead-zirconate-titanate (LZT) semi-conductor element converts electrical signals directly into sound motion. Using no magnet or voice coil, the LZT provides extremely detailed high-frequency response, low distortion and superior power capacity.

The Pass-Band-Stable network (U.S. patent pending) developed specially for the LZT draws on aerospace telemetry engineering to produce a super low distortion, minimum phase crossover. The network also provides an extremely stable, high frequency load for the amplifier, resulting in greater efficiency and more transparent highs. Frequencies crossover at 700 and 5000 Hz.

inch, die-cast alloy frame bass driver with deep well ferrite magnet structure. Mid-range frequencies are handled by a five-inch frame cone driver in a sealed, high-pressure injection molded sub-enclosure. Minimal distortion levels in all three transducers allow extended, high-volume use without listening fatigue.

Driver protection for the system is provided by Altec Lansing's Automatic Power Control that, unlike conventional fuses or circuit breakers, lowers power flow to the speakers without shutting them off. Excessive power (40 through 200 watts) is detected at the crossover and is temporarily shunted into a resistor. A front panel indicator light signals Automatic Power Control circuit activation.

Altec Lansing 9813 Studio Monitor



new 9813 was entered into a series of blind listening tests with its closest competitor. Rated on quality of frequency, phase, and transient response, as well as overall balance, the 9813 was graded superior to the competing model by a margin of three to one.

Incorporating a number of recent proprietary design innovations, the 9813 represents more than 45 years of electro-acoustic research and development at Altec Lansing.

Incorporating a number of recent proprietary design innovations, the 9813 represents more than 45 years of electro-acoustic research and development at Altec Lansing.

For exacting sonic accuracy in the high-end, the 9813 employs a unique driver/network system derived from a

Coupled to the LZT are Altec Lansing's Tangerine® radial phase plug and Mantaray® constant directivity horn. The Tangerine uses a patented radial slot design for unimpeded high frequency energy flow, assuring accurate frequency response to 20 kHz and *beyond*. The Mantaray horn with a distribution pattern of 100° horizontal by 40° up and 20° down, eliminates high frequency beaming by maintaining a continuously wide angle of dispersion for all frequencies. The expanded listening "sweet spot" and solid, three-dimensional stereo imaging of the Mantaray combine with the Tangerine and LZT to give the 9813 unmatched accuracy for recording playback and studio work.

In the low end, the 9813 uses a ten-

Other Altec Lansing 9813 features included: anechoic damping—a soft, acoustically absorbant covering that reduces out-of-phase signal reflections and diffraction due to driver-to-baffle sound conductance; computer assisted enclosure tuning for maximum balance of system bass response and sensitivity; and heavy-duty, special construction enclosure materials with rift-cut oak finish. Frequency response is 60 Hz to 20 kHz + 2.5 dB with dynamic range of 47 dB (minimum crest factor above 60 dB at one meter). Power rated at 40 watts (continuous pink noise, 20 Hz to 20 kHz), sensitivity is 90 SPL (at one meter, one watt input using broad band pink noise). Dimensions: 25-1/2" (64.8 cm) high, 15-1/2" (39.4 cm) wide, 13-1/2" (34.3 cm) deep. Net weight: 37

## Tannoy/BGW Systems, Inc.

The Dreadnought is a three way high power, high sensitivity, fully active wide band, time compensated studio monitor loudspeaker system for professional applications. Capable of producing very high sound pressure levels (126 dB peak SPL at 1 metre at full drive), the system comprises three 15 inch Tannoy drive units fitted with the latest high power linear motor technology and is supplied complete with a Tannoy X06000 electronic time compensated three way dividing network incorporating double frequency bass parametric equalizers and acoustic source alignment by electronic delay line. The fully braced and damped 1" thick birch ply 17 cubic foot enclosure has a novel 15 degree sloping front baffle to facilitate easy installation and ensure consistent near axis monitoring over a wide listening position in the control room. Two 15 inch bass drivers loaded by a 15 cubic foot ported enclosure volume provide exceptional-

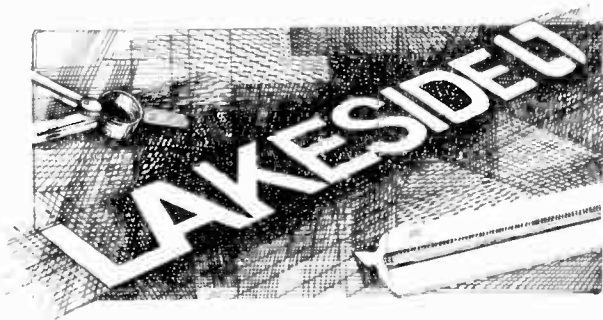
ly low distortion, high power bass performance with critical damping characteristics. Midrange and high frequencies are reproduced by a new specially designed high power version of the famous 15" Tannoy dual concentric loudspeaker with point source emission and controlled dispersion to provide very accurate localization of sound sources within the stereo sound field. The mid high frequency dual concentric unit is mounted in a separate damped and sealed 3 cubic foot acoustic transmission line within the overall enclosure. This technique reduces intermodulation products and colorations, and provides optimum loading conditions for effective control of the midbank radiation. A concentrically mounted compression drive unit handles the high frequencies with accurate transient capability and high power handling capacity. Dispersion is controlled to provide an even 90 degree conical angle in both horizontal and vertical orientations up to 12 kHz with a smooth response up to 20 kHz.

The Tannoy X06000 active

dividing network provides optimum drive voltage vs. frequency characteristics for each part of the three way loudspeaker system. Time delay circuitry is both manually variable or automatically fixed to allow accurate alignment of the drive unit acoustic virtual sound sources. Independent control of low, mid and high frequency band voltage gains are provided to allow the system to be easily matched to power amplifiers with different given factors. A double frequency parametric equalizer operates within the band 20 to 200 Hz, allowing independent modification of the low frequency response for each loudspeaker system to suit the monitoring environment without the need for external  $\frac{1}{3}$  octave equalizers. A treble roll off control is also provided to modify the extreme high frequency performance for very near field monitoring.

The loudspeaker system is 52.5" wide x 35" high x 23" deep, tapering 14.5" deep. The X06000 is a rack mounted unit 19" wide x 1.75" high x 12" deep.

## WE'RE PLANNING FOR YOUR FUTURE



Lakeside Associates, Inc. was formed to provide very particular services to a very specialized industry—the entertainment industry.

The experience gained in over twenty-two years involvement in just about every aspect of sound recording, video, sound reinforcement, management, and acoustic and electronic design provides an insight vital to the development of an entertainment facility. This insight enables us to integrate the diverse elements whose proper execution are necessary to the success of any project.

Throughout our involvement with a client, planning is stressed—right from the time of initial contact. Careful planning can minimize costly delays, help anticipate future needs, and allow the project to run efficiently.

This approach has already worked for our clients around the world: Allangrove Builders, London; Cannell-Heumann & Associates, Los Angeles; Discos Gas, Mexico City; Kenny Rogers' Lion Share Studios, Los Angeles; Pierce Arrow Recorders, Chicago; Premore, Inc., Los Angeles; Producers Color Service, Detroit; Select Sound Studio, Buffalo; Star Studio, Milwaukee; Sunwood Studio, Reno; The Fort, Los Angeles; Thunder Road Studios, Calgary; West Wind Records, Santa Barbara; Yamaha Research and Development Studios, Glendale.

Whatever the size of your project, Lakeside's experience will work for you. Please contact **Steve Fouce** or **Carl Yanchar**: **LAKESIDE ASSOCIATES, INC.**, 27939 Chielana, Mission Viejo, CA 92692, (714) 855-3171

## LAKESIDE

Design for Acoustical Performance/Electronic Systems Design and Installation/Product Development and Evaluation/Construction Business Consulting



lbs. (16.7 kg.).

For more information, contact:  
Gary Rilling  
Altec Lansing  
1515 South Manchester Ave.  
Anaheim, CA 92803

### Westlake Audio HR-7 Monitoring System

The HR-7 is Westlake Audio's most recent speaker design.

The system is 4-way, phase coherent and to our knowledge the only speaker available with mono, bi, tri or quad amplified phase coherent crossovers.

While similar to and in some ways a scaled down version of our HR-1 system introduced in early 1979, the HR-7 has some characteristics unique to its design.

The primary goal of the HR 7 was to provide a high quality reference monitor for those applications that could not accept the larger dual 15" cabinets. While many manufacturers chose a single 15" woofer to ac-

complish this size category, Westlake prefers total symmetry in its design approach. Thus the system employs dual 12" woofers on either side of a 10" mid



Westlake Audio's HR-7 Monitor

**1/6 OCTAVE** **MONITOR EQUALIZATION FROM White** **1/3 OCTAVE**

**REAL TIME ANALYZERS  
ACTIVE & PASSIVE EQUALIZERS • CROSSEOVERS & FILTERS**

**White instruments, inc.**  
P. O. Box 698, Austin, Texas 78767  
512/892-0752 • TELEX 776409 WHITE INST AUS

# SPECIAL REPORT:

bass. A 1" throat, solid walnut horn and compression tweeter completes the system.

To accomplish the highest resolution possible (practical) the HR-7 is a four-way system. As most electro-acoustical devices do not exhibit good amplitude, phase and dispersion characteristics over more than 2 or 3 octaves, a four-way system properly configured and crossed-over will produce excellent depth of field.

For maximum driver protection, minimum inter-driver interference and minimum band pass ripple, all crossover options employ 24dB octave filters. The low level crossover option (HR-7X) provides a crossover having electrical summation response of  $\pm 25\text{dB}$  while the high level units (HR-7-HLX) are  $\pm 2.5\text{dB}$ .

System response is, of course, affected by drive response and mechanical mounting configuration, but generally the HR-7 produces minimum response irregularities and E.Q. is not recommended unless applied by a qualified technician, equipped with properly calibrated equipment.

A lot of discussion about phase alignment has abounded in recent years. Some taught all mechanical alignment, some all electrical. The HR-7 was designed to require a minimum of either one. Thus an unusual mechanical configuration was arrived at including a new proprietary wood horn required to match the timing and dispersion requirements of the system.

Within its band pass the HR-7 is a minimum ripple system. While long wave length reproduction is somewhat limited by this approach, we are currently developing a sub-woofer system with matching crossovers which together will produce an outstanding Q.C. monitor.

For more information, contact:  
Glenn Phoenix  
Westlake Audio, Inc.  
2696 Lavery Ct., Unit 18  
Newbury Park, CA 91320

## SPL Research

In today's well equipped, professional studio you will probably find more than one kind of monitor available—monitors for the demanding power requirements of live music recording and monitors for critical mixing.

There are plenty of quality near-field type monitors available, from "Auratones" to single 15 inch coaxial

speakers usually placed on stands in front of the console.

What has been lacking was the "big guys up top,"—free field monitors, which, in many cases, have been near-field monitors with additional woofers and a passive crossover, all in a large enclosure.

The introduction of digital recording, with its associated 20 dB increased dynamic range and evolution of the new music, heavily laden with bottom instruments, have left many so called high power monitors to "pop and crack" with the beat. The "Blaster" is a system specifically designed for this high power criteria.

First, we chose to amplify because of the seemingly insurmountable design problems inherent to high level passive crossovers. Next, a trip around the market place, and a lot of experimentation led us to the T.A.D. line of drivers.

Their 4001 high frequency driver is flat enough to completely eliminate the need for an additional tweeter,

which not only simplifies the design, but saves money. Their 1602 woofers not only provide all the bottom you'll need without folding, but they're also strong in the lower midrange. This allows a higher crossover frequency, eliminating a lot of the "honk" associated with any high frequency horn.

The three drivers are then mounted in a reinforced, high density plywood enclosure intended for flush soffit mounting only.

The one big departure from the usual is to mount the enclosures upside down; woofers on top, high frequency on the bottom. This puts the high frequency driver much closer to ear level, while preserving space below the monitor for things like windows and such. Secondly, inverting keeps both the high frequency driver and woofers in an equal distant arc to the mixer's ear, eliminating any need for delays or time compensation.

SPL Research also designs and manufactures a single woofer version



'The Blaster' by SPL Research





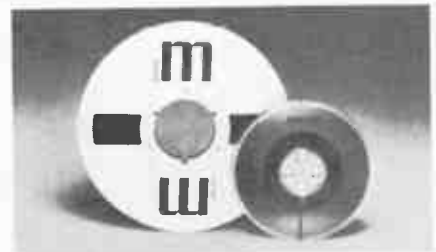
# Exceptional reproduction.

# Without exception.

For mastering and duplicating applications, you need audio tapes that are capable of flawless and dependable reproduction — all the time, under all circumstances. Editing and recording sessions are very demanding on all tapes. Maxell is made to take this kind of punishment, and then some! Our tape is manufactured with the studio engineer in mind, providing all the advantages of our most advanced tape technology.

You can depend on our state-of-the-art magnetic oxide formulas that can handle every signal with plenty of headroom to spare. And because of special calendring techniques, our tape finish is mirror-smooth, virtually eliminating dropouts.

The advantages of Maxell audio cassettes and professional open reel product don't end with our superior tape. Our cassette shells and take-up reels are manufactured to tolerances far exceeding industry standards. They silently and dependably transport the tape without stretching, jamming or breaking. Not only do you get a more faithfully reproduced signal with Maxell tape, you get to keep it longer, thanks to our advanced binder and mixing techniques. There are many other advantages to using Maxell. To discover more about Maxell's superior products, call one of our Regional Sales Offices: Eastern Office, Moonachie, NJ (201) 440-8020 ■ Midwestern Office, Glenelg, IL (312) 469-3615 ■ Western Office, Los Gatos, CA (408) 395-1998



**maxell**  
PROFESSIONAL  
INDUSTRIAL  
PRODUCTS

*The Professional Advantage*

Maxell Corporation of America  
60 Oxford Drive, Moonachie, NJ 07074

# SPECIAL REPORT:

for limited space requirements in smaller control rooms.

We are presently designing an enclosure for movie theatres and film dubbing stages, available in January of 1982.

For more information, contact;  
Brian Cornfield  
Everything Audio  
16055 Ventura Blvd.  
Suite 1001  
Encino, CA 91436

## MDM-4 For Near-Field Monitoring™

A novel method of precision monitoring, Near Field Monitoring™ (NFM™), is now possible thanks to the MDM-4 Mix-Down-Monitor. The MDM-4 has been designed by E.M. Long Associates specifically for NFM applications in radio, recording, disk cutting and record plant quality control. The new monitoring method allows the best points of both distant loudspeaker and headphone monitoring. The ability to determine phasing effects and pan positioning, which are only possible by distant loudspeaker monitoring, are retained but the room effects are all but eliminated. The MDM-4 is a full range (50Hz to 20 kHz) monitor of compact dimensions (19" wide, 13" high, 9¾" deep) which can be mounted close to a control desk, mixer, or cutting system.

Near-Field-Monitoring is monitoring in which the listener is within 1 meter of each loudspeaker; each spaced within 1 meter of the other and having a time offset of less than 100 microseconds from 200 Hz to 5000 Hz.

The MDM-4 should be mounted with about 3 feet between the inside edges of the enclosures and angled inward so that the center of each enclosure is about 3 feet from the central listening position. Room effects are thus eliminated, as they are with headphone monitoring, while the ability to move across the listening field to check phasing, comb filter effects and panning accuracy, is retained.

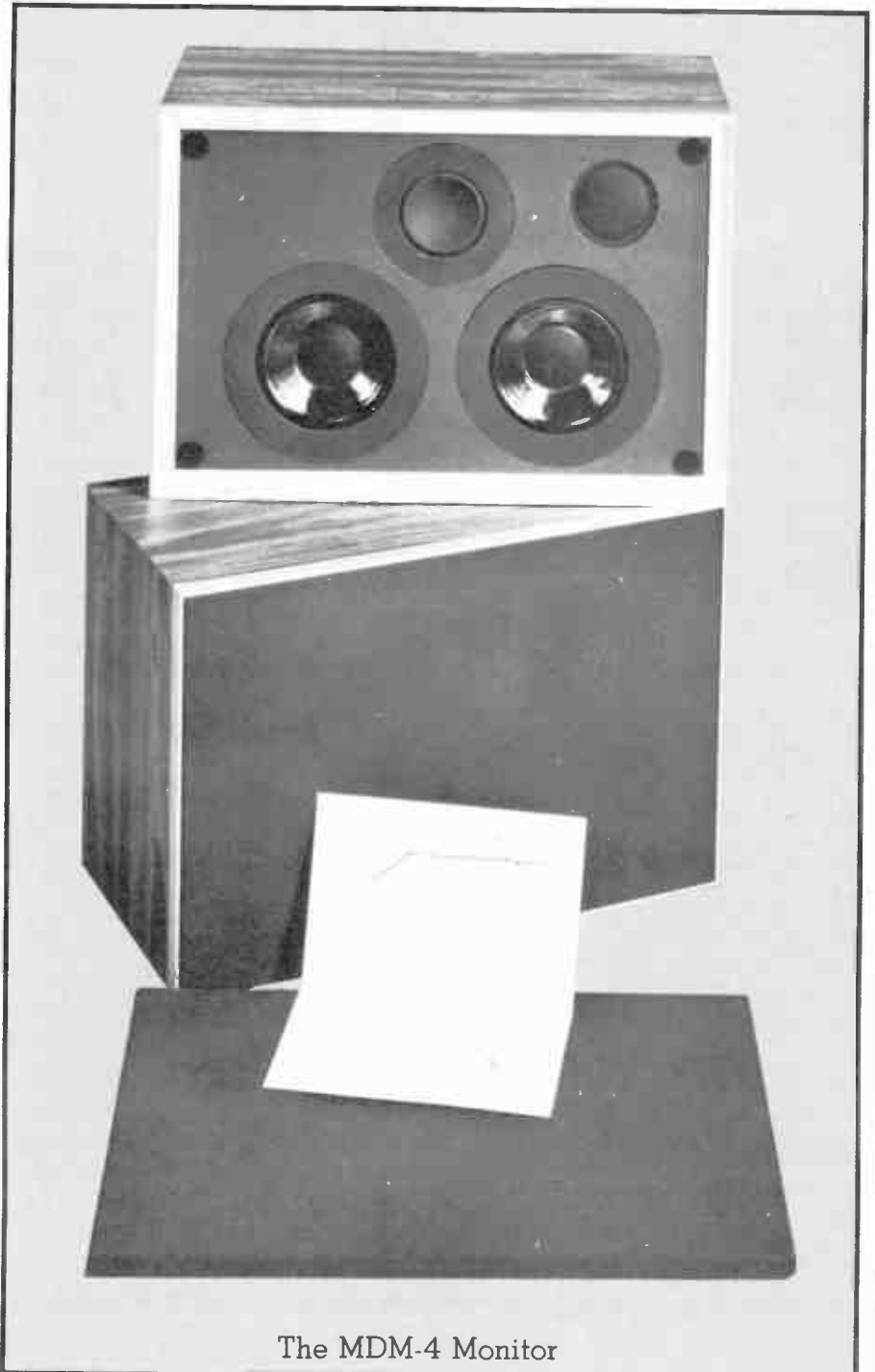
The MDM-4 has been designed specifically for Near Field Monitoring by causing the acoustic output of its three drivers to be blended to produce a plane wave radiation within 50 centimeters from the center of the baffle. The MDM-4 was also designed to radiate flat acoustic output under 4 pi steradian conditions, up and away from nearby surfaces.

The MDM-4 Mix-Down-Monitor is the first precision monitoring

loudspeaker which is individually calibrated and documented for use by professionals.

Each MDM-4 is subjected to over 20 special procedures and tests to insure uniformity. The drivers used in the MDM-4 are carefully built and individually tested, using special quality control equipment developed by E.M. Long Associates. They are not standard, commercial drivers. The

crossover networks are also carefully built and tested. After each system has been completely assembled it is thoroughly tested for polarity, power and handling, system resonance, frequency response and impedance. It is auditioned against an MDM-4 reference standard using pink noise input. Any MDM-4 which does not pass these tests is rejected and reworked until it does pass. Each MDM-4 which



The MDM-4 Monitor



passes these difficult tests is assigned a serial number. A free field, anechoic frequency response curve is then run using Bruel & Kjaer acoustic measuring equipment. This frequency response curve is then packed with the particular MDM-4.

The MDM-4 is ideal for use in producing original recordings and mix-downs. It is not an "exciting" loudspeaker. It is a valuable tool intended for professional recording engineers to allow them to hear more accurately what they are doing and therefore to help them produce better recordings. The MDM-4 is not recommended for use at distances greater than about four to six feet from the listening position, three feet being the ideal distance. They can be used closer than three feet, if necessary, since the design distance was 50 CM or about 19 inches.

For more information, contact:  
Ed Long  
Calibration Standard Instruments  
P.O. Box 2727  
Oakland, CA 94602

### **Audiomarketing, Ltd. Red Series BIG RED**

Since its development, the Red Series has been one of the most widely accepted monitor systems in the country. The heart of the system is the Altec 604E Co-axial Duplex Loud Speaker. The 15" two way driver is fed from the Mastering Lab Frequency Dividing Network. Originally designed by Ken and Sherwood Sax of the Mastering Lab in Los Angeles, the M/L 604/5 crossover optimizes the 604E's performance. These components are housed in a specially tuned Bass Reflex enclosure. The 6 cubic feet Big Red enclosure (available in rosewood finish also) is constructed of Lo Resonance Composite board & covered in a tough formica type finish.

The criteria around which the Big Red was designed called for a Point Source monitor which provided a uniform frequency response, low distortion and high efficiency. Its frequency response was tailored to provide not only a uniform response but one which would give the engineer a good idea of what his product would sound like on the air or in the home.

This "No Surprises" approach to speaker design has carried through to all new developments and improvements in the system. In 1979, the 604-E2 was introduced. This was a high power version of the old standard 604E

loudspeaker. It could handle 140 watts, a four times increase in power and reliability. Now the 604-E2X is the driver in the Big Red. This incorporates all the features of the E2 with the Manta Ray Horn for better transient response and dispersion.

One of the latest developments in the Red Series is the Time/Sync electronic crossover, a unit which electrically corrects the time error inherent in the co-axial speaker design.

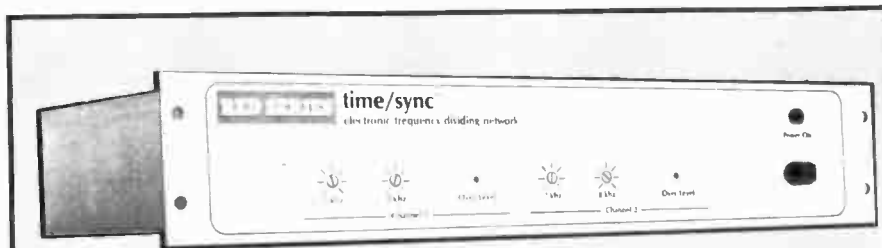
In the Time/Sync the woofer signal is electronically delayed, allowing the tweeter signal to catch up. Both signals then can add together coherently. The Time/Sync Electronic crossover offers the same basic response as the Mastering Lab crossover, but with

reduced crossover distortion and improved imaging and efficiency.

The Time/Sync Big Red has an efficiency of 102 dB spl (1 w/meter). With a power handling capability of 140 watts (continuous wave), the system will produce in excess of 120 dB spl (at 1 meter). Second harmonic distortion is below 1% from 100 hz to 10 khz. At 125 lbs. per cabinet, the Big Red can be easily hung or soffit mounted.

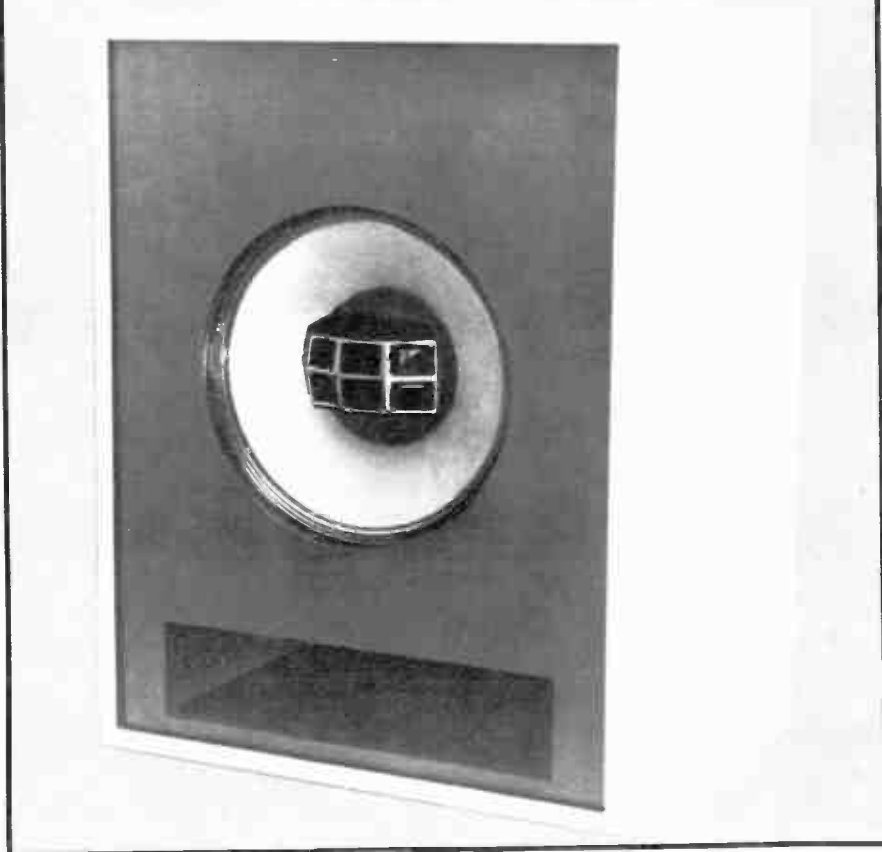
The Time/Sync Big Red Monitor system represents one of the most accurate, well balanced and flexible studio monitor systems available. ■

For more information, contact:  
Audiomarketing Ltd.  
652 Glenbrook Road,  
Stamford, CT 06906



(Above) The Red Series TIME/SYNC

(Below) The Big Red Monitor





(Left to Right) Marty Rosenfeld and Barry Davis of Marin Recorders with Bob Hodas testing drums.

# THE SYNTHESIZED DRUM FACTOR • PART I

by Bob Hodas

Synthesized drums! You've heard them on everything from your favorite disco record and television network themes to rock classics. Many major drummers today have included synthesized drums in their kits. What used to be an elitist instrument, too expensive for all but the most successful drummers, synthesized drums are now made to fit into the budget of even the small club drummer. Some are priced below the cost of a good snare drum. This being the case, more and more units are popping up in recording studios of all sizes, and some studios are

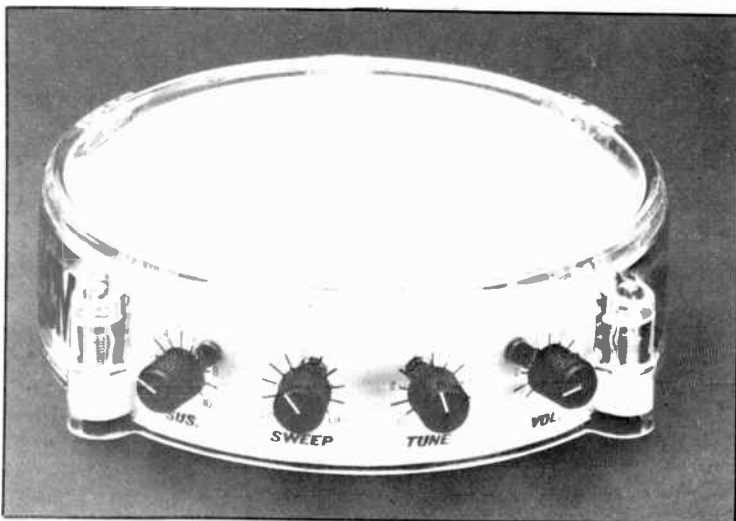
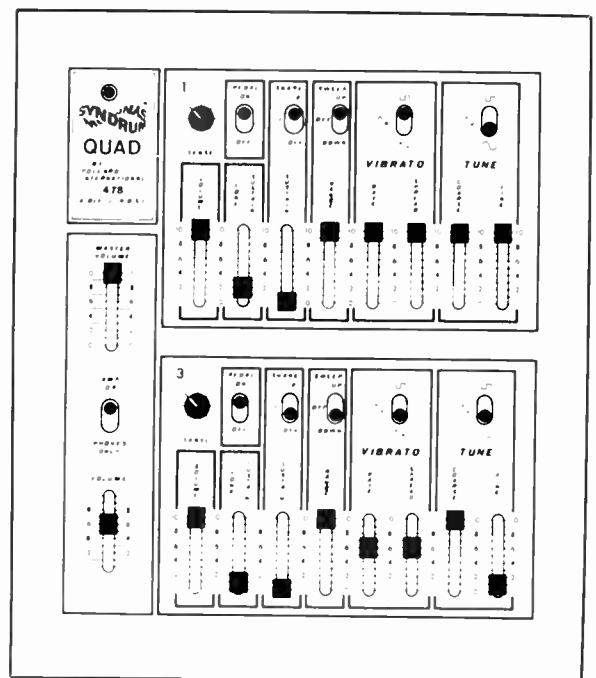


Figure 1: (Left) Syndrum CM (Above) Syndrum Control Panel.



When he was 16, Humberto moved to the U.S. from Chile, where several of his relatives were successful singers. He worked on an assembly line for a while, before wandering into MGM Studios. A year later, when an engineer got sick before a major session, Humberto was the only one around who could get the job done. He's been getting the job done ever since for an incredible variety of people, from Debbie Boone to Alice Cooper, as well as Frank Sinatra, Sammy Davis Jr., Steve Lawrence, Tony Bennett, Shaun Cassidy, The Osmonds, David Bowie, Denise Williams, Gladys Knight, Bill Champlin, Lee Ritenour, Hall and Oates, Leo Sayer, The Average White Band and Bernie Taupin, whose album he produced.

### ON RECORD BUYERS

"When you make hits, you have to think hits—14, 18, young. The people have to be realistic. How many albums is a 27-year-old guy going to buy, as opposed to a 15-year-old? I mean, you go to a record store. Maybe a 16-year-old is going to buy four albums. A 23-year-old is going to buy one or two—he's very picky. He might buy very specific groups that he likes. He might follow critics. When you make records, you have to think kids. Those are the guys who buy the records."

### ON RETAKES

"I hate perfect records. You cut the basic track, the vocals, and then the producer goes all the way back again. He starts replacing the drums. And then he replaces the bass, because the bass doesn't feel quite right. And then he starts doing the keyboards again. So that by the time he's finished, he's done it all over again. If it's not right, I understand. Let's do it all over again. But when you start patching things that already have the specific feel in there—that 'something' that has already been printed—you

can hear all the human things that are all there for the first time—I don't want to be a part of that. I have been part of one of those and it just drove me crazy."

### ON NOISE REDUCTION

"I don't use any noise reduction. I never use it, either when I'm doing tracks or when I'm doing final mixes. They really affect the music. They affect sound in general. To me, the punch is all gone. The drums sound different. The vocals sound different. The keyboards sound different. I can hear those things and it really bothers me, so I don't want to be a part of it."

### ON TAPE

"Since I started with MGM, we always used Scotch. Only once, I've experienced a different brand of tape. And I was very disappointed. And I had a serious problem. It got so bad, like in the middle of the mixes, the tape started giving up—heavy drop-out in places. And then the tape started peeling. Not on the outside. It was giving up on the inside. I mean, I was doing a mix, and halfway through the song, the whole top end disappeared, like someone threw a blanket on top of the speaker. So we mixed about halfway through the album. We mixed in sections. We cleaned the heads all over the place. We did the introduction. Clean the heads again. We don't want to take chances. I wouldn't do a project with any other tape besides the 250. I have done the past 20 albums, the past 30 albums all on Scotch. It gives me what I want, and what I want is a real clean taping, punchy bottom end, very little hiss, almost none. You have to try things in order to know if you're doing the right thing. If you don't try, you'll never know. And I have tried, and the results have been different."

**SCOTCH 250 RECORDING TAPE  
WHEN YOU LISTEN FOR A LIVING.**



# HUMBERTO GATICA ON TAPE.

"Scotch" is a registered trademark of 3M.

Magnetic A/V Products Division

3M Hears You.

# 3M

World Radio History

# NEOTEK

## SERIES III

*MASTER SECTION*  
*INPUT/OUTPUT SECTION*  
*FADERS*  
*67 1/2*  
*PRODUCERS DESK*  
*44 1/2*  
*37*  
*29 1/2*

**The professional recording console which heralded transformerless design and established an industry standard for flexibility and sonic performance.**

**The Future Is Clear**

EXCLUSIVELY ON THE SKI-S-C.

- COMPLETELY TRANSFORMERLESS, UNCOMPROMISED SONIC EXCELLENCE
- FOUR BAND MULTI-MODE STATE VARIABLE PARAMETRIC EQUALIZER
- LOGIC-CONTROLLED SOLID STATE SWITCHING OF CONSOLE FUNCTIONS
- COMPLETE PEAK/VU MULTITRACK METER BRIDGE — STANDARD
- MONO, STEREO AND IN-PLACE SOLO — SUPER FLEXIBLE CUE/EQ TO SYSTEM

SERIES III  
MULTITRACK RECORDING CONSOLES

NEOTEK CORPORATION  
CHICAGO, ILLINOIS  
(312) 929-6699

By: *LF 2* Dwg: B10131C



buying their own to use with their house drum kits.

Part I of this article will deal with the drums themselves (Syndrum, Synare, and Pearl Syncussion) while Part II will take a look at the new rhythm machine digital synthesizers. This is not a technical analysis done with scopes and graphs, but rather a descriptive look at what is available with some subjective evaluation. It is important that today's engineer has some knowledge of the different synthesized drums that may turn up at the studio as they have proven themselves to be not just a fad, but an accepted instrument that is here to stay.

The scene of this evaluation was Marin Recorders of San Rafael, California. Engineer Barry Davis assisted in the control room equipped with UREI 813 monitors powered by the new UREI amplifier, and a Soundcraft Series 3 console with extensive studio modifications. Drums were patched direct into the board at line level and also at mic level using a Countryman FET 85 Direct Box.

Unlike most synthesizer overdubs, it was found preferable to have the drums played outside the control room. (The drum is actually a trigger pad with no tonal quality of its own. It usually resembles a drum in looks and feel to facilitate playing with a stick.) This is because the sound of the stick hitting the drum interfered with listening to the tones and sounds from the speaker (i.e., false attack).

A very strange phenomenon occurred when synthesizing very low tom or bass drum sounds. Because of the omnidirectional quality of low frequencies, and since the noise of the stick hitting the drum is



Figure 2: Synare 4.

easily pinpointed, the sound actually seemed to emanate from the drum itself. If you do your overdubs in the control room, you may find on playback that what you heard on recording is not what went on tape.

#### Syndrum

Probably the best known of these instruments is the Syndrum. Its name has become to synthesized drums what Kleenex is to tissue. Syndrum has two types of models: the series 78 which comes with 1, 2 or 4 drums and control panel, and a CM which is a single drum with control electronics inside. Let's take a look at the control module for a 78 series drum (Fig. 1). You will find that many of the same type of

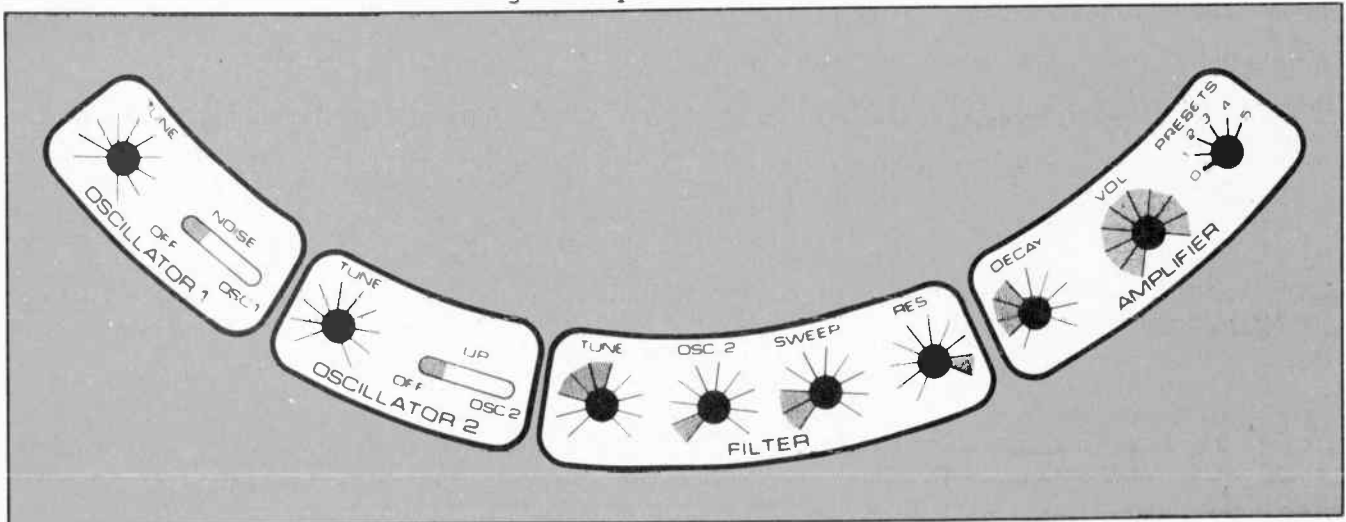
controls are utilized by other manufacturers though the labels may differ.

- Sense: A sensitivity pot to adjust the drum to a player's strength of impact and tune out extraneous vibrations which may trigger the unit. The unit furnished was limited in that the drum only operated with sense fully open. I have played units where this pot was more functional and was used to tune out drum hardware vibrations.

- Volume: A fader adjusting the output of an individual drum.

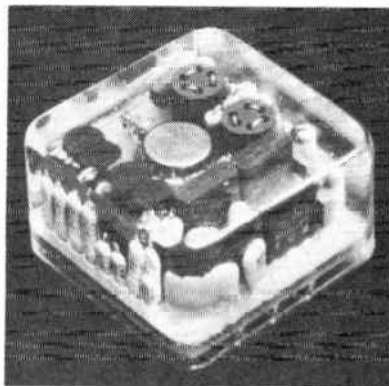
- Tune: A frequency oscillator with three controls. A 3-position switch to select either sine, triangle, or square wave forms; coarse fader

Figure 3: Synare S3X Controls.



# 990

## The Best Op-Amp



### New Packaging!\*

Electronic design by Deane Jensen,  
Jensen Transformers  
Packaging and production design by  
John Hardy, Hardy Co.

**LOW NOISE:** -133.7dBv Re: 0.775v  
(Shorted input, bandwidth = 20kHz)

**LOW DISTORTION:** .005% THD  
(20kHz, +24dBv, gain = 20dB,  
R<sub>L</sub> = 600 ohms)

**HIGH SLEW RATE:**  
18v/μs, R<sub>L</sub> = 150 ohms  
16v/μs, R<sub>L</sub> = 75 ohms

**HIGH OUTPUT:**  
+24dBv, R<sub>L</sub> = 75 ohms

**Complete specifications  
and documentation  
available**

#### APPLICATIONS INCLUDE

Input stages (mic, tape, phono, etc.)  
Line outputs (line drivers)  
Summing amps  
Active filters

**\*STILL DIRECTLY REPLACES  
API 2520 MODULES**

**Active burn-in:**  
48 hours at 100°C (212°F)

**MIL-SPEC RESISTORS:** RN55D  
(1% metal film, ±100 ppm)

**ULTRA-STABLE  
CAPACITORS:** ±30 ppm

41 components on a 1" square  
pc board

**DIMENSIONS:** 1.125" sq. x .625" h  
Manufactured by and sold exclusively thru

**THE HARDY CO.**  
P.O. Box AA631  
Evanston, Illinois 60204  
(312) 864-8060

for tuning over a 7-octave range; fine fader for fine adjustment over a one octave range. The total spread of tune ranges from about 35 Hz to 5.5 kHz.

- Snare: Switch position 1 is a short white noise burst to simulate stick attack. Although it may be functional in a live situation, it was totally undesirable in the studio, adding only a click to the tone. Switch position 2 is white noise sound with decay adjustable by the Snare Sustain fader. This fader adjusts from a very short burst to very long noise. The Snare section functions independently from all controls excluding volume. When mixed with the Tune and Vibrato controls, Snare is very effective as a synthesized snare drum used to brighten or fatten an existing snare drum track. Many albums have used this effect both subtly and blatantly.

- Sweep: This section is used for a time controlled frequency shift. A switch selects direction of sweep (up or down), while the Range fader adjusts the width of frequency change. Maximum sweep is about two octaves in either direction. This fader causes a sweep back to (as opposed to from) the tone originally set up in the Tune section. This can be rather annoying once the desired Tune is set. If a sweeping effect is to be added, the fundamental is changed by Sweep adjustment. Re-adjustment of the original note is then necessary. Speed of the sweep is controlled by Tone Sustain.

- Vibrato: This is your basic Low Frequency Oscillator (L.F.O.) with a switch to select sawtooth, triangle and square waveforms. The Rate fader sets the speed of oscillation and is tied to the Spread fader which controls the amount of pitch change from peak to trough of the selected wave form. Vibrato Speed ranges from .5 Hz to .300 Hz with the Spread ranging over two octaves.

A foot pedal is available and controlled by the Pedal 'on-off' switch. The pedal can act as a fine tone fader or a sustain mute. It was not tested during this session.

The mixer section contains a Master Volume fader, headphone Volume fader, and a two-way switch that can direct the output only to the headphone jack. This switch is very handy as it allows the player to tune his drum in the cans without subjecting everyone to the sometimes long and painful ordeal of finding "the right sound." One can imagine it especially handy during a live session.

The output section of the control

board has several mix possibilities available. High level outputs with 1/4" phone jacks can give you a mix of all four drums, two drums, or each drum individually for separate channels. A master mix mic level on an XLR connection is also provided. High level output impedance is stated as 1 k ohm at a level of -7 db ±3 db. Low impedance out is 200 ohm at a level of -26±5 db. The Syn drum had acceptable noise level with all the volumes up.

A wide variety of sounds are at your fingertips with the Syndrum—snare, toms, bells, various percussive effects, and enough space sounds to fill a few movie sound tracks. Don't expect to recreate a realistic drum sound as everything sounds definitely synthesized; but this can be a very useful effect for drawing attention to fills. Our experience with Syndrum was positive. The drums and panel are built to take a drummer's abuse, but the little fader knobs tend to fall off or break too easily.

A quick note on the Syndrum CM which is a budget priced drum with contained electronics. The four pots control Sustain, Up-Down Sweep, Coarse Tuning, and Volume with the same parameters and effects as described earlier. It is a nice little sine wave generator with some very good sweeping tom sounds and simple effects.

#### Synare

A wide variety of drums is available from Synare, who has taken the approach of mounting all their control electronics in the drum itself. They incorporate a good selection of control parameters in each drum and have designed some units for very specific drum sounds.

First on the agenda was the Synare Bass. Controls consist of a Tune pot, three output pots labeled Decay (Syndrum's sustain), Sensitivity, and Volume, and a Sound pot. The other pots being straight forward, let's look at Sound. The six positions of this rotary switch are Short—tight bass punch; Medium—twice as long as Short with the same punch; Long—twice as long as Medium. Double and Triple give two and three beats respectively for each hit and Repeat gives a galloping effect. All positions are dependent on Decay.

To get a workable bass, the drum was run through an ADR compressor at 3:1 and fast release. EQ was set at -2 db 50 hz, -2 db 120 hz, and +6 db 3 k. Tune was set at 12 o'clock, Sound Long, and Decay at 10:30 o'clock. The low end was fat, and the sound was in the ball park



but lacked the upped mid-attack that would make it acceptable. Unless the Volume was turned down, switching sound positions triggered the drum for what could be undesirable noise during a tune.

The Synare Tympani is really an impressive little item. It has Tune and Output controls like the Bass and two Sweep pots for sweep up and down. A pedal can control the pitch of several drums cascaded together for tuning an entire set of Tympani in relative tune. The sound was very realistic and a combination of the up and down Sweeps was desirable. This could be the perfect set of Tympani for the small studio or ideal for a road show with limited space and budget. The one problem with the unit was some distortion upon striking the drum. We tried different loads on the output but always got the distortion. I assume this is not a factor in all the Tympani but a problem with this particular drum.

Both Synare Hi and Lo Toms have the same controls, the usual Tune and Output plus a three control Run section. Run is comparable to Syndrum's Sweep, bending the note up or down. The controls are Range, Speed, and Direction—all straight forward. The Run starts from the tuned pitch so there are no tuning adjustments necessary.

The Lo Tom had a Tune range from 63 Hz-160 Hz, and the Hi Tom from 125 Hz-630 Hz. Both of these drums had real problems. The Lo Tom had extremely low output plus a high frequency hum. There was no real presence of attack which could have been a function of the poor output. The Hi Tom output was just fine, but the Decay pot only fluctuated at the highest settings. There was also a lot of distortion at the highest tunings.

As an effects synthesizer, the Synare 4 (Fig. 2) scores high marks. Controls include Tune (a sine wave oscillator), Modulation (L.F.O.) with Depth and Rate controls (like Syndrum's Vibrato Spread and Rate), Sweep (same as toms), and Output with Sensitivity and Volume pots. Very nice toms, sirens, and space movie effects are attainable with this drum. It is very easy to master the controls of this clean, quality synthesizer.

Synare 3 is a battery operated, dynamically controlled, dual oscillator synthesizer. The harder you hit it, the louder it gets. A special circuit turns the drum on only when hit so the batteries last a long time. The controls are as follows:

- Osc. 1: Sine wave Tune pot

and three-way 'On', 'Off', and Noise switch.

- Osc. 2: Tune pot and three way 'off', 'Slo' (L.F.O.), and 'On' (or higher speed L.F.O.) switch.

- Filter: Tune pot for filter pitch; Osc. 2 pot for L.F.O. mix in; Sweep downward, Res. controls the sound quality of the oscillator or turns the filter into a source; Decay pot that controls the length of Sweep.

- Amplifier: Master Volume and Decay pots.

Synthesizer percussive sounds include toms bass drums, bells, plenty of outer space sounds, and even the effect of a champagne cork popping were found. The versatility of being able to mix two oscillators together is a great effect with harmonies available. This is a pretty nice little unit.

Synare's S3X (Fig. 3) is very much like the S3 with a couple of added features. This drum has five adjustable presets. Presets coming from the factory include Down-sweep, Down-sweep with modulation, chimes, white noise, and dual oscillation. In a preset position, all Oscillator and Filter functions except Tune are inoperative. Osc 2 was an Upsweep position on its switch in place of S3's Slo, and there is no Decay pot in the Filter. Everything is available on this drum from synthesized toms to Godzilla yawning. It was found that if this drum was not hit dead center, the oscillators would not trigger. Otherwise, it was pretty good.

Both the S3 and S3X can be plugged into a Sequencer which will memorize four different rhythm patterns and play them back with an adjustable tempo feature. It's a handy item for setting up complex rhythm patterns to accompany yourself. A 6-input mixer is also made with hi impedance out and a headphone jack for convenience.

Though not a drum, Synare's Sensor is a trigger unit that attaches to the rim of a drum sensing the vibrations when the drum is struck. It is battery operated and can be controlled by a foot switch. Care should be taken in mounting as triggering may occur in high vibration areas such as bass drum mounted toms. Controls include Tune (six octave range sine wave), Mod. (L.F.O.), Freq. (speed of modulation), Sweep (downsweep to original tune), Decay (controls speed of Sweep and decay of Tune), and Volume As a reinforcement to a miked tom, this unit can give you two sounds at once when mixed in and really fatten up a drum.

Synare makes a variety of tools

# Finally it's here the PROFESSIONAL AUDIO BUYERS GUIDE™



Have at your fingertips information on professional audio products by AKG, Altec, Anvil, Atlas, Beyer, Biamp, Bose, Conquest Sound, Crown, DBX, DMI, Electro-Voice, JBL, Klipsch, NEI, Neumann, Otari, Revox, Sescos, Shure, Sony, Tapco, Tascam, TEAC, Yamaha, and many more.

**BE INFORMED!** The PROFESSIONAL AUDIO BUYERS GUIDE™ includes thousands of products from over 70 major manufacturers of speakers, mixers, amplifiers, microphones, recorders, equalizers, analyzers, and more.

**Order your copy today for only \$15.95. Call with your VISA or MasterCard number or send your check to:**



P.O. Box 4139, Thousand Oaks, CA 91359  
213/991-3400

**Ask about our special dealer, bookstore, and educational quantity prices.**

Name \_\_\_\_\_  
 Organization \_\_\_\_\_  
 Address \_\_\_\_\_  
 City, State, Zip \_\_\_\_\_  
 Send \_\_\_\_\_ Professional Audio Buyers Guides™ at \$15.95 each.  
 Enclosed is my check for \$ \_\_\_\_\_  
 Charge to my VISA/MasterCard (circle one) account number \_\_\_\_\_  
 Expiration date \_\_\_\_\_

**Mail to SIE Publishing, P.O. Box 4139, Thousand Oaks, CA 91359**

**PG 1 1 2 3 4 5 6 7 8 9**

for the drum synthesist, and with the exception of some quality control problems, has a contribution to make to this market.

#### Pearl Syncussion

Pearl Syncussion is the last contender in the synthesized drum market. Since you are familiar with the various kinds of controls, we do not have to spend a lot of space on explanation. Do not let lack of space fool you though, as this unit is quite happening (Fig. 1).

It is a two drum dynamically controlled unit with a separate control panel. There are six factory set presets with dual oscillators. The presets are as follows:

(A) - Single sine wave oscillator

(B) - One oscillator adjusting the other oscillator frequency, a rather metallic sound;

(C) - Two oscillators mixed at the output, a chime effect;

(D) - Two mixed oscillators with a low to high sweep;

(E) - One oscillator adjusting the other's frequency mixed with white noise; and

(F) - White noise.

Other controls are straight forward and laid out with good size faders. Tune adjusts frequency, covering from 25 Hz - 8 kHz. Decay

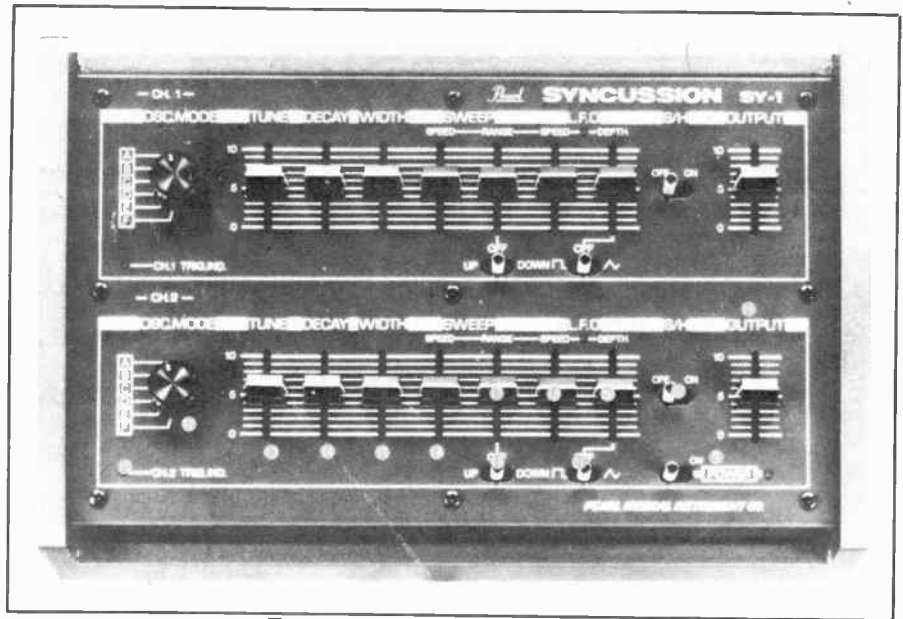


Figure 4: Pearl Control Panel.

adjusts sustain and Width adjusts the filter bandwidth. An 'up and down' sweep switch is present, Sweep adjusts the speed of transition, and Range determines the final note of the sweep. I like this approach as it allows you to tune, and

then add sweep if it is desired without retuning. Sweep speed will vary with Decay. An L.F.O. section has Speed and Depth faders that operate as with the other drums discussed. An extra feature of Pearls is the l.e.d. that flashes indicating L.F.O. speed. The L.F.O. oscillator can also be switched to either a square or triangle wave. A sample and hold switch adds a signal to the output controlled by L.F.O. Speed. It is a pleasing effect; changing notes sweeping over about a three-octave range while you hit the drum.

The rear panel has two drum inputs with sensitivity controls, Tone pedal and mute footswitch jacks, and a 20 k ohm output jack. I wish there was a headphone jack for this unit also. A truly great feature of Pearl's is that you can plug a microphone into the drum input and use your acoustic drum as a trigger, thus being able to mix the sounds together if desired.

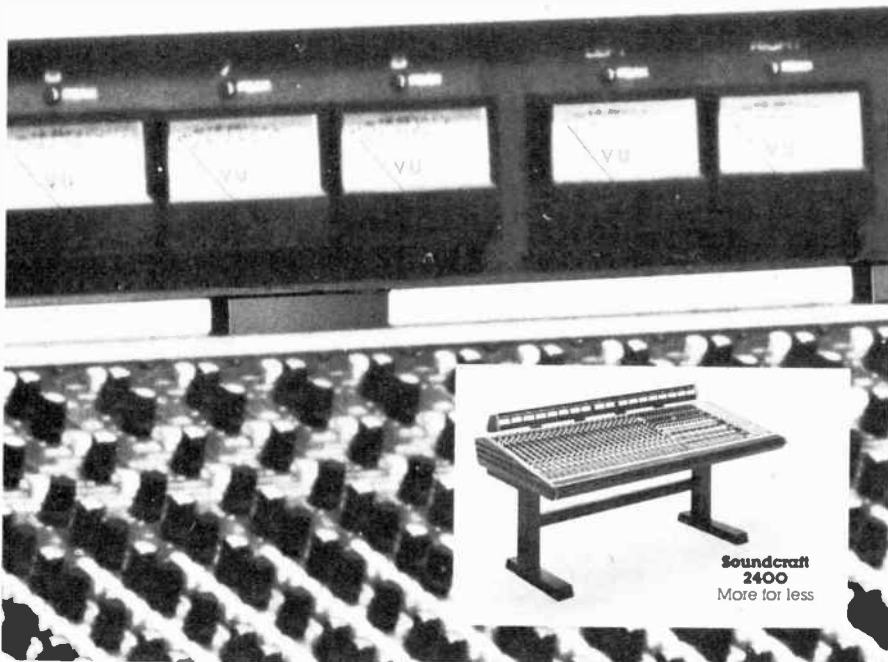
The Pearl Syncussion was extremely quiet and capable of a wide variety of space sounds, drums, and percussion effects. Especially entertaining were the flying helicopters. Quality was high and ergonomics good. Pearl has scored a serious plus with Syncussion.

That's it for the first part of this article. Check with your local drum store for some hands-on experience with these units as reading about a synthesized sound is not the same as hearing it. In Part II, we will look at the Linn, Oberheim, and Roland rhythm machines, and digital synthesizers. Many thanks to the manufacturers for providing their products for this evaluation. ■

## Look to Lake

**For Professional Recording Consoles.** No one can shape sound and put it together quite like the British...Masters of the recording console. From microphones to multi-track, studio owners and recording engineers Look to Lake... For information or a demonstration contact:

**The Pro Audio Group, Lake Systems Corporation, 55 Chapel St., Newton, MA 02160 (617) 244-6881**







# HEAR HERE!



Tres  
Virgos  
Studios

**CHIPS DAVIS**  
LEDE<sup>™</sup> Designs

(415) 456-7666

1925 Francisco Blvd., near the Richmond Bridge,  
San Rafael, California 94901

*Photo: Bob Morris*

<sup>™</sup>  
LEDE Syn-Aud-Con

# VIDEO NEWS

by Mia Amato

## Cassettes/Disks:

### Some Do, Some Don't

Kudos to Mike Nesmith, and his this-time-it's-for-real video comeback with "Elephant Parts." The videocassette, which was released in mid-summer, is moving well on the dealer level, thanks to enthusiastic support from major chains such as Video Station and Video Shack. Nesmith's company, Pacific Arts, is distributing the videocassette under its own label and through independent sales reps around the country. The Carmel-based company is also experimenting with mail-order.

The program itself is an hour's worth of music and comedy, ranging from the inspired to the sophomoric. List price is \$59.95. Yes, it's monaural.

The only major videocassette label working seriously on music production is CBS Video, which brought a number of co-productions to fruition this season. The CBS strategy has been to pre-sell cable television rights before starting production, and then aim for a simultaneous release on cable and cassette. Recent coups include the musical "Purlie!" (for Showtime), "Piaf," (for RCTV) and an REO Speedwagon concert (for Warner Amex's MTV). According to a CBS Video source, production costs for each "ran between a quarter to a half million dollars—not counting purchase of cable and home video rights."

## Companies:

### VT Bows With Ad Work

New York's newest audio sweetening facility is Video Tracks, run by Craig Pitcairn, formerly with 39th Street Music. The new firm shares space with the West Side jingle house, which is providing 24-track mixing to Pitcairn's Sony 286A ¾-inch video recorders.

"We're all Studer: 24-track, 4-track, or 2-track," says Pitcarin. Interlock is BTX: "I'm using an older model, the 4600. We've had no problems with it since we added

external sync." Pitcairn also has a time-code generator to lay down SMPTE track.

First projects included a soundtrack to the movie trailer for "Rockers," and rough mixing for animatics, which are test commercials done on video.

"We'll do jingles or tv shows," Pitcairn says, "I don't want to get locked into one genre because they all use the same components."

EUE/Screen Gems launched a new subsidiary strictly for the production of rock music promos. EUE Video Music will work out of Burbank, headed by producer Larry DeLeon and director Alan Metter. Besides these two well-credited talents, EUE is also touting the advantages of accessibility to Columbia Pictures' back lot. Says Metter, "We've got this tremendous back lot available to us, sets, props.

"We're talking to one act, for example, that has a low budget," he adds. "Well, Sears is doing a tv commercial here and has constructed some \$40,000 worth of platform staging for it. When they're through with it, the act can use the set—for nothing. That's the kind of subtle advantage there will be to working here."

## Broadcast:

### Sound Business

What do McDonald's, United Airlines, and the National Bank of Chicago have in common? Digitally-recorded soundtracks on their tv commercials. Who's doing it? Universal Recording, in Chicago, on 3M equipment.

## Production:

### CBGB's Pitches Cable

A tv series based in a nightclub is nothing new. Leave it to Hilly Kristal, owner of CBGB's, to come up with a hook. Kristal calls his show a "musical situation comedy," and has produced a one-hour pilot in, around, and about his club, considered the birthplace of New York's New Wave.

Kristal has been shopping the tape to various pay-cable services, and says several are interested. "Some want six shows, some want 13. To make money on it I'd have to sell to more than one service, and I have to decide which way to go," he explains. "No service is asking for an exclusive, but some, you know, want to have it first."

The tape features performances by local bands: the Hard, Idiot Savant, Jo Marshall, the Sic F-cks, the Roustabouts. Says Kristal, "It's pop, but not quite punk." In between the sets are comedy bits illustrating the perils and pitfalls of running a club. Some professional actors are used; Kristal and a few employees play themselves.

The bands, virtually unknown beyond lower Manhattan, played "for the exposure." Even so, Kristal puts production costs at between \$15,000 and \$20,000. He rented equipment from Camera Mart and edited at various places in the city. At least three other city clubs—Hurrah, Lone Star Cafe and Club 57—are looking into television show production. CBGB's, while still "in development," is at this point ahead of the pack.

## Showdates:

### What's New at Sony?

"Now that broadcasters are more interested in using the so-called 'industrial equipment,' you can expect to see big improvements in the smaller formats," our contact at Sony predicts. If the prospect of higher quality, low-priced equipment sets you foaming, our contact also said Sony will be holding sneak previews of its latest pro video equipment for its dealers this month. Regional demonstrations are set for New York, Chicago, Los Angeles, Washington, Atlanta, Detroit, Dallas and Palo Alto.

You can get a first hand, hands on look at the new gear—but by invitation only. The best way to get on the guest list is to call your local Sony pro video dealer. Tell them you read about it in the Mix! ■



*“On Line, On Budget...  
On Time!”*



“When we decided to build **The LA Studios**, it wasn't on speculation. We considered what musicians, producers and engineers needed most in a recording studio. We also took a serious look at the business side of the industry. What we decided was that as a long term investment we should go first class — MCI recorders and consoles. We chose **Pro Audio Systems** for much the same reason. We felt they could deliver — and they did.

From ground zero, **Pro Audio Systems** helped us sell our banker with necessary pro forma facts, figures, equipment specifications and total costs. They worked with our construction foreman on a daily basis. At one point two of their technicians were working around the clock to finish installation of control room A. Thanks to **Pro Audio Systems**, **The LA Studios** was brought on line, on budget and on time.”

Jim Bredouw & Sunny BlueSkyles - Owners, **The LA Studios**

# **PRO AUDIO SYSTEMS**

Exclusive MCI Representatives in the Pacific Northwest

11057 8th Avenue N.E. • Seattle, Washington 98125 • (206) 367-6800



# Common Practices

by Ed Engberg

Edwin Engberg is a product manager in the audio products group, Audio-Video Systems Division, Ampex Corporation. He joined the Ampex research department in 1965 and has been involved in development work in optical processors, and electron beam and laser recording technologies. Engberg also was project manager for the ESS electronic still store system. He was named manager of the audio engineering department in 1977 and directed development of the ATR Series of multitrack audio recorders.

During the early days of making motion pictures on location, it was necessary to rerecord much of the audio as very often the microphones and the techniques used left much to be desired. As a result, actors were required to repeat their lines, while watching a projected image of the original filming. This rerecording also allowed unwanted sounds to be eliminated and permitted music or sound effects to be added to the film.

More recently, as videotape has become more widely used, similar situations have created the need for audio engineers to understand the techniques and language of putting sound with pictures. Following is a brief outline of common procedures.

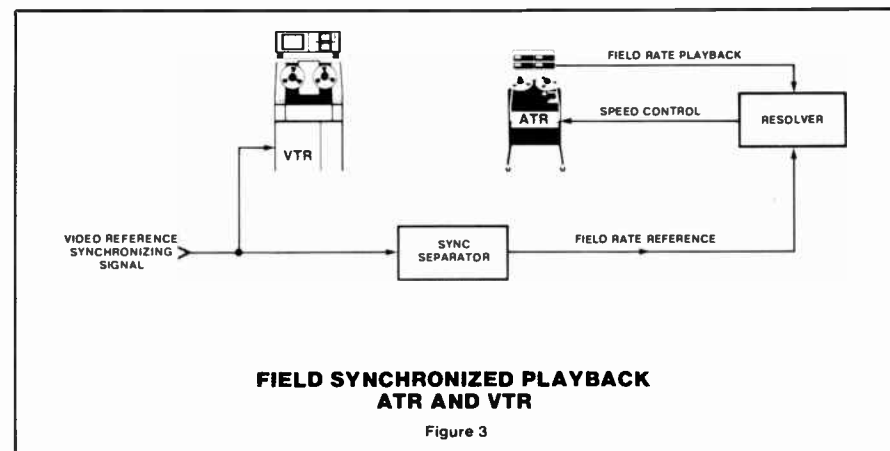
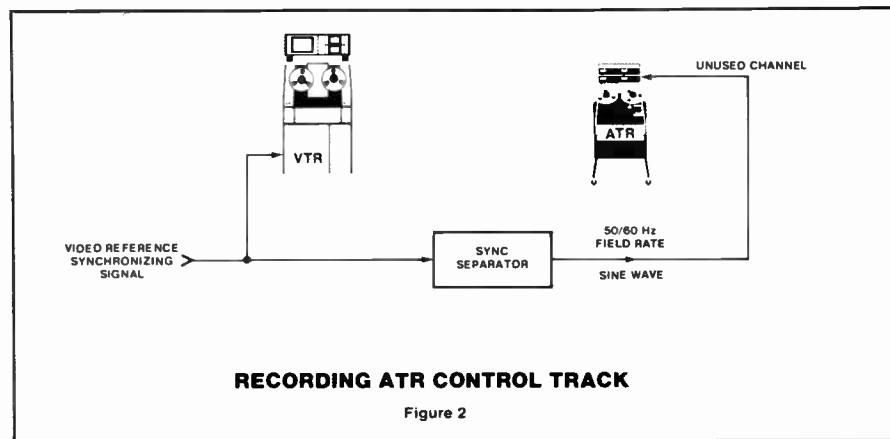
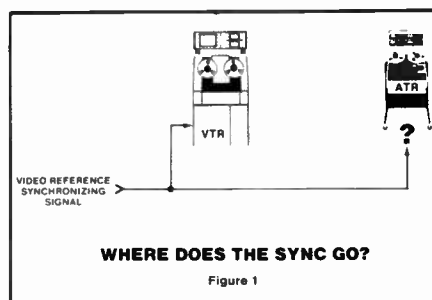
## Motion Picture Editing

The mechanism used to record the revised audio was synchronized with the film projector. This synchronization was accomplished by use of the sprocket holes in the film. These holes were used to transport the film in the camera and projector and had an absolute spatial relationship to the picture frames on the film.

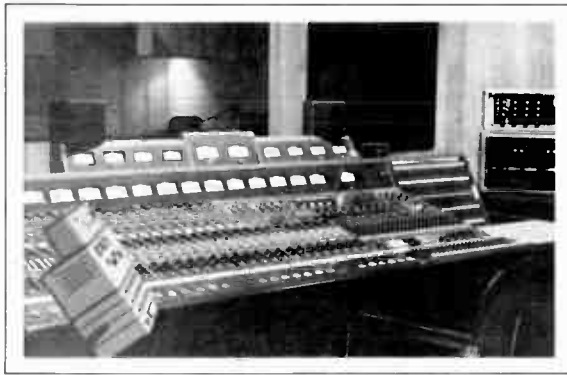
Since the sprocket holes do not

identify any particular frame to begin this editing operation, the desired frame on the film sequence was marked with an "X" and advanced to the starting point on the projector (master machine). The film stock in the audio recording mechanism (slave) was then cued to the same frame. The sprocket drive mechanisms between the master and slave machines were then interlocked and would remain in synchronization during the production operations. The special projectors and editing machines would remain in frame synchronization even when the

master machine was driven faster or slower than normal speeds or in reverse.







# Everything you expect, rates you don't.



## Music Annex Recording Studios

Meeting expectations, as well as budgets.

Twenty-four track recording in Menlo Park.

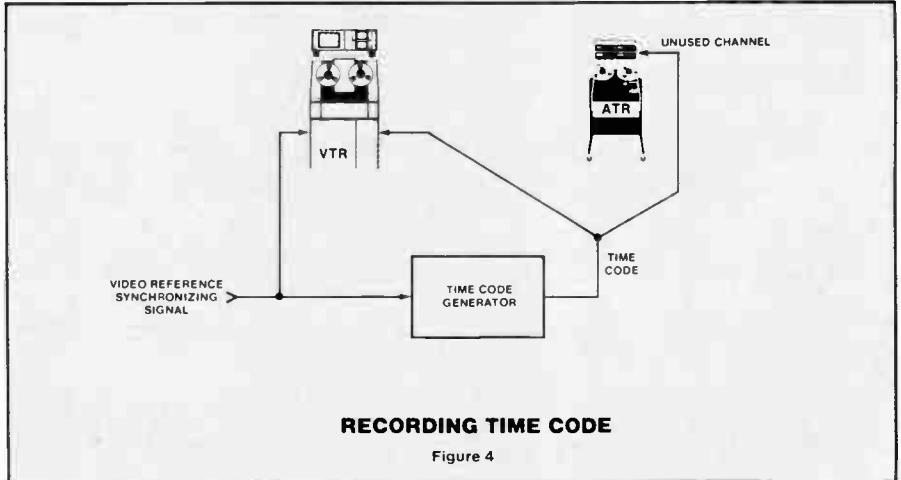
970 O'Brien Drive Menlo Park, California 94025 (415) 328-8338

Early film sound systems used optical recordings where the sound was recorded with a machine similar to the picture camera. The sound was recorded as density variations along the length of the film. The sound track had to be developed like ordinary film. When magnetic recording came along, the film base stock was coated with iron oxide and magnetic heads replaced the audio optics. The introduction of magnetic recording techniques gave the film editor the advantage of sprocket hole synchronization between machines with the convenience and immediacy of magnetic sound recording. With the advent of audio tape and video tape recording, the editor was not only provided with instant playback, as noted above, but he was provided with machines that could wind, rewind and cue the tapes much more rapidly than previously was possible.

### Video Tape Editing

In a video tape editing system, the master and slave videotape recorders (VTRs) must run in synchronization, just as in the motion picture system. Since magnetic recording tape is used in these systems, synchronization is accomplished electronically.

When a video tape recording is

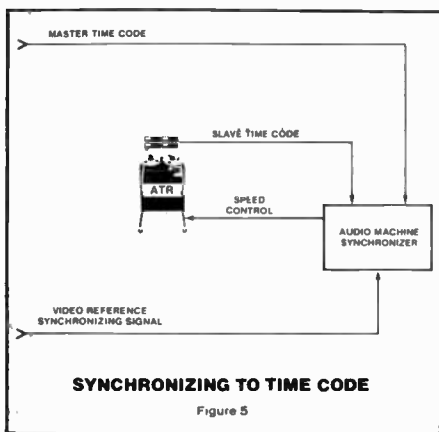


made, a control signal is recorded on a track along one edge of the tape. This control track is recorded at the video frame rate. When two or more VTRs are to be used together, the tapes are cued and a video reference (synchronization) signal is fed to each machine. During playback, each machine compares its control track signal to the video reference signal and speeds up or slows down until each machine is in synchronization with the reference signal. When both machines are synchronized with the reference signal, they are synchronized together.

The video reference signal used may

be the common color bar pattern. In addition to the video picture information, the color bar signal also contains the burst signal to control the picture color phase, horizontal pulses to synchronize the horizontal lines in the picture and the vertical sync pulses that keep the picture from rolling up or down. These vertical sync pulses are also used to derive the control track signal in the VTR.

In effect, the control track pulses on the video tape and the video reference signal combine to produce electronic sprocket holes that lock the VTRs together. When two videotape recorders are started simultaneously,



required and it must perform two jobs.

First, as shown in *Figure 2*, a sync separator is used to derive a 60 Hz, field rate sine wave from the vert sync pulses in the video reference signal. This can be recorded on an unused track on the audio tape and used as a control track signal during playback.

Second, as shown in *Figure 3*, a resolver is used to compare the playback field rate signal from the ATR to the field rate from the video

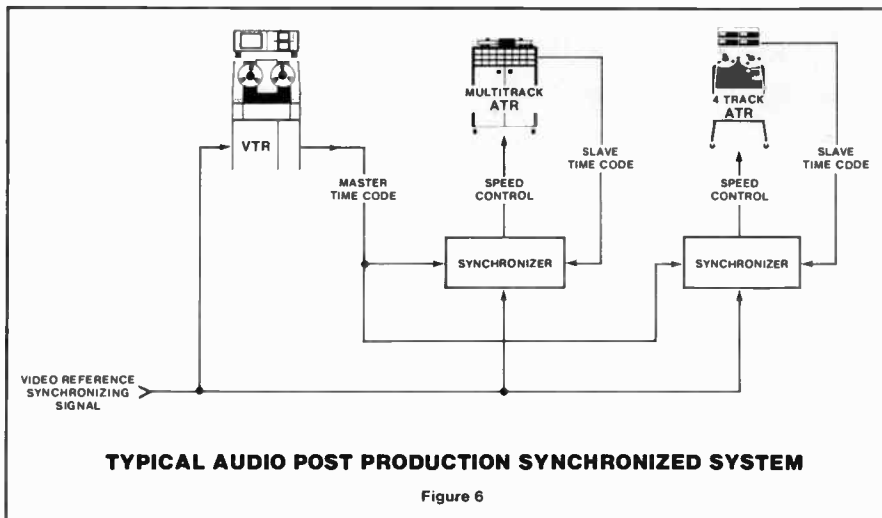
reference signal. The result of this comparison is the speed control signal sent to the ATR to keep it locked to the reference signal. An example of a sync separator resolver accessory is the Ampex Sync Lock™

When the sync lock accessory is used, the VTR and ATR will stay locked together as long as the VTR and the resolver each receive the same reference signal. When the tapes are cued and the machines are started simultaneously, the machines will play together with the proper frame to frame relationship. What happens

they will continue to run in synchronization as long as each machine receives the common reference signal. If the reference signal is taken away the machines will unlock, begin to drift and make editing nearly impossible.

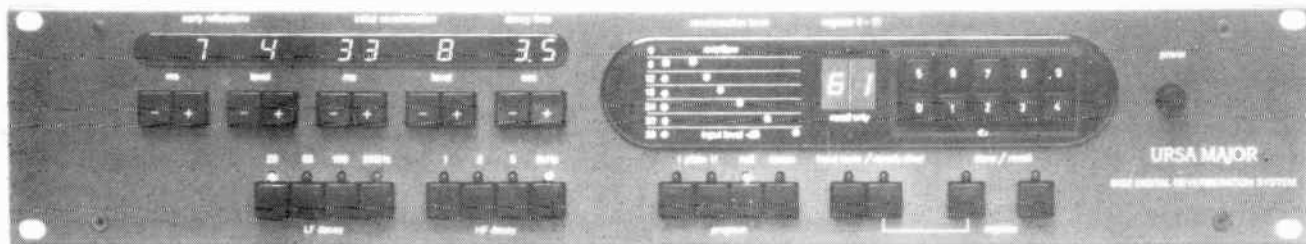
### Audio-Video Tape Editing

If you wish to put a VTR together with one or more audio tape recorders (ATRs) and synchronize their operation for editing, an immediate problem exists. Where do you connect the video reference signal to the ATR? See *Figure 1*. An additional piece of equipment is



# THE ELEGANT SOLUTION

## The New 8X32 Digital Reverberator from URSA MAJOR



- Clean, high-quality reverberation
- Four programs: Plate I, Plate II, Hall, and Space, with decay times from 0.0 to 20 seconds
- "Friendly," microprocessor-based control and display of all seven programmable reverberation parameters
- LED display of the dynamic properties of input and processed signal levels
- Non-volatile storage registers for 64 separate reverb set-ups
- Input Mute and Reverb Clear functions for extra control of long decay times
- Compact (3½"×19")
- Optional remote control
- Moderately priced (\$5995 U.S.)

URSA MAJOR, Inc., Box 18, Belmont, Mass. 02178 USA • Telephone 617-489-0303 Telex 921405 URSA MAJOR BELM



when both machines are started and one machine takes longer to become synchronized? If the slower machine is the ATR, it will be out of step. It will be locked to the VTR, but the audio will be behind the video picture. The solution to this problem required an advance in technology: the SMPTE/EBU Time Code.

### SMPTE/EBU Time Code

The time code is an analog signal modulated with digital information. The digital information defines the video frame boundaries and numbers each frame in terms of hours, minutes, seconds and frames. When used in videotape recording, the time code is normally used only to number the frames. The control track signal is still used to define the frame boundaries.

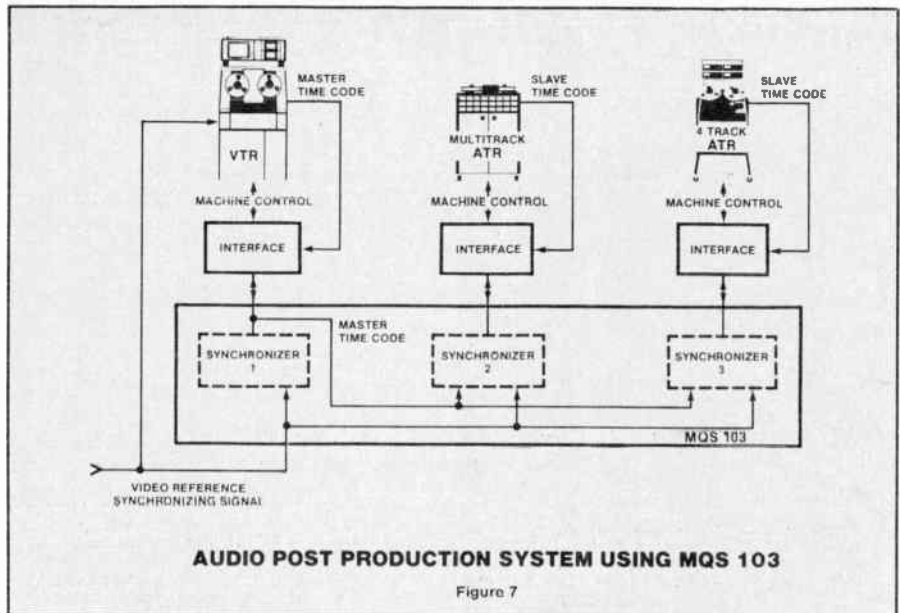
Figure 4 shows how the time code generator substitutes for the sync separator in supplying a type of control track signal to the unused channel of the ATR. The generator also supplies time code to the VTR and both VTR and the time code generator are kept in step by the video reference signal. During record, both the VTR and the ATR are recording equivalent frame location and frame number information.

During playback a synchronizer is used rather than the resolver to compare the ATR (slave) time code to the master time code and the video reference signal. This comparison produces a speed control signal that not only causes the VTR and ATR machines to lock together in synchronization, but also lock onto the same frame. See Figure 5 and Figure 6.

In Figure 6, if the three machines are operational but the 4-track ATR is a little slow, the speed control signal that it receives will speed it up until all three machines are locked in on the same video frame. If the VTR is caused to run slower or faster than normal speed or is placed into reverse motion, the audio machines will follow. When play is again initiated, all of the machines will lock onto the same frame. This is commonly called the chase mode.

Each audio machine must have its own synchronizer. However, this does not create a problem because units are available that have two or three synchronizers in one package, such as the EECO MQS-102 and MQS-103. The MQS-102 has two synchronizers, one for the master and one for the slave machine. If the master machine is a VTR, the master synchronizer is used for frame number identification and cueing, since a VTR does not require a synchronizer.

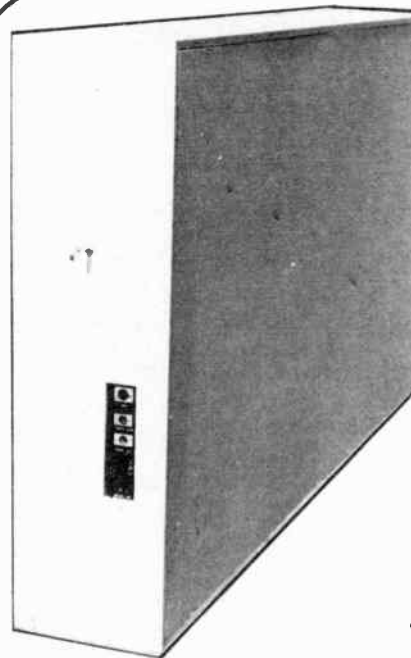
Figure 7 shows an audio post-



production system using the MQS-103. Note that the video reference signal is fed to the VTR and to the MQS-103. The master time code originates from the time code playback from the VTR in this example, and is fed to the synchronizer. An interface is shown to be used for each machine in Figure 7. The VTRs and ATRs currently on the market may differ in capstan reference frequency and in transport

controls. The interface converts the synchronizer output into control language that the VTRs and ATRs will understand.

From the early days of motion picture editing to the more complex systems of audio-video tape editing, there has been a steady increase in quality, capability and product sophistication. Future audio-video tape systems will provide even more for the audio post-production operation. ■



**NOW...  
THERE'S  
NO EXCUSE!**

**GET  
REAL  
PERFORMANCE  
from only**

**\$1,995.00**

**Available from finer  
audio dealers from coast  
to coast. Inquire now  
about our special AES offer.**

**THE RFS-2 PLATE REVERBERATION CHAMBER (-FD)**

**AUDI-ENCE, INC.**

3325 Vista Oaks, Garland, Texas 75043  
214-226-2189

# How To Get The Most Out Of

# VIDEO TAPE

by John Dale

The average video production house runs miles of tape through its VTRs and VCRs daily, and it's no wonder that well-trained technicians can become blasé about tape handling techniques in such a high pressure environment. And that is unfortunate, because tape is the final product of your creative efforts. No matter what care and skill go into the direction, lighting and sound work, it comes down to the software in the end. Without the proper maintenance of both VTR and videotape, the breakdown of one will lead to the degradation of the final product.

Professional quality videotape is basically equal upon entering the studio or editing room, provided, of course, that one buys a premium tape to begin with. But what happens to the tape once it enters the recording cycle, duping chain, or editing console depends to a great degree on both the environment and the condition of the hardware.

## The Physical Environment

The environment of the editing, control room, or videotape library should resemble a "clean-room" as closely as is possible. While actual "clean room" conditions are impos-

sible to maintain in a busy production house, it is important that the editing rooms be virtually dust-free. There are a variety of air-conditioning and filtration systems available, and it is wise to select one with a record of reliable service and dependability.

Dust particles are one of the major threats to a clean recording or dub. Particles have a nasty habit of getting stuck on tape and becoming ground into playback and erase heads or imbedded in the tape wind itself. To minimize this problem, it is desirable to maintain an air pressure level somewhat higher than that of the surrounding rooms. This positive internal air pressure will prevent dust from entering through doors and windows. Obviously, the optimal situation is one in which all doors and windows are airtight, but this is generally unrealistic. Still, it is advisable to filter all air intakes as a further safeguard. Occasional electrostatic cleaning of the room air is a further precaution.

The recording studio itself should not be carpeted. Hard surfaces, vinyl, or wood provide the best resistance to the buildup of dust. They are also easy and inexpensive to maintain. It's advisable to mop the floors daily, as well as dust VTRs and ancillary equipment on a regular

basis to prevent any accumulation of dust. While you're at it, consider unpacking cases of videotape in an adjoining room so that packing cases cannot shed harmful particles.

Food and drink should never be allowed in the same room with VTRs and videotape. This may sound harsh, but even the most careful eater can easily transfer minute food particles to the tape and recorder, to say nothing of the inevitable spill. Anything that can carry foreign particles into the environment of video recorders and tape should be carefully checked, as any debris tends to accumulate until one day you begin to notice the dropouts and then it is too late. No one has yet proven that cigarette smoke is harmful to videotape, but why take the chance. If smoking is allowed, it's advisable to use covered ash trays. Still, we advise against it.

Humidity and extreme fluctuations in temperature are the chief enemies of videotape. A constant temperature of 70°F should be maintained in both storage and operational facilities. However, temperature variations should be kept to a minimum of 5°F in either direction, and the relative humidity should hover around 50% ± 10% maximum. As a general rule, if the technicians are comfortable the tape will be too.

Temperatures higher than the mid-70°F's may cause tape to stretch. Dry air is also an enemy because it contributes to static electricity buildup and attracts dust. On the other hand, moist air tends to make the tape stick together. For the best performance, store tape at the suggested temperature of 70°F and 50% relative humidity. And be warned—don't store tape in a refrigerator. It does not react like filmstock!

## VTR Inspection and Adjustments

Regular inspection and maintenance of the supply and take-up torque brake tension adjustments are critical to the performance of the VTR. In particular, the supply reel should be inspected regularly for imperfections that may contribute to time-base errors, or cause edge damage during record and playback. The capstan and pinch roller isolate the take-up reel, but it is important to maintain the proper pressure at this point to minimize tape slippage, as well as to provide stable tape transport. A worn pinch roller can cause extreme tape damage. Defective motor bearings, bent reel flanges, or eccentric reel hubs can also cause severe instability.



The new advanced-design GS 1 FM digital keyboard.

**ITS ONLY SIMILARITY TO OTHER KEYBOARDS  
IS THAT IT HAS A KEYBOARD.**



Combo Products

THE WAY IT WILL BE.



It is crucial that the tape transport path be inspected and cleaned at regular intervals. All surfaces that come into contact with tape should be clean and smooth or they may damage the master tape permanently. All too often particles that have become imbedded in playback or recording heads will ruin a series of tapes before the problem is noticed and remedied. The vacuum guide, erase, audio and video heads, tape path guides, and tension arms should be cleaned with a recommended solvent, such as Freon and a soft applicator, or a video head cleaning cassette used as directed. Particular care should be taken when cleaning the rubber capstan pinch roller. It has been proven that alcohol is best for this job. Remember to clean the pinch roller so that its surface does not become shiny and slippery. If it does, it should be replaced or the surface renewed.

### Handling Videotape is Crucial

It's pretty obvious that cassettes should be handled by the hard plastic shell and not by the metal tape guard, but many people do not realize that 1" reels should only be handled by their hubs. The hub is

the strongest part of the reel and by handling it undue pressure is not exerted against the packed tape. This precaution also protects the flanges from damage that might subsequently harm the tape itself.

Fingerprints are the bane of videotape. Although it is impossible not to touch the ends of the tape while threading the VTR, one must always remember to touch the tape as little as possible. Oil from fingertips easily becomes deposited on the tape surface and will act as a magnet for dust particles. Wax pencils and grease pens have much the same effect as fingers and should never be used on tape. Forget ink as well, as it tends to leak through layers of tape. Any contaminants on the backing side of the tape will be transferred to the next layer of oxide as the tape progresses on the reel, and once a reel has been contaminated there is danger to the VTR as well. A contaminated VTR will pass along dropouts. A general rule to follow is to wear cotton gloves when you plan to handle videotape.

To be assured that the VTR has not collected oxide debris or dust particles, it should be visually inspected after each roll of tape is run. This is especially important if you are playing tapes that have been

routed to a number of facilities. A damaged tape can contaminate the heads of your VTR and pass along the debris to the next clean tape you use. Frequent cleaning of the recording and playback heads, tape transport mechanism, and pinch roller will reduce the chances of spreading particles from one reel to another. Clean the tape path often with a solvent such as Freon TF.

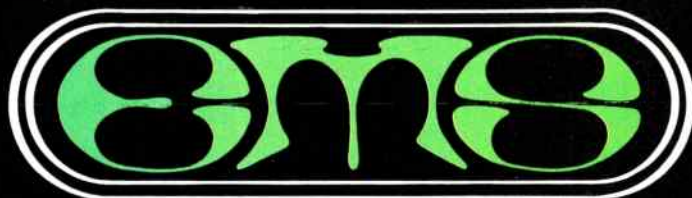
Empty reels should be inspected before use and cleaned before the tape is wound up for storage. Check for signs of hub damage and dirt on the winding surface which might cause tape wrap distortion. If you notice a "spoked" appearance in a tape wrap, it's likely due to hub irregularity and is caused by a reflection of the irregularity magnified through the successive windings.

Another common form of videotape damage is edge wear, and it can be caused by the operator, a bent reel, or the recorder. A bent reel can quickly mutilate the edges of a tape. Damage here often looks like a bump on the otherwise smooth tape surface. If a "lip" effect appears on one side of the tape, it can be caused by a misaligned guide, a worn audio stack, or an out of adjustment reel pedestal. Any of these faults can cause serious damage to an otherwise perfect roll of videotape.

### Care in Shipping Procedures

There are a number of procedures to be recommended that will help ensure that your videotape arrives at its destination in the condition it left your studio. Use the shippers that most manufacturers provide. These containers not only offer protection against accidental crushing or dropping, but also allow a certain amount of rotational movement of the tape reel. A little movement helps to minimize the chances of tape "cinching," which can be caused by sudden torque created by dropping or rough handling.

Good tape containers will protect against water damage as well. Always be sure to tack the end of the tape down to prevent damage, and use a gum-free tape. Tape must also be protected from exposure to magnetic fields that might cause accidental erasure of the programming. Sources of magnetic fields include motors, transformers, generators, and speakers. Do not place tapes in the vicinity of any of these. It's also a good idea to degauss video heads on a regular basis—about once a month if you use the equipment regularly—but be sure to remove



**electro-media systems, inc.**

- Western U.S. **Harrison** Distributor
- Complete System Design and Installation
- Automation Specialist
- Acoustic Analysis

contact Dan Gwynne  
8257 Beverly Blvd., L.A., Ca. 90048 • (213) 653-4931

*Recording Systems for the Entertainment Industries*



any tape from the area before doing so.

## Storing Tape

The ideal tape storage area resembles the working environment as closely as possible. As a rule, the temperature should be maintained between 60°F and 70°F, humidity between 40% and 50%.

Because the hub is the strongest part of the reel, tapes should be supported by their hubs in storage. Cassettes should be stored on end like books. Always return tapes to their cases after use and set the tape container in an upright position. Additional protection against moisture can be achieved by placing the tape in a plastic bag before locking it in its case.

Depending on the disposition of the tape it will either be rewound or not. Videocassettes that will be shipped from location to location should not be rewound because the unwound tape allows for a more even wrap. However, archival tapes will have a longer life expectancy if they are rewound and then played about every six months.

The quality of the wind is also very important, because poor winding can cause distortion of the tape backing. A proper wind tension is from four to five ounces per 1/2-inch of tape width. This provides a stable and firm wind without creating pressures which might damage the tape. Should the tension be too high, any temperature change could distort the tape backing. A too loose wind can cause slippage between the tape and the reel. This "cinching" will disrupt the smooth contact between the tape and the head, and will cause dropouts to appear.

Smooth winding and proper storage of videotape, like all magnetic tape, will help lessen the possibility of damage should a fire occur. Tape is a poor conductor of heat, and it is sometimes possible to retrieve information even if the tape has received some fire damage. As an added precaution always keep a carbon dioxide fire extinguisher in the storage room.

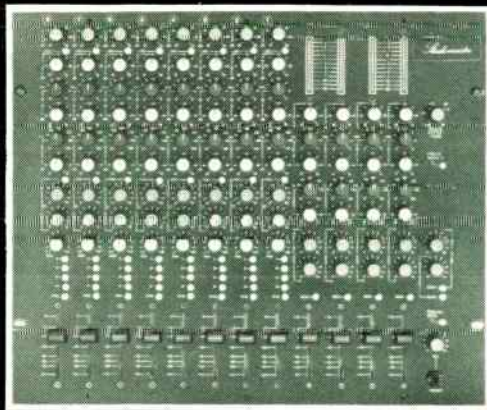
As a final precaution, store videotape in fire retardant boxes away from any combustible materials, or in a fireproof vault if archival use is intended. Videotape will retain information for indefinite lengths of time. The most important requirement is the physical preservation of the tape so that when it is needed it will allow adequate tape-to-head contact. ■

*John Dale is the Vice President and General Manager of Fuji's Magnetic Tape Division.*

# Studiomaster

## 8/4

### Recording Mixer



The Most Versatile Recording Mixer out.

A perfect match for 2, 4 & 8 track machines. —With features like Parametric EQ—Phantom Power & balanced inputs. The 8/4 gives you The Best features, quality & value available in a mixer.

**For more info see your nearest Dealer or write/Call**

*Studiomaster Inc.*

1365-C Dynamics Street  
Anaheim, California 92806  
(714) 528-4930, Telex - 678407

## Help Harvey reinvent the studio operation at AES.

At the AES Show, Harvey will unveil a prototype of a single terminal computer system capable of synchronizing an infinite number of audio and or video machines; control mono or stereo time compression; automate your console; do your billing; operate multiple control rooms; auto-locate; control your digital delay; video edit...or almost anything else you can think of —all at the same time!

**Come to Room 683, Waldorf Astoria, Oct. 30-Nov. 2 and tell the system what you want it to do for you.**

### **HARVEY PROFESSIONAL AUDIO/VIDEO DIVISION**

25 WEST 45TH STREET, NEW YORK, N.Y. 10036

Call The Harvey Hotline:  
800-223-2642 (Except N.Y., Alaska, Hawaii)

# RECORDED VERY LIVE

## CARLA BLEY



PHOTO ROGER BESSMEYER

by Derk Richardson

"I was going to smash him in the face and I went out in the audience and I was holding my hands, like Doctor Strangelove, and I got there and I calmed down immediately and just told him to stop saying anything and to leave—and he did!" That is jazz composer/bandleader/keyboard player Carla Bley describing her reaction to a heckler at San Francisco's Great American Music Hall last August.

Bley was recording her second album for ECM, a live follow-up to this year's remarkable *Social Studies*, and the loudmouth in the audience turned out to be one of the few things Bley liked about the early show. "I didn't get anything out of that first set," she said during an interview the next day, after she had listened to the tapes, "except that beautiful heckler, which is going right on the record."

Carla Bley became known during the 1960s as one of the most

significant composers in jazz, a music in which few artists make an impact primarily as composers. Her early pieces were recorded by her first husband, pianist Paul Bley, whom she met when she was a cigarette girl at Birdland, the jazz club in New York. Swept into the avant garde scenes of New York and Los Angeles, Bley brushed up against such radical innovators as Ornette Coleman, Charlie Haden and Don Cherry. Before she began her own recording, with 1973's *Tropic Appetites*, her works were heard through other instrumental voices: Bley composed and arranged Gary Burton's *A Genuine Tong Funeral* (1967) and much of Haden's *Liberation Music Orchestra* (1969).

Born in Oakland, California, in 1938, Bley (then Borg) was raised in a very religious family, learning to play church organ at weddings and funerals. Bley's use of organ, her love for tuba ("I've never done one

thing in my history without tuba") and trombone ("my favorite instrument of all, mmmmm!"), and her whacko sense of humor gives her music a decidedly zany bent, or is it a bent zaniness? From the epic three-record *Escalator Over the Hill* (JCOA, 1972), with Don Cherry, John McLaughlin, Jack Bruce, Linda Ronstadt, Viva and others, to Pink Floyd drummer Nick Mason's recent *Fictitious Sports* (Columbia), Bley's outlandishness is always balanced with the sophisticated simplicity of her writing and arranging.

This brash eclecticism is reflected in Bley's current 10-piece band. Four brass and two reeds ("Those are *my* horns") are fused with Steve Swallow's electric bass ("I wouldn't care if he switched to banjo, I'd want to use banjo"), two keyboards ("I could never hold down all the keyboard responsibilities myself—that's no fun, you have to read long parts"), and D. Sharp's crisp drumming ("He played for a lot



**NEOTEK  
WEST**

4007 W. 6TH ST., L.A., CA 90020 213-387-7999

**WE ARE:**

THREE YEARS OF SALES AND SERVICE  
OF **NEOTEK** CONSOLES, WITH ALL MAJOR  
BRANDS OF PROFESSIONAL AUDIO EQUIPMENT  
AVAILABLE. LET US ASSIST YOU WITH  
LEASING AND FINANCING ARRANGEMENTS.

**—CALL FOR A HANDS-ON DEMONSTRATION—**

**NEOTEK CONSOLES FEATURE:**

- TRANSFORMERLESS HIGH-SPEED CIRCUITRY
- FLEXIBLE OPERATION, INCLUDING  
F.E.T. AND C-MOS LOGIC CONTROL
- PERFORMANCE SPECIFICATION EXCEEDING  
THE BEST DIGITAL RECORDERS
- HUMAN ENGINEERED FOR FAST, ACCURATE MIXING.

NOW AVAILABLE FROM  
**NEOTEK WEST:**



**Studio Monitors  
Power Amplifiers  
Microphones  
Headphones**

**NEOTEK CONSOLES FOR:**

**PROFESSIONAL RECORDING**

**P.A. AND MONITOR MIXING**

**BROADCAST**

**FILM/VIDEO POST-PRODUCTION**

**THEATRICAL PRODUCTION**

**THE FUTURE  
IS CLEAR!**

of organ trios which have a lovely, cheap orchestration that I feel close to, being from Oakland, you know, the slums of Oakland.”)

During our conversation in her San Francisco hotel room, we talked mostly about Bley’s relationship, as an artist, to the technical aspects of recording and producing a “live” album.

**Mix:** How are the tapes so far?

**Bley:** Miserable. Well, I knew the first set was shot anyway, because we didn’t have the sound together yet. Between the first and the second sets I told my sound man everything that was wrong and what I thought could be done to improve it, and we did a lot of physical things like turning the Leslie around and changing where various people were sitting. It got good the second half of the second set, finally. Technical problems prevented us from playing well the first set. I had them put drums and bass in the monitor for the first time in my life. Usually, I just put piano in my monitor, but something about that hall swallowed up the distinct sound of the bass and drums. So the rhythm section was discombooberated. Then, we went out for the second set and the sound was very good. But it’s a drag because I feel I blew one-sixth of my record.

**Mix:** During the first set, when you were calling the sound man over, what sorts of things were you telling him?

**Bley:** I said, “Piano is too loud in my monitor.” So the piano disappeared in the monitor. I called him back. “The piano is too *soft* in the monitor and all I hear is alto. Take alto out of the monitor.” It was just stupid stuff like that. All the way. Then I was telling [co-keyboardist] Arturo [O’Farrell] that the organ was too loud. We noticed the Leslie was facing a different direction because we were recording. We had the open side of the box in back with the microphone in it. In a concert situation we’re used to having the open side right behind the organist’s ears so the volume doesn’t have to be so loud and the sound is not delayed at all before it gets to the ear. So the fact that we had made that one really small consideration towards the recording of the album ruined the whole first set. So we got rid of that consideration. And I think we’re making no concessions at all towards the recording. Everybody’s just as tightly shoved together as they usually are. That’s the only reason, really, for doing it live—we have to just get the excitement and just forget about the fact that there are going to be mistakes.

**Mix:** As a producer, have you taught

yourself most of the necessary skills? **Bley:** Probably the word producer isn’t good for me. I just choose what musically happens. I think the word would be music director.

**Mix:** Do you leave the engineering to someone else?

**Bley:** Yes, I really do. But I do the mixing myself. The thing I’m not terribly good at is what all the microphones do, their specialties, and I usually leave that choice to someone who knows better than I do. What else do I do? When [second husband] Mike [Mantler] has to do a trumpet solo, I’m the engineer. And I have a lot of toys down there, but I hardly use any of them. I use the Eventide Harmonizer. If a note’s out of tune, I put it back in. I know how to start and stop the machine, go into record and out of record. I used to do a lot more than I do. When I made the album *Escalator Over the Hill* I actually did all the editing myself. I was the razor blade. The engineer got sick and I mixed and edited all of *Escalator Over the Hill*. If you listen to that record you can tell I did it myself. Now I just want to get people who specialize. I think it’s best if you have a team of 20 people, each one doing something great. If that’s the case, I just want to write the music. That’s what I do best.

**Mix:** When you’re on stage and you’re recording a live album, do your roles change while you’re listening to what’s happening?

**Bley:** That’s one of the things that interfered with the first set, too. I had this idea that I could do a lot of intercutting it, each time I played one of the tunes, it was the same tempo as the time before. So I wrote down all the perfect tempos for all the tunes. There I was with my little metronome, and before each tune I listened to it tick, tick, tick, tick, and it so disconcerted me that after the third tune I had to abandon the whole idea. It made me too self-conscious. I’m purposely not rehearsing today because I think I’ve gone as far as I can with preparation. From now on it’s just luck and the law of averages. I can’t possibly play *nothing* good for the next three nights. I’ve got to play one record’s worth of good material. That’s just my law of averages, and I’ll stop working so hard at it.

**Mix:** Will you be doing different material every night?

**Bley:** I did every song that I wanted to record last night, except six. So tonight I will try to play longer sets so that I can do at least three takes of everything in the book, and have three passes at a good take. I might be there all night tomorrow night, trying to finish off the record. People

could come for the seventh set early Saturday morning—my plane doesn’t leave until 8:30.

**Mix:** What is the business relationship you have with ECM and Warner Brothers at this point?

**Bley:** I still have my own record company and every musical decision is mine. My records are distributed by ECM-Warner Brothers, pure and simple.

At this point, Bley started talking about the deficiencies of her earlier records.

**Bley:** I think there are things, for instance, technically in *Escalator Over the Hill* and in my first album, *Tropic Appetites*, that were immature as hell. Stupid things. Like on *Tropic Appetites*—I hit a gong, and it sounded so beautiful to me that I let about ten dead minutes go by on the record while that gong decayed. How absolutely stupid. That’s like that overly precious thing that you tend to have when you’re immature about music . . . But the fact that my early records had certain lacks in them allowed certain pluses to come in that space, which, usually, if you have too much good taste and intelligence and expertise, you don’t have enough of the quirky stuff . . . Because of the hole left in the brain where the good taste usually goes, there’s a nice empty space that can be filled with something bizarre. So everything is OK. Eventually it will be OK if I just live long enough to finally satisfy myself.

**Mix:** Do you ever feel that you are overdisciplining yourself, repressing the quirky nature, the humor?

**Bley:** I feel inhibited by self-consciousness and that has nothing to do with good taste. My greatest desire is to lose my self-consciousness. When I *do* lose it, incredible music comes out of me. But sometimes when I get up on stage, I all of a sudden think, “God, what am I doing here?” And then for a moment I lose control and music stops coming and, shit! I hate that. So I drink gin before I go on, and that helps an awful lot . . . Mike [Mantler] told me when he was a little kid in Austria and went to a jazz concert, the only things that were interesting to him were the mistakes, and the human qualities that come through when something went wrong. So it isn’t the end of the world, and I guess I know that now. But then there are certain standards that I have now, rhythmically and technically, that I can’t forget and I shouldn’t forget. If those things happen at the same time, like the high standards plus, oh [sighs] . . . I don’t think I can finish that sentence. I’m sure it’s been said before anyway. ■

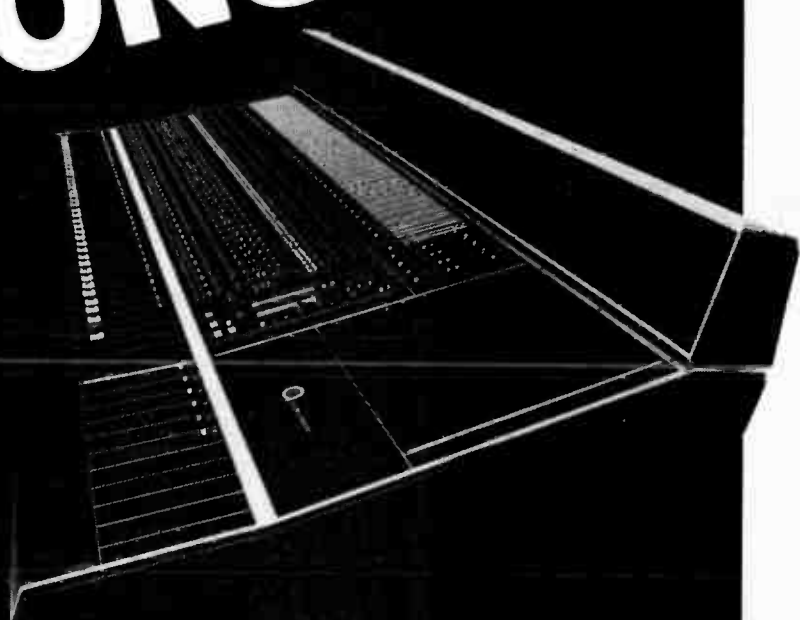


Have you heard about the  
**NEW AUDITRONICS?**

Have you heard our **NEW**

# 700 CONSOLE

If you haven't heard it,  
you're in for an exciting  
ear-experience!



The Auditronics Engineering Staff has developed a new output circuit which is **exclusively ours\***. Now standard on all 700 Model Consoles, this new circuit gives you transformerless specifications and operation **WITH A TRANSFORMER!** Now you can have the quality and transparency of a transformerless circuit with the total isolation and decoupling of a transformer!

Now, no more distortion and phase shift at the low frequencies, no more problems because your console **cannot** completely decouple from its outboard equipment.

\* Patent Applied For

The audible difference is very noticeable in the low frequencies a cleaner, tighter, "beefier" sound, creating unbelievable definition on drums and the percussive instruments.

#### SPECIFICATIONS ARE (% distortion THD):

- 20 Hz — .02
- 30 Hz — .007
- 50 Hz — .005
- 100 Hz to 20 KHz — .0045
- IM Distortion — .008%

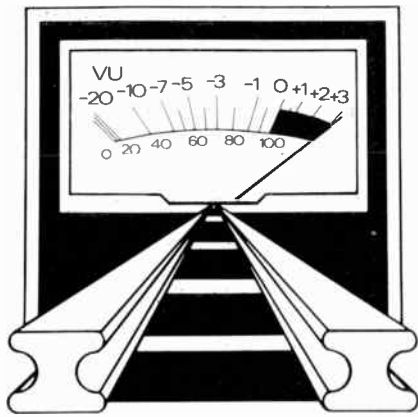
All measurements at +24 dBm output - 600 ohms.

Come up to Auditronics... **"THE CONSOLE YOU CAN'T HEAR"**



**auditronics, inc.**

3750 OLD GETWELL MEMPHIS, TN 38118  
(901) 362-1350 Telex: 53-3356



# Other Side of the Tracks

# THE ROCK MUSEUM

## THE BEST OF BONZAI An Encore Performance

by Mr. Bonzai

Well, it had to happen sooner or later . . . but it's still sad when a great studio dies. The legendary Sound Hole Studios in Hollywood is finished. The wrecker's ball will be smashing through those hallowed chambers by winter.

The first big hit to come out of Sound Hole was "Beer, Beer, Beer" in 1957. Guided by the visionary hands of ace engineer Milton Marvin, the Hole was responsible for over two hundred gold records in the following two decades. Every group from the Four Chaps to the late Sally Razor recorded at Sound Hole. Those of us who are part of the close-knit family of recording will miss this great studio . . . but there is a positive side to its demolition.

Record executive Eleazor Kharpoum has coughed up \$100,000 for the creation of a rock & roll museum. Support and donations are pouring in, and it looks like we will soon have a proper home for the priceless memorabilia of pop music.

The outer shell of The Rock Museum is already under construction in Eagle Rock, a musical community of Los Angeles. Plans are being made to transport the dismantled Sound Hole across town where it will be installed permanently at the new location. Those of us who spent

time in the Hole will be able to relive forever those crazy days of music when we were so young, rich, and foolish.

Who wants to forget how all those little holes got in the door of the tape vault? The marks from her spiked heels and arm bands serve as a vivid reminder of all the good times that "Baby Face" Mildred had among the masters. How about the cross that Vicki Valdez carved in the producer's desk when they were recording "Nun on the Run"? And who knows how the leather burrito got nailed to the ceiling of the foyer? They're all there for future generations to appreciate—the trumpet that Dizzy actually blew apart when someone jammed a potato in the bell, the steel drum that was flattened by King Billy Elephant, even the exploding hookah that brought so many tears of joy to newcomers at Sound Hole.

As a member of the Board of Governors for the museum, I have been contacted by other great studios around the country which would like to contribute their historical knick-knacks. Howdy Dugan, manager of Electric Ladybug in New York, is donating the inflatable grand piano that Elton dove onto from the seventh floor of the stock exchange when he was promoting his "Rubber Money" album.

Howdy is also sending us the handcuffs that were used on Jimmy G. Tiny when he was arrested at the studio during his "Thank Heavens for Little Girls" sessions; also the false nose that Princess Madeline used when people offered her cocaine, and a vial of Rudy's tears collected during the recording of the 1963 classic, "Rudy's Turn to Cry."

This museum is going to be more fun than quad!

Ray Obladieux of Boneroo Studios in New Orleans is donating the definitive Dr. Fred collection: eight pounds of choice gris-gris, kitty niffles, screamers, poo-poo's, fluffers and nummers, nose horns and bat snow, bull pizzles, sen-sen, ico-ico, four bushels of wild Tchapatoolahs, and the good Doctor's own Ooloo stick. A special bayou backdrop is being constructed to house this wealth of Cajun lore, the very same objects used during the Stompin' Zombie/Happy Voodoo sessions.

Bobby "Clean-head" Powers, who handled sanitation at Woodstock, is donating one of the festival's porta-potties, along with 400 pounds of mud, beads, buttons, and incense butts. Who could resist stepping into the little cubicle, closing the door, and reliving those three days of joyful music?

Gary Arn of Different Ear



studios is getting us two pairs of you-know-who's leather underwear (complete with the hydraulic padding). Apache Studios is sending us the preserved nodes that Screamin' Mae Barker had removed while recording her last album. The Impalas' famous electric guitar with the rear-view mirror is being donated by Nu-Beam Studios. A plaster cast of Bill Haley's spittle was a gift from Sundown Sound in Hollywood.

The momentum of The Rock Museum is accelerating, and latest word is that the EAS is going to get involved. From the secret storehouses of the Society, we are going to be receiving some priceless lead-ribbon microphones, acid and glycerine amplifiers, a genuine Russian theramin with dual horns, and the first stereo cylinder (a recording of Thomas Edison and Alex Graham Bell harmonizing on "Old Black Joe"). There is even a rumor that the Society is planning to found the first home for aging engineers.

The hearsay of a "home for engineers" has been circulating for years. Who hasn't shaken his head in pity at the sight of an old engineer, wasted on megadecibel overload and fried from too many all-nighters? These are the guys who have given their inner peace and inner ears to the creation of the music we love. Not many of them were as lucky as our live-in tech man and ex-engineer, Smilin' Deaf Eddie.

The Home hopes to recreate the studio situations of the past and allow these wonderful old duffers to continue making records. Their years of experience will once again be utilized as they hunch over those dusty old tubes and ancient knobs.

Working on an exclusive deal with a major label, the engineers of the future Home may get their own new Old Rockers record company. After years of insecurity in a fickle business, perhaps they will finally be able to live a normal life. It gives us all something to look forward to in our old age.

And let's hope that we hear from Milton Marvin, the guy who started it all. Milt says that he loves music and the recording business, but he's finally going to do something he's wanted to do his whole life: go paint naked ladies in Tahiti. ■

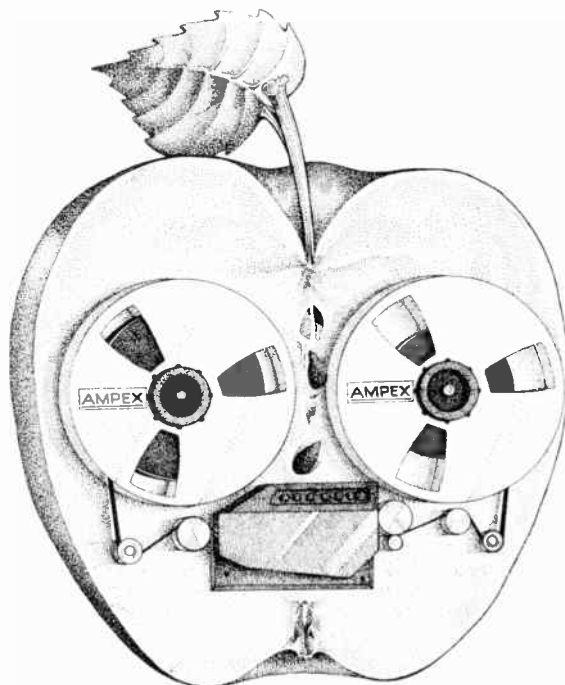
The situations and characterizations in this column are purely fictional and do not reflect anything relating even vaguely to reality living or dead

# 1982 NEW PRODUCTS LISTINGS -

## SEE THE REEL EXCITEMENT IN NEW YORK.

It's new, it's from Ampex,  
and it's in the Basildon Room at AES.

### AMPEX TOOLS FOR TOMORROW



# NEW-PRODUCTS

## AMPLIFIERS

### BGW SYSTEMS INC.

#### BGW 320B

13130 So. Yukon Ave. Hawthorne, CA 90250  
(213) 973-8090

Contact: Irwin Laskey, Sales Manager.

Date Product Introduced: April 1981.

**Product Description and Applications:** 320B is a completely modular 100 watt/channel commercial amplifier. Has built in auto-transformer for 25/70 volts. Also has sophisticated loss of feed back clipping indicators. For use in distributed sound systems.

**Basic Specifications:** 100 Watts/Channel into 8ohms from 20Hz - 20kHz at .02% THD.

Hum & Noise level better than 100dB.

Damping factor greater than 150 to 1 @ 8 ohms.

**Suggested List Price:** U.S. suggested retail \$799.00.

### BGW SYSTEMS INC.

#### BGW PRO Line 7000

13130 So. Yukon Ave. Hawthorne CA 90250  
(213) 973-8090

Contact: Irwin Laskey, Sales Manager.

Date Product Introduced: April 1981.

**Product Description and Applications:** The BGW 7000 is a 200 watt/channel fan cooled power amplifier for the kind of performance and reliability essential for live entertainment or recording/broadcast monitoring; yet a more cost-effective alternative.

**Basic Specifications:** 200 watts cont. into 8 ohms. From 20Hz-20kHz at 0.1% THD.

350 watts cont. into 4 ohms.

Uses 16 large geometry output devices.

**Suggested List Price:** U.S. suggested retail \$749.00.

### BGW SYSTEMS INC.

#### BGW 75

13130 So. Yukon Ave., Hawthorne, CA 90250  
(213) 973-8090

Contact: Irwin Laskey, Sales Manager.

Date Product Introduced: April 1981.

**Product Description and Applications:** A 25 watt/channel professional amplifier using a large toroidal mains transformer and a low noise discrete, matched differential amplifier input circuitry; all housed in 1 1/4" high rack mountable package. Ideal for small studio/broadcast monitoring.

**Basic Specifications:** 25 watts/channel into 8 ohms 20 Hz-20 kHz, with a minimum of .05% THD.

Can be bridged to provide 50 watts mono with a max. of .08% THD.

**Suggested List Price:** U.S. suggested retail \$379.00.

### BOGEN DIVISION/LEAR SIEGLER, INC.

#### Series MBA Background Music Amplifiers

Box 500, Paramus, NJ 07652

(201) 343-5700

Contact: Edward P. Draney, Director of Sales.

Date Product Introduced: June, 1981.

**Product Description and Applications:** Choice of 15W, 30W and 60W. Specifically designed for critical requirements of background music industry and others requiring professional audio quality and continuous operation. Music input accepts FM-SCA tuner or a tape player, has dedicated front-panel treble and bass screwdriver-adjustable controls and can be adapted for 600-ohm line. Two hi-Z unbalanced microphone inputs convertible to lo-Z balanced. Individual input controls, master control and active mixing. Program muting for paging. Input for tone signals. LEDs indicate clipping and overload. Short-circuit protection, thermal breaker, AC circuit breaker.

**Basic Specifications:** Frequency response: 30-15,000 Hz  $\pm$  1dB.

Power bandwidth: 50-15,000 Hz at less than 2% THD. 8-ohm, 25V & 70V balanced or unbalanced outputs (4-ohm, MBA-60 only).

Rack mounting, with accessory brackets.

Unswitched 300W AC outlet on rear panel for accessory.

Companion MBT-1 FM-SCA Multiplex Tuner.

**Suggested List Price:** MBA-15, \$300.00; MBA-30, \$362.50; MBA-60, \$437.50.

### BOGEN DIVISION/LEAR SIEGLER, INC.

#### GA-6 Utility Amplifier

Box 500 Paramus, NJ 07652

(201) 343-5700

Contact: Edward P. Draney, Director of Sales.

Date Product Introduced: May, 1981.

**Product Description and Applications:** Versatile 6-watt amplifier for studio monitor, background music, small churches, offices and stockrooms. Solid state, wide frequency response and low distortion assure high-quality performance on both music and speech. Compact, lightweight with epoxy-coated, brushed-aluminum front panel and black, vinyl-clad, cold-rolled steel cover. Reliable and economical.

**Basic Specifications:** Two mixable inputs: io-Z balanced microphone with dynamic range of 46 dB and auxiliary music input.

30-15,000 Hz,  $\pm$  2dB.

Less than 2% distortion into 8-ohm speakers, 25- or 70-volt systems.

Internally selectable tone settings: 9dB treble boost or cut at 10,000 Hz.

Hum and noise: mic, -45dB; aux -70dB.

Controls: mic, aux and illuminated power switch.

**Suggested List Price:** \$125.00.

### BRYSTON MANUFACTURING LIMITED

#### Bryston Pro 2B Amplifier, Pro 3B amplifier,

#### Pro 4B amplifier

57 Westmore Drive, Rexdale, Ontario,  
Canada, M9V 3Y6

(416) 746-0300

Contact: USA, John Day Russell, (802) 223-6159, Canada, Brian W. Russell (416) 746-0300.

**Product Description and Applications:** Bryston's three amplifiers (2B with 50 watts, 3B with 100 watts and 4B with 200 watts per channel) will soon be joined by their new 25 watt amplifier. Like all of their previous amplifiers, the new one will be bridgeable for four times its rated power per side, and will have double power supplies, high current capability and a 60 volt slew rate. Bryston amplifiers are capable of driving the most difficult loads without effort. "State of the Art" technology is finally available for the studio monitor, in amplifiers which are reliable, and warranted for three years, parts and labor.

**Basic Specifications:** Harmonic Dist.: Less than 0.02% 20 to 20KHz at rated power.

IM: Less than 0.01% from 10 milliwatts to rated full power.

Noise: More than 100 dB below full output.

Crosstalk: Below noise.

Power bandwidth: 1 Hz to over 100 KHz.

**Suggested List Price:** 2B \$575.00; 3B \$975.00;

4B \$1,500.00.

### DMI INC.

#### Crest Model 2001

150 Florence Ave., Hawthorne, NJ 07506

(201) 423-1300

Contact: Bob Prideaux, Sales Manager.

Date Product Introduced: August, 1981.

**Product Description and Applications:** Rugged professional amplifier is rated for 2 ohm operation with convection cooling. Features 16 GA. Steel chassis, dual power supply, active balanced inputs, stereo headphone jack, DC and thermal protection, black baked epoxy finish, modular construction. Dimensions: 3 1/2" x 19" x 10". 23 lbs. net weight. 3 year warranty.

**Basic Specifications:** FTC rated continuous average output power: 75 watts-8 ohm stereo, 120 watts -4 ohm

stereo, 150 watts- 20 ohms stereo, 200 watts-8 ohms mono.

THD: below .05%.

Slew rate: 30 volts per microsecond.

Hum and noise: 110 dB down.

Gain: 32 dB.

**Suggested List Price:** \$499.00.

### DMI INC.

#### Crest Model 2500S and 2501S

150 Florence Ave., Hawthorne, NJ 07506

(201) 423-1300

Contact: Bob Prideaux, Sales Manager.

Date Product Introduced: August, 1981.

**Product Description and Applications:** New version of popular P-2500 boasts improved circuit performance. Features 16 GA. steel chassis, dual independent power supplies, active balanced inputs, DC and thermal protection, 4 way status indicators, forced air cooling, advanced wide range dual LED arrays, black baked epoxy finish, modular construction. Dimensions: 3 1/2" x 19" x 16 1/2", 38 lbs. net weight, 3 year warranty.

**Basic Specifications:** FTC rated continuous average outputpower: 125 watts- 8ohms stereo, 200 watts- 4 ohm stereo, 300 watts- 2 ohm stereo, 350 watts- 8 ohm mono.

THD: below .06%.

Slew rate: 35 volts per microsecond.

Hum and noise: 100 dB down.

Gain: 32 dB.

**Suggested List Price:** 2500S-\$929.00; 2501S (without LED arrays)-\$799.00.

### GALLIEN-KRUEGER INC.

#### LC Series Guitar Amps

502-F Vandell Wy., Campbell, CA 95008

(408) 379-3344

Contact: Richard Krueger, Markt. Dir.

Date Product Introduced: June, 1981.

**Product Description and Applications:** Designed for maximum flexibility, the new amplifiers feature channel switching from a normally clean to an overdriven channel that has three volume controls in series for the smoothest possible sustain. Four bands of active EQ plus tone controls allow infinite variations in tone through an easy to use format. An effects loop, direct out and headphones jack are all included as useful, professional features. All units are available with either Celestion or G-K design speakers.

**Suggested List Price:** 112 LC-80 watts, 1 x 12" Celestion: \$699.00; 210 LC-80 watts, 2 x 10" G-K Spkrs: \$729.00; 212 LC-80 watts, 2 x 12" Celestions: \$899.00.

### INTEGRATED SOUND SYSTEMS, INC.

#### GLI SA-2130 Power Amp

29-50 Northern Blvd., Long Island City, NY 11101

(212) 729-8400

Contact: Norm Wieland, Director of Marketing.

Date Product Introduced: June, 1981.

**Product Description and Applications:** Rugged, reliable 110 watt per channel stereo amplifier. Bridgeable into mono. Complimentary symmetry circuitry. Fan cooled modular rack mount construction.

**Basic Specifications:** 110 Watts per channel.

Less than .001% harmonic distortion, IM .08%.

Slew rate 60V u sec.

### INTEGRATED SOUND SYSTEMS, INC.

#### GLI SA-2045

29-50 Northern Blvd., Long Island City, NY 11101

(212) 729-8400

Contact: Norm Wieland, Director of Marketing.

Date Product Introduced: November, 1981.

**Product Description and Applications:** Stereo 45 watt per channel amplifier. Meters, relay protection, dual power supplies, speaker selector and modular construction. Applications include monitoring and Bi Arrays use. Rack mount construction.



## NEW PRODUCTS

### AMPLIFIERS

**Basic Specifications:** 45 watts rms per channel. Distortion less than 0.5%. Signal/noise 90 dB below full output.

#### INTEGRATED SOUND SYSTEMS, INC.

##### Vortec SRS-25e

29-50 Northern Blvd., Long Island City, NY 11101  
(212) 729-8400

Contact: Norm Wieland, Director of Marketing.  
Date Product Introduced: June, 1981.

**Product Description and Applications:** Very high output near field monitor. Compact vented enclosure with two 5 1/4" woofers and radial super tweeter. Built in 35 watt amplifier with frequency shaping network. Level control and push to reset circuit breaker.

**Basic Specifications:** 35 watt rms amplifier output.  
**Suggested List Price:** \$300 retail.

#### EDCOR

##### MA Modular Mixer Amplifiers

16782 Hale Ave., Irvine, CA 92714  
(714) 556-2740

Contact: Jim Morrison, V.P. Marketing.

Date Product Introduced: September, 1981.

**Product Description and Applications:** 35, 65 and 125 watt shelf or rack mount amplifiers. 6 inputs. Each accepting any Edcor Module for any program source. LED's to indicate clipping. Perform down to 85 volts AC line input. Transformer or direct output models full thermal/electronic protection handles for ease in handling and service. Used for commercial and professional sound reinforcement.

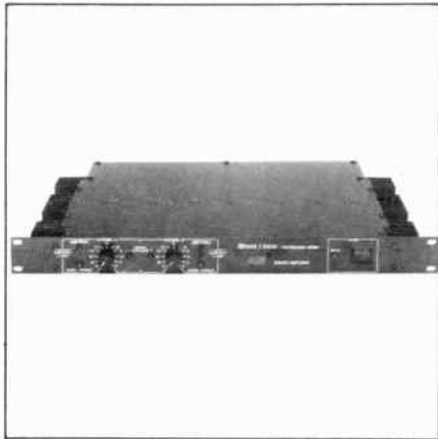
**Basic Specifications:** Less than 1% harmonic distortion between 20 and 20,000 Hz. 25 or 70 volt balanced line output. 4, 8 or 16 ohms.

Noise Level 85 dB below rated output.

**Suggested List Price:** MA 35T—\$275.00.

MA 65T—\$387.00.

MA 125T—\$500.00.



PHASE LINEAR  
A-15 Power Amplifier

#### PHASE LINEAR

##### A-15 Power Amplifier

20121 48th Avenue West, Lynnwood, WA 98036  
(206) 774-3571

Contact: Peter Horsman-National Sales Manager.

Date Product Introduced: June 1981.

**Product Description and Applications:** The A15 is one of the most powerful single rack space amplifiers on the market today and the only amplifier available featuring two separate precision variable slope limiters. The limiters provide precise designed control over attack, decay and slope, without the use of light dependant elements. The control circuitry provides accurate limiting up to 15dB of over load protection that virtually eliminates the hazards and voice coil damage of clipping while providing a sonically pleasing performance.

**Basic Specifications:** Rated power 100W per channel 4 ohms.

THD less than .05% 1 M less than .005%.

Frequency response 11 Hz to 190 kHz +0 -1 dB.

Balanced or unbalanced 20 K ohm input.

Slow rate better than 100 V/uS.

Rise time less than 1.0 uS.

Phase shift 0° @ 20Hz -3.1° @ 20 kHz.

## NEW PRODUCTS

### AMPLIFIERS

#### RAINDIRK LTD.

Status 500 Power Mos. FET Amplifier  
Downham Market, Norfolk, England  
(03663) 2164 & 3617

Contact: Audicon Marketing Group (615) 256-6900.

Date Product Introduced: June, 1981.

**Product Description and Applications:** The Status 500 is a high quality power amplifier designed for professional monitoring applications. The output stages employ the latest complimentary power MOS. FET transistors with extended power bandwidth. Comprehensive output protection circuitry is included. During any periods that the protection circuitry is in operation, the illuminated power switch flashes. Two LED PPM power meters are calibrated in six steps from 5 to 250 watts.

**Basic Specifications:** Power output: (each channel) 250 watts into 8 ohms, 400 watts into 4 ohms, 650 watts 2.5 ohms.

Frequency response: ± 0.2dB, 20 Hz-20kHz, -3dB at 4 Hz and 100 kHz.

THD and IMD: .03% typically .005% at 1kHz.

Bridge mono operation 650 watts into 8 ohms.

**Suggested List Price:** \$1495.000 w/LED Bar Meters.

#### RAINDIRK LTD.

##### Status 20 Stereo Control Unit

Downham Market, Norfolk, England  
(03663) 2164 & 3617

Contact: Audicon Marketing Group (615) 256-6900.

Date Product Introduced: May, 1981.

**Product Description and Applications:** The Status 20 is a comprehensive professional stereo control unit. Interchangeable moving coil and moving magnet disk pre-amplifier which are housed in plug in module may be remotely located. The S20 is a package in a 1 1/4" high housing and is supplied with wood sides, plates and rack mounting adaptors. Inputs are provided for tuner, aux 1 and 2 and tape 1 and 2.

**Basic Specifications:** Frequency response: Disk: RIAA curve ± 0.2dB other inputs +0 -0.1dB, 20 Hz-20kHz. Signal to noise: Disk -85dB, others -95 dB.  
**Suggested List Price:** \$970.00 w/moving magnet module.



SOUNDCRAFTSMAN  
RA 7503 Power Amp

#### SOUNDCRAFTSMEN

##### RA 7503 Power Amp

2200 South Ritchey, Santa Ana, CA 92705  
(714) 556-6191

Contact: R. Hagemeyer, Sales Mgr.

Date Product Introduced: June, 1981.

**Product Description and Applications:** Class H Stereo/Mono power amp includes 100 LED Real Time Frequency Spectrum Display enabling continuous monitoring of the amplifier's output in discrete octaves. Mono bridging is rear panel selectable. Balanced or unbalanced input capability. 20 LED per channel output power metering system. True Clipping LED on each channel. Auto-buffer circuit monitors load impedance and adjusts power supply to provide 2 ohm stability without current limiting. Meter range— 0 to 2000 watts.

**Basic Specifications:** 375 watts per channel at 4 ohms from 20 Hz to 20 kHz with THD less than 0.09%.

Bridged mono output is 750 watts at 8 ohms.

Signal to noise ratio is 105 dB.

TIM is less than 0.02%.

Front panel is standard rack mount 7" x 19".

**Suggested List Price:** \$1149.00.

## NEW PRODUCTS

### AMPLIFIERS

#### ZEUS AUDIO SYSTEMS

##### Model 8580a Power Amplifier

511 S. Palm Ave., Alhambra, CA 91803  
(213) 281-0023

Contact: D. Turiaice, Sales.

Date Product Introduced: June, 1981.

**Product Description and Applications:** Portable professional quality power amplifier. Size allows it to be transported in the space of half a standard briefcase and delivers 100 watts @ 2-4-or 8 ohms.

**Basic Specifications:** Output: 100 watts @ 2-4-or 8 ohms.

Frequency Response: 30-20,000 Hz.

S/N 100dB.

Input Impedance: 100K ohms.

Power req. 120 vac.

**Suggested List Price:** \$240.00.

**MLX  
CLASSIFIEDS  
WORK!**

# 1982 studio supplies

- Cut the high cost of studio supplies in 1982.
- Our "Special Order" flyers offer the same great supplies you'd find in our 5,000 sq. ft. store.
- Ampex tape, Tascam Equipment, XEDIT & ANNIS, RAMSA Mixers, MCI Recorders & Consoles, MiCs by Audio Technica, Neumann, P2M, Master Room Reverbs, Lexicon, Orban.
- Write or phone to get your **FREE** flyer.

**PROAUDIO  
SYSTEMS**

FEATURING FINE STUDIO EQUIPMENT

**(206) 367-6800**

11057 8th N.E., Seattle, WA 98125

# NEW-PRODUCTS

## EQUALIZERS

### ALTEC LANSING

Altec Lansing 1652 Stereo Graphic Equalizer  
1515 S. Manchester Ave., Anaheim, CA 92803  
(714) 774-2900

Contact: Chris Schoon, Mktg. Comm.

Date Product Introduced: June, 1981.

**Product Description and Applications:** The Altec Lansing 1652 Graphic Equalizer is a dual channel, octave-band, active EQ device for custom-tailoring of the acoustic environment. Suited for industrial and professional applications.

**Basic Specifications:** Two channels, each with 10 minimum phase shift, active band rejection filter sections.

Easy to read, center-detented slide controls provide  $\pm 12$  dB boost/cut (31.5 Hz - 16 kHz); continuously variable high-pass filter, user selectable-low pass filter with 6 dB roll-off at 12.5 kHz.

**Suggested List Price:** \$900.00

### R. BARTH KG

W308 Modular Parametric Equalizer  
Grillparzer Street, 6A, 200 Hamburg 76, West Germany  
Contact: Audicon Marketing Group (615) 256-6900  
Date Product Introduced: June, 1981.

**Product Description and Applications:** Modular 5 band parametric equalizer. Packaged in DIN standard modules for use in Barth rack system or independently. 3 bands are parametric with + or - 22 dB boost or cut. High pass filter with adjustable attenuation and high frequency shelving equalization + or - 10 dB. Electrical balanced input and output.

**Basic Specifications:** Maximum input level + 22dBm. Maximum output level + 22dBm.

THD: .08%.

Output noise: - 91dBm.

Eq (12) High: 620Hz-16kHz.

Eq (12) Mid: 290-7.3kHz.

Eq (12) Low: 40Hz-1kHz.

**Suggested List Price:** \$790.00.

### E-VTAPCO

2210 Graphic Equalizer  
3810 148th Avenue, N.E., Redmond, WA 98052  
(206) 881-9555

Contact: Jim Loppnow.

Date Product Introduced: July, 1981.

**Product Description and Applications:** One-octave graphic equalizer with two separate but identical channels featuring 10 frequency ranges. The 2210 is tailored for economy, performance and ease of operation while maintaining low noise and distortion. May be used for equalizing in stereo applications for recording, pre-recorded playback, or "live" stereo sound reinforcement. Dual channels may be used for independent applications or for equalizing separate input sources.

**Basic Specifications:** Dual channel operation; ten bands on ISO preferred centers;  $\pm 12$  dB boost and cut.

"0" dB center detented slide controls.

Peak stretched overload LED's.

Low noise and distortion: EQ in/out switch per channel.

Rotary gain control per channel.

Steel chassis: 3-1/2" rackmount package; and security cover.

**Suggested List Price:** \$319.00.

### E-VTAPCO

2230 Graphic Equalizer  
3810 148th Avenue, N.E., Redmond, WA 98052  
(206) 881-9555

Contact: Jim Loppnow.

Date Product Introduced: July, 1981.

**Product Description and Applications:** The TAPCO 2230 is a single channel, combining filter one-third octave equalizer which may be used in sound reinforcement, recording and broadcasting environments. The 2230 offers accurate equalization control; elimination of un-

wanted low-frequency information from the signal and excessive high end in bright, reverberant rooms; smooth phase and frequency response between bands; plus a plexiglass security cover.

**Basic Specifications:** 27 bands of equalization from 40 Hz to 16 kHz.

Standard ISO center frequencies:  $\pm 12$  dB boost and cut.

True combining filter action.

Switchable high pass filter (32 Hz - 18 dB/octave).

Switchable low pass filter (8 kHz - 6 dB/octave).

Peak-stretched LED overload indicator.

Low noise and distortion.

Balanced inputs: floating balanced outputs.

Overall gain control: EQ in/out switch; all steel chassis; 3-1/2" rackmount package.

**Suggested List Price:** \$425.00.

### FOSTEX CORP. OF AMERICA

3030 Graphic Equalizer  
15431 Blackburn Ave., Norwalk, CA 90850  
(213) 921-1112

Contact: Linda Schuchart, Marketing Administrator.

Date Product Introduced: August, 1981.

**Product Description and Applications:** Dual 10 band, input level controls with signal present, normal and overload LED indicators.

**Basic Specifications:** Nominal input/output levels:

- 10dBV.

THD: 0.03%.

S/N: 92dB (weighted).

**Suggested List Price:** \$250.00.

### INTEGRATED SOUND SYSTEMS, INC.

GLI EQ-1500  
29-50 Northern Blvd., Long Island City, NY 11101  
(212) 729-8400

Contact: Norm Wieland, Director of Marketing.

Date Product Introduced: October, 1981.

**Product Description and Applications:** 10 Band dual channel octave equalizer. For sound reinforcement and audiophile applications. Low noise, high slew rate, relay muting rack mount unit. Three sets of inputs, input and outputs both phone plug and RCA jacks. Level controls on rear panel.

**Basic Specifications:**  $\pm 12$  boost and cut.

IM/THD distortion less than 0.05% typically 0.005%.

Slew rate 14V  $\mu$  sec.

Signal to noise ratio: 100dB below 2V rms unweighted.

Max output: 10V.

**Suggested List Price:** \$250.00.

### KLARK-TEKNIK ELECTRONICS INC.

Klark-Teknik DN30/30  
262 A Eastern Parkway, Farmingdale, NY 11735  
(516) 249-3660

Contact: Jack Kelly, President.

Date Product Introduced: October, 1981.

**Product Description and Applications:** Dual channel 1/3 octave graphic equalizer (30 band), switchable range  $\pm 6$  or  $\pm 12$ dB, overload indicator, subsonic filter, balanced inputs and outputs. Fail-safe bypass relay, earth lift switch, facility for active crossover cards, bi-amp or tri-amp.

**Basic Specifications:** Output level: + 21dBm, 600 ohms.

Distortion: Less than .05% 20Hz-20kHz.

Input Noise: less than - 90dBm, 20Hz-20kHz.

**Suggested List Price:** \$1450.00.

### POLYFUSION, INC.

Pro-Graph Model PEQ-1  
92 Benbro Drive, Buffalo, NY 14225  
(716) 681-3040

Contact: Alan Pearce or Ron Folkman.

Date Product Introduced: October, 1981.

**Product Description and Applications:** Pro-Graph is a 16 band programmable graphic equalizer capable of stor-

ing 64 frequency response curves. Each curve is clearly displayed on the large illuminated screen. Each band has a boost or cut range of 14dB in precise 2dB increments selected by individual Step up/Step down push-buttons. Unique circuit technology provides extremely low noise and distortion. Pro-Graph can be controlled by Remote Controller, another Pro-Graph, or automated board. PEQ-1 is furnished with reversible end-caps for rack mount or table-top use.

**Basic Specifications:** Frequency response:  $\pm 1$ dB, 10Hz-20kHz.

S/N: 105dB.

Noise: - 85dBm.

Max. output level: + 20dBm.

THD: .01%.

Boost/cut range:  $\pm 14$ dB in 2dB increments.

Input impedance: 10Kohm balanced, 100kohms unbalanced.

Output impedance: 600 ohm balanced, 600 ohm unbalanced.

Bands: 16 at 1/3 octave spacing.

Memory capacity: 32 positions (64 with expander or remote).

Dimensions: (WxDxH) 19 x 15 x 7 inches.

**Suggested List Price:** \$1,495.00.

### SANSUI ELECTRONICS CORP.

Sansui SE-6 Graphic Equalizer  
1250 Valley Brook Road, Lyndhurst, NJ  
(201) 460-9710

Contact: C. Corenman, Mgr. PR, F. Barth Inc. 500 5th Ave., New York, NY 10110.

Date Product Introduced: June, 1981.

**Product Description and Applications:** Graphic equalizer featuring 10 octave-band controls per channel, real-time spectrum analyzer, and ultra low distortion circuitry. The spectrum analyzer shows the musical energy present in each band on 8-level LED arrays that visually form vertical lines. A switch permits monitoring either left, right, or both channels, and a second switch peak holds the displayed spectrum for several seconds. The user can transfer the selected frequency response pattern to a tape deck input.

**Basic Specifications:** The sliders have an adjustment range of plus/minus 12dB, and are centered at frequencies of 32, 63, 125, 250, 500, 1000, 2000, 4000, 8000, and 16,000 Hz.

Distortion is 0.008%.

S/N ratio is 110 dB.

Frequency response is 10 to 100,000 Hz, +0, - 1dB.

**Suggested List Price:** \$400.00.

### SOUNDCRAFTSMEN

TG2245 Dual 10-Band Graphic EQ  
2200 South Ritchey, Santa Ana, CA 92705  
(714) 556-6191

Contact: R. Hagemeyer, Sales Mgr.

Date Product Introduced: June, 1981.

**Product Description and Applications:** Two separate 10-Band EQ's on one chassis with completely independent switching including SubSonic filter, Lo-Shelving, Hi-Shelving, EQ Defeat, Loop/Monitor, & Pre-EQ Loop. The new pro eq features 600 ohm transformerless balanced or unbalanced operation. Line In/Line Out jacks duplicated on front panel for easy patching. Unity gain controls with LED's for fast and accurate (0.1dB) balancing.

**Basic Specifications:** 114dB signal to noise ratio (- 92dBm).

Maximum input/output is + 22dB.

THD less than 0.01%, ISO standard octave centers,

control range is  $\pm 12$ dB (all others at zero).

Sub-Sonic filter is - 3dB at 15Hz, Lo Shelf is - 3dB @ 100 Hz.

Hi Shelf is - 3dB at 10KHz, all filters have 12 dB per octave slope.

Rack mount 3.5" x 19" front panel.

**Suggested List Price:** \$399.00.



**1981** **NEW PRODUCTS**  
**EQUALIZERS**



SOUNDCRAFTSMAN  
AS1000 Auto-Scanalyzer

**SOUNDCRAFTSMEN**  
AS1000 Auto-Scanalyzer  
2200 South Ritzey, Santa Ana, CA 92705  
(714) 558-8191

Contact: R. Hagemeyer, Sales Mgr.  
Date Product Introduced: June, 1981.

**Product Description and Applications:** Real Time Equalization with Differential Comparator Circuitry accurate to within 0.1 dB. Built-in Pink Noise generator provides all band pink noise, also octave band test signals in either Manual or Auto-Scanning mode for frequency response measurement of a single component or the entire system. Real-time display contains 100 LEDs covering 10 octaves in 2dB steps with a total range of 58 dB with Display Position Control.

**Basic Specifications:** Frequency response: 20 to 20kHz  $\pm$  0.1 dB.

Hi Level input impedance-47K ohms.  
Mic Preamp input impedance-2000 ohms.  
Mic preamp gain: 80dB max.  
Standard ISO center frequencies.  
Rack mount front panel 3.5 x 19".  
Suggested List Price: \$499.00.

**SPECTRA SOUND**  
Model 1500 1/2 Octave Graphic Equalizer  
3750 Alrport Road, Ogden, Utah 84403  
(801) 392-7531

Contact: Gregory D. Dilley.  
Date Product Introduced: May, 1981.

**Product Description and Applications:** The Spectra Sound Model 1500 represents a significant improvement in third-octave equalizer performance. The distortion of the unit for both I.M. and T.H.D. is below test equipment residual, (.0018%). The signal-to-noise ratio is 104dB below +4dBv. Other improvements include a switchable boost and cut of either  $\pm$  6dB or  $\pm$  12dB, and a constant impedance input level. The input of the unit is an active differential amplifier (bridging) which is terminated with a standard XLR connection. The output is also an active differential amplifier capable of +22dBv.

**Basic Specifications:** THD: .0018%.

IM: .0018%.  
Signal-to-Noise Ratio: 104dB below +4dBv.  
Frequency Response: 20Hz to 20kHz,  $\pm$  .5dB, +18dBv.  
Input Impedance: 10K ohms.  
Output Impedance: Less than 1 ohms, typically .3 ohms.  
Noise Specification: Unweighted, 20Hz to 20kHz.

**SUBSCRIBE TO**

**MIX:**

**SEE PAGE 96**

# Mix

## SUBSCRIPTION

ONE YEAR  \$18.00 FOREIGN  \$22.00  
SINGLE BACK ISSUES  \$2.50  RENEWAL

NAME \_\_\_\_\_

COMPANY NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_

STATE \_\_\_\_\_

ZIP \_\_\_\_\_

**Payment by Check or Money Order must accompany ad unless charging by  VISA or  MASTERCHARGE. To Charge your subscription complete the information below.**

Card Number \_\_\_\_\_

Expiration Date \_\_\_\_\_

Signature \_\_\_\_\_

**Mix Publications, Inc.**

**P.O. BOX 6395, ALBANY BRANCH  
BERKELEY, CALIFORNIA 94706**

\*Please allow 4 to 6 weeks for first delivery

# \$1,930 AES Special



Ampex  
ATR 102

This month we are including \$1,930 worth of accessories with each Ampex ATR 100. Call for details. But hurry!

**BEFORE YOU MAKE A SOUND, LISTEN TO US**  
**sound genesis**  
SAN FRANCISCO  
Your Professional Audio Equipment Center  
2001 Bryant St., San Francisco 94110  
TWX 910 372-7393  
415 785-8900  
©1981 Sound Genesis

# NEW-PRODUCTS

# 1981

# MICROPHONES

**AKG ACOUSTICS, INC.**  
C-567  
77 Selleck Street, Stamford, CT 06902  
(203) 348-2121

Contact: Patric Donaghy.  
Date Product Introduced: February, 1981.  
Product Description and Applications: The unit is designed for inconspicuous use in applications such as television news and interview shows; motion picture work where it can be hidden on talent or in props, etc.; on pulpits and lecturns where the speaker is free to move and gyrate without loss of level; in recording studios as a clip-on mic for "tight" instrumental sounds; plus any number of similar creative applications. The microphone "head" and output module are all metal zinc construction providing maximum durability and are chrome-black plated to offer an attractive, yet totally non-reflective and unnoticed appearance. The transducer system is field replaceable.

Basic Specifications: No battery compartment is provided in the C-567. Instead, the microphone may be phantom powered from the mixer or recorder to which it is connected. It may also be powered by any of the AKG external ac or battery-operated phantom power supplies. Accessories include tie bars for one or two C-567 mics, a single-mic tie tac, belt clip, and a wire mesh windscreen. The C-567 is omnidirectional with a frequency range of 20-20,000 Hz. Currently available in limited quantities, the C-567 lavalier comes complete with carrying case.

Suggested List Price: \$225.00.

**AKG ACOUSTICS, INC.**  
C-535EB  
77 Selleck Street, Stamford, CT 06902  
(203) 348-2121

Contact: Patric Donaghy.  
Date Product Introduced: February, 1981.  
Product Description and Applications: AKG announces the introduction of a condenser vocalist microphone, the C-535EB. The sound of the C-535EB is crystal clear and open, with a slightly rising high-frequency response to bring out the character of voices and instruments. It's cardioid polar pattern is quite uniform at all frequencies to avoid feedback and coloration of off-axis sound. Applications for the C-535EB range from a "First Class" live performance vocal and instrumental mic to studio applications, as an excellent announcer/DJ mic, as a podium mic or a choir pick-up.

Basic Specifications: The transducer system is a permanently charged condenser and is field replaceable by competent maintenance technicians. The housing is exceedingly durable made of die-cast zinc, and durably black-chrome plated. The complete transducer is shock suspended in a manner similar to the D-300's and is enclosed in a black-chrome plated stainless-steel windscreen. Other features include its unique four step attenuator switch. The C-535EB requires phantom powering in the 9-52 volt range (from mixer, tape recorder, or any AKG accessory AC or battery power supply.)

Suggested List Price: \$340.00.

**AKG ACOUSTICS, INC.**  
C-414EB/P48  
77 Selleck Street, Stamford, CT 06902  
(203) 348-2121

Contact: Patric Donaghy.  
Date Product Introduced: February, 1981.  
Product Description and Applications: AKG has announced the development of a unique version of their popular C-414EB Large-Diaphragm Professional Studio Condenser Microphone. The new microphone C-414EB/P48 was designed to meet the increasingly high standards of (pulse current modulation) digital recording techniques. Since its introduction a few years ago, the C-414EB has gained widespread acceptance as one of the best microphones to be employed in the existing analog recording techniques. However, the new microphone, an addition to the C-414 line, has greatly

improved dynamic range, an improved equivalent noise level, and increased sensitivity.

Basic Specifications: Supplied in satin-black chrome finish, for 48 volt phantom powering only, the C-414EB/P48 is available on special order for delivery within thirty days. It is supplied with windscreen and stand adaptor.

Suggested List Price: \$750.00.

**ELECTRO-VOICE, INC.**  
PL88  
600 Cecil Street, Buchanan, MI 49107  
(616) 695-6631

Contact: Greg Sillsby, Marketing Mgr. Professional Products.

Date Product Introduced: May, 1981.

Product Description and Applications: The PL88 is a Single-D dynamic cardioid microphone designed for the vocal entertainer. When used close up, the PL88 exhibits the proper amount of bass boost. An Acoustifoam™ blast filter prevents "P-popping" or other excessive breath and sibilant noise. Also includes an effective shock mount to reduce handling noise.

Basic Specifications: Frequency response 60-13,000 Hz; available in high or low impedance.

-58 dB output.

On/off switch.

Diecast zinc case material with snow gray body and charcoal grille.

358 stand adaptor and vinyl carrying case included.

Suggested List Price: \$67.50.

**CROWN INTERNATIONAL INC.**  
PZMTM 3LV  
1718 W. Mishawaka Rd., Elkhart, IN 46517  
(219) 294-5571

Contact: R. David McLaughlin, Product Line Manager.  
Date Product Introduced: October, 1981.

Product Description and Applications: The Crown PZMTM 3LV is a tie clasp model Pressure Zone Microphone™ specifically designed to provide superb vocal pick up in a most inobtrusive manner. Its extremely small size makes it ideal for on-camera uses. It's distinct lack of microphonics makes it recommended for a wide variety of church, theatre and musical applications. The hemispheric pick up pattern and full range frequency response of the Crown PZM 3LV makes it a popular instrument microphone as well.

Basic Specifications: Frequency Response: 50-15000 Hz.

Impedance rating: 150 ohm balanced.

Open circuit voltage: -76 dB (zero dB = 1 milliwatt/10 microbars).

Max. SPL: 150 dB.

Comes with PX-18BL power supply (battery of phantom, switch selectable).

Suggested List Price: \$350.00.

**CROWN INTERNATIONAL INC.**  
PZMTM 2LV  
1718 W. Mishawaka Rd., Elkhart, IN 46517  
(219) 294-5571

Contact: R. David McLaughlin, Product Line Manager.  
Date Product Introduced: August, 1981.

Product Description and Applications: The Crown PZMTM 2LV is a clip-on model Pressure Zone Microphone™ designed for high quality full range vocal pick up. As an application of the Pressure Recording Process™ (PRPTM), pickup on the small plate creates a response curve particularly suited for speech. The Crown PZMTM 2LV hemispheric pick up pattern allows an interview to be effectively conducted with only one microphone. The unit's small size (1" x 1" x .5") makes concealment easy.

Basic Specifications: See PZMTM 3LV; a choice of power supplies is available including the PX-TL phantom supply which has a clip for attachment to the

users clothing and a male XLR connector for wiring to a mixer and a Switchcraft # TA4F connector to interface with wireless transmitters.

Suggested List Price: \$350.00.

**CROWN INTERNATIONAL INC.**  
PZMTM 20RMG  
1718 W. Mishawaka Rd., Elkhart, IN 46517  
(219) 294-5571

Contact: R. David McLaughlin, Product Line Manager.  
Date Product Introduced: July, 1981.

Product Description and Applications: The Crown PZMTM 20 RMG is a recessed mounted Pressure Zone Microphone™ designed for fixed installation. The unit's hemispheric pickup pattern and very inobtrusive size make it ideally suited for permanent mounting in lecture, judicial bench, pulpit or conference table. The Crown PZMTM 20 RMG optimizes the boundary-layer effect, the key to the Pressure Recording Process™ on which the PZMTM design is based. Fewer microphones required and improved pickup are additional benefits of the PZMTM 20 RMG.

Basic Specifications: Frequency response: 50Hz-15000 Hz.

Plate size: 4.5" x 4.5" x 1/4".

Max. SPL: 150 dB.

Color: Bronze.

Suggested List Price: \$350.00.

**GC ELECTRONICS**  
High/Low Impedance Dynamic Microphone  
400 South Wyman Street, Rockford, IL 61101  
(615) 968-9681

Contact: Tom Giovingo, Market Analyst.

Date Product Introduced: May, 1981.

Product Description and Applications: Dual impedance microphone enables user to match output on amplifier or tape recorder. Suitable for recording, public address, vocal or instrumental music and outdoor use. Attractive chrome housing and screen. Impedance adjusts simply by matching red dot on cable connector to red or black dot on microphone. Has self-contained filter to control breath and wind sounds. Holder included.

Basic Specifications: Type: Dynamic moving coil.

Frequency Response: 80-15,000 Hz.

Impedance: 500 or 50k ohms.

Polar Pattern: Uni-directional.

Output Level: -72 dB at 500 ohms, -52 dB at 50k ohms at 1,000 Hz.

Cable: 20 ft., 2-cond. shielded with 1/4" phone plug.

Connector: 4-pin screw type.

\*0 dB = 1 V per microbar; Cat. No. 30-2374.

Suggested List Price: \$27.90.

**GC ELECTRONICS**  
Low Impedance Dynamic Microphone  
400 South Wyman Street, Rockford, IL 61101  
(615) 968-9681

Contact: Tom Giovingo, Market Analyst.

Date Product Introduced: May, 1981.

Product Description and Applications: A professional quality microphone, ruggedly constructed for reliability and long life. Well suited to studio recording, concert, vocal or instrumental music, public address and outdoor use. Attractive black housing and screen. Has self-contained filter which controls explosive breath sounds and outdoor wind noise. Cartridge pickup pattern minimizes background noise and clearly picks up desirable sounds. Vinyl storage case and holder included.

Basic Specifications: Type: Dynamic moving coil.

Frequency Response: 60-15,000 Hz.

Impedance: 200 ohms.

Polar Pattern: Uni-directional.

Output Level: -75 dB at 1,000 ohms, \*0 dB = 1 V per microbar.

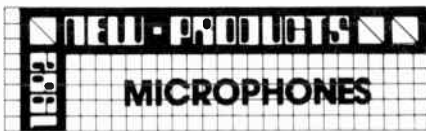
Cable: 20 ft., 2-cond. shielded with 1/4" phone plug.

Connector: Pro. 3-pin Audio connector.

Cat. No. 30-2372.

Suggested List Price: \$69.95.





**GC ELECTRONICS**

**Stereo Electret Microphone**  
400 South Wyman Street, Rockford, IL 61101  
(815) 968-9661

Contact: Tom Giovingo, Market Analyst.  
Date Product Introduced: May, 1981.

**Product Description and Applications:** Unique single microphone has two matched uni-directional elements that feed two distinct channels for true stereo separation. Suited for studio recording, concert, vocal music and out-door use. Operates on a single 1.5 V (AA) battery. Anodized aluminum and chrome. Has self-contained windscreen to reduce breath and outdoor wind noise. Left and right stereo channels are indicated on screen. On-off switch conserves batteries. Mike holder included.

**Basic Specifications:** Type: Stereo electret condenser. Frequency Response: 50-16,000 Hz. Impedance: 600 ohms. Polar Pattern: Uni-directional. Output Level: -68 dB at 1,000 Hz\*. \*0 db = 1 V per microbar. Cable: 9.9 ft., with (2) 1/4" plugs. Connector: None (fixed). Battery: 1.5 V type AA. Cat. No. 30-2382. Suggested List Price: \$36.95.

**GC ELECTRONICS**

**Electret Uni-directional Microphone**  
400 South Wyman Street, Rockford, IL 61101  
(815) 968-9661

Contact: Tom Giovingo, Market Analyst.  
Date Product Introduced: May, 1981.

**Product Description and Applications:** Tubular style microphone has built-in, self-powered condenser type FET preamplifier. Operates on a 1.5 V battery for 10,000 hours of continuous use. Suitable for studio recording, broadcasting, vocal or instrumental music, and when used with foam wind screen, for general outdoor use. Gold anodized aluminum housing. On/off slide switch to conserve battery life. Foam wind screen and holder included.

**Basic Specifications:** Type: Electret condenser. Frequency Response: 30-16,000 Hz. Impedance: 600 ohms. Polar Pattern: Uni-directional. Output Level: -68 dB ± 3 dB at 1,000 Hz\*. \*0 db = 1 V microbar. Cable: 20 ft., heavy duty with 1/4" plug. Connector: none (fixed). Cat. No. 30-2378. Suggested List Price: \$29.95.

**MILAB PROFESSIONAL MICROPHONES**

**Model LC-25 Transformerless, Cardioid, Condenser Microphone.**

c/o Cara International Ltd., P.O. Box 9339, Marina del Rey, CA 90291  
(213) 821-7898

Contact: W.L. Cara.  
Date Product Introduced: August, 1981.

**Product Description and Applications:** The LC-25 is a Condenser microphone with tight cardioid pattern. It uses no transformers in the signal path, and delivers 0.775 v into a standard balanced microphone input (1 K-ohm). The LC-25 requires standard 48 volt powering at 3mA maximum current drain. It is designed for the highest quality sound recording, for analog, digital and direct-to-disk. The mic is very rugged and has excellent shock and vibration isolation permitting hand held use.

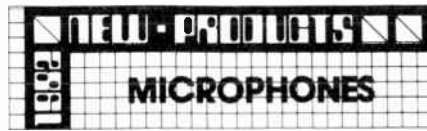
**Basic Specifications:** Large diameter condenser element (0.83 inches Dia.). Directivity Index: 25 dB @ 1kHz. Frequency response: 20 Hz to 20 kHz. Self Noise: less than 20 dB (re: 0.00002 Pa). SPL/Distortion: less than 1% THD @ 130 dB SPL. Output: Active balanced, 0.775 v into typical 1 K-ohm load. Transformerless. Suggested List Price: \$845.00. Availability—September 1981.

**UNICORD**

**Stage Microphones**  
89 Frost Street, Westbury, New York 11590  
(516) 333-9100

Contact: Mitch Colby, Product Manager.  
Date Product Introduced: June, 1981.

**Product Description and Applications:** This new line of mikes features four dynamic cardioid models, offering

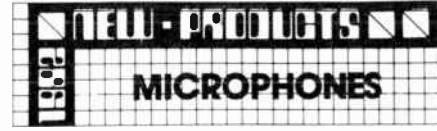


professional features at moderate prices. Each model is equipped with low noise cable and mike stand adapter.

**Basic Specifications:** DM260-9 micron diaphragm, cardioid pickup pattern, integral windscreen, die-cast zinc construction, 40Hz-20,000KHz.

Sensitivity: -72db ± 3dB, H-6 5/8" / 2" diameter. Weight 8.8 oz.

Accessories: dual conductor cable w/male and female



three pin XLR connectors, mike stand adapter, vinyl carrying case.

Slight presence peak for vocal clarity. Smooth dip in low freq. range limits feedback. Controlled proximity effect adds bottom and warmth without muddying sound.

Rubber shock mount suspension for low handling noise.

**Buying Equipment?  
Selling Equipment?  
Looking for new  
personnel? Catch it in  
the Mix  
Classified—page 97**



# Neumann Sale

From October 1 thru December 31, Sound Genesis is offering amazing sale prices on Neumann microphones with up to 22% off last year's prices. Call today for details.



**BEFORE YOU MAKE A SOUND, LISTEN TO US.**  
**sound genesis**  
SAN FRANCISCO  
Your Professional Audio Equipment Center  
2703 Bryant St., San Francisco 94110  
TOLL FREE 800 372 7393  
415 285 8900

# NEW-PRODUCTS

## MIXING CONSOLES

### DMI INC.

**Kelsey Pro 2/3 Series**  
150 Florence Ave., Hawthorne, NJ 07508  
(201) 423-1300

Contact: Jamey Reilly, Chief Engineer.

Date Product Introduced: June, 1981.

**Product Description and Applications:** State-of-the-Art mixer available in eight through twenty-four channel models. Comes with fiberglass SMF roadcase. Features include two submaster mono or stereo operation, full patching, ultra-low noise active transformerless preamps, 4 band EQ, stereo solo, 3 aux sends, built-in reverb system, balanced and unbalanced inputs and outputs, two switchable three color LED arrays monitor all busses, stereo aux in, two returns, and highly regulated toroidal power supply.

**Basic Specifications:** Gain: 74 dB.

Freq. Resp.: 20 Hz-25KHz.

THD: Below .03%.

Equivalent Input Noise: -129dBV plus.

Leakage: 70dB down.

Dynamic Range: 90dB plus.

CMRR: 90dB plus.

Max Input: Mic +10dBV, Line +30 dBV.

Max Output: +24 dBV.

System Headroom: 20dB.

Nominal Mix Residual output Noise: -100 dBV.

Suggested List Price: \$1400.00 to \$3150.00.

### DMI INC.

**Kelsey Pro Club + 3A Series**  
150 Florence Ave., Hawthorne, NJ 07508  
(201) 423-1300

Contact: Jamey Reilly, Chief Engineer.

Date Product Introduced: June, 1981.

**Product Description and Applications:** Compact pro quality mixer available in six through twenty-four channel models. Comes built into fiberglass SMF roadcase. Features include two submaster mono or stereo operation, ultra-low noise active transformerless preamps, 3 band EQ, 3 aux sends, built-in reverb system, balanced and unbalanced inputs and outputs, two switchable three color LED arrays monitor all busses, stereo aux in, two returns, and built-in highly regulated shielded toroidal power supply.

**Basic Specifications:** Gain: 74 dB.

Freq. Resp.: 20 Hz-25 KHz.

THD: below .04%.

Equivalent input noise: -129 dBV.

Leakage: 70dB down.

Dynamic range: 80 dB plus.

CMRR: 80 dB plus.

Max Input: MIC +10 dBV, Line +30 dBV.

Max Output: +24 dBV.

Suggested List Price: \$950.00 to \$2850.00.

### FOSTEX CORP OF AMERICA

**2050 Line Mixer**  
15431 Blackburn Ave., Norwalk, CA 90650  
(213) 921-1112

Contact: Linda Schuchart, Marketing Administrator.

Date Product Introduced: August, 1981.

**Product Description and Applications:** 8x2x2 with gain and pan controls. Additional 2 channel buss that can be mixed in with 8x2 buss. Headphone monitor enables you to listen to the 8x2 buss or the 8x2 buss with extra stereo mix. Front panel priority jacks for the stereo input disconnect rear panel connectors when used. Rack mount adaptors optional.

**Basic Specifications:** Signal to noise: -80 dB (weighted).

Crosstalk: 60 dB or more (at 1kHz).

THD: 0.03% max. (at 1kHz).

Suggested List Price: \$200.00.

### INTERFACE ELECTRONICS

**Stage Monitor Mixer Model 1041**  
8710 Alder, Houston, TX 77081  
(713) 660-0100

Contact: Louis Stevenson, president.

Date Product Introduced: May, 1981.

**Product Description and Applications:** 1981 version of the standard Interface Stage Monitor mixer now includes channel masters, tuneable mid equalizer plus high and low equalizer, equalizer in/out switch on each of the eight sends, solo to operator. Fully modular and plug-in. Available with 16 to 32 inputs.

**Basic Specifications:** Balanced transformer inputs with splitter outputs; output transformers optional.

Mixer meets near state of the art professional specifications for response, distortion, and noise.

Suggested List Price: 16 in: \$9410.00; 24 in: \$12970.00.

32 in: \$16230.00.

### INTERFACE ELECTRONICS

**Battery Portable Stereo Professional Mixer Model 200**  
6710 Alder, Houston, TX 77081  
(713) 660-0100

Contact: Louis Stevenson, president.

Date Product Introduced: August, 1981.

**Product Description and Applications:** Battery powered full professional stereo mixer, eight input two output plus cue and echo, with input module features such as fully modular plug-in, microphone powering (both 48 volt phantom and 12 volt "T") three equalizers with frequency switch on mid, conductive plastic sliders, solo to operator, module on/off conserves power when module is off, plus optional intercom module with playback, slate, intercom, tones, and power output. 12 volt 16-hour battery with charger is included.

**Basic Specifications:** Balanced transformer inputs, transformer outputs optional, near state of the art professional specs for response, distortion, noise.

Suggested List Price: \$3900.00.

### NEI

**1222 and 1622 Mixing Console**  
934 N. E. 25th Avenue, Portland, Oregon 97232  
(503) 232-4445

Contact: H.C. (Bud) Garrison, Vice President, Marketing.

Date Product Introduced: September, 1981.

**Product Description and Applications:** The 1222 and 1622 mixing consoles feature 12 and 16 channels respectively and are ideal for a diverse range of applications transcending recording and sound reinforcement. Professionally appointed with features that include built-in reverb with master level and pan control, separate input/output jacks for signal processing of individual input channels, slide-type master output controls and master monitor control. Each input channel features mic/line switching, balanced mic and line level inputs, monitor, reverb and auxiliary sends (Aux switchable for pre or post EQ/fader), 3 band input channel equalizer, pan control and oil damped slide channel fader.

**Basic Specifications:** Each channel features extensive headphone monitoring system for solo and function monitoring with Loud 5 watt headphone amp with gain control, balanced and unbalanced line level outputs for left, right mono and monitor. Returns with hi or low level return jacks and panning for both effects and Aux returns.

Suggested List Price: 1222: \$1595.00; 1622: \$1895.00.

### QUAD-EIGHT ELECTRONICS

**248 Component Series Audio Consoles**  
11929 Vose Street, North Hollywood, CA 91605  
(213) 784-1516

Contact: Sales Dept: Bill Windsor, Frank Stearns.

Date Product Introduced: 1981 NAB, Show, Las Vegas.

**Product Description and Applications:** The 248 series is an expandable mainframe audio console that can be configured for broadcasting, sound-reinforcement, small-format recording, and production work. A choice of fourteen different kinds of component modules allow combinations of audio processing best suited for the particular task(s). The user can buy what he needs, when he needs it. Systems as small as 8 in, 2 out, and as large

as 32 in, 8 out, are standard, with other sizes available on special order.

**Basic Specifications:** Most specifications meet or exceed that of physically larger and much more expensive systems:  $\pm 1$  dB, 20 to 20 KHz.

( $\pm 5$  dB, 30 to 20KHz)

Any input to any output, at any level to +24 dBm.

Mic EIN: -129dBm, 88 dB S/N system.

THD: .1% (.05% 30 to 20KHz) any level.

Headroom: +26dB mic, all other sections: +22 dB.

Overall Gain: 95dB.

Crosstalk: better than 85 db, 20 to 15 KHz, channel to channel.

Suggested List Price: From \$10,000 to \$40,000.

### QUAD-EIGHT ELECTRONICS

**Auto-Ventura**  
11929 Vose Street, North Hollywood, CA 91605  
(213) 784-1516

Contact: Sales Dept: Bill Windsor, Frank Stearns.

Date Product Introduced: 1981 AES Show, New York.

**Product Description and Applications:** The Auto-Ventura consists of two proven Quad-Eight products brought together for the first time: The Ventura console and Compumix III automation. Designed for post-production, the basic Ventura omits expensive, unnecessary recording-studio features not used in post-production. Yet there has been no compromise in performance. Compumix III is a SMPTE-based, floppy-disk automation system, allowing recording and playback of mix data; and mix editing tight as one frame.

**Basic Specifications:** Frequency response:  $\pm 1$  dB, 20 to 20KHz ( $\pm 5$  dB, 30 to 20 KHz) any input to any output, at any level to +28 dBm.

Mic EIN: -129dBm, 84 dB S/N system.

THD: .15% 30 to 20 KHz, any level.

Headroom: +28 dB mic, all other sections: +24 dB.

Overall Gain: 80 dB.

Crosstalk: better than 70 dB, 20 to 20 KHz, channel to channel.

Suggested List Price: Under \$100,000.00.

### SHURE BROTHERS INCORPORATED

**M267 Professional Microphone Mixer**  
222 Hartrey Avenue, Evanston, IL 60204  
(312) 866-2200

Contact: Michael Pettersen, Product Manager.

Date Product Introduced: August, 1981.

**Product Description and Applications:** Portable four channel mixer with switchable mic/line inputs and output. Features peak program limiter, tone oscillator, 30 VDC phantom power, headphone amplifier, LED peak indicator, lo cut filters, transformer balanced. Inputs and outputs, illuminated VU meter, gold contact switches, active gain controls, mix bus jack, and built in battery pak. For professional broadcasting, recording, and sound reinforcement.

**Basic Specifications:**  $\pm 2$ dB; 30 to 20,000 Hz.

Max gain: 92 dB.

Less than 0.35% THD, less than 0.5% IM.

Input clipping levels: Mic: -32dBV to -5dBV, Line: +20dBV.

Limiter threshold: +15dBm.

Attack time: 3 msec.

Recovery time: 500 msec. 105-125 volts, 50/60 Hz.

or 3-9 volt alkaline batteries.

Dimensions: 75.3 mm H x 309 mm W x 227 mm D.

Weight: 2.3 kg.

Suggested List Price: \$658.33.

### SHURE BROTHERS INCORPORATED

**M268 Microphone Mixer**  
222 Hartrey Avenue, Evanston, IL 60204  
(312) 866-2200

Contact: Michael Pettersen, Product Manager.

Date Product Introduced: August, 1981.

**Product Description and Applications:** Portable five-channel mixer with four mic inputs and one aux input. Each mic input is transformer balanced with switchable



## NEW PRODUCTS

### MIXING CONSOLES

hi/lo Z. Features 30 VDC phantom power, mix bus jack, active gain controls, automatic muting during turn on/off, gold contact switched, low hum and noise, electronically regulated power supply. For recording, sound reinforcement, and paging applications.

**Basic Specifications:**  $\pm 3$  dB; 40 to 20,000 Hz.

Max gain: 78 dB; less than 0.2% THD.

Input clipping levels: Lo Z mic:  $-32$  dBV to  $-5$  dBV.

Hi Z mic:  $-10$  dBV to  $+18$  dBV.

Aux:  $+14$  dBV to  $+30$  dBV, 105-125 volts, 50/60 Hz.

Battery supply available.

Dimensions: 75.3 mm H x 309 mm W x 227 mm D.

Weight: 1.9 kg.

**Suggested List Price:** \$416.67.

#### SOUND WORKSHOP PROFESSIONAL AUDIO PRODUCTS, INC.

##### LOGEX 8

1324 Motor Parkway, Hauppauge, New York 11786

(516) 582-8210

Contact: Emil Handke, Sales Manager.

**Date Product Introduced:** October, 1981.

**Product Description and Applications:** This is the first of the LOGEX product line. The LOGEX 8 Mixing Console is a 12 Input 8 Output new addition to Sound Workshops' console line. It is similar to the Series 20 in terms of signal flow and functions, however, it utilizes different circuitry in some areas, and is packaged in a new manner. It will initially be available as a 12x8 in December, and in a larger format shortly thereafter. It will be priced significantly lower than the Series 20 and will be more widely distributed.

**Basic Specifications:** 12 Input Mainframe.

**Suggested List Price:** 12 x 8: Under \$4,000.00.

#### STUDIOMASTER, INC.

##### 8x4 Monitor Mixer

1385-C Dynamics St, Anaheim, CA 92808

(714) 528-4930

Contact: Vince Basse, Product Manager.

**Date Product Introduced:** January, 1981.

**Product Description and Applications:** The 8x4 is Studiomaster's most versatile mixer with applications in recording, live performance, keyboard mixing, video and AV applications. The mixer is phantom powered with balanced inputs, parametric equalization and many features.

**Basic Specifications:** The unit is rack mountable in a

19" rack with 8 inputs into 4 into 1.

**Suggested List Price:** \$1695.00.

#### STUDIOMASTER, INC.

##### 4 Into 2 Module

1385-C Dynamics St, Anaheim, CA 92808

(714) 528-4930

Contact: Vince Basse, Product Manager.

**Date Product Introduced:** March, 1981.

**Product Description and Applications:** Allows past and present purchasers to expand the output capabilities of their 16x4 mixers. The 4 Into 2 features individual left and right output control sections each with three bands of semi-parametric EQ., balanced and unbalanced outputs, two additional VU's and VU calibration switch for either a  $+4$  or  $+10$  zero reference.

**Suggested List Price:** \$775.00.

#### STUDIOMASTER, INC.

##### Studio 4

1385-C Dynamics St, Anaheim, CA 92808

(714) 528-4930

Contact: Vince Basse, Product Manager.

**Date Product Introduced:** June, 1981.

**Product Description and Applications:** The Studio 4 is a six input 4 track cassette mixer/recorder, utilizing a new head design combined with advanced electronics to create the most flexible unit of its type. Featuring six XLR, balanced inputs, selectable for mic or line, each input having a three band semi-parametric EQ., two aux. sends and full output assignment. The recorder section is capable of recording and/or remixing all four tracks simultaneously, as well as providing both stereo and mono outputs.

**Basic Specifications:** Mixer Specs: Freq. response:

20-20kHz.

THD: 0.1%.

S/N: greater than 75dB.

Crosstalk: greater than 68dB @ 1kHz.

Recorder specs: speed  $3\frac{3}{4}$  ips.

Wow and flutter less than 0.04%.

THD 1.5% @ 315 Hz.

S/N: 63 dB.

Crosstalk greater than 50 dB @ 1kHz.

Noise reduction: Dolby "B".

## NEW PRODUCTS

### MIXING CONSOLES

#### WALKER AUDIO VISUAL ENGINEERING

##### W.A.V.E. Monitor Series

1823 Commercecenter W., San Bernardino, CA 92412

(714) 884-1294

Contact: Jim Walker.

**Date Product Introduced:** February, 1981.

**Product Description and Applications:** Totally modular expandable monitor console, featuring variable gain balanced mic Input with 3 level input VU., direct outs, 13 sends, including 8 Mon. sends, 4 aux group sends, Solo, and Mute, 5 band EQ., 100 mm faders, 8 Monitor outputs, each with 4 Independent Aux group receives (for sub mixes), 2 independent Talkback channels (local, house), 8 output VU's, +48 Phantom Power, Headphones, Output patching. Options: Dual 10 band EQ, Quad Compressor/Limiter. Applications: stage monitor mixer.

**Basic Specifications:** Response: 20-20KHz  $\pm 5$  dB.

Noise: 129 dBV at 150 ohms unweighted, band limited

20-20KHz.

Distortion: less than .04% at  $+20$  dBm.

Outputs: (balanced) 8 with complete patching plus

Cue, Aux, and Headphone outputs.

**Suggested List Price:** From \$5730 depending on

number of inputs.

#### ZEUS AUDIO SYSTEM

##### Model 8500-8 Mixer

511 S. Palm Ave., Alhambra, CA 91803

(213) 261-0023

Contact: D. Turface-Sales.

**Date Product Introduced:** June, 1981.

**Product Description and Applications:** 6-in/2 out mixer can be used for P.A., recording, keyboards, or sub-mixer. Includes 6 input channels (high or low impedance), two stage EQ., accessory buss, attenuation and volume control for each channel. Master controls for Main and Accessory Out and has an LED ladder-type VU meter.

**Basic Specifications:** Input Impedance: 400K ohm.

Output Impedance: 5K ohm.

Freq. Res. 20-20K.

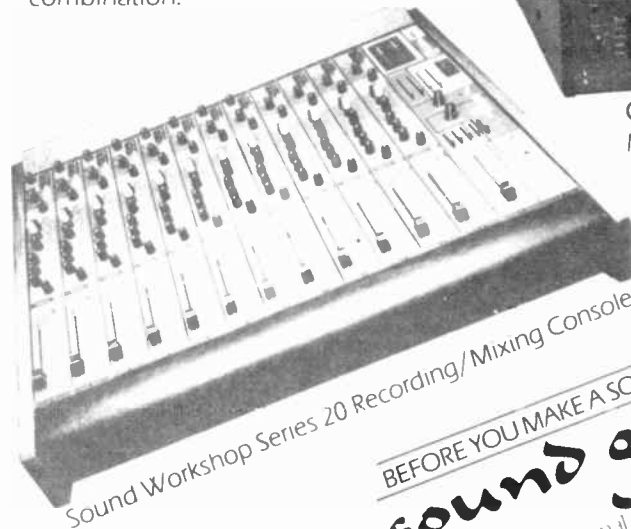
S/N: 80 dB, power required 120vac.

Size: 2" x 5 $\frac{1}{2}$ " x 16 $\frac{1}{2}$ ".

**Suggested List Price:** \$208.00.

## All-Pro 8

Presenting the recording studio that won't wipe out your wallet. Compact. Versatile. Unsurpassed performance. An unbeatable combination.



Otari 5050  
Mark III/8 Recorder

BEFORE YOU MAKE A SOUND, LISTEN TO US.

**sound genesis**  
SAN FRANCISCO

Your Professional Audio Equipment Center  
2001 Bryant St. San Francisco 94110  
TWX: 910 372-7393  
415 285-8900

# NEW-PRODUCTS

## SIGNAL PROCESSING

### A/DA

**Stereo Taped Delay (STD-1)**  
2318 Fourth Street, Berkeley, CA 94710  
(415) 548-1311

Contact: Michael Maia, Marketing Director.

**Date Product Introduced:** September, 1981.

**Product Description and Applications:** Analog delay with six different simultaneous delays, each assignable to A or B stereo channels. Delay time ranges from 1.3 to 55.5 ms. Sweep Modulation control (2nd LFO). High-cut feature in regeneration section reduces high-frequency content as it recirculates for more natural sound. Useable 8-step LED Headroom indicator. 1 1/4" rack-mount. Remote effect and regeneration In/Out.

**Basic Specifications:** Dynamic Range: 93dB unweighted.

Bandwidth: Dry - 10Hz to 20 kHz, Delay - 20 Hz to 13.5kHz.

Instrument Version-Input: 40K ohm or 1 Megohm.

Output: Stereo, 600 ohm.

Studio Version-Input: 40K ohm, 1/4" phone or 600 ohm, balanced XLR.

Output: Stereo, 600 ohm, 1/4" phone or 600 ohm, balanced, XLR.

**Suggested List Price:** \$799.95

### AUDI-ENCE, INC.

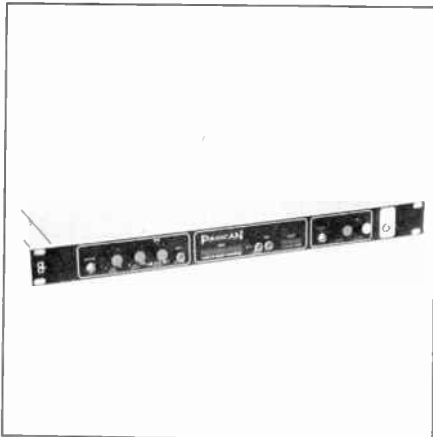
**RFS-2 Reverb**  
3325 Vista Oaks, Garland, TX 75043  
(214) 226-2189

Contact: Gail Hawkes.

**Date Product Introduced:** June, 1981.

**Product Description and Applications:** The RFS-2 by Audi-Ence, Inc. is a full featured professional plate reverb system with line level compatibility with esoteric equipment to the lower priced "semi" pro gear. Other features include, low noise electronics, a special design driver assembly to simplify installation, no limiting to restrict natural dynamics, better than 15 dB headroom broadband, XLR type interface connectors, and optional variable decay (VD model) at additional cost. Provisions for cartage include lifting eyes with a system weight of about 225 lbs.

**Suggested List Price:** The stereo RFS-2 FD (fixed Decay) carries a list price of \$1,995.00 where the RFS-2 VD (variable decay) has a list price of \$2,395.00.



AUDIO & DESIGN RECORDING, INC.  
PANSCAN

**AUDIO & DESIGN (Audio & Design Recording, Inc.)**  
**PANSCAN**

P.O. Box 788, Bremerton, WA 98310  
(208) 275-5009 or Toll Free: 800-428-8170

Contact: Nigel Branwell (V-P, Marketing).

**Date Product Introduced:** October, 1981.

**Product Description and Applications:** The PANSCAN

will pan the audio image at varying speeds from a very low soft shift to ultra fast 'stereo vibrato'; without the usual 6dB loss as the two channels pan across the center. In the 'auto' mode the PANSCAN pans continuously; in the 'trigger' mode, panning can be triggered either manually, or by the unique 'beat count' circuitry which senses and counts the beat transients direct from either the input signal or a key signal from an external source. At any time during a pan, the image may be held by the 'image freeze' switch. Additional controls include a variable 'image width' and 'image center offset' pot.

**Basic Specifications:** Frequency Response: +0dB - 1dB 20Hz to 25kHz; REF 1kHz.  
Noise: -80dBm, measured band limited @ 25Hz and 25kHz.

Distortion: Better than 0.1% @ +15dBm.

Clip Level: Output: +20dBm into 600 ohms; Input +20 dBm.

Input Impedance: Greater than 10k @ 1kHz.

Output Impedance: Less than 1 ohm @ 1kHz.

**Suggested List Price:** Recommended retail price: \$895.00.

### AUDIO TECHNOLOGIES, INC.

**Emph'a Sizer**  
328 W. Maple Ave., Horsham, PA 19044  
(215) 443-0330

**Date Product Introduced:** May, 1981.

**Product Description and Applications:** The Emph'a Sizer, a unique new audio processing system from ATI, combines the functions of a program controlled Input Gate, a switchable four band Parametric Equalizer and a wide range, extremely low distortion Compressor-Limiter. Simplified controls in a compact, rugged, RF protected package make the Emph'a Sizer ideal for use in the studio as a DJ mike processor with switchable, presettable equalizers to tailor the Emph'a Sizer for each announcer.

### R. BARTH KG

**AUDIOS**  
Grillparzer Street CA, 200 Hamburg 78, West Germany  
Contact: Audicon Marketing Group (615) 256-6900.

**Date Product Introduced:** June, 1981.

**Product Description and Applications:** The AUDIOS is a dual channel sound and time manipulation signal processor that provides audio signal storage, pitch transposition, time, time delay, hi or trinocal doubling, phase shifting flanging, hyperflanging, nituatro and reverberation. The front panel controls on the AUDIOS are extensive and versatile and include a digital display readout for transposition intervals or delay times, a piano scale calibration for the eight intervals for the eight internal preset controls.

**Basic Specifications:** Transposition: Bivocal, ± 1 Octave Max.

Time Delay: 0.3 msec to 380 ms.

Signal to noise ratio 73dB (Compressor circuitry off).

Frequency response: +1dB 20 Hz to 16kHz.

### dbx, INCORPORATED

**180X**  
71 Chapel Street, Newton, MA 02195  
(617) 964-3210

Contact: David W. Roudebush, National Sales Manager.

**Date Product Introduced:** October, 1981 (AES Show).

**Product Description and Applications:** The 180X is the natural evolution of the world famous dbx 180 compressor/limiter. It includes a host of new features including switch selectable Over-Easy® or hard-knee compression curves, switchable hardwire bypass and "slave" (for strapping to another 180X) modes and separate detector inputs. It features a 19-LED display of input or output signals plus an independent 12-LED display showing amount of compression. It can also achieve negative compression ratios for "inverted dynamics".

**Basic Specifications:** Phone and barrier strip In/Out.

Will drive 150 ohms load.

Capable of over 80 dB gain reduction (for "Murphy-proof" limiting). Dual RMS precision LED meters for In/Out gain reduction. User access to any compression ratio from 1:1 to infinity:1 (and beyond, to -1:1) with switch selection of Over-Easy® or hard-knee curve. 1 1/4" rackmount package.

**Suggested List Price:** \$375.00.

### dbx, INCORPORATED

**180**  
71 Chapel Street, Newton, MA 02195  
(617) 964-3210

Contact: David W. Roudebush, National Sales Manager.

**Date Product Introduced:** October, 1981 (AES Show).

**Product Description and Applications:** The 180 is a Type I Noise Reduction System featuring 2 encode and 2 decode channels in a convenient 1 1/4" rackmount package. Design centered around high operating levels, the 180 provides active balanced inputs and optional transformer balanced outputs via convenient barrier strip terminations. The 180 permits convenient location of the noise reduction package at the user's machine. It provides high quality analog tape recorders with signal-to-noise specifications superior to those obtained by digital machines.

**Basic Specifications:** Channels: 2 encode, 2 decode.

Input Z: 75 kohm bal., 54 kohm unbal.

Input level: +24 dBm maximum.

Output Z: low, designed to drive 600 ohm or greater load.

Output level: +24 dBm maximum.

Slew rate: 10V/M sec.

Dynamic Range: (peak signal to A weighted background noise) 110 dB.

Frequency Response: ± 0.5 dB 30 Hz to 20 kHz.

**Suggested List Price:** \$580.00.

### dbx, INCORPORATED

**F-900U**  
71 Chapel Street, Newton, MA 02195  
(617) 964-3210

Contact: David W. Roudebush, National Sales Manager.

**Date Product Introduced:** October, 1981 (AES Show).

**Product Description and Applications:** The F-900U is the unpowered version of the dbx F-900 frame. It requires an external power supply for operation. Like the F-900 it will accommodate up to 8 active 900 Series signal processing modules with storage for a single, unpowered module. All terminations are brought out to barrier strips, and no soldering or changes of interconnections are required to accommodate any dbx 900 Series module.

**Basic Specifications:** Dimensions: 5 1/4" high x 19" rack width x 13 5/8" deep.

Number of 900 format modules accommodated: 8 standard modules or 7 standard plus 1 double-width module.

Power Supply Requirements: ± 15 VDC Regulated at 1.0 AMP, ± 24 VDC Unregulated 250 mA (± 24 VDC supply provides 900 Series modules with additional headroom and LED luminescence).

**Suggested List Price:** \$400.00.

### DOLBY LABORATORIES

**CAT. No. 221; Audio Noise Reduction Module.**  
731 Sansome St., San Francisco, Ca 94111

Contact: Robert Peterson, Director of Information Services.

**Date Product Introduced:** October, 1981 (for shipment).

**Product Description and Applications:** The Dolby Cat No. 221 audio noise reduction module has been designed to incorporate Dolby A-type noise reduction within the Sony BVH 1000 and 1100 one-inch video tape recorders. The module is installed in place of the standard audio 1 and 2 board, facilitating two independent channels of noise reduction. The VTR requires no modification to install the module.

**Basic Specifications:** Dolby A-type NR characteristics providing 10dB of noise reduction from 30hz to 5khz.



## NEW PRODUCTS

### SIGNAL PROCESSING

rising to 15dB at 15kHz.

Audio performance meets or exceeds Sony specifications. Toggle switch controls for NR on/off for tracks 1 and 2 independently, and for Dolby tone oscillator. Functions may be controlled remotely.

#### EVENTIDE CLOCKWORKS, INC.

**SP2016 Programmable Effects Processor**  
265 West 54th Street, New York, NY 10019  
(212) 581-9290

Contact: Suzanne Langle, Marketing.

Date Product Introduced: September, 1981.

**Product Description and Applications:** The SP2016 is a totally programmable effects processor which can perform virtually every audio effect through the use of plug-in software modules. These include: Reverb—a wide variety of superb quality reverb effects with user control of all parameters. Digiplex™ echo—a digital version of multiple tape head echo. Chorus effects—to generate dozens of multiple voices, each variable in time, amplitude, and space. Delay—to 3.2 seconds. Selective band delay—to separate the signal into several bands, each independently adjustable for delay (to 3.2 seconds) and amplitude. Flanging and phasing. Non-volatile user presets store user-set parameter. Full stereo operation.

**Basic Specifications:** Dynamic range: 86dB.

Frequency response: 16kHz  $\pm$  1 dB. (Some programs have 8kHz bandwidth.)

Input characteristics: Impedance nominal 10k, balanced, maximum level +24 dBm.

Full dynamic range from -10dB to +24 dBm levels.

Output characteristics: Impedance nominal 150 ohms.

Suitable for driving 600 ohms or greater at +18 dBm.

Electronically balanced. Size: 3½" x 19" c 14".

Suggested List Price: \$8995.00.

#### FOSTEX CORP. OF AMERICA

**3050 Digital Delay**  
15431 Blackburn Ave., Norwalk, CA 90650  
(213) 921-1112

Contact: Linda Schuchart, Marketing Administrator.

Date Product Introduced: August, 1981.

**Product Description and Applications:** Eight bit true digital delay offers flanging/chorus effects, straight delay, double tracking, phase inversion switch. Rack mount adapters optional.

**Basic Specifications:** Nominal input and output levels -10dBV.

Suggested List Price: \$450.00.

#### HOSHINO USA INC. (IBANEZ)

**AD202 Multi Mode Analog Delay**  
1716 Winchester Rd., Bensalem PA, 19020  
(215) 638-8870

Contact: Chuck Fukagawa/Product Mgr.

Date Product Introduced: February, 1981.

**Product Description and Applications:** Multi mode analog delay, switch selectable delay, doubling, stereo chorus and flanging. Overall delay range of 2.8ms-400ms. Two inputs with separate level controls. LED ladder displays the signal level at the input to the delay stage for distortion-free operation. Stereo outputs. 19 inch Rackmount.

**Basic Specifications:** S/N: -85dBm.

Input Impedance: 5K ohms/100k ohms unbalanced.

Output Impedance: 10K ohms.

Delay time and Frequency Response: Delay 60ms-400ms/30-Hz.

Stereo Chorus 3.2-8ms/70-7KHz, Flanger 2.6-12ms/30-7KHz.

7KHz.

Suggested List Price: \$395.00.

#### HOSHINO USA INC. (IBANEZ)

**UE400 Multi Effects**  
1716 Winchester Rd., Bensalem PA, 19020  
(215) 638-8870

Contact: Chuck Fukagawa/Product Mgr.

Date Product Introduced: February, 1981.

**Product Description and Applications:** Multi Effects Unit, Compressor/Phaser/Distortion/Chorus/flanger in one unit. Each effect has its own complement of control. Switching in/out is accomplished by noiseless FET switching controlled by a remote footboard. Low noise. 19" rackmount, Input and Output all H-Z unbalanced, standard ¼" phone jack.

**Basic Specifications:** Input Impedance 510K ohms.

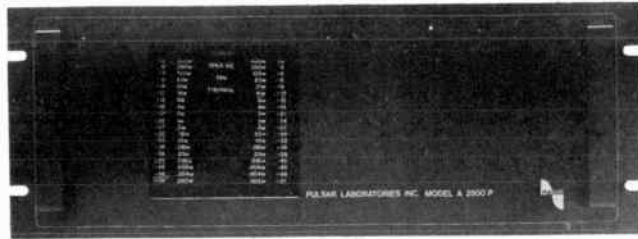
Output Impedance 10K ohms.

Compression Range on Comp. 40dB.

S/N on Flanger -100dB.

Remote switch with 16 ft. cable attached.

Suggested List Price: \$545.00.



## PULSAR LABS A2500P

### PROFESSIONAL POWER AMPLIFIER

Down time? It's a thing of the past. The first full modular design amplifier. All circuitry is on removable modular cards (except power supply). *Spare cards can be purchased in a custom designed anvil case through your authorized dealer.* To repair simply pull the bad circuit card and replace it with a new one. No trouble shooting at the component level. If you can't get to a dealer, no sweat, Pulsar will air ship a new card anywhere in the continental U. S. within 24 hours after warranty authorization — guaranteed!



**BUILT LIKE A TANK!**

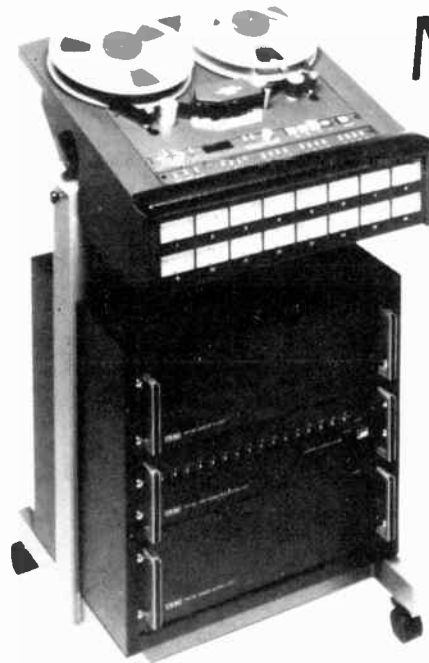
- Full 3 year transferable warranty
- 250 Watts RMS per channel - 8 OHMS
- 400 Watts RMS per channel - 4 OHMS
- 1.44 Kilowatt power supply
- $\pm$  85 Volts 12 amps RMS
- THD less than .02
- TIM + 1M distortion less than .02
- Slewing rate greater than 60 volts per micro second
- Hum and noise 100 DB below rated output
- Damping factor greater than 200
- Bandwidth over 100,000 HZ
- Rise Time 1.5 micro seconds
- Full output at 1.5 volts input
- Four way protection circuit (short circuit proof)
- Full complimentary design
- Direct coupled circuit design
- Instantaneous L.E.D. display
- Balanced inputs - active circuit
- Anvil case for spare amp cards
- Factory hotline
- Amp main frame available separate

© Copyright Pulsar Labs 1981



PULSAR LABORATORIES  
3200 GILCHRIST ROAD  
MOGADORE, OHIO, 44260  
(216) 784-8022

**FOR YOUR FREE  
A2500P TECHNICAL  
BULLETIN:  
WRITE OR CALL TODAY**



Tascam 85/16  
Recorder

## Multitrack Refined

Tascam's put 16 tracks on 1 inch tape and refined multitrack. If you make a living making multitrack recordings, you'll want to own a Tascam 85/16.

**BEFORE YOU MAKE A SOUND, LISTEN TO US.**  
**sound genesis**  
SAN FRANCISCO  
Your Professional Audio Equipment Center  
2001 Bryant St., San Francisco 94110  
TWX 910 372-7393  
415 285-8900  
© 1981 TASCAM CORP.

When we say we have "coast to coast" experience in the design and construction of recording studios...



we don't mean N.Y. to L.A.

Whether it's the Ivory Coast, the coast of France, or 17th Street in New York City, we bring our special blend of international experience and professional creativity to your project. In Europe and Africa, over the past seven years, we have constructed, from start to finish, twelve audio complexes, more than forty control rooms, studios, cutting rooms, and concert halls.

Our success is based on efficiency, experience, improved design, and control of each detail. Our world-wide perspective has cemented our belief that each project is unique, and we tailor our designs and constructions to your needs. We move with the times, wherever they take us.

We haven't designed a studio as fanciful as the one depicted above, but if you're "game", give us a call.

**Analogique**

17 West 17th St., New York, N.Y. 10011 (212)989-4240 SYSTEMS LABORATORIES

YOUR BEST BUY:

## USED RECORDING EQUIPMENT FROM SYE MITCHELL SOUND

### Here's why:

Used equipment can save you as much as 50% of the cost of new equipment. Just as a new automobile depreciates most as soon as it "hits the street," so does new recording equipment. When you buy used gear, the original owner takes that loss — not you.

### What is Sye Mitchell Sound?

We are the major clearinghouse for used professional audio gear. Sellers from all over the world contact us with used equipment for sale. But used equipment doesn't mean old equipment. Much of it is latest model, state-of-the-art.

### Why buy from us?

Because we're known for handling the best used equipment available today. If we're offered something that's not up to our standards, we simply refuse it. Often, that gear winds up on the market anyway — being offered by someone else. That's why we encourage you to buy from people with the highest standards — Sye Mitchell Sound.

### Financing

As a special service we can arrange flexible term leasing with your choice of lower-cost variable or fixed interest rates.

### Free equipment list

Our regularly published used equipment list will be sent free upon request. Whether it's just to get the list, or to ask about specific equipment, give us a call today.

SYE MITCHELL SOUND CO.  
22301 Cass Avenue  
Woodland Hills, California 91364  
(213) 348-4977 or (213) 657-HITS

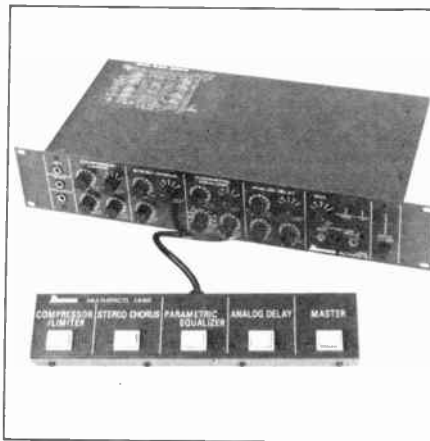
No request too small.  
We ship anywhere in the world.

**CONSOLES  
TAPE MACHINES  
OUTBOARD GEAR  
MICROPHONES**

Also: Rare TUBE microphones, mastering equipment, video, and support gear.

## NEW PRODUCTS

### SIGNAL PROCESSING



HOSHINO USA, INC. (IBANEZ)  
UE405 Multi Effects

HOSHINO USA INC. (IBANEZ)

UE405 Multi Effects

1718 Winchester Rd., Bensalem PA, 19020  
(215) 638-8870

Contact: Chuck Fukagawa/Product Mgr.

Date Product Introduced: May, 1981.

**Product Description and Applications:** Multi Effects Unit, Compressor/Limiter, Stereo Chorus/Parametric EQ/ Analog Delay. Switching in/out is accomplished by noiseless FET switching controlled by a remote footboard. Insta-Patch switching matrix system gives you any kinds of combination between 4 effects. Both the footboard and main unit feature LED status indicators for each effects.

**Basic Specifications:** Input Impedance: 510K ohms.

Output Impedance: 10K ohms.

Delay Time: 10-300ms.

Attack time on Comp/Limiter 6ms-20ms.

S/N on Chorus: - 106dBm.

Frequency Range on Para, EQ: 25-10kHz.

**Suggested List Price:** \$595.00.

INTEGRATED SOUND SYSTEMS, INC.

VSC Professional TDM-8000

29-50 Northern Blvd., Long Island City, NY 11101

(212) 729-8400

Contact: Norm Wieland, Director of Marketing.

Date Product Introduced: May, 1981.

**Product Description and Applications:** Broadcast time compressor for music and voice. For use on processing films, video, television, radio, etc. Adjusts and corrects pitch of variable speed equipment. Stereo compatible. Can be used for special effects.

**Basic Specifications:** Frequency Response: 20Hz-

15kHz.

Dynamic range 81dB.

THD and noise .3%.

Amount of shift max 2X.

MICMIX AUDIO PRODUCTS, INC.

XL-515

2995 Ladybird Lane, Dallas, TX 75220

(214) 352-3811

Contact: Bill Allen, Sales Manager.

Date Product Introduced: October, 1981.

**Product Description and Applications:** The XL-515 is a full stereo, multi-function reverb system that is housed in 2 rack-mount packages. The main control unit contains the control parameters, while another package contains the reverb sources. The XL-515 allows the user to select between the sound of a Plate, Live chamber, or Concert hall. The decay time can also be varied continuously in each mode. The extensive equalization allows further versatility in tailoring the sound of the reverb to exact requirements. This system is set for +4dBv inputs and outputs, and the signal to noise ratio is better than -80dBmA.

**Basic Specifications:** Input impedance: 20k Ohms.

Nominal operating level: +4.

Output level: 100 Ohms (Bal.).

Gain Adjustment range: 20 dB.

Output Noise: -80 dBmA.

Reverb crosstalk: better than -45dB.

Decay Times: Plate, 1 to 4 seconds.



**NEW PRODUCTS**  
**SIGNAL PROCESSING**

Room: 2 to 5 seconds.  
Hall: 3 to 6 seconds.  
Equalization: Low @ 150 Hz, High @ 8kHz. Low-Mid sweepable from 150 to 2kHz, High-Mid sweepable from 500 to 6kHz, all EQ is a  $\pm 12$ dB.

**MXR INNOVATIONS, INC.**

**Delay System II**  
740 Driving Park Avenue, Rochester, New York 14613  
(716) 254-2910

Contact: MXR, Department 151.

Date Product Introduced: Spring AES.

**Product Description and Applications:** Professional digital delay system incorporating advanced analog-to-digital conversion technology. Provides flanging, chorusing, vibrato, doubling, hard reverb and echo in a simple to use, ruggedly designed package. Four-digit display indicates the time delay selected (in milliseconds) while three LED's indicate the corresponding bandwidth. Front-panel LEDs also indicate optimum operating level, delay bypass and repeat hold. Input and output connections are made at the rear panel via XLR or phone jacks. A level switch permits optimum line or instrument-level operation. Delay times up to 800 ms at a full 16 kHz bandwidth, 1600 ms at 8 kHz bandwidth, and 3200 ms (3.2 seconds) with a 4 kHz bandwidth allow you to capture entire musical phrases and play them back indefinitely with the repeat-hold feature. Full complement of controls include speed and width sweep controls, 32-position delay-set control and separate fine control, continuous mix control with dry defeat and invert delay, regeneration control, and level control.

**Basic Specifications:** Max. input level: +20 dBm.

Max. Output level: +16 dBm.

Input impedance: 40 k ohms balanced, 470 k ohms unbalanced.

output impedance: 100 ohms.

Dynamic range: greater than 85dB.

THD: 0.2% (at 1 kHz).

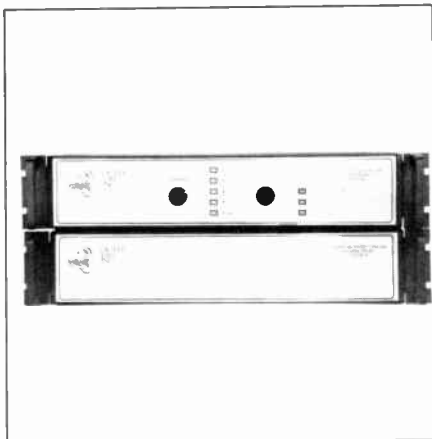
Sweep frequency: 0.1 - 20Hz, triangle waveform, frequency response: 20Hz - 22 kHz,  $\pm 1$  dB (dry).

Dimensions: 3 1/2" H x 6 1/2" D EIA 19" rack width.

**Suggested List Price:** Mod. 151-1 (3200 ms max. delay): \$1350.00.

Mod. 151 (1600 ms max. delay): \$1200.00.

Mod. 155 expansion Memory Module for #151 (1600 ms): \$200.00.



**OUTER EAR, INC.**

Image Recovery System, Master Series

**OUTER EAR INC.**

**Image Recovery System, Master Series**  
1431 N. Dorgenois, New Orleans, LA 70119  
(504) 943-7105

P.O. Box 1588, Hollywood, CA 90028

(213) 462-8940

Contact: Tom Nist, Director of Sales, at L.A.

Date Product Introduced: October, 1981.

**Product Description and Applications:** The Outer Ear Image Recovery System is a stereo signal processor designed for use in disk mastering. It "opens up" and spreads the stereo image, creating greater depth and width perception. It also subjectively increases high frequency response and ambience, "brightening" the sound without frequency tailoring. A disk cut using the Image Recovery System has an extra dimension that can be appreciated on any playback system.

**Basic Specifications:** Input: Switchable, balanced/unbalanced, 600 ohms/20k ohms.

Output: Active balanced, less than 100 ohms.

**The New Mike Shop**

**MORE THAN MIKES...BY MAIL**

Backed by service before and after you buy

Dear Mike Shop:

We are organizing a studio, a  
Please send the following items:  
Gain Brain II, Gr. British Spring, a  
BEL Noise Reduction, Scamp Rack,  
Prime Time, a Tangent Console, DBI

**the mike shop**™

PO Box 366C Elmont, NY 11003 (516) 437-7925 telex: 221522 OMNI

**Total Control**

The BTX Shadow Synchronizer and Tape Machine Controller make the ultimate sync between audio and video possible. We're talking sub-frame accurate. And what the Shadow doesn't know, it learns.



BEFORE YOU MAKE A SOUND, LISTEN TO US.  
**sound genesis**  
SAN FRANCISCO

Your Professional Audio Equipment Center  
2001 Bryant St., San Francisco 94110  
TWX 910 372-7393  
415 285-8900

**NEW PRODUCTS**  
**SIGNAL PROCESSING**

Headroom: 26dBm balanced, 20 dbm unbalanced.  
Signal to noise: Better than -90dBm.  
Distortion: (harmonic or intermodulation) less than 0.01%.  
Frequency Response: DC-100kHz flat within 0.05dBm.



**PULSAR LABS**  
RTA 150 Real Time Analyzer

**PULSAR LABS**  
RTA 150 Real Time Analyzer  
3200 Gilcrest, Mogadore, Ohio 44260  
(216) 784-8022

Contact: Greg Carr, Vice Pres. Marketing & Sales.  
Date Product Introduced: June, 1981.  
Product Description and Applications: A combination of four instruments in one: 1) a real time analyzer, 2) sound level meter, 3) a wave analyzer, and 4) a pink noise generator. (1) Real Time Analyzer-the RTA 150 has 36dB

**NEW PRODUCTS**  
**SIGNAL PROCESSING**

of displayed range 3dB or 1 dB resolution (using the analog meter) at the same time. There are three inputs: a balanced front panel microphone input and two rear panel auxiliary inputs. (2) Sound Level Meter-In addition to the Vertical frequency bands, Horizontal yellow LED's continuously display, sound pressure level (SPL) and are used as a "flat" reference level for the individual frequencies. The RTS 150 includes a three-digit "reference level display." (3) Wave Analyzer-Spectrum analysis is normally used to simultaneously monitor the frequency components of a signal. The RTA 150 uses a unique "scan" function that allows you to place a bright display cursor at any desired frequency band. The "scanned" frequency will also allow that band to be read in 1dB increments on the analyzer meters. The cursor can be shifted left or right to any frequency band. This function allows pink noise calibrations of the unit within 1dB accuracy. To further insure accurate adjustments, the RTA 150 has 15 adjustable gain filters that can be calibrated to compensate for any microphone curve (within + - 6dB), thus allowing the user to choose the mike that he prefers. (4) Pink Noise Generator: a 31-bit pseudorandom digital number generator provides a stable, accurate noise source. The outputs (balanced and unbalanced) are located on the front and rear panels. The pink noise buttons, located on the front panel, are adjustable from 80dB to 110dB in 10dB increments.  
**Suggested List Price: \$1399.00 includes Road Case.**

**SYNTON ELECTRONICS**  
Syntovox Model #221 #222, #202  
P.O. Box 83, Breukelen, Holland 3620 AB  
(03) 462-3499

Contact: EMSA, Everett Hafner, Owner.  
Date Product Introduced: January, 1980.  
Product Description and Applications: 3 models available. The 221 is a professional 20 channel Vocoder with matrix patching interconnecting the filter banks. It provides voiced and unvoiced discrimination, equalization and internal sources and modulators. The model 222 is a simplified Vocoder equipped with 10 specially

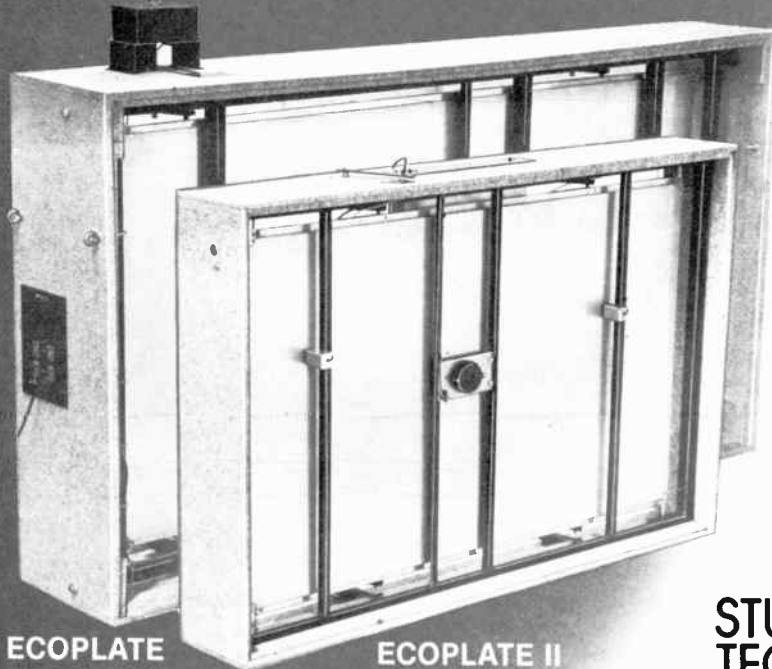
**NEW PRODUCTS**  
**SIGNAL PROCESSING**



**SYNTON ELECTRONICS**  
Syntovox Model #221

designed filters in 2 banks. It contains a microphone pre amplifier as well as 9 input and a special facility for high frequency noise. The model 202 is a similar instrument containing 8 channels.  
Basic Specifications: The 221 has 20 channels/18 band pass/1 low pass 1 high pass.  
Analyzer: 20 Envelope followers, 20 low pass filters.  
Synthesizer: 20 channels, 18 band pass, 1 low pass, 1 high pass, 20 VCA.  
Filter: carrier & speech breakthrough minus 68 dB.  
Matrix 20x20.  
**Suggested List Price: #221: \$4995.00.**  
#222: \$795.00.  
#202: \$495.00.

**"The Best and The Brightest!"**



**ECOPLATE**  
\$5000

**ECOPLATE II**  
\$2750

Both ECOPLATES offer variable reverb times, 1 to 6 seconds.  
Motorized remote control optional.

**ECOPLATE™**

ECOPLATES offer useful reverberation throughout the entire audible range, a quality not available in other types of reverb systems, regardless of cost.

*Now you can have the very best at an affordable price.*

*For Demo Tapes, Users List, and Literature, contact your dealer, or*

**STUDIO TECHNOLOGIES**

6666 North Lincoln Avenue  
Lincolnwood, IL 60645

312/676-9400

**"SEE US IN RM 774 AT AES/NEW YORK"**  
an affiliate of **Programming Technologies, Inc.**



# NEW PRODUCTS

## SIGNAL PROCESSING

### QUAD-EIGHT ELECTRONICS

System-5 Digital Reverb  
11929 Voss Street, North Hollywood, CA 91605  
(213) 764-1516

Contact: Sales Dept: Bill Windsor, Frank Stearns.

Date Product Introduced: 1981 NAB, Show.

**Product Description and Applications:** This new compact unit offers one of the widest bandwidths available at any price. A unique 3-wire/XLR connector remote-control interface allows the use of standard audio cable when remoteing the unit. Five programs are standard: three reverb, one echo, and one space. The user is given high and low frequency reverb time control, pre-delay, four switchable EQ sections, and the ability to store up to four panel settings. Optionally, the unit may be controlled by automation.

**Basic Specifications:** Bandwidth: 14 KHz.

Sampling rate: 37.5 KHz.

Noise: 85 dB.

THD: 0.02%.

Parts count: less than 150.

**Suggested List Price:** \$8950.00.

### SYMETRIX, INC.

Model 501 Peak-RMS Compressor/limiter  
109 Bell St., Seattle, WA 98121  
(206) 624-5012

Contact: Dane Butcher, Marketing Director.

Date Product Introduced: November, 1981.

**Product Description and Applications:** The Symetrix Model 501 is an advanced, high-performance compressor/limiter employing both peak and RMS signal detection, making the 501 one of the most versatile new dynamic range controllers on the market. Special features of the 501 include an automatic attack-release mode in addition to manual controls, separate threshold controls for both peak and RMS sections, and a superb Voltage Controlled Amplifier—the Allision Research EGC-101.

**Basic Specifications:** Specifications not available as of this printing.

**Suggested List Price:** Suggested Pro user price—\$399.00.



URSA MAJOR, INC.  
Model 8 x 32

### URSA MAJOR, INC.

Model 8X32 (Update)  
50 Trapelo Road/Box 18, Belmont, MA 02178  
(617) 489-0303

Contact: Tommy Gale Peterson, Information & Adv.

Date Product Introduced: First Shipments—August, 1981.

**Product Description and Applications:** A new version of the Model 8x32, a compact digital reverberator, provides microprocessor-based control over all important reverberation parameters, and simultaneous display of all settings. The 8X32 is a high-end reverberation system, with a sophisticated algorithm, producing from 0.0 to 20.0 seconds of decay time (in 15 steps for each of 4 basic Programs). In the updated version, the number of non-volatile memory registers has been doubled to 84. The 8x32 will accommodate automated mixdown requirements.

**Basic Specifications:** Programs: Plates I & II, Hall, Space; Decay Times: 0.0 - 20.0 seconds in 15 steps/Program; Dynamic Range: 80 dB; Bandwidth: 8kHz; Sampling Rate: 20 kHz; Early Reflections & Initial Reverberation: 6-78ms incremental delay times, levels adjustable in 8 steps; L F and HF Decay: 4 values of each; Optional Remote Control.  
**Suggested List Price:** \$5,995.00.

# Mix

## SUBSCRIPTION

ONE YEAR  \$18.00 FOREIGN  \$22.00  
SINGLE BACK ISSUES  \$2.50  RENEWAL

NAME \_\_\_\_\_

COMPANY NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_

STATE \_\_\_\_\_

ZIP \_\_\_\_\_

**Payment by Check or Money Order must accompany ad unless charging by  VISA or  MASTERCHARGE. To Charge your subscription complete the information below.**

Card Number \_\_\_\_\_

Expiration Date \_\_\_\_\_

Signature \_\_\_\_\_

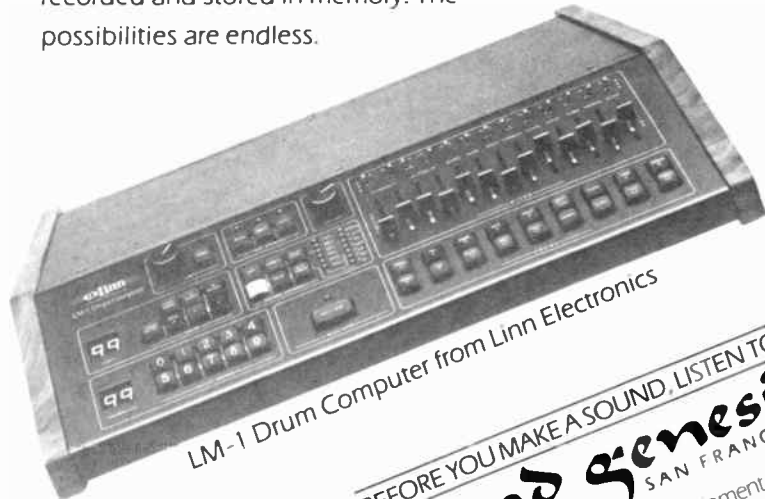
**Mix Publications, Inc.**

**P.O. BOX 6395, ALBANY BRANCH  
BERKELEY, CALIFORNIA 94706**

\*Please allow 4 to 6 weeks for first delivery

## Different Drummer

You're looking at a new breed of rhythm machine. Programmable. Easy-to-operate. Twelve real drum sounds. Digitally recorded and stored in memory. The possibilities are endless.



LM-1 Drum Computer from Linn Electronics

BEFORE YOU MAKE A SOUND, LISTEN TO US.  
**sound genesis**  
SAN FRANCISCO  
Your Professional Audio Equipment Center  
2001 Bryant St., San Francisco 94110  
TWX 910 372-7393  
415 285-8900  
©1981 Sound Genesis

# NEW-PRODUCTS

## SPEAKERS - MONITORS

### ALTEC LANSING

**Altec Lansing 9813 Studio Monitor**  
1515 S. Manchester Ave., Anaheim, CA 92803  
(714) 774-2900

Contact: Chris Schoon, Mktg. Comm.

Date Product Introduced: June, 1981.

**Product Description and Applications:** The Altec Lansing 9813 Studio Monitor is a three-way, high performance loudspeaker system designed for all applications requiring precise frequency response, low distortion and exceptional dynamic range. The 9813 incorporates Altec's LTZ UHF Driver, the Mantaray<sup>®</sup> constant directivity horn, Tangerine<sup>®</sup> radial phase plug and Automatic Power Control, which absorbs potentially damaging power overloads without shutting off the speaker.

**Basic Specifications:** Power rated at 40 watts (continuous pink noise, 20-20,000 Hz).

Frequency Response: of +2.5 dB, 60-20,000 Hz.

Space-conserving dimensions, enclosure crafted of tropical Endriana wood.

**Suggested List Price:** \$428.00.

Weight: 15 1/2 lbs.

Shipping weight: 17 1/2 lbs.

Horn mounting: 3 holes @ 120° 1/4"-20, 2.25" dia.— 2 holes at 180° 1/4"-20, 3 in. dia.

**Suggested List Price:** \$380.00.

### CETEC GAUSS

5226

9130 Glenoaks Boulevard, Sun Valley, CA 91352

(213) 875-1900

Contact: Robert M. Taylor/National Sales Manager.

Date Product Introduced: July 1981.

**Product Description and Applications:** This custom system has been designed for multiple uses: as a floor monitor, sound reinforcement system, and "front fill" system. The 5226 offers excellent pattern control, higher power handling, high efficiency, and tailored bandwidth. The 5226 features a 2-way ported enclosure system using a 12" woofer, 1 1/2" diaphragm tweeter, x @ 6 dB/octave with a HF level control. The enclosure design permits floor monitor throw angles of either 30° or 60°, and has a clear surface area for attaching a speaker stand mounting bracket that will permit front fill throw angle of 90°.

**Basic Specifications:** Nominal impedance: 8 ohms.

Rated Power: [(Vrms)<sup>2</sup>/Z] 300 watts\*.

Program power: 600 watts\*.

Sensitivity: (1W, 1M) 101dB SPL.

Useable bandwidth: 80 Hz-20kHz.

Crossover frequency: 3,600 Hz.

Pattern: (@ 2 kHz) 30° H x 30° V.

Components: 4281/1502/Xo.

Dimensions: 16" H x 23 5/8" W x 16" D.

Dimensions: 40.6 cm x 60 cm x 40.6 cm.

Net weight: 50 lbs. (22.7 KG).

Shipping weight: 55 lbs. (25 KG).

**Suggested List Price:** \$690.00.

### GALAXY AUDIO

Pro Spot-W

625 East Pawnee, Wichita, KS 67211

(316) 283-2852

Contact: Jane Munro (Manager).

Date Product Introduced: August, 1981.

**Product Description and Applications:** Galaxy Audio introduces the Pro Spot-W, a rich dark walnut version of the Pro Spot. This speaker's revolutionary structural foam enclosure houses a unique 3-way system which can be used as a floor monitor or stand mounted or by using any of eight threaded inserts, the Pro Spot-W can be easily hung in permanent installations. Great sound, small size, light weight and rugged construction all make the Pro Spot-W perfect for high quality installed sound systems.

**Basic Specifications:** 15" woofer in vented enclosure.

Two 5" mid-range speakers in separate vented enclosure.

Three specially modified piezo elements.

200 watts power capacity.

Under 44 pounds in weight.

19" x 27" x 13 1/2" small.

**Suggested List Price:** \$600.00.

### GOLD SOUND

Gold Sound Speaker Kits

P.O. Box 141 M, Englewood, CO 80110

(303) 789-5310

Contact: Ron Gold.

Date Product Introduced: August, 1981.

**Product Description and Applications:** Gold Sound speaker kits all use JBL, EV, or other quality components, and provide all necessary components, computer optimized enclosure plans, and wiring diagrams. Each system provides superior bass performance, efficiency, and power handling. Fourteen studio and twelve sound reinforcement kits are currently available. (Cabinets optional)



GOLD SOUND  
Gold Sound Speaker Kits

**Basic Specifications:** System 9 (right): 29-35,000 ± 3 dB, 200 watts.

JBL 10", polypropylene midrange, ferrofluid dome tweeter, ribbon supertweeter. Efficiency 91 dB.

114 max. \$249.00.

System 8 (left): Above, with 8" JBL, \$219.00.

System 5 (center): 44-20,000 ± 3dB., 8" EV, ferrofluid dome, efficiency 95. \$109.00.

System 14 (not shown): 23-21,000 ± 3dB., 400 watts.

JBL 18" + 10" tweeter, midrange horn. Efficiency 95; 121 max. \$769.00.

**Suggested List Price:** Prices listed above in Specifications.

### JAMES B. LANSING SOUND, INC.

4430 and 4435 Bi-Radial Studio Monitors

8500 Balboa Blvd., Northridge, CA 91329

(213) 482-3539

Contact: Nina Stern, Public Relations.

Date Product Introduced: May, 1981.

**Product Description and Applications:** James B. Lansing Sound, Inc.'s 4430 and 4435 Bi-Radial Studio Monitors have been developed to meet the performance requirements of the latest digital and advanced analog technologies. Offering such traditional JBL system features as wide dynamic range, smooth response, high efficiency and great power capacity, the 4430 and 4435 represent a significant new approach to two-way monitor design. Each system is equipped with JBL's unique Bi-Radial constant coverage horn, as well as a new compression driver, new fifteen-inch low frequency drivers, and an improved dividing network.

**Basic Specifications:** 4430

Maximum Power Output Continuous Program: 300 W.

Nominal Impedance: 8 ohms.

Frequency Response: ± 3dB 35 Hz-16 kHz.

Dispersion Angle: - 6dB.

Vertical: 100°.

Horizontal: 100°.

Sensitivity (1 w @ 1 m): 93 dB SPL.

Crossover Frequency: 1kHz.

Dimensions: 35 3/4" x 21 7/8" x 15 3/4" deep.

(18 15/16" deep with horn).

4435

Maximum Power Output Continuous Program: 375 W.

Nominal Impedance: 8 ohms.

Frequency Response: ± 3dB 30 Hz-16 kHz.

Dispersion Angle: - 6dB.

Vertical: 100°.

Horizontal: 100°.

Sensitivity (1 w @ 1 m): 96 dB SPL.

### ATHENA ACOUSTICS

Model 3000

1601 S. Sinclair, Unit "D", Anaheim, CA 92806

(714) 978-1402

Contact: Ms. Muriel Everidge.

Date Product Introduced: May, 1981 (Available November 1981)

**Product Description and Applications:** Model 3000 is a Self Powered Loudspeaker system, two-way and is bi-amplified with electronic crossover. Dual 50 watt RMS power amplifiers drive the two-way system to deliver 103 dB SPL at one Meter. Built-in low impedance microphone input and line level inputs permit mixing line and mic levels. Also, Link IN&OUT connectors permit "chaining" 20 or more Model 3000 systems for complete low level coverage of night clubs, auditoriums, stores, etc. May be used for musician foldback, small club PA, and distributed sound systems.

**Basic Specifications:** Two-Way speaker, 6 1/2" HD

Woofer, 3/4" dome tweeter; Dual 50 watts RMS

amplifiers, built-in electronic crossover.

Inputs-Three, mic, line and Link (Line and Mic mixed w/Master gain control).

Frequency Response: 60Hz to 15kHz.

Weight: 20 pounds.

Dimensions: 9 1/2" H x 13" W x 7 1/2" D.

**Suggested List Price:** \$430.00. (Availability: November 1981.)

### CETEC GAUSS

2080 Compression Driver

9130 Glenoaks Boulevard, Sun Valley, CA 91352

(213) 875-1900

Contact: Robert M. Taylor/National Sales Manager.

Date Product Introduced: May 1981.

**Product Description and Applications:** The Gauss 2080 is one of the newest compression drivers designed for professional sound systems. Superior power handling, efficiency, reliability, and extended frequency range are characteristic of the open natural sounding 2080. When loudness/distance performance parameters are considered, the cost-effective 2080 can replace two or more competitive compression drivers.

**Basic Specifications:** Nominal Impedance: 8 ohms.

Rated Power: 25W (800 Hz crossover @ 12dB/Octave).

40W (1200Hz crossover @ 12dB/Octave).

Sensitivity 1mW input: 119dB/SPL on 1" terminated tube.

Frequency Range: 800Hz-18,000 Hz.

DC Resistance: 4.4 Ohms.

Lowest recommended x -800Hz.

Voice coil dia: 2".

Voice coil material: Copper-clad, aluminum.

Diameter: 6.84".

Depth: 3.9".

Flux density: 19,000 Gauss.



# Our formula for success is to make you successful.

Sound Genesis is here to help you achieve your recording goals, no matter what they are. Big customers or small, you'll receive the same personal service that has made us the number one professional recording equipment dealer in Northern California.

You'll find dealing with Sound Genesis a very rewarding experience. Select from the largest inventory of the best lines.

Try it before you buy it. (Complete demonstration facilities.) Receive the best technical back up in the industry. (System design, equipment repair and tweaking by staff technicians.) Deal with a knowledgeable, honest, no-hype sales staff. Guaranteed competitive prices.

**Sound Genesis**  
SAN FRANCISCO

The Professional Recording  
Equipment Center of Northern  
California.  
2001 Bryant St., San Francisco 94110  
415-285-8900. TWX 910 372-7393



**MIX  
Fall '81  
AES  
Studio  
Spotlight  
on SOUTHWIND  
RECORDING**

# Southwind Recording Studio

## TIRED OF:

Studios in busy cities with hectic lifestyles?  
Studios who have outdated equipment?  
Studios who do only one or two types of music?  
Studios that cost an arm and a leg?

## GET AWAY FROM THE HASSLES

Southwind offers quiet country atmosphere that's not too far from city life, quality modern equipment, appreciation of all types of music, and acoustic quality unmatched in other 8 tracks, for a price well within any budget. We'll blow you away!



### SOUTHWIND RECORDING STUDIOS

Rt. 9, Box 239, Statesboro, GA 30458  
(912) 681-2560

**BLANK TAPES, INC. IS A  
PROFESSIONAL RECORDING  
STUDIO WITH THREE 24  
TRACK ROOMS. FROM OUR  
AUTOMATED CONSOLES TO  
OUR COMPUTER  
CONTROLLED TAPE LIBRARY,  
WE PROVIDE EFFICIENT  
CREATIVE SERVICE.**

**BLANK**  
*Tapes* INC.

Recording Studios  
37 West 20th Street  
New York, N.Y. 10011

Telephone  
212 255 5313

**MIX  
Fall '81  
AES  
Studio  
Spotlight  
on BLANK  
TAPES**



**MIX  
Fall '81  
AES  
Studio  
Spotlight  
on SOUTHERN  
RECORDING  
& VIDEO**

**MIX  
Fall '81  
AES  
Studio  
Spotlight  
on SOUND  
MASTER**

**Southern Recording**

and

**Video Productions, Inc.**

*The finest in STUDIO and ON LOCATION Recording*

**Demos — 45's — Albums — Video Cassettes**

Ampex MM1200

24 Track



IKEGAMI HL79

Cameras



Acoustically de-  
signed control  
rooms, isolation  
booths and live  
room.



1123 JACKSON STREET  
ALEXANDRIA, LOUISIANA 71301

PHONE  
(318) 473-0779

**SOUND MASTER**



**RECORDING STUDIOS**

for the

**Audio/Video  
Recording  
Technology**

o  
f  
t  
h  
e

**FUTURE...**

Automated 24-track recording  
plus full video capabilities:

**SHOWCASE • STAGES  
EDITING**

10747 Magnolia Blvd., N. Hollywood  
California, 91601, (213) 650-8000



**MIX  
Fall '81  
AES  
Studio  
Spotlight  
on SOLID  
SOUND**

**Artists  
Recording  
for  
Recording  
Artists**

WE'RE PROUD of this slogan. That's because it tells what sets us apart from the crowd. Recording studios galore are full of fancy, big-name equipment. (We have our share.) But sophisticated gadgets alone will never achieve outstanding recordings. The

most vital element is missing. Our expert engineers are skillful at their craft. Yet, beyond this, they add the sensitivity and perception of trained, professional musicians; a masterful awareness that rewards you with the extraordinary. Artists in service of artists... the missing element.

Let us prove to you that excellence is achieved outside Big City, and at rates that will delight you!

P.O. Box 7611  
Ann Arbor, MI 48107  
(313)662-0667

**SOLID  
SOUND**  
INC.  
THE STUDIO  
APART



**“A recording experience in the Grand Manner”**

- 24-track live-in facility, block bookings encouraged
- unique atmosphere in a 130-year-old Victorian mansion near beaches
- studio situated in an old theater—20 foot ceiling
- Neve-Studer-3 live echo chambers

For rates & information contact  
Steven Bramberg • Boogie Hotel Studios  
709 Main Street, Port Jefferson, New York 11777  
(516) 473-6655

**MIX  
Fall '81  
AES  
Studio  
Spotlight  
on BOOGIE  
HOTEL**



# NEW PRODUCTS

## TAPE RECORDING

### ALLEN AND HEATH BRENNEL SYNCON M24

Pembroke House, Campsbourne Road, Hornsey,  
London, N.8 England  
01-360-3291

Contact: Sales Department.

Date Product Introduced: November, 1981.

**Product Description and Applications:** The new Syncon M24 Multitrack tape recorder features all new computer controlled pinchless tape transport with interchangeable 16/24 track headblock, automatic fully retracting headshields, power off safe tape lifters and a digital tape tension system providing precise control of tape with very low wow and flutter. The M24 is supplied complete with remote controller providing a sophisticated fully programmable auto locator, 8 digit multi-function display and a LED monitoring system giving status and control of the audio system.

**Basic Specifications:** The ultra low noise auto electronics include solid state analogue signal switching, a high resolution LED metering system Capstan clocked punch in/out dedicated sync output, electronically balanced input, transformer balanced output, in place solo system, 3 position 2 speed master bias selector, multifrequency line oscillator.

**Suggested List Price:** Approx. \$37,000.00.

### LUXMAN DIVISION ALPINE ELECTRONICS OF AMERICA

K-117 Two-head cassette deck  
3102 Kashiwa St., Torrance, CA 90505  
(213) 326-8000

Contact: George Savage.

Date Product Introduced: September, 1981.

**Product Description and Applications:** The Luxman K-117 two-head cassette deck from the Luxman Division of Alpine Electronics of America, offers full logic solenoid controls, metal tape capability, a total capability Dolby noise reduction system and features developed especially for the recording enthusiast.

**Basic Specifications:** The new cassette deck offers 0.04% wow and flutter, more than 70 dB S/N using metal tape (with Dolby), 20 to 20,000 Hz frequency response (Metal Tape), and no more than 0.7% distortion (LH tape, 1 kHz, 0 dB).

### NEAL FERROGRAPH (USA) INC.

330 Audio Visual Cassette Recorder  
652 Glenbrook Rd., Stamford, Connecticut, 06906  
(203) 348-1045

Contact: Richard Chilvers, Nat'l Sales Manager.

Date Product Introduced: 1981.

**Product Description and Applications:** The Neal 330 audio visual cassette machine combines Phillips track format and spacing with three channels (using tracks 1 & 2 for audio, track 3 guard band, track 4 sync). Included is a 1,000 cycle tone generator for operation of single projectors for audio visual programs. The 330 can be used with all major programmers. The transport is fully logic controlled and can be accessed via a front panel socket.

**Basic Specifications:** Speed: 1 7/8. Frequency response: 35-15000 Hz (+1 -3dB). Signal to Noise: Special ferric and chrome tape with Dolby 64dB.

Crosstalk: better than 40 dB at 1KHz.

**Suggested List Price:** \$1984.00.

### SANSUI ELECTRONICS CORP.

Sansui D-550-M cassette deck  
1250 Valley Brook Road, Lyndhurst, New Jersey  
(201) 460-9710

Contact: C. Corenman, Mgr. PR, F. Barth Inc. 500 5th Ave., New York, NY 10110

Date Product Introduced: June, 1981.

**Product Description and Applications:** Metal-capable cassette deck featuring patent-pending "Dyna-Scrape Filter," a roller guide which revolves with motion syn-

chronized to the capstan via linking belt to filter out microscopic fits and starts of tape motion, to prevent modulation noise. Proprietary "Tension Servo Mechanism" varies amount of force used to move tape in proportion to how much tape is left on supply reel, to maintain ideal tension and head contact.

**Basic Specifications:** Three separate heads and two separate amps for simultaneous monitoring; two-motor transport; IC logic controls; 20% bias adjustment; 16-LED peak level meter; double Dolby; frequency response (rec./play.) with metal tape (minus 20uV) 25 to 21,000 Hz, plus/minus 3 dB, wow/flutter 0.035%.

**Suggested List Price:** \$520.00.

### SHARP ELECTRONICS CORP., PROFESSIONAL PRODUCTS

RD688AV Portable Multi-track Production Studio  
(201) 265-5548

10 Sharp Plaza, P.O. Box 588, Paramus, NJ 07652

Contact: Bruce Pollack, Marketing Services Manager.

Date Product Introduced: July, 1981.

**Product Description and Applications:** The Sharp RD688AV, which addresses a number of music and pro-sound applications, features an innovative double-cassette design capable of recording, duplicating, and editing stereo cassette tapes; built-in mic mixing with echo control for public address applications and for doing "voice-overs"; access to a separate third channel "in sync" with the left and right channel audio tracks; a unique Automatic Program Locate Device (APLD) to quickly locate and play taped selections; built-in power amplifier with stereo speakers; metal tape compatibility, full auto-stop and offers continuous playback of cassette tapes.

**Basic Specifications:** Frequency response: (metal tape) 30-17,000 Hz.

Wow and flutter: 0.07% WRMS.

Output: 10W RMS (4-ohm load).

2-6 1/2" woofers plus 2-2" tweeter.

1 7/8 ips tape speed.

Power consumption; 40 watts, 120V 50/60 Hz.

Dimensions: 20 7/8" (W) x 12 5/8" (H) x 5 7/8" (D).

Weight: 20.9 lbs.

Power cord is permanently attached, 3-wire grounded.

**Suggested List Price:** \$595.00.

### SONY CORPORATION OF AMERICA PROFESSIONAL DIGITAL AUDIO DIVISION

PCM-3324 24-channel Digital Audio Recorder  
700 West Artesia Blvd., Compton, CA 90220  
(213) 537-4300

Contact: Rick Plushner, General Manager, Digital Audio.

Date Product Introduced: Shown at spring '81 AES; delivery scheduled for first quarter 1982.

**Product Description and Applications:** The PCM-3324 is a 24-channel stationery-head digital audio recorder. It fully translates all of the functions of conventional analog multi-track recorders, while offering additional features of digital technology. Overdubbing, ping-ponging, punch-ins and punch-outs are smoother, because edit points can be digitally crossfaded. Rehearsal capability permits final checking of the signal without actually recording. The PCM-3324 provides a separate SMPTE time-code track which allows synchronized recording of 72 tracks and permits compatibility with video tape recorders. The unit incorporates a newly-developed, highly reliable error correction system called the Cross Interleave Code.

**Basic Specifications:** The PCM-3324 provides 24-channel recording with 16-bit full linear quantization. Dynamic range is greater than 90dB; frequency response is flat from 20 Hz to 20 kHz, and total harmonic distortion is less than 0.05% with immeasurable wow and flutter. The recorder uses half-inch tape and provides up to sixty minutes recording time on a 14-inch reel.

**Suggested List Price:** \$150,000.00.

### SOUNDCRAFT MAGNETICS LTD. SCM762

9 Great Sutton St., London EC1  
01-251-3631

Contact: Phillip Dudderidge, Marketing Dir.

Date Product Introduced: June, 1981.

**Product Description and Applications:** A range of 16, and 24 track, 2 inch multitrack tape recorders, featuring full remote control, including 9 memory autolocator, interchangeable headblocks, and extremely compact size. A low cost version is also available, which has a simplified remote control and return to zero locator.



STUDER REVOX  
A80VU 1/2" 2 Track Mastering Recorder

### STUDER REVOX AMERICA, INC.

A80VU Transformerless 1/2" 2-track Mastering Recorder

1425 Elm Hill Pike, Nashville, TN 37210  
(615) 254-5651

Contact: Bruno Hochstrasser.

Date Product Introduced: August, 1981.

**Product Description and Applications:** The A80 VU transformerless 1/2" mastering deck is designed to meet the demands of critical two track mastering where exceptionally low noise and extended frequency response are essential. This new Studer master recorder retains the proven quality and reliability of the standard A80 transport, with the addition of new Studer-designed transformerless line amplifiers. Because of their low source impedance, these amps may be driven into long cable runs with no signal degradation.

**Basic Specifications:** The Studer A80VU 1/2" 2-track mastering recorders offer a signal-to-noise ratio of -75dB without noise reduction. (For transformerless line amp specifications, please see listing for the A80VU MKIII 24-track.)

**Suggested List Price:** \$10,500.00.

### STUDER REVOX AMERICA, INC.

Transformerless Output A80VU MKIII 24-Track Recorder

1425 Elm Hill Pike, Nashville, TN 37210  
(615) 254-5651

Contact: Bruno Hochstrasser.

Date Product Introduced: August, 1981.

**Product Description and Applications:** The proven A80VU MKIII transport now includes transformerless line amplifiers as standard equipment. The low source impedance of these new amplifiers allow them to be driven into any load—long cable runs, for example—with no degradation of signal quality. Four power transistors are employed in the output stage. A new low-

# PRI

## RECORD PRESSING

Complete Services  
For All Your  
Manufacturing Needs

Send for More Info and  
Free Picture Record!

Name \_\_\_\_\_

Co. Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State/Zip \_\_\_\_\_

Send to:

**PRI**  
**RECORD PRESSING**  
410 Long Island Ave.,  
Wyandanch, N.Y.  
11798  
(516) 643-3353

### NEW PRODUCTS

#### TAPE RECORDING



STUDER REVOX  
80VU MKIII 24 Track Recorder

distortion transformer card also available; both retrofitable in all 80VU models.

**Basic Specifications:** Transformerless amp has a frequency response of 14Hz to 50 kHz, +0/-1 dB. Distortion is less than 0.01% at 1 kHz with +24 dBm into 600 ohms. The transformerless output 80VU MKIII carries a list price of \$42,900.00, which reflects no increase over the pre-transformerless model. **Suggested List Price:** Included in specifications (above).

### MAGNETIC TAPE AND ACCESSORIES

**R.B. ANNIS CO.**  
Han-D-Mag Demagnetizer, Reel-D-Mag Erasers, Pocket, Magnetometers  
1101 N. Delaware St., Indianapolis, IND 48202  
(317) 837-9282

**Product Description and Applications:** The Han-D-Mag is the most effective head & capstan demagnetizer available. The Magnetometer magnetic field indicator shows when demagnetizing is needed and when completed. The Reel-D-Mags are production type erasers for tape. Used by tape manufacturers and communications centers where a lot of tape erasing is constantly required.

**Basic Specifications and Suggested List Price:** Model 115 Hand-D-Mag: \$29.70, 350 oersteds @ 1/4" from tip of jacketed probe.  
Model 25/5-0-5 Gauss Magnetometer: \$43.00.  
Reel-D-Mag for 1/2" x 10 1/2" reels and smaller, pass through type, also specials for various video, audio and computer applications.

**CERTRON CORPORATION**  
FEREX II  
1701 South State College Boulevard, Anaheim, CA 92806  
(714) 834-4280

**Contact:** Hal Wilde, V.P. Sales.  
**Date Product Introduced:** October, 1981.  
**Product Description and Applications:** Certron's FEREX II is a high (CRO2) bias recording tape specially designed to take advantage of 70u's equalization. FEREX II is formulated with cobalt-modified ferrite micro particles which provide superior magnetization. The ultra fine magnetic coating delivers improved maximum output levels, a flat frequency response playback curve, and a noise reduction of nearly 5 dB at high frequencies.  
**Basic Specifications:** FEREX II is available in 60 and 90 minute lengths.  
**Suggested List Price:** C-60 FE II: \$2.99.  
C-90 FE II: \$4.29.

**ELECTRONIC HOMES COMPANY**  
GST Brand-Great Sounding Tapes  
234 Fifth Ave., #304, New York, NY 10001  
(212) 689-9332  
**Contact:** George T. Saddler President.  
**Date Product Introduced:** September, 1981.  
**Product Description and Applications:** Chrome audio

### NEW PRODUCTS

#### TAPE RECORDING

cassette 70 us EQ, chrome, CRO2 or high bias. High performance-no jam-cassette construction.  
**Suggested List Price:** Available in C-60 \$2.99.  
C-90 \$3.99.

**FUJI MAGNETIC TAPE DIVISION**  
FUJI PHOTO FILM USA, INC.  
Fuji Video Head Cleaning Cassettes  
350 Fifth Avenue, New York, NY 10118  
(212) 736-3335

**Contact:** Len Stein, Public Relations (212) 245-7831  
**Product Description and Applications:** Fuji's VHS and Beta format Video Head Cleaning Cassettes are non-abrasive and clean clogged recording and playback heads with one ten-second pass to eliminate picture snow, tape particles and binder residue. BCL-20 (Beta) provides up to 135 cleanings in Beta III mode while the VCL-30 (VHS) provides up to 270 cleanings in EP.

**LARKSONG**  
MAF Cassettes  
10 Scott Place, Pt. Arena, CA 95468  
(707) 882-2833

**Contact:** Alan Niven-owner.  
**Date Product Introduced:** August, 1981.  
**Product Description and Applications:** New mirror-symmetrical cassette construction obsoletes all previous shell designs. Improved micro acicular ferrite oxide formulation is available, for immediate delivery, in 15 standard lengths (C-10 through C-120). Custom lengths are also available in quantities of 200 or more.

**NORTRONICS COMPANY,**  
RECORDER CARE DIVISION  
Performance Series  
8101 Tenth Avenue North, Minneapolis, MN 55427  
(612) 545-0401

**Contact:** Ken Lubitz-National Sales Manager.  
**Date Product Introduced:** April, 1981.  
**Product Description and Applications:** The Performance Series offers the widest range of professional recorder maintenance products to the studio, broadcast, duplicating and service industries. Products include head cleaners, demagnetizers, bulk tape erasers, alignment tapes, alignment gauges, head lapping kits, splicing blocks and splicing tabs.

**PD MAGNETICS**  
PD Magnetics Audio Cassettes  
P.O. Box 4499 Wilmington, Delaware 19807  
(302) 999-3387

**Contact:** R.L. Baer, Product Planning Mgr.  
**Date Product Introduced:** June, 1981.  
**Product Description and Applications:** PD Magnetics provides the recording enthusiast with a range of high quality audio cassettes which includes 1100 metal high coercivity, 500 CROLYN® chromium dioxide and Tri-Oxide Ferro normal bias. All are available in C-60 and C-90 play lengths where quality audio cassettes are sold.  
**Suggested List Price:** 1100 Metal C-60: \$8.99.  
1100 Metal C-90: \$11.99.  
500 Crolyn® C-60: \$3.99.  
500 Crolyn® C-90: \$5.79.  
Tri-Oxide Ferro C-60: \$2.99.  
Tri-Oxide Ferro C-90: \$4.29.

# CATCH IT IN THE MIX!



# NEW-PRODUCTS

## OTHER EQUIPMENT

### ALPHA AUDIO ACOUSTICS

Sonex Audio Tiles in Colors  
2049 West Broad Street, Richmond, Virginia 23220  
(804) 356-3852

Contact: Sales Department.

Date Product Introduced: Colors: 1981.

**Product Description and Applications:** Sculptured Anechoic Wedge foam packaged for ease of shipment and installation (adhesive included). Reduces slap echo, eliminates standing waves, flattens frequency response.

**Basic Specifications:** 15" squares 2" deep. 28 per carton (14 sets).

Colors: blue, silver, brown, orange, green.

Shipped UPS Freight prepaid from stock.

**Suggested List Price:** Single cartons: \$198.00; 6 plus cartons: \$188.00; 20 plus \$178.00; larger quantities by quote.

### ACOUSTILOG, INC.

POP-110 Peak Overload Protector  
19 Mercer Street, New York, NY 10013

Contact: Alan Fierstein, President.

Date Product Introduced: November, 1981.

**Product Description and Applications:** The Acoustilog POP-110 is a stereo speaker protector that solves the problems with previous protectors, namely slow reaction time, signal degradation, and unreliable threshold stability. The POP-110 uses a proprietary peak threshold sensing circuit and unique circuitry with no active components in the signal path until a potentially destructive transient comes along. Then, the POP-110 quickly mutes the send to your monitor amp and resets within 1 second. If the overload continues, the process repeats.

**Basic Specifications:** Number of channels: 2. Frequency Bands: Full range and Treble (Above 3 KHz).

Attack time: Less than 1 millisecond. LED protection indicator.

Release time: 1 second.

Protection: Greater than 20 dB.

Non-protected distortion: Less than .001%.

Size: 19" x 1 1/4" x 7", Rack mounting.

Weight: 3 lb.

Power: 110-125 V, 10 watts maximum.

**Suggested List Price:** \$295.00.

### ADAMS-SMITH, INC.

Model TS-1605 Television Sound Editor  
P.O. Box 130, 34 Tower St., Hudson, MA 01749  
(817) 582-3801

Contact: H.E. Adams, President.

Date Product Introduced: May, 1981.

**Product Description and Applications:** The Model TS-1605 Television Sound Editor is a tape synchronizer/system controller with extended editing memory. It ties two slave audio recorders to a master video recorder so creative audio professionals can do television sound post-production in a traditional audio studio, away from the video tape editing suite, improving audio quality and lowering production cost. Six separate record control outputs, each with ten stored operating points, and record/rehearse selection are provided.

**Basic Specifications:** The TS-1605 uses the SMPTE/EBU time code, has a re-synchronizing time of less than one second, and tape phasing and record control resolution of 1/100 of a frame. It handles poor time code, drop-outs, noise, spliced tapes and loss of code, has a 100-register scratch pad memory.  
**Suggested List Price:** \$21,500.00.

### ADAMS-SMITH, INC.

Model 2602 VITC System for Editing  
P.O. Box 130, 34 Tower St., Hudson, MA 01749  
(817) 582-3801

Contact: H.E. Adams, President.

Date Product Introduced: September, 1981.

**Product Description and Applications:** The Model 2602 provides all of the time code functions needed to imple-

ment a three-recorder vertical interval time code (VITC) system, replacing conventional longitudinally recorded time code normally used in television sound and video editing systems. The new system permits editors to make edit decisions in slow motion and still-frame, frees air audio track for other use, and eliminates time code-audio cross talk problems.

**Basic Specifications:** The Model 2602 consists of a number of modules mounted in two 5 1/2 inch high by 15 inch deep rack units, with space available for additional modules for use with more recorders and for longitudinal time code restoration where dubbing audio tapes.

**Suggested List Price:** Price in USA: \$15,445.00—\$18,055.00.

### ADAMS-SMITH, INC.

Series 2600 Time Code Modules  
P.O. Box 130, 34 Tower St., Hudson, MA 01749  
(817) 582-3801

Contact: H.E. Adams, President.

Date Product Introduced: May, 1981.

**Product Description and Applications:** The micro-processor-based 2600 Series Time Code Modules allow users of television sound and video systems to implement only those functions they need for each part of their production or post-production system, including the new vertical interval time code operations. Of special interest to audio studios are the Time Code Generator, Time Code Restorer and Sync Generator Modules available.

**Basic Specifications:** Each time code function is contained in a separate module, and all modules are of the same size except for their front panel widths so they can be grouped together and rack-mounted, panel mounted or used as stand-alone instruments. One power supply module is used with each group.  
**Suggested List Price:** \$600.00 to \$1800.00

### ADAMS-SMITH, INC.

Model TS-605 Tape Synchronizer  
P.O. Box 130, 34 Tower St., Hudson, MA 01749  
(817) 582-3801

Contact: H.E. Adams, President.

Date Product Introduced: May, 1981.

**Product Description and Applications:** The Model TS-605 Tape Synchronizer is a central controller which ties two slave audio recorders to a master video recorder to form a state-of-the-art television sound editing system. The system allows television sound post-production to be done in an audio suite, away from an expensive video tape editing suite, lowering production cost, improving audio quality and increasing studio productivity.

**Basic Specifications:** The TS-605 uses the SMPTE/EBU time code, and can operate with "real world" tapes containing inconsistent and mixed time codes, splices, noise and drop-outs. Synchronizing resolution and tape offset adjustment capability are 1/100 of a frame. Other features include provision for rapid cueing, chasing, roll-back and record control.  
**Suggested List Price:** \$15,000.00.

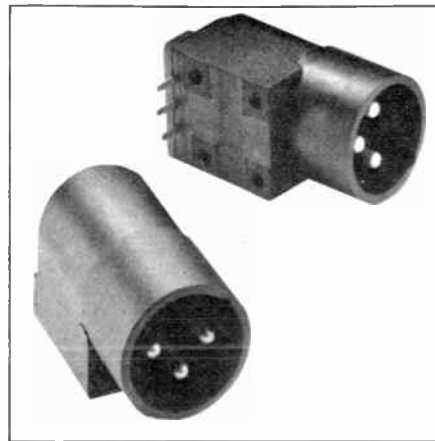
### ADC PRODUCTS

Right Angle Low Impedance PC Mount  
Male Receptacle  
4900 W. 78th Street, Minneapolis, MN 55435  
(812) 835-6800

Contact: Rick Cabalka, Assoc. Product Manager.

Date Product Introduced: December, 1981.

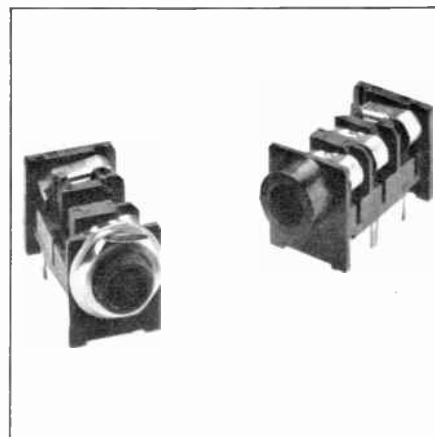
**Product Description and Applications:** ADC's new right angle printed circuit board receptacles eliminate the need for discrete wiring or mother/daughter board arrangements. Compact, minimal board space required. These receptacles meet or exceed the reliability standards of the industry and are completely compatible with all mating plugs on the market. These receptacles are ideal for mixers, amplifiers, tape recorders, and other various audio applications where quality and



### ADC PRODUCTS

Right Angle Low Impedance PC Mount  
Male Receptacle

space savings are demanded.  
**Basic Specifications:** Available in 12.5 mm height. Terminals are tin-lead coated providing easy solderability.  
Operating temperature: -40°C to +65°C, non-operating: -55°C to +85°C.  
Relative humidity: 0 to 95% operating and non-operating.  
Connectors withstand 5,000 insertions/withdrawals.  
**Suggested List Price:** \$3.25.



### ADC PRODUCTS

Right Angle Phone Jack

Right Angle Phone Jack  
4900 W. 78th Street, Minneapolis, MN 55435  
(812) 835-6800

Contact: Rick Cabalka, Assoc. Product Manager.

Date Product Introduced: May, 1981.

**Product Description and Applications:** ADC Right Angle Phone Jacks eliminate the need for discrete wiring or mother/daughter board arrangements. Compact-minimal board space required. These jacks mate with all three conductor audio phone plugs and all .250 diameter two conductor plugs. Terminals are tin-lead coated, equipped with gold bay contacts. These jacks are ideal for mixers, amplifiers, tape recorders and other various audio applications where quality and space savings are demanded.

## NEW PRODUCTS

### OTHER EQUIPMENT

**Basic Specifications:** Available in 12.5 mm and 18 mm heights.

Available options include 2 or 3 conductors, threaded sleeve for panel mounting, and dust cover.

Temperature ranges: 40°C to +65°C operating, -55°C to +85°C non-operating.

Life: 5,000 insertion/withdrawal cycles.

**Suggested List Price:** \$2.20.



#### ADC PRODUCTS

Right Angle Low Impedance PC Mount  
Female Receptacle

#### ADC PRODUCTS

Right Angle Low Impedance PC Mount  
Female Receptacle

4900 W. 78th Street, Minneapolis, MN 55435  
(612) 835-6800

Contact: Rick Cabalka, Assoc. Product Manager.  
Date Product Introduced: May, 1981.

**Product Description and Applications:** ADC's new right angle printed circuit board receptacles eliminate the need for discrete wiring or mother/daughter board arrangements. Compact minimal board space required. Detent spring latches mated plug to provide secure connections. These receptacles are ideal for mixers, amplifiers, tape recorders and other various audio applications where quality and space savings are demanded.

**Basic Specifications:** Available in 12.5 mm and 18mm heights.

Terminals are tin-lead coated providing easy solderability.

Operating temperature: -40°C to +65°C.  
Non-operating temperature: -55°C to +85°C.

Relative humidity: 0 to 95% operating and non-operating.

Connectors withstand 5,000 insertions and withdrawals.

**Suggested List Price:** \$3.10.

#### ASI PRO AUDIO

##### ASI Snake System

10330 Kotzebue, San Antonio, Texas 78217  
(512) 824-8781

Contact: Galen Carol, President, Woody Smith, Engineer.

Date Product Introduced: August, 1981.

**Product Description and Applications:** The ASI Snake System is available in both standard and custom configuration. The system utilizes custom hand machined T-6 aircraft aluminum panels that are anodized black. The panels are then engraved not painted with the appropriate legends. Only Neutrik connectors with gold plated contacts are used for the XLR's, and only AMP aircraft quality connectors are used for multpins. The entire snake is packaged in a custom designed Star Case for protection. Any custom requirements are possible including splitters, complete multi-pin setups and power output with A/C connections.

#### ATLAS SOUND

##### Omni-Series Microphone Stands

10 Pomeroy Road, Parsippany, New Jersey 07054  
(201) 887-7800

Contact: David Chambers, Distributor Sales Manager.  
Date Product Introduced: August, 1981.

**Product Description and Applications:** Floor, Table Top, and Boom Stands with adjustable 3-position patented fulcrum. Combine the advantage of controlled microphone-placement with reduced visual obstruction by

## NEW PRODUCTS

### OTHER EQUIPMENT

selection of 75°, 90° or 105° angle for tube-assembly positioning. "Veloured Chrome" non-reflective finish for use on stage, studio, meeting rooms, and under high intensity lighting.

**Basic Specifications:** OS8V Table Top Model 12.5" TO 23.5" H.-OS12V Floor Model: 32" to 81" H.

OSPB2V Boom: 22" to 37" L-OS-B Base: 15½ lbs.

All tube assemblies with 5/8" dia. #27 Thread for microphone holders and wide choice of convenience-accessories.

#### BOGEN DIVISION/LEAR SIEGLER, INC.

##### TG-4A Multiple Tone Generator

Box 500, Paramus, NJ 07652

(201) 343-5700

Contact: Edward P. Draney, Director of Sales.

Date Product Introduced: May, 1981.

**Product Description and Applications:** Compact, solid-state, capable of generating pulsed alarm tone, slow whoop, repeating chime or steady tone. Signal can sound continuously or limit to double-burst for preannouncements. Triggered by external unit providing contact closure or by dialing coded number from phone. Accepts high-level input from program source. Built-in precedence over program.

**Basic Specifications:** Output level 1V rms into 600-ohm load, adjustable.

Pitch control adjustable.

Powered from 15-26 vdc source.

Positive or negative ground.

Accessory PRS-40 power supply module for 120 vac operation.

**Suggested List Price:** TG-4A, \$130.00; PRS-40, \$35.00.

#### BROOKE SIREN (distributed exclusively by Klark-Teknik Elect. Inc.)

##### Brooke Siren AR118 Active Direct Box

282 A Eastern Parkway, Farmingdale, NY 11735

(516) 249-3660

Contact: Jack Kelly, President.

Date Product Introduced: October, 1981.

**Product Description and Applications:** Compact direct injection box allowing direct feeds from any source—features two parallel ¼" jack inputs, two frequency low pass filter (4KHz, 8 KHz), earth lift switch, Phase reverse switch, Input attenuator (20dB, 40dB) for bridging guitar pickups, line level, speaker outputs, main and standby battery system, phantom powering available (AR117), circuit housed in steel box to screen out unwanted RF & Hum.

**Basic Specifications:** Inputs-attenuator: 0dB-1Mohm, +5dbv (guitar).

20dB-47Kohm, +25dBv (line).

40dB-47Kohm, +45dbv (speaker).

Output - +5dbv.

Noise-less than -114dbv, unweighted 10Hz to 25KHz.

Common mode rejection ratio 1KHz -96dB, 20KHz

-70dB.

Distortion: less than .1%, +3dBm, 100Hz to 20KHz.

**Suggested List Price:** \$165.00.

#### BROOKE SIREN (distributed exclusively by Klark-Teknik Elect. Inc.)

##### Brooke Siren FDS 320 Crossover

282 A Eastern Parkway, Farmingdale, NY 11735

(516) 249-3660

Contact: Jack Kelly, President.

Date Product Introduced: October, 1981.

**Product Description and Applications:** 2-channel, 2-way crossover, 24dB/octave slope, subsonic and HF filter on inputs, limiters on all outputs, +6dB level control for each section, section mute switching, remote facility, frequency selection by customer.

**Basic Specifications:** Inputs: 10Kohm, electronically balanced, 24dB/oct 30 Hz subsonic filter, 36dB/oct 26KHz HF filter.

Outputs: +20dBm.

Gain: +6dB.

Noise: less than -85dBm, 20 Hz-20 KHz unweighted.

Distortion: less .1% THD, +20dBm.

#### BREWER INSTRUMENTS

##### Tensimount Microphone Isolator

65 Gray Cliff Rd., Newton Ctr., MA 02159

(617) 489-0303

Date Product Introduced: 1981.

**Product Description and Applications:** Tensimount universal microphone isolators are a simple yet highly effective way to eliminate floor vibration, shock and mechanical feedback that is transmitted through your microphone stands. These sturdy and ingenious devices accept any microphone up to 1 3/8" diameter (Tensimount I), or up to 2 5/8" (Tensimount II), and provide more than 20dB of mechanical isolation. Tensimounts also adapt any microphone to fit a standard ¾" stand.

#### CANFORD AUDIO (NORTH AMERICA) LTD.

##### Automatic Cable Tester

652 Glenbrook Rd., Stamford, Connecticut 06906

(203) 324-2889

Contact: Richard Chilvers, Nat'l Sales Manager.

Date Product Introduced: Spring, 1981.

**Product Description and Applications:** Automatic cable tester. Advanced three way logic sequence cable testing. Unnecessary for both ends of the cable to be at the test unit makes it ideal for in situ testing.

**Suggested List Price:** Professional user price: \$515.00.

#### CANFORD AUDIO (NORTH AMERICA) LTD.

##### Studio Illuminated Signs

652 Glenbrook Rd., Stamford, Connecticut 06906

(203) 324-2889

Contact: Richard Chilvers, Nat'l Sales Manager.

Date Product Introduced: Spring, 1981.

**Product Description and Applications:** The range of studio illuminated signs carrying various legends are available (legends include: "on air" "recording", "rehearsal") special made to order. Superior molded outer cover insures sign is illuminated from all angles.

**Basic Specifications:** 110 volt operation, 25 watt, ES lamps.

**Suggested List Price:** \$72.00.

#### CLEAR-COM INTERCOMS

##### Clear-Com SB412, MS400, RM400

750 Harrison St., San Francisco, CA 94107

(415) 989-1130

Contact: Edward Fitzgerald—Director of Sales.

Date Product Introduced: August, 1981.

**Product Description and Applications:** 4 Channel "family" of intercoms with Master and Remotes plus switch-board version. Features include microphone limiter, speaker, side tone adjustment and programmable talk/listen switches, applications include teleproduction, theatre, touring and other entertainment type intercom coordination.

**Basic Specifications:** IC amplifiers including solid state switching and signaling circuits—current limited and short circuit protected. Interconnects via standard mic cable.

**Suggested List Price:** \$450.00 to \$600.00.

#### EDCOR

##### Multiplex Snake

16782 Hale Ave., Irvine, CA 92714

(714) 556-2740

Contact: Jim Morrison, V.P. Marketing.

Date Product Introduced: June, 1981.

**Product Description and Applications:** Transmit up to 8 audio signals up to 1500 feet using digital/analog circuitry over one mic cable using a mic or line level decoder. Provides less hum and noise, decreases signal degradation and increases gain before feed-back. Cost effective vs. multiple cable runs, affords easy expansion of existing systems. Saves time, money, weight.

**Basic Specifications:** Encoders are balanced (XLR's) or unbalanced (¼" phone jacks). Decoders are unbalanced (XLR's) or unbalanced (¼" phone jacks).

Frequency response 20-20000 Hz.

Output Impedance 600 ohms and higher.

Total System of encoder and Decoder is 8 ½ lbs.

Rack mountable.

**Suggested List Price:** Complete systems (less mic cable) are \$546.00 to \$610.00 depending on configuration.

#### DDA, LTD.

##### DD1000

40 Stillness Road, London SE23, England

01-690-1847

Contact: David Dearden, Director.

Date Product Introduced: May, 1981.

**Product Description and Applications:** The DD1000 is a 4 way, stereo, electronic crossover, which features plug in system configuration modules, allowing frequency and rolloff characteristics to be configured to suit any system. (12, 18, and 24 dB/octave, Beasell or Butterworth slopes). Delayed turn on, instant off, electronic balancing of inputs and outputs, and all controls concealed behind a removable security panel.

**Suggested List Price:** List price in U.K.; £1375.00.

#### ELECTROSONICS, INC.

##### Mojo Bone™ Audio Interface™

P.O. Box 2, Stockton Springs, ME 04981

(207) 587-3513

Contact: John Hillman, President.

Date Product Introduced: February, 1981 (NAMM Winter Market).

**Product Description and Applications:** ElectroSonics introduces the Mojo Bone™—a new device that allows a musician to interface an electrified instrument directly with hi-fi and recording equipment. The multifunction Mojo Bone accepts inputs from a program source, such as a phono or tape deck, which is mixed with the instru-



ment and then output to stereo headphones and/or additional audio stages. This is especially useful in practicing with pre-recording material. The design also facilitates use as a recording mixer-monitor. This permits multiple track recording and mixing using only one tape recorder and one tape deck. A peak level indicator monitors distortion while mixing and master controls determine relative recording levels.

**Basic Specifications:** The Mojo Bone also serves as an in-line power booster with 0.2% THD (1kHz). In addition, an amplifier over-drive feature allows generation of a smooth note sustain effect and a tube type distortion effect. A 1.25 watt practice amplifier results from simply driving a standard hi-fi speaker with the Mojo Bone. The flat 46 dB frequency response of 20 Hz to 20 kHz provides an uncolored and faithful reproduction of the instrument's tone.

**Suggested List Price:** \$399.95.

**FOSTEX CORP OF AMERICA**  
3040 Dolby C Noise Reduction Unit  
15431 Blackburn Ave., Norwalk, CA 90650  
(213) 921-1112

Contact: Linda Schuchart, Marketing Administrator.

**Date Product Introduced:** August, 1981.

**Product Description and Applications:** 4 channel Dolby C unit designed for use with Fostex multitrack tape recorders. Offers 20 dB of noise reduction. Designed for -10 input and output levels.

**Suggested List Price:** \$450.00.

**HOLT ELECTRO-ACOUSTIC RESEARCH, INC.**

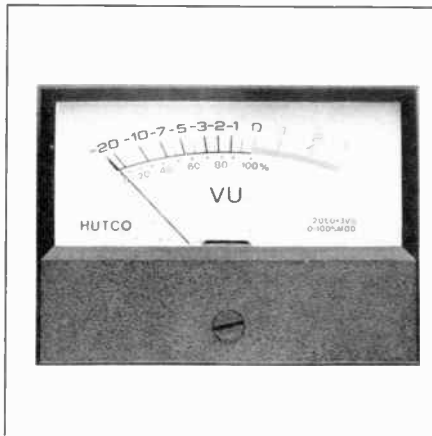
**P2V Polyphonic Pitch to Voltage Converter**  
1122 University Avenue, Berkeley, CA 94702  
(415) 848-8282

Contact: Fred Marshall, Marketing.

**Date Product Introduced:** September, 1981.

**Product Description and Applications:** The H.E.A.R., Inc. P2V (Polyphonic Pitch to Voltage converter) provides the basic pitch and duration information as well as 20 other possible messages from your guitar to your synthesizer. The P2V is a fully polyphonic interface. There are 5 extracted guitar voices (basic polyphonic guitar sounds altered with filters, etc.), 5 extracted fuzz voices (layers of digitally modified guitar sound), 2 types of triggers, 3 types of gates, 4 types of envelope followers, and a voltage that tells your synthesizer where your hand is on your guitar. The P2V is equipped with a foot switch which provides Lock-in (holds notes or chords while you play other things on top of them), Infinite sustain, and Portamento functions. The P2V, which triggers your synthesizer, is in turn triggered by the Zeta Hex Pickup, (which has 6 transducers) one under each string with plenty of travel for intonation and 6 pre-amps built into the bridge itself. The pickups lock firmly onto your present bridge posts without holes or modifications to your guitar.

**Suggested List Price:** The price of the P2V, installed, and the bridge/pickup, installed, is \$3,450.00. Factory only.



**HUTCO, INC.**  
VU Meter HS51

**HUTCO, INC.**  
V.U. Meter HS51  
2913 Governors Drive, Huntsville, AL 35805  
(205) 533-9232

Contact: Tip Turpin, Marketing Manager.

**Date Product Introduced:** June, 1981.

**Product Description and Applications:** A new package design in the standard V.U. Meter is introduced by Hutco, Inc. The black plastic bezel and illuminated beige face plate combine to create a highly readable display. Standard units have the -20 to +3dB scale but custom scales can be provided to include your own Logo. The illuminated face plate measures 1 1/4" x 3" and the over meter measures 3 3/8" x 2 1/4" x 1 3/8" deep. The HS51

## NEW PRODUCTS OTHER EQUIPMENT

meter is ideal for mixing consoles and tape decks. It utilized the standard four mounting post for ease of installation.

**Basic Specifications:** The Hutco HS51 V.U. Meter is available with the following full scale sensitivity models: 150 uA, 200 uA, 240 uA, 400 uA and a 500 uA unit. The internal resistance is available as 1000 ohms, 750 ohms, 650 ohms and a 500 ohm model.

**INOVONICS, INC.**

**Model 380 Magnetic Tape Recording Electronics**  
503-B Vandell Way, Campbell, CA 95008  
(408) 374-8300

Contact: Brian Fogerty Nat'l Sales Mgr.

**Date Product Introduced:** May, 1981.

**Product Description and Applications:** The Model 380 Magnetic Tape Recording Electronics is a fully self-contained record-playback package designed for a wide variety of recording applications including magnetic film. Features include: Transformerless line input and low impedance head input circuits; level, bias and equalization trims for two different tape formulations; record linearization and phase compensation; defeatable automatic monitor dimming in search; automatic record sync to input switching, all functions can be remotely controlled; extender service board available.

**Suggested List Price:** \$820.00.

**INOVONICS, INC.**

**Model 370 Magnetic Tape Recording Electronics**  
503-B Vandell Way, Campbell, CA 95008  
(408) 374-8300

Contact: Brian Fogerty Nat'l Sales Mgr.

**Date Product Introduced:** May, 1981.

**Product Description and Applications:** The Model 370 Tape Recording Electronics is a fully self-contained record-playback package designed to replace all Ampex electronics. A Scully back panel now accepts 280's. Two or more 370's are slaved for multitrack formats. All active circuits are mounted on one board which may be fitted to an extender board for servicing. Features include: equalization trims for two speed decks; transformerless line input and low impedance head input circuits.

**Suggested List Price:** \$580.00.



**JENSEN TRANSFORMERS**  
JE-DB-E Direct Box Transformer

**JENSEN TRANSFORMERS**  
JE-DB-E Direct Box Transformer  
10735 Burbank Blvd., North Hollywood, CA 91601  
(213) 878-0059

Contact: Bruce Black, Office Manager.

**Date Product Introduced:** January, 1981.

**Product Description and Applications:** The JE-DB-E is an ultra high performance direct box transformer. Jensen's years of transformer design experience and computer modeling techniques have resulted in performance specs at least twice as good as its predecessor, the JE-DB-D. This is in keeping with the goal to provide the highest quality transformer available and to continually improve that quality to the highest level attainable. Please call or write for a complete data sheet with plans for building your own direct box.

**Basic Specifications:** Maximum input level at 20 Hz is +19 dBv (Re: 0.775v). Band width is 80 kHz. Total Harmonic distortion below saturation is 0.096% at 20Hz.

**Suggested List Price:** The price for 1 to 19 pieces is \$43.04 ea., and is usually available from stock.



**KINETIC SOUND CORP.**  
PRISM Digital Synthesizer

**KINETIC SOUND CORP.**

**PRISM Digital Synthesizer**

11 Maryknoll Drive, Lockport, Illinois 60441  
(815) 838-0005

Contact: Sandy LaMantia, Director.

**Date Product Introduced:** June, 1981.

**Product Description and Applications:** PRISM is a 24 to 40 voice polyphonic digital synthesizer allowing eight distinct, complex timbres to sound simultaneously on any of 512 possible keyboard keys. Four types of envelopes and six synthesis modes create timbral and spatial movement of each sound in quadrasonic output. Joystick, sliders, thumbwheels, and pedals allow performance control of musical nuances. An 8-track, 8,000 note sequencer with many looping and editing features is included. Details in our free brochure.

**Basic Specifications:** The PRISM includes the following equipment: Main console with folding legs, Electronics enclosure with travel case, all interconnecting cables, preprogrammed sound library, 24 voices, volume pedal, sound cutoff footswitch. Optional accessories: Remote keyboards, remote pedal boards, pedals, footswitches, slider modules, thumbwheel modules, joystick modules, travel cases for main console and remote keyboards, accessory case, additional voices in increments of two (maximum 40 voices per system).

**Suggested List Price:** Contact factory for prices (still to be determined).

**KING INSTRUMENT CORP.**

**King Cassette Loaders, Model 790, 780 & 580**  
80 Turnpike Rd., Westboro, Mass 01701  
(817) 388-9141

Contact: Bill Cline—SrVP MKT or Joe Ciccone Asst. SLS. MGR.

**Date Product Introduced:** Model 790-February, 1981.

**Product Description and Applications:** The Speed King is at least 2 1/2 times faster than any other King loader. A microprocessor-based quality control system stops the 790 when operator attention is required. And a flashing LED diagnostic readout reminds the operator of the action needed, so that a technician is rarely needed. The stacker/stamper lets you pick the best arrangement for your labeling/packaging technique.

**Suggested List Price:** \$24,000.00.



**LINN ELECTRONICS**  
LM-1 Drum Computer

**LINN ELECTRONICS, INC.**

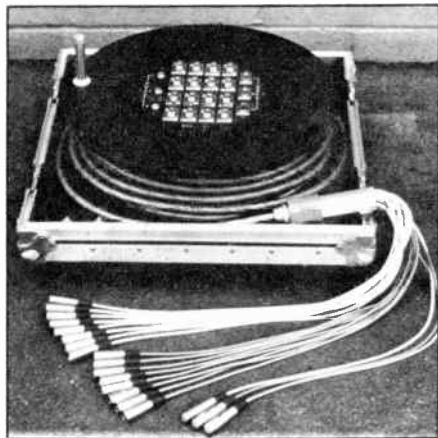
**LM-1 Drum Computer**  
18720 Oxnard Street #103, Tarzana, CA 91358  
(213) 841-1945

Contact: Scott Arvin, Sales Manager.

**Date Product Introduced:** 1980, Current model 1981.

**Product Description and Applications:** The LM-1 Drum Computer is a highly sophisticated, yet easy to operate rhythm machine with real drum sounds—actual digital recordings stored in internal computer memory. Drums include snare, bass, open and closed hi hat, hand claps, cabasa, tambourine, two toms, two congas, rimshot, and cowbell. Audio features include a 13 input stereo mixer with volume and pan switches for each drum, and individual outputs. The pitch of each drum may be individually adjusted. This rhythm machine can overdub to tape and sync to practically anything. The LM-1 Drum Computer holds up to 100 different rhythm patterns—all of which are programmable in real time. Programming features include automatic error correction, variable length of repeating loop (odd time signatures, long patterns, etc.), programmable dynamics, and versatile editing. A "human" rhythm feel is made possible by special timing circuitry. The LM-1 can be easily programmed to play entire songs: Intro, ending, flams, rolls, build-ups, etc. All programmed patterns remain in memory even with power off. In addition, tape storage feature allows programmed data to be stored on cassette tape for later reloading. The new 1981 model has greatly improved signal-to-noise performance.

**Suggested List Price:** \$3995.00.



**MINNICH'S AUDIO PRODUCTS**  
Roll Out Snake Model 16-S

**MINNICH'S AUDIO PRODUCTS**  
Roll out snake model 16-S  
P.O. Box 5372, San Bernardino, CA 92412  
(714) 887-8245

**Contact:** Dan Minnich-owner.  
**Date Product Introduced:** 1981.

**Product Description and Applications:** A 16 input, 3 output passive microphone snake. The spool of cable, with XLR connectors grouped in the center, unwinds freely from a rugged flight case into which it is permanently mounted. Rugged epoxy filled breakout. 100 feet standard length, consult manufacturer for special orders. A removable hand crank is supplied with each unit for ease of rewinding the cable. Also available with 24 inputs. (model 24-S).

**Basic Specifications:** Size and weight: 22" x 22" x 9" 55 lbs.—16-S.

24" x 24" x 11", 70 lbs.—24-S.

**Suggested List Price:** Model 16-S—\$695.00; Model 24-S—\$960.00.

**MSE**  
DCT-100 "Dircat"  
14047 Roblar Rd., Sherman Oaks, CA 91423  
(213) 783-3357

**Contact:** Mike Sanders.

**Date Product Introduced:** May, 1981.

**Product Description and Applications:** The DCT-100 is a Digital Real Time Cable Analyzer. A comprehensive front panel display indicates all the active signal paths within the cable being tested. The Dircat can detect shorts with only one cable end connected. The digital circuitry sequentially scans both ends of the cable under test and the LED display indicates the cable condition in real time. Sixteen LEDs exactly display the cable condition. Since the test is a "hands-off" operation the cable can be manipulated for easily identifying intermittent problems.

**Basic Specifications:** Power: 1 x 9 volt battery included; Automatic shut off after 90 seconds to preserve battery life; Test two and three conductor cables; 100 Hz pulse permits testing headphones and loudspeakers; Connector-SLR, RCA pin and 1/4" phone plugs (There is space for other types of connectors). Dimensions-3 3/4" x 4 3/4" x 2 3/4"; Weight- 16 ounces with battery.

**Suggested List Price:** \$185.00.

**MUSICO**  
RESYNATOR  
2639 Lafayette Rd., Indianapolis, IN 46222  
(317) 924-1300

## NEW PRODUCTS OTHER EQUIPMENT

**Contact:** Don Tavel/Pres.

**Date Product Introduced:** 1981.

**Product Description and Applications:** Accepts any mic or line input. Digitally analyzes pitch, dynamics, onset, & duration via two microcomputers (12 bit & 8 bit). Digitally controls analog sound synthesis hardware (VCO, FXO, VCF, VCA). Completely self-contained in 3 1/2" rack mount package. Available in monophonic (Resynator) and polyphonic (Hexsynator).

**Basic Specifications:** Variable Mic/line input from 600 ohm and higher.

Front end/back end balancing.

12 bit digital frequency analyzer.

8 bit Timbral image modulator.

1 volt/octave VCO, FXO, VCF.

Positive Gates/Triggers. foot controllable.

**Suggested List Price:** Available 1 voice (monophonic)

Resynator @ \$3299.00 (US) 6 voice (polyphonic) Hexsynator (contact factory for price and availability.)

**NADY SYSTEMS INC.**

Nady Pro 49 Wireless System  
1145 85th St., Oakland, CA 94608  
(415) 852-2411

**Contact:** Phil Maselli, Marketing Director.

**Date Product Introduced:** September, 1981.

**Product Description and Applications:** System consists of the PRO GT-49 transmitter and the PRO 49 receiver with 1/4" phone jack output. The Pro GT-49 transmitter is designed for wireless transmission of all musical instruments with high impedance pickups. Transmitter is to be used with the Pro 49 receiver.

**Basic Specifications:** Patented circuitry offers:  
- 100 + dB S/N.

250 foot range.

Fixed Frequency w/multi-channel capability.

Portable size, receiver (6.7" x 5.0" x 2.2") 1lb. 7oz.

Transmitter: (3.8" x 2.4" x .8"), 2 1/2 oz.

**Suggested List Price:** \$400.00.

**NADY SYSTEMS INC.**

Nady Pro 410 System  
1145 85th St., Oakland, CA 94608  
(415) 852-2411

**Contact:** Phil Maselli, Marketing Director.

**Date Product Introduced:** July, 1981.

**Product Description and Applications:** Tunable system for instrument, lavalier, and hand held mic transmission and receiver. Pro 410 receiver has 1/4 phone jack and balanced XLR outputs. System uses 410 receiver and one of 3 transmitters; instrument (GT-410), lavalier (LT-410) handheld (HT-410) with patented encode-decode compression process between transmitter and receiver. 410 transmitters to be used with 410 receiver.

**Basic Specifications:** Operates between 88-108kHz. 5 LED display.

Over + 100dB S/N.

20-20,000 Frequency response and less than 1% distortion.

Optional balanced XLR output with 1/4" phone jack.

Operates 10 hours on single 9 V Alkaline battery.

**Suggested List Price:** \$1,100.00 per system.

**NADY SYSTEMS INC.**

Nady Pro 2 Transmitter  
1145 85th St., Oakland, CA 94608  
(415) 852-2411

**Contact:** Phil Maselli, Marketing Director.

**Date Product Introduced:** June, 1981.

**Product Description and Applications:** Tunable transmitter for musical instruments (GT-2), lavalier mics (LT-2) and hand held mics (HT-2). Can be used with any FM receiver. Toshiba ST-335 or Toshiba T10B available thru Nady Systems.

**Basic Specifications:** Tunable to any FM receiver. 250 foot range. 20-20,000 frequency response at less than 1% distortion 75dB S/N.

All Pro-2 series transmitters operate 10 hours on single 9 V Alkaline batteries.

**Suggested List Price:** Pro GT-2—\$300.00.

Pro LT-2—\$300.00.

Pro HT-2—\$350.00.

**NEI**

Model 1010 Audio Analyzer and Equalizer  
934 N.E. 25th Ave., Portland, Oregon 97232  
(503) 232-4445

**Contact:** Bud Garrison, Vice President, Marketing.

**Date Product Introduced:** June, 1981.

**Product Description and Applications:** The 1010 Audio Analyzer and Equalizer is an improved tool for the professional sound engineer, recordist or musician. The equalizer section features  $\pm$  12dB cut or boost on each of 10 bands (on ISO frequency centers), oil-dampened slide controls with center detents for easy return to

"flat", gain controls and EQ in/out switching. The analyzer section features an LED matrix consisting of 10 octave bands with 9 steps of amplitude per band. The 1010 comes with an internal pink noise generator with self checking response, balanced input and line in/out jacks with gain control.

**Suggested List Price:** \$749.00.

**RAINBO PRODUCTS**

Leprecon Lighting Control System  
404 N. River, Ypsilanti, MI 48197  
(313) 482-8591

**Contact:** Stefan Graf-president—Wayne Wetzelsales.  
**Date Product Introduced:** February, 1981.

**Product Description and Applications:** Compact, expandable control console featuring 24 channels, 2 scenes, 10 pin matrix present scenes, crossfaders, ABC sub-masters, master, independent master, blackout switch, work lamps, bump buttons with add/kill switch, timed crossfader. Options include a master/slave kit which allows two or more Leprecons to be interfaced. An expander module allows the system to be expanded in twelve control channel groups to 36 or 48 channels. For touring companies, theatre, TV, nightclubs, churches.

**Basic Specifications:** Dimensions 29 5/16" x 4 7/16" x 25 3/8".

Weight: 40 lbs.

Rugged aluminum front panel and end plates with light grey polyurethane baked enamel.

Electronic circuitry is the same as used in Rainbo custom consoles.

27 pin Cinch Jones with P-327—CCT mating cable connector included.

105-126 VAC 50-60 Hz.

**Suggested List Price:** \$3995.00.



**RUSSOUND MFG.**  
Russound TMS-10

**RUSSOUND MFG**

Russound TMS-10  
135 McDonough St., Portsmouth, N.H 03801  
Office-Sales: P.O. Box 2389, Woburn, MA 01801  
**Contact:** John W. Rabbit.

**Date Product Introduced:** June, 1981.

**Product Description and Applications:** TMS-10 Tape Recorder Selector Switching System connects up to ten tape recorders to be used at once in any combination of functions. Direct tape-to-tape transfer without going through a preamp or a mixer. Connects to tape monitor jacks of the system. Use if for duplicating, demonstrating, editing, mixing and programming. This unit is split in a series of two banks of five tape recorders. In addition, up to two processors (reverberation devices, equalizers, noise reduction units, etc.) can be inserted between the first and second bank of five.

**Basic Specifications:** This unit along with the TMS-3 and the TMS-5 tape recorder switching devices is engineered for lifetime reliability. It is attractively designed and packaged in a furniture model with solid walnut end pieces, or as a standard 19 inch rack mount unit. All switches have silver plated, self-cleaning, double-wipe contacts for constant reliability and longer life. (16 1/2" W x 3 1/2" D x 3" H).

**Suggested List Price:** \$149.95.

**SENNHEISER ELECTRONICS CORPORATION**

HD-40, HD 222  
10 West 37th St., New York, NY 10018  
(212) 239-0190

**Contact:** Tony Tudisco, Nat'l Sales Mgr.

**Date Product Introduced:** HD-40 September, 1981; HD-222 May, 1981.

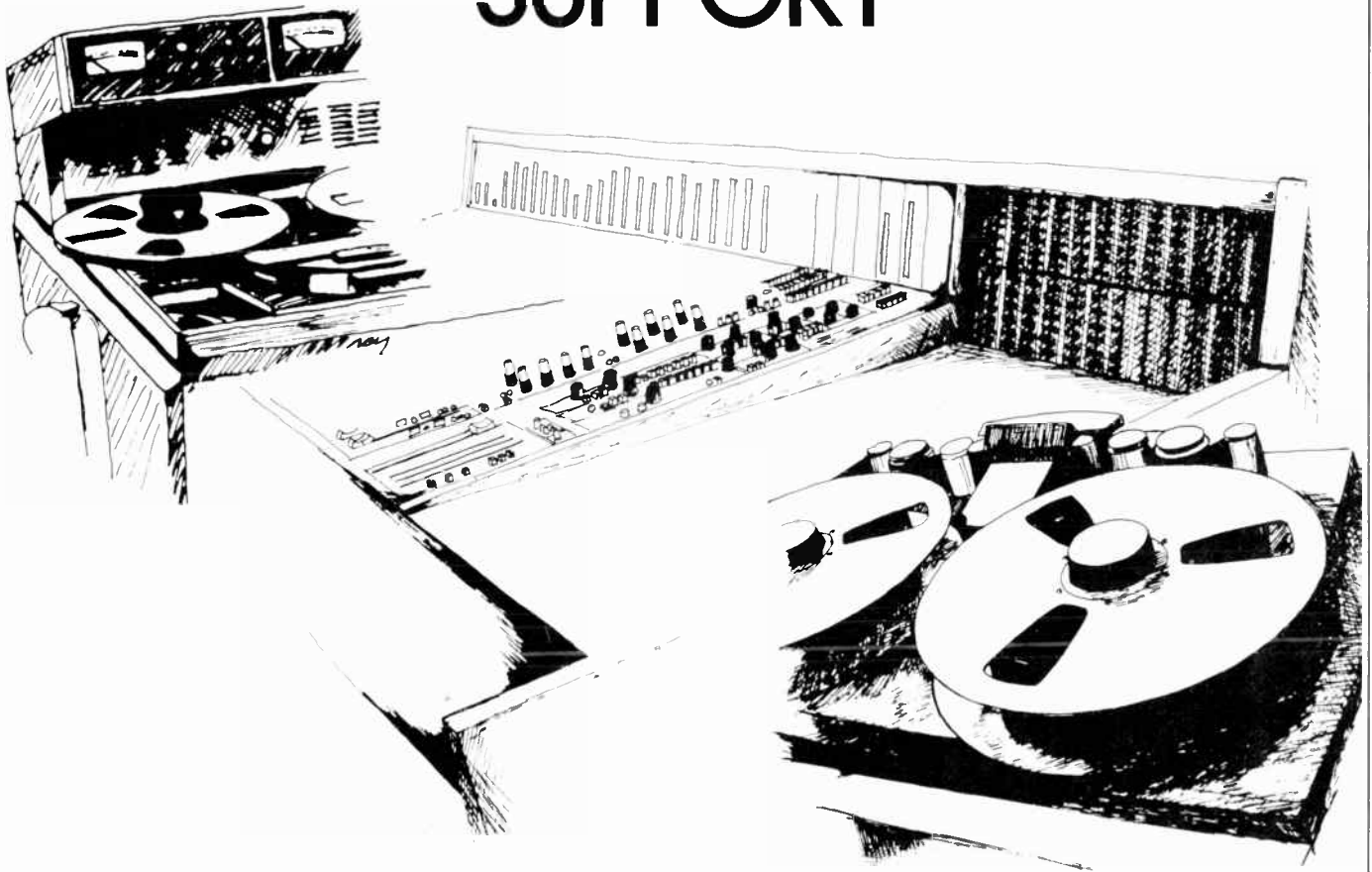
**Product Description and Applications:** HD-40—Sennheiser's newest and lightest lightweight (2 ozs.) open-air headphone list price \$35. HD-222 Sennheiser lightweight sealed cushion headphone with ultralow dist. and samarium cobalt magnet structure. Extreme comfort on both models especially over long listening periods.

**Basic Specifications:** HD—40 22-18,000Hz.

HD-222 20-20,000 Hz.



# SUPPORT



## Where it counts.

"Due to our creative needs PRS' wide product selection and support has made them our first choice."

**Syncro Sound Studios**, Boston MA Steve Berkowitz, Operating Director

"A long lasting friendship has helped our business to expand, keeping us on top of the industry."

**Soundtrack**, Boston MA Rob Cavicchio, President

"PRS' support has made them our main supplier of choice for years."

**Starfleet Blair Inc.**, Boston MA Sam Kopper, V.P., Executive Producer

"PRS is more than our sole equipment supplier: their service and support has proven invaluable time and time again."

**Reel Time Productions**, Cambridge MA Bruce Macomber, President

"We chose PRS because of their reputation for design support before and after the sale."

**Celebration Sounds**, Pawtucket RI David Correia, President

"Finally . . . a professional studio equipment supplier."

**Studio-B**, Boston MA Allen Smith, V.P., Chief Engineer

PRODUCT \_\_\_\_\_ SERVICE \_\_\_\_\_ DESIGN \_\_\_\_\_ DELIVERY

# PRS<sup>INC</sup>

Professionals  
helping  
Professionals

**Professional Recording & Sound** 1616 Soldiers Field Road, Boston, MA 02135 (617) 254-2110



**SHURE BROTHERS INCORPORATED**  
MV30HE

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

Contact: Donna Roche, Technical Coordinator.

Date Product Introduced: June, 1981.

**Product Description and Applications:** Integrated cartridge/carrying arm for SME Series III and Series IIIS. The performance is similar to Shure's top of the line cartridge, the V15IV. The MV30HE has a miniature design and a hyperelliptical stylus tip. An overhang gauge is provided for easy alignment.

**Basic Specifications:** Trackability (cm/sec): 400 Hz, 1 kHz, 10 kHz Tracking Force. MX30HE 29 42 37 1 gram.

Tracking Force Range: .75 to 1.25 grams.  
Frequency Response: 10 to 25,000 Hz.  
Output (@1 kHz, 5 cm/sec): 4.0 mV per channel.  
Replacement Stylus: NV30HE.  
**Suggested List Price:** \$230.00.

**SHURE BROTHERS INCORPORATED**  
V15LT, M97LT

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

Contact: Donna Roche, Technical Coordinator.

Date Product Introduced: June, 1981.

**Product Description and Applications:** These LT cartridges are made for use with Technic's linear tracking turntables. However, Shure provides an adapter so cartridges can be used with any headshell that accepts a standard mount. Both are high tracking cartridges and have the hyperelliptical stylus tip.

**Basic Specifications:** Trackability: 400 Hz 1 kHz 10 Hz Tracking Force.

(cm/sec) V15LT 36 52 46 1.25 grams.  
M97LT 30 44 31 1.25 grams.  
Frequency Response: V15LT, 10 to 25,000 Hz; M97LT, 20 to 20,000 Hz.  
Tracking Force: 1.25 grams Output (@1 kHz, 5cm/sec): 4.0 mV per channel.  
Replacement Stylus: VN45LT (V15LT); N97LT (M97LT).  
**Suggested List Price:** V15LT: \$181.00; M97LT: \$115.00.

**SIE PUBLISHING**

Professional Audio Buyers Guide  
Box 4139, Thousand Oaks, CA 91359  
(213) 991-3400

Contact: Jim McCandliss.

Date Product Introduced: May, 1981.

**Product Description and Applications:** This is a 240 page reference book covering over 70 manufacturers of professional sound equipment. The reader can compare specifications and retail prices on thousands of different products without having to wade through stacks of factory literature. The Professional Audio Buyers Guide contains information on speakers, amplifiers, microphones, recorders, equalizers, analyzers, test equipment, duplicators, wireless microphones systems, lighting and even computers.

**Suggested List Price:** Retail price is \$15.95. Special quantity pricing available to dealers, bookstores and educational institutions.

**SOUND INVESTMENT ENTERPRISES**

PS-48A Condenser Power Supply  
31121 Via Colinas Suite 1003 Westlake Village, CA 91361

(213) 991-3400

Contact: Jim McCandliss.

Date Product Introduced: June, 1981.

**Product Description and Applications:** The PS48A is an in-line condenser power supply capable of operating up to four microphones. The PS48A is protected against shorted mic cables, faulty AC power, is highly regulated and filtered and will operate with any low impedance balanced or unbalanced mixer input.

**Basic Specifications:** Supply output: 48 VDC.  
Current Capacity: 100 MA.  
Size: 7 1/2" L x 5 1/4" W x 2 1/2" H.

Weight: 3 lbs.  
**Suggested List Price:** \$180.00.

**SOUND WORKSHOP PROFESSIONAL**  
AUDIO PRODUCTS, INC.

DISKMIX  
1324 Motor Parkway, Hauppauge, New York 11788

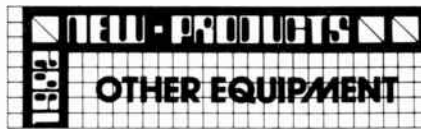
(516) 582-6210

Contact: Michael Tapes, President, Emil Handke, Sales Mgr.

Date Product Introduced: October, 1981.

**Product Description and Applications:** DISKMIX is an add-on computer that interfaces with Sound Workshop, MCI, and Valley People (Allison) automation systems. It is a SMPTE time code based system that stores multiple mix data on DSDD (double-sided double-density) floppy disks. It allows merging and editing of mix data, control of automated console parameters, and storage of session documentation. DISKMIX consists of the main computer unit (which also houses Dual DSDD Disk Drives), a controlling keyboard computer, and a color monitor (user provided).

**Suggested List Price:** DISKMIX preliminary price—under \$20,000.00.



**STANTON MAGNETICS INC.**

Stanton  
200 Terminal Drive, Plainview, NY 11830  
(212) 445-0040

Contact: Pete Bidwell.

Date Product Introduced: 1981.

**Product Description and Applications:** 981LZS-Features a new and exciting magnetic cartridge design concept. This product offers Low Impedance and provides extended frequency response well beyond 50kHz. The 981LZS patented moving stylus system features a Stereohedron® diamond mounted in an ultra-low mass armature (0.2mg) which enables the cartridge to track the highest levels found in the new generation of high technology records. It is insensitive to cable capacitance and load impedance above 100 ohms. The 981LZS will work directly into the M.C input provided in most of the new receivers. 981HZS-Provides the same moving system as the 981LZS but with an output impedance designed to work with standard 47k pre-amplifier input of a conventional receiver. Cartridge is factory calibrated.

**Basic Specifications:** 980LZS & 981LZS: Output:

.06mV/cm/sec. ± 2dB.  
Frequency Response: 10Hz to 50kHz.  
Tracking Force: 3/4-1 1/2 gm.  
Stylus: Stereohedron  
Tip Dim: .3x2.8 mils.  
Channel Balance: within 1dB.  
Tracking Ability: 100 Microns.  
Inductance: 1mH.  
Channel Sep.: 35dB @ 10kHz.  
980HZS 981HZS:  
Output: .68mV/cm/sec ± 2dB, Freq. Resp. 10Hz to 50kHz.

**Suggested List Price:** 980LZS-\$220.00.

\*981LLZs-\$250.00.

980HZS-\$220.00.

\*981HZS-\$250.00.

\*Individually calibrated.

**SYMETRIX, INC.**

Patch-32  
109 Bell St., Seattle, WA 98121  
(208) 624-5012

Contact: Dane Butcher, Marketing Director.

Date Product Introduced: August, 1981.

**Product Description and Applications:** The Symetrix Patch-32 is a unique audio accessory designed for the purpose of interconnecting unbalanced audio processing equipment including mixers, equalizers, reverbs, delays, power amps, tape recorders, etc. The Patch-32 spares the user from "crawling around" in back of his equipment rack every time a connection must be changed. All connections are brought up to the front of the equipment rack, where they belong.

**Basic Specifications:** Size: standard rack mount: 1 1/4" by 19" by 2 1/2".

Front Panel: 32 1/4" jax, top row "normalizes" to bottom row.

Rear Panel: 32 1/4" phone jax, or optionally 32 RCA jax. Construction: PC mounted jax. All 1/4" jax use gold plated crossbar contacts for ultra long life and reliability.

**Suggested List Price:** Patch-32A (1/4" rear panel jax): \$149.00.

Patch-32B (RCA rear panel jax): \$129.00.



**TENDEL CORP.**

Tentelometer® Tape Tension Gage  
(See listing in next column)

**TENDEL CORP.**

Tentelometer® tape tension gage  
1508 Dell Ave., Campbell, CA 95008  
(408) 379-1881, (800-538-6894) ex. Cal.)

Contact: Wayne Graham Gen. Mgr.

Date Product Introduced: 1981.

**Product Description and Applications:** In-line dynamic tape tension gage for easily measuring hold back and take-up tensions on reel to reel audio recorders. The instrument also shows oscillating tension problems which would cause wow and flutter in recorder output. **Basic Specifications:** The T2-H20-ML for tape widths to 2" and the T2-H15-UM for miniature recorders, including Nagra transports sell for approximately \$250 complete.

**Suggested List Price:** \$250.00.

**UNITED RESEARCH LAB. CORP.**

Auto-Tec-Auto-Sense-Cue Lift  
18 East 52nd Street, New York, NY 10022  
(212) 751-4633 TWX 710-581-3822

Contact: George Adams, pres.

Date Product Introduced: May, 1981.

**Product Description and Applications:** Auto-Sense, electronic motion tape sensing for Ampex recorders not having this safety feature. Cue Lift, automatic filter for older recorders not having this feature.

**Suggested List Price:** Auto-Sense: \$290.00.

Cue-Lift: \$275.00.



WESTLAKE AUDIO, INC.  
AS-1 Audio Switching System

**WESTLAKE AUDIO, INC. PROFESSIONAL PRODUCTS**  
MANUFACTURING GROUP  
AS-1 Audio Switching System

2888 Lavery Court, Unit 18, Newbury Park, CA 91320  
(805) 499-3686

Contact: Ruth Myers, New Product Information Administrator.

Date Product Introduced: June, 1981.

**Product Description and Applications:** An 4 way stereo inset switching system. Allows insertion of up to 4 devices into a stereo signal path, or a four channel (mastering) signal path can be switched operating two AS-1's in a parallel mode. Applications: studios, monitor E.Q. selection, effects return selection, etc. Mastering: allows instant selection of processing gear. P.A./sound reinforcement: allows instantaneous scene change, etc. **Basic Specifications:** 19" rack mount 3 1/2" height, 9" width.

All inputs and outputs are switched by hermetically sealed relays. Unit produces no audible degradation of signals.

Various input/output terminations are available.

**Suggested List Price:** From \$985.00 Depending on configuration.

**ZEUS AUDIO SYSTEMS**

Direct Box model 8325  
511 S. Palm Ave., Alhambra, CA 91803  
(213) 281-0023

Contact: Domenic Turicce, Sales Manager.

Date Product Introduced: June, 1981.

**Product Description and Applications:** 8325 has a hi-z input for electric instruments and two outputs-a lo-z to feed signal to sound system or recording console, and a hi-z out to feed signal to amp or speaker for simultaneously monitoring of sound. Can be used before or after amp head and has ground lift capability. Variable filter gives more control.

**Basic Specifications:** The 8325 Direct box is a passive direct box using no batteries. Enclosed in road-worthy anodized aluminum. Variable rolloff filter approx. 11KHz.

Input Impedance: 60K ohms.

Line Output Imp: 150 ohms.

Frequency Response: ± 1dB 20-20KHz.

**Suggested List Price:** \$48.95.



# Reader Service Page

If you would like to receive further information on products and services advertised in Mix Magazine, just check the appropriate boxes and mail us this page.

Cut Here — Fold and Mail — No Postage Required

Page No.	Advertiser	Info for Purchase	Info for Files
11	AGFA-Gevaert, Inc.		
24	AKG Acoustics, Inc.		
65	Ampex AVSD		
20	Ampex MTD		
76	Analogique		
55	Audi-Ence Inc		
15	Audio-technica		
63	Auditronics, Inc		
84	Blank Tapes, Inc		
86	Boogie Hotel		
29	dbx, Inc.		
65	Electro-Media Systems		
8	Eventide Clockworks		
2	Everything Audio Corp.		
9	Gotham Audio Corp.		
46	Hardy Co		
59	Harvey Pro Audio		
82	Hy James		
Insert			
34A,B,C,D	JBL		
35	Lakeside Associates		
48	Lake Systems		
19	Lexicon, Inc.		
21	Linn Electronics		
7	Masterdisk		
39	Maxell Corporation		
77	The Mike Shop		
53	Music Annex		
44	Neotek Corp.		
61	Neotek West		
9	Neumann U87, U89		
23	Orban Associates		
18	Outer Ear, Inc		
51,67	Pro Audio Systems		
93	Professional Recording & Sound		
75	Pulsar Labs		
82	Renkus-Heinz, Inc		
86	Solid Sound		
17	Sony Digital Audio		
69,71,73,75,77,79,81	Sound Genesis		
47	Sound Investments		
85	Soundmaster Recording Studios		
85	Southern Recording & Video		
84	Southwind Recording Studio		
25	Spectra Sound		
33	SPL Research		
99	Studer Revox		
59	Sturomaster		
78	Studio Technologies		
76	Sye Mitchell Sound Co., Inc		
5	TDK Electronics		
43	3M Magnetic Tape Division		
49	Tres Virgos Studios		
100	UREI		
54	Ursa Major		
12	Westbrook Audio		
37	White Instruments		
83	Winery Recording Studio		
29	Wireworks		
57	Yamaha		

Name \_\_\_\_\_

Company \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_

State, Zip \_\_\_\_\_

Phone \_\_\_\_\_

Signature \_\_\_\_\_

What is your age?

15-24  25-34  35-44  45+

What is your occupation? \_\_\_\_\_

How long involved in pro audio? \_\_\_\_\_

Where did you get this copy of Mix? \_\_\_\_\_

Recording Studio  Pro Audio Store

Music Store  Other \_\_\_\_\_

What trade shows do you plan to attend this year?

AES  NAMM

NAB  SMPTE

NARM

PEPS

CES

Other: \_\_\_\_\_

Mix, November 1981

This response page expires  
January 31, 1982

INSTANT MAILER  
Just cut this page out,  
fold, staple and  
drop in the  
mailbox

# Reader Service Page

## INSTANT MAILER

Fold on the lines, staple and mail.  
No postage required

\* Use this form also to subscribe to Mix.  
(See below)



NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED STATES

### BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 2994 BERKELEY, CA

Postage will be paid by addressee

**Mix Magazine**  
P.O. Box 6395  
Albany, CA 94706



# SUBSCRIBE TO MIX

with this same mailing form

I am enclosing a check for  
\$18 or an equivalent charge on  
VISA/MasterCard:  
Exp. Date \_\_\_\_\_  
Card # \_\_\_\_\_  
Signature \_\_\_\_\_

Name \_\_\_\_\_  
Company \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_  
State, Zip \_\_\_\_\_



Cut Here — Fold and Mail — No Postage Required



## Equipment For Sale

THE AUDIO GROUP, a full service Pra Audia Co., leaders nationwide in audio brokerage (buying & selling used equipment). Also dealers of pro line: 3M, Dalby, Auditratics, Spectra Sonics, Eventide, Lexican, Ivie, MXR, Shure, Sennheiser, etc. 212/765-7790

## Reliable Music

The Finest in Professional Audio With Service to Back it Up!

Crown, JBL, Tascam/TEAC, Yamaha, Biamp, Technics, Orban, Gauss, Eventide, dbx, UREI, Neumann, AKG, Sennheiser, Beyer, Sony, Shure, Otari, MICMIX, MXR, RTS, Revox, Cetec-Vega, E-V, Omnicraft, Symetrix, Sescam, Ursa Major, Whirlwind, Audio-technica, Ramsa, Lexican.



(704) 375-8662  
1001 S. Independence Blvd.  
Charlotte, N.C. 28202

Phoenix Systems: delay, EQ, and noise reduction, is so low cost studio owners are ashamed to list them. Send for price/specs and find out why they're not too ashamed to use them. Phoenix Systems. (203) 643-4484, 91 Elm St., Manchester, CT 06040.

MCI JH10 16 Track Recorder, Tangent 3216 16x16 console with producers desk and patch bay, dbx 216 & 187 Noise reduction units, AKG BX 10 II Reverb and additional outboard gear.

314-445-5728

Scully 8-track 1" tape machine, Ampex 2-track Mix-down machine, Langevine 8-track console. Package for \$7500. 8-track only, \$5500. (615) 269-9232 or (615) 292-5470.

Scully 280B-4 'track, New Special \$4,500. Tascam Model 5, \$1,450. Ampex AG 354-2 mint \$1500.

UAR Professional Systems  
8535 Fairhaven, San Antonio,  
TX 78229.  
(512) 690-8888

MCI JH-16 16trk AL \$11,750. Auditratics 501 18x16 \$12,750. Greg: Day: 813-936-4487; Night: 813-549-1485

3) Tascam Model 15's, 8-16-24 ins-CHEAP!! Hi-Watt 16x4 \$1600. Canary 20x8 \$2200. Custom J.H. 18, 18x16 \$8500. Oberheim 8-Vc w/EMU 1/2 off. 2) Gibsons F-5-L \$2800 each.

STAROUND AUDIO/RENO  
(702) 331-1010



## USED RECORDING GEAR! OVER 2,000 ITEMS IN STOCK—ON PREMISES

including

AKG BX-20E, AKG BX-5, AKG C-12, AKG C-422, AKG D-190, AKG D-1000E, ALLEN & HEATH 16x8, ALTEC MIXERS, AMPEG B-15 ALTEC 604E, ALTEC 620, ALTEC 605A, ALTEC TUBE AMPS, ALTEC 1650, AMPEX 440-C8, AMPEX 440B-2, AMPEX 440-B-4, AMPEX 351-1, AMPEX MM1000-16, AMPEX 351-2, INOVONICS ELEC., ATLAS STANDS, AUDIOTECHNIQUES BIG REDS, AUDIO DESIGNS CONSOLE, BGW AMPLIFIERS, BEYER M-160, BRUEL & KJAER TEST GEAR, BTX SYNCHRONISERS, CROWN AMPLIFIERS, DBX 155, DBX 208, DOLBY M-16, DOLBY A-301, DOLBY 361-A, DYNA AMPLIFIERS, ELECTRODYNE 16x8, EMT PLATES, EVENTIDE 1745 M, E-V SENTRY IV, FERROGRAPH SERIES 7, FENDER TWIN, FENDER 15" CABINET, INFONICS REEL TO CASSETTE DUPLICATOR, ITAM 16 TRACK, JBL SPEAKERS, MCI JH-114-24 TR, MCI JH-528 LM AUTOMATED CONSOLE, MCI JH-110-4 TRACK, MCI HEAD STACKS, MCINTOSH TUBE AMPS, NEUMANN U-47, U-67, M-49, U-87, KM-84, OTARI MX 5050, QXD, PULTEC EQP1A, HLF-3C, EQH-2, LCS-2, ROGER MAYER RM-58, SCULLY 284-8TR, SCULLY 280-4TR, SCULLY 280-2TR, SECK MIXERS, SIMONE CELESTE, SONY C-47, SONY C-38B, SONY C-37A, SOUNDWORKSHOP CONSOLES, 3M-56-4TR, TELEFUNKEN VF-14, TASCAM 80-8, TASCAM MOD-5

PLUS HUNDREDS AND HUNDREDS OF PARTS,  
AND MISCELLANEOUS STUDIO GEAR!

Write or call for our complete list or  
specific information on any items.

Come Visit Our Showroom

## audiotechniques EQUIPMENT EXCHANGE

1619 Broadway, New York, NY 10019

**TOLL FREE 800-223-2486**

in New York State 212-586-5989

### PROFESSIONAL AUDIO EQUIPMENT

Shop for pro audio from N.Y.'s leader, no matter where you live! Use the Harvey Pro Hot Line (800) 223-2642 (except N.Y., Ak., & Hi.) Expert advice, in-depth parts dept., video systems available. Broadest selection such as Otari, EXR, Ampeg, Tascam and more. Write or call for price or product info.

Harvey Professional Products Division  
25 W. 45th Street  
New York, NY 10036  
(212) 921-5920

### CALL US LAST!

Find the best deal that you can, then call us. We guarantee the best prices on MXR, DiMorzias, Electro-Voice and more. At Audio, Light & Musical, it will not cost you a dime to call: (1-800) 446-8000.

### FOR SALE OR LEASE

SOUNDCRAFT 3B console, 24 by 16, Excellent condition. \$26,000 abo 3M, model 79, 16 track recorder, with autalacater. \$19,000 aba.

Bob (213) 655-7593

Curt (213) 546-2704

MCI JH536 Console 64K or best offer —IVIE IE3A w/IE20B 2700.00 Scamp Rack 8 modules 3100.00  
Audio Trak 815-968-2902

MICMIX Master-Room XL-500 digital reverb system. Brand new, must sell. \$3500. For information call D.J.'s Pra Audio (312) 795-4050  
1:30 pm to 7 pm

Schecter Custom Strat/Candy apple red (Dire Straits), 1 Kramer Top of line E. Guitar XL-76; 1 Kramer Bass Top of line E. Bass XL-9—Both Kramer active electronics. All 3 are brand new. Best offers.

Mike—843-7901

Otari 7308 1" 8-Track (Tweaked) \$5,500 A real money maker.  
(415) 456-7666

## Instruction



3465 El Cajon Blvd.  
San Diego, CA 92104

THE INSTITUTE OF SOUND RECORDING is proud to announce our new 24 week studio maintenance course taught by noted instructor, Winn Schwartz. This course will fully cover the art & science of audio design, installation & repair. For more information on this program or our recording engineering programs.

Call (714) 281-7744

All courses approved by the Calif. Superintendent of Public Instruction.

## Recording Services

YOUR MOST CREATIVE TALENTS DEVELOP AT DAWN

make them happen at L.I.'s newest, most innovative studio. Features 24 track APSI console, 3M M79 recorder, full dbx.

DAWN SPECIAL-  
MIDNIGHT TO NOON

\$1,000 incl. tapes

Call DAWN RCDG. (516) 454-8999

**REAL TIME CASSETTE DUPLICATION.)** Would you believe. 97¢ each on AGFA tape? (C-30). Audiophile quality—Impressive dynamic range—Low Noise—Harmonic Transparency. GRD Recordings. (602) 252-0077.

**STARLIGHT SOUND STUDIO**  
16 TRACK MASTER RECORDING  
in the  
S.F. BAY AREA  
(415) 236-2281

EXPERIENCED ENGINEER/ PRODUCER looking for bands & musicians to record in only the finest of S.F. Bay Area Studios. For special rates & info: Call Steve Andreatta (415) 952-9297

**NEW PRODUCTION MUSIC LIBRARY**  
From Brand Studios. Royalty free, unlimited use, designed for visual communication & cost efficiency. Free demo. 10 Industrial Way, Brisbane, CA 94005 (415) 468-3500

## Miscellaneous

### BLANK AUDIO AND VIDEO CASSETTES

direct from manufacturer below wholesale. Any length cassettes. 4 different qualities to choose from. **BULK & REEL MASTER TAPE** from 1/4" to 2". Cassette duplication also available. VHS T-120's, \$11.25. Brochure. **ANDOL AUDIO PRODUCTS, INC.**, 4212 14th Ave., Dept. MX, Brooklyn, NY 11219 **TOLL FREE: 1-(800) 221-6578 ext. 4** or NY res. (212) 435-7322 ext. 4

**AGFA MASTERTAPE AND CASSETTES.** Super prices. Example: 1/4" x 2400' bulk = 9.82 and C-60 for 86¢ (case quantities) send for wholesale price list.

Solid Sound, Inc. Box 7611 Ann Arbor, Mich. 48105 (313) 662-0667

### THOUSANDS OF OLDIES

comprehensive catalog of all the best selling 45 rpm oldies from the last 40 years. Send \$2 to: **AMERICAN PIE**, P.O. Box 66455, Dept. M, Los Angeles, CA 90066

**RECORD PRESSING.** Low package prices on top quality LP's, including mastering, matrix, labels, jackets. Check us first.

H.R. Productions (415) 930-7573.

### SPECIAL STUDIO PACKAGES!

For all uses. Photos can improve your cash flow. As low as \$175. Hire a pro. Call or write for more info: **Gale Warning Photography** 333-20th Ave., S.F., CA 94121 (415) 386-5708

### PRESS YOURSELF!



45's - LP's  
**FAST!**  
QUALITY VINYL  
LOWEST RATES

CALL (415) 495-6169  
860 2nd St., S.F., CA 94107

Take advantage of the new 1981 economic recovery tax act that favors the businessman such as yourself. Keep up with the state-of-the-art high technology equipment & equipment renovations in our competitive field. By using Keystone Leasing Corporation's services, we can help you take advantage of the new tax law. We can fill all your leasing needs for new equipment, renovating & re-financing. We specialize in the personal touch.

**KEYSTONE LEASING CORPORATION**  
Attn: J.P. Edwards  
7001 East 71st St., Suite 106  
Indianapolis, Indiana 46220  
(317) 881-8271 or (317) 842-7424

# GET IN ON THE ACTION MIX CLASSIFIEDS

There are 6 lines to the inch and approx. 30 characters to the line. \$50 per inch—1" (min.). Additional lines: \$10 per line.

### Important:

Please type or print in CAPITAL LETTERS and lower case where you want the same to appear in your classified ad.

**Bold Type:** \$10 per line. Black border: \$10 extra. Logos or display advertising up to 4" will be charged at \$75/inch. Multiple insertion rates available.

**DEADLINE:** 5th of the month preceding each issue

### Categories Available: (Check One)

- EMPLOYMENT OFFERED
- EMPLOYMENT WANTED
- EQUIPMENT FOR SALE
- EQUIPMENT RENTALS
- EQUIPMENT WANTED
- INSTRUCTION
- MAINTENANCE SERVICES
- RECORDING SERVICES
- REHEARSAL SPACE
- MISCELLANEOUS

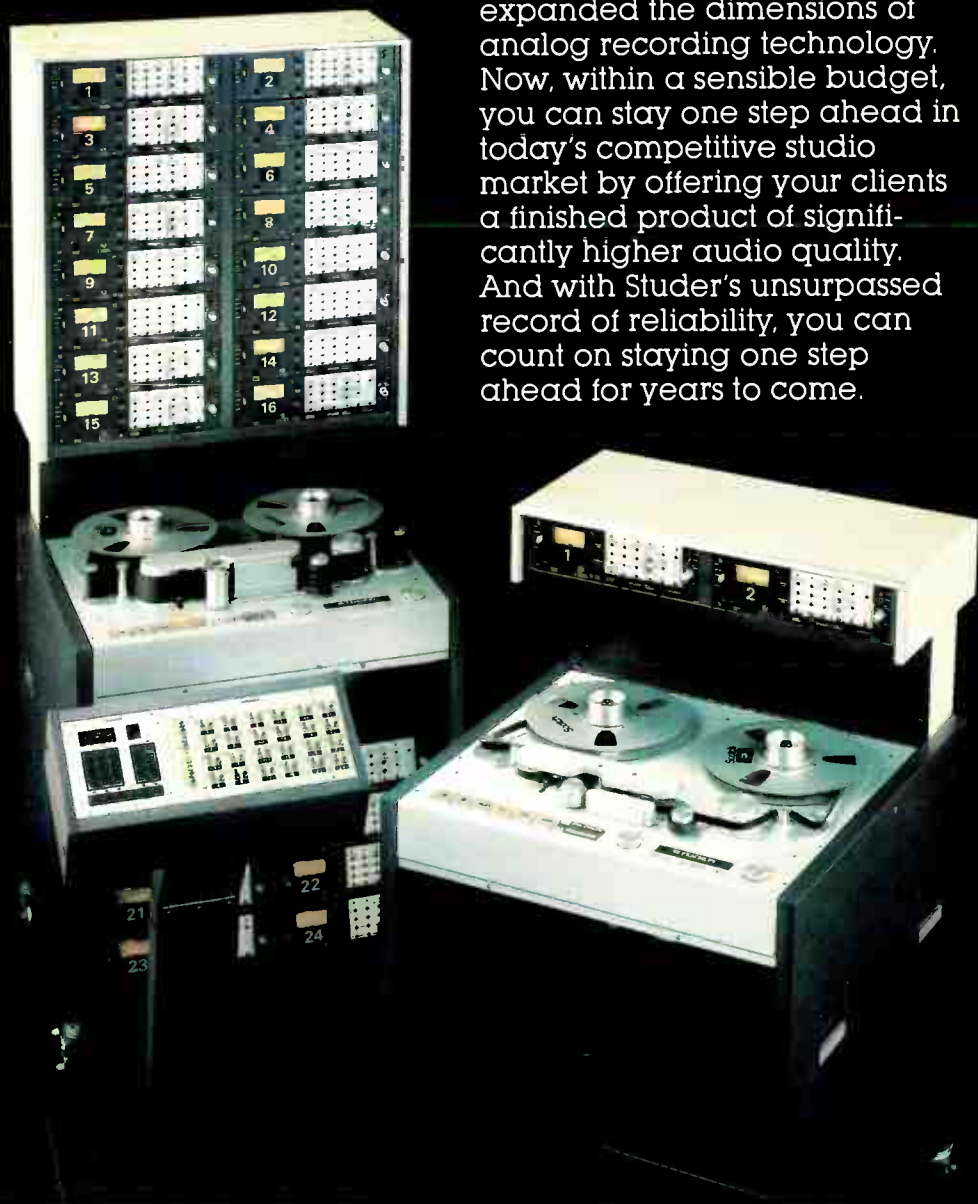
**PAYMENT BY CHECK OR MONEY ORDER MUST ACCOMPANY AD.** For your convenience, we now accept VISA & MasterCard (for such payment, please accompany ad with your name, address, card number and expiration date). Send to or call: **Gale Rosenberg — Mix Publications**, 2608 Ninth St., Berkeley, CA 94710 (415) 843-7901.



# New transformerless output Studer A80VU multi-tracks and 1/2-inch mastering decks.

## The analog alternative.

With the introduction of these two newest versions of the legendary A80, Studer has expanded the dimensions of analog recording technology. Now, within a sensible budget, you can stay one step ahead in today's competitive studio market by offering your clients a finished product of significantly higher audio quality. And with Studer's unsurpassed record of reliability, you can count on staying one step ahead for years to come.



### THE A80VU MKIII 24-Track

- Transformerless output amplifiers now standard on all multi-tracks, and with *no price increase!* • Four power transistors in output stage. • Low source impedance (22 ohms) means no signal degradation regardless of loading from long cable runs. • Frequency response from 14 Hz to 50 kHz (+0, -1 dB). • THD of less than 0.01% at 1 kHz with +24 dBm output. • New low distortion transformer line amp card also available as option.
- New headblock design with erase head immediately adjacent to record head. Tape travel time between heads of less than 40 milliseconds at 30 ips assures extremely accurate punch-in and punch-out.
- Full-function channel remote and microprocessor controlled autolocator with 20 address memory.

### The Studer A80 1/2-inch 2-Track Mastering Decks

- Available in either A80RC or A80VU versions. New transformerless line amps are standard on the VU version (shown).
- Exceptionally low signal-to-noise ratio of -75 dB, without noise reduction!
- Exclusive Studer head design for excellent low end response.

Call or write today for more information on "the analog alternative" and be sure to inquire about our special package pricing. Your clients—and potential clients—are waiting to hear the difference.

**STUDER** REVOX

Studer Revox America, Inc.  
1425 Elm Hill Pike, Nashville, TN 37210 (615) 254-5651  
Offices: Los Angeles (213) 780-4234 / New York (212) 255-4462  
Canada: Studer Revox Canada, Ltd.

The new UREI Series "A" Time-Aligned™ monitor systems and their equals, the UREI Listening Amplifiers.

For the purest sounds you've ever heard, audition the critically engineered and listener proven

UREI professional monitoring systems.

Now available with your choice of three accurate Time-Aligned™ monitors and four sonically superb power amplifiers.

From small intimate listening situations to the most spacious environments... from studio control rooms to massive sound reinforcement, the solution to critical music reproduction for the audio professional is awaiting your evaluation at your authorized UREI dealer.

Evaluate the combined technology of a total UREI monitoring system and you will know and appreciate why your peers have made UREI the *new monitoring standard*.

\*Time-Align is a trademark of E.M. Long Assoc., Oakland, CA.  
All referenced Trademarks are property of, or licensed by,  
United Recording Electronics Industries, a URC Company.

## UREI: The NEW Monitoring Standard

**UREI** From One Pro To Another

United Recording Electronics Industries, a URC Company  
8460 San Fernando Road, Sun Valley, California 91352  
(213) 767-1000 Telex: 65-1389 UREI SNVY  
Worldwide: Gotham Export Corporation, New York  
Canada: E. S. Gould Marketing, Montreal

See your professional audio products dealer for full technical information.