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THE RECORDING INDUSTRY MAGAZINE

Interview: Quincy Jones

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JULY 1982



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## DEPARTMENTS

- 4 INSIDE TRACKS/  
FEEDBACK
- 6 CURRENT
- 11 SESSIONS/  
STUDIO NEWS
- 38 PROGRESSIONS  
by Larry Blakely
- 42 THE BONZAI ZONE  
by Mr. Bonzai
- 44 PREVIEW
- 57 STUDIOSCOPE  
by Chris Haseleu
- 64 ADVERTISER'S  
INDEX
- 72 SOUND ON STAGE  
by Pat Maloney
- 77 CLASSIFIEDS

## VIDEO

- 58 VIDEO NEWS  
by Mia Amato
- 59 VIDEO INTERFACE  
by Neal Weinstock

## LISTINGS

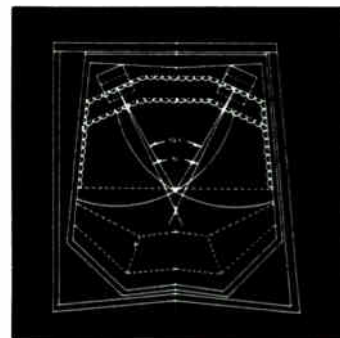
- 27 STUDIO DESIGNERS  
AND SUPPLIERS

## AUDIO

- 12 STUDIO  
CONSTRUCTION  
UPDATE  
by Larry Thomas
- 17 VARIABLE  
ACOUSTICS  
by Vencil Wells  
and Kent Duncan
- 19 METROPOLIS  
STUDIOS  
by Neal Weinstock
- 23 LEDE COMES  
OF AGE  
by Chips Davis
- 25 CHOOSING A  
CONTROL ROOM  
CONSULTANT  
by Al Fierstein
- 46 SPECIAL REPORT:  
POWER AMPLIFIERS  
by George Petersen

## MUSIC

- 61 QUINCY JONES  
INTERVIEW  
by David Schwartz
- 67 ARTIST STUDIOS:  
WILLIE NELSON'S  
PEDERNALES
- 68 SPYRO GYRA  
by Bruce Pilato
- 74 MUSIC NOTES  
by David Gans
- 75 RECORD REVIEWS



L.E.D.E. COMES OF AGE  
Page 23



QUINCY JONES INTERVIEW  
Page 61



SPYRO GYRA  
Page 68

## VOLUME SIX, NUMBER SEVEN

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### Variable Studio Acoustics

As the digital age accelerates the technology of the recording science, we risk depending too heavily on the gadgetry available rather than emphasizing the craft. The journals of the professional audio industry keep us keenly aware of technological advances as they occur. But what about putting a good microphone in the right place in a good room?

At SIERRA/EASTLAKE we invest much time studying the science of acoustics as it applies to the recording art. This continual research has given us a new generation of acoustic design providing the artist as much sonic control and flexibility in the studio itself, as was previously only possible in the control room.

Its called Variable Acoustics. And it transforms the compartmentalized, inflexible studio layout of the past into a totally variable sonic environment, where the entire room, or individual segments, can be acoustically "tuned" from dead to live, or anywhere in-between. The key is not only variability, but the capability to select specific decay times by frequency.

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The benefits of Variable Acoustic Design are many. The studio itself can be designed as an open area; free from the corners and tiny booths which rob musicians of a natural performing environment. The multiple adjustability of the room's acoustics permits the area surrounding each instrument to be voiced individually for proper decay times, while also providing the necessary isolation between instruments. And all without having to reach for EQ or echo send busses! After all, isn't EQ introducing phase shift? Another advantage of a large, open, tunable room is ease in recording large orchestras and big bands.

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Dear Mix,

I'm sending this letter to the leaders of the guitar and amplifier industry. This is an appeal to get you together as a cohesive force. Perhaps you have seen the same signs I have seen—a continuing drop in new players for the past few years. My guess is that a number of factors are at work here—for one thing, playing guitar is not the "in" thing it was during the sixties and seventies. Some of the glamour has worn off, and there is no group like the Beatles or individuals like Elvis to fire the imagination.

Let's face it, over the years our industry has had a free ride. When guitar playing was the rage, television ads and billboards by Coca Cola, Bell Telephone and others reinforced the image. Our industry did nothing to help. Then, as now, we reserved our advertising budgets for trade magazines and for "Guitar Player" in order to get a bigger piece of the existing pie.

We never got together like the Milk Council or other trade groups to bring our message to the general public in order to enlarge our particular pie. Some of you probably don't realize today that television and computer games are taking more dollars out of your pockets than your arch rival "Brand X".

The word must be brought home to the general public that guitar playing is easy, it's fun and can become a lifelong hobby.

Most of you have heard this message from me so many times that you now avert your eyes when you see me. However Hartley Peavey who is surely one of the most forward looking men in our industry, said he is willing to contribute to such a fund. Hartley's business is certainly not suffering, nor is mine; we've just had two sensational years back to back. However, as people who have been in the music business all our lives, and for whom it is a way of life, we are concerned for the future.

If you share our concern, let's hear from you. Perhaps a meeting can be arranged and the industry will stop sitting on its hands.

Jerry Ash  
President  
Sam Ash Music Corp.  
160 W. 48th St.  
New York City, N.Y. 10036

Dear Mix,

The Quarterflash feature on page 11 of the May 1982 Mix offered some very good organization and promoter advice. I must, however, take exception to the statement that Portland, Oregon is a "non music industry city."

Granted, Portland doesn't enjoy the stature apparent in larger cities, such as Los Angeles and New York. However, the music industry is alive and well here.

Over the past year, no less than seven acts have released albums on major labels. These artists have also charted in Billboard. Classic examples are Johnny & the Distractions (A&M), Quarterflash (Geffen), Jeff Lorber (Arista), Pleasure (Fantasy), Dan Segal (Inner City).

There are sure to be more releases this year in light of the fact that Portland boasts more live music venues per capita than any city in the United States, with the exception of New York and Los Angeles.

David Tower  
Sound Smith Studios  
Portland, OR

Dear Mix,

I found your April, 1982 "Video Focus" very interesting.

Since we have dealt with video for the past five years as mainly a state of the art audio recording studio, I felt very left out and disappointed you did not include Soundshop in your "Video Music" listing.

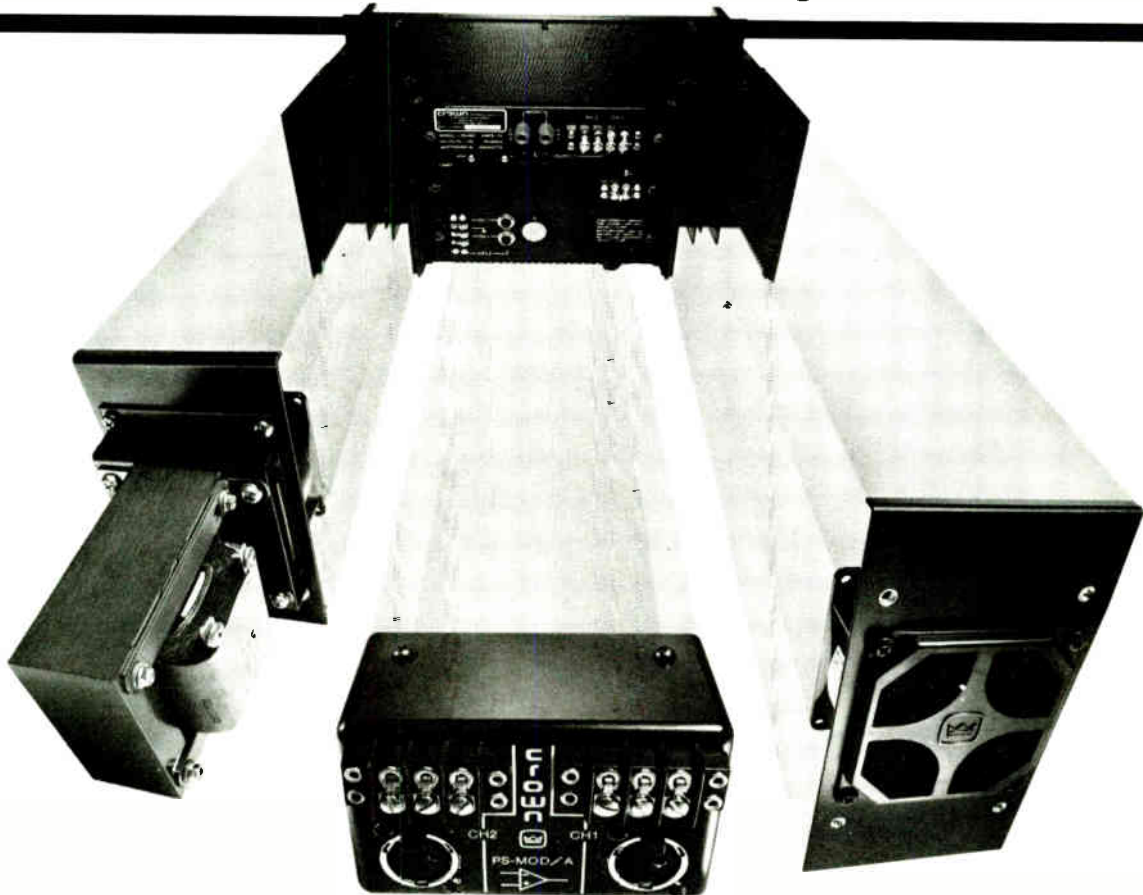
Soundshop has a JVC 3/4" "off line" editing suite and audio-video sync via the Studer TLS 2000 tape lock system and with this just completed the music for Universal's "Best Little Whorehouse in Texas." This is not to mention the various TV shows and commercials we do.

Since this was the first time this list was published I can understand how many of "us" could have been omitted. But we would appreciate a mention on the next list.

Travis Turk  
Manager  
Soundshop Recording Studio  
Nashville, TN

Correction: In last month's story on Kevin Elson, the coproducer on Journey's 'Escape' album, Mike Stone, was inadvertently omitted. We regret any inconvenience to Mike.

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# CURRENT

## SUMMER DIGITAL EVENTS

They should have christened it "Digital Week." On June 3 in New York, SPARS (the Society of Professional Audio Recording Studios) held a day-long event at Studio 54 exploring "The Magic of Digital." Later that day, engineers went north, about 50 miles, to the Rye Town Hilton, for the opening session of a four-day digital audio symposium.

Then on Sunday, June 6, the Consumer Electronics Show opened in Chicago, with plenty of digital consumer equipment—and even some professional gear, to show CES-goers the whole digital chain. PolyGram was especially visible, offering a Compact Disk version of "Chariots of Fire." Others with digital equipment included Mitsubishi, Sony and Cybernet.

No question, digital is hot. The AES sold out its event, at \$350 a ticket (\$450 for non-members). CES attendance promises to be an all-time high, and digital audio is almost as visible on the show floor as video games.

Attendance at the SPARS event was a little more sparse than anticipated, but studio repre-

sentatives in attendance were out to learn as much as they could. "It's a different group than we had in Los Angeles," said one panelist. "LA was much more lively, with a larger turnout. New York is much more serious and technical."

Since March, when SPARS took its digital show to Los Angeles, interest in the field has burgeoned. With the Sanyo/Philips launch less than a year away, engineers, labels, artists and consumer electronics manufacturers are watching closely and finding their own ways of becoming a part.

Engineers at Rye were given an advanced lesson on the subject of digital audio, covering such areas as sampling, quantization, editing, mastering and others. They heard Soundsteam president Tom Stockham tell them about the "Promise of Digital Audio," a promise of permanent software with quality better than or at least equal to the originals.

They heard about distortion, wow & flutter, modulation noise and print-through that were virtually non-existent on this most promising of formats. And they believed.

## notes

The **Electronic Industries Association's** Consumer Electronics Group has expressed concern over a recent FCC ruling which would allow several different formats for stereo AM radio broadcasts. The association is urging manufacturers to adopt a single decoding standard which would benefit consumers, broadcasters, and electronics companies alike... **Larry Lamoray** has joined **Auditronics**, the Memphis, TN, based console manufacturer, as International Marketing Mgr. Mr. Lamoray previously served in the engineering and marketing departments at **MCI**... San Francisco area media/artist management and record/concert promoters **Augie Blume** and **Cathryn Hrudicka** have joined forces to provide total career development services for bands and performing artists. Contact: Augie Blume/Cathryn Hrudicka & Associates, Box 190, San Anselmo, CA 94960, (415) 457-0215... **George Barmaksezian**, of **IBL's** Quality Assurance section, has been promoted to National Service Manager by **James S. Twerdahl**, Executive Vice President and General Manager of **James B. Lansing Sound**... The Society of Professional Audio Recording Studios, **SPARS**, has reduced dues to

expand its membership and more widely promote activities in the industry. Regular membership for studios grossing less than \$1 million is now \$365/year. For information, contact: **SPARS**, Box 11333, Beverly Hills, CA 90213... **Joe Kelly**, **Jerry Bryant**, **Raul Zaritsky**, and **Jim Morrissette** have formed an association to provide television spot production for the entertainment industry. Their collective credits include major performers, record labels, sports teams, film festivals, TV networks and corporations worldwide. For a demo videocassette, contact: **Steve Yastrow** at **Joe Kelly Creative Services**, (312) 280-9433... **Russell Farrell**, recently appointed OEM Sales Mgr. for Industrial/Professional Sound Products at **Altec Lansing**, will continue to serve as district manager for the New England area, and can be reached toll-free at (800) 824-7888... **GB Productions International** has been formed to provide complete production services in cable/commercial TV, satellite programming, videocassettes, music recording and feature films. Their main offices are at 16 Linden Avenue, West Orange, N.J. 07052, (201) 731-4704... **James L. Ehrhart**, a **3M** employee since 1966, has been appointed product development manager for **3M's** Magnetic Audio/Video Products Laboratory...

## CEO Needs Donations

The California Entertainment Organization (CEO), formed less than five months ago and operating on meager resources has made incredible progress in formulating solutions to the state sales tax problems. The State Board of Equalization has determined that independent record producers and recording engineers should pay retroactive sales tax on all services performed in California since 1976. While the CEO has successfully introduced legislative amendment AB 2871 in the state assembly to correct the tax statute, the bill must pass a rigorous series of committee votes, Senate and Assembly floor discussions, and be signed by the Governor before becoming law. AB 2871 is not expected to go into law until at least November 1982. To bring about that legislative victory, CEO has hired an experienced team of lawyers and made a number of important government contacts.

The current situation is dire, however, and support, especially financial, is needed to avoid losing the hard-won efforts already achieved. "CEO has brought the ball up to the 10-yard line, but we need much more to make the goal," stated CEO President, **David Rubinson**. "We need financial support from the record labels, hard dollars to pay for the lawyers acting on our behalf. We need membership numbers to demonstrate our strength and our unity. We need to be collecting and disseminating information—if you have been 'hit,' if your friends or lawyers or accountants tell you not to worry, if you know anyone who has been successful with the State Board of Equalization, get in touch with us." For more information contact the CEO at (213) 906-2080.

## Altec/Gibson Marketing Pact

**Altec Lansing**, of Anaheim, California, and **Gibson**, a Nashville-based division of **Norlin Industries, Inc.**, have announced a marketing alliance by which Gibson will become the exclusive domestic sales agent for Altec's musical sound products, effective June 1, 1982. The new arrangement will have Gibson supply more than 250 established Altec musical sound dealers in all 50 states. Products included in the deal will be Altec's line of stage monitors, PA and musical instrument loudspeakers, horns, drivers, enclosures, Voice of the Theatre systems for entertainers and a new line of dual-channel power amplifiers. Gibson presently manufactures and markets a complete selection of electric and acoustic guitars.

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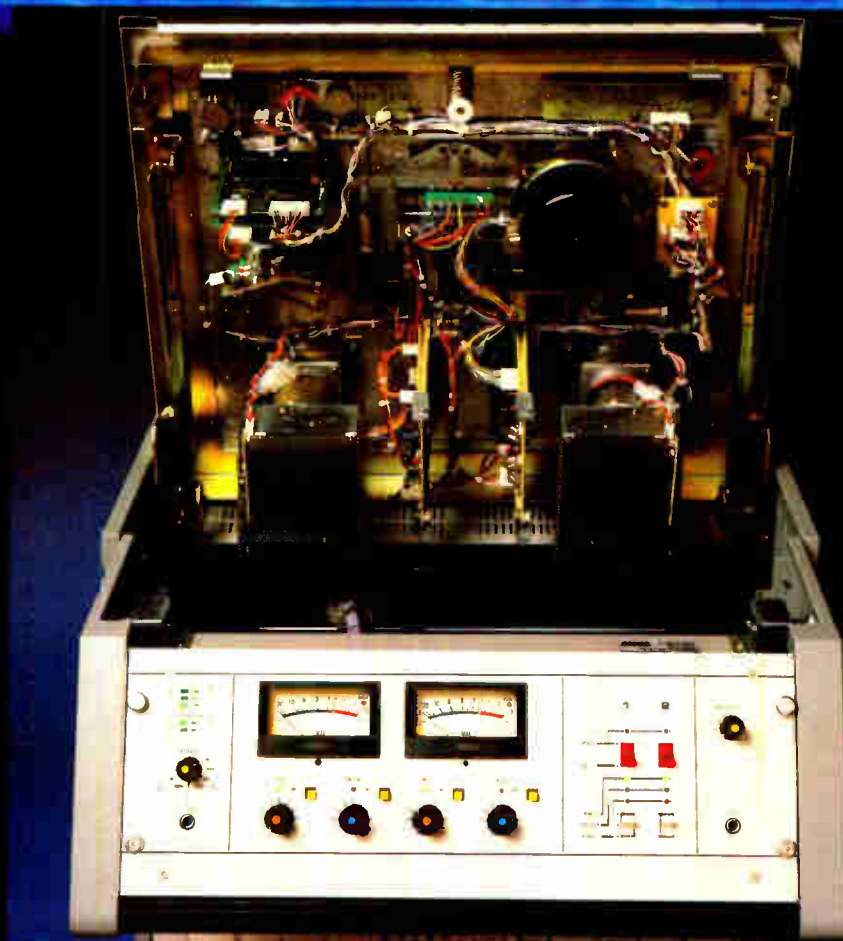
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## NORTHEAST

At Dawn 24 Recording Studios Inc., Farmingdale, N.Y., recent sessions include the popular NYC band Shady and Long Island's exciting **Random Speed**. Shady produced by **Marshall Lapidus** and engineered by **Jim Bernard**. **Random Speed** producing themselves with **Bob Les-sich** engineering. **Kawa Productions** has completed their hit single "Fool Enough" and "If You Would Ever Leave Me" sung by Michael Cote' recorded at **Silver Lake Studios**, Kingston, MA. **Dave James** engineered the production... At **Sheffield Recording** in Phoenix, MD, **Tony Sciuto** and **Joanne Dodds** are finishing tracks on their new albums and **Crack The Sky** is completing their new album. **Fishtraks Communications Group, Inc.** in Portsmouth, NH, **Northeast Winds** finishing up recording for an album project, **Cormac McCarthy** adding overdubs for demo, **John Perrault Band**—demo... At **MCE Studios** in Schenectady, N.Y., **The Rockin' Dakotas** workin on an LP to be pressed in pink vinyl (Rock a Billy music on MCE Records) and **The A.D.'s of Albany**, N.Y. working on an LP for **Blue Lunch Records**.

## SOUTHEAST

Recent activity at **Doppler Studios**, Atlanta, GA, includes **Jeff Brugger** engineering **Margaret Whiting's** latest album for **Jazzology Records** and a live to analog and digital two track album for **Billy Butterfield**, **Jazzology Records**. Recent activity at **Triad Recording Studios**, in Ft. Lauderdale, FL, has seen singer/songwriter, **Tilden Ray** of **Wildwood**, FL, recording and mixing for his upcoming 45. **Vincent Oliveri** produced and engineered the sessions, with **Robert Corti** assisting. At **Cheshire Sound Studios** in Atlanta, GA, **Wynd Chymes** recorded their debut album for **HCA Records**, producer **Anthony Lockett**, engineer **Tom Wright**, assistant engineers **Ken LaMorta**, **Ed Rankin**, **Ted Kallman** and **Marty Wilde**... At **Woodland Sound** in Nashville, TN, overdubbing for **Ronnie Milsap's** new **HCA Records** album with producer **Tom Collins**. **Les Ladd** is engineering and **Steve Ham** is assisting. At **Audio Media** recording studio in Nashville, TN, **Paul Whitehead** is serving as musical director for projects on both **Lynn Anderson** and **Sandy Posey** with **Hollis Halford** engineering.

## SOUTHWEST

**Reelsound's** 24 track remote unit out of Man-chica, TX, was recently in Ft. Worth at **Billy Bob's** to record **Roger Miller** for **D.I.R.'s** **Silver Eagle** radio show. **Bob Kaminsky** was producing with **Malcolm Harper**, **Mason Harlow** and **Greg Klinginsmith** engineering. At **Rosewood Studios**, Tyler, TX, **Hank William's Original Drif-tin' Cowboys Band** recorded an album of Hank's best in instrumental form, **Tim Gillespie** producer, and **Greg Hunt** engineering. **Omega Audio's** mobile unit recently provided 24 track

audio recording services with **SMPTE** time code for a television special of the 9th Annual **Texas Music Awards Show** hosted by **Buddy Magazine** and held in April in Dallas. **Omar & the Howlers** just finished a session at **Walk On Water Studios, Inc.** outside New Braunfels, TX. Harmonica player extraordinaire **Greg "Fingers" Taylor** of **Jimmy Buffet's Coral Reefer Band** sat in on the session, engineered by **Bruce Weldy**.

## NORTH CENTRAL

At **Creative Sound Recording Studios** in Brazil, IN, **Rick Hanson** of Nashville, IN, is working on an album project, engineering by **Jeff Niewald** and **Joe Anderson**... At **ARS Studio** in Chicago Heights, IL, Menage recording artist **Ghalib Ghallab** has just finished mixing his second album engineered by studio owner **Gary Cobb** assisted by **Steve "Tootall" Taylor**, **Dave Mitchell**, and produced by **Ghallab**. Local Louisville group, **The Calculus II Band** recording and producing themselves at **Timbre Studio** in Alsip, IL. The project produced by **Ronald Booth** and **Calculus II Productions**, and engineered by **Jerry Muzika** and **Scott Rowley**... At **Charisma Studios** in Dearborn, MI, **Red Dye No. 5** is working on an album with producers **Bob Husted** and **Terry Lynch**, engineered by **Jon Jarvis**... Recent recording activity at **The Counterpart Recorder** in Cincinnati, Ohio, includes the completion of a major album project by the group **Dayton** for **EMI Liberty**, **Ted Courier**, **EMI** honcho was on hand, with executive producer **Debbie Sandridge**, and producers **Rahni Harris** and **Shawn Sandridge**.

## NORTHWEST

At **Russian Hill Recording** in San Francisco, CA, **The Tubes' Bill Spooner** producing tracks for **Alex Guinness**, **Jack Leahy** engineering, **Sam Lehmer** assisting. At **Mobius Music Recording** in San Francisco, **Oliver DiCicco** and **Con Funk Shun** drummer **Louis McCall** are co-producing a project for **George Williams**. Engineering by **Di-Cicco** assisted by **Annette Olesen**... At **Triad Studios** in Redmond, WA, **Bill Bottrell**, head engineer for **Soundcastle Recording Studios** in L.A., producing new album for **Northbound** (Portland based group). **Bottrell** is handling the engineering with **Lary Nefzger** assisting. At **Heavenly Recording Studios** in Sacramento, CA, **Ray Elsie** is producing the new **Avalon** project with **Larry Lauzon** engineering. At **Luxury Audio Workshop**, in Las Vegas, NV, **Bo Ayars** is producing a LP for a piano soloist **Ricardo**, for Mexico. **Lee Watters** engineering.

## SOUTHERN CALIFORNIA

At **Portaplenn Studio** in Pasadena, CA, **Bob Goldstein** is cutting tracks for his new album, guitarist **David Plenn** is at the console. Recent action at **Paramount Recording Studio** has **EMI-Liberty** recording artist **Moses Tyson** working on

his up and coming album with producer **Richard L. Evans**. Guest appearances by **Billy Preston**, **Phil Perry** of **Perry and Sanlin**, and **James Ingram**. Engineering is being done by **Kirk Butler** with **John Pooley** assisting. Producer **John Madera** recording at **Spindletop Recording Studios** in Hollywood, CA, the soundtrack album for the new **Ralph Bakshi** animated film called "Hey Good Lookin'" with writer artist "RIC". **Steve Sykes** is engineering with **Steve Thume** assisting. **Rosemary Clooney** at **Gold Star Studios** in Hollywood, overdubbing vocals for the soundtrack of an upcoming motion picture, "Clooney," the story of the singer's life and career. **Frank Ortega** arranging/producing, assisted by engineer/studio owner **Stan Ross**... **Ted Nugent** has completed the mix on his new album at **Pasha Studios** in Hollywood, CA. **Nugent** producing for the first time, assisted by **David "Dansir" McCullough** and **Pasha** engineer **Larry Brown**.

## studio news

The **Recording Associates of North America** and **High Plains Audio Recording Studios** are happy to announce the appointment of **Pete Dockendorf** to the position of **Studio Manager**. **Mr. Dockendorf** brings to the position eight years of experience in studio recording and live sound reinforcement. He will continue as **Chief Engineer** for **High Plains**. At **Tantus Studio** in Detroit, MI, **Tanis Tramontin**, studio owner, proudly announces the opening of a new pre-production facility adjacent to the 16 track recording room. **Mary Ann McGrath**, studio manager, adds that plans include 2-4-8 track recording, plus additional rehearsal space as well as a new work shop area, and is now available to all clients. **Paul Davis**, VP General Manager of **Castle Recording Company**, (formerly **Shade Tree Studio**), in Lake Geneva, WI, has announced the opening of a new 8 track room equipped with a 1" **MCI 8-track**, 2 **Studer MCI 2 track**, and a **Neotek 16 x 8 console**... **Jubilee Communications, Inc.** Pasadena, TX is pleased to announce the reconstruction of its recording studio, **Rivendell Recorders**. The control room has been completely redesigned under the guidance of **Glenn Meeks** of **EA Designs**. Design and tuning of the room were accomplished through the use of the **TEF** test system. The equipment list now boasts **Studer A 80 MK III 24 track**, fully automated **Trident Series 80 console** fitted with 32 channels of **Melquist automation** and **Otan MTR-1012 track**. Recent acquisitions include six **Neumann U-67s**, a **Telefunken U 47**, and an array of outboard gear. Atlanta, GA—**David Duke**, president of **Polecat Creek Records**, has announced that the label is in the process of upgrading its studio facilities in **Monroe, GA**, to multi-track capabilities in order to produce and record professional quality demos and releasable masters.

# COPING WITH STUDIO BIZ BLUES:

## Construction Updating Renovations and Expansion

by Larry Thomas

If the U.S. construction industry is currently in a slump, recording studios are definitely not to blame. From coast to coast, new studios continue to be built, and existing facilities are being expanded and renovated in record numbers. Here are just a few reports from the field on current or recent completed projects.

In Pompano Beach, Florida, **Audio Image** recently completed the total renovation of its control room. In the process, owner/designer **Rob Henion** employed the unique approach of grinding up the old sheet-rock from the demolition of the previous control room, and using it to fill the space beneath the raised floor of the new control room. "It saved us about seven thousand trips to the beach," says Henion, who reports complete satisfaction with the sound of the new room by both staff and customers.

**Luxury Audio Workshop** in Las Vegas, Nevada, has completed the rebuilding of its control room, as well as some modifications of its studio. The work was done by **Lakeside**

**Associates** of Los Angeles, CA, who also installed a pair of their LM-1 studio monitors in the rebuilt room. **Steve Fouce** of **Lakeside** reports that the owners of **Luxury** are very happy with the re-build, and points out that the job was done on a limited budget, proving, says Fouce, that "you can do some significant acoustical and monitoring work in a control room—parts and labor—for *under* fifteen thousand dollars."

In Southfield, Michigan, **K&R Recording**, owned by **Ken Glaza**, is in the early stages of constructing a new dual 24-track studio from the ground up. With both equipment and design consultation supplied by **Hy James Audio** of Ann Arbor, the new studio will specialize in video post production.

From Dallas, Texas, **Keith Kavanaugh** of **Premier Audio** reports that **Sierra Studio** is about to begin construction of a new 24-track room. Equipment in the new facility will include a **Stephens** recorder and **Neotek Series III-C** console. Design is being handled by **Kavanaugh**, with acoustical consultation by **Al Burdick**.

In Nashville, **Stargem Record-**

ing, a division of the production and publishing concern of the same name, is building a new 24-track MCI-equipped facility. According to principal **Dan Hodge**, the new room will be completed in late summer, and will do both in-house and outside work.

**Full Sail Recorders**, in Orlando, Florida, recently debuted its new dual 24-track remote truck, designed and built by **Gary Hedden, Ltd.** The mobile unit incorporates a custom-designed **Sphere** console, **Otari** recorders and **Fostex LS-2** monitors. The truck also has closed circuit TV for viewing of onstage activity during recording.

On the international front, ubiquitous **Sierra Audio** has completed two state-of-the-art facilities for **Danish Radio** in Copenhagen. Designed by **Tom Hidley**, the projects include a new remote truck, equipped with a **Solid State Logic** console and **Studer A 800's**, and a large control room attached to a 300 year old concert hall. The control room is wired for two **SSL** consoles

(continued on page 14)

## New World's "Hands On" Studio

by Larry Thomas

There's one thing that audio engineers have in common when they go shopping for a new piece of equipment: Before they buy, they want to find out for themselves how well it works. For this reason, over the past few years we've witnessed the construction by pro audio dealers of numerous "demo" studios, built for the purpose of allowing the prospective buyer to check out equipment in an actual studio environment.

As this issue of *Mix* goes to press, **New World Audio** of San Diego, California is about to complete a "demo" studio of impressive proportions. The brainchild of company president and founder **Jim Scott**, and co-owners **Steve Conrad** and **Charles De Fazio**, the 24 track facility occupies a good portion of **New World's** 5,000 square foot operation in what was once a **San Diego Elk's Lodge**. Seemingly an ideal location, the

building's external walls are concrete block on a concrete slab. A 1/8" cut in the slab isolates the control room from the studio, and both rooms from the outside world. Air conditioning was redesigned and re-routed, and outside noise was isolated from the studio and the control room through a specially designed baffle box.

Walls are double construction 2 x 4 frames on 16 inch centers. Outside walls are covered with wall board, while the inside walls are layered: wall board, sound deadening board and another wall board. Both inside and outside wall cavities are lined with 6" fiberglass. The wall, inside the studio which separates the studio from the control room is sloped at the bottom and the cavity filled with sand. The front of the studio is 26' 10" wide, tapering back to 21' 7" in the rear of the studio. The right wall is 24' long and the left wall is 27' 5"

long. This room is about 640 square feet with 12 foot ceilings.

There is a pentagon-shaped isolation booth. Three of the front sides are 5' 6", the two remaining back sides are 7' 10" and 9' 2". The floor is sand filled with a floating wooden platform for isolation. The ceiling is lined with **Sonex** and the two back walls are deadened with sound deadening materials. The remaining surfaces are live. This totally enclosed isolation booth was designed primarily for drums but will also be used as a vocal iso-room.

The left side of the studio was designed to accommodate the iso-booth along with an amp isolation cavity and a piano isolation cavity. The layout is such that it allows easy visibility by the engineer to the drums, guitars and piano, while also allowing these musicians to easily see each other. The studio will contain various surfaces to

*New World's demo studio in construction. President Jim Scott (left) with contractor Dick Bendel.*

add variety and warmth to sound color. The front of the studio will be lined with parquet wood floor, rock, glass, and wood walls, and a slanted wood ceiling over the piano cavity. The rear of the room and the amp iso-booth will be basically dead.

The control room is symmetrical in design. The ceiling slants downward toward the back of the room. The side walls taper in the front, while the front wall slopes inward from the top of the window to the ceiling. Bass traps occupy the back two corners of the room. Besides being built on an isolated concrete slab, the floor is raised another six inches by means of a 2 x 4 grid, which is filled with sand to eliminate resonance. The raised floor is laced with PVC conduit to accommodate additional cable runs and changes.

When completed, the New World studio will be equipped with a wide range of equipment, including a Soundcraft 2400 console with Autolocator, Soundcraft 24 track recorder, Studer A-810 mastering deck, JBL 4435 Bi-Radial monitors, and as wide a selection of signal processing gear as one would



expect to find on the premises of a pro audio dealership.

With a side window opening onto the equipment sales floor, and rear doors to both studio and control room opening into the sales office, the studio will serve as a convenient extension of

the sales floor for the demonstration of equipment; at other hours, it will be booked for recording, mixing and production. In whichever capacity it is used, Scott and company may be expected to have their hands full with their "hands on" facility!

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and employs Hidley TM-8 studio monitors, a 2-way system developed in conjunction with engineer **Bart Locanthi**. According to Sierra's president **Kent Duncan**, the firm has 14 studios currently under construction worldwide, in locations ranging from Madrid and Paris to Hong Kong, Tokyo, and New Zealand.

In Newton, Massachusetts, **Lake Systems** has completed construction of its new Master Control Room, a 24-track demonstration and production facility. The room features a Soundcraft 2400 console and Soundcraft recorder, Tannoy M-1000 Time Compensated monitors, UREI 813's and Scamp and Lexicon signal processing equipment. The facility is also equipped with a BTX Shadow synchronizer and Sony 5850 3/4" video recorder for video sweetening projects. Acoustical designer was **Dennis Smyers**, **Mark Cuddy** and **John Golden** handled the system

design.

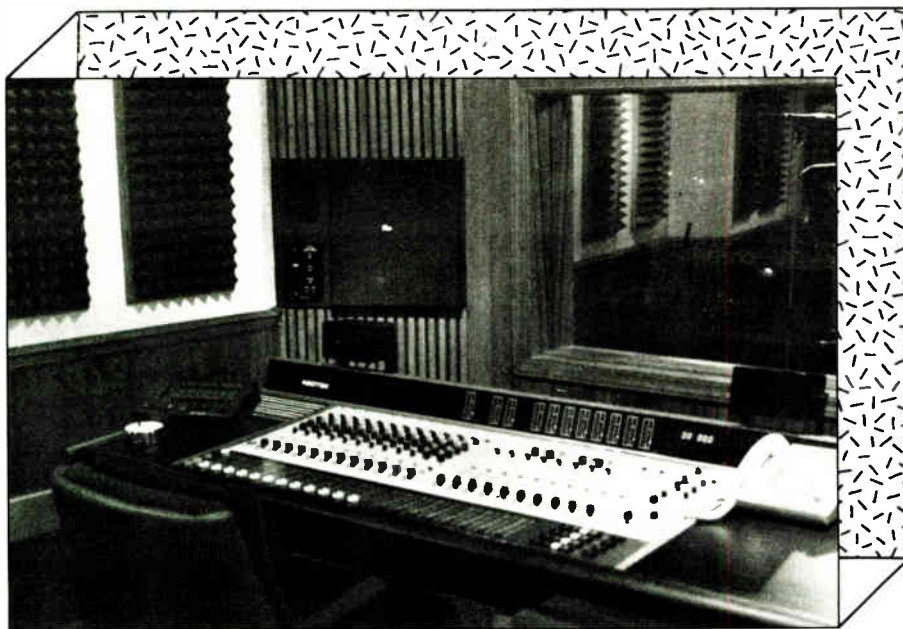
**Westlake Audio of Los Angeles** is building a 24-track studio in Minneapolis for rock artist **Prince**. The new room will incorporate Westlake's HR-1 phase coherent monitors, quad-amplified with Crown PSA-2's; a Soundcraft 2400 console, and Ampex MM-1200 recorder. Westlake is also building a new 24-track facility in Los Angeles for **Solar Records** and **Dick Griffey Productions**. The 3,000-square foot studio will be housed in a new 6-story building being constructed by the production company, which produces Shalimar and other well-known artists.

Also in Southern California, **Everything Audio** recently rebuilt the control room of the **Crystal Cathedral**, equipped it with Tannoy monitors and Otari MTR-90 24-track recorder. **Brian Cornfield's** company also recently built a new video post production room for **Music Design**

**Group of Hollywood**. The facility includes an Amek console, Otari 2-and 4-track recorders, an MTM mag machine and BTX Shadow synchronizer.

In Dallas, Texas, Paul Westbrook of **Westbrook Audio** recently designed and built a 4-track production room for **Announcer Booth Studios**, owned by **Byron Parks**. Westbrook also designed a new 1,500 square-foot studio and control room for **New Song Recordings**. The 8-track facility, owned by **Ken Anderhalt**, was built with 24-track capability, and plans to upgrade soon.

After investigating the current, apparently healthy state of the studio construction industry, we had a thought: maybe some of those struggling condominium builders we keep hearing about ought to start including studios in their developments! A little sound-proofing in the kitchen... ■



*Left: Sound Trek's Studio Three.*

## Expansion Team Makes Good

by **Larry Thomas**

"Our philosophy isn't to go after the million dollar studio," says John Loeper of Flanners Pro Audio in Milwaukee, Wisconsin. "90% of all the studios in this country are the smaller operations. These people have to be catered to, they have to have direction... We try to sit down with our clients and put together a comprehensive package that's going to fit their budget, that's going to satisfy their needs, and

most important, that's going to make them money."

Starting with a solid base in pro audio equipment sales, Flanners has developed what Loeper calls a "total concept" approach to serving the small and medium-sized studio as it grows and expands. Recently, this has involved putting the customer together with an established studio designer and an experienced studio contractor—creating, in effect, an "expansion team" to help the studio owner who wants to

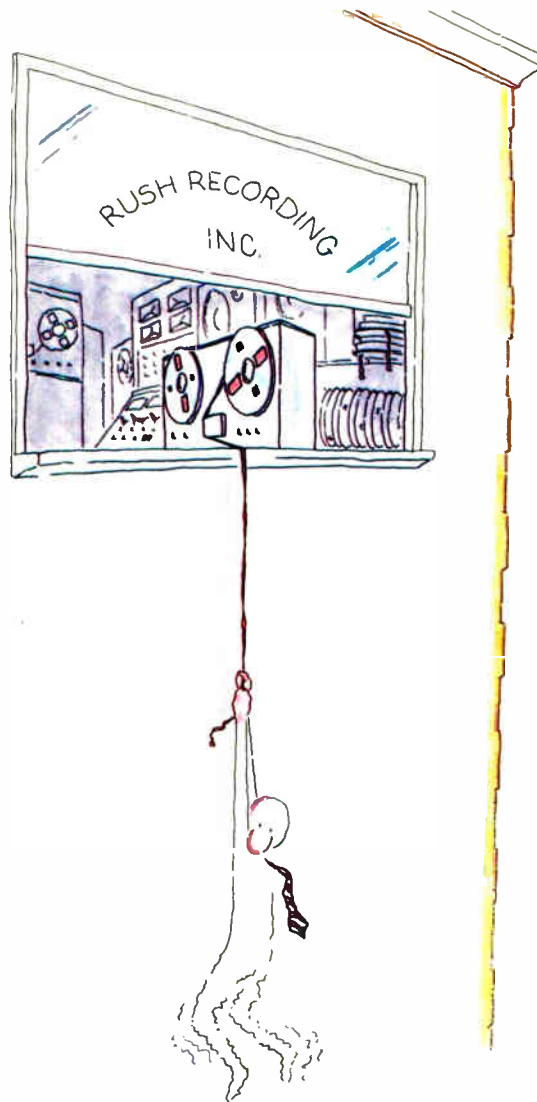
build or grow, but whose budget may not afford a high-priced studio builder.

Some of the most recent fruits of this approach may be seen at Sound Trek Recording in Kansas City, MO, where Loeper teamed with designer Peter Petersen (both of Omaha, NB) to build and equip Sound Trek's Studio Three. This 8 track production facility, formerly a dentist's office, employs natural wood wainscoting (oak and maple), stuccoed walls with Sonex panels, and a studio window with antique-style molding. The UREI 811 monitors are set at ear level in the slatted, natural wood front wall. A skylight in the control room further lends to the warm and "homey" atmosphere of the room.

Studio Three is equipped with a Neotek Series I console, Scully 2 track and mono recorders, Otari 5050B 2 track and 5050 Mark III 8 track, Crown power amps, and a full complement of outboard gear.

With Studio 3 completed, Flanners and contractor Petersen will team next with designer Steve Durr of Nashville to undertake the complete renovation of Sound Trek's Studio One. This will be a 24 track room, equipped with Otari MTR-90 Mark II, Neotek Series III console, and UREI 813 monitors.

"Putting people into cost-effective environments where they can make a profit" is how John Loeper defines the objective of he and his design/construction partners. Given their success at Sound Trek and other recent installations, we may expect to see this team playing at major studio venues throughout the Midwest. ■



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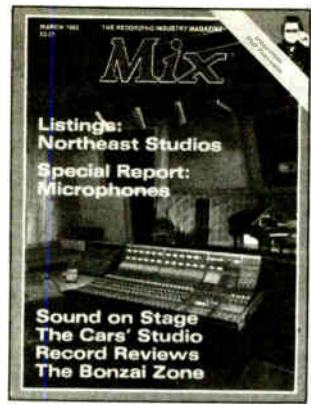
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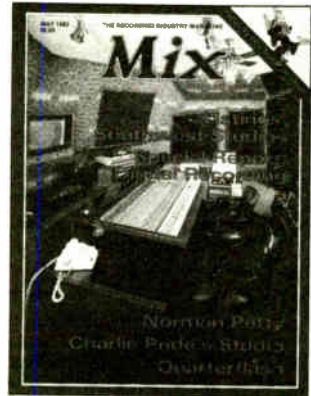
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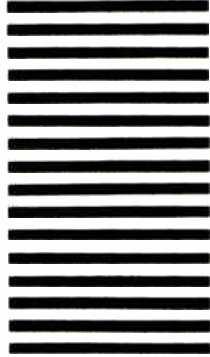
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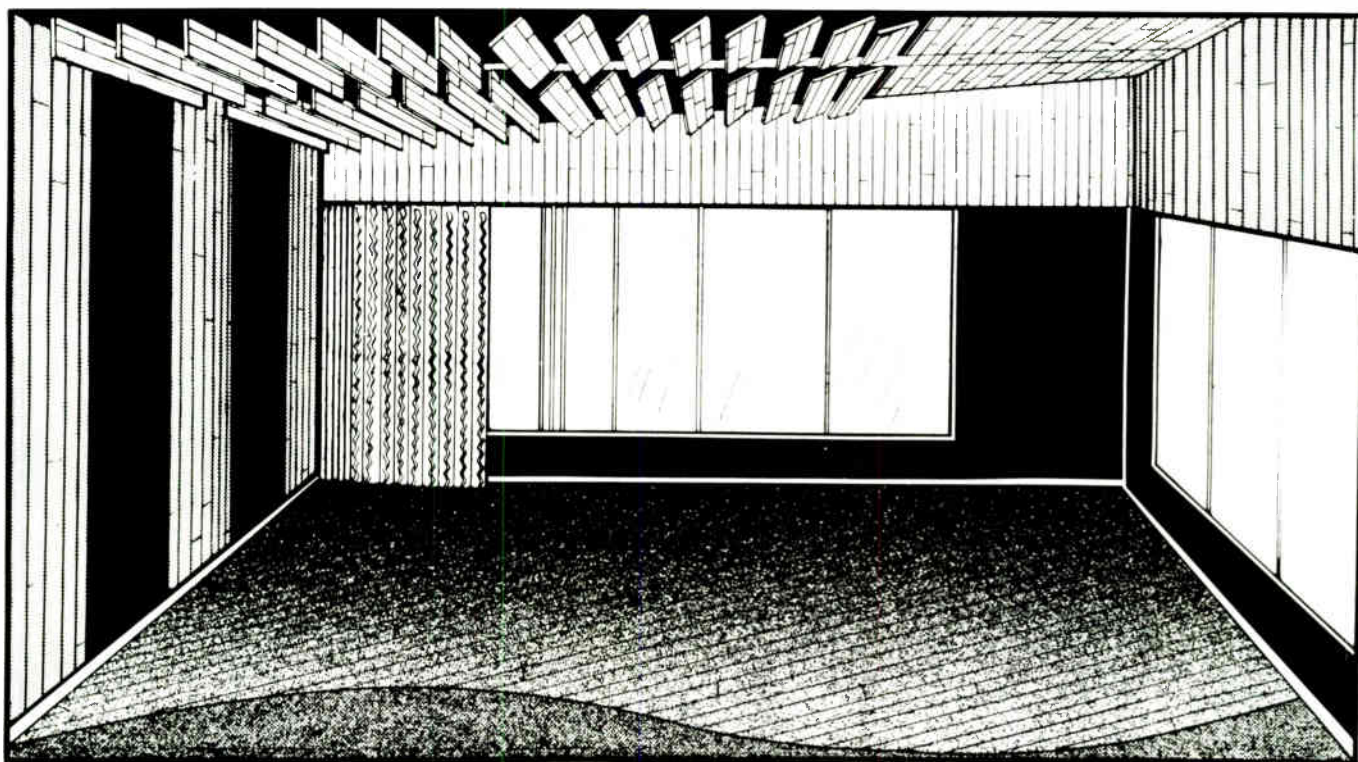
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Picture an acoustic guitar in a warmly decorated space, miked at a distance using two Neumann M49b tube microphones in omni-directional pattern, and a cardioid setting on a tightly placed Sony C37A for center fill. Below and above are non-parallel hardwood surfaces adding timbre to the warmth of the mellow resonations emanating from the sounding board, and from two sides of a large irregular triangle—a variety of reflective enhancement is available from full-open large volume traps that can be covered with fully reflective hardwood or mirrored panels which close off part or all of the cavity. To add further variability to the picture, sheer drapery on motorized rods hum into place to soften the effect of the reflective panels... truly a totally controllable environment that opens to the rest of the studio (which is the third side of our triangle) What you have is

# SIERRA AUDIO'S VARIABLE ACOUSTICS SYSTEM



by Vincil Wells and Kent Duncan

**W**hile technological breakthroughs in recording equipment and monitor systems seem to fill the press, many people assume studio design remains basically constant. It is true that the basic laws of physics have not changed, so the laws of sound transmission and rules of room properties remain constant. Refinements in the acoustic treatment of audio studios are a strange mixture of applied science and art. The subject

has created much controversy due to individual subjectivity and artistic creativity. What "looks good on the scope" is not always the final word for optimum practical use. Having the ability to change the acoustic characteristics of a studio can play a key roll in satisfying the requirements of the many personalities who utilize a studio.

Variable acoustics for recording studios are incorporated by the Sierra Audio/Tom Hidley Design team through totally adjustable interior finish surfaces which provide predict-

able decay times that are plotted by frequency in a planned fashion.

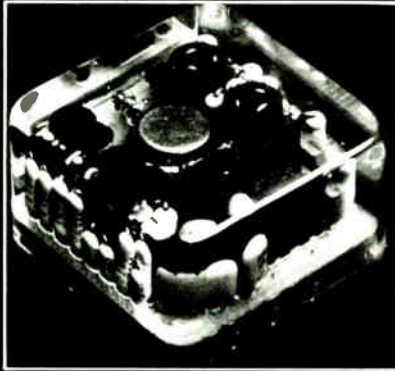
Exposing surfaces from highly reflective to very absorptive, can change the reverb time and allows control of the all-important low frequency content. Control of this parameter allows for total flexibility throughout the balance of the audible frequency band. A recording environment can then be acoustically divided (without physical divisions) into several areas, each with unique properties specifically to enhance a particular section of the orchestra.

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This allows the operator a vast range of acoustical flexibility during rehearsal. Typically, a large volume variable area should have a decay time from .3 to .35 seconds, from 100 - 500 Hz. From .25 to .45 seconds 500 Hz - 6.3 kHz. Although these numbers may not seem like wide variations, the difference is immense since we are dealing with a logarithmic curve, and differences which can be measured in other ways.

The ability to change the "tone" of an instrument without using equalizers offers markedly improved quality (electronic correction introduces phase shift, and additional circuit noise). A good acoustical environment and proper microphone placement provide the engineer with the means to capture a more realistic reproduction.

A variable area can be open to the rest of the studio. It is unnecessary to physically divide the spaces as that can be done acoustically, getting away from the 1970's infatuation of dividing the recording area into many little areas. It should appear as part of the main recording area, allowing it to be used as part of the larger area, or by increasing attenuation, acoustically divided into a specific sounding area.

One third of the recording area (typically 500 - 850 sq. ft.) is the optimum practical size for a variable area. Two of the walls in the variable area are surrounded by walls made of movable hard surfaced panels (mirror or hardwood, depending on music application) mounted on sliding rails that are set at predetermined geometric angles. Behind these sliding walls are large bass sound traps incorporating tuned resonators that provide broadband attenuation at an increasing level as the port is opened. In designing the trap system, it is possible to manipulate the trap surface opening area and its volume to achieve mid and upper band reflection while achieving bass absorption. The height, width, depth and shape of each cavity, and the size of the resonators suspended within them, are related to the quarter wave length in free air of the frequency which the trap system has been tuned. The volume and the blanket length are designed to operate around a specific center frequency, determined by the cavities' particular application and placement in the studio. The spacing between each resonator is specific, to ensure that a particular frequency or its harmonics will act predictably.

Low frequency relief for floor borne waves is accomplished via ribbon trap ports located below the panels. Movable permasheer drapes

installed in front of the panels may be used to decrease the reverb time of frequencies above 5 kHz and will improve the isolation throughout a studio by reducing reflection to the rest of the room.

A hardwood floor, supported on an elaborate floated isolation system dividing one area from another, is designed to maximize low frequency de-coupling through the floor and eliminates extremely low frequency leakage between instruments. Portable carpet sections can be used to vary absorbtivity.

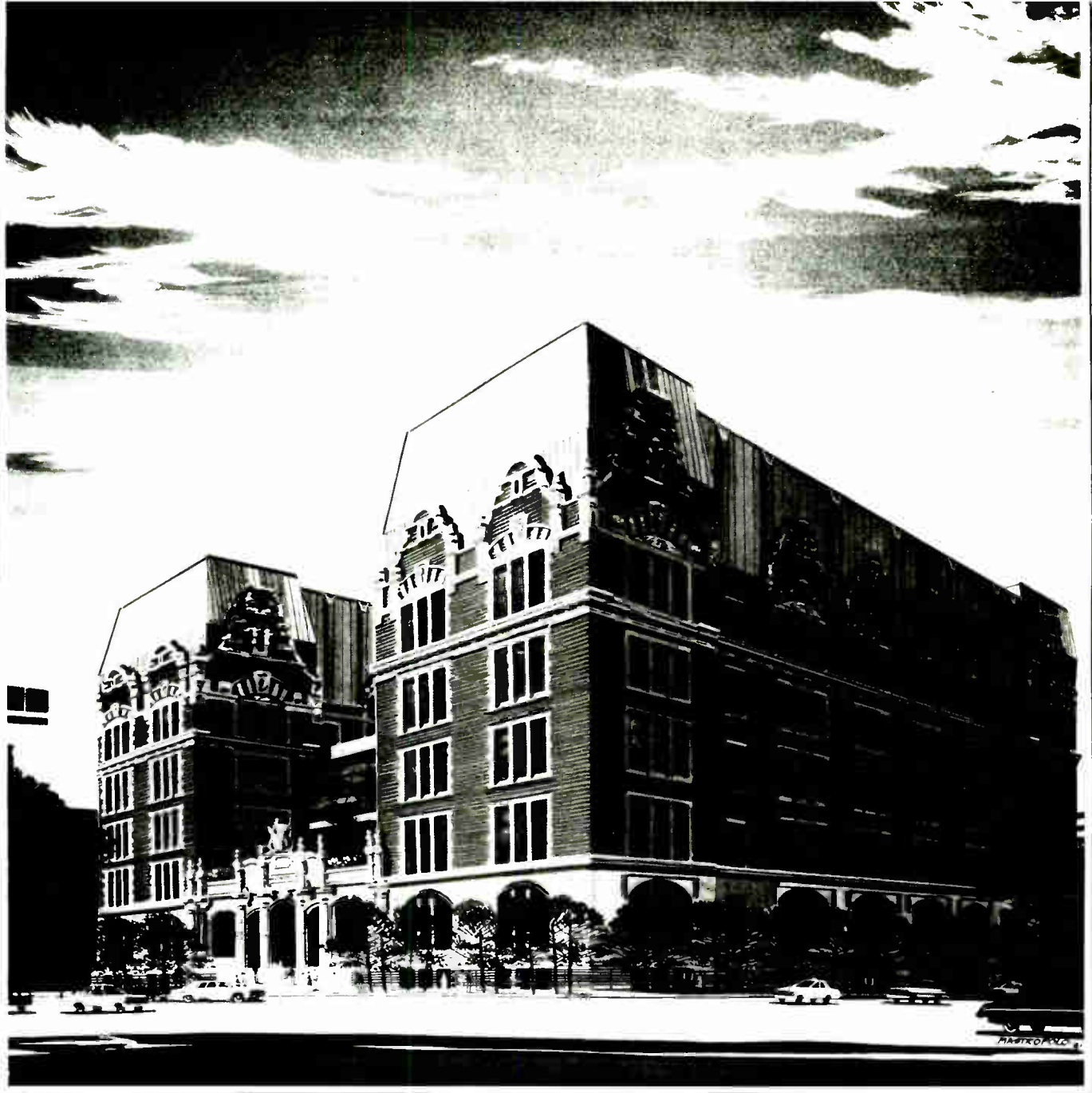
The ceiling is set at a geometric angle determined by ceiling height and made entirely of hardwood with multiple groups of four louvers one foot wide and six feet long. The louvers open into a large cavity trap above the variable area to establish low frequency relief and alter mid-band decay time. The louvers have very little effect on high frequencies due to the large fixed area of the ceiling that is a hard surface approximately parallel to the floor. The louver groups may be opened in only part of the ceiling system offering variations in effect for different portions of the area.

Using different combinations of wall panels, drapes, ceiling louvers, apertures and carpet sections, virtually any desired decay time can be achieved. The possibility of installing remote controls on the wall panels, drapes, and ceiling louvers, enables the engineer to vary the acoustics while monitoring in the control room. This method has proven very useful in many installations. The best example of this application is at Fantasy Studio D in Berkeley, California, (designed by Sierra/Hidley and Jim Stern). This same system is presently being applied to a new Sierra/Hidley Design project for Radio Danmarks, Copenhagen. ■

### The Authors:

Vencil E. Wells joined the engineering staff of Kendun Recorders in Burbank in 1978. Prior to the recording industry he worked in radiotelephone electronics. In 1981 he was appointed Director of Engineering for Kendun Recorders, Inc., and in 1982 Chief Engineer of Sierra Audio Corporation, Pasadena, CA., which is the exclusive representative of the Design Services of Tom Hidley of Honolulu, Hawaii.

Kent Duncan is the President of Sierra Audio Corporation, Pasadena, CA.; and Kendun Recorders, Inc. of Burbank, CA. He is also President of Eastlake Audio, Inc., Hawaii; Sierra Eastlake, Inc., CA.; and Artisan Sound Recorders, Inc., Hollywood, CA.



# Metropolis Studios

## New York's Techno-Wonderland

by Neil Weinstock

*New York City's newest video, audio, television and film production center, the seven-story Metropolis Studios, is the brain-child of veteran studio designer, John Storyk, and Alex Major (former musician/songwriter, furniture designer, and owner/*

*designer of Northstar Studios in Boulder, Colorado). The duo saw the possibilities for designing a production complex at the site of the former Haaren High School on Manhattan's east side. Their dream for Metropolis was born when the building became available and they have been busy ever since, working towards the goal of having*

*the complex operational by late 1982.*

We recently spoke with Storyk, the co-founder, designer, general partner, and executive vice president of Metropolis. His way of thinking about studios has been finely honed over the dozen years since he designed Jimi Hendrix's Electric Lady

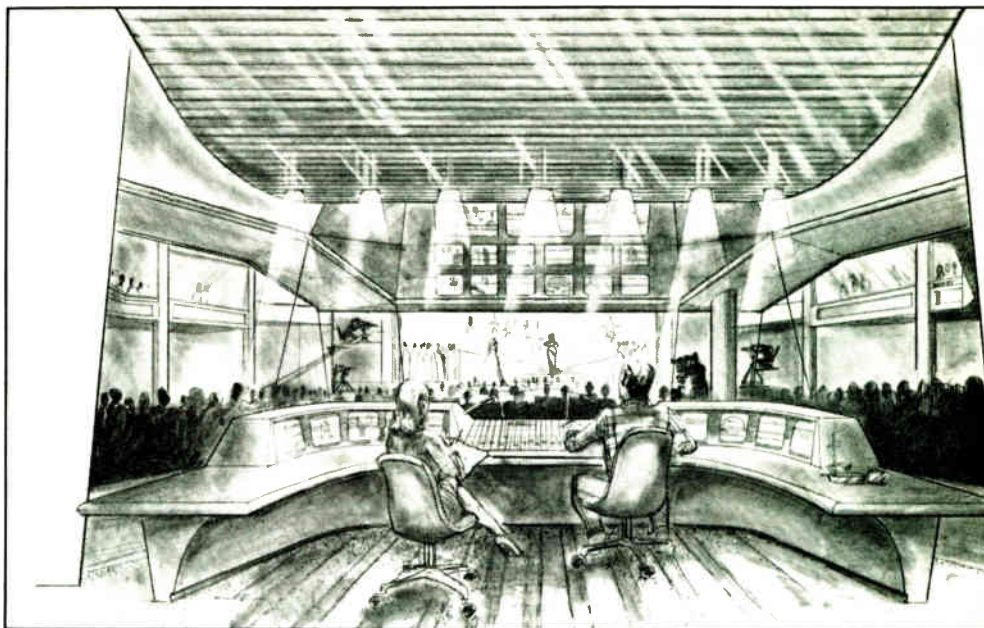
Sound Studios, through The Hit Factory, Atlantic Records, Sound Mixers, Sigma, and C.T.I. in New York, The Record Plant Studio B in L.A., and many others. In '79, he founded a new company to emphasize the video/audio interface in design—planning Todd Rundgren's Utopia, Centel Video in Boston, the video retrofit of Lion's Gate Studios in Los Angeles, and The Ritz in New York. A long line of credits, and those are only a few of the more stellar names (any list of stars that leaves off Stevie Wonder's Wonderland Studio in Los Angeles, for one, can't be nearly complete.)

Storyk's design innovations start with that central control concept. He sees it as providing, "an order of magnitude, more flexibility. Most places, engineers are always having to tell people what they *can't* do. No one's ever going to get into a room at Metropolis, and be told 'you can't do that here.' All of the rooms are fully interformat."

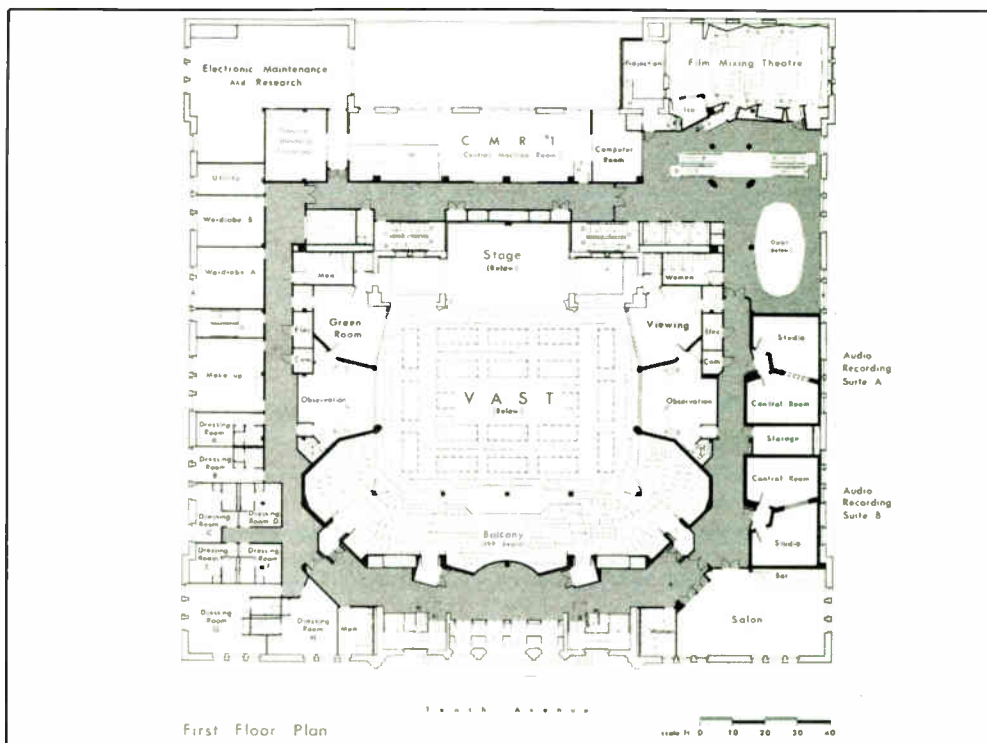
Tied in are two other innovative concepts of his, VARMS and VAST. Both are acronyms, for Video/Audio Recording and Mixing Stage, and Video/Audio Shooting Theater, but the concept is more, in either case, than a euphemism for studio or editing room. In the VAST, Storyk is building on the old sound stage to include 1,000 seat audience capacity, a stage with proscenium arch, side stages and fly space, two "soft," or curved cycloramas, separate audio and video control rooms—this is a sound stage that's capable of doing anything at a moment's notice.

Similarly, a VARMS is an engineer's dream complex for digital video recording and mixing also audio recording and mixing; with a 2,500 sq. ft. recording stage, as well as smaller, insert studios: that's all one VARMS, and the new Metropolis will have at least two of them. Link these—the VAST, a cyclorama shooting stage, a film shooting stage, two audio recording suites, two on-line editing suites, three off-line ¾" video editing suites, two film editing suites, a film mixing theater, complete duplication and conversion facilities—all through master control so that any of them can be tied together in any way (probably via fiber-optical cable), and you've got a facility that can make any crew's mouths water.

"There are two points to look at in any studio design. These," he says, "are equipment systems design, and secondly, the long range concept of the type of equipment." Perhaps one fifteenth of a 15 million dollar equipment investment represents that highway, but it takes the most



Video Control Room



**Metropolis Studios will be a technologically advanced complex based on the concept of total client service. It will provide production and post-production facilities for the video, audio, television, and film industries. The size of the facility, its integrated format production, and its computerized digital technology figure to make Metropolis one of the foremost centers of its kind.**

planning effort... We're installing a vertical trough for that highway, routing systems to move those wires around the ceilings, and so forth. The other thing is to look at what's at the end of that wire, the I/O device. Having the best equipment around is very important—we'll have the best around in 1982, and in 1983 it may change, and it will all be completely

different in 1990. But you can only get that stuff in 1990 if the system can adapt to it. This system is designed for anything."

The people of Metropolis are also working up some of their own technology for those input-output devices. Storyk declines to spill the beans at this stage, but allows that it concerns, "going out of the bounds of

*(continued on page 22)*

# Audio Clearance

Qty	Description	List Price Each	Sale Price Each
1	Ampro CT 3555B Carl Player	\$ 2,445	\$ 1,900
1	BTX 4600 System	16,800	12,900
4	dbx 142 Noise Reducers	950	650
1	dbx 162 Comp./Limiter	750	550
4	EV DH-1506 Drivers	199	135
2	EV EVM-15L Speakers	180	125
6	EV HR-6040 Horns	250	75
5	EV HR-9040 Horns	250	75
4	EV Musicaster 1A Speakers	350	145
2	Fostex 3040 Dolby C -4 Channels	450	300
3	Fostex 350MB Mixers w/Meter Bridge	950	725
1	Fostex A4 Recorder	1,450	975
2	Fostex A8 Recorders	2,500	1,925
2	HME Systems 42C	1,400	700
3	HME Systems 22E-A1	2,300	1,500
4	HME Systems 22E-A4	2,300	1,500
4	HME Systems 25E-A2	2,450	1,600
1	HME System 25E-A4	2,650	1,800
1	Orban 111B Reverb	849	575
1	Orban 245E Synthesizer	399	275
1	Orban 622B Equalizer	799	575
1	Spec 3100 Speaker	550	175
1	Revox B-77 Recorder	1,799	1,500
4	Tannoy M-1000 Speakers	1,450	950
10	Tannoy SRM-12B Speakers	795	450
1	TEAC GE-20 Equalizer	350	195
1	TEAC X-10 Recorder	1,050	600
2	Technics WR-8816 Consoles	5,500	3,650
8	AKG C-452EB/BLK Mics	380	280
15	AKG D-320EB Mics	155	92
8	AKG D-130E Mics	100	51
6	AKG D-200E1 Mics	160	88
2	Ampex ATR 102 Recorders	6,995	4,495
2	Ampex AG 440C2 Recorders	6,995	4,495

# Video Clearance

Qty	Description	List Price Each	Sale Price Each
1	Hitachi FP 40 S/P	\$12,995	\$ 4,995
1	Hitachi FP 40SS	18,995	5,995
1	JVC KY-2700-10X	11,995	5,995
1	JVC KY-2700-14X	12,995	6,995
1	Toshiba PK-39	39,995	17,995
1	Hitachi SK-91 wo/ Lens	41,995	22,000
1	Hitachi SK-96	45,000	29,995

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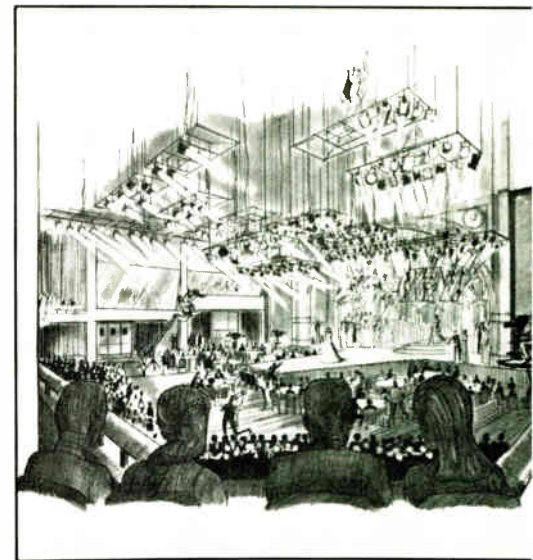


(continued from page 20)

the question. If you're asking this question, maybe to an editor—"Can't you get me more than ten edits an hour?" And they all say, no, that's the top. And you can watch any of the best try—and they get eight, ten, twelve edits in an hour. But this is like asking if two and two equals four. The question silently says it doesn't permit you to go out of the bonds of the question to get the answer... It'll still be four ten out of ten times. Unless, of course, you use a little Boolean algebra... The question is the answer.

"Well, what about 40 edits an hour? Ask a different question."

Storyk quickly adds that he may be wrong... "I can't get 40 edits an hour, but I can recognize the problem." And so he's building a different system.



Video Audio Shooting Theatre (V.A.S.T.)

At this point a report on Metropolis is just a progress report—only the design stage has been completed. Actually, it's the financial design that's complete; details of the physical design are still in flux. "But we look at (Alex Major's) financial design the same as architecture. It's a difficult structure to build," says Storyk.

"People make studios," he says. In the end the meaning of this wonderful facility is to attract the best people to work there, who will in turn attract the business. Storyk says that, at the beginning, he and Major plan to bring in many staffers from the West Coast—"They're about a year or two ahead in L.A. The very best of them, in the little boutiques. In a couple of years, we'll even out the score," says Storyk.

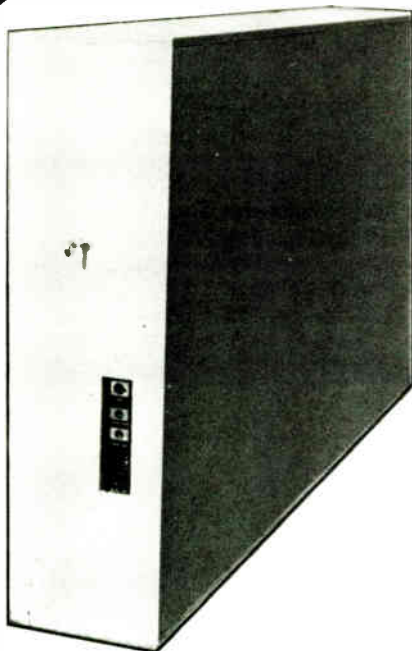
At this point, he answers a last question, "there are no problems, only chores." ■

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# LEDE Comes of Age

by Chips Davis

**I**t has been a year (Mix, August 1981) since Ed Bannon and I wrote an article about designing for a quiet control room. Since that time, a new recording studio has opened that is the finest example to date of the state of LEDE™ (Live-End/Dead-End)

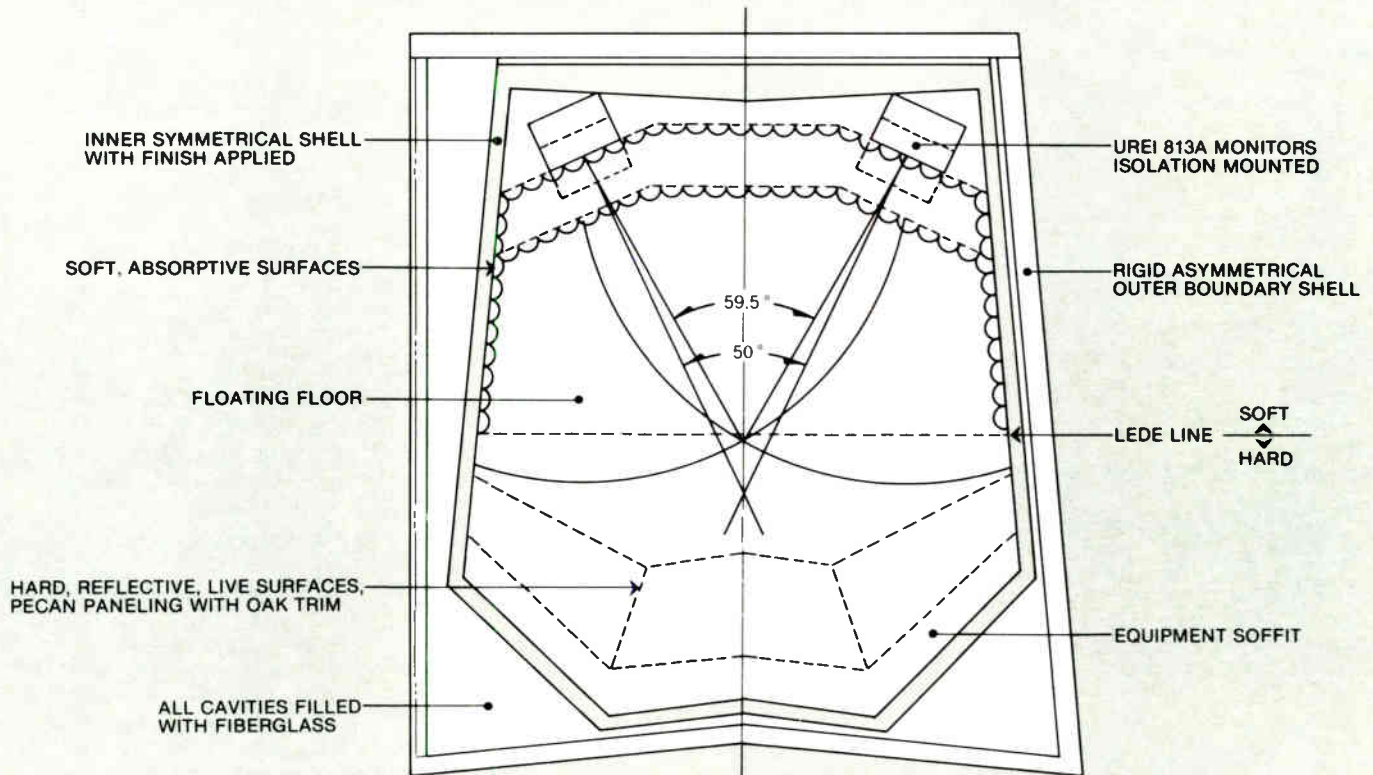
seven basic criteria, offers a new level of predictability in design and recording that is impressive, to say the least.

When LEDE acoustic design is coupled to an optimized, phase-coherent electronics system, tapes translate exactly from the control room to any playback system. Given the limits of the playback system, even

sound elsewhere. This is accomplished through design, not outboard equalization, traps or gimmicks.

How does it work? Any room, particularly a control room, is an integral part of the monitoring system. Speakers operate at optimum in a free field, but a free field is impractical in a building. So LEDE does the next best thing. With LEDE we create a psycho-

BASIC GEOMETRY OF CONTROL ROOM



design.

That studio is Tres Virgos in San Rafael, California and I'd like to tell you how it was designed and why.

LEDE is the trademarked name, held by Synergetic Audio Concepts, a southern California think-tank and seminar center, that describes a relatively new theory in control room design. This theory, as defined by

excessive playback equalization cannot, for the most part, distort the musical balance or instrument placement and perspective of even the most subtle mix. What you hear in our LEDE control rooms is a very close approximation of the actual information on the tape. What you hear is what you get without having to make subjective projections of how it will

acoustic free field effect. The result is sound localization to the loudspeakers, rather than reflections in the room.

LEDE came about when Richard Heyser, PhD. invented and patented Time Delay Spectrometry™ (TDS™), a new method of acoustic measurement. The use of the TDS patent and trademark are licensed through the California Research Institute Founda-

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MIX 1 2 3 4 5 7 8 9 0

tion.

TDS is a vast improvement on pulse testing, a technique that has been in use for over 40 years. Briefly described, the Heyser System uses a sweep of constant total energy density and a uniquely defined partition into potential and kinetic energy densities broadcast into the room. The direct and reflected components of this signal are read in several parameters relative to time to give us a "picture" of the behavior of the environment. To read these parameters, the receiver or tracking filters are delayed in time and do not start the receiver sweep until the signal reaches the microphone. This time delay sweep can then see the direct wave without any interfering room reflections (60 dB of signal-to-reflection). TDS can delay the receiver and open the receiver window for longer periods of time until the first reflection is shown on the screen of the analyzer. The frequency, the depth in decibels, can be seen and the time delay is calculated to determine which surface caused the reflection. Tuning can be continued until there are no measurable reflections, or the window is so wide that only the total energy density of the room can be seen.

The Heyser system uses a TDS analyzer in conjunction with a fast Fourier transform as a demodulator and "storage bin" to obtain measurements of a sound field in several time-related comparisons; Energy Density versus Time Curves (ETC), Energy Density versus Frequency Curves (EFC) and Frequency versus Time Curves (FTC). The whole system is called Time, Energy Frequency (TEF™) measurement system.

LEDE is basically the opposite of other control rooms. That is, the rear of the room is hard and reflective while the front is as absorptive as possible.

Let's start with the front of the control room, and explain the reasons behind the absorptive half. Through TDS, we've found that mixing of early reflections from the hard ceilings and walls of conventional control rooms with the direct wave causes deep anomalies on the order of 25 to 30 dB. (Anomalies are any deviations from the original response, therefore, distortion.) These anomalies are broadband and very deep when generated by very early reflections. They occur from the low mid to the uppermost frequencies beyond the audible range. The anomalies, from improper acoustical design, are caused by addition and cancellation of signals arriving at the mixing position out of phase; the phase depending on the time interval or the distance of the

early order reflections.

The acoustical anomalies and anomalies due to improper speaker design cannot be equalized into a smooth, flat reproduction spectrum.

The live end of the control room is, I think, the most important part of the room. The Haas effect is a simple, but very important fact of the LEDE control room. The Haas effect is the brain's inability to discriminate against echoes and delays of sound that arrive approximately 10 to 20 msec after the original waves. The sound is still present but psychoacoustically does not exist. In theory we can extend the Haas effect out to 50 msec by tightly controlling the energy return from the rear walls.

At greater distances the listener hears echoes or flutter. A hard-backed wall that is 10 feet or less away does not acoustically exist in our brains. The brain doesn't recognize or receive it. Again, this is the Haas effect. Therefore, we have, for the listener, eliminated the back wall, created an infinite distance in space, psychoacoustically, and all we can hear is the front speakers.

Now that we have a disappearing back wall, we have to treat it acoustically, and this is where everything becomes like a game of acoustic pool at 1,130 feet per second. We splay, angle, direct and bounce the sound that strikes the rear wall back to the mixing position. This stacking of the immense number of reflecting paths from the back wall is very precise and is figured extremely close as to time interval.

What we are trying to achieve is a very dense and diffuse total sound spectrum by combining the paths of the back wall into a series of controlled narrow band comb filters. Successfully done, the overall result is a very smooth total sound spectrum without any broadband anomalies.

If you can calculate sound return angles, times, and energy densities, you can predict how a control room will sound even before you build it.

Think of the money that saves...

The owners of Tres Virgos were familiar with the LEDE theory when we first met in 1980. They had leased a substantial chunk of a yet to be completed bay in an industrial/office complex for the home of their new studio. They had planned to build Tres Virgos themselves from the ground up and would finance the project as they went.

Their attitude was since you couldn't budget something that hadn't been done before, they didn't want to be restricted by a top figure. They wanted a showplace facility that would stand up to, if not exceed in per-

(continued on page 71)

# Choosing a Consultant for Control Room Design

**T** by Alan Fierstein,  
Acoustilog, Inc.

There are far more studios looking to upgrade their facilities than there are new studios being designed. Every studio needs fine tuning, no matter how carefully designed originally, and this constitutes the bulk of my work. Specifically, more attention is paid to the correction of existing control rooms, for it is here that the majority of time is spent and the critical decisions are made. A studio owner might make control room changes to eliminate client complaints, please the in-house staff, increase the room size, reduce down time or simply achieve the best possible results within the present budget.

It is often necessary to hire a consultant for guidance in this re-design process.

Many rooms can benefit from both architectural and electronic modifications. Because the monitor system is affected by both factors, it is impossible to completely isolate either one and concentrate on, for example, room treatment while ignoring the monitor system electronics. Often the studio owner blames the room acoustics for an incorrectly equalized speaker, especially if the speaker was recently equalized. Or the studio

owner may decide that this bad experience proves one thing: that equalization per se is a bad thing. Or that phase shift is the culprit, new speakers must be installed, a transformerless console is needed, the equalizers have to be passive, combining, minimum-phase, or high-slew rate, ad infinitum. A well-versed consultant should be able to evaluate these suspicions for the studio owner.

Once a studio owner has made up his mind as to the cause of the problem, it is not easy to open his eyes to see something that may have been overlooked. Therefore, a studio consultant may have to take the educational approach, and carefully explain the tests being made and justify to the owner the conclusions that the documented results support. In the past, some designers could simply state their proposed program of correction for a studio, without explaining their reasons, and no one would dare question them. However, due to certain well-publicized acoustical mistakes, people are very skeptical of "authorities" and must be convinced before plunking down their hard-earned dollars.

Characteristics that relate mostly to architectural design are:

1. Smooth decay vs. frequency characteristic.
2. Sound transmission in or out of the room.
3. Buzzes, rattles, and resonances in room surfaces and fixtures.
4. Adequate dispersion of reflected sound for all listeners.
5. Annoyances such as flutter echoes and discrete echoes.
6. Adequate propagation of sound from speaker to listener.

7. Creature comforts: Sight lines, good working area, saving steps for the engineers and clients, etc. (This article is concentrating on achieving good sound, although these factors are not to be overlooked).

Characteristics relating to electronic problems include:

1. Monitor noise, consistency, distortion.
2. Speaker polarity and driver "phase reversals."
3. Gain structure optimization.
4. Speaker element protection.

Characteristics that are affected by electronics as well as by room design are:

1. Frequency response at the various listening positions in the room.
2. Adequate SPL at the listener without excessive equalization or blowups.
3. Proper stereo perspective.

The equipment used for all room testing must be of the highest quality; it must be accurate and consistent, and the consultant must calibrate it regularly to ensure continued accuracy. The measurements must be documentable, either by machine readout to paper, or even by a manual transcription. This will guarantee that valuable records will not be lost. The measurement equipment must be compatible with your studio system, in terms of signal levels and impedances, and even the type of connectors that are to be plugged in.

Although the factors described above should all be examined when a control room is being improved, and much can be said about each, I will discuss some problems frequently encountered but seldom written about.

All acoustical analysis systems rely on a precision microphone for their accuracy, yet precision microphones are not often used. Why not? Perhaps the manufacturer of the analysis equipment cuts costs by using a standard recording microphone, or really cuts costs by adapting an inexpensive microphone into a fancy-looking housing attached directly to the instrument. The microphone may

be selected by the consultant on the basis of price, not quality. A general-purpose microphone may be used when ideally there is an optimum type for each type of job. To measure quiet sounds, a large-diameter microphone is preferred. It scoops up more sound on its large surface area and therefore has a better signal-to-noise ratio (noise being the microphone or mike pre-amp noise). But that large microphone is a definite liability when high frequencies are being measured, because the tiny wavelengths would be altered simply by the presence of the large object in their path, and an inaccurate measurement would result. In short, one must use several microphones, not just one, and certainly not a recording microphone.

Before equalizing a speaker, the consultant *must* verify the polarity of all the drivers. It is astonishing how many rooms out there have reversed polarity drivers and continue to be equalized again and again without thought to checking this extremely important factor. Almost everyone knows that opposite-traveling woofers will cause a serious lack of bass, but less known is the fact that if the left and right tweeters are "out of phase," not only will imaging go down the drain as center-panned signals spread

out to the sides, but the frequency response at crossover will be different from left to right. Many polarity checkers cannot reliably check individual drivers unless the others are totally disconnected, therefore I use an IMPulser for this process. This device also instantly identifies early and late reflections and shows their significance with respect to the direct signal. Interested readers can get more information on this device from my detailed article in the Journal of the Audio Engineering Society, November, 1981.

Suppose you are mixing a tape and spending most of your time around the center of the console. If you temporarily lean over to the patch bay, and in so doing move 8 inches closer to the midrange, yet only 6 inches closer to the tweeter, there would be a *difference* of 2 inches occurring. This would effectively delay the arrival of the highs with respect to the mids, and in turn cause phase cancellation and peaking in the crossover frequency area. At each listening position where another *difference* occurs, another frequency response results. Obviously, this is a bad situation.

How do we rectify this? Best imaging is achieved when all elements

of the speaker system line up with each other in the vertical direction. The UREI 813A is a good example of this. In the UREI 813A, both woofers and the horn are all on the same centerline vertically. This is beneficial because the difference in arrival times from the individual elements does not change as you move back and forth, horizontally, behind the console. Of course, when you stand up, things will change due to this effect, but this is not too serious a problem because most of your movement is back and forth, not up and down in a control room situation. This points out the importance of choosing speakers that are correctly designed, and using them as the (hopefully aware) manufacturer intended. Laying down speakers on their side is usually bad for the imaging. I will mention that the geometries and frequencies involved are sometimes not in conflict and in that case the general principle just described is not valid. But, in general, the effect is important and you will notice that some speaker manufacturers have recently altered previous designs for vertical line-up (a popular bookshelf system comes to mind) while others haven't yet caught on. Give them about a year.

How should you go about hiring a consultant? First, examine the choices. Get recommendations from other people in the industry of who has successfully solved similar types of problems for other studios. Not all consultants diversify their services. For example, there is one acoustical consultant who specializes in sound-proofing and vibration isolation, and another who concentrates on new designs only. Once you have decided, give a call and briefly discuss the problem. Don't be afraid to ask for a list of clients and to call several of them. Ask the consultant if your problem is one that has been solved before and what procedure and equipment would be used in measuring your room. Determine the consultant's fee and get an estimate of the amount of time needed. You might ask for a brief overview of that consultant's design or correction philosophies.

Every now and then we hear of new "miracle machines" that are claimed to render all other designers and their philosophies obsolete. Beware of "space-age" acoustical materials that claim to easily eliminate problems, especially if you buy a lot. Beware of consultants who boast exclusive or expensive equipment or affiliation with one or two well-publicized establishments but lack years of experience and many satisfied clients. Ask for references and feel free to call them. ■

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The following listings are composed of many of the major domestic suppliers of equipment and expertise for the recording studio. We urge interested readers to verify the accuracy of this information as changes are frequent in this dynamic industry.

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Contact: Alan Fierstein

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(800) 343-5800 (outside Mass.), (617) 449-2100

Contact: Mark Parsons

**Services offered, credits, specialization:** Cramer serves 2- to 24-track recording studios, sound companies and production facilities—audio, video and A/V—throughout New England and beyond. Cramer carries virtually all professional lines, major and minor, and is exclusive New England dealer for Tascam 16-track recorders and consoles, the Revox PR99, Quantum consoles, I'vee products, EELA, etc. All recording accessories and supplies are in stock for your last-minute needs. Special tape prices (3M, Ampex, AGFA) are available for volume customers. Cramer services include system design and engineering, road maintenance and repairs, rentals, financing, and complete video production and video equipment supply. A complete audio showroom is in Cramer's buildings near Boston. Mail orders, phone orders, and credit cards are accepted. A 300-page catalog is available.

### DADDY'S JUNKY MUSIC STORES, INC.

ES, EI

361 South Broadway, Salem, N.H. 03079

(603) 893-4420

Contact: Mark Rogers

### EAST COAST SOUND

AC, ES

40 Main St., Danbury, CT 06810  
(203) 748-2261

### HARVEY PROFESSIONAL AUDIO/VIDEO

SD, AC, ES, EI

25 W. 45th St., New York, N.Y. 10036

(212) 921-5920

Contact: Gene Perry

### G&T HARRIS, INC.

SD, AC, ES, EI

215 Lexington Ave., New York, N.Y. 10016

(212) 481-6500

Contact: John W. Kryda, V.P. Engineering

### LAKE SYSTEMS CORPORATION

SD, AC, ES, EI

55 Chapel St., Newton, MA 02160

(617) 244-6881

Contact: Frank DeMayo

### MARTIN AUDIO VIDEO CORP.

ES, EI

423 West 55th St., New York, N.Y. 10019

(212) 541-5900

Contact: Courtney Spencer, V.P.

### THE MIXINGBOARD

ES, EI

124 Intervale Ave., Burlington, VT 05401

(802) 658-4793

Contact: Steven Hirsch

### KEITH MONKS AUDIO (USA), INC.

ES

652 Glenbrook Rd., Stamford, CT 06906

(203) 348-4969

Contact: Richard Chivers

### NEW YORK TECHNICAL SUPPORT, LTD.

SD, EI

1440 Midland Avenue, Suite 1-D,

Bronxville, New York 10708

(212) 796-4321 or (914) 776-2112

Contact: Greg Hanks, Rosemarie Lopresti

**Services offered, credits, specialization:** New York Technical Support, Ltd. is a full service maintenance firm that caters to the technical needs of the recording, film, and broadcast industries. We provide design, consultation, installation and repair services. Our specialties include: field service, power and ground distribution analysis and fault finding, tape machine optimization, EMT tuning, modification and refurbishment, custom design and manufacturing, installation and wiring services, contract maintenance service. We are factory trained to service Ampex, 3M, MCI, Neve, Scully, and Trident equipment. Our work is guaranteed.

# STUDIO DESIGNERS & SUPPLIERS

LEGEND: S.D. - STUDIO DESIGNER, A.C. - ACOUSTICAL CONSULTING, E.S. - STUDIO EQUIPMENT SUPPLY, E.I. - EQUIPMENT INSTALLATION/MAINTENANCE/SERVICING.

## PROFESSIONAL RECORDING & SOUND

SD, AC, ES, EI.  
1616 Soldiers Field Rd., Boston, MA 02135  
(617) 254-2110  
Contact: Peter Engel

**Services offered, credits, specialization:** "SUCCESS" I came to PRS with an idea. My production business was expanding and I felt it was time that I had my own recording studio. I needed someone I could trust to design my studio with the right acoustics and physical layout. I also need help choosing the equipment which would best fit my application and budget. THAT WAS AUGUST OF 1981. KEVEN TRACY STUDIOS BECAME A REALITY IN JANUARY 1982. "The Otari MTR-90 24 track and the Soundmaster Series 30 are a dream come true. Reliability and superb sound within my budget. PRS's Stephen Blake designed one of the best acoustical environments I have ever heard. And physically it is terrific. Everything fits where it should. I came to PRS from an ad I saw entitled "Good Advice." I got exactly that and much more."  
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11-38 31st Ave., Long Island City, N.Y. 11106  
(212) 726-5600  
Contact: Alex Rosner

## S&C R+D ENGINEERING

SD, AC, EI.  
8 Summit Ave., Sharon, MA 02067  
(617) 784-6996  
Contact: Skip Sweeney, Mike Callahan

## SCHARFF COMMUNICATIONS

ES, EI.  
1600 Broadway, New York, N.Y. 10019  
(914) 747-0333  
Contact: Peter Scharff, Josh Weisberg

## SILVER & HORLAND, INC.

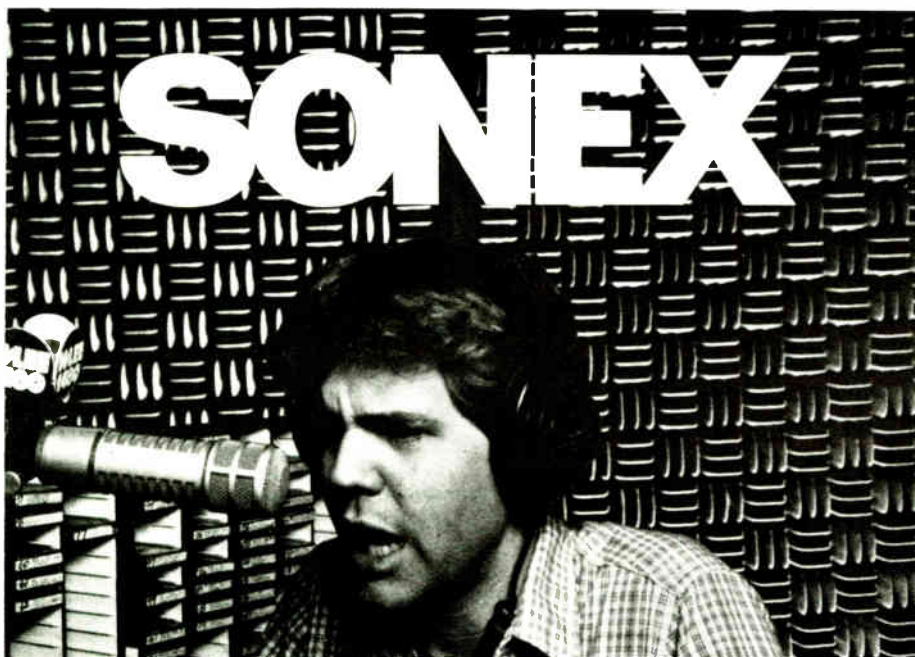
ES.  
170 West 48th St., New York, N.Y. 10036  
(212) 869-3870  
Contact: Alex Silberman

## SOUND BOX INTERNATIONAL

ES.  
P.O. Box 2094, Rockville, MD 20852  
1 (800) 638-6050  
Contact: Carlos Ray, Pam

## SPECIALIZED AUDIO, INC.

ES, EI.  
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SD, AC  
31 Union Square West, New York, N.Y. 10003  
(212) 675-1166

Contact: John Storyk, Alex Major

**Services offered, credits, specialization:** John M. Storyk Associates is one of the nation's leading architectural and acoustical design firms offering design and consulting services in the video and audio fields. The firm specializes in the design of studios, control rooms, theaters, and interformat media facilities. Formerly known as Sugarloaf View, the firm has been responsible for the design of over 300 audio and video studios throughout the U.S., Europe, Africa, and South America. John Storyk is a principal and co-founder of Metropolis Studios in New York City. Metropolis will be an electronic cinematography studio complex for video, audio, television, and film production and post-production. It will contain two VARMS (Video/Audio Recording and Mixing Stages) designed by Storyk. The VARMS will be one of the first studios designed specifically for the simultaneous recording of broadcast video and digital audio essential for the recording of high quality video disks and video cassettes, among other things.

## UNISTAGE, INC.

ES.  
330 Genesee St., Buffalo, N.Y. 14204  
(716) 853-6500  
Contact: Pro Sound Division

## HUBERT WILKE, INC.

SD.  
260 Madison Ave., New York, N.Y. 10016  
(212) 578-4646  
Contact: Endre K. Papp

# OUTSIDE U.S.

## AUDIOTECH ACOUSTICS

SD, AC  
4 Budgell Terrace, Toronto,  
Ontario, Canada M6S 1B4  
(416) 769-9641

Contact: Terry Medwedyk

**Services offered, credits, specialization:** Acoustic design of control rooms, studios and related facilities, consultation on facility planning, layout, construction and interior finishes, acoustic tuning and analysis of monitoring rooms and systems. The majority of projects have involved, the modifying or redesigning of existing control rooms and studios

## JACKSON MUSIC LIMITED

AC, ES, EI  
The Studios, Rickmansworth,  
Herts, England.  
09237 72351, TELEX: 262 284 Monref G  
Contact: Malcolm Jackson

# SOUTHEAST

## ACE MUSIC CENTER, INC.

SD, AC, ES, EI  
13630 W. Dixie Highway, N. Miami, FL 33161  
(305) 891-6201  
Contact: Neil Richarde

## AUDIO ARCHITECTS, INC.

SD, AC, ES, EI  
112 Space Park Dr., Nashville, TN 37211  
(615) 331-3247  
Contact: Allen Rumbaugh, George Juodenas

## AUDIO ASSOCIATES

SD, AC, ES, EI  
319 Bonnavue Drive, Hermitage, TN 37076  
(615) 883-1405  
Contact: Bill Wilson

## AUDIO IMAGE

SD, AC, ES, EI  
3685 N. Federal Hwy., Pompano Beach, FL 33064  
(305) 943-5590  
Contact: Rob Henion

## AUDIO, LIGHT & MUSICAL

ES, EI  
3301 N. Military Hwy., Norfolk, VA 23518  
(804) 853-2424  
Contact: Lou Farthing

## AUDIO RENTALS, INC.

ES  
2 Music Circle East, Nashville, TN 37203  
(615) 242-0045  
Contact: Larry Hart, President

## STEVEN DURR & ASSOCIATES

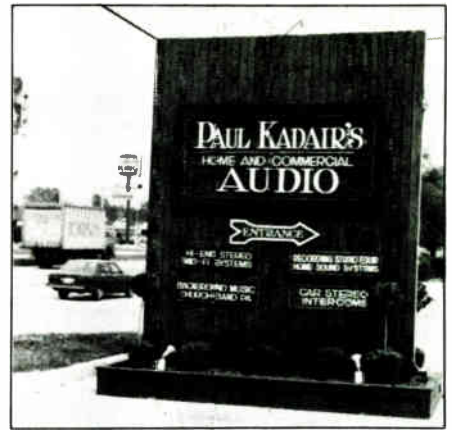
SD, AC  
3144 Glen Cliff Road, Nashville, TN 37211  
(615) 833-6281

Contact: Steven Durr

**Services offered, credits, specialization:** Durr and Associates are primarily involved in recording studio, sound reinforcement design and consultation. We specialize in control room, studio acoustics and loudspeakers. We have been giving personalized service throughout the country for more than 12 years. References upon request.

## ICB AUDIO COMPANY

ES, EI  
P.O. Box 2752, Erlanger, KY 41018  
(606) 491-2421  
Contact: Ian Budd



Paul Kadair's Home & Commercial Audio  
Baton Rouge, LA

## PAUL KADAIK'S HOME & COMMERCIAL AUDIO

SD, AC, ES, EI  
4773 Convention St., Baton Rouge, LA 70806  
(504) 924-1001  
Contact: Paul Kadair

**Services offered, credits, specialization:** Our specialty is sound and lighting. Servicing the entire United States market. Products in stock for sale or to be demonstrated. TEAC, Tascam, Tapco, Ramsa, BGW, Technics Professional, Studio Master, dbx, AKG, Scotch tape and reels, Electro-voice JBL, Beyer, Shure, HME, Ashly, UREI, Souncoiler, Auratone, White, Lexicon, Eventide, Community, McKenzie, Whirlwind, Wireworks, Arvil, Ampex, Roland, MXR, MICMIX Master-Room, Sescora, Audio Design Recording, Haller, ARC, Vandersteen, 3D Acoustics, Onkyo, Harmon Kardon, S-n-I, Thorens, Dynavector, STF, Oracle, RGR, Meridian, B&W, Mirage Technics, Omnisonic, Concord, Linear, Visonik, Celestion, McMartin, Talker-phone, Russound, Edcor, Countryman, ETA, Discotech, Westlake, Gauss, Ornamount, Lowell, Orban, Renkus-Heitz, PAR, Litelab, Micro Acoustics, Audio Technica, Grace, VPI, Dennesen, and more! (504) 924-1001. We are a licensed & bonded facility offering competitive prices, 4 sound rooms, and in stock - same day shipping.

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It's been a pleasure to work with Ron Ubel and the rest of the crew at SOUND-TREK over the past two years. From the 24-track Studio A system to the new 8-track Studio C facility, Flanner's Pro-Audio worked very closely with SOUND-TREK to provide the most effective mix of cost efficient and performance oriented equipment which would satisfy the SOUNDTREK's clients. Otari, Neotek, UREI, Crown, Lexicon, dbx, and many other quality name brand components were used at SOUNDTREK to achieve this efficient balance. Thanks for your business SOUNDTREK.



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*Modular Perfection  
Miami, FL*

#### MODULAR PERFECTION

*SD, AC*  
14205 N.E. 18th Ave., Miami, FL 33182  
(305) 945-9774  
Contact: Seth Snyder

**Services offered, credits, specialization:** Modular Perfection manufactures pre-fabricated room wall sections for recording studios and control rooms. Each modular section is available in varying degrees of acoustical brightness or absorption. Credits: Middle Ear Studios (Bee Gees' private studio), Right Track Recording, New York, N.Y., Coronets Recording Studio, Miami, International Sound Studio, Miami, Discos Sonster, DB Recording Studio, Miami.

#### RECORDING STUDIO EQUIPMENT CO.

*ES, EI*  
14205 N.E. 18th Ave., N. Miami, FL 33182  
(305) 945-9774  
Contact: Seth Snyder

**Services offered, credits, specialization:** Sales service and installation of professional recording equipment. We distribute products for the following companies: MCI Division of Sony Corp., Ramco, UREI, Crown, Studio Technologies, Eventide, Clarkworks, dbx, Dolby Labs, Neumann, AKG, Sennheiser, Sony, Bevox. Credits: Middle Ear (Bee Gees' private studio), Sunshine Sound (KC and the Sunshine Band), Bayshore Recording, Compas Point Recording, Quadradial Cinema, DB Recording Studio, Truad Recording, Tuff Gong (Bob Marley's studio), International Sound, Studio Center Sound Recording.

#### RELIABLE MUSIC—PRO AUDIO DIV.

*SD, AC, ES, EI*  
1001 S. Independence Blvd., Charlotte, N.C. 28202  
(704) 375-8662  
Contact: John Saviano, David Bustle

#### SPECTRUM SOUND, INC.

*SD, AC, ES*  
50 Music Square West, Suite 102, Nashville, TN 37203  
(615) 329-1982  
Contact: Ken Porter, Don Roberts

#### STRINGS & THINGS SOUND LAB

*ES, EI*  
1492 Union Ave., Memphis, TN 38104  
(901) 278-0500  
Contact: Jon Hornyak

#### STUDIO SUPPLY

*SD, ES*  
11155 N.E. 12th Ave., Miami, FL 33161  
(305) 893-8187  
Contact: Jim Nygaard

#### STUDIO SUPPLY COMPANY

*SD, AC, ES, EI*  
2000 Richard Jones Rd., Suite 142, Nashville, TN 37215  
(615) 327-3075  
Contact: Tom Irby, John Alderson

**Services offered, credits, specialization:** Studios designed and equipped by Studio Supply Company include: Sound Emporium, Nashville, TN, Counterpart, Cincinnati, OH, Experience, Montreal, Quebec; Mickey Gilley's, Pasadena, TX, Hacienda Recording, Corpus Christi, TX, Tom T. Hall, Brentwood, TN, Hillsboro Vo Tech, Nashville, TN, Kingsbury Vo Tech, Memphis, TN, LSI, Nashville, TN, March One, Central City, KY, Chips Moman, Nashville, TN, River City Recording, Baton Rouge, LA, Summit-Bernet, Dallas, TX, United Sound, Detroit, MI, Redd Ent., Wyanet, IL, Willie Nelson, Spicewood, TX.

#### STUDIOWORKS

*SD, AC, ES, EI*  
1018 Central Ave., Charlotte, N.C. 28204  
(704) 375-1053  
Contact: Cal Walker

**Services offered, credits, specialization:** MCI for North Carolina, Virginia, West Virginia, and South Carolina. Also AKG, Atlas, Audio-technica, Auratone, BGW, Calzone, Canford Cable, Countryman, dbx, Delta Lab, Eastern Acoustic Works, Echoplata, Eddor, E.V. Eventide, Fostex, HME, JBL, Keith Monks, Lexicon, Loft, Magnetic Ref. Lab, MICMIX, Neumann, Neutrik, Nortronics, Orban, Omnimount, Otari, Quantum Audio Labs, Revox, ROR, Ruslang, Sennheiser, Sesscom, Shure, Sound Workshop, Switchcraft, Symetrix, Technics Pro, UREI, White Instruments, X-Entt/Fidelity. Studioworks services all we sell with a full time service facility. Studioworks is also a factory priced 3M tape dealer and we've been told that we have the best prices on tape and accessories in the area. Give us a call.

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830 W. Capitol, Jackson, MS 39203  
(601) 354-9050  
Contact: Donald S. Thomas, owner

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*SD, AC, ES, EI*  
2821 Erica Place, Nashville, TN 37204  
(615) 383-4737  
Contact: Bob Todrank

## NORTH CENTRAL

#### ANTECH LABS

*ES, EI*  
8144 Big Bend Blvd., St. Louis, MO 63119  
(314) 962-5656  
Contact: Bob Higginbotham

#### AUDIO/VIDEO DESIGN SERVICES

*AC*  
1408 Elwood Ave., South Bend, IN 46628  
(219) 234-1991  
Contact: John E. Lanphere

#### AVC SYSTEMS, INC.

*ES, EI*  
7116 W. Higgins Ave., Chicago, IL 60656  
(312) 763-6010  
Contact: Doug Ordon

#### AVC SYSTEMS, INC.

*ES, EI*  
1517 E. Lake St., Minneapolis, MN 55407  
(612) 729-8305  
Contact: Jon Bormann, Richard King

#### EA DESIGNS

*SD, AC, ES, EI*  
937 N. Illinois, Indianapolis, IN 46204  
(317) 636-4202

Contact: Glenn F. Meeks, John Murray  
**Services offered, credits, specialization:** EA Designs is one of the few pioneers in the use of the three dimensional "Time-Energy-Frequency" measurement system (since early 1980), and in the designs of "certified" LEDE™ rooms. Our major credits include facilities in Chicago, Indiana, Houston, and New York City. Our pioneering efforts also place us in the singular position of "retro-fitting" existing facilities to the basic LEDE precepts at a fraction of the cost for normal renovations. We provide complete acoustical consultation, analysis, and design for "ground-up" or renovation construction along with sales and support services for a majority of the manufacturers producing recording equipment.

#### ECLIPSE CONCERT SYSTEMS, INC.

*ES*  
1062 Wagon Wheel Trail, Mendota Heights, MN 55120  
(612) 451-8878  
Contact: M.J. Justen

#### FLANNER'S PRO AUDIO

*SD, AC, ES, EI*  
Mayfair Mall, 2500 N. Mayfair Rd.,  
P.O. Box 26005, Milwaukee, WI 53226  
(414) 259-9665  
Contact: John Loeper

#### GILL CUSTOM HOUSE, INC.

*ES, EI*  
8813 W. 95th St., Palos Hills, IL 60453  
(312) 598-2400  
Contact: John Gill, Greg Messer

#### HOOD INDUSTRIES

*EI*  
5217 Euclid Ave., Cleveland, OH 44103  
(216) 881-7923  
Contact: Jack Boesneck

#### HSA/HEATHER SOUND AMPLIFICATION

*AC, ES*  
121 Lincolnway West, Mishawaka, IN 46544  
(219) 255-6100  
Contact: Mr. Richard R. Johnson

#### HY JAMES

*SD, AC, ES, EI*  
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# STUDIO DESIGNERS & SUPPLIERS

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**KHS OTM SOUND COMPANY & ELECTRO ACOUSTIC RESEARCH**  
**SD, AC**  
 108 Birch, Park Forest, IL 60466  
 (815) 469-6458  
 Contact: Alex B. Seeger, President

**SOUND SOLUTIONS, INC**  
**SD, ES, EI**  
 5701 Canton Center Road, Canton, MI 48187  
 (313) 453-6586  
 Contact: Dave Hill

## SOUTHWEST

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**SD, AC, ES, EI**  
 P O Box 6520, San Antonio, TX 78209  
 (showroom location) 10330 Kotzebue, 78217  
 (512) 824-8781  
 Contact: Jim Grier, Jim Searles, Susan Williams

**MILAM AUDIO**  
**SD, AC, ES, EI**  
 1470 Valle Vista Blvd., Pekin, IL 61554  
 (309) 346-3161, service (309) 346 6431  
 Contact: Gary Mason

**SPECTRUM ELECTRONIC SPECIALISTS, INC**  
**EI**  
 310 W Collax, Palatine, IL 60067  
 (312) 358-8850  
 Contact: Dick Kiser

**EAR PRO AUDIO**  
**SD, AC, ES, EI**  
 947 S 48th St., Tempe, AZ 85281  
 (602) 968-8675  
 Contact: Jim Grier, Jim Searles, Susan Williams  
**Services offered, credits, specialization:** EAR Pro Audio Acoustic products, sales and services for professional recording studios, live performance venues, and radio stations. They handle the variety of products including components of the audio chain such as Otari production consoles, Sony and other professional mixers, hardware, DTP, EAR, identical or similar products, and production houses located primarily in the southwest of the United States. Their clients were heavily EAR has seen a dramatic increase in their work in the states Arizona, Colorado, Utah, and New Mexico. The primary work being done by these production houses is supporting industrial and independent production companies, film, video and A/V.

**PYRAMID AUDIO INC**  
**SD, AC, ES, EI**  
 16240 Prince Drive, South Holland, IL 60473  
 (312) 339-8014  
 Contact: Bob Vukobrat

**SWALLEN'S, INC**  
**ES**  
 3700 Red Bank Road, Cincinnati, OH 45227  
 (513) 272-0422  
 Contact: Bill Havel

**FORD AUDIO-VIDEO INC.**  
**SD, AC, ES, EI**  
 4800 W 14, Oklahoma City, OK 73108  
 4715 E 41st St., Tulsa, OK 74135  
 (405) 946-9966  
 (918) 663-4730  
**Contact:** Steve Simmons, Jim Ford  
**Services offered, credits, specialization:** Ford Audio Video Inc. of Oklahoma City and Tulsa has continued their responsibility in the recording studios of the Southwest, now from their new Tulsa, Oklahoma City based operation offers complete state-of-the-art packages tailored according to the application and budget of the end user. The company offers a wide selection of recording products as well as the maintenance of their own OTCAVS AUDIO recording line, which includes their own recording systems for recording studios. Other services Ford Audio Video offers are in Ear test stands, fully equipped installation, new equipment, and repair and maintenance facilities. An experienced staff is always available.



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CONSULTANTS IN ACOUSTICS  
SD, AC

10110 Monroe Drive, Dallas, TX 75229  
(214) 350-2384

Contact: David Joiner, Russ Berger

**Services offered, credits, specialization:** Founded in 1954, J.P.R. is one of the largest acoustical consulting firms in the country. We are a company of engineers, architects, and scientists who deal exclusively in acoustics.

Our recording studio design team is comprised of people who relate to the recording industry and have experience collectively as recording engineers, session musicians, and studio owners and managers. The design is tailored to meet our client needs and market goals.

We have a wide range of instruments used in the design and testing of acoustic vibration and electro-acoustic systems, including RTA wave analyzers, chart and level recorders, FFT computers and a full TEF measurement system.

Recording studio and control room design, architectural noise control, room acoustics, acoustic performance verification and testing, computerized design, electro-acoustics, environmental acoustics, industrial noise control.

**MUSIC STAND, INC.**  
ES, EI

245 S. Plumer #20, Tucson, AZ 85719  
(602) 884-7627

Contact: Paul Rosado

**PREMIER AUDIO INC.**  
SD, AC, ES, EI

11258 Goodnight Lane, Suite 101, Dallas, TX 75229  
(214) 247-6522

Contact: Consulting: Keith Cavanaugh, Equipment Sales: Larry Strom

**Services offered, credits, specialization:** Premier Audio is very excited about the amount of audio, video and film work in Dallas Ft. Worth and Metroplex. We are now coordinating construction of Sierra Studios' new 24 track facility. Keith Cavanaugh, PAI president and acoustical consultant, has just completed designs for four other studios. Many studios in the area are installing video sync, and we have supplied BTX systems to Edenwood Recording, Goodnight Audio, and Omega Audio.

We have a large selection of audio gear available to meet your needs and budget. We have expanded our staff to keep up with our increasing business. John King, with 20 years experience in audio and film will head our tech department. John Poimboeuf with much experience in audio sales, is our field salesman. Larry Strom will oversee general operations, and Keith Cavanaugh will handle acoustics, and is very qualified in the field.

**SOUTHWEST PRO AUDIO**  
ES, EI

1500 Summit, Austin, TX 78741  
(512) 443-4567

Contact: Greg Klingensmith

**WESTBROOK AUDIO**  
SD, AC, ES, EI

11836 Judd Court, Suite 336, Dallas, TX 75243  
(213) 699-1203

Contact: Paul Westbrook

**Services offered, credits, specialization:** During the crucial period of the concept and design of a studio, the first priority at Westbrook Audio is to allow for expansion and redirection in the design, because what today might be a 16 track demo studio tomorrow could be a commercial production facility incorporating both audio and video. So, during the final design and selection of equipment, we try to stop and look ahead. Whether it be adding an extra wiring trough or allowing for complete audio/video interface, all of these factors must be considered. Not only in the physical design and construction, but also in the actual electronic interface with the equipment. It is so painful to see hours of wiring being ripped out for a simple expansion. If, during the design and installation, allowances had been made for expansion, these things could be avoided. Contact Paul Westbrook.

# NORTHWEST

**ACOUSTICCOOL DESIGNS CO.**  
ES, EI

P.O. Box 1536, San Anselmo, CA 94960

Contact: Anthony Tracy

**Services offered, credits, specialization:** Acousticcool Designs specialize in controlled room environments. We reduce possible background noises to the lowest possible contemporary levels while maintaining appropriate air flow, conditioning and space availability. Proven track record, write for details.

**AROUND THE SOUND**  
EI

10906 Whitman Ave. N., Seattle, WA 98133  
(206) 365-9515

Contact: Carcel D. Balzer

**ASSOCIATED SOUND**  
ES, EI

2120 P Street, Sacramento, CA 95816  
(916) 443-4773; Reno: (702) 329-2401

Contact: Tom Lewis, Wally Clark

**AUDIO INDUSTRIES CORP.**  
SD, ES, EI

1907 Ardith Drive, Pleasant Hill, CA 94523  
(415) 777-5525

Contact: Ron Timmons

**AUDIOWORKS**  
SD, ES, EI

654 Irwin, San Rafael, CA 94901  
(415) 457-1722

Contact: Phil Cressenzo

**AURACOUSTIC RESEARCH & ENGINEERING**  
SD, ES, EI

540 Canal, San Rafael, CA 94901  
(415) 459-1783

Contact: Dr. Ritchie Moore

**KENNETH A. BACON ASSOCIATES**  
ES

216 Montego Key, Bel Marin Keys, CA 94947  
(415) 883-5041

Contact: Kenneth A. Bacon

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802 4th St., San Rafael, CA 94901  
(415) 457-7600

Contact: J.D. Sharp

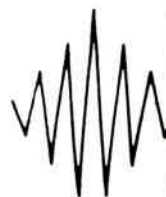
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7800 East Iliff Ave., Denver, CO 80231  
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Contact: James Barath, President, Joe Etneck, Gen. Mgr.; or Harry Warman, Sales

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Contact: Chips Davis

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Contact: Mike Kerby, Alan Podesto

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Contact: Ed Long

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*SD, AC.*  
40 Gold St., San Francisco, CA 94133  
(415) 391-7610  
Contact: Dennis Paoletti, Joel Lewitz

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Box 486, San Quentin, CA 94964  
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Contact: Paul G. Elliott

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Contact: Allen Rice

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Contact: Dennis Rice

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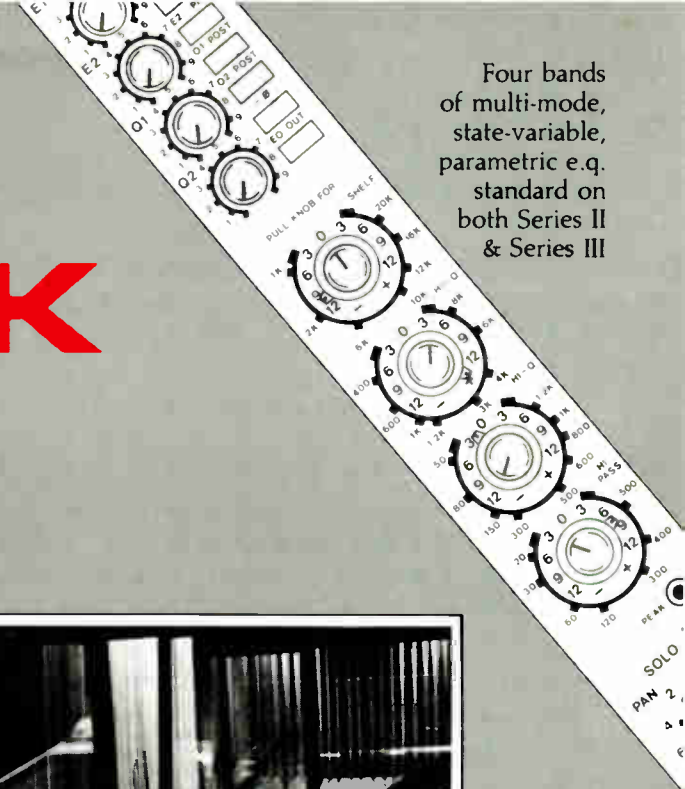
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San Francisco, 28x24 Series III, September 1981

### Corasound Recording

Stephen Hart, 20x28 Series II, November 1981

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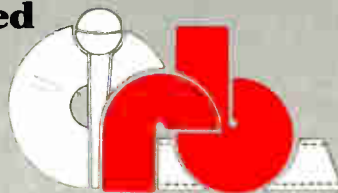
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## SOUND GENESIS

SD, AC, ES, EI.  
2001 Bryant St., San Francisco, CA 94110  
(415) 285-8900  
Contact: David Angress

## SUMMIT AUDIO

ES, EI.  
P.O. 1678, Los Gatos, CA 95031  
(408) 395-2448  
Contact: Mike Papp

## SOUTHERN CAL.

## ALAN GROVE BUILDERS INC.

SD, AC.  
13002 Huston, Sherman Oaks, CA 91423  
(213) 784-8519  
Contact: Jon Meredith  
**Services offered, credits, specialization:** Algrove's expertise has been used on over 120 different projects ranging from the installation of the PA system at the London Pendulum, to the supervision of the construction of the CBS/Sony project in Tokyo. Present commissions for design work include—Rock City, Gary Newman at Sheperdon, England, Atomic Records, Munich John Hiseman's private studio in Sutton, England. Five construction crews are used to construct studios on a world wide basis. Design costs range from \$6,000 upwards client supplies as-built plan with a brief of his requirements along with description of the location. Designs on a smaller scale for the home studio are offered at \$500. upward. Along with the record studio design and construction packaging Algrove have experience in the mobile field whether it is video or audio. In this field we are presently commissioned to design and install a radio station on a ship for use in the Arab Emirates.

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1070 E. Front St. #1, Ventura, CA 93001  
(805) 653-6661  
Contact: Bob Spittle

## AUDIO AFFECTS

ES.  
P.O. Box 6327, Beverly Hills, CA 90212  
(213) 763-7388  
Contact: Derra Shelley

## AUDIO ENGINEERING ASSOC.

ES, EI.  
1029 No. Allen Ave., Pasadena, CA 91104  
(213) 798-9127  
Contact: Wes Dooley

## AUDIO INDUSTRIES CORP.

SD, ES, EI.  
1419 N. LaBrea Ave., Hollywood, CA 90028  
(213) 851-4111  
Contact: Hal Michaels

## COAST RECORDING EQUIPMENT SUPPLY

ES.  
6114 Santa Monica Blvd., Hollywood, CA 90038  
(213) 462-6058  
Contact: Jerry Cabbage

## JEFF COOPER/CONSULTANT IN ACOUSTICS

SD, AC.  
22627 Cavalier St., Woodland Hills, CA 91364  
(213) 887-9100  
Contact: Jeff Cooper  
**Services offered, credits, specialization:** Specializing in recording studio control room, and film studio design. Recent projects include

- 1) A digital film mixing and recording studio for GEORGE LUCAS (Star Wars, Empire Strikes Back, Raiders of the Lost Ark) This facility will be used to mix the third epic film in the Star Wars series
- 2) A new film mixing theatre for GOLDWYN/WARNER STUDIOS in Hollywood. Goldwyn has been the recipient of more than 10 Academy Awards for sound mixing, and the newest theatre will represent the most sophisticated film mixing design techniques
- 3) A digital sound research facility for the NEW YORK INSTITUTE OF TECHNOLOGY in Westbury, N.Y. The facility will contain a large performing hall, a completely digital control room and an anechoic chamber, as well as office and related facilities
- 4) A new mixdown suite and second control room for CAPITOL/EMI RECORDS at their headquarters in Hollywood, CA. POLYGRAM RECORDS, Mexico, Singapore; ZOETROPE STUDIOS, San Francisco, FANTASY FILMS, Berkeley, CA, VELVET RECORDS, Venezuela, RUSSIAN HILL RECORDING, San Francisco, CA

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(213) 653-4931  
Contact: Dan Gwynne

## F. ALTON EVEREST

AC.  
6275 S. Roundhill Dr., Whittier, CA 90601  
(213) 698-8831  
Contact: F. Alton Everest

## EVERYTHING AUDIO

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(213) 995-4175  
Contact: B. Cornfield

## FILAMENT PRO AUDIO

ES, EI.  
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(714) 592-2848  
Contact: Frank Offensten

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(714) 280-7080  
Contact: Jan

## LAKESIDE ASSOCIATES, INC.

SD, AC, ES, EI.  
27939 Chiclana, Mission Viejo, CA 92692  
(714) 855-3171  
Contact: Steve Foure, Carl Yanchar

## L.A. SOUND CO. INC.

ES.  
7517 Sunset Blvd., Hollywood, CA 90046  
(213) 874-2100  
Contact: Richard Ralke

## MICWORKS STUDIO ENGINEERING SUPPLY

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3834 Catalina St., Los Alamitos, CA 90720  
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Contact: Michael Troke  
**Services offered, credits, specialization:** If you are serious about your profession, you need a company that can meet all your growing needs. S.E. & S. offers complete audio and video engineering services for recording, broadcast and reinforcement industries. Whether you need a connector or a complete turn key installation, our sales and service staff will give you the same personnel service and attention. Competitive prices guaranteed.

## SYE MITCHELL SOUND CO., INC.

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(213) 348-4977  
Contact: Sye Mitchell  
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4007 6th St., Los Angeles, CA 90020  
(213) 387-2999  
Contact: Steve Ditto

## NEW ERA WOOD WORKS

SD, AC, EI.  
14851 Aetna St., Van Nuys, CA 91411  
(213) 785-3358  
Contact: Dick Pyles

## NEW WORLD AUDIO, INC.

ES, EI.  
4877 Mercury St., San Diego, CA 92111  
(714) 569-1944  
Contact: Jim Scott, President

## PARAMOUNT SOUND SYSTEMS

SD, AC, ES, EI.  
1651 Gardena Ave., Glendale, CA 91204  
(213) 956-3222  
Contact: Judd McCully  
**Services offered, credits, specialization:** Paramount Sound Systems is a subsidiary of Paramount Pictures Corp. In addition to supplying audio equipment to all types of installations throughout the world, Paramount provides design services for film dubbing rooms and studios.

## PERCEPTION INC.

SD, AC.  
Box 39536, Los Angeles, CA 90039  
(213) 660-9351  
Contact: G. L. Augspurger  
**Services offered, credits, specialization:** Perception's President, George Augspurger, specializes in design consultation for audio recording, video production, and performing arts environments. Clients include Yamaha R&D Studios, Capitol Records, 20th Century Fox, the Burbank Studios, MGM Films, Paramount Pictures, Premore, Inc., Scaags Telecommunications Services, Whitney Recording Studios, Eastman School of Music, Bingham Young University, Sunset Sound Recorders, Cherokee Recording Studios, Soundcastle, Watermark Associates, Sigma Sound Studios, Sound Interchange, and Ryder Sound.

**PROFESSIONAL AUDIO SERVICES**  
*SD, AC, ES, EI*  
 99 E. Magnolia Blvd. Suite 215, Burbank, CA 91502  
 (213) 843-6320  
 Contact: Bob Hackem, Steve Powell, Tammy Lombardo

**ROLLS ELECTRONIC CORP.**  
*ES*  
 4260 Lankershim Blvd., W. Hollywood, CA 91604  
 (213) 877-8877  
 Contact: John Tait

**STUDIO MAINTENANCE SERVICE INC.**  
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 12458-60 Magnolia, N. Hollywood, CA  
 (213) 877-3311  
 Contact: Dave Michaels

**PROJECT ONE A/V**  
*ES*  
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 (213) 464-2285

Contact: Dalton Priddy  
**Services offered, credits, specialization:** Multi-track tape & supply store, authorized dealer for AGFA-Gevaert, PEM 468 & custom lengths of 611 cassette tape, Ampex 406-407 456 mastering tapes, Scotch 3M, 250 & 226—all widths and sizes in stock, Nortronics, Editall, Maxell cassettes; blades; reels & boxes, 3M leader and splicing tapes, blank and custom printed cassette labels—14 colors to choose, state-of-the-art real time cassette and tape duplication, low prices, we ship everywhere from stock, Neotek mixing consoles; TEAC/Tascam multi-track tape recorders; special size reels in boxes, Auratone monitors; AGFA & Ampex video cassettes

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 293 South Grand Ave., Pasadena, CA 91105  
 (213) 793-1900

Contact: Kent Duncan  
**Services offered, credits, specialization:** Consultants in acoustics for nearly 300 studios on six continents. Custom services may be obtained separate from turnkey planning. Plan evaluation of your own design; separate purchase of SM-R two way monitor system; consultation at daily rates. Projects include Fantasy Records, Record Plant, Soundmixers, and Caribou Ranch

**SUNTRONICS MULTI TRACK STORE**  
*ES, EI*  
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 Upland, CA 91786  
 (714) 985-0701  
 Contact: Ron Sundell

**SYNERGETIC AUDIO CONCEPTS**  
*AC*  
 P.O. Box 669, San Juan Capistrano, CA 92693  
 (714) 496-9599  
 Contact: Don Davis

**SCOTT PUTNAM STUDIO DESIGN**  
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 7345 Cantaloupe, Van Nuys, CA 91405  
 (213) 786-8288  
 Contact: Scott Putnam

**SIGNAL ELECTRONICS**  
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 22307 Ocean Ave., Torrance, CA 90505  
 (213) 378-5277  
 Contact: Tim Chaplin, Jim Gagnon

**VERTIGO**  
*EI*  
 5444 Simpson Ave., N. Hollywood, CA 91607  
 (213) 769-5232  
 Contact: Charlie Bolos

**THE SOUND SOLUTION**  
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 1211 4th St., Santa Monica, CA 90401  
 (213) 393-5332  
 Contact: David Epstein

**WESTLAKE AUDIO**  
*SD, AC, ES, EI*  
 7265 Santa Monica Blvd., Los Angeles, CA 90046  
 (213) 851-9800  
 Contact: Bret Thopine, Glenn Phoenix  
**Services offered, credits, specialization:** Design, consultation, construction services: complete turnkey as required, custom monitoring systems. Recent Projects: La Gonk West (George Duke), Studio C, Omaha, Crown Records, Hong Kong, Discos-Musart (disc mastering), Mexico City, Baptisa

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 5007 Haskell Ave., Encino, CA 91436  
 (213) 784-3985  
 Contact: Michael Rettinger

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 (213) 506-8216  
 Contact: Ed King

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Peak reverberation level display

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 Plate II: softer; good for vocals, general use  
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Compact, rack-mountable (3 1/2" x 19")

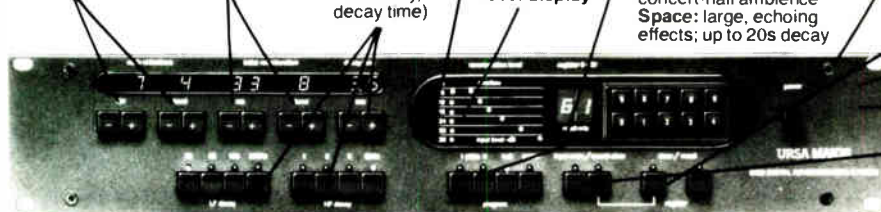
64 non-volatile storage registers

Optional remote control unit

Low cost (US \$5995)

0.2-20s decay time

Input Mute and Reverb Clear provide extra control over long decay times



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## PURCHASING CONSIDERATIONS

by Larry Blakely

I have had the opportunity to observe the procedures of selling and purchasing professional audio equipment for some 25 years. In the last decade our industry has grown much larger and there have been some changes that have had a rather profound impact on the methods and procedures of selling and purchasing professional audio gear.

Those of us who have been around this industry for a number of years can recall the time when things were much simpler than they are today. In fact, many purchasers of pro audio equipment had favorite equipment dealers in whom they confided and trusted a great deal. Such dealers were well versed in what kinds of equipment was available in addition to the features, benefits and applications of each. They were usually up-to-date on what was going on in the industry as well. All of this made it very easy to walk into the store and have a one-on-one conversation with someone who really understood your particular situation. These dealers would often take time to do some research for you if you had a non-standard need or application. If there were some new pieces of equipment on the market, you could just pick up the phone and ask your local dealer to fill you in. If your equipment needed service the dealer could also provide that, and sometimes you were not even charged. When a good relationship was established, the dealer knew he could count on your business and would do favors for you from time to time in return.

Today, a number of things have changed. Our industry continues to grow larger and larger, and there are hundreds of professional audio equipment manufacturers and many more dealers who sell it. The tremendous number of people who use this equipment range from those who are very knowledgeable to those who are new and know very little if anything about the equipment they are purchasing. In addition the economy has slowed, business is down, interest rates are higher, financing is difficult to get and many people

seem to be slow in paying their bills. Today everyone is looking for the best price or the best deal, not because the whole world has turned into misers, but the state of business and the economy has made it a matter of survival for all of us.

How does all of this effect us? What kind of dealer will best suit our needs, and where do we get the best deal? I would first like to state that every dealer is in business to make a profit. If a dealer does not make a profit, he will not be in business very long. Every purchaser must realize that you get what you pay for, and it is rare to impossible to get "something for nothing."

When we are looking for a deal, let us look at the elements that must make up the deal.

- 1. Product:**
  - a. New.
  - b. Used.
  - c. Quality (excellent, good, fair, poor).
  - d. Features (many, average number or few).
  - e. Obsolescence (will this last you a short or long period of time?)
- 2. Service and Warranty Period:**
  - a. Who pays for the service in what period of time?
  - b. Will the dealer service it in a short period of time?
  - c. Will it be serviced locally or must it be sent to the factory?
- 3. Applications Information:**

Do you fully understand the use of the equipment or will the dealer be required to assist you in learning to use the equipment?
- 4. Installation:**
  - a. Can you install the equipment by yourself?
  - b. Will the dealer install it for you free or will there be a charge for it?
- 5. Trade-in value:** If the product will need to be replaced in the near future, what will it be worth as a trade-in from that dealer or other dealers?

- 6. Payment terms:**
  - a. Cash.
  - b. Open account.
  - c. 30, 60 or 90 day terms.
  - d. Credit card.
  - e. Financing or leasing.

- 7. Freight or shipping charges:**

Who pays them and how much are they?

- 8. Price**

There are many kinds of dealers. Some have a sales staff very knowledgeable in the use and applications of professional audio equipment. If you are new and need help in the selection and use of equipment, you must keep in mind that this takes a lot of time (and time is money). The dealer cannot give this type of service for free and you may have to pay a little more for a product from this type of store. If you require this kind of assistance, it would do you well to support the dealer who helped you. Otherwise we all may wake up one day and find that all the dealers may just take orders and ship boxes.

Other types of dealers may just be in the business of offering the best price. They do not usually have the personnel to assist you in the use and applications of equipment. When you go into a store of this type, you need to know exactly what you want. You give them the model number, they give you a price and if you purchase it, they give you a box. If any service is required, it is usually necessary to return the unit to the factory or the nearest factory service station. For the more knowledgeable equipment purchasers who know what they want, and need little to no assistance, the dealers who offer little assistance and the lowest price are a good choice. However, if these buyers need local service, this still may not be the best choice.

It is not my purpose to tell anyone where to purchase their equipment, or to say that one type of dealer is more desirable than another. I am only suggesting that the buyer look at their needs and requirements and then support the type of dealers that meet those needs. ■



# A LOOK INTO THE FUTURE OF RECORDING STUDIO DESIGN...

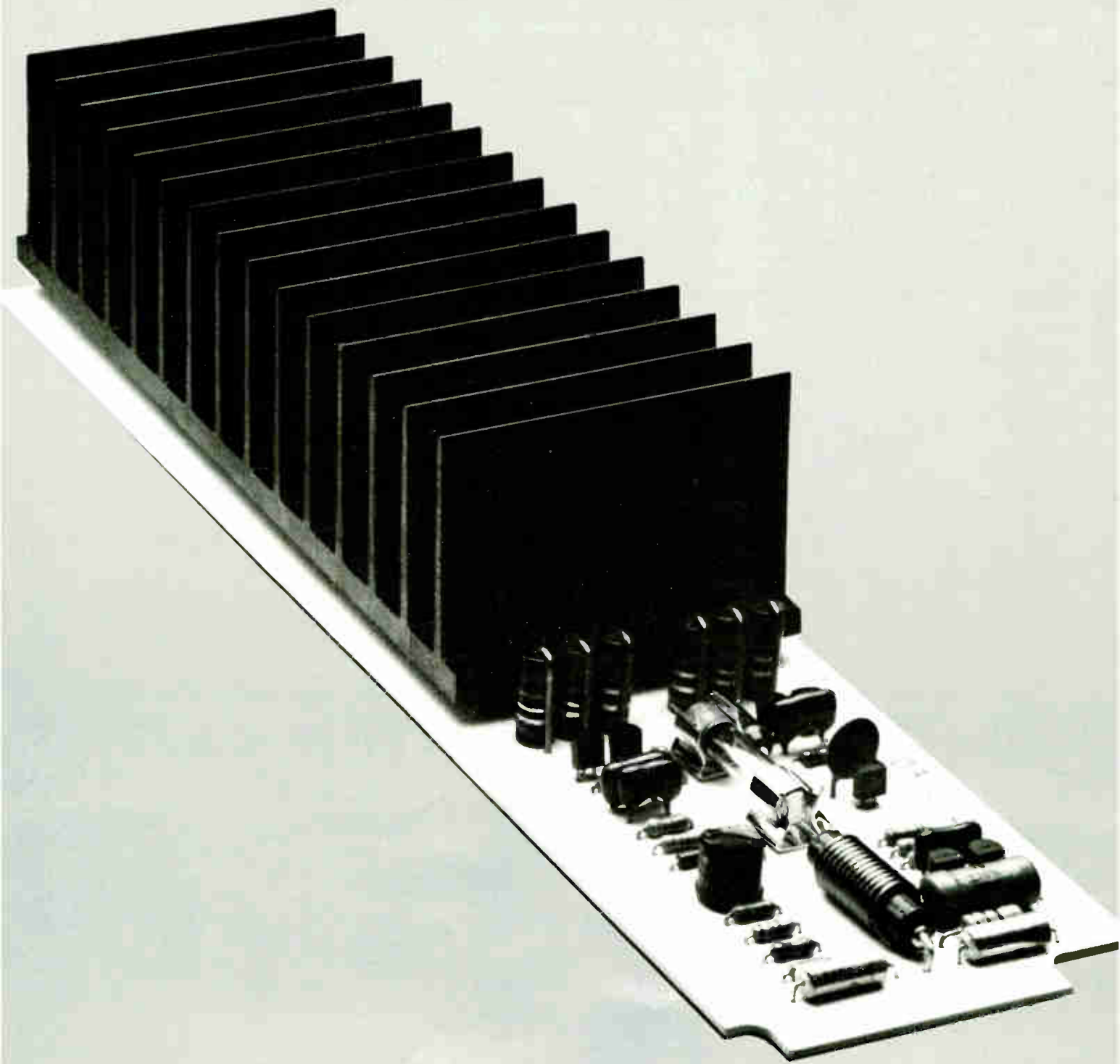


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# Performance You Can't Hear

## **The Spectra Sonics Model 701 Power Amplification System**

The SPECTRA SONICS Model 701 power amplification system is like no other. As the originator of the modular power amplification system concept, SPECTRA SONICS has developed and improved power amplification technology to such an advanced degree, that no other system, modular or conventional, is its equal.

### **Performance**

As a single power amplifier, the Model 701 will deliver 80 watts to a load, (2 ohms). Increased continuous power may be acquired by utilizing two Model 701 amplifiers in a bridged mode to produce 160 watts (4 ohms).

### **The Lowest Noise**

The Model 701 is the most quiet power amplifier available. The signal-to-noise ratio is 122 dB, 20 Hz to 20 kHz, unweighted, below 80 watts.

### **The Highest Damping Factor**

The Model 701 has the highest damping of any power amplifier. The damping factor is 1000:1 ( $\pm 75$ ), at 100 Hz and below, 8 ohm load.

### **Two Ohm Loading with Thermal Stability**

The Model 701 has unconditional DC stability. Thermal runaway is not a factor, even under two ohm load conditions.

### **1000% Peak Overload**

Recovery time for up to 1000% peak overload is less than one microsecond, resulting in higher sound pressure level when operating on program material.

### **Bi-Amplification and Tri-Amplification**

Over a decade ago, SPECTRA SONICS introduced the first production bi amplified and tri-amplified power amplification systems for professional use. With the single addition of the Model 505 electronic filter, the user may utilize the 701 in various multiway power amplification systems. The Model 701 allows the user to assemble, with ease, an amplification system of any size and configuration.

### **Plug-in Serviceability**

The "plug-in" capability of the Model 701 decreases service time and insures minimal system down-time.

### **For further information:**

The 701 power amplification system may be seen at your local SPECTRA SONICS distributor. SPECTRA SONICS, 3750 Airport Road, Ogden, Utah 84403. Phone (801) 392-7531.

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**Professional Series**

# THE BONZAI ZONE

## Crazed and Amused

by Mr. Bonzai

Harry Liebman, our director/cameraman, looked down from the Manwitch crane and focused on me with his Readycam. The mob of 5,000 anxious Andy Kaufman fans gathered tightly around the Goldwiz Studio stage as spotlights illuminated The Incredible Shrinking Heads. I zipped up my blue Chromakey suit, lowered my body into a friendly linebacker stance, and started nudging my way toward the stage.

Two beefcake punks rudely hoisted me over their heads and passed me to the screaming trashbag-clad maniacs. I protested as Harry followed the action from overhead.

"Harry! Help! These kids are nuts!"

"Go with the flow, Mr. Bonzai!" he shouted philosophically as he concentrated on documenting my precarious progress over the crowd. I was casually passed around like a case of Herpes.

The band began to play aggressively as their inflatable suits began to expand. Franco Coppacolla, the producer who was negotiating to buy the movie lot, sat in the background watching the scene and framing shots with his hands.

What had begun simply as a videotaping for a rock promo and for 'Rockheads,' the new interactive videogame, had become a typically uncontrollable Hollywood event. TV and police helicopters circled overhead as I continued to be passed from stranger to stranger. When I was occasionally dropped on the ground I tried to escape, but was quickly scooped up and passed around again. After ten minutes of mayhem I was hoisted over the footlights and tossed onto the stage.

The dimensions of the band's inflatable stage costumes were dangerously near the bursting point as I grabbed a spare set of bagpipes and joined the performance. The audience was familiar with the act from our moderately successful rock video of

the song "Small Minds." I tweeted and blew the bagpipes as Sarah Bellum strained towards the finale vocals of the song. Their rubber business suits stretched to monstrous girths as the heads of the Heads seemed to shrink inversely. The crowd of 'Trashfans' chanted along anticipating the inevitable group explosion. Harry zoomed in from overhead.

For the moment, the audience was distracted, but their appetite for novelty, New Wave, new music, new thrills, is ultimately insatiable. Sarah's suit exploded first, exposing her tiny voluptuous form. Next went Mickey's suit and then Brian Tumor's. As the song climaxed I collapsed on the bagpipes and forced out a wheezy but appropriate final chord.

There was a moment of sudden silence—then the crowd began removing their trashbags. They called for their hero: "Andy! Andy! Uncle Andy!" and chanted primitively as Sarah tossed me the microphone and passed me the buck.

"Andy is on his way!" I announced with false confidence and motioned for the band to vamp behind me. They began building a wall of music to further distract the crowd as I sneaked backstage and made off towards the lab where Layla and Smilin' Deaf Eddie were creating a counterfeit Andy Kaufman.

In the inner sanctum of Impact Video I found Layla punching the final commands into ELVIS, the video synthesizer.

"Just about finished, Mr. Bonzai. They'll never know it's you," she assured me.

"That's encouraging," I understated. "How's the Kaufman vocal synthesis, Eddie?"

"This little widget should finish it up," he mumbled as he twisted his screwdriver and adjusted a waveform. "OK, step into the isolation booth."

I realized I didn't have anything to announce, so I grabbed a phone book as I stepped into the glass booth. I looked into the specially

filtered, four-gun camera and positioned the microphone. Layla adjusted some controls and Eddie dialed my voice up a notch. I gazed into the monitor to watch as my features dissolved and I began to resemble Andy Kaufman. Eddie routed the signals to a high resolution, holographic receiver set up on the Goldwiz stage.

A second monitor showed me that the crowd was observing my appearance with fascination and awe. "I'm sorry I can't really be with you tonight, my friends," I announced truthfully, "but I do have something very important to share with you." They cheered as I began to read. I started with the A's and gave bravado and dramatic relief to Mr. Agesoto, Miss Aakerland, the Aalbergs, Aali's Rug Emporium, and by the time I had reached Abba Dabba Labs I had the crowd in the palm of my synthesized hand.

I glanced over at the monitor and saw Andy Kaufman staring back. It was like being drunk at a party, checking yourself out in the bathroom mirror, and seeing a stranger looking back. Unfortunately, my image was blurring at the edges and there was a hint of Mr. Bonzai creeping into the picture. Eddie switched off the camera and microphone and opened the door.

"We're losing our Andy code..."

"Can't you put up another program?" I suggested.

"Sure, we have a few personalities in the can—I think I can keep the kids entertained..."

Layla flipped a flaccid disk in the ELVIS drive, Andy dissolved, and in an instant I had become Mr. Ed, The Talking Horse. I delivered a few verses from 'Macbeth' and as the disks were switched I dissolved first into Beaver Cleaver, then into Eldridge Cleaver, Ronald Reagan, Flash Gordon, Conan the Barbarian, Marilyn Monroe, and finally Gary Coleman. For an encore I became Shirley Temple.

In the guise of Dick Clark I closed the performance with an air of familiar authority, thanked everyone, and asked them to leave peacefully by the rear gate. In their media saturated state, they obeyed sheepishly. The unveiling of ELVIS to the world had worked the necessary wonder. ■

*(Next month we will look into the future of recording in an exclusive interview with Smilin' Deaf Eddie. Stay tuned for the further adventures of ELVIS in upcoming issues.)*

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

## THE ULTIMATE CORDLESS PHONE

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Here is truly the ultimate in cordless phones. The Interstate Phone has unbelievable sound fidelity — with an extended range of up to 600 feet. The entire unit — 10.5 ounces — attaches lightly and easily to a belt, or slips into a pocket. Yet you can receive or place calls to any corner of the world.

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#### STILL MORE FEATURES

The Interstate Phone unit includes everything you need: Phone • base station • compatibility with all rotary or pushbutton systems • easy installation with standard phone jacks.



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The last number called is stored in the memory and is **automatically redialed** — just push **one** button — great to reach forever busy numbers — saves redialing a string of codes.

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Still another Interstate Phone **exclusive!** A great new way to keep your phone charged — with no need to return it to its base unit. A **charge cord** is provided, to plug into any AC outlet in the house. Which means the base can be tucked permanently out of sight AND the phone is anywhere you want it — being charged.

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# PREVIEW

## CRITICAL LISTENING TRAINING COURSE

Noted acoustician and educator F. Alton Everest has fashioned this ten part audio cassette course to sharpen skills in evaluating sound quality for professional recordists, audiophiles and students. A clearly written study manual combines with the tapes to cultivate the listeners skills in such areas as frequency estimation, distortion detection, reverberation effects and other critical areas of audio acuity. This is an outstanding program whether applied in the classroom, home study, or Walkman style. For more information contact: **SIE Publishing, P.O. Box 4139, Thousand Oaks, CA 91359.**

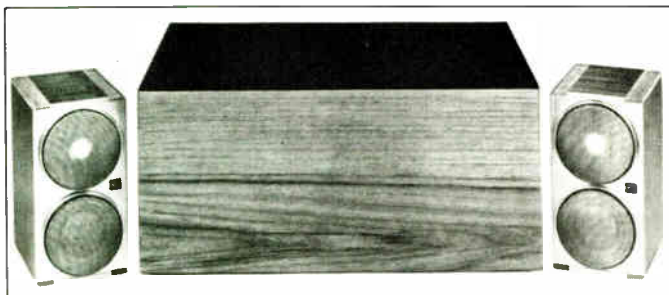
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## UNISONIC VIDEO DOORPHONE

The Unisonic 7700 Video Doorphone allows you to see and hear visitors while your home, office, or studio door remains locked, providing a extra margin of safety for you and your family or co-workers. The outside unit has self-contained lights, video camera, microphone, and speaker units, and can be surface or flush-mounted. A video recorder can also be interfaced with the unit to permanently record visitors when you are away. For more information, contact: **Uni-Vid, Box 18858, Irvine, CA 92713**

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## MINI MONITOR SYSTEM FROM FOSTEX

The RWO/Fostex G7000 Mini Reference Monitor System is now available from Interlake Audio. The G7000

system consists of a compact subwoofer combined with two 2-way speakers housed in separate, 3 pound, 6 x 3 x 4 inch cabinets.

The subwoofer, with a built-in 200 Hz passive crossover provide ample bass from a 7 x 13 x 10 inch desk-top package. The main speakers, housed in aluminum/teak-wood enclosures, each contain a 5/8" dome tweeter and a 2 3/4" woofer for accurate frequency response from 80 Hz to 20 kHz.

The G7000 monitor system is priced at \$548, and would be ideal where space is limited such as in mobile recording vans and remote broadcast trucks. For more information, contact: **Interlake Audio, Inc., 620 King Edward St., Winnipeg, Manitoba, Canada, R3H-0P2**

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## CAPITOL IMPROVES CASSETTES

Capitol Records has announced the development of their XDR (eXtended Dynamic Range) line of pre-recorded music cassettes, with a claimed improvement of 10 dB in dynamic range over previous products. The system employs a one inch wide track duplication master, as opposed to the industry standard half-inch wide track. All XDR releases will be Dolby-B encoded.

Also contributing to the improved cassette will be upgraded plant record electronics, a new tape guidance design, and a computerized signal alignment monitor system which can confirm frequency response, distortion, azimuth, maximum operating level, speed accuracy and record bias condition using tones at the start of each cassette. The XDR improvements apply to all releases by Capitol, Liberty, EMI America and Angel Records.

## REPLACEMENT HEADS FROM RESTORATION

Restoration, an audio and video head refurbishing company, has now added to their line new replacement heads for studio, duplicator, and broadcast cartridge recorders. This new line allows restoration's customers more options when repairing, refurbishing, or replacing record heads. For more information, contact: **Restoration, 15904 Strathern, Unit 23, Van Nuys, CA 91406**

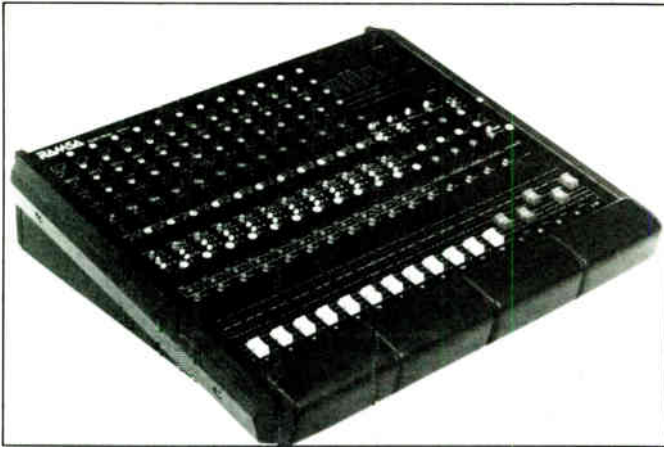
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## CETEC GAUSS STUDIO MONITORS

Cetec Gauss, has introduced a line of recording studio control room monitors. Their new model 7351 monitor system, combines efficiency, high power handling and a wide frequency response, without the "mechanical" sound prevalent in many other monitors. The 7351's drivers are blended through an "Acoustic Crossover" which dictates unconventional crossover frequencies to attain a smoother response. Bi-amplification is required. For more information, contact: **Cetec Corporation, 9130 Glenoaks Blvd., Sun Valley, CA 91352.**

Circle #030 on Reader Service Card



## RAMSA 12 X 4 CONSOLE

The Panasonic Professional Audio Division has introduced the WR-8112, a compact mixing console designed for sound reinforcement and multi-track recording applications. This new unit provides 12 inputs, with four group, one mono, and two master outputs, and a 3-band equalizer with switchable frequencies on high and low and sweepable midrange.

The WR-8112 also features send controls with pre/post selection, metering of eight output signals, solo metering, and 48 volt phantom mike powering. The suggested price for the Ramsa WR-8112 is \$2,495. For more information, contact: **Ramsa, 50 Meadowlands Parkway, Secaucus, N.J. 07094**

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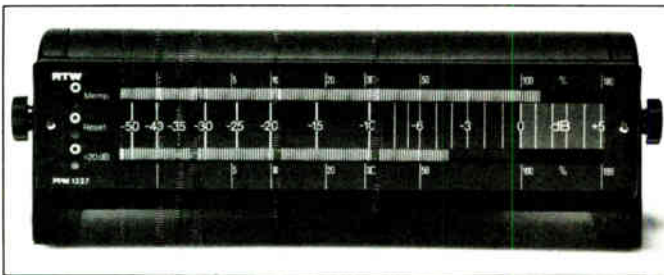


## PARAMETRIC EQ

The new FX-series pre-set parametric equalizers from Dan Dugan Sound Design provide an economical means to correct tape recorder "head bumps" and other frequency response errors.

The equalizers pack 8 channels of 3-band parametric EQ into a single unit rack of space. Each band has frequency, bandwidth, and amplitude trimmers. The equalization settings are typically tuned during recorder maintenance and are protected from tampering by being inside the cabinet. The front panel has only the AC power and bypass switches. For more information, contact: **Dan Dugan, 833 14th Street, San Francisco, CA 94114**

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## RTW PEAK PROGRAM METERS

RTW Peak Program Meters are now available in the U.S.A. Standard in Europe for many years, these instruments, unlike VU meters, permit precise indication of maximum program level, and when used properly allow production or transmission of optimum output levels with minimum compression or limiting. Total indication scale is 55 dB, and many models include a 20 dB expansion characteristic permitting accurate metering of low level signals. Many models also include a memory feature, allowing indicator hold of maximum level reached throughout a total program pass. Stereo meters start as low as \$394.00 For more information, contact: **Audi-ronics, Inc., 3750 Old Getwell Rd., Memphis, TN 38118**

Circle #032 on Reader Service Card

## MATSUSHITA PRODUCES dbx CHIP

A new, low-cost integrated circuit for the dbx noise reduction system has been developed jointly by Matsushita and dbx, Inc. This new, tiny ( $\frac{5}{8}$ " x  $\frac{1}{4}$ " x  $\frac{1}{16}$ " ) IC chip requires a minimum of 1.8 volts, and can solve the limited dynamic range and tape hiss problems which are inherent to auto and personal cassette systems. For more information, contact: **dbx, Inc., 71 Chapel Street, Newton, MA 02195.**

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## WESTLAKE BBSM-6 MONITORS

The BBSM-6 is the first in a new series of portable 3-way, dual woofer monitors from Westlake Audio. It utilizes two 6" woofers, a 3.5" cone mid range and 1" dome tweeter in a totally symmetrical 1.7 cu. ft. enclosure. These units are available in utility black without grilles or walnut with grilles. For more information, contact: **Westlake Audio, 2696 Lavery Court, Unit 18, Newbury Park, CA 91320.**

Circle #035 on Reader Service Card

## COMING THIS FALL:

The Mix 1983 New Product Directory. The industry's most comprehensive listing of new audio and recording products. Catch it in the Mix, the recording industry magazine.

# POWER AMPLIFIERS

by George Petersen

*The design and technology of power amplifiers for professional audio applications have advanced dramatically in recent years. Dueling specifications have driven manufacturers to hyper-fidelity as have the growing demands from professional users for a reliable, clean sounding product. In this business, dependability is the name of the game.*

*In surveying top-of-the-line models from a variety of manufacturers, we found considerable differences in philosophy. Some have embraced new designs, such as the MOS-FET units, while others have refined the more conventional approaches. Although built-in features varied greatly from company to company, there has been a general trend to incorporate protection devices into all the amplifiers listed.*

*The following power amplifier survey is based upon data sent to us by the various manufacturers. An address is provided at the end of each section, so that you can contact the companies directly.*

## ALTEC 1270

The Altec 1270 incorporates advanced computer protection circuitry, major component innovations and computer-aided design techniques. The result is the best performing and most reliable power amplifier in Altec's history.

Internal circuitry in the 1270 is laid out clean and tight for simple and straightforward servicing. The amp provides 220 watts per channel into 8 ohms at less than .03% total harmonic distortion over a 20 Hz to 20 kHz bandwidth. In bridged monoaural operation, 800 watts are delivered into 8 ohms with THD of less than .05%. The 1270 utilizes extensive computer monitoring for protection of the amplifier and the

load being driven. A peak/error computer compares input and output signals, and illuminates the appropriate front panel indicator when significant wave-form abnormalities are detected, including excessive voltage, current, and slew rates. An instantaneous VI limiter guards against excessive current drain by restricting output to 400 VA  $\pm$  45° phase shift.

Other protection features incorporated into the Altec 1270 include: a fan cooled, logic circuit which automatically increases the fan speed from low to high to match operating temperatures, and load protection relays which cause a three second delay during startup and shutdown. The load is completely protected, and is automatically disconnected even in case of amplifier failure, such as DC voltage at the output.

The new Altec Lansing 1270 direct-coupled power amplifier is priced at \$1,163. For more information, contact:

Altec Lansing  
1515 S. Manchester Ave.  
Anaheim, CA 92803  
Circle #036 on Reader Service Card

## AMP 8000

The final choice of circuit parameters for the Amplifier Music Products' Model 8000 power amp was based on extensive listening tests which, according to the manufacturer, have yielded a product that delivers a clean, natural sound that is free of anomalies or sonic coloration.

The Model 8000, while rated at 200 watts/channel into 8 ohms and 350 watts/channel into 4 ohms, can provide musical peaks of 250 and 440 watts, respectively. THD is rated at .1% (20 Hz to 20 kHz). The amplifier's power bandwidth goes well beyond the audible range, extending from 10 Hz to 40 kHz (-3 dB). Net weight is only 31 pounds, which is an important consideration when rack mounting multiple units.

This amplifier has been extensively

tested for reliability under adverse conditions. The full output of one channel (150 Vpp) was fed directly into the other channel's input. This proved that the low level input circuits could not be harmed by high input voltages. In other tests, with both channels driven to clipping, all types of loads were applied, ranging from open and short circuits to highly reactive loads. After long durations of these adverse conditions, no harm was done. Since the amp uses no VI limiter, no distortion results when driving highly reactive low impedance loads.

Although the AMP Model 8000 was designed primarily for live sound applications, it is clean and quiet enough for studio work. Hum and noise is 104 dB below rated output, and the unit operates without a noise-producing fan. The suggested retail price for the Model 8000 is \$750. For more information, contact:

Amplified Music Products Corp.  
8440 Paso Robles Ave.  
Northridge, CA 91325  
Circle #037 on Reader Service Card

## ASHLY FET-200

Ashly Audio have introduced their model FET-200 stereo MOS-FET (metal-oxide-semiconductor, field-effect-transistor) power amplifier. Ashly engineers feel that the power MOS-FET will render the conventional transistor obsolete in audio amplifier applications, and they have been watching this new technology for six years, waiting for good products, quality component availability, and competitive prices. Bill Thompson, Ashly President, says that power MOS-FET technology "...enables us to produce a superb power amplifier with simple circuits. The MOS-FET's require almost no drive current, so there is an absolute minimum of high power components. The MOS-FET's are so rugged that we have still not failed one in our prototyping process."

Taking only 3½" of rack space and  
(continued on page 48)



# Suddenly, everyone else has to start over.

Series Three from QSC. From this point on, every other power amplifier takes a step backward.

We've designed what will be the standard from which everything else is measured.

Series Three combines high-performance, reliability, and microscopic attention to detail, design and the execution thereof.

Our overall goal was to provide a series of reference-quality professional amplifiers designed specifically for major studios, touring companies and engineered sound installations.

We met our goal. As a matter of fact, we significantly exceeded it.

Take a look at the features of our Series Three amplifiers. High-efficiency circuitry, extended dynamic headroom, true dual-mono configuration, front-removable modular design. And we've packaged it all in a low-profile chassis. More power, less rack space.

We were so impressed with our prototype Series Three amps that

we decided to take them into the field for numerous "A/B" listening comparisons. They were compared for audio quality and performance under a wide range of power requirement conditions. As we had expected, the response was overwhelmingly positive. The Series Three amplifiers stood a significant step above the others.

The moral of the story: Why settle for a product that's only outstanding in a few areas? QSC Series Three is a comprehensive design approach that combines exceptional audio performance, solid reliability, state-of-the-art features, and more power in less rack space.

So we urge you to look into our Series Three amplifiers. Because while everybody else is looking where they've been, QSC is stepping into the future.

QSC Audio Products, 1926 Placentia Avenue, Costa Mesa, CA 92627. Phone: (714) 645-2540.

**QSC**  
AUDIO



#### ALABAMA

Big Bear Audio  
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#### CALIFORNIA

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Montclair  
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#### CONNECTICUT

Altel Sound  
Bridgeport  
La Salle Music  
W. Hartford

#### FLORIDA

Modern Music  
Ft. Lauderdale

Mr. Hank, Inc.  
N. Miami

#### GEORGIA

Music Mart  
Smyrna

Oap Audio  
Buford

Rock 'N Road Audio  
Atlanta

#### ILLINOIS

Beardsley Light & Sound  
Moline

D.J.'s Pro Audio  
Cicero

#### KANSAS

Superior Sound  
Wichita & Kansas City

#### MARYLAND

Washington Music Center  
Wheaton

#### MASSACHUSETTS

Berkshire Prof. Sound  
Dalton

Sie Stone  
Boston

#### MICHIGAN

Cook Christian Supplies  
Alma

Guitar & Drum Center  
St. Clair Shores

John Kik & Assoc., Music  
Grand Rapids

#### MINNESOTA

MSC Pro Sound  
St. Paul

#### NEW JERSEY

Caiazza Music  
Freehold

#### NEW YORK

Alex Musical  
New York City

Only Guitar Shop  
Clifton Park

Universal Sound  
Lake Grove

Whirlwind Audio  
Rochester

#### NORTH CAROLINA

Associated Sound Prod.  
Raleigh

Duncan Pro Sound  
Winston-Salem

#### PENNSYLVANIA

Ro'Cel Electronic  
Pittsburgh

#### RHODE ISLAND

Rhode Island Musical  
Pawtucket

#### SOUTH CAROLINA

Gordon Light & Sound  
Greenville

TENNESSEE  
Keiths Corner Music  
Cookeville

Lowrance Sound Co.  
Union City

Spectrum Sound  
Nashville

#### TEXAS

Crossroads Audio  
Dallas

L. D. Systems  
Houston

Recorder Center  
Dallas

#### VIRGINIA

Stage Sound  
Roanoke

#### WEST VIRGINIA

The Pied Piper  
Huntington

#### WISCONSIN

Regenberg Music  
Middleton

Uncle Bob's Music  
Milwaukee

(continued from page 46)

providing 100 watts/channel into 8 ohms, 175 watts/channel into 4 ohms, and 350 watts into 8 ohm bridged mono, the FET-200 is a fully complementary, push-pull amplifier with totally discrete, high-voltage, wide bandwidth electronics. This approach inherently assures low noise, low distortion, and excellent transient response. Inputs are bridging, active balanced (transformerless), and are equipped with 1/4" and XLR type connectors to facilitate linking several amplifiers together.

# POWER AMPLIFIERS

Musical accuracy requires the interdependence of overall linearity, solid power supply design, and transient integrity at all frequencies. The 4B's double-complementary input circuit has the multiple advantages of extreme linearity due to the subtractive cancellation of distortion products; an improved high speed transient following from its

dicating AC power and the presence of clipping.

The Bryston 4B Pro is priced at \$1,500. For more information, contact: Bryston Mfg. Ltd. 57 A Westmore Drive, Rexdale, Ontario, Canada M9V 3Y6. Circle #040 on Reader Service Card

## CERWIN-VEGA 600 SERIES

Cerwin-Vega's new low profile professional power amplifier series brings high technology amplifier design to a convenient new format package. The LPA-600 and LPM-600 have power ratings of 350 watts into 8 ohms, and can handle demanding professional applications, including recording studio use.

Available in both metered (LPM) and unmetered (LPA) versions, the 600 series incorporates direct coupled complementary circuitry and is designed for high slew rate (greater than 80V/us), extended bandwidth (beyond 100 kHz), rapid transient response, and low distortion. These high performance parameters are combined with a protection system which fully protects the amp against any destructive signal or load conditions. In addition, all internal circuitry is designed for ultimate reliability during high thermal stress to 100° C.

The mechanical design of the LP series is constructed to make the amplifier resistant to vibration and high "G" loads, an important consideration in sound reinforcement and remote recording applications. All circuitry has been located with ease of service in mind, and cooling efficiency has been increased for extended product life.

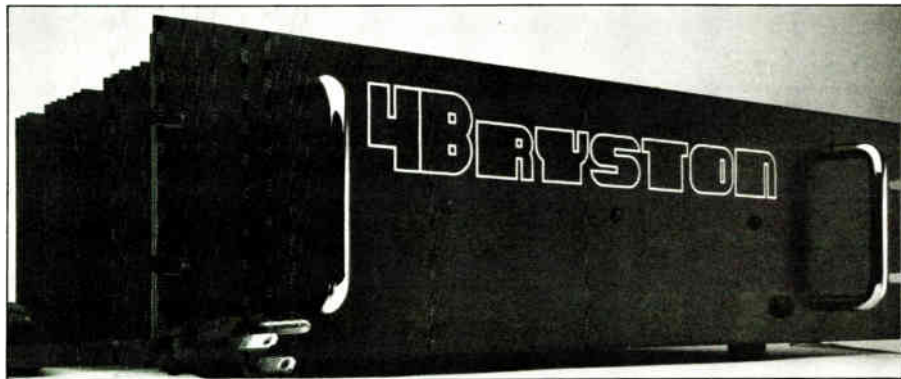
The LP-600 amplifiers are rated at 350 watts/channel into 8 ohms, and 600 watts into 4 ohms (20 Hz to 20 kHz). Total harmonic distortion is given at .03% at full output, into 8 ohms.

For more information, contact: Cerwin-Vega 12250 Montague Street Arleta, CA 91331. Circle #041 on Reader Service Card

## CROWN PS-400

The Crown International PS series of professional power amplifiers introduced last summer is unique in several respects. For one, a wide range of accessories is available for the units, including optional plug-in transformer and balanced active input modules, a 70 volt line transformer output, and an add-on fan cooling package which can ventilate several stacked amps. Dave McLaughlin, Crown Product Manager explained: "Each user of these amps will have different environments for their use... Crown designed these amps so users could buy only the accessories they need."

(continued on page 50)



Bryston 4B Pro

Back panel switches provide user-selectable stereo, mono, and bridging modes. Two 10-segment, 27 dB range LED meter displays indicate power levels.

Ashly has indicated another MOS-FET power amplifier, the FET-500, with 250 watts per channel, will be available this fall. For more information about the FET-200, contact:

Ashly Audio, Inc. 100 Fernwood Ave. Rochester, N.Y. 14621. Circle #039 on Reader Service Card

## BRYSTON 4B PRO

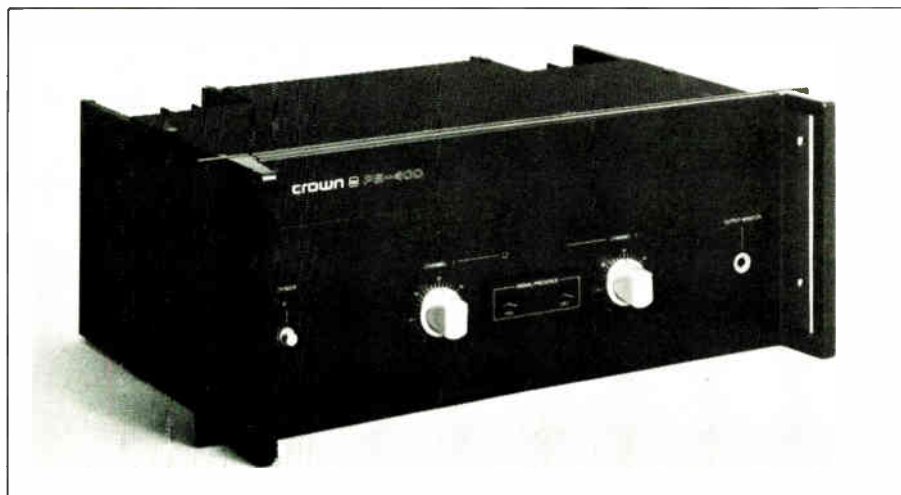
The design philosophy used by Bryston is based on three concepts: musical accuracy, long term reliability, and product integrity. Their 4B Pro power amplifier meets each of these criteria.

double ended current drive; and a near-zero inherent DC offset voltage.

Long term product reliability and integrity is assured by designing power amplifiers with component safety margins of 250% and then subjecting the final products to over 100 hours of stress testing. This is backed up by Bryston's three year, parts and labor warranty.

The 4B Pro's power rating is 200 watts/channel at 8 ohms, 400 watts/channel at 4 ohms, and 800 watts bridged mono into 8 ohms. Harmonic distortion is rated at less than .05% from 20 Hz to 20 kHz at full output. The unit's power bandwidth ranges from less than 1 Hz to over 100 kHz. Front-panel LED's in-

Crown PS-400





# The whole truth.

Bipolar transistor power amplifiers are obsolete.

Now there's HH MOS-FET technology; with no thermal runaway, no secondary breakdown, simpler circuits, fewer components and superior high-end performance for better sound quality when reproducing fast transients.

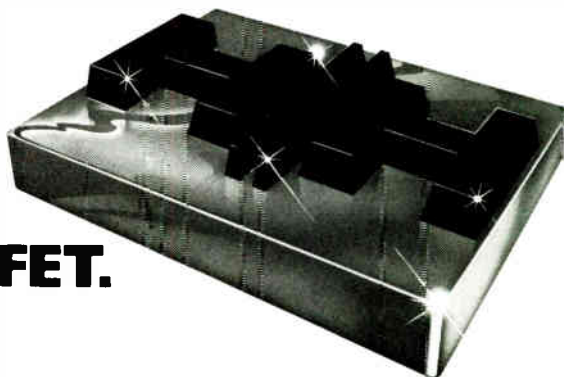


Naturally, we anticipate that most professional sound engineers will be eagerly switching over to MOS-FET at the first opportunity. So to make it easier, there are 4 models (all 19" rack mounting) with outputs

from 150 to 800 Watts and multiples thereof, using the X300 frequency dividing network.

And once installed, our cool MOS-FET amplifiers will perform with so little distortion, that i.m.d., d.f.d. and t.i.m.d. are almost immeasurable by contemporary standards.

So at last you can boost your input with total honesty—and nothing else.



## Graduate to the 80's. MOS-FET.

HH Electronic Inc.,  
2500 East Fender Avenue,  
Unit 1, Fullerton, California 92631.  
(714)-680-4293.

# POWER AMPLIFIERS

(continued from page 48)

The Crown PS-400 utilizes the MULTI-MODE™ circuit, a three-stage AB + B design which functions as a non-switching Class-A amp at low power levels. At middle levels, the two-stage drivers continue in Class A, while the output switches to Class B. At high power levels, the Multi-Mode circuit drivers function in the AB mode, while more Class B power is added to the output stages. This unique Crown design uses output devices most efficiently, minimizes distortion, and increases long-term reliability.

The PS-400's power rating is 180 watts/channel (EIA) into 8 ohms from 20 Hz to 20 kHz, 300 watts/channel (EIA) into 4 ohms from 20 Hz to 10 kHz, and 600 watts mono into 8 ohms over 20 Hz to 20 kHz. Harmonic distortion is listed as less than .001% from 20 Hz to 400 Hz, increasing to .05% at 20 kHz at 165 watts/channel into 8 ohms.

For informational brochures on Crown Multi-Mode power amplifiers, contact:

Crown International  
1718 W. Mishawaka Road  
Elkhart, IN 46517  
Circle #043 on Reader Service Card

## EDCOR PA 150

The Edcor PA 150 is a mono power amplifier which is available in both direct output and 25/70 volt line versions. A wide variety of input modules are also available, including low-Z phantom power, hi-z, aux, phono, line bridging, telephone, and tri tone.

These low cost units (prices start at \$405) can be stacked for stereo operation, or for bi/tri amp applications. They might also be a good choice for driving monitors in sound reinforcement or talkback situations. Each amplifier has LED clipping indicators on the front panel. Speaker and amplifier fuses are front-mounted also, to facilitate trouble shooting without pulling the amp out of the rack. All circuit boards and sub-assemblies on the PA 150 are interfaced via connectors for rapid maintenance and ease of repair.

The PA 150 is rated for 150 watts of output into 4 ohms, from 20 Hz to 20 kHz, at less than 1% distortion. The unit also offers automatic resetting protective circuits, and a thermal sensing circuit to avoid damage from abnormal operating temperatures. For more information, contact:

Edcor  
16782 Hale Ave.  
Irvine, CA 92714  
Circle #044 on Reader Service Card

## HEIL SOUND PRO 400B

The Pro 400B from Heil Sound is a stereo power amplifier which delivers 260 watts/channel into 4 ohms, or 520

watts mono into an 8 ohm load. T.H.D. is given as .09% at 250 watts into 4 ohms.

The Pro 400B features P.P.C. (Passive Protection Circuitry) which uses

passive, rather than active, circuits to provide short-proof speaker line protection. The unit's AUTO-MATCH input circuitry automatically senses either balanced or unbalanced lines, and switches the inputs to the correct mode. Front panel LED's indicate the presence of clipping.

All Heil Sound amplifiers incorporate a modular design so that if service is needed, a spare module can be easily inserted to considerably reduce downtime. For more information, contact:

Heil Sound, Ltd.  
2 Heil Drive,  
Marissa, IL 62257  
Circle #045 on Reader Service Card

## H. H. ELECTRONIC V800

H. H. Electronic have been in the business of designing high performance power amplifiers for nearly fifteen years at their eight acre manufacturing complex in Cambridge, England. Their V800 amplifier is the finest in their line of MOS-FET power amplifiers, and delivers 250 watts/channel into 8 ohms at less than .03% total harmonic distortion over a 20 Hz to 20 kHz bandwidth. Bridged mono operation is also possible for an output of 800 watts into 8 ohms.

The V800's MOS-FET design allows a great simplification in drive circuits, and virtually eliminates the need for complicated protection devices. This reduction in complexity means greater reliability, and simplifies service in the event of amplifier failure. The V800 is completely short circuit proof, and is stable into highly reactive loads. Another advantage to the amplifier's

high speed MOS-FET design is its high frequency response to beyond 50 kHz, which is claimed to result in less distortion in the audio band.

The V800 is built into a rugged, rack mount casing with a heavy 3/16" front panel. Most of the unit's weight is kept close to the mounting plane to

## H.H. Electronic V800 MOS-FET



minimize strain during rough handling on the road. Power supplies and thermal design are conservative, to allow continuous operation into 4 ohm loads without overheating.

The V800 carries a list price of \$1,250. For more information, contact:

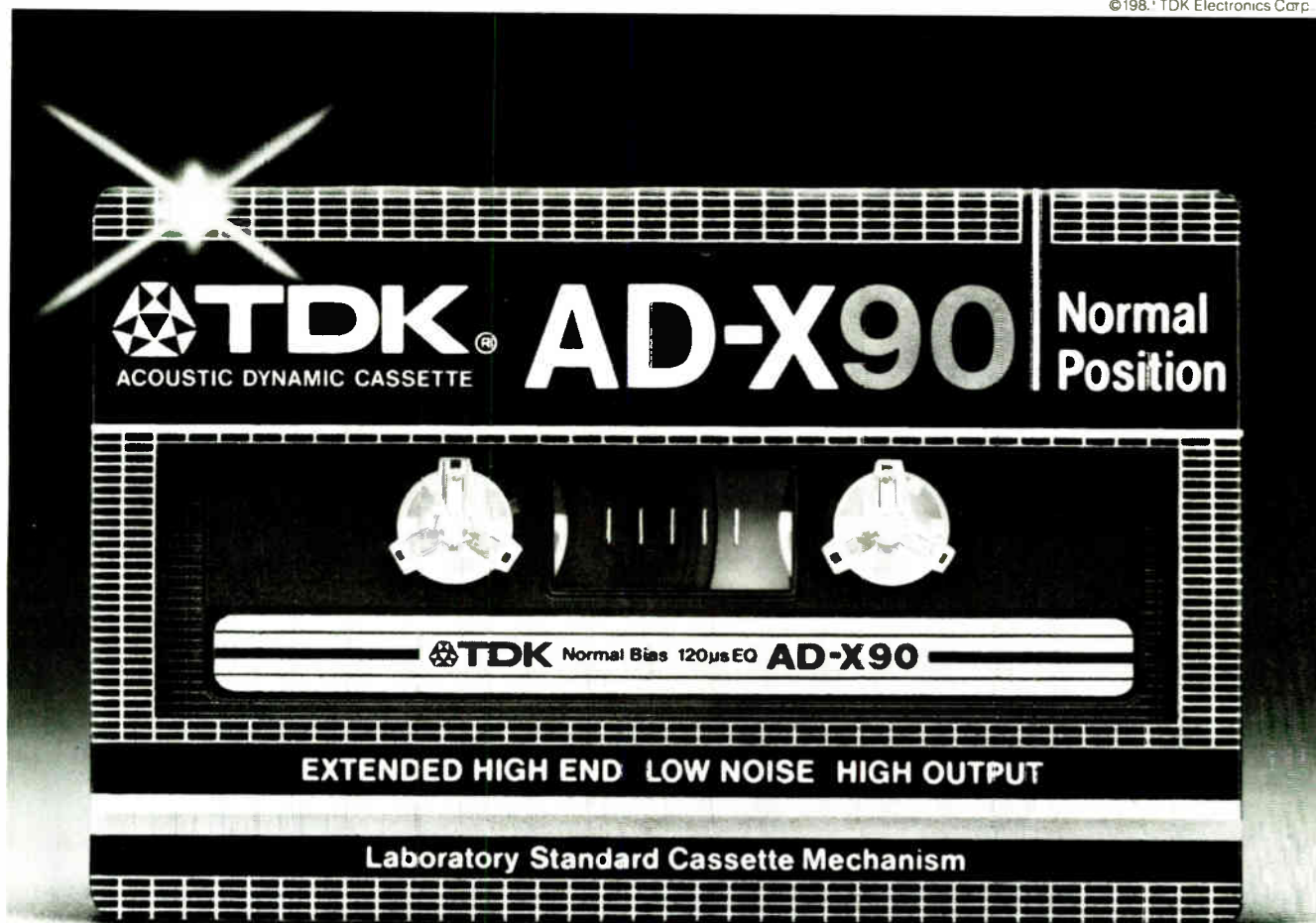
H. H. Electronic  
2500 E. Fender Ave. Suite 1  
Fullerton, CA 92631  
Circle #046 on Reader Service Card

## MCINTOSH MC 2500

The McIntosh MC 2500 is a large (129 lb.) and rugged unit. The amplifier delivers 500 watts/channel into 1, 2, 4, or 8 ohm loads. Total harmonic distortion is rated at .02% at any power setting, over a 20 Hz to 20 kHz bandwidth. 1,000 watts of mono power is possible into a wide range of load impedances from .5 ohm to 16 ohms. Mono operation in either bridged or parallel modes, is selectable by a rear panel switch.

The MC 2500 incorporates several protection features, including twin cooling fans. These low-noise fans can be set for either continuous or thermally-controlled operation. A thermal protection circuit automatically turns the amplifier off if cooling air is blocked or if operating temperatures become too high. Amplifier clipping is eliminated by a power guard circuit which uses a wave form comparator to detect over-drive distortion. When clipping exceeds 0.5%, the circuit limits the input signal dynamically so the amplifier cannot be overdriven.

(continued on page 52)



# Someone who's a Wonder thinks AD-X is extraordinary.

As far as Stevie Wonder is concerned, the only thing that's normal about TDK AD-X is its bias. Otherwise AD-X is extraordinary.

AD-X is engineered to record and play back in the normal bias/EQ position. It's compatible with any cassette deck, delivering a wider dynamic range with far less distortion than ever before. Extraordinary.

Stevie also knows that even at higher recording levels, the increased headroom in AD-X handles strong signals easily without over-saturation. Extraordinary.

But, it's when



you (or Stevie) press the playback button that the superior quality of TDK AD-X becomes demonstrably clear. The brilliance you hear, resulting from the higher MOL and lower bias noise, will make it difficult for you to believe how much AD-X "improves" your deck. Extraordinary.

Of course, there's a solid reason why AD-X performs so brilliantly. It's TDK's Super Avilyn technology at work. You see, AD-X is the first normal bias audio cassette to use TDK's Avilyn magnetic par-

ticle—based on the same formulation that's made TDK the leader in audio and video tape technology.

Another advantage about AD-X is the housing it comes in. It's TDK's Laboratory Standard Mechanism, and it's protected by TDK's lifetime warranty. Extraordinary.

When you add it all up, what TDK AD-X gives you is the ideal audio cassette for all-round personal entertainment suitable for *any* cassette player. That's why Stevie Wonder chose TDK before we chose him. This, too, is extraordinary.

**TDK**  
THE MACHINE FOR YOUR MACHINE

# POWER AMPLIFIERS

(continued from page 50)

The McIntosh MC 2500 has power meters calibrated in both watts and decibels. A front panel meter range switch controls meter range sensitivity from -20 dB to 0 dB. For more information, contact:

McIntosh Laboratory Inc.  
2 Chambers Street,  
Binghamton, N.Y. 13903-9990  
Circle #048 on Reader Service Card

## PEAVEY M-3000™

Peavey Electronics' M-3000™ is a 19" rack mount version of their successful XC-400™ power amplifier which features 300 watts RMS into 2 ohms, DDT compression which automatically detects the onset of clipping at the power amp and a transformer balanced low Z input. The M-3000 also features forced air fan cooling, a massive multi-finned aluminum heat sink, and a louvered top panel.

Other features on the M-3000 include clipping/compression LED indicator, level control, and a tri-colored calibrated LED ladder display.

The M-3000 is an especially versatile monitor system power amplifier which performs equally as well in two or three-way system applications. The M-3000 has a suggested U.S. retail price of \$299.50. For more information, contact:

Peavey Electronics Corp.  
711 "A" Street,  
Meridian, MS 39301  
Circle #049 on Reader Service Card

## PHASE LINEAR A60

The Phase Linear A60 was designed to combine the quality of their consumer amplifiers with the reliability

required by touring professionals and recording studios. The amplifier is rated at 225 watts/channel into 8 ohms with no more than .05% THD or IM over the entire audible bandwidth. Mono bridged operation is also possible in the A60, which is accomplished by plugging the input into the "mono" jack on the back panel to yield 650 watts of power into an 8 ohm load. Inputs for either balanced or unbalanced operation are provided.

The A60's circuit design utilizes current sources to drive the output stage. Each individual stage was designed with linearity in mind, from the output of the differential front end through the unique common base amplification stages and on into the high current portions of the circuitry. This effort means less overall negative feed-

To professional users, the mechanical package can be just as important as the audio quality, especially after weeks or months on the road. The designers of the A60 have kept this in mind, and the amplifier uses a one-piece steel "U" chassis assembly which is securely bolted to the front panel to form a rigid main frame. The electronic layout is equally rugged, and all of the high power active components are located on four modules which may be removed from the rear of the unit without pulling the amplifier from its rack.

Other features of the Phase Linear A60 include front panel LED's to indicate thermal overload, signal presence, and "fault" (clipping, current limiting, fuse failure or other problems). The factory suggested price for the A60 is \$1,199. For more information, contact:

Phase Linear  
20121 48th Ave. West,  
Lynwood, WA 98036  
Circle #050 on Reader Service Card

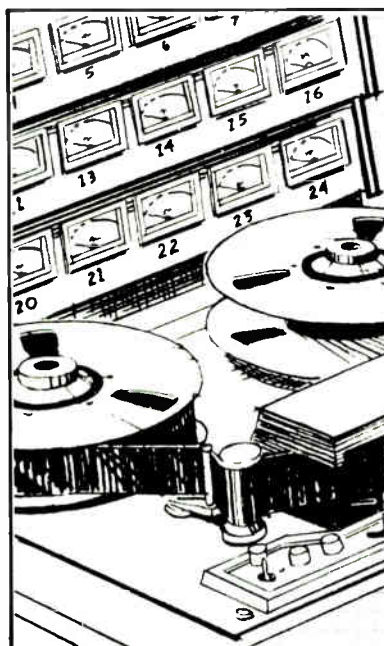
QSC Series 3, Model 3500.



## QSC 3500

The QSC 3500 is the top of QSC's all-new line of professional power amplifiers. The result of extensive research,

back is required to correct mistakes already made within the loop and results in clean and accurate audio performance.



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the model 3500 was designed to provide superior audio performance, reliability, flexibility of interface, and ease of repair. The amplifier delivers 275 watts/channel into 8 ohms, 400 watts at 4 ohms, and 600 watts (at 1 kHz) into 2 ohms. Bridged mono operation yields 550 watts into 16 ohms, 800 watts at 8 ohms, and 1200 watts (at 1 kHz) into 4 ohms. An Auto Backup™ feature in the bridged mode automatically switches the load to the remaining channel in the event of failure on one channel.

The model 3500 uses a complementary direct coupled output section together with the NE 5532 op amp front end for accurate reproduction and low noise. The amp's generous continuous output power combined with high dynamic headroom and the use of multiple parallel, low ESR filter capacitors contribute to an exceptionally tight bass response.

Passive cooling is used to reduce ambient noise and long term maintenance problems due to dust build-up. The model 3500 uses a two-step high efficiency output section, which cuts the unit's size and reduces waste heat by over 50%. The amplifier is a true dual mono configuration, down to the separate AC power switches for each channel. To minimize downtime, all electronics are built onto slide out modules, and a Flexible Internal Connector System (FLICS™) prevents contact damage from chassis vibration while on the road.

All front panel controls and indicators are fully recessed to protect them from damage and/or accidental disconnection and level changes. LEDs indicate power/protection status, signal level, clipping, and thermal warning. The back panel provides balanced XLR, ¼", barrier, and binding post connectors.

The QSC 3500 is priced at \$1,298 and comes with a 3 year limited warranty. For more information, contact:

QSC Audio Products, Inc.  
1926 Placentia Ave.,  
Costa Mesa, CA 92627  
Circle #052 on Reader Service Card

## ROLAND SPA-240

The Roland SPA-240 power amplifier was designed to work with the Roland Rack system, although it will perform well in many other sound reinforcement and monitoring applications. This stereo amplifier is rated at 120 watts/channel into 8 ohms, at a THD of less than .05%. In mono use the amp supplies 360 watts at 8 ohms.

The SPA-240 incorporates back panel attenuators to adjust the input level on each channel, and both balanced XLR and unbalanced ¼" input jacks are provided. Binding posts are supplied for speaker outputs, which are

# BRYSTON

## 4 BRYSTON

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Discover the advantages of the Bryston philosophy for sonic perfection and on-the-road reliability.

For further, more detailed information, and a list of dealers in your area, contact one of our Distributors:

**BRYSTON VERMONT**  
RFD#4, Berlin, Montpelier, Vermont 05602  
(802) 223-6159

**BRYSTON MARKETING LTD**  
57 Westmore Dr., Rexdale Ont., Canada M9V 3Y6  
(416) 746-0300

Circle #053 on Reader Service Card

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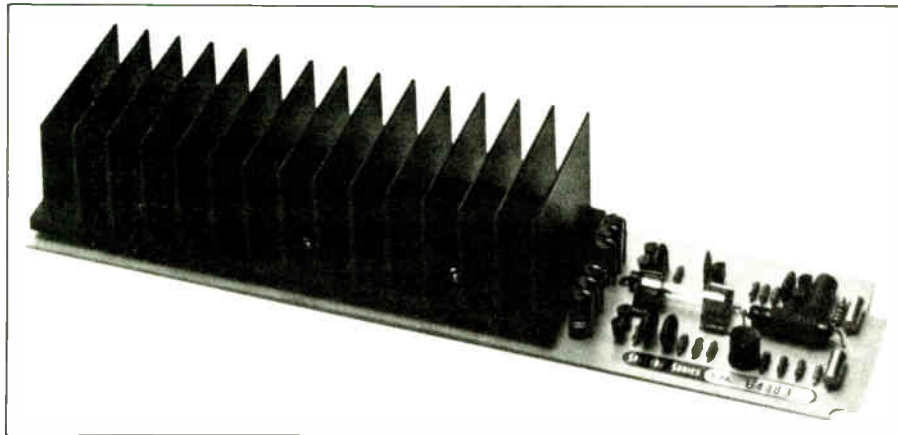
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405-946-9966 800-654-6744

instantly switchable from four to eight ohm loads.

The SPA-240 carries a list price of \$695. For more information, contact:  
Roland Corporation  
2401 Saybrook Avenue,  
Los Angeles, CA 90040  
Circle #055 on Reader Service Card

## SOUNDCRAFTSMEN RA7503

The Soundcraftsmen RA7503 is a unique power amplifier in that it incorporates a Real-Time Analyzer display



which shows output in discrete octaves, in 2 dB steps. Used in conjunction with the pink noise test record (included with unit), the LED bar graph spectrum RTA display can be an indispensable tool in component comparison, and in adjusting electronic crossovers, equalizers and signal processors.

This amplifier is rated at 275 watts/channel into 8 ohms, 375 watts/channel into 4 ohms, and in bridged mono, 750 watts at 8 ohms. These ratings are given over a 20 Hz to 20 kHz bandwidth with less than .09% total harmonic distortion. The RA7503 uses the new Soundcraftsmen VARI-PORTRIONAL® /AUTO-BUFFER® system which utilizes analog logic circuitry to sense and calculate the amount of voltage required in accordance with the amplifier's changing output level and to direct the power supply to make exactly that amount of voltage available. This system results in a cool-running amplifier, and improves overall reliability. This Class H design also reduces distortion. The Auto-Buffer circuitry controls low (2+) impedance operation, and enables non-current limited output when driving paralleled speakers and/or low impedance loads.

Other features of the RA7503 include true clipping indicators, power output display meters, and a special Auto-Crowbar® protection circuit. The Soundcraftsmen RA7503 has a list price of \$1199. For more information, contact:

Soundcraftsmen Inc.  
2200 South Ritchey,  
Santa Ana, CA 92705  
Circle #056 on Reader Service Card

# POWER AMPLIFIERS

## SPECTRA SONICS 701

Spectra Sonics is the originator of the modular approach to power amplifier design. Their model 701 DC amplifier delivers 80 watts into 8 ohms and is thermally stable with loads as low as 2 ohms. The unit's signal-to-noise ratio is given as 122 dB below 80 watts

### Spectra Sonics Model 701

at 2 ohms for an exceptionally clean sound.

The Spectra Sonics modular concept offers a great deal of amplifier flexibility. Two 701 amplifiers can be bridged for 160 watts of mono output. Their model 505 electronic filter was designed to work with the model 701 amps to allow bi- and tri-amplifier operation in 19 standard frequency values. The 701 and 505 models can be combined in almost any configuration by using the 202 PC card holder, a rack mount system which will accommodate up to 8 amp modules in a 3½" space. This modular concept has obvious advantages by increasing serviceability and reducing downtime. A rack mounted power supply for the modules is also available in several versions.

The Spectra Sonics 701 power amplification system has been used in recording studios and theatres worldwide. For more information, contact:

Spectra Sonics  
3750 Airport Road,  
Ogden, Utah 84403  
Circle #057 on Reader Service Card

## THRESHOLD S-500

Threshold Corporation began building innovative audio electronics seven years ago with the first patent on a dynamically biased Class A power amplifier. Later, in 1976, they patented the Stasis amplifier, a design which operates with much higher linearity than conventional gain stages. Their

current top-of-the-line Stasis amplifier, the S-500, delivers 250 watts/channel at less than .1% THD or IM distortion with a -3 dB power bandwidth from 1 Hz to over 100 kHz.

Stasis amplifiers operate by combining two power output stages in tandem, one of which is a highly linear Class A follower stage, augmented by a much more powerful Class AB current source. The circuit is designed so while both power stages look directly at the load, the quality of the performance is dominated by the Class A follower stage, while most of the heat dissipation is borne by the Class AB current source. The linearity of the Stasis output stage is such that the Threshold S-500 operates without a feedback loop, which results in improved audio performance.

The amplifier's construction quality is quite high, and features gold over nickel PC board construction, large toroidal power transformers, and heat sinks with thermal resistances as low as 1/10 degree per watt.

While most of Threshold's amplifiers are sold to the audiophile market worldwide, many have found professional applications, such as in the JVC cutting center, where they are used to drive the cutting heads, and in monitoring applications in recording studios.

For more information, contact:

Threshold Corporation  
1832 Tribute Road, Suite E,  
Sacramento, CA 95815  
Circle #058 on Reader Service Card

## UREI 6500

The UREI 6500 power amplifier is designed for demanding professional sound applications. The rugged, reliable and conservatively rated unit will deliver 275 watts/channel into 8 ohms with sound quality that will satisfy the most critical user.

UREI's amplifier design philosophy does not follow the usual "fix it with feedback" approach. Instead, they have developed an amplifier topology with relatively low loop gain which is highly linear without feedback.

Bridged mono operation is possible via a back panel switch for a 1200 watt output into 4 ohms. Input connections include XLR and ¼" three-conductor types. The latter automatically grounds one side of the differential input if a two conductor plug is used. Speaker outputs are heavy duty 5-way binding posts.

The model 6500 is fully protected against short and open circuits, and can handle highly reactive loads without difficulty. Relays guard the loudspeakers from abnormal low frequency transients, power surges, or DC offset. The amplifier also features UREI's patented Conductor Compensation, which elimi-

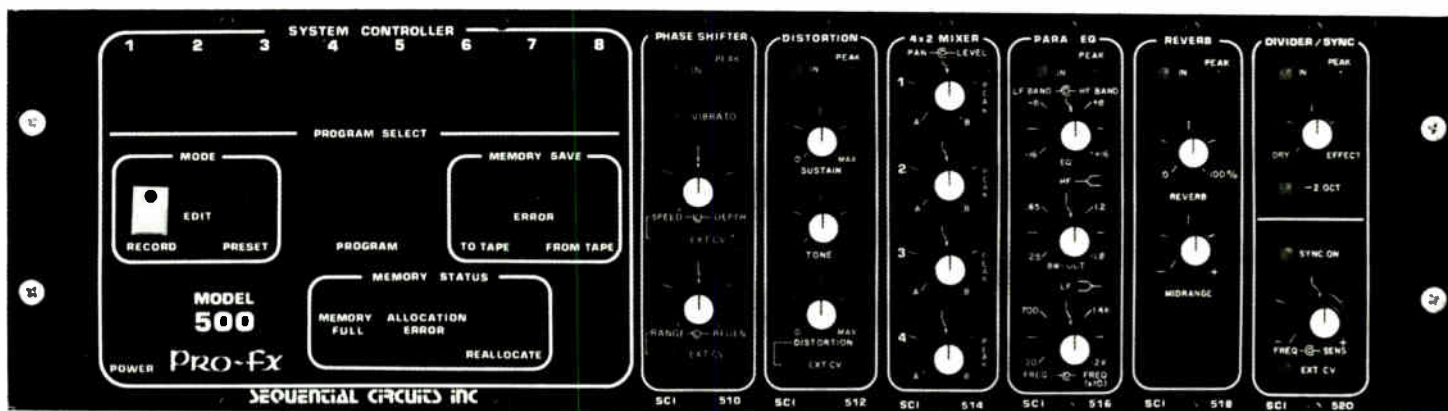
*(continued on page 56)*



# PROGRAMMABLE EFFECTS

The PRO-FX System from Sequential Circuits is the industry's first modular, expandable, rackmounted, completely programmable signal processing system that lets you:

- Pick the combination of effects you want. Six are now available: Phase Shifter, Distortion/Sustain, 4 x 2 Expandable Mixer, Parametric Equalizer, Reverb, Transpose/Sync, and, coming soon, a Flanger/Doubler. Many more modules will be available in the future.
- Program 64 different combinations of control settings.
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- Save sets of programs and program sequences on tape.



The Model 500 PRO-FX offers the flexibility and control of full programmability with the convenience of modular rackmount design. Each module is carefully crafted for studio quality low noise and distortion specs. Every knob and switch on each module is completely programmable, which allows complex control settings to be stored and recalled instantly at the touch of a switch. You no longer have to worry about reproducing a particular effects setting in the studio or on stage. Now you can consolidate all your effects and mixing into one concise package, and have instant control over complete sound changes while playing.

The Model 500 System Controller is a micro-computer designed to store in memory 64 knob and switch settings for up to 30 effects modules using up to 3 expansion chassis. The System Controller will also allow you to preset sequences of program changes, actuated by the footswitch (for live performance) or tape track (for playback/mixdown).

For more information, see your dealer, or write Sequential Circuits, 3051 N. First St., San Jose, CA 95134 (408) 946-5240

## Pro-FX

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**Phase Shifter (Model 510)** uses low-noise circuitry and a 4-stage phase shifting network. Besides speed, depth, and range controls, the regeneration knob controls the depth of the effect from very mild to intense. (External speed and range switches allow pedal or voltage control of sweep and range.

**Distortion (Model 512)** allows independent variable control of sustain and distortion, from completely clean sustain with no distortion to maximum distortion with a minimum of sustain.

**4 x 2 Expandable Mixer (Model 514)** has four inputs with level and pan controls. Maximum gain can be set from 20 to 40 dB via the internal trimmer on each input channel to accommodate both line and instrument level signals.

**Parametric Equalizer (Model 516)** is a 2-band, fully parametric, overlapping range equalizer with switchable peaking or shelving operation; any number of these units can be placed in series to obtain as many bands as required.

**Reverb (Model 518)** is a very smooth reverberation unit using a 6-second delay line and active limiting to eliminate spring side-effects. This module also has a sophisticated EQ which sets bandwidth and tone of reverb signal.

**Transpose/Sync (Model 520)** provides many synthesizer effects for other instruments. It will track a note one or two octaves below the original pitch as well as a separate note from an octave below to an octave above. The upper voice can be "hard synced" to the original voice or one octave below. The upper voice can also have its pitch swept up or down by a sweep triggered on each new note; this gives the "sweeping sync" tone used on many keyboard synthesizers.

Coming soon - **Flanger/Doubler (Model 522)** an analog delay in two ranges designed to cover both flanging and doubling effects.

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World Radio History

## POWER AMPLIFIERS

(continued from page 54)

nates cable resistance, and inductive and capacitive reactance by including speaker leads in the amplifier's main feedback loop.

Two separate amplifier modules, each of which plugs in from the front of the chassis, may be changed in the case of field problems in less than a minute. This can be accomplished using only a phillips screwdriver, and can be done without turning off the other channel or removing the amplifier from the rack.

The UREI model 6500 has a suggested user price of \$2,196. For more information, contact:

United Recording Electronics  
Industries  
8460 San Fernando Road,  
Sun Valley, CA 91352  
Circle #061 on Reader Service Card

### YAMAHA P-2200

The P-2200 is Yamaha's top-of-the-line professional series power amplifier, which is rated at 200 watts/channel into 8 ohms from 20 Hz to 20 kHz, with less than .05% total harmonic distortion. The P-2200 is also available as the P-2100, which is identical, but lacks the power output meters. The amplifier is rugged enough for road use and is well suited for either studio or sound reinforcement situations.

The amplifier's back panel is neatly laid out, and includes 1/4" input jacks as well as XLR male and female inputs. An input phase-reversing switch is provided, as are accessory outlets for low-power fans. The speaker output terminals are standard five-way binding posts. The front panel features recessed controls for AC power and input attenuators calibrated in decibels. An LED warns of thermal overheating *before* the thermal protection turns off the AC power.

A high damping factor of better than 300 at frequencies below 1000 Hz reduces the tendency for speaker cone overshoot, giving tighter and better defined bass response. On the other end, the P-2200's high frequency response goes above 100 kHz. Even when the amplifier is connected to highly reactive multi-speaker loads, there is no tendency to shut down or begin spurious oscillation. When operating in a bridged mono mode, the amplifier's output is 400 watts into 16 ohms at less than .05% THD from 20 Hz to 20 kHz.

The Yamaha P-2200 is priced at \$1,295. For more information, contact:

Yamaha International Corp.  
Box 6600,  
Buena Park, CA 90622  
Circle #062 on Reader Service Card

**T**he way in which a studio manager decides to employ his or her engineering staff will depend on many things: the studio location and size, the type of client, the availability of engineers, the size of the payroll budget, the local tax structure, etc. The options on personnel vary from using nothing but independents to a fully staffed union shop. The choice of which is best for any given situation is important. Each option has its built-in advantages and disadvantages.

Let's start with the studio with no engineering staff at all. As with any extreme, the success of such an operation is limited to a few select cases. The studio depends on a group of independent engineers who, for whatever reason, like to work in that particular facility. Furthermore, these engineers must know the room and not need the services of a second engineer. The studio basically depends on the independent engineers to bring in their clients.

The obvious advantage of this system is that the studio has a very small payroll. In lean times, cashflow is thus less of a problem. These reduced expenses can be passed on to the engineer and client. The client gets cheaper time and the engineer can charge more per hour than he or she might get otherwise. It also allows the engineer more freedom in both scheduling and charging for services. The hungry mixer can work more hours for less money and build up a clientele; the golden ears can charge all that the market will bear.

This setup is not without its disadvantages. Some clients would rather not have to negotiate with an independent engineer. They want to pay their money and have the studio take care of everything else. Maintenance can also be a problem. The independent engineer can hardly be expected to take care of major maintenance problems. They may not even bother to do preventive maintenance or report problems fully. Further, without a staff second engineer to oversee operations, accidents like the cola in the console are apt to occur. Lastly, the independent engineer's loyalty is to the clients, not to the studio or its equipment. Thus, that engineer is more likely to follow the client to another studio if the client so chooses.

A variation on the totally independent staff is to pay the engineers a retainer or finder's fee for new clients or large projects brought

## In **VS** Independent House Engineers

by Dennis Buss and Chris Haseleu

to the studio. A note of caution in regard to finder's fees. Kickbacks are not only unethical but may constitute fraud. Finder's fees should either be taken from the general studio budget or the clients should have a clear understanding that a portion of their payments is going back to the engineers.

A more popular staffing arrangement is to keep a staff of second engineers to support the independents. This has most of the advantages of the prior arrangements with few of the disadvantages.

Staff second engineers need not be paid at the rate of first engineers, thus keeping the payroll cost down. At the same time, they provide a pool of workers who know the rooms and equipment and can be expected to help maintain them. The second engineers can also work in other areas such as tape copying when not needed in the control room.

Clients can still bring in their own engineers. With a knowledgeable second to help, the independent will waste little time becoming accustomed to the room and console, etc. A larger number of independent engineers and their clients can be attracted in this way. The clients' costs can also be kept down. The mere fact of a smaller payroll should reduce per hour rates. In some cases, the clients are charged for the services of a second only when requested. When the independent becomes familiar with the room, he or she can reduce the cost by not requesting a second. Some studios require a second at all sessions to protect against the cola in the console syndrome.

Second engineers generally want to become first engineers. When the client does not have their own engineer, the second can often be given a temporary advance in grade and pay. Eventually when he or she develops enough confidence and clients, they too can go independent, hopefully returning with their clients to the home studio.

Next, we have the traditional in-house engineering staff. This is

becoming less common in the larger markets, but is probably still the way to go in the smaller ones. This represents a larger payroll for the studio to keep. To balance this, the in-house engineer can be expected to know the room and equipment intimately, as well as be able to do maintenance work. Finally, the clients who want to work with that engineer must use that studio. The client benefits by having an engineer who can be expected to work quickly and get the most out of the available equipment. The cost to the client for an in-house engineer will usually be less than what would be paid for an independent. The reputation of the studio and its engineers are intertwined and, hopefully, help to support each other.

Having an in-house first engineer does not, of course, preclude using independents. Since no one engineer can be expected to work 24 hours a day, using a combination of in-house and independents can be beneficial to all concerned.

The last staffing set up is at the other extreme. This is the fully in-house operation. In most cases, such a setup, is dictated by a labor union. Such an organization will, undoubtedly, be the most expensive for both the studio and the client. On the other hand, the operation is more likely to be thoroughly professional. Every person will have a job and every job will have a person. Undoubtedly, there will be plenty of maintenance support. The engineers can be expected to know the studio intimately. But, as in the first extreme case, such a setup will only work in certain limited areas of the country.

Whichever way a studio is staffed, it is important to keep in mind that the best engineer can cut gold on the worst equipment and the worst engineer can cut garbage on the best equipment. The human resources of a studio are very important. Reducing expenses by cutting quality in the engineers will cost the studio in the long run. ■

# VIDEO NEWS

by Mia Amato

## **CABLE UPDATE: MUSIC CHANNELS GROW**

Move over, MTV. Inner City Broadcasting is launching a new cable satellite channel featuring black and R&B music and entertainment. The **Apollo Entertainment Network**, as it's called, is the brainchild of Percy Sutton, disco radio station magnate and owner of the now refurbished, historic Apollo Theatre in Harlem. The service will run six hours each night and will debut in October over Satcom IV.

Sutton says the service will be offered free to cable system owners; national advertisers, including beer and cosmetics companies, will finance the production and acquisition of programs featuring black acts. "We'll be doing about 50 percent original programming," he says, "promos will fill the schedule out in the early stages." Sutton says he plans to do live and taped programs from the Apollo theatre stage. There will also be archival films of the great black entertainers of the past, and performances by such groups as Dance Theatre of Harlem and the Alvin Ailey dance company.

Inner City Broadcasting paid over 10 million dollars to get its transponder space, but Sutton is enthusiastic about support from the cable and entertainment industries. Black stars Garrett Morris, Diana Ross, Nipsy Russell and Roberta Flack agreed to appear, for free, in a twelve-minute demo cassette Sutton is using to convince cable system owners to run his channel. The cassette, created by **Jay Dubin**, was a big hit at May's cable industry trade show and is a big reason why Sutton will be starting his channel this fall in at least one million cables homes.

The **Video Music Channel** is also flexing its muscles in the cable industry. This non-satellite promo-only channel is expanding to coverage of local music news and local acts in at least one of its affiliated systems, **Cable America in Atlanta**.

"Atlanta's best concert and club acts will appear," according to cable system owner **Noel Bambrough**, "It will boost Atlanta area performers." **Rick Melchior**, who will be handling programming in the Atlanta system for Video Music Channel, affirmed that his company would be equipping a soundstage for local production. Two regular features, he adds, will be a nightly update of local clubs and "at least one live concert from a local popular performer each month."

## **IS DISK DYING OUT?**

Expect another delay in the introduction of the high-fidelity VHD disk player as manufacturers of this third vidisk format reflect on slow sales of the laser and CED systems this year—less than 160,000. In most major cities RCA's Selectavision is now selling for about \$250, half its price a year ago. Meanwhile videotape recorders are selling well above projections, thanks to widespread cheap rentals of pre-recorded tapes. How can disks selling at \$19.95 compete with tapes renting for as little as \$3.00 a week?

We've noticed several small independent audio labels eschewing vinyl altogether and releasing new wave music on audiocassette *only*. Some audiophile labels are doing the same. Video music producers should give up the fascination with this twelve inch iridescent dream and seek to distribute on tape—in stereo. The release of "Star Wars" on stereo VHS this summer is sure to spark sales and continued development of stereo, high-fidelity VCRs.

## **VIDEO SESSIONS**

**Mobile Television Services** of Boston handled all location recording for "Jazz at the Smithsonian," a Washington concert series taped by Adler Enterprises for the home and cable markets. Veteran director **Clark Santee**, whose credits include the PBS "Wolf Trap" concert series, intermingles live concert footage and backstage interviews with Alberta Hunter, Joe

Williams, big band leader Mel Lewis, drummer Art Blakely and other jazz greats.

Al Di Meola's "Live at the Savoy" video concert was completed at **National Video Center**; engineer Roy Yokelson mixed down 24 tracks to time-coded video for this stereo tape. Yokelson used the company's custom "Q-Lock" synchronizer to mix and sweeten "Claude Arrau in Concert," taped by **Robert Snyder** in Venice and destined for videodisk release.

A concert video by the band **Triumph** was recently completed by **E.J. Stewart Video**, Philadelphia. You've heard of A-B roll, filmstyle editing? Up-and-coming promo director **Jay Dubin** edited the six camera shoot in an A-B-C-D-E-F roll to get a "live" feel to the video mix.

**Teletronic's** Center Stage Studio in New York may become the permanent home for Warner's **Music Television**. MTV moved into the facility to "try it out" and recently inked a contract to stay through January 1983. The satellite music service shoots around 100 minutes of wrap-around footage there daily, including video DJ intros and celebrity interviews.

## **SUMMER READING LIST**

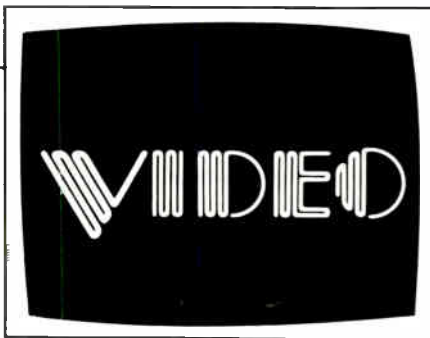
Practical guidelines for using EBU/SMPTE time code in audio and video recording are discussed in a comprehensive booklet on the subject available free from **EECO, Inc.** The company, as you might expect, makes and sells time-code equipment and has provided the industry with an easy-to-understand description of time code and its applications to editing and synchronization. Contact **EECO Inc.'s** Video Products Marketing department at 1601 East Chestnut Avenue, Santa Ana, CA 92701.

You may also want to browse through **Don Nelson's** directory of video music programs, the first attempt at logging the increasing numbers of programs available on cassette, disk, and television. The \$3.00 publication covers blues, rock, jazz, and country and is available by mail from 727 Caliente Avenue, Livermore, CA 94550. ■

by Neal Weinstock

The studio scene in New York, after so long and precipitous a decline, is finally expanding again. Maybe "expanding" is the wrong word—it's booming, actually. "Studio" is also a carefully chosen word, because the direction of the future here, as everywhere, is in hybrid audio and video and film recording facilities. For one last bit of verbal nit-picking, "hybrid" may be a misnomer, too. Certainly the first audio/video studios were, and remain, hybrids. But the newest—like National Video Center, the latest studio to open in New York, is conceptualized centrally, to record images or sound or do post-production of any sort at the same time, in the same place, equally well. That's the ideal, anyway. "Everything that rises must converge," said Teilhard de Chardin, and so that's the ideal being converged upon.

We converged upon National Video Center recently, to find a facility as large as one of the major networks', and more tightly put together and run than we've seen in one of those. We happened to converge on them at the same time as did director Sydney Pollack, Dustin Hoffman, and the crew of "Tootsie." Though the movie crew usurped



**INTERFACE**



National's reception area (to play the part of a TV studios's reception area), we managed to squeeze by to interview marketing vice president Bill Kelly, chief video engineer Herb Ohlandt, "Videmag" proprietor Dick Mack, and to generally nose around.

The facility features two large sound stages in its two-story high first floor, fashioned out of the waiting room of the former West Side Airlines Terminal. TV 1 is 4,000 square feet, TV 2 is 2,000. The larger studio has direct street access. Surrounding these two rooms, on the first floor and on a second story catwalk, are control rooms, dressing rooms, a green room, showers, some offices and conference rooms. The top floor is dedicated to post-production, with a master control room located in the center, flanked by relatively interchangeable editing and mixing and dubbing, color correction, film chain, duplication rooms, and more offices. Also on the third floor is the Videmag set-up.

In other words, those studios on the first floor, and their support network, are spacious (for New York) and superbly functional—but it's upstairs that two philosophical approaches to the studio biz vie with each other for the heart of

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National. One is that master control room, the other is the equally unusual Videmag.

The master control allows any equipment at National to be interfaced with any other, anywhere in the building. This sort of flexibility not only means full utilization of the facility, it means National can adapt to any technological advances as soon as they come along. Also, video, audio, and film can be worked on separately or together, almost anywhere the client feels like working.

This is basically a video post-production area, though, the audio rooms being off to the side of that ten room central core. This group of three triads of rooms (nine in all) around the master control is the baby of video engineer Herb Ohlandt. "Herb used to be with ABC," explains marketing VP Bill Kelly, who was also. "He was so good they kept trying to kick him upstairs into management. We'll never make that mistake. His heart is with that equipment, and we just try to give him everything he wants."

Herb and National were getting first crack at the new RCA studio camera TK 47 BEPT while we visited. National was among the first places in the country to have the Grass Valley Mark II Digital Video Effects (DVE) Generator—and

they now have two! This is as much due to Herb Ohlandt's reputation as to National's owner's ability to make quick decisions, even about such large scale finance.

Ohlandt's design includes a routing switcher in the control room, eliminating patch panel spaghetti. One triad of rooms houses a Datatron Vanguard one-inch computerized editing system, complete with Chryon, Grass Valley Switcher, Electronic Memory, and one of those DVEs. The new Quantel Mirage digital effects generator was also here, for Ohlandt's evaluation, while we were. All of this is in Edit Room A, which shares a flexible room with the third room of the triad, Edit Room C. C houses CMX editing, with a Grass Valley 300 Switcher, and is quite large, good for "show" editing.

The second triad is made up of a color correction room, telecine (film-to-tape) room and kine (tape-to-film) room.

The third triad includes a duplication room, one for animation, and free space for a future editing room. Off to the side is the film mixing theater and a series of audio studios.

National began as a small audio studio, founded by its present co-owners Irving Kaufman and Hal Lustig. Kaufman, an audio engineer for 40 years, was chief engineer at Audio-Video

Studios. When A-V closed in 1959, he and Lustig bought the business, and turned it into National Recording Studios. The new company was located as before (until a year ago) in rather small quarters at 730 Fifth Avenue. The space may have been fine for making some records and a lot of radio commercials, but for the last eight years there, National was perforce moved into video—and for the last two years there, Lustig and Kaufman were searching for a location in which they could expand the way they saw the business expanding—toward video. They found it in an old airlines terminal. But they knew, when making the move, that the old business's customers probably would not continue with the new National Video Center.

"We have to concentrate on video here because of the investment," says marketing VP Bill Kelly. "We do audio for its own sake, and emphasize quality audio for video... because having been an audio studio, we have that continuity... But we knew our old clients would not continue with us after the move—we felt we would lose that business."

He continues: "There's now a growing comprehension on the part of advertising agencies, who are our clients, that audio is important."

Here is where Videmag comes in. Developed by Bob Fine of Magna Tech, with electronics supplied by National, Videmag is a sprocket-driven videotape recorder. The system can be synced with double system film-sound just as 35 mm film is. It may not be high tech, but it is accessible to people with film editing experience, and price/performance can be better than standard, electronically edited video. No, Videmag may not be the wave of the future, but it is an efficient transition to it.

The transition is coming faster than anyone at N.V.C. believed before their move: "We were totally without any expectation of the speed of the growth of cable," says Kelly. "We were lucky to be ready for it just when we were." National's planners envisioned their facility phasing into mostly commercial work. There has been plenty of that, accompanied by some work with Warner's cable ventures, then HBO. Then CBS wanted to book a few months of work for their cable production, even before National's large TV 1 was built. They built the studio in a month, CBS moved in, and Hearst/ABC moved in to stay when CBS moved out. Cable production scheduling at National has been looking, from the beginning, like New York City's apartment squeeze.

Speaking of which, the whole neighborhood around them is blooming now, too—with N.V.C. as one of its anchors. ■

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# QUINCY JONES

## *Musical Sculptor*

by David Schwartz

"It's like sculpting; you start with the raw clay and you shape it. First you draw a picture in your head from your feelings and impressions of all of the principles involved. Then, from that picture, you shape the sound." This is how Quincy Jones describes his function as a record producer. And as musical sculptors go, he is one of the best, with a lifetime supply of critical acclaim and popular recognition.

1982 has been an especially rewarding year for Quincy. Voted Producer of the Year by the National Academy of Recording Arts and Sciences, 'Q' walked away from the awards program with seven Grammys. His album, *The Dude*, scored five of those, after being nominated for twelve... better than any album has done in the history of the Grammys. And though some might see these distinctions as a career peak, Quincy keeps plowing ahead... making his current project the best he has ever done and planning for better in the future.

At this early June writing, Quincy is deeply involved in two album productions. A followup to their *Off The Wall* album that sold eight million worldwide, the new Michael Jackson album has been a double treat for Quincy. He always enjoys working with Michael ("He's professional, he does his homework and he's always on the case,"). And the extra treat is that Paul McCartney joined in on parts of the album. "Paul was an absolute dream to work with. He's right on top of it, like Michael, in the studio," notes Quincy. "Michael and I went back East to Paul's ranch for 2 days to work on the song. It was relaxing and we had a wonderful time. Linda made us feel like part of the family. After we finished with the parts for Michael's album, we all went over to Cherokee (Studios, in L.A.) and put parts on Paul's new album." Some of those sessions even saw Quincy and his long time engineer Bruce Swedien joined behind the controls by former Beatles support team George Martin and Geoff Emerick.

His 'other' current project is no slouch either. It's Donna Summer's comeback album, with a special guest appearance by Bruce Springsteen. Says Quincy, "Working with him felt so natural. He's the most unbelievable guy in the studio... one of the nicest people I've ever met in my life. He gets to the session an hour early—he beats the other musicians to the date. He has all of the synthesizer stops written down, and optional sets of lyrics. And then he's the last guy to leave!"

Working with major talent has been a mainstay since the early days of Quincy's career. Born in Chicago in 1933 and raised in Seattle, 'Q' cut his teeth on bebop. By the age of

fourteen he was playing steady gigs around Seattle with his sixteen year old buddy, Ray Charles. "I got out of Seattle first," he says. "You know how everybody likes to get out of their home town, and then tell everyone about this dude at home that's the baddest cat that ever lived? Well, Ray was the cat I was telling everyone about. And about a year later I didn't have to tell people any more." Shortly after that, Quincy provided the arrangements for Ray's first album, *The Genius of Ray Charles*.

By the time he was sev-

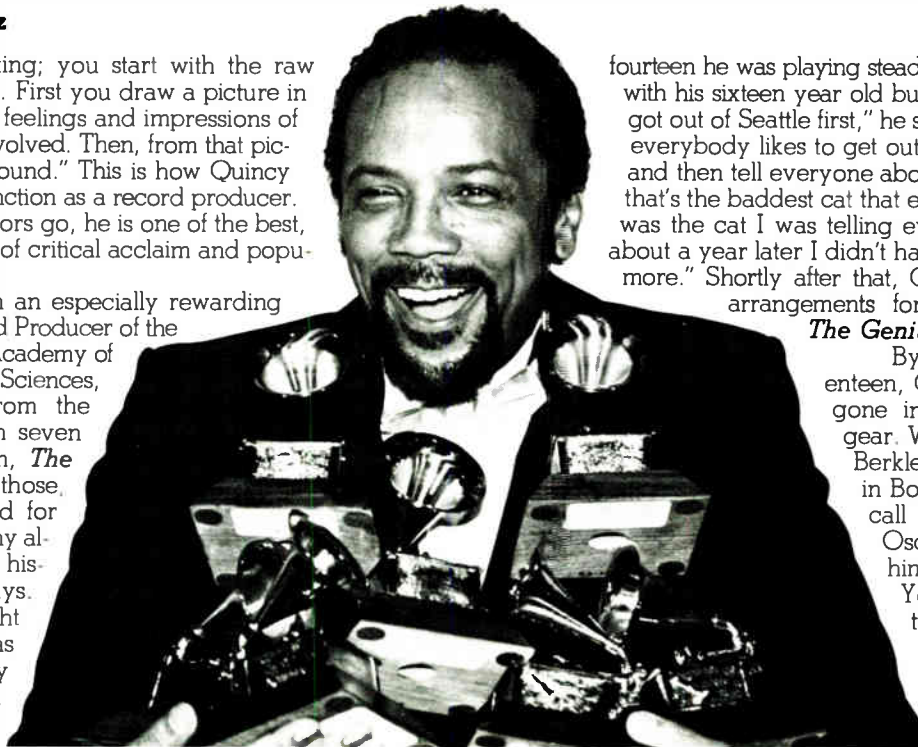
enteen, Quincy's career had gone into permanent high gear. While studying at the Berklee College of Music in Boston, he received a call from band leader Oscar Pettiford, asking him to come to New York to arrange some tunes for an album. This was in 1948 and Quincy soon found himself in the middle of the elite bebop sub-

culture, a tightknit group of musical progressives which included Miles Davis, Charlie Parker, Thelonious Monk and Art Tatum; who seemed to operate in their own futuristic world. Reflecting on those days Quincy says, "I've been blessed just to have been a spectator to that subculture, which became the blueprint for the youth of thirty years from then. Charlie Parker and that group on New York's 52nd Street in 1948 formulated that blueprint; the slang, the lifestyle, the attitudes... and unfortunately the same attitudes with dope. They did it all back then, and most of the youth in the world today have been influenced by them. That's why I don't have trouble relating to my 28 year old daughter."

By the time he was eighteen, 'Q' was back on the road with Lionel Hampton's band and his first tour of Europe. After that stint it was full steam back into the studio, arranging, composing and later producing for the musical ruling class: Count Basie and Duke Ellington.

In 1957 he moved to Paris to become Musical Director at Barclay Disques, the leading French record label, and over the next four years recorded the best of Europe's musical talent. His prolific album productions increased when he moved back to New York and by 1963 he had expanded into film scoring. He specialized in this area for the next six years, winning four Oscars and four Grammys (to date) for his soundtrack work.

Quincy signed as an artist with A&M Records in 1969, bringing with him a career total of 15 Grammy nominations. The records which followed broke new ground in instrumental composition and crossover appeal. Albums like *Smack-*



ABOVE PHOTO: Quincy picking up seven Grammys at the 1982 award ceremony.

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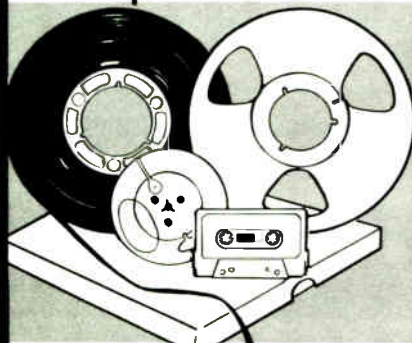
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# QUINCY JONES



Working out parts with vocalists Patti Austin and James Ingram.

*water Jack*, in 1971, and *Body Heat*, in 1974, defined Quincy's own brand of jazz fusion.

Following a near fatal bout with neural aneurysms, in 1974, Quincy renewed his efforts, concentrating on developing artists like The Brothers Johnson, Michael Jackson and George Benson, and running up a string of nine platinum selling albums. In 1980 he formed his own label, QWest Records, with George Benson's *Give Me the Night* as the label's debut.

*The Dude* was "Q's" last contractual album for A&M. It could have been just a quickie, get-it-out-of-the-way kind of record. He tells it this way: "I had two choices. In that kind of situation the first instinct is to turn anything in and hope that they (the label) won't release it... just to get out and go to your new deal. But inside something says, 'Hey, your name is on it and you've got to give it the best that you've got.' I think it's a bad habit to ever get used to doing something half way. It's very dangerous. So when the album finished the way it did, I slept very well... very well. I still believe that if you empty your cup every time, it will come back

twice as full."

A true musical cornucopia, *The Dude* also serves as a talent showcase featuring the deliciously uncompromising vocals of Patti Austin and "Q's" latest discovery, super singer James Ingram. "Q" has big plans for James. "I've been waiting for him for twenty years. He's just my favorite kind of singer... he can do everything musically, he's got originality... and he's got this special thing as a human being that is even as strong as his talent. The connection was overwhelming."

Quincy first heard James on the demo for the song *Just Once*, written by Barry Mann and Cynthia Weil. The veteran songwriters had taken the demo to Warner Records producer Russ Titleman, who told them, "Quincy's got to have this. Take it right to him." Russ' instincts proved more than fortunate for his old friend Quincy, as the tune went on to become a Grammy nominee for Song of the Year, as well as be the opening musical selection for the 1982 Grammy telecast.

Although James Ingram has yet to make his solo album debut, the strength of his singing on *The*



*Dude*—particularly on *Just Once* and *One Hundred Ways*—has opened the door to a tremendous audience for his songs. Quincy plans to begin recording James' album late this summer.

At about the same time "Q" is looking forward to another labor of love. "Stevie (Wonder) asked me to produce a single with him and Ray Charles. And I think we're going to do it in September. We've been talking about it for a long time. But they're busy guys, you know?"

The Ray Charles influence has helped to build Quincy's values and judgements as a producer as well as a musician. "Ray told me that every kind of music has its own soul. When you are being true to the music, you can go to the core of it and it will be real." This kind of orientation also nurtured an appreciation for a broad pallet of musical colors. "I love classical music, I adore John Philip Sousa's orchestration, Bartok, Bo Diddley, Bird... the menu's too big to say 'I want just that.' And you cannot condescend to music and still make commercial music. Because people pick up on the love and sincerity that goes into the music. I think that's half of what commerciality is."

Quincy's productions begin with the song. "The song kind of dictates to me what musicians to use, how it should be recorded, what singer to use. And as a producer you have to be constantly aware that there are thousands of elements that can go wrong, the key can be wrong, the textures, the way it is being recorded, the singer, the arrangement. Before I go into the studio, I have a pretty good idea of what everything is going to sound like in the final stages. I try to keep the truth of the song as a light in front of me."

For the past 23 years Bruce Swedien has been Quincy's engineering partner at the board. According to "Q," "I don't get into the frustration of being half producer/half engineer. I don't think about the board because I've got an expert right next to me. I just tell Bruce what I'm going after... and it's there! And if it's not, we talk about it and we get it. And we always get it. I think Bruce is the best engineer on the planet."

Quincy feels that in many ways he and Bruce have the same kind of background. "He's had experience in all kinds of music. He was with the Chicago Symphony for eleven years. He worked at Chess Records with Willie Dixon, Natalie Cole, Earth, Wind and Fire... he did *Duke of Earl*... *Big Girls Don't Cry*. We started out working together with Count Basie in Chicago, when he was at Universal. We do

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# QUINCY JONES



our films together, too. Bruce does the prerecord, the location shooting, the post scoring, the film dubbing... and the album, too."

So what does Quincy think about the future of the industry and the plight

of the record companies? "I think technology got us into this trouble and technology is going to get us out. I remember in 1962 or '63 I was in Hinehoven, Holland, as an executive of Mercury Records, which was a part of

Phillips of Holland. A man there showed me the prototype of the first cassette. It didn't really mean anything to me then, but it left an unforgettable impression. And now you see it everywhere in the world. Technology is a two-edged sword. But I think it will get us out of the low phase we are in. There are a lot of great minds out there that will figure things out. We have a lot of incredible things to look forward to... holography, bio-images... I think its going to be a very exciting future.

"I've seen a lot of ups and downs in this business, and this will pass. We'll get scars, but we'll come out stronger. You need to squirm a little bit, get pushed in the corner a little... just to make everyone work a little harder. There was a lot of bullshit in the business that's gotten shaken out.

"The new singers and writers just have to keep on doing their thing, because no matter what new technology comes along they still need a melody, a lyric and they need a story with a beginning, a middle and an end... and not necessarily in that order." ■

## AD INDEX

Page #		Page #		Page #	
28	Alpha Audio	63	New World Audio	32	Sonic Landscapes
65	Ampex M.T.D.	53	Octave Audio	B/C	Soundcraft
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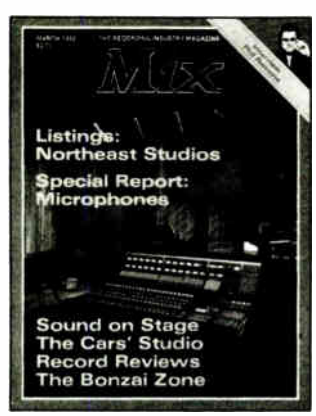
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# Artist Studios

## Willie Nelson's Pedernales Recording Studio



PHOTO: KENNETH GEIGER

by David Gans

Willie Nelson's "home" studio is located in the clubhouse of the Pedernales Country Club in Spicewood, Texas, about 30 miles west of Austin. The Pedernales Recording Studio is informally known as "Putt 'n' Cut" because of its proximity to Nelson's private golf course and the fact that the red-headed stranger seems to love golf almost as much as he does music.

"Willie cuts the fastest albums I've ever seen," says designer/builder Tom Irby of Nashville's Studio Supply Company. "Three days after we finished wiring the place, we cut something like 22 sides. He knows what he wants, and when he gets the feeling of it, he goes for it."

The studio was designed by Irby with the consultation of Chips Moman, who produced Nelson's latest album, *Always On My Mind* at Pedernales and at his own studio in Nashville. The main room is L-shaped, 35 feet on each leg, with 22-foot ceilings. The control room is 22 feet wide and 26 feet deep. "Willie being a Texan and everything, there's a trap in the ceiling in the shape of a giant star," says Irby. "It's a pretty dead room, because there's not going to be a lot of rock and roll done there, nor string work—even though it'd be a good string room. It's just for Willie and his friends to use, and that's the kind of sound his music needs."

Larry Greerhill, who came to Pedernales as a Studio Supply employee to install the equipment (with Studio Supply General Manager John Alderson) and stayed on as engineer/manager, points out that the studio's outboard-equipment complement is modest compared to commercial studios. "We don't use that much signal processing for Willie's music," he says. Pedernales has a full Scamp rack, a Lexicon 224, Prime Time DDL, Vocal Stressor, a large Ecoplate, an old EMT stereo plate, and one live echo

*Above: The artist's lounge at the studio.*

chamber. A 48-slot Dolby mainframe is used primarily for dbx noise reduction, but there is also a full set of Dolby cards.

The console is a 48-input Harrison MR2; a pair of Ampex ATR124s are linked with EECO SMPTE. The two-track machines are Ampex ATR100s, one half-inch and one quarter-inch. Control room speakers include Westlake and Ed Long MDM4, with JBLs in the studio; all are powered by McIntosh 2500s and 2300s. BGW amps power the cue system. The studio's microphone selection is "pretty much what every studio has," says Greenhill: Neumann, AKG, Sennheiser, Crown PZM, Shure, etc.

Among the house instruments is a 1956 Hammond B-3, which was found after a months-long search. "It's in perfect shape," says Greenhill. "The lady who owned it had only moved it once, from her daughter's house to hers." Pedernales also sports a brand-new Bosendorfer grand piano; Rhodes and Wurlitzer electric pianos; an eight-voice Oberheim synthesizer; and a Linn Drum Computer. "We don't use 'em much, though," says Greenhill.

Nelson apparently has no plans to operate the Pedernales Recording Studio as a public facility. "Sometimes he invites local musicians to come and use the studio," says Greenhill, "but it's mostly his songwriter friends, people he's known for a while." Nelson owns the entire country club, which includes condominiums for staff, band and visitors.

Irby points out that the studio has plenty of room for video work, but the emphasis is on the music at Pedernales Recording. "He's got the Opry House in Austin, too, and that'd be the place to do video," says Irby. ■



# SPYRO GYRA

by Bruce C. Pilato

Jay Beckenstein, leader, songwriter and co-producer for jazz group Spyro Gyra is obviously doing something right. He's not really sure what it is, but he plans to keep doing it because his group sells millions of records, gets airplay all over radio and television, has won countless awards and praise from critics, and sells out nearly every hall they play. Not bad for a guy who, just five years ago, was a struggling sax player in Buffalo, N.Y.

The 30 year old native of New York City, who settled in Buffalo after attending college there, isn't sure why his group, his music, and his production have become so successful when other more established jazz artists have never been able to make a dent in the album charts. "I don't really have an explanation," he told me recently while on tour in Florida. "I've thought about it. For one thing, there are jazz players that perhaps are a little older than I am, who grew up in a slightly different era and started out with Be-bop and the traditional mainstream jazz and then later on said to themselves, 'Well, I have to make a commercial record because I need dough. And there's something a little bit contrived about that. Whereas we never changed from anything to this. This was our musical direction from the start.'"

"I like to think that the one thing that Spyro Gyra has that's very strong and has made us very popular is good, listenable material. A lot of our material has very catchy melodies and catchy rhythms and a lot of it has a very happy-go-lucky sort of spirit to it." In the beginning, however, not many individuals in the record industry could see this. Beckenstein and

Wall's musical optimism, initially, was met with stern refusals and it was those denials that fueled Beckenstein, Calandra and Wall to produce and release the initial album themselves.

"The way it worked out in the beginning was that Richie (Calandra) and I had always wanted to get involved in recording and we got this really great studio deal early on where we were renting a 16 track studio for almost \$100 a day because we would lease ten days in a row and we had to pay it all out front. But it gave us a chance to get in the studio and start working on things before we even considered putting out records for commercial purposes we were just having fun recording music, recording our friends and recording ourselves.

"Now what happened," said Beckenstein in recollection, "is, when you've got 10 days in a row and you're doing all these projects, you end up with a lot of free time that's not being used. So, Jeremy and I, who were the people involved with Spyro Gyra at the time, would go in the studio at night and use that unused time to do our own little personal type things that were primarily instrumental and generally become Spyro Gyra." By the time Cross Eyed Bear Productions had run out of studio time and money, Beckenstein and Wall had recorded an entire album of Spyro Gyra material.

Beckenstein and Calandra weren't able to sell any of the six projects they had produced, so as a last resort they took the Spyro album to Buffalo's Amherst Records with the intention of releasing it regionally in New York State.

To almost everyone's surprise the album and its single, "Shaker Song", became a national hit. Selling in

excess of 200,000 copies, the album with its fusions of jazz, R&B, rock and Latin, simultaneously appeared on 6 *Billboard* charts and the group rated near the top of every major music publication's Jazz Group Of The Year list.

With a national hit under their belt for bargaining power, Beckenstein and Calandra, through Amherst, got the group signed to MCA Records. Along with Wall, the duo produced a second Spyro album, *Morning Dance* and again had a hit on their hands. Around this time, the band itself was now a big ticket item. Their records were selling millions not only in the U.S. but all over Europe, South America and Japan. They became equally accepted on both AM and FM playlists and their tours were also highly successful, and have remained so.

Since Beckenstein writes and arranges much of the material, plays sax for the group and then also acts as its co-producer, I wondered if the band members have any say in the making of a Spyro Gyra album. "Um," said Beckenstein with a cautious pause, "in as far as Richie and I have the last say, it's a benevolent dictatorship. But I like to think that one of the most important parts of producing is not letting your own ideas cover up possible good ideas from other people. For instance Eli (Konikoff, the group's drummer) could have a much better idea than I could have to tell them. And I think it's important to keep yourself open."

Beckenstein takes his role as the group's producer as seriously as he does being their lead soloist, songwriter and arranger. In fact, at this stage, he sees any potential solo career as that of a producer. "I like producing and I like producing other people besides myself. It's definitely something I want to get involved with. Ultimately, I would like to produce a pop act and prove that I am just as capable as a Phil Ramone or a Quincy Jones, because who knows? Maybe I am. I know I could do a great job with any fusion band because I've done it for myself and it's something I'm really involved in. But I've turned down fusion bands that have been offered to me."

"The last thing in the world I want to do," said Beckenstein elaborating on the subject, "is to produce a clone of Spyro Gyra. That's not what I'm looking for. I'm looking for something different. I think I'd be a very good R&B producer." He wouldn't, as a producer, simply work with artists that would be recording Beckenstein's material. "I think the job of a pro-



# "I CAN'T BLOW MY HORNS."

Jay Beckenstein, Spyro Gyra

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# SOUND ON STAGE

by Patrick Maloney

I just received some preliminary info from Audio Industries in San Francisco on the first MCI console designed for PA use, the JH-800. Actually, this "general purpose audio console" seems to have been designed to meet the needs of broadcast and small recording studios as well, since there are rather extensive monitor and communication facilities available. Housed in its own carrying case, the mixer comes with twelve inputs, four VCA controlled subgroups, and two stereo mix outputs. A side panel extension unit containing fourteen input strips will be available to provide for the larger number of inputs necessary in most PA applications. Some of its more useful features include stereo compressor/limiters on the mix outputs, VU/PPM metering, variable line outputs on each input (selectable from either the mike preamp, the line input or the equalizer output), Penny and Giles 65mm faders, ("Aaaugh!" I screamed in not so quiet desperation. "Whatever happened to longthrow faders?") AFL and PFL solo busses, and a built-in oscillator with slating capabilities.

I swear I'm going to start an "I Love Long-throw Faders" club, t-shirts and all. Actually I'd appreciate hearing from anyone who prefers short-throws on input faders—maybe I'm missing something! I'd also like to hear from a few manufacturers on why they insist on using the truncated devices in such critical operational positions as input and output controls. While such things as price and size may mean something to the design engineer and the company controller, they have little meaning in the very real world of live sound mixing. Subtlety and fine control are absolutely necessary for those moment by moment decisions that are made throughout a show. There is no "Take Two." It's got to be right the first time, so the more control the better!

• • •

1982 marks the 50th year in the audio/visual/video rental business for McCune Sound (San Francisco, CA). Last year they broke from their traditional "Rentals Only" policy to install a permanent outdoor sound system in the Oakland Coliseum. They say the system is nicknamed "Billy" because, like Oakland A's manager Billy Martin, it "makes a lot of noise and is the best in the business!" The large single-point-source system was designed by former McCune employee John Meyer of

Meyer Sound Labs in San Leandro, CA. Three months after "Billy" was installed, McCune was asked to provide a new indoor system for the adjoining Oakland Arena. Twelve of Meyer Sound Labs "UPA" speakers were subsequently hung in a full 360 degree



ring. In no time at all, the Golden State Warriors followed the example set by the Oakland Raiders when they first heard the sound of their new system—they dispensed with the organist and played taped music at the breaks and time-outs!

Well, evidently these systems were such a success that McCune is now providing similar outdoor systems for other Bay Area sports arenas—notably Golden Gate Fields, a horse racing track! A single 120 degree cluster of Meyer Sound components was installed behind the tote board in the infield area of the track. Additionally, 40 McCune SM2 two-way speakers were dispersed throughout the glassed-in seating area. These small speakers were then fed the main program signal via three independent delay lines set to match the various arrival times of the sound reaching the windows from the outdoor system. The system is powered by Hafler amplifiers capable of delivering a total of 18,400 watts. According to McCune project designer Ken Deloria, one of the more novel aspects of the system was the inclusion of two "Dual Automatic Spare Amplifier Insertion Circuits" that automatically replace malfunctioning amps with up to two spares wherever necessary in both the indoor and outdoor systems.

Meanwhile, across the bay, the

S.F. based acoustical consulting firm of Paoletti-Lewitz Associates has prepared a preliminary design and cost estimate for a new permanent sound system for Candlestick Park, home of the San Francisco 49'ers. In the meantime, McCune will be renting the stadium a single-source system composed of twelve of McCune's tri-amped JM3 cabinets for the duration of this year's baseball season.

• • •

Although live sound mixing is encountered most frequently in clubs, theaters, and the like, there are still a few situations outside the concert hall where real-time audio mixing is required: principally direct-to-disk records and live TV. This year's Grammy Awards Show was a fine example of the latter and was notable for what I felt was a consistently high quality audio mix on the various music groups and styles that were presented.

One particular portion that impressed me was the "Sophisticated Ladies" segment; mainly due to the terrific vocal quality of the lead singer. My ears were positive that she had previously recorded the track on a U-87 in a studio somewhere, but my eyes couldn't catch a single lip-sync slip-up anywhere during the number—and she wasn't just standing there, she was dancing! From the credits it appeared that Bruce Burns of Burns Audio (Sun Valley, CA), had mixed the sound so I contacted him for more info. Turns out that the singer was in fact singing live into a Vega "Dynex" wireless lavalier mike that was tucked into her cleavage—the actual transmitter was hidden elsewhere in her outfit. Now wireless lavs that I've used in the past have had a distinct tendency to overload and/or sound rather thin when used in this type of high level situation, but this system was definitely an improvement. According to Bruce, the mike that was used was a "Tram," a small lavalier more commonly found in the film industry. The apparent high quality of the device—to my ears at least—should make it a welcome tool in the pro sound industry as well. Incidentally, Bruce informed me that the credits at the end of the show were a little misleading—he controlled the live house mix for the audience inside the Shrine Auditorium, a position he has admirably manned throughout the last several Grammy shows. The high quality audio signal that was actually broadcast was mixed by Don Worsham. A fine job all 'round!

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## SPYRO GYRA

ducer is to maximize an artist's potential."

It looks as though Beckenstein, along with his partner Richard Calandra, are going to pursue these goals since the two have recently built their own recording complex for Cross Eyed Bear Productions. Located 30 minutes north of New York City, in Suffolk, the complex is nearly completed and should be available for booking by early Spring 1982.

"It's going to have two 24 track's and a Solid State Logic 48. And we're going with the Melquist automated system. It's being built by Richie and I for our company and I think it's going to be called 'Bear Tracks.' Michael Barry is going to be the chief engineer. He was the engineer at Secret Sound (where Spyro Gyra has recorded most of their previous albums). We're also talking a deal with someone else, but I'd rather not use any names at this point."

Jeremy Wall is also enthused about Bear Tracks. "It's something that has been a dream of mine. I'd love to start a production company, keeping involved with lucrative commercial projects, as well as very talented avant garde musicians. It would

provide an outlet for their talent."

The studio will be automated, however the equipment will not be set up for digital recording. According to Beckenstein, "I've never used digital; I've never had the opportunity. I haven't been floored by digital recordings and, you know, I take it for granted that eventually digital *is* going to be the best. I have enough trust in technology that almost for sure it's going to be better. But, right now, I'm perfectly happy with the way I've been doing it. See, the one big change I think we're going to make is, now that we have two 24 track machines, we may start doing that business where you record the basics, then, from one machine mix it over to two tracks on the other for adding the overdubs without using the original basic tracks, then sync the two machines later on for the mix. That way, you don't wear out the early tracks. So, that's something we might do now that we have two machines. But other than that, I like working with analog."

"The place is so convenient to New York city and the equipment is going to be so good and the room is an incredible room (an old granite dairy barn that's been converted). It's a lot of room. We're having it

designed by George Augspurger so, all in all, I think it will be a very attractive room and a lot of people are going to want to work there. I don't know how aggressively I'm going to go out and sell studio time. I think just the people that get involved with Spyro Gyra will want to come back and do their own projects there.

And what about video? "Well," said Beckenstein, "we're not setting it up for video initially, but it's going to be easy to put video in there. We're going to have a SMPTE time code thing. I'm not foolish, I can see that there is a big future in that and I'd like to get involved in that any way I can."

That involvement, if Beckenstein and Calandra have their way, could be immediate. He hopes to make the next Spyro Gyra album a live album with video to go along with it. "If it is a live album, it's going to be a whole other thing. What we're going to do is simultaneously record a live album, video tape the performance that's recorded for cable release here in the states, and do a video disk for Japan."

"The deal is taking so long to get approved because there are so many pieces to it. There's also going to be about 15 minutes of animation that are involved with the project, too. But first they have to agree to a live album before we can add all that other stuff. The only parties that have absolutely agreed are the Japanese. They have come up with the money for the video disk. But the reason the whole project looks good is because combining the live album with the video saves money on the live album and saves money on the video. So, it only makes sense if we can get the whole thing approved.

Even though Spyro Gyra's label, MCA, is one of the foremost leaders in the field of home video cassettes and video disks, Beckenstein sees a video disk of the project available only in Japan. "I don't think it will be released on an MCA video disk. I think it'll be licensed to places like Warner Home Video or one of those cable things. It may be sold as a video cassette."

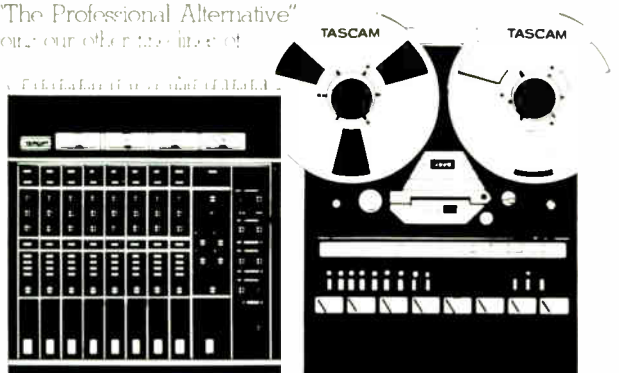
If the live album is not approved by MCA, Beckenstein plans to record another studio album with the band; this time, however, in his own studio. And then, of course, it's back on the road for another several months of live gigs. Then he hopes to continue producing some outside projects at Bear Tracks.

When asked if he could put together an all star studio band to work with at Bear Tracks, who would it be? He answered without the slightest delay, "I've got it... it's called Spyro Gyra."

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(continued from page 24)

formance, any ever built...regardless of cost.

This was not to be an extravagant exercise in equipment purchasing. Tres Virgos was to be a well planned, carefully thought out, creatively financed and built system. A system integrated from the 300,000 wood screws and hundreds of gallons of glue which went into the construction, to every inch of wire, component and part of the electronics chain.

A great many people contributed to the store of knowledge that went into Tres Virgos: the late Dr. Carolyn "Puddie" Rodgers, Phd. who dedicated her life to the study of how we hear and whose landmark research on localization will continue to teach us the importance of phase relationships for years to come; Russ Berger, Glenn Meeks, Don Eger, Richard Heyser and of course Don and Carolyn Davis and the Syn-Aud-Con courses all helped.

When you have an acoustically accurate control room other parameters of the total system must come under close scrutiny. It was for this reason that Ed Bannon joined me in Las Vegas shortly after Tres Virgos was underway.

Ed is responsible for both the electronic design and installation as well as some of the construction and design adjustments and evolutions which helped Tres Virgos to set what we believe is a new standard in the art of Control Room Design. Ed liked Tres Virgos so much after he fired it up, that he chose to headquarter at the studio to continue his engineering, research and design activities on site. The studio is lucky to have him.

We are very concerned that every studio must live up not only to the expectations of today, but to the demands of tomorrow. If the LEDE concept is to gain rapid acceptance, then every aspect of the studio's purpose and function, from construction to the psychology of decoration, must be taken into consideration. The construction of Tres Virgos was impeccable. All construction from framing on out was done to finish carpentry standards. Every wall system, ceiling and intersection is isolated and sealed, and caulked air and water tight. Floors, walls and all structures which could transmit vibration are floated. Many of the systems, including the important acoustic absorber panels for both control room and studio, were invented on site with the help of our TDS research. Cost, weight and effectiveness were motivating factors for some very creative and practical construction and isolation techniques.

The interior finish was carefully planned to avoid any reference to an environment reminiscent of any other place. Used extensively were luxurious pecan and oak natural woodwork, color-keyed fabrics that feel like expensive suiting and an impressive multi-colored mood lighting system. The studio is also capable of handling video shoots and, with rental equipment, video post production. Particular attention was given to the set up and quality of the cue system. In fact, the whole project was guided by the philosophy that the musician must not be conscious of the studio as an adversary. Properly applied LEDE and system design techniques make an adversary relationship highly

unlikely.

While Tres Virgos has only been open for seven months, the owners report an impressive list of visitors who tour the facility on a regular basis from as far away as Europe, Japan and the Middle East. It's not unusual to hear quotes such as; "The finest I've heard," or, from a microphone manufacturer, "I'm hearing our mikes for the first time." We are now working with Tres Virgos with the goal of marketing the design concept and its evolutions worldwide. Both the owners of Tres Virgos and I invite interested individuals to visit the studio and experience the coming of age of LEDE. We're sure you'll like what you hear.

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by Patrick Maloney

I just received some preliminary info from Audio Industries in San Francisco on the first MCI console designed for PA use, the JH-800. Actually, this "general purpose audio console" seems to have been designed to meet the needs of broadcast and small recording studios as well, since there are rather extensive monitor and communication facilities available. Housed in its own carrying case, the mixer comes with twelve inputs, four VCA controlled subgroups, and two stereo mix outputs. A side panel extension unit containing fourteen input strips will be available to provide for the larger number of inputs necessary in most PA applications. Some of its more useful features include stereo compressor/limiters on the mix outputs, VU/PPM metering, variable line outputs on each input (selectable from either the mike preamp, the line input or the equalizer output), Penny and Giles 65mm faders, ("Aaaugh!" I screamed in not so quiet desperation. "Whatever happened to longthrow faders?") AFL and PFL solo busses, and a built-in oscillator with slating capabilities.

I swear I'm going to start an "I Love Long-throw Faders" club, t-shirts and all. Actually I'd appreciate hearing from anyone who prefers short-throws on input faders—maybe I'm missing something! I'd also like to hear from a few manufacturers on why they insist on using the truncated devices in such critical operational positions as input and output controls. While such things as price and size may mean something to the design engineer and the company controller, they have little meaning in the very real world of live sound mixing. Subtlety and fine control are absolutely necessary for those moment by moment decisions that are made throughout a show. There is no "Take Two." It's got to be right the first time, so the more control the better!

• • •

1982 marks the 50th year in the audio/visual/video rental business for McCune Sound (San Francisco, CA). Last year they broke from their traditional "Rentals Only" policy to install a permanent outdoor sound system in the Oakland Coliseum. They say the system is nicknamed "Billy" because, like Oakland A's manager Billy Martin, it "makes a lot of noise and is the best in the business!" The large single-point-source system was designed by former McCune employee John Meyer of

Meyer Sound Labs in San Leandro, CA. Three months after "Billy" was installed, McCune was asked to provide a new indoor system for the adjoining Oakland Arena. Twelve of Meyer Sound Labs "UPA" speakers were subsequently hung in a full 360 degree



ring. In no time at all, the Golden State Warriors followed the example set by the Oakland Raiders when they first heard the sound of their new system—they dispensed with the organist and played taped music at the breaks and time-outs!

Well, evidently these systems were such a success that McCune is now providing similar outdoor systems for other Bay Area sports arenas—notably Golden Gate Fields, a horse racing track! A single 120 degree cluster of Meyer Sound components was installed behind the tote board in the infield area of the track. Additionally, 40 McCune SM2 two-way speakers were dispersed throughout the glassed-in seating area. These small speakers were then fed the main program signal via three independent delay lines set to match the various arrival times of the sound reaching the windows from the outdoor system. The system is powered by Hafler amplifiers capable of delivering a total of 18,400 watts. According to McCune project designer Ken Deloria, one of the more novel aspects of the system was the inclusion of two "Dual Automatic Spare Amplifier Insertion Circuits" that automatically replace malfunctioning amps with up to two spares wherever necessary in both the indoor and outdoor systems.

Meanwhile, across the bay, the

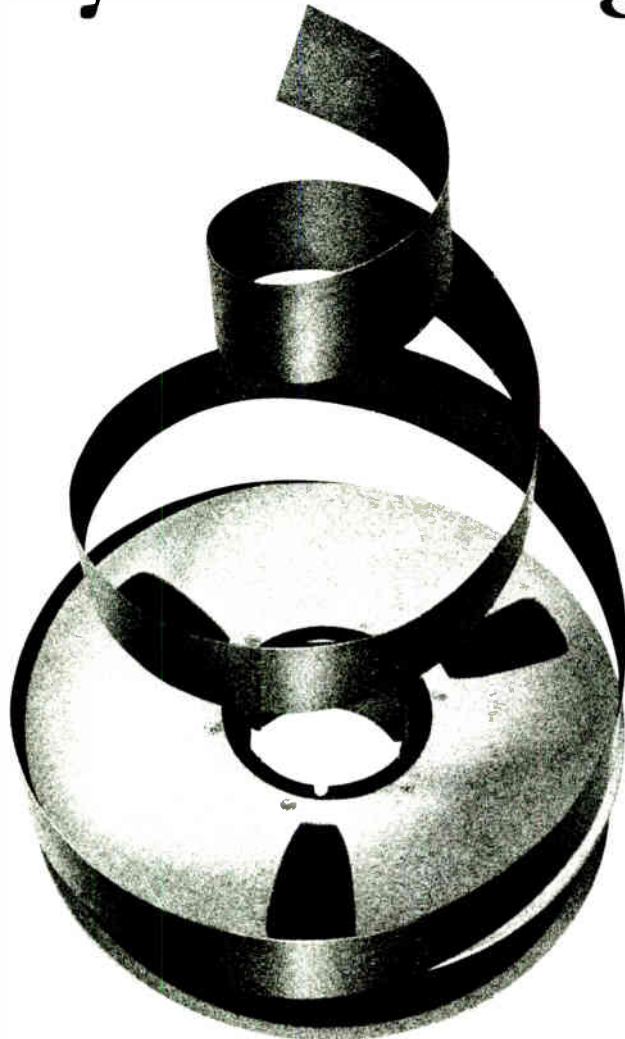
S.F. based acoustical consulting firm of Paoletti-Lewitz Associates has prepared a preliminary design and cost estimate for a new permanent sound system for Candlestick Park, home of the San Francisco 49'ers. In the meantime, McCune will be renting the stadium a single-source system composed of twelve of McCune's tri-amped JM3 cabinets for the duration of this year's baseball season.

• • •

Although live sound mixing is encountered most frequently in clubs, theaters, and the like, there are still a few situations outside the concert hall where real-time audio mixing is required: principally direct-to-disk records and live TV. This year's Grammy Awards Show was a fine example of the latter and was notable for what I felt was a consistently high quality audio mix on the various music groups and styles that were presented.

One particular portion that impressed me was the "Sophisticated Ladies" segment; mainly due to the terrific vocal quality of the lead singer. My ears were positive that she had previously recorded the track on a U-87 in a studio somewhere, but my eyes couldn't catch a single lip-sync slip-up anywhere during the number—and she wasn't just standing there, she was dancing! From the credits it appeared that Bruce Burns of Burns Audio (Sun Valley, CA), had mixed the sound so I contacted him for more info. Turns out that the singer was in fact singing live into a Vega "Dynex" wireless lavalier mike that was tucked into her cleavage—the actual transmitter was hidden elsewhere in her outfit. Now wireless lavs that I've used in the past have had a distinct tendency to overload and/or sound rather thin when used in this type of high level situation, but this system was definitely an improvement. According to Bruce, the mike that was used was a "Tram," a small lavalier more commonly found in the film industry. The apparent high quality of the device—to my ears at least—should make it a welcome tool in the pro sound industry as well. Incidentally, Bruce informed me that the credits at the end of the show were a little misleading—he controlled the live house mix for the audience inside the Shrine Auditorium, a position he has admirably manned throughout the last several Grammy shows. The high quality audio signal that was actually broadcast was mixed by Don Worsham. A fine job all 'round!

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World Radio History

by David Gans

## Look Into A Glass Onion

*The Beatles' England* is a chatty catalog of significant places in the lives and music of The Beatles, from the studio where they recorded their first demos to the four front doors of the mop-tops' one-room apartment in *Help!* Their birthplaces and childhood homes (and the more sumptuous dwellings of their later years) are shown as they appear today, as are such vital shrines as the

# MUSIC NOTES

described in the introduction as both "an in-hand guide for Beatles-tourists" and "an illustrated biography using places rather than time as the framework."

The book is beautifully put together, consistently entertaining, and for the most part witty and light-hearted, though reverent. An oc-

has just the thing. He's an employee of Charvel Guitars who, having worked on custom instruments for others (maybe a bat-shaped axe for Ozzy Osbourne?), decided to build himself a guitar in the shape of a pistol. His press release says it produced "a testicle-tightening roar!" and credits Ernie Pedregon for the airbrush work. And he sent out a handful of photos of this own girlfriend in a Frederick's-esque state of near-undress—net stockings and all—handcuffed to the guitar.

The point is that Jellison would like to build a guitar that suits *your* fantasies. Give him a call at (714) 599-9207 and order your Saturday Night Special now! Charvel Guitars, P.O. Box 245, San Dimas, CA 91773.

## Random Axes

CBS Records announced the first stereo cassette mixed especially for "personal cassette players." The record is Philip Glass' *Glassworks*, produced by Glass and Kurt Munkacsi. Munkacsi remixed and rebalanced *Glassworks* with a set of headphones after the standard LP mix was completed. CBS is considering future "Walkman mixes"... **Gibson** will introduce a limited-edition *30th Anniversary Les Paul* guitar this year, combining features of the 1952 gold-top that started it all with some modern developments... **Unicord** has two new **Marshall** amps: the 5010 is a single-channel, 30-WRMS with master volume, presence control, full Marshall EQ and a 12" MacKenzie speaker (\$495); the 5210 has split channels, remote channel switching, reverb and effects loops, 50 watts RMS and a 12" speaker (\$775)...

**Ibanez** has three new guitar lines: The *Rocket Roll* series has three-piece maple necks, two pickups each with its own volume control, anchored bridges and Quik-Change tailpieces (RR50, fire red w/chrome hardware, RR400, Cherry sunburst w/gold hardware); the *Artist* AR105 features a burl mahogany top, 3-piece maple neck, two Super 58 pickups, Velvet-Tune machines and the Gibraltar anchored bridge; the *Musician* MC150 has a 24-fret maple neck running through the body, two Super 58 pickups with coil taps ("Duo-sound" push pots handle the switching of the pickups individually), Gibraltar bridge, slotted tailpiece, and a new finish—Polar White—which, Ibanez says, "captures and reflects stage lighting in an attractive and unique way." The MC150 is also available in Dark Stain and Fire Red finishes. ■



The Beatles in Central London, 1963, from *The Beatles England—A 910 Press Book*. (Credit Dezo Hoffman—Rex Features).

*Abbey Road* crosswalk, the "shelter in the middle of the roundabout" from "Penny Lane," and—of course—the Royal Albert Hall.

There are 250 photographs—90 in color—including many shots of the various Beatles taken over the last 20 years (has it really been that long since the chords heard 'round the world?). Ringo and wife number one, Maureen, are pictured in Queen Charlotte's Hospital with a newborn babe, and the accompanying text notes all three of the couple's children were born there and that John and Yoko recorded part of *Unfinished Music No. 2: Life With the Lions* in a room at the same hospital after Yoko's miscarriage in November, 1968.

David Bacon and Norman Maslov are two San Francisco Beatle archivists whose early, unguided visits to the hallowed ground proved frustrating. Savile Row and Abbey Road were easy enough to find, but other places of equal historic interest—in London, Liverpool and in Hamburg's Reeperbahn—were tougher. *The Beatles' England*, is

casual whiff of anti-Yoko sentiment shows up, as in "Unfinished photograph number one: a sample of conceptual art," a blank white space surrounded by a black border. But in the main, *The Beatles' England* is a vibrant, loving tour of the material world in which The Beatles lived. Published by 910 Press (The one after 909—get it?), P.O. Box 22361, San Francisco, CA 94122, \$12.95 paper.

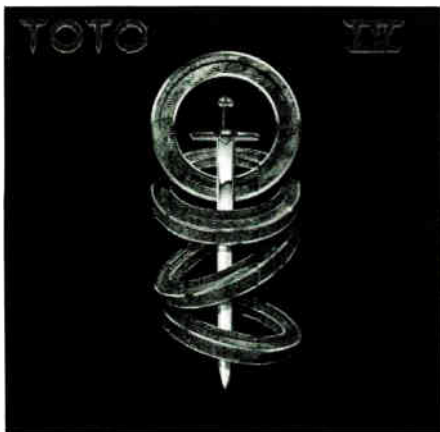
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Having trouble deciding on the perfect gift for that special guitarist/gun lobbyist on your Christmas list? David Jellison of Los Angeles (as opposed to Frederick's of Hollywood)





# Off the Record



## TOTO IV

Columbia FC 3772

Produced by Toto; recorded at Sunset Sound, Los Angeles, Record One, Los Angeles, Abbey Road Studio, London; engineered by Al Schmitt, Tom Knox and Greg Ladanyi; mastered at Sterling Sound, New York; by George Marido.

Ever since "Hold The Line" came out several years ago I have been a Toto fan. Never mind the fact that their name refers to a character in one of my all time favorite movies, I liked the ability of this group to put together such beautiful and polished studio albums. As a firm believer in the maxim "better music through science," I have always had my ears open for groups that could successfully utilize the incredible potential of today's modern state of the art multi-track recording studios.

This is not to say that I don't like some of the new wave/minimalist sounds or that less can't necessarily be more, but when a group can come along and produce music that uses, rather than abuses, the new technologies and instruments available in today's commercial music market, I like to think that we have made some progress.

A lot of the so-called 'techno-rock' bands are getting flack these days for the rubber stamp formula they so often rely on to stay on the airwaves. REO Speedwagon, Journey, Styx, Foreigner, etc. certainly have their tunes and their audiences, but there seems to be an extra dimension or two in the music of Toto. Toto's individual members are well known for their prowess as studio session players. They have worked on projects for Donna Summers, Boz Scaggs, Steeley Dan, The Tubes, Pink Floyd, Elton John, and the

list goes on.

Toto IV had a little something on it for everyone. Combining moods from their first three albums, this one tends to be more eclectic than their prior efforts. Side one starts off with their best effort at landing another monster single, Rosanna. We'll be hearing a lot more of this track on the radio in the next few months, I imagine. The first time I heard it I liked it, which is a sure sign that the song is a hit. (Why the major labels don't come to me with their new releases, I'll never know...).

Toto has left a lot of room around the hook which is simply a repeat of the name three times, but it works. And this, I think, is part of the secret to their quality. With a group that can crank out the lush waves of sound with their dual regulator twin charged synthe-keyboard racks, the trick is in regulating the dynamics so you can appreciate the nuance of the song. Toto's use of space within the framework of the song has never been better.

Each of the tracks moves along very nicely using space and dynamic breaks to keep you on your toes. Just when your beginning to succumb to the seduction of their big studio sound, everything will cut out for two beats and then the vocals will cut in or something unique musically will happen to yank you out of your headphone reverie.

Toto takes pains in this album to add enough unusual and unique sounds so that the listener doesn't get bored with the monotony of a slick studio production. I especially liked the congas and African thumb pianos (aka 'Kalimba') on the last tune on the album, aptly titled "Africa." The vocals of Bobby Kimbal straining to break my wine glass are charged with intensity, the backing vocals are well arranged, and the drum sound is the finest money can buy.

If you like Toto, you will no doubt like this album. If you are not that familiar but are willing to try a slick studio production that doesn't pander to sub-teen females you might want to make the investment.

—Mike Stevens

## MIKE OLDFIELD Five Miles Out Virgin ARE 37983

Produced and engineered by Mike Oldfield ('Five Miles Out' produced and engineered by Mike Oldfield and Tom Newman; 'Mount Teidi' produced by Mike Oldfield and engineered by Richard Mainwaring); Mastered at the CBS Recording Studios, New York, on the Discomputer System by Ray Janos.

Mike Oldfield wears every hat imaginable



on *Five Miles Out*: he wrote all the songs (sharing credit on two with the five principal musicians who accompany him on the album); produced or co-produced all the cuts and engineered all but one; played guitar, bass and keyboards and sang; and he even designed the sleeve. Believe it or not, that's backing off some from his level of involvement in previous albums.

Side One consists entirely of 'Taurus II,' an aural collage which is episodic in structure rather than the droning, gradually-shifting overlapping rhythmic and melodic figures of *Tubular Bells*. Guitars are featured as well as keyboard, and human voices—primarily Maggie Reilly's—pop up here and there as Oldfield deftly mixes up the sounds and musical forms. Not all of his thematic ideas are tremendously exciting or original, but the side-long opus is consistently interesting.

'Family Man' opens Side Two. It's a clever song about a gentleman's encounter with an insistent prostitute, sung vivaciously by Maggie Reilly. 'Orabidoo' moves from peaceful bell tones to mysterious vocoder syllables over a trance-like rhythm figure and back again. The title track closes the side, telling the story of a near-disaster Oldfield actually experienced while flying in a small plane (depicted in the cover painting by Gerald Coulson). Natural and processed voices tell the tale in a dialogue between pilot and tower, and the track ends with a synthesized plane diving away.

In all, *Five Miles Out* is more notable for its sonic ambition (and achievement) than for its musical accomplishments. It proves that Mike Oldfield is a very talented man under all those hats.

—David Gans

## TERRY GARTHWAITE, BOBBIE LOUISE HAWKINS, ROSALIE SORRELS Live at the Great American Music Hall

Flying Fish FF-238

Produced by Terry Garthwaite; engineered by Steven Miller.

Live at the Great American Music Hall, originally recorded at San Francisco's premier concert club in 1980, provides a showcase for three accomplished entertainers. Jazz stylist Terry Garthwaite, story teller Bobbie Louise Hawkins and folk singer Rosalie Sorrels alternate solo performances throughout the set, creating a well-balanced and comprehensive program that em-

# get into the Mix... T-SHIRT



phasizes their individual strengths while stressing a unity of purpose. Producer Terry Garthwaite keeps the elements to a bare minimum, allowing performer and material to appear life size and center stage.

Ms. Garthwaite, perhaps most widely remembered for her work with the hip-funky Joy of Cooking, will surprise many with the extent of her vocal ability and writing sensitivity. Her voice ranges from velvet to sandpaper, bending gracefully to track each contour of the music. "Slender Tread" is her standout piece on this recording, loaded with imagery and fun. "I wonder if even a weaver would think he could put us together again" is a Rubic's cube style refrain of quick triplets that the listener can play with during and after the song.

Bobbie Louise Hawkins is kind of a new age Will Rogers. With an arsenal of wit, sarcasm and ultimate truth (sometimes painful, sometimes triumphant) she dazzles her audience with insight and understanding. Her monolog, "I Owe You One" is worth the price of the album alone. It's a classic piece of material that gets to the core of the male/female relationship, a graphic illustration of the Golden Rule. It brought the house down.

Rosalie Sorrells sings with great enthusiasm and personal commitment. She gives an ultra tasty rendition of the traditional "Snake Toast" ("Take me in tender woman, take me in for Heaven's sake").

The recording was engineered by Steven Miller using a small Soundcraft console, 2 Otari stereo machines with Dolby, eight mikes and a limiter. He told us that at the soundcheck for the show he experimented with different audience mike positions so that he could recreate some of that ambience by matching those distances with digital delay times during the mix. The resulting live sound works well for this record, combining the intimacy of a smallish performing room with the excitement of an ebullient crowd.

For an album that makes no pretensions to the world of glossy productions, the finished product sure packs a wallop

—David Schwartz

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*Beginning as a Nashville session musician with a burning desire to be a producer, Larry Butler watched and listened. His first break came when he got a producer job with Capital Records in Nashville. The first record he ever cut, with Jean Shepard, was a hit. Since then he has cut over 50 gold and platinum records as producer for CBS, Johnny Cash Productions, Tree International, United Artists and now as an independent. His recent relationship with a man named Kenny Rogers, has produced hits like Lucille, She Believes In Me and The Gambler. Larry won the Grammy Award as producer of the year in 1980.*

### ON DEVELOPING A STYLE

"When I started producing, I was producing like everybody in town. I started to produce a record like Billy Sherrill would do it or like Owen Bradley would do it or whatever. And then one day I listened to a lot of records I had done and I thought now wait a minute. If somebody wants a record that sounds like a Billy Sherrill record they can go get the real thing. So I started producing the way I wanted to produce. It was a great lesson for me. It was a big turning point in my career. I think that nobody is really going to sell or really succeed until they reach that point where they're putting themselves into it, instead of making a copy of someone else's work."

### ON REACHING THE LISTENER

"I'm a believer in the simplicity of a song. I believe in laying something in somebody's lap they don't have to search for mentally. I've said this before, if a guy's driving home from work he's got a million things on his mind. He's got to spank the kids when he gets there. He's got a flat tire on the way home. And through all of this there's a song. He's got his radio turned down kind of low and a song cuts through all of that and he finds himself humming along with it. When that happens you've hit one in the upper decks."

### ON KENNY ROGERS

"Kenny is such a universal name, such a big name. I try not to let any prejudice enter into comments about Kenny because we've been so close, but I guess he has to be the strongest single male artist in the United States. I can't think of anybody that's reaching the mass of people that he's reaching and I think it's unfair that people say he's the new Elvis. Well, there's never going to be another Elvis. There's Elvis Presley. That's it. Forever. But as far as sales, you might compare them."

### ON KNOWING WHEN TO STOP

"I think the most common mistake for an engineer and producer to make is maybe not really realizing the take when they've gotten it. Sometimes going too far because they're looking for that emotion or magic. Sometimes you can have it and not realize it. Sometimes you can have maybe one guitar part that bothers you, so you go ahead and do another take. Well, you have gone by the one that had the feeling, the one that had the emotion."

### ON TAPE

"I use the philosophy and theory of surrounding myself with people who know what the hell they're doing and letting them do it. I let the engineer do his job.

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1	PATCH BAY	N/C
1	FLOOR STAND	N/C
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