

The Beach Boys • Production Music Libraries • Massenburg on Recording, Pt. 2

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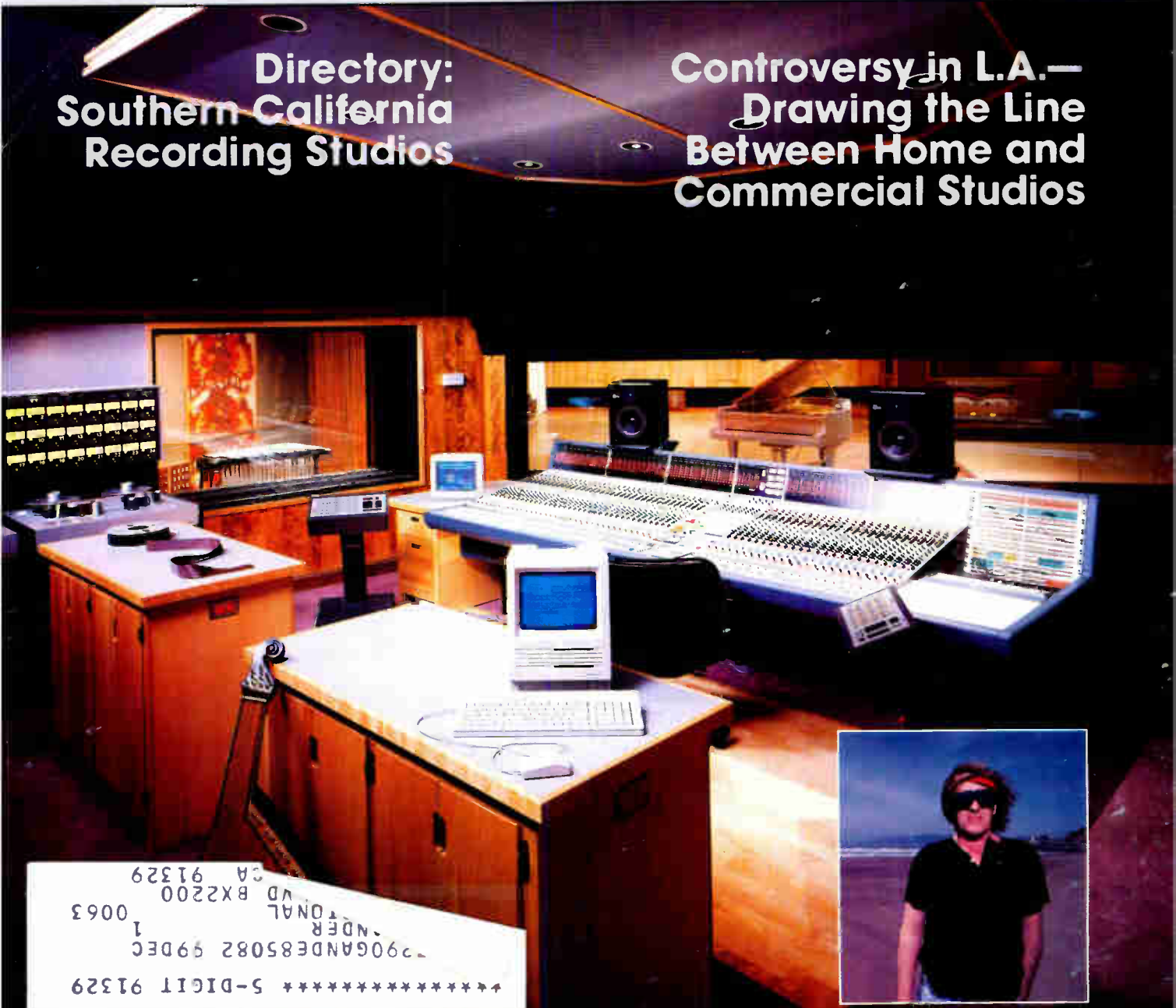
MIX

Pacific Rim Special
• **Recording in Japan
& Australia**
• **Listings of Top Studios**

THE RECORDING INDUSTRY MAGAZINE

**Directory:
Southern California
Recording Studios**

**Controversy in L.A.—
Drawing the Line
Between Home and
Commercial Studios**



**Interview: The Airplane's
Paul Kantner**

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World Radio History

MIX

SEPTEMBER 1989

THE RECORDING INDUSTRY MAGAZINE

VOL. 13, NO. 9



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FROM THE EDITOR

Founded 1977 by
David M. Schwartz and Penny Riker Jacob



Cover: The control room of Studio A at Rumba Recorders (Canoga Park, Calif.) has been remodeled recently and re-equipped with a new 60-input Neve V Series console with Flying Faders. Owners Daryl Dragon and Toni Tennille hired Greg Edward as design consultant and Dave Gulh to do the remodeling construction. **Photo:** Ed Freeman. **Inset photo:** Jay Blakesberg.

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Rarely has a controversy

brewed in the L.A. studio biz such as we're seeing right now in a confrontation between commercial and private studios. It is a problem that goes to the roots of our business, with no easy answers and no escaping the fallout.

Ever since home studios became "professional enough" to create master tracks, they have been cutting into the client base of the commercial studio community. Although this certainly isn't a new phenomenon in L.A., where many of the majors began as "illegal" private studios themselves, it is a problem that has come to a head in recent months.

The more aggressive of these private rooms promise relief from the frenetic pace of recording in the city, and a more home-like environment in which to record. This is often done in an underground fashion so as to avoid conflicts with the zoning departments and other business commissions. This places them unfairly in competition with commercial studios, who pay premiums for their right to operate as above-ground businesses.

The main issue being considered in all this is where to draw the line between public and private operation with respect to the professional musician/recordists' reality. Can you record your own master tracks at home for commercial exploitation? How about tracks for a friend? How about a friend of a friend who wants to pay you for production assistance? Where does it stop?

This is a sticky issue, one that needs to be resolved soon to keep the studio business healthy. This month, Linda Jacobson, Tom Kenny and Randy Alberts talked to a number of L.A. studio owners to get their opinions on what can be done to end this civil war.

Keep Reading,

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

David M. Schwartz
Editor-in-Chief



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PROFESSIONAL AUDIO

CURRENT

OTARI BUYS SOUND WORKSHOP

Otari Corporation, the U.S. subsidiary of Otari, Inc. of Japan, announced the purchase of all assets, inventories and interests of Sound Workshop Professional Audio Products Inc., Sound Workshop Inc. and Digital Creations Corp., effective June 26.

The horizontal marketing approach now allows Otari to manufacture and provide complete studio packages. In addition to consoles and tape recorders, Otari picked up the Digital Creations automation packages. "Systems integration is becoming the wave of the future," marketing manager John Carey says. "The studio of the future is becoming an integrated device—it's a mixer, a processor, a recorder. So the expertise of a mixing console company combined with the expertise of a tape recorder company is a very logical way of moving into the future, it seems to me."

Otari Corporation will direct worldwide sales and marketing from its California offices, while design and manufacturing will continue at the Plainview, New York, facilities.

SOUNDWORKS WEST BUYS HITSVILLE

Hitsville Recording Studios, established by Motown Record Industries in 1969 and legendary home to artists such as Michael Jackson, Diana Ross and Marvin Gaye, ended its 20-year run in Los Angeles in early July. Soundworks West, Ltd., which operates Soundworks in New York City, negotiated a multimillion-dollar purchase from The Gordy Company.

"While the legacy of Hitsville remains at the spirit of the facility, we have made an aggressive com-

mitment to thrust the studio into the 21st century," said new owners Alan Ramer and Robert C. Diez d'Aux. The facility has been renamed Soundworks West.

END OF AN ERA FOR ATLANTIC

There will be no more session work at Atlantic Recording; Studio A, Studio B—the whole second floor—is now vacant. In a somewhat surprising move, general manager Tony O'Brien informed the staff on June 7 that Atlantic was ending 32 years of audio recording in New York, effective June 15. The equipment's been sold, the gold records have been taken off the walls and footsteps now echo where Aretha Franklin, Ray Charles and others once wailed.

The official reasons given for closure were tied to noise and a "stiff" increase in rent, according to Bobby Warner, former Atlantic engineer who is now manager of quality assurance. Apparently there was leakage from Studio A, and the new landlords, Eastgate Realty, were having trouble attracting tenants to the building at 1841 Broadway. Also, across the street, the New York Coliseum is in the process of a two-year renovation, with all the attendant noise that brings. And finally, the building's owners made it more expensive to occupy two floors of prime N.Y. real estate.

Atlantic still operates out of the third floor, using their mastering and tape duplication facilities for in-house projects only. The label has maintained a mix room, to leave open the possibility for overdubs. In all, 12 to 15 people lost their jobs, according to Warner.

"I was devastated, myself, having grown up here," Warner says. "Studio A is where I got my feet wet. The sad thing is the second floor is still open for us to walk through.

There is no life there, but the ghosts still remain."

NARAS TRUSTEES EXPAND GRAMMYS, EDUCATION

At the annual meeting of the Recording Academy Board of Trustees in St. Petersburg, Fla., May 18-20, members agreed to expand portions of the Grammy Awards and educational funding.

Among the changes: allowing limited eligibility in certain categories of singles and songs from previously released albums; division of the hard rock/heavy metal category into separate categories; broadening of eligibility requirements in the Best New Artist and Producer of the Year categories; and a reduction in the number of Grammy Award entries permitted to members.

Also, the National Student Awards and the "Grammy in the Schools" project will be funded on a national level, there will continue to be matching scholarships and grants to various chapters, and the research-oriented *NARAS Journal* will be revived.

MIX ANNOUNCES TEC AWARDS HALL OF FAME

Wally Heider, George Martin and Rupert Neve, innovators who share a lifetime of dedication to audio excellence, will be inducted into the TEC Hall of Fame at the awards ceremony on Oct. 19 at Manhattan Center Studios in New York. Contact Karen Dunn at *Mix* for more information: (415) 653-3307.

In related news, Agfa Magnetic Tape will contribute a \$5,000 matching grant in the form of PEM 469 audio mastering tape to the recipient of the Technical Excellence & Creativity Award for Outstanding Recording School/Program. ■

In an age of disk and digital, why buy analog?

We know there are some applications where our 32-channel digital machine, the DTR-900, is the only answer. But if your business is such that you can do anything you want to do in the analog domain, and at the same time do less damage to your budget, then our brand new analog 24-channel MTR-100A may be the perfect machine for you.

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The MTR-100's auto-alignment saves you hours of time by eliminating constant tweaking and re-tweaking between sessions.

that this new way will save you hours spent in non-productive time, the analog choice begins to make even more sense. You see, the MTR-100 features full Auto-Alignment that allows total recalibration of the record and reproduce electronics. This means you can compensate for different tapes in a *fraction* of the time that it previously took, and your studio is not bogged down with constant tweaking and re-tweaking between sessions.

And if you think digital machines have a corner on high performance transports, think again! The MTR-100's new transport incorporates reel motors that approach one horsepower—you'll get fast wind speeds of up to 474 inches per second! Of course, the

transport is pinchrollerless to give you the legendary tape handling ballistics of our MTR-90.

What's more, with its optional EC-103 chase synchronizer, the MTR-100 maintains frame-lock in forward and reverse from 0.2X to 2.5X play speed, and will typically park with zero frame error.

Then, there's the sound. New cylindrical-contour heads built by Otari especially for the MTR-100 result in remarkably low crosstalk and outstanding low-frequency performance. Pre-amps are located directly beneath the heads to further improve frequency response, and HX-Pro* is built-in for enhanced high frequency headroom. (An optional internal noise reduction package houses Dolby* SR/A.) Add all these features to gapless, seamless, punch-in, punch-out, which is also built-in, and your

MTR-100's sonic performance will rival, or beat any digital machine in the world.



Reel motors that approach one horsepower are driven by pulse width modulation amplifiers to tape speeds up to 474 ips.

So there you have it. With these powerful benefits available in analog, does it make sense to go digital? Sure, for some applications. But analyze your needs carefully before you buy. For many applications, a hot

analog tape machine like the MTR-100 is the right choice.

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Graham Nash

Member, Rock & Roll Hall of Fame

Fostex Equipment: E-16 MTR, 4050 MIDI Remote, T-20 Headphones.

Recent Projects: Graham's recent solo album, "Innocent Eyes" (Atlantic) was recorded in Los Angeles, Hawaii and Massachusetts. Most of the compositions and arrangements were worked out at home on his E-16. The hit "Shadowland" from CSN&Y's latest album, "American Dream" (Atlantic), was recorded on the E-16.

TIMBUK3

Pat & Barbara K. MacDonald

Fostex Equipment: D-20 Digital Master Recorder, E-8 MTR, 4030/4035 Synchronizer Controller, 4010 SMPTE Time Code Generator, RM-865 and RM-900 Near-Field Reference Monitors, T-20 Headphones

Recent Projects: TIMBUK3's first album, "Greetings from TIMBUK3" (I.R.S.), was recorded on a B-1 (forerunner of the E-16). Their third and newest album, "Edge of Allegiance" (I.R.S.), is the first digital project for the group. They use a D-20

Tom Scott

Musician/Composer

Fostex Equipment: E-16 MTR (2), E-2 Master Recorder, 4030/4035 Synchronizer / Controller, 4010 SMPTE Time Code Generator, T-20 Headphones.

Recent Projects: Nationally recognized band leader of "The Pat Sajak Show", Tom's latest albums are "Streamlines" and "Flashpoint" (GRP Records). He also scored the NBC TV Movie "American River", and the film "Sea of Love" starring Al Pacino features his distinctive sax.



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Stewart Levin Musician/Composer

Fostex Equipment: B-16 MTR, 4030/4035 Synchronizer/Controller, 4010 SMPTE Time Code Generator, T-20 Headphones.

Recent Projects: Stewart writes the music for several popular TV shows — "thirtysomething", "The Wonder Years", "The Dick Van Dyke Show '88" — and he scored the feature film "Heathers."

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GML CLIENTS SPEAK FOR THEMSELVES

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TOM McCORMACK, THE BURBANK STUDIOS, CA

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TETSU TAKAHASHI, SEDIC STUDIOS, TOKYO

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BRUCE SWEDIEN, MIXER, CA

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STEVEN GRAMBERG, ATLANTIC STUDIOS, NYC

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MICK GUZAUSKI, MIXER, CA

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CHICK COREA, ARTIST, PRODUCER, CA

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STEPHEN FLOOD, MASTERROCK STUDIOS, LONDON


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INDUSTRY NOTES

Solid State Logic (Oxford, UK) promoted **Colin Pringle** to marketing director. . . **Rick Plushner**, Western regional sales manager at **Neve** (Bethel, CT), is also national sales manager for **Mitsubishi's** PCM line, working out of the Hollywood office. . . In **Bourne End, UK**, **Focusrite Audio Engineering** has resumed shipping back orders for **Rupert Neve**-certified ISA modules. Former **Sony** digital developer **Richard Salter** joined **Focusrite** as development director. . . **JBL Professional** appointed **Gary Lynn** as product manager for **Soundcraft USA** in Northridge, CA, and software designer **Steve Bartlett** as electronics product manager for **JBL** and **UREI** electronic products. **Jim Chase** joined **JBL** as Western regional manager; **Tim Crable** is the new customer service manager. . . In **New York City**, **Dreamhire Pro Audio Rentals** brought aboard **Ken Thornhill** and **Brian Macaluso** as general manager and tech manager, respectively. . . **Thomas Volpicella** is now the Northeast regional sales manager for **Fuji Photo Film U.S.A.** (Elmsford, NY), focusing on pro videotape sales. . . **Studer Revox** (Nashville, TN) promoted **Joe Bean** to Eastern sales manager for pro dealer products, and **David Purple** joined as "Nashville-South" sales rep. . . Pro audio dealer **SGAudio** recently opened its doors—445 W. Erie St., Suite 201, Chicago, IL 60610. . . Also in **Chicago**, **Bob Coleman** of **Editel/Chicago** and **Ted Kay** and **Sheldon Elias** of **TMK-Elias Music** announced a business alliance between their corporate production divisions. . . Software manufacturer **Hybrid Arts** hired **Steve Cunningham** as vice president of sales and marketing out of **Los Angeles**. . . **Studio Support Services** was started by **Steve Bramberg** to provide referrals, consultations, etc.: 15 Sintsink Dr. W., Port Washington, NY 11050. . . **Jerry Burdick** joined **The Post Group** in **Los Angeles** as executive vice president. . . In **Carson, CA**, **S.W. Park** is now executive vice president of U.S. operations for **Sunkyong Magnetic/America, Inc.** (formerly a branch of **Sunkyong America**) . . . **Stewart Electronics** of **Rancho Cor-**

dova, CA, signed **On-Line Marketing** (Wadsworth, OH) and **Lienau Associates** (Columbus, MD) as factory reps for its amp, mixer and direct box lines. . . Those interested in presenting papers at the **January 1990 SMPTE Television Conference** should call (914) 761-1100 by **September 15, 1989**, or write to **SMPTE Program Coordinator Marilyn Waldman**, 595 W. Hartsdale Ave., **White Plains, NY 10607**. . . **Rental/production company Fox Television of America** opened an online **PAI** editing suite in **New York City**. . . **David Anglin** and **David "Roy" Webster** were honored by **Ampex Recording Media Corp.** (Redwood City, CA) for excellence in engineering and manufacturing, respectively. . . **Locate PR firm RPS Communications** at this new address: 520 Arthur St., **Centerport, NY 11721**. . . **AMS AudioFile's** new **So Cal, Nevada** and **Arizona** rep is **Comlogic** in **Los Angeles**. . . **Mike Kramer** of **A.S.T.** (NYC) won the "Dealer of the Year" award from **Ashly Audio** (Rochester, NY), and **Dick Bellew** and **Dave Formet** of **Dick Bellew Sales** walked away with the "Rep of the Year" award. . . **Mark IV Industries** (West Amherst, NY) acquired the assets of **Electro Sound, Inc.**, which will continue to manufacture and market tape duplicating systems in **Sunnyvale, CA**. . . In **Dallas**, **Tele-Image** hired special effects whiz **David Hyland** as editor; **David Baertsch** also joined as an editor. . . . **Lani Ridley** is now vice president of worldwide sales for **3-D animation company Cubi-comp Corp.** in **Hayward, CA**. . . Former **Prince** and **Robert Plant** tour techie **Bec Moore** was promoted to studio manager at **Dallas Sound Lab**, and **Johnny Marshall** now holds the executive vice president title. . . **Valley International, Inc.**, has a new sales director, **Jorgen Ravn**. . . **ProSystems** (Meadville, PA) announced four new sales reps: **On-Line Marketing** (Wadsworth, OH), **Essential Marketing** (St. Joseph, MO), **On The Road Marketing** (Upper Montclair, NJ) and **Audio Associates** (Fulton, MD) . . . **Silver Peak Marketing** of **Wheatridge, CO**, will represent **Klark-Teknik** (Farmingdale, NY) in the West. . . ■

SESSIONS AND STUDIO NEWS

SOUTHERN CAL

In Topanga Park, Virgin Records artist Clark Datchler (formerly with Johnny Hates Jazz) was at Topanga Skyline Recording with producer Humberto Gatica . . . Singer/songwriter Jamie Michaels started work on a second album for Innersong Records at Brainstorm Studios in Studio City . . . In Burbank, The Replacements were at The Enterprise, with engineer Toby Scott mixing recent live performances for Warner Bros. Fred Kelly Jr. assisted . . . At Artisan Sound Recorders in Hollywood, engineer Greg Fulginiti recently mastered LPs for XTC with producer Ivan Ivan, Starship with Mickey Thomas and Paul Atkinson, and Walking Wounded with producer Jeff Eyrich . . . Elektra artists Faster Pussycat recorded vocals and overdubs for their LP at Summa Music Group in West Hollywood. John Jansen engineered, assisted by Kyle Bess . . . Curiosity Killed the Cat was at Larrabee in LA. mixing their latest for Phonogram UK. Nathan East produced the album and Femi Jiya mixed . . . At Aire LA. in Glendale, Fattburger was in tracking their upcoming album, with Mitch Gibson engineering and Rob Seifert and Jackie Forsting assisting . . . Jefferson Airplane recorded at Rumbo Recorders in Canoga Park for their upcoming release on Epic Records. Ron Nevison and Greg Edward shared production duties, with Gina Immel assisting . . . Composer Dwight Mikkelsen worked on his current album for Capitol Records with Richard Preuss at PR Productions in Diamond Bar. Orchestra overdubs for the project took place at Burbank's Juniper Studios with Steve Sharp . . . Miles Copeland was at Devonshire Studios in North Hollywood producing overdubs for Timbuk3's latest I.R.S. album. Stanley Johnston engineered, Judd Levison assisted . . . Philip Bailey recorded lead and background vocals for his upcoming album at Valley Center Studios in Van Nuys, with Dean Burt at the board and Dave Bates

assisting . . . Carl Wilson of Beach Boys fame made Alpha Studios in Burbank his first stop on a worldwide tour of recording studios. At Alpha he recorded "Run, Don't Walk," a track from his upcoming album. Phil Galston produced and Jay Rifkin engineered . . . Musician James Early was at Hit City West recording keyboards and drum machines for Capitol artist MC Hammer's dance remix of "They Put Me in the Mix." Engineer Kevin "Kvoc" O'Connor was assisted by keyboard programmer John David Hiler . . . Producers Santiono Scotti and Gip Noble were at WEC Recording Studio in Universal City working with country singer Mary Ann Brown. Darryl Coit engineered the album project . . .

SOUTHWEST

In Phoenix, Vintage Recorders reports a flurry of activity: the Beach Boys were in to record lead vocals and steel drum for their upcoming single "Island Girl," with Vintage owner Billy Moss engineering and Al Jardine producing; and Stevie Nicks recorded lead vocals for the next Fleetwood Mac release, with Greg Ladanyi producing, Dennis Mays engineering and Paula Wolak assisting . . . Planet Dallas reports that Houston-based Tokyo recorded their version of "99th Floor," to be released on We-Miix Records. Rick Rooney engineered and Patrick Keel produced . . . Dayspring Records artist Wayne Watson cut "It Is Well Worth My Soul" at Rivendell Recorders in Houston. Paul Mills was at the board . . . Cutting tracks at Arlyn Studios in Austin: Tailgators, with Mike Stewart and Don Levy producing, and Hightops, with Ray Summay producing . . .

NORTHWEST

Production sound recording for *Birds Past*, a film about the making of Hitchcock's *The Birds*, was handled by, appropriately, Little Wing Recording of San Francisco

. . . At Engineered Sound Productions in Salinas, CA, Bruce Pittenger engineered and assisted with production on an album project by Christian artist Stacy Reiswig . . . Al Eaton was working at One Little Indian Music in Richmond, CA, with Too Short. They remixed "I Ain't Trippin'," the follow-up single from their Jive/RCA album *Life Is Too Short*. . . Actor Sydney Walker was at Robert Berke Sound in San Francisco to record the voice of "Grandpa Time," a children's clock that tells stories, reminds them when it's bedtime and wakes them up. Terry Strauss produced the project . . . Bay Area rocker Jeff Fogerty was at Starlight Sound in Richmond, CA, working on tunes for his upcoming debut album. Bill Thompson was at the board . . . New Jersey's Skid Row went into Mushroom Studios in Vancouver, BC, to record "Holiday in the Sun" for an upcoming anti-drug album. Bruce Fairbairn produced the tune, with Mike Fraser at the controls and Tilde Fiorda assisting. The album, titled *Make a Difference*, features cuts by Bon Jovi and Russia's Gorky Park . . . The Zacharys stopped by Alameda Digital Recording (Alameda, CA) to record tunes for their upcoming release, with Jeanne Zanussi producing and George Petersen and J.J. Jenkins engineering and mixing . . . Avalanche Recording in Northglenn, CO, has been busy with demo work, including a three-song project for Peace, a Denver-based hip hop group. Jamie Jones, Bill Thomas and Karl Martin produced and programmed the tracks, with Thomas doubling as engineer . . . Audio recording and post-production was completed at Poolside Studios in San Francisco for "Visionettes," a collection of 30-second audio/video vignettes that will be distributed to cable stations across the country. Lisa Simonson wrote the music and David E. Nelson engineered . . . The Monks of Doom's *Cosmodemonic Telegraph Company* was recorded for Rough Trade Records at Mobius Music in San Francisco. Oliver DiCicco engineered and

co-produced, assisted by Jane Scolieri. . . Alias Records artists **The Sneetches** worked on a cut for the Acoustic Music Project's AIDS benefit recording with producer **Steve Savage** at Soma Sync Studios in San Francisco. . .

NORTH CENTRAL

While on tour, Colorado's reggae rockers **Little Women** rolled into **Scagrape Recording** in Chicago to track vocals for their upcoming album. Engineer **Terry Dwyer** rode the controls. . . **Amerisound** in Columbus, OH, reports that **The Bellows** were in recording their first CD for Play Records. **Stephen Haynes** engineered the sessions, with **Phil Wallace** producing. . . **Kindred** programmed and tracked material at **Tone Zone Recording** in Chicago on the studio's newly installed SSL 4032 G Series console. **Roger Heiss** engineered the project. . . **Jerry Harrison** of Talking Heads was at **Royal Recorders** in Lake Geneva, WI, mixing his second solo LP for Warner Bros. **Dave Jerden**, **James Farber** and **Jay Mark** mixed, with assistance from **Dave Kent**. . . In Bloomington, IN, **Stone Road** was at **Home Grown Studios** working on 14 songs for release on CD. *Deal Whatcha Feel* was produced by **Tim Tryon** and **Scott Simon**, and engineered by **Doug Black**. . .

NORTHEAST

Producer **John McClure** was recently at **Blue Jay Recording Studio** in Carlisle, MA, working on **Charles Mingus' Epitaph** for CD release on CBS, with **Mark Wessel** mixing and **Tina Hanson** assisting. . . **Bob Blank** engineered music for the feature film *Rude Awakening* (starring **Julie Hagerty** and **Cheech Marin**) at **Blank Productions** in Stamford, CT. . . At **Beartracks Recording Studio** in Suffern, NY, **Ryuichi Sakamoto** put finishing touches on his new album for Virgin Records. **Sakamoto** produced and **Jason Corsaro** engineered. . . Internationally renowned vocalist **Trifonas** was at **Crystal Sound Recording** in NYC with the band **Alpha Music**. **Crystal's** own **Steve Vavagiakis** appeared on both sides of the glass as drummer and engineer for the album. **Bea Winkler** assisted in the control room. . . In the Poconos, **Red Rock Recording** reports completion of albums by **Magnum** and **Public Affection**, with **Benjy King** producing and **Kent Heckman** engineering. . . **NRBQ** visited **Dreamland Recording Studio** in Bearsville, NY, to record with **Bill Schineman** and **Andy Paley** producing, **Schineman** engineering, and **Harvey Sorgen** and



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David Cook assisting. . . At Editel/NY, engineer Jonathan Porath digitally mixed and synched "If You Don't Know Me By Now," the latest music video by Elektra artists Simply Red. . . New York-based On the Edge started cutting basics and overdubs for their debut release at Sound on Sound Recording in New York City. Producer David Amlen worked closely with engineer Bryce Goggin. . . The soundtrack for a film produced for the Hartford Architecture Conservancy and narrated by Katherine Hepburn was completed by The Tape Works in Hartford, CT. The studio provided extensive sound effects work and a musical score. . . Baker Sound Studios in Philadelphia reports brisk activity in radio and TV work, including recording a new theme for "John Madden's Sports Calendar." . . The Bridge was in at PCI Recording Studios in Rochester, NY, with producer Joe Kaltenbach and engineers Steve Forney and Jeff Corcoran to record their debut LP. . . Studio A at New York's Sanctuary Recording saw Marcus Miller, Lenny White and Bernard Wright (also known as The Jamaica Boys) tracking for their upcoming Warner Bros. album. Miller produced with Bruce Miller on the knobs and Eric Hurtig assisting. . . Back at D&D Recording for their third consecutive album were PolyGram/Tin Pan Apple artists The Fat Boys, with producer/engineer Franklin Grant and producer Cliff Branch. . . Pop vocalist Steven Andrews was at Big Mo Recording Studio in Wheaton, MD, working on a single, "It's All Theatre." The song's writer, Charlie Barnett, served as arranger and producer, and Ed Eastridge was at the board. . . At Presence Studios in East Haven, CT, Abe Kelly's new LP for CBS was mixed by Dennis Mitchell. . . Freddie Jackson was at Giant Sound in Manhattan to record vocals with engineer David Kennedy. . . Steven Remote's ASL Mobile Audio unit was in Boston for live radio broadcasts on WBCN-FM. The shows included Mercury/PolyGram artist Michelle Shocked from the Berklee Performance Center, Arista recording act The Jeff Healey Band and Capitol artist Jon Butcher, individually, from the Paradise Rock Club. The broadcasts were recorded, engineered, produced and mixed by Remote, with assistance from Scott Hartmann and Andy Slote. . . Also in Boston, Editel Sound completed audio post-production of WCVB-TV's children's television series *A Likely Story*, engineered and mixed by Chris Anderson. . . M.C. EZ & Troop stopped by Island Media Services to put finishing touches on a new album for Sleeping Bag Records. Al Watts engineered the sessions, with Curt Frasca as-

sisting. . . Tom Pomposello, in association with Frank Doyle and John Mitchell of Native Jam Productions, was producing "The Big Show" for MTV at Pyramid Recording Studios in New York City. Engineers included Werner F, Tim Hatfield, Mark Plati and Laura Freed. . . Ellen Rigas was recently at White Crow Audio in Burlington, VT, tracking basics with producer Adam Steinberg, with Tom Dube at the desk. . . Would you believe a gospel rap song? Producer Dan Winans has just completed one with artist Greg Carter at Roar Productions in Columbia, MD. . .

SOUTHEAST

Jamie Hoover was in studio A at Reflection Sound in Charlotte, NC, producing a new album for the group 8 or 9 Feet with engineer Mark Williams. . . At Criteria Recording Studios in Miami, CBS recording artists Pimpinela mixed their upcoming release. Fernando Adour produced the sessions; Ted Stein engineered with assistance from Carlos Nieto. . . Other Miami activity was reported by Audio Arts Recording, where composer/arranger Carlos Marmo recorded themes for Univision Television Network's news magazine show *Portada* and talk show *Cristina*. Engineering was Jorge Pacheco. . . Five-time *Star Search* winner Shannon Nesmith laid down tracks for her first release at Front Row Productions in Birmingham, AL. Scott McDavid and Tony Wachter produced, with Wachter working the faders.

STUDIO NEWS

A to Z Studios, a new 24-track facility in La Verne, CA, opened its doors on July 17. Owned by Dick Zahniser and designed by Carl Yancher of Lakeside Associates, the facility includes a new Trident Series 80B and Sony APR-24 multitrack recorder. Chief engineer is Shawn Michael. . . Vintage Recorders in Phoenix recently opened a George Augspurger-designed control room, complete with a custom bi-amp monitoring system and Perreux power amps. The fully digital studio installed an SSL 4040E G Series console, a Sony 3324 digital 24-track and a Mitsubishi X-80 digital 2-track. . . Steven Durr and Associates have been keeping busy with numerous projects, including acoustical design of a new network facility and complete audio post-production studio for Kentucky Educational Network in Lexington. . . Under new ownership: Skyline Recording in Topanga Park, CA, is now Topanga Skyline Recording and boasts a new Neve V Series MkIII console. ■

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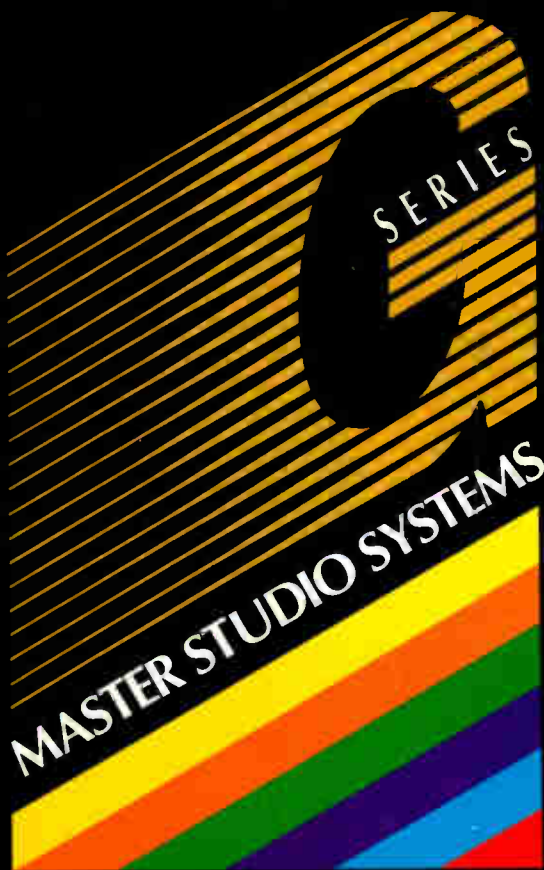
Dominique Blanc-Francard

"It's great to have been involved in the development of the new computer system and its new software features. The huge increase in speed and flexibility of operation makes it by far the most advanced mixing system available. As for the sound, I'm delighted with the end result. The transparent musicality of the new electronics is a pleasure to experience, whether mixing or recording. I'd be at a disadvantage to have to work with anything else."

Bob Clearmountain

今や私には空気のような存在である。——時には、音の発想の手足となりあるときは、複雑な要求にも応えてくれ、いや、もしかしたら求めた以上のものを与えてくれるかもしれない可能性を秘めている。今や私の仕事空間には必要不可欠なコンソールである。

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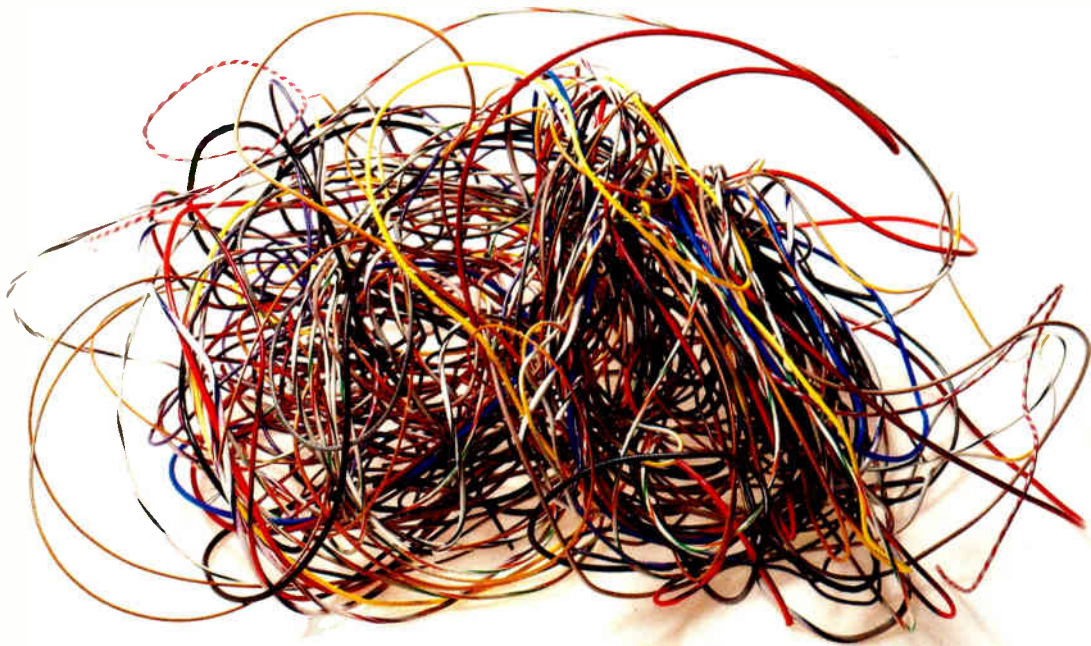


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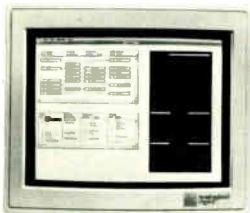
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by Ken C. Pohlmann

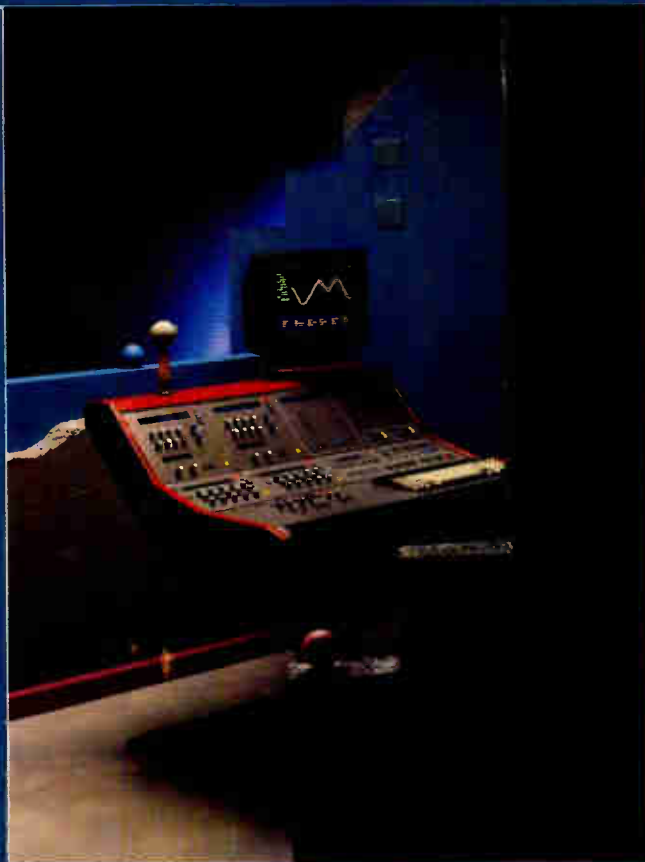
THE MUSE

AUDIO ANIMATION UNVEILS A DIGITAL MASTERING CONSOLE

Without question, the compact disc has revitalized the record business. Sales of recorded music are stronger than ever, as former customers—long absent from record stores—return in droves, attracted to the new format. And as with the introduction of any new format, record labels are busy combing the back catalogs for re-release on CD. This surge in reissues, along with continued interest in new recordings, has made CD mastering one of the hottest areas in the business.

Many mastering studios are using their cutting lathes less and less, and instead are turning to PQ editors and the PCM-1530 for more and more of their business. But the task of mastering to a digital format, along with the increased demands of signal processing for CD remastering, has placed new pressure on the mastering console. Many analog consoles are no longer adequate, and considerable interest is focusing on digital consoles.

Audio Animation is a new company on the scene, founded in 1986 in Knoxville, Tennessee. Its premiere product, the Muse, is a digital transfer console with the four cardinal aspects of digital console technology as the design criteria: computational clout and speed, precision, flexibility, and friendly ergonomics. To handle the bulk of the processing chores, Audio Animation has developed its own proprietary processor, named the Fire Engine. Constructed of discrete parts, it smokes along at 400 MIPS (million instructions per second). The Muse uses 16 Fire Engines. Of course, it would be silly to ignore off-the-shelf technology, thus the Muse also employs 40 ESP 56000 chips to perform tasks such as FFT computation and I/O. Minimum data path width is 24 bits, and it bulges up to 56 bits when necessary. The Muse uses FIR meth-



ods for filtering (as opposed to IIR), thus there is zero phase distortion throughout in the system, at any equalization setting from tight notches to smooth filters. This is important: total linear phase throughout the recording and reproduction chain is becoming a priority in recording.

A modem is used for long-distance diagnostics, controlled by the RAM-based, modular operating system. The bus structure may be expanded to a larger frame. The control surface connects to the processing rack via a fiber optic link. P&G automated faders are used for input and output levels, as well as optical pots to control trim and balance. Interestingly, no A/D or D/A converters are provided with the

The Muse is designed to satisfy the increased demands of mastering in the digital domain.

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system; users are expected to supply their own. Given the sometimes fanatical opinions on converters and I/O filters, and the surge toward new conversion architectures, this is probably a wise move.

A user can specify equalization or dynamic range changes; a typical system has two EQ panels and two dynamic range panels. The infinite band equalization mode allows complete specification of response: a 5-band parametric EQ provides settings for 1,024 center frequencies from 20 Hz to 20 kHz, continuous Q range from 0.01 to 50.0, boost or cut from -40 to +20 dB, and bands are not restricted to any range. The high and low bands

Total linear phase throughout the recording chain is becoming a priority.

are switchable between peak and shelf. A user can specify a filter's -3 dB points and width, and select from a menu of types. The infinite band mode of the dynamic range controller allows mapping of any input level to any output level. Limiter, compressor, expander and noise gate operations are all available. The dynamic range controller provides over 2,000 settings for ratio, threshold, attack and decay. There are no limits on threshold and ratio settings. High-resolution, 101-segment bar graphs are used, and peak hold and compare functions are provided.

The automation system provides over 80 minutes of automatic function updating at 100 updates per second. Automation editing can be performed from the physical controls, as well as a graphics package. All control settings, automation programs and system configurations can be saved and recalled in real time. Disk storage is used, and all information is synchronized via SMPTE.

The control surface is surprisingly reminiscent of an analog console. For example, the EQ and dynamic range panels support the time-honored, one-knob/one-function method. An EQ panel has 15 primary knobs, and a dynamic range controller has eight

primary knobs. Embedded displays indicate control status. On the other hand, much of the information is conveyed via a high-resolution color monitor. The menu is largely icon-driven; a user grabs blocks of functions and connects signal paths by drawing lines. Ten different displays are available. Between the knobs and the CRT, one is free to proceed according to need or inclination. You can equalize or change dynamics with a knob, or design an elaborate curve with the graphics package. You can combine the two, for example, drawing only a portion of a desired frequency response curve. The user is free to configure processing modules; route signals; edit automation instructions; monitor any point in the signal chain with line, headphones or VU meter; adjust time code; and perform other tasks. Overall, it is easy to use the system, which offers good information flow to the user. Of course, an important measure of any digital device is its ability to interface with other devices. The Muse will accept a sample rate in the range from 30 to 100 kHz, and the sample rate is automatically slave-driven by the source. The system inputs and outputs AES/EBU, SDIF-2 and RS-232. There is a user-selectable option for de-emphasis and preemphasis.

Audio Animation plans to begin shipping the Muse in September; beta site testing has taken place over the summer. Estimated price is \$135,000. Initial plans call for production of ten to 20 consoles per year. Future plans call for reduction of principal circuitry to silicon; reportedly this will be capitalized by a second round of venture financing later this year. The company is also committed to development of digital recording consoles. In addition, availability of proprietary chips may stimulate development of digital audio products for the consumer market. For now, the Muse makes an impressive debut for a new company on the scene. More importantly, it is a sign that recent developments in digital audio processing are being applied energetically to real-world tasks such as mastering. ■

Ken C. Pohlmann, author of Principles of Digital Audio and The Compact Disc: A Handbook of Theory and Use also heads the music engineering department at the University of Miami.

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by Stephen St. Croix

THE TIME HAS COME

"It is the nature of the cosmos, that any and all projects with a deadline shall, by the natural laws of the universe, miss said deadline, thereby causing great stress to all involved and to the very fabric of space and time itself. So it is and so it shall always be." —*Universal Law #1*

It does not matter in the least, for example, how early I begin one of these columns; it will be finished about three days *after* the deadline, and I will have stayed up several nights to do even that. It is only due

to the current state of technological advancement (three minutes after I spell-check the final here in Maryland, it appears in San Francisco by wire), and by the grace of *Mix* (who moved their deadline forward by ten days last



ILLUSTRATION BY JIM PEARSON

year—I suspect in anticipation of Universal Law #1) for even answering the phone when I call a few days after the last day that I am allowed to call.

Wait. Let me give you another example. I found out several months ago that my secretary has been picking up my airline tickets and actually *changing* the accompanying itinerary sheet so that I think the plane leaves one-and-a-half hours before it actually does. She claims that this is necessary to get me to the airport on time.

This, of course, is absurd! The fact that I have a ten-year history of finding myself in a position that requires me to run to the gate for all my weekly flights to L.A. merely reinforces the observations that led to Universal Law #1. The fact that it has been several months now since I have *had* to run to a gate simply shows a certain blossoming maturity on my part. This in no way supports her theory that falsifying relative time references can compensate for and thereby correct any basic personality trait of *this* man.

By the way, I figured out what she was doing after the first two months, and decided there were better things to do with my time than spend that extra 20 minutes watching waiting fliers smoke while their babies choke. My secretary must have figured that one out real fast and so countered with the Random Time Dilation Principle. This involves an occasional random ticket appearing on my desk *without* the departure times altered, so that if I tried to absorb the “extra” time, I found myself spending that night on the wrong coast. Nice. So now I can’t afford to take the chance, and her system continues to work.

Okay, okay, maybe I come a bit close to the wire (or perhaps even lean on it a bit) when it comes to writing or flying. I offer no excuse or explanation, as it is, well... it is... Universal Law #1! Yeah, that’s it!

Sure, none of *you* engineers have ever fallen subject to this law. None of you have ever spent the last five nights before a “drop dead” in the studio while your family and friends fade to a distant memory. But a lot of you must have evil twin brothers, because I sure have spent a lot of those panicked last nights with *somebody*!

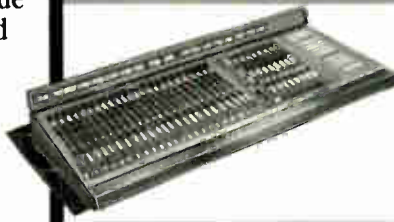
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fore or after AES and NAB that you leave on those two-week island vacations? Oh, yes, it must be *before*, because of all the extra time there is while the paint is drying on the new prototypes. Yeah, here too. We at Marshall Electronic generally leave about a month before each show to catch a couple hundred totally rad waves in Australia.

It seems that in the final analysis I lead three lives—my personal life, my work life and my deadline life.

Now boys and girls: DON'T TRY THIS AT HOME! It is Universal Law #2

that your deadline life shall attempt to steal as much time as possible from your personal life, leaving only your deadline and work lives remaining. It is a lot like really bad science fiction, only it's *real*.

It is the nature of our industry to be deadline-driven, of course. I can't see it any other way. All toys are brought to you sooner, even if a bit prematurely, by the competitive need to "make the show." All records, all television shows, all films (and all else) would slip smoothly past their promised due date if there was no penalty for doing so. Movie teasers would cheerfully claim, "Coming probably

this summer, or fall at the latest, but definitely by Christmas: *StarBars XX!*"

One of the associated scientific principles of Universal Law #1 is that the amount of energy that must go into a project in order to make the deadline increases logarithmically as said deadline approaches. Note that no matter how professional you are, how long you have been doing this or how many projects you have been through, you never stay up all night 60 days before the deadline. No, this is simply not possible without violating the basic physical laws of the universe.

You must wait until the deadline is close enough for that log curve to begin to bend up. *Then* and only then will the rules of quantum mechanics allow you to realize that you will have to cancel that most important personal event, whatever it is, booked who knows how many months ago, involving most or all of your closest friends, to spend 38 straight hours in front of a mixing desk, computer terminal or soldering iron.

Maybe it's the final Michael Jackson concert. Or the only combined alignment of all the planets with a total solar eclipse in the next 2,300 years. Or the one weekend in your life that your rich buddy wants to leave his twin turbo, nitrous-breathing Testarossa with you to drive so the gas won't go stale. Or a week on Maui with the Ku sisters.

Whatever. In any case it is gone. And you *let* it go; just so that you could deliver. Responsibility, honor, understanding of the importance—the critical nature—of the project. Who taught us these abstract concepts anyway, and why aren't they here to help out at the midnight hour?

Well, I just thought that it might help a bit (perhaps make you feel a little better the next time it happens) to know that somewhere out there is a writer who understands and sympathizes. In fact, he officially salutes your perseverance and sense of responsibility.

But he has to cut it short. He's a bit busy right now trying to get his column out before the deadline. ■

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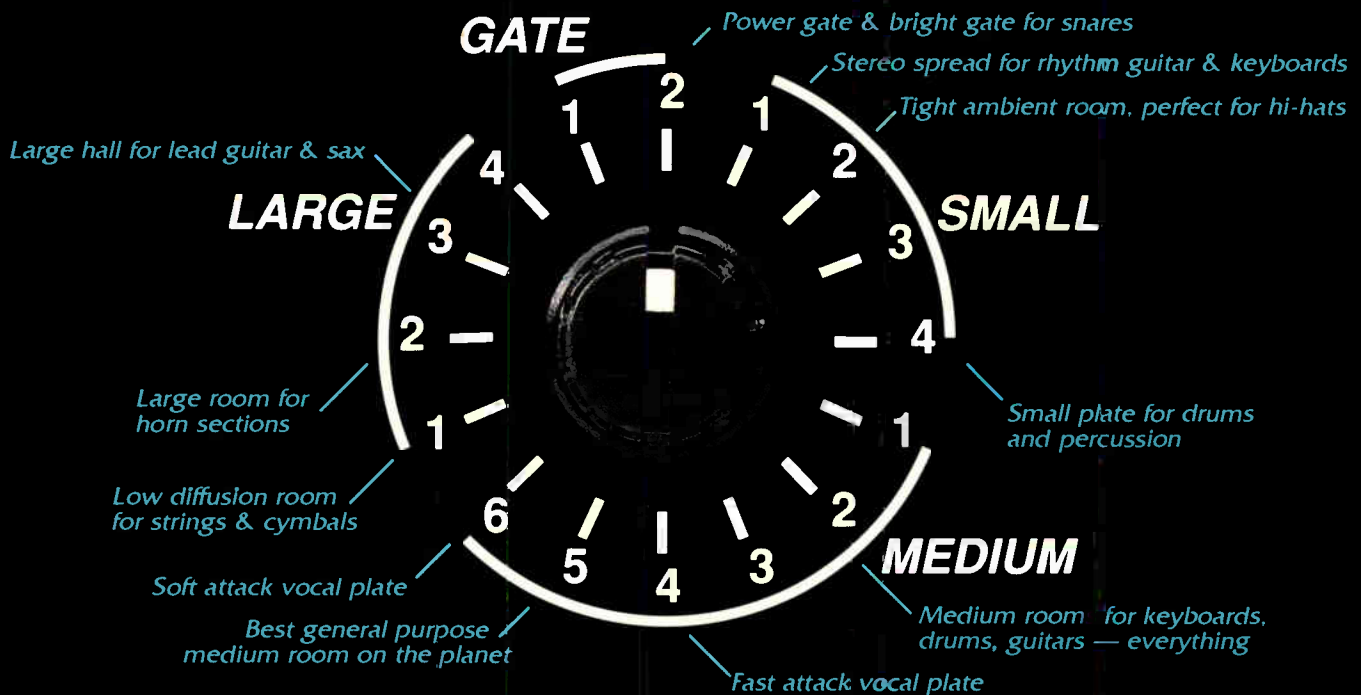
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World Radio History

by Mel Lambert

AUDIO IN DIGITAL TIMES

A REPORT ON THE AES' SEVENTH INTERNATIONAL CONFERENCE

You don't need much of a crystal ball to predict that digital technology will continue to revolutionize the way in which we record, process, manipulate and edit audio. That the majority of recording and production facilities have dabbled in things binary—if only through exposure to a humble DAT recorder or a microprocessor-controlled sound bender—is self-evident. What might be less obvious, however, is the fundamental revolution in creativity and practical operations that the Age of Digital will represent.

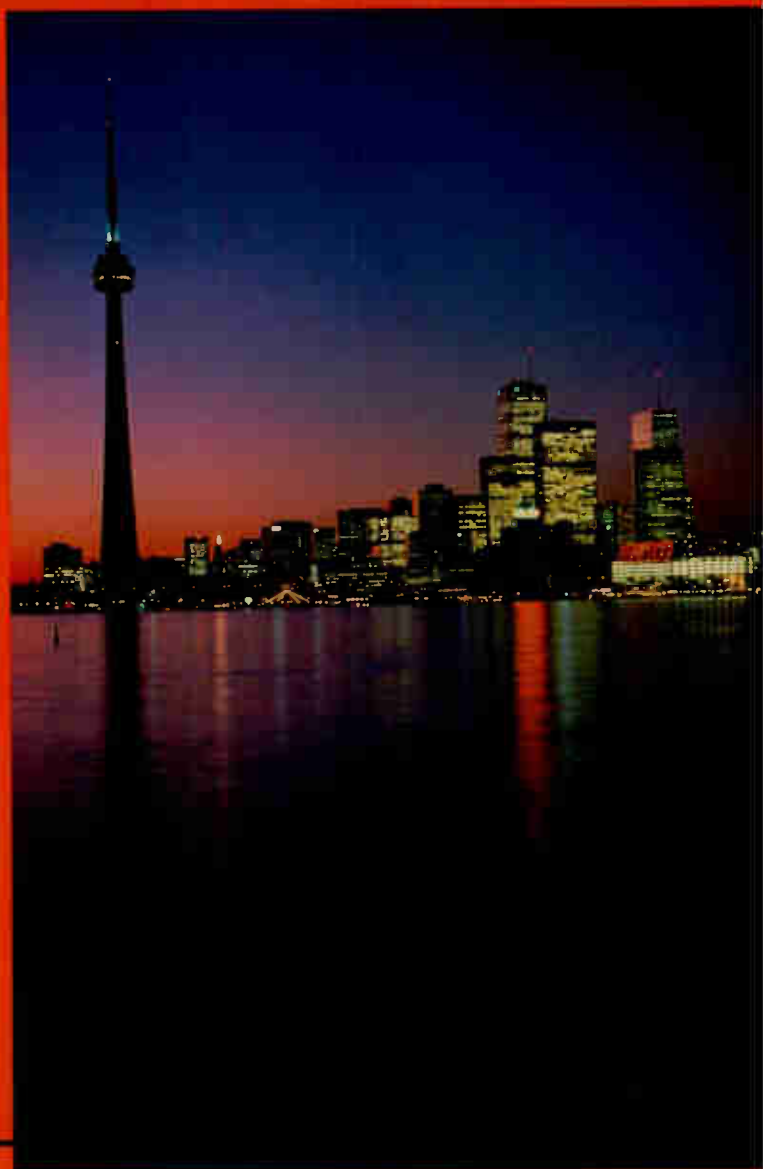
Once the audio material is converted to ones and zeros, we can subject it to some pretty mind-numbing sonic gymnastics. The big question is how do we keep up with all these rapid advances? *Reading Mix* certainly keeps you abreast of news from the industry. But monthly magazines don't have enough space to cover the theory of most audio technology, let alone the rapid advancements being made in microprocessor design and implementation.

So where do you go for an injection of digital wisdom? I know of at least two outstanding textbooks that will bring anyone up to speed pretty rapidly: Ken Pohlmann's *Principles of Digital Audio*, now in its second, enlarged edition; and John Watkinson's highly readable and comprehensive tome, *The Art of Digital Audio*. (Both of these texts, plus others on the subject, are available through the Mix Bookshelf; call [800] 233-9604 or [415] 653-3307 for more information.)

But no sooner is the ink dry on any textbook worthy of the name—more so in a rapidly expanding subject such as digital audio—than it's partially out of date. One way of keeping up with

advancing technology is through the various international conventions held during the year, including the NAB, SMPTE and AES gatherings. These and other specialized events can be a gold mine of new informa-

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tion for the active audio professional.

Against this background, the Audio Engineering Society is to be warmly congratulated for its recent international conference, held in Toronto during mid-May. Titled "Audio in Digital Times," the conference comprised almost 50 technical papers covering a remarkably coherent spectrum of theoretical and practical topics, ranging from trends in basic digital technology, through consumer audio, to applications in film and broadcasting. Chairman of the technical program planning committee was *Mix* columnist and University of Miami professor Ken Pohlmann; program chairman was Robert Finger of Matsushita Electric Corporation. According to conference coordinator Ann Smyth, the total attendance was just short of 450 participants.

Following Pohlmann's opening remarks, the four-day conference kicked off on Sunday afternoon with a fascinating pair of tutorial presentations by Takeaki Anazawa and Almon Clegg of Nippon Columbia/Denon, and Stanley Lipshitz and John Vanderkooy of the University of Waterloo, Ontario. Anazawa and Clegg's paper detailed the historic work carried out by Denon in the late '60s, culminating in 1972 with the introduction of the world's first PCM recorder, the DN-023R, which used 2-inch videotape running at a sampling frequency of 47.25 kHz and 13-bit linear quantization.

The Lipshitz/Vanderkooy tutorial combined a visually appealing overview of digital quantization and conversion basics, with practical demonstrations of the sonic effects of variable sampling frequency and the use of dither signals. The information took on a tangible reality because it was presented with real-world examples. Such concepts as how aliasing products fall back into the passband when the Nyquist bandwidth-limiting theorem is ignored take on a whole new meaning when you can actually hear the results for yourself.

During the second day of the conference, Bart Loxanthi of BNL Research Associates chaired a session entitled "State-of-the-Art and Trends in Basic Technology." As part of this session, Jim Lemke of Recording Physics discussed recent advances in recording systems and predicted that within two

years we will have recorders capable of holding 60 minutes of stereo material on a 2-inch floppy disk cartridge, with a recording capacity of no less than 1.25 Gbits per square inch! He concluded that magnetic media will offer a significant advantage over optical media in terms of access times and packing densities.

This same theme was explored by Takeo Yamamoto of Pioneer Electronic Corporation. His paper titled "Optical Recording Technology: Can Optical Discs Be Applicable to Digital Audio Workstations?" ultimately concluded "no." Analyzing the various alternatives available for opto-magnetic/erasable technologies designed to store large amounts of data on reusable media, Yamamoto explained that a bottleneck results from the difficulty of quickly accessing data for real-time replay of more than a handful of tracks from optical discs. For high-speed access and real-time playback of more than, let's say, four tracks of 16-bit/48kHz audio, we need to consider hard disk drives, but for high-volume, removable media holding completed mixes and edited material, magneto-optical is the way to go.

Three complementary papers by Gene Frantz of Texas Instruments, Edmund Cheng of Silicon Compiler Systems and James Johnson of AT&T/Bell Laboratories provided valuable insight into the onboard processing power of today's number-crunching engines. Also discussed were currently available options for top-end designers using advanced CAD systems to lay out complex, multilayer boards.

Monday's afternoon session, "Conversion Techniques and Performance Evaluation," chaired by David Haynes of Integrated Media Systems, considered in further detail some of the building blocks available to the digital designer. Louis Fielder of Dolby Laboratories provided a fascinating glimpse into the world of psychoacoustics and noise-shaping algorithms in his paper "Human Auditory Capabilities and the Consequences in Digital Audio Converter Design," while Bob Adams, formerly with dbx/Carillon Technology, now with Analog Devices, described the internal workings of his elegant two-chip design for 20-bit conversion using noise-shaping/digital decimation techniques.

Remy Fourre of UltraAnalog Inc. described techniques for testing dual 20-bit D/A converters running at sam-

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pling frequencies up to 200 kHz, areas we may well be entering in the not-too-distant future. Jimmy Naylor of Burr Brown Corporation described his firm's latest dual 18-bit successive-approximation CMOS A/Ds for two- and four-times oversampling. On a more theoretical level, John Vanderkooy and Stanley Lipshitz covered the complex subject of what types of dither should be added to sampled signals, and the ways in which a properly dithered signal can maintain signal quality with insignificant increases in noise level. In a nutshell, dither is a necessary evil of the PCM process; designers need to select the type and quality of the dither signal to minimize signal distortion without adding appreciable noise components to the output.

Eise Dijkmans of Philips Research Laboratories, Holland, provided an erudite summary of the current state-of-the-art and future of A/D and D/A converters, while Richard Cabot of Audio Precision described a variety of techniques for testing and evaluating

digital systems in the digital domain, analog domain or a combination of the two, including the design of distortion analyzers based on Motorola DSP56001 high-speed processors. His test data included distortion and frequency response measurements of 18-bit A/D converters and DAT machines.

Once audio is converted to ones and zeros, we can subject it to some pretty mind-numbing sonic gymnastics...

Tuesday's morning session, "Professional Digital Audio," chaired by Steve Lyman of Canadian Broadcasting Corporation, began with an unusual presentation from Bob Ludwig of Masterdisk Corporation entitled "A Benchmark for Digital Audio in the Real

World." Ludwig summarized the results of an extensive survey among 21 mastering and production engineers. While most participants were reasonably happy with the current state-of-the-art in digital recording systems, Ludwig concluded that more work needs to be done in format conversion designs, practical hardware for real-time EQ, and dynamic and level change, and more education is necessary for users of this new, emergent technology.

John Watkinson of Watkinson International Communications, UK, provided a thorough overview of the storage capacities and data transfer rates of digital audio recorders, including reel-to-reel, video-based, hard disk and various optical designs. Bruce Pennycook of Image & Audio Systems, Montreal, spotlighted the cost/minute equation in his paper, "Multichannel Recording on Winchester Disks: Improving the Channel/Minute Ratios."

Takafumi Ueno of Matsushita Electric Industrial, Tokyo, presented a detailed description of prototype time code-equipped DAT systems (demonstrated, incidentally, at the recent NAB Convention), including a portable DAT recorder, a rack-mount studio DAT deck and a two-machine editing system, while Roger Lagadec of Sony Corporation, Japan, reviewed recent developments in his presentation, "Stationary-Head Digital Recording: Progress and Directions." He also provided details of a new format, DASH-X, which comprises a 15 ips, 2-channel variant of the Twin-DASH configuration. This format is capable of storing 24-bit data (possibly configured as 20-bit audio and four bits of auxiliary data). Because of their identical track layouts, suitable recorders would be able to handle 16-bit Twin-DASH stereo tapes, as well as the proposed 24-bit DASH-X format.

Due to scheduling problems, this writer was unable to attend the session "Digital Signal Processing: Theory and Applications," chaired by R. Moses of Rane Corporation, which included papers by Martin Snelgrove of the University of Toronto ("Digital Signal Processing in Audio"); Jon Dattorro of Ensoniq Corporation ("Implementation of Digital Filters for High-Fidelity Audio"); Peter Schuck of National Research Council, Canada ("Digital FIR Filters for Loudspeaker Cross-over Networks"); David Griesinger of Lexicon ("Practical Processors and



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Programs for Digital Reverberation"); Dave Rossum of E-mu Systems ("Digital Dither in Music and Sound Synthesis"); and Karlheinz Brandenburg of the University of Erlangen-Nurnberg ("Low Bit Rate Coding of High-Quality Digital Audio").

Tuesday afternoon, Len Feldman of Leonard Feldman Electronic Laboratories chaired a session entitled "Consumer Digital Audio," during which Stephen Mascenik of Nakamichi Corporation described the company's work in developing a magneto-optical recorder. The talk included a practical demonstration of a prototype deck capable of storing up to 20 minutes of stereo audio on a 3.5-inch removable disc.

K. Yamamoto of Sony Corporation, Japan, described a new set of DSP chips being used in consumer surround sound systems, while Irwin Zucker of Yamaha Electronics outlined the development of custom chips that allow a variety of ambiences to be re-created in a consumer's listening room. The system uses a dedicated set of four extra loudspeakers located in the room's top four corners. Finally,

Stanley Quinn of Frederiksen and Shu Laboratories described a new technique for compressing 16-bit digital signals for potential use in satellite transmission systems.

On Wednesday morning I chaired a session entitled "Digital Studio Design and Practice," during which Tim

applications and practical implementations of the Multichannel Audio Digital Interface (MADI), including the requirement for a separate master word-clock line in addition to the 56-channel serial bit stream running at almost 100 megabits per second via fiber optic links.

In his paper "Communications in the Digital Audio Studio," Jim Wilkinson of Sony Broadcast & Communications, UK, tied together a variety of themes, including synchronization and digital interfaces, plus various message modes available within the AES, EBU and MADI formats to identify source and destination studios.

In a trio of related papers, Mark Goldstein of Integrated Media Systems described techniques for synchronizing digital systems to one another, in addition to master time code streams, while Bill Cavanaugh of New England Digital considered the various software and hardware interface designs for digital audio workstations. Finally, Charles Anderson of WaveFrame Corporation wrapped up the session with a comprehensive treatise on communication among the major hardware

...but the big question is: "How do we keep up with all these rapid advances in the age of digital?"

Shelton of the BBC Research Department, UK, provided an in-depth description of the types of problems encountered while synchronizing various word and bit clocks used in digital recording and processing systems. Paul Lidbetter of Neve Electronic Laboratories, UK, described the various

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elements of an audio workstation, including details of his firm's 64-channel, 24-bit Digital Audio Bus.

Again, because of session conflicts, I was unable to attend the session entitled "Digital Signal Processing: Architectures and Music Applications," chaired by Jeff Borish of Euphonics. Jean Marie Adrien of IRCAM, Paris, described "Dynamic Modeling of Instruments for Sound Synthesis," while Julius Smith of NeXT Computer provided insight into the DSP architecture and audio capabilities of the firm's Cube PC. Kevin Kloker of Motorola

outlined "VLSI Architectures for Digital Audio Signal Processing"; John Snell of Timber Engineering, San Geronimo, Calif., described "Multiprocessor DSP Architectures and Implications for Software"; Ken Bogdanowicz covered "Using Multiple Processors for Real-Time Audio Effects"; and Dan Weiss of Daniel Weiss Engineering, Switzerland, detailed "Experiments with the AT&T DSP32 Digital Signal Processors in Digital Audio Applications."

The last session of the conference, "Digital Audio in Film and Broadcasting," chaired by Randy Hoffner of NBC, New York, walked a useful line

between the theoretical and practical aspects of digital audio. Skip Pizzi of National Public Radio covered a lot of bases during his paper "Digital Audio Applications in Radio Broadcasting," including the strong role to be played by DAT and random-access editing systems, while Ronald Uhlig of Eastman Kodak Company analyzed the "Feasibility of Digital Sound on Motion Picture Film," which reported on the recent findings of a SMPTE Study Group.

Doug McKenzie of Master's Workshop, Ontario, presented a very interesting analysis of "Digital Sound Post-Production for Television and Theatrical Motion Pictures," which included a detailed look at Soundmaster, a computer-based editing system offering enhanced machine control of analog and digital transports. In his paper titled "Transmission Suite for Digital Broadcasting," Benjamin Bernfeld of Harmonia Mundi Acustica described a broadcast center in Switzerland that is equipped with 16-input stereo digital consoles, sampling frequency converters and DSP capabilities. Eichi Miyasaka of NHK, Tokyo, described a new discrete, 4-channel, surround sound system for high definition television (HDTV) that uses a 15-bit signal companded to 8-bit, or a 16-to-11 reduction for stereo transmissions. Finally, in his paper "Digital Audio for Video Production and Post-Production," Brian Lilly of Sony Broadcast, New Jersey, described various building blocks for the TV studio and post facility of the very near future, including editing, signal distribution and routing, bit-rate conversions, format conversion and synchronization.

All in all, the conference represented a great deal of interesting information during four days of technical sessions and discussions with participants into the wee small hours. For those of you unable to attend the conference, AES plans to publish the entire proceedings this summer. A complete collection of papers will cost between \$30 and \$40. Watch these pages for further details, or call Jesse Klapholtz, managing editor of the *AES Journal*, at (212) 661-8528. ■

Mel Lambert has been actively involved with professional audio on both sides of the Atlantic for the past 14 years, and now heads up Media&Marketing, a consulting service for the pro audio industry.

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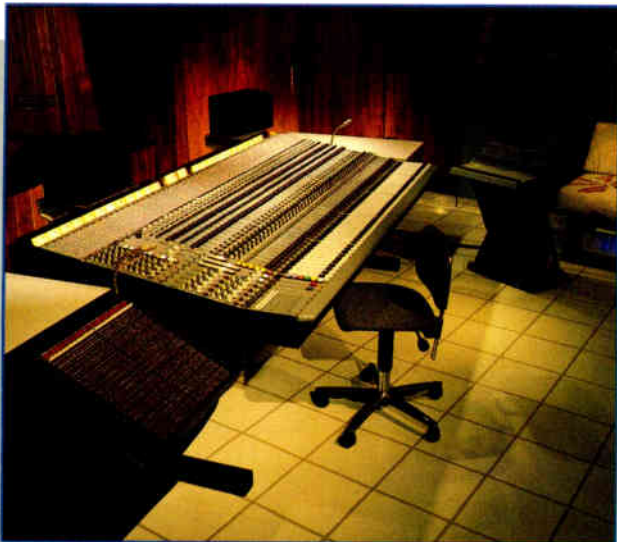


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WHEN IS A HOME STUDIO NOT A HOME STUDIO?

by Linda Jacobson, Tom Kenny
and Randy Alberts

Home recording studios are not new, especially in Los Angeles. But in the dawn of tape recording, only a few adventurous souls recorded music in their garages and basements. Everybody else wanted things simple, so they went to large, ambient, professional service facilities. Today it's far more commonplace for a creative person to assemble and operate a recording system in a spare bedroom, where complete albums can be tracked, even mixed down for CD mastering. And for some people this phenomenon has become a foundation for new businesses.

One such business is now closed. In June the Los Angeles City Department of Building & Safety ordered the

A Forum of Studio Owners and Other Recording Professionals in L.A.

closure of producer/songwriter Chas Sanford's home studio, Secret Sound L.A., claiming the business violated residential zoning laws. This occurred not long after a meeting was held by a new, informal organization of about 40 major recording facilities, the Hollywood Association of Recording Professionals (HARP). HARP formed because studio folks wanted to talk

about common business issues, like insurance and bill collection. When HARP members saw a brochure about Sanford's studio, they began to wonder about zoning laws, and they invited a rep from the Building & Safety Dept. HARP's members learned that zoning laws prevent studios from existing in residential neighborhoods. And the zoning official learned about Secret Sound L.A.

Before Secret Sound was closed (with two weeks' notice), Sanford contacted the mass media about the ruling's "unconstitutionality" and blamed the closure on HARP. HARP denies Sanford's allegations that the group went to extreme lengths to close his studio to "set an example" for other big-time home setups.

Sanford appeared on TV and held interviews with the *Los Angeles Times*

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and national wire services, saying, "The zoning law invoked in this instance is antiquated. The way it reads, you can't do anything in your home that you can be compensated for. [Using] a strict interpretation, you can't write a song or an article [at home]. This isn't the type of thing the law was written for. It was written for auto mechanics who have 20 cars in their front yard."

Frank Eberhard, the city's chief zoning administrator, told the Associated Press that strictly speaking, a home business operator violates the city's zoning code, unless the home/business immediately adjoins a commercial zone. "But unless there's a neighborhood complaint, there's not a real heavy enforcement of those rulings."

The HARP/Sanford incident may be isolated, but what it represents is not: home studios have affected commercial studio business, and the growing trend of home-based workers—a trend cutting across almost all service industries—affects the workforce in traditional industrial and business centers. (Last year, market researchers at Link Resources Corp. reported that over 9.5 million Americans are self-employed, operating businesses from their homes.)

Mix contacted studio professionals in Los Angeles—some connected to the HARP/Sanford incident directly and some connected only by industry affiliation—to document their perspectives on home recording. They are:

Chas Sanford, who has produced releases for Stevie Nicks, Chicago and Rod Stewart. His home in the Wood-

Chas Sanford

land Hills part of L.A. contains a recording studio with a Solid State Logic console, digital multitrack, audio/video synchronization and top-quality monitors, outboard devices, mics, synths and samplers. (The studio itself was built in 1980 by the house's former owner.)

Buddy Brundo, co-owner of Conway Recording Studios in Hollywood, and spokesperson for HARP.

Shelly Yakus, a partner in Hollywood's A&M Studios, which started out 27 years ago in Herb Alpert's garage.

Darryl Caseine, manager of Encore Studios in Burbank.

WHAT IS YOUR POSITION ON THE HARP VS. SECRET SOUND/L.A. SITUATION?

Brundo: We have *no* problem with personal use studios, artists' home studios. They are operating within the law. Our issue is with blatant, commercial, for-hire, advertised, home studios, *a la* Secret Sound. We are against those in principle, but we are not an enforcement agency.

Caseine: It's been HARP vs. Chas Sanford and the home studio, and it's very disappointing to me. We have not been affected by the home studios—except for three days all year, including holidays, we've been locked out. People who are worried about home studios have to look in the mirror and say, "What am I doing wrong? Do my

"As an artist, I can sympathize with an individual's right to create in his home. However, I feel no one has the right to operate a commercial business without meeting all legal requirements. I have the same equipment found in many home studios, and if all I had to do was meet my payments I would be happy. But as a commercial business I must comply with federal, state and local requirements such as building, electrical, handicap, fire, plus all the applicable taxes and medical coverage for my employees. It is clear how this affects not only Lion Share, but the entire entertainment industry, and jeopardizes the very fiber on which the city was built."

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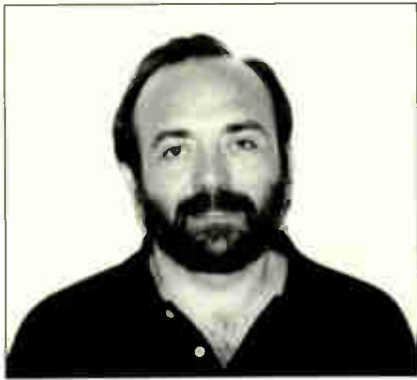
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Buddy Brundo

monitors suck? Do I treat my people right? Is my equipment breaking down?" Let's come up with a forum, a meeting, and, in a manner of speaking, let's bury this issue. People are finally talking about hospitalization [benefits for employees]; how about some other positive things? Not one of these guys employs a black person and in most cases, not very many women. They'll hire a woman to sit out front, the kind who would win a wet T-shirt contest, but that's it. Let's talk about some real issues.

Sanford: I've been shut down, and I believe HARP is directly responsible. They invited [the L.A. Dept. of] Building & Safety to their meeting and gave them [my] brochure. They also signed a complaint against me. They can be sued because it's antitrust, and it's conspiracy to form a group of individuals to put somebody else out of business. I've applied for an extension [on the studio's closure], because I produce records here and have commitments to people I said I would work with here. Technically, I'm sup-

"We find that clients with their own studios are more professional because they understand the problems we face during a session. We also have a small number of them who saw a loophole, saw how to take an unfair advantage, then set up their room as a commercial operation. Another big concern is the residential power service limitations. A home cannot use more than 100 amps legally, yet some of these home facilities have wires that are literally glowing from the draw that a well-equipped studio demands. If a residential fire is ever started by this, no studio will ever get fire insurance again."

—Dee Robb,
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Studio owners did a double-take when they saw this color brochure. Shown here are two pages from the six-pager put out last spring by Secret Sound L.A.

a real studio?" I happen to have a real studio, and it's hard to convince them over the phone. So I printed up an equipment list with pictures. My studio never has been open to the general public. I built it for my own projects and obviously a lot of people build rooms like this, and if they sit there writing for a couple of months it gets expensive. I let my friends work here—I've had four, maybe five outside projects in three years, but never anybody off the street or anyone that came from HARP studios. I charge for the sessions I produce for record companies to try to support the lease payments.

Yakus: I wish it had been approached from the point of view of having [Sanford's] studio pay the same fees and taxes associated with commercial studios, instead of giving him two weeks to close his studio, which is his livelihood. A&M is for home studios, as long as the home studios pay the same taxes and must have the same permits as commercial studios. However, I would not like to see any more commercial-only studios in homes. This becomes unfair competition because the home studio owner does not have to lease a large space at exorbitant

posed to cease all production, mixing, anything involved with doing records for commercial purposes. It can also be interpreted if I write a song and that song gets used on a record, that's for commercial use, according to the zoning law. That's the part that rubs me the wrong way.

In the meantime, I'm going to apply for a variance [in the zoning law]. The city's chief zoning administrator suggested I apply for it and just keep appealing, because he believes the law is going to be changed. I've been asked to propose something to the city council to amend the law so it would be based on neighborhood im-

pact, making noise or disturbing the character in your neighborhood. I got all my neighbors to sign the variance application, and most of them didn't even know I had a studio. There's a lot of motivation for the city to change the law, because they need to cut down on traffic and gas consumption. It's all about being able to do what you want in your own home, which would seem to be constitutional.

About my brochure: when you're a producer, you set up a budget, you talk to the A&R guy, and they ask, "Where are you going to do the record?" When you say, "in my house," they say, "Wouldn't you want to go to

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rates. However, when a creative person opens a studio at home and tries to create his own stuff there, and does some outside business to offset it, there is a balance.

WHERE DO YOU DRAW THE LINE BETWEEN "HOME STUDIO" AND "COMMERCIAL STUDIO"?

Brundo: [Sanford's studio] is a commercial studio that's in a house. If he contends that he isn't, the argument against that is you don't print up a six-page, 8x10 color brochure that says on the back, "Call for rates." Next thing, press releases showed up at all the magazines [*Editor's note: including Mix*] detailing the artists and producers working in his room. This is in clear violation of the zoning code in the city of Los Angeles. And when you do that kind of activity, there's a chance you're going to get caught. We feel that the creative mind has nothing to do with this problem here. There are two separate issues being blurred into one.

Caseine: A commercial studio is basically a studio for hire; for instance, when a label calls and says they'd like to come in with an act that's totally independent of your studio, you're a

"The home studios haven't really affected Capitol, but I don't think we could accurately say that without doing an exhaustive study. This issue has given the recording business a nasty profile that we should collectively try to rectify as quickly as possible. We may not like conforming to city ordinances, but they exist for everyone's safety, and that should be our biggest concern."

**—Charles Comelli,
Capitol Records Studios**

commercial studio. You call it a "home studio" when whoever owns the situation, and the house, is directly involved with the project. I have no problem with that. Robby Buchanan has a gorgeous home studio, and most of the time he's involved in what's going on there. My daughter and Buddy Brundo's cousin both work for [producer] Dennis Lambert, who has a home studio, and most of the stuff done there is his stuff—either he's producer or executive producer.

Sanford: What should be judged is impact on the neighborhood. If someone's got trucks coming in and it's

loud and noisy, then that's what it should be judged on as a commercial facility. If someone is quiet and [his or her studio] is soundproofed, and they're doing their own work in there, even if they have friends coming in to work there, it's a home studio.

Yakus: Is a studio commercial when you, the owner, get paid for work you've professionally done? Or is it commercial when your studio is booked by an outside producer and group for which you are receiving money? This needs to be readdressed by the city zoning commission. If you are a songwriter and only use your studio to develop songs, and you place your song onto other people's albums, but you get a royalty if it's a hit because you're the songwriter—you've made money from what you've done in your home. That's commercial.

People are trying to draw the line, but I don't think it can be drawn. All home studios that make any money from what they create are commercial. Their product goes out in the commercial market. It's sold to people in stores. The problem with this whole thing is, if these people are breaking zoning laws and stealing one loaf of

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Photo: Bill Milne



Darryl Caseine

bread, has Chas Sanford stolen two loaves of bread? And does that make him any more of a "criminal" than anyone else who owns a home studio?

IS THIS A LEGAL ISSUE OR A BUSINESS ISSUE?

Brundo: It's a legal issue, that's all. In principle, HARP is against commercial home studios, but we are not an enforcement agency, we will not report anyone, we have no lists; it's not worth our time. I told Dennis Lambert, who has a home personal-use studio, "Instead of coming down on HARP and blaming us for people's

problems, you should do the same thing we did: have a meeting with the city. And decide what you can do and what you can't do." The law is very clear. When you operate a commercial studio for hire in your house, you violate the zoning laws. Another issue that concerns HARP is... you understand the complexity and [electrical] power requirements of what we're building today. We don't want to have an accident out there, because an accident will affect our entire industry. If something happens inside one of those unregulated, commercial user's houses, we're going to have a hard

time getting insurance—we *already* have a hard time getting insurance.

Caseine: It's a business issue, and at the first HARP meeting there was a lot of anger. Are we jealous of Chas Sanford? I think it's a business issue because it has hurt the commercial studios. If the labels can work at some of these home studios and pay lesser rates and get the quality they want, then that's business.

Sanford: A business issue. I think it's business-motivated. These [HARP-affiliated] studios are trying to protect their own interests and keep a monopoly on the business they have. Ninety-nine percent of the big artists with home studios record tracks at a big studio, come home and spend

"We have a Trident room and an automated Neve room. The Trident room has been directly and measurably affected by the home studios, and it's unfair. The Neve room hasn't been hurt yet, but perhaps it will when more home facilities start financing Neve and SSL consoles."

**—Joe Deranteriasian,
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"We interface quite nicely with the clients who use large, MIDI-based rooms [at home] to do their pre-production before finishing and mixing with us. But if you're talking about a fully outfitted home studio that is advertising and renting out commercial time, they are breaking the law and are competing with a very unfair advantage."

—John Ross, Wildcat Studios

woodshedding time on ideas and go back to the big room to mix. The market is changing.

Yakus: That's hard to answer because the zoning laws need to be reworked. Are you breaking the law when you go home tonight to write this story and accept payment for it? It may have to be determined in the courts. I think as long as it doesn't upset the neighbors, it's fine. No matter how loose they make the zoning laws, they're going to keep one thing: If your neighbor complains, your neighbor wins. So there are a lot of drawbacks to having a studio in your home. You can be closed up any minute. But no matter how much they relax [the zoning law], they have to do something, because the laws are antiquated.

WHAT ADJUSTMENTS SHOULD COMMERCIAL STUDIOS MAKE TO COMPETE WITH HOME STUDIOS?

Brundo: None, there's no competition. Producer/artist-based home studios have nothing to do with us. We can coexist. Home studios have always been there; and they will always be there. But we want them to conform to the same laws as we do.

Caseine: Clean your house. Big stu-

"Most of my clients have home recording gear, and it's the best thing that ever happened to our industry. It's just a shame that a few of the larger operations have abused the privilege of using their homes to record in. When someone has to pay off a million-dollar equipment loan, they are no longer an artist painting at home, but a service-providing businessman. My only hope is that by the time this article is printed the whole issue will be resolved and we can all go back to making records again."

**—Skip Saylor,
Skip Saylor Recording**

dios have to make life as easy as possible for the client. Rates aside, you have to create an atmosphere that he or she wants to come to, so when they're here, it's like being at home. I had one client who did almost \$600,000 with me last year, so I gave him an office with a bed and he can take a shower here. Not every studio can do this, but you do all the other little things. You find out what the basic client wants. We're a service organization; we have to give the kind of service that each client wants, and everybody's a little different in what they want.

Sanford: They mutually benefit each other, because it's all part of the creative process. If everybody put their

"If more home facilities start to buy SSLs and book their time for a commercial purpose, we will be more affected. For now, we are booked 100 percent of the time and don't feel their effect as much as the other commercial studios in town. It's unfair to everyone when a home studio can use a less expensive yet more aesthetically appealing residential environment to attract clients away from a commercial business zone, but if it is fair, then maybe I should relocate Larrabee to my house and build a tennis court and pool in order to compete on a level playing field. Everyone should be able to compete equally."

—Kevin Mills, Larrabee Sound

energy into being associated with the best work possible, that's what's going to generate the most business...but only a very small percentage have a major studio in their house. If business isn't as good as it used to be, that may be due to competition, but people are mistaken if they think the main reason is home studios. It just has to do with the way big studios do business. Some of these older rooms represent an old way of doing things and don't want things to change. They're not going to keep people from doing work at home, and most of the people who can afford [working at] the big rooms have their own home studios. If [big studios] work in conjunction with home studios, they'll be fine.

Yakus: There have to be more affordable rooms for new artists in commercial studios. Commercial studios need to acknowledge that they have to co-

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Shelly Yakus

this—would you want one next to *your* house? Successful musicians want to minimize expenses, so of course they're going to do everything in their houses; but most of them do not rent their studios to outside clients. We just want to see the business prosper and grow, and everybody be happy.

People say that if you're a songwriter, [according to zoning laws] you can't write songs in your house. You *can* have an office in your house. But residential areas are exactly that. It is mandated by the state and people of

"The legality of home recording is only one of many issues that professional recording studios have to deal with. Modern technology has evolved to the point that professionals working in a home environment are able to produce a quality product. Many problems—such as stolen equipment, UL listings and troublesome accounts—face pro studios, and by meeting and talking about them we have a better chance of solving our mutual problems."

—Victor Levine, Amigo Studios

exist with home studios. They're not going to be able to knock these people out. Everything else will fall into place naturally, as long as home studios conform to the same laws that commercial studios conform to. Fair competition is healthy. Also, we used to spend days trying to re-create a demo done on cassette at home. The songwriter now brings a multitrack tape from the home studio and we add the final touches and mix it. I call that working together and I like it. Also, the rock group that gets off the ground in a home studio today will be the business of A&M tomorrow.

Even though we charge more money than home studios, we're not threatened because we can offer a lot more services, and our clients like that.

HOW HAS THE HOME STUDIO PHENOMENON AFFECTED THE RECORDING INDUSTRY AS A WHOLE?

Brundo: It's made it better and bigger. It has enabled creative people to get out of bed at 4 in the morning and do their own stuff. But all we ask is that if you're in Europe on vacation for two months, don't put your studio up for hire. And then I would ask



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“Sure, some home studios affect commercial studios, but they still track and mix with us. There is a distinction between a legal home studio and an illegal commercial facility. Fifteen years ago, after I crossed that line, the city closed down my home studio. However, the city worked with me for two years, allowing it to become Soundcastle. That closure was the greatest thing to ever happen to me. Selling a studio in today’s market is challenging, yet the potential for financial success may be greater than in the days of the Putnams and Heiders.”

**—Buddy King,
Soundcastle Recording Studios**

California that when you’re in a residential area, you are not going to have a business. The guys with their 4-track, 8-track and 24-track personal-use home studios are not involved in this. But if they do make their studios commercial, they are at risk from the city because they are in violation of the law. It’s almost like speeding on the freeway: one guy gets caught and a hundred get away.

Caseine: We’re currently working on something for Warner Bros. that was done in a home studio. We’re restructuring the whole project; obviously, it’s not cost-effective like that. I asked a couple of vice presidents from Warner Bros., “Have you ever thought of opening your own studio, like A&M or the old RCA Records?” They said producers and engineers like certain places and will continue wanting to work in those places. And that’s the key. You must develop a relationship with these people, and deal on a friendship basis. You give people what they want now. [Home studios have] made people more professional.

Sanford: I think it’s great! There

—CONTINUED ON PAGE 186

“The home studios will affect us more in the future. As the technology progresses and gets less expensive, an artist will be able to get a sound closer to that of a commercial studio. For now the question is, ‘What is a home studio?’ Is it a full-blown, 24-track facility in a 6,000-square-foot house, or is it a Fostex 8-track in some kid’s bedroom?”

—John Goodenough, JE Sound



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MUSIC PRODUCTION LIBRARIES

Before we get started, I want you to forget everything you've ever heard about production music libraries. Based on the "stock" music of yesterday you know what to expect: a cliché-riddled horn section blaring out ad nauseum while a mushy string arrangement buries the melody line into oblivion; audio quality, of course, should equal any World War II-vintage wire recording transcription.

Now for a quick dose of reality. The decade of the '90s is a scant three or four months away, and it's about time that these misconceptions about production music were placed in a time capsule where they belong. Having heard samples and demos from the more than 30 libraries listed in this article, I must say that I was surprised by what I heard. The overall sound quality was excellent—many of the libraries offered digitally recorded and/or mixed product; arrangements were anything but banal, and most of the tracks definitely had a distinctly '80s, if not '90s feel.

The diversity of available material is almost overwhelming in scope, including: classical, folk, country, jazz,

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by George Petersen

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Another point worth mentioning is the proliferation of current production music offerings on compact disc. Besides its well-known advantages—improved sound quality, 60- to 70-minute storage capacity and relative imperviousness to scratches and other physical damage—the CD medium offers quick cueing and the ability to rapidly audition different selections, two obvious advantages in a quick-paced production environment. A number of libraries are also available in tape or LP form, particularly with music catering to specialized needs, or the many vast collections of older material that provide an important resource, yet would not be economi-



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—CONTINUED FROM PAGE 48

actually viable to release on CD.

Basically, music libraries fall into two groups: those operating on a "buy-out" basis, and those operating on a per-use, or unlimited use "blanket" licensing arrangement. Typically, a buyout agreement allows the unlimited use of music for a one-time charge. Licensing contracts and rates can take a variety of forms. "Needle-drop" (sometimes referred to as "laser-drop" with CD collections) refers to the use of a partial or entire music selection in a single segment of a production; thus if the same theme is used in two different parts of a film, then two needle-drop charges would occur. A "per-production" rate allows the unlimited use of a particular library or selection in a single production for a set fee, which depends on the audience market size/type, distribution medium and the project's total length. A "theme rate" covers the use of a particular selection on several projects, especially in jingles, television ads and radio spots. An "annual blanket" offers unlimited library use for a yearly payment.

How does one pick a production music library? The easy answer is to select the company whose music and use arrangements best fit your needs. Buyout, per-use and blanket licenses all afford different advantages and disadvantages, depending on your particular situation, and it's best to weigh all the facts before you decide. Some decisions are simple: for example, a hot set of 30- and 60-second jingle beds is an inappropriate choice for the dramatic film producer. The subjective evaluation of the quality of a library's offerings is a more difficult question—after all, no one knows your musical needs better than you. Fortunately, all the companies will provide demos of their wares upon request; their addresses are listed at the end of this article.

Available on an annual license basis, the AirCraft music library is a growing collection with 30 CDs of contemporary music themes. Each disc offers five to ten music selections, presented in fully and partially orchestrated long versions, along with 60-, 30-, 15- and 10-second edits, as well as bumpers, shotguns and stingers (with 40 to 100 tracks per disc). A "SpeedSearch" feature places all the 30-second cuts at the beginning of each CD, so users can easily audition all the themes in

minutes. Continual CD updates are included as part of the annual subscription, and license fees are based on usage requirements.

The New Production Library from Airforce Broadcast Services is a collection of 14 CDs, designed specifically for radio spot production. The NPL provides over 400 different commercial-length tracks, with many alternate versions and 250 random-length tracks for promos, sweepers and spot building. A three-year lease (rates depend on market size) includes a Sound Ideas sound effects set (either the 28-disc Series 1000 or 22-disc Series 2000); library update CDs are deliv-

ered every other month during the lease.

Designed for radio spot production, Vortex is a new library from American Image Productions, offered on a market-exclusive basis with rates depending on market size. The initial Vortex release is 15 CDs, with an average of 15 basic themes per disc with 30/60-second and stinger versions of each theme, and alternate mixes where applicable. Two update CDs are provided each quarter for three years. The library's "cookbook" catalog lists track titles and descriptions and gives instructions for customizing tracks with an Ensoniq Mirage or EPS digital sam-

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pler (available optionally). AIP also markets Champion, a ten-CD library for broadcast commercials, corporate videos, film and multi-image productions, with 125 full-length themes, alternates, 60/30-second edits and stingers. Champion's low buyout price also includes Tech Effects, a collection of electronic effects on vinyl disc.

Associated Production Music is the exclusive North American licensing representative of the KPM, Bruton, Sonoton, Themes Intl., Conroy and Shepherd's Bush libraries, offering over 25,000 titles for television, commercials, A/V production and films. *The Color Purple* and *Who Framed Roger Rabbit* are two of the feature films that have used APM material. The KPM and Bruton libraries are extensive, each with more than 50 CDs and hundreds of LPs spanning a wide spectrum of musical styles: contemporary pop/rock, action, classical, comedy, industrial, jazz and historical. APM is currently expanding its compact disc offerings at the rate of about 100 discs per year; CDs are priced at \$15, plus per-production, needle-drop or annual blanket fees based on medium and program length. A new release is Broadcast One, a 25-CD set designed for radio and TV spot production, with full-length beds, 29- to 59-second edits and underscores. Broadcast One includes "The Editor's Companion," with 440 logos, fanfares and stingers. New releases are added to the package every three months.

Audio Action is the exclusive representative of ten different libraries: Sound Stage, Josef Weinberger, D.I. Music and Champion (all from the UK); Kosinus, K-Vox and KOKA Media—formerly RCA Media—(France); Primrose and Beat Records (Italy); and Image Music (Australia). Over 100 CDs are available, with each library releasing new material every four to six weeks. Selections range from classical to industrial and new age. CDs are priced at \$20, and may be licensed on a needle-drop, per-production or annual basis.

Brown Bag Productions offers five CD libraries for radio and TV spot production: Starfire, Escape, Power Tools, Flashpoint! and Eclipse. Each is offered on a market-exclusive, 26-month lease, with over 300 cuts—logos, effects, 60- and 30-second beds. Flashpoint combines the talents of legendary Spirit guitarist Randy California with synthwiz Mark Koenig,

while Eclipse (the latest Brown Bag release) provides 420 cuts—107 logos, 270 effects and 43 long beds—on a single CD featuring Bob Lee and Mark Hiskey, with woodwind and reed performances by Bob Rebholz.

The Professional is the newest production music offering from Capitol Production Music, a division of Capitol Records. The package is available on 34 compact discs (with approximately 70 minutes of music on each), with new additions released on a regular basis. Designed expressly for video/film scoring, broadcast commercials, multi-image and corporate training applications, The Professional is licensed on an annual blanket or needle-drop basis, with pricing determined by market size or intended usage. Capitol also maintains a vast inventory (over 1,000 records and tape reels) of older material, dating back to the early days of broadcasting, including selections used on classic TV shows such as *The Lone Ranger*, *Lassie* and *I Love Lucy*.

Century 21 Programming offers three 15-disc packages available on a three-year lease. The Compact Disc Production Library boasts 900 music tracks, 325 random-length accents and 260 stereo sound effects. Laser Lighting is a hit radio-oriented collection of 1,160 rock instrumentals, 368 sound effects and 250 punctuators tailored for drive-shift rock DJs. Generation Three has 910 mass-appeal instrumentals—commercial-length beds, IDs, accents and longer themes—as well as 368 SFX. Rates are based on market size and include a CD library, Sony CD player, catalog and three updates per year.

Comprehensive Video Supply buy-out music production library is a set of five CDs developed specifically for Comprehensive by Valentino, Inc. Priced at \$995, the library provides over 145 different musical motifs, with each disc containing 50 to 55 minutes of stereo music arrangements in varying lengths.

The DeWolfe Music Library, with 22 representative offices worldwide, offers over 75 CDs on a needle-drop, production blanket or unlimited annual license basis, with rates depending on market and intended audience. Themes range from orchestral to jazz, pop, rock and electronic, as well as discs of characteristic music pieces from China and Japan. DeWolfe also distributes the Rouge series, featuring

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Project Log Main Menu Preferences...

Start a Project Click on a choice to start working... Music Index

Help System

Above: ScoreMaster's welcome screen navigates the user through the music auditioning procedure. Below: a simple click of a mouse allows users to choose from a variety of music styles, with short samples of each music selection playable from CD-ROM.

Project Libraries: BR, FC, KP, NW, DM

No Current Project

Click on a Music Style

Industrial	1 Solo
Classical	Space/Celestial
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Fanfares/Logos/Stings	Pleasant Moods
Jazz	Sound Alikes
Sports/Activity	Dramatic Moods
Regions	Specialty

Score with ScoreMaster

Finding the "right" piece of music for your next project can be a real chore, with dozens of libraries available and thousands of tracks to choose from. Fortunately, with a little bit of help from CD-ROM technology, this difficult process is getting a lot easier. Unveiled at this year's NAB convention, ScoreMaster™ is a production music library index and audition system that provides a complete cross-reference of

music from a number of leading music libraries. Developed for the Macintosh computer, ScoreMaster gives quick onscreen access to titles from different libraries; the "Audition" CD-ROM holds short digitized sections of each piece to be played directly from the computer.

The software can be loaded with catalog indexes and selections from up to six libraries—Bruton, Firstcom Digital, KPM, MusicHouse, Network and Omnimusic—with more libraries to be added in future vol-

—CONTINUED ON PAGE 58

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new age, jazz-funk and contemporary themes. The CDs can be purchased individually for \$20 (plus usage fees), and about half the discs in the library include commercial-length cuts.

Available on either a per disk buy-out (\$150 per CD/\$125 LP) or on an annual blanket (\$900 for 17 CDs, including all future updates), the Dimension Production Music Library is designed for either A/V or broadcast applications. The Platinum Series is the latest offering, with seven CDs in a variety of genres from sports and industrial to rock and country—all a minimum of 2:30, along with commercial edits and alternate mixes. The

Gold Series contains a broad variety of tempos and styles in a complete ten-CD set.

FirstCom/Music House offers over 50 hours of all-new music for broadcast and A/V applications, available on one- or two-year blanket agreements or on a per-use basis. Discs in the Digital Production Library are arranged according to tempo, with fast-paced, medium and slow offerings, along with four CDs of specialized and seasonal music, and three discs of useful production elements for sweetening and track building. Music House features styles ranging from solos to 75-piece orchestras on 33 CDs tailored

for A/V and multi-image use. An IBM PC-compatible software package minimizes search time and speeds indexing of both libraries.

Manhattan Production Music contains 24 CDs, each with seven to 26 pieces (and up to 99 cuts) arranged according to "themes," such as "Power and Glory," "City Life" or "Film at Eleven," as well as specialty discs, like "Effects" and "Holiday & Patriotic Themes." All the music is digitally mastered and in most cases is provided in long-form and 60/30/20/10-second formats. The library can be licensed on an annual blanket or a unique "needle-drop blanket" basis.

The Network Production Music Library includes 77 volumes of instrumental music on CD, including a variety of moods and musical types—in long and commercial-length edits—available on a per-production, single theme or annual blanket license. New from Network is the ShowMusic™ library, with all the musical elements for a complete multimedia show (including generic vocal themes, underscores, transitions and fanfares). Six CDs have been released to date, with new shows to be added monthly. Also new is the Jingles Library set, with 420 jingles (including a lyrics notebook for adapting material to the music) on 30 CDs, available on a market-exclusive basis.

Well-known over the past 20 years for its sports themes, the NFL Films Music Library contains a wide variety of music—suited for anything from corporate presentations to children's films—with more than 30 LPs available. Each is priced at \$10, not including a needle-drop, per-production or annual blanket license, with prices determined by market size and audience type. NFL Films has recently released its first two music CDs, with 37 and 46 themes, each priced at \$20, plus applicable license fees.

Omnimusic's production library includes 36 CDs, with 15 to 33 themes per disc (over 850 themes total), available on an annual blanket, per-production or needle-drop basis. The library is also available on Teldec vinyl LPs on request. Designed specifically for broadcast production, the new Professional Broadcast Series is a nine-CD set (with additional releases every 90 days), packed with 60/30/10-second beds, logos, stingers, cues and bumpers. Each PBS disc is digitally recorded, with a minimum of 24 dif-



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World Radio History

ferent themes, available on an annual license.

The Cutting Edge, from Philadelphia Music Works, is a two-CD buyout set of digitally recorded music beds, sweepers, sounders and contemporary effects. Designed specifically for radio production, the Cutting Edge is available on either a market exclusive or nonexclusive basis, with fees depending on the station's Arbitron rating.

Another CD buyout package for radio production is Lazor Cuts™ from Powersound Products. Recently expanded into a two-CD set, Lazor Cuts Edition Two features all-new, digitally recorded material including logos, IDs, bumpers, FX, a selection of 30/60-second commercial beds, and even 100Hz/1kHz/10kHz test tones. Lazor Cuts is available on a sliding fee, based on station market size.

Promusic is the exclusive U.S. agent for the Parry, Cavendish, Boosey & Hawkes, Colorsound, Intermede, Focus and MCT libraries, with over 90 CDs (each over one hour long) and hundreds of LPs available in almost every music genre. The company has recently expanded its offerings by adding the Emil Ascher and Regent Recorded music collections, the Cav-

endish Classical Series (on DAT and analog tapes) and the London-based Red Bus Music Library (eight CDs of diversified, new material with more to come). Promusic is offered on a needle-drop, production blanket or annual license basis.

The Signature Music Library offers 76 themes on four CDs. Especially suited for A/V and video program applications, each digitally recorded theme runs from three to five minutes in length and is designed for easy editing and looping. The CDs, available separately or as a set, are supplied under a 50-year license (for a one-time fee) for spoken communications or commercial applications; other uses—such as pay-to-view—require a separate license.

Also available on a buyout basis, the SoperSound Music Library offers a diversity of production music (14 volumes, ranging from orchestral and industrial to pop, acoustic, new age and fusion), as well as separate volumes of 60/30/10-second timed music beds and stingers. All can be ordered on LP or tape, while seven of the production music volumes have been released on CD, with one to three CDs in each volume. Designed

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Associated Production Music

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Audio Action

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Brown Bag Productions

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Capitol Production Music

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(214) 934-2222, (800) 858-8880

L.A. Air Force
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Durango, CO 81301
(303) 247-5082

Manhattan Production Music
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Network Production Music
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(619) 451-6400, (800) 854-2075

NFL Films Music Library
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(516) 883-0121, (800) 828-OMNI

Philadelphia Music Works
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Bryn Mawr, PA 11050
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Powersound Productions
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(412) 323-5300

The Production Garden
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Promusic
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Ft Lauderdale, FL 33309
(305) 776-2070

Signature Music
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SuperSound Library
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to speed music searches and cuesheet printing, the Soper MusicSelector™ (\$95) is an IBM-based data file of the entire Soper catalog, available for use with Lotus 1-2-3, Reflex or PFS: Professional File programs.

The Sound Ideas Production Music Library is a new, 25-CD collection of themes for film, A/V, broadcast and commercial production. Ranging from industrial and corporate to rock, dramatic, sports and travel, over 200 themes—700 music tracks—are provided, with 30/60 second and rhythm track versions where appropriate. The library is licensed by an annual blanket, with small market and educational rates available.

The Sounds Interesting Music Library offers six volumes of promotional and commercial themes on cassette tapes (reel-to-reel versions are also available). A variety of themes are provided ranging from two-second tags to five-minute music selections, including news, sports, classical, pop and high-tech. The library is licensed on a needle-drop or buyout basis.

Part of the Peer-Southern Organization, the Southern Library of Recorded Music includes nearly 100 CDs, in many genres: swing, classical, fusion, new age, acoustic, jazz, show music, jingles and an assortment of international music. Each CD is priced at \$13.50, plus annual blanket or needle-drop fees.

—FROM PAGE 53, SCOREMASTER

umes. ScoreMaster organizes the libraries into major music types, which are divided into "styles" with key words for easy retrieval. Each style is broken down into tempo and group size. Once the desired parameters are entered, the program makes a list of appropriate titles, including selection length, CD/cut number and a brief description of the track. Another useful feature is a project log database, which organizes the production paperwork and prints out project sheets to simplify the licensing procedure.

Hardware requirements are an Apple Macintosh with at least 1 MB of memory, a hard disk and a Mac-compatible CD-ROM drive. ScoreMaster is available through Computer Music Consortium, 142 W. 24th St., 8th Floor, New York, NY 10011; (212) 645-4183.

—George Petersen

The Production Music Library Association

Seven years ago a group of music libraries held an impromptu meeting at a trade show to discuss common goals and problems facing their industry. All the participants sensed the need for continuing this dialog among the companies, and the Production Music Library Association was formed at a later date. "The reason we exist," explains TRF Music's Mike Nurko, the current president of the 14-member PMLA, "is to make the industry aware of music libraries and let people know where they can obtain music, as well as educating music users about obtaining proper licenses for using music in their productions. If someone wants to check if they have the proper license for music—even if it's not production music—we'd help them. We feel it's in our interest to make people aware of copyright law and get proper licenses, regardless of where the music is coming from, even if it's a Michael Jackson album."

While the PMLA is concerned with the unauthorized use of music library materials, the problem is not as rampant as one might expect. "Obviously, there's some piracy going on out there," Nurko feels, "but we take the position that there's more ignorance than piracy. If they know the law, most people will get a proper license for the music. We protect the rights of the publishers and composers who are the rightful copyright owners, and we do exchange information, which cuts down on those who are using music illegally. Previously, not having an association, people could just go around and abuse one library after another."

According to Nurko, the future outlook for the production music industry is bright, especially in terms of expanding markets in new technologies, such as cable TV and the burgeoning sales of videotapes and videodiscs. More traditional avenues for library music are also now beginning to open. "There's an increasing number of feature

films and major television programs that are using production music," notes Nurko, "whereas several years ago, it would be almost unheard of. The vast amount of production music has improved so greatly that more and more multimillion dollar feature films can find production music that's as good as or better than what they could have recorded. The cost of producing music has grown and, as long as clients can find what they need in production music, it's less expensive than recording an original piece."

The Production Music Library Association is located at 40 East 49th St., New York, NY 10017; (212) 832-1098.
—George Petersen

TRF Music has released over 70 CDs of new, digitally recorded production music, adding to its vast collection of over 50,000 selections from the TRF Alpha, Bosworth, Carlin, Chappell, Demeter, Folkways, Music Scene, Montparnasse and Tele Music libraries. Recently, TRF music was used in *Working Girl* and *Moonstruck*, as well as *Kate & Allie*, *20/20*, *Sesame Street* and *Saturday Night Live*. Offerings include A/V, industrial, new age, electronic, sports, classical, rock, children's, period, country, jazz and jingles—available on CD, LPs or tape—on needle-drop, per-production or annual blanket licenses.

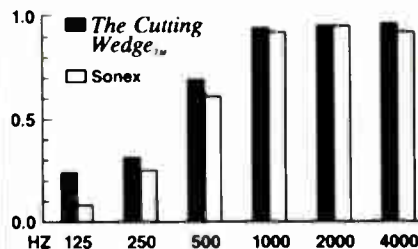
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Lace & Filigree

by George Massenburg

[**Editor's Note:** This is the second installment of a three-part series by this audio authority, inventor, studio designer, engineer and producer. This series was written while George was finishing the production of Linda Ronstadt's new album at Lucasfilm's Skywalker Ranch.]

Around the time of the introduction of the compact disc in 1984, Philips placed a rather hyperbolic advertisement in various trade journals that provoked the high-end fringe of the industry to a frenzy. The headline—referring to the performance of CDs in particular, and digital recording in general—boldly heralded: “Perfect Sound Forever.” Today you would be hard pressed to find many pros who would agree with that sentiment. And in the minds of many, this speaks volumes about those who would promote high-end technology.

This relatively unmeasurable attribute is what I would consider “effective” resolution.

In the good old days of tape and disc, resolution (or lack of resolution)

THE SEARCH FOR TRANSPARENCY AND DETAIL

was more or less a factor hidden within consideration of bandwidth and distortion. Generally speaking, you can play me a system with extremely low distortion (with effort given to reduction or elimination of tertiary effects such as TIM), wide bandwidth (with no more than 6 dB/octave roll-offs) and low noise, and I'll show you a system that won't tend to strip away ambience and reverberation, and won't compress the perceived “depth.” And also generally speaking, digital engineers can play me any comparable, modern, high-end digital system and it will dry up a mix. Never did analog designers have or need such a specification as resolution.

Even a superficial look at digital conversion methods very quickly reveals rough resolution data in the form of linear “bits of resolution.” Let's assume for the moment that we combine the numerical specifications of, say, 16-bit A/D and D/A converters for differential nonlinearity and accuracy and begin to form an idea of how to judge different digital systems. First, we have to know that we almost never get 16 bits of performance in the first place—in the real world it's often

more like 14 bits. Then, too, increasing the Nyquist frequency and introducing dither each have a direct positive relationship on "effective resolution." But we do not really end up with a specification that is in any way comparable to what we remember hearing in analog systems. What's more, with the exception of gross frequency response, we do not seem to have any parallel relationships between the technologies.

As far as listening tests go, something we did just the other night might be of interest here. An artist, a producer and I did a well-controlled, double-blindfold test of two digital tape machines—a randomly assigned A-B-C test. Admittedly, source material was a digital multitrack of something we've been working on, but it sounds pretty good, with lots of real musicians. As it turned out, we all picked the 96kHz machine as the better of the two. But more telling, in multiple passes we all picked the console (input) as the best sound each time; the artist, incidentally, was the quickest to clearly identify it.

So I submit, rather boldly, that we need more bits and/or more bandwidth. Not just a little more. Lots more.

LIMITERS AND THE QUEST FOR HIGHER RESOLUTION

Let's take the rather elusive, truly effective digital limiter as an example of a crying need for more "effective" resolution in conversion. As I write this, I can't say that I am at all certain at what point we will be able to come up with enough bits to make a really good digital limiter.

A good digital limiter, in my mind, is tied to how much resolution we have available that we're willing to throw away. Why? Well, let's continue to assume for the moment that what we perceive to be lacking in purely digital domain signal handling is related to the limited resolution of 16-bit systems with some degree of non-linearity (again, which can deteriorate performance to 14 bits or less).

Assuming this, if we take a signal source that we want to control and reduce its dynamic range, what we're inevitably doing is lopping off—truncating—bits from the top of the range, whether we restore the level (or normalize) by multiplication or not. So, a 16-bit dynamic range signal compressed 12 dB now has a net 14-bit dynamic range. If we go further and compress it 24 dB, it's now a 12-bit

signal. Go further still, and compress it as I would compress a vocal on certain sessions, and you're talking about compressing by as much as 30 or 40 dB in some places. Add to this the fact that we want to leave a bit of headroom when we're working in digital, and we've got a very low resolution signal to contend with if we want to do all our compression in data domain.

So, I propose that to construct a digital limiter that can really work as well as I would like and need it to, we would need the equivalent of 22-bit conversion. That's great, you say, but that could be as much as ten years away. Well, that may either depend on when the military is going to force industry to deliver more performance, or upon an entirely new look at conversion methods that accurately squeeze more data out of linear inputs. And keep in mind—the audio industry is quite possibly not going to be the one to drive this market. American R&D dollars are certainly not there. In fact, I can't think of anything in audio, save the so-called "low-distortion A/D converter," that was designed solely for use in audio. Certainly the integrated circuit was not.



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Even the early '40s German "paper-backed-tape" audio recorders that preceded the development of the modern tape machine may have been designed primarily to time-shift Adolph Hitler's speeches, and not for use in providing music or entertainment.

So where is all this leading us? Why this search for higher resolution and ever more transparent audio gear? The answer may be found in two words: clarity and detail.

THE LOST ART OF HI-FI

One thing I'd really like to see is some true attention paid to good old hi-fi, which, to a great extent, has become a lost art. It's been years since we've had a lot of really exciting hi-fi recordings. Go back and listen to stuff done in the '60s, like Phil Ramone pop, Verve jazz recordings, the *Reader's Digest* Charles Gerhardt series, any Stokowski classical recording or the Angel classical series. The quality, detail and musicality of that product was simply fantastic. Go back even earlier and listen to the Westminster/Sonotape prerecorded tape library, or the Sinatra recordings, or the Nat King Cole recordings that Wally Heider did or any Rudy Van Gelder jazz. That's what drew me and many others into this business in the first place.

In earlier times, recording engineers were often nerdy electronic engineers, and one imagines that they spent the better part of their time working on mods and maintenance. More than a few, such as Bill Putnam, more or less built all the gear they used. An engineer would put up a couple of very good mics in the right place in a good room, and the producer (now more like an A&R person) sat with him, and when it was really bad it was just sort of dismissed with a "hey, let's try it again." But when it was good, it was excellent, really stunning. Despite all the technological advances, and all the tricks and techniques we have at our disposal today, recording as an art hasn't actually gotten that much better.

For me all this presents a real challenge, because I certainly do now and will want in the future to take advantage of all the technology that's out there, and I rarely do the kind of true hi-fi stuff that in my heart I admire so much. But I like to remember that there's a place for both kinds of recordings—the straight-ahead, two-mics, push-record-and-that's-it-type,

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and the multitracked, organized, much analyzed and overdubbed sessions that we end up editing, assembling and mixing with tweezers and a microscope. Inarguably, what's really important is being able to touch that emotional nerve in our listener.

What it may come down to is that when we as engineers make records of this latter variety, we are, in a sense, usurping the control once in the hands of talented people such as band leaders, arrangers and musicians. When music is conceived, coordinated and carefully noted, and the musicians motivated and well-rehearsed, pretty much all you had to do as an engineer was to throw up great microphones, and everything was already there. I'd like to think that what we do now with all our technology and editing and overdubbing is, in effect, serving to replace that. And again, the only reason I can give you as to why records are made the way they are is not so much that they come out better this way, but that it's a safer investment to assemble them a bit at a time. Strangely, there are only a few people in the business who seem to be able to conceive of a complete musical thought in their heads. And, of course, you can't help but wonder about a process that sacrifices spontaneity in order to get the best possible performance.

It's very clear that many of the artists with whom I've been fortunate enough to work are certainly professional enough and capable enough to pull off a really solid track in one or maybe three takes and turn to me and say, "Let's edit a good one together." But still, we take it again and again, listening over and over and endlessly comparing one take to another to form composite tracks and get the best performance we can down on the master.

So, why do we do it? Look at the great live performers. Take Frank Sinatra—a great live performer if there ever was one. Here's an artist who, throughout his career, has hated to rehearse and has often refused to do anything in more than one or two takes. As a matter of fact, Nelson Riddle stopped working with him because he refused to rehearse and insisted upon that "one take, in and out" way of putting things to tape. Frank Sinatra could do that. For what he was doing, he was able to pull it off. And it was often stunning. But this

stuff that we're doing is a little different.

Now, it's true, we did do three records like that with Linda Ronstadt, and she, for the most part, did live vocals with an orchestra [*Lush Life*, *What's New* and *Sentimental Reasons*], and I think that they were great. But when you start doing rhythm records, you can't really do that. You just have to be able to fit more sound in. There's much more going on in the recording than just a voice and an orchestra, and the only way you can do that is to play with the parts, and utilize all the multitrack and overdubbing capabilities available to you in the modern recording studio.

Is that sacrificing the art and concept of hi-fi? Maybe so. If it is, I'm as guilty as the next guy (I think of myself as someone who only dreams of making truly hi-fi recordings anyway). That's not necessarily a good or bad thing; it's simply a function of the reality of the way things are today. We, the ones who are out there doing the gig, have to be aware of the commercial realities and the competition that we face, however distasteful that may seem to some. You can't put a disclaimer on the record jacket saying, "Hey, we're really sorry about the drum sound, but in fact, we just couldn't overdub anything, because philosophically we're against it, blah, blah..." I mean, nobody wants to hear about that. They just want to rock. In my view, what it really comes down to—to paraphrase The Troggs—is whether you're doing it straight in one take, or assembling it piece by piece with tweezers from 50 takes, the real goal for the group here is "to be of one heart." If you can pull that off, one way or the other, you've got a piece of music that has the power to move people.

In a way, it may be that many of us have been simply seduced by technology. We've been led subtly to believe that a synthesizer has the power and detail—the lace and filigree—of a large orchestra, a group of talented musicians playing together. That's not true now, and it won't be even in the future. The detail of a big room filled with musicians working together and feeding off each other, both mentally and harmonically—however foolishly romantic it might sound—will never be replaced by machinery, no matter how sophisticated it may get. ■

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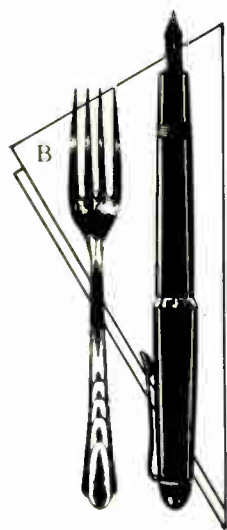
World Radio History

Circle #132 on Reader Service Card

by Mr. Bonzai

PAUL KANTNER

PLANE TALK



Things were pretty hush-hush at L.A.'s Record Plant during the second flight of Jefferson Airplane. The band had secreted themselves away in Studio 1, while little news bits were leaked to the press about Paul Kantner, Grace Slick, Jorma Kaukonen, Jack Casady and Marty Balin getting together again for the first time since 1973. Being one of those '60s pilgrims who trekked to San Francisco so long ago and got my brains and clothes rearranged, I was downright curious about what was going on.

Up on the roof of the studio are some potted palms and a wooden deck surrounded by ventilator ducts and rumbling air conditioners. It ain't the Garden of Eden or Allah, but

there's a certain charm—the Hollywood sign staggering in the hills, the drone of traffic on nearby Santa Monica Boulevard (We love it!), and the backstage ambience of the Friday afternoon staff party. It's engineers, musicians, receptionists, seconds, accountants, tamales, refried beans and a keg of Coors. Down below, in the dark chambers of rock, some kind of history is being made. When Paul Kantner came up to grab a snack during a session break, I asked Rose, the studio manager, to introduce us. We edged into a conversation about all the hoopla.

Seems that the media has chosen to make 1989 the year of facing our hippie ghosts in the flesh. How have

you done? How have they done? The Airplane launched a new era from their flightpads in San Francisco, and then Woodstock paved the way for the rolling revues that have thundered around the world ever since. Stadium concerts, T-shirt franchises and sound reinforcement have become megabiz. Some things have changed since those freewheelin' early days.

Bonzai: How does it feel to have all this attention coming toward Jefferson Airplane after such a long time?

of their old material and they're usually awful. We're hoping to avoid the sequel curse. We only do it once every 20 or 25 years. [Laughs] Besides, we all have other projects—I'm writing a theater piece.

Bonzai: A musical?

Kantner: God forbid calling it a musical. It's a theater piece with music. I've been strongly influenced by the ideas of Robert Wilson, the avant-garde theater creator. He is one of my current flames of the sentient life force. I'm taking a story and using rock and roll to allow the audience to make its own conclusions. It will encompass

break down?

Kantner: Pretty well scattered between me and Grace, and Jorma and Marty.

Bonzai: Why did you choose to record in Los Angeles?

Kantner: We like going to Disneyland, and L.A. is a good Disneyland, unless you get too inured in it. To live down here really well you have to be fabulously wealthy.

Bonzai: You can hang loose in San Francisco?

Kantner: Yeah. As Robin Williams says, it's a game preserve for people—strange people. A lot of strange peo-

PHOTO: JAY BLAKESBERG



Paul Kantner and Grace Slick singing together at a free concert in SF, 1988.

Kantner: Through Starship, KBC, Hot Tuna and other ventures, we've all had our share of attention. So, it's nothing new really.

Bonzai: Isn't there a different slant to it now, with a lot of nostalgia attached?

Kantner: The Airplane Rides Again! Relive those thrilling days of yesteryear! [Laughs] We've always been riding, so it's not really different for us. We've just been riding in different places. Hopefully, this will be a good sequel.

Bonzai: Long time coming for Airplane II. . .

Kantner: Well, none of us were crass enough to do it unless it felt right. It just had to occur, and it did occur naturally. You see all these old bands getting together to do nostalgia tours

everything from comedy to spoken word, as well as rock and roll and some interesting visual elements. It's a long-term experiment/goal, because it takes a long time to create large-scale theater.

Bonzai: How is the music on this new album different from the early Airplane?

Kantner: It's hard for me to point from within—it's just the music that we make. Every album we've made has been totally different.

Bonzai: Is the lineup the same as the original gang?

Kantner: Yes, except for the drummer. We've been working with Kenny Aronoff, from the John Cougar band—excellent drummer.

Bonzai: How do the writing credits

ple end up in San Francisco for all sorts of different reasons. San Francisco was a magnet, long before the '60s. In the '60s it just blossomed in one particular way, but it's always been a magnet, since the vigilante days, the Gold Rush days, the railroad days, the lumber days. It's a seaport, which in the old days attracted people, because that's where all the travelers came. You get a lot out of a little time in San Francisco.

You can spend the same amount of time in Kansas, for instance, and get the same thing, but it takes longer. On the other hand, things move at a much faster pace in New York and Los Angeles, but it's just too dramatically traumatic for us poor little fools from the outerlands to endure. It's like liv-

ing in Disneyland.

Bonzai: There is a lot of spinning of wheels in New York and L.A.?

Kantner: There's spinning of wheels everywhere. People coast more here because it's where the famous people go. Most go into a period of decline and coast on their reputations.

Bonzai: Why was Jefferson Airplane the first of the Bay Area bands to sign a major contract?

Kantner: Random factors. A big accident. We just happened to be in the right place at the right time and we were pretty good.

Bonzai: Those were the days of communal activity...

Kantner: By some of us; not all of us. Grace is extraordinarily private.

Bonzai: Has that scene changed?

Kantner: Well, I was just reading in the paper this morning about these old people's communes down in the Fairfax district of L.A. That's all we were talking about. "Artistes" usually seek out the less expensive real estate where there are low rents and freedom of expression. People don't bother you too much, so you get away with a lot more than you can in Bel-Air. Communes were very financially appropriate in those days.

You might trace it back to Robert Heinlein's book *Stranger in a Strange Land*. It provided a model for the Age of Aquarius and all that. People were trying for something that hadn't been done for awhile, if ever—particularly in the crucible of sex, drugs, rock and roll, and various odd mysticisms. Children had been raised well to expect a lot, and didn't get it from the normal channels that were presented at the time. There was freedom and a lack of trauma in our lives, in the way that World War II was for an earlier generation. Maybe ours was the first generation to say "screw you" when someone said "grow up, be a man, join the Army."

Rock and roll should be dangerous—you're not quite sure what you're getting into. It makes your heart pound a little more, and expectations grow a little higher. You push yourself past your normal limits and break down the walls that people put up. It's interesting to see what happens. Sometimes people die, but people died in World War II.

Bonzai: If chances are taken, there will be casualties.

Kantner: Soldiers are in the front lines of science. New fields of tech-

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nology and development come out of wartime, because of the necessity of self-preservation. When the war is over, it turns to productive uses sometimes, as in medical advances—even recording. From Hitler's Germany we got the tape recorder. The strides in medicine come forward greatly during wartime and in such things as the space programs.

Artists gather together and make advances, opening up new places to develop, like Soho in New York, Venice here, the Haight in San Francisco. These areas are now gentrified colonies, upper-middle class. In the past it was definitively lower class. Strange people, drug addicts, artists, bums, avant-garde, all developed in a certain cauldron that is interesting to be a part of. That's what San Francisco has always been about since I've been there.

Bonzai: Does that mean that artists always have to continually move on and redefine...?

Kantner: Hopefully, of course. That's the unfortunate job of the artist: never to be comfortable.

Bonzai: What about all this remembrance of the "Summer of Love"—will we ever have another one?

Kantner: No, of course not, but there is something about it that is charming to remember. We like to go back to the places of our childhood to see what it was really like, and sit there for awhile and absorb. We haven't moved away from it, so we are still children, struggling mightily to remain adolescents as long as possible.

Bonzai: What did you learn from Bill Graham?

Kantner: That if you talk softer to him, it works. If you yell at him he just turns up the volume a notch. And you turn up the volume two notches, and he goes three. He yelled at me once and I just started talking quieter and quieter. And he's never yelled at me again. He didn't know what to do with it.

Bonzai: I'm sure a lot of musicians are going to take note of this...?

Kantner: Well, he will, too. [Laughs] The unexpected is one of the best things about being in rock and roll. You have to do something unexpected. If you do the same thing every night, you bore yourself more than anybody else. It shows, and your music goes downhill.

We're going to tour again as a band and are hoping to have a place in the set every night where the spotlight will be turned on one band member and that person will have to do something new that is not called for in the normal set. The plan is to bring something to the table that will fascinate us—not the audience. Hopefully, it will work for the audience too. It could be music, spoken word, a poem, even a burst of flashpaper. Anything is open, as long as you don't hurt yourself or someone else.

Bonzai: It almost sounds like the kind of enthusiasm you would find in a new band...?

Kantner: It is. We've been apart long enough to be a new band. We've all done stuff on our own, and nobody has faded into obscurity, as it were. There are various levels of being that we've been through, and here we are again doing this. God knows how long it will last. It's working now, it's fun, and we have no obligation to continue it. We only plan on making one record, touring a bit and seeing what happens.

Bonzai: Can you give me some of your early background?

Kantner: Catholic military school. In the second grade I had to march to breakfast with a rifle while listening to the strains of John Philip Sousa. That was my early musical experience, along with the music of the church. A full high military mass is quite impressive to a 6-year-old.

Bonzai: What was your first instrument?

Kantner: I took piano lessons to get out of math class. It wasn't until the folk music boom of the late '50s and early '60s that I got back into music. Pete Seeger was my father figure, musically and inspirationally in terms of social action. I find him a very rounded person in dealing with life from a musical standpoint. He can still bring a tear to my eye with just a banjo, or a 12-string guitar and a few well-placed choruses. It's hard to get that reaction from a jaded rock and roll person.

Bonzai: What is the role of rock and roll?

Kantner: A rock and roll musician lives on the edge of good and bad, positive and negative. You walk the gauntlet of total pleasure, happiness, completion—and excess, drug addiction or crashing in cars like James Dean, one of the first rock and rollers. You walk that fine line and are given

access to anything, just because of the amount of money you make. If you are young enough, and have lack of control, you can go over the edge without anyone being able to stop you.

Bonzai: How close to the edge have you gone?

Kantner: I don't get too close to the edge. My edges are more accidental. I had a motorcycle crash, tore my head open, and left my brains on the pavement. It left some room for development, [Laughs] much like a good earthquake does, or a good fire. I moved recently and the moving man said that there is nothing quite as good for cleaning up your life as a good fire or a good move.

You can travel safely across country by freeway, or you can explore the side roads. You can hang out and meet people and get much more from the experience. And as a result, you're likely to contribute more. As a songwriter, you find material for songs. Rock and roll is very good for this kind of thing, because you do travel around the country. You can make contacts and spend time in new places. I love to be in a strange city, get in the car and go get lost.

That's the spirit of rock and roll. That's how our band got together originally and how we got together again. We all went off on our own paths, which eventually ran together again.

Bonzai: I guess there has to be some luck involved...?

Kantner: We're all alive, relatively sentient, and not drooling. And there are some nice songs coming out of it.

Bonzai: I read a funny comment you made about Marty being able to get away with sentimental stuff...?

Kantner: Jorma thought I was a little harsh, but I meant it as a great compliment. Marty can get away with that stuff, while I can't write a love song to save my life. I always have to clutter it up with science fiction, girls with hungry eyes and riding tigers. Within every song I write, there is a love song, but to just sit down and write a simple verse and a chorus that is really effective is one of the greatest arts in the world. I don't have it yet.

Bonzai: How are today's kids doing?

Kantner: I have no idea. How would I know? We didn't know back when we were beginning. When Jefferson Airplane went out to play the "Human Be-In" [Jan. 14, 1966], we expected a couple of hundred people. All of a sudden there were 20,000, all looking

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weird. [Laughs] It was a children's army—a strength in numbers.

There is a full range of interests in kids, just as in adults. You can't appeal to all of them. Half of them will never hear of you. There are fundamentalists, murderers, car thieves, college graduates, chemistry majors. Kids are not just one type of being.

Bonzai: Tell me about the tension between the artist and the business side of music. Any thoughts about preparing a young artist for the rigors of the business world?

Kantner: You can't prepare for it. It's like a ritual that you have to go through. It's part of the weeding-out process. It's been said that true writers write because they have to. Whether any one reads it or not is unimportant.

Bonzai: Who is your audience now? People who have grown up with you?

Kantner: We've never known—you can never project who your audience is. There will be some who have followed our careers, but a lot of them don't connect to that world at all any more. It's hard to tell. I assume that a

lot of people our age like what we are doing. And we are going to present it in a way that will be enjoyable, with the celebratory, unexpected touch of the strange—a harvest celebration, bonfires, joy and exultation and everything the church was supposed to be and wasn't.

Bonzai: When will the album be released?

Kantner: Late summer. Speaking of summer, "Summer of Love" is the song I referred to when I was talking about Marty. You asked about the Summer of Love phenomenon. That's the last thing that we would want to do, because it is so cloying and embarrassing. But the song is so charming and real that it brings a tear to your eye. Marty can get away with it, "Baby, I loved you—what a summer it was."

Bonzai: What's the label for the new album?

Kantner: Epic, appropriately titled. We have some good people on the album: David Paich, Mike Porcaro playing a little bass with Jack, and a guitar player named Mike Landau who's added some nice landscaping to the album.

Bonzai: How has it been working

with Ron Nevison as producer?

Kantner: It's worked splendidly. He came down a bit from his place of telling bands what to do. Many bands need that, but we could barely handle that kind of thing. He's come up with just great suggestions. He's done what a producer is supposed to do. Many producers are really only engineers, and talk for the sake of talking. When Nevison comes up with something, 80 percent of the time it is perfectly complementary, really supportive and works with what we are doing. He's added a nice touch.

Bonzai: Any last message to the world?

Kantner: Check out Nicaragua, both musically and poetically, for a strange energy pattern. I'm going down for awhile while the album is being mixed. I hope to come back and hear a great finished album, if I live.

Bonzai: Is it safe down there?

Kantner: More or less. Is it safe in L.A.?

Our roving interviewer Mr. Bonzai will not reveal if, in fact, he wore flowers in his hair when he went to San Francisco.



And some people still want to record in L.A.?

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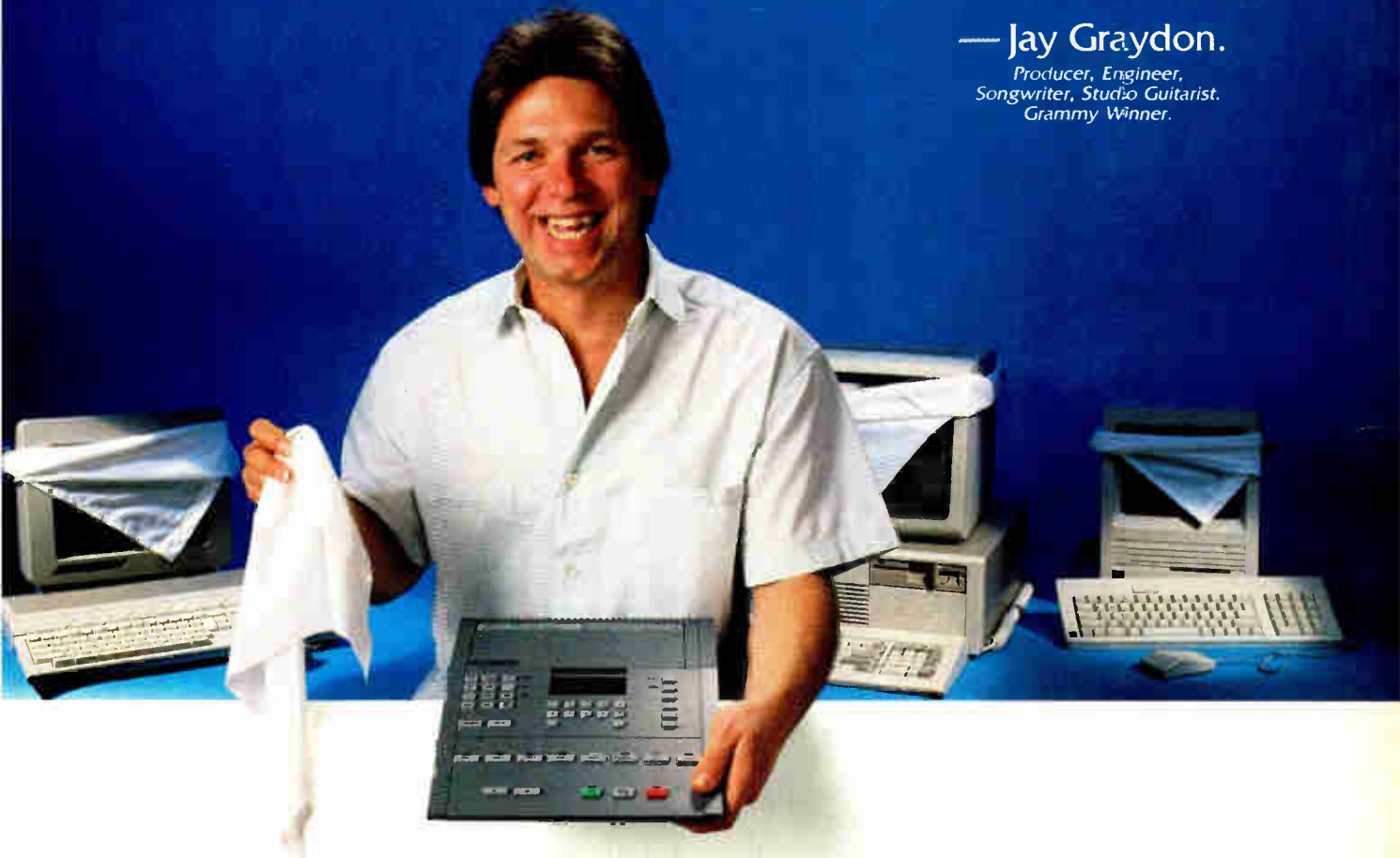
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T H E D I G I T I Z A T I O N O F

AUSTRALIA

by Andrew Symaniz



For decades there's been a healthy and diverse live music scene in Australia, but it's only in the last few years that Australian acts have really earned international recognition. Because only a handful of establishments can be considered the "big league," there's a psychological advantage in being the first studio in the country with new equipment and/or facilities—particularly when it comes to attracting overseas clientele. While most of Australia's leading recording studios have now acquired digital multitrack and mastering, few have forsaken their trusty analog workhorses exclusively in favor of digital.

THE BIG LEAGUE

Metropolis Audio—previously known as the audio division of AAV Australia—has specialized in soundtrack production for numerous films and TV series, including *Crocodile Dundee* and *Mad Max*, and recorded Australian and international acts such as John Farnham, Jimmy Barnes, The Little River Band, Pseudo Echo, Whitney Houston, Frank Sinatra and Elton John. For 11 years it has also been a leader in mobile audio recording.

Metropolis was the first facility in the country to purchase a fully functional DASH system—Sony PCM-3324 24-track digital recorder and Sony PCM-1610 mastering. Now, six years later, the five-studio complex in Melbourne offers a variety of 24/48-track

(Photo above) Transistor Music,
(left) Rhinoceros Recordings



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analog and DASH, and both systems are equally at home either in the studios or out on location in the OB van.

Studios 301 (EMI Records/Australia) remains one of the few full-service facilities in the country, offering comprehensive music recording and mixing, film, commercial and post-production services, disc cutting, CD master preparation and format conversions within the same complex. Having initially gone with the Sony 3324 DASH system, 301 changed over to a pair of Mitsubishi X-880 32-track machines last year. Studio manager Martin Bengel acknowledges that the 24- and 48-track analog format continues to be the universal standard, despite "strong demand for digital in the U.S. and UK; particularly from major acts that tour and record here."

When Rhinoceros Recordings was conceived nine years ago, the studio was little more than a modest collection of home recording equipment in a dusty office space in Sydney. Then youthful recording entrepreneurs Andrew Scott and David Nicholas—having already spent several years on the

road with local rock bands—began planning a more stylish Aussie studio that would be of international standard. Now, they believe, they have created the best-equipped rock and roll studio in the country.

With a major extension and equipment upgrade one year ago, Rhino has become the first Australian facility to use ProDigi-format multitrack recorders and the first studio in the country to acquire the Solid State Logic G Series console. Presently configured with 56-channel modules and Total Recall™, the console is capable of handling up to 72 channels. As such, it is one of the largest single-frame units ever built by SSL. The two-studio facility (with a third suite currently being built for production work) offers 96 tracks of Mitsubishi X-850 digital and 48 tracks of Studer analog multitrack.

Maintenance and service remain the cornerstones of Rhino's growing reputation, as the studio attracts about as many contemporary music projects as it can handle. The potentially lucrative advertising market "is not top priority, at present," says Scott, who

confesses to favoring album work since "bands are a lot more fun to work with."

Included in the daily lockout rate for Rhino's new Studio 2—now one of the most expensive in the land at \$3,000 per day—is a comprehensive range of outboard equipment and, Scott adds, "plenty of food, private lounge areas and no pinball machines!" There's even mezzanine-level sleeping quarters planned for artists' exclusive use. Staying at Rhino recently were INXS, Jimmy Barnes, Noise-works, Choirboys, 1927, Ian Moss, Midnight Oil, Kylie Minogue and Jason Donovan.

STUDIO DESIGNERS

The design of Rhino's new studio and 1,000-square-foot control room was a collaborative effort between noted UK acoustician Neil Grant (also working at the time on Peter Gabriel's Real World Studios) and Melbourne architect and studio designer Peter Brown.

Brown's post-apocalyptic style of interior decor was once publicized as "designer rubble," in reference to its deliberate dull color schemes, rusted metalwork, distressed paintwork, unfinished steel and generous amounts of exposed concrete. Brown attributes much of his recent success in the industry to his strong musical background: his other work includes interiors for two Melbourne nightclubs, Checkpoint Charlie and Metro, and numerous face-lifts for radio stations around the country.

The construction and design of radio station 3TT's new premises in South Melbourne is Brown's latest venture. He has also received invitations from abroad, including Paris radio station Pacifique FM and a San Francisco nightclub.

Another Australian studio designer, Ian McGrath, has been in demand lately. McGrath was the principal designer of one of the first acoustically treated control room/studio facilities in the country, Airborne Sound Recorders. Since then, he has worked as set designer on 15 feature films, including major Australian productions *The Year of Living Dangerously* and *Road Warrior*, where he was employed as artistic director.

McGrath has also overseen the building of numerous recording studios in and around Sydney, including Music



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Farm (situated in the bush on New South Wales' north coast), rooms for Albert Productions' new facility and a private production suite for renowned Aussie producer Mark Moffatt. More recently, McGrath has built live rooms for Rich Music Studios and Festival Records. A redesign of Festival's control room is in the works.

McGrath's background in film was put to good use some time ago when he was commissioned to build a new studio for Sydney musician, composer and sci-fi fan Andrew Thomas Wilson. Wilson required a one-room musical composition and production suite that would comfortably house his battery of more than 20 keyboard instruments, recording equipment, and engineering and advertising personnel. The result: Transistor Music, a space capsule-like visual and aural environment that exudes style, mood, even humor.

The 40-foot-long studio is encased within a Faraday cage and is mechanically decoupled from the room-shell, wrapped in a vibration isolation blanket and floated on a sand substrate and concrete base. About 150 tons of earth were excavated in order to accommodate the Helmholtz resonators above the studio ceiling. The cavity beneath the raised "client island" at the rear of the studio is used as a Helmholtz resonator, with throat openings wedged between the rise in the steps.

A great deal of what is often mistaken for decoration is actually functional. The grooves in the walls are in fact hard-working slot resonators, positioned at nodal points in the room and tuned for broadband acoustic absorption. Most of the curved interior surfaces were fabricated by ships' carpenters using plywood and grainless custom wood with routed relief. An automotive refinisher applied coats of Porsche Blue acrylic enamel to produce the sheen that appears deceptively metallic.

Transistor has become the major site for all of Wilson's jingle writing, musical underscoring and sound effects work. Wilson is also known locally for his "less-commercial" new age recordings and dance-oriented numbers. His album *Carnarvon*, released in 1985, was a landmark recording in Australia—the first digitally recorded CD release of an Australian artist. His follow-up to *Carnarvon*—composed

and produced entirely in his studio—is entitled *Moebius*, and is expected to be released internationally at the end of this year.

INDEPENDENT ON THE MOVE

One of the most successful independent studio owner/managers is Paul Rich, who recently celebrated two years of operation at his Sydney location, Rich Music Studios, by upgrading to an SSL E Series console with Total Recall. It is the first major studio in Australia to extensively cable with Monster hi-fi and "oxygen-free" Mogami. Rich's most recent purchase is a Mitsubishi X-850 32-track recorder with Apogee filters.

Rich Music is a relatively new facility that's on the move. There's plenty of work coming in for jingles, and for established artists such as Mental As Anything, Dragon and Divinyls, as well as a broad range of "up-and-coming" bands, including Tall Tales and True, Gondwanaland and Lime Spiders. Rich also fosters local audio engineering talent, with in-house theory and practical application on the SSL and its accompaniment of outboard equipment. Rich is currently planning a second studio and intends to establish his own record label—Skyscraper Records.

"We specialize mainly in music mixdown," Rich says. "The reason for our recent upgrade was to capitalize on the major selling point of the studio—our acoustically accurate control room. The studio is based on American design principles, with reflective front runner materials and accurate bass trapping."

FILM AND TV

Although an increasing number of commercial studios in Australia now supplement their session bookings by conducting audio engineering courses, the most widely recognized institution in this country is the Australian Film, Television and Radio School (AFTRS). During a recent relocation in Sydney, AFTRS spent close to \$7 million on equipment upgrades to create a fully professional film, TV and radio production training complex. Student productions have won some 500 national and international awards since the school opened in 1973.

The new facility has been constructed so that sound and video can be

patched to any studio in the building. Following lengthy consultation with industry professionals, owners decided on a virtual console for the main mixing theater. The new automated Harrison Series Ten console—the centerpiece of one of five main studios—is capable of being reconfigured for either music recording or film work. Other Series Ten users in Australia include Pro-image of Melbourne and Soundfirm and Videolab in Sydney.

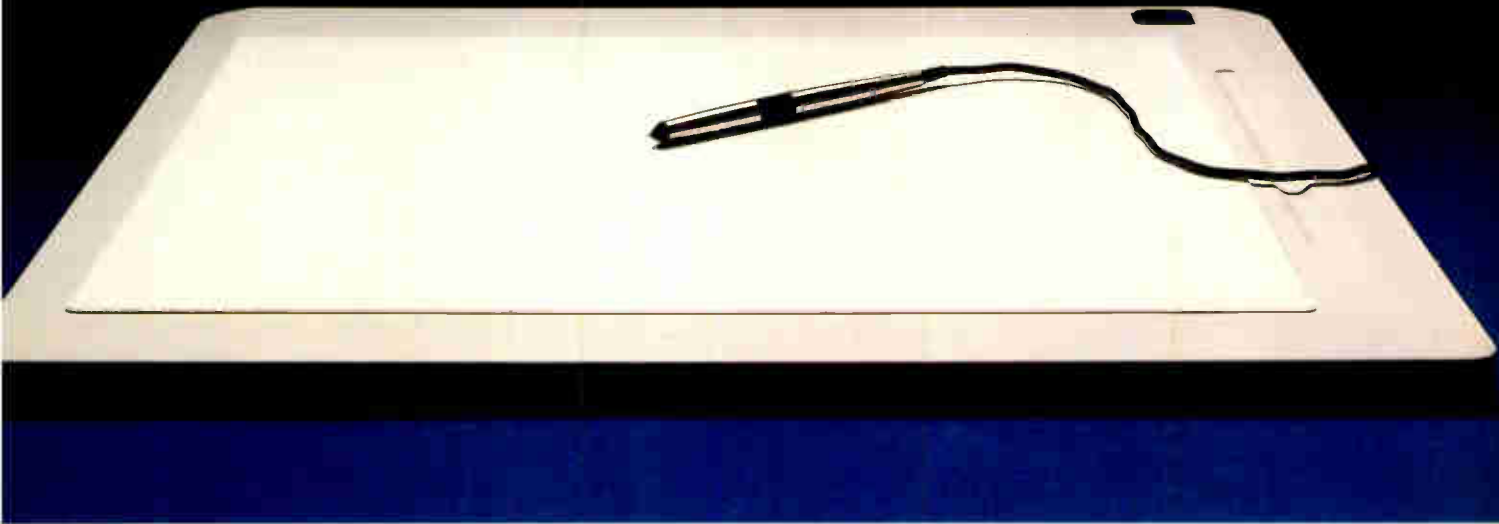
AFTRS' dedicated post-production suite is also equipped with an impressive lineup of new equipment, featuring an Amek Angela console with 36 mono inputs and eight stereo input modules. And next year's students will be among the first in the country to experience first-hand the AMS AudioFile hard disk recorder, configured for eight tracks and 15 minutes of digital audio. Commercial facilities in Sydney with AudioFile systems include TV station ATN-7, which has purchased three, and Pro-image (ECV), which now has two.

Pro-image's newest facility for sound mixing and audio post-production at its Sydney headquarters is the \$1.6 million Studio 2. On delivery of the country's first Sony 48-track machine last April, it was immediately sent out to tape a TV concert special of Richard Clapton's Band and guest stars Jimmy Barnes, Vanetta Fields and members of INXS. The mixdown for the show's network screening was conducted by Rhinoceros engineer Al Wright on Pro-image's new 60-channel Sound Workshop Series 34 automated console.

Pro-image engineer Mark Bergin says that using the hard disk recorder for audio production enables track laying to be done "two to three times faster than with multitrack, and people are coming to the studio just because it has the AudioFile." Pro-image personnel are also enthusiastic about the editing capabilities of the Adams-Smith synchronizer. The Sony 48-track digital, Otari MTR-100 and even the AudioFile can be locked up for extra tracks, while the 24-track Dolby SR noise reduction on the Otari machine ensures quality analog recordings on par with digital.

Jon Marsh Studios also purchased an AudioFile recently, with disk space for two hours of audio. For the moment, Marsh has teamed up the Audio-

THE AUDIO POST ROOM



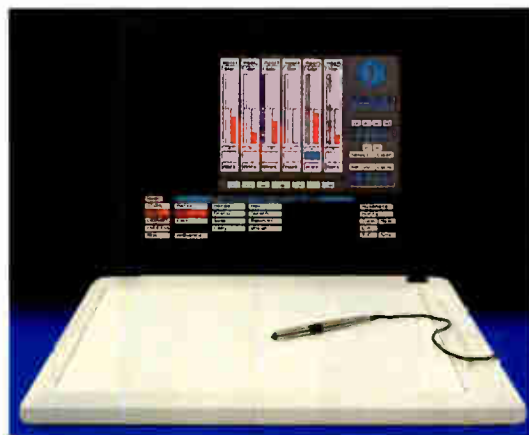
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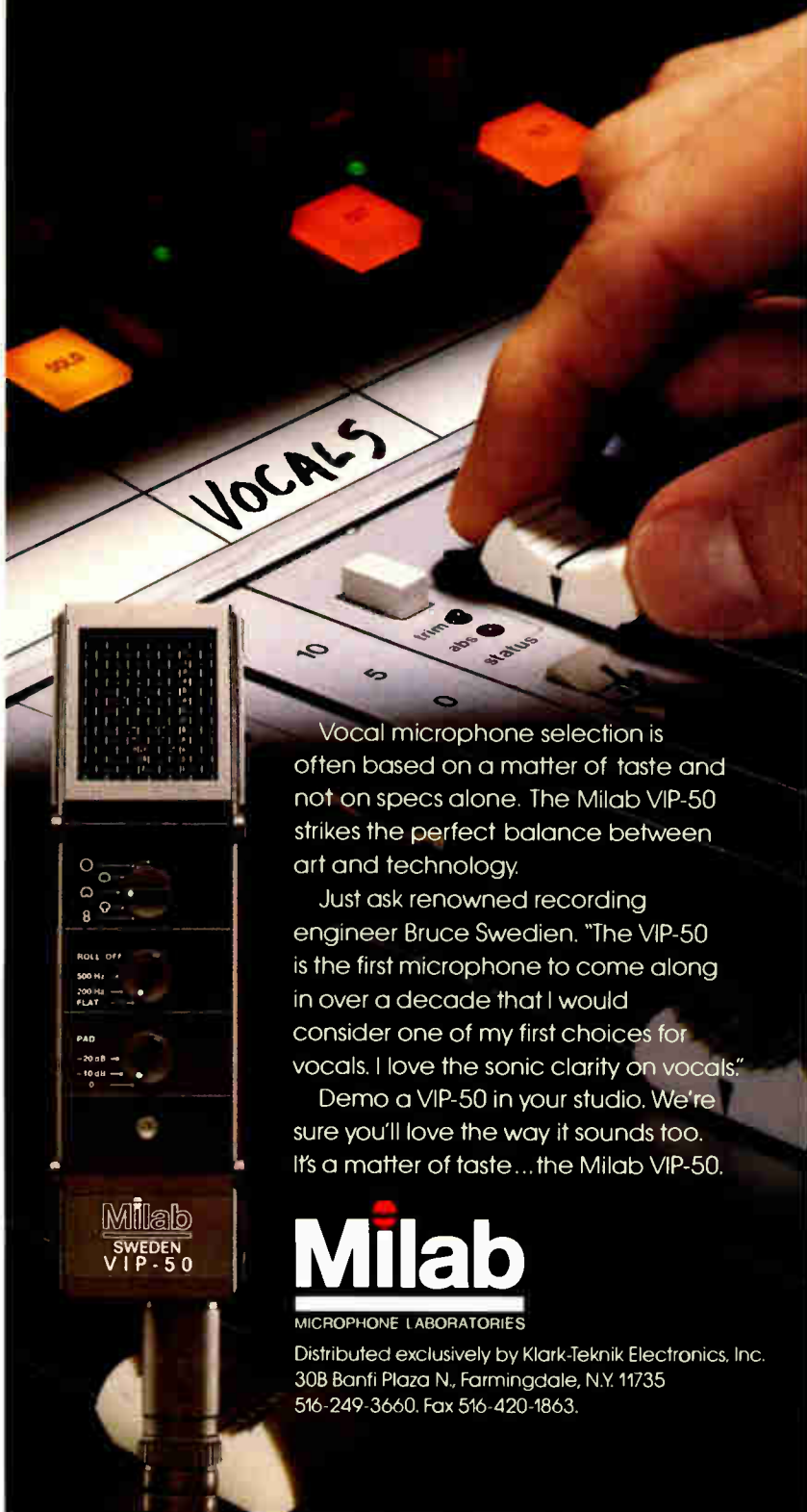
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File with a DDA analog console. However, later this year he expects to take delivery of an AMS Logic 1 digital mixing console, which will be installed in his second post-production studio, currently under construction. This studio will become the first fully integrated professional digital recording facility in the country. Marsh is confident that the AMS system linked up with video playback will boost productivity by bringing in post-production work on commercials, documentaries, corporate video and other TV work.

ESP'S SERIES III MFX

Following an unsettling period earlier this year, Australian synthesizer/audio workstation manufacturer Fairlight Instruments—now known as Electric Sound and Picture—is back on track. Products demonstrated at recent major trade shows include new software that enhances ESP hardware upgrades for the Series III MFX (music and effects) system. The 32-bit 68020/math co-processor-based "Waveform Supervisor" board greatly improves the efficiency of the system, and with the addition of two ESDI disk drives enables recording of eight tracks directly to hard disk.

A future software release for the hard disk recorder will feature individual, nondestructive editing on all tracks. ESP's managing director Kim Ryrie believes that the upgraded Series III system, with its many improvements—dynamic voice allocation, on-line access to sound synthesis, processing and optical sound libraries, enhancements to CAPS, Cue List Sequencer, global synchronization and compatibility with the newer ES bus synchronizers—will strengthen the Series III's position as "the most flexible and least expensive 'true variable sample-rate' system on the market."

DIGITAL RADIO

Broadcaster 3TT in Melbourne is vying to become the first completely digital radio station in Australia—from microphone to transmitter input—with on-air material sourced from multi-play CD machines and programs compiled on an eight-hour, fully redundant, Winchester disk system.

Perth-based radio systems manufacturer PKE International installed the first stage of the \$1 million "Ouija" system early this year. Although the

station's on-air studios have been fitted with conventional radio consoles and touchpad controllers, they are expected to be replaced with touch-screen VDTs. PKE has spent the last three years developing the Ouija system to control virtually all broadcasting functions, including on-air operations such as crossfading via touch-screen. All the control functions in the system use standard RS-232 communications.

It has been suggested that the station could even be controlled via satellite when fully operational, and operators could do programs from home using a Ouija touchscreen and modem. According to PKE's director of marketing, Frank McQuillin, the Ouija system is primarily aimed at the growing radio networks in Australia that do not need full production facilities for their satellite services. ■

Andrew Symaniz is an Australian-based freelance writer.

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RECORDING IN

J A P A N

AN
AMERICAN
VIEW**by Leslie Ann Jones as
told to Linda Jacobson**

Editor's note: Leslie Ann Jones has engineered recordings by Dave Edmunds, Angela Bofill, Narada Michael Walden, Bobby McFerrin, Holly Near and Marlon Jackson. A native of Los Angeles, she moved to San Francisco in 1978 and for six years worked as staff engineer at the Automatt, then worked as an independent for three years. In late 1987 she moved back to Southern California to work as a staff engineer for Capitol Records. Here she



PHOTO: IRENE YOUNG

speaks about her experiences recording in Japan.

As an engineer at Capitol Records, I work with several Japanese clients in Los Angeles. Most of the work I do for them involves commercial projects. One client, Kazuo Yoshie, owns a company called Mr. Music, one of the top jingle companies in Japan.

Jingles are done a little differently in Japan than they are here—in Japan, most of the commercials are released as singles, as well. Whenever I do

**Studio
Spotlight:****Sound Sky Studios, Tokyo**

Highlighting the recently completed Sound Sky Studios in Nakano, Tokyo, are two separate recording areas, each with their own 96-input Neve V Series console and GML Moving Fader automation system. Also available are Otari DTR-900, Mitsubishi X-850 and Sony PCM-3348 digital multitrack recorders, as well as Otari MTR-100A analog machines. A generous supply of outboard equipment is on hand, as well as a collection of vintage Neumann and AKG mics.

Shown here is the control room for Studio 2. Electronically operated double doors separate the room from the three adjacent acoustically isolated recording spaces, each lined with perforated, brickwork

tiles on the walls.

According to studio designer Sam Toyoshima, "Sky was built as an exclusive studio building," and with that in mind, great attention was paid to noise control. Also in-

cluded in the complex are a kitchen and a large lounge. "I am happy that my vision of what a studio ought to be has found such clear expression," adds studio owner Dave Ishigaki. ■



work here for Yoshie, we actually do 3- or 4-minute songs. But the songs never mention the product; they evoke a particular *feeling* about the product. For instance, the first thing I did with Mr. Music was for Suntori brandy, and the song was called "Brandy and Water." It was sung by a popular background vocal group from Los Angeles, The Waters (Julia, Maxine and Orin Waters). It was released as a single and even won an award. We've done commercials with Crystal Gayle singing, with the Tonight Show Band playing on them—the company wants a particular feeling on the song, whether it's big band, jazz, country or pop, and all these get cut as single-length songs, then they take whatever they want from the song and use it for the radio or TV commercial. So we hardly ever mix a 10-second or a 15-second spot.

My client has a studio, Cricket Studio, at his office in the Aoyama section of Tokyo, and he has a partnership with another person, Katsunori Nagasawa, who is president of Rackyo Records, the record division of Mr.

Music. They have an artist on the label, a female vocal group called Eve, who were going to do a Christmas album [for Christmas '88]. So I was asked by the label to come to Japan last fall to record and mix their Christmas album. (Capitol has a remote rate when engineers go outside of the Capitol studios. That includes my travel time and all work time in Japan.)

They also flew over Bill Elliot, an arranger. He was there by the time I got there. Half of this record was to be standard, classical, Christmas music, and the other half was to be sort of pop-disco Christmas stuff. Bill arranged both. The classical part was done with an actual orchestra, the pop stuff was all synth. So by the time I got to Tokyo they had already recorded most of the synth stuff, using a couple of engineers who were on staff at Cricket.

When I got there, we were scheduled to record the classical music the next night. That was recorded at a CBS studio in Tokyo, CBS/Roppongi, named after the area of Japan it's in.

I was told when I got there that

there were no women engineers in Japan, that no one knew of any—no women assistants, no women techs—so right away I was prepared for the worst. [Laughs] "Here comes the white girl!" I was sort of prepared for people to look at me strangely but it didn't happen, no more so than on the train where I was the only Caucasian. I was just sort of out of my element anyway, on the whole trip [laughs]. My client spoke enough English to get by, of course Bill and I spoke English, but no one in the orchestra spoke English, and the assistant and setup person they gave me spoke Japanese. And I had jet lag, so I could barely put two words together!

So the first night I arranged how I wanted the room to be and wrote out the kinds of mics I wanted and went back and forth with translation—through my client—to make sure they knew what instruments I was talking about.

The studio was pretty much a '70s-type studio, which actually was a bit of a handicap for the orchestral recording we were doing, because the

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studio portion had both hard surfaces and carpeted surfaces. It was not a huge room, so it was a bit of a challenge trying to decide where to put everybody to get whatever benefit I could from the room layout—I was doing timpani and harp, percussion and bells, plus violins and French horns; it wasn't a large orchestra but it had all the elements of one. So I had to place some instruments where I would not have ordinarily; my first

choice would have been to rip up the whole rug, but I couldn't.

The control room had a Neve, I believe an 8048, and Studer 24-track machines. It was a Westlake-style room, the kind where you can barely look over the console and out the glass [laughs]. I can't remember if the monitors were Westlakes or UREIs. They had a decent complement of outboard gear. It was very neat and clean, upstairs, next to a large game room

JAPAN & THE WEST IN RECORDING

To understand the Japanese studio scene, it is beneficial to first examine the musical environment in Japan and see how it compares to the West. One obvious difference is in the Japanese record companies, which are mainly owned by major consumer electronic/audio manufacturers, such as Nippon Columbia/Denon, CBS/Sony, Toshiba/EMI and Victor Musical Industries. Other heavy investors in record labels are broadcasting companies and both music and book publishers.

Of course, there are independent record companies, too, but they are far less common than in the U.S. or Europe. These indies have no systematic distribution channels and must deal directly with retailers. As a result, their market share is minuscule compared to the giants of the Japanese record industry, and they don't have much of an impact on the recording studio business.

These are not the best of times for many Japanese recording studios. Capital outlays for equipment continues to increase, with more studio clients demanding such amenities as automated mixing consoles and digital multitrack recorders. On the other hand, since these new technologies improve productivity, studio usage time has actually declined, resulting in less revenue. As in the United States, many studios that are having a rough time making it solely on music recording have turned to the post-production industry for new business.

Clearly, part of the large investment in studio equipment stems from a desire to imitate or emulate the famous studios in the U.S. or Great Britain, the acknowledged leaders in this area. Only a few studio design firms exist in Japan, so studios tend to be alike. A frequent comment by foreign clients is that many studios have a similar look, and it becomes difficult to tell them apart after a while.

As a result, top managers at Japanese studios tend to keep a close watch on Western trends in studio design, equipment or sound. For example, when the "big" studio sound exemplified by such facilities as Power Station in New York became fashionable, some Japanese studios remodeled their rooms to be more "live" and more in line with prevailing tastes in recording. More common is the pursuit of the "hot" console: if a famous American or British studio is changing a console—say, switching to an SSL or Neve—their Japanese counterparts sometimes make new investment plans accordingly, trying to gauge the trends as they see them. A by-product of this kind of approach is everyone in Japan appears to be seeking the same equipment, one more reason Japanese studios seem to be standardized and lacking in personality compared to those in the U.S. or UK.

While most engineers prefer the sound quality of the PD (ProDigi) format, the more common DASH format is preferred by studio owners, from a business standpoint. The studios' acceptance of digital recording came rather quickly here compared to their Western counter-

—CONTINUED ON PAGE 86

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—FROM PAGE 85

parts. A current concern among studios is the problem of console size. With the number of Sony PCM-3348 48-track recorders on the rise, many studios fear that their 56-input consoles are inadequate.

Most of the Japanese record companies and management offices are located in the Minato-ku and Shibuya-ku districts of Tokyo. The real estate prices in these areas are very high, even by the standards of this incredibly expensive city. This has influenced the operation and management of those companies and their recording studios. But recently, another area of Tokyo has started to draw attention. Shibaura, on the Tokyo Bay shore (about 25 minutes by car from the record company centers), has emerged as an attractive source of real estate with its unoccupied warehouse-type buildings that can be converted into big studios. However, since trendy businesses such as high fashion de-

signers, chic restaurants and nightclubs started moving into the area, the property values have begun to escalate there, too.

Another recent trend has found some hit-making composers building their own private studios, for tax purposes. Though started as private studios, they are often rented out to recoup some of the investment.

Small labels whose product is distributed by larger record companies that have their own studios usually have special deals worked out for the use of those recording facilities. However, because of the drop in record sales due to the rise of rental record shops, better home recording equipment and increased competition from independent studios, the recording studio divisions of the big record companies have had to become more self-sustaining, with many making their studios available to outside artists for the first time. —Kobei Shibata

with a TV. They had a large mix room there, too. As for mics, I used the same kind of stuff I would have used here, other than perhaps not having as wide a choice as I would have liked for the orchestra.

If I didn't know I was in Japan, it would have been easy to believe I was in an American studio. One thing that *was* different was the cue boxes. They were all designed for both 1/4-inch stereo and mini-stereo, so the violin players would come in, open their cases and take out their violins, their bows and their Walkman headphones. Everybody would plug in their own 'phones, which is great, because you didn't have to worry about adapters or anything like that.

The most difficult part of working there was that my assistant did not speak English. They really had their stuff together; there's a chart for the engineer and another that says "assistant" on it; that goes without saying. Here, I always have to ask for a chart and get, "Oh, we don't have any extra," as if they're surprised I can read one! There, the first thing the assistant does is mark numbers on the chart, and normally assumes that he is going to do all the punch-ins and locates. In this case, however, because Bill and I spoke only English, the assistant could not follow us and did not know where we wanted to work from or the sections we wanted to go to. So, many times I would have to go over to where he was, just behind me, and point on the chart to where I wanted to go and where I wanted to punch in. That became too time-consuming, so I ended up doing it myself. And I felt badly about it, because I knew he felt that he had somehow failed because he was not quick enough. I had to try to explain to him, through an interpreter, that it was just because of the language barrier, it wasn't that he hadn't done a good job. That was the hardest part.

After we finished all the orchestral stuff, I worked at Cricket Studio, where we did all the vocals and some of what was left of the synthesizer work. The vocals were in English—Eve are from Okinawa and speak excellent English. The feeling I got was that because there are a lot of military personnel in Okinawa, people have a tendency to speak much better English. And they also went to an English school. So



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Dolby

World Radio History

once we got to Cricket it was quite easy. Cricket has a wonderful collection of tube mics; whenever Yoshie is here [in the U.S.] he buys things to bring back to his studio.

Cricket is in the basement of a three-story building, and it's quite small but very well laid out. The studio portion has wood floors and really wonderful cue boxes that I wish we had here: they were quite small and each one had both individual mixes plus stereo. And they were on roll-around stands. They weren't home-made, but nobody could tell me who designed them and I kept trying to find out because I wanted to see if we could get them for our studios.

Cricket has an Otari 24-track and a Soundcraft TS 24 console. They used 811s for speakers—the single-woofer model—and they sounded wonderful. I had brought my CD player and CDs, and when I'd been at CBS/Rappongi I played the same stuff there as at Cricket, and it sounded much better at Cricket. It was a very clean room, with bleached pine floors and a "coffin" behind the console that held the out-

board gear. They have Tube-Tech compressors and a couple of LA-2As and dbxes, Prime Times and REV7s—the usual complement of outboard equipment you would find anywhere. I rented a Studer ½-inch to mix on, and a couple of AMS reverb/delay units. He had two engineers there who helped me; one spoke English a bit better than the other. Yoshie speaks excellent English, so we had no problems.

I haven't been in too many home studios in Japan, and this was so clean and so well done, and designed by a top studio designer [Masami "Sam" Toyoshima, who designed AIR Montserrat, Virgin Records/UK and the new Abbey Road], so I'm not sure it was typical. It just felt like a very special place. Not that I couldn't have found that here, but my experience with home studios is that they function well and have all the right gear, but you usually don't bring Jeff Cooper in to design your home studio. I'm saying "home studio" because Cricket is private, not open to the public. It's for Mr. Music and Rackyo Records.

After the project was mixed, they

didn't go to black vinyl, but to cassette and CD, I believe. And when they mastered it, I was told they had to add only a dB at 30 cycles and that's it, which says a lot for the control room design at Cricket. And that's unusual, because it is a small room and the speakers are close to you.

They were very happy with the results, and the mastering engineer was surprised and wanted to know who did it! [Laughs] And that was on the orchestral stuff only; on the pop-disco stuff, they didn't do anything.

The only thing that was quintessentially Japanese was just how polite people are. I think that's true whether you're in a studio or not. Everyone is really concerned about doing the best job they can. I felt like I was very well taken care of, in both studios. I've wanted to go to Japan for about seven years. Even growing up I was interested in Eastern philosophy. So for me it was a dream come true, to go and have it paid for. [Laughs] I know now that I will go again, and next time I will take more time so I can see more of Japan. ■

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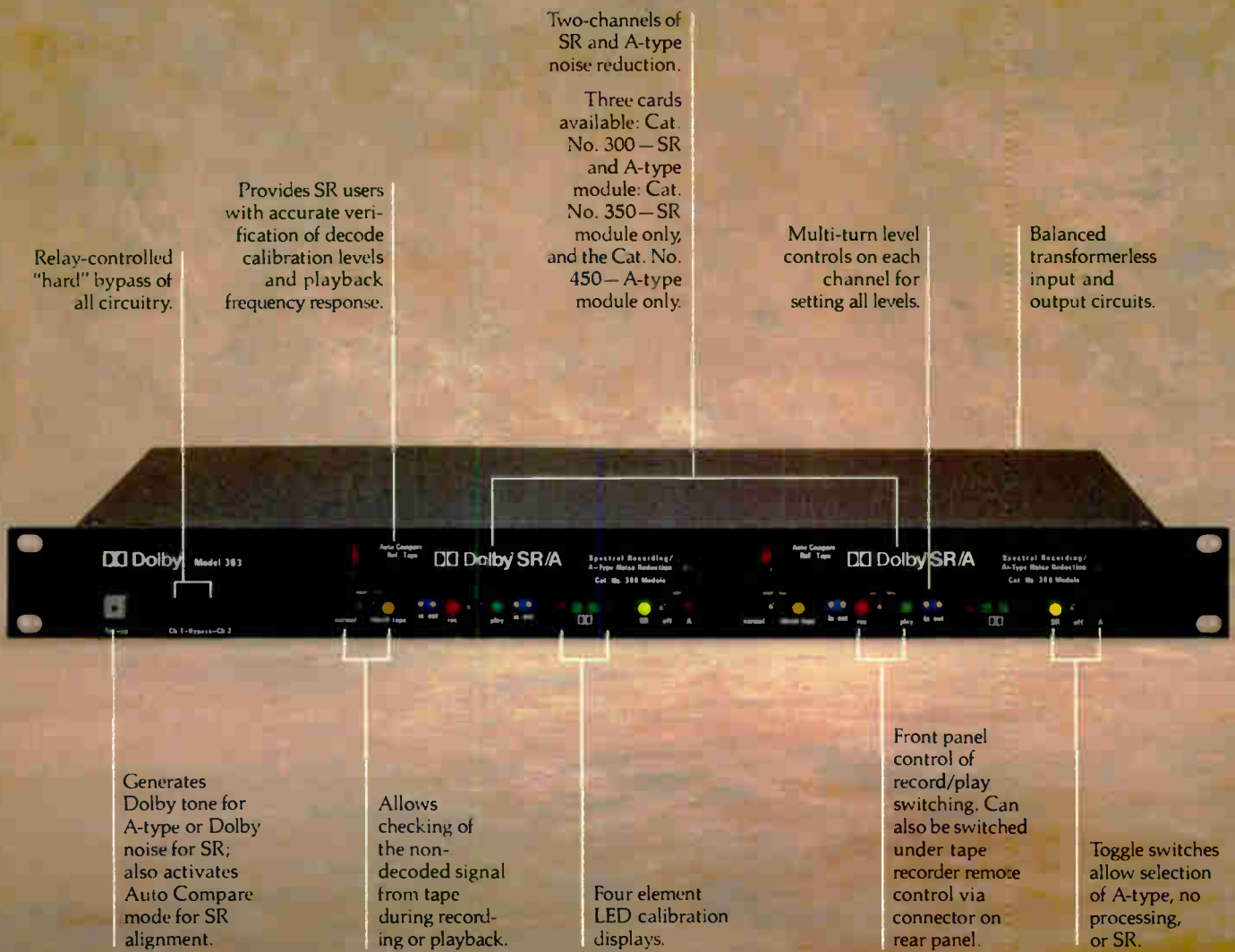


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ings, or if you wish to update information published in this issue, write or FAX the Mix Directories Department, 6400 Hollis St. #12, Emeryville, CA 94608; FAX (415) 653-5142.

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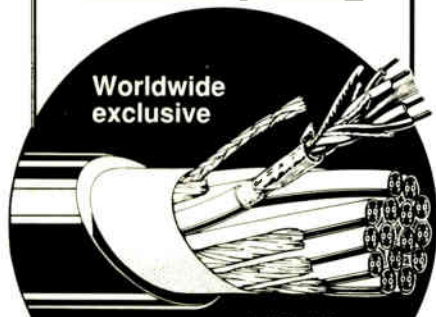
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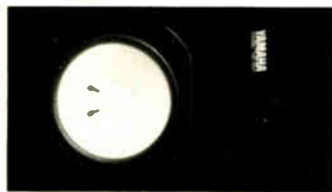
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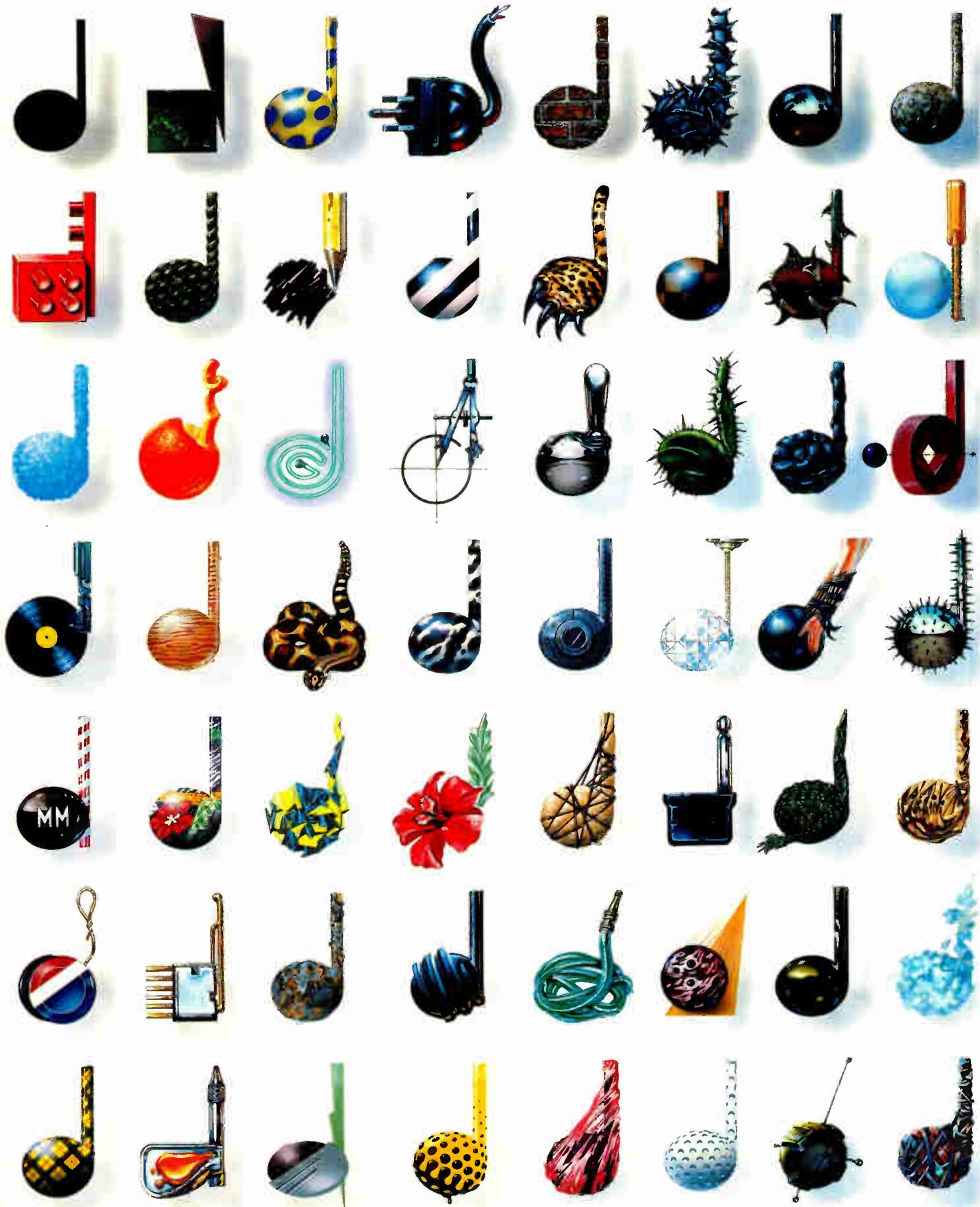
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DIGITAL AUDIO

IN THE RADIO STATION

—
THE
NEAR
AND FAR
HORIZONS
—

by Dan Daley and Skip Pizzi

Radio is still a powerful force in America, nearly 80 years after its inception. Persuasive without being invasive like its bastard progeny, television, it has maintained a consistency of technology as well as impact; while video has been the focus of various

**THE CD
WILL BE THE
PRIMARY SOURCE
OF MUSIC PLAYBACK
ON RADIO STATIONS
IN THE U.S. BY
THE END OF
THIS DECADE.**



ILLUSTRATION: WILLIAM CONE

new formats over the past two decades, radio has been relatively insulated from these upheavals.

That is beginning to change. The digital revolution, which has so influenced both video and audio production, is starting to make itself felt in radio, albeit slowly and tentatively. The simplest beginnings lie in the use of compact discs and prerecorded DAT tapes as source programming material. But the line from this to the concept of all-digital broadcasting is a long one that stretches to an indefinite point somewhere in the future.

THE JOURNEY FROM STUDIO TO LISTENER

A radio station's signal path has two major domains: audio and RF. The first is the domain in which all production takes place; the second is the form in which transmission occurs. Digital techniques will eventually replace their analog counterparts in both areas and, in fact, the process has already

JOHN WORAM'S BASICS

DIGITAL'S DYNAMIC RANGE

The *dynamic range*, in decibels, of an audio system or transmission medium is the difference between the lowest and highest level the system is capable of handling. The lower limit is usually the residual noise level of the system; the upper limit, the point at which the system begins to distort the signal passing through it. Dynamic range is often expressed as the *ratio* of output to input voltage or power. Dynamic range may be used to describe the level-handling capability of both a transmitter and a receiver of an audio signal. Thus, the human ear also has a dynamic range. ■

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begun.

In the audio sector, widened dynamic range and flat frequency response of digital storage media are as advantageous to the broadcaster as to anyone else. But digital audio's time domain accuracy is more important to radio broadcasters than to the general user.

Most traditional analog audio re-

recording systems have no integral speed control system, nor any need for synchronization to an external reference, and rely on mechanical means to determine record and playback speeds. Recorders with center-track pilot tone or time code, or fitted for time code operation, are exceptions to this, but aren't often used in the typical radio facility. So digital

audio's inherent need for synchronization, and its attendant speed accuracy brings the radio broadcaster a valuable fringe benefit in its consistently accurate playback speed.

The relative stereo phase coherence resulting from this speed stability solves another nagging problem: mono compatibility of playback sources. The proliferation of the broadcast audio cartridge ("cart") format has improved the convenience and speed of operation in the broadcast control room, but often at the expense of fidelity, especially in the area of tape-path azimuth stability. Digital audio's performance here exceeds even that of analog open-reel by a wide margin, providing rock-steady stereo imaging and consistently perfect mono compatibility.

Another "minor" attribute of digital audio systems that is important to the radio broadcaster is fast access time. The growing availability of production music and sound libraries on CD is a welcome trend here, too. And the high storage density these formats offer is saving precious shelf space. Moreover, unlike most other storage formats used in radio, the audio qual-

F1 at WGBH

While digital technology could be the Grand Unification Theory of both audio and video, both regions, unlike physics, are still consumer-driven and commercially based media. Thus, on one hand the chicken-and-egg equation that plagues most new formats (i.e., why make it if few people are buying it/why buy it if few people are making it) applies here in spades. On the other hand, the budgetary constraints that radio generally labors under mean capital for implementation of new technologies isn't as readily available as it is in the better-financed atmosphere of television. Radio revenues are up, but the inclination of many station owners and their CFOs is to leave well enough alone and take the gravy. Why fix it if it ain't broke?

Broke or not, radio is going to enter a digital domain substantially at some point. Pioneering steps are being taken today in several areas. At WGBH in Boston, for instance, they've been involved in an FCC-authorized experiment since 1986 in which certain programming at specified times is broadcast over 2.5 megahertz of the UHF band using Sony PCM-F1 technology. According to Dave McCarn, director of engineering at WGBH, the PCM signal is formatted as a video signal. The show, called *Morning Pro Musica*, is broadcast over the UHF television spectrum due to the bandwidth requirements of the format, one hour each morning over various New England FM stations. This signal can be received by any VCR through a television antenna, but it requires another F1 on the receiver side to translate the PCM information into something listenable. The VCR is set to channel 44, and the video output is sent to a

PCM decoder, then to the stereo system. One advantage in this system is the ability to time-delay the reception of the broadcast by recording it.

McCarn says this approach is not as obscure as it may seem, since there are a fair number of F1s in the Boston area, due to a substantial population of audio professionals. And, as he points out, it is one of the few systems that has end-user hardware currently available. He says the response from those who can participate has been positive and the experiment will continue.

Another digital application that has been going on a bit longer at WGBH is the digital station-to-transmitter link (STL) for live broadcasts of the Boston Symphony Orchestra. The distance, between 15 to 20 miles, is handled via microwave, supplanting the use of telephone lines. McCarn says the signal-to-noise ratio has improved considerably from about 65 dB to 90 dB. The digital hardware in this instance is the dbx 700 unit, which McCarn points out has a higher sample rate of 150 as opposed to the standard 44.1 rate. This could be considered a partial digital broadcast, since transmission from the source point is digital, and from the transmitter on out it's analog.

McCarn acknowledges the commercially driven nature of radio, saying that when digital indicates an ability to improve a bottom line it'll take off. But he wistfully notes that Europe is ahead of the U.S. in this field, as they have been in accepting DAT.

However, McCarn looks ahead optimistically at several new digital formats that could have an impact on radio in the near term. One of them is Dolby Labs' Adaptive Delta Modulation system (ADM). Accord-

—CONTINUED ON PAGE 107

MEETING THE MAKERS

This scattered, petri dish sort of experimentation in digital radio has kept enthusiasm low keyed on the manufacturing end. Anders Madsen, sales and marketing manager for Pacific Recorders in Chatsworth, Calif., one of the largest suppliers of broadcast consoles in the world, agrees that radio is insulated from the leading edge of technological change. But that is mainly due to the constricted budgets of the medium, he feels. "The realities of radio are different from those of TV and studios," Madsen says. "Technology is driven by consumer buying, not professional buying. DAT didn't reach here in sufficient numbers to capitalize on consumers' interest. The economy of scale was never realized on the part of the manufacturers, and it hung up there at three or four grand. A few studios bought it and that's it.

"It's my opinion, and the opinion of many others, that technological innovation is fine for its own

—CONTINUED ON PAGE 102

Phoenix puts Vancouver on World Stage with Sony Digital Audio



Phoenix Recorders Inc., the first all-digital studio west of Toronto and north of L.A. is changing the face of the recording industry in Vancouver.

Built for digital from the ground up, Phoenix boasts an impressive array of Sony digital audio equipment, featuring a PCM-3348 and PCM-3324 multi-track machines. Phoenix is the only facility in Western

Canada capable of 48-track digital recording, along with 24-to-24 track electronic editing and dubbing.

Phoenix chose to go with Sony digital audio because of its performance, track configuration and market penetration elsewhere in the world. Digital offered Phoenix exceptional dynamic range, the ability to take things off tape and lay

them on again in different places without the signal losses and degradation that's typical of analog.

The decision to go all digital has already paid dividends for Phoenix. Fully one-third of the production of radio and television commercials in Vancouver is now completed at Phoenix Recorders Inc. The studio also counts among its recent credits the John Denver album "Higher Ground", produced by Roger Nichols (Steely Dan, Toto, Donald Fagen). Grammy award nominee Lee Holdridge ("I'll Take Manhattan, Splash") produced the title track, which will be featured (was featured) in the recent TV special "Higher Ground" in which Denver stars.

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ity of digital recordings usually does not deteriorate with repeated playings.

And for radio remote recording, digital audio systems such as the pseudo-video-based formats (e.g., Sony F1) or R-DAT offer increased portability and recording times between tape changes over conventional analog remote systems, in addition to higher audio quality.

BUDGETARY AND OTHER HURDLES

A major issue in the broadcast industry has always been recording media cost. Tape recorders come out of the *capital* budget, but tape is usually on an *operating* budget line. The bean

—FROM PAGE 100, MAKERS

sake, but when it comes to taking over a portion of a professional marketplace it really needs to be pushed hard by the consumer. DAT is a case in point. However, the consumer has accepted the CD software. And so have radio stations to one degree or another."

But even in the CD realm, the digital influence is diluted by the practice of putting much of the CD source programming onto the tape-loaded cart, Madsen points out, a statement verified by a number of

stations using CDs. (CD-101 is using CD players made by Radio Systems with auto-cueing, rather than loading CDs onto carts.) The reasons for this, says Madsen, are that the cart is a familiar and efficient tool in radio, and most CD players are not sufficiently reliable for constant broadcast use.

Madsen mentions that some better-financed stations employ Dolby SR now. Its acceptance and reliability in studio and film applications has made it a powerful device for prolonging the dominance of analog tape recording. "It's found its way into a critical number of radio stations at this point," he says, "enough to have made an impact in major markets." He sees this as an increasing trend that will help "keep radio on tape for a longer period of time. A really good cart with SR retains all the dynamic range that is available on the digital product originally and does not clip it."

To the premise that DAT could work well as a storage medium in radio, Madsen replies, "I'm not sure I could point out one doing it now, but there was a buzz about it a while ago." On digital consoles, his area, he says, "At some point they will follow recording consoles into the digital domain, but not for a long time yet. Current consoles have more than enough dynamic headroom to handle CD players. We don't see a need for it now, and we won't make one until we do."

So, aside from a few ongoing experiments, the use of digital radio now is perhaps more a marketing ploy than anything else, revolving around promotions that boast "All CD." That's a conclusion that Madsen has little qualm with. After all, he says, "It costs hundreds of thousands to turn a station all-digital, and radio simply does not have that kind of money. Also, there is the in-place universe of equipment like transmitters and home receivers that tends to degrade a signal.

"The future of the radio signal is a subject of wide debate. We don't see digital having a sizable impact across the country for at least ten years. There's no question that it's on the horizon, but not any time soon."

—Dan Daley

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counters are always after reducing those "continuing" costs. Pseudo-video or R-DAT formats offer tape costs from one-half to one-tenth that of their analog equivalents, the amount depending on the tape type, speed and quantity discount involved. Again, audio quality improves at the same time as these cost savings occur, seemingly violating some corollary of Murphy's Law, and making everyone at the radio station happy. Well, almost

Digital audio's time domain accuracy is perhaps more important to radio broadcasters than to the general user.

everyone.

Not everything about digital audio is perfect for broadcasting. Lower-cost (cassette-based) digital audio recording systems lack in flexibility for production and editing at present, especially when compared to current analog systems. Such flexibility is available in digital systems (such as the DASH and PD open-reel formats, and workstations), but the cost for these is generally prohibitive to most broadcast users at this time.

To deal with this, many remote recording users of pseudo-video or R-DAT systems dub field-recorded original material to high-speed, noise-reduced analog tape (typically 15-ips Dolby SR) for studio post-production. Final air masters are often transferred back to pseudo-video or R-DAT for later broadcast playback.

Another difficulty with digital recording hardware—this one afflicting remote systems—is caused by the high current demand of digital processing circuitry, which limits battery life on portable recorders. Most of these use rechargeable Ni-Cad battery packs, and in many cases, charge-life is shorter than a single R-DAT or videocassette's running time; an operator may have to change batteries before changing tape.

And some in the broadcast field have yet to be convinced of digital audio recordings' longevity. Archival

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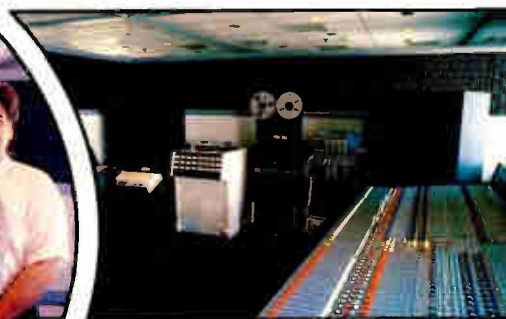
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World Radio History



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DIC Digital
DAT
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storage is important to broadcasters, and some positive results from studies (currently underway) involving accelerated aging tests are needed to convince everyone that these formats are durable over long periods and in a wide variety of storage conditions.

At radio broadcast facilities in which digital audio has begun to be implemented, CD playback hardware has been the most common application.

—FROM PAGE 100, FI AT WGH/I

ing to Craig Todd, senior engineer at Dolby, ADM is a method of coding audio signals into digital form. It was designed for consumer broadcast applications, specifically television, although it is just as valid for radio. The advantage of ADM lies in the fact that it codes audio into a relatively low data rate—440 kilobits per second for stereo. The transmission format is called Quadrature Phase Shift Keying (QPSK), which looks like transmitted noise on a screen. A receiver recovers this data and converts it from digital to analog for replay. And that data is relatively tolerant of errors, Todd adds. The system's low bit rate allows conservative bandwidth use. This is important because the number of available frequencies for radio is extremely limited, and there is a struggle for what's left with new TV and LPTV stations coming online.

The system has been in operation for four years in satellite systems as well as private television networking in the U.S., and has been used extensively in Australia for television broadcasts.

But cost again remains a primary factor. While the price of the receiver decoder component is quite low—Todd estimates that it would add \$10 to the cost of a television receiver—the cost of the considerably more complex encoding equipment runs between \$5,000 and \$10,000.

"Radio needs to get its act together in terms of competing with new television stations for band space," says Todd. "You have digital cable radio coming on for subscribers. This is commercial-free and it could pose serious competition for broadcast radio in the same way cable television has for broadcast television."

—Dan Daley

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BOSE
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Nearly half the radio stations in the U.S. use CD to some extent. In major markets the percentage is even higher. Many of these stations program music exclusively from CD, although some dub individual cuts to the analog cartridge format first. (This latter process is generally ascribed to concerns

about reliability of CD playback direct to air [primarily due to "skipping" problems], complexity of CD playback hardware for high-pressure on-air operation, or just plain habit.) Since record companies have started providing promotional copies of new releases on CD, the acceptance of the sys-

tem has risen dramatically in all radio formats. More user-friendly, flexible and reliable CD players are also helping this acceptance along.

Meanwhile, a smaller number of stations use digital audio for recording as well. The more cost-effective formats such as the Sony PCM-F1 and

DIGITAL IN WINNIPEG?

Moffat Communications, a Winnipeg, Canada-based radio chain, has gone about as far into the digital production end of radio as can be done with current technology. The company's nine stations in Winnipeg, Vancouver, Calgary, Edmonton and Hamilton all have or are in the process of installing New England Digital's PostPro system, an 8-track Direct-to-Disk™ digital recording system designed for radio production. According to chief engineer George Buzunis, Moffat stations are doing all commercial and promo work digitally with the exception of music beds, which are farmed

out to local contractors. Furthermore, the chain expects to add the DAMS system—Digital Audio Mass Storage—to its inventory. The Australian-manufactured hard disk system can store up to 540 minutes of program, which is enough for over 1,000 half-minute promo spots. This, says Buzunis, will virtually eliminate the need for any carts at the stations, enabling jocks to simply punch up the desired spot in an instant.

The five PostPros, at an average of \$165,000 (Canadian) each, and the \$150,000 DAMS bring Moffat's digital investment up to just under \$1 million. Buzunis agrees that such an investment in radio is substantial but adds that the cost of new decks and consoles—which

were a capital investment priority anyway—would have come close to that. "And there were no construction costs," he says. "The systems were simply wheeled right into the studios."

With its exclusive programming of CDs and DATs, the PostPros and DAMS make the Moffat chain probably the first all-digital programming and production radio group in North America. Franklin B. Sullivan, vice president of sales and marketing of NED, says, "Moffat's multisite PostPro installation is a good example of how a far sighted radio network is equipping itself for today and tomorrow. They are by far the largest NED radio installation in the world."

—Dan Daley

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dbx 700 (Companded Predictive Delta-Modulation [CPDM]) systems are used primarily in remote recording and in time-shifting of satellite-delivered programming. But the discontinuation of the processors and the questionable reliability of the consumer-grade VCRs typically used have rendered these formats obsolete, although they will probably remain in use at some stations for a while. The Sony 1610/1630 system has never penetrated the broadcast market due to its higher tape and hardware costs.

R-DAT has recently begun to see acceptance among radio broadcasters. Compared to the pseudo-video systems, it exhibits slightly higher audio quality, smaller size, faster start-up ability, much quicker access time, convenient indexing features and "single-box" design. It has also attracted some users who were never interested in pseudo-video systems. Nevertheless, pseudo-video systems still offer advantages over R-DAT, in that their real-time counters are based on control-track data of the videocassette, providing much greater accuracy than

the mechanical counters found on most R-DAT machines. The slow linear tape speed of R-DAT means that even a good mechanical timing system will be inaccurate, especially by broadcast standards. Furthermore, the fact that VCR counters stop advancing in fast-wind mode when they reach blank tape is another minor bonus of the pseudo-video systems (although some R-DAT machines provide a more elegant end-of-recording search feature).

R-DAT has also begun to be used by music syndicators and programmers for distribution of material to stations. Other applications have surfaced, and a primary target is replacement of the broadcast cartridge format.

A few stations have even implemented the audio-only function of the 8mm video format, which provides up to 24 hours of companded 8-bit, 31.5kHz-sampled stereo audio on a single cassette. Users typically employ the system in a broadcast automation system, or for "logging," a common practice among broadcasters in which a reliable but inexpensive, low-to-mid-fi,

—CONTINUED ON PAGE 147

WSHU AND THE DBX APPROACH

At WSHU in Baltimore, Dick Kohles explains a digital link that is used from the studio to the transmitter in that station's digital productions for the live Baltimore Symphony Orchestra broadcasts. WSHU uses the dbx 700 system with a MACOM duplex video link that carries a pseudo-video signal.

But Kohles sees transmission systems such as the current dbx configuration being eclipsed by fiber optics. "KLON in California is going via data link," he says. "Audio is converted to data then reconverted for transmission. I see more glass [fiber optics] going in across the board in radio in the future."

CD-101 (WQCD), a mostly CD station in New York City, has been producing long-form shows on DAT. Says Andy Bater, the station's chief engineer, "The [DAT] cassettes are cheaper than reel-to-reel tape, and they take up less space as well as being better-sounding." CD-101 is also using DAT recorders for in-the-field interviews.

CD-101 has taken a shot at another aspect of digital applications,

although the station is still waiting for a result. Back in March the station recorded a series of on-air promos at Editel/NY. Fifty-six station signatures were recorded and edited on a Sony PCM-1630 digital deck. These were then sent to Japan at the request of THAT'S, a Japanese company that claims to have developed a recordable CD (WORM-type). THAT'S wanted to use the promos as a demo of its product's capabilities as the digital cart of the future, but as of presstime the company still hasn't delivered. CD-101 says it's waiting; THAT'S America spokesman Dan Garcia says the company is swamped with orders and "may have bitten off more than we can chew" on the CD-101 offer.

Garcia did say that radio and recording are target markets for the product, which he claims is the first that is fully compatible with current CD players. "We did this to show the capabilities of the product," Garcia says, "and especially to show its broadcast applications. It allows instant access to jingles, promos, etc. But this is software we're talking about; the recorder is not yet available commercially."

—Dan Daley

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NEW PRODUCTS



SAKI HEADS FOR BVH SERIES AND ITC CARTS

The formula for Saki Magnetics' (Calabasas, CA) new 1-inch audio record/playback head (\$895 list) incorporates hot-pressed, glass-bonded ferrite and a ceramic face for long life and high reliability. The BVH-2000 head, which works with Sony BVH Series decks, is said to last up to ten times longer than conventional metal heads. Likewise, Saki's new ITC Delta Cart replacement head (\$225 list), designed for use with NAB- or TOMCAT format ITC Delta cart machines, is believed to be the first all-ferrite replacement head with a glass-bonded gap, and it wears six to ten times longer than standard perm-alloy heads.

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SYMETRIX SX205 PRECISION DIGITAL METER

To extract full 16-bit performance from digital recording systems, precision metering is required. A new reference standard for such uses has been unveiled by Symetrix (Seattle, WA). The microprocessor-controlled,

two-channel SX205 digital meter measures and displays voltage (-39 to +6 VU) and power levels (to 100W or 1,000W full-scale, referenced to 2, 4 or 8 ohms). A 1,000Hz sine wave calibration oscillator is included. Each channel can be individually (and independently) set up to display data as average or peak level, in bar graph or dot format, with peak-hold time adjustable from instantaneous to infinite. Retail price for this addition to Symetrix's half-rack 200 Series product line is \$279.

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SOUND IDEAS "HOLLYWOOD" SFX

Boings, thuds, whizzes and whooshes are just some of the sounds available in the eclectic "Hollywood Edition" FX library on compact disc from Sound Ideas (Richmond Hill, Ontario). Over 1,500 digitally recorded sounds are divided into categories with such titles as Comedy, Foley, Special (explosions, gunshots, karate chops, etc.), Horror, Musical, Space, Transportation, Animal Sounds and Human Sounds. Also included are instrumental and "wild and crazy gizmo" effects.

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SOUNDTRACS ERIC2 AUTOMATION

The new Level 2 automation package—aka "ERIC2"—for the Soundtracs ERIC console (distributed by Samson Technologies, Hicksville, NY) allows recording of all console recalls, setups and mutes against time code. The system reads and generates time code (all formats) and records all events down to half-frame accuracy, thus preventing mute delays. Data can be recorded and updated in real time for conventional mixing, or in step time for MIDI- and sequencer-based mixing. The com-

plete display screen offers a wide viewing angle, and display windows, function buttons and a moving mix display enhance ease of operation. ERIC2 can be fitted to any ERIC console.

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CIPHER DIGITAL SOFTOUCH II EDIT/CONTROLLER

The ever-popular Shadow time code synchronizer has a new master: the Softouch II Edit/Controller from Cipher Digital (Fredrick, MD). Priced under \$4,500, the Softouch II has a 3.5-inch disk drive for storing edits, full-screen color display (works with RGB monitors), 16 programmable soft-keys and the ability to output edit lists on a standard computer printer. It can drive up to four audio, video and/or film transports via the Shadow synchronizer. Features include loop memory (automatically stores sequences of up to 100 edits), a preview function, frame-accurate event control outputs and an adjustable beep tone for cueing talent.

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Broadcasters and others working with automated programming systems will appreciate the control and monitoring capabilities of the EMT 981 Professional CD Player (distributed by Gotham of NYC). The rapid front-loading unit handles standard and mini CDs in a 2U rack-mount enclosure, graced with large, illuminated controls. Features include: separate operating modes for setup and "on-air" use; precise cueing with repeatable segments; auto-cue and auto-stop functions; comprehensive time indication; access to any disc location (track, index and time); rapid track selection with next/previous and index functions; search dial; "pre-listening"; "go to last" function; storage of up to four takes; $\pm 10\%$ varispeed; and more. Remote control is possible, as is computer control via the player's RS-232 interface. The player also provides an AES digital output, word clock output and clock sync output.

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HOWETECH SERIES 10K CONSOLE

They're calling it the "wireless" console because a universal multilayer backplane eliminates all internal point-to-point wiring between modules. It's the Series 10K on-air/production mixer from HoweTech (Boulder, CO). This dig-

itally controlled, analog audio desk features interchangeable modules that can be located in any order; a standard mainframe includes control room monitor, bus summing and two dual-channel line output modules, and many others are available. In addition to the standard summing bus, all subgroup audio signals are distributed to every module position, allowing many monitoring and output configurations. Base prices start at \$8,285 for a 14-channel mainframe with oak trim.

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MAGNA-TECH EL II ELECTRONIC LOOPING SYSTEM

Electronic looping in ADR and Foley recording is possible with the new, computerized EL II system from Magna-Tech (NYC). The system stores up to 200 loops online for playback and recording, and unlimited loops offline. Optional RAM storage modules each hold an additional 200 loops online. Features include: cue sheet data storage; ability to add or subtract frames, automatically updating stored cues; keyboard-controlled storage of print takes; four programmable "soft" keys; manual override; and built-in battery backup. The EL II handles up to six tracks and operates with film projectors, videotape players, 35mm film

recorders, magnetic film reproducers and 1/4-inch audio recorders.

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by Larry Oppenheimer

OPCODE'S VISION

I think we're pretty close to hitting the limit. From their humble origins in the late '60s as voltage-controlled synthesizer modules with a few rows of knobs to set output voltages, sequencers have evolved dramatically, grow-

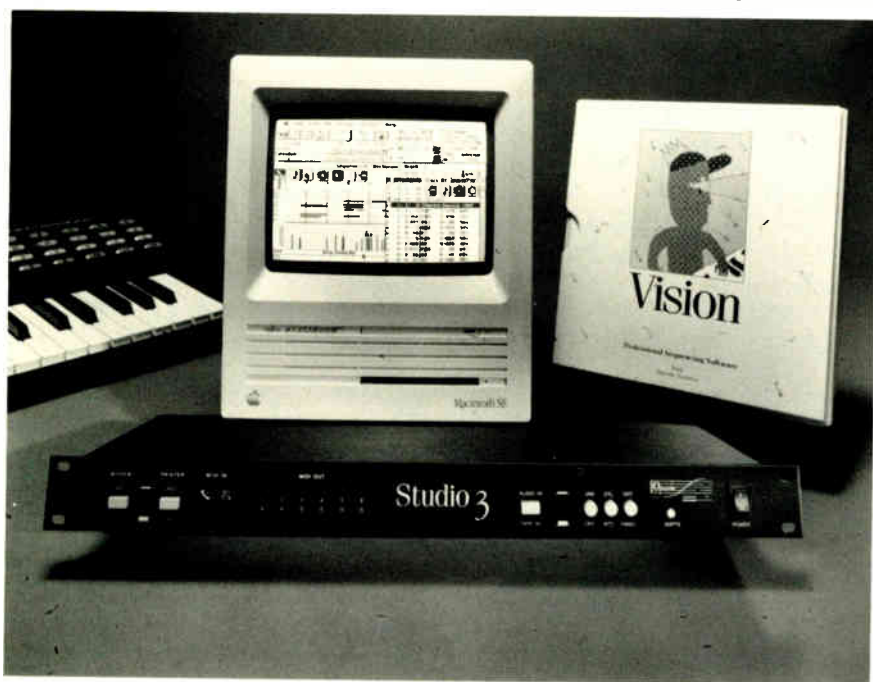
tracks. A sequence can be "normal" or "generated," the latter being an algorithmic transformation of the material input to it. One of the nice aspects of Vision is that it can be used as a pattern-oriented sequencer (drum

machine-style), a linear sequencer (tape recorder-style), or a combination of the two: sequences can be treated as patterns and called as "subsequences" by other sequences or from the keyboard. Complex structures can be realized by nesting subsequences and/or calling them in real time.

With a program offering this many features, the user interface becomes absolutely critical—the old "power

versus ease-of-use" trade-off at work. Fortunately, Opcode has not underestimated this need. The file window, which lists all the sequences and their names, the sequence window, which lists the tracks for a given sequence, and the control bar, which contains Vision's "transport" functions, counters and several record and playback options, comprise the primary portion of the screen display. Editing is performed in the list and/or graphic editing windows. Status information of various sorts is sprinkled in appropriate places throughout the program. Multiple sequence and editing windows can be open simultaneously.

The many options Vision offers are made easily accessible in three ways.

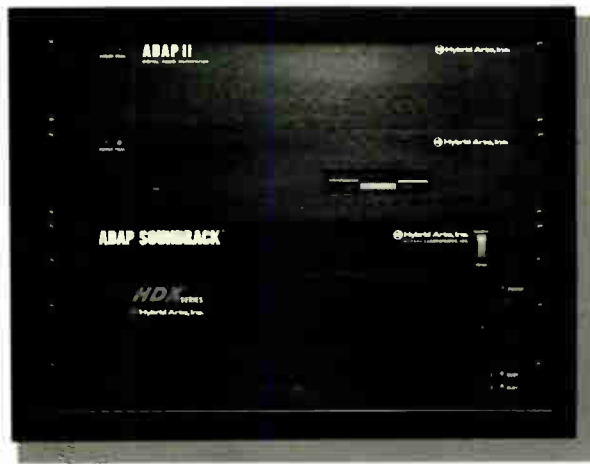


ing into immensely complex and highly sophisticated pieces of personal computer software. Opcode's *Vision* is a gem of a program that represents the state of the art and also appears to demonstrate that we have just about reached full maturity for this kind of application.

Given Vision's staggering complexity, I will attempt only to give the reader a grasp of the major functional areas that this Macintosh-based sequencer covers. I cannot emphasize strongly enough that potential buyers must try the program firsthand to determine if it is the right tool for them.

Like *Sequencer* (its predecessor), Vision allows the user to construct up to 26 sequences, each having up to 99

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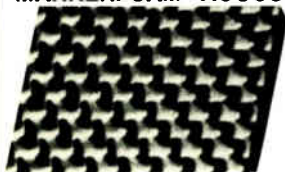
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FIELD TEST

—CONTINUED FROM PREVIOUS PAGE

First, there are literally dozens of pop-up menus scattered everywhere in the program, and where there aren't pop-up menus there are probably dialog boxes and secondary windows.

Second, Opcode has simplified operation by providing extensive Mac keyboard equivalents for Vision's commands. Once you establish your own way of working with Vision you quickly learn the equivalents and find them faster to use. Aside from the basic record and playback functions, there are keyboard equivalents for selecting MIDI keyboard thru channelization, triggering sequences and selecting the window you want to be active.

Going one step further, Vision's third method for accessing features, "MIDIKeys," lets you map MIDI notes to Vision commands for operating the sequencer from a MIDI controller. The MIDI Shift function is analogous to the Mac's Shift key, allowing the function redefinition of any MIDI key. This is also an excellent application for a MIDI footswitch.

SYSTEM CONFIGURATION

Vision has a substantial number of features aimed at providing control over MIDI instruments in the form of input and output maps. Instrument definition includes everything from naming to specifying transpositions, MIDI channel, range of notes, program change number and much more. The input map assigns a Mac port and MIDI channel to each instrument, as well as a range of notes and a base note definition. Instrument, input and transposition maps can all be saved to disk.

In addition to the input/output mapping capabilities, Vision offers further control of your MIDI instruments with up to 32 virtual faders to control velocity of an instrument, tempo, or send continuous controller data. A fader can even be controlled by an external MIDI controller. MIDI controllers can be remapped by setting a fader to receive information on one controller and transmit it on another. The faders can even be used for an automated mixdown, although their small onscreen appearance makes resolution a problem.

RECORDING

Vision offers three basic modes for recording: replace, punch and over-

dub (for merging new information with existing track information). Loop (drum machine-style) recording is also supported, as is the ability to record on multiple channels simultaneously. Multichannel recordings on a single track can be split to separate tracks after the fact. You can trigger sequences in real time from the Mac keyboard or a MIDI keyboard and capture your performance to a track. One other interesting feature of real-time recording is the Constrain to Scale feature, wherein pitches are quantized to any of the standard or more exotic modes, such as Hungarian. Step recording is here with yet more interesting options: durations can be a specified constant note value, recorded as played, a percentage of the step value, or fitted to leave a specified amount of space between notes (ideal for making step-entered legato lines). Vision records with a resolution of 480 ppqn.

PLAYBACK

As in Opcode's earlier sequencer programs, playback is a particularly strong area, with a number of features that simplify live performance applications. Sequences can be started simply by typing the letter of the desired sequence on the Mac keyboard, which immediately stops the currently playing sequence and starts the new one. Queue lets you enter a string of sequences that will then play consecutively in the specified order. Extending these ideas further is Opcode's Player concept, which is sort of like having nine different sequencers for playback. Each Player can play a sequence and has its own queue. You can even use the Players for recording, then play the recorded multiple-sequence passage back on one or more Players. Obviously, you can quickly get many simultaneous sequences going, which requires *beau-coup de memory*.

Vision also allows independent looping for each track and/or sequence, and offers quantization for playback, which does not alter the sequence data as does edit quantization.

Sequences can be synched to Song Position Pointer (SPP) and clock messages or to MIDI Time Code (MTC). Of course, all formats of SMPTE (as transmitted in MTC) are supported, as well as the ability to assign a SMPTE start time for a sequence (Opcode calls this the sequence's "Offset"). Of

course, Vision can also send out SPP and MIDI clock, and can even serve as an MTC-to-SPP/clock converter to drive devices unable to support MTC.

EDITING

Now we start to get into the real meat. Where Opcode's original Sequencer program had virtually no editing, Vision has monstrous abilities. Not only does it support event list editing, but also graphic, piano roll-style editing. List and graphic editing windows for a track can be open simultaneously, and changes in one cause the other to be immediately updated as well. Vision also allows graphic editing for controllers.

The list and graphic editing windows are replete with options. Two different cursors let you select notes—only or all events. Clicking, dragging and shift-clicking can all be used to select individual notes, regions or combinations of the two. If you wish to be more specific, you may use Exact mode, in which you specify exact values, or quantize the cursor. You can also set a number of criteria that must be met for selection with

the "select" command, including a range of time, the type of events and even ranges of events ("everything between a program change after bar 4, beat 6 until a C4 after bar 10, beat 3").

What can be done with the selected material? Of course, standard "cut," "paste," "copy" and "merge" operations are provided. A "repeat paste" feature—allowing you to specify the number of times that selected material should be pasted contiguously into a track—is a nice touch. Dragging the front, middle or back of an individual note changes its start time, pitch or duration, respectively. Groups of events can be moved almost as easily. The list editing window lets you enter and/or edit system exclusive information as well as several types of non-MIDI text events: lyrics, cue points—even copyright notices.

MIDI Data Processing is another one of Vision's specialties. Standard operations like quantization and transposition are available, but both are quite sophisticated. Besides the note value, Vision's quantization can also be set for sensitivity (allowable distance from the grid for selection),

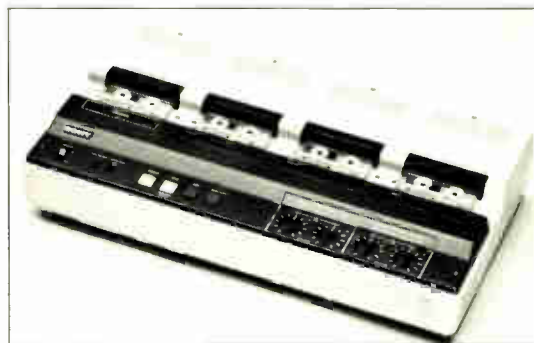
strength (how close to the grid a selected note will be moved from its original position), swing, shift (which shifts the grid, not the events), and smear (a randomization factor for "re-humanizing"). Opcode has also expanded the transposition options from simple chromatic transposition to allow the user to specify the remap note for each one of MIDI's 128 note numbers individually. Notes can be mapped between scales with different numbers of notes in them. And best of all, you can save your transposition maps to disk for use with other sequences!

Time is just as flexible. Tempo changes, residing in a Tempo track, can be edited in a list edit window or Strip Chart or performed in real time. Furthermore, a MIDI controller can be mapped to the tempo and tempo changes performed with it. The "scale time" and "change tempo" commands can be used to create smooth, linear accelerandos and decelerandos or alter tempos to fit a selected region into a specified time period, while "reverse time" plays notes in reverse order. Meter changes, key changes and

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markers (which can be used to mark "hit points") are stored in a Meter track. Another nifty feature is the ability to shift selected events in time while a sequence is playing. Thus, you can move a solo while the sequence plays, until it is just the right amount in front of or behind the beat.

In the Strip Charts, continuous controller data, tempo, note velocities or note durations can be scaled, offset by a fixed amount, conformed to values determined by drawing a line, or randomized within a range defined by drawing a line. Maximum and minimum values can be set, and the density of controller data can be tweaked. Is it soup yet?

Vision can import and export files in MIDI File, Professional Composer, or Deluxe Music Construction Set formats.

DOCUMENTATION

Vision comes with a comprehensive and well-organized manual. It is quite lengthy, which is unavoidable with a program of this complexity, but it uses icons and a good index to direct your attention appropriately and let you

find information you need quickly. Unfortunately, the proofreading on this "user's bible" was seriously sloppy. In most cases this is merely annoying, but in a few instances it definitely created some confusion for me. Nonetheless, this is a good manual, with an extensive tutorial section.

STUDIO 3 INTERFACE

The Studio 3 essentially combines Opcode's Studio Plus Two and Time Machine interfaces in a 1U rack-mount box with a few extra goodies thrown in. In addition to its two MIDI ins (one for each serial port), six MIDI outs, connections to the Mac, and SMPTE I/O jacks, the Studio 3 has jacks for two footswitches and a foot-pedal, which convert those inputs to MIDI controller data. Besides the Mac/MIDI interface functions, the Studio 3 writes and reads SMPTE and converts it to MTC or Direct Time Lock (DTL), the unorthodox SMPTE synchronizing scheme employed by *Performer*. The SMPTE reader is capable of "fly-wheeling" or "freewheeling": it will continue to output signal in the event of a minor code dropout. The "audio in" jacks and switch are for a tempo tracking feature Opcode intends to

implement in a future Vision update.

EVALUATION

I love it. No piece of software is ever perfect, but this one is pretty darned good. The scope of this program is breathtaking, and it really allows the freedom to create in whatever fashion you wish. I took a tune that had a few parts and a constant structure harmony and applied a pattern approach to it. Using "transposition," "repeat paste," editing and the Queue, I was able to work out a good form and interesting key shifts. Then, taking the linear approach, I added the drum part in one pass. (Drums are my first instrument and I find it much more natural to lay the whole song down at once on an Octapad than to chain patterns.) I was particularly enamored of the Quantization Strength parameter: I tightened up a few passages where I was a little sloppy, without eradicating the degree of slop that gave the drum track its coasting feeling. The Queue was very helpful in trying out different form ideas. I made heavy use of the keyboard shortcuts (the Thru shortcuts really make life easy and quick for trying parts on different instruments) and the online help—who

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wants to pick up a manual in the throes of creation?

In addition to its SMPTE sync and display capabilities, Vision's Tempo and Meter tracks make it a good tool for audio post-production work. The cue events, markers and time scaling allow identification of hit points and manipulation of musical material to fit them. Opcode intends to add the ability to lock hit points down during time scaling, which will be a major feature for scoring to film and video.

Vision did everything it said it would without crashing, and I was able to do everything I needed to. Ditto for the Studio 3, which certainly has a lot of handy functions in one small box. Some Vision operations were a little slow on my Mac SE, usually when I had more than half a dozen windows open, but it was tolerable. If you are using a lot of control panel devices with your system, and you tend to compose using long sequences instead of chaining many short sequences, you may run into more significant problems. (An associate tells me that he improved his available note memory from 3,000 to 40,000 simply by removing a CDev called *SoundMaster*, an application for customizing startup sounds, from his system folder.) Opcode has a number of improvements for Version 1.1, including more system management functions, auditioning of single notes, fader window display improvements, and exponential curves and pencil drawing in the Strip Charts.

Vision does have a fairly steep learning curve, but this is only because of the program's extensive nature. You can get up and running on Vision quickly, but when you start trying to do tasks of some sophistication you had better plan on some extra time until you've used the program for a little while. This is not a criticism, just a caveat.

In sum, Opcode Systems' Vision is the best sequencer program I have had a chance to use (and there are some pretty good ones out there now) and at \$495, I would recommend it to anyone who needs a fully professional, industrial-strength tool. ■

Larry "the O" Oppenheimer's recent credits include sound editing on The Thin Blue Line and Gumby, as well as appearances with the Haight-Ashbury Free Band in a clean-room suit and on the back of a flatbed truck.



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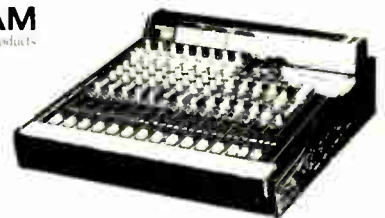


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by George Petersen

PRODUCT CRITIQUES AND COMMENTS

SECK CONSOLES

Thin profile, sleek aluminum chassis, high-performance specs and European styling are terms more often used to describe the latest sports cars, rather than professional audio tools. Yet in our *Mix* road tests, the Seck mixing consoles proved to be not only stylish but also admirable performers in their price class.

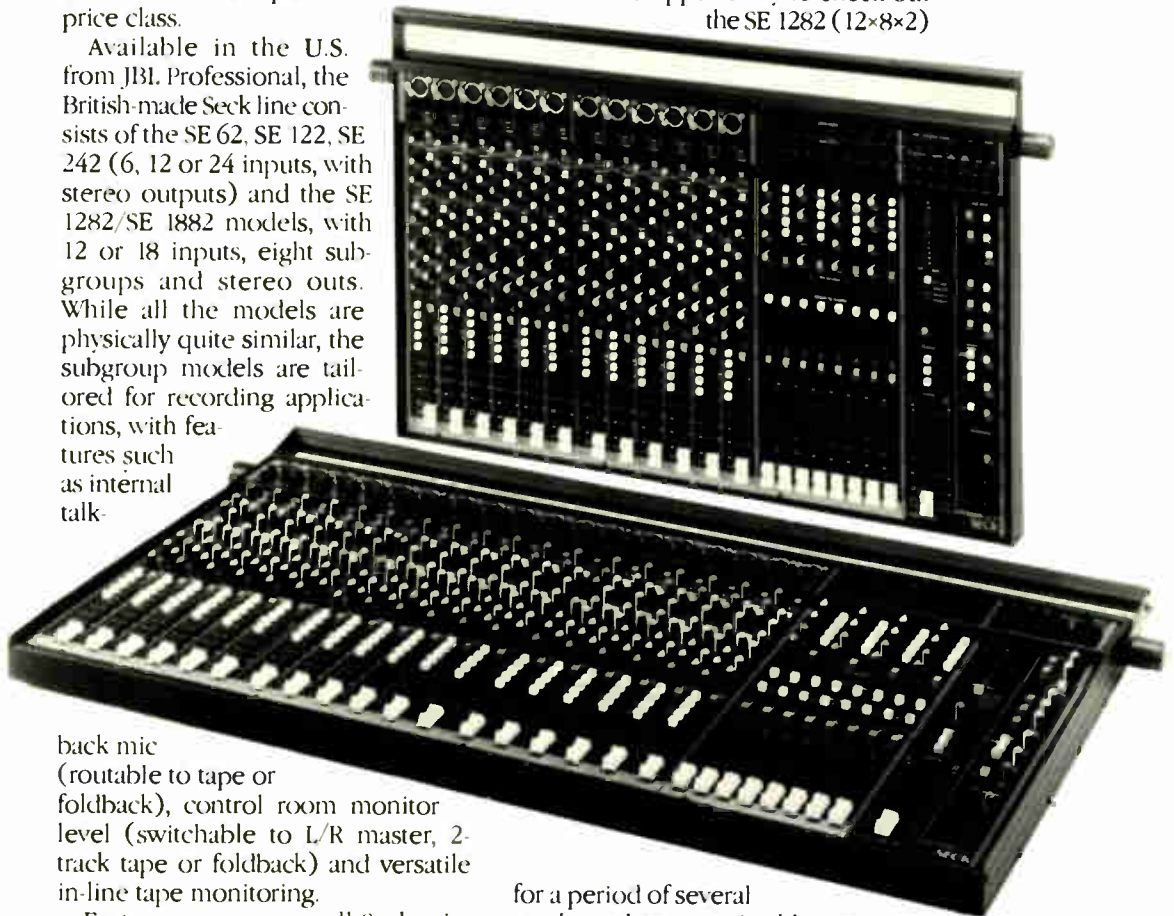
Available in the U.S. from JBL Professional, the British-made Seck line consists of the SE 62, SE 122, SE 242 (6, 12 or 24 inputs, with stereo outputs) and the SE 1282/SE 1882 models, with 12 or 18 inputs, eight subgroups and stereo outs. While all the models are physically quite similar, the subgroup models are tailored for recording applications, with features such as internal talk-

back mic (routable to tape or foldback), control room monitor level (switchable to L/R master, 2-track tape or foldback) and versatile in-line tape monitoring.

Features common to all Seck mixers include: electronically balanced line and mic inputs, switchable 48-volt phantom power, 4-band EQ (with sweepable midrange), in-place solos, long-throw 100mm faders and 12 segment LED meters with switchable peak-hold characteristics. The boards' input and output connectors are all top-mounted for fast patching, while

the detachable carrying handles double as a method of tilting the boards at convenient angles. Since all the Seck models include handles, some sort of snap-on cover would be a nice addition. Perhaps these could be offered as optional accessories in the future.

I had the opportunity to check out the SE 1282 (12×8×2)



for a period of several weeks and was surprised by its extremely clean audio performance and well-thought out design. For example, each of the four aux returns include 2-band EQ, level, pan, solo and routing switches—all fully pro features not often found on consoles in this price range. These could easily be used as additional inputs for line level signals, and when you really need lots

of inputs during mixdowns, the tape monitor section can be patched to a pair of returns for a total of 28 inputs—not bad for a 12-channel board! In a similar manner, the level, echo and foldback controls in the tape section could be used during mixing to provide up to six aux sends, another commodity in short supply when doing a complex mix.

Solo controls are used extensively: there's one on each input, subgroup and aux send. Best of all, the solo routes automatically to the control room output (rather than just to the headphone bus) for checking tracks without disturbing the signal sent to tape. Since the SE 1282 lacks LED overload indicators on each input channel, the solo buttons become important for optimizing input trim levels. When any solo button is pressed, that signal is monitored by the main LED meters. Although channel muting buttons are not provided, the L/R and subgroup routing controls operate without any switching noise or pops. Therefore, the effect of muting can be achieved easily by switching the signal into or out of the mix.

One of the most notable characteristics of the Seck consoles is their compactness. These mixers are less than two inches thick, accomplished through clever engineering and an external power supply. Hum is virtually nonexistent since the power transformer is located well away from audio lines, and the aluminum case offers excellent shielding. Each channel strip is about two inches wide, and the channel controls (for EQ, aux sends, etc.) are laid out in a staggered configuration, providing plenty of room for finding the knob you need. This is especially useful when you have to make hurried changes in a live situation. Another small but nice touch is that the large, easy-to-read channel numbers are near the center of the strip, where you need to see them.

With their low current draw and external DC supply, the Seck consoles make ideal DC-powered location mixers. The SE 62 in particular would be ideal for film and video tasks, and the manual includes a schematic for battery operation.

I found the rugged Seck mixers to have an overall excellent sound quality and a logical topology that simplifies operation. Their versatility makes them a cost-effective choice for a variety of production tasks, whether it's

multitrack recording, audio-for-video, sound reinforcement, fixed installations, MIDI production or live theater. At a list price of \$3,475, the SE 1882 (18-channel version) is essentially the same as the SE 1282 (\$2,650) I tested, with the addition of 16-track tape monitoring and six more channel inputs. The 2-subgroup models range in price from \$1,095 (SE 62) to \$3,275 for the 24-channel SE 242.

Seck JBL Professional, 8500 Balboa Blvd., Northridge, CA 91329; (818) 893-8411.

API LUNCH BOX

No, it's not really a lunch box—in fact, it doesn't even come with a Batman thermos jug. However, there are a few similarities between a child's lunch pail and the model 500-b4 "Lunch Box" from API: both are similarly sized, have a convenient handle and can be filled with delectable goodies, of decidedly different varieties. Basically, the Lunch Box is a portable, AC-powered rack designed to house up to four API modules, including mic preamps, compressors and equalizers.

The Lunch Box is a cinch to operate. Rear panel input/output connectors are provided for both TT or 1/4-inch TRS patch cords (the jacks will also accommodate standard 1/4-inch phone plugs), so using the Lunch Box becomes a mere matter of setting it up near the patch bay and plugging in the AC cord. Independent engineers who work in a variety of studios with either TT or 1/4-inch patch bays will quickly learn to appreciate the dual sets of jacks. Studios seeking a slightly more permanent method of using the API modules may be interested in checking out API's other mountings: a two-slot (\$595) unit in a single rack space, and a \$995, ten-slot array that occupies three rack spaces. Incidentally, both are equipped with standard XLR inputs/outputs.

The API 512b combines an all-discrete mic preamp with an instrument/direct box-style, unbalanced input. The latter is one slick idea: it provides a loaded input stage that closely simulates the way an electric guitar's signal is loaded by an amp. This yields a beautiful, warm tone, the likes of which I've never heard when running a guitar directly into a console. It's also wonderful on bass; I used the 512b to cut some direct-to-DAT sam-

ples of a pristine 1964 Hofner Beatle Bass for 360 Systems' Pro Midi Bass Library with fine results.

The 512b's mic preamp section is another winner, with a smooth, natural sound on condenser and ribbon mics on vocals; yet full-ranged, with punchy transients on acoustic guitars and piano. The only weak point in the 512b is its LED VU meter. Not intended as a calibration-quality in-



dicator, it's best used as a general level monitor: much better than just a simple peak LED, but far short of a plasma display.

Like its predecessor (the classic API 550a), the 550b is not a "true" parametric, but a "Proportional-Q/Selectable Frequency" equalizer. This means the bandwidth ("Q") varies as the gain changes—it's one-octave wide at the extreme ± 12 dB settings and broadens to one-and-one-half to two octaves at gentler settings.

So much for technicalities—the 550b is a heck of a parametric, offering four bands (as opposed to the 3-band 550a) of ± 12 dB control with switchable peak/shelf characteristics on the LF and HF bands. I guess the big question is whether the 550b sounds better than the 550a. I hope you don't think this is a cop-out, but they both sound great. Both are all-discrete and share a common basic design, but API has improved the PCB layout in the 550b, thus eliminating a lot of the tedious hand-wiring, resulting in better reliability and lower manufacturing costs. I do wish that API would change the color of the frequency select markings. The blue-on-black numbers are almost impossible to read in most control rooms.

One of my 550b listening tests was program equalization with some difficult material: a CD of Jefferson Airplane's *Volunteers* album (RCA CD-4238-2-R). This is a wonderful album, produced in 1969 by veteran Al Schmitt; perhaps the master tapes de-

cayed over time, but the CD version is really stinko, with almost no clarity remaining in the mix. It took me under two minutes to re-equalize the CD (+2dB shelf at 12.5 kHz; +2dB at 5 kHz; -4dB at 400 Hz; +4dB at 100 Hz). Suddenly the guitars became distinct, and the vocals and bass increased definition, with an overall warm character in the mix.

A real asset to the independent engineer or musician on the go, the API Lunch Box rack is \$595, sans modules but including power supply (48 VDC phantom power is a \$50 option). Each 512b mic preamp module is \$595; the 550b equalizer is \$995.

API Audio Products Inc., 7951 Twist Lane, Springfield, VA 22153; (703) 455-8188.

ALESIS QUADRAVERB

Digital effects processors seem to just keep getting better, and the Alesis QuadraVerb is no exception. Offering a programmable combination of up to four simultaneous effects—equalization, pitch detuning, delay and reverb—with 16-bit resolution and a 20kHz bandwidth, this unit could have sold for ten times its price just five

years ago.

Operation is simple. Power up and the unit defaults to your last setting: nice insurance against brief power losses on live gigs. The 90 factory presets are easily accessible by depressing either the "value" up or down buttons. Besides providing a variety of useful effects, the factory patches illustrate



the QuadraVerb's flexibility and complexity. Ten spaces for user presets are available, although any or all factory settings can be altered or replaced with your own programs, if desired.

QuadraVerb offers enormous power in programming, yet its user-friendly design greatly facilitates the process, thus encouraging creativity. Custom tailoring an effect merely involves calling up a factory sound, selecting the desired effect mode—reverb, delay, pitch or EQ—and using the "page" buttons to pick the parameters you want to change. New values are entered via the "value" up or down buttons. The latter are pressure-sensitive: scrolling speed depends on how hard

you press the buttons, a neat feature if you want to get a new sound in a hurry.

The degree of programming depth is impressive. For example, the 3-band parametric EQ offers extremely precise control: gain is adjustable in 0.05dB steps; frequency in 1Hz increments (how about a 478Hz low fil-

ter?); and bandwidth can be varied from 0.2 to 2.55 octaves. If you call up a reverb setting, you'll discover 14 adjustable parameters, including: pre-EQ, predelay, predelay mix, reverb decay, diffusion, density, LF and HF decay, gate, gate hold, release time and gated level. Another nice feature is the ability to store dry/effect mixing levels with presets. When all the permutations from the delay and pitch sections are combined with the EQ and reverb variations, a vast number of custom effects can be created and individually named.

The MIDI implementation allows real-time parameter control—from a sequencer or MIDI controller—such as the Lexicon MRC or an editor/librarian program—as well as program change/mapping and system exclusive data dumps for storing banks of presets to an external device, such as Alesis' new DataDisk.

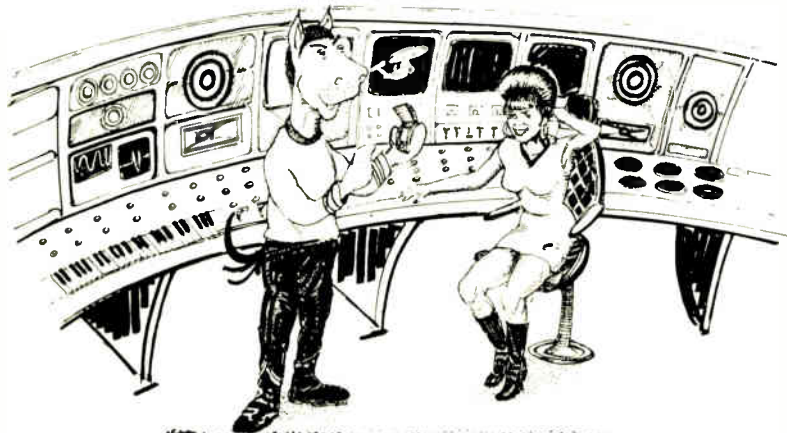
Of course, programmability is nice, but how does the unit *sound*? First of all, I was surprised by its sparkling, clear high-frequency response; QuadraVerb's 41.6kHz sampling rate plays no small part in achieving this end. Effects—EQ, delay, ping pong, chorus-ing, flange, phase shifting, detuning, reverse and gated reverbs—are first-rate throughout. The reverb algorithms are rich and extremely dense; the plates, halls, rooms and chambers are believable and eminently usable.

Versatile and flexible, the Alesis QuadraVerb is a welcome addition to any studio or live-performance rack. At a list price of \$499, it's a cost-effective choice for anyone's budget.

Alesis, 3630 Holdrege Avenue, Los Angeles, CA 90016; (213) 467-8000. ■

Besides writing for Mix, George Petersen operates a Third World-class recording facility in the San Francisco Bay Area.

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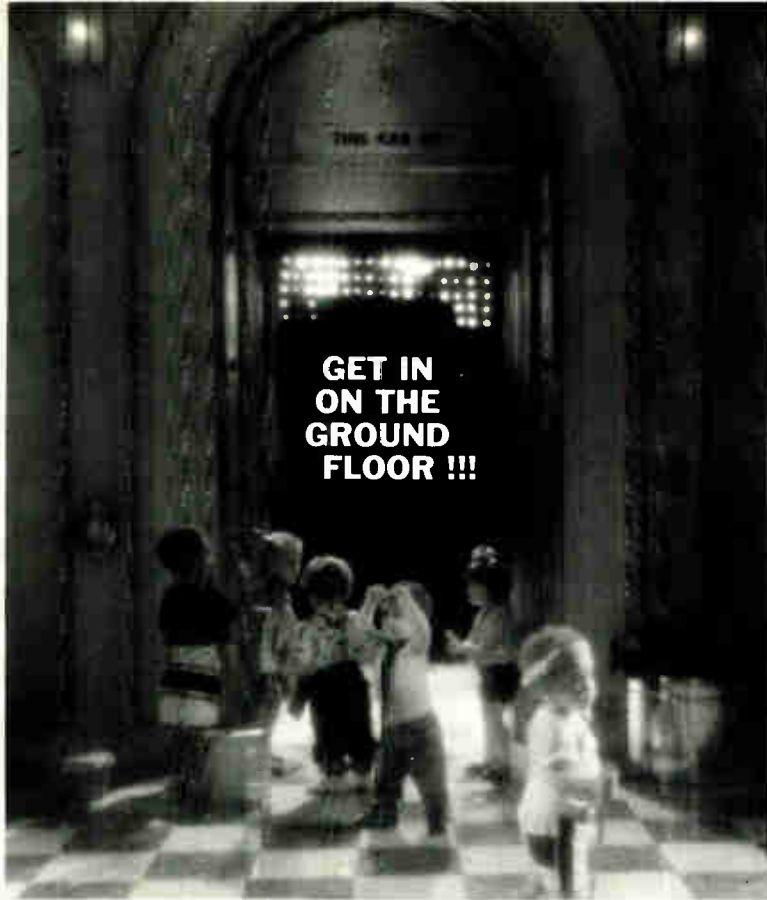
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World Radio History

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by Lou CasaBianca

NOVASTAR

ANATOMY OF A PROJECT STUDIO



Rundgren producing at his studio in New York. "That was a wonderful experience," says Geddes about having the chance to work with the man whom he considers his mentor. "Todd's production flair and bold engineering was the perfect complement to the basic engineering skills I developed on the 4-track. On our next LP, *Bricks*, I engineered the tracks at our studio in California, and Todd mixed the final product in New York.

"From there I pursued engineering gigs. I joined Modern Video Film in 1982, where I learned how to do the audio setup for

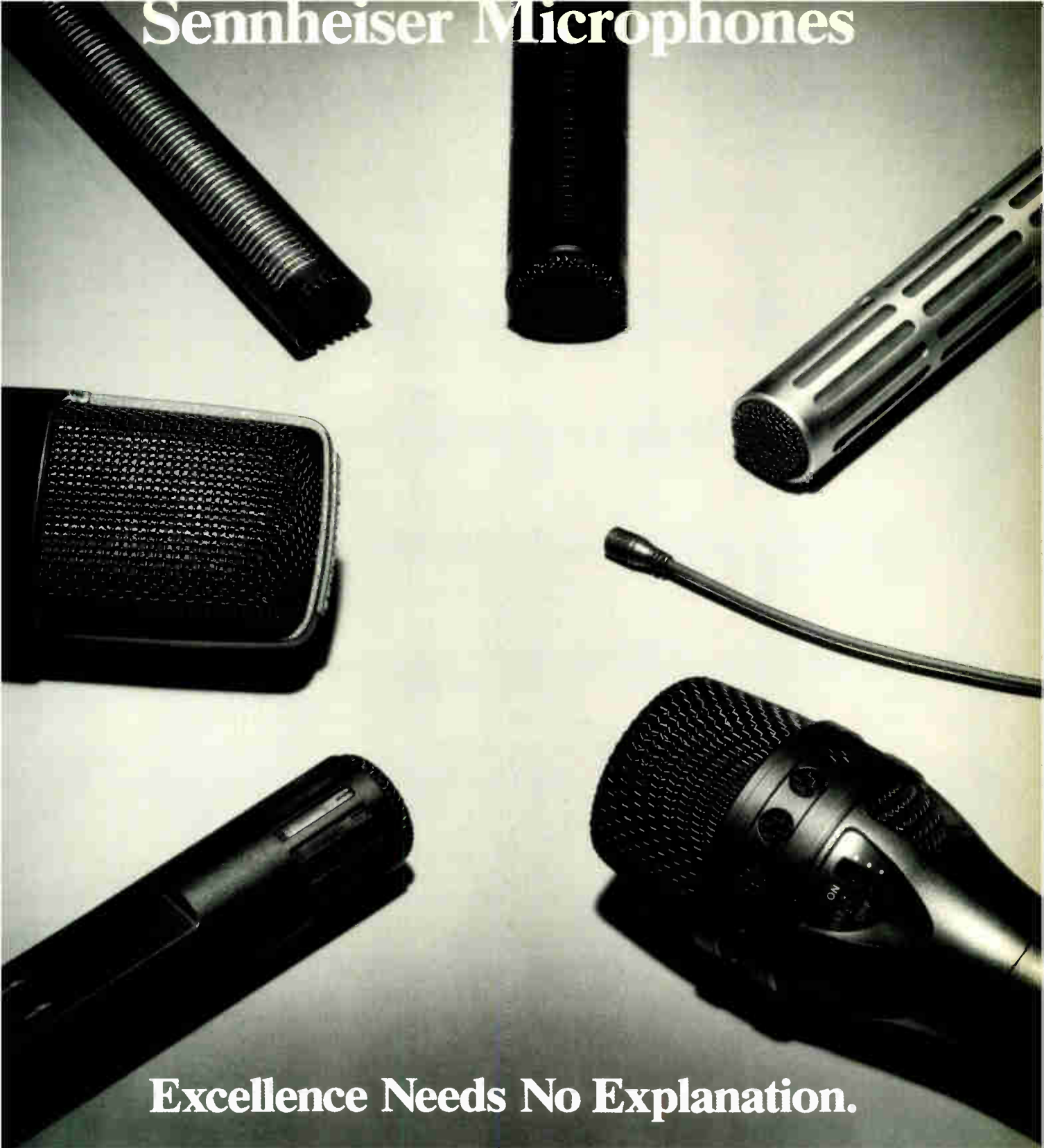
NovaStar's Greg Geddes with the Tascam M-600 modular console he selected for the facility, which specializes in radio commercials and audio-for-video projects.

Greg Geddes is one of those people who has learned to become expert in balancing the art of music and the technology of sound. He began his professional career as a recording artist, playing sax, guitar and keyboards with the Hello People in 1967.

After two albums for Philips and one for UA, Hello People found themselves in California without a record deal. The group bought a TEAC 3340 4-track and cut demos at Geddes' house, which resulted in a contract with ABC Records. The next record was *Handsome Devils*, with Todd

telecine and 1-inch edit sessions. That's where I got most of my video and time code experience and learned about synchronization. I did a satellite downlink for *Diana Ross Live at Central Park*. I also did a great deal of conforming for foreign language videotape release. From there I went to Chace Productions, where I worked with Rick Chace in developing a proprietary stereo surround sound recording system. Rick wrote all the software in the processor; he's a brilliant programmer and I learned a great deal from our association. While I was

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there, I also did the archival restoration for *Bird*, Clint Eastwood's picture about Charlie Parker. [See *Mix* December 1988 article on Eastwood.] We also remixed *Gone With The Wind* for Turner Broadcasting for the 50th anniversary theatrical re-release."

According to Geddes, his dream of having a full-fledged project studio and production team began gradually. "Eight years ago I set up a small, personal composition studio," he explains. "About two years ago it began evolving into a commercial project studio, known as Back Lot. We are set up as a team of specialists. I am owner and chief engineer. I do a great deal of composition and concentrate on post-production. My brother, James Geddes, whose engineering credits include Jackson Browne, David Lindley and Pink Floyd, brings pop credentials to the facility. And Scott Fraser is an engineer and composer specializing in folk and classical music. He is also an artist who composes electronic music.

"We do a good deal of instrumental work for film, television, video and radio," Geddes continues. "About 70 to 80 percent of our work is voice-over radio commercials and sync-to-picture; the balance is pop music recording. One of our first post projects was a subcontract for Chace Productions, creating and remixing the sound effects on the classic Clark Gable picture *San Francisco* for Turner/MGM. We used MIDI time code, Digidesign's *Q-Sheet* for effects on the Macintosh, with an Emulator II. We worked with three stereo submixes, a guard band and time code on track 8. That was my first experience with using MIDI time code to fire effects with picture. It worked perfectly."

Ironically, booming business opportunities and an expanded clientele spelled the end of Back Lot, leading Geddes to search for a new location and a new partner, Bob Sky. Sky is a producer, voice-over talent and drive-shift DJ at K-Lite in LA. "Back Lot was constructed about eight years ago, using typical eight-years-ago mentality: a large recording area and a small control room," Geddes recalls. "With all the MIDI and synchronization projects we do, it points to our studio area being dark about 80 percent of the time, and that's where 60 percent of the 'real estate' was. In our new

facility, the emphasis is on the control room, with a nice-sized—by voice-over standards—studio, and tielines to a large, four-camera insert stage for scoring. The control room is 20 by 20 feet, with a raised floor and MIDI equipment island behind the console. The overdub/voice-over/ADR studio is 12 by 16 feet."

Geddes has retained the old Back Lot as a small, personal studio. The new Sky/Geddes facility is named "NovaStar," and is located at 6430 Sunset Boulevard in Hollywood, the new offices of Bonneville Satellite Communications. Bonneville and Wold Communications plan to merge, and NovaStar is the audio post tenant in the complex. Besides the insert stage, Bonneville also has full ¾- and 1-inch editing and post capabilities...

While the personal computer, digital audio and MIDI have dramatically altered recording technology, the mixing console is still the flight deck of the process. Yet, the selection of a

"A 1-inch video machine may sit around 80% of the time, when you really only need it for layback at the end of a project."

console is not an easy one for the owner of any studio, large or small. After a thorough investigation, Geddes chose a Tascam M-600 console. The board is fully modular, with either stereo or mono inputs available; inputs, outputs, buses and sends are balanced +4dB throughout. With a choice of 16-, 24- or 32-channel tape monitor sections (that can also double as inputs), up to 70 inputs are provided in remix. Geddes' experiences with Tascam gear had been quite good, particularly with the ATR-60 1-inch, 16-track recorder, which had become quite a dependable workhorse at Back Lot, whether used for basic tracks or mixing to picture.

"An interesting point is that we replaced a 16x16x8 console with the M-600, which occupied the same space," Geddes notes. "The old console had 16 faders and 16 remix for a maximum of up to 32 possible inputs to mix. With the M-600 we have up to 70 possible inputs to mix. In effect, I dou-

bled my capacity in the same space and went from an unbalanced to a balanced +4dB console. This really alleviated a number of problems we had with radio interference and contributed to getting the proper ground continuity for the equipment in a star configuration.

"Price was a major concern, and the M-600 was the only one we could find that allows 32 remix at its price. In this day of MIDI and sound design, excellent sound characteristics and the maximum number of inputs were the key deciding factors."

Another way of enabling cost-effective production is through the extensive use of MIDI instruments. NovaStar's collection includes: E-mu Emulator II and SP-12, Roland D-550, Korg DSM-1, Yamaha TX7 and TX81Z, 360 Systems Pro Midi Bass and a Sequential Prophet-600. More than two dozen sounds or sampled effects can be played simultaneously or flown in from the MIDI system in real time, and all the instruments are routed directly to console inputs. "By running time code to my Macintosh," Geddes explains, "I avoid putting any of the MIDI instruments on tape and try to save the multitrack for strictly analog signals, like voice or guitar. MIDI instruments play as virtual tracks as much as possible; we like to do most of our work in the digital domain and master to a Sony PCM-701 digital recorder."

Perhaps the best business move of all was developing a symbiotic relationship with Bonneville. "We have video tielines in our room and audio tielines to their rooms," says Geddes. "We'll be able to do laybacks to Bonneville's machine room, which is nice, because one of the dilemmas facing audio studios with 1-inch video machines is that the machine sits around 80 percent of the time, when you really only need it for layback at the end of the project.

"Our hope is that NovaStar and Bonneville will be better-than-good neighbors, and be able to support each other's endeavors. We bring audio expertise to their environment, while they cover the video and satellite areas. We're totally autonomous from Bonneville; we're basically a tenant, but they've been happy with us and we're happy to be there." ■

Lou CasaBianca is a Mix contributing editor.

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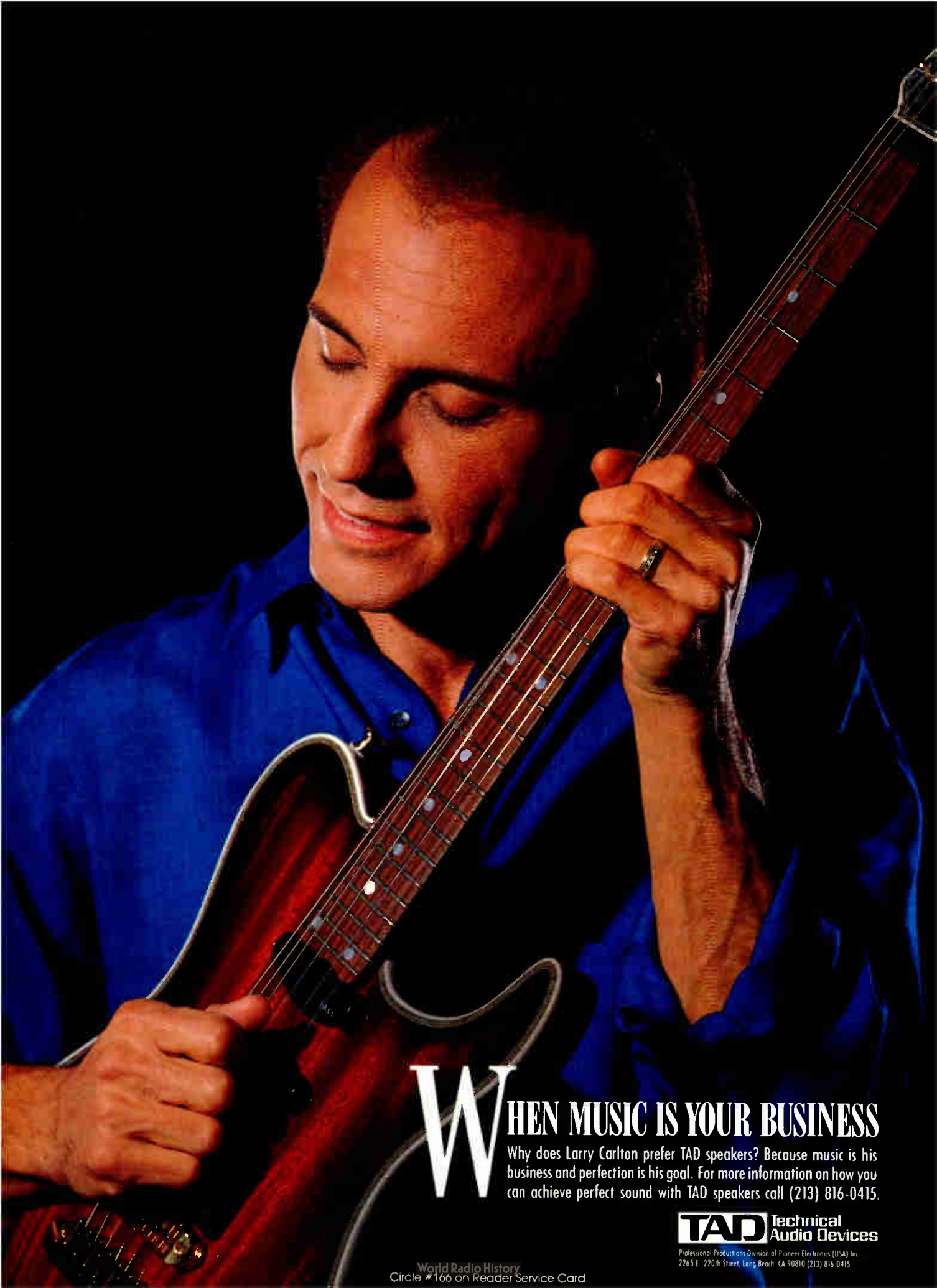
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World Radio History
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by Mark Herman

SOUND REINFORCEMENT NEWS

The much heralded **Toronto Skydome** finally opened in June. A fully retractable roof, consisting of four panels, covers eight acres and takes 20 minutes to open or close. Concerts and other large events will now be able to play year 'round in Toronto. A giant 35×115-foot Sony Jumbotron video scoreboard (three times larger than any other in the world), a 400-room hotel, bars, restaurants (even a Hard Rock Cafe), a health club and a hydraulic pitcher's mound are all part of this \$428 million facility. The Toronto Blue Jays' new baseball park will seat 53,000 people. **Electrotec Productions** went in on June 8 with **Rod Stewart** for the first Skydome concert.

The Skydome's audio system reportedly cost \$1.5 million and primarily uses JBL transducers in custom enclosures. JBL 2204 12-inch woofers, JBL 2426 1-inch compression drivers, JBL 2370 and 2344 horns, and French-made 6.5-inch midrange Audax drivers comprise 90 percent of the speaker system, which employs approximately 200 low-end cabinets and nearly 350 horns. Other equipment includes 140 Bryston 4B power amplifiers, 50 Bryston 10B active crossovers,



40 Audio Digital ADD3 time delays and a Ramsa WR-8428 main console. Private luxury boxes have small Ramsa two-way WS-A80 speakers for extra audio clarity. The main stadium control position is in the press box, and the electronics are located in four separate rooms down in the lower levels of the stadium. The entire system is operated with an IED comput-

Aerial view of the \$428 million Toronto Skydome just before completion.

er control for testing and monitoring. Digitally programmed Oxmoor equalizers linked to the IED computer can change EQ remotely when the stadium roof closes or opens.

Jason Sound Industries (Vancouver, BC) suffered bad luck when its only full P.A. system was involved in a serious accident. The spectacular crash occurred on a Sunday. JSI immediately took the equipment back to its shop and hustled to get it working again in time for the next gig with the **Colin**

This demolished tractor-trailer rig was fully loaded with sound reinforcement and lighting equipment when it rolled and then slammed into a bridge abutment 300 miles east of Vancouver. The driver and two crew members (one in the sleeper) miraculously escaped serious injuries. Some of Jason Sound Industries' equipment was not so lucky. (See story.)



LIVE SOUND

James tour Tuesday evening. Major equipment damage was suffered to JSI's Soundcraft custom 2400 42x10x2 house mixing console, which ended in a tangled mass of metal and shattered circuit boards. Six out of 60 Carver 1.5 amps also sustained damage, as well as most of the main P.A. cabinets. Owner **Jeff Lillie** said, "Almost everything packed into the dance floor of the trailer was demolished. Just about all of the road cases and main

P.A. boxes were destroyed." There was about \$450,000 worth of equipment in the crashed truck of which \$100,000 was lost. All the damaged gear has been replaced or repaired since the accident, with no significant interruption in JSI's business activity.

JSI did three Northwest shows with **Julio Iglesias** in June, and then traveled from Vancouver to Philadelphia for the **Freedom Festival** (see "On the Road"), which featured a fireworks extravaganza with an 80-piece orches-

tra and a 500-voice choir. Local Philly company **Clearsound** supplied some front-line gear.

Major sound reinforcement company **Audio Analysts** (Plattsburgh, NY) had a surprisingly slow spring touring season. It seems that just by chance most of its regular clients held off touring for several months, creating a vacuum in Audio Analysts' usually busy schedule. **Albert Leccese** said, "We had a very slow spring with only two tours (**Bobby Brown** and

ON THE ROAD

SOUND COMPANIES, EQUIPMENT, ARTISTS & PERSONNEL ON TOUR

Artist Sound Company Tour Dates Region	House Console #1 House Console #2 Monitor Console #1 Monitor Console #2 House Crossover	Main Speakers Main Speakers Subwoofers Monitor Speakers Monitor Speakers	Main Amplifiers Main Amplifiers Sub Amplifiers Monitor Amplifiers Monitor Amplifiers	Engineers: (B) = band eng. (H) = house eng. (M) = monitor eng. (T) = technician (C) = crew chief (R) = rigger (a) = assistant
Black Sabbath Eighth Day Sound May-June North America	Yamaha PM3000 40x8x2 - Ramsa WR-S840 - BSS MCS 200	(24) Turbosound TMS-3 - Turbosound TSW-124 EDS Custom	Crown MA2400 IQ - Crown MA2400 IQ AB 1200 AB 1200, Hafner 500 Sidefill	Mark Dowdel (B,H) Rod Price
Freedom Festival Jason Sound Industries July Philadelphia	Soundcraft 800B 32x8x2 - (from house console) - BSS Custom 5-way MCS 200	(30) JSI J63 (18) JSI J62 (12) JSI J1 -	Carver 1.5 Carver 1.5 Carver 1.5 -	Glenn Collett (H) Steve Quinn (aH)
Hiroshima Air Motion May-July U.S. September - October North America	Ramsa WR-S852 40x8x2 - Soundcraft 500 40x12 - Meyer	(12) Meyer MSL-3 - (6) Meyer 650R2 Renkus-Heinz 1x15 Renkus-Heinz 2x15 sidefill	AB 1200 - AB 1200 Crown MA1200 Crown MA1200	Michael J. Grahix (B,H) Jeff Spencer (B,M) Lorenzo Bonda (T)
Al Jarreau Schubert Systems Group June-September U.S.	Gamble Series EX 56x16x2 - Ramsa WR-S840 40x18 - SSG	(24) Steradian - (16) Steradian Subwoofer SSG 1x15H, 2x12H	Crest 8001 - Crest 8001 Crest 7001	Bobby Hickey (H) Gary Sanguinet (M) Dennis O'Melveny (aH)
Howard Jones Delicate Productions June - August North America	Yamaha PM3000 40x8x2 - Soundcraft Series 4 40x16 - Martin MX4	(36) Martin F-2 (28) Martin F-2 Low (12) Delicate 218 Martin LE-400	AB 1210 Crest 8001 Crest 8001 Carver 1.5	Steve Venezia (H) Alan Bradshaw (B,M) Steve Dabbs (C) Steve Kendal (R) Greg Guzzutta (aH)
Tom Petty & the Heartbreakers Electrotec Productions July-September North America	Soundcraft Series 4 40x16x2 - Soundcraft Series 4 40x16 - BSS MCS 212	(80) Lab Q - (8) Intersonics SDL-5 EP Custom Series 3	Crown MA1200 - UREI 6400 Crown MA1200, JBL 6233	Mark Deadmon (B,H) David Bryson (B,M) Bill Chrysler (aH) Dave Zammit (T) Bobby Daniels (T)
Ringo Starr Audio Analysts July-September North America	Soundcraft Series 4 40x16x2 - Soundcraft Series 4 40x16 - CADD	(40) AA HDS-4 - AA Custom 2x15, 2x12	Crown MA2400 - - QSC 3800	Roger Binette (H) Steve Folsom (M) Sean Webb Robert "Tiny" Behrens

New Edition), a couple of installations and the **CBS Record Convention**. Things have definitely picked up and now we're booked solid. Currently we're doing the week-long **Montreal Jazz Festival**, which uses three full systems; **George Benson** at the Montreal Forum; quite a few national one-offs; the Pacific Amphitheatre and Kingswood installations; and six national tours." The **Pacific Amphitheatre** in Costa Mesa has a 56-box HDS-4 system, and the **Kingswood Music Center** operates a 36-box system at the Canada Wonderland amusement park in Toronto.

At presstime Audio Analysts had tours out with an impressive lineup of acts: **Jody Watley** carried a 24-box HDS-4 system. **Melissa Etheridge** had matching 40-channel Soundcraft 500 consoles and 16 boxes. Teen-queen **Tiffany** carried 48 HDS-4s and matching Soundcraft Series 4 consoles. **Julian Lennon** was also touring. **Ringo Starr's** solo tour took out a 40-box system (see "On the Road"). **BudFest**, with main acts New Edition, Bobby Brown, **Karyn White** and **Patti LaBelle**, used 48 boxes indoors

and 96 outdoors. Two Gamble SC monitors, one Gamble HC house and a Yamaha PM3000 console were also used.

Leccese reports being busy with several equipment projects. "Currently we're finishing our CADD mixing consoles and expect to be using the house consoles this September. We are also working on racks and cabinets for a new monitor system that should be out with the fall tours." Leccese commented on the Crown IQ 2000 amplifier control system. "It is being installed into one of our touring systems now. We expect it to be ready

for an upcoming fall tour. It is truly amazing to see the screen with the instantaneous readings of all amplifier functions. The IQ system allows one to fine-tune an arena sound system for each individual hall. It looks like the wave of the future." Audio Analysts has special IQ 2000 software customized for its needs. Leccese has been a significant contributor in the development of this far-reaching computer-controlled package made by Crown. It looks like Audio Analysts will be one of the first sound reinforcement companies to tour with the new system.

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No Way in the UK... The huge **Castle Donnington Monsters of Rock** festival has been canceled. Authorities had set restrictions on alcohol and invoked an attendance limit of 70,000—far below the teeming multitudes at last year's event, which featured a gigantic Turbosound main P.A. system with 304 TMS-3s and 60 TSW 124s.

Electrotec Productions (Canoga Park, CA) has stayed busy throughout the spring and summer touring season. **Pierre D'Astuges** reported tours with the following artists: gravel-throated vocalist Rod Stewart's successful tour ended in early August. **Ozzy Osbourne, White Lion** and **Vixen** appeared together on a summer tour that ended in late August, and saw Electrotec supplying a 96-box Lab Q system for the metal rockers. **Randy Travis** continued touring with a 64-cabinet Lab Q system. **Barry Manilow's** world tour ended in June. An 80-cabinet Lab Q main P.A. rig and eight Intersonics SDL5 subwoofers went out with **Tom Petty and the Heartbreakers'** tour of North Amer-

ica (see "On the Road"), which began July 3. **Mark Deadman** (house engineer for Huey Lewis) mixed FOH. A new Electrotec TAD-loaded monitor wedge was introduced on the tour. **Tesla/Great White** are on the road until late September with 60 Lab Qs and 12 new Electrotec sub cabinets. Long-time steady touring client **Alabama** remained out. **Elvis Costello** and his band started their tour in late July.

Ohio's largest sound reinforcement company, **Eighth Day Sound** (Cleveland) reported that business is even better than last year. Owner **Tom Arko** commented, "Business is very good this year and looks to remain strong. Between shows and equipment upgrades, I don't think anyone here has had more than five or six days off since last Christmas." Eighth Day Sound now has over 100 customized Turbosound TMS-3 cabinets and is still bringing in additional outside equipment to keep up with demand. Its busy calendar included the following: **Black Sabbath/Kingdom Come/Silent Rage** (see "On the Road"), who had a 24-cabinet Turbosound

TMS-3 rig out in May and June; **Daryl Hall & John Oates**, who went out later with the same system; a tour with **The Escape Club**, a new up-and-coming act; several **Frank Sinatra** dates; **Peter Allen's** tour; **Ashford & Simpson's** tour; a large three-city industrial show with client **Amoco**; and a tour with **Kool & the Gang** on the East Coast, Europe and Australia.

Arko reports that Eighth Day now has the revolutionary Crown IQ 2000 System devices and software to go with its Crown amplifiers. "We haven't yet used the IQ 2000 to its fullest extent, but we plan to implement it soon on some of our shows." Eighth Day also just purchased its third Ramsa 840 mixing console. Veteran sound engineer **David "Dansir" McCullough** has joined the company as director of touring services. The 20-year vet has mixed house for many major artists in the past.

Mix sound reinforcement editor Mark Herman also operates a company specializing in console rentals for live sound and touring applications.

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Theory & Practice

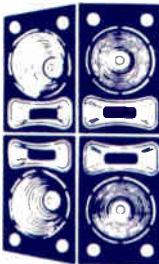
Every audio professional knows the difference between promotion and real-world performance. With so

many manufacturers claiming arrayability, how do you judge the truth of our claims? The same way that you should judge everyone else's: with your trained ears. When you walk across the hall, does the sound of the loudspeaker system change? Do you hear phasing, flanging or comb filtering? Does the sonic image shift dramatically? Are the lyrics drowned in a sea of reverberation? If so, then the array is not functioning as a coherent point source.

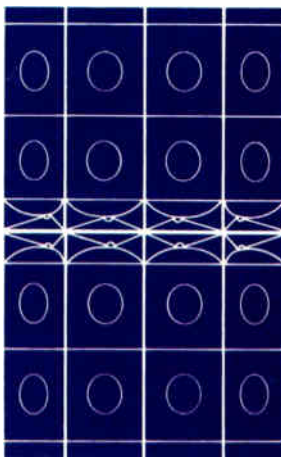
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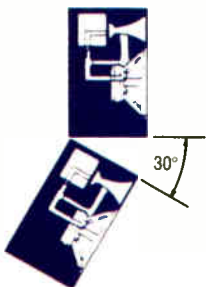


Carnegie Hall A coherent array of UPA-1A loudspeakers, supplemented by MSL-3s and 650-R2 subwoofers (not pictured), is permanently installed for live performance reinforcement.

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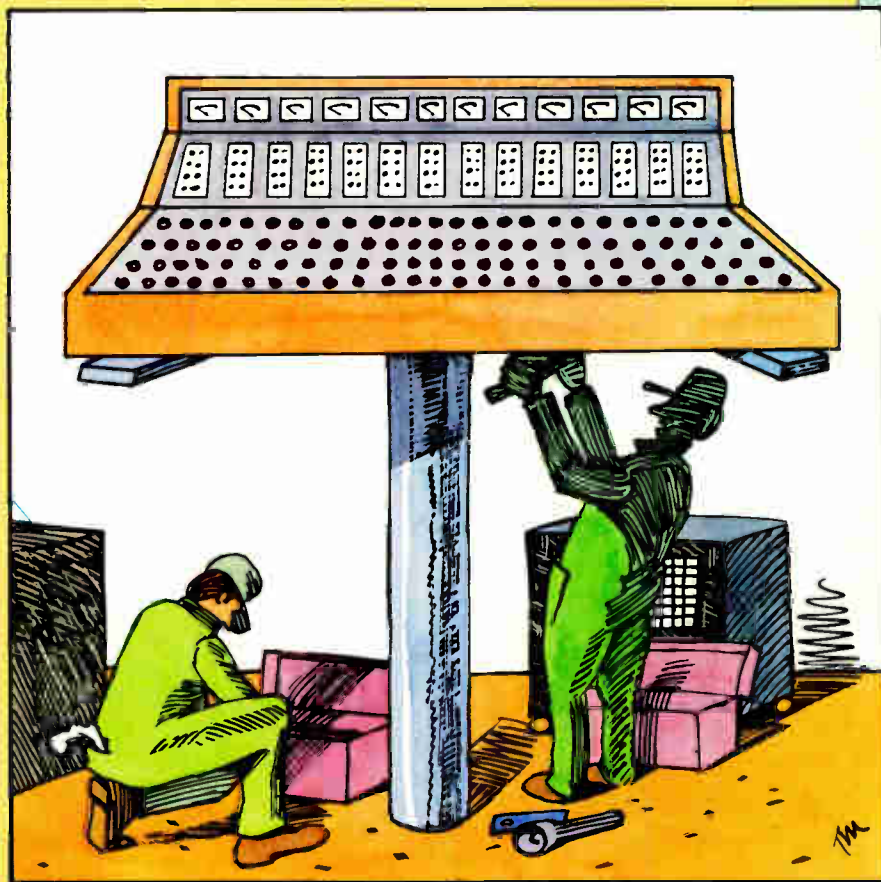
by Mark Herman

Noted mixing console designer and engineer John Windt answers questions and gives useful insights about sound reinforcement mixing consoles. Next month in Part 2, Jim Gamble, another leading console design expert, will lend his views.

John Windt is well-known as an accomplished, independent, professional audio product designer and consultant with a strong background in mixing consoles. Many sound reinforcement veterans are familiar with his work modifying Yamaha PM1000 and PM2000 house consoles into monitor consoles, as well as his reputation for adding grounding improvements on Soundcraft 800 and 800B consoles. Throughout the sound reinforcement industry you will run across consoles that carry the label "Windt Modified." He was responsible for the proof of performance and wrote the specifications, as well as the user's manual, for the widely distributed Yamaha PM1000 in 1974. Yamaha took advantage of his expertise for market research, panel layouts and grounding improvements on the PM2000, its subsequent pro mixing console.

Soundcraft looked to Windt for grounding guidance on its late-model 800s and current 8000 line. The Ramsa WR-S840 house and monitor consoles, first introduced in 1987, owe much of their design to Windt, who was the chief engineer for the project. Currently, he operates Windt Audio Inc. in Culver City, Calif., and is working on several projects for various manufacturers.

Mix: How much emphasis should be placed on specifications given by various console makers?



Windt: Reading the given specifications will often only confuse you. The specifications are written by the manufacturer's design team, generally, and they are laid out to make the product look very good. They do things like specifying signal-to-noise ratios with all the faders off—it might say 105 dB—but it isn't even passing any signal. It just looks good on paper. The distortion specs can be misleading also. I've seen specs that say "Total Harmonic Distortion (THD) less than 0.1 percent," but what does that mean? All that says is that there will be some frequency, at some level, where you can get a signal

through the console that will be less than 0.1 percent distortion. If the bandwidth is specified—like 20 Hz to 20 kHz, typically—and the level is up to the rated output, the spec means more.

The frequency response is also meaningless unless the tolerances are specified. I feel console measurements should be specified the way they are used in real-life operation, instead of a single input fader up to unity and assigned to a mixing bus for worst-case conditions. This is not the way you run a console in a real-life application. So, in effect, these manufacturer-given specs are misleading. Unless

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they are measured exactly the same, which is highly unlikely, any comparison between consoles based solely on the manufacturer's claims would be foolish.

Mix: What makes one console better than another?

Windt: The cost to the manufacturer of all the circuitry in each input module is indicative. The one that costs \$32 per card is going to be better than the \$8 one. As the performance level goes up, more amplifiers are needed for isolation, and more parts are needed around each amplifier in order to control it. More power supply decoupling is required as well. In a semipro product, a 10dB gain stage is typically made up of an op amp and two resistors. In a high-end pro audio market, it requires a more expensive op amp with about eight resistors, six capacitors, diodes, etc. So the costs go up according to the quality desired.

The more functions available means more versatility, but almost always at a higher end-user cost. VCAs and programmable muting functions, for example, add to the manufacturer's cost, which is then passed on to the consumer.

Mix: How can you tell if a particular console is roadworthy and worth buying?

Windt: If you are buying a console and plan to be lugging it around, take a look at its mechanical integrity. Examine how well the circuit boards are supported. Are they just hanging by the pots? If they are, sooner or later the pot lug will break off, or cold-solder joints may appear. If the circuit card is large, it should be supported in some way at the bottom edge so that it doesn't flop around and cause problems later. See if the console has a hard motherboard screwed down to the frame that fixes the position of the module. This method has proven to work poorly in portable applications. The module connectors need to float; otherwise, they will wear down rapidly due to up and down movements. With screws, look for lock washers and Loctite. Probably the best thing you can do when looking to purchase a new or used console is to go to your local sound company, or call various people in-

involved specifically in the console market, and ask them for their impressions on the different models available in your price range. Find out about the current trends in the industry.

Mix: How can you determine the quality of the equalization design?

Windt: First, consider this. So many people who use audio equipment have the mentality that good EQ is the ability to drastically change the sound. They don't hear equalization as equalization; they hear it as an effect. When they turn a knob, they expect it to do something radical. But this is not what equalization is all about; it should be smooth and gradual. Here is an easy test to find out if the equalizer circuit in the console is any good. First, feed a signal into an input channel. Set the equalizer to full cut at a given frequency. Take the signal where it comes out of the console (either a bus out or a direct out); feed it back into another input module; and then take the same frequency with a full boost and check it with the EQ in. The

frequency response should be flat. You can look at the output meter or sweep an oscillator on it to make sure it stays at zero all the time. Now you have the equalizer in the circuit, but it's not doing anything.

But the best test is the easiest of all. What does it sound like when you kick both of them in and out at the same time with music going through it? That is what really matters. Try running a high-quality audio source through the console and listen very carefully as you adjust the controls and push the EQ circuit in and out. Does it sound the same? You will probably hear a change on all console models, but some are much worse than others.

Mix: Certain consoles sound fine with a few inputs assigned to an output bus but seem to lose significant audio clarity when more inputs are added to the bus.

Windt: To check the console, bring up the output buses with nothing assigned, put all the inputs down, mute all the channels and then start assigning inputs to a mixing bus.



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LIVE SOUND

On some consoles the noise of the summing amp will go up and up with the additional inputs you assign. That is one way to check the signal-to-noise ratio. As you assign more inputs to the bus, the summing amp automatically increases its gain to compensate, but its noise also increases. And when you assign all the inputs, you've increased the gain of the summing amp so much that unless it is well-designed, it will sound muddy. What happens is that the summing amp is not capable of handling the complex audio signal.

A good console will not change as a function of the number of inputs assigned. Every time you double the amount of inputs assigned a single output bus, the hiss goes up 3 dB and the hum 6 dB. So you can hear a large difference between one and 16 inputs but not as much between 16 and 40.

Mix: Why are hums and buzzes so prevalent on some consoles?

Windt: A common complaint with a "troublesome" console involves hums and buzzes. This is usually due to an incorrect ground inside the console. The only way to tell about the grounding is to dig into the console and see how it is really done. The schematics won't usually tell you.

The biggest mistake designers made in the past was to have all the input and output circuitry connected to the main console ground, with that ground extended through the modules to the connectors on the back of the console. But that type of grounding scheme won't work well in the real world, resulting in nightmarish hums and buzz problems. What they've done is extend the audio common out into the real world and create a large, giant induction loop to pick up signal and bring it to the console. The current comes in on the shields of the cables and not through the audio conductors themselves. It interferes with every amplifier in the console, particularly the summing amps, which are very sensitive to current.

Summing amps are set up as current sources, and any current flowing through the console will go right into the summing amps. Cur-

rent is being generated in all the wiring connected to it. The reason the original design engineer never found it in the laboratory was because he just had a test oscillator and an analyzer hooked up to the console. He never plugged 100 feet of wire into every jack on the back of the console and connected it into a large sound system.

Mix: What is good grounding?

Windt: The first thing to keep in mind is that there are two grounds within any piece of equipment. There is a chassis ground, which is tied to the round pin on the power cord, and there is a circuit ground, which all the circuitry inside the equipment references to. These generally tie at one point. All the input and output connectors on a piece of equipment must be referenced to the chassis, not to the circuit ground. Phone jacks, for instance, should not be floated from the panel they're mounted on; they should be connected to the panel electrically. The same is true with XLR connectors; pin 1 must reference to the chassis, not to the circuit ground. The best way to test grounding in a piece of equipment is to take it apart and trace every ground in it with an ohm meter.

Mix: What is a good test for hums and buzzes?

Windt: This is my favorite test: take a 25-foot cable and plug one end into the output and the other end into an input at the far end. Pull all the input faders down and mute all the channels so signal can't flow. Bring all the master buses up, take the cable and wrap it into a coil (three or four turns). Put a Weller soldering station in the middle of the coil, and then turn the solder station on. This generates about 1 to 2 milliamps through the cable. Measure the signal-to-noise ratio on any of the output buses as you turn the soldering station on and off. It is not uncommon for the signal-to-noise ratio to go up and down as much as 30 dB on some models. It shouldn't vary at all.

If you don't have the test equipment, put on a pair of headphones, select it to an output bus and listen to the noise level change. I have found a strong correlation between this test and how well a console works in the real world. ■

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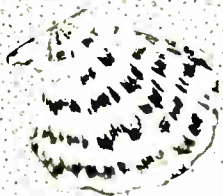
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THE BEACH BOYS

SOME THOUGHTS ON TURNING 30



Clockwise, from upper left: Mike Love, Brian Wilson, Al Jardine, Bruce Johnston, Carl Wilson.



PHOTO: HARRY LANGDON

Quick. Name a band that has been around for nearly 30 years, never broken up and has been turning out hit records throughout its entire career. Does a name other than the Beach Boys come to mind? What is it that has made this group an American institution—larger than life, stranger than fiction, more powerful than a locomotive?

In the beginning, it was just a boy-band of family and friends, emulating the Four Freshman but singing fresh ideas about the California lifestyle. There was the genius brother, Brian, who lived a vicarious fantasy life through his songs, catching the biggest waves, driving the coolest cars and *always* getting the prettiest girls. The band sang about the kind of life all of us wanted to live; even school was a celebration in Beach Boys songs.

Then, just when it seemed the Beach Boys couldn't get much bigger, things went sour. Was it too much too fast? Was it the lack of popular acclaim for Brian's critical masterpieces?

"The intended follow-up to 'Good Vibrations,' 'Heroes and Villains,' was unfortunately recorded in Brian's house and had no high end; it just sounded flat," says veteran guitarist/vocalist Al Jardine. "It was like the life had been sucked out of the record. Brian was excited about it, though, and he ran down to KRLA to play it for them. But when they didn't go for it, Brian just began to abandon the establishment, and that was the end of his career. And after Brian started getting

BY DAVID SCHWARTZ

TODAY



PHOTO: PAUL LARKIN

Engineer Don Weiss (left) and Al Jardine in Jardine's recording ranch/studio in Big Sur, Calif.

a little crazy with drugs, he lost track of the fact that a lot of the good sounds that went into our records were coming from the musicians and studios that we had been using in Hollywood."

Was it pressure to outperform the Beatles? "I took *Pet Sounds* to England and played it over and over for John and Paul in May of 1966," says not-quite-charter-member Bruce Johnston. "They loved it and later they said it was the extra push they needed for *Sgt. Pepper*. And I think that had they been able to put *Sgt. Pepper* out first, Capitol and EMI Records would have understood the potential of Brian's *Pet*

Sounds, and it might then have been the commercially successful album Brian always dreamed it could be."

Was it voodoo and messing with the wrong crowd? (Charles Manson stories tainted their otherwise well-scrubbed reputation.) Was it all of the above? Whatever it was, everyone knows about Brian's crash and subsequent reclusiveness, and how it threw the band into a tailspin.

For a stretch of nearly 15 years, the band was barely able to eke out a hit record, though they continued recording and touring, buoyed by a nostalgia for their early work that never seemed to subside. "Primarily, the Beach Boys' career has been built around the first five or six years," says Johnston. "I'm certainly not knocking it, but I know the band would not be content going out on the road and playing only reruns. Being able to go in and take a few shots and hit a home run once in a while—like 'Kokomo'—is really important to us."

Even in the worst of times, the band always enjoyed touring and recording.

Breaking up was never an option—they were on the family plan.

But lately times have gotten better for the Beach Boys. Reinvigorated by their numero uno hit of last year, "Kokomo," and the critical acceptance of Brian's recent solo album, the band seems to be poised at the brink of going where no major rock band has gone before: successfully into their fourth decade.

"It's gone so much farther than I ever thought it could possibly go," says co-founding brother Carl Wilson. "I've been saying for years that we'd be slowing down any minute, but I was wrong."

With Brian's remarkable recovery still progressing, the band hopes to return to the studio with him sometime soon to begin a long-awaited record in the true Beach Boys' tradition—with Brian at the creative controls. "We just had a meeting in Big Sur," says Jardine, "where Brian expressed a great desire to do our next album. He actually went up on a soapbox and gave us all the reasons he

Carl Wilson working on the new Capitol album.



PHOTO: PAUL LARKIN

Even in the worst of times, the band always enjoyed touring and recording. Breaking up was never an option — they were on the family plan.

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should do it, vis-a-vis the old style. I think it's really important to educate everybody right now to the potential of the resurrection of the band to a higher level."

When will a new studio album happen? Bruce Johnston would like to see it come out by April 1990. The rest of the bandmembers are also optimistic, but hedging their bets.

Carl, ever sensitive, solid and dependable, is churning out material for his next solo outing, besides working intently on current Beach Boys' creations in the studios and looking out for the band's future. He has been an invisible backbone for the group since the early days; in many ways he has held the guys together during hard times.

Carl has put together solo albums before, one with Jim Guercio at Caribou Ranch ("my favorite studio of all time," he says) and one with Jeff Baxter ("a wonderful guy who *loves* to record"). He wants to record his next solo album in England. "I love English recordings," he says. "I think they're beautifully done. I'm looking for a manor studio type of setting to work in."

Al Jardine, the teenage neighbor who joined the Wilson brothers' group on guitar and vocals in the early '60s, has launched perhaps the most ambitious side venture to a Beach Boy career: constructing a state-of-the-art professional recording studio in the artistic coastal community of Big Sur, California. (See the Jan. '89 *Mix* for an in-depth look at the studio.) "Sometimes it's a little easier to work by yourself," says Al's engineer Don Weiss. "I'll set up the sounds and the patching, and Al comes in and can work on parts by himself at his pace."

In their blend of new Mac and MIDI technology and museum-worthy artifacts, Al hopes to provide a low-pressure getaway for the band to track, mix and/or noodle creatively outside the hectic pace of the L.A. rooms. (He is also not opposed to making his studio available to other peace-seeking artists while his band is on the road.)

A recent trip to Al's studio caught the Boys preparing a few new tunes to add to yet another Capitol compilation album, this one thematically oriented to songs that have appeared in films (yes, there is an album's worth of material in that genre as well).

Cousin Mike Love, the onstage master of ceremonies, and for many years the band's lead persona, has been very



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Neil Peart

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supportive of Al's venture into studio ownership and occasionally drops by to test out songs and add parts, though he seems to be on-the-go more than the rest of the guys, maintaining a "surrogate band," as Al describes it.

But Mike is still a key member of the core band and has always had a knack for writing catchy hooks, often giving Brian something to build his productions around. It was Love who came up with the "Round, round, get around, I get around" that gave the band its first number one record in 1964. In the group's all-time classic, he wrote, "I'm picking up good vibrations." For the recent "Kokomo," he's responsible for the infectious "Aruba, Jamaica, aa-oo I wanna take you. . ." "Mike adds the shower room quality to the band," says Bruce with a smile.

Johnston, "the new kid in the band," as he describes himself, joined the band April 9, 1965, and rose to fill Brian's stage shoes as the founder began to move into the studio and then into the shadows. Prior to joining, Bruce had co-produced records at CBS with Terry Melcher (such as "Hey Little Cobra," by the Ripchords). Together they discovered an 8-track recorder at CBS and convinced Brian to come over to Columbia for the *Summer Days and Summer Nights* album, launching their studio association.

Though Bruce's songwriting success has led to bigger hits outside the Beach Boys (he penned the chart-topping "I Write the Songs" for Barry Manilow), he has been a behind-the-scenes co-creator for the Beach Boys for nearly 25 years. In today's studio world, Bruce considers himself "into the technology as much as I can be into it, as long as it doesn't get in the way of making music. My approach to music is not loading a million parts into a recorder, but more like a songwriter looking for a good musical feeling with my friends, and then we build on that."

Times are pretty good for the Beach Boys right now. And there is room for them to get even better. If they are able to re-create the original magic on a new studio record, there are legions of fans—from tots to gramps—ready to cheer the Band of Summer on to new victories. ■

The first concert Mix editor David Schwartz attended was a 1964 bash featuring the Beach Boys and The Kingsmen in Fort Wayne, Indiana, surfing capital of the Midwest.

—FROM PAGE 110, DIGITAL AUDIO

constant recording of their off-air signal is made, for legal purposes.

Beyond recording media, little other digital audio is in use as yet at most radio stations. Digital signal path and interconnection are rarely found in the production area, except for the occasional pseudo-video or R-DAT clone. A few ambitious broadcasters have entered the digital audio workstation world, but are far from typical. A few have implemented MIDI to some extent in their production studios to aid in the production of spots, usually with a sequencer and/or sampler synchronized to a small-format multitrack analog tape recorder.

On the RF side, a small but growing number of operations are implementing digital systems in their studio-to-transmitter links (STL). This is the RF path used by many stations to send the signal from their studios to their transmitting tower location. The signal must be sent from one to the other with a minimum of degradation. In many cases, traditional STLs have caused problems with audio quality and reliability. Digital audio techniques can be helpful, although not without some expense and difficulties at present.

DIGITAL RADIO'S LONG AND WINDING ROAD

Digital broadcast delivery to the listener is a long way down the road, since it would require the establishment of a new standard format; the design, manufacture and acceptance of new transmitting and receiving hardware; and perhaps hardest of all, regulatory approval and allocation of precious RF spectrum by the FCC. Some major recent advances in data compression will no doubt find application here (and with STLs, too), but no one expects anything other than experimental broadcast applications soon. Nevertheless, many savvy broadcasters have noted their audiences' increased audio awareness. They are taking the steps possible to improve their signal quality, implementing digital audio systems in places where they can do the most good. It's a trend that is certain to continue. ■

Dan Daley is a freelance writer, composer and owner of Pyramid Recording in NYC. Skip Pizzi is the technical training coordinator for National Public Radio Training Department in Washington, DC.

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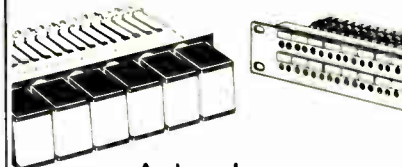


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nizing modulations. Frequently, he makes his sound just at the pivot chord, thus signaling to the audience that a change in the music is about to occur. You want staccato? No problem. A rapid “huh, huh, huh, huh” can be found to offset any rhythm. An experienced Cadential Cougher may even show a little development throughout the piece, ending up with something slightly resembling a recapitulation.

Most classical recordists appreciate the extremely wide dynamic range of classical music. We’ve all held our breath when the orchestral bass drum suddenly cranked up or the 200-member chorus hit a triple forte and our VU’s went “Ouch!” That’s why we record the soft passages at very low levels—to preserve the natural dynamics of the piece. Unfortunately, during the sensitive pianissimo there can be something of a chain reaction among any number of coughers. One leading to another, each unique in its own unforgettable way, they form a distinct counter rhythm that gives the whole piece a sort of polyrhythmic feel. I’ve dubbed this phenomenon “Pianissimo Pneumonitis” and have even noticed some regional styles. New Yorkers have a brisk pace and authoritative tone. Los Angeles is internationally known for its poor air, and its audiences are nearly constant coughers. Although not articulated with the sharp attack of the New Yorkers, the sheer numbers in L.A. can produce a noticeable chorus effect. San Francisco audiences always put a hand over their mouth when they cough, yielding a more sensitive tone.

For tonal variety and color, any number of concert goers may wish to contribute additional timbres to the mix. These often idiosyncratic sneezes, chortles, hiccups and baby cries are all certain to add new dimensions to the music. Take it from me, there’s nothing like a 2-year-old suddenly bursting out in tears during the slow section of the Brahms *Requiem*, or better yet, in counterpoint with the soprano in a Mozart aria. When the still-crying kid is rapidly whisked away, a definite

COUGHING BEHAVIOR OF CLASSICAL MUSIC AUDIENCES

The Surgeon General warns that cigarette smoking may be bad for your symphony tapes and cause “Late Night Editing Syndrome.”

Classical music recordists are often amazed by the amount and ferocity of the coughing sounds made by concert audiences. Whatever the cause for the malady, be it physical or psychological, these hackers are a royal pain in the neck for audio engineers. Engineers must spend many tedious hours trying ingenious methods of teasing out these mammalian sounds. Of course, it is tempting to imagine the coughers to be inconsiderate smokers. But it’s not just the smokers; other wheezers get their licks in, too. In fact, I can now tell a cigarette cough from an influenza-induced one. A number of types of asthma, hay fever and assorted allergies can also be discerned by the careful listener. And with the advances of digital recording technology, these guttural exhortations now achieve new brilliance and signal strength, no longer being lost in the background of tape hiss

common to inferior analog techniques.

Let’s examine some of the more common nightmares classical recordists have to deal with.

By far the worst offender is the dreaded “Downbeat Cougher.” This irresponsible procrastinator holds his cough until the string quartet is just about to begin a Beethoven sonata. Then, as if cued by the first violinist, the Downbeat Cougher lets go of a good one exactly on the first downbeat. The result is an inextricable “Harrumph!” blended in with Maestro Ludwig’s finest compositional efforts and forever will this timbral nuance defy the listener of a normal interpretation. If only he would cough a few seconds before the piece, a little cut and splice and no one would be the wiser. But the Downbeat Cougher seems to sense instinctively the heart of the downbeat, never rushing it, never late, just right on time. Naturally, this prestigious patron sits in the first or second row, somewhere near the primary microphones.

The “Cadential Cougher” is far more sensitive, creative and articulate in his coughing. The coughs usually appear at a perfect cadence but are also found sometimes at a half cadence. Additionally, the Cadential Cougher is adept at recog-

doppler effect is permanently recorded on the master tape.

The musicians don't like it either. Can you imagine playing a sensitive solo and an expectoration in the third row catches everyone's attention? There is nothing like the sound of someone clearing his throat to add an ominous and expectant veil to even the most lighthearted string quartet. Perhaps the utterance has artistic merit on its own, but please schedule your own concert—this is a union gig.

So there you have it. I've had to cut 'em, fade 'em, filter 'em, gate 'em and reverb 'em out. Here are a few tips that will hopefully save you some of the hours I've spent in the editing room. Try to fade up on the Downbeat Cougher. Use a broad-band parametric in the upper mid-range for the Cadential Cougher. Try a notch for sneezes, chortles and hiccups, while a graphic EQ will sometimes do the job on Pianissimo Pneumonitis. God only knows what to do about a baby crying. There are those who favor video projections on the back wall announcing non-coughing times and periods of coughing permitted for forte passages. I dunno, I've really got to get back to this mix—I think a kid just dropped a Slinky on a mic stand.

—Doug Carroll

IT'S STORYTIME WITH CELESTIAL NAVIGATIONS

There's nothing easy about pigeon-holing the Los Angeles-based group Celestial Navigations. Some new age stations are playing tracks off their self-titled maiden effort on the Nouveau label (distributed by K-Tel International), but this isn't dreamy mood music. And though the music is dominated by synths of various stripes, it isn't a return to so-called "progressive" music, either. No, what we have here really is aural science fiction, spoken-word stories in exotic musical settings.

"I think the awareness of storytell-

ing as an art form has increased greatly the past few years," says Geoff Levin, who, with Chris Many, provides the keyboard and guitar backdrops for narrator Geoffrey Lewis' highly creative tales. "There are people out there who are doing it well, like Spalding Gray and, most of all, Garrison Keillor, who to me is the epitome of the American storyteller. With the *Prairie Home Companion* show and the cassettes he's made, he created a commercial market where there was none before."

The trio who now make up Celestial Navigations have been honing their stories-with-music approach for nearly 20 years. In the early days they had a different name—The Great American Entertainment Show—and the instrumentation ran along more traditional lines: guitars, organ, and when noted arranger David Campbell was in the group, violin. These days, synthesizers dominate the musical arrangements; the album is mainly DX7, Oberheim Xpander and Prophet-2000. Character actor Geoff Lewis' stories, which range from cerebral, spiritual fantasies to humorously rendered bits of *audio noir*, provide the musicians with a multitude of creative possibilities. So intriguing sound effects sit side-by-side with grand, sweeping themes and short bursts of more traditional soundtrack music.

Though the disc sounds like it might be mainly a studio creation (it was cut at Levin and Many's L&M Studios), Levin stresses that Celestial Navigations have always been primarily interested in exposing their art through live performance. "We tend to record live in the studio," he says, "because we like the feeling of the three of us sitting there together, interacting. And playing in front of people has always been an important component in what we do, because it provides another level of interaction—with the audience; seeing and hearing how they react to the music and stories." Celestial Navigations have played extensively in and around Los Angeles the last few years, including a six-week run at one theater and their current regular gig at My Place in Santa Monica.

The Celestial Navigations CD has sold well for something so admittedly offbeat, and a second disc will likely follow next year. In the meantime, the group has made a cable TV special that captures them live. "It's just us," Many says. "No wild visuals or anything. We like people to be able to put their own images to the stories. There are so many places where people have images thrown at them in the world, we want to provide a place where they can still use their imaginations."

—Blair Jackson



(L to R) Geoff Levin, Geoffrey Lewis and Chris Many.

by Craig Anderton

SUMMER LETHARGY AT SUMMER NAMM

THE SUMMER NAMM 1989
JOKE-OF-THE-SHOW:

Q. *What's the difference between Elvis Presley and the Summer NAMM show?*

A. *At least some people think Elvis is still alive.*

Yes, this was a weird, low-energy, poorly attended show. While some manufacturers did good business—the Korg booth, for example, was consistently packed, and Lone Wolf's MIDtap (a high-speed LAN protocol) got a huge buzz—there was a lot of

grousing about the lack of dealers, the politics of the National Association of Music Merchants as an organization, and the general malaise in the music industry. Some people were calling the show “the wake on a lake,” a reference to the convention center's proximity to Lake Michigan.

Still, there was some cool stuff, as always; and some of it came from the little guys instead of the heavy hitters. Of course, all of the following—including prices, specs and whether the products will ever go into production—is subject to change without notice.



A few of the treasures unveiled at the show included (clockwise from top): Roland's S-770 high-end sampler; Tascam's MSR-24 1-inch, 24-track recorder; and Mackie Designs' CR-1604 compact 16-channel mixer.



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In synthesizers, Korg was definitely the hit of the show. Seeming to know a good thing when they see it, Korg's spun off a whole family of workstations and rack-mount expanders based on the M1. The T1 has an 88-note, weighted keyboard and, in addition to ROM samples, includes half a meg of RAM for loading additional sounds from disk or computer-based visual editors. The T3 is similar, but has a non-weighted, 61-note keyboard.

For those on a budget, Kawai's K4 is an exceptionally cost-effective (\$1,395) and good-sounding synth

that gets my vote for synth of the show. It has digital reverb, 256 16-bit PCM samples, drum sounds, 16 voices and multitimbral operation. I think this one is going to do very well.

Kurzweil showed the Model 900 Micro-Expander, an under-\$1,000 box with a selection of popular Kurzweil sounds, and it sounds very good. The "sleeper" expander module of the show was the DE 4x9 Digital Expander, manufactured in Germany by Dr. Bohm and distributed in this country by MusiCan (Lancaster, Pa.). It has 495 sounds (198 user-programmable), 36-note polyphony, multitimbral operation and six individual polyphonic

audio outputs. MusiCan also showed a 92-key MIDI master keyboard, the P 92.

Over in sampler land, Roland took the wraps off the S-770 (\$7,995). This rack-mount, 16-bit sampling module offers two megs of RAM (expandable to 16 MB), internal 40 MB hard disk, CD- and DAT-compatible sampling rates, 24-voice polyphony and other goodies. For those with far less bucks, the U-20 is a cleaner, quieter, keyboard version of their U-110 sample player.

The big computer news was STacy (\$1,495), Atari's ST-compatible, MIDI-equipped laptop. Actually, Atari really came into its own at this show; there was more cool new software for it than any other computer, such as Dr. T's *X-OR* universal editor/librarian and *Tiger* graphic interface, Steinberg's *Avalon* sample editor (hot), several new goodies from Intelligent Music including a new multitasking system for GEM applications, Sound Quest's porting of its editor/librarian series over to the ST, and so on.

On a more consumer-oriented level, Roland's CM series is a bunch of sound generators and modules packaged as computer peripherals. For example, the \$650 CM-32L is basically an IA synthesis sound module similar to an expanded MT-32; there are auto-arranger and music entry pad modules as well. And if you're into hard disks, Eltekon (Livonia, Mich.) showed quiet, high-speed hard drives for the Mac, ST, PC, Ensoniq EPS and Roland S-550/W 30.

Computers imply software, and the big news is that Coda has cut *Finale's* price to \$599, cleaned up the user interface, and introduced *MusicProse*, a \$249 "Finale Jr." for the Mac. Meanwhile, Passport unveiled *Pro 4*, based on a considerably enhanced version of *Master Tracks Pro* (which will still be available, with versions for the Amiga and PC in addition to the Mac and Atari), and *Encore* for the Mac (\$595), a "composing program" that sequences using conventional music notation, prints out scores and transcribes MIDI files or live MIDI input.

Mark of the Unicorn was showing *Performer 3.0*, which has very well-implemented graphic editing and now supports MIDI files and sys ex editing; and Opcode had *Vision 1.1*, an update that adds significant new features and eliminates many previous limitations, as well as introducing editor/librarians for E-mu's Proteus

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and the Korg M1.

The software that got the most attention at the show was Scorpion Systems' *sYbil*, a \$299 Mac program for MIDI drums or guitar. It provides sophisticated mapping functions for real-time performance; multiple notes, over multiple channels, can be assigned to a single fret, pad or drum machine button, and entire setups can be easily reconfigured while playing.



Lexicon showed its LXP-5, a half-rack digital multi-effects box.

It transcends simple mapping, being more of a tool that extends your musical technique, where a single musician can improvise like a trio. Give a call to the company's demo hotline at (313) 827-1444, but realize that you have to see the program to fully understand what it's doing.

On the pro audio side, Tascam unveiled its new 1-inch, 24-track record-

er for \$15,000. The unit runs at 7½ or 15 ips, and boasts built-in dbx Type I noise reduction and a signal-to-noise ratio of 108 dB. Mackie Designs (Edmonds, Wash.) was showing its new CR-1604, a low-noise, 16-channel mic/line mixer priced at \$995. Included among the board's features are: phantom powered mic preamps, seven aux sends per channel and twice the headroom of conventional designs.

In signal processors, the MIDIverb III from Alesis is basically a programmable MIDIverb II with 100 ROM and 100 programmable sounds. DigiTech showed the Harmony Machine (\$559), a downscale, easier-to-use version of their underrated IPS-33 Smart Shift. Alesis also showed the Metal Machine (\$369) rack-mount multi-effects unit (probably the most popular signal processing type at the show) and a series of programmable graphic EQs (28-band, dual 14-band and quad 7-band), all hovering around the \$500 price point.

Lexicon rented a hotel room to show off its LXP-5, a half-rack multi-effects unit with three octaves of pitch shift, chorus and flange, equalization, reverb, 64 ROM presets and 128 user programs. Parameters are front panel adjustable and some can be controlled

over MIDI; delay times can sync to MIDI clock tempo.

For guitarists, one of the hottest



Atari debuted Stacy, a MIDI-equipped, ST-compatible laptop computer priced under \$1,500.

items was Roland's GP-16. It plays up to 12 effects simultaneously, stores 128 programs, responds to continuous controller commands and produces remarkable stereo effects.

And what would a NAMM show be without accessories? Alesis introduced the DataDisk, a universal sys ex disk-based storage/retrieval system; Acme Digital (of Ann Arbor, Mich.) had the MIDIbuddy, which stores complete

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sequences for later retrieval during live playback (it also includes a 10x10 MIDI router, data filtering and optional SCSI port with hard disk); Anatek continued its pocket series with the Pocket Record mini-sequencer and Pocket Transpose MIDI data transposer; and in the low-budget sweepstakes, you can't get much more cost-effective than Digital Music Corporation's MX 28S, a 2x8 MIDI data router/patcher for \$89 (the company also had the MX-28M, a version with

merge, map and transpose, for \$149).

Even though the show itself was less than spectacular, journalists always have a good time and I was no exception. Let's hope something happens to rekindle people's interest in making music, or next year's summer show could sound the death knell to having two shows a year. ■

Craig Anderton writes books, produces records and edits Electronic Musician, our sister publication.

Summer NAMM: End of an Era?

Once upon a time, not too long ago, the Summer NAMM International Music Market was a major event, while its winter cousin was much smaller. In 1981, approximately 350 companies exhibited at the Winter NAMM; in 1989, more than twice that number were evident, with a long waiting list of manufacturers trying to get in. Obviously, there's a trend here, but what are the reasons for the decline of the summer show?

First of all, today's musical instrument market is a far cry from that of a decade ago. The public's interest in electronic instruments, MIDI and software is on the upswing, while interest in traditional instruments is waning. Is a generation weaned on MTV really going to be excited by violas and clarinets? Thus the typical music store's bread-and-butter—band instrument sales and rentals—is disappearing, along with the strong income of late summer and early fall months, when returning school children prepare for music lessons. Likewise, the music manufacturing business—once firmly entrenched in Chicago, Indiana and the Midwest—has dispersed.

On the other hand, the notion of a Winter NAMM show, held in Anaheim, Calif., (soon after the heavy holiday sales) makes sense. Retailers, particularly those in the frozen Northeast and Midwest, like the idea of "having" to travel to a sunny resort location, and with bulging pockets of cash, are ready to spend, which makes for a lot of

smiling exhibitors.

Unfortunately, there was a general dissatisfaction among exhibitors about the poor attendance of the 1989 summer show, with many of the music buyers staying away. NAMM's bylaws dictate that exhibitors who do not participate in both shows may lose "seniority" for preferred booth space at the Anaheim show, so many manufacturers attended rather than risk upsetting the status quo.

On the last day of the show, Robyn Gately of Joe's Sound (a manufacturer of P.A. and instrument speaker cabinets) circulated a petition to NAMM and garnered over 100 signatures from exhibiting manufacturers, asking for the end of the requirement to attend two shows. The names read like a veritable "Who's Who" of the music business, including: Allen & Heath, Anvil Cases, ART, Audio-Technica, Beyer, Bose, Cerwin-Vega, Community, Countryman, Crest, Crown, Digidesign, Dr. T's, Electro Voice, Gauss, Gretsch, International MIDI Association, Korg, Kurzweil, Ludwig, Nady, Passport, Peavey, Studio-master, Ultimate Support and many others. Those signing were not opposed to the idea of two NAMM shows, but felt that if the summer event is to continue, it should do so on its own merit, rather than via "forced attendance."

One thing that all parties agree on, however, is that the NAMM shows are vital links to the music and sound industries. This petition is perhaps the first step in encouraging communication; hopefully an equitable solution can be found that will adequately serve exhibitors, music dealers and the NAMM organization alike.

—George Petersen

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by Philip De Lancie

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With as many as two of every three pre-recorded albums shipping in the analog cassette format, market dominance by that configuration seems unlikely to be challenged seriously for some years to come. Two or three years ago, as CDs exploded and DAT loomed on the horizon, prospects for the long term were uncertain. After years of steady expansion, annual growth for the format nearly leveled off from 1984 to 1986. Many duplicators and the manufacturers of their equipment held back on further investment in cassettes, hoping consumers would eventually clarify their intentions. Now, following two consecutive years of sharply increased sales, confidence in the longevity of the configuration has been bolstered, and there seems to be renewed interest in manufactur-

ing techniques for boosting quality and throughput.

Ironically, several of the parties working to forestall the era of exclusively digital music distribution formats are advocates of increased use of digital technology in the duplicating process. Some kind of digital substitute for the bin-loop master, susceptible as it is to wear, wow, flutter, crosstalk and phase errors, could bring significant benefits. Reports of efforts at Capitol along these lines date back close to three years, but nothing had materialized by the time its Magnetic Products Division was dismantled in 1987. The work of AMI/Concept Designs ("After-Mix," October 1987), on the other hand, has already borne fruit, with systems on-line at Sonopress in Weaverville, N.C.

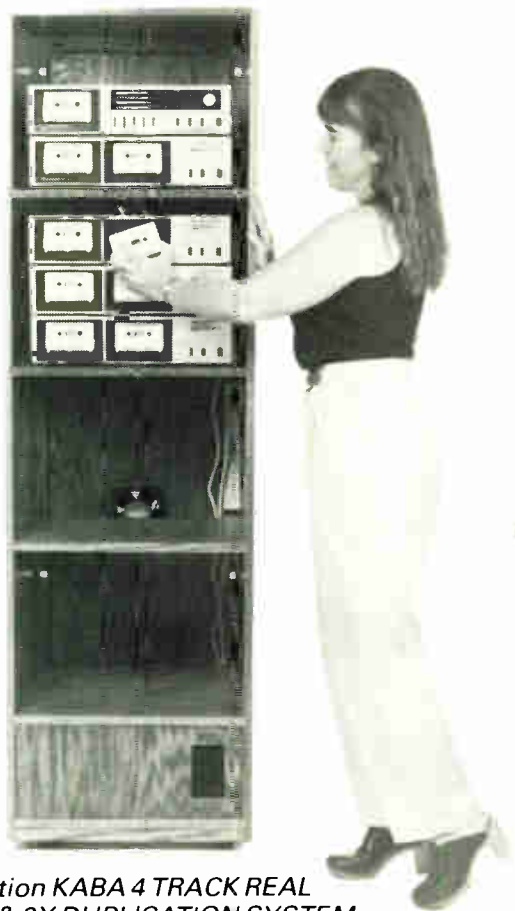
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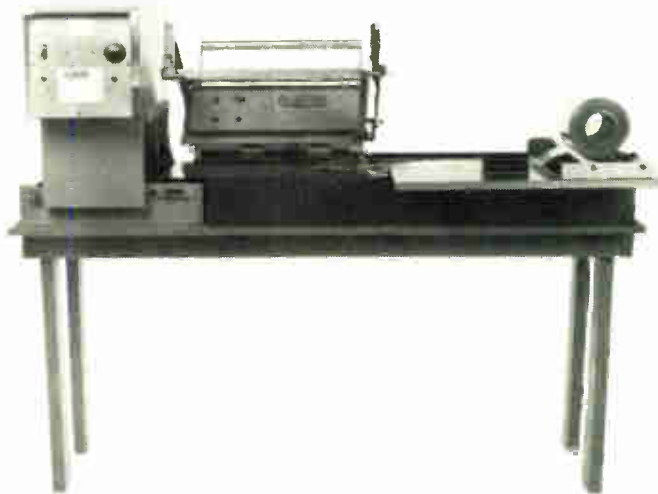
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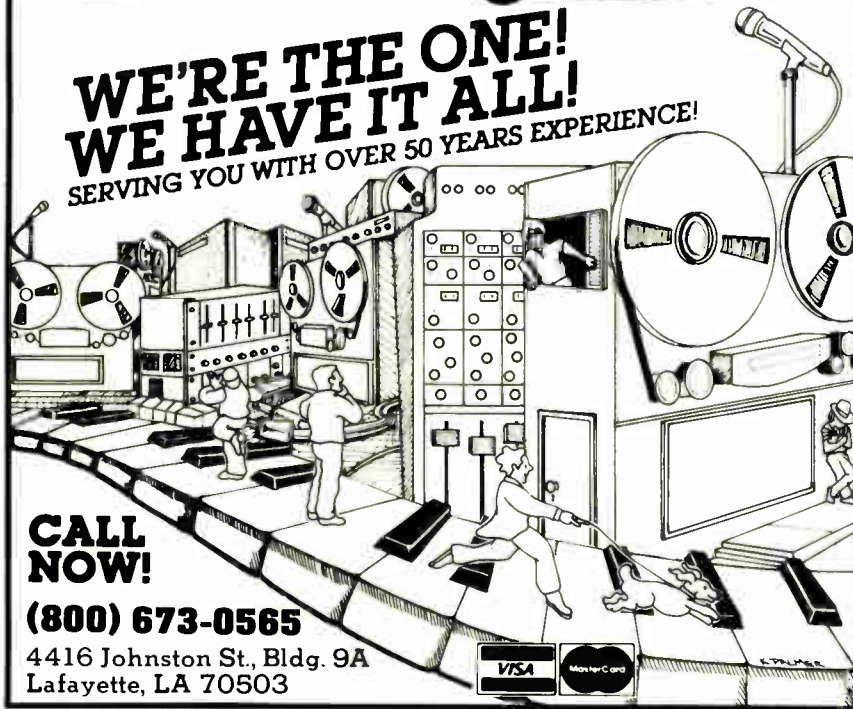
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—Mix Magazine (Dec. 88)



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Another player—Duplitrronics of Wheeling, Ill.—has now emerged, with claims of operational speeds up to 256 times real time. Five years of R&D have gone into the project, which evolved from technology developed for the company's planned duplicator for customized cassettes. For a preview I spoke recently with company president Jeff Binder and Bob Scheffler, VP for research and development.

Mix: Before we begin to explore your system, what do you see as the current state of conventional technology for high-speed duplication?

Binder: Up until now, the fastest that has existed for music duplication is the system Gauss just introduced using a standard bin loop running a 3¾ ips master at 96:1. Our quality far exceeds that. They have told me that the real limitation in their process is on the master end, rather than on the slave end. The master is running twice as fast as the slave, but even comparing them at the same speed, the problems inherent in high-speed playback are greater than with high-speed recording. For example, they might not have a problem running slaves at 480 ips from a mechanical or recording standpoint, but there would be a problem running a bin-loop master at 960 ips.

Mix: Describe the equipment you have developed to get around these limitations of the bin-loop master.

Binder: It's a tapeless bin-loop master system. It will run at a ratio [to real time] of up to 256:1, though since the maximum speed for slaves right now is 240 ips, it will only be able to run at 128 times real time (240÷1½). We are calling it the DM-400, which stands for the memory configuration in the standard system, which gives you 48 minutes of RAM. You can upgrade from 48 minutes all the way up to 110 minutes.

Mix: What is the digital format in which the sound data is stored?

Scheffler: It is basically a 44.1kHz sampling rate PCM, like a CD.

Mix: At what rate are the samples being reconverted to analog during duplication?

Scheffler: 5.6 megahertz.

Mix: That must place considerable strain on the accuracy of the D/A converters.

Scheffler: Right. It's practically video

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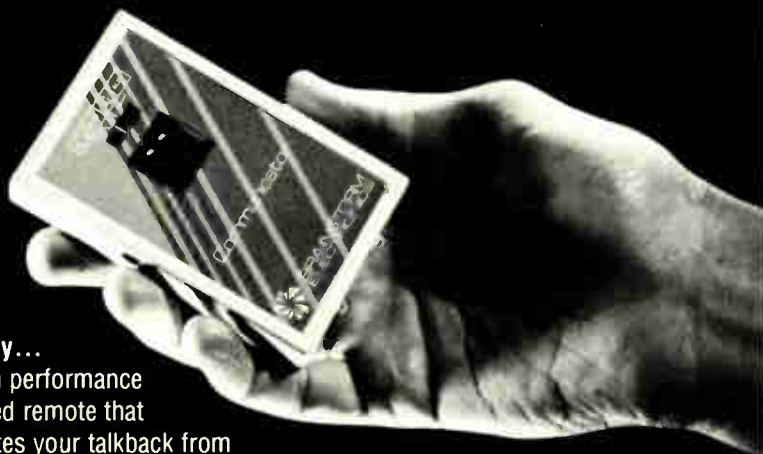
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information at that speed.

Binder: We are using our own modification of some converters that are on the market designed for digital video. Right now we are using 14-bit converters, with two times oversampling. Presently, at 128:1 the quality is so much better than a bin loop at 32:1, at least as good as real time, that you don't need to upgrade. If technology gets to the point where they can run a 480 ips slave and still get good quality, then for doing music at 256:1 you would want to upgrade converters.

Mix: What are the bandwidth and signal-to-noise ratio of the output from the master?

Scheffler: It is full bandwidth throughout the operating range. The S/N ratio is at least 70 to 80 dB, but you couldn't really record that to the slave because you are limited by the cassette itself.

Mix: How long does it take to load the data into the RAM of the master?

Binder: The master is loaded with our BT-100, which is used out on the line with the DM-400. It is actually a video deck with an interface to make it work with all the other parts of the system.

Scheffler: The BT-100 uses videotape to store digital information at very high speed. It's a form of what they call a "VIDS," like they use for backing up computer data. For duplication the signal goes into a solid-state buffer storage inside the DM-400. It takes one minute and 30 seconds to download a full 48-minute program.

Binder: It uses a high-grade VHS cassette that costs only about \$20.

Mix: How does the client's program get recorded onto this tape?

Binder: The client would normally provide the duplicator with a Sony PCM-1610/1630 44.1kHz production master. If the client has not provided a PCM master, you are going to have to actually do the mastering from analog to digital. In either case you start with what we call the MM-100, which is a scaled down DM-400, with very little memory but with a BT-100 and A/D conversion added in. It's a machine that preps all the information to be put on the videotape so it can be loaded quickly from a BT-100 directly into the DM-400. The MM-100 would go in the duplicator's mastering room, and one or more BT-100s would go out on the duplication line. Once you've made a master with the MM-

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100, be it from PCM or analog, you store it until you are ready to run it. Then you take it off the shelf, bring it out to the BT-100 on the line and stick it into the deck for high-speed loading into the DM-400, at which time you would be ready to start running your slaves.

Mix: The masters that come in on 1630 are transferred digitally into the BT-100. Will it accept the SDIF output from the back of the 1630?

Scheffler: Normally we use the AES/EBU standard interface, so you would have to have the optional AES board for the 1630. That leaves us open for interfacing with DAT or other types of gear.

Mix: Can you describe the process by which the real-time signal from the 1630 is recorded in a way that allows it to be downloaded into the RAM at high speed?

Scheffler: The 1630 only transfers information at a certain rate, whereas the BT-100 can transfer information a whole lot faster. So instead of running the BT-100 at a real slow speed, which would defeat the purpose, we run it as fast as we can, which allows us to load the DM-400 at the highest possible speed. When you are recording on the BT-100, the recording tape is actually starting and stopping while the 1630 is playing continuously for the whole side or the whole album. The BT-100 puts together a block of information from the 1630, starts the recorder, writes to the videotape and then stops the recorder. While one block is being written, the next is being prepared to be written. So for every 30 seconds of the 1630, the BT-100 might only be running for four or five seconds.

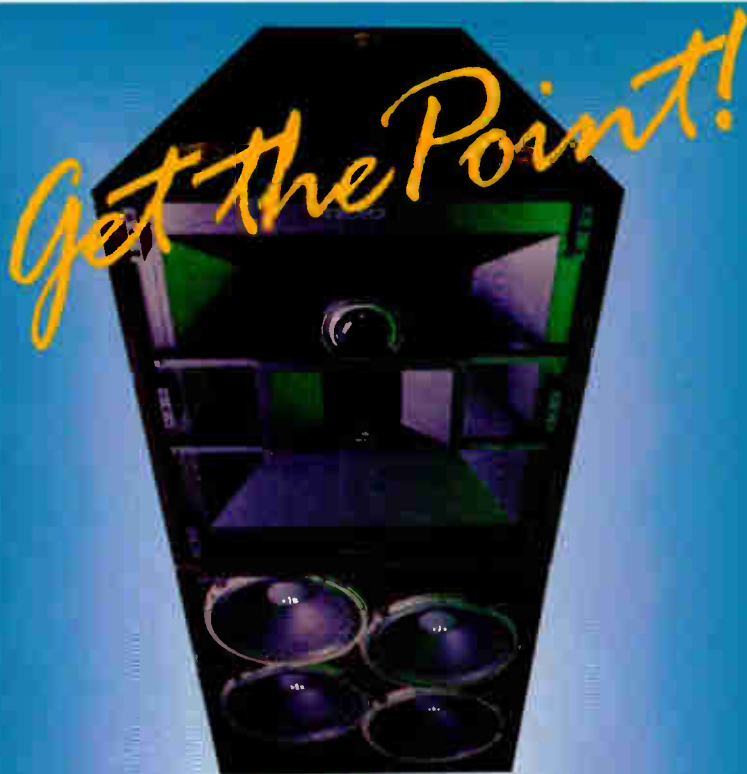
Binder: It is just digital information, so the individual samples, regardless of what speed they go from machine to machine, are still intact.

Scheffler: At the same time, we add all the appropriate control information to the tape so it can control the bin system on the line. That way you don't have to have the operator pushing "play" and "record" and "stop."

Mix: After the operator loads the DM-400 from the BT-100, you are ready to begin recording on the slaves?

Binder: Right. You have as many slaves as you want to hook up to the line. We can run our machine with slaves that are out on the market right now. As I said, currently the fastest

—CONTINUED ON PAGE 186



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& NATIONAL BUSINESSPAGES!

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The recently redesigned Studio 2 at Cherokee Recording in Hollywood features a new Neve VR60 console with Flying Faders automation and a Mitsubishi X-880 digital tape machine. Originally built 10 years ago, the room is the primary mixing environment at the 5-studio complex. The current monitor system uses all-JBL components and Perreux power amps. Photo: Ron Bennett

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Mix listings procedure: Every month, Mix mails questionnaires to recording studios and/or other vital facilities and services for the recording, sound and video production industries. There is a charge to list a Boldface Listing (name, address, contact) and an Extended Listing (equipment, credits, specialization and photo or logo). If you would like to be listed in a Mix Directory, write or call the Mix Directories Department, 6400 Hollis Street #12, Emeryville, CA 94608; toll free 800-344-LIST!

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Northwest Studios: **October 17, 1989**

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STUDIOS

All studio information listed has been supplied to *Mix* by studios responding to questionnaires mailed in April 1989. People, equipment and locations change, so please verify critical information with the studios directly. *Mix* does not take responsibility for the accuracy of the information supplied to us by the studios.

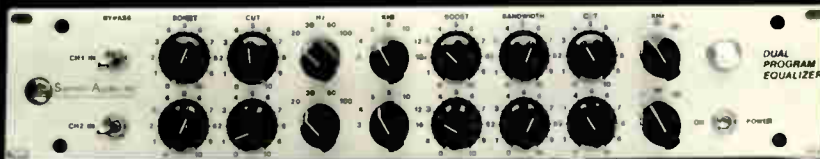
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EQP-200

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ECHO SOUND RECORDING

2900 Los Feliz Blvd., Los Angeles, CA 90039 (213) 662-5291

Echo Sound Recording Studios provide professional-quality, cost-efficient recording services. Studio A: 16-trk & 24-trk. Studio B: 24-trk with new Trident 80C—32 channels of Diskmix ARMS II automation. Studio C: MIDI and 16-trk production. We have provided recording services for Capitol Records, Arista Records, A&M Records, Virgin Music, Ice Capades, *Phantom of the Opera*, various independents and trade shows. Our new addition, Studio C, is a MIDI production facility offering the producer, arranger and songwriter the latest Mark of the Unicorn *Performer* sequencing software and a selection of MIDI sound sources complete with Fostex 16-trk recorder, console and outboard effects. In-house arranging and production services. Sequenced

tracks may also be transferred and/or synclocked with studios A and B. Echo Sound Recording provides a professional, creative environment conveniently located in the Griffith Park area with secure, off-street parking. Our experienced staff engineers strive to have clients work comfortably and efficiently, with emphasis on technical expertise and client satisfaction. **Consoles:** Trident 80B & 80C Diskmix ARMS II Automation. **Main recorders:** Sony/MCI JH-24, Otari MX-80, Sony APR-5003 1/4" and 1/2" 2-trk, Otari MTR-12 2-trk, Sony PCM-2500 DAT. **Main delay systems:** Lexicon 480L; AMS DMX 15-80S; (4) REV7; REV5; (6) SPX9011. **Outboard gear:** API EQ & mic pre's, LA-2A, dbx F900, Orban EQs.

FUTURE DISC SYSTEMS

3475 Cahuenga Blvd. West, Hollywood, CA 90068
(213) 876-8733 FAX: (213) 876-8143

Future Disc Systems provides full digital and analog mastering and complete digital editing for compact disc, record, R-DAT and cassette. **Facility Managers:** Gary Rice and Kim Hahn. **Receptionist:** Laura Gonzales. **Engineers:** Steve Hall, Tom Baker, David Hernandez and Gary McGachan.

Future Disc is comprised of two custom mastering suites. Analog consoles are equipped with Sontec equalizers and compressor/limiters. There are Studer and Ampex tape machines. Cutting lathes are Ortofon and Neumann. The Harmonia Mundi digital console

contains digital equalization, limiting and digital level controls. A full complement of Sony and Harmonia Mundi digital gear can be used to keep your digital product within the digital domain while being processed. We also specialize in digital editing, allowing for creative and exact edits and assembly for your compact disc masters.

We are proud to be involved in the mastering of many major projects, including: *Bobby Brown, Traveling Wilburys, Paula Abdul, Sheena Easton, Karyn White, Tom Petty, and the Jacksons.*



MUSE PRODUCTIONS

PO Box 43, Auburn, AL 36830 (205) 821-0088 FAX: (205) 821-0088

Muse Productions, one of the Southeast's fastest growing sound reinforcement and lighting companies, is now proud to offer APOGEE Sound Inc. speaker systems for mains and monitors.

The APOGEE 3x3 concert loudspeaker and its attendant 3x3 Dual Channel Processor are an expertly engineered, three-way, tri-amped, electronically coupled speaker system. Designed for very high-power linear output, tight pattern control, warm, musical response and maximum versatility, the 3x3 provides state-of-the-art sound for demanding applications.

The wide range, low-distortion response (53-19 kHz), coupled with high-power handling capability, allows the speaker to perform superbly as a stand alone unit. Its trapezoidal-shaped enclosure lets it combine smoothly with additional 3x3s to

form large arrays from modular building blocks.

Designed for linear, high-power output, the AE-5 and the AE-6 are capable of handling the most demanding of stage monitor applications. The smooth phase and frequency response enable very high gain-before-feedback levels. The excellent low-frequency output handles drum kits and bass guitar requirements with ease.

The AE-12 Concert Series Subwoofer, designed for large-scale sound reinforcement, perfectly complements and extends the low-frequency range of the APOGEE 3x3s and the AE-5s, without coloring the sonic output.

Muse tailors each system to the client's individual needs and staffs them with expert personnel to ensure the best possible performance—show after show.

BusinessPages! ads are available in both 1/4 - and 1/2 - page units; all production costs for ad preparation are included in the low ad rates (including color separations from supplied photo or logo).

For complete information on how your facility can have a low-cost, four-color BusinessPages! ad, contact Mix Directories toll-free: (800) 344-LIST.

All space reservations and materials are required by the 7th of the month, two months prior to publication.

BUSINESSPAGES!

World Radio History

RUMBO RECORDERS

20215 Saticoy St.
Canoga Park, CA 91306
(818) 709-8080
FAX: (818) 709-4072

ARM, MIDI

Owners: Daryl Dragon, Toni Tennille. **Studio Manager:** Vicky Camblin. **General Manager:** Jim Mancuso. **Engineers:** Shirley Greer, Mike Gunderson, Gina Immel, Jim Mancuso, Julian Stoll, Andy Udoff. Studio A design by Greg Edward. Studio construction by Dave Guth.

Services & Equipment: **Studio A:** 2,200 sq. ft. Control A: 650 sq. ft. **Studio B:** 1,300 sq. ft. Control B: 550 sq. ft. **Consoles:** Studio A: Neve V Series 60-input with Flying Faders Automation. Studio B: Trident Series 80 32x24. **Audio Recorders:** (2) Studer A800 MkIII 24-trk; Studer A820 1/2" master recorder; Ampex ATR-104 1/2" 4-trk; Sony



PCM-2500 DAT; (2) Studer A721; (2) Otari MTR-90 24-trk; Ampex ATR-100 2-trk. **Monitors:** Gauss woofers and TAD drivers with Northwest horns in a custom enclosure; Yamaha NS-10M; Yamaha NS-20; Auratone, Fostex LS-4 with Gauss woofers. **Reverb/Delay:** AMS RMX-16; Eventide H3000 Ultra-Harmonizer; Yamaha REV5; Yamaha SPX1000; Yamaha REV7; (2) SPX90II; EMT 140;

Ecoplate; Lexicon Super Prime Time. **Other Outboard:** Lynx Time Code Synchronization; Drawmer gates; API, Tube-Tech EQs; dbx, UREI, Teletronix and Summit limiter/compressors; Lexicon PCM70; Fostex 4030/4035 synch. **Microphones:** AKG; Beyer; Electro-Voice; Neumann; Neumann Tube (M49, U47); Sennheiser; Schoeps; Shure; Sony.



SABRE SOUND PRODUCTIONS

413 Trabert Circle, Riverside, CA 92507 (714) 784-4280

The Inland Empire's most advanced recording environment, featuring Yamaha, Roland, 360 Systems and Kurzweil instruments, along with powerful music sequencing.

Sabre Sound offers an exceptional staff of experienced producers, arrangers, engineers, musicians and even its own graphic designer.

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Sabre Sound also offers customized performance tracks in all musical styles for singers and instrumentalists. These carefully arranged tracks are recorded with the artist's total performance needs (styles, keys, tempo) in mind.

Join the list of successful contemporary Christian and other commercial artists who have already utilized **Sabre Sound's** 24-trk studio with its Amek TAC Matchless 64-input console, Otari MX-80 and complete arsenal of outboard gear.

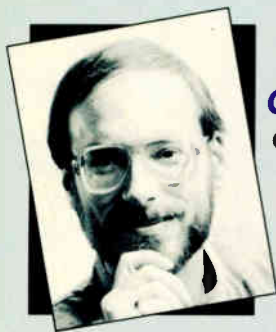
BusinessPages! Services Key

BusinessPages! half-page ads feature a box with letter abbreviations for the types of services the advertiser offers. The key to these business services is as follows:

ARM	Audio Recording, Music	MIDI	MIDI Production
APPV	Audio Post-Production for Video	APPF	Audio Post-Production for Film
VP	Video Production	SDS	Studio Design/Supply
TD	Tape Duplicating	CDP	Record/CD Pressing
CDM	Record/CD Mastering	RLR	Remote/Location Recording
SR	Sound Reinforcement		

6

Reasons To Subscribe To Mix



Craig Anderton/MI Update

Guitarist, synthesist, electronic music expert Craig Anderton reports on music technology and its effect on the audio, video and film environments. Craig is also editor of our sister publication,

Electronic Musician.

Mark Herman/SR News

Mix sound reinforcement editor Mark Herman reports each month on concert sound, tour updates, new products, troubleshooting and everything else that goes with "sound on stage."



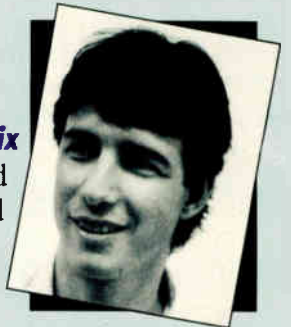
Ken Pohlmann/Insider Audio

Our monthly liaison between the old and the new, and an international authority on digital audio, Ken provides a technical and theoretical overview of the latest

audio developments for the studio.

Philip De Lancie/After-Mix

With an eye toward new technology and market trends, Phil talks to the engineers, inventors and executives who shape the flow of tapes and discs from mastering room to the consumer.



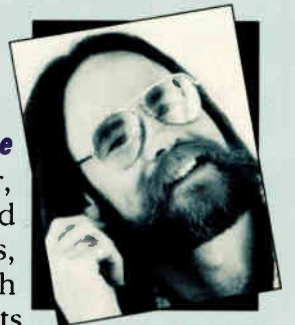
Mel Lambert/Juxtapositions

Industry veteran and former editor of *Recording Engineer/Producer* Mel Lambert examines trends in audio/video production techniques and applications, with a view to inform, enlighten and *connect.*



Stephen St. Croix/Fast Lane

A musician, producer, designer, engineer and resident jack-of-all-trades, Stephen writes each month on futuristic audio concepts and technologies as they apply to the present.



As a *Mix* subscriber, you'll read the observations of these and other top audio professionals each month. And you'll receive the industry's most thorough coverage of new product announcements, studio sessions and profiles of leading producers, engineers and facilities. Turn to *Mix* for useful articles on equipment and applications—designed for you, the working professional. If you're not a *Mix* subscriber, use the application in this issue to become one today!

MIX—TRACKING YOUR FUTURE

MIX THE
RECORDING
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MAGAZINE

24+ TRACK

STUDIOS

[24+] **A&M STUDIOS**; 1416 N. La Brea Ave.; Hollywood, CA 90028; (213) 469-5181. Owner: Herb Alpert, Jerry Moss. Manager: Mark Harvey.

[24+] **A & R RECORDING SERVICES**; also *REMOTE RECORDING*; 71906 Hwy. 111; Rancho Mirage, CA 92270; (619) 346-0075. Owner: Scott Seely. Manager: C. Crain.

[24+] **ADAMO'S RECORDING**; 16571 Higgins Cir.; Huntington Beach, CA 92647; (714) 842-2668. Owner: Jerry Adamowicz. Manager: Jerry Adamowicz.

[24+] **AKR RECORDING STUDIO & DUPLICATION SERVICES**; 4313 Valley Fair St.; Simi Valley, CA 93063; (805) 527-4479. Owner: Dan Clements, Alvin Radley. Manager: Dan Clements.

[24+] **ALLIES RECORDING STUDIO (ARS)**; 711 E. Cypress Ave.; Redlands, CA 92374; (714) 798-7375. Owner: Randy Thomas, Fred Tedesco. Manager: Randy Thomas.

[24+] **ANDORA STUDIOS**; 3249 Cahuenga Blvd. W.; Hollywood, CA 91068; (213) 851-1244. Owner: Andora Inc. Manager: Todd G. Wilson. Engineers: Robert Salcedo, Edward Preciado, Todd Wilson. Dimensions: Room 1: studio 1600-sq.ft. w/22' ceiling, control room 1000-sq.ft. Room 2: studio 500-sq.ft. Mixing Consoles: Neve 8078A w/Massenburg automation, Neve VR Series 72 channels w/Total Recall and Flying Fader automation. Audio Recorders: (2) Ampex ATR-102, (2) MCI JH-110 4-track, (4) Studer A827/24, (4) Studer A820/2. Cassette Recorders/Duplicators: (4) Nakamichi MR-1, Sony R-DAT-25000 Synchronization Systems: (6) TimeLine Lynx w/cables, Echo, Reverb & Delay Systems: EMT 251 reverb w/250 PROMS, (2) EMT TS-140 stereo plate reverb, (2) Eventide H3000, Lexicon 224XL, (2) Lexicon 480L, (3) Lexicon PCM42, (2) Lexicon PCM70, (2) TC Electronic 2290 sampler delay, Yamaha REV1, (2) Yamaha REV5, (2) Yamaha SPX90, (2) Roland SDE-3000 delay. Other Outboard Equipment: (12) Aphex 602 gate, (2) dbx 162 stereo comp/limiter, (2) dbx 165 comp/limiter, (6) dbx 903 de-esser, (2) Teletronix LA-2A limiter, (2) Tubetech CL-1A tube limiter, (2) Tubetech MEQ-5 equalizer, (2) Tubetech MP-1A stereo tube mic pre, (2) Tubetech PEQ-1B equalizer, (2) UREI 527 1/2-octave graphic EQ, (4) UREI 1176LN limiter, (2) UREI LA-3A, (2) UREI LA-4A, (4) White Instruments 4004 1/2-octave equalizer. Microphones: (200) Neumann, AKG, Sennheiser, RCA, Sony, Telefunken, Shure. Monitor Amplifiers: (3) Adcom G-545 (cue), (6) Adcom G-555 (main and surrounds), (2) Bryston Audio crossover. Monitor Speakers: (4) Auratone 5B, (6) TAD custom, (2) Electro-Voice Sentry 100A, (2) Tannoy SRM-12B, (2) Visonik David 702, (6) Yamaha NS-10. Musical Instruments: Sequential Circuits Prophet-VS synth, Yamaha DX7 keyboard, (2) Yamaha TX816 synth rack, Linn 9000 drum computer, Oberheim Matrix-12, Hammond B-3 w/Leslie 122. Video Equipment: JVC 8200 VR VHS recorder/player, Sony 5850 3/4" VTR, Sony BVU-800 3/4" VTR, (6) Sony PVM 19" monitor, (3) Sony PVM 25" monitor. Other: (2) Adcom GCD-650 CD player.

[24+] **AUDIO ACHIEVEMENTS RECORDING STUDIO**; also *REMOTE RECORDING*; 1327 Cabrillo Ave.; Torrance, CA 90501; (213) 320-8100. Owner: Audio Achievements, a Cal. Corp. Manager: Donovan.



AUDIO RESOURCE HONOLULU
Honolulu, HI

[24+] **AUDIO RESOURCE HONOLULU**; also *REMOTE RECORDING*; Century Center, 1750 Kalakaua; Honolulu, HI 96826; (808) 944-9400. Owner: Tony Hugar, Milan Bertosa.

[24+] **AUDIO SUITE**; 1110 A W. Glenoaks Blvd.; Glendale, CA 91202; (818) 241-9090. Manager: Eric Sclar.

[24+] **BLUE MOON STUDIO**; 28205 Agoura Rd.; Agoura Hills, CA 91301; (818) 889-8920. Owner: Joe Vannelli, Gino Vannelli. Manager: Diane Ricci.

[24+] **WALLY BURR RECORDING**; 1126 N. Hollywood Way, Ste. 203; Burbank, CA 91505; (818) 845-0500. Owner: Wally Burr. Manager: Ellen Burr. Dimensions: Room 1: studio 25 x 32, control room 16 x 20. Room 2: studio 14 x 17, control room 12 x 17. Mixing Consoles: Quad Eight Coronado 32 x 24, Ramsa 20 x 8. Audio Recorders: 3M M79 24-track 2", 3M M79 4-track 1/2", (2) 3M M79 2-track 1/4", Fostex E-16 16-track 1/2", Fostex E-22 2-track 1/4" w/center-track time code. Noise Reduction Equipment: Dolby SR, Dolby A Synchronization Systems: Q.Lock and Fostex w/JVC 850-U 3/4" video-for-picture reference. Echo, Reverb & Delay Systems: Lexicon 224, SPX90. Other Outboard Equipment: Orban parabolic equalizer, UREI "Little Dipper", Aphex Aural Exciter, (2) dbx limiter. Monitor Speakers: (2) UREI 813A, (4) JBL 4311. Other: Emulator II+ Specialization & Credits: Wally Burr Recording's two rooms have provided special facilities and expert engineering for hundreds of animated shows (CBS-TV's *The Muppet Babies*, *Rude Dog*, NBC-TV's *Kissy Fur*, ABC-TV's *The Real Ghostbusters* as well as top syndicated series, including *G.I. Joe*, *Transformers*, *Jem* and many others. Also, we supply post-production audio for both TV and film, including ADR and Foley for features and TV. Recent English language dubbing (ADR) and subsequent remixing of foreign films include *Babette's Feast*, *Au Revoir Les Enfants*, *My Life as a Dog* and *Women on the Verge of a Nervous Breakdown*.

[24+] **CAN-AM RECORDERS INC.**; 18730 Oxnard St.; Tazana, CA 91356; (818) 342-2626. Owner: Can-Am Corp. Manager: Larry A. Cummins.



CAPITOL RECORDS STUDIOS
Hollywood, CA

[24+] **CAPITOL RECORDS STUDIOS**; also *REMOTE RECORDING*; 1750 N. Vine St.; Hollywood, CA 90028; (213) 462-6252. Owner: Thorn-EMI. Manager: Sharon Swab. Engineers: Peter Doell, Charlie Paakkari, Leslie Ann Jones, Wally Traugott, Eddy Schreyer, Jeff Minnich. Dimensions: Studio A 47 x 44, control room 25 x 25. Studio B 33 x 31, control room 20 x 22. Studio C 10 x 12, control room 18 x 22. Mixing Consoles: Neve VR Series 60 x 48 w/Flying Fader automation, Neve 8068 32 x 16, Neve 8108 48 x 32, Studer 900 12 x 4, (2) Sony 1105-K 8 x 12 digital, (2) Sony MXP-2000. Audio Recorders: Studer A800 24-track, Studer A80 24-track, (3) Studer A820 2-track, (12) Ampex ATR-100 2/4-track 1/4" and 1/2", (8) Sony BVU-800 2-track digital, (2) JVC 8200/BP90 2-track w/editor, (6) Sony DMR-4000 2-track, pro and non-pro DATs. Cassette Recorders/Duplicators: Panasonic SV-3500 DAT, Yamaha C300, Aiwa 660, Aiwa 770. Noise Reduction Equipment: Dolby A, Dolby SR. Synchronization Systems: (8) TimeLine Lynx Echo, Reverb & Delay Systems: (8) live echo chamber, EMT 250, (4) Yamaha REV7, AMS digital delay, AMS reverb, (2) EMT 140 plate, (2) Lexicon Super Prime Time, (3) Roland 3000, (2) Roland SRV-2000, (2) Yamaha SPX90, (2) Yamaha SPX90II, (3) Eventide 949, Eventide 910, TC Electronic 2290, (2) Roland DEP-5. Other Outboard Equipment: (2) Studio Technologies stereo simulator, Kepex II gate, Drawmer gate, ITI parametric EQ, (2) Trident parametric EQ, (5) Neve 8078 EQ, dbx 900 de-esser, NTP-200 for disc mastering, (7) Pultec EQ, various tube and solid-state limiters. Microphones: Over 200 including classic Neumann, AKG,

Sennheiser, Shure. Monitor Amplifiers: Halter modified. Monitor Speakers: UREI, George Augspurger, TAD, JBL custom 2-way. Musical Instruments: Yamaha 9' concert grand piano, Steinway 7' grand piano, Hammond B-3. Other MIDI Equipment: Sony DAE-1100A digital editor, Harmonia Mundi digital processor, Yamaha F1 Beta and VHS decks, 601 digital processor/co-processor, de-gliicher. Video Equipment: 1/2" and 3/4" video duplication capability. Specialization & Credits: We are in the process of a multimillion dollar remodeling, which includes total reconstruction and renovation of Studio A. Equipped with a Neve VR60 with Flying Faders automation, Studio A will be approximately 1400 square feet and will feature two isolation booths, one 150 square feet and the other 57 square feet. In addition, expansion of Studio A into Studio B will be possible by opening the isolation partitions. The control room will incorporate MIDI, video and computer distribution lines as well as ultra-low capacitance audio wiring and both high-power cue and self-mix cue capability. By using the ancillary rooms of Studio A, added isolation of instruments can be achieved. Call us for an opening date in late 1989. Capitol Records Studios also offers disc mastering and has complete digital editing facilities.

[24+] **CARRERA RECORDING STUDIO**; 1504 Columbia, Ste. 3; Riverside, CA 92507; (714) 784-5777. Owner: Armi Atil, Tony Shepperd, P.C. Atil. Manager: Armi Atil, Tony Shepperd. Engineers: Tony Shepperd, independents welcome. Dimensions: Studio 26 x 30, control room 24 x 28. Mixing Consoles: Neve 8232 32 x 24 64 inputs on mix. Audio Recorders: Sony JH-24 24-track, Otari MX-70 16-track, Sony PCM-2500 2-track R-DAT, Otari 5050B 2-track. Cassette Recorders/Duplicators: (2) Nakamichi MR-2. Noise Reduction Equipment: Dolby SR Synchronization Systems: TimeLine Lynx Echo, Reverb & Delay Systems: Lexicon 480L, (2) Lexicon PCM70, Yamaha REV7, (2) Yamaha SPX90. Other Outboard Equipment: (2) dbx 160X compressor/limiter, (4) Drawmer noise gate, UREI compressor/limiters. Microphones: Neumann TLM170i, Neumann KM84, Neumann U87, AKG 414, AKG "The Tube", Shure SM57, Sennheiser 421. Monitor Amplifiers: HH Electronic V-500, (3) HH Electronic V-200. Monitor Speakers: Westlake BBSM-15, Yamaha NS-10M studio, E-V Sentry 100, Auratone Musical Instruments: New England Digital Synclavier, Moog Minimoog, Wendel jr, Alesis HR-16, Steinway B grand, Yamaha TX802, Roland Octapad, Roland D-550. Video Equipment: Sony 5850 3/4" video, Sony 27" video monitor. Rates: Ten-hour day \$1,100, lockout 24-track and Synclavier.

[24+] **CHAMELEON RECORDING**; 216 Chatsworth Dr.; San Fernando, CA 91340; (818) 361-9232. Owner: Joe Branam. Managers: Chuck Fetyko, Chuck Fetyko, Jane McCord, Scott Greer, Willie Levins. Dimensions: Room 1: studio 1320-sq.ft., control room 525-sq.ft. Mixing Consoles: Trident Series 80B 56-input. Audio Recorders: Otari MTR-90 24-track, Otari MX-80 24-track, Otari MTR-12 2-track. Cassette Recorders/Duplicators: (6) Yamaha, Nakamichi. Synchronization Systems: Adams-Smith Zeta-3 w/remote Echo, Reverb & Delay Systems: Lexicon 480L, Lexicon 224, Lexicon PCM70, Yamaha SPX1000, (2) Yamaha SPX90II, Yamaha REV7, TC Electronic 2290, Lexicon PCM42, Lexicon PCM41, Ibanez DM2000, DeltaLab ADM 2048, Eventide H910 Harmonizer. Other Outboard Equipment: (8) Drawmer DS-201 gate, (4) Aphex gate, (4) dbx gate, (8) dbx compressor/limiter, UREI 1117 limiter, (4) Aphex compressor/limiter, (2) Aphex Aural Exciter, (4) Orban parametric EQ, (4) Aphex parametric EQ. Microphones: (50) huge microphone selection. Monitor Amplifiers: (6) Perreaux. Monitor Speakers: (2) TAD custom speaker system, (4) Yamaha NS-10M, (2) Tannoy LM6, (2) Auratone. Musical Instruments: Large selection of keyboards. Other MIDI Equipment: Akai S900 sampler w/ASK90 trigger update, many sequencers and drum machines. Video Equipment: Lockup. Other: Base Spatial processor, Yamaha 9' grand piano w/MIDI, in-house rehearsal stage w/full P.A. and monitor system, (5) iso booth.

[24+] **CHEROKEE RECORDING STUDIOS, INC.**; 751 N. Fairfax Ave.; Los Angeles, CA 90046; (213) 653-3412. Owner: The Robbs Manager: Susan Donaldson. Engineers: Dee Robb, Joe Robb, Bruce Robb. Dimensions: Room 1: studio 32 x 52, control room 32 x 23. Room 2: studio 14 x 14, control room 44 x 15. Room 3: studio 23 x 16, control room 13 x 33. Room 4: studio 12 x 8, control room 16 x 12. Mixing Consoles: Custom Cherokee 72 x 24, Neve VR w/Recall and Flying Faders automation 60 x 48, (2) Trident "A" range 60 x 24.

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24+ TRACK

—CONTINUED FROM PREVIOUS PAGE

Audio Recorders: (5) Otari MTR-90 MkII, (6) Otari MTR-12 1/2" and 1/4", Mitsubishi 880 32-track. Cassette Recorders/Duplicators: (10) Aiwa 660. Noise Reduction Equipment: (3) Dolby M24H, (4) Dolby 361. Synchronization Systems: BTX Shadow, TimeLine Lynx. Echo, Reverb & Delay Systems: (4) EMT 140, Echoplate, AKG BX-20, (4) TC Electronic 2290 delay/sampler, (3) Eventide 1745M, (5) Lexicon PCM70, (2) Lexicon 200, (3) Lexicon Prime Time, (8) Yamaha SPX90, (4) DeltaLab DL-2, (4) Roland SDE-3000. Other Outboard Equipment: (12) UREI 1176LN limiter, (6) UREI LA-3A limiter, (6) UREI LA-2A limiter, (6) Inovonics 201 limiter, (12) Pultec EQP-1A equalizer, (6) Pultec MEQ-5, (4) UREI LA-4A, Fairchild tube limiter (stereo), UREI 1178 limiter, (20) Valley People Kepex, (10) Gain Brain, (6) Drawmer stereo gate, (2) Cherokee A Range mic pre-EQ module, (2) ADR vocal stresser. Microphones: (7) Neumann U87, (4) Neumann U47 FET, (4) Neumann KM84, (3) Neumann U67, (2) Neumann M49, (2) Neumann KM54, (3) Neumann KM86, (5) AKG 451, (2) AKG 412, (2) AKG 414, (2) AKG C-12, (2) AKG C-24, (2) AKG D-202, (2) AKG D-58, (10) Sennheiser 421, (2) Sennheiser 441, (6) Shure SM57, (4) Shure SM56, (2) Norelco C60, (2) Shure SM53, (4) Electro-Voice RE20, (3) Shure SM58, (2) Sony ECM-22P, (4) Sony ECM-33P, (12) Sony C-37, (4) Vega S-10. Monitor Amplifiers: (16) Perreaux 6000-8000 main. Monitor Speakers: (4) Custom Cherokee w/JBL components, (5) Yamaha NS-10M. Musical Instruments: Yamaha grand piano, Hammond B-3 w/Leslies

[24+] **CIRCLE SOUND STUDIOS**; 3465 El Cajon Blvd.; San Diego, CA 92104; (619) 280-7310. Owner: Samuel Boyd. Manager: Tom Jacobs. Engineers: Tom Jacobs, S. Boyd. Dimensions: Room 1 studio 30 x 30, control room 22 x 15. Room 2 studio 15 x 15, control room 15 x 10. Mixing Consoles: MCI custom Audio Recorders: MCI JH 24-track, Studer A80, Otari 2-track. Cassette Recorders/Duplicators: Nakamichi, Onkyo, Denon Noise Reduction Equipment: dbx Echo, Reverb & Delay Systems: Lexicon 224 digital reverb, Lexicon Prime Time digital delay, (2) Roland SRV-2000 digital reverb, Yamaha 1500 digital delay, DeltaLab Effectron digital delay. Other Outboard Equipment: Eventide Harmonizer, BBE Sonic Maximizer, (3) dbx 160 compressor/limiter, Aphex 612 expander/gate, Orban parametric EQ. Microphones: (3) Neumann U47, (3) Sennheiser 421, (2) AKG 414, (2) Electro-Voice RE20, (2) Neumann KM84, additional variety of mics. Monitor Amplifiers: (3) Spectra Sonics. Monitor Speakers: UREI 813 Time Align, JBL 4411, JBL 4301, Yamaha NS-10, Auratone. Musical Instruments: Hammond B-3 organ w/Leslie, Baldwin baby grand piano, Alesis HR-16 drum machine, Roland D-50 keyboard, Yamaha RX11 drum machine, Roland MT-32 sound module, E-mu Emulator II.

[24+] **COMMERCIAL RECORDING, HAWAII**; 333 Cooke St.; Honolulu, HI 96813; (808) 536-5439. Manager: Donn V. Tyler.

[24+] **THE COMPLEX**; 2323 Corinth Ave.; West Los Angeles, CA 90064; (213) 477-1938. Owner: S-1 Corporation. Manager: Arthur Kelm. Engineers: Duane Seykora, Brett Swain, Craig Portelis. Dimensions: Room 1: studio 22 x 32, control room 20 x 20. Room 2: studio 26 x 20, control room 20 x 20. Room 3: studio 66 x 44 x 30H. Room 4: studio 60 x 42 x 22H. Mixing Consoles: (2) GML 7900 48 x 12 x 24 w/current automation, GML 7900 25 x 10 monitor mixer. Audio Recorders: (2) Otari DTR-900, (3) Ampex ATR-124 24-track, (6) Ampex ATR-100 2/4-track, (2) Sony PCM-2500. Cassette Recorders/Duplicators: (3) Nakamichi MR-1. Noise Reduction Equipment: (2) Dolby 363 A/SR, GML 7900 24-channel frame w/CAT 22. Synchronization Systems: TimeLine Lynx. Echo, Reverb & Delay Systems: (2) EMT 250, (2) EMT 140 tube, (2) Yamaha REV5, (2) Yamaha REV7, (2) TC Electronic 2290, (2) 2016, (2) 480L, (3) AMS DMX 15-80S, (2) AMS RMX 16. Eventide H3000. Other Outboard Equipment: (6) GML stereo limiter, (10) GML stereo EQ, (2) Sax LA2A, dbx 900 rack/de-esser/comp/gate/flanger, Valley People Kepex/gate/Gain Brain, (2) Fairchild 670 (mint). Microphones: Neumann, B&K, Schoeps, AKG, Shure, Sennheiser, Crown P2M. Monitor Amplifiers: (6) Sax Thermanic 200, Bryston, BGW, UREI, Marantz. Monitor Speakers: Complex custom w/GML x-over, T O C /Complex custom, Tannoy SGM 10", Yamaha NS-10. Musical Instruments: Yamaha C-7 grand piano, Linn 9000, Marshall 100W w/(2) 4 x 12. Video Equipment: Sony BVU-800, Proton 19" monitor. Other: Complete GML P.A. w/sidefills and wedges. Rates: \$160/hr. Specialization & Credits: The Complex specializes in multimedia applications. Our stages feature full rigging capability, with five motorized trusses in the large room. Three isolated 3-phase power feeds of 600A, 600A and 100A are available to accommodate almost any need. A 3-phase, 150A feed is available to service a video truck, as well as audio and telco lines. Large doors throughout enable easy loading. Full grip packages are available for a charge. Tielines connect the stages to any of our control rooms, allowing music recording with audience, or orchestras up to 50 pieces.

[24+] **RICK CONRAD MUSIC PRODUCTIONS**; 5550 Wilshire Blvd.; Los Angeles, CA 90036; (213) 937-8096. Owner: Rick Conrad. Manager: Rick Conrad.

CONTROL CENTER
Los Angeles, CA

[24+] **CONTROL CENTER**; 128 N. Western St.; Los Angeles, CA 90004; (213) 462-4300; (213) 413-2522. Owner: Aseley Otten, Rick Novak. Manager: Aseley Otten, Rick Novak. Engineers: Aseley Otten, Rick Novak, Frank Blue Sposato, Mike Kapitan, Eric Westfall. Dimensions: Room 1: studio 18 x 24, control room 12 x 16. Room 2: studio 7 x 12. Mixing Consoles: API custom 32 x 16 x 24 console w/550A and 560 EQs. Audio Recorders: Studer A80 24-track, Ampex ATR-102 2-track. Cassette Recorders/Duplicators: (2) Technics. Echo, Reverb & Delay Systems: Yamaha REV7, Yamaha SPX90, Ursa Major ST-282 Space Station, Roland SRV-2000, Roland SDE-3000 DDL, MXR DDL, Eventide 910 Harmonizer and delay, Lexicon PCM70, Lexicon 200. Other Outboard Equipment: (2) dbx 161 compressor, (2) UREI 1176LN limiter, (2) Valley People Dyna-Mite, pinball game. Microphones: AKG 414, AKG 451, Neumann U87, Sennheiser 421, Sennheiser 441, Shure SM57, Shure SM77, AKG V-2. Monitor Amplifiers: Hill DX3000, Crown D-55, Crown 300, BGW 250, BGW 750. Monitor Speakers: Tannoy 15X, JBL 4312, Yamaha NS-10, Auratone 5C. Musical Instruments: Howard baby grand piano, Linn-Drum and synthesizers upon request. Rates: \$75/hr. Call for block rates and off-hours. Specialization & Credits: Clients include Los Lobos, John Adams, Gene Clark, Long Ryders, Green on Red, Dream Syndicate, Textones, Rappin' Duke, Heavy Traffic, Malice, Taxi, Pat Boone, Holland-Dozier-Holland, Henry Lewey, Mike Huey, Steve Barry, Tony Peluso, Jimmy Haskell, PolyGram, A&M, Warners, MCA, Atlantic, Dunhill, Rhino, Slash, Enigma, Bug, Demos, Down There, Bus Boys, etc.

[24+] **CONWAY RECORDING STUDIOS**; 655 N. St. Andrews Place; Hollywood, CA 90004; (213) 463-2175; FAX: (213) 463-2479. Owner: Buddy and Susan Brundo. Manager: Jill Pearlman. Engineers: Mick Guzauski, Daren Klein, Duane Baron, Richard McKernan, Marnie Reiter, Steve Toby, Bryant Arnett, Debbie Johnson. Dimensions: Room 1: studio 30 x 60, control room 26 x 25. Room 2: studio 10 x 20, control room 25 x 28. Mixing Consoles: Neve VR-60 60 x 48 w/Massenburg automation and recall, Neve VR-72 72 x 48 w/Massenburg automation and recall. Audio Recorders: (3) Mitsubishi X-880 32-channel digital, (2) Studer A800 24-channel analog, (2) Mitsubishi X-86HS 2-channel 96kHz sampling digital, (2) Ampex ATR-102 2-channel analog, Ampex ATR-104 4-channel analog. Cassette Recorders/Duplicators: (4) Revox B215, (3) Panasonic SV-3500 DAT. Noise Reduction Equipment: Dolby Type A or Type SR. Synchronization Systems: (5) TimeLine Lynx. Echo, Reverb & Delay Systems: EMT 250 reverb, (4) Eventide 2016 reverb, (2) AMS RMX 16 reverb, (2) AMS 15-80S delay, (2) Lexicon 480L reverb/delay, (2) TC Electronic 2290 delay/sampler, (4) Lexicon PCM70. Other Outboard Equipment: Just about everything else. Microphones: (3) Telefunken ELAM251, (2) Neumann U47, Neumann M49, (3) Neumann U67, (2) Neumann TLM170, AKG C-24, large assortment of common mics. Monitor Amplifiers: Perreaux. Monitor Speakers: TAD components in custom Brundo enclosures, Yamaha NS-10, Tannoy SRM-10B, Auratone and others. Musical Instruments: Yamaha 9' concert grand piano.

[24+] **CORNERSTONE RECORDERS**; 9626 Lurline Ave., Unit #K; Chatsworth, CA 91311; (818) 883-9733. Owner: Scott Borden. Manager: Matthew Spindel. Engineers: Matthew Spindel, Scott Campbell, Leon Johnson, Joe Baressi, Robert Stamps. Dimensions: Room 1: studio 25 x 30, control room 25 x 25. Iso booth 1: 10 x 10. Iso booth 2: 10 x 10. Mixing Consoles: Neve VR-60 w/Flying Faders automation. Audio Recorders: (2) Otari MTR-90II 24-track, Studer A80VU 2-track, Studer A810 2-track, Ampex ATR 104 4-track. Cassette Recorders/Duplicators: (2) Yamaha, Sony 2500 DAT. Synchronization Systems: (2) TimeLine Lynx. Echo, Reverb & Delay Systems: AMS RMX 16 digital reverb, AMS 15-80S DDL, (2) Yamaha REV5, (2) Yamaha REV7, (4) Yamaha

SPX90II, SRX 2000, SDE 3000, Barcus-Berry 822, (2) Lexicon LXP-1, Aphex 612 expander/gate, Valley People de-esser, (2) Tubetech mid EQ, (2) Tubetech program EQ, Tubetech stereo mic pre, (2) Tubetech comp/limiter, Eventide H910, TC Electronic 32-sec. sampler. Other Outboard Equipment: (3) dbx 165, UREI 1176, Lang EQ, (2) Drawmer gate, (2) Simon Di box. Microphones: AKG C-12, Neumann M49, Neumann U47, (40) standard complement of tracking mics. Monitor Amplifiers: Perreaux 9000B, HH Electronic VX300, (3) Crown D-60 (cue system). Monitor Speakers: (2) TAD TSM-1 (control room), (4) Yamaha NS-10M, (2) Fourier. Video Equipment: JVC 6650 3/4" VTR, Pioneer 19" color monitor.

[24+] **JIM DAVID'S ONE ON ONE STUDIO**; 5253 Lankershim Blvd.; North Hollywood, CA 91601; (818) 761-3882. Owner: James David. Manager: James David.

[24+] **DEVONSHIRE AUDIO-VIDEO STUDIOS**; also REMOTE RECORDING; 10729 Magnolia; North Hollywood, CA 91601; (818) 985-1945. Owner: David and Dee Mancini. Manager: Kelle Creamer. Engineers: Michael Mancini, Jim Hodson, Larry Goodwin, Scott Gordon. Dimensions: Room 1: studio 20 x 35, control room 15 x 15. Room 2: studio 7 x 12, control room 10 x 8. Room 3: studio 30 x 45, control room 20 x 20. Room 4: studio 15 x 24, control room 15 x 24. Mixing Consoles: Neve V 60 x 48 custom modified by Neve, Neve 8128 56 x 48, MCI 536C 32 x 32, MCI 416 24 x 16+, Tascam 512 12 x 8, MCI 536C 38 x 32. Audio Recorders: (2) Sony PCM-3324 w/Apogee filter, (3) Otari MTR-90II, Sony/MCI JH-24, MCI JH-16 24-track, Tascam ATR-80 24-track, (3) Otari MTR-20 4-track 1/2", Sony PCM-3402 2-track digital, Ampex ATR-100 2-track 1/2" and 1/4", (2) MCI JH-110 2-track 1/4", Studer A80RC 2-track 1/2", (2) MCI JH-110 4-track 1/2", MTM 16/35mm 1/3/4-stripe mag. Cassette Recorders/Duplicators: Nakamichi MR-1, Nakamichi ZX-9, (2) Sony TC WR730, (3) Technics M231X. Noise Reduction Equipment: (4) Dolby A M24 rack, (25) Dolby SR CAT 280 card, (8) Dolby 361, (2) Dolby CAT 43, (48) dbx K9-22 card, (4) Dynaflex CRL DX2, (2) dbx 187 4-channel Synchronization Systems: (6) Adams-Smith 2600 w/compact controller, VITC capable. Echo, Reverb & Delay Systems: (2) Lexicon 480L, (5) Lexicon PCM70, Publison Infernal 90, AMS RMX 16, (2) EMT 240, (4) Yamaha SPX90, (4) TC Electronic 2290 w/stereo sampling 325EL and fast trig, TC Electronic 1210 spatial expander, Eventide H3000 Ultra-Harmonizer, (2) Lexicon Prime Time, Lexicon PCM42, Eventide SP2016, Eventide H949 Harmonizer, (2) Eventide H910 Harmonizer, call for more. Other Outboard Equipment: Very extensive, call for list. Microphones: Very extensive, call for list. Monitor Amplifiers: (2) Boulder 500, (2) Carver PM 1.5, (2) HH Electronic VX 1200, (4) Phase Linear 700, (3) Phase Linear 400, (2) Crown D-150, (5) Crown D-60. Monitor Speakers: (6) George Augsburger custom w/TAD TL160/4001, (2) Mastering Lab/Altec 604E, (4) E-V Sentry 3, (6) Tannoy LGM 12", (6) Yamaha NS-10, (6) Tannoy NFM 8". (8) Auratone. Musical Instruments: (2) Yamaha grand piano, Emulator II w/20MB HD. Other MIDI Equipment: (2) SMPTE-to-MIDI interface. Video Equipment: Sony BVH-2000 1" recorder, (5) Sony BVU-850 3/4", (4) large-screen projector. Other: 4,000-cubic-foot live echo chamber.

DIGITAL SOUND RECORDING
Los Angeles, CA

[24+] **DIGITAL SOUND RECORDING**; also REMOTE RECORDING; 607 N. Ave. 64; Los Angeles, CA 90042; (213) 258-6741. Owner: Van Webster. Engineers: Van Webster, Geoff Sykes. Dimensions: Studio 40 x 32, control room 16 x 16. Mixing Consoles: MCI 428B 28 x 24, Stevenson Interface 100 8 x 4. Audio Recorders: Sony 1610 2-track digital mastering, 3M M79 24-track w/Selecta II, Studer B67 2-track, Ampex AG440 2-track, (2) TEAC A3300S 2-track, TEAC A3340S 4-track. Cassette Recorders/Duplicators: Nakamichi BX-300. Noise Reduction Equipment: (2) Dolby 361, Burwen DNF1000 2-channel noise filter. Synchronization Systems: (3) Adams-Smith 2600, EECO 4-mach video/audio editing system. Echo, Reverb & Delay Systems: Yamaha REV7, Master-Room Super C reverb, Eventide 910 Harmonizer, Eventide phaser, Effectron 1024, (2) Scamp ADT flanger, Wave-

maker phaser. Other Outboard Equipment: (2) dbx 161 compressor/limiter, UREI 1176 limiter, Teletronix LA-2A tube limiter, Inovonics 201 compressor/limiter, (4) Kexpex expander, (2) Scamp 501 limiter, (2) Scamp F300 expander/gate, (2) Scamp 503 Super EQ, UREI Little Dipper, (4) SAE parametric EQ, Orban stereo synthesizer, (3) Orban sibilance controller, Burwen DNF100 dynamic noise reduction. Microphones: Neumann U47 tube, Neumann U64 tube, Neumann SM2 tube stereo, (2) AKG C-60 tube, (2) Neumann U87, Neumann U47 FET, (3) Neumann KM84, (2) Shure SM58, (4) Shure PE54, (2) E-V 666, (3) E-V RE20, (2) E-V RE15, (3) AKG 414, (3) AKG 451/2, (2) AKG 224E, (3) Sennheiser 421, RCA 77-DX. Monitor Amplifiers: (2) SAE 2600, (2) SAE 2200, (4) JBL Dyna, HSS 8-channel direct box. Monitor Speakers: (2) JBL 4341 4-way bi-amp, (2) Auratone 2-way, (2) Auratone 5C, (2) RSL 3300. Musical Instruments: Steinway B 7' grand piano, Oberheim OBX synthesizer. Video Equipment: (3) Sony BVU-800/850 1/4" recorder, EECO EMME computer video editor, Crosspoint Latch 6109 switcher, DSC Illusion digital video effects, (2) Fortec TMK base corrector, DSC Frame File, Hitachi Z-31 3-tube color camera, full video lighting/grip equipment, Crosspoint Latch 6109 production switcher. Other: Hitachi Z31 3-tube video camera, Crosspoint Latch 6109 production switcher. Specialization & Credits: Digital Sound Recording, a division of Webster Communications, is a full-service production facility for audio and video. Our large room can handle acoustic recording. We are also especially well-suited for production recording, sweetening, video editing and spot production. Call us for those challenging projects.

[24+] **DOLPHIN SOUND**; also **REMOTE RECORDING**; KHNL-TV 150-B Puuhale Rd.; Honolulu, HI 96819; (808) 847-3253. Owner: King Broadcasting Co. Manager: Ron Klohs.

[24+] **DUBMASTER**; 11110 Magnolia; North Hollywood, CA 91601-3812; (818) 980-8318. Owner: Dubmaster Productions. Manager: Conrad Gleich. Engineers: Stephen Block (chief eng.), Conrad Gleich, Joseph Gorlinkle. Dimensions: Studio 22 x 14, control room 23 x 19. Mixing Consoles: API 3232 custom 32 x 16 x 32 w/68 channels in mixdown, (8) FX sends and (2) cues, fully loaded w/classic 550A EQs. Audio Recorders: Otari MTR-9011 24-track, Otari MTR-12 2-track 1/2", Otari MX-5050B 2-track 1/4", Otari MX-5050 8-track 1/2", 3M 23 2-track 1/4". Cassette Recorders/Duplicators: Aiwa Excelia DAT, Nakamichi MR-2, Tascam 122 transformerless bal. in and out, Hitachi D2200M, Marantz PMD-430. Noise Reduction Equipment: Dolby A 2-channel (use gates). Synchronization Systems: Soundmaster audio editing system. Echo, Reverb & Delay Systems: Eventide HD-3000 Ultra-



DUBMASTER
North Hollywood, CA

Harmonizer, Lexicon 224XL digital reverb and FX, EMT 240 plate reverb, Dyno-My-Piano tri/stereo/chorus, Lexicon PCM60 digital reverb, Yamaha SPX90, Yamaha D1500 DDL, Yamaha P1010 ADL, Lexicon LXP-1 w/MRC, Orban/Parasound and Hammond spring reverbs, DeltaLab Effectron II 1024, if you don't see it we can get it from LAFX. Other: Roland VP-70 pitch-to-MIDI converter/vocoder/vocal processor.

[24+] **ECHO SOUND RECORDING**; 2900 Los Feliz Blvd.; Los Angeles, CA 90039; (213) 662-5291; ★See Our Ad in the BusinessPages!★ Manager: Mike Williamson. Dimensions: Room 1: studio 18 x 18, control room 20 x 18. Room 2: studio 26 x 27, control room 18 x 16. Mixing Consoles: Trident 80C 32 x 24 x 24, Trident 80B 30 x 24 x 24, Aries 24 x 16 x 8, Yamaha DMP7 8 x 2 submixer, DiskMix Arms II 32-channel automation. Audio Recorders: Sony/MCI JH-24 24-track, Otari MX-80 24-track, Otari MX-5050 MkII 2-track, (3) Fostex B16D 16-track, Sony APR-5003 2-track, Otari MTR-12 2-track, TEAC A3440 4-track, Sony PCM-2500 digital. Cassette Recorders/Duplicators: (4) Yamaha K1020, (2) Yamaha C200. Noise Reduction Equipment: Dynafex D-2B 2-channel. Synchronization Systems: Fostex 4035/4030. Echo, Reverb &



ECHO SOUND RECORDING
Los Angeles, CA

Delay Systems: Lexicon 480L digital effects, AMS 15-80S digital effects, (2) Yamaha REV7, (2) Yamaha REV5, (8) Yamaha SPX90, (2) Aphex Aural Exciter, (2) dbx 166 comp/limiter, (5) dbx 160X comp/limiter, (5) dbx 160 comp/limiter, (3) dbx 903 comp/limiter, (3) dbx 904 noise gate, (2) dbx 902 de-esser, (2) Eventide H949 Harmonizer, Lexicon Super Prime Time, (2) Lexicon Model 93 digital delay, Roland SDE-3000 digital delay, Yamaha R10000 digital reverb, Aphex Dominator, Eventide Omnipressor comp/limiter, (2) Orban 622B parametric EQ, dbx 906 flanger. Other Outboard Equipment: UREI/Teletronix LA-2A, (4) Gatec noise gate. Microphones: Neumann U87, Neumann TLM170, (2) AKG C-414, (3) AKG C-460, (7) Sennheiser MD-421, AKG The Tube, (4) Shure SM57, (5) Shure SM58, (4) E-V PL80, (2) E-V BK-1, E-V RE20, Crown PZM 30-GPB, (2) Sennheiser MD-409. Monitor Amplifiers: (2) BGW 750B, (2) Yamaha P2200, BGW 150. Musical Instruments: LinnDrum, Linn 9000 drum machine/sequencer, Emulator II keyboard sampler, Roland D-50, Yamaha DX7, Schafer & Sons grand piano, Simmons drums, Yamaha TX816 MIDI modules, Roland Jupiter 8 keyboard synth. Other MIDI Equipment: Southworth Jam Box/4 MIDI interface, Mac Plus, Mark of the Unicorn Performer. Specialization & Credits: Echo

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24+ TRACK

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Sound provides professional quality, cost-efficient recording services. Studio A: 16/24-track, studio B: 16/24-track with new Trident 80C console with 32 channels of DiskMix Arms II console automation, studio C: MIDI and 16-track production. We have provided recording services for Capitol Records, Arista Records, A&M Records, Ice Capades, *Phantom of the Opera*, various independents and trade shows. Our new addition, studio C, is a MIDI production facility offering the producer, arranger and songwriter the latest Mark of the Unicorn Performer sequencing software and a selection of MIDI sound sources complete with Fostex 16-track recorder, console and outboard effects, in-house arranging and production services. Sequenced tracks may also be transferred and/or synchronized with studio A/B, 24-track rooms. Echo Sound Recording provides a professional, creative, comfortable, studio environment conveniently located in the Griffith Park area with secure off-street parking. Our experienced staff engineers strive to have clients work comfortably and efficiently, with emphasis on technical expertise and client satisfaction. We invite you to please call so that we may discuss your project requirements and arrange for a tour of our facilities.

[24+] **EFX SYSTEMS**, 919 N. Victory Blvd., Burbank, CA 91502; (818) 843-4762; (213) 460-4474. Owner: Sole proprietorship. Manager: Philip Moores. Specialization & Credits: EFX Systems is a fully implemented digital audio for film and television post-production facility. We feature an award-winning staff of mixers and editors working with the latest digital audio equipment from New England Digital and Sony. Rooms range in size from edit and prelay rooms to ADR/Foley stage to a television mix suite to a full digital film mixing stage. The staff works directly with the client to develop a sound track that is all the picture requires. We still adhere to the philosophy that the editor/mixer is more important than the equipment that they use, but using the best allows the editor/mixer the freedom to be creative and not buried in the mechanics of the job. The facility is equipped with all the comforts of home (lounge, cable TV, etc.) so that the creativity is not hampered in any way. Our staff are people, and not computerheads. Most come from a sprocketed background and all are fluent in Sprocketalk and Time Code Language. EFX Systems, high-performance post-production, with a family twist.

[24+] **8 MILE ROAD STUDIO**, 5274 W. Pico Blvd., Ste. 202, Los Angeles, CA 90019; (213) 933-5948. Owner: George Murphy. Manager: David Sanders, Tony Smith.

[24+] **ENCORE STUDIOS, INC.**, 721 S. Glenwood Pl., Burbank, CA 91506; (818) 842-8300. Manager: Darryl Caseine.

[24+] **THE ENTERPRISE**, also *REMOTE RECORDING*; 4620 W. Magnolia Blvd., Burbank, CA 91505; (818) 505-6000. Manager: Thom Brown.

[24+] **ENTOURAGE STUDIOS**, 11115 Magnolia Blvd., North Hollywood, CA 91601; (818) 505-0001. Owner: Guy Paonessa. Manager: Keith Blake. Dimensions: Room 1: studio 37 x 25, control room 26 x 25. Room 2: studio 13 x 28, control room 26 x 25. Mixing Consoles: (2) Harrison C Series 32 x 32 Audio Recorders: (2) Studer A80 24-track, (3) Studer A80 2-track, Studer A80 4-track, 3M 79 2-track. Cassette Recorders/Duplicators: Nakamichi MR-1, Nakamichi MR-2, Studer A710, Yamaha C300. Noise Reduction Equipment: Dolby A M16 rack 24-channel encode/decode, Dolby A 4-channel rack. Synchronization Systems: (2) TimeLine Lynx, Black signal generator. Echo, Reverb & Delay Systems: Lexicon 224 XL, Roland SRV-2000, (3) Yamaha SPX90, Yamaha SPX90II, Yamaha REV7, Roland SDE-3000, (2) Lexicon PCM70, (2) Lexicon LX-P1 w/MRC-1, (2) Aphex stereo gate, Kepex II rack w/(4) gate, (2) Gain Brain and (2) Maxi-Q, (4) dbx 166, dbx 160X, (4) EMT 140 stereo plate reverb, (8) UREI 1176, (2) Teletronix LA-2A, (2) UREI LA-4, (4) Eventide OmniPressor Microphones: (2) Steven Paul modified Neumann U87, Steven Paul modified Neumann 47 FET, (5) Neumann U87, (3) Neumann 47 FET, (5) AKG 414, (2) AKG 460, (2) Neumann KM84, (2) Sennheiser MD-421, (4) E-V RE20, (7) Shure SM56, Shure SM7, (2) Sennheiser MD-402U, (4) Sony ECM-22P, (2) E-V 666. Monitor Amplifiers: (2) Perreux 900B, (3) Haller, (4) JBL 6233, Crown D-75. Monitor Speakers: (4) UREI 813 w/JBL 611, (6) Yamaha NS-10M, (6) Auratone, (2) Mitsubishi DS-35B. Musical Instruments: Yamaha 9' concert grand piano, Yamaha 6' conservatory piano. Video Equipment: (2) Toshiba color monitor, Panasonic satellite monitor, JVC CR-600U 3/4" video machine. Other: Macintosh Plus computer, drum iso booth, (20) AKG K-240 headphones, (13) Beyerd DT102 single earphones, (13) Culver MRH single earphones.

[24+] **EVERGREEN RECORDING STUDIOS**, 4403 W. Magnolia Blvd., Burbank, CA 91505; (818) 841-6800. Owner: Charles Fox, Arlie Butler, Gayle Levant. Manager: Sandra Smart. Engineers: John Richards. Dimensions: Room A: stu-

dio 46 x 70, control room 20 x 26. Room B: studio 35 x 36, control room 20 x 26. Radford: studio 150 x 70, control room 24 x 24. Mixing Consoles: (3) Harrison customized. Audio Recorders: (2) Studer A27 24-track, Studer A800 24-track (Radford) Synchronization Systems: (2) Adams-Smith 2600 w/remote compact controller, BTX Softouch (Radford) Echo, Reverb & Delay Systems: UREI 813, EMT 140, echo plates, live chambers, Lexicon 200, Yamaha SPX90II (rental only). Other Outboard Equipment: UREI 1176 limiters, Inowonics, dbx 165, Valley People Kepex noise gates, Lexicon Prime Time, Eventide 949 Harmonizer. Microphones: Most standard brands and models. Musical Instruments: (3) Yamaha grand piano. Video Equipment: (6) JVC 3/4" VCR w/monitor for control room and studio. Other: Complete transfer facilities for 1/4", 1/2", cassettes and MAG.

[24+] **FANFARE RECORDING STUDIOS**, 120 E. Main St., El Cajon, CA 92020; (619) 447-2555. Owner: Ronald L. Compton. Manager: Carol A. Compton. Dimensions: Studio 25 x 30, control room 17 x 20, iso room 10 x 12. Mixing Consoles: MCI 636 36 x 36 (full mixing automation). Audio Recorders: MCI JH-24 24-track, MCI JH-16 16-track, MCI JH-100 2-track, Ampex 440B full-track, Ampex 440B 2/4-track, (3) Revox A77 2 1/4-track. Cassette Recorders/Duplicators: (2) Aiwa, Otari high-speed duplicator. Noise Reduction Equipment: (2) Dolby A-361, (4) DNR Dynamic noise reducer, (4) Kepex noise gate, (4) Furman noise gate. Synchronization Systems: Adams-Smith Zeta-3 for MIDI and 16/24-track machines. Echo, Reverb & Delay Systems: EMT stereo plate, Lexicon 224 w/all programs and nonvolatile memory, Alesis Quadraverb, Yamaha REV7, (2) Yamaha SPX90, Alesis Microverb, (2) Digi-Tech DSP128, Eventide Harmonizer, DeltaLab digital delay. Other Outboard Equipment: (2) dbx 165 compressor, (4) UREI LA-3A compressor, UREI 1176LN limiter, (2) Gain Brain compressor, (4) Orban parametric equalizer, (2) Orban sibilance controller, UREI digital metronome. Microphones: (4) Neumann U87, (4) Neumann KM86, Neumann KM84, Neumann U47 original w/tube, (4) AKG 414, AKG 202E, AKG 119, (8) Shure SM57, E-V RE10, (4) Sony 337, (2) RCA 44-BX, Altec condenser, over 50 mics to choose from. Monitor Amplifiers: (4) BGW, (8) Crown. Monitor Speakers: (4) JBL large monitor, (2) Yamaha NS-10M close-field, (6) Auratone small monitor, (2) Bose small monitor. Musical Instruments: E-mu Emax SE digital sampling keyboard, E-mu Proteus, Oberheim Matrix-1000, Yamaha C7 conservatory grand piano, Hammond B-3 organ w/Leslie speaker, Ludwig trap set w/concert toms, Alesis HR-16 drum computer, Yamaha RX5 drum computer, Roland Octapad 8, Casio CZ-101 w/computer interface. Librarian, Roland TR-707 drum machine, Yamaha FB-01 synth module, (2) congas, orchestra bells, (25) hand percussion. Other MIDI Equipment: (2) Macintosh SE w/Performer sequencer, Yamaha QX5 sequencer. Video Equipment: Sony VO-5600 3/4" U-matic recorder, (2) monitor.

[24+] **FDS LABS/QUADTECK**, 4007 W. 6th St., Los Angeles, CA 90020; (213) 383-2155. Owner: FDS Labs. Manager: Joani Waring.

[24+] **FIDELITY STUDIOS**, also *REMOTE RECORDING*; 4412 Whitsett Ave., Studio City, CA 91604; (818) 508-3263. Owner: Arlie Ripp. Manager: Sharon Valentine Rex. Engineers: Cliff Zellman—chief engineer, Bob Bridges—chief video engineer, Joe Romera. Mixing Consoles: Tascam M-06 Audio Recorders: Tascam DA-50 DAT, Cassette Recorders/Duplicators: Technics RS-B905, (4) Aiwa AD-F780 Noise Reduction Equipment: (4) Dolby SR 361 rack, (7) Dolby SR card. Echo, Reverb & Delay Systems: Yamaha SPX1000 multieffects processor, Lexicon PCM70 digital effects processor 2 0/3 0. Other Outboard Equipment: GML 8200 parametric equalizers, Cipher Digital 735 V time code reader. Microphones: Sanken CU-41. Monitor Speakers: Smithline-Audio 2 x 4. Video Equipment: Sony KV-27TS20 27" monitor, Panasonic BT-S1300N 13" monitor. Other: Magnavox CDB-465 CD player, (2) Brainstorm Electronics infrared remote talkback.

[24+] **FIESTA SOUND**, 1655 S. Compton Ave., Los Angeles, CA 90021; (213) 748-2057. Owner: R.G. Robeson. Manager: Rick Robeson, Ed Contreras. Engineers: Octavio Villa, Gary Dobbins, Salvador Sandoval. Dimensions: Studio 30 x 60 plus isolation rooms, control room 25 x 15. Mixing Consoles: MCI 428 32 x 24 Audio Recorders: MCI 32-track, MCI 2-track, Otari 2-track. Echo, Reverb & Delay Systems: Lexicon 200 digital reverb, Eventide 949 Harmonizer, Lexicon DDL Master-Room II echo, Yamaha REV7, Yamaha SPX90. Other Outboard Equipment: UREI graphic EQs, 31-band EQ, Dolby, UREI 1176, dbx 160 compressor/limiter, Orban 424 comp/limiter. Microphones: Neumann U87, Neumann KM84, AKG C-452, AKG C-414, Sennheiser MD-421, Shure SM57, Shure SM7, Sony ECM-33F, E-V RE20. Monitor Amplifiers: Crown DC-300. Monitor Speakers: JBL 4333. Musical Instruments: Steinway 6' grand piano, Fender Rhodes electric piano D-6 clavinet, ARP Omni, ARP Odyssey synth, Fender Twin Reverb amp. Steinway grand. Rates: Call for rates. We encourage block booking.

[24+] **FLOUNDERGASH PRODUCTIONS**, 5102 Vineland Ave., North Hollywood, CA 91601; (818) 509-8821. Owner: Floundergash Emporium. Manager: Tom Siamdancer. Engineers: Jeff McLane, Desmond Jamfator, Dubious Jamfator,



FLOUNDERGASH PRODUCTIONS
North Hollywood, CA

Tom Siamdancer. Mixing Consoles: Helios 28 x 24 w/54 inputs on maxdown. Audio Recorders: Stephens 82" B 24 track, Otari 2-track, ATF-102 2-track, Sony 250C DAT. Cassette Recorders/Duplicators: Sony Echo, Reverb & Delay Systems: Lexicon 224, ART 01A, (2) Roland DE-5, (3) Yamaha SPX90II, EXR Exciter, BBE 802, Marshall Time Modulator, (3) Roland SDE-1000, Countryman phase shifter. Other Outboard Equipment: Teletonix LA-1, (2) Teletronix LA-2, (2) Pultec EQP-2 Fairchild limiter, (24) Vacuum tube class A mic preamp, (2) Langevin EG, Trident parametric EQ, Orban 622B SAE 27C0, (2) Aphex gate, (2) Drawmer gate. Monitor Amplifiers: Harmon Kardon Citation 2, Yamaha P2200. Monitor Speakers: Tannoy 15" golds. Yamaha NS-10M, Tannoy NFM-B. Musical Instruments: Synclavier, E-mu Emulator II, E-mu SP-200, Yamaha DX7, Casio FZ-1, Roland Super Jupiter, Moog Minimoog, Roland MKS-20, Yamaha KX88. Other MIDI Equipment: MIDI patcher. Other: Roland vocoder, Roland GR-700. Rates: Near \$50/hr for nonsmokers. Near \$250/hr for smokers.

[24+] **FOR THE RECORD**, 833 W. Collins, Orange, CA 92667; (714) 771-1410. Owner: Eric Garter, Robert Hayes. Manager: Eric Garter. Engineers: Mr. E. Dimensions. Studio 30 x 28, control room 24 x 15. Mixing Consoles: Neotek Seres JIIC modified. Audio Recorders: Studer A60VU w/autolocate, Otari MTR-12 1/2" 30 ips, Technics PS1500 1/2" track, Technics RS1500 1/4-track, Technics S J100 digital. Cassette Recorders/Duplicators: Studer A710, Technics RSM95, Technics RS9900. Echo, Reverb & Delay Systems: Lexicon 224X w/LARC, Ecoplate III, (2) Roland SRV 2000, (3) Roland SDE-3000, TC Electronic 1210. Other Outboard Equipment: (2) UREI 1176LN, (6) dbx 904, (2) dbx 902, dbx 165A, (2) dbx 160 BBE 802. Aphex Type C Microphones: (2) AKG tube, (2) Neumann U87, (2) Neumann U89, (2) Neumann KM84, (2) AKG 46C, (2) AKG 451, (2) AKG 414, Crown PZM, E-V RE20 (5) Sennheiser 421, (2) Sennheiser 441. Monitor Amplifiers: Eagle 7A (3) Unisync 50, SAE 2401, SAE 3100. Soundcraftsman 5002, Fostex, Rane. Monitor Speakers: JBL 4435, Infinity RS2 5 bi-amped, Infinity RS10, Yamaha NS-10, Stax Gamma electrostatic. Musical Instruments: Kurzweil K250, Akai MPC60, Roland D-550. Other MIDI Equipment: Atari 040ST, Roland PM-16, Roland VP-70. Specialization & Credits: Thanks For The Record! This year we were privileged to produce: Ann De Jarnett, Black Daphne, Don't Mean Maybe, Filthy Rocks, Fate, Hyde H.R., Imagining Yellow Suns, Jade, Mind Over Four, Mealt Puppets, National Peoples Gang, Swamp Zombies, Sixtieth Parallel, 3-D Pirnie.

[24+] **FORTUNATE SUN STUDIO**, 720 Iwilei Rd., Box 1, Honolulu, HI 96817; (808) 531-5744. Owner: David Tucciarone. Manager: David Tucciarone. Engineers: David Tucciarone, Steve Kramer. Dimensions: Studio 20 x 20, control room 12 x 20. Mixing Consoles: Trident 24 28 x 24. Audio Recorders: Otari MX-80 24-track, Tascam MS-16 16-track w/dbx, Festec E-2 2-track 15 3/8 ips, Sony PCM-2500 DAT, Sony DTC-500ES DAT. Cassette Recorders/Duplicators: Nakamichi MR 1, Akai GX-7, Sony, Synchronization Systems: Roland SBX-80 SMP E-to-MID converter. Echo, Reverb & Delay Systems: Lexicon PCM70, (2) Lexicon LX-P-1, (2) Lexicon PCM42, Yamaha REV7, Yamaha SPX90, (2) Effector ADM 1024. Other Outboard Equipment: Aphex Compeller, Aphex Type C, Aural Exciter, (3) dbx 160 comp/limiter, dbx 166 comp/limiter, Valley People Dyna-Mite, Valley People GateX Orban 622B parametric EQ, UREI 1176N peak limiter. Microphones: AKG "The Tube", (2) AKG C-414, Neumann U87, (2) Sennheiser MD-421, Sennheiser MD-43, (4) Shure SM57, Crown PCC-160, AKG C-12E. Monitor Amplifiers: AB Systems 6220, AB Systems Series 900, QSC 1200, Haller D1000. Monitor Speakers: JBL 4430, JBL 4311, JBL 4426, Yamaha NS-10M, Auratone 5C. Musical Instruments: Roland D-50, Roland D-55C, Casio FZ-1, Yamaha DX7IFD, Yamaha TX7, Oberheim Matrix-6, Oberheim Matrix-6R, Fender Stratocaster, Fender Precision bass, Martin D-35, Sequential Circuits Prophet-600, LinnDrum. Other MIDI Equipment: Apple Mac Plus computer, Performer software, Opcode editor/librarian,

M6B+ switching box. Other: Studio Technologies mic preamp Rates: Available upon request.



41-B
Westlake Village, CA

[24+] 41-B; 41-B Duesenberg; Westlake Village, CA 91360; (805) 494-3613. Owner: Bruce Jackson. Manager: Robb Klein. Engineers: Bruce Jackson, Robb Klein. Dimensions: Room 1: studio 48 x 43, control room 30 x 26, three iso booths. Room 2 (under construction) control room 24 x 23. Mixing Consoles: Trident 80B 40 x 24 x 64. Audio Recorders: Otari MTR-90II 24-track, Otari MTR-12 4/2-track 1/2", Otari MTR-12 2-track 1/4". Cassette Recorders/Duplicators: (2) Yamaha K21200, (2) Nakamichi MR-1. Noise Reduction Equipment: Available on request. Echo, Reverb & Delay Systems: AMS DMX 15-80 w/chorus controller, AMS RMX 16, TC 2290 fully loaded, Yamaha REV5, Lexicon 200, (2) Yamaha REV7, (2) Yamaha SPX90, Eventide 949 Harmonizer, Lexicon PCM42, Lexicon PCM41, Ecoplate II, (2) ART digital delay lines, Lexicon PCM70. Other Outboard Equipment: Massenburg 2-channel EQ, Pultec H2 2-channel EQ, API and B&B, dbx 166, UREI 175 tube limiter, Aphex 2-channel noise gate, dbx 900 racks with (4) noise gate, (2) parametric, (2) de-esser, EXR Exciter, (4) UREI 1176 limiter, (2) dbx 160X, (2) dbx 160, dbx 165A, dbx 162 stereo limiter, Ashly stereo parametrics, (6) channels Drawmer noise gate. Microphones: (2) German Masterwork M49, (2) AKG C-28, (3) AKG 414, Neumann U87, Neumann KM84, AKG 414, AKG 451, AKG 452, AKG 460, Sennheiser 421, E-V PE20, AKG D-12, Shure 57, Crown PZM, Shure 77, Sony ECM-50, etc. Monitor Amplifiers: Halfon monitors 1000-watt per side, Halfon 220 headphones. Monitor Speakers: JBL 4435, JBL 4411, JBL 4401, Yamaha NS-10, Yamaha NS-20, Auratone T-6 speakers, Advent speakers. Musical Instruments: Kawai 6' MIDI grand piano, all other synths and drum machines and computers available. Other MIDI Equipment: All available. Video Equipment: AB Systems 1/2" roll system w/DVE Video Media computerized edit controller, JVC 850 CRU editor, JVC 600 source machine, Sony WEX-2000 special effects, Sony 5800 VCRs, Fortel Y-688 time base corrector, Ikegami cameras, Chyron VP-1 graphics, fully integrated multiformat editing system. Rates: Call for rates.

4TH STREET RECORDING

SANTA MONICA



(213) 395-9114

4th Street Recording Inc. 1211 4th St. Santa Monica, CA 90401

4TH STREET RECORDING
Santa Monica, CA

[24+] 4TH STREET RECORDING; also REMOTE RECORDING; 1211 4th St.; Santa Monica, CA 90401; (213) 395-9114. Owner: 4th Street Recording, Inc. Manager: Rod Clark, Jim Wirt. Engineers: Keith Wechsler, Jim Wirt, Rod Clark, Richard Jullis, David Blade, Steve Barnard, Robin Lambie. Dimensions: Room 1 studio 32 x 14, control room 14 x 16, front room (iso) 12 x 8, iso booth 4 x 4. Mixing Consoles: MCI

JH-428 28 x 24 modified w/Aphex VCA DC, subgroups and mutes and J.L. Cooper MIDI automation, Allen & Heath 12 x 4 x 2 Scepter effects mixer, Audio Recorders: MCI JH-114 8/16/24-track w/AL and VSO Fostex autolocator, Ampex ATR-102 2-track 1/2" and 1/4", Ampex ATR-104 4-track 1/2" and 2-track 1/2" and 1/4", MCI JH-110 1/2-track w/VSO, Technics 1500 1/2-track, Sony TC-854 4-track Cassette Recorders/Duplicators: (3) Nakamichi MR-1, Nakamichi 6802X Noise Reduction Equipment: (1) Dolby A/SR 2-channel Synchronization Systems: Fostex 4010 SMPTE reader/generator, Fostex 4030, Fostex 4035 controller, Echo, Reverb & Delay Systems: Lexicon 224X LARK 8.2 digital reverb (2) Yamaha SPX90, (2) Lexicon PCM60 reverb, Roland SRV-2000 MIDI reverb, EMT 140ST stereo tube plate reverb, (2) Echoplate III reverb, AKG BX-10E reverb, (2) Lexicon Prime Time delay, Roland SRE-555 tape delay, DeltaLab ADM 1024, Marshall time modulator, AMS gear at additional cost. Other Outboard Equipment: Aphex Studio II Aural Exciter, (2) UREI 1176LN limiter, (2) UREI LA-3A limiter, (2) dbx 160X limiter, (3) Drawmer DS-201 dual channel gate, (2) Orban 622B dual channel parametric EQ, Orban 3-channel de-esser, Klark-Teknik DN-27 and other graphic EQs, Trace Elliot GP11 bass preamp, Rockman guitar preamp, Systech flanger. Microphones: Over 50 including Neumann, AKG, Sennheiser, RCA, E-V, Shure, Sony, etc., tube and ribbon and Steven Paul modifications on U87s and 414s. Monitor Amplifiers: Bryston 4B bi-amp low, Bryston 2B bi-amp high, (2) Custom tube (alt. high), (2) Halfon P-230, BGW 100B (cue) Monitor Speakers: PAS TOC studio 1 w/Mastering Lab crossover, Yamaha NS-10M, Sony APM-700, Auratone Musical Instruments: Yamaha C7 74" grand piano, Yamaha DX7, Roland JX-10, Roland S-330, Roland D-550, Ensoniq ESQ-M, Linn 9000, Linn L2, Moog MIDI-moog, Moog Minimoog, a veritable plethora of guitars, basses and misc. percussion, Fairlight, Synclavier and Emulator at additional cost. Other MIDI Equipment: Macintosh SE/30, Macintosh SE both w/various software, Southworth Jam Box/4+ Video Equipment: Sony VO-5800 3/4", Sony Beta, NEC Hi-Fi VHS, NEC 26" rec/mon, NEC 20" rec/mon. Other: Technics SL-P1300 CD player, Fostex and Sennheiser headphones, telephone (hybrid) patching, FAX, Sound Ideas CD library. Specialization & Credits: 4th St. Recording, formerly Sound Solution Recording, has been providing recording services in Santa Monica for over ten years. Located four blocks from the beach, 4th St. is within close walking distance of hotels, shops, clubs and dozens of restaurants and bars. Producers, musicians, arrangers, programmers, as well as world-class engineers are available to provide the highest professional level-product for album, film, TV and radio. Our location, fun, unpretentious personnel, great equipment and years of experience make 4th St. Recording a welcome alternative to the Hollywood/Los Angeles recording scene. Then there's the price—we don't cost an arm and a leg. Past clients/projects include: The Beach Boys Kokomo, Make it Big, Brian Wilson, Simon & Schuster, George Clinton; Little Richard; Fat Boys; Tracy Ullman Show, Cocktail, Stanley Clark Free Flight; ABC, CBS; Electra Records, Ferde Grofe Films, Houseton Films.

[24+] GALAXY SOUND STUDIOS; 1635 N. Cahuenga Blvd., 3rd Floor, Los Angeles, CA 90028; (213) 461-1971. Manager: Nyya F. Lark. Engineers: Nyya F. Lark, Charles Carver, Bill Zain. Dimensions: Room 1, 3,000 sq ft. Room 2, 1,200 sq ft. Mixing Consoles: SSL 56 x 56 w/Total Recall. Audio Recorders: (2) Studer A800 MkIII 24-track, Studer A80 2-track, Studer A800 2-track. Cassette Recorders/Duplicators: Nakamichi MR-1, Nakamichi MR-2, (2) Aiwa Noise Reduction Equipment: Dolby 24 rack. Synchronization Systems: (2) TimeLine Lynx Echo, Reverb & Delay Systems: (2) EMT stereo plate, (2) AMS RMX 16 reverb, (2) AMS DMX 15-80S, Lexicon 224XL digital reverb, Lexicon Super Prime Time, (2) Lexicon PCM70, (3) Yamaha SPX90, (3) Yamaha REV5. Other Outboard Equipment: Aphex II Aural Exciter, Orban Parasound silbance controller, (6) Drawmer gate, Eventide 949 Harmonizer, (2) UREI 1176 limiter, (2) UREI LA-3A limiter, (6) dbx 902 de-esser rack. Microphones: (4) Sennheiser 441, (3) Neumann KM84, (5) Neumann U87, (4) AKG 414, (3) Neumann U89, (6) AKG C-460, (3) Crown PZM Monitor Amplifiers: (4) BGW 250E, (2) BGW 750 Monitor Speakers: JBL Augspurger custom main per side, (2) Yamaha NS-10M, Auratone 5C. Video Equipment: Sony VCR camera (for rehearsal room), Sony VCR monitor (for rehearsal room). Other: (12) AKG 141 headphones, Stewart DI boxes, mini cube DI boxes.

[24+] GATEWAY STUDIOS; 6381A Rose Lane; Carpinteria, CA 93013; (805) 684-8336. Owner: Jim Messina. Manager: Amy Foster. Dimensions: Studio 23 x 27, control room 18 x 23. Mixing Consoles: Soundcraft Series 2400 modified. Audio Recorders: Studer A80 24-track, Studer A80 2-track 1/2", Scully 4-track 1/2", Scully 2-track 1/4", Otari 2-track 1/4", Technics 2-track DAT. Echo, Reverb & Delay Systems: AMS DMX 15-80S stereo digital delay, AKG BX-20E1 spring reverb, Lexicon 480L, Lexicon PCM70, TC Electronics 2290. Other Outboard Equipment: Valley People Trans-amps, (4) Drawmer dual gate, (6) API 550A, (4) API 550B, (5) Teletronix LA-2A, (2) Pultec EQP-1, (2) Pultec EQP-1A3, RCA BA6A Gates M3529D limiter, TC Electronics 1210 chorus flanger/splitter, API 3124M EQs, (2) UREI 1176, (4) UA 175 limiter, (2) B&B EQE-Z Musical Instruments: Yamaha C7E grand piano, Hammond B-3 w/Leslie, Roland S-550, Roland D-550, Yamaha TX802, Roland Juno 106 keyboard, Linn 9000 drum machine. Other MIDI Equipment: Macintosh SE, Jam Box. Video Equipment: TimeLine Lynx.

[24+] GOLDEN GOOSE RECORDING; 2074 Pomona Ave., Costa Mesa, CA 92627; (714) 548-3694. Engineers: D.P. Rose, K. Rains, John Witney. Dimensions: Studio 20 x 22, control room 18 x 17. Mixing Consoles: Spectra Sonics custom 40 x 40 w/(8) echo send of (8) returns, (4) stereo, (16) subgroup and (24) bass routing. Audio Recorders: Ampex MM-1100 24-track 2" 15/30 ips, Ampex MM-1100 16-track 2" 15/30 ips, Ampex ATR-100 2-track 1/2" and 1/4" 15/30 ips, Ampex AG-440C 2-track 1/4" 7.5/15 ips, Hitachi PCM-300E 2-channel digital, Sony PCM-1 (VHS based) 2-channel digital processor. Cassette Recorders/Duplicators: Nakamichi 600, Denon x2 and real-time duplicator, Synchronization Systems: EECO BE450 SMPTE tape sync. Echo, Reverb & Delay Systems: Lexicon PCM60 digital reverb, (2) Echoplate III, AKG BX10 reverb, (2) Lexicon PCM41 digital delay/processor, DeltaLab ADM64 Effectron digital delay processor, DeltaLab ADM 4096 DDL Echotron digital/loop sampler, Eventide H910 Harmonizer, Marshall time modulator analog delay/flanger. Other Outboard Equipment: (4) dbx 160 comp/limiter, (2) Allison Research Kepex I, Allison Research Gain Brain comp/limiter, Orban Parasound 2-channel parametric equalizer, Altec Octave Passive graphic equalizer, Altec Acoustavoice 1/2-octave EQ, (4) API 550A equalizer, (4) UREI Universal Audio mic preamp w-2-band EQ and 30 dB headroom, UREI digital metronome. Microphones: Neumann U47, Neumann U87, (2) Neumann KM84, (2) AKG C-414E, (2) AKG C-414EB, (2) AKG C-451, (2) Beyer M160 dynamic ribbon, (2) RCA 77-DX, Sony C-500, Sony ECM-22P, Sony ECM-250, Electro-Voice RE20, Electro-Voice 666, Electro-Voice 678, Electro-Voice RE15, Electro-Voice 635A, Sennheiser 421, AKG shotgun. Monitor Amplifiers: BGW 250 in control room, (2) Marantz 260 for studio and headphones. Monitor Speakers: UREI 813 w/Altec 604E drivers in control room, Altec 604E in studio, JBL 4311 in control room, custom in-house near-field. Musical Instruments: Roland PV synth/guitar and bass, Hammond M-10 organ, Steinway 7" grand piano, Fender bass, Gibson bass, Fender Stratocaster, Gibson SG guitar w/Kaylor Tremolo, Guild F50 Jumbo acoustic guitar (steel string), Jose Ramirez hand-made flamenco guitar (1964), Rickenbacker 360 12-string electric guitar, National steel guitar (Dobro-type) lap steel, Oberheim DMX digital drum machine, Fender Rhodes 88-key electric piano, Moog Micromoog analog synthesizer, misc. Latin percussion. Video Equipment: Hitachi VHS cassette recorder, Panasonic VHS cassette recorder, Panasonic camera w/tripod.

[24+] GOLDMINE RECORDING STUDIOS; 1393 Callens Rd., Ventura, CA 93003; (805) 644-8341. Owner: Goldmine Productions. Manager: Trace Sveiven. Engineers: Mike Horn, Jeff Cowan. Dimensions: Studio 40 x 26 x 12, control room 18 x 16, iso 26 x 16 x 12, 9 x 10 x 12. Mixing Consoles: Neotek Series II 28 x 24 w/Jensen 990s. Audio Recorders: Otari MTR-90 24-track, TEAC 80-8 8-track, Otari 5050B 2-track, Technics 1506 2-track. Cassette Recorders/Duplicators: (2) Sansui SC-1110, (2) Aiwa FV-770 Echo, Reverb & Delay Systems: Lexicon Prime Time, MXR DDL, DeltaLab Effectron, Eventide H910 Harmonizer, Yamaha REV7, Yamaha REV5, Korg DRV-3000, Roland SRV-2000 digital reverb, Ecoplate II. Other Outboard Equipment: UREI LA-2A limiters, UREI 175 limiters, dbx 161, Valley People noise gates, Omni Craft gates. Microphones: Neumann, Sennheiser, Sony, AKG, Shure, Crown PZM, E-V, RCA 44-A, RCA 77-D. Monitor Amplifiers: Halfon DH500, Fostex 600, Phase Linear 700B. Monitor Speakers: UREI 813, Yamaha NS-10, Auratone. Musical Instruments: Yamaha C7 grand piano, Yamaha DX7, Yamaha CP80, Yamaha PF15 electronic piano, LinnDrum, J.L. Cooper drum chest, Marshall guitar amp, Akai 900, Roland D-50. Rates: \$55/24-track, \$37 50/8-track, \$32/2-track, block rates available.

[24+] GROUP IV RECORDING; 1541 N. Wilcox Ave., Hollywood, CA 90028; (213) 466-6444. Owner: Angel L. Balestier. Manager: Lisa Burrows. Specialization & Credits: For well over a decade, Group IV Recording has been a leader in film and TV scoring, contributing to many well-known productions such as *Who Framed Roger Rabbit*, *Lean On Me*, *Wiseguy* and *Family Ties*. Group IV also applies its expertise to the areas of post-production (for *Dynasty* and *The Tracey Ullman Show*) and commercial recording and mixing (for Butterfinger, Carnation and ERTL Toys). The facilities at Group IV are designed to handle all aspects of your sound production, with capabilities for all formats from 35mm film to 1" video. Consultation and package bids are available. Please call for rates.

[24+] HALLMARK PRODUCTIONS; 31320 Via Colinas, Ste. 118; Westlake Village, CA 91362; (818) 991-4857. Owner: Steve Hallmark. Manager: Steve Hallmark. Engineers: Steve Hallmark, Curt MacDonald, various independents. Dimensions: Room 1 studio 10 x 14, control room 14 x 17. Room 2: video editing 10 x 12. Mixing Consoles: Soundcraft 2400 28 x 24 (52 in remix). Audio Recorders: MCI JH-16/24 24-track, Otari 5050BII 2-track, Toshiba DX900 PCM 2-track digital. Cassette Recorders/Duplicators: Yamaha C200, Aiwa 6900 Echo, Reverb & Delay Systems: Lexicon PCM70 w/3.0 software, Yamaha REV7, (2) Yamaha SPX90II, Alessi Quadraverb, (2) Roland SDE-3000 DDL, (2) ADA 1280 DDL. Other Outboard Equipment: dbx 166 comp/lim/gate (stereo), Symetrix 155 comp/lim/gate (stereo), (2) Symetrix dual noise gate, Barcus-Berry BBE-202R, Aphex Type B. Microphones: AKG 414EB-P48, Sony C-48, (2) Sony C-36P, E-V RE20, (5) Shure SM77. Monitor Amplifiers: Crown D-50, Crown D-200, Symbel-

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24+ TRACK

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rix headphones, AB Systems 300. Monitor Speakers: JBL 4411, Tannoy NFM-8. Yamaha NS-10M, Auratone 5C. Musical Instruments: Korg M-1, Korg M-1R, Roland MKS-20 digital piano module, Roland MKS-70 Super JX module, Roland MKS-80 Super Jupiter module w/programmer, (2) Roland D-550, Yamaha TX816, Yamaha KX88 keyboard controller, Oberheim DPX-1, (2) Akai S900 sampler, Kurzweil 1000PX module, 360 Systems Pro Midi Bass, Sequential Circuits Prophet-V5 module, Roland Octapad MIDI drum pads, Drum Workshop trigger pedal, E-mu Emulator II, Roland Jupiter 6, Ibanez electric guitar, Ibanez bass guitar, Washburn acoustic/electric guitar. Other MIDI Equipment: Macintosh SE w/4MB RAM and 40MB HD (internal), Opcode time code machine (SMPTe sync), Sonus MacFace Mac/MIDI interface, Garfield Time Commander, J.L. Cooper MSB-16/20 MIDI patch bay, Opcode librarians for MKS-80, D-550, DX7, DX7II, M-1. Mark of the Unicorn Performer Ver. 3.0 sequencer for Macintosh. Video Equipment: Toshiba DX900 digital VCR 1/2", Sony VO5800 3/4" VCR, Sony 25" monitor. Rates: \$75/hr (includes all equipment, computer, MIDI, instruments and engineer)

[24+] **HAMMERSOUND RECORDERS:** 9612 Lurline Ave., Unit N, Chatsworth, CA 91311; (818) 998-9641. Owner: Christopher Aphorh. Specialization & Credits: After 14 years in Chatsworth, we have completely remodeled and tuned our control room and upgraded our equipment. The facility has left the ambience of our studio and iso booths unchanged. Our clients love them then and still love them today. So will you. Our equipment includes a Harrison Raven console, Otari MTR-90 24-track, gobs of outboard gear and a full complement of microphones. While we are equally adept at all types of projects, the acoustical environment at HammerSound was originally conceived as a studio for music that needs air to breathe. All types of acoustic music—bluegrass, country, roots-based rock bands, traditional jazz—will find magic in the sound of this room. HammerSound is part of a trio of studios including Cornerstone Recorders and its Neve VR w/Flying Faders, so whatever your project, we are ready to serve.

[24+] **HEADWAY STUDIOS:** 7560 Garden Grove Blvd., Westminster, CA 92683; (714) 891-8548. Owner: Steve McClintock. Manager: Cathy Enny.

[24+] **HIT CITY WEST:** 6146 W. Pico Blvd., Los Angeles, CA 90035; (213) 852-0186. Owner: Jason Bell. Manager: Jason Bell.

[24+] **HIT SINGLE RECORDING SERVICES:** 3450 College Ave., Lower Ct. #314, San Diego, CA 92115; (619) 265-0524. Owner: Scottman Ltd. Manager: Randy Fuelle.

[24+] **IMAGE RECORDING:** 1020 N. Sycamore Ave., Hollywood, CA 90038; (213) 850-1030. Owner: Harry Maslin, John Van Nest. Manager: John Van Nest. Engineers: Harry Maslin, John Van Nest, Tally Sherwood, Scott Sanders. Dimensions: Room 1 studio 40 x 20, control room 18 x 15. Room 2 studio 15 x 10, control room 18 x 14. Mixing Consoles: SSL 4056E 60-input w/G computer and Total Recall, Trident A Range Audio Recorders: (3) Sony/MCI JH-24, (2) Ampex ATR-102 2-channel Cassette Recorders/Duplicators: (2) Awa, (2) Tascam. Noise Reduction Equipment: Dolby M-24 24-channel rack Synchronization Systems: (4) TimeLine Lynx Echo, Reverb & Delay Systems: EMT 140 plate reverb, AMS RMX digital reverb, Lexicon 480L, (3) Lexicon PCM70 digital reverb, (2) Yamaha REV7 digital reverb, (5) Yamaha SPX90II, (2) LXP-1 digital reverb, Roland SRV-2000 reverb, TC 2290 AMS DMX delay/harmonizer, Roland SDE-3000 delay, Lexicon Delta T, Marshall tape eliminator analog delay. Other Outboard Equipment: (2) AMS flanger/phaser, Eventide H910 Harmonizer, Cyclosonic panner, Panscan, (2) Neve 1064 mic pre-equalizer, (8) Neve 1073 mic pre-equalizer, (2) Trident A Range, (2) Teletronics LA-2A limiter, (4) UREI 1176LN limiter, (4) dbx 160X limiter, (6) dbx de-esser, (4) dbx gates, (6) Drawmer noise gate. Microphones: (60) Neumann, Akai, Sennheiser. Monitor Amplifiers: (2) Yamaha 2200M, (2) McIntosh 2300. Monitor Speakers: (2) UREI Time Aligned, (2) Yamaha NS-10M.

[24+] **INDIAN HILL AUDIO/VIDEO;** also *REMOTE RECORDING*; 224 N. Indian Hill Blvd., Claremont, CA 91711; (714) 625-2396. Owner: C.E. Whittington. Manager: Terrance Dwyer. Engineers: Tom Orsi. Dimensions: Studio 22 x 37, control room 18 x 22, video suite 12 x 15. Mixing Consoles: Neve custom 40 x 24 w/Necam Audio Recorders: Ampex MM1200 24-track, Ampex ATR-102 2-track, Ampex AG-350 2-track, Sony 24-track Synchronization Systems: Fostex 4030/4035, Eventide dedicated SMPTe lockup to 1" AB roll video production facility. Echo, Reverb & Delay Systems: Lexicon 224 live chamber, Yamaha REV7, AKG BX10, Ecoplate. Monitor Amplifiers: McIntosh, Crown, AB Systems. Monitor Speakers: UREI 813 Time Align, Yamaha NS-10M. Musical Instruments: Se-

quential Circuits Prophet-2000, LinnDrum, Yamaha DX7, Yamaha 7' grand piano, complete MIDI sampling facilities. Video Equipment: 1" AB roll video production facility and full post-production facilities, complete offline 3/4" suite, Chyron VP2, Convergence Super 90 editor, graphics camera and more. Rates: Competitive! Specialization & Credits: Audio complete MIDI production, session players, arrangement services, albums, CD and cassette packages and production assistance. Video: All video done under one roof. VISA and MasterCard accepted. Discounts for block booking.

[24+] **INDIGO RANCH RECORDING STUDIO-MALIBU;** PO Box 24-A-14; Los Angeles, CA 90024; (213) 456-9277. Owner: Richard Kaplan, Michael Hofmann. Manager: Michael Hofmann. Engineers: Richard Kaplan, Chris Brunt, Chuck Johnson, Thom Panuzio. Dimensions: Studio 22 x 30 plus iso rooms, control room 20 x 20 (keyboard player's dream). Mixing Consoles: "Deane Jensen" Aengus custom 32 x 24 fully automated plus 8 echo returns and 24 mon/line returns and 14 sends. Audio Recorders: 3M M79 24-track 1/2" and 1/4" stereo, Sony 3324 digital, Mitsubishi X-850 digital, Mitsubishi X-86 digital, NED Synclavier DAT VHS and 3/4" PCM Synchronization Systems: Lynx and Q-Lock available on request. Echo, Reverb & Delay Systems: EMT 140S plate, EMT 250 digital reverb, AMS and Pubison Infernal 90 available on request, Lexicon 224 digital reverb, Yamaha SPX90, Roland SRV-2000, Roland SDE-3000, Alessi XT digital reverb, MXR 01 digital reverb and DDL, Ursa Major Space Station digital effects, Telefunken reverb, Eventide Harmonizers, DDLs and instant phaser, Loft digital/flanger, Marshall time modulator. Other Outboard Equipment: Teletronix LA-2, Teletronix LA-2A, Pultec EQP-1A, Pultec EQH-2, Pultec MEQ-5 equalizers, ADR stereo complex limiters and selective stereo processors, UREI 1176, UREI UA175, UREI 176 tube limiters and Little Dipper, Fairchild tube limiters, API, Aengus and B&B equalizers, Valley People Kepex IIs, Gain Brain, Drawmer Electro-space Strate Gate, Orban parametric equalizer, EXR, Aphex Exciters and stereo enhancers, RCA BA6A tube limiters, Chinglins 26 tube limiter, dbx 900 rack w/de-esser, dbx 160 limiter. Microphones: Huge collection of new and vintage tubes. Neumann M49, Neumann KM53, Neumann KM64, Neumann U47, Neumann U67, Neumann U87, Neumann SM2, Neumann SM23, Neumann SM69 and others, Telefunken ELAM250, Telefunken ELAM201 classic tube, AKG C-12, AKG C-12A, AKG C-24, AKG C-28, AKG C-60, AKG C-452 and others including Schoeps, Sony PML, etc. Monitor Amplifiers: HH Electronic custom bi-amp 1600 watts per side. Musical Instruments: Steinway grand piano, (2) ClapTrap, guitar accessories, most things available on request. Video Equipment: Indigo Ranch Studio's support facilities and grounds (orchards, mountains, canyon and ocean view) are very picturesque, private and conducive to film and video production. Rates: Ask about our block booking rates. Specialization & Credits: Secluded 60-acre ranch, with satellite TV, minutes from beach, living and cooking facilities. Great for artists from out of town and a wonderful retreat for those living in the Southern California area. Indigo Ranch provides a unique environment conducive to musical creativity in a home-like but professional setting. Located in the Malibu Hills overlooking the Pacific Ocean, Indigo services top recording artists from all over the world. The ranch offers sleeping accommodations, kitchen facilities and a gourmet cook (on request). The ranch and its fully equipped, state-of-the-art studio are beautifully maintained by an experienced and conscientious staff doing their utmost to make clients feel welcome and comfortable. We are pleased to announce that Indigo Ranch Studios is entering its 15th year of continuous service to the musicians, producers and engineers of Los Angeles and the world.

[24+] **INTERSOUND, INC.:** 8746 Sunset Blvd., Los Angeles, CA 90069; (213) 652-3741. Owner: Ahmed Agrama. Manager: Tony Pinker.

[24+] **INVINCIBLE PRODUCTIONS;** 7898 Ostrow St., Ste. I, San Diego, CA 92111; (619) 569-8581. Owner: Vince Lubinsky. Manager: Pam Lubinsky.

[24+] **J.E. SOUND PRODUCTION AND ENTERTAINMENT;** 11323 Santa Monica Blvd., Los Angeles, CA 90025; (213) 479-7653. Owner: John E. Goodenough. Manager: John E. Goodenough.

[24+] **JINGLE BELLS PRODUCTION CO.;** also *REMOTE RECORDING*; 1260 N. Havenhurst Dr. #104, W. Hollywood, CA 90046; (213) 656-3990. Owner: Michael Hurwitz. Manager: Michael Hurwitz.

[24+] **JUNIPER STUDIOS;** 719 Main St., Burbank, CA 91506; (818) 841-1244. Owner: Geoff Levin. Manager: David Bolger.

[24+] **KEY PRODUCTIONS;** 13624 Sherman Way, Ste. 221, Van Nuys, CA 91405; (818) 994-4849. Owner: Bruce K. Monical. Manager: Bruce K. Monical.

[24+] **KINGSOUND STUDIOS;** 7635 Fulton Ave.; N. Hollywood, CA 91605; (818) 764-4580. Owner: Eddie King. Manager: Steve Cormier. Engineers: Eddie King, Steve Cormier, Chris Winter. Dimensions: Studio 40 x 24, control room 27 x 19. Mixing Consoles: Amek Angela 28 x 24 w/extensive modifications. Audio Recorders: Otari MTR-90II 24-track 2", Otari MTR-12 4/2-track 1/2", Otari MTR-10 2-track 1/4", Otari

MX-5050 2-track 1/4", Technics 1500 2-track 1/4" Cassette Recorders/Duplicators: (2) Akai GX8 3-head Synchronization Systems: (2) Adams-Smith Zeta-3, Adams-Smith Zeta remote Echo, Reverb & Delay Systems: Lexicon 480L digital, Lexicon 224XL 8 2 digital reverb, Lexicon PCM70 digital reverb, Lexicon PCM41 digital delay, Roland SDE-3000 digital delay, (2) Yamaha SPX90, Effectron 256 digital delay, TC Electronic 2290 digital delay, Echoplate II. Other Outboard Equipment: Aphex Aural Exciter Type 3 stereo, Aphex Compeller stereo, Summit Audio TLA 100 tube leveler, BSS 402 stereo compressor/limiter/de-esser, dbx 165A compressor, dbx 165 compressor, (2) Valley People Gain Brain compressor, Valley People Kepex II gate, Valley People Maxi-Q equalizer, Valley People 610 stereo compressor/gate, Drawmer DS-201 dual gate, USAudio GateX 4-channel gate, BBE 822 Sonic Maximizer stereo, Garfield Digital Click. Microphones: (2) Neumann TLM170, (4) Neumann KM100, Neumann U89, Neumann U47 FET, AKG 414TL5 transformerless, AKG C-460 w/CK1S, (2) Schoeps CMC-5, (4) Sennheiser 421, Sennheiser 441, (3) Shure SM81, Shure SM57, (3) Crown P2M, E-V PL20, Sony C-37P, (2) Countryman Iso-Max. Monitor Amplifiers: Bryston 4B Bryston 3B, Bryston 2B, Carver 1.5T, Eagle 2, Acoustat TNT200. Monitor Speakers: Yamaha NS-10M studio, Custom 3-way tri-amp w/TAD components, Tannoy Little Reds 12", Auratone 5C. Musical Instruments: Yamaha C5 grand piano, Roland JX-3P, Ampex Reverb Rocket. Video Equipment: Sony 9850 3/4" machine w/adsa track.

[24+] **LAHAINA SOUND RECORDING STUDIO;** 840 Wai'anae St., Lahaina, HI 96761; (808) 667-2587. Owner: George Benson. Manager: Amos Daniels.

[24+] **LARRABEE SOUND;** 8811 Santa Monica Blvd.; West Hollywood, CA 90069; (213) 657-6750. Owner: Kevin Mills. Manager: Kevin Mills. Mixing Consoles: SSL 4072 G, SSL 4056E w/G computer, Mitsubishi X-80 2-track digital w/Apogee filters. Audio Recorders: (5) Studer A800 24-track, (2) Studer A820 2-track, (7) Ampex ATR 2-track w/SSI transformerless module. Cassette Recorders/Duplicators: (11) KABA system, (2) Sony Pro DAT Noise Reduction Equipment: (48) Dolby A Synchronization Systems: (6) TimeLine Lynx Echo, Reverb & Delay Systems: (2) Lexicon 480L, (2) EMT 252, (2) Yamaha REV1, (3) Yamaha REV5, (2) Lexicon PCM70, (2) Yamaha SPX1000, (3) Yamaha SPX90, (2) Yamaha REV7, (2) Eventide H3000, Sony DRE-2000, (8) Lexicon PCM42, (4) AMS 15-80 sampler, (3) AMS RMX 16, (2) TC Electronic 22900 11 sec fast trigger, Dyncorp DRP-20 reverb, (2) EMT 240. Other Outboard Equipment: (8) Focusrite EQ, (4) Focusrite Dynamics module, (10) Pultec EQP-1A, (16) API 550A, (6) Lang PEQ-5 EQ, GML EQ, (6) dbx 160, (7) dbx 160X, (3) UREI LA-2A, (4) UREI LA-4A, (10) UREI 1176, (2) Inovonics 201 comp/limiter, (2) Valley People 610, (16) Valley People Kepex II, (4) Drawmer dual gate, (4) Aphex expander gate, (2) TC Electronic spatial expander, (2) dbx 900 rack, Pubison DHM89B harmonizer, Roland Dimension D, Marshall time modulator, Ursa Major Space Station, Cyclosonic Pan Scan, Barcus-Berry 202R, Studio Technologies AN-2 stereo simulator, Audio & Design Scamp rack, (2) Eventide H910 Harmonizer, (2) Aphex Aural Exciter, (2) MXR auto flanger.



LION SHARE RECORDING STUDIOS
Los Angeles, CA

[24+] **LION SHARE RECORDING STUDIOS;** 8255 Beverly Blvd.; Los Angeles, CA 90048; (213) 658-5990; FAX: (213) 653-3086. Owner: Terry Williams, Jay Antista, Don Chickering. Manager: Terry Williams. Engineers: Jay Antista, Paul Bassett, Guy Defazio, Laura Livingston, Ray Pyje, Jesse Kaner, Brian Mendelsohn. Dimensions: Room 1: studio 20 x 36, control room 18 x 13. Room 2: studio 17 x 18, control room 13 x 15. Room 3: studio 18 x 20, control room 17 x 20. Mixing Consoles: Neve 8108 56 x 48 w/GML automation, Neve 8128 48 x 32 w/GML automation, API DeMoto 36 x 24. Audio Recorders: (2) Mitsubishi X-850 32-track, (3) Mitsubishi X-80 2-track, (4) Studer A800 24-track, Otari MX-80 24/32-track Cassette Recorders/Duplicators: (8) Studer A710. Noise Reduction Equipment: (2) Dolby 24-track Synchronization Systems: TimeLine Lynx, BTX Softouch Echo, Reverb & Delay Systems: (3) Acoustic stereo echo chamber, (6) EMT plate, (3)

Lexicon 224XL w/LARC, (3) AMS RMX 16 reverb, (3) AMS DMX 15-80 DDL, EMT 250 reverb, Quantec room simulator, (3) Yamaha REV7, (4) Yamaha SPX90. Other Outboard Equipment: Publison America DHM 89-B2, (3) GML Massenburg dual limiter, (3) GML equalizer, (2) Lexicon Super Prime Time, dbx 160 limiter, dbx 160X limiter, dbx 162 limiter, dbx 165 limiter, Neve limiters, UREI limiters, (4) Teletronix LA-2A limiter. Microphones: (2) Neumann M49 tube, Neumann U48 tube, Neumann U47 tube, (2) Neumann U67 tube, (6) Neumann U87, (12) Neumann U47 FET, (2) Neumann KM86, (4) Neumann KM84, (2) Neumann KM88, (3) Shure SM81, Shure SM7, (4) Shure SM57, (2) Shure SM56, (4) Sennheiser MD-421, (3) AKG C-12A, (7) AKG 414EB, (11) AKG 452, AKG C-24 tube stereo, (3) E-V RE20, (2) E-V RE15, Telefunken 250 tube, (2) AKG C-412, (5) Sennheiser 435, Sennheiser 2002 binaural. Monitor Amplifiers: (4) H&H, (13) Bryston. Monitor Speakers: (6) JBL custom, (10) Yamaha NS-10, (2) Yamaha 1000. Musical Instruments: Bosendorfer MIDI piano, (2) Steinway grand piano, Synclavier digital audio and Direct-to-Disk system, Hammond B-3 organ (MIDI). Video Equipment: Sony BVU-800 recorder, Sony BVU-200 recorder, Sony Beta 1/2" recorder, Panasonic VHS 1/2" recorder. Specialization & Credits: Although one of the most beautiful facilities of its kind, Lion Share doesn't stop there. Back-to-back records of the year, Chicago's *Hard Habit to Break* and *We Are the World*, are just two of the hits on Lion Share's long list of platinum projects. Our most recent clients include: Richard Marx (both albums), Neil Diamond, Poco, June Pointer, Stevie Nicks, Randy Newman, Marti Kari, Bangles, Belinda Carlisle, *Ghost Busters II*, *Karate Kid III*. With our large Synclavier Direct-to-Disk system in Studio C, we're able to provide an ideal environment for music tracking and record production, film scoring (with picture), audio-for-video post-production, and music sweetening (including mixing to picture). Lion Share is a three-room facility offering a variety of services to its record and film/video clients. Our experienced staff is the best available. Decide for yourself! Studio rates upon request.

[24+] **LOVE PRODUCTIONS**; 17137 Index St.; Granada Hills, CA 91344; (818) 363-0636. Owner: Mark Bryan Johnson. Manager: Mark Bryan Johnson, Denise DeLong. Engineers: Mark Bryan Johnson, Hal Sacks, Jim Williams, Dennis MacKay. Dimensions: Studio 18 x 28, control room 13 x 15. Mixing Consoles: Jim Williams modifications on: Sony/MCI JH-24 24-track, Sony/MCI JH-110 2-track 1/2" and 1/4" formats, Tascam 32 2-track, Ampex Model 600 mono. Cassette Recorders/Duplicators: Nakamichi MR-1 Jim Williams mods, Technics M85. Synchronization Systems: Linn 9000. Echo, Reverb & Delay Systems: Live chamber 10 x 13, Lexicon 200, Jim Williams modifications on: Lexicon PCM70, Lexicon PMC60, (2) Lexicon PCM42 w/extended memory, Lexicon PCM41, Eventide instant flanger. Other Outboard Equipment: Bob Weinstein Labs "Stereo Imaging Systems," Alembic F2-B stereo preamp (tube), Klark Teknik DN60 real-time spectrum analyzer, Jim Williams modifications on: (2) dbx 166, (3) dbx 160X, Orban 424A (stereo compressor, limiter, de-esser, floating gate), custom-built stereo synthesizer, Type B Aural Exciter. Custom-built Jim Williams Electronics: (8) noise gate, (8) keyable noise gate, (4) hiss filter, stereo direct box w/parametric EQ and mix controls, (4) DI amps rack-mounted in control room. Mark Bryan Johnson designed: 10-line stereo guitar/line level instrument pass-through system, 16-line level input system for drum machines and synthesizer. Microphones: (3) AKG 414EB, (2) AKG 451EB, Beyers M101, Beyers M500, E-V RE20, E-V 636, E-V 630, PML DC-63, (2) Schoeps Omni/Cardioid capsules, (2) Schoeps Hypercardioid capsules, (6) Shure SM77, Shure SM57. Monitor Amplifiers: (2) BGW 750B, BGW 100, (2) Crest Model 300 "Power Line Series," Class A custom-built Jim Williams Electronics 100-watt stereo power amp. Monitor Speakers: (2) JBL 4530, (2) JBL 4311, (2) Yamaha NS-10M, (2) Auratone QC66 3-way quality control, (2) Auratone 5C Super Sound Cube, (2) JBL 4406. Musical Instruments: Steinway baby grand piano, 77 yrs. old, duplex scaling, newly rebuilt, w/MIDI mod by Jim Wilson's L.A. Piano Service; Linn 9000, Jim Williams modifications on: Yamaha DX7, (2) TX card, Roland Jupiter-8 MIDI, Music Man bass, custom-built 5-string fretless bass, (7) custom guitars of pro quality available upon request. Rates: Available upon request.

[24+] **LYON RECORDING STUDIO**; also **REMOTE RECORDING**; 2212 Newport Blvd.; Newport Beach, CA 92663; (714) 675-4790. Owner: Curt Lyon. Manager: Naomi Davis.

[24+] **MAD DOG STUDIO**; 1717 Lincoln Blvd.; Venice, CA 90291; (213) 306-0950. Owner: Mad Dog Studio, Inc. Manager: Meryl Starbin. Engineers: Dusty Wakeman, Eric Westfall, Don Tuttle, Michael Dumas. Dimensions: Studio 25 x 18, control room 20 x 15. Mixing Consoles: Neve 8108 28 x 32 w/Necam mixdown. Audio Recorders: Studer A800 24-track, Ampex ATR-102 2-track, Otari MX-5050B 2-track. Cassette Recorders/Duplicators: TEAC 122HX, Yamaha C300. Echo, Reverb & Delay Systems: (2) Yamaha REV7, (3) Yamaha SPX90, Lexicon PCM70, Lexicon PCM60, (2) Roland SDE-3000E, Korg SDD-3000, Eventide 910 Harmonizer, Lexicon PCM41, (2) Alesis Quadraverb, EMT 140 tube plate reverb, Dynacord DRP-20. Other Outboard Equipment: (2) Drawmer DS-201 noise gate (dual-channel), (2) Gatec noise gate (4-channel), (2) dbx 165A limiter, (3) dbx 160X limiter, (2) UREI

LA-4 limiter, UREI 546 dual parametric EQ, (2) UREI 537 1/2-octave graphic EQ, (2) White Instruments 1/2-octave EQ, (2) Lang PEG-2, (2) UREI 1176LN limiter, (2) dbx 263X, (2) dbx 166 stereo limiter. Microphones: Neumann U47 tube, Neumann U67 tube, Neumann U87, (2) AKG 414, (2) AKG 451, AKG D-12E, E-V RE20, (6) Shure SM57, Shure SM77, (4) Sennheiser 421, Crown PZM, Neumann TLM170, (2) AKG C-2B tube, (2) Neumann KM84. Monitor Amplifiers: (2) Crown Micro-Tech 6H0, Bryston 4B, Bryston 3B. Monitor Speakers: (2) Westlake BBSM-12, (2) Yamaha NS-10, (2) Auratone 5C, (2) Tannoy NFM-8. Musical Instruments: Robin Custom Raiser guitar, Robin bass, Fender 61 P-bass, Turner bass, (2) Fender Twin, Yamaha C7 grand piano, E-mu Emulator E111, E-mu Emax, Alesis drum machine. Other: Foxtel headphones, AKG headphones, Countryman direct boxes, Sencor direct boxes.



MAD HATTER RECORDING STUDIO
Los Angeles, CA

[24+] **MAD HATTER RECORDING STUDIO**; 2635 Griffith Park Blvd.; Los Angeles, CA 90039; (213) 664-5766. Owner: Chick Corea. Manager: Dee Dye. Engineers: Larry Vah, Bernie Kirsh, Darren Mora, Robert Read. Dimensions: Studio: 38 x 26, control room 18 x 22. Mixing Consoles: Trident Series: 80 computerized 40 x 24 w/GML automation. Audio Recorders: Studer A800 24-track, Studer A80 24-track, (2) Studer A80RC 2-track stereo (1/2" or 1/4"), Otari MTR-12 4-track 1/2" Cassette Recorders/Duplicators: (2) Nakamichi, (2) Yamaha Synchronization Systems: (2) Lynx. Echo, Reverb & Delay Systems: AMS 15-80S DDL, sampler and harmonizer, (2) EMT 140 stereo plates (solid state and tube), EMT 240 "Gold foil" reverb plate, (2) Lexicon 224XL digital reverb, Lexicon Prime Time, Lexicon Super Prime Time, (4) Yamaha SPX90. Other Outboard Equipment: (2) Teletronix LA 2A tube limiter, Eventide 949 Harmonizer, Eventide instant flanger, (2) UREI 1176 limiter, (2) dbx 160X limiter/compressor, (2) Sontec parametric EQ, (4) API 550A EQ, (2) Drawmer noise gate, Kepex noise gate, (2) Klark-Teknik graphic EQ, (2) Neve 8078 preamp/EQ module. Microphones: (10) Schoeps CMC3, (4) AKG 414EB/F48, (2) Neumann U67, (2) Sanken CU32, (4) Bruel & Kjaer 1/2" measurement, (4) Shure SM57, (6) Sennheiser MD-421, (2) AKG C-12, (2) AKG C-12A, (4) Neumann U87, AKG 414EB, Neumann M49, Neumann KM84, AKG D-12E, AKG D-1000E. Monitor Amplifiers: Meyer, Haller, McIntosh. Monitor Speakers: John Meyer ACD, Yamaha NS-10, Tannoy SRM10-B, Auratone, JBL. Musical Instruments: Bosendorfer 9' concert grand w/MIDI, Hamburg Steinway D 4' concert grand. Video Equipment: JVC CR600 3/4" recorder/playback, 19" and 26" monitors. Other: Massenburg automation. Rates: Upon request. Specialization & Credits: "The building of Mad Hatter Studios is the realization of having a place where our musicians could make music in a free, easy atmosphere. Our technical concepts clarity of sound. Our musical concept is the artist's vision realized."—Chick Corea. Our clients include: Prince, Robert Palmer, Paul McCartney, Chick Corea, Pebbles, Wayne Shorter, Laverne, Maynard Ferguson, Chico DeBarge, Los Lobos, Teena Marie, Jeanmarie Barnes, Warren Zevon, Madame X, Robben Ford, Jenni Luc Pony, Yellowjackets and Billy Crystal. Movie soundtracks include: *Nightmare on Elm Street*, *Surrender*, *The Principal*, *Death Wish 4*, *School Daze* and *Roe vs. Wade*.

[24+] **MARTINSOUND RECORDING STUDIOS**; 1151 W. Valley Blvd.; Alhambra, CA 91803-2493; (818) 281-3555. Owner: A.J. Martinson. Manager: Arnette Martinson. Engineers: Anthony Sripitawat, independent engineers welcome. Dimensions: Room 1, studio 45 x 47, control room 18 x 35. Room 2, studio 23 x 14, control room 13 x 14. Mixing Consoles: Trident Series, 80 w/40 tracking/68 mix/26 bus/5 aux (Studio I), Flying Faders™ automation, MCI JH-475 24 x 16 (Studio II). Audio Recorders: Sony/MCI 24-track. Noise Reduction Equipment: Dolby 24-track, Dolby 4-track, Dolby 2-track. Synchronization Systems: (3) TimeLine Lynx, house sync, pacer back-up. Echo, Reverb & Delay Systems: AMS; (2) Yamaha REV7, (2) Lexicon SPX90, EMT echo plates. Other Outboard Equipment: Misc. EQ equipment, Kepex II noise gate, digital delay line, UREI LA-2A (modified). Microphones: Over 60 tube and condenser mics. Monitor Amplifiers: Boulder. Monitor Speakers: UREI Time Align w/Yamaha NS-10M

mini monitors, JBL 604 w/Yamaha NS-10M mini monitors. Musical Instruments: Yamaha 7' grand (Studio I), Steinway 7' grand (Studio II). Video Equipment: Sony 3/4" U-matic deck, (2) Sony color monitor, TimeLine Lynx lockup. Other: Digital metronome, Silent Clock.



MASTER CONTROL
Burbank, CA

[24+] **MASTER CONTROL**; 3401 W. Burbank Blvd.; Burbank, CA 91505; (818) 842-0800. Owner: Aseley Otten. Manager: Aseley Otten, Noel Engineers: Steve Catania, Aseley Otten, Ted Patison, Andrew Ballard, independents. Dimensions: Main room 58 x 24, iso room 14 x 18, vocal booth 7 x 8, control room 20 x 24. Mixing Consoles: SSL 4048E 52 x 32 w/G Series computer and Total Recall. Audio Recorders: Studer A80 VU-KI III 24-track, Studer A80 RC-MK II 2-track (1/4" and 1/2"), Revex PR-99. Cassette Recorders/Duplicators: Studer A710, Revex B215. Noise Reduction Equipment: Available upon request. Synchronization Systems: TimeLine Lynx Echo, Reverb & Delay Systems: Lexicon 224XL, Lexicon 200, Lexicon PCM70, Lexicon PCM42, AMS RMX 16 digital reverb, AMS DMX 15-80, (2) Yamaha REV7, Eventide 949 Harmonizer w/de-glitch, (2) Roland SDE-3000, Efectron II 1275 DDL. Other Outboard Equipment: UREI LA-2A, (2) UREI 1176 limiter, (2) dbx 160X limiter/compressor, Valley People 430, Valley People Dyna-Mite limiter/gate, (2) CBS Audimax II RZ limiter, (2) API 560 graphics, Pultec EQP-1, Pultec EQP-1A, Pultec EQP-1S, Pultec EQH-2, Pultec MEQ-5, Pultec HLF-3C filter, Drawmer gates, Eventide instant phaser, Klark-Teknik DN332 graphic EQ, Trident A Range input EQ module, UREI LA-3A, Inovonics 201 limiter, Aphex II Exciter, dbx 902 de-esser, Massenburg EQ, Microphones: AKG "The Tube," AKG 414/P48, AKG 451, Beyers M 160, Crown PZM, E-V 665, E-V 666, Neumann U87, Neumann U47, Neumann KM84, Neumann KM85, RCA 77-DX, Sennheiser 421, Shure SM77, Countryman, Westlake and Jensen DI boxes, Shure SM81. Monitor Amplifiers: Crown PSA-2, Eagle 24, Studer A68, Crown 150, Crown 75, Haller P-500, Hill 3000. Monitor Speakers: JBL 4435, JBL 4311, Tannoy SRM12B, Yamaha NS-10M, Auratone 5C, Realistic Minimus 7, JBL 4406, Westlake BBSM-4. Musical Instruments: Steinway C grand piano, Hammond B3 w/Leslie, LinnDrum and others upon request. Video Equipment: 26" SVT, NTSC, PAL, SECAM color monitor. Rates: \$145/hr. Call for block bookings. Specialization & Credits: Credits include: Madonna, Loverboy, Cock Robin, REM, Bernie Taupin, Crystal Gayle, Stryper, Eddie Rabbit, Kenny Rogers, Poison, Juice Newton, Sergio Mendes, Dream Syndicate, Reckless Sleepers, Hunters & Collectors, Devo, Robert Tepper, Eurythmics, Del Lords, Herbie Hancock, Bus Boys, Cheech Marin, Dream Academy, Alice Cooper.

[24+] **MAXIMUS RECORDING STUDIOS**; 2727 N. Grove Industrial Dr. #111; Fresno, CA 93727; (209) 255-1688; FAX: (209) 255-1755. Owner: Jeff Hall. Manager: Leigh Ratliff. Engineers: Nye F. Morton, Bob Kearney, Jeff Hall, Eric Seaberg (ind.), Loyd Clift (ind.). Dimensions: Room 1: studio 28 x 44, control room 28 x 20. Room 2: studio 30 x 30, control room 24 x 18. Room 3: studio 9 x 10, control room 16 x 10. Room 4 (MIDI suite) control room 10 x 24. Mixing Consoles: (2) Harrison MR-3 w/autoset, Sound Workshop Logex 8. Audio Recorders: Studer A800 MkII 16/24-track, Studer A80 16/8-track, (3) Studer A80 2-track 1/4" and 1/2", (2) Studer A810 2-track, (5) Revex PR-99 2-track, Otari 5050B full track, Nagra IV-S 2-track w/sync, Panasonic SV-3500 DAT, Akai MG-1214 12-track Cassette Recorders/Duplicators: (2) Studer, (13) Sony, (2) Akai, Nakamichi. Synchronization Systems: Audio Kinetics Q.Lock 3.10. Echo, Reverb & Delay Systems: Lexicon 224-X w/LARC, Eclipate III, (3) Ibanez SDR 1000+, Korg SDR-3000, Yamaha SPX90, Lexicon Super Prime Time, (2) Lexicon Prime Time II, Eventide 949. Other Outboard Equipment: (10) UREI LA-4A, (4) UREI 1176, (2) UREI 1178, (2) UREI LA-3A, UREI 535, (2) EXR EX-IV, (3) Orban 536A, (2) Orban 245F. Microphones: (9) AKG 414EB/P-48, (6) AKG 460, (6) E-V RE20, (4) Sennheiser MD-441, (4) Sennheiser MD-421, (2) AKG D-12, AKG C-34, (4) Shure SM77, Sony C-37, (3) RCA Ribbon, (2) Wahrenbrock PZM, (2) Crown PZM. Monitor Amplifiers: (11) Crown DC-300, (9) Crown D-75.

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24+ TRACK

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MAXIMUS RECORDING STUDIOS
Fresno, CA

Crown PS-200 Monitor Speakers: (2) George Augspurger custom, (2) Electro-Voice Sentry 500, (4) Electro-Voice Sentry 100, (5) Auratone 5C, Yamaha NS-10M, Altec 604, Fostex RM780 Musical Instruments: E-mu Emulator E-III, E-mu Emulator E-II, Yamaha DX7, Roland D-550, Roland D-110, Roland MT-32, Yamaha TX802, Yamaha TX7, Kawai K-1, Oberheim Expander, E-mu Emulator SP-12, E-mu Emulator Drumulator, Alesis HR-16 Video Equipment: Full synchronous lockup to Sony 1" or Sony 3/4" Specialization & Credits: After glancing through this listing you're probably saying to yourself, "Fresno?!" You have a studio like this in Fresno? I thought that Fresno was only warm summers and Dancing Raisins! Actually, Fresno is a convenient, cost-effective place to record anything from film scores to broadcast production work to anything in between. Maximus serves clients from all over the country who find that working in Fresno gives them quicker turn-around than major metropolitan market studios at a fraction of the cost with no compromise in quality. We are able to offer our high-profile clients more freedom than in large-market studios. We combine large-market quality with a small-market profile to avoid the hassles and delays from outside distractions (or over-zealous media).

[24+] **MIDLAND**; 1615 Rancho Ave., Glendale, CA 91201; (818) 507-7982. Owner: Chris Page. Manager: Scott Cochran. Engineers: Scott Cochran, David Hentschel, Chris Page. Dimensions: Studio 12 x 24, control room 20 x 20. Mixing Consoles: Trident Series 65 40 x 24 w/custom patch bay, Hill 16 x 16 w/4 effect sends, Roland 16 x 16 w/4 effect sends. Audio Recorders: MCI 24-track w/autolocator III, Studer B67 2-track 1/2", Ampex 4-track 1/2" (on request), Sony 500 DAT. Cassette Recorders/Duplicators: (2) Aiwa F770 Noise Reduction Equipment: (2) Dolby SR (on request). Synchronization Systems: Fostex Echo, Reverb & Delay Systems: AMS DMX 15-80 digital delay, AMS DM 2.20 stereo flanger, Lexicon 224 digital reverb, Lexicon PCM70, Yamaha SPX90, Yamaha REV7, Korg SDE-3000, DeltaLab DL5 harmonizer, Dyrionics CS5 stereo tri-chorus, Marshall 5002 times modulator, Barth Vocoder, Dynachord DRP-20. Monitor Amplifiers: BGW, Audiotronics Monitor Speakers: (2) UREI 809A, (2) Yamaha NS-10, (2) Auratone Musical Instruments: Yamaha C7EPE 7.4" MIDI concert grand piano, Greengate DS4 16-bit sampler w/24 secs of memory, Roland S-50 sampler, Emulator sampler, Yamaha DX7, (2) Yamaha TX7, Roland Jupiter-8, Roland D-550, Sequential Circuits Prophet-VS, Roland MKS-70, Roland MKS-20, 360 Systems Mini Bass, LinnDrum II w/MIDI and 32k chips, Korg M-1, Kurzweil PX+, Kurzweil SX1000, Moog MIDImoog, Ensoniq EPS sampler, Roland R-8 drum machine, Octapad II. Other MIDI Equipment: Macintosh SE (radius 80-meg HD), Performer 2.3, Linn sequencer, (2) Zaphod 4 x 8 MIDI switchers, Garfield Dr Click Video Equipment: JVC VR-7700, Fostex 4030/4035 (sync lockup), Mitsubishi 26" monitor. Other: Extensive sound libraries for all computers and synths. Rates: Please call for rates. Chris Page resident producer/composer.

[24+] **THE MIXING LAB**; 11542 Knott Ave., Ste. 9; Garden Grove, CA 92641; (714) 373-0141. Owner: Jim Kempner. Manager: Doug Beiden. Engineers: Dave Jahnsen, Eric Kitbe, Doug Beiden, Beth Wisner. Dimensions: Room 1, studio 30 x 17, control room 18 x 25. Room 2, studio 13 x 11, control room 18 x 15. Mixing Consoles: Harrison modified 40/32 w/full MegaMix automation, Harrison modified 32/32 w/full MegaMix automation. Audio Recorders: MCI JH-24 24-track, MCI JH-16 24-track, Otari MTR-12 2-track, (2) Panasonic

SV-3500 R-DAT Cassette Recorders/Duplicators: (2) Yamaha C300 stereo, Yamaha K520 stereo. Synchronization Systems: SMPTE/MIDI converter system based on Atari Echo, Reverb & Delay Systems: Lexicon 480L digital effects system, Lexicon PCM70 digital effects processor, Lexicon 200 digital reverb, Lexicon PCM42 digital delay, Eventide H3000 Ultra-Harmonizer, AMS RMX 16 digital reverb, AMS DMS 15-80S stereo digital delay, Yamaha D1500 digital delay, Yamaha SPX90II, Yamaha SPX90, Alesis XT:C digital reverb, Alesis XT digital reverb. Other Outboard Equipment: Yamaha DMP11 digital mixing processor, Yamaha DEQ7 digital equalizer, (3) Aphex expander/gate, (2) Aphex Compellor, Aphex Dominator, Symetrix 544 quad expander/gate, (2) dbx 160A comp/limiter, (2) dbx 160 compressor, UREI peak limiter, (2) UREI LA-3A leveling amp, (4) Valley People Kepex II gate, Valley People de-esser, Roland M160 line mixer. Microphones: (10) Shure SM57, (2) Shure SM81, Neumann TLM170, (2) Neumann U87, (4) AKG 414EB, (2) AKG 454C, (2) AKG 452, AKG tube, (5) Sennheiser 421, (3) Electro-Voice RE20. Monitor Amplifiers: (3) OSC MX1500, OSC 1200, Crown DC-300A, Quad Eight 303, Yamaha P2200, Yamaha P2201. Monitor Speakers: (2) Westlake Audio BBSM-15, (2) Westlake Audio Sierra S-15, (2) Westlake Audio BBSM-6, (4) Yamaha NS-10M. Musical Instruments: Yamaha C7 conservatory grand piano, E-mu Emax sampler. Other MIDI Equipment: Hybrid Arts ADAP.

[24+] **MUSIC GRINDER STUDIOS**; 7460 Melrose Ave., Los Angeles, CA 90046; (213) 655-2996; FAX: (213) 655-2344. Owner: Gary Skardina, Ron Filecia. Manager: Ron Filecia.

[24+] **MUSIC LAB INC.**; 1831 Hyperion Ave., Hollywood, CA 90027; (213) 666-3003. Owner: Chaba Mehes. Manager: David Missal.



NOVASTAR
Hollywood, CA

[24+] **NOVASTAR**; 6430 Sunset Blvd., 14th Fl., Hollywood, CA 90028; (213) 467-5021; FAX: (213) 465-8750. Owner: Greg Geddes, Bob Sky. Manager: Greg Geddes. Engineers: Greg Geddes, Scott Fraser, James Geddes, Bob Sky. Dimensions: Studio A 16 x 12, control room 21 x 20. Studio B 28 x 34. Mixing Consoles: Tascam Model 600 32 x 16 x 32 x 70 (+4 balanced). Audio Recorders: All digital formats available on request 2/4/8/16/24/32-track, all analog formats available on request 2/4/8/16/24/32-track, Tascam ATR-6016 16-track seamless/gapless 1", Sony PCM-701ES 2-track digital, Otari 5050 2-track w/center-track time code, Technics 1520 2-track. Cassette Recorders/Duplicators: (2) Aiwa HX-Pro, TEAC high-speed dub. Noise Reduction Equipment: All noise reduction formats available on request, dbx 16-channel, dbx 2-channel. Synchronization Systems: (3) Tascam ES-50, Tascam ES-51 controller. Echo, Reverb & Delay Systems: All signal processing boxes available on request, (3) Alesis Microverb, Alesis MIDlverb, Alesis MIDlverb II, (2) DigiTech DSP-128, Effectron digital delay. Other Outboard Equipment: UREI 1176 limiter, (2) UREI LA-3A limiter stereo ganged, Eventide Omnipressor, (8) API 550A EQ, (8) Jensen custom mix pre-amp, SAE stereo graphic EQ, Burwen dynamic noise filter (stereo), Allison Research 36 db/oct filter set, (4) Audio Logic noise gate, Aphex Aural Exciter (stereo). Microphones: Neumann U87, Stephen Paul modified, Neumann U87, (3) Neumann KM84, (3) Sennheiser MD-421, (2) AKG 224, (4) Shure SM58, Countryman EM101, (2) AKG C-451, (2) Crown PZM, (3) Sennheiser 404. Monitor Amplifiers: Adcom 555 Pro, BGW 750, (2) Crown D-60, Crown DC-300A. Monitor Speakers: (2) Altec 604 w/Mastering Lab crossover, (2) Yamaha NS-10, (2) Auratone cube. Musical Instruments: E-mu Emulator II sampler, E-mu SP-12 drum sampler, Korg DSM-1 sampler, Yamaha TX7 synth, Yamaha TX812 synth, Roland D-550 synth. Other MIDI Equipment: IVL Pitchrder (wind and brass) pitch to voltage to MIDI, Southworth Jam Box/4+, J.L. Cooper PPS-1 time code, (2) MX-8 processor. Video Equipment: (2) Sony BVH-3000 "1" recorder, (2) Sony BVU-850 3/4" recorder, (2) Panasonic AG-1950 1/2" VHS recorder, Panasonic AG-95 edit controller. Other: Macintosh IIX w/4MB memory and 80MB internal drive, Sound Tools digital hard disk recorder, Digi-design Cue Sheet edit decision list to MIDI, Passport Master

Tracks Pro, Mark of the Unicorn Performer, (3) Opcode edit/ librarian for DX, D-550, TX812, Blank Drum File SP-12 librarian. Specialization & Credits: Novastar is uniquely situated within Bonnevill Satellite Communications newly constructed state-of-the-art multimedia environment with 1" C video, 4-camera insert stage, edit bay, direct satellite link and phone matrix system for live teleconferencing. Novastar can supply you with audio expertise and capability for any audio post need. Specializing in sweetening, synchronizing audio-picture (conforming), ADR, voice-over, original music, sound FX creation, as well as the all important audio fix and layback. We have a firm commitment to the Macintosh II with a host of programs using MIDI and digital audio. Integrated with a complete understanding of conventional audio solutions giving you a cost-effective, quality product. Novastar is available by appointment on a 24-hour basis with security parking, full kitchen, green room, conference room and FAX. Our staff experience includes syndication, film, video, location recording, music production, archival restoration and commercial production.



PACIFIQUE RECORDING STUDIOS
North Hollywood, CA

[24+] **PACIFIQUE RECORDING STUDIOS**; 10616 Magnolia Blvd., North Hollywood, CA 91601; (818) 761-8042. Owner: Vasken Inc. Manager: Joe Deranteriasian. Engineers: Ken Deranteriasian, Dennis Moody. Dimensions: Room 1: studio 35 x 30, control room: 25 x 25. Room 2: studio 20 x 20, control room 25 x 25. Mixing Consoles: Neve V Series 60 60-input, Trident 80B 32-input. Audio Recorders: Studer A820 24-track, Otari MTR-90 II 24-track, Studer A820 2-track 1/2", Otari MTR-12 2-track 1/2", Otari MTR-12 2-track 1/4". Cassette Recorders/Duplicators: (2) Nakamichi MR-1. Synchronization Systems: Adams-Smith Echo, Reverb & Delay Systems: Lexicon 224XL, AMS RMX 16, (3) Lexicon PCM70, (4) Roland SRV-2000, (3) Yamaha SPX90, Yamaha REV7, Lexicon Prime Time, Roland SDE-3010, (2) TC Electronic 2290, (2) Eventide H3000. Other Outboard Equipment: (5) Kepex II noise gate, (5) dbx 160X, dbx 165A, (3) UREI 1176, Teletexon LA-2A, (2) Urban. Microphones: Neumann TLM170, Neumann J89, Neumann U87, AKG 414, AKG 460, Neumann KM84, Sennheiser 421, AKG D-12, AKG 224, Shure SM81, Shure SM57, E-V RE20. Monitor Amplifiers: Crown, Perreux, Forte. Monitor Speakers: JBL 4435, Yamaha NS-10, Tannoy. Musical Instruments: Yamaha DX7, Roland S-50, Yamaha RX5. Rates: On request. Specialization & Credits: In the two years we've been open, we have managed to attract some of the world's finest recording artists including: The Jets, George Benson, The Desert Rose Band, The Whispers, Maurice White, Dweezil Zappa, Debbie Reynolds, Brandon Fields, Free Flight, The Fowler Brothers, Osamu Kitajima, Lucia Mendes, Ned Nelson, Ule Lumper, Jun Yamagishi, Temptations, Tracy Spencer.



PARAMOUNT RECORDING STUDIOS
Hollywood, CA

[24+] **PARAMOUNT RECORDING STUDIOS**; 6245 Santa Monica Blvd.; Hollywood, CA 90038; (213) 465-4000. Owner: Fast Forward Ent. Manager: Adam Bell, Mike Kerr, Nick West



PLATINUM RECORDERS HAWAII
Mililani, HI

[24+] **PLATINUM RECORDERS HAWAII**; also **REMOTE RECORDING**; 95-11B Hiilei Pl.; Mililani, HI 96789; (808) 623-4555. Owner: Platinum Productions Svc. Inc. Manager: Tim Nelson. Engineers: Tim Nelson, "Bully" Soares, Michael Grande. Dimensions: Room 1 studio 16 x 14, control room 14 x 12. Room 2 control room 20 x 20. Mixing Consoles: API 3624, Tascam Model 15 24 x 16 modified. Audio Recorders: Sony/MCI JH-24 24-track, Tascam Model MS-16 16-track w/dbx, Ampex AG440 2-track, Technics 1500 2-track, Sony PCM-501 w/900 Super Beta Cassette Recorders/Duplicators: BIC T2 2-speed, Tascam 122 Echo, Reverb & Delay Systems: (1) Yamaha SPX90, Yamaha REV7, (2) TC Electronic 2290 digital processor, (2) Lexicon PCM70 digital reverb, (2) Roland SRV-2500, Roland DEP-5, Alesis MIDiverb II, (2) DigiTech DSP-128. Other Outboard Equipment: (2) dbx 160 limiter/compressor, (2) dbx 162 limiter/compressor. Microphones: (2) Neumann U87, (2) AKG 414, (6) Shure SM57, (6) Shure SM58, (2) AKG 451, (2) AKG D-112, (3) Sennheiser 421U, (4) E-V various, Sony electret condenser. Monitor Amplifiers: Perreaux 3150, BGW 750, Yamaha P2250, Crown D-60, BGW Model 650, Rane HC-6 headphone amp. Monitor Speakers: E-V Sentry 500. (2) Yamaha NS-10M, Auratone 5C Musical Instruments: Yamaha DX5, Yamaha DX7, Roland D-50, Roland D-550, Korg M-1, Korg M-1R, Oberheim Matrix-6R, Yamaha TX816 fully loaded, Ensoniq ESQ-1, Ensoniq Mirage, Yamaha TX802, Sequential Circuits 445 studio sampler/drum machine, Alesis HR-16, E-mu SP-1200 drum machine/sampler, Korg DDD-1 drum machine, Roland TR-626, Korg DSS-1 sampler/synth. Other MIDI Equipment: Macintosh SE w/Performer 2.41, J.L. Cooper MSB-16/20 MIDI patcher and more. Specialization & Credits: We also specialize in equipment rental and service to many of the major concert and convention venues here in Hawaii including 16/24-track remote setups. Experienced crew. Recent credits include C&K, Bobby Brown, Levert, Gladys Knight and the Pips, REO Speedwagon (live remote), Anri (16/24-track live remote), UB-40 Cinderella, Steel Pulse, Third World, Paula Abdul, NIA Peeples, Don Ho, Charo and many local acts. We also offer interisland services. Call for more info and rates.

[24+] **POWERHOUSE STUDIOS**; 19347 Londelius St.; Northridge, CA 91324; (818) 993-4778. Owner: Paul and Jeff Stillman. Manager: Paul and Jeff Stillman

[24+] **RADIO RECORDERS**; 7000 Santa Monica Blvd.; Hollywood, CA 90038; (213) 464-7747. Owner: Paul Schwartz. Manager: Jack Snyder.

[24+] **RCM STUDIOS**; also **REMOTE RECORDING**; 640 S. Glenwood Pl.; Burbank, CA 91506; (818) 845-1760. Owner: Ritchie Carbajal

[24+] **RECORD PLANT INC.**; also **REMOTE RECORDING**; 1032 N. Sycamore Ave.; Los Angeles, CA 90038; (213) 653-0240. Owner: Chris Stone. Manager: Rose Mann. Specialization & Credits: Record Plant has two facilities offering video, film and record recording studios plus two remote trucks. We also offer the finest equipment available for rent through Livingstone Audio. The Hideley-designed control rooms at Sycamore, measuring 29 x 32, are designed for synthesizer recording and feature video projection as well as the new 60-input V Series Neve console with GML automation (Studio 1), a new 72-input SSL 4000 G Series with Total Recall (Studio 2), and Studer analog and Sony digital 48-track tape machines. Our two remote recording trucks continue to provide faultless audio for award shows as well as live recording for the world's most successful artists.

[24+] **R.P.D. SOUND (FORMERLY FUTURE SOUND)**; also **REMOTE RECORDING**; 1842 Burlison Ave.; Thousand Oaks, CA 91360; (805) 496-2585. Owner: Randy Dew. Manager: Randy Dew



RUMBO RECORDERS
Canoga Park, CA

[24+] **RUMBO RECORDERS**; 20215 Saticoy St.; Canoga Park, CA 91306; (818) 709-8080; FAX: (818) 709-4072. ★See Our Ad in the BusinessPages!★ Owner: Daryl Dragon, Toni Tennille. Manager: Vicky Camblin. Engineers: Julian Stoll, Andy Udoff, Gina Immel, Mike Gunderson, Shirley Greer, Jim Mancuso. Dimensions: Room 1 studio 58 x 38, control room 30 x 25. Room 2 studio 38 x 33, control room 30 x 20. Mixing Consoles: Neve V-Series 60-input w/Flying Fader automation, Trident Series 80A 32 x 24. Audio Recorders: (2) Studer A800 MkII 24-track, Studer A820 1/2" master recorder, (2) Ampex ATR-104 2/4-track 1/2" and 1/4", (2) Otari MTR-90 Series II 24-track, Ampex ATR-102 2-track 1/2" and 1/4". Cassette Recorders/Duplicators: Sony PCM-2500 DAT, (2) Studer A721 Synchronization Systems: TimeLine Lynx, Fostex 4030/4035. Monitor Speakers: Custom TAD, Gauss system, custom Fostex. Specialization & Credits: Rumbo has always maintained a client base made up primarily of artists and producers affiliated with album projects. Comfort is a top priority separate lounges, private patios and a full kitchen make Rumbo "Home Away from Home." The entire control room in Studio A has just been remodeled with the electronic equipment totally updated. The main studio has also been acoustically redesigned to enhance natural reverb. With its huge main room and four oversized isolation booths, Studio A is ideal for tracking and overdubbing. Studio B remains a very popular recording room because of its great sound and reasonable lockout rate. Some Rumbo credits include, Tom Petty *Full Moon Fever*, Roy Orbison *Mystery Girl*, Eddie Money *Nothing to Lose*, Trevor Rabin, Bruce Hornsby and the Range *The Way It Is*, *Songs from the Southside*, Jefferson Airplane, Guns N' Roses *Appetite for Destruction*, G.N'R. Lies.

[24+] **RUSK SOUND STUDIOS**; 1556 N. LaBrea Ave.; Hollywood, CA 90028; (213) 462-6477. Manager: Elton Ah



SABRE SOUND PRODUCTIONS
Riverside, CA

[24+] **SABRE SOUND PRODUCTIONS**; also **REMOTE RECORDING**; 413 Trabert Cir.; Riverside, CA 92507; (714) 784-4280. ★See Our Ad in the BusinessPages!★ Owner: Paul Tucker, Walt Lysinger. Manager: Paul Tucker. Engineers: Jimmie Kees, Walt Lysinger, Paul Tucker, Stephen Tucker. Dimensions: Studio 14 x 11, control room 21 x 20. Mixing Consoles: Amek Matchless 64-input. Audio Recorders: Otari MX-80 24-track, Tascam 35-2 2-track, Panasonic SV-3500 Echo, Reverb & Delay Systems: Eventide 910 Harmonizer, (2) Lexicon PCM70, Yamaha SPX90II, (2) Yamaha SPX90, (2) Yamaha REV5, Ursa Major digital reverb. Other Outboard Equipment: (4) dbx 160X, Valley People Dyna-Mite, dbx 900, Aphex

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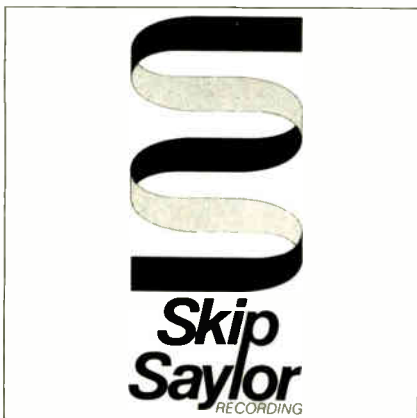
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24+ TRACK

—CONTINUED FROM PREVIOUS PAGE

Aural Exciter Type C. Microphones: (2) AKG 414, AKG tube, (2) Neumann TLM170, (2) Neumann U87, (2) E-V RE20, (2) ATM 33R, (4) Shure SM58. Monitor Amplifiers: (2) QSC MX-1500, Ramsa WP-9055. Monitor Speakers: UREI 809, DeltaLab DLW-18, Yamaha NS-10M. Musical Instruments: Kurzweil MIDIboard, Yamaha TX802, Roland D-550, Roland P-330, Roland S-330, Roland MKS-70, 360 Systems keyboard, (2) Alesis HR-16, Roland sampler. Other MIDI Equipment: (2) IBM PC XT w/Personal Composer, Texture, Cakewalk and others. Specialization & Credits: Sabre Sound specializes in radio and television commercials, contemporary Christian albums and individual accompaniment track. Excellent arrangers, producers and engineers on staff.

[24+] **SALTY DOG RECORDING, AKA SDR STUDIOS:** 14511 Delano St.; Van Nuys, CA 91411; (818) 994-9973. Owner: Fred J. Munch, Larry Cook

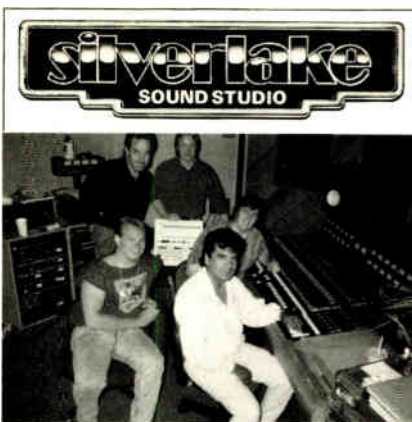


SKIP SAYLOR RECORDING
Los Angeles, CA

[24+] **SKIP SAYLOR RECORDING,** 506 N. Larchmont Blvd.; Los Angeles, CA 90004; (213) 467-3515. Owner: Skip Saylor. Manager: Liz Sroka. Engineers: Skip Saylor, Pat MacDougall, Joe Shay, independents. Dimensions: Room 1 studio 9 x 12 (overdub booth), control room 22 x 20. Room 2 studio 18 x 20, control room 20 x 22. Mixing Consoles: SSL 4000 72-input frame 66 loaded, E & G Series computer, API 32 x 64 w/Necam automation. Audio Recorders: (2) Studer 800 24-track, Sony/MCI JH-24 24-track, (2) Ampex ATR-104 2/4-track 1/2", (2) Ampex ATR-102 2-track 1/2" or 1/4", Ampex ATR-800 2-track 1/4", digital 32-track available for rental upon request. Cassette Recorders/Duplicators: (4) Nakamichi MR-1, Sony PCM-2500 Pro DAT. Noise Reduction Equipment: Dolby SR or A available for rental upon request. Synchronization Systems: (3) TimeLine Lynx Echo, Reverb & Delay Systems: AMS digital reverb/delay (9.2 seconds), TC Electronic (32 seconds), Lexicon 480L, Lexicon 224XL, (4) Lexicon PCM70, Lexicon PCM60, (3) Lexicon PCM42, Lexicon Super Prime Time, Lexicon Prime Time II, (2) Lexicon LXP-1, (2) Yamaha REV7, Yamaha REV5, (2) Yamaha SPX90, Eventide SP-2016 processor, Eventide H3000 Ultra-Harmonizer, Eventide 910 Harmonizer, Eventide 949 Harmonizer, (2) Roland SRV-2000 reverb, (2) Roland SDE-3000, Roland SDE-2000, Roland SRE-555 analog chorus/echo, Ibanez SDR-1000, Effectron III. Other Outboard Equipment: (10) Neve Prism EQ rack, (10) API 550A EQ, (6) B&B parametric EQ, (2) Focusrite EQ rack, Valley People Maxi-Q, Orban parametric EQ, (3) LA-2A limiter, Summit Audio tube limiter, (5) UREI 1176LN limiter, (2) Valley People Dyna-Mite limiter, (2) dbx 160X limiter, (2) dbx 903 limiter, UREI LA-4 limiter, (4) Drawmer gate, (4) dbx 904 gate, Kepex rack, (6) dbx de-esser, Orban de-esser, (2) Dynaflex noise eliminator, Aphex Exciter, Roland phaser, Roland flanger, Roland analog chorus, Roland Dimension D, dbx flanger, UREI Little Dipper, (3) Studio Technologies stereo expander, UREI digital metronome. Microphones: AKG and assorted others. Monitor Amplifiers: Perreux, Crown. Monitor Speakers: TAD, Yamaha NS-10, Auratone cube.

[24+] **SCORE ONE RECORDING, INC.:** 5500 Cahuenga Blvd.; North Hollywood, CA 91601; (818) 762-6902. Manager: Al Johnson

[24+] **7TH STREET SOUND;** only REMOTE RECORDING; 688 S. Santa Fe #105; Los Angeles, CA 90021; (213) 627-5392. Owner: Ed Sanders. Manager: Ed Sanders



SILVERLAKE SOUND STUDIO
Los Angeles, CA

[24+] **SILVERLAKE SOUND STUDIO;** 2413 Hyperion Ave.; Los Angeles, CA 90027; (213) 663-7664. Owner: Steve Millang. Manager: Rosa Millang, Walter Spencer. Engineers: Walter Spencer, Robert Russell, Robert Biles, Cisco DeLuna, independents. Dimensions: Studio 25 x 30, control room 16 x 13. Mixing Consoles: Trident Series 80B. Audio Recorders: Otari MTR-90 24-track, MCI JH-110 2-track. Cassette Recorders/Duplicators: Sony TC-777, Aiwa F-780. Echo, Reverb & Delay Systems: Yamaha REV7, Yamaha SPX90, Lexicon Prime Time delay, (2) Lexicon PCM70, Eventide H3000, TC Electronic 2290 32-secs. sampling w/fast trigger. Other Outboard Equipment: (4) dbx 160 limiter, (2) dbx 165A limiter, (2) UREI 1176 limiter, (2) dbx 902 de-esser, (4) Kepex noise gate, (2) Drawmer DS-201 gate. Microphones: Neumann U47 tube, Neumann U47 FET, (2) Neumann U87 (one w/Stephen Paul module), (2) AKG 414, AKG 414P-38, (2) AKG 452, AKG D-12, (6) Shure SM57, (2) Sennheiser 421. Monitor Amplifiers: Perreux 9000, Crown PB-1, Crown D-150. Monitor Speakers: (2) JBL 3340, Yamaha NS-10, Tannoy PBM 6.5, (2) Auratone cube. Specialization & Credits: Silverlake Sound is the place to get high-quality sound at reasonable rates. Our equipment is always well-maintained. The staff is knowledgeable, friendly and ready to assist you in keeping your sessions moving without delay. Our list of clients is proof of our good service. Paula Abdul, Karyn White, Bobby Brown, The Boys, LA & Babyface, Le Vert, Dawn Silva, Arturo Salas, Los Freddy's, El Sheriff, Exene Cervenka, Rebel Train, Food for Feet, Frank Gambale, Alter Seven, Desiree Colman, Gerald Albrght.

[24+] **SOUND AFFAIR RECORDING, LTD.:** 2727 Croddy Way, Ste. G; Santa Ana, CA 92704; (714) 540-0063. Owner: Ron J. Leeper. Manager: Robin Leeper, Andree Hogg

[24+] **SOUND CHAMBER RECORDERS;** 27 S. El Molino Ave.; Pasadena, CA 91101; (818) 449-8133. Owner: Richard McIlvery. Manager: Richard McIlvery.

[24+] **SOUND CITY, INC.:** 15456 Cabrito Rd.; Van Nuys, CA 91406; (818) 787-3722; (213) 873-2842. Owner: Joe Gottfried, Tom Skeeter. Manager: Paula Salvatore. Engineers: Bruce Barris, David Eaton, Allen Isaacs, Brian Jenkins, Bret Newman, Stephen Toback. Dimensions: Room 1 studio 40 x 50, control room 26 x 20. Room 2 studio 40 x 30, control room 20 x 20. Mixing Consoles: Neve 8028 28 x 24 w/Necam I automator. Neve 8068 32 x 24. Audio Recorders: Studer A800 24-track, Studer A80 MkII 24-track, Studer A80 2-track 1/2", Studer A80 2-track 1/4", (2) Studer B67 2-track 1/4". Noise Reduction Equipment: Dolby M24, Dolby 361, Dolby 301. Echo, Reverb & Delay Systems: EMT, AKG, Lexicon, DeltaLab T digital delay, (2) Eventide 949 Harmonizer, Eventide flanger, Orban de-esser, Eventide digital delay, AMS RMX 16 digital reverb, Yamaha REV7, Yamaha SPX90II. Other Outboard Equipment: dbx 165A, Pultec EQs, Lang EQs, Teltronix LA-2A limiters, Neve limiters, (4) UREI 1176, Audioarts engineering parametric EQ, GML mic preamp, (8) Valley People Kepex II gate. Microphones: Neumann U47 FET, Neumann U89, Neumann U87, Neumann KM84, Neumann KM86, Neumar m49, AKG 541E, AKG C-451E, AKG C-24, AKG 460, E-V RE20, E-V RE15, E-V 635, Shure 545, Shure SM57, Shure SM58. Sennheiser MD-421, Sony C-37, Sony EC-50, Sony Shuregun. Monitor Amplifiers: HH Electronic, Eagle, Yamaha P2201. Monitor Speakers: (2) JBL bi-amped system (designed by George Augsburger). Musical Instruments: (2) Steinway grand piano, Hammond C-3 w/Leslie.

[24+] **SOUND DESIGN;** also REMOTE RECORDING; 33 W. Haley St.; Santa Barbara, CA 93101; (805) 965-3404. Owner: Affiliated Concepts Corp. Manager: Dom Camardella. Engineers: Dom Camardella, Dan Protheroe, Terry Nelson, Anders Johansen, Jim Shaffer. Dimensions: Room 1 studio 30 x 50, control room 20 x 30. Room 2 control room 12 x 30. Mixing Consoles: Neve 8038 36 x 24 (16 bus) custom, Neve BCM 12 x 8 custom expansion, Hill Multimax 16 x 2 keyboard submixer. Audio Recorders: Sony PCM-3324 24-track digital w/Apogee filter, Studer A80 MkII 24-track w/Audio Kinetics autolocator, Sony PCM-3402 2-track digital w/remote, Studer

A80RC 2-track analog w/remote, (2) Sony PCM-2500 R-DAT 2-track, Digital Audio Research Sound Station II 4-track digital workstation, CompuSonics DSP1500 2-track disk-based 400MB w/MIDI. Cassette Recorders/Duplicators: Tascam 122MK. Noise Reduction Equipment: Dolby XP24 SR. Synchronization Systems: (2) TimeLine Lynx chase/lock sync, Roland SBX-80 sync box (MIDI, SMPTE). Echo, Reverb & Delay Systems: EMT 140ST plate reverb, AMS RMS 16 reverb, Lexicon 200 reverb, Lexicon PCM70, Lexicon Super Prime Time, Eventide SP2016 reverb/EFX processor, Eventide H3000 Harmonizer, TC Electronic Super delay, Yamaha REV7, Yamaha SPX90, ART Multiverb EFX processor, Eventide 910 Harmonizer, Alesis MIDVerb. Other Outboard Equipment: Pultec EQP-1A tube EQ, Lang PEQ-1 tube EQ, Sontec stereo parametric EQ, Summit Audio stereo tube EQ, Summit Audio stereo tube direct input/mic pre, Summit Audio tube compressor, UREI 1178 stereo compressor/limiter, Teltronix LA-2A tube compressor, Universal Audio LA-3A tube leveler, (2) RCA BA-6A tube limiter, (4) Valley People Kepex II gate, Aphex 612 expander/gate stereo, BBE stereo Aural Exciter. Microphones: (2) Neumann U47 FET, Telefunken U47 tube, (9) Neumann U87 and others, (13) AKG 414 and others, Sennheiser 421, Sennheiser 441, (4) Electro-Voice RE20, Shure 57, Shure 58, Shure 545, (2) Beyer MKB301, Sony C-500 Monitor Amplifiers: (8) Accuphase, Phase Linear 700B. Monitor Speakers: (2) UREI 813, (4) Yamaha NS-10, (4) JBL studio, (8) Fostex T20 headphones. Musical Instruments: (11) Yamaha 6' conservatory grand piano, Fairlight CMI Series III computer music instrument, Akai S1000 sampler, Roland JX8P and others, Roland Super Jupiter w/programmer, Korg M1R, (8) Yamaha TX816, E-mu Emulator II sampling keyboard, Korg SGX1D sampling grand piano, Hammond B-3 w/Leslie, Fender 1951 Telecaster. Other MIDI Equipment: Megamax 32-channel automation, PC w/Roland MIDI interface, Apple Mac Plus w/Opcode interface. Video Equipment: JVC 3/4" VCR w/Sony 25" monitor.



SOUND MASTER AUDIO/VIDEO STUDIOS
North Hollywood, CA

[24+] **SOUND MASTER AUDIO/VIDEO STUDIOS;** also REMOTE RECORDING; 10747 Magnolia Blvd.; North Hollywood, CA 91601; (213) 650-8000. Owner: Brian D. Ingoldby. Manager: Barbara Ingoldby. Engineers: Brian Ingoldby, Ian Ingoldby, Dan Shrimaie, Ken Ingoldby. Dimensions: Room 1 studio 35 x 40, control room 30 x 30. Room 2 studio 35 x 40, control room 20 x 25. Room 3 studio 15 x 15, control room 25 x 25. Mixing Consoles: Mitsubishi 36 x 36 Quad Eight automated, TAC Scorpio 28 x 24. Audio Recorders: (2) Sony/MCI JH-24 24-track, 3M 79 24-track, 3M 79 16-track, (3) Sony JH-110 4-track, (12) Ampex 2-track, Sony/MCI 2-track, Otari 2-track, (2) 3M 56 8-track. Cassette Recorders/Duplicators: (2) Awa, (2) Technics, (2) Realistic. Noise Reduction Equipment: (56) dbx, (28) Dolby, (16) dbx 2-track, Dolby 2-track. Synchronization Systems: (2) Lynx Echo, Reverb & Delay Systems: Lexicon 224, (2) Yamaha REV7, Yamaha SPX90, Roland SRV-2000, Lexicon Prime Time, Ursula Major, Lexicon PCM41, (3) Advance Audio D-250, (8) MXR, TC Electronic 2290. Other Outboard Equipment: D250 Advanced Audio Design, (40) limiter, (57) misc. effects devices, phasers, flangers, harmonizers, etc., Orban de-essers, Autolocator 3, Lexicon Prime Time, Lexicon PCM41, Eventide Harmonizer, 265 Dynallanger, dbx 165 limiter, UREI 1176 limiter, dbx 161, Quad Eight compressor/expander, Quad Eight de-esser, (16) Quad Eight noise gate, (16) Kepex noise gate, Orban parametric, UREI 527A MXR phaser, Eventide instant phaser, Eventide DDL 1745, (2) CDT MC-8, UREI 1/2-octave EQs. Microphones: (59) AKG tube, Neumann, Altec, (100) Dynamic, (15) Ribbon, Beyer, RCA, (30) condenser, (20) PZM, (10) wireless. Monitor Amplifiers: (10) Soundcraft, (14) Carvin, (6) BGW. Monitor Speakers: (4) Custom Sound Master, (38) Carvin/EV, (2) Renkus-Heinz. Musical Instruments: Steinway "B" 7'7" grand, Yamaha grand, Hammond B-3 w/Leslie, string machine, channel chimes, vibes, (2) drum sets, misc. hand percussion, misc. keyboards. Video Equipment: Hitachi C format 1", Cross-point latch, Grass Valley, Ikegami, microwave, camera crane truck, computer A/B roll editing, Chyron, ENG and EFP trucks, (8) camera, (7) 3/4" VTR. Rates: Call Barbara Ingoldby, studio

manager Specialization & Credits: On-site complete disc mastering studio with Total Recall console and Ortofon cutting system. In addition complete video production 1/2" and 1" format, pre- and post-, 30 remote 24/48-track recording trucks, 31 remote video trucks with microwave. We do it all! Our aim is to provide you with professional technical sophistication as well as personal attention.

[24+] **SOUNDCASTLE RECORDING STUDIOS**; 2840 Rowena Ave., Los Angeles, CA 90039; (213) 665-5201. Owner: Buddy King. Manager: Debbie Jenkins

[24+] **SOUNDER RECORDING**; also *REMOTE RECORDING*; 17021 Chatsworth St., Granada Hills, CA 91344; (818) 366-0995. Owner: Brian Mann. Manager: John Slattery



SOUNDWORKS WEST, LTD.
West Hollywood, CA

[24+] **SOUNDWORKS WEST, LTD.**; 7317 Romaine St.; West Hollywood, CA 90046; (213) 850-1510; FAX: (213) 874-1420. Owner: Alan Ramer, Robert Diez d'Aux. Manager: Ron S Lagerlof, Candice Moore-Dooley. Specialization & Credits: Soundworks West, Ltd., is a new sound production facility in Los Angeles that is a sister facility of New York's Soundworks. The studios are state-of-the-art TV/film and record facilities located in the complex formerly known as Hitsville, owned and operated for 20 years by Motown Records. While this legacy remains at the spirit of the facility, the new owners/operators, Alan Ramer and Robert C. Diez d'Aux, have made an aggressive commitment to thrusting the studio into the 21st century. New equipment purchases include fully automated Neve 72-input and 60-input post-production recording consoles, Sony digital recorders including two 48-track PCM-3348s, a 32-track Mitsubishi X-880, Sonic System by Sonic Solutions and the Boss II editing system. Every effort is being taken to ensure that the integrity of the facility, equipment and staff is of the highest quality.

[24+] **STAGG STREET STUDIO**; 15147 Stagg St.; Van Nuys, CA 91405; (818) 989-0511. Owner: Gary Denton. Manager: Melody Carpenter

[24+] **THE STUDIO**; also *REMOTE RECORDING*; 9590 Chesapeake Dr.; San Diego, CA 92123; (800) HIT-SONG. Owner: Steve Vaus Productions. Manager: Mike Harris. Engineers: Mike Harris, Woody Barber. Dimensions: Room 1 studio 50 x 30, control room 20 x 30. Room 2 studio 12 x 12, control room 12 x 12. Room 3 studio 12 x 12, control room 12 x 12. Mixing Consoles: MCI 528 2B x 24, Akai MG-1212. Audio Recorders: Stephens 821B 24-track, Akai MG-1212 12-track, (2) MCI 110A-2PC 2-track, Casio DAT, Tascam 32 2-track, Tascam 34B 4-track. Cassette Recorders/Duplicators: Nakamichi MR-1, Tascam 122 Echo, Reverb & Delay Systems: Lexicon PCM70, TC Electronic 2290, (2) Yamaha SPX90, Drawmer DS-201 dual gate, Alesis MIDverb II, BBE 402 Sonic Maximizer, (2) UREI 1176LN limiter, (2) UREI LA-4 compressor/limiter, (2) Trident stereo limiter/compressor, Lexicon Prime Time, Eventide Harmonizer, Klark-Teknik dual parametric equalizer, Roland SDE-100 digital delay, Symetrix voice processor, Yamaha GC2020 compressor/limiter. Microphones: (10) Neumann various, (8) AKG various; (4) Sennheiser various. Monitor Amplifiers: (3) Threshold 400A, Yamaha P2100, BGW 250D. Monitor Speakers: Westlake custom design, JBL ANX, Tannoy Little Gold, Yamaha NS-10M, Auratone. Musical Instruments: Yamaha C7 grand piano, Hammond B-3 w/Leslie, E-mu Emulator II w/extensive library, Roland D-50, Yamaha DX7, Oberheim Matrix-6, Kawai R-100 drum machine, Ovalton Adamas guitar, Ovalton Country Classic guitar, Suzuki XG-1M MIDI guitar, Fender Rhodes 73 electric piano. Other MIDI Equipment: Yamaha MIDI controller, Sonus MIDI patch connector, Commodore 64 computer. Video Equipment: Sony U-matic 3/4" videotape recorder, Hitachi 13" color monitor

[24+] **THE STUDIO**; also *REMOTE RECORDING*; 22723 Berton St.; Woodland Hills, CA 91367; (818) 883-1920. Owner: Robby Weaver. Manager: Lynne Weaver. Engineers: Rob-

by Weaver, John Cevetello, Marc Kolbe. Dimensions: Studio 29 x 25, control room 22 x 16. Mixing Consoles: AP51 32 x 24. Audio Recorders: MTR-9011 24-track, MTR-10 2-track, Otari 5050B 2-track, Otari 5050 MkIII 4-4-track, Panasonic SV-250 DAT, Sony F-1 digital. Cassette Recorders/Duplicators: Nakamichi, TEAC 250. Noise Reduction Equipment: Dolby SR/A 2-channel. Synchronization Systems: (3) TimeLine Lynx Echo, Reverb & Delay Systems: Lexicon 480 audio processor, Lexicon 224XL digital reverb, (2) Lexicon PCM70, Yamaha SPX90, Lexicon PCM41, Lexicon PCM42, Eventide Instant flanger, Lexicon digital delay processor, Roland SDE-3000 digital delay, (2) dbx 165A, (6) Valley People Kepex. Other Outboard Equipment: (2) UREI LA-4 compressor, UREI 1176LN compressor, (2) dbx 903/9001, (2) Valley People PRZ Maxi-Q, Boulder mic preamp, BBE processor. Microphones: (4) Sennheiser 421, Sennheiser 441, AKG D-12E, AKG C-452EB, AKG C-568EB, (2) AKG C-460B Neumann 87, (2) Neumann 67, (3) Milab DC-63, (2) PZM, (3) Sony C-500, (2) Shure SM81, (5) Shure SM57, (2) AKG 414, Bruel & Kjaer 4007. Monitor Amplifiers: (2) Hafler 220, (2) Quicksilver, Acoustat 200. Monitor Speakers: (2) E-V Sentry 100A, (2) KEVs, (2) Yamaha. Musical Instruments: Sequential Circuits Prophet-VS, Roland D-50, Yamaha DX7, Yamaha grand piano, Yamaha TX MIDI rack. Other MIDI Equipment: New England Digital Synclavier, Macintosh SE MIDI w/Performer, Q-sheet. Video Equipment: JVC 3/4" deck w/remote, Panasonic VHS Hi-Fi, JVC 19" monitor. Specialization & Credits: The Studio brings over 20 years of experience in composition, engineering and production to each session, allowing us to give you project the artistic and technological input needed for fast, efficient results. With our polysampling Synclavier, we can create then reproduce almost any sound at the touch of a key with an accuracy and quality never before attainable. Locked up to 3/4" video, it becomes the ideal tool for film scoring and video sweetening, allowing the artist to simultaneously interface with sound and picture. We're not a huge factory. Our clientele receives individual attention. We concentrate on fulfilling your specific music/audio needs.

[24+] **STUDIO 55**; 5505 Melrose Ave.; Los Angeles, CA 90038; (213) 467-5505. Manager: David Dubow

[24+] **STUDIO MASTERS**; 8312 Beverly Blvd.; Los Angeles, CA 90048; (213) 653-1988. Owner: Randolph C Wood. Manager: Larry Wood. Engineers: Brad Cox, Robert Brown, Peter McCabe, Tim Jaquette. Dimensions: Room 1 studio 30 x 40, control room 20 x 18. Room 2 studio 25 x 20, control room 20 x 18. Mixing Consoles: Neve 8128 48 48 input w/Necam 96 automation, Harrison 36 x 24 w/Allison automation. Audio Recorders: (2) Studer A820 w/Dolby SR noise reduction, Ampex MM1200. Cassette Recorders/Duplicators: (4) Nakamichi MR-1, (2) Technics. Noise Reduction Equipment: dbx, Dolby SR, Dolby M-24. Synchronization Systems: Adams-Smith 2600 Echo, Reverb & Delay Systems: (2) AMS RMX 16 reverb, AMS DMX 15-80S digital delay, (3) Yamaha REV7, Eventide DDL, EMT Master Room, Yamaha SPX90, Yamaha SPX90II. Other Outboard Equipment: dbx 165A limiters, UREI 1176 limiters, dbx 160X limiters, Eventide Harmonizer, API 535 EQs, Lexicon PCM70 digital effects processor, Kepex noise gates, Drawmer noise gates. Microphones: Neumann U67 tube (Steven Paul modified), Neumann U87s, Neumann 414s, Neumann KM84s, Shure SM57, E-V RE20 and others. Monitor Amplifiers: George Auggsperger custom HH Electronic V800, Quicksilver tube, Crown 300A. Monitor Speakers: Yamaha NS-10, Auratone. Video Equipment: JVC CR-850U 3/4" recorder/player, 25" and 13" monitors, Sigma Master sync generator. Other: Neumann disc mastering

[24+] **STUDIO II (AFFILIATE OF INDIGO RANCH, MALIBU)**; also *REMOTE RECORDING*; 9729 Culver Blvd.; Culver City, CA 90230; (213) 558-8832. Owner: Studio II Recording, Inc. Manager: Jason Wolchin. Engineers: Richard Kaplan, Jason Wolchin, various others. Mixing Consoles: Jensen/Aengus 56 x 24 custom, plus (12) additional tube mic preamps, IBM PC custom controls programmable mute and mix. Audio Recorders: 3M 79 24-track 1/4" or 1/2" transformerless, Stephens 821A 4-track 1/2", digital audio recorders, all formats with advanced notice. Synchronization Systems: Full feature Q Lock Echo, Reverb & Delay Systems: Publison Infernal 90 stereo audio computer (stereo sampling or (2) digital reverb), AMS available, Lexicon 480, Lexicon 224 available, EMT 140 stereo plate, EMT 250, Yamaha REV7, Yamaha SPX90, Yamaha D1500, Roland DEP-3 digital processor, Roland DEP-5 digital processor, Roland SRV-2000 digital processor, Roland SDE-3000 digital processor, Alesis XT digital reverb, MXR ART 01 digital reverb/DDL/flanger/pitch shift, Ursa Major Space Station, Ecoplate reverb, Master-Room reverb, Telefunken reverb, Eventide 1745A, Eventide 1745M dual DDL w/pitch change, Eventide H910 Harmonizer/instant phaser, Marshall Time Modulator, UREI Cooper Time Cube, Lexicon Prime Time, Loft 440 stereo flanger, Multron stereo bi-phase, Bel DDL flanger/doubler. Other Outboard Equipment: Drawmer Electro Spanner, EXR exciter, dbx 162 stereo limiter/boom box bass synthesizer, Teletronix LA-1 tube limiter, Teletronix LA-2A tube limiter, UREI 1178 stereo limiter, UREI 175 tube limiter, UREI 176 tube limiter, Eventide Omnipressor, Inovonics limiter, Altec 436C tube limiter, Altec 1193A limiter, RCA BA6A tube limiters, Orban de-esser, Aphex stereo Compeller, Pultec EOP-1A tube EQ, Pultec EOP-2 tube EQ, Pultec boosters, API equalizers, B&B equalizers, Aengus graphics, SAE graphic equalizers, Collins and Cinema Engi-

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neering EQs w/Pultec boost, (10) Mitsubishi Westar equalizers in a rack, Drawmer Electro-Space Straite gates, Symetrix gates, Valley People Kepex, Gain Brain, RM noise gate. Microphones: Large selection of new and vintage tube, Neumann U47, Neumann M49, Neumann U67, Neumann U87, Neumann SM69, Neumann M269, Neumann KM53, etc. Telefunken 250. Telefunken 2214 tube classics, AKG C-12, AKG C-28, AKG C-60, AKG C-61 tubes. Monitor Amplifiers: Technics 440W Class A to small speakers. Monitor Speakers: JBL 4-way custom, JBL Control Ones, JBL 4312, Yamaha NS-10. Other MIDI Equipment: IBM AT w/Roger Texture 3 1 sequencer software. Video Equipment: 26" monitor permanently installed for video lock, JVC 3/4" video and VHS

[24+] **STUDIO ULTIMO, INC.**, only REMOTE RECORDING; 1900 S. Sepulveda Blvd., West Los Angeles, CA 90025; (213) 479-6010. Owner: KSH Corp. Manager: Angele Hayashi. Engineers: Mitch Zelezny, David Clark, Tom Biener, Gabe Moffat, Brandon Arthur. Dimensions: Studio 49 x 35, control room 29 x 30. Mixing Consoles: Neve 8108 48 x 32 (modified) w/Neumann automation and w/40 additional mix inputs. Audio Recorders: (2) Ampex ATR-124 24-track modified, Ampex ATR-104 4-track 1/2", (2) Ampex ATR-102 2-track 1/4", Ampex ATR 1/2" head assembly. Cassette Recorders/Duplicators: (4) Awa Noise Reduction Equipment: Available. Synchronization Systems: (2) TimeLine Lynx Echo, Reverb & Delay Systems: AMS RMX 16, AMS DMX 15 sampling stereo processor, EMT 251 w/250 program, Eventide 949 Harmonizer, Lexicon 480L, Lexicon PCM70, Lexicon 200, Lexicon Prime Time II, Roland SDE-3000, Yamaha REV7, Yamaha SPX90. Other Outboard Equipment: ADR Vocal Stresser, (4) dbx 160, (2) dbx 165, (2) Drawmer stereo gate, Neve stereo compressor/limiter, (2) Summit Audio stereo EOP-200, Teletronix LA-2A, (2) UREI 1176LN, (2) Valley People Gain Brain II, (6) Valley People Kepex II, (2) Valley International DSP de-esser. Microphones: AKG C-12, (4) AKG 414, (4) AKG 451, (2) AKG D-12 (2) Electro-Voice RE20, (5) Sennheiser 421, (5) Shure SM57, Shure SM81, Neumann U47 tube, Neumann U47 FET, Neumann M49, Neumann U67, (2) Neumann U87, Neumann U89, (2) Neumann TLM170, Crown PZM. Monitor Amplifiers: (4) Bryston 4B, BGW. Monitor Speakers: (3) Custom 3 channels 3-way design using TAD components, (2) Yamaha NS-10, Electro-Voice Sentry 100, Auratones. Musical Instruments: Yamaha C7 grand piano w/MIDI. Video Equipment: Sony VO-5800 U-matic, Sony XBR 25" mounted monitor, RCA 31" studio monitor, (2) TimeLine Lynx synchronizer. Specialization & Credits: Located in West Los Angeles, Studio Ultimo caters to the needs of the TV, film and record industries. We've been able to offer our clients a luxurious environment with the personal and private services expected from a one room studio without compromising the technical support and maintenance usually found at only larger facilities. Our control room, perhaps the largest in the world, is spacious enough for large synthesizer setups or when comfortable seating is required for many, and is equipped with three-channel monitoring and video lockup capabilities to necessitate mixing for film. Our studio's variable acoustic design and three large isolation booths provide an environment flexible enough to accommodate almost any production situation. Please call for rate and policy information or if you have any questions regarding our facility and services.

SUMMA MUSIC GROUP

SUMMA MUSIC GROUP
West Hollywood, CA

[24+] **SUMMA MUSIC GROUP**, 8507 Sunset Blvd., West Hollywood, CA 90069; (213) 854-6300. Owner: Rick Stevens. Manager: Kimberly Frank. Dimensions: Room 1 studio 12 x

21, control room 16 x 28. Room 2 control room 18 x 18. Mixing Consoles: SSL SL4000 G Series 64-input Total Recall board and computer, API/De Medio custom 36-input w/original API 550A EQs. Audio Recorders: Studer A820 24-track, (2) Studer A800 24-track, Mitsubishi X-850 32-track. Cassette Recorders/Duplicators: (2) Nakamichi MR-1, (2) Sony R-DAT, Yamaha K2000. Noise Reduction Equipment: (3) Drawmer DS-201 dual gate, (2) Valley People Dyna-Mile gate/de-esser, (4) Valley People Kepex II gate. Synchronization Systems: (2) TimeLine Lynx Echo, Reverb & Delay Systems: EMT 140 tube plate reverb, (3) Roland SDE-3000 delay, (2) TC Electronic 2290 dynamic delay w/32 sec. sampling, Eventide H3000 Ultra-Harmonizer, TC Electronic 1210 Spatial Expander/stereo chorus/flanger, (2) AMS RMX 16 reverb, (2) Lexicon PCM70 Ver 2, (2) Yamaha SPX90II, Yamaha SPX90, Yamaha REV5. Eventide H949 Harmonizer, Lexicon 480L digital processor, Eventide H910 Harmonizer. Other Outboard Equipment: (4) dbx 160X compressor, dbx 165A compressor, (2) dbx 160 compressor, (2) UREI 1178 stereo compressor, (2) Teletronix LA-2A limiter/compressor, (2) Focusrite ISA 115HD EQ, (2) BBE 802 EQ, GML 8200 parametric EQ, Pultec EQP-1A EQ. Microphones: Neumann U87 (modified by German Masterworks), (2) AKG 421, (2) Sennheiser 451, (2) Shure SM57. Monitor Amplifiers: (2) Perreaux 9000B Boulder 500, (6) JBL 6260, (2) BGW 250D. Monitor Speakers: (4) George Augspurger custom main, (4) Yamaha NS-10M, (2) Yamaha NS-10 Studio, (4) Auratone Super Sound Cube. Musical Instruments: Yamaha DX7, Roland Jupiter 6, Linn Drum. Video Equipment: Quasar Hi-Fi audio HD VCR, Sony TV monitor. Specialization & Credits: Summa's new Studio A/SSL room is a world-class mixing/tracking studio that in the last year has attracted such clients as U2, Madonna, Prince, Belinda Carlisle and Luther Vandross. Studio A features a 64-input Solid State Logic SL4000 G Series Master Studio System, SSL's newest model console and computer system. A custom main monitor system designed by George Augspurger, the finest Mogami and Monster cabling, new Studer A820 and industry-standard A800 analog multitracks, classic ART-102 2-track, Mitsubishi 32-track digital and a top-level array of outboard gear are all available. This room includes a specially soundproofed one-way window looking onto Sunset Boulevard and the LA basin, because we know that the environment is important too. Summa's Studio B/API Room is a world-class overdub and MIDI studio that features a 36-input custom De-Medio API console and a Studer A820 multitrack. Original API 550A EQs, 321-5 mic preamps and P&G faders are available on all channels. Studio B functions both as a major overdub/vocal room and as L.A.'s best MIDI/synth room, with a complete selection of synths and sequencing/MIDI devices available in-house.

[24+] **SUNSET SOUND**, 6650 Sunset Blvd., Hollywood, CA 90028; (213) 469-1186. Owner: Paul Camarata. Manager: Craig Hubler. Engineers: Mike Kloster, David Knight, Brian Soucy, Neal Avron, Tom Nellen, Mike Piersante. Dimensions: Room 1 studio 22 x 36, control room 19 x 20. Room 2 studio 30 x 40, control room 16 x 23. Room 3 studio 20 x 50, control room 18 x 21. Mixing Consoles: Sunset Industries custom 56 x 56 w/Neumann II (Studio 1), Amek APC-1000 64 x 64 w/GML automation (Studio 2), Sunset Industries custom 32 x 24 (Studio 3), (2) 8/12-channel consolette. Audio Recorders: Studer A820 multitrack, (3) Studer A800 MkIII multitrack, Ampex MM-1200 multitrack w/8/16/24-track headstacs, (7) Ampex ATR-100 2-track, Ampex ATR-104 4-track, (2) Otari DTR-900 32-track digital. Cassette Recorders/Duplicators: (2) Sony DTC-300ES DAT, (6) Awa F-780, (6) Awa F-660 (float). Noise Reduction Equipment: (72) Dolby 361 Type A, (6) Dolby SR Synchronization Systems: TimeLine Lynx Echo, Reverb & Delay Systems: (3) AMS RMX 16 reverb, (3) AMS DMX 15-80S delay, EMT 250 reverb. Quantec ORS room simulator, Publison America Audio computer, (3) Yamaha REV5 reverb, (3) Lexicon PCM70, (5) Roland SDE-3000 delay, (3) Lexicon Prime Time II delay, (4) EMT 140 Echoplate, (3) live echo chamber. Other Outboard Equipment: (16) Pultec equalizer (various models), (5) Teletronix UREI LA-2A limiter, (6) dbx 902 de-esser, (6) dbx 903 comp/limiter, (4) dbx 905 equalizer, (4) dbx 160X limiter, (2) dbx 160 limiter, (2) dbx 165 limiter (stereo), (3) Drawmer DS-201 gate, (1) Kepex II, Drawmer 1960 tube comp/limiter, GML 8200 equalizer. Microphones: (3) Telefunken 251, (9) AKG 414, (7) AKG 451, (6) Neumann U47 tube, (10) Neumann U87, (3) Neumann U67 tube, (10) Sennheiser 421, (6) Sennheiser 441, AKG "The Tube," over 150 mics in all. Monitor Amplifiers: (6) HH Electronic, (9) BGW, (5) Crown. Monitor Speakers: JBL TAD 3-way bi-amp system (Studio 1), (2) JBL 3-way bi-amp system (Studios 2 and 3), (8) Yamaha NS-10 near-field, (8) Auratone 5C, (2) Auratone T6. Musical Instruments: (3) Steinway B-7 concert grand piano. Other MIDI Equipment: (2) Forte-MIDI Steinway B-7 (Studios 2 and 3). Video Equipment: Sony BVU-850-SP U-matic 3/4" recorder/editor, (2) Sony XBR 25" RGB monitor, (2) Toshiba 2048 20" monitor. Other: Monster Cable wiring (Studios 1 and 2), mic panels, tape machines, monitors

[24+] **SUNSET SOUND FACTORY**, 6357 Selma Ave., Hollywood, CA 90028; (213) 467-2500. Owner: Paul Camarata. Manager: Philip MacConnell, Catharina Masters. Engineers: Jeff Bork, independents. Dimensions: Room 1 studio 26 x 16, control room 19 x 13, iso booth #1 20 x 12 1/2, iso booth #2 13 1/2 x 9. Room 2 studio 22 x 20, control room 18 x 16, iso booth 9 1/2 x 6 1/2. Mixing Consoles: (2) API 36 x 36 custom w/programmable master mule system. Audio Recorders: Otari DTR-900 32-track digital, (2) Studer A80 VU MkIV 24-

track, Ampex MM-1200 24-track w/8/16-track heads, Ampex ATR-104 4-track, (3) Ampex ATR-102 2-track 1/4" or 1/2", Technics 1500 1/4/1/2-track. Cassette Recorders/Duplicators: (3) Awa F770, (2) Awa F780. Noise Reduction Equipment: Dolby A 36 channels. Synchronization Systems: TimeLine Lynx Echo, Reverb & Delay Systems: (4) EMT 140 stereo plate, EMT 251 digital reverb, Lexicon 224XL digital reverb, (2) Lexicon PCM70, (2) Lexicon Prime Time II, (2) Eventide 949 Harmonizer, (4) Roland SDE-3000 digital delay, (2) J.L. Cooper time cube, AMS DMX 15-80S, Publison Inferno 90. Other Outboard Equipment: (12) Valley People Kepex II, (4) Drawmer DS-201 noise gate, (6) Lang PEQ-2, (2) Pultec EQP-1A, ITI MEP-230 PEQ, Sontec PEQ, (4) dbx 160X, (2) Teletronix LA-2A, (8) UREI LA-3A, (4) UREI 1176LN, (2) dbx 902, (4) dbx 903, (6) dbx 904, Dyrtronic CS-5 stereo chorus, Drawmer 1960 stereo tube limiter, Langvinn 259A EQ (high/low filter), Microphones: (10) Neumann U67, (3) Neumann U47 FET, (2) Neumann M49, (3) Neumann U87, (3) Neumann KM84, Neumann U47 tube, (4) Neumann KM86, (3) Telefunken Elam 251, (6) AKG C-12A, (6) AKG 452EB, (2) AKG 414EB, (4) Sennheiser 441, (3) Sennheiser 421, (4) Shure SM57, (4) Shure SM53, Shure SM7, AKG D-12, (4) Sony C-37A, (4) Sony C-500, (3) E-V RE20, (4) RCA 77-DX. Monitor Amplifiers: (4) Hill DX-1000A, Hill DX-3000A, (2) Phase Linear 700B, (2) McIntosh MC2105 Monitor Speakers, (4) Altec 604E w/Mastering Lab crossover, (4) Yamaha NS-10, (4) Auratone 5C, (2) Auratone T6. Musical Instruments: (2) Steinway B grand piano, Hammond B-3 organ w/Leslie speaker

[24+] **SUTTON SOUND STUDIO**, also REMOTE RECORDING; 8390 Curbaril, Atascadero, CA 93422; (805) 466-8697. Owner: Rick Sutton

[24+] **TAKE ONE RECORDING STUDIOS, INC.**, 619-B. S. Glenwood Pl., Burbank, CA 91506; (818) 841-8697. Owner: Steven D. Smith. Manager: Candace Corn



THAT STUDIO
North Hollywood, CA

[24+] **THAT STUDIO**, also REMOTE RECORDING; PO Box 958, North Hollywood, CA 91603; (818) 764-1421. Owner: That Studio, Inc. Manager: Shannon Holbrook, Richard Holbrook

[24+] **38-FRESH**, 7940 W. 3rd St., Los Angeles, CA 90036; (213) 653-9208. Owner: Mike Greene. Manager: Mike Greene



GEORGE TOBIN STUDIOS
North Hollywood, CA

[24+] **GEORGE TOBIN STUDIOS**, 11337 Burbank Blvd., North Hollywood, CA 91601; (818) 506-HITS (4487). Owner: George Tobin. Manager: Dax Tobin. Engineers: Stephen Blazina (chief engineer), Bill Smith, Steve Kempster, top inde-

pendents Dimensions: Room 1: studio 40 x 21 x 16, control room 26 x 18 x 10. Room 2: studio 21 x 18 x 10, control room 30 x 18 x 10. Iso #1 10 x 8 x 10. Iso #2 12 x 8 x 9. Piano alcove 12 x 11 x 9. Mixing Consoles: Neve V-60R 60 x 48 x 8 w/Flying Faders and Total Recall, Trident 80C 32 x 24 x 2 w/DiskMix disk-based fader automation and 56 moving faders. Audio Recorders: Otari DTR-900 32-track digital, Mitsubishi X-880 32-track digital, (2) Otari MTR-90 24-track w/Otari sync, Ampex MM1200 24-track wall modes, Ampex ATR-102 32-track 1/4" and 1/2" capability, Otari MX-55 2-track 1/4" w/center stripe. Cassette Recorders/Duplicators: (2) Nakamichi MR-1, Nakamichi MR-2, Yamaha K2000. Synchronization Systems: (2) Adams-Smith Zeta-3 SMPTE/MIDI Echo, Reverb & Delay Systems: (2) AMS RMX 16, (2) Yamaha REV7, (2) Yamaha REV5, (2) Yamaha SPX90II, Yamaha 1500, (2) Eventide H910 Harmonizer, (2) HD3000, EMT 240 Gold Foil, EMT 262 Gold Foil, (4) Roland SDE-3000, (2) Yamaha 1000, (2) TC Electronic 2290 w/32 sec. sample ins, (2) 480-L, (2) Korg DRV-3000, (2) Lexicon 224, Eventide H949 Harmonizer, Lexicon Prime Time, EMT 251, (2) Lexicon PCM70. Other Outboard Equipment: (2) GML 8200 para EQ, (10) API 550-A EQ, (2) Pultec mid-range EQ, (2) Pultec program EQ, (8) GML mic/preamp, (4) Allison Research Kepex, (4) Drawmer gate. Microphones: Telefunken 251 tube w/Stephen Paul Audio Electronics, (2) Neumann U47 tube w/Stephen Paul Audio Electronics, (2) Neumann KM86, (4) Neumann U87, (3) AKG 414, AKG 452, AKG 451, AKG D-12E, AKG D-112 and others, Beyer M500, Beyer M160, Sennheiser 421, Sennheiser 441 and others, Shure SM57, Shure SM58, E-V RE20, E-V RE11 and others, Sanken CU-41, Countryman MD-101. Monitor Amplifiers: (2) HH Electronic M900 MOS FET, (2) BGW 7500, (2) BGW 50A, (2) HH Electronic V800 MOS FET, Hafler 225. Monitor Speakers: George Augspurger, 813 Time Align, Yamaha NS-10, Tannoy 6.5. Video Equipment: Sony 5850 3/4" VTR, Sony 5800 3/4" VTR, 7000 3/4" VTR, Videomeida "Mickey" edit system w/PC link, Panasonic WJ-MX10 digital mixer, Sony PVM-122 monitor, (2) Videotek monitor fully SMPTE to all tape machines. Specialization & Credits: George Tobin Studios offers the absolute latest in state-of-the-art digital and analog technologies. The Neve V-60-R Series console w/Flying Faders, DTR-900, X-880 Mitsubishi 32-track digital recorders or twin 24-track lockups—clearly redefines the term state-of-the-art. The Neve V-60-R offers the legendary Neve sound and technology in a Total Recall automated environment along with our huge complement of outboard gear and friendly staff. George Tobin Studios offers you a truly world-class studio at sensible booking rates. Contact Dax Tobin.

[24+] **THE TOLEDO STUDIO**; 5131 The Toledo, Long Beach, CA 90803; (213) 433-2168. Owner: Wade Wilkinson. Manager: Clayton Bybee.

[24+] **TOTAL ACCESS RECORDING**; 612 Meyer Ln. #18 A, B, C; Redondo Beach, CA 90278; (213) 376-0404. Owner: Allan W. Davis, Allan H. Juckes. Manager: Krysten Dunton. Engineers: Eddie Ashworth, Wyn Davis, Melissa Sewell. Dimensions: Studio 25 x 30, control room 25 x 20, live chamber 25 x 32 x 16. Mixing Consoles: Amek G2520 58 x 48 x 104 w/automation. Audio Recorders: Ampex ATR-124 analog, Sony multitrack digital, Mitsubishi multitrack digital, Ampex ATR-102/4, Sony 3402 2-track digital, Sony 2500 DAT. Cassette Recorders/Duplicators: Nakamichi ZX-7, Nakamichi M-2. Noise Reduction Equipment: Drawmer 10-ch. audio gates, Aphex CX-1. Synchronization Systems: Lynx Echo, Reverb & Delay Systems: Lexicon 480L w/sampling option, Lexicon 224XL, Klark-Teknik DN-780, AMS 15-80S, Yamaha REV7, Yamaha SPX90, Roland SRV-2000, Lexicon 95, Lexicon 93, Lexicon PCM70, EMT 240 Gold Foil, AKG BX-20, Roland SDE-3000, Eventide H3000. Other Outboard Equipment: Sontec para EQ, GML para EQ, dbx 165A, dbx 160, UREI 1176, UREI LA-3A, Teletronix LA-2A, ADVA Vocal Stresser, Lang tube EQ, (12) Boulder mic preamp, UREI EQ, Orban EQ. Microphones: AKG C-12, AKG 414, AKG 451, Schoeps, Neumann U87, Neumann KM86, Neumann KM88 and others, Shure SM57, Shure SM58, Countryman, Beyer, Crown PZM, many more. Monitor Amplifiers: (3) Boulder 500, Crown, BGW, Phase Linear. Monitor Speakers: UREI 813, Canton, Yamaha, E-V, Tannoy, JBL, Auratone. Musical Instruments: LinnDrum 9000, Yamaha grand w/MIDI, Fender Strats, Gibson Les Pauls, Roland synth, superb collection of vintage acoustic guitars including Guild, Gibson, Martin and others. Video Equipment: Beta and VHS 1/2", Sony 3/4", JVC 3/4", Sony monitor. Rates: Hourly and lockout rates are negotiable. Please call. Specialization & Credits: Total Access provides technically advanced recording systems coupled with a warm atmosphere and skilled staff. We can arrange for accommodations and anything else needed to accomplish any project. We are located one mile from the Pacific Ocean in beautiful Redondo Beach. Worldwide clientele includes: Guns N' Roses, Ken Scott, Dokken, Gary Wright, Michael Wagener, Great White, Tears for Fears, White Lion, Alice Cooper, Will and the Kill, Terry Bozzio and many others. Labels include Capitol, Geffen, Enigma, Elektra, Cypress/A&M, Atlantic, MCA

[24+] **TRAX RECORD, INC.**; 5102 Vineland Ave.; North Hollywood, CA 91601; (818) 761-0511. Owner: Thomas M. Murphy. Manager: Alan Morpew. Engineers: Tom Murphy, John Carter, Ken Paulakovich, Bryan Carlstrom, Pete Magdaleno, Ronnie Champagne, Annette Cisneros, Russel Anderson, Russ Ragsdale. Dimensions: Room 1: studio 40 x 40, control room 20 x 22. Room 2: studio 30 x 30, control room 20 x 25. Room 3: studio 8 x 8, control room 15 x 20. Room 4:

control room 12 x 20. Mixing Consoles: Neve V-3 60-input, Neve 8232 32-input, Soundcraft 6000 32-input. Audio Recorders: Studer 820 24-track, Sony JH-24 24-track, Studer A80 MkIV 24-track, 3M 79 24-track, Studer A80 2-track, Ampex ATR-102/104 2/4-track, Otari MTR-12 2-track. Cassette Recorders/Duplicators: (2) Aiwa AD-S40, (3) Hitachi 2-2200M, Akai GX-912. Synchronization Systems: Audio Kinetics 3.10 Q.lock. Echo, Reverb & Delay Systems: (2) Lexicon 224XL, Lexicon 480, Lexicon 224, AMS RMX 16, AMS 15-80S, (3) Ecoplate (I and II), (2) Roland SRV-2000, (2) Roland SDE-3000, TC Electronic 2290 32-second sampling, Bel BD-80 8-second sampling, (3) DeltaLab unit, (2) Yamaha SPX90, (2) Eventide 910 Harmonizer, Eventide SP-2016. Other Outboard Equipment: (4) GML preamp and equalizer, (3) Pultec tube equalizer, (2) Lang program equalizer, (2) Trident CB9066 parametric equalizer, (6) Drawmer gate, (6) Kepex II gate, (3) Teletronix LA-2A, (5) UREI 1176, (4) dbx 160X, dbx 165, (2) Trident compressor. Microphones: (2) U47 tube, (2) AKG C-12 tube, Neumann M49 tube, Telefunken 251 tube, (2) Neumann KM64 tube, (3) AKG 414EB and others, (4) Neumann U87, (8) Sennheiser 421, (7) AKG 451, (7) Neumann U47 FET, E-V RE20, (2) Neumann KM84. Monitor Amplifiers: HH Electronic, SAE, Phase Linear. Monitor Speakers: TAD, Yamaha NS-10M and studio, Auratone. Musical Instruments: Kawai 7' grand piano, Steinway "B" grand piano, Kurzweil 250 (SBA, B, C, D, Super Ram II), E-mu E-III 8-meg. Digidesign Sound Tools hard disk sampling, Yamaha DX7 (w/EI, Opcode and lib/ed), Kurzweil 1000 SX and GX, Hammond B-1 w/Leslie. Other MIDI Equipment: Apple Mac Ix w/8MB and Mac Plus MIDI w/AMB. Video Equipment: JVC CR6650U 3/4" VCR w/(2) Panasonic monitor. Other: Roland CPE-800 (15-ch SMPTE-based automation)



TRAX RECORDING
Hollywood, CA

[24+] **TRAX RECORDING**; 1433 Cole Pl.; Hollywood, CA 90028; (213) 856-8729. Owner: Michael McDonald. Manager: Robyn Whitney, Claudia Lagan. Engineers: Michael McDonald, Jim Bailey, Brian Carney, Kip Stork. Dimensions: Room 1: studio 32 x 38, control room 18 x 24. Room 2: studio 14 x 25, control room 14 x 21. Mixing Consoles: Soundcraft 2400 48-input mixdown w/Hill 16 x 2 submixer, Audioarts R-16 26 x 16. Audio Recorders: Otari MX-80 24-track, (2) Tascam 85-16B 16-track w/dbx noise reduction, (3) Otari MX-5050 2-track modified for 30 ips. Cassette Recorders/Duplicators: (8) Aiwa, Technics. Noise Reduction Equipment: dbx on all channels on Tascam 16-tracks. Echo, Reverb & Delay Systems: (2) Lexicon PCM60 digital reverb, (2) Roland SRV-2000 digital reverb, (2) Yamaha REV7, (3) Yamaha SPX90, (2) Ecoplate III plate reverb, Roland SDE-300 digital delay, Eventide H910 Harmonizer, Lexicon Prime Time II, (8) DeltaLab Effector II, Alesis MIDverb II, Roland Super Chorus. Other Outboard Equipment: BBE 802 processor, EXR Exciter, (4) dbx 160X compressor, (4) dbx 160 compressor, dbx 165 compressor, dbx 166 stereo compressor, (2) Drawmer 2-channel noise gate, (2) Kepex II gate, (2) Omni Craft 4-channel gate, Symetrix 522 stereo compressor gate, (2) Symetrix dual gate, (3) Innovative Audio tube direct box, (2) Innovative Audio tube mic preamp. Microphones: (2) Neumann U87, (5) AKG 414EB-P/U8, (5) AKG 452, Sony C-48 condenser, Sony C-37 tube, (2) Sennheiser 441, (2) Sennheiser 421, (9) Shure SM57, (3) Electro-Voice RE20, RCA 77-DX ribbon, AKG D-12E, (2) AKG D-224E, (2) Crown PZM. Monitor Amplifiers: (4) SCS 2300 MOS FET, AB Systems, (2) Crown D-60, BGW, GAS. Monitor Speakers: (4) UREI 811 modified bi-amped w/E-V subwoofers, (4) Yamaha NS-10 Studio, (2) Auratone 5C. Musical Instruments: Yamaha C7 grand piano, (2) Scholz Rockman guitar processor. Other MIDI Equipment: Roland SBX-80 sync box SMPTE generator/reader. Video Equipment: 19" color monitor, Fisher VHS 1/2" playback. Specialization & Credits: Our clients include: CBS Records, Malaco Records, Geffen Records, Chrysalis Records, Warner Bros. Records, Walt Disney Productions, Lorimar Pctures, Chappell Music, Paramount Pictures, Island Records, Motown (Jobete Music), Screen Gems Music, A&M Records, UNICTN-MCA Music, MCA Records, Roger Corman Productions, ABC and NBC

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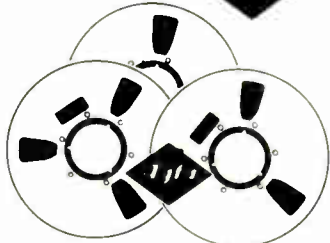
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24+ TRACK

—CONTINUED FROM PREVIOUS PAGE

Television and many others. Our Studio A is 1,200 square feet—orchestra size—largest recording room of any budget studio in Southern California! 40 parking spaces next to our loading door. Great, friendly atmosphere. We give enthusiasm—not attitude.

[24+] **VALLEY CENTER STUDIOS**; 5928 Van Nuys Blvd., Van Nuys, CA 91401; (818) 989-0866. Engineers: Dave Jenkins, Steve Miller, Ray Moore. Dimensions: Studio 20 x 13, control room 18 x 15. Mixing Consoles: Trident 80B30 x 24 x 24 (54 ch on mix) Audio Recorders: MCI JH-24 24-track, MTR-12C 2-track (½" and ¼"), Panasonic. DAT 3500 Cassette Recorders/Duplicators: (2) Nakamichi MR-2. Other Outboard Equipment: Roland SRV-2000, Yamaha REV7, (2) Yamaha SPX90, Lexicon Prime Time 93, (4) Drawmer noise gate, (4) Symetrix noise gate, (2) API 550 EQ, Aphex stereo Compeller, Aphex Type C Aural Exciter, Trident stereo comp/limiter, UREI LA-2A comp/limiter, (2) Yamaha D1500 delay, Symetrix vocal processor, Aphex EGFII EQ, Aleis MIDiver II, Eventide H3000 Microphones: Neumann TLM170, Neumann U87, Beyer 88, Beyer 201, Beyer 160, Sennheiser 441, (4) Sennheiser 421, (2) AKG 535, AKG CE1, (4) Shure SM57, (2) AKG 451, AKG 414. Monitor Amplifiers: UREI 813B Yamaha NS-10, JBL 4133, Auratone. Musical Instruments: Roland D-50 keyboard.

[24+] **THE VILLAGE RECORDER**, 1616 Butler Ave., W. Los Angeles, CA 90025; (213) 478-8227. Owner: Georgie Horrel. Manager: Kathy Konop, Nick Smerigan.

[24+] **VOICE OVER L.A.**; 1717 N. Highland Ave., Ste. 620; Hollywood, CA 90028; (213) 463-8652. Owner: Evelyn Williams. Manager: Pat Torres. Engineers: Pat Torres, Stacey Michaels, Wesley Craft. Dimensions: Room 1 studio 15 x 14, control room 15 x 12. Room 2 studio 8 x 12, control room 13 x 12. Mixing Consoles: Soundcraft 1600 24 x 8 x 2, TAC Scorpion 16 x 8 x 2. Audio Recorders: Otari MTR-90 24-track, (2) MCI JH-110 2-track, (4) Otari MX-5050 2-track, Otari MX-5050 4-track, Otari MX-5050 8-track. Cassette Recorders/Duplicators: (5) Nakamichi MR-II Noise Reduction Equipment. (2) Symetrix 511 Synchronization Systems: Alpha Audio Boss 2 w/Lynx Echo, Reverb & Delay Systems: Eventide H3000 Harmonizer, Lexicon PCM60 digital reverb, Korg SDD-3000 digital delay. Other Outboard Equipment: Aphex Compeller compressor/limiter, (2) Symetrix T1-101 (telephone interface), (2) dbx 166 stereo compressor/limiter. Microphones: (2) Sennheiser MKH-416, (2) Schoeps CMC-411 Monitor Amplifiers: (3) Haller P-225, (5) Symetrix A-220 Monitor Speakers: (2) Yamaha NS-10M, (4) JBL 441, (6) Auratone. Video Equipment: JVC CR-850U ¼" VCR, JVC CR-8250 ¼" VCR, Ampex VPR-80 1", (2) Sony KX-1901A color monitor, (2) Sony PUM-91 B&W monitor, Sigma CSG-355A color sync generator. Other: Technics SL-P50 CD player, Technics SL-P500 CD player, ESE ES-255 SMPTE time code reader.

[24+] **WAVES SOUND RECORDERS**; also *REMOTE RECORDING*, 1956 N. Cahuenga Blvd.; Hollywood, CA 90068; (213) 466-6141; FAX: (213) 466-3751. Manager: David Green. Engineers: Rich Rauh, Chris Hart, Tony Mederos, Glenn Barr, Stewart Sloke, Jeff Payne, Chris Gindroz. Dimensions: Room 1 studio 13 x 15, control room 21 x 15. Room 2 studio 8 x 12, control room 8 x 12. Room 3 studio 11 x 14, control room 20 x 14. Room 4 studio 15 x 12, control room 15 x 15. Mixing Consoles: Amek Matchless 24 x 24, Wheatstone 18 x 8, Tangent 16 x 16, Soundcraft 24 x 16. Audio Recorders: Sony/MCI JH-24 24-track, Sony/MCI JH-110 8-track, Sony/MCI JH-110C 2-track, Revox PR99 2-track, Technics RS1500 2-track, Studer 810 2-track w/time code, NED Post Pro, Sony DAT Cassette Recorders/Duplicators: Aiwa GX8, Sony TCK-355 Noise Reduction Equipment: dbx 155 Dolby A Synchronization Systems: Audio Kinetics 4 10 Echo, Reverb & Delay Systems: Lexicon 200, Yamaha REV7, Ecoplate II, ADA D1280. Other Outboard Equipment: dbx 166 limiters, UREI 1176 Microphones: Sony C-48, Sennheiser MD-416, Neumann U87, Neumann U89, Shure SM58, Sennheiser 441, Sennheiser 421, Sennheiser 405, E-V RE20, Beyer D 500, Milab UM-41 Monitor Amplifiers: Haller, Crown, Symetrix Monitor Speakers: JBL 4411, Auratone 5C. Video Equipment: Sony BVH-3000 1", Sony BVU-800 ¼", Sony VO-5600, Barco monitor, Sony VO-7600. Rates: Call Margaret.

[24+] **WESTBEACH RECORDERS**; 1621 Vista Del Mar; Hollywood, CA 90028; (213) 461-6959. Owner: Donnell Cameron. Manager: Brett Gurewitz.

[24+] **WESTLAKE AUDIO**; 7265 Santa Monica Blvd.; Los Angeles, CA 90048; (213) 851-9800. Owner: Glenn Phoenix. Manager: Steve Burdick, Ben Carr. Engineers: Darryl Dobson, John Sacchetti, Scott Pontus, Debbie Johnson, Ric Butz,

Mark Hagen, Alex Welti, Mark Onxs, Steve Burdick, Greg Loskorn, Craig Johnson, Marvin Morris, Bill Malina, Steve Harrison. Dimensions: Room 1 studio 25 x 48, control room 25 x 20. Room 2 Studio 20 x 35, control room 21 x 19. Room 3 studio 27 x 38, control room 23 x 19. Room 4 studio 30 x 50, control room 25 x 25. Room 5 control room 21 x 15. Mixing Consoles: (2) Neve V-Series custom 60 x 48 (Necam 96), Harrison Series X 88 x 32 (fully automated, total recall), Trident 80C 72 x 24 w/MasterMix, Harrison MR-2 custom 56 x 48 modified. Audio Recorders: Mitsubishi X-850 32-track, Sony 3324 24-track, Sony APR 24-track, Sony JH-24 24-track, Studer A800 24-track, Ampex ATR 2 4-track, MCI JH-110 4-track. Cassette Recorders/Duplicators: Nakamichi MR-1B, Aiwa 770 Noise Reduction Equipment: Dolby A, Dolby SR, dbx, Telefunken. Synchronization Systems: Time-Line Lynx, Cipher Digital Echo, Reverb & Delay Systems: Quantec QRS-XL, AMS DMX, AMS RMX 16, Publison 90, TC Electronic 2290, Eventide H3000, Eventide H949, Eventide 2016, Lexicon PCM70, Lexicon 224, Lexicon 200, Lexicon Prime Time II, Lexicon Super Prime Time, Yamaha REV7, Yamaha REV5, Yamaha SPX90II, Roland SDE-3000, EMT 250, EMT 251, EMT 252, EMT 240 Gold Foil, EMT 150. Other Outboard Equipment: dbx 165A, dbx 162, dbx 160, dbx 160X, dbx 902, Drawmer gates, Valley People gates, Inovonics 201, UREI 1176, UREI LA-3, UREI LA-4, Telextron LA-2A, Sontec stereo comp, Neve stereo comp, GML comp, GML EQ, Sontec EQ Monitor Speakers: Westlake HR-1 Westlake SM-1, full selection of near-field Musical Instruments: Yamaha pianos (MIDI) Video Equipment: Sony 5850. Other: dbx CD player, large-screen projector.

[24+] **WESTWORLD RECORDERS**; 7118 Van Nuys Blvd.; Van Nuys, CA 91405; (818) 782-8449. Owner: Robert Schreiner. Manager: Robert Schreiner.

[24+] **WILDCAT STUDIO**, also *REMOTE RECORDING*; 5815 Pico Blvd.; Los Angeles, CA 90019; (213) 931-3411; (714) 585-4534. Owner: John Ross. Manager: Nancy Ross. Engineers: Josh Schneider, Eric Brandt. Dimensions: Studio 18 x 20, control room 18 x 20, vocal room 12 x 12. Mixing Consoles: Trident Series 80B. Audio Recorders: Otari MTR-90 24-track, Otari MTR-12 4/2-track, Panasonic SV-3500 DAT Cassette Recorders/Duplicators: Yamaha K1020, Aiwa 780 Synchronization Systems: (2) Fostex 4030/4035, Fostex 4010 SMPTE recorder/generator. Echo, Reverb & Delay Systems: Lexicon 224XL, (2) Lexicon LXP-1, Lexicon PCM60, Lexicon Prime Time, Yamaha REV7, Yamaha SPX90, Korg SDE-3300 triple delay. Effectron II delay. Roland SDE-1000, ADA BX-6401 delay. Other Outboard Equipment: (4) dbx 166, dbx 160X, Omni Craft G-4 gate, Symetrix 522, (3) Roger Mayer gate, Kexep gate, Eventide Impressor, Aphex Aural Exciter. Microphones: (2) Neumann U87, (4) 442, AKG 451, various Shure, various Sennheiser. Monitor Amplifiers: Ramsa, custom near-field, (2) White room EQ. Monitor Speakers: (2) Tannoy SRM-15, (2) Yamaha NS-10M, (2) Auratone Musical Instruments: Fairlight Series III full system (gigabyte of hard disk memory), Kurzweil 250, Kurzweil MIDIboard, Kurzweil PX1000, Kurzweil SX1000, Kurzweil HX1000, Roland D-550, Korg DSM-1, Yamaha DX7, Yamaha TX816, Linn 9000, Chroma Polaris, Sequential Circuits Prophet-5, Korg EX-800, Tube Works guitar preamp, Fender Deluxe guitar amp, Simmons MTM. Other MIDI Equipment: Macintosh Plus, Southworth Jam Box/4+, Roland SPX-80, J.L. Cooper MSB 16/20, Performer sequencer. Video Equipment: JVC ¼" machine, Kloss overhead projector, NEC 13" monitor, Magnavox 26" monitor, Kloss 6" high-gain screen. Other: Hitachi CD player.



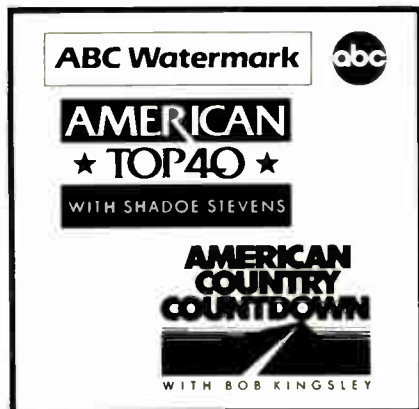
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16 TRACK

STUDIOS



ABC WATERMARK
Los Angeles, CA

[16] **ABC WATERMARK**, 3526 Cahuenga Blvd. W., Ste. 555, Los Angeles, CA 90068; (818) 980-9490, FAX: (213) 850-5832. Owner: Capital Cities-ABC Inc. Manager: Stuart Jacobs. Engineers: Stu Jacobs, Michael Sullivan, Mike Williams, Brandon D'Amore. Dimensions: Room 1 studio 10 x 15, control room 25 x 25. Room 2 studio 10 x 15, control room 25 x 23. Room 3 control room 27 x 13. Mixing Consoles: Sony MXP-3036 digital w/full automation and hard drive, API 2404 24-input, Quad Eight 1604 16-input. Audio Recorders: Ampex MM-1200 16-track 2". [9] Studer B67 2-track 1/4", [7] MCI JH-110 2-track 1/4", [3] Scully 280 2-track 1/4", Scully SP14 2-track 1/4", New England Digital 16-track Direct-to-Disk w/14 hours recording time and 16-track upgrades. Cassette Recorders/Duplicators: [4] Technics M85, KABA RTDS 4-track high-speed duplicator (8 slaves), [4] Panasonic SV3500 digital Noise Reduction Equipment: Dolby M16 16-track, [12] Dolby 361 Echo, Reverb & Delay Systems: EMT 140 stereo echo chamber, Ursa Major Space Station digital delay [2] Eventide 949 Harmonizer, [4] dbx 160X limiter/compressor, [4] dbx 165 limiter/compressor, [3] UREI 1178 limiter/compressor, [4] UREI 1176 limiter/compressor, [2] Kepex noise gate, [2] Gain Brain limiter, dbx 929 de-hisser, Valley People 415 de-esser, Orban Parasound 622B parametric EQ, [2] Yamaha REV7, PCM SPX90, PCM SPX70, PCM SPX60. Other Outboard Equipment: [4] Studer A730 professional CD player, [4] Technics SP-15 turntable, [10] ITC 99 cart machine, Skybrid telephone hybrid, [4] Magnavox CDV-650 CD player, [4] ESE digital timer, Sound Ideas CD sound effects library. Hanna Barbera CD sound effects library. Microphones: [3] Neumann U89, [4] Neumann U87, AKG 414, [2] Electro-Voice RE20, Sennheiser 441, Sennheiser 421. Monitor Amplifiers: [2] Crown D-150, [12] Crown D-75, [4] Crown D-40, Crest FA800 Monitor Speakers: [4] UREI 813B, [4] JBL 4310, [6] JBL 4313, [8] Auratone 5C. Musical Instruments: New England Digital 9600 Synclavier w/32 MB RAM and 64 stereo voices w/full sound effects library, full array of analog and digital synthesizers. Other: Comtech 3.8 digital audio satellite downlink, broadcast uplink (via IDB). Specialization & Credits: Producers of *American Top 40* with Shadoe Stevens, *American Country* with Bob Kingsley, Jeanne Wolf's *Hollywood*. Our new studios are designed around one of the largest digital recording and editing systems in the country. The New England Digital system allows the best production possible for any broadcast medium. We are the most sophisticated top-of-the-line facility available. Our staff includes some of the finest radio professionals in the business who have won numerous awards over the past 20 years. Call us today for information.

[16] **BUZZY'S RECORDING**, also *REMOTE RECORDING*; 6900 Melrose Ave., Los Angeles, CA 90038; (213) 931-1867; FAX: (213) 931-9681. Manager: Larry Lantz

[16] **CANDLEWICK PRODUCTIONS, INC.**, also *REMOTE RECORDING*; 1161 N. Highland Ave., Hollywood, CA 90038; (213) 462-7979. Owner: Larry K. Smith, Dale Jergenson. Manager: Kris Jergenson

[16] **CREATIVE MEDIA RECORDING**; 11105 Knott Ave., Ste. G, Cypress, CA 90630; (714) 892-9469. Owner: Tim Keenan. Manager: Tim Keenan. Specialization & Credits: Creative Media has been providing professional media recording for over 20 years. Our specialty is voice recording and the production involved in audio for video, A-V soundtracks and spots. Our new facility features two control rooms, audio sweetening for video and a comfortable yet productive work environment. We provide production music and sound effects, assistance in casting voice talent, multilingual narrations, dialog replacement and the talent behind the board to bring your script to life. We serve as a sound support service for independent producers and corporate staff producers throughout Southern California. Extras include FAX and photocopy, phone patch capability and duplication in any analog tape format. Clients include Taco Bell Corporate, Hughes Aircraft, TRW, Disneyland, Allergan, Yamaha Motor Corp., Pacificare Health Systems.

[16] **DOBER RECORDING STUDIO**, also *REMOTE RECORDING*; 13441 Tobiasson Rd., San Diego, CA 92064; (619) 748-6771. Owner: Beresford and Armando Sinclair. Manager: Beresford and Michael Sinclair

[16] **FLIGHT 19**, also *REMOTE RECORDING*; 5245 Avenida Encinas #F, Carlsbad, CA 92008; (619) 931-8093. Owner: Flight 19 Inc. Manager: Valery Safudinov

[16] **KITCHEN SYNC STUDIOS**; 5325 Sunset Blvd.; Hollywood, CA 90027; (213) 463-2375. Owner: Zamp Nicall. Manager: Mathew Stoneman

[16] **MASTERSOUND STUDIO**; 15571 Producer Ln.; Huntington Beach, CA 92649; (714) 646-1199. Owner: Robin Akins, Bryan Foster. Manager: Robin Akins

[16] **MELODY LINE PRODUCTIONS**, also *REMOTE RECORDING*; 2662 Kaiialani Circle, Pukalani, Maui, HI 96788; (808) 572-1640. Owner: Tom Hall. Manager: Tom Hall

[16] **THE NOTE FACTORY**; 5714 Columbus Ave., Van Nuys, CA 91411; (818) 994-3133. Owner: Richard Barron. Manager: Chris Pett

[16] **RCM PRODUCTIONS**; 12478 Washington Blvd. #5503; Los Angeles, CA 90066; (213) 390-5573. Owner: Bob McNabb. Engineers: Bob McNabb, Jeff Weiss. Dimensions: Studio 12 x 20, control room 10 x 12. Mixing Consoles: Ramsa WRT 820 20 x 8, Roland M-160 16 x 2. Audio Recorders: Tascam ATR-60-16 16-track 1", 15/30 ips w/dbx, MCI JH-110A 2-track 1/4", Otari MX-5050 2-track 1/4", Ampex AG-440B 4-track 1/2" Cassette Recorders/Duplicators: [2] Tascam 122B Synchronization Systems: Adams-Smith Zeta-3 audio/video/MIDI with remote autolocator Echo, Reverb & Delay Systems: Roland SRV-2000, Roland SDE-3000, Roland DEP-5, MICMIX Super C. Other Outboard Equipment: Orban 622B parametric EQ, [2] UREI LA-4 compressor/limiter, Orban 245F stereo synthesizer. Microphones: AKG C-414EB, AKG C-33 stereo, [2] AKG C-451, AKG D-202, [2] Sennheiser MD-421, E-V RE20, Shure SM57, Shure SM58. Monitor Amplifiers: BGW 250C. Monitor Speakers: JBL 4312, Auratone 5C (Ubiquitous). Musical Instruments: Vintage guitars, various synthesizers available. Other MIDI Equipment: Epson Equity w/Roland MIDI interface, Sequencer Plus MkII software. Video Equipment: JVC CR-8250 1/4" editor, JVC CR-6650 3/4" source recorder, JVC RM-86 edit controller, JVC BR-8600 VHS editor, JVC BR-6400 VHS source recorder, [2] Sony COM 1270/1271 monitor, Fast Forward F-200 time code generator/character inserter, ICMV-2000P proc. amp, Sony DXC-1800 camera. Other: Full CD sound effects library and production music library.

[16] **ROTUND RASCAL RECORDING**; 5654 Naitek Ave.; Van Nuys, CA 91411; (818) 901-9636. Owner: Dave Pearlman, Apryl Leopold. Manager: Dave Pearlman

[16] **THE SIDEWALK, INC.**, also *REMOTE RECORDING*; 84-710 Kili Dr., Ste. 1211; Makaha, HI 96792; (808) 695-8556. Owner: G.W. Hill. Manager: Matthew Slover. Engineers: Wyatt boy, James Slover. Dimensions: Room 1 studio 8 x 10, control room 13 x 20. Room 2 studio 15 x 20. Mixing Consoles: D&R Dayner In-line Series 56 x 8 x 24 x 2 custom. Audio Recorders: Tascam ATR-60-16 16-track w/dbx 7.5/15/30 ips, Sony DTC-1000ES 2-track R-DAT, Digidesign Sound

Tools 2-track digital audio workstation, Fostex E-2 2-track 1/4" w/center track time code, Fostex E-22 2-track 1/2" w/center track time code. Cassette Recorders/Duplicators: Nakamichi MR-1 w/Dolby Synchronization Systems: TimeLine Lynx audio control system Echo, Reverb & Delay Systems: [2] AKG ADR 68K digital reverb/effects processor w/32 sec sampling time Ver. 4.0, Eventide H3000 Ultra-Harmonizer, [2] Lexicon PCM70 Ver. 3.0, [3] Yamaha SPX901, Yamaha R1000 digital reverb, Roland SDE-1000 digital delay, DigiTech 1900 digital delay, MXR pitch transposer, Klark-Teknik DN410 parametric equalizer, dbx 2/3-octave 31-band graphic equalizer, [2] dbx 166 stereo compressor/limiter, Valley People Dyna-Mite 430 stereo compressor/limiter, Aphex Compellor stereo compressor/leveler/peak limiter, Valley People GateX 4-channel noise gate/expansion, [2] Aphex Aural Exciter Type C, BBE 822 Sonic processor, Orban 536A dynamic sibilance controller, dbx 902 de-esser. Microphones: Calrec Soundfield system, AKG tube large diaphragm condenser, [2] AKG C-460BULS CK-61 condenser, AKG D-112 dynamic, [2] Sennheiser MD-421 dynamic, [2] Shure SM57 dynamic. Monitor Amplifiers: Halfer P-500, Halfer P-125. Monitor Speakers: Tannoy SGM, Tannoy PBM-6.5 near-field, JBL 4412, Toa 265-ME near-field. Musical Instruments: [2] Roland S-550 digital sampler, Akai S900 digital sampler, Korg DSM-1 digital sampler, Roland D-50 digital linear synthesizer, Roland D-550 digital linear synthesizer, Roland MKS-70 Super JX analog synthesizer, Roland MKS-20 digital piano Roland MT-32 digital linear synthesizer, [2] Yamaha TX802 FM digital synthesizer, Yamaha TX81Z FM digital synthesizer, Korg EX8000 analog synthesizer, Korg DW6000 analog synthesizer, Moog Memorymoog analog synthesizer, E-mu Systems SP-1200 digital drum machine/sampler w/library, RX5 digital drum machine, Korg DDD-1 digital drum machine/sampler. Other MIDI Equipment: Macintosh SE w/Performer Ver. 3.0 software, Yamaha KX88 keyboard controller, Roland Octapad Pad-8 drum pad controller, Roland GM-70 guitar controller, Roland VP-70 voice controller/processor, J.L. Cooper MSB 16/20 MIDI patcher, KMX central MIDI patcher, Roland MPU-103 MIDI channel filter converter, Lexicon MRC remote controller. Video Equipment: JVC BR-7700 VCR, [2] Ampex D-2 VPR300 digital editing system, [2] Ampex VPR-80 1" editing system, Grass Valley 200-2 switcher. Other: Technics SL-P1300 CD player

[16] **SOUND GRAPHICS STUDIO**, PO Box 91133; Long Beach, CA 90809; (213) 498-9135. Owner: David and Nicole Eastly. Manager: David Eastly

[16] **SOUND MIXER RECORDING**; 2301 E. Nutwood, Fullerton, CA 92631; (714) 738-4581. Owner: John Sirca. Manager: Kris Sirca

[16] **SOUTH COAST RECORDING STUDIO**; 1818 1/2 N. Main St., Santa Ana, CA 92706; (714) 541-2397. Owner: Jim Dolson. Manager: Jim Dolson. Engineers: Jim Oddo, Bob Sailing. Dimensions: Room 1 studio 15 x 20, control room 10 x 17. Room 2 studio 10 x 10. Room 3 studio 9 x 15. Mixing Consoles: Ramsa WRT820 20 x 8 x 2, Ramsa WRB112 12 x 4 x 2. Audio Recorders: Fostex E-16 16-track, Otari MX-5050 2-track. Cassette Recorders/Duplicators: Nakamichi, JVC, [2] Sony Noise Reduction Equipment: Dolby C 16 channels Echo, Reverb & Delay Systems: [2] Alesis Quadverb digital multieffects processor, Alesis XTC digital reverb, Alesis MIDI-verb II multieffects processor, Alesis Microverb digital reverb, Alesis Microverb II digital reverb, Roland DEP-5 multieffects processor, Deltalab ADM-1024 digital delay, Orban spring reverb. Other Outboard Equipment: [4] Symetrix gate, [2] dbx 165A compressor/limiter. Microphones: AKG C-414, [4] Sennheiser MD-421, Sennheiser MD-441, Electro-Voice RE20, [2] AKG D-224E, [2] Shure SM81, [10] Shure SM57, [3] Shure SM58, [4] Crown PZM. Monitor Amplifiers: QSC Model 1400, Rane HC6 headphone amp. Monitor Speakers: [2] Tannoy PBM 6.5 control room monitor, [2] Electro-Voice Sentry 100A control room monitor. Musical Instruments: Straube baby grand piano, Roland S-10 sampler, Alesis HR-16 drum machine, Roland Juno-106 keyboard. Other MIDI Equipment: Macintosh Plus w/20MB HD. Other: [4] AKG headphones, [2] Sennheiser headphones

[16] **SPECTRUM STUDIO**, also *REMOTE RECORDING*; 664 Camino Campana, Santa Barbara, CA 93111; (805) 967-9494. Owner: Don Ollis. Manager: Don Ollis

[16] **SPOT RECORDING**; 1700-P Newport Circle; Santa Ana, CA 92705; (714) 432-8310. Owner: Spot Industries. Manager: David Kory II

[16] **STAR FORCE RECORDING, DIV. OF SF AUDIO SOUND & RECORDING**, also *REMOTE RECORDING*; 5290 E. Hunter Ave., Anaheim, CA 92807; (714) 779-6677. Owner: Steven Forster. Manager: S. Forster. Engineers: Steven Forster, independents. Dimensions: Room 1 studio 35 x 35, control room 12 x 35. Room 2 studio 12 x 15. Mixing Consoles: Ramsa W28428 30-input, 56-input for mix. Audio Recorders: Otari MX-70 16-track 1", Panasonic SV3500 DAT, Tascam 40 1/4" w/dbx. Cassette Recorders/Duplicators: [2] Nakamichi MR-2, Aiwa WX-220 duplicator. Echo, Reverb & Delay Systems: Lexicon PCM70, Lexicon LXP-1, Alesis MIDI-verb II, [2] Alesis Microverb II, Yamaha REV7, Ibanez DM-2000D digital delay, Roland SDE-2500 digital delay, Aphex Aural Exciter Type B. Other Outboard Equipment: dbx 166

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6-channel compressor/limiter/noise gate, Symetrix 544 8-channel noise gate, (2) White Instruments 32-band 1/2-octave room EQ, Microphones: (2) Neumann TLM170, (4) Sennheiser MD-421, (2) E-V PL20, (4) Audio-Technica ATM332, (4) Shure SM58, Shure SM57, (10) others available, Monitor Amplifiers: Perreaux, BGW, Rane HCG, Monitor Speakers: Tannoy Little Gold, Tannoy PBM 6.5, E-V Sentry 100A, Yamaha NS-10M, AKG and Sennheiser headphones, Musical Instruments: Tama Artstar w/Zildjian platinum cymbals, Crate full 100 watt stack, Marshall half stack, (9) extensive array of guitars and basses, Roland D-50, Ensoniq ESQ-1, Other MIDI Equipment: Macintosh SE, Sonus MacFace, Sonus SMX-2000 SMPTE/MIDI time code reader/writer, various programs, Specialization & Credits: SF Audio Sound & Recording would like to thank all our clients in the past year for helping in the transformation of Star Force Recording. The company is the same, just different names since we do many facets in the industry. These include Doc Rock Productions, Doc Rock Records and a myriad of other companies. Thank you Doug Boughter, NHRA, Ed Zappia's Bad Weather, Parrish Idle Scenes, Azure Blue and too many more to name. Rates are on a quoted basis only so call for an appointment or rate and equipment list.

[16] **KRIS STEVENS RECORDING**; 14241 Ventura Blvd. #204; Sherman Oaks, CA 91423; (818) 981-8255. Owner: Kris Erik Stevens. Manager: Tom Holdridge.

[16] **SUNBURST RECORDING**; 10313 W. Jefferson Blvd.; Culver City, CA 90230; (213) 204-2222. Owner: Bob Wayne. Manager: Bob Wayne. Engineers: Bob Wayne, David Starns, Wayne Hoggatt, Damon DeGrignon, Jim Reeves. Dimensions: Room 1 studio 22 x 18, control room 18 x 12, Room 2 control room 16 x 11. Mixing Consoles: Trident Series 65 32 x 16 (48-input for mix), Audio Recorders: Mitsubishi X-80A 1/2-track 1/4" digital, Tascam 90-16 16-track 1" analog w/full dbx, Tascam 80-8 8-track 1/2" analog w/full dbx, Otari 5050 MkIII 1/2-track 1/4" analog (15/30 ips), Tascam 25-2 1/2-track 1/4" analog (7 1/2/15 ips), TEAC A3340S 4-track 1/4" analog (7 1/2/15 ips). Cassette Recorders/Duplicators: (2) TEAC C-3 Tech-



RECORDING AND PRODUCTIONS

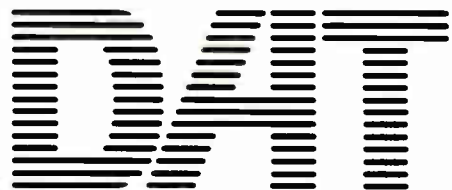
SUNBURST RECORDING
Culver City, CA

nics RS-933W double transport, Marantz C-205 portable Noise Reduction Equipment; (26) dbx Type I Echo, Reverb & Delay Systems: Lexicon 200 reverb w/ revised 1.3 software, Alesis MIDiverb II, ART 01A reverb, Orban 111B (spring) reverb, Alesis Quadreverb, Yamaha SPX90, Aphex Type C Aural Exciter, BBE 802, Eventide H910 Harmonizer, (2) DeltaLab 1024 digital delay, Roland 1000 digital delay, MXR 1320MS digital delay, (2) dbx 165 compressor, (2) dbx 161 compressor, Audio Logic M-T44 4-channel gate, Tristech FX-200 4-channel gate, (4) Tascam PE-40 4-channel parametric EQ, Other Outboard Equipment: (2) MXR stereo chorus, MXR flanger, Tom Scholz Rockman, Technics SL-P100 CD player, Technics SL-J33 turntable, Microphones: Neumann U87 condenser, (2) Neumann KM84 condenser, AKG 414EB condenser, AKG 414E condenser, (2) AKG 451 condenser, Shure SM81 condenser, Sony 33-P condenser, (2) E-V RE20 dynamic, (2) E-V RE15 dynamic, Sennheiser 421 dynamic, Shure SM7 dynamic, (6) Shure SM57 dynamic, AKG D-112 dynamic, (4) AKG 1000 dynamic, Beyer M500 ribbon, Crown 30GP PZM, Monitor Amplifiers: BGW 250, Ramsa WP-9055 Monitor Speakers: E-V Sentry V, JBL Decade, Yamaha NS-10, Auratone cubes, Musical Instruments: Kawai 7'4" grand piano w/MIDI, Hammond B-3 (1958) w/ Leslie 122, Yamaha DX7 w/EI module, Roland Juno-60 w/MIDI,

Korg M-1R synth module, Sequential Circuits Prophet-2002 sampler, Roland MKS-70 (Super JX) synth module, Roland MKS-20 synth module, Yamaha FB01 synth module, Roland 626 drum machine, LinnDrum w/MIDI module, complete acoustic drum (trap) kit. Rates: Analog 2/8-track \$35, analog 1/6-track \$45, digital 2-track \$55. All rates include engineer and all equipment.

[16] **SYSTEMS EXCLUSIVE RECORDING**; 4942 Likini St.; Honolulu, HI 96818; (808) 839-5431. Owner: Lester Gantan/ Flyin' Hawaiian Productions. Manager: Lester Gantan. Engineers: Lester Gantan, Milan Bertosa. Mixing Consoles: Trident Series 65 MkIII 32 x 16 x 2 w/patch bay, Roland M-16E 16 x 2. Audio Recorders: Otari MX-70 16-track (30/15 ips), Sony APR-5003V 2-track w/center track time code, Sony PCM-2500 R-DAT (available upon request), Cassette Recorders: Duplicators: Sony TC-R503 Echo, Reverb & Delay Systems: Lexicon PCM70 w/3.0 software, Sony MUR-201 digital reverb, (2) TC Electronic 2290 digital delay w/4 sec. sampling, Alesis Quadreverb digital effects processor, Roland SRV-2000 digital reverb, Roland SDE-1000 digital delay, Other Outboard Equipment: Valley International Model 440 limiter/comp/dynamic sibilance processor, (2) Symetrix 522 comp/limiter/expander/gate/ducker, Microphones: Neumann U87A, Neumann KM84, Shure SM57, Shure SM58, others available upon request, Monitor Amplifiers: Halfer P-230BR, (2) Halfer P-125BR, Rane H6 headphone amplifier, Monitor Speakers: (2) PAS SM-1 w/Sheffield Mastering Lab TOC crossover, (2) Yamaha NS-10M, (2) Auratone, Musical Instruments: E-mu Emax SE sampling keyboard w/hard drive, E-mu Emax sampling keyboard, Kurzweil 1000 PX professional expander, Roland D-50 linear synthesizer, Roland D-550 linear synthesizer, Roland R-8 drum machine, Roland TR-909 drum machine, Yamaha TX802 FM synthesizer, Yamaha RX5 drum machine, Yamaha DX7 FM synthesizer, Roland Axis remote keyboard, Oberheim Xpander, Other MIDI Equipment: Macintosh Plus computer, Mass Micro Systems 45MB HD w/removable 45MB cartridges, Southworth Jam Box/4+ MIDI/SMPTE interface, 360 Systems 8 x 8 MIDI patcher, Mark of the Unicorn Performer 2 41, Mark of the Unicorn Composer 2.0, Alchemy 1 2, Digidesign Sound Designer (Emax), Opcode editor/librarian for DX/TX, D-50, Xpander, 100,000+ sound library for Emax, DX-TX, D-50, D-550, Xpander. Other: Sony CD player. Rates: Available on request.

[16] **THETA SOUND STUDIO**; also REMOTE RECORDING; Burbank, CA 91506; (818) 955-5888. Owner: Randy Tobin. Manager: Cyndie Tobin. Engineers: Randy Tobin, Walter Zool, Rick Faircloth. Dimensions: Studio 20 x 20, control room 10 x 20. Mixing Consoles: Ramsa 40 x 8 x 2. Audio Recorders:



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[16] **WAVETECH RECORDING**; 3130 Skyway Dr., Ste. 602, Santa Maria, CA 93455; (805) 925-4244. Owner: Rob Ibsen. Manager: Rob Ibsen. Engineers: Rob Ibsen. Doug Tomooka. Dimensions: Studio 20 x 18, control room 24 x 20. Mixing Consoles: Neotek Series II. Audio Recorders: Ampex MM120H 16-track 2". Sony PCM-2500, Otari MX-5050. Cassette Recorders/Duplicators: Nakamichi MR-1, (2) Nakamichi MR-2 Echo, Reverb & Delay Systems: (2) Eventide H3000B, (2) Lexicon PCM70, (3) Yamaha SPX90II, (2) Lexicon PCM42 Lexicon 480L, (2) Multiverb, Lexicon Prime Time, Lexicon LXP-1, Aphex Compellor, (3) Summit Audio TLA 100, Summit Audio TPA 200, Drawmer M500, (3) Drawmer gate (dual), (2) Valley People gate (quad), (3) dbx 160X. Other Outboard Equipment: Vocoder. Microphones: (2) Neumann U87, Neumann TLM170, AKG 414BULS, AKG 414TL, AKG C-451E, AKG D-112, (5) Sennheiser 421, (2) Beyer Dynamic CK710, Beyer Dynamic 380N, (4) Beyer Dynamic 422, (2) Beyer Dynamic 426, (2) Beyer Dynamic 201, (2) Bruel & Kjaer 4007 Coles Ribbon, RCA 77-DX ribbon. Monitor Amplifiers: (2) Adcom GFA 555 Pro, Adcom GFA 545. Monitor Speakers: (2) Tannoy SGM 1000, (2) Smithline Audio Reference. Musical Instruments: Kurzweil 250 expander fully loaded, Kurzweil 1000-PXA, Kurzweil 1000-SX, Kurzweil MIDiboard, E-mu: Emax, Oberheim Matrix-12, (2) Oberheim Matrix-6, (2) Yamaha DX7IIIFD, Yamaha TX816, Yamaha CP70, PPG Wave 2.3, (2) Roland D-50, Roland MKS-80, Roland MKS-20, Roland R-8, E-mu SP-12, Sequential Circuits Prophet-VS, Korg M-1 Oberheim DPX-1 w/CD ROM, Dynacord ADD 1 (ADD drive pads) drum kit, Alesis HR-16, Steinberger guitars and basses. Gibson Les Paul, other guitars and basses. Mesa/Boogie

amps. Other MIDI Equipment: (2) J.L. Cooper MSB16/20. Other: Apple Mac II (8MB) w/Performer, Composer, Finale, Turbosynth and other software, Sound Ideas Series 1000 and 2000 and other sounds.

[16] **WEST HAWAII RECORDING**; also *REMOTE RECORDING*; PO Box 3172, Kamuela, HI 96743; (808) 883-9383. Owner: Harrell Baker.

[16] **ZACUTO AUDIO**; 1316 3rd St.; Santa Monica, CA 90401; (213) 394-4932. Owner: Gary Zacuto. Manager: Joel Porter.

S O U T H E R N C A L I F O R N I A

2-8 TRACK

[8] **AFTERHOURS RECORDING STUDIO**; 1616 Victory Blvd., Ste. 104, Glendale, CA 91201; (818) 246-6583. Owner: Bill Berkuta, Rick Stevens. Manager: William Berkuta. Engineers: William Berkuta, Richard P. Stevens II. Dimensions: Room 1 studio 13 x 15 x 24, control room 12 x 12. Room 2 studio 12 x 12 1/2, control room 9 1/2 x 10 1/2. Mixing Consoles: (2) TEAC Model 3 8 x 4 x 2, Opamp Labs ARC 14 x 4 x 2. Audio Recorders: Tascam 80-8 8-track, Tascam 38 8-track, TEAC A-2340-SX 4-track, Otari MX-5050 BII 2-track, Ampex 300 2-track editing. Cassette Recorders/Duplicators: (11) TEAC R505 real-time dup., Technics M222 Noise Reduction Equipment: TEAC dbx DX-8, (2) Tascam DX4D Echo, Reverb & Delay Systems: DeltaLab Electron II, ADM 1024 digital delay, Lexicon PCM60 digital reverb. Other Outboard Equipment: dbx 166 compressor/limiter/gate, 12-band stereo EQ, 10-band stereo EQ. Microphones: (2) Neumann KM84, (3) Sennheiser MD-421U5, (2) Crown PZM, (2) AKG D-190E, (2) AKG D-1000E, Shure 300 bi-directional ribbon, Sennheiser KZU shotgun. Monitor Amplifiers: Crown Power Line One. Monitor Speakers: (2) Tannoy Musical Instruments: Simmons SDS-8 electronic drums (advance notice), Yamaha CS01 synth, Caslotone 202 synth, Crumar Performer, Estey upright grand piano, Rickenbacker 12-string electric guitar, Ibanez "Les Paul" copy 6-string, Yamaha clarinet, violin. Specialization & Credits: Music demo recording, theatrical sound design and consultation, commercial voice tape production, radio drama production, audio cassette mastering. Flexibility, effectiveness and cooperation are the key elements at Afterhours, where resident producers are available to help you realize your project.

[8] **AT&T RECORDING/DUPLICATING**; 501 N. Larchmont Blvd.; Los Angeles, CA 90004; (213) 466-9000.

[2] **ATM AUDIO/VISUAL**; only *REMOTE RECORDING*; 17104 S. Figueroa St. (office); 17800 S. Main St. #116 (sales); Gardena, CA 90248; (213) 538-2004 (office); (213) 329-0997 (sales). Owner: Andrew T. Martin. Manager: Robert E. Barnes.

[2] **DIGIPREP (DIGITAL AUDIO SERVICES) CD PRE-MASTERING**; 1425 N. Cole Pl., Hollywood, CA 90028; (213) 461-1709. Owner: Dan Hersch. Warren Saiyer.

[8] **GILLETTE RECORDING SERVICES**; also *REMOTE RECORDING*; 255 N. El Cielo Rd., Ste. 466; Palm Springs, CA 92262; (619) 323-6073. Owner: Richard Brown Jr. Manager: Manny Martinez.

[8] **JAGS ENTERTAINMENT**; also *REMOTE RECORDING*; PO Box 935, Captain Cook, HI 96704; (808) 323-3315. Owner: Eric Jaeger. Manager: Eric Jaeger.

[8] **JAMLAND STUDIOS**; 10988 Noble Ave.; Mission Hills, CA 91345; (818) 361-2224. Owner: Roger Curley. Manager: Roger Curley.

[4] **RISING STAR RECORDING**; 655 N. Berry, Ste. I, Brea, CA 92621; (714) 671-7815. Owner: Rudy Ising.

[8] **SOUNDS LIKE**; also *REMOTE RECORDING*; PO Box 914, Port Hueneme, CA 93041; (805) 988-9856. Owner: Tim Gillespie. Manager: T.G.

[2] **STUDIO M PRODUCTIONS UNLTD.**; only *REMOTE RECORDING*; 8715 Waikiki Station, Honolulu, HI 96830; (808) 734-3345. Owner: Mike Michaels. Manager: Hugo Buehring.

[8] **SUNDIAL RECORDING STUDIO**; PO Box 5426; Santa Barbara, CA 93150; (805) 969-6926. Owner: Don Messick.

[8] **WALLY'S WEST RECORDING SERVICES**; 5703 Harold Way #4; Hollywood, CA 90028; (213) 462-2388. Owner: Gerry Rothschild. Manager: Denny Moore.

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MIX

THE RECORDING INDUSTRY MAGAZINE

would be no rap music, and half the alternative music and small records wouldn't happen without people doing things in their living rooms. Even big bands. Tom Petty's new record was done two blocks from my house, in a garage. [Home recording] is here to stay. It creates different ends of the spectrum. If there were only big rooms, far fewer songs would be written, and only the people who were already established and had big money could afford to do records.

There always has been that home-grown element in music that makes it exciting and makes new things come up. It goes all the way back to the beginning of rock and roll. People who couldn't come up with money and would never be given a break by a recording company or studio can have a 4-track or 8-track and make something that can get out and be judged solely on its artistic merit, and have it heard by people who don't care if it was done at some big studio. Today, it's a lot easier to work out of your home, but the competition is a lot tougher, and you have to find your own little niche.

Yakus: Home studios have affected the recording industry in a positive manner. They give a leg up for the new artists, new songwriters, to get started. Think of it as in baseball, with the home studios and their clients being the farm teams. Why would anybody want to knock out the minor leagues? It all starts there. In the '90s it's going to start in the home studios who are willing to hire and develop the young "gofer" into the young engineer. Where does the young guitar player who can't break into the L.A. music scene get started? It has to start with home studios. ■

Assistant editor Linda Jacobson also runs Wordswork, an audio writing/editing service based in San Francisco. Tom Kenny is an assistant editor at Mix, and Randy Alberts works in Mix's Southern California sales office.

slaves that anybody makes run at 240 ips. But I understand from talking to Electro Sound that it is possible to make a 480 ips slave. I don't know if anyone can take the pancakes off the slaves fast enough to make it worthwhile, but it could be done. Our machine could then theoretically run at 256:1, though with no oversampling. The DM-400 is capable of playing back at that rate.

Mix: Aren't we approaching the theoretical limit of D/A conversion speed here?

Binder: Yeah, we are.

Mix: So what does that imply for your system in terms of accuracy and reliability?

Scheffler: At 256:1 we would be getting close to the edge of what audio and video digital converters can do, but vast improvements are being made all the time. As more and more development is being done in the area of high-quality or high-definition television with video converters, the video converters are becoming closer to audio converters. At real time there are certain things about audio that make the converter special.

The big problem in audio is that 20 Hz is so close to DC. But the higher the speed gets, the further you get away from DC, and the closer your bandwidth gets. So a 14- to 16-bit video converter at high speed can be almost as good as a 16-bit audio-type converter at real time. In any case, the technology is changing very fast. Currently, we have a 70dB S/N ratio on the output, but as the technology improves and the D/As get cleaner and cleaner, we are going to be able to offer better and better output.

Mix: Is it primarily digital video that is leading the way as far as making this feasible?

Scheffler: It's kind of a hybrid between the specifications of audio, the technology of video and the faster computer chips that are now available. It is our unique combination of the three that makes our system possible.

Mix: How do you handle the recording of both sides of the cassette simultaneously, one in each direction?

Scheffler: Normally, before you filter digital samples they look like stair steps. Each sample is actually at the beginning of the step. When the sam-

ples are played from the 1630 into the MM-100, we tell the MM-100 what is side A and what is side B. What we do for the B side is make the sample the end of the stair instead of the beginning. So instead of hitting a sample and then holding it, you are holding it first and then hitting it. By doing that you have reversed it. Then out on the line during D/A conversion the DM-400 plays those samples out starting at the end while the A side is being converted from the beginning. It's a simple matter of timing to figure out where to start the B side so it all ends up at the right place on the tape.

Mix: Any other features worth noting?

Scheffler: The unit generates the standard slave cue tones as well as sine waves for test tones. Everything in the machine is on cards that you can pop out for easy maintenance, and it is self diagnostic. The slave start time is adjustable, so you can get your pancakes all started at the same time for staggered loading. Another nice thing is that the master starts instantaneously, without the 20- or 30-second delay you have with a standard bin loop. So the slaves will start before the master. But the most important things are that you don't have a tape loop that can break, you don't have heads that can get dirty during playback, there is no phase shift from the master moving up and down on the head, and you don't have head bumps, crosstalk, oxide scrape off and wow and flutter. All those things mean that you can run the thing 24 hours a day, and you will never degrade the quality of the master.

Mix: What is your timetable in terms of actually having production models of the various components ready for sale to duplicators?

Binder: At this juncture we are planning on beginning delivery in September 1989. We are converting our prototype machine into a full working production machine, incorporating some of the technology that has been developed over the past year to improve on the initial design. We will be at the AES show, and we will be making cassettes with the machine at the show in our booth. ■

Phil De Lancie, a mastering engineer at Fantasy Studios in Berkeley, Calif., is our resident voice on formats, trends and technologies in the world of prerecorded music mastering and manufacturing.

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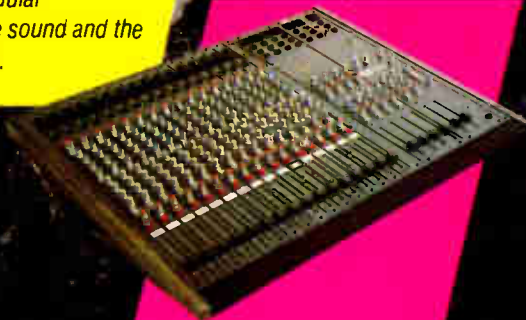
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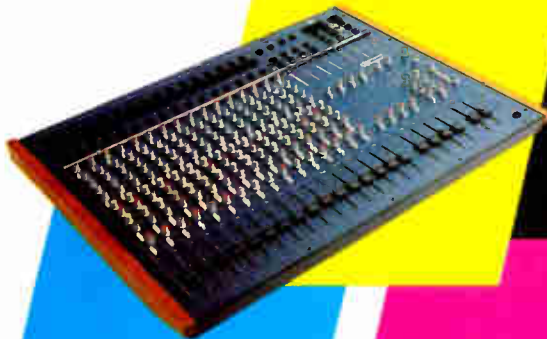
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TRUTH...

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If you haven't heard JBL's new generation of Studio Monitors, you haven't heard the "truth" about your sound.

TRUTH: A lot of monitors "color" their sound. They don't deliver truly flat response. Their technology is full of compromises. Their components are from a variety of sources, and not designed to precisely integrate with each other.

CONSEQUENCES: Bad mixes. Re-mixes. Having to "trash" an entire session. Or worst of all, no mixes because clients simply don't come back.

TRUTH: JBL eliminates these consequences by achieving a new "truth" in sound: JBL's remarkable new 4400 Series. The design, size, and materials have been specifically tailored to each monitor's function. For example, the 2-way 4406 6" Monitor is ideally designed for console or close-in listening. While the 2-way 8" 4408 is ideal for broadcast applications. The 3-way 10" 4410 Monitor captures maximum spatial detail at greater listening distances. And the 3-way 12" 4412 Monitor is mounted with a tight-cluster arrangement for close-in monitoring.

CONSEQUENCES: "Universal" monitors, those not specifically designed for a precise application or environment, invariably compromise technology, with inferior sound the result.

TRUTH: JBL's 4400 Series Studio Monitors achieve a new "truth" in sound with

an extended high frequency response that remains effortlessly smooth through the critical 3,000 to 20,000 Hz range. And even extends beyond audibility to 27 kHz, reducing phase shift within the audible band for a more open and natural sound. The 4400 Series' incomparable high end clarity is the result of JBL's use of pure titanium for its unique ribbed-dome tweeter and diamond surround, capable of withstanding forces surpassing a phenomenal 1000 G's.

CONSEQUENCES: When pushed hard, most tweeters simply fail. Transient detail blurs, and the material itself deforms and breaks down. Other materials can't take the stress, and crack under pressure.

TRUTH: The Frequency Dividing Network in each 4400 Series monitor allows optimum transitions between drivers in both amplitude and phase. The precisely calibrated reference controls let you adjust for personal preferences, room variations, and specific equalization.

CONSEQUENCES: When the interaction between drivers is not carefully orchestrated, the results can be edgy, indistinctive, or simply "false" sound.

TRUTH: All 4400 Studio Monitors feature JBL's exclusive Symmetrical Field Geometry magnetic structure, which dramatically reduces second harmonic

distortion, and is key in producing the 4400's deep, powerful, clean bass.

CONSEQUENCES: Conventional magnetic structures utilize non-symmetrical magnetic fields, which add significantly to distortion due to a nonlinear pull on the voice coil.

TRUTH: 4400 Series monitors also feature special low diffraction grill frame designs, which reduce time delay distortion. Extra-large voice coils and ultra-rigid cast frames result in both mechanical and thermal stability under heavy professional use.

CONSEQUENCES: For reasons of economics, monitors will often use stamped rather than cast frames, resulting in both mechanical distortion and power compression.

TRUTH: The JBL 4400 Studio Monitor Series captures the full dynamic range, extended high frequency, and precise character of your sound as no other monitors in the business. Experience the 4400 Series Studio Monitors at your JBL dealer's today.

CONSEQUENCES: You'll never know the "truth" until you do.



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