

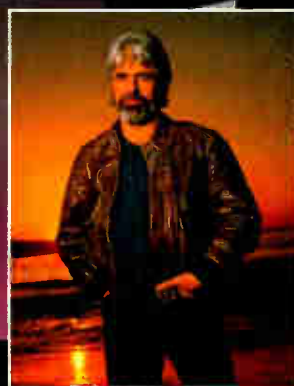
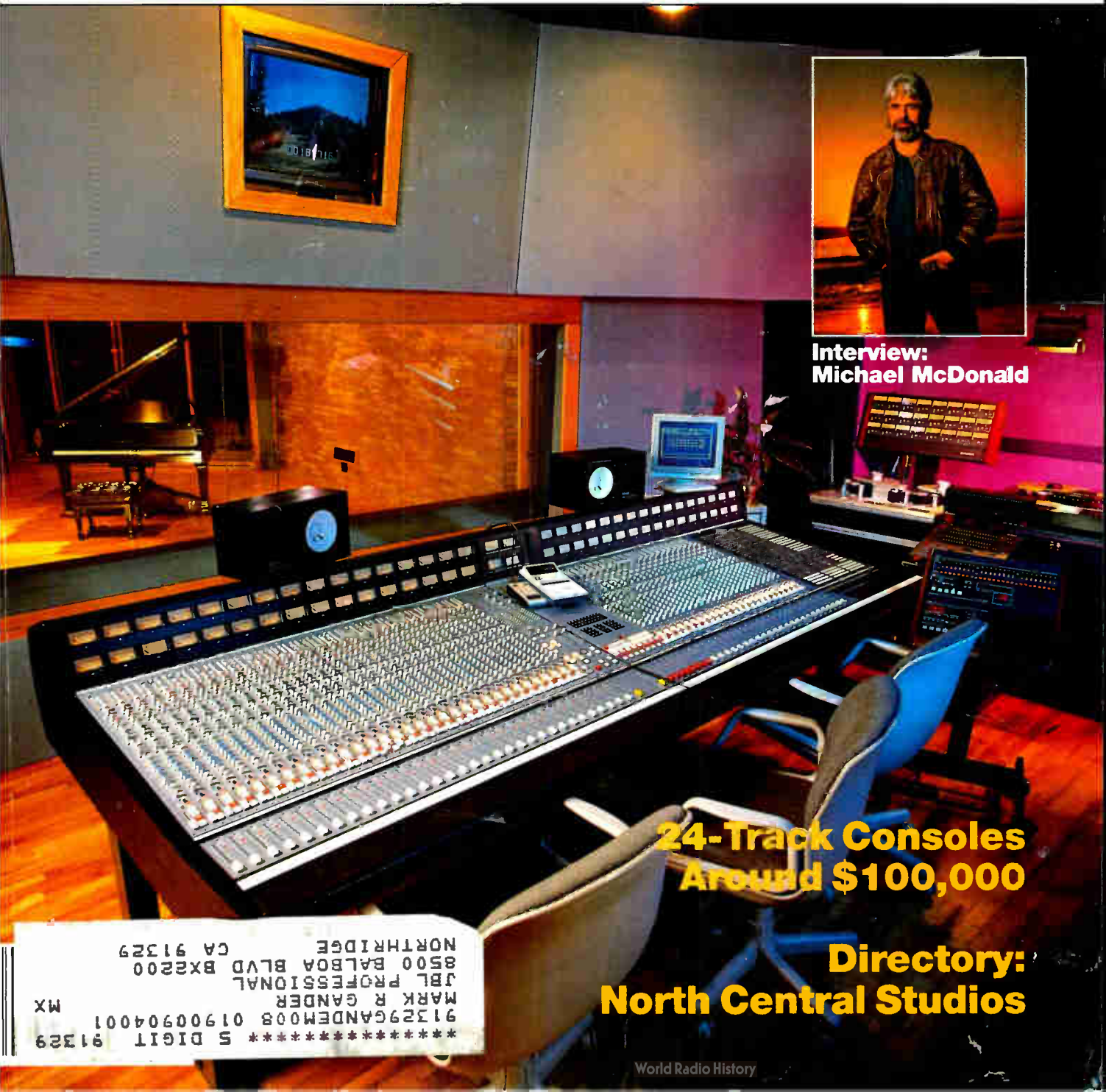
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MIX

CANADIAN STUDIOS:
Directory, plus
all the latest
from Vancouver,
Toronto & Montreal

THE RECORDING INDUSTRY MAGAZINE



Interview:
Michael McDonald

**24-Track Consoles
Around \$100,000**

Directory:
North Central Studios

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JBL PROFESSIONAL
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MIX

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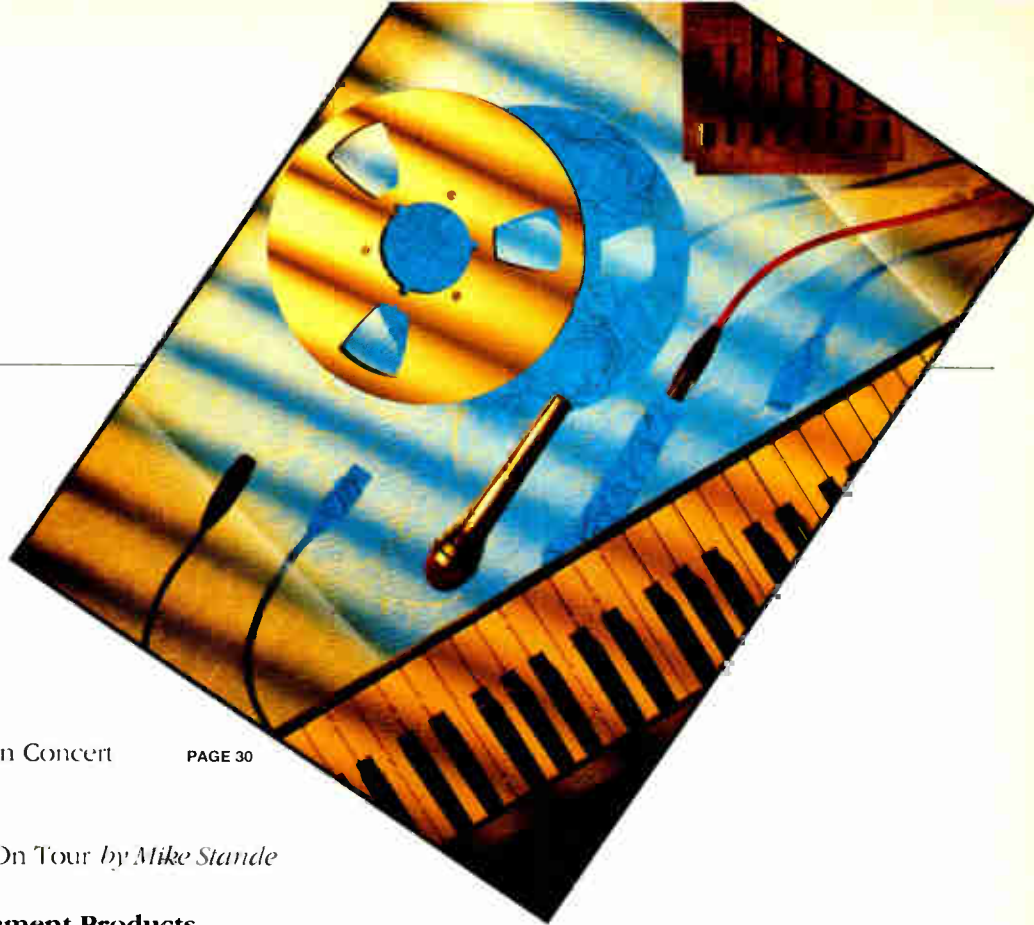
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Cover: Studio A at River North Studios in Chicago features a 56-input DDA DCM 232 automated console, Mitsubishi X-850 32-track and Studer A827 24-track recorders. The 800-square-foot control room is one of 12 rooms networked together at the facility, which has a long history of live tracking for commercials and albums. **Photo:** Paul Natkin.



DIRECTORY

155 North Central Studios

48-TRACK TECHNOLOGY:



Photo courtesy of David Hewitt's Remote Recording Services.
To book the brand new 44-foot Silver Truck (including dual
A820-24 48-track analog recording) for nationwide mobile audio
production, call 215/794-5005 - FAX 215/794-3263.

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World Radio History

FROM THE EDITOR

About seven years ago, my partner Hillel and I were having lunch with one of *Mix's* advertisers, a distinguished manufacturer of high-quality products. The discussion centered around the befuddlement we all shared about the trend toward cheapening production in manufacturing. Somewhere in their search for cost-efficiency, many manufacturers sacrificed the idea of professionalism. The vision of a better, loftier, more enhanced professional product was being abandoned in favor of getting the cost down to where the fish would bite.

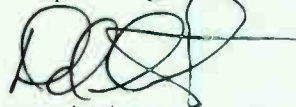
Out of this head scratching session came the origins of the Technical Excellence & Creativity Awards, as a venue for *Mix* readers to encourage manufacturers—and the industry at large—to keep up the quest for perfection.

Now, six years into the annual event, the growing industry support for the TEC Awards has additionally helped to fund audio education and research into the causes of hearing impairment. A direct result of that support is the HIP (Hearing is Priceless) campaign. This program, developed by the House Ear Institute of Los Angeles, has reached into the school systems and recreational areas to educate young people about the vulnerability of their hearing. By creating discussions and distributing literature and sound filters, the House Ear people have brought attention to the dangers of listening to excessively loud music. Volunteers such as Jeff Baxter and Nina Blackwood have done a remarkable job of putting hearing preservation in its proper perspective, and making safe listening a popular cause.

During the recent AES convention, the TEC Awards ceremony once again honored the champions of our industry. We congratulate the nominees and winners (see page 152 for the final results) and thank *Mix* readers and industry supporters for their generous contributions to the cause.

We've never felt stronger about the goals of the TEC Awards, both for first-rate craftwork and hearing safety. Certainly, the more we learn about saving our hearing, the more the response becomes obvious. However, going that extra mile in design excellence does not come without a cost—particularly in troubled economic times. We hope that our industry's venerable manufacturers and suppliers can keep the faith during the hard times and keep in mind that there is always a market for quality.

Keep reading.



David Schwartz
Editor-in-Chief



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We've been building ultra-reliable, high performance 2-track machines since 1968, so when we say the new MTR-15 is the most sophisticated 2-track we have ever built, we've said a mouthful.

Developed to meet the needs of those who are using the latest noise reduction systems to press analog to the limit, the MTR-15 delivers superb sonic quality, plus dozens of operational features you thought you'd never find on a 2-track.

For example, record and reproduce Auto-Alignment™ for 4 different tape formulations is

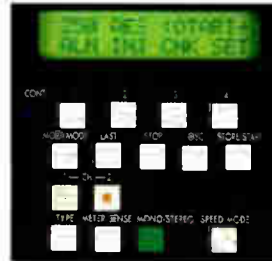
built-in. And 4 speeds are standard. A PWM reel servo system keeps things running smoothly and accurately. Speaking of accuracy, for audio post applications a chase synchronizer is available. And, of course, every MTR-15 is equipped with Otari's 37-pin standard parallel interface, with RS-232-C/RS-422-A serial interfaces optional. And so you can choose exactly the machine you need. 1/4" or 1/2" versions are available, plus a 1/4" with center track time-code.

To make the MTR-15 easy to use, we've included a four-point locator, plus a user-definable transport control button arrangement. The MTR-15 is at home in a rack mount or on a table top when space is at a premium, or in its

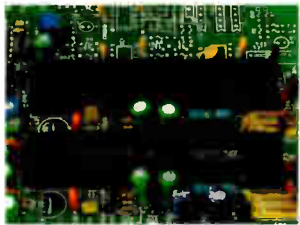
optional floor-standing console with meterbridge.

And when you add *HX Pro, a built-in tape timer, internal monitor speaker, 12.5" reels, and AES/NAB/IEC equalization presets, plus a tremendous variety of options, including autolocators, a voice editing module, and a chase synchronizer, you understand why we say the MTR-15 is the 2-track re-invented for the 90s.

Call 415-341-5900 for complete information on this new Otari.



An automatic record and reproduce alignment system drastically reduces set-up time.



High slew-rate operational amplifiers and premium components contribute to the MTR-15's superb sonic performance.

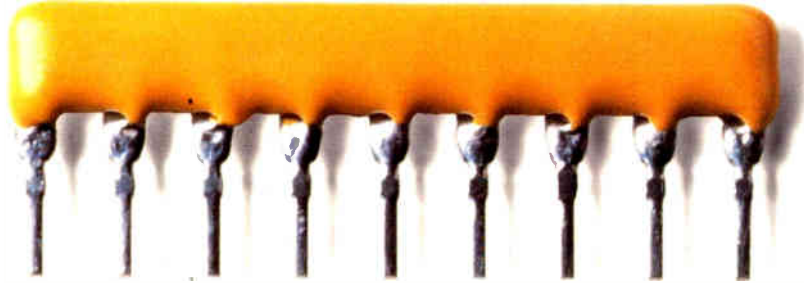
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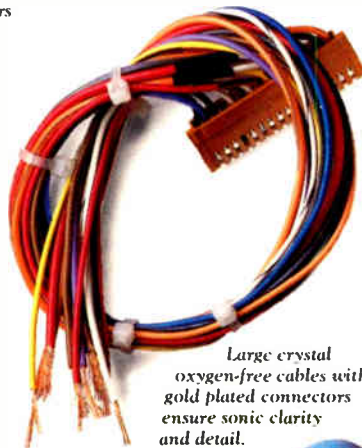


They make beautiful music together.

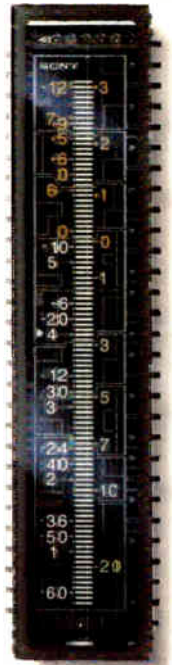
Laser-trimmed resistor packs and 18-turn trim-



Audiophile-grade capacitors maximize sonic accuracy.



Large crystal oxygen-free cables with gold plated connectors ensure sonic clarity and detail.



Unique vacuum-fluorescent multi-scale metering shows signal levels as low as -60dB, essential for digital recording.



Sealed, steel-shaft potentiometers deliver reliable performance for years.



Sony's own hybrid circuitry makes these consoles among the quietest in the industry.

A wide variety of preamp and EQ modules allows you to easily configure the console to your needs.

Sony marries superior components and intelligent engineering to create the MXP-3000 series consoles.

The result is consoles that offer the same high level of sonic excellence as our digital multitrack recorders, as well as unsurpassed reliability.

To achieve this, we selected only parts that meet the highest standards. Often, this required creating unique components.

This dedication to quality extends throughout the MXP-3000 series. From our "minimal signal path" architecture to our advanced metal frame

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Call us at 1-800-635-SONY, to learn how you and the MXP-3000 series can make beautiful music together.

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PROFESSIONAL AUDIO

CURRENT

Siemens Purchases AMS

After looking long and hard at the digital audio workstation market, Siemens Austria, a subsidiary of West Germany-based Siemens and parent company of Neve, has purchased AMS Industries plc, makers of the AudioFile. The deal involved a cash buyout of the AMS directors' shares, which amounts to 74.2% of the share capital, for a total of \$16.7 million. Seventy-two percent of the AMS shares were held by founders Mark Crabtree and Stuart Nevison. Crabtree will serve on the Neve board of directors.

At a press conference at the Los Angeles AES show, Nevison said he fully expects the deal to be approved around the first of November. AMS will continue to manufacture from its Lancashire facilities, as Nevison said autonomy in control and direction was critical in negotiations. Future R&D, he said, should benefit from the association with both Siemens and Neve, and he expects accelerated product introductions.

Twelve months ago AMS sold off its Calrec custom console line and concentrated on the Logic 1 digital mixing console. The 64-in Logic 2 debuted at the International Broadcaster's Convention in September, and Nevison said plans call for the continuation of the line, which he considers complementary to available Neves.

Nevison could not, however, shed any light on the sales and marketing strategy for the American market. As it stands, Neve has a direct sales and distribution effort and AMS relies on reps. Expect an announcement soon.

AKG Buys Quested

AKG Acoustics Limited continues its worldwide pro audio expansion with the acquisition of Quested Monitoring Systems, the British mak-

ers of custom studio monitors. Roger Quested, who founded QMS in 1985, will continue with the company.

Last month we reported that AKG purchased the controlling interest in BSS/Turbosound. In fact, the company purchased the controlling interest in Edge Technology, Ltd., including BSS, Turbosound and Precision Devices.

Otari Acquires King

Otari Corporation of California, a subsidiary of Otari Inc., Tokyo, has acquired the assets and operations of King Instrument Corporation, Westboro, Mass. The purchase, effective September 28, makes Otari the largest manufacturer of audio and video tape loading machinery in the world.

According to Jack Soma, president of Otari Corp. of California, "Otari has been looking for manufacturing capacity in the U.S. in order to provide freedom from the foreign exchange nightmare and any potential restrictions on imported goods." No immediate changes are planned at King with regards to staff or operations.

GML and Focusrite Sign OEM Agreement

When Buddy Brundo of Conway Studios picked up his Focusrite console at the AES convention, he picked up an automation system as well. That's because GML Inc. of Los Angeles and Focusrite Audio Engineering of Bucks, England, have signed an OEM deal that calls for supply and implementation of GML automation systems within all Focusrite consoles.

Both companies are working toward a fully integrated automation package. The OEM agreement has brought George Massenburg and Ron Pendragon of GML and John Strudwick and Richard Salter of Focusrite into a single design team.

Following AES, Conway received the second Focusrite console manufactured since Phil Dudderidge took over the company in April 1989. The first was installed at Metropolis in London.

TEC Awards Winners Announced

For the second year in a row, George Massenburg was named Outstanding Recording Engineer at the Technical Excellence & Creativity Awards. He was also inducted into the TEC Hall of Fame along with Quincy Jones and the late Deane Jensen. Don Was, producer of Bonnie Raitt's *Nick of Time*, was named Outstanding Record Producer.

The only double winner this year was Neve North America, which won the award for Outstanding Technical Achievement, Console Technology and Recording Product of the Year. For a complete list of winners, turn to page 152.

Advanced Television Test Center News

The Advanced Television Test Center, a coalition of broadcasting companies and television industry organizations which is evaluating transmission systems for advanced television service in conjunction with an FCC Advisory Committee, has received a large-screen (65-inch diagonal) Hitachi High Definition Multi-Scan Rear-Screen Projection Display. The projector is the first such device with the wide-screen aspect ratio (16:9) delivered by Hitachi in North America.

In related news, the ATTC has been notified by Faroudja Research that it has withdrawn its SuperNTSC system from the testing program. In its notification to the FCC Advisory Committee and the Test Center, Faroudja indicated that it has developed a SuperNTSC system that it believes will be in compliance with

INDUSTRY NOTES

The 1990-91 convention of **The Indiana Music Educators Association** will be held on Friday and Saturday, January 11-12, 1991, at the Adam's Mark Hotel, 2544 Executive Drive, Indianapolis, IN 46241. All exhibit spaces are assigned on a first-received basis with careful attention given to avoiding adjacent assignments of like exhibits. Please respond as soon as possible to ensure your company a good location. Phone **Karen Lion**, exhibits chair, at (812) 376-4275 for further information... **Electro-Voice** (Buchanan, MI) and **Mark IV Audio** will be conducting regional seminars in Canada for E-V professional sound reinforcement contractors and consultants. The seminars, which are to be held in Montreal on November 12 and 13 and in Toronto on November 15 and 16, will be conducted by **Todd Rockwell** and **John Murray**, E-V pro sound marketing managers. Topics to be covered include a demonstration of the AcousticaCADD computer-aided sound system design program. Contact Rockwell or Murray at (800) 827-6701 or **Doug MacCallum** (general manager of Mark IV Audio Canada) at (613) 382-2141 for more information... In Lebanon, NH, **New England Digital** promoted **Ted Pine**, Yale philosophy graduate, to director of marketing... **Leo's Professional Audio** appointed **Rosemary Rodd** as president in Oakland, CA... **JVC** (Elmwood Park, NJ) hired **Sidney C. Sterchele** as national service manager... **George Douglas** now holds the title of VP, sales and marketing, at **Meyer Sound Laboratories** in Berkeley, CA, and **Scott Gledhill** was promoted to customer service manager... In Malvern, PA, **Ensoniq Corp.** appointed two district sales managers: **Rikki Brown** for the

Southeast and **Dan Gallagher** to cover the Northwest... **Jones Audio Sales** now represents mixing console and amp manufacturer **Hill Audio** (Tucker, GA) in the Southwest... **QMI** recently formed as the exclusive U.S. distributor of Drawmer, Genelec, EM Acoustic and SCV Audio products. The company, headed by **Scott Berdell**, is based in Natick, MA... **Scharff Weisberg Inc.** (NYC) has been named a dealer for Apogee. **Michael Mueller** has been named director of audio systems... In Fair Lawn, NJ, **Maxell** signed on **Central Marketing Inc.** to replace **Magnetic Communications** as its Midwest rep... At **Editel** (Boston): **Dana Giedrys** moved up to director of audio services; **Jay Vigneau**, to audio client services project manager; and **Jill McCarthy**, to client services coordinator. **Sharyn Kazarian**, a recent graduate of Curry College, joined the Editel staff as receptionist... Audio-for-video facility **Soundwave** (Washington, DC) brought aboard **Chris Paul** as director of marketing... **Applied Audio Marketing** appointed **John Spencer** as vice president in Asheville, NC... Compact disc interactive designer and composer **Michael Willis** was appointed East Coast production manager at **American Interactive Media Studios** in Washington, DC... In Cape Canaveral, FL, **Steven Kartholl** rejoined audio-visual company **Communications Concepts Inc.** as production manager... **Terry Miller** joined **Broderbund Software** (San Rafael, CA) as director of direct marketing... In Milwaukee, stereophone manufacturer **Koss Corp.** promoted **Paul Barragry** to national sales manager, **Jennifer Renquist** to product designer **Michelle Konop** to public relations coordinator. ■

today's FCC regulations for NTSC. According to an ATTC press release, Faroudja believes the planned testing is no longer necessary, and has announced its intention to move to commercialize the system.

Convention News

Pro Audio Asia '91 is moving from Hong Kong to Singapore! Dates for the third annual trade exhibition are July 10-12, 1991. For information, contact Business & Industrial Trade Fairs Ltd. (834-1171) 575-6333.

The International Communication Industries Association is seeking nominations for its annual achievement awards, to be held as part of INFOCOMM International, February 14-16, 1991, in Orlando, Fla. For more information, contact Barbara Reck at ICIA (703) 273-7200.

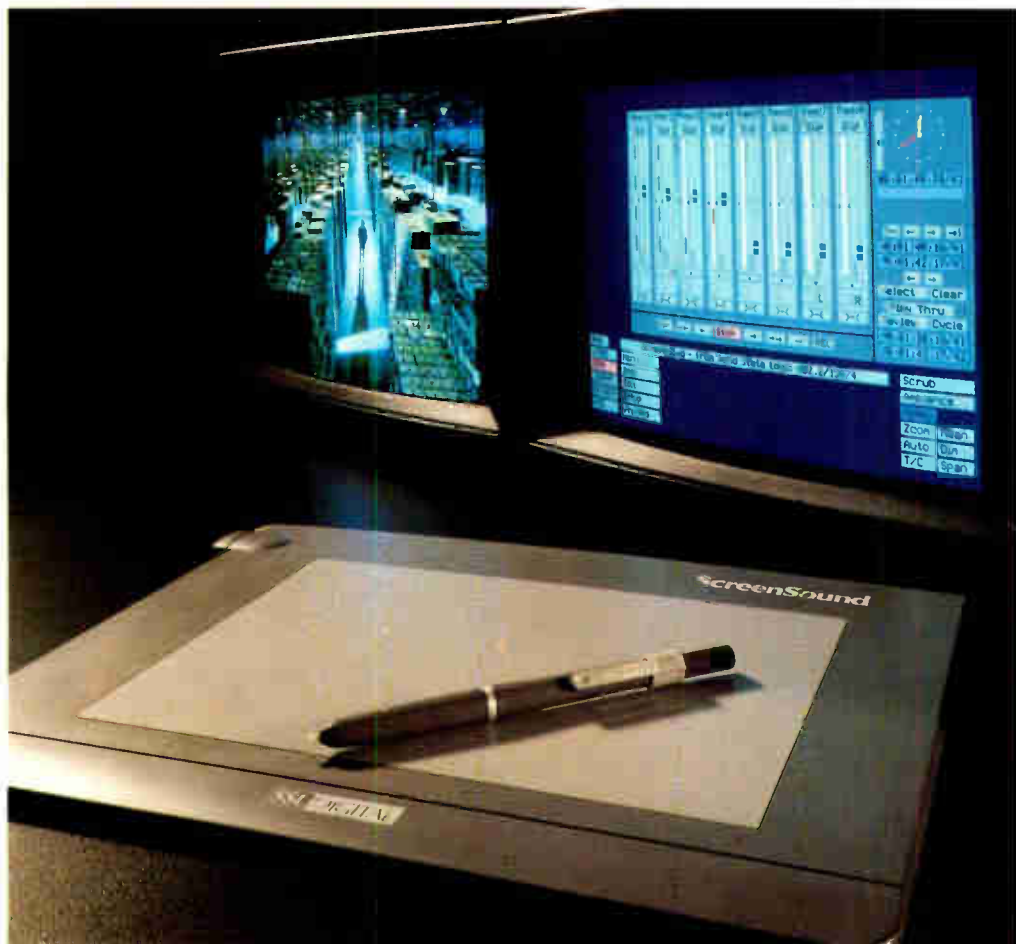
NAB and DAB

The hottest topic in the radio world today is digital audio broadcasting. It's coming, but will it involve direct satellite systems, or will it allow for some form of land-based services that would include local broadcasters? At the NAB Radio 1990 convention, held in Boston in September, FCC chairman Alfred Sikes assured local broadcasters that they would play a major part in determining any of the commission's forthcoming policies regarding DAB. But, he warned, the inquiry process will take years to complete.

At the convention, the NAB named a 12-member technical advisory group to serve as an engineering resource for the NAB Digital Audio and Satellite Sound Broadcasting Task Force. The task force is studying potential uses of DAB.

Also, the NAB issued a report examining the current status and issues affecting DAB. *Digital Audio Broadcasting: Status Report and Outlook* presents the range of available technologies and explores key issues such as spectrum allocation. To order the report, call NAB Services (800) 368-5644 or (202) 429-5376. ■

ScreenSound. A fully integrated audio for video editing suite



Post production facilities need to take advantage of the efficiency offered by today's technology. Speed and creative flexibility are essential to commercial success. Digital sound quality is no longer a luxury.

ScreenSound is a fully integrated audio for video editing suite. It combines digital audio storage and editing with machine control of multiple VTRs, Laserdisc or film reproducers. It also interfaces with Quantel's digital video editor, Harry.

Simple to learn and fast to use, a cordless pen, tablet and RGB monitor provide control of all ScreenSound functions.

Multiple sound reels enable music,

dialogue and effects to be laid back to picture and synchronised to the exact video frame.

Edit, review, time offset, track slipping, cross fades and many other production techniques are available at the touch of a pen. Gain and stereo pan controls can be automated to timecode.

AES/EBU interfacing keeps digital audio transfers free of analogue distortions and losses, preserving the highest audio integrity through to the final format.

Above all, ScreenSound is a dedicated system - purpose-built to bring the advantages of hard disk sound manipulation to audio post production.

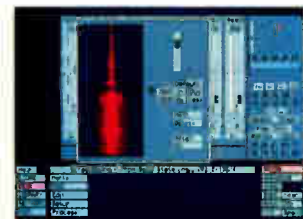
AUDIO STORE

The hard disk store of sound clips gives title and duration, in addition to powerful search and sort routines.



SCRUB EDITOR

Provides accurate edit marking and scrub of audio waveform.



OPTICAL LIBRARY

An off-line library of sound clips and effects can be compiled on a Write Once Read Many (WORM) optical disc.



MACHINE CONTROL

For control of multiple VTRs, laserdisc or film reproducers.



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TECHNICAL EXCELLENCE & CREATIVITY
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AMPEX
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by Ken C. Pohlmann

TWO MULTITRACK OPTICAL RECORDERS

Let's suppose you own a small recording studio and you're looking for a way to compete more effectively against your chief rival, the Small Potatoes studio across the street. What you need is a piece of high-tech gear that's so cool, so 23rd century, that clients will completely ignore the crappy digital 2-track tape recorder across the street. I've got just the

1000 is an optical disc recorder using a Sony 650MB magneto-optical drive; it provides full recording, replaying and erasing/re-recording of audio data. It is a 4-track recorder that manipulates tracks as stereo pairs. You must record a pair of tracks at a time; however, either one or both pairs may be replayed together. Two track pairs can be bounced to a single track pair on another part of the disc; of course, because this is a data transfer, there is no generation loss. The dual-sided disc holds 25 minutes of stereo track time per side at a sampling rate of 48 kHz, 30 minutes at 44.1 kHz, and 45 minutes at 32 kHz. Recording times are doubled in mono. Access time is extremely fast.

An additional drive can be slaved to the recorder to increase recording time. By swapping between drives, an essentially unlimited recording time is possible. Immediate plans call for an upgrade permitting up to six additional drives to be interfaced to a DD-1000. An optional remote controller, the DL-1000, permits up to seven DD-1000s (each controlling up to seven drives) to be operated as a single unit. This would assemble 49 optical drives.

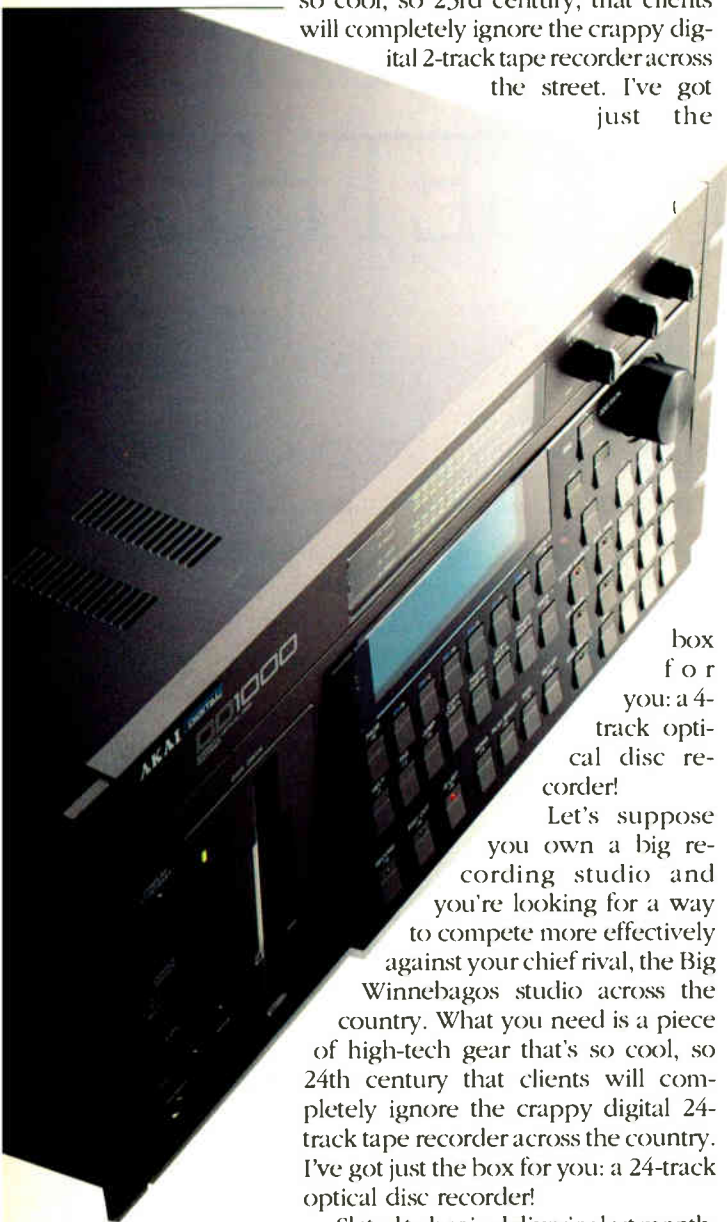
The DD-1000 is a rack-mounted unit (5U) with a front panel LCD and both hard-wired and soft buttons that provide complete control without need for external keyboards or CRTs. However, a Macintosh interface is in the works; this would facilitate use of daisy-chained recorders or applications involving sound files. There are stereo-balanced analog inputs and two pairs of balanced analog inputs; 16-bit converters are employed. In addition, you'll find an AES/EBU input, two AES/EBU outputs and a fiber optic input. Other I/O include SCSI, MIDI, SMPTE, RS422, word sync and a printer port.

The standard 5.25-inch disc (look-

box for you: a 4-track optical disc recorder!

Let's suppose you own a big recording studio and you're looking for a way to compete more effectively against your chief rival, the Big Winnebagos studio across the country. What you need is a piece of high-tech gear that's so cool, so 24th century that clients will completely ignore the crappy digital 24-track tape recorder across the country. I've got just the box for you: a 24-track optical disc recorder!

Slated to begin deliveries last month, and priced at \$13,500, the Akai DD-



MIDI Spoken Here



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and here...



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Fostex offers you by far the most sophisticated MIDI control in all of the most popular recording formats.

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Dip switches allow you to set a MIDI System Exclusive address (0-16), an address-free mode and MIDI note information.

Thus truly sophisticated MIDI control* with full system integration is now possible.

If you own an Atari™ or Macintosh™ computer, you'll make the most of MIDI control with Midi-Remote™ – a Fostex Desk Accessory. In addition to standard tape transport and monitoring control, the software will let you select tracks, locate and loop among ten cue points, automatically punch-in/out, set zone limits, display MIDI time code and generate SMPTE code (all 4 formats).



* The 280/MTC-1 interface does not offer all of the functions available with the open reel interface. • Atari and Macintosh are registered trademarks.

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The Macintosh software works with Performer and Master Tracks Pro. The Atari software works with Master Tracks Pro and Dr. T's KCS.

Steinberg's Cuebase sequencer has a device driver for the MTC-1 and 8330 built-in, so you don't need MidiRemote software with it.

As with all computer interfacing certain restrictions apply. So check the details at your local Fostex Dealer or call Fostex.

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ing very much like a CD but incompatible with it) is enclosed in a protective plastic sleeve. It is completely removable at any point during a session without any downloading delay. This magneto-optical media has been used for some time, is very reliable and appears to be long-lived as well.

The DD-1000 operates much like a digital tape recorder, with bar graph VU meters, level adjustment pots and a

Alternatively, an edit list can assemble a track from time code. The Play Sheet lets you assign up to nine recordings directly to the numeric keypad (1 to 9) for instant access. This would permit easy manual selection and playback like a cart machine. In addition, these recordings can be called up by their time code addresses. Hundreds of play sheets can be created and accessed sequentially by pressing the keypad's "0" key. Future plans call for non-real-time processing capabilities such as time expansion and compression.

This system is most effective when a second disc drive is added to the basic recorder. In this way large files can be moved from one location to another using the hardware digital bus and software drive assignment in the recorder. The alternative, a DAT recorder, would require separate control. Although several DD-1000s could be slaved to create a multitrack recorder, the device is not particularly effective in that application; it would make more sense to ally it with a digital multitrack (such as Akai's DR-1200). In short, any Small Potatoes studio with a modest investment can simultaneously enter the big leagues of random-access recording and editing, disc mastering and digital optical recording.

While a Big Winnebago studio could also profit from such a recorder, its deeper pockets permit consideration of the Optiflex, the world's first digital recording system utilizing 24 removable magneto-optical disc drives and 24 channels of audio recording. Optiflex is manufactured by Ediflex Systems from Glendale, California, well-known to television editors for its videotape-based, random-access, offline editing system, Ediflex.

Most theatrical films are edited on a Moviola or flatbed in which 35mm soundtracks are edited alongside the 35mm picture workprint. The modern alternative, digital multitrack tape, is not well-suited because of its inability to conform to edits. A hard disk system

is quite workable, but because the media are non-removable, uploading and downloading of material is time-consuming. One solution is an optical recorder in which the media may be quickly removed to accommodate different projects, or ultimately erased and reused for new projects.

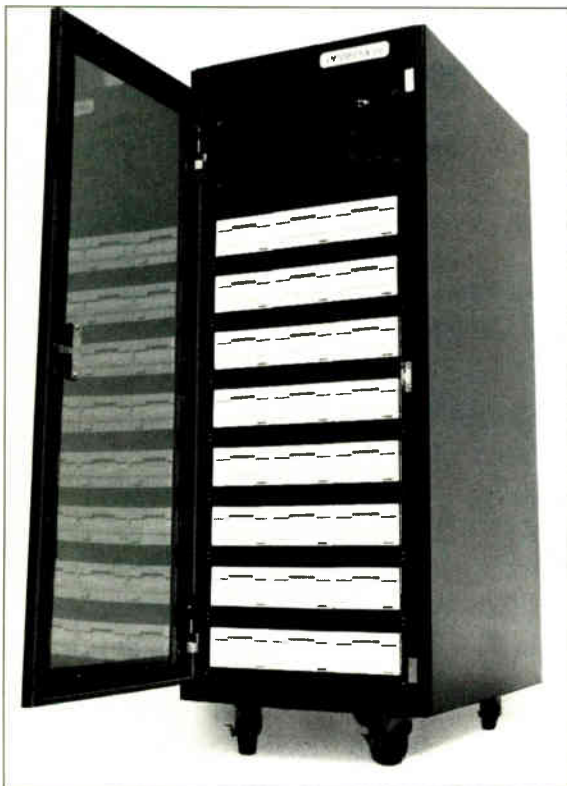
This is precisely the aim of the Optiflex system. It performs the normal functions of a 24-track tape recorder such as track bouncing. But because it uses 24 individual random-access drives, it has tricks all its own. One example is instant loop plays on any track. In general, these 24 channels can be recorded or played back synchronously or individually slipped in the same manner as conventional 35mm units. One or more channels can be removed without affecting the work of the other channels. If a picture is cut or conformed, the Optiflex can load a playlist that will force the system to skip over sections, or add new sections instantly, according to the reconformed workprint. Disc contents can be archived on tape, and the discs themselves reused, over a million times.

The Optiflex employs 600MB magneto-optical discs with 55 minutes of monaural recording time per side. The sampling rate is 44.056 kHz, with 16-bit quantization. RAM capacity is 8 MB to 12 MB. There are both analog I/O, serial and parallel ports, as well as printer ports. The system is compatible with SMPTE, CMX and ISC. (Price and availability were not available at press time).

In addition, Ediflex Systems also manufactures the Audiflex, a 4- to 8-channel digital audio editing workstation using magneto-optical discs as the editing medium. Discs can carry the finished audio from the Audiflex to the Optiflex and load for playback on the dubbing stage, requiring no time for backup, downloading or re-uploading.

Whether your studio is large or small, there's certainly an optical disc recorder in your future. Maybe not this year, maybe not next. But in time the cost-effectiveness, time savings, fidelity, flexibility, added features, convenience, and other benefits will carve it a niche in every professional audio studio. ■

Ken Pohlmann has discovered that the high-frequency response of a compact disc sounds much warmer and smoother if you're wearing a Hartz flea and tick collar.



Optiflex, by Ediflex Systems, is a multitrack magneto-optical digital recording system that uses 24 individual random-access drives.

RAM scrubber. But it also brings the advantages of disc recording (random-access) and computer control (editing) to the party. Sound files are created and named on the Record page. Waveforms are displayed on the Edit page, and their horizontal scale may be varied using the Detail key. Edit points can be entered on the fly or as time code numbers via the keypad. General-purpose marks may be dropped into a file to serve as sync points, i.e., to lay in sound effects. A Repeat key is used to replay files. The Song file lets you combine sound files sequentially to create an entire song. The Track file assembles a number of songs into an edited master with fade-up and fade-down, crossfades, intertrack gaps, etc.

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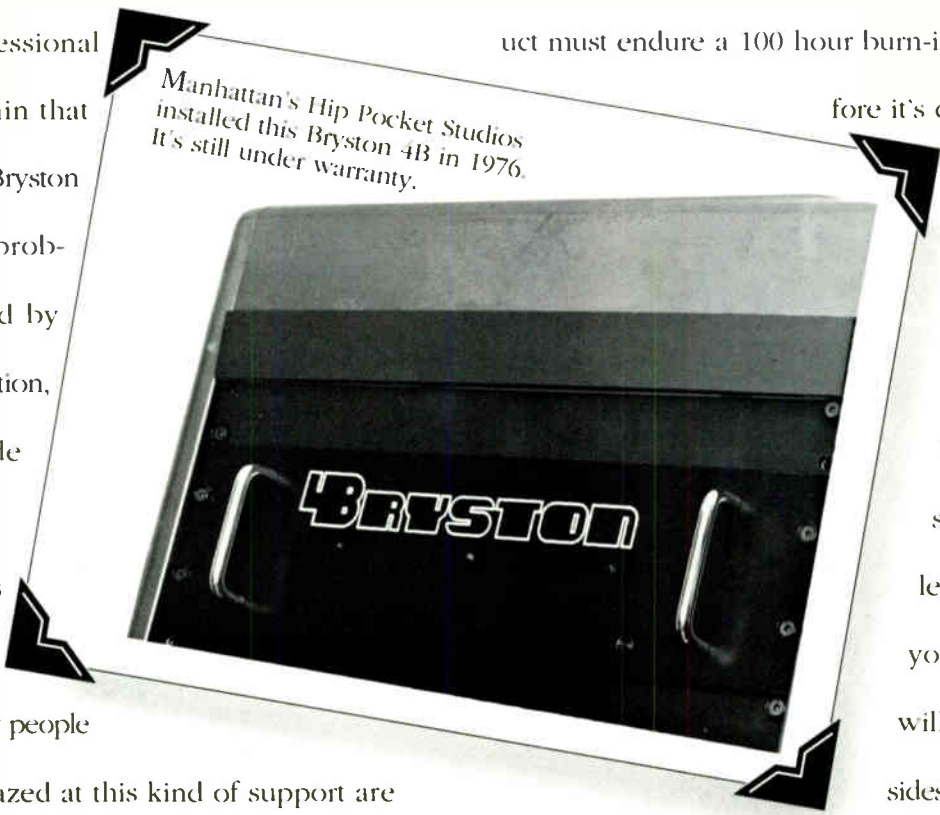


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An unretouched photo shows that Maxell Ceramic Armor Metal Particle Technology delivers the full potential of Betacam SP.[®]

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World Radio History

by Stephen St. Croix

GREAT BALLS O' FIRE

Instructions for reading this month's column: If you *liked* Mr. Wizard when you were a kid, skip directly to the next paragraph. If you did *not* like him, skip directly to the next column. It's only a month away. If you don't have any

idea what I'm talking about, maybe you should take a chance and read this one anyway. My columns only average about 1,600 words.

Setup

Those precious few of you who survived the '60s with your memory intact may remember my recent column about how to have fun with lightning. Well, I have found something even bigger and weirder to write about this time.

A significant portion of my youth was spent in the deep desert of Arizona. Now, I don't mean I could see a little sand from the bedroom window in my condo; I mean *in* the desert. If I sat down right outside my house, I sat in sand.

The deep desert is very different from any other place on Earth. While a full day there can literally test your ability to survive, most sunsets cause daily recalibration of your values, and night...well, night is a giant inverted bowl with 10,000 holes punched in it, each with a different colored gel, and a 10-megawatt arc on the other side.

With clean air, very low humidity and zero light pollution, you can lie on a butte (a small stone mountain, for all you non-desert people) at night and see the entire universe with a clarity and dimensionality that almost forces all but the most apathetic to wonder at it, or at the very least, about its sheer *size* and mechanics.

The Arizona or California deep desert night sky is enough to shave the corners off the egos of even the most maniacal cool guys. Take it from me.

One day out there in the sun teaches you to respect it. We are fed by the light from this one star. It is the source of energy on which every single thing you know is based. Take it away and the entire planet dies, instantly.

Having gone through some of the more severe Indian rituals of becoming a human being (most share the



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If you want tracks that punch, you need a reverb that *speaks*. With small rooms that don't fizz. And halls that you can walk in. With chambers that make you want to sing. And, we precisely timed the delays to popular tempos, so they fall right on the beat.

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If you want, you can shape the frequency response with the useful Hi and Low EQ knobs. Input, Mix and Output are right there for instant level and balance adjustments. Solid. To the Point. You can use it with your eyes closed.

If you hate programming but love choices, or, if you love programming but hate the idea of buying another processor with complex editing, MICROVERB III is the only reverb for you.

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common components of going out into the middle of a very real nowhere, living off the sand for a week, coming to peace with your place in the universe, and then, ideally, surviving it all to find your way home), I have never lost the fascination for how all that sky works.

Okay. So why am I going on like this? The altered states of Indian training made me respect the altered states of matter, such as the plasma of lightning itself. Because of this, I constantly study such things today. This is why I brought you the lightning column, and this is what made me aware of what I am going to tell you in this, the sunspot column.

Actual Content

The sun has spots. These are megamile-long tongues of fire and plasma, jets of star-stuff violently ejected due to some rather intense internal disagreements, much like the firing of a lead guitarist in a speed-metal band.

We can see this happening, and we have learned that the surges of various electromagnetic radiation and following subatomic particle storms that accompany such events can do a pretty thorough job of trashing radio reception, messing up military and commercial radar, and rendering your new, supercool, hand-held cellular phone a 14-ounce dead weight for ten days or more. Such is the nature of trying to operate technology in this solar system.

Actually, there is quite a bit more to it than this (as regular readers know, I eventually arrive at the actual point of a column by successive approximation). While we are bathed in these washes of broad spectrum radiation and charged particles, equipment on the edge of certain types of electromechanical and semiconductor-junction failure is more likely to take a dive. The minute increases in certain radiations may put near-failure junctions over the edge; conductive plastic may harden and become problematic, and hyper-precision parts may change value.

This is not imaginary or theoretical. Military aircraft history reveals significant correlation between sunspot activity and "spontaneous" equipment problems.

So next time you are experiencing an unusual run of bad luck in the studio, and your second engineer says it must be sunspots, it just might

be true.

But, you ain't seen nothin' yet. Hours after we can see this stuff leaving the sun's surface (which is, of course, eight minutes after it actually happens... you know: 186,000 miles per second; it's not just a good idea, it's the *law*), we are treated to a second wave of nasties, the ion storm itself. Now, we're not talkin' ion as in the reggae use of the word: *land ion the way to meet the sun, mon*. We're talking charged particles. Solar wind.

Who cares? You do. *This* is big time. Do you remember what you learned as a kid about electromagnetic forces? Stuff like how to build, oh, let's say, maybe... a generator? You wound a hundred feet of copper wire on a wooden spindle, stuck a magnet in the space inside, spun the magnet, and... out came electricity! Even a dinky magnet and a few meters of wire could produce a respectable charge.

Say we want to build a *really* big generator. We'll use the Earth and the high-tension lines spread out all over it for the wire. That will do just fine. And for the magnet we'll use these waves of incoming charged particles to move the Earth's own natural magnetic field. So now we have the wire and the moving field.

The conductor is the surface of the Earth. The basic system has been all right for millennia, as these charges tended to equalize simply by dissipation; that is, currents flowed through the moist conductive soil and nulled themselves.

But now there are a couple of new factors that change things a bit. There has been a great deal more sunspot activity than before, and we have covered our land with wires. In places where the earth is not so conductive, like solid bedrock areas, these electrical potentials have a great deal of trouble equalizing. Luckily for them, we have provided the answer. We put up high-tension lines, and we *ground* the towers. If one tower is grounded at place A and another at place B, and there is good, solid igneous rock between them, these charges will travel along the outsides of the lines instead. We built the bridges.

You might be asking yourself, "Does this really matter? Isn't he talking about 20 or 30 volts here?"

I am talking about enough voltage and enough current to... Wait. You guess. Pick one: a) to cause surges big enough to create visible brightening of

incandescent lights if you look really close; b) to cause precision line monitor meters and really cheap tape recorders to react, but who cares?; c) to black out entire cities and cause millions of dollars worth of damage to power utility hardware.

If you picked "c" you win. Last year one solar storm blacked out Quebec and did almost *ten megabucks* worth of damage to a nuclear power plant in New Jersey. No kidding. It fried two line-feed transformers at 4 million dollars a pop (hah). Two hundred other failures occurred at the same time because of that one little solar breeze. Now *that* would certainly slow down a session.

The sun giveth and taketh away. We try to not get caughteth in the middle. By the way, we expect significant increases in this type of solar activity in the immediate future. Record fast and backup often.

Believe It or Not Section

On two separate occasions in Arizona I saw a rather rare phenomenon known as ball lightning. One was about the size of a baseball, lasted 30 seconds and then happily popped out of existence. The other was as big as a beach ball, came out of a cool gray post-storm sky, slid along a power line for about a city block, jumped off, bounced down the street, careened off a few cars and buildings on the way, sizzled, popped and fried, and finally tore off into the open desert.

It looked like a little sun designed by a sci-fi special effects team with an unlimited budget. It smelled like somebody had been arc-welding solid platinum to a functioning Tesla coil while he sat on a 20-foot Van De Graff generator. It sounded like space was being shredded, and I heard it with my *head*, not my ears.

Only recently has the existence of this stuff been accepted (though only the thinnest of theories exist on what it is and how it can exist), and recently it has been created in a laboratory, in a magnetic bottle. So I've been pretty quiet about it until now.

See? There's some pretty exotic stuff going on out there while you blissfully work in the studio relying on that 110 VAC feed. ■

Contributing editor Stephen St. Croix is thinking about sleeping with a ground strap-on and running his house off of rechargeable AA cells.

by Mel Lambert

RECORDING & PRODUCTION CONSOLES

Yes, indeed, things in the previously safe, conservative world of pro audio sure are going through a gamut of fundamental changes these days. With digital technology making rapid and highly successful inroads into just about every facet of our day-to-day life in the studio, it may be time for us to reconsider the best way of getting the job done.

While few would argue against the technical and operational superiority of digital hardware for recording and editing in the studio or during live performance, leading-edge microprocessors and elegant DSP chips do not necessarily represent *the* wave of the immediate future for that other essential item of audio hardware: The Console. As I have been discovering through conversations with design and marketing representatives from leading console manufacturers, analog topologies are still holding their own.



“WaveFrame At War”



When Scott Gershin and Wylie Stateman of Sound Deluxe in Hollywood were drafted to post the sound effects and Foley work for Universal's award-winning motion picture, **BORN ON THE FOURTH OF JULY**, they turned to the AudioFrame for the firepower they needed.

“Using the AudioFrame's sampler and EDL to spot the sound effects to picture, coupled with its internal mixer and 24-bit multitrack disk recorder, we were able to produce a product which exceeded our expectations for audio quality *and* beat our deadlines significantly.”

BORN ON THE FOURTH OF JULY has been nominated for an Academy Award for Best Achievement in Sound.

Likewise, when James Horner composed the breathtaking score for **GLORY**, he turned to *his* AudioFrame.

“The purity of the sound of AudioFrame lets the beauty of my music come through.”

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In contrast to stereo and multichannel recording, where digital data-storage systems reign supreme, analog is still the *de rigueur* choice for recording and production consoles.

Consider the functions now required of an "average" console: It has to boost by maybe 60 dB as many as 72 mic-level signals, with phase invert and gain trim; equalize those amplified signals through a flexible, multiband, parametric EQ section per input, with low- and highpass filters; develop up to six/eight independent mono/stereo auxiliary, effects and/or cue mixes for output to external signal processors, submixes, foldback, etc.; route and level control the post-fader signals to 32 (or more) independent track outputs and/or subgroups via stereo and multichannel assignment switching and panning; level-monitor those group-out/track-return signals, plus auxiliary and final mixes; combine mono/stereo effects returns with subgroups or stereo/multichannel mixes (and/or foldback balances during tracking); establish a viable stereo/multichannel monitor mix during tracking and overdubs and a master mix during mixdown; as well as handle a multitude of machine-control and communications tasks with the musicians/talent in the recording area and others involved during the session.

As I have mentioned in this column, simply duplicating these (and other) console functions in digital hardware makes little sense. Analog boards are based on analog topographies. Signals flow through the gain change, switching and signal processing elements beneath our fingers. It is neither cost-effective nor desirable for analog op amps to be modeled in DSP silicon and linked to a user interface that resembles the real estate currently dominating our control rooms.

Even full-function workstations require a great deal of user education before large numbers of facility owners and engineers become familiar with the technological alternatives. We are all familiar with analog-based designs that offer fast, simultaneous access to complementary functions; mimicking that concept in a digital design is a foolhardy and expensive way of maximizing the operational potential of digital.

Until the majority of us are conversant with the operational and sonic

advantages offered by making a *total* commitment to integrated digital recording/mixing/editing/processing workstations, the familiar analog consoles will continue as the dominant technology; I would say for at least the next half-decade. (Critical mass for workstations may be two to three years in the future.)

Notice, I did not make the distinction between "conventional" in-line and split designs, and the newer generation of digitally controlled analog consoles, such as the Harrison Series Ten, Trident Di-An and Euphonix Crescendo. These represent a logical ex-

Until the majority of us are conversant with the operational and sonic advantages offered by making a *total* commitment to integrated digital workstations, the familiar analog consoles will continue as the dominant technology.

ension of the analog designer's technical art and provide an enhancement in audio quality and operational flexibility.

A multichannel console is a difficult electrical environment in which to ensure ruler-flat frequency response, signal-to-noise response, distortion performance, crosstalk and other specifications by which we judge audio hardware. The newer designs, in which the signal processing subunits remain in the controllable environment of a well-shielded, properly grounded rack—connected to a com-

pact, reconfigurable control surface—offer an elegant alternative to the behemoths we commonly see today.

Besides allowing functions to be remapped toward the operator's central monitoring position, digitally controlled designs offer total automation of virtually *every* gain-adjust and assignment control on the console. At the press of a button, all I/O assignments can be recalled from memory or removable media, and favorite EQ and gain-control profiles can be stored for later use.

Designs now being finalized comprise a compact fader bank with labeling of input/cue/output designation, plus an interrogation panel for I/O routing assignments. Custom panning sections will be patched into the signal path where necessary to enable assignment and pan across as many as six or eight discrete groups for complex film sound and multimedia sessions. EQ and dynamics will be selected and inserted via a centralized, assignable control section.

It is inevitable that digital control of good-sounding analog gain change, EQ and summing elements will provide enhanced flexibility and centralized control. As a bonus, machine control is simplified with such designs. Assignable designs offer easier access to level, EQ and routing settings, as well as simplifying the setup of complex monitor and aux/cue mixes.

While full-function workstations provide the inevitable shape of our future, analog designs—particularly some of the newer hybrid assignable/virtual designs—will continue to co-exist alongside digital innovations for years to come.

Credits: I would like to thank the following for their invaluable input during the recent APRS Exhibition, London, and for sharing inside information about their respective "visions for the future": Rupert Neve of Amek; Dave Dearden of DDA; Richard Salter of Focusrite; Roger Cameron of Neve International; Chris Jenkins of Solid State Logic; Lee Pomerantz of Sound Workshop; Alan Archer of Soundcraft; and Mike King of Trident. ■

With over a dozen years of active involvement with professional audio on both sides of the Atlantic, Mel Lambert now heads up Media&Marketing, a high-tech consulting and marketing service for pro audio firms and facilities.

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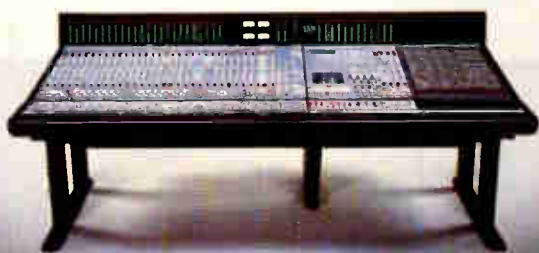
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RECORDING

IN SEARCH OF

ELECTRONIC

THE LOST CORD

INSTRUMENTS

While recording an acoustic instrument requires skill, a good set of ears and a helping of creative imagination, it can be seen as a pretty straightforward process. First you listen carefully to the instrument in a room. Next you choose a microphone that will faithfully reproduce that instrument's unique characteristics. Then you experiment with the placement of that mic until it perfectly captures the movement of the air molecules in that acoustic space.

Recording an electronic instrument is a far more subjective matter. The sound of an electronic instrument is defined by characteristics and performance parameters of the player, the type of amplification and reproduction equipment used, and the type and amount of processing employed. And with synthesizers, the fact that an infinite variety of patches can be created, edited and layered by the musicians themselves opens a universe of subjective opinions about what sounds good.

As with acoustic instruments, the engineer can (and often does) add a personal "stamp" to the sound of electronic instruments through the use of creative recording or processing techniques. While many engineers are secretive about their favorite embellishing techniques, I decided to ask anyway. What follows is some "sound" advice from some of the hottest engineers in the North Central region of the U.S.

UNIVERSAL RECORDING, CHICAGO

Dave Gerbosi

Universal's Dave Gerbosi is under the gun. He spends the majority of his time engineering

jingles: sessions that sometimes have to be recorded and mixed in four hours flat. That time frame doesn't give him the luxury of experimentation. For that reason, many of his recording judgments are made "on the fly."

"I generally don't like to record any guitars direct but the bass," Gerbosi says. "Even if I do take a direct signal, I'll always mike the amp. I just think that going direct with a guitar is too limiting, unless you are absolutely sure that's the sound you want. Most of the guitar players I work with have so much stuff in their rigs that I just mike their rigs."

"In terms of keyboards, I would say for the jingle work I do, I have never miked a keyboard player's rig," he continues. "In fact, 90 percent of the time, on a rhythm date the keyboard player is in the control room and I'll just take it direct. Most keyboard players have mixers in their rigs, and I just take a mix out. Other guys give me a direct out on each of the keyboards and let me do the mixing. In an overdub situation I like to have that control, but for rhythm tracks I let the keyboard player make those kinds of decisions."

BEACHWOOD STUDIOS, CLEVELAND

Joel Solloway

Joel Solloway has the luxury of working in a digital recording environment. Instead of printing to analog tape, he records on the studio's two NED PostPro SD hard disk recording systems. "We do a lot of heavy metal," Solloway says. "The performers like to have their stacks of amps, which we will mike with something like a Neumann 87

BY TONY THOMAS

Commercial Music in Chicago

A Decade of Change

An often-heard refrain in the Chicago commercial recording community goes something like this: "Film editors run this town." The way it's been, once an ad agency producer hires the director, and the director finishes the spot, it's the film editor who runs it through the production and post-production path.

During the 1980s, however, that changed somewhat with the increased importance of video. Film editors still wield an inordinate amount of power, and film mixing is still a viable finish medium in Chicago, but according to Hank Neuberger, operations manager at Chicago Recording Company, "The question that's hard to predict is whether film mixing will trend down. By that I mean if the agencies and editors finally decide that mixing off mag is undesirable. Right now, plenty of people are comfortable with it and it's being used frequently, but my sense is that it won't go on indefinitely."

It won't go on indefinitely because video has changed the system, creating a mini-controversy along the way. "Over the last ten years there's been this sensitivity to how much film work has been done and how much video work has been done," says Jimmy Dolan, owner of Streeterville Studios. "When we put in the first dedicated 24-track audio-for-video room in the city in the early '80s, we were labeled as part of the contingent of

the video world that was out to replace the film world, which was wrong and unfair. We were just carrying our sound approach to its fullest format.

"When the technology came along to do [video post], of course audio facilities positioned themselves to do that," Dolan continues. "Well, in Chicago, where you had a very heavy film community and you



Streeterville Studios

didn't have network television and the influx of video work, people began checking out the amount of film vs. video. We had a civil war going on."

In the meantime, all the film houses quietly covered their bases in the video world, and video houses proliferated. They did more than proliferate; they began building audio rooms, creating, in effect, a one-stop shop for editors. None of this is real new. What is new is that some of Chicago's top recording studios now consider the video

—CONTINUED ON PAGE 34

Tim Butler and Jeff Van Steen at Chicago Recording Company



or 84. A lot of times they will stack them in an environment outside the studio to get more ambience. We'll use a hallway or the lobby for that purpose. The other technique we'll use is a direct box going through the mic preamp. That is a lot cleaner, and the noise floor is a lot lower as well.

"Most players are so well-equipped with the effects they like that it seems useless to interfere," he continues. "The only problem we have is some of that processing gear is noisy, and we deal with it either with ground lifts or gating. Unfortunately, gating limits the frequency and transient response, so we don't like to do it that much.

"Since we are all digital now, although we still have an MCI JH-24, we try to use as little outboard processing as possible. We are quite satisfied with the EQ curves of the rooms and the sound of our Sony MXP-3036 desks. For the Synclavier, we rely on the internal processing of the Synclavier itself."

STUDIO A, DETROIT **Eric Morgeson**

Eric Morgeson of Studio A works in both electronic and acoustic environments. One studio has a Steinway and the other a Synclavier. His clients seem to prefer the acoustic/electronic hybrid sound and use both studios for their projects. "We have been involved with the Synclavier for about eight years," Morgeson says. "At first a lot of people were afraid that it was going to replace live players. Now it has given a songwriter or arranger a tool to work out song form without a lot of musicians sitting around waiting to get paid. When it comes time for the real players to come in, their time is used much more effectively."

He continues. "As far as recording electronic instruments, we spend a great deal of time getting the sound to tape the way it should sound as opposed to just printing it dry. We have a lot of outboard gear here, and most of the players also bring their own. New boxes like the Korg M1 and the Roland D-50 have their own dedicated processors. We use those as well.

"When we finally get to the mix process, we're just fine-tuning something that already sounds good as opposed to saving something that has been improperly recorded," he adds. "We have the very first Focusrite module that Rupert Neve made, and we bring a lot of stuff to tape through that, along with SPXs, Lexicons, REV7,

Klark-Teknik and AMS. We're constantly getting new outboard gear."

PARAGON RECORDING STUDIOS, CHICAGO

Jon Herrmann

Jon Herrmann is an electronic musician, so he understands what is involved in making synthesizers, samplers and drum machines sound less artificial. Since Paragon is a smaller studio, it is often a challenge for him to get a big sound from a small room. "I generally close-mike guitars with an SM57, 421 or a U47 FET," he says. "I generally take the bass direct with some compression unless the artist has a rack with effects, and in that case I'll get a feed off of that. Occasionally, I'll mike the amp.

"Since I set up a MIDI studio of my own before I came to Paragon as an engineer, I am able to function as both engineer and programmer," he adds, "especially for the rap and house sessions we do here. Since we have a Korg M1 in our studio, with built-in DSP effects, I'll often use those. For demo sessions, players will bring in cheaper, consumer-oriented keyboards that are noisy, and I'll usually replace those sounds with sounds from the M1.

"I find myself gating a lot of instruments, such as samplers, if the outputs are noisy. Other than that, I'll just use reverb, EQ and delay. I'll replace the chorusing in most older synths with a chorus effect in the mixdown to eliminate phase problems. For anything except rap and house music, I usually prefer to look at drum machines as sketchpads and recut the sounds with real drums. That seems to be a trend."

PAISLEY PARK, MINNEAPOLIS David Z.

To David Z., Prince's Paisley Park studio facility is home. A well-respected engineer and producer, David has lent his talents to projects by artists such as Prince, Jody Watley, Fine Young Cannibals and The Jets. His creative recording and production techniques often border on the wacky and leave fellow studio rats scratching their heads. "When recording electronic instruments, I try to alter the sounds quite a bit so that they don't sound electronic," he says. "That is especially true with synthesizers and drum machines.

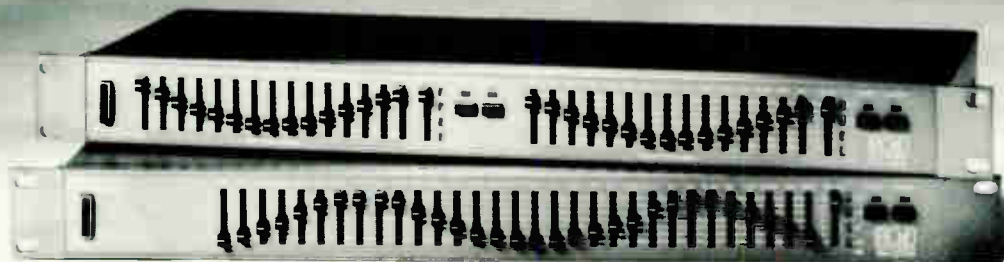
"For example, with drum machines I try to make them more human-sounding by setting the snare drum back 10 to 20 ms using a digital delay."

***"I'll do just about anything to guitars. I'll mike them underwater if I have to."
—David Z.***

he adds. "That makes it sound more laid back, more of the way a human drummer would play it. I'll also take a drum machine and pump it out to studio speakers or send the snare sound to an Auratone placed on a real snare drum and mike it. Sometimes I'll gate white noise from a television set and mix that with the snare sound.

"I'll do just about anything to guitars. I'll mike them underwater if I have to. One trick I use is to mike the actual strings of an electric guitar or bass as an overdub and add that to the sound.

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That gives a real brilliance to the sound. I also use my 2-year-old son's little Fisher-Price amp. It is designed so you can sing along with the radio. It has such a great distortion through its 3-inch speaker that I just mike the guitar amp along with the Fisher-Price amp.

"For synthesizers, I try to alter them by putting them through little speakers, distorting them or overdriving a limiter. That works for guitar, too. I have an old Fender Tremolux made in 1964 and use the external speaker output rather than the regular speaker output. That gives you a great distortion sound. One of my trademarks is gating things to other things. On Prince's "Kiss" I played an acoustic 12-string guitar and gated that to the hi-hat pattern. That's

the rhythm to that song. Everybody wondered how I did that. I used it on Jody Watley's first album and on the Fine Young Cannibal's "She Drives Me Crazy." I do it differently every time."

**SISAPA RECORD COMPANY,
COLUMBUS, OHIO**

Jimmy Dutt

After a couple of attempts, I caught Jimmy Dutt during a dry spell in between sessions, which often run into the wee hours of the morning. "My basic approach to recording electronic instruments is to make it right for the song," Dutt says. "Sometimes what comes straight out of the box is perfect.

"Then, too, you don't want to do too much to the sound if you're not sure how it's going to be used in the final

mix," he continues. "Certain things are a given. You may put them through a whole rack of EQs just to make them sound totally different. It is still mostly experimentation. It depends a lot on the medium—whether you are doing records, jingles or demos.

"Some drum machines and synthesizers are capable of putting out sounds that you know are not going to come back off of the tape. That is a problem because it sounds one way when they hear it live in their production studio and another way when it is on tape." ■

Formerly a studio owner in the Los Angeles area, Tony Thomas is currently an engineer, disc jockey and ad agency owner in Cleveland.

— FROM PAGE 32, CHICAGO

houses their chief competition.

"Our competition for the next five years is the video houses," says Universal's Murray Allen, considered by many the dean of Chicago recording. "Some will get larger and build bigger audio rooms. But they'll never build the type of audio rooms we do because their Number One dollar has to go to video. There will always be a place for the big, live room as long as you can use it for other purposes, like video shoots.

"I have no problem with the concept of a video house having an audio room," Allen continues. "What we find happening, though, in almost all cases here in Chicago, is the rooms don't seem to be acoustically correct. Whatever audio they get is not always true to what they think they're getting," he claims.

In any case, the move toward audio rooms in video facilities has forced Universal, Streeterville and CRC, three of Chicago's top recording facilities, to re-evaluate their positions in the market and re-emphasize their commitment to quality sound.

At CRC, that's meant growth through offering incentives to engineers and bringing in top-of-the-line equipment. CRC now has seven post rooms with two more on the way. By the end of the spring, the company will have 18 studios in all, offering a 72-input Neve, an SSL with G Series computer, a Harrison

Series Ten, four AMS AudioFiles, 60 channels of Focusrite modules and 12 rooms with sync capability. "We've been able to bring together the top audio talent, and we've done that by providing the equipment, which we buy more for the engineer than the client," Neuberger says. "We also give engineers a compensation plan that allows them to participate in the work that they do. They get a percentage. We encourage our engineers to be entrepreneurial.

"We've been able to differentiate our level of service from the audio rooms that live within video houses by the fact that we are exclusively audio people," he continues. "Our ears are always turned on. I don't know anything about color correction, film-to-tape transfer—would not even begin to be able to tell you. But the people in this facility, their ears are turned on.

"I was at a video house recently that has an audio room, and I saw them retracking a 1-inch master with a composite audio element that came from our facility. The engineer was doing this in the middle of a video machine room, which cranks at about 105 dB all the time, with his ear pressed up to a 3-inch, rack-mount speaker. I was thinking to myself, 'This is the final composite mix, being laid on the master 1-inch.' To me, this is an illustration of the way that audio is still a bit of a stepchild within the context of a large, top-drawer video house."

While avoiding the cliché that people make the difference, Jimmy Dolan agrees. "There's always a place for good audio people and good audio practices," he says. "There's more evolution involved in this than just opening up a room. The post houses involved in film and video and creating a one-stop atmosphere are in a marketing scheme that will show its validity over time. There's no discounting the fact that it has an immediate impact, glamour or seeming attractiveness. Whether that translates over a period of days and weeks and months and years into something that is viable is not a given.

"We're in the midst of an evolution here in 1990," Dolan adds, "and there are three areas of change: Budgets are changing; technology is changing, and the people are changing. In some cases that creates different places work is getting done; in other cases it's different techniques employed by different people. It's a matrix of change, and it's not coming from any single source.

"The competition is in anticipating where the creative output is going," Dolan concludes, "We've got to be more involved in realizing the creative alternatives for any project. That probably means that over a period of time you'll be judged by how successful you are for a given project rather than how many projects you do. Quality is always successful."

—by Tom Kenny

A

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World Radio History

MEETING THE MARKET DEMAND

THE STUDIOS OF EASTERN CANADA

by Tom Laughlin

Eastern Canada offers a wide variety of services to the recording industry, including post-sync for major films, international album projects, and a healthy jingle business. A number of studios have recently expanded their facilities to keep pace with the changing needs of this growing, highly competitive market.

McClea Place

McClea Place Studios continues to update and expand its facilities in downtown Toronto. McClea's negotiations to purchase Pathé Sound and Post Production Centre have been completed; the new division will be called McClea Pathé.

McClea Pathé and McClea Place Studios will be located in a new building, now in the redesign and renovation stage, scheduled for completion early in 1992. The new location will be designed to house all facilities under one roof: music studios, film and television mixing theaters, film editing rooms, sound effects, transfers and dubbing in all formats.

Currently at McClea Place both of the SSL 6000E Series consoles have been upgraded with G Series computers and equalizers. In addition, the console in Studio 1 has been equipped with an additional eight mono and four stereo modules to give a total of 56 inputs (40 mono, eight stereo). Pathé has purchased new outboard gear to complement its Synclavier 3200 tapeless studio, as well as a Dolby Stereo Optical Recorder (the first in Canada) and high-speed film projectors for the mixing theaters.

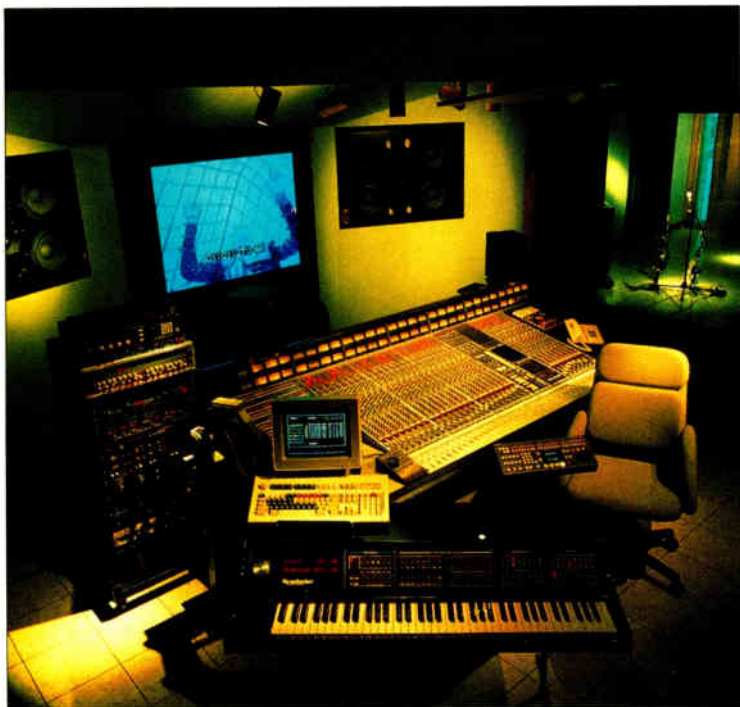
Bob Richards, president of McClea Pathé says, "A producer can talk to this new company about all of his music, soundstage and post requirements. He will now be able to count on excellent technical and creative support from the beginning of the project right through to completion."

Film House

Located in downtown Toronto, Film House is one of Canada's largest audio post-production facilities, providing complete audio post services for motion picture films and episodic television. Renovations have recently been completed at Theatre Two, one of 13 rooms in the 40,000-square-foot facility.

Tom Allwood, vice president and general manager of Film House Sound says, "Theatre Two was a room originally designed to accommodate Foley and ADR recording. As a licensed professional

Left: The largest of three main rooms at newly opened Le Tube in Montreal is fitted with an automated SSL 4000 Series console and Quedstedt 412 monitors.





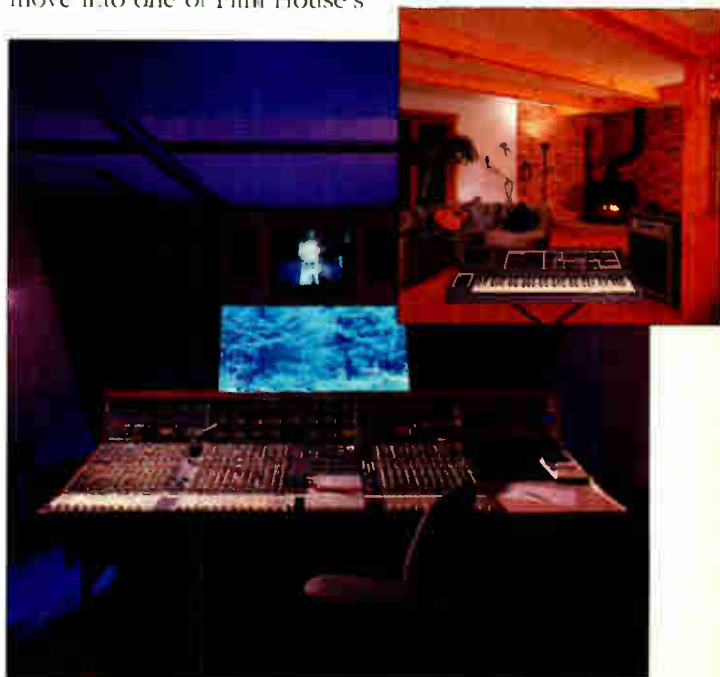
Above: Studio III at Toronto's McClell Place has one of the two SSL 6000E consoles with G Series automation installed at that facility.

Lucasfilm THX™ room, it was also available for mono mixing. The theater was originally equipped with a Neve 8108 32-channel console, and recording was done to Magna-Tech film recorders or Sony JH-24 multitracks with optional Dolby SR noise reduction.

"We found that 90 percent of the time the room was being sold as a Foley recording facility," Allwood continues, "and as such the decision was made to optimize the room for this purpose. To realize this goal we consulted Andy Malcolm, one of North America's foremost Foley artists, and Alan Stewart of AlanGrove Ltd., Berkshire UK. Alan's previous Foley theater design and construction projects at facilities such as Shepperton in London seemed very much in line with our needs at Film House. Working closely with Andy and our own Don White, director of mixing services, Alan was able to incorporate over 25 great sounding surfaces and pits, along with a water tank, sinks, cupboards, a multitude of hand-picked vintage doors and hardware, stairs, automobile components and props too numerous to mention.

"At the same time, a new Neotek Essence console and digital recording capability to Sony 3324A multitrack were incorporated during the renovation," Allwood states. "All

Foley and ADR is recorded against a 22-ft. x 12-ft. picture. The recordist has control of the Magna-Tech high-speed film projector, as many film dubbers as required, and the recorders (be they Magna-Tech high-speed sprockets, Sony JH-24s or Sony digital machines) all at his fingertips. When Foley and ADR recording is complete, the production can move into one of Film House's



Right: Centerpiece of the control room at Ambiance is a refurbished 36-channel Neve console. Inset: Ambiance's residential suite is also designed for tracking.

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licensed professional Lucasfilm THX theaters. Here Dolby Stereo, 70mm discrete 6-track Dolby or IMAX format soundtracks can be completed in spacious surroundings with 150 theater seats, 31-ft. x 17-ft. screens, a 112-input QuadEight FilmStar console complete with GML Moving Fader automation, 70 dubbers, stem mixing to three 6-track film recorders and over 200 channels of Dolby SR noise reduction."

Allwood rates the project as a complete success. Work in the newly renovated theater has included Foley for the Yves Simoneau film *Perfectly Normal*, digital Foley for the upcoming IMAX film *Blue Planet*, and ADR with Robert Redford, Tony Perkins and Theresa Russell to name a few.

Sounds Interchange

Also located in downtown Toronto, Sounds Interchange will be completing the construction of a major addition to its existing facility in December of this year. The result of a two-year project, the new building will add 80,000 square feet to house management and production offices, a cafeteria and a private dining room for staff and clients. New studio space will take up 10,000 square feet and will be located on the main floor of this seven-story complex. There will be four new studios (in addition to the five existing rooms), two geared to music recording, a Foley/ADR room and a large TV/film post mix room.

Studios 6 and 7 will be similar in size and will have variable studio acoustics in either the wall and/or the ceiling. The Foley/ADR room will be equipped with an SSL 4000 with film panning and SSL ScreenSound. The mix room will feature high-definition projection in the 40-ft. x 20-ft. control room and a center island housing eight 19-inch racks. Its machine room will provide a central patch to all rooms.

A complete dubbing facility, including existing high-speed dubbing and layback, will also be located in the new building.

All of the new rooms are completely floating from the main building and from each other using isolation products from Mason Industries of Hauppauge, N.Y. Each studio will have independent air-conditioning and ventilation, its own machine room and private lounge.

The acoustic design and monitors are being supplied by State of the Art Acoustics (Ottawa, Ontario). Each control room will have left-center-right

monitoring mounted on the front wall, with a provision for surround speakers wired in. Control room rear walls will be of an anechoic, rear-wall design.

Studio manager Peter Mann says, "With the addition of these four rooms we will be able to expand our album, post and jingle business. Right now we are booked to over capacity. We are turning clients away and there is no time for any block bookings."

Discovery Mobile

Discovery Mobile will soon be on the road to recording. This new remote recording facility is owned by Toronto radio station CFNY and is being designed by staff at Masters Workshop, both companies being part of Maclean Hunter Ltd.

Project manager Bob Predovich says that Discovery Mobile will be able to provide an on-location, state-of-the-art, multiple-purpose record and mix facility for new Canadian talent.

Discovery Mobile will be equipped with two recently overhauled Sony PCM-3324s, and an automated 52-input Amek Mozart console. A full microphone complement is available, as well as DAT, 2-track analog with center-track time code, and Dolby SR.

The truck is available for live broadcasting or for remote recording, monitoring and mixing in either stereo or Dolby surround sound. When not on the road it can be interfaced to Masters Workshop's film scoring stage.

Operation of Discovery Mobile will be handled by Masters Workshop (original developers of the Soundmaster audio editing system). Ken Nelson is in charge of design and construction coordination, and after its completion he will be responsible for its day-to-day operation. Completion was scheduled for mid-October.

Le Tube

Newly opened in downtown Montreal is Le Tube, housing three control rooms, a conference room and a machine room. Equipment in the machine room includes two 24-track recorders, 24 tracks of Dolby SR, three 3/4-inch VCRs, a one-inch VTR, and Synclavier and PostPro Direct-to-Disk™ systems, which are operated by remote from the control rooms. A central patch bay links all three control rooms and recording areas. Each control room has a 60-inch Electrohome video monitor.

Studio A, consisting of a 700-square-foot control room and 400-square-foot recording area, contains an SSL 4000

Series console with G computer and Quested 412 monitor speakers.

Says Roger Guérin, one of Le Tube's engineers, "The rooms have been designed around the monitoring systems, optimizing both the room and the loudspeakers."

Studio B, specially designed for audio-for-video sweetening and voice-over, is equipped with a Soundtracs HL 4832 console and is home to the NED PostPro 8-track disk-based recorder, sound effects and music production CD libraries. Both studios have Soundmaster synchronization systems.

Studio C, mainly used for sequencing and sound designing, is equipped with a Soundtracs CMX MIDI-controlled console, Quested 212 monitors, Synclavier 9600 system and R-DAT.

"Walk in with an idea and you will leave with a grin and a finished product, be it audio sweetening for video, radio jingles, record production, original music scores or a simple layback to a one-inch video," owner/manager Pierre-Daniel Rheault says.

Ambiance

Ambiance, situated in Ste-Anne-des-Lacs, Quebec, is a recently completed project studio in the Laurentian mountains 40 minutes north of Montreal. The studio is equipped with classic analog recording hardware and modern signal processing and computer music technology. A custom 36-channel Neve console (built in 1976 and recently refurbished by Shepp Associates in England) and a Studer A80 MkIV are the staples of a vintage analog recording room. Lexicon 480s, PCM 70s, Akai S1000s and various other modern tools provide flexible and creative contemporary technologies.

The two-story building is a combination of a traditional studio design on the first floor integrated with a rustic living space that is also part of the recording space. On the first floor is a floating three-room studio (control room, iso booth and tracking studio). The second floor is a four-bedroom chalet that is fully interfaced to accommodate recording activities in up to seven other rooms (all with varying acoustical characteristics). This allows artists and clients to live and work in the same house. Recording at all hours is possible due to the "live-in" setup of the studio. ■

Tom Laughlin is pro audio technical specialist for Sony Canada.

WORLD-CLASS SOUND FROM THE PACIFIC NORTHWEST

RECORDING IN VANCOUVER:

by Simon Garber

What do Bon Jovi, Ringo Starr, Aerosmith, k.d. lang, Greg Penny, Loverboy, *Platoon*, Ralph Murphy, Mötley Crüe, Bruce Fairbairn, Tom Cochran, Poison, Dave Tickle, Long John Baldry, Queensryche, Steven Berlin, *Top Gun*, Paul Horn, AC/DC and David Lee Roth have in common?

The answer is Vancouver, and the reasons are myriad. Aside from the slew of tourist attractions like year-round golfing, skiing, swimming, hunting and bungy-jumping, Canada's "Lotusland" boasts world-class recording facilities and technical personnel to rival any city in the world. Vancouver, only a three-hour drive from Seattle, likes to think of itself as part of America's Pacific Northwest as well as Western Canada's largest metropolis.

Vancouver Studios

Eighteen months ago Vancouver Studios was the new kid

on the block. Since then, flagship Studio B, designed by Lakeside Associates and Chips Davis, has attracted the likes of Nettwerk artists Skinny Puppy and 54:40 and Grammy Award-winner k.d. lang (*Torch and Twang*).

The control room in Studio B features the Solid State Logic 4056 G Series console, with Total Recall, autoscans, patchable VCAs, and 48 mono and eight stereo strips. The monitor system consists of UREI 813C speaker systems powered by UREI 6500 amplifiers with conductor compensation. The entire studio is wired with high-definition Mogami and Monster cable.

Tape machines include two Otari MTR-100A 24-tracks synchronized by Timeline Lynxes, Otari MTR-12 2-track (1/4-inch and 1/2-inch) with Dolby SR and Sony DAT. The tape machines now reside in the newly constructed machine room that also houses the power amps, video gear, patching facilities and automation computers.

The island in the center of the control room houses enough outboard gear to satisfy the most adventurous of producers, including the Lexicon PCM70 and 480L digital effects processors and the AMS RMX 16 digital reverb. A large screen projector and electric screen have been installed recently to complement the studio's new direction into post-production.

The studio measures 28x23 feet with a 16-foot ceiling, oak paneling and hardwood floors. Studio B is connected to the future Studio A, which, even as an unfinished shell, is often the producer's choice of rooms for drums and other instruments requiring a live, large-room ambience. Studio C's 17x24-foot control room is equipped with a 24-track Otari

Left: The room at Soundwerks features diffusion galore with its Live End/Dead End™ design, Schroeder/Massenburg-designed absorbers on ceiling and walls, and figured maple paneling surrounding the UREI 813C monitors. The control room is also equipped with a 32x24 Soundcraft 6000 console, an Otari MTR-90 2-inch 24-track recorder.





Pictured above: The control room of Vancouver Studios' B room. It features the Solid State Logic 4056 G Series console, with Total Recall, autoscans, patchable VCAs, and 48 mono and eight stereo strips.

MTR-100A and an MCI console. The studio measures 14x24 feet and is ideally suited for overdubs and electronic production.

Vancouver Studios has just inaugurated Studio D with two (count 'em, two) SSL ScreenSound digital audio-for-video editors, daisy-chained to a 1,300-megabyte hard drive that will store up to three hours of digital audio. Aside from its use as an extremely sophisticated digital editor for album assembly, the ScreenSound's real power is demonstrated in dialog editing, Foley, ADR and as an unlimited audio library source. Archival backup is to 8mm video. Two ScreenSounds with fast upload and download times cuts downtime to a minimum. Vice president of operations Bruce Levens is confident that this facility will attract a fair share of Vancouver's growing post-production industry.

Soundwerks

Designer Gary Wik is more than a little enthusiastic about the addition of a 24-track recording studio to the Soundwerks rehearsal room complex. In fact, if you get him going he will probably go on at length about his favorite topic: diffusion. The room features diffusion galore with its Live End/Dead End™ design, Schroeder/Massenburg-designed absorbers on ceiling and walls, and figured maple paneling surrounding the UREI 813C monitors, each powered by 1,200 glorious watts of UREI 6290 power amplifiers. "The design creates a 'reflection-free zone' allowing accurate

monitoring at the mixing position." Wik says, "owing to the diffusers that take the numeric sequencing of a one-dimensional diffuser and put it onto a two-dimensional plane." I was suitably impressed by the imaging from both the UREI monitors and the near-field Meyer HD-1 speakers.



Formerly of North Vancouver, Creation Studios has moved its 24-track operation to 7490 Edmunds St., Burnaby, B.C. Creation's owners Barry Henderson, Ian McLellan and Paul Dean have renovated the entire facility that was formerly occupied by Inside Trak Studios. Studio A (pictured here) features an SSL console and Studer tape machines. Studio manager Lisa Barton states, "Everything was rewired to Mogami Cable, sparing no cost."

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World Radio History

The control room is equipped with a 32x24 Soundcraft 6000 console, an Otari MTR-90 2-inch 24-track recorder, two Focusrite ISA 110 modular equalizers and a Focusrite ISA 130 dynamics processor. A Tascam MSR-24 24-track 1-inch recorder is provided for budget sessions or slaving. As I spoke with Wik, the Tascam D-30 DAT recorder was being set into place. The facility is wired with more than 6,000 meters (four miles) of oxygen-free Canare, Gotham and Mogami cable. All equipment is accessible through a 700-point Jon Gaines patch bay. There are 44 inputs in the studio area including 24 mic inputs in the control room.

The 500-square-foot studio has an 18-foot ceiling and a "Variable Acoustics Wall" constructed of three-sided rotating panels, allowing for reflection, absorption and/or diffusion.

Soundwerks is a unique recording environment, incorporating four rehearsal rooms with tielines to the 24-track studio. Each rehearsal room is equipped with separate air conditioning, four 15-amp circuits and a monitor system. A selection of drums and instrument amps are available in-house.

Uptown Sound

Brian Griffiths, Brian Gibson and Miles Ramsey head GGRP, one of Canada's most successful commercial production companies. Griffiths and Gibson built their own facility, Little Mountain Sound, in 1973, which they sold ten years later in an attempt to get out of the studio business and deeper into the production business.

September 1990 marked the birth of their new studio, Uptown Sound, a block away from Little Mountain, promising state-of-the-art technology for Vancouver's fast-growing commercial and film production industry.

Little Mountain was designed to have the best of everything, which actually amounted to more than GGRP *really* needed. Uptown Sound only wants to have the *best* of what GGRP needs, and that starts with a top-end console and monitoring system.

The console choice was Vancouver's only Amek Mozart, fully automated with 40 inputs in a 56-channel frame. Eighty channels are available in remix through the console's split functions. Size became a consideration as the console is larger than any doorway into the building. So the legs were removed (no mean feat) and the console was "flown in" by a

crane to the fourth-floor balcony.

The monitoring system features TOC Series III monitors with Crest power amplifiers for bottom and the TOC-1200 Australian Monitor Amp for mids and highs.

A large, wired and as yet empty outboard island sits behind the engineer's position waiting to be loaded, with plenty of space left for rented outboard gear.

Uptown's 1,000-square-foot studio

The JUNOs and the Record Conference Coming to Vancouver

Let's start with some statistics. It's 4,500 miles from Vancouver to St. John's, Newfoundland. The total population of Canada is approximately 26,500,000, which translates to a population density of seven people per square mile (as compared with 68 people per square mile in the U.S.). Two-thirds of the population live in Ontario and Quebec. The nearest Canadian city to Vancouver with a population greater than 1 million is 2,800 miles away. Toronto is the economic center of the country. All the major record companies have their head offices and A&R departments in Toronto. British Columbia artists and songwriters contributed 50% of the Canadian albums and 65% of Canadian singles on annual *Billboard* listings of the U.S. Top 100 Albums and Singles for the years 1982-1986.

Vancouver's time has come. The JUNO Awards, Canada's answer to the Grammys, are traditionally held in Toronto, the seat of power in the Canadian music industry. On March 3, 1991, for the first time, the 1991 JUNO Awards are coming to Vancouver.

And they are not coming alone. For the past eight years *The Record*, a music trade weekly considered Canada's counterpart to *Billboard*, has held a parallel event to the JUNOs. The Music Canada Conference, held in the week preceding the JUNOs, will focus on issues of direct concern to broadcasters, record retailers, record companies, songwriters, publishers, recording artists and entrepreneurs.

In addition to the seminars, The Record Awards will honor individuals throughout the Canadian music business. For further information, contact David Farrell at

(416) 533-9417.

And there's more...

The fourth Annual West Coast Music Conference is slated to take place from February 28 to March 3, 1991. Sponsored by *Canadian Musician* magazine, the conference focuses on technology and the concerns of the primary creative source of our industry—*musicians*.

Highlights of the conference are:

- New technology exhibition and industry trade show, featuring Western Canada's music industry manufacturers and craftspeople exhibiting their products and services along side the world's leading manufacturers of musical equipment. This event focuses on innovation and craftsmanship, as well as the "cutting edge" of musical technology.

- Product demonstration workshops, sponsored by leading equipment manufacturers, feature international recording artists demonstrating new technology and techniques.

- Demo-critiquing sessions, involving producers, publishers and record companies in a hands-on analysis of tapes submitted by delegates.

- Musician panels, exploring topics of interest and concern to today's performing artist with contemporary artists and knowledgeable industry personnel.

- Artists' summit conference, a creative brainstorming session in which major artists examine some of the critical issues confronting contemporary artists. For further information, contact Maureen Jack at (604) 689-1991 or Laurie Mercer at (604) 734-5945.

All these events will help kick off the provincial government-sponsored "1991—Year of Music," where hundreds of artists take "Roadshow '91" throughout the province of British Columbia between May and October. ■

with a 20-foot ceiling and two iso booths is an all-purpose room designed for recording jingles, albums and film scores. Sessions requiring a larger room will be funneled around the corner to Tom Lavin's Blue Wave Studios, which is partners in Uptown.

Standard recording formats are supported by the MCI/Sony 24-track recorder and layback machines. The 24-track digital and AMS AudioFile are available through tielines to Dick and Roger's next door, so read on.

Dick and Roger's

Roger Monk and Dick Abbott recently

transplanted themselves from Little Mountain's Studio C to their own post-production room with facilities for voice-over, light Foley and a massive sound effects library.

The AMS AudioFile, with one-hour stereo storage (soon to be expanded to two hours), has been built into an 8-input Neotek Essence console with 24 channels of monitoring for the Sony PCM-3324 digital multitrack. Tracks can be assembled on the AudioFile and dumped eight tracks at a time to the PCM-3324, or mixed to the Sony PCM-3402 DASH format or Sony APR-5000 2-track analog with center-track time

code while locked up to the Sony BVU-950 3/4-inch or Sony BVH-3100 1-inch C-format video by the TimeLine Lynx synchronizer. And it's all tied together with over five miles of Mogami cable. Multitrack mixing facilities are provided through direct tielines to the studio's neighbors, Uptown Sound.

Dick and Roger's award-winning production and engineering experience have attracted an impressive clientele. When I spoke with Roger, he was in the process of editing David Lee Roth's latest album. Other projects to pass through the AMS AudioFile include Bon Jovi, Aerosmith, Mötley Crüe, AC/DC, Poison and the soundtrack for *Platoon*.

Sharpe Sound Studios

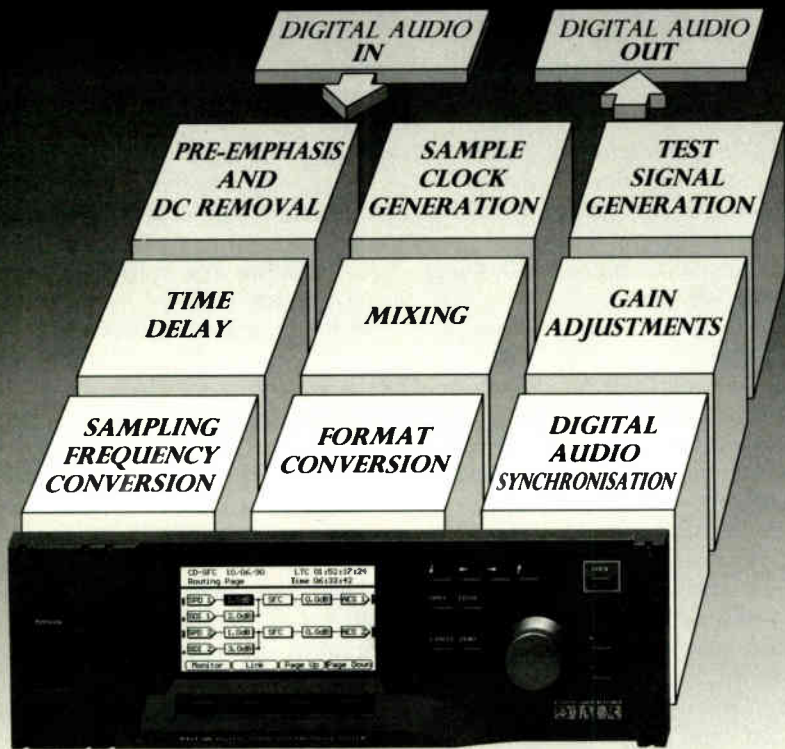
Soon to come—Sharpe Sound Studios—a new film post-production facility brought to you by Paul Sharpe and Jacqueline Cristianini, who were responsible for the sound editing and re-recording for *Dick Tracy*. Originally from Vancouver, Sharpe and Cristianini migrated to the United States in search of the bigger pond. Well, they found it. Recently, they decided to return to Canada and bring their success home with them. They are in the process of securing a building and plans are in place to have a mid-size studio for Foley and ADR, and a large suite for mixing feature films up and running by mid-1991.

Much of their equipment has been purchased and has a temporary home at Alpha Cine, Vancouver's only (but not for long) interlocked film re-recording theater. Thirty high-speed Magna-Tech 16/35 mag transports equipped with Dolby SR are linked electronically to high-speed mixing projectors. Also in the chain are three 24-track machines (Otari, Ampex and Sony/MCI). A Quad Eight 4-track Dolby Stereo and Ultra Stereo console are presently in place, although future plans call for a Harrison console.

Sharpe's focus, however, is not on equipment. Says Sharpe, "The more time you spend on a project the better it will turn out. It's not the equipment—it's time and people, especially people."

Simon Garber operates Goldrush Recording Company, providing recording and live engineering services with 20 years of experience staring at him from behind.

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ILLUSTRATION: MARTY BRAUN

[24+] **AIRWAVES AUDIO, INC.**; 15 Toronto St., lower level; Toronto, Ontario, M5C 2E3 Canada; (416) 863-6881; FAX: (416) 867-9107. Owner: Al Staruch. Manager: Cathy Onyskiw.

[24+] **AMBIANCE (A.R.P. TRACK PRODUCTIONS)**; 34 Chemin des Ormes; Ste-Anne-des-Lacs, Quebec, J0R1B0 Canada; (514) 224-8363. Owner: Nick Keca. Manager: Nick Keca. Engineers: Freelancers available. Dimensions: Room 1: studio 20 x 30, control 20 x 26. Mixing Consoles: Studer A80 Mark IV 24-track, MCI JH 24-track, MCI JH-110C 2-track. Cassette Recorders/Duplicators: Cipher Digital Softouch PC controller with IBM, Cipher Digital shadow II synchronizers, JVC CR-6650 3/4" VTR, various SFX libraries on CD. Echo, Reverb & Delay Systems: Lexicon 480L, (2) Lexicon PCM70, Lexicon PCM42 with meo, (2) Lexicon LXP-1, (2) Lexicon LXP-5, Lexicon MRC, (2) UREI LA 4 compressor limiter, Drawmer DS-201 dual gate, Drawmer DS-231 dual compressor/expander. Microphones: AKG 414, Neumann U87, (4) Neumann KM84, (10) Sennheiser 421, various Shure and AKG. Monitor Amplifiers: QSC. Monitor Speakers: UREI 813C monitors, Yamaha NS-10, Auratone 5C. Musical Instruments: Akai S1000 sampler, Emulator II, (2) E-mu Proteus XR, E-mu SP-12 sampling drum unit, Roland D-110, Roland Super Jupiter analog synthesizer, Yamaha TX 416 synthesizer rack. Other: (2) Macintosh, Opcode Studio 3 interface, various software systems. Rates: Please call for more information. Specialization & Credits: Ambiance is a live-in project studio in the beautiful Laurentian mountains, 40 minutes north of Montreal. Lakes, ski resorts and premium restaurants all within five minutes of the studio give this creative environment an "Old European" charm. A classic Neve/Studer studio, Ambiance is

24 TRACK

a two-story chalet that is a combination of a "traditional" studio design intergrated with a beautiful, "rustic" living space that offers additional tracking rooms. Ambiance features a floating three-room studio on the first floor and a charming seven-room chalet on the second floor that is fully interfaced to accommodate recording activities in all rooms on the second floor (all with varying acoustical characteristics). With the charm of the village and the "live-in" setup of the studio, Ambiance is ideal for album work, film scoring and mixing. With the favorable rate of exchange between U.S. and Canadian currencies, and no hold-back tax, working in Canada is an attractive option for American artists, producers and engineers.

[24+] **A.R.P. TRACK PRODUCTIONS**; 28 Valrose Dr.; Stony Creek, Ontario, L8E 3T4 Canada; (416) 662-2666. Owner: Nick Keca. Manager: John Keca.

[24+] **THE BANFF CENTRE FOR THE ARTS**; also REMOTE RECORDING; Office of the Registrar; PO Box 1020; Banff, Alberta, T0L 0C0 Canada; (403) 762-6651; FAX: (403) 762-6699. Manager: Kevin Elliott. Engineers: Kevin Elliott, Brian Ales, Theresa Leonard, Andre White, Dorota Blaszcak. Dimensions: Room 1: studio 40 x 40, control 25 x 18. Room 2: studio 25 x 18, control 20 x 20. Mixing Consoles: Sony MXP-3036 automated console, Soundcraft 1624 24 x 16 x 24. Audio Recorders: Sony PCM-3324 24-track digital, (2) Sony PCM-3402 2-track digital, Tascam MS-16 16-track 1-inch, Tascam



THE BANFF CENTRE FOR THE ARTS
Banff, Alberta,

ATR 602T2-track 1/4-inch, (2) Tascam DA-30 DAT, Sony TC-010 Pro portable DAT. Cassette Recorders/Duplicators: Nakamichi MR-1. Synchronization Systems: Soundmaster, (2) Fostex 4030/4010/4035. Echo, Reverb & Delay Sys-

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CANADIAN

STUDIOS

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tems: Lexicon 480L digital reverb, (2) Lexicon PCM70 digital reverb, Lexicon Prime Time digital delay, Eventide H3000S Ultra Harmonizer, Roland R880 digital reverb, Yamaha REV5 digital reverb, (2) Roland DEP-5 digital effects, Yamaha SPX90II digital effects, Lexicon LXP-1 digital reverb. **Microphones:** (2) Neumann U87, Neumann M49B, Neumann TLM170, (2) Neumann KM100, Neumann KM84, AKG C-422, Neumann SM69, (4) AKG C-460B, (2) AKG C 414, B&K 4007, B&K 4011, (2) Beyer M130 ribbon mic, (2) Beyer M160, (2) Beyer MCE-005, (2) RCA 77B, (3) Beyer M88, Sennheiser MO441, Sennheiser MKE2002, (2) Crown PZM30FS, Sony ECM-979, (2) Sony C-38. **Monitor Speakers:** (2) State-of-the-art Electronik CF2000, (2) State-of-the-art Electronik CF750, Yamaha NS-10 near-field, (4) PSB M50R near-field. **Musical Instruments:** Yamaha SY77 synthesizer, Roland D550 synthesizer, Yamaha TX802 synthesizer, Roland SUC350 Vocoder, (2) Yamaha DX73 Synthesizer, Sequential Circuits Prophet 2002 sampler, (2) Roland S-550 sampler, Casio FZ1 sampler, Roland D-110 synthesizer, Yamaha TX81Z synthesizer, Yamaha MIDI grand piano. **Other MIDI Equipment:** (2) Digidesign Sound Tools digital hard disk recorder/DSP system (Mac II). **Video Equipment:** (3) Sony VO-5850 3/4-inch recorder. **Other:** Drawmer M500 stereo dynamics processor, (6) Valley People Gain Brain II compressor, Klark-Teknik 2-channel parametric EQ, (2) Valley People Max-Q parametric EQ, Roland GT6 digital effects, Roland VO6 vocal processor, (3) Apple Mac II/SE computer and software, Atari 1040ST computer and software. **Specialization & Credits:** The recording studios of the Banff Centre for the Arts are state-of-the-art facilities for the exploration of advanced audio craft and studio-based composition. They are non-commercial and not normally available for rental. Computers and MIDI are closely integrated with traditional technology. Activities are driven by project proposals from composers, musicians, and audio/video/performance artists whose work lends itself to experimental and sophisticated applications of audio recording and production. The studios are staffed by associate engineers (in-terns) with advanced technical skills and mature aesthetic vision. Inquiries are invited from experienced artists, engineers,

composers and producers whose creative aspirations stretch the limits of studio technique. Recent compact disc releases include: Daniel Scheidt/George Lewis/Trevor Turesk: et al, interactive computer music, *Empreintes Digitales*; Hugh Fraser and Vancouver Ensemble for Jazz Improvisation, *VEJ1 Now!*, Unity Records; David Hickman, Banff Baroque Ensemble, *Concentros for Trumpet, Oboe and Strings*, Summit Records.

[24+] BETA SOUND RECORDERS LTD.; also *REMOTE RECORDING*; #102-10534-109 St.; Edmonton, Alberta, T5H 3B2 Canada; (403) 424-3063. **Owner:** Gary Kolliger. **Manager:** Gary Kolliger. **Engineers:** Marek Forsynski, Gary Kolliger. **Dimensions:** Room 1: studio 35 x 20, control 20 x 21. Room 2: studio 35 x 20. **Mixing Consoles:** MCI JH-428, Yamaha DMP7. **Audio Recorders:** (2) Sony/MCI JH-24 24-track Autolocator III, Fostex D-20 R-DAT, Luxman KD117 R-DAT, Fostex E-2 1/4" with center-track time code, Fostex E-2H 1/4" with center-track time code, Otari 1" audio playback. **Cassette Recorders/Duplicators:** Tascam MkII cassette. **Synchronization Systems:** (3) Fostex 4030 synchronizer, Fostex 4010 TC reader/generator, Fostex 4011 VTC reader/generator/character inserter, Fostex 4035 controller. **Echo, Reverb & Delay Systems:** (2) Yamaha REV7 reverb, Lexicon LXP-1 reverb, UREI LA 4A compressor, EMT 250 reverb plate, (4) ADR processor, (4) White Instruments equalizer, (2) Lexicon PCM41, Alesis Quadverb, Eventide Harmonizer. **Microphones:** (2) Neumann U87, (2) Neumann U47, Neumann SM2, Neumann KM56, (2) AKG 414, (2) Sennheiser, (2) AKG 451, (4) Shure SM57, (4) Shure SM58, AKGD-112. **Monitor Amplifiers:** QSC 1400, (4) Crown DC300. **Monitor Speakers:** (2) Jannoy PBM-8 DMT, (2) Yamaha NS-10, (2) JBL 4350. **Musical Instruments:** E-mu SP12 drum machine, Roland R-8 drum machine, Linn drum, Baldwin 6" grand piano, Roland D-50 synthesizer, Korg M1R synthesizer. **Video Equipment:** JVC CR8250 3/4" video editor. **Other:** Macintosh IIcx, Performer 3.4 software, Lexicon, AMS 480L available on request. **Rates:** Call for further information.

[24+] CHERRY BEACH SOUND LTD.; 16 Munition St.; Toronto, Ontario, M5A 3M2 Canada; (416) 461-4224; (416) 461-4607. **Owner:** Carman Guermen. **Manager:** Robert Natale.

[24+] CINAR STUDIOS; 1207 St. Andre St.; Montreal, Quebec, H2L 3S8 Canada; (514) 843-7070; FAX: (514) 843-7080. **Owner:** Cinar Studios, Inc. **Manager:** Barbara Parker. **Engineers:** Alain Roy, Francois Deschamps, John Nestorovich, Pierre L'abbé. **Dimensions:** Room 1: studio 25 x 15,

control room 18 x 18. Room 2: studio 25 x 15. Room 3: control room 15 x 15. **Mixing Consoles:** SSL 6056G w/Total Recall, Neotek Essence, Soundcraft. **Audio Recorders:** (4) Studer A820 24-track, Studer A820 8-track, (2) Studer A820 2-track 1/4"/1/2", (4) Studer A812 2-track. **Noise Reduction Equipment:** Dolby SR127 card. **Synchronization Systems:** Studer TLS system, Soundmaster, Audio Kinetics, ES Eclipse (ESbus). **Echo, Reverb & Delay Systems:** (2) Lexicon 480L, (6) TC Electronic TC 2290, (2) Aphex Compellor, Aphex Aural Exciter, (3) Drawmer M500, Publison IM90, (4) Lexicon PCM70, (8) various processors, Yamaha SPX150, (2) Yamaha REV5, (2) Yamaha SPX90II, (6) Alesis MIDiverb II. **Microphones:** (48) AKG, Neumann, Sanken, Schoeps, Shure, etc. **Monitor Amplifiers:** (2) FM Acoustic Model 1000, Robertson 6010, (2) Denon, (12) QSC. **Monitor Speakers:** (2) Hidley/Kinoshita, (2) B&W 808, (2) B&W 801, (6) E-V Sentry 100, (2) Yamaha NS-10M. **JVC Equipment:** (3) ESP projector, (5) Sony TV monitor, JVC 850 VCR, (16) JVC 6650 VCR.

[24+] COMFORT SOUND RECORDING STUDIO; also *REMOTE RECORDING*; 26 Soho St., Ste. 390; Toronto, Ontario, M5T 1Z7 Canada; (416) 593-7992. **Owner:** Doug McClement. **Manager:** Doug McClement. **Engineers:** Gabe Lee, Andrew St. George, Rhonda Bruce, Jon Erickson. **Dimensions:** Room 1: studio 20 x 30, control room 20 x 20. Room 2: studio 10 x 10, control room 10 x 10. **Mixing Consoles:** MCI 63636 x 24 automated, Soundcraft 200B 16 x 4. **Audio Recorders:** Otari MTR-90 II 24-track, Otari MTR-12 II 4-track, Fostex E-2H 2-track w/center-track time code, Technics RS1500 2-track, JVC 8600U VHS Pro w/Sony 601 digital encoder/decoder, Tascam MSR-16 16-track 1/2" w/dbx. **Cassette Recorders/Duplicators:** (10) Yamaha KX800U, Sony TC-K444E22. **Noise Reduction Equipment:** dbx 154, Dolby 323 stereo A/SR. **Synchronization Systems:** Soundmaster 4 transport, BTX 2 transport. **Echo, Reverb & Delay Systems:** Lexicon 200 digital reverb, Lexicon PCM60 digital reverb, Lexicon PCM70 digital reverb, Yamaha REV-1 digital reverb, Yamaha REV7 digital reverb, AKG BX20 reverb, Lexicon PCM41 DDL, DeltaLab ADM 1024, DeltaLab ADM 4096, Yamaha 1500 DDL. **Other Outboard Equipment:** Yamaha SPX90 effects processor, Eventide HD3000 Ultra-Harmonizer, (2) dbx 160 compressor, (4) Ashly Audio SC-50 compressor, UREI 1178 stereo compressor, Valley People 610 stereo compressor, Aphex Compellor, ADR F760X RS stereo compressor, Omni Craft GT 4 noise gate, (2) Ashly Audio SC-33 noise gate, Marshall Time Modulator, Ursa Major SST282 Space Station, (2) Ashly Audio SC-65 parametric EQ, Orban de-

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esser, Eventide H910 Harmonizer, Ashly Audio GQ231 stereo 1/3-octave EQ, Drawmer M500 dynamics processor. **Microphones:** (7) AKG 451, (2) Neumann U47 tube, (2) Neumann U87, (2) Countryman Isomax, (2) Sennheiser 441, (3) AKG 414, E-V RE20, (2) AKG D-12, (2) Neumann KM84, Neumann KM86, (2) Crown PZM. **Monitor Amplifiers:** QSC, Amcron. **Monitor Speakers:** Tannoy SGM-3000, Tannoy NFM8, Yamaha NS-10, Auratone. **Musical Instruments:** Kurzweil K1000, Gretsch drums. **Video Equipment:** Sony color camera, Proton 19" monitor, JVC CR850 3/4", JVC 8250 3/4", La Rue VCS-1 video cue system. **Rates:** 24-track Studio A with SMPTE lock: \$125 CDN. 16-track Studio B with SMPTE lock: \$85 CDN. Cassette duplication: \$50 CDN.

[24+] CREATION STUDIOS, INC.; also REMOTE RECORDING; 7490 Edmonds St.; Burnaby, B.C., V3N 1B4 Canada; (604) 525-3422. **Owner:** Barry Henderson and Ian MacLellan. **Manager:** Lisa Barton. **Mixing Consoles:** SSL. **Audio Recorders:** Studer.

[24+] EASTERN SOUND; also REMOTE RECORDING; 48 Yorkville Ave.; Toronto, Ontario, M4W 1L4 Canada; (416) 968-1855; **FAX:** (416) 924-9973. **Owner:** Standard Broadcasting. **Manager:** Kevin Evans.

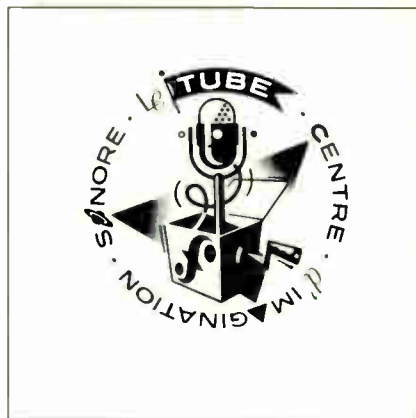
[24+] E.M.A.C. RECORDING STUDIOS; 432 Rectory St.; London, Ontario, N5W 3W4 Canada; (519) 667-3622; **FAX:** (519) 642-7453. **Owner:** Electronic Media Arts Corp. **Manager:** Robert Nation.

[24+] INCEPTION SOUND STUDIO; 3876 Chesswood Dr.; Toronto, Ontario, M3J 2W6 Canada; (416) 630-7150. **Owner:** Chad Irschick, Jeff Wolpert, Harold Kilianski. **Engineers:** Chad Irschick, Jeff Wolpert, Harold Kilianski. **Dimensions:** Room 1: studio 20 x 30, control room 19 x 22. Room 2: studio 18 x 26, control room 19 x 17. **Mixing Consoles:** MCI JH-536 36 x 32 w/Diskmix automation. **Audio Recorders:** (2) MCI JH-24 24-track, MCI JH-1102-track. **Ampex ATR-102 2-track, Otari MTR-12 2-track 4-track, Sony PCM-701 2-track digital, (2) MCI JH-536 36 x 32 (John Hardy mic preamp), Sony DTC-1000 2-track digital with Apogee filters, (2) Aiwa HD-X1. Cassette Recorders/Duplicators:** (3) Sony TC-K777. **Noise Reduction Equipment:** Dolby SR 24-track. **Synchronization Systems:** Adams-Smith 2600 with controller. **Echo, Reverb & Delay Systems:** (2) AMS RMX 16, Publison America IM90, (2) Klark-Teknik DN760, EMT 240, (2) Roland DEP-5, live chamber, (2) Lexicon Prime Time, Yamaha REV7, (2) Effectron 1024,

Echotron 4096, Yamaha REV5, Lexicon 480, (2) Roland DEP-5. **Other Outboard Equipment:** GML compressor, GML EQ, GML mic preamps, Tube-Tech Lydcraft EQ, Eventide 949 Harmonizer, Aphex Compellor, Publison America CL-20C compressor, Valley People 610, Orange County CLX, (2) dbx 160, UREI 1176, UREI LA-4, (4) Kepex II, Trident CB9066 EQ, (2) UREI para EQ, (2) UREI 546 EQ, Ashly Audio SC-66 EQ, dbx 263X de-esser. **Microphones:** Neumann, Telefunken, AKG, Sony, B&K, Sanken, Shure, Beyer, Crown, E-V, Telefunken U-47, Stephen Paul modified. **Monitor Amplifiers:** Bryston, BGW, Crown, AB Systems, QSC, Sota CF-750. **Monitor Speakers:** JBL 4430, Yamaha NS-10, Auratone. **Musical Instruments:** Steinway 1929 9' grand piano with MIDI interface, (2) Slingerland snare. **Other MIDI Equipment:** Atari 1040ST with Notator, Aphex studio clock, Alesis HR-16 drum machine, Roland PM 16+ drum kit. **Video Equipment:** JVC 6650 3/4" VCR, (3) color monitor. **Other:** Sony CDP-302, Sound Ideas CD sound effects library. **Rates:** On request.

[24+] LE STUDIO MORIN HEIGHTS; 201 Perry Rd.; Morin Heights, Quebec, J0R 1H0 Canada; (514) 226-2419; **FAX:** (514) 226-5409. **Owner:** Groupe Andre Perry. **Manager:** Richard Ealey. **Specialization & Credits:** Le Studio is a residential studio, equipped with an SSL4056 G console. Located in Quebec's Laurentian Mountains resort area, on 225 acres of land, overlooking a private lake, Le Studio offers a tranquil working environment, perfect for the creative processes necessary in recording an album. Le Studio is only a 45-minute drive from downtown Montreal, or a one-hour flight from New York City. Across the lake from the studio is the guest house and cottage. The house sleeps eight, having six luxury bedrooms, four of which have private bathrooms (one with a jacuzzi). The cottage accommodates two more. Catering is available for a variety of tastes. Major albums recorded at Le Studio: *The Police Ghost in the Machine*, *Synchronicity*, *String Dream of the Blue Turtles*, *Keith Richards Talk is Cheap*; Rush, total of six albums; *David Bowie Tonight!*, *Chicago XII*; *Glass Tiger Thin Red Line*, *Diamond Sun*; *Queensryche Operation Mindcrime*; *Jeff Healey Hell to Pay*; *A-Ha East of the Sun, West of the Moon*.

[24+] LE TUBE; 225 Rue Roy, Est, bureau 104; Montreal, Quebec, H2W 1M5 Canada; (514) 845-3574; **FAX:** (514) 845-5110. **Owner:** Pierre-Daniel Rheault, Georges Coulombe. **Manager:** Pierre-Daniel Rheault. **Engineers:** Jean-Claude Beaudoin, Daniel Ferland, Roger Guerin, Pierre-Daniel Rheault. **Dimensions:** Room A: studio 12 x 16, control room 20 x 18. Room B: studio 10 x 8, control room 11 x 19. Room C: control



LE TUBE
Montreal, Quebec,

room 16 x 17. **Mixing Consoles:** SSL 4032E with G software, Soundtracs IL-4832, Soundtracs CMX-3824. **Audio Recorders:** (2) Sony APR-24, Otari MTR-10, NED PostPro 8-track Direct-to-Disk, Sony APR-5003. **Noise Reduction Equipment:** Dolby SR SP24, (2) Dolby SR363. **Synchronization Systems:** (2) Soundmaster. **Echo, Reverb & Delay Systems:** Lexicon 480L, Lexicon PCM70, (3) Lexicon LXP-1, (3) Lexicon LXP-5, (2) Yamaha SPX900, Eventide H3000, (2) Sony MUR-201, (2) Yamaha REV7, (2) Aphex Aural Exciter Model C, (2) Aphex Compellor, (3) Dynamite, (2) dbx 160. **Microphones:** Neumann, Schoeps, AKG, Sennheiser, Shure. **Monitor Amplifiers:** (4) Quedstedt DX300E, (4) Quedstedt AM900E, (3) SCS 2450. **Monitor Speakers:** (2) Quedstedt 412, (2) Quedstedt 212, (2) Tannoy PBM-6.5. **Musical Instruments:** NED 9600 Synclavier, (2) E-mu II, Roland S-550, Roland D-550, Roland D-50, Yamaha DX7IID, Yamaha DX7, Korg DW-6000, Akai S900, Yamaha CS80, Roland Super Jupiter, Prophet VS. **Video Equipment:** (3) JVC 6650 VCR, Sony BVH-1100 VTR 1", (2) Super VHS, VITC-LTC Transistor Telecom Research T900, Telecom Research T5010 Time Code Generator/Jam Sync/Burn III. **Rates:** \$90-\$225 hourly rate (Can. funds).

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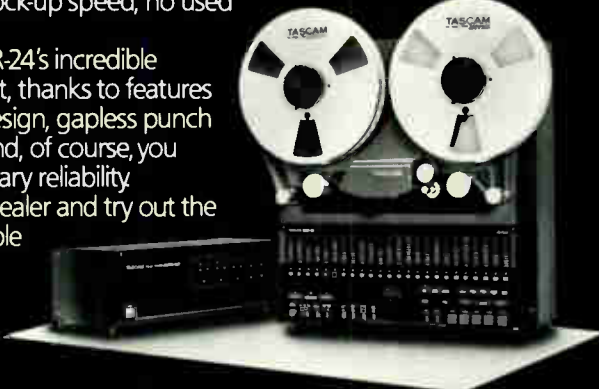
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CANADIAN STUDIOS



MANTA SOUND
Toronto, Ontario,

[24+] **MANTA SOUND**; 311 Adelaide St. E.; Toronto, Ontario, M5A 1N2 Canada; (416) 863-9336; FAX: (416) 863-1448. Manager: LuAnn Leonard. Engineers: Gary Gray, John Naslem, Ron Searles, Rick Starks, Mike Duncan, Andy Hermant. **Dimensions:** Room 1: studio 30 x 13, control room 26 x 20. Room 2: studio 60 x 44, control room 26 x 20. Room 3: studio 24 x 20, control room 20 x 15. Room 4: studio 12 x 10, control room 20 x 10. **Mixing Consoles:** AneK APC1000/56 w/GML Moving Fader automation, Neve V Series/52 w/GML automation, Westar 36 w/Compumix PC automation. **Audio Recorders:** (3) Mitsubishi X-850 32-track digital, (3) Studer A80 24-track, Studer A827 24-track, AMS AudioFile hard disk recorder, various Studer A30 and A810 2-track. **Synchronization**

Systems: Soundmaster systems in all rooms. **Microphones:** (120) Neumann U47, U67, M49, Schoeps, AKG, Sennheiser and many vintage tube condensers. **Rates:** Please contact studio manager.

[24+] **MASTERS WORKSHOP**; also **REMOTE RECORDING**; 306 Rexdale Blvd., Unit 7; Rexdale, Ontario, M9W 1R6 Canada; (416) 741-1312; FAX: (416) 741-1894. Owner: Maclean Hunter Ltd. Manager: Jim Frank.

[24+] **MASTERTRACK LTD.**; 35A Hazelton Ave.; Toronto, Ontario, M5R 2E3 Canada; (416) 922-4004; FAX: (416) 922-8634. Owner: Ken Burgess. Manager: Andy Condon.

[24+] **MCCLEAR PLACE RECORDING AND MASTERING STUDIOS**; 225 Mutual St.; Toronto, Ontario, M5B 2B4 Canada; (416) 977-9740; FAX: (416) 977-7147. Owner: Robert K. Richards. Manager: Jane Rowan. Engineers: Steve Ibelshauer, Hayward Parrott, Peter Lee. **Dimensions:** Room 1: studio 43 x 31, control 28 x 21. Room 2: studio 20 x 10, control 20 x 18. Room 3: studio 23 x 18, control 26 x 20. **Mixing Consoles:** SSL 6048E with G Series automation and Total Recall, SSL 6040E with G Series automation and Total Recall, Sony MXP 3036 fully automated. **Audio Recorders:** (2) Studer A820 24-track with Dolby A or Dolby SR, Studer A800 24-track, MCI JH-24 24-track, (3) Studer A820 2-track with center-track time code, (2) Studer A820 2-track, (3) MCI JH-110B 2-track, MCI JH-110B 1/2-inch 2- and 4-track, Sony DAT 2500 2-track, (2) Sony PCM 1630 2-track, Mitsubishi X-850 32-track, MCI JH-110B 1-inch layback. **Cassette Recorders/Duplicators:** (8) Sony TCK 700ES. **Noise Reduction Equipment:** (1) 6) Dolby 361, Dolby M Series, (48) Dolby Cat. 22 A Type noise reduction cards, (52) Dolby Cat. 280 SR, (2) dbx K9-22. **Synchronization Systems:** (12) BTX 4700 Shadow, (4) BTX Softouch controller, Echo, Reverb & Delay Systems: (2) Lexicon 480L, (2) AMS DMX 15-80S delay, AMS RMX 16 reverb, (2) Sony DRE-2000 reverb, (3) Yamaha Rev7 reverb and effects, Yamaha Rev5 digital reverb and effects, (5) EMT reverb plates, Lexicon Super Prime Time delay, (3) Roland DEP-5 effects processor, EMT Gold Foil reverb plate. **Other Outboard Equipment:** (10) UREI LA-3A compressor/limiter, (6) UREI 1176 compressor/limiter, (12) Pultec tube equalizers, Neve 8 x 2 portable mixer. **Microphones:** (14) Neumann U87, Neumann U67 tube, (2) Telefunken U47 tube, AKG C-12 stereo tube, (8) AKG 414 condenser, (2) AKG 224 condenser, (6) AKG 451 condenser, (95) various. **Monitor Amplifiers:** (9) Bryston 4B, (15) Bryston 3B, (5) Studer A68. **Monitor Speakers:** (6) Sota

CF 2000, (2) UREI 813, (6) Yamaha NS-10, (6) Auratone. **Musical Instruments:** Yamaha C-7 MIDI grand 1/2-foot piano, Steinway 7-foot grand piano, Synclavier 3200 8-track with Direct-to-Disk and Roland A80 K.B., E-mu E-3, Hammond B-3 organ with Leslie 122. **Video Equipment:** (9) Sony BVU-800 3/4-inch, (4) Sony BRK Trinitron monitor. **Other:** Complete digital audio editing and CD pre-mastering facility. **Rates:** Digital editing suite rate, using Sony DAE-3000 editor, \$175 per hour. Studio 1: SSL 6000 with Total Recall \$250/hour, with video lock, \$310/hr. Studio 2: Sony MXP-3036, \$150/hr, with video lock \$195/hr. Studio 3:

[24+] **METALWORKS RECORDING STUDIOS, INC.**; 3611 Mavis Rd., Unit 5; Mississauga, Ontario, L5C 1T7 Canada; (416) 279-4008; FAX: (416) 279-4006. Owner: Gil Moore of Triumph. Manager: Alex Andronache. Engineers: L. Stuart Young, Rick Andersen, John Bailey, Dave Dickson—technical engineer. **Dimensions:** Room 1: studio 22 x 50, control room 22.5 x 19. Room 2: studio 15 x 20, control room 22 x 24. **Mixing Consoles:** SSL 4056 G Series 48 x 32 with Total Recall, Neve Spitfire 24 x 16 x 24 with 1073 EQ and 2254 limiters. **Audio Recorders:** (3) Studer A800 III 24-track, (2) Studer A820 2-track, Otari MTR-90 II 24-track, Sony PCM 2500A, Studer A820 2-track control time code. **Cassette Recorders/Duplicators:** (2) TEAC 122 MkII, (2) Tascam 122B cassette deck. **Noise Reduction Equipment:** (2) Dolby A, (2) Dolby SR **Synchronization Systems:** (2) Adams-Smith 2600. **Echo, Reverb & Delay Systems:** Lexicon 480L reverb, Lexicon Prime Time II digital delay, AMS DMX 15-80S digital delay/harmonizer, w/stereo sampling, (2) Lexicon PCM70, Lexicon PCM42 delay, (2) Lexicon LXP-1 w/MRC remote, Sony DRE-2000 digital reverb, EMT 140 tube plate reverb, EMT 140 solid-state plate reverb, Yamaha REV-1 digital reverb, Yamaha REV7 digital reverb, Klark-Teknik DN-780 digital reverb, AKG ADR-68K multi-effects processor, Yamaha SPX90 Series 2, Roland SRV-2000 MIDI digital reverb, Roland SDE-3000 digital delay, (16) Neve outboard 1064 EQ, Summit Audio dual tube preamp, (2) Summit Audio tube leveling amplifier, Summit Audio dual program EQ, Eventide H3000 Harmonizer, Barcus-Berry 422 Sonic Maximizer, (2) Focusrite ISA 110 EQ strip, (2) Aphex Aural Exciter (B and C), (4) Pultec tube EQ, (2) API 5502 EQ, UREI 1178 stereo limiter, (2) UREI LA-2A limiter, (2) Drawmer DS-201 noise gate, Brooke-Siren compressor/limiter/de-esser, (4) Aphex expander gate, (4) UREI LA-4 limiter, (4) dbx 160X limiter, (2) UREI 1176N limiter, (2) Altec 1591A solid-state compressor. **Microphones:** (2) Neumann U87, (2) Neumann tube U67 and others, (2) AKG tubes, (6) AKG C414EB-P48 and

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others, (5) Shure SM57 and others, Electro-Voice RE20 and others, (2) Crown PZM, (6) Sennheiser 421 and others, Beyer M500, Crown, QSC. **Monitor Speakers:** (2) Tannoy FSM-U, (4) JBL 4350, (2) JBL 4410, (2) JBL 4312, (6) Yamaha NS-10M, (6) Auratone. **Musical Instruments:** Akai S1000, Akai S612, Yamaha G-3 grand piano, Hammond organ with Leslie, Roland D-50. **Video Equipment:** JVC 6650 3/4" recorder. **Rates:** Available upon request.

[24+] **MONTREAL SOUND STUDIOS; 5000 Buchan St., Ste. 601; Montreal, Quebec, H4P 1T2 Canada; (514) 738-1300. Manager:** Don Richards.

[24+] **MUSHROOM STUDIOS; 1234 W. 6th Ave.; Vancouver, V6H 1A5 Canada; (604) 734-1217. Owner:** Charlie Richmond. **Manager:** Linda Nicol. **Engineers:** Dave Ogilvie, Greg Reely, Dale Penner, Rob Porter, Rolf Hennemann, Keith Stein, Ken Marshall. **Dimensions:** Room 1: studio 50 x 30, control room 15 x 20. Room 2: studio 14 x 20. Room 3: studio 15 x 11. **Mixing Consoles:** Richmond Sound Design 48 x 22 x 8 VCA subgroups w/optional tube preamp. **Audio Recorders:** Studer A80 III 24-track, Studer A80 II 16-track, Studer B67 2-track, Ampex ATR-100 2-track (1/4" or 1/2" heads), Revox A77 1/2-track, Revox A77 1/4-track, (2) Sony PCM 2-track digital, Nagra III mono film sync. **Cassette Recorders/Duplicators:** (6) JVC KD A11, JVC DD-9. **Noise Reduction Equipment:** (2) Dolby 361, (10) RSD VCF noise gate/filter, (5) Allison Kepex noise gate, (10) RSD VCA noise gate, (3) Roger Mayer RM80X noise gate, Burwen DNF 1200A dynamic noise filter, (2) dbx 904 noise gate. **Synchronization Systems:** Q.Lock. **Echo, Reverb & Delay Systems:** EMT 240 Gold Foil plate reverb w/remote, Eventide H910 Harmonizer, Lexicon 224 4.4 digital reverb w/13 programs, Lexicon Prime Time 93 digital effects, Lexicon 480L digital reverb, Yamaha SPX90, Lexicon 224XL w/LARC, MICMIX Master-room reverb, Yamaha REV7, (2) acoustical echo chamber, UREI Time Cube analog delay unit, Korg SDD 2000 programmable MIDI sampling delay, Roland SRV-2000 digital reverb, DigiTech DSP 128 multi-effects, ART MIDverb digital multi-effects. **Other Outboard Equipment:** (2) dbx 905 parametric equalizer, (3) Furman PQ-3 parametric EQ, (3) Langevin graphic EQ, (2) Neve 1081 input module w/4-band EQ, dbx 902 de-esser, Orban Parasound 516EC de-esser (3 channels), (2) Allison Research Gain Brain comp/limiter, (4) dbx 903 compressor/limiter, Universal Audio 175B tube limiter, Universal Audio 176 tube limiter, (3) UREI 1176LN compressor/limiter, dbx 120X-DS sub-harmonic synthesizer, (2) MXR auto flanger. **Microphones:** AKG C-12

and others, (2) Beyer MC713, (2) B&K 4007, (4) E.V. RE15, (3) Neumann U47, (7) Neumann U87, PZM condenser, (8) Sennheiser MD 421, (3) Shure SM57, (3) Shure SM58, Sony C-57, Neumann KM84, KM85 and many others. **Monitor Amplifiers:** (2) RSD APA-36B 180 watt amplifier, (8) RSD APA-128 60-watt amplifier. **Monitor Speakers:** (2) Altec 604E w/Time Aligned horns, (4) Mastering Lab crossovers for all 604Es, (2) Altec 604E studio playback loudspeaker, (2) Auratone 5C Super Sound Cube, (2) Yamaha NS-10. **Musical Instruments:** Yamaha C7 7' grand piano, Fuehr & Stemmer upright piano, Marshall 4 x 12" loudspeaker cabinet, Tama drum kit including Ludwig 402 snare, Paiste 2002 hi-hat, Traynor Mate bass amplifier. **Video Equipment:** Electrohome ECD-2504 25" color monitor, Sony 3/4" video player, Sony Beta VCR, Sharp VHS. **Other:** (50) headset, (2) compact disc player.

[24+] **PINEWOOD STUDIOS; 1119 Homer St.; Vancouver, BC, V6B 2Y1 Canada; (604) 669-6900. Owner:** Geoff Turner.

[24+] **REACTION STUDIOS; also REMOTE RECORDING; 72 Stafford St.; Toronto, Ontario, M6J 2R9 Canada; (416) 865-9468. Manager:** Ormond Jobin. **Engineers:** Ormond Jobin, Matthew Dematteo, James Stewart. **Dimensions:** Studio 36 x 20, control room 15 x 20. **Mixing Consoles:** Soundcraft 1600 Series 24 x 16 x 8. **Audio Recorders:** Studer A80 MkIV 24-track, MCI JH 110B 2-track 1/4", Sony PCM-601 ESD 2-track digital, Sony SLHF 9002 track Beta Hi-fi, Sony DTC-1000 DAT with Apogee filters. **Cassette Recorders/Duplicators:** Sony TCFX-210, Nikko ND 750, Luxman K-112. **Noise Reduction Equipment:** Dolby SR 363. **Echo, Reverb & Delay Systems:** Lexicon 480L, Lexicon PCM70, Lexicon PCM60, Lexicon PCM42, Eventide H3000 Ultra Harmonizer, Yamaha REV7, Roland GP-8. **Other Outboard Equipment:** (2) Neve Prism input and dynamics module, (2) Neve Prism EQ, (2) dbx 160X comp/limiter, Valley People GateX 4-in-1, Aphex Aural Exciter III, Aphex expander/gates. **Microphones:** Neumann U89, (2) Neumann KM84, Sony 37P, AKG 414, (2) Sennheiser MD 421, Sennheiser MD 409, Sennheiser 441, (5) Shure SM57, Shure SM58, AKG D 112. **Monitor Amplifiers:** (2) Bryston 3B, AB Systems, QSC. **Monitor Speakers:** Fostex LS-3, Auratone QC66, Yamaha NS 10M, Tannoy PBM-6.5. **Musical Instruments:** Roland D 50, Roland D-110, Roland TR-727, Yamaha RX5, Yamaha TX81Z, Ensoniq Mirage, Yamaha Power "V" drum kit w/Paiste, Zildjian and Sabian, Roland Jazz Chorus amp, Hammond organ w/Leslie, Lester grand piano, Trace Elliot and Hartke 410B bass cabinet, Korg M3R. **Other MIDI**

Equipment: Mac Plus with 2.5 meg. and ext. drive and Performer software, Roland SBX-80 SMPTE/MIDI box, Akai ME30P MIDI patch bay 4-in, 8-out. **Rates:** \$55/hr. to \$45/hr. block.

[24+] **ROUND SOUND STUDIOS INC.; also REMOTE RECORDING; 357 Ormont Dr.; Weston, Ontario, M9L 1N8 Canada; (416) 743-9979; FAX: (416) 463-8233. Owner:** Gina Troiano. **Manager:** Bob Federer.

[24+] **SOUNDS INTERCHANGE; also REMOTE RECORDING; 506 Adelaide St. E.; Toronto, Ontario, M5A 1N6 Canada; (416) 364-8512; FAX: (416) 364-1585. Owner:** Supercorp. **Manager:** Peter Mann.

[24+] **SOUNDWERKS STUDIOS; also REMOTE RECORDING; 1965 Pandora Street; Vancouver, B.C., V5L 5B2 Canada; (604) 255-3536; FAX: (604) 255-8711. Owner:** Brian Wadsworth. **Manager:** Brian Wadsworth.

[24+] **SRS SOUND RECORDING STUDIOS; also REMOTE RECORDING; 500 Newbold St.; London, Ontario, N6E 1K6 Canada; (519) 686-5060. Owner:** Paul Steen Huis. **Manager:** Geoff Keymer.

[24+] **STARBASE; 2121 Hingston Avenue; Montreal, Quebec, H4N 2V4 Canada; (514) 486-0876. Owner:** Frank Manno & Mahogany Rush. **Manager:** Denyse Bauset

[24+] **STUDIO MULTISONS, INC.; also REMOTE RECORDING; 1208 Beaubien St. E., Rm. 101; Montreal, Quebec, H2S 1T7 Canada; (514) 272-7641; FAX: (514) 272-3191. Owner:** Raymond Du Berger, Jacques Bigras. **Manager:** Raymond Du Berger.

[24+] **STUDIO PLACE ROYALE, INC.; 640 St. Paul W. (6th Floor); Montreal, Quebec, H3C 1L9 Canada; (514) 866-6074. Owner:** S. Brown. **Manager:** S. Brown. **Engineers:** N. Rodrigue, B. Landry, J. Smith, S. Brown, G. Fernandes. **Dimensions:** Room 1: studio 25 x 16, control room 20 x 15. Room 2: studio 25 x 16, control room 14 x 16. Room 3: studio 18 x 20, control room 16 x 20. **Mixing Consoles:** Amek Angela 28 x 24, A&H Syncon 16 x 16, A&H 12 x 2, Soundcraft TS 12. **Audio Recorders:** Otari MTR-90 24-track, Otari MX-70 8-track, (2) Otari MTR-122 2-track CTTC, Otari 5050 4-track, Scully 2802 2-track, Scully 280B full-track, (2) Revox 2-track, Sony/MCI —LISTING CONTINUED ON NEXT PAGE



CANADIAN

STUDIOS

—LISTING CONTINUED FROM PREVIOUS PAGE

JH-110 1" layback, Otari MT55, Dyaxis digital recording 640. **Cassette Recorders/Duplicators:** Akai, Sony. **Synchronization Systems:** Soundmaster CMX, Dyaxis. **Echo, Reverb & Delay Systems:** Lexicon PCM60, Lexicon PCM70, (2) Neve compressor/limiter, Ursa Major Space Station, (4) Kepex audio gate, UREI audio filter set, Orban de-esser, MCS Powertran, (2) dbx compressor, Harmonizer, Aphex, Hardy Preamps. **Other Outboard Equipment:** (3) Technics turntable, (3) Technics CD player. **Microphones:** (2) Neumann U87, (2) Neumann U67, (2) AKG 414EB, Shure SM81, Sennheiser 415, (6) various dynamic. **Monitor Amplifiers:** (2) Bryston 4B, (2) Bryston 2B, (2) QSC, Quad Eight. **Monitor Speakers:** (2) Tannoy HPD 16", (2) Tannoy NFM-8, (2) Tannoy PBM-6.5, (2) Studer 2706, Tannoy LGM. **Musical Instruments:** Roland S-50, Roland Juno-106. **Video Equipment:** JVC 6650 VCR 3/4", (2) JVC 8500 VCR 1/4", (2) JVC monitor, Sony monitor, (3) Hitachi monitor. **Other:** Foley stage, stock music (20,000 cuts), SFX on CD, tape and diskettes, Dyaxis digital recording and editing. **Rates:** \$75 min. w/d recording, \$125 to \$150 video sync.



STUDIO SAINT-CHARLES
Longueuil, Quebec,

[24+] **STUDIO SAINT-CHARLES; 85 Grant St.; Longueuil, Quebec, J4H 3H4 Canada; (514) 674-4927; (514) 526-6043; FAX: (514) 674-6929. Owner: Tele Metropole, Inc. Manager: Yves E. Senecal. Engineers: Pierre Chicoine, Louis Gignac, Diane Leboeuf and outside engineers. **Mixing Consoles:** Trident TSM 32 x 24 modified PSM modules, Soundtracs PC 16 x 16. **Audio Recorders:** Studer A80 MkIII 24-track transformerless, Studer A80-8 MkIII 8-track transformerless, Studer A80RC 2-track 1/2", Studer A80-2 2-track, Studer A810 2-track w/center-track time code, Studer A820 2-track w/center-track time code. **Cassette Recorders/Duplicators:** (4) Nakamichi MR-1. **Noise Reduction Equipment:** (2) Dolby SR and A, (4) Dolby A-361. **Synchronization Systems:** (2) CMX S-600 Triconcept Scimitar (Cass 1) audio editors, (6) TimeLine Lynx. **Echo, Reverb & Delay Systems:** Lexicon 480L (with LARC), Lexicon PCM70 Version 3.01, Lexicon 224, Lexicon PCM42, (2) Lexicon Prime Time 93, AKG ADR-68K, TC Electronic 2290 (32-sec. sampling), Alesis MIDiverb II, Roland DEP-5, Yamaha SPX90II, (2) Yamaha SPX900, (2) Lexicon LXP-1, Lexicon LXP-5. **Other Outboard Equipment:** Rebis RA701 gate, (2) Valley People Dyna-Mite comp/limiter/expander/gate, Orban 516EC de-esser, Orban 622B stereo parametric EQ, (2) dbx 160 comp/limiter, (2) dbx 165 comp/limiter, dbx 166, (4) Scamp F400 expander gate, (4) Scamp S05/S06 dynamic noise filter, (2) Scamp S23 automatic pan, Eventide H910 Harmonizer, Eventide FL201 Instant Flanger and much more. **Microphones:** Neumann, AKG, Crown, Shure, Sennheiser, etc. **Monitor Amplifiers:** Crown DC-300, (16) Quad Eight 303, Quad Eight 405, Quested A900 E. **Monitor Speakers:** Quested 412B, Quested 108, (2) JBL 4310, (2) JBL 4408, (2) Tannoy Lockwood, (2) Yamaha NS-10M, (2) Mission Mk70II and more. **Musical Instruments:** Baldwin SD-109' concert grand, Yamaha KX-88 MIDI master keyboard. **Other MIDI Equipment:** Macintosh SE w/Performer, MIDI Paint and Professional Composer software, Southworth Jam Box/4+, Garfield Master Beat synchronizer, (2) Digital Creations MX-8 MIDI processor. **Video Equipment:** (2) JVC CR600 3/4" VCR, JVC BR6400 1/2" VHS videocassette recorder, Skotek TR80V 80V TC reader/generator, Leitch SPG-120N sync pulse generator. **Other:** (2) Technics SL-1200 CD player, (6) JVC video monitor 8", 12" and (4) 21", (2) dbx 903, (2) dbx 904, (2) dbx 905, (10) Sony MDR-V7 headphones. **Rates:** Studio 1 (8-track) \$100/\$175 interlock. Studio 2 (24-track) \$170/\$225 interlock.**

[24+] **STUDIO TEMPO INC.; 0707 Charlevoix St.; Montreal, Quebec, H3K 2Y1 Canada; (514) 937-9571; FAX: (514) 937-8207. Owner: Yves Lapierre, president. Manager: Carol Alexander. Engineers: Ian Terry, Denis Barsolo, Michel La-**

chance, Francois Arbour, Denis Cadieux, Martin Pratte. **Dimensions:** Room 1: studio 12.3m x 9.2m, control room 7.7m x 6.5m. Room 2: studio 9.8m x 6.1 m, control room 9.8m x 6.7m. **Mixing Consoles:** Amek Q2520 28 x 24, AMR 24-track 44/24/2. **Audio Recorders:** Studer A827 24-track 2-inch, Studer 800 MkIII, 24-track 2-inch, (3) Otari MTR-12 2-track CTC 1/4-inch and 4-track, 1/2-inch and 2-track, Studer A812 2-track 1/4-inch and mono full track, (2) Studer B67 2-track 1/4-inch, Studer PR99 stereo and mono. **Cassette Recorders/Duplicators:** Technics, Yamaha, Nikko, Aiwa, Nakamichi. **Noise Reduction Equipment:** (3) Dolby SR/A 363 2-track, Dolby A M16 16-track. **Synchronization Systems:** (2) CMX CASS I, (3) Adams-Smith Echo, Reverb & Delay Systems: Lexicon 224, Lexicon PCM70, (2) Lexicon PCM42, Lexicon Prime Time, (3) Yamaha SPX90, (2) Yamaha REV7, Roland SDE-2000, Roland SRV-2000, EMT 140, Loft 450, Master-tone, etc. Lexicon 480L, Yamaha REV5, Roland DEP-5, BBE 802, Quadraverb. **Other Outboard Equipment:** dbx 166, dbx 160, UREI, Eventide, Allison Research, Kepex, Allison Research Gain Brain, Aphex Compeller, Drawmer 1960, Valley People compressor, etc. **Microphones:** AKG, Crown, Electro-Voice, Neumann, Sennheiser, Shure, Studer, etc. **Monitor Amplifiers:** Quested, QSC, Quad Eight, Crown. **Monitor Speakers:** Quested, Studer, JBL, Auratone, Westlake, Yamaha. **Musical Instruments:** Yamaha acoustic 7' grand piano, Oberheim DPX, Roland S-330, Roland S-550, MKS 70, MKS 80, MKS 20, MPG 80, PG 800, Korg M, Akai 5950, S1000 MB, Yamaha TX 816/DX7, Roland Octapad/R8. **Other MIDI Equipment:** Complete MIDI setup, patch bays, Macintosh II plus full synthesizer setup. **Video Equipment:** (2) JVC U-matic 3/4" VCR. **Other:** CMX CASS I automation system, (4) TV monitor, sound effects and stock music library (CD format), Audio Kinetics, Reflex G4 automation. **Rates:** 24-track \$195/hr, with interlock \$245/hr, 8-track \$140/hr, with interlock \$190/hr, 2/4-track \$110/hr, with interlock \$160/hr. Editing and/or mixing by computer (CMX Cass I) \$180/hr, with interlock \$230/hr, editing room (2-track) \$90/hr. (all Canadian funds).

[24+] **STUDIO 306; 306 Seaton St.; Toronto, Ontario, M5A 2T7 Canada; (416) 968-2306; FAX: (416) 968-3219. Owner: Brian Mitchell. Manager: Anne Barrett. Engineers: Bob Corban, Mark Stafford, Dan Kuntz. **Dimensions:** Room 1: 45 x 22, control room 23 x 18. Room 2: studio 15 x 18, control room 21 x 19. **Mixing Consoles:** Neve VPR 96-input console, with Total Recall and Flying Faders automation, Westar 8000 64-input with Compumix automation, Mitsubishi 32-track digital. **Audio Recorders:** (2) Studer A820 24-track with Dolby SR, (2) Studer A820 2-track with center-track time code, (2) Studer A810 2-track with center-track time code. **Cassette Recorders/Duplicators:** (4) Tascam 122. **Noise Reduction Equipment:** (5) Dolby A. **Synchronization Systems:** (2) Adams-Smith 2600, (4) machine lock system with compact controller, Echo, Reverb & Delay Systems: EMT 140 stereo plates, AKG BX-20 stereo reverb, Yamaha REV7 digital reverb, Yamaha SPX90II digital reverb, Roland DEPS digital effects processor, DeltaLab Super Time Line, Marshall Time Modulator, Lexicon Prime Time digital delay. **Other Outboard Equipment:** Aphex Compeller, Aphex Aural Exciter, EXR stereo Exciter, Orban 526A dynamic sibilance controller, (3) ADR E769X-R Vocal Stresser, Eventide H910 Harmonizer, (3) Pultec MEQ-5 midrange equalizer, (4) Pultec EQP-1A3 equalizer, Pultec EQH-2 equalizer, Pultec EQP-1A equalizer, Klark-Teknik DN360 stereo graphic equalizer, (2) Rane 27-band graphic equalizer, (2) Orban 572A graphic equalizer, (4) UREI LA-3A leveling amp, (4) UREI 1176LN limiting amp, Valley People 610 stereo compander, (2) API 525 compressor/limiter, (4) Neve 2254A compressor/limiter, Symetrix SG-200 dual noise gate. **Microphones:** (8) Neumann U87, (3) Neumann U67, (2) Neumann U47, (2) Neumann KM84, Neumann SM69 stereo, (5) AKG 414, (2) AKG 451, (2) Sony C-37, (3) Sennheiser 441, (4) Sennheiser 421, (2) Electro-Voice RE20, (3) AKG D-20, AKG D-12, (2) Schoeps SM5, (6) Shure SM55 (5) Shure SM57. **Monitor Amplifiers:** (2) Bryston 4B stereo, (2) Bryston 3B stereo, Bryston 2B stereo, (3) Crown 300 stereo. **Monitor Speakers:** (4) state-of-the-art CF-750, (2) Yamaha NS-10M, (2) Auratone Super Sound Cube. **Musical Instruments:** Steinway 7.5' grand piano, Hammond B-3 organ w/Leslie. **Video Equipment:** (2) JVC 6650 3/4" recorder, JVC 8200 3/4" recorder, (3) Sony PCM-2530 color monitor.**

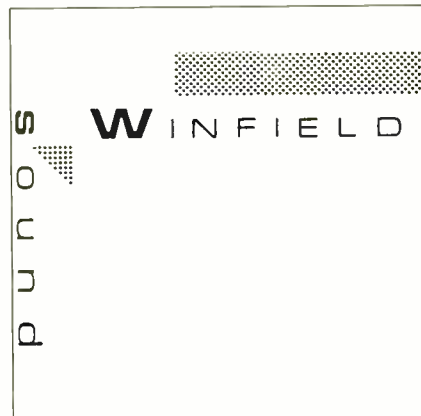
[24+] **TURTLE MOBILE RECORDING LTD.; only REMOTE RECORDING; 316 E. 1st Ave.; Vancouver, BC, V5T 1A9 Canada; (604) 872-3447; FAX: (604) 872-1296. Owner: Larry Anschell, Dave Trgovcic. Manager: Larry Anschell.**

[24+] **VANCOUVER STUDIOS; 3955 Graveley Street; Burnaby, B.C., V5C 3T4 Canada; (604) 291-0978; FAX: (604) 291-6909. Manager: Bruce Levens. Engineers: Marc Ramaer, Steve Royea. Outside engineers welcome. **Dimensions:** Room 1: studio 40 x 40. Room 2: studio 28 x 34, control room 21 x 22. Room 3: studio 13 x 24, control room 18 x 24. **Mixing Consoles:** SSL 4056 G Series, MCI 528. **Audio Recorders:** MTR-100 24-track, MX80 24-track, Sony DAT, MTR-12 1/4-inch 2-track, MTR-12 1/2-inch 2-track, Panasonic DAT, MX-55 1/4-inch center-track. **Cassette Recorders/Duplicators:** Nakamichi cassette players. **Noise Reduction Equipment:** Dolby SR/Dolby A. **Synchronization Systems:** TimeLine Lynx with KCU synchronizers. **Echo, Reverb & Delay Systems:** 480L, AMS, PCM 70/PCM 42, 2 x TC-2290, (2) Eventide H3000, DRV-1000, Yamaha SPX90. **Other Outboard Equipment:** Tube-Tech EQ, TC EQ, Allison Gain Brain, Apex I gates, GML EQ, Drawmer gates, Aphex gates, Aphex Exciter, 160X**

limiters, 1176 limiters, 166X limiters. **Microphones:** Neumann, AKG, Sennheiser, Shure, Calrec. **Monitor Amplifiers:** UREI, Crown. **Monitor Speakers:** UREI B13C, Tannoy ESM, NS-10, Auratone. **Musical Instruments:** Synclavier 3200 32 meg/optional. **Video Equipment:** (2) SSL Screensounds, Foley Pits. **Other:** Large screen TV, audio post edit suites.

[24+] **W.A.M.I. SOUND; also REMOTE RECORDING; 70 Silver Star Blvd. Unit 125; Scarborough, Ontario, M1V 4W2 Canada; (416) 321-3986. Owner: Words and Music International. Manager: Randy O'Brien.**

[24+] **WEST 11TH AUDIO; also REMOTE RECORDING; 306-822 11th Ave. SW; Calgary, Alberta, T2R 0E5 Canada; (403) 265-0258; FAX: (403) 265-4012. Owner: Lanny Williamson. Manager: Chris McIntosh.**



THE WINFIELD
SOUND CORPORATION
Toronto, Ontario,

[24+] **THE WINFIELD SOUND CORPORATION; also REMOTE RECORDING; 189 Church Street; Toronto, Ontario, M5B 1Y7 Canada; (416) 363-3472 (DISC); FAX: (416) 363-3907. Owner: Aubrey Winfield, Nick DeSante. Manager: Mari Winfield. Engineers: Aubrey Winfield, Bob Bartolucci, Dave Antonacci. **Mixing Consoles:** 4040 E/G SSL. **Audio Recorders:** Studer A827 24-track, Studer A807 2-track 1/4-inch, Studer A807 4-track 1/2-inch, Sony DAT, Sony PCM 701ES. **Cassette Recorders/Duplicators:** Various. **Noise Reduction Equipment:** Dolby SR. **Synchronization Systems:** Adams-Smith Echo, Reverb & Delay Systems: Lexicon 480L LARC, Lexicon PCM60, (2) Lexicon LXP-1, Lexicon LXP-5, Yamaha REV7, Eventide H3000 Ultra Harmonizer, Lexicon PCM42, Korg SDD 3000. **Other Outboard Equipment:** Telatronix LA-2A tube compressor/limiter, (8) Neve 1073 preamp equalizer, (2) API 550 equalizer, (2) API compressor, (2) Tube-Tech PE1B tube equalizer, (2) Tube-Tech CL1A tube compressor, (2) dbx 160X compressor/limiter, (2) dbx 166 comp/gate, (2) Ashly Audio SC33 noise gate, Drawmer noise gate, Symetrix noise gate, Loft noise gate, BBE 802. **Microphones:** Neuman, E-V, AKG, Calrec, Crown, SASS, Milab, B&K, Shure, Sony. **Monitor Amplifiers:** Quested. **Monitor Speakers:** Quested Q212B, Yamaha NS-10M, Tannoy NFM88, Tannoy PBM-6.5. **Video Equipment:** Various. **Rates:** Call for rates. **Specialization & Credits:** Winfield Sound, operating in the same complex as Motion Picture Video Corporation, is a full-service facility. The studio features an RFZ control room, and multilevel studio proper designed by Plichner Associates. The control room incorporates a diffractal rear wall designed by RPG Diffuser Systems. Exclusive features include an APACS (automated parametric acoustic control system) where the reverberant field in the studio is enhanced electronically, as well as the ceiling angle and height being physically variable, all controlled by a computer. The control room features an SSL 4040E console and Studer tape machines, plus a full array of signal processing equipment, MIDI equipment and microphones. Tielines link the facility to video editing suites of all formats in the building enabling full audio/video/interlock.**

16 TRACK

[16] **ART-TEC PRODUCTION AND RECORDING STUDIOS; also REMOTE RECORDING; 323 Talbot St.; St. Thomas, Ontario, N5P 1B5 Canada; (519) 633-9549; FAX: (519) 633-9549. Owner: Kevin Taylor. Manager: Michelle Butler.**

[16] **BROCK SOUND POST AUDIO; 576 Manning Ave.; Toronto, Ontario, M6G 2V9 Canada; (416) 534-7464; FAX: (416) 538-2563. Owner: Brock Fricker. Manager: Phil Strong. Engineers: Brock Fricker, Craig Tothill, David Balan. **Dimensions:** Studio 14 x 4, control room 14 x 12. **Mixing Consoles:** Trident Trimix 16 x 8 x 2 w/computerized mixdown. **Audio Recorders:** (2) Studer A80 16-track 2", Studer A80-LB 1" video layback, Sony APR-5003 2-track w/center track SMPTE and sync, Otari MX-5050 MkIII 4-track 1/2", Sony PCM-F1 digital**

audio encoder w/Sony SL-2000 Beta VCR, TEAC A-3440 4-track 1/4" (for A.V.). **Cassette Recorders/Duplicators:** Studer A721 w/SMPTE-controlled play and pause. **Noise Reduction Equipment:** Dolby SR 18 channels, Dolby A 18 channels. **Synchronization Systems:** (4) Soundmaster system w/Synchro, Evertz TCG-10 SMPTE reader/regenerator, Sony 5003 internal synchronizer. **Echo, Reverb & Delay Systems:** (3) Lexicon LXP-1 digital reverb and effects w/MRC editor, Yamaha SPX90 and other digital reverb/effects units, Roland SDE-3000 digital delay, BBE 882 dynamics processor, Aphex Studio Dominator limiter, Aphex Compellor compressor, Aphex Aural Exciter, outboard EQ de-esser filters. (2) Lexicon LXP-5 digital effects units, etc. **Other Outboard Equipment:** Studer A730 CD player w/SMPTE controlled play and pause. **Microphones:** Neumann U87, AKG C-414, etc. **Monitor Amplifiers:** Crown, HH Electronic MOSFET w/Crown VFX-2 electronic crossover. **Monitor Speakers:** Tannoy SRM-12B studio, bi-amped subwoofer system, Auratone reference and others. **Musical Instruments:** Kurzweil 250 with all four sound blocks, Emulator II+ sampler w/hard disk, Emulator Proteus, Korg M1 16-bit synth w/ROM cards, (3) Prophet-3000, (2) Roland S-550, (3) Roland D-550, Roland MKS-20, Roland D-110, Roland MKS-80 Super Jupiter, (2) Roland MKS-30, (4) Roland MKS-7, Roland R-8 16-bit drum synth, Roland DDR-30, Roland TR-707, Roland TR-727, Roland TR-808, Akai XE8 16-bit w/ROM cards, Simmons SDS-9 digital drum set, (8) Yamaha DX7, Prophet-5, PPG Wave 2.2 digital/analog synth, Elka MK88 MIDI-controlled keyboard, 30,000 synth patches and sound samples. **Other MIDI Equipment:** Opcode Studio Plus interface and SMPTE time code machine (Mac), Steinberg SMP-24 SMPTE MIDI sync box (IBM, Mac or Atari), Roland SBX-80 SMPTE sync (IBM), C-Lab Unitor SMPTE/MIDI sync box (Atari). **Video Equipment:** Sony BVW-75 Betacam SP dynamic tracking VCR, Sony VO-5850 and VO-5800 U-matic 3/4" VCRs, Beta Hi-Fi and VHS VCRs. **Other:** (14) complete sound effects libraries with database and SMPTE lay-up, (3) Mac Plus, (3) IBM PC XT with 20MB hard drive, Atari 1040ST. **Rates:** Voice-over recording (non-tape) \$70 per hour. Multitrack tapelock-to-video \$110 per hour. Layback to Betacam SP or 1" video \$110 per hour.

[16] **BULLFROG RECORDING STUDIOS;** also REMOTE RECORDING; 2475 Dunbar St.; Vancouver, BC, V6R 3N2 Canada; (604) 734-4617. Owner: Bullfrog Recording Company Ltd. Manager: Maggie Scherf. Engineers: Alan Rempel, Bart Gurr, Gerry Gagnon, Ian Tarasoff, Gord Booth. Dimensions: Main studio 17 x 20, isolation booth 10 x 12, MIDI stu-

dio 12 x 20, control room 13 x 16. **Mixing Consoles:** Soundcraft 1624 16 x 16 x 2. **Audio Recorders:** Ampex MM-1100 16-track 2", (2) Otari MX-5050 8 track 1/2", (2) Sony ATR-5003 2-track, Otari MX-5050 2-track, TEAC 25-5 2-track, (2) Sony PCM-F1 2-track, Tascam DA-30 R-DAT. **Echo, Reverb & Delay Systems:** Roland R-880 digital reverb, (2) Roland SRV-2000 digital reverb, AKG BX10 (modified), Lexicon Prime Time, Roland SDE-2500 digital delay, (2) Yamaha SPX90. **Other Outboard Equipment:** Roland Compu-Editor w/30 channels of automated, level control, Audio & Design Recording Scamp system, UREI 1176 limiters, dbx 160 compressors, Orange County EQs, comp/limiters, Vocal Stresser/de-esser, Nova Systems Aural Exciter, Omni-Q TL2 tape lock system, for time code synchronization, Roland SBX-80 MIDI/SMPTE sync box. **Microphones:** Neumann U87, AKG C-34 stereo, Sennheiser 421, Sennheiser 441, AKG 414, Sony C-37, Shure, Fostex, E-V. **Monitor Amplifiers:** Phase Linear/Quad tri-amplication, w/Crown crossovers. **Monitor Speakers:** JBL custom-designed 4 way, Tannoy NFM-8, Yamaha NS-10, E-V Sentry 100, Auratone. **Musical Instruments:** Yamaha grand piano, Roland HP-400 electric piano, Fender Rhodes, Hammond M-3, Pearl drums. **Rates:** From \$35 to \$60/hr. Discounts available for block bookings.

[16] **THE DEMO FACTORY;** also REMOTE RECORDING; 127 Manville Rd., Unit #9; Ontario, M1L 4J7 Canada; (416) 288-9967. Owner: Sean Munavish. Manager: Sonny Smith.

[16] **EXPERIMENT IV RECORDING STUDIOS;** 133 Lawson Road; Scarborough, Ontario, M1C 2J3 Canada; (416) 284-3794. Manager: Edward Agabeg.

[16] **MARGAREE SOUND;** also REMOTE RECORDING; 225 The Lake Driveway West; Ajax, Ontario, L1S 5A3 Canada; (416) 683-5680. Owner: Russell Daigle. Manager: Russell Daigle. Engineers: Russell Daigle, Cliff Daigle, Murray Daigle. Dimensions: Room 1: studio 12 x 14, control 12 x 23. Room 2: studio 14 x 16. **Mixing Consoles:** Tascam M600. **Audio Recorders:** Tascam MSR-16 16-track, Tascam 52 2-track. **Cassette Recorders/Duplicators:** Nakamichi MR1, Tascam 122 MkII. **Noise Reduction Equipment:** Tascam DX-2D dbx Type 1, MSR-16 16 track dbx Type 1. **Echo, Reverb & Delay Systems:** (2) Alesis Midiverb II, Alesis Quadverb, Yamaha REV5 reverb, Lexicon PCM60 reverb. **Other Outboard Equipment:** Drawmer DL221 compressor/limiter, Ashly Audio CL52 compressor/limiter, Paranaomics CGM-2 compressor Dynex, dbx 1531P graphic equalizer, Paranaomics CGM-2

compressor Dynex, dbx 1531P graphic equalizer, Yamaha Q2031A graphic equalizer. **Microphones:** Electro-Voice PL20, Shure SM58, Shure SM57, AKG C-35 EB, AKG C-1000S, AKG 414, AKG D-112, Sennheiser MD441, AMR ERC-12. **Monitor Amplifiers:** Yamaha 2150C, Peavey CS-400, Tascam MH-40 headphone amp. **Monitor Speakers:** RCF SCD 6000, Yamaha NS-10, Klipsch Heresy. **Musical Instruments:** Yamaha DX7IFD synthesizer, Yamaha TX802 FM tone generator, Yamaha QX5 sequencer, Yamaha RX5 drum machine, Premier Resonator 7 pc drum kit, Martin D28 guitar, Ibanez SDGR bass, Fender stat guitar, Godin LR Baggs guitar, Charuel Mark I guitar, Ibanez George Benson guitar, Baldwin Hamilton studio piano, Fender Reverb II guitar amp, Crate CR-285B bass amp.

[16] **POWERLINES RECORDING FACILITY;** also REMOTE RECORDING; 51 Kingspark Blvd.; Toronto, Ontario, M4J 2B9 Canada; (416) 466-6517. Owner: Fred Duval. Manager: Fred Duval.

[16] **PYRAMID PRODUCTIONS;** 128 Hartzel Rd.; St. Catharines, Ontario, L2P 1N7 Canada; (416) 641-0292; FAX: (416) 641-0292. Owner: Fraser Kaufman. Manager: Paul Rozon.

[16] **SHAG SOUND STUDIO;** also REMOTE RECORDING; PO Box 518, Postal Station W; Toronto, Ontario, M6M 5C2 Canada; (416) 652-5485. Owner: Dennis Brunet. Manager:

8 TRACK

[8] **AIRBOURNE AUDIO;** also REMOTE RECORDING; 50 Abbeywood Cres.; Bowmanville, Ontario, L1E 1N8 Canada; (416) 436-0771. Owner: Mel Kay. Manager: Mel Kay.

[8] **CCMC MUSIC GALLERY;** also REMOTE RECORDING; 1087 Queen St. W.; Toronto, Ontario, M6H 1J3 Canada; (416) 534-6311. Manager: Paul Hodge.

[8] **COW & HEN PRODUCTIONS;** also REMOTE RECORDING; 439 King St. E. #5; Toronto, Ontario, M5A 1L5 Canada; (416) 364-9813. Owner: E. Hutchison, P. Strong. Manager: Eddy Baltimore.



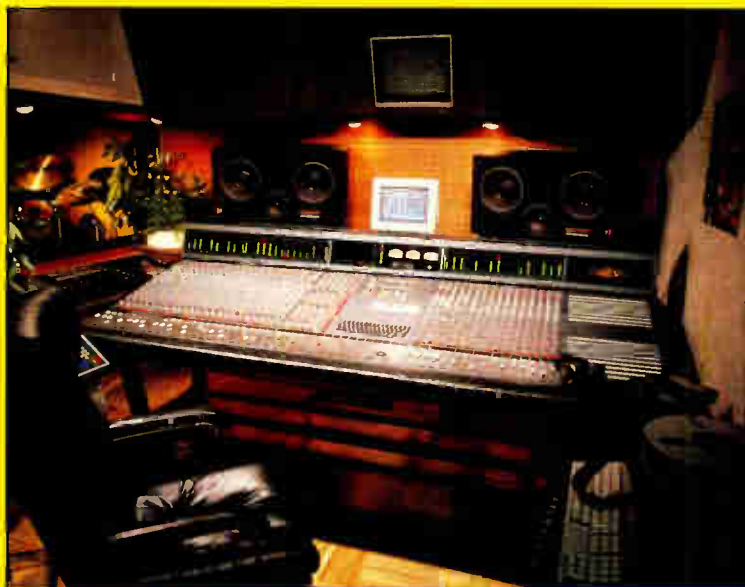
18

CONSOLES

*for
Around
\$100,000*



We live in a pretty strange world. Things change; we get older; life goes on. At one point in the not-too-distant past, you could outfit a really nice 24-track room with \$100,000 worth of equipment. These days, that \$100,000 buys a console in the middle—not too low and not too high—price range and there



is a good selection of mixing boards on the market to fill this niche. And with the specter of uncertain economic times looming ahead, recording products catering to this vast middle market may do quite well.

With that in mind, we

Three typical consoles in the middle price range are the Neotek Elite (left), Otari Series 54 (right, a moving fader automated version installed at Advantage Audio in Burbank, Calif.) and an Amek Mozart (above, shown at Criss Tonstudio, Elchingen, Germany).

decided to take a look at what's available in mixing consoles carrying a price tag in the range of \$100,000 (or so), not including any automation system. The basic requirements in the boards featured here are the ability to handle basic 24-track production duties and have a minimum of 32 input modules. With consoles of this complexity, the name of the game is options, and most of the products described here can be custom-configured with various modules, metering and automation packages to suit the needs of just about any facility. Another option is the possibility of ordering a "short-loaded" board in a longer frame size



by George Petersen



METROPOLIS

Metropolis is one of the most prestigious recording studios ever designed. And within it, you'll find the ultimate in audio equipment.

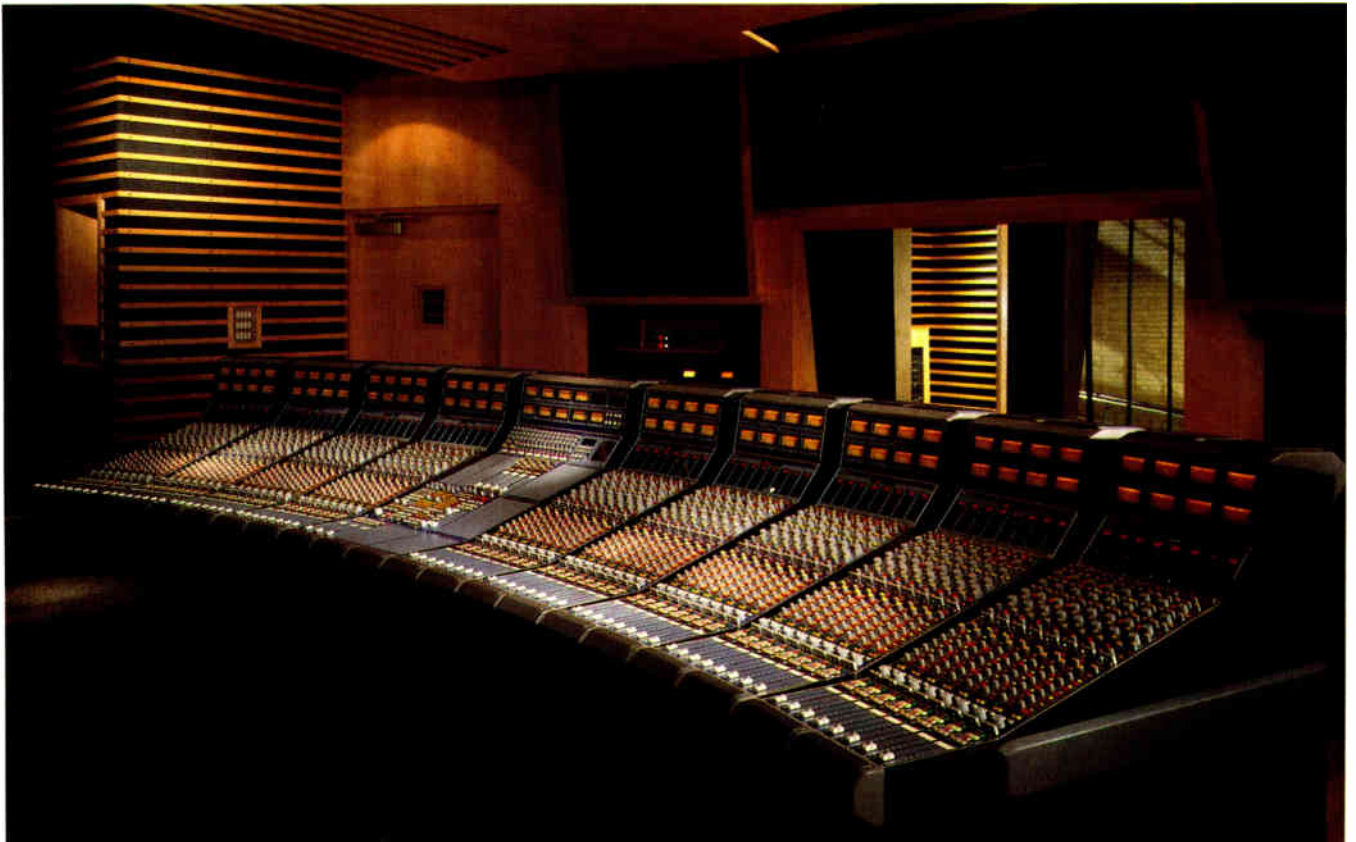
The new Focusrite studio console.

It embodies Focusrite's commitment to the highest standards of sonic purity.

When compared with the approach taken by Metropolis, it becomes apparent that they have shared the same vision.

To create the finest recording environment in the world.

An experience we're sure you'd like to share.



No Compromise



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World Radio History

to allow for future expansion.

Since many of the consoles here do not conform with a single standardized method of measuring audio specs, we have omitted this data; however, addresses are provided so you can contact the manufacturers directly for more information.

Amek

Introduced over a year ago, the Amek Mozart is available in numerous versions to fit user requirements. Among Mozart's standard features is an onboard grouping computer (with full QWERTY keyboard and trackball controller) that offers master status control over channel switching func-

sweepable 4-band EQ with midrange Q controls, ± 18 dB high/lowpass filters, 16 aux buses and metering on each input.

Mozart has two principal formats: All-Input, where all input modules are identical and function as mic, line, DI, bus or tape inputs; and In-Line, where inputs use a traditional in-line monitoring approach, but in a dual-mode where each channel accepts two signals simultaneously. Unveiled at last month's AES convention in Los Angeles was a new Mozart input module designed by Rupert Neve. Fully compatible with all existing Mozart consoles and automation systems, it features a high-grade mic preamp, -20dB/

24- or 48-track monitoring.

Angela features include semi-parametric 4-band equalization, Penny & Giles faders (VCA faders optional), six aux sends, in-place solo, and a choice of an onboard or external patch bay. If the latter is selected, the console mainframe has space for 11 additional modules.

Pricing for a long-frame 62x24 Amek Angela with P&G faders is \$85,258; a 36x24 is \$55,459. Numerous options are available, including BBC-type PPM meters, phase metering, and various automation packages: Audio Kinetics MasterMix, Jellinghaus C-Mix and Otari/Digital Creations Diskmix and ARMS II.

Amek/TAC U.S., 10815 Burbank Blvd., North Hollywood, CA 91601; (818) 508-9788.

API

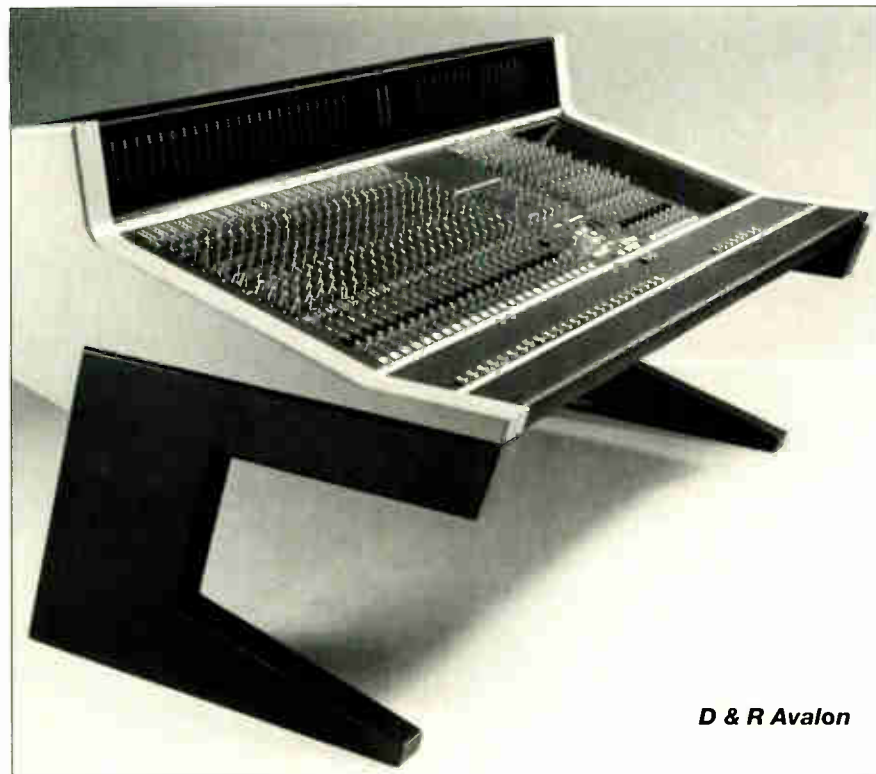
With all the talk about the API Discrete Series consoles recently installed at Messina Music and in the Remote Recording Services Silver Truck, you might not expect to see API listed in this article. After all, these API 48x48 megaboards come with GML Series 2000 Moving Fader automation as *standard* equipment! However, according to company president Paul Wolff, a non-automated, custom 32-input console could be configured for "about \$100,000," depending on the number of buses and mic preamps required.

On a related note, API has announced plug-in, all-discrete mic preamp and equalizer modules for retrofit into Sony MXP3000 Series consoles. The 550S EQ module is based on the same circuit as API's popular 550B 4-band equalizer and is now available.

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

D&R

Another unveiling at last month's AES show was the Avalon from Netherlands-based manufacturer D&R. Available in three frame sizes (32, 48 or 64 inputs) Avalon is a 32-bus, in-line console design featuring three mute groups, a programmable solo system and an automation-ready, separate fader section. Avalon's standard goodies include internal or external patch bays, phase meter, eight aux sends and 4-band parametric EQ with variable Q on the mid bands. Each EQ band can be switched to operate with either the monitor or channel signals.



D & R Avalon

tions, such as record/mix, bus/tape, EQ in/out, aux sends on/off, mute group switching, etc. Up to 15 switches per input channel can be set up for automated control by the onboard computer. These changes, as well as muting and fader information, can be recorded in real time or edited offline. Up to 99 pages can be stored in battery-backed RAM and reloaded under MIDI or time code control.

Chassis are configured for 40, 56 or 80 inputs, with 32 routing buses, and versions with onboard or external patch bays are available. The standard module complement also has four effects return modules for a total of 12 stereo effects returns, and other standard amenities are in-place solo,

octave HP/LP filters, 4-band EQ with continuously variable Q on all bands, and a bandwidth said to be 200 kHz. Pricing on the Rupert-designed modules is approximately 50% higher than for a standard module.

The Amek Mozart is priced from \$89,941 for a standard 32x32 version. Options include Amek/Steinberg Supertrue VCA automation, GML Moving Fader automation, stereo input modules, phase metering, additional effects returns and expanded patch bay capability.

Amek's Angela is available in three chassis sizes (28, 36 or 51 inputs) and uses a dual-channel, in-line signal path that doubles the available number of inputs. Consoles can be ordered with

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Approximate pricing on the Avalon is \$50,000 for a 32x32 board and about \$95,000 for a 64x32 model. Among the options for the Avalon are higher resolution or analog VU meters, Penny & Giles faders and C-Mix automation.

D&R Electronics, Route 3, Box 184-A, Montgomery, TX 77356; (409) 588-3411.

DDA

Featured on the cover of this month's *Mix*, the DCM232 from DDA is a 32-bus in-line console available in two frame sizes accommodating 40 or 56 channels, each having a dual-signal architecture for up to 80 or 112 inputs on mixdown. Features include: ten aux sends (configured as four mono and three stereo buses), 4-band EQ (with full Q control on the two mid bands) in a split configuration for equalizing the monitor and/or channel path, Mosses & Mitchell patch bay and VCA fader automation.

Integral to the DCM232 is the Central Automation Terminal, which allows the VCA faders and up to 24 of each I/O module's switch functions (such as mutes and EQ in/out) to be controlled from a central panel. CAT consists of a QWERTY keyboard, computer monitor display and a 3.5-inch disk drive, all linked to an internal computer. Snapshots of console switch settings can be saved to disk. The console generates and reads SMPTE, and can interface to MIDI via a SMPTE-to-MIDI converter; further, the DCM has eight relays that can be closed at programmed time events to trigger samplers, sound effects, etc.

Pricing on a DCM232 in a 32x32 configuration (in a 40-channel frame) is \$110,200, including VCA faders. The console is also available as the DCM224V, a 24-bus version designed for video/post-production applications. Options include fluorescent bar graph or PPM metering, mic transformers and moving fader automation.

DDA's AMR24 is a 24-bus console (also available in a 36x32 version) with a choice of 28, 36 or 44 inputs in two frame sizes. The board uses a split console design; however, the output modules incorporate full EQ mute and aux facilities, so the board can handle two 24-tracks (or one multitrack and a multichannel MIDI or sampling system). A single switch routes the "A" multitrack to inputs 1 to 24, while the monitor return section can be switched to handle 24-track "A" or "B." Similarly, a single master control switches all the

Circle #104 on Reader Service Card

input modules from mic to line inputs to reconfigure the console for tracking or mixdown.

Among the AMR24's features are 4-band EQ (with switchable Q on the two mid bands), eight aux buses (two stereo pairs and four mono sends), Penny & Giles faders, integral patch bay (with metal TT jacks), 28 VU meters and separate fader panels to simplify automation system retrofitting. The DDA AMR24 is priced from \$64,365 (28x24); a 44x24 version is \$80,315, and the floorstand is standard on all models. Options include mic transformers, PPM meters and expanded patch bay capability.

DDA is distributed by Klark-Teknik Electronics, 200 Sea Lane, Farmingdale, NY 11735; (516) 249-3660.

Euphonix

The Euphonix Crescendo is a digitally controlled analog console offering SMPTE-based automation of all mixer functions, such as faders, mutes, EQ, mic preamps and signal routing (even headphone and talkback levels). An entire console setup can be recalled in less than 30 milliseconds, and snapshots and automation data are stored to high-speed RAM and archived to disk.



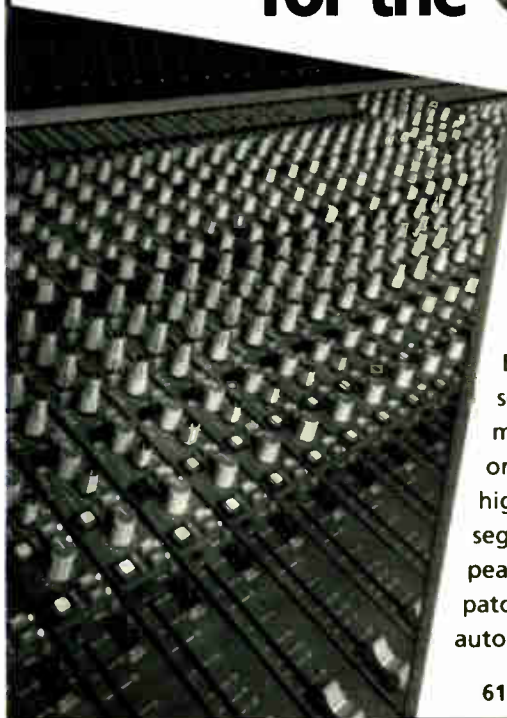
Euphonix Crescendo

The system consists of a compact controller (56 faders, 56 mic inputs and 112 line inputs could be accessed in a space of under 4.5 feet wide) that

connects to all the audio modules in a mainframe rack, which can be located up to 50 feet away.

Each of Crescendo's input modules

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provides two LED bar graph meters with switchable VU or peak characteristics, two mic preamps, upper and lower 100mm faders, four aux sends (assignable to eight aux buses), and two programmable 4-band equalizers. The latter can be linked for stereo or used for two different mono sources, and include high- and low-shelving bands, with two fully parametric center bands with continuously adjustable Q. Equalization curves are displayed on a high-resolution video color monitor, and favorite EQ settings can be stored and immediately recalled.

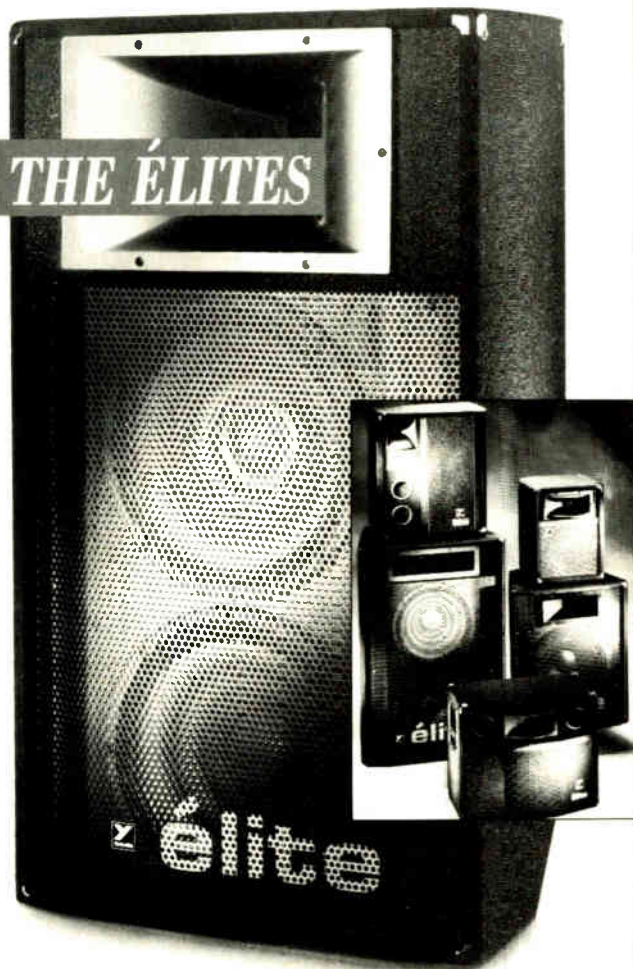
The Euphonix Crescendo may be configured for 48 to 112 inputs with 16



Harrison MR-20

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or 24 multitrack buses. A 4824 (48 fader/24 bus) board is \$80,000; a 5624 version is \$95,000, and all prices include the mix controller (with stand), audio mainframe, patch bay and support computer.

Euphonix Inc., 441 Page Mill Rd., Palo Alto, CA 94306; (415) 325-5003.

Harrison/GLW

The in-line Harrison MR-20 is available in standard frame sizes with 28 to 56 input modules with 48 multitrack assignments (24 buses with a "transfer" function that offers access to multitrack channels 1 to 24 or 25 to 48 at the touch of a button). Optional expander units with 8-, 16- or 24-channel capacity provide for system expansion beyond the initial maximum mainframe.

The MR-20 features include 4-band EQ (with continuously variable Q and peak/shelf switching on the LF/HF bands), eight aux sends, high- and lowpass filters, Penny & Giles faders driving a VCA section with VCA grouping, and compatibility with a variety of automation systems. The MR-20 boards are priced in the \$80,000 to \$140,000 range, and among the available options are high-resolution, 36-segment LED (switchable VU/PPM), plasma PPM or moving coil meters, and numerous patch bay and producer's desk configurations.

Harrison's MR-4 is a series of 24-bus, in-line consoles available in two frame sizes (studio and compact—the latter designed for installations where space is tight, such as remote trucks), with the larger studio profile frames accommodating 36, 48 or 60 input modules. Both moving coil or 40-segment LED bar graph metering are available, and a modular TT patch bay is standard. The MR-4's input modules offer four aux sends, stereo cue send, 3-band EQ

Don Was Is

Hot!

Producer of the Grammy Award-winning "Album of the Year" *Nick of Time* by Bonnie Raitt, the comeback album *Cosmic Thing* by the B-52's, as well as Iggy Pop's new album *Brick by Brick*, Don also collaborated on the critically acclaimed Was (Not Was) album *What Up, Dog?* and the hit single "Walk the Dinosaur."

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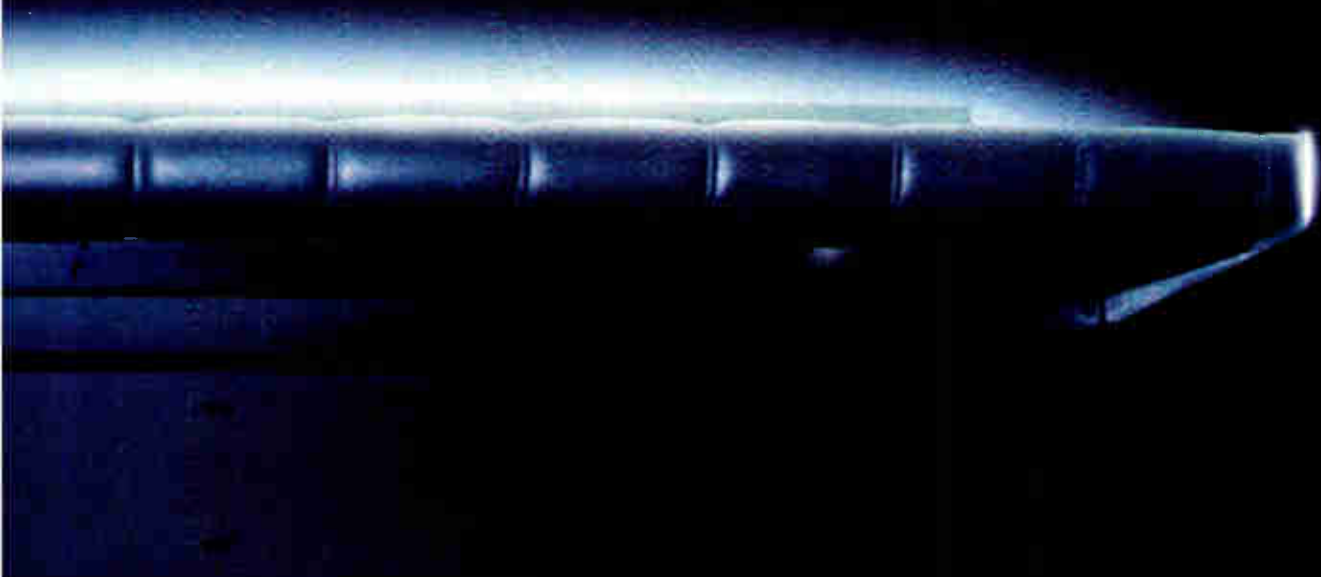
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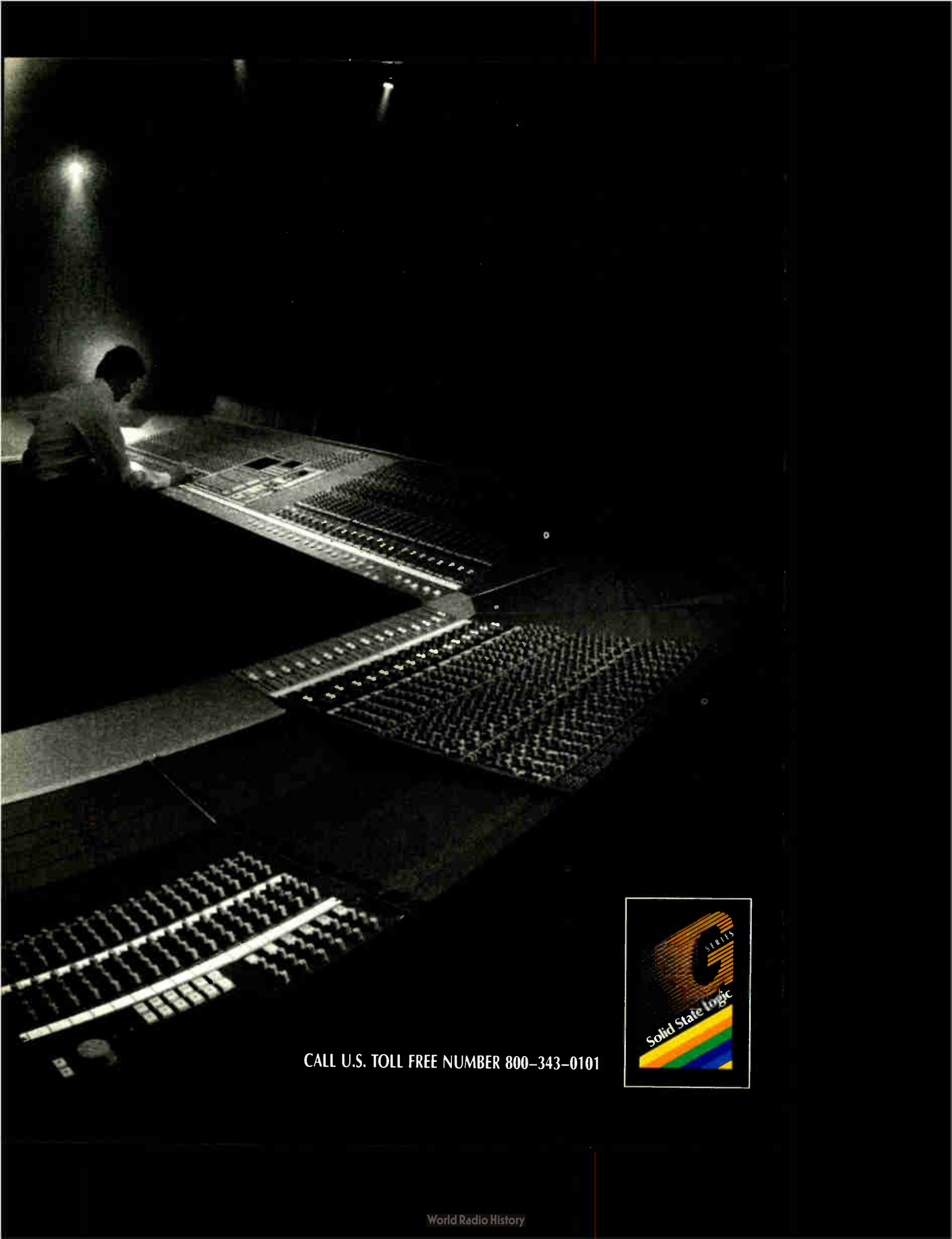
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(with peak/shelf select on the HF/LF bands and two Q settings on the MF control), and sweepable highpass filter. Individual bypass switches are provided on each of the EQ and filter bands.

Each of the MR-4 modules implements a VCA fader using Valley International's TA-101 gain cell and a voltage-generating fader unit that can be interfaced to a number of automation systems. Pricing for the Harrison MR-4 ranges from \$65,000 to \$115,000 depending on frame size, inputs and options, such as stereo line input modules. The console is also available as the SR-4, a film scoring/re-recording version with cinema pan buses and specialized monitoring facilities, in single or multi-operator configurations.

Harrison by GLW, GLW Inc., 437 Atlas Drive, Nashville, TN 37211; (615) 331-8800.

Neotek

The Neotek Elite is a 26-bus console available in several frame sizes to accommodate 28 to 84 input modules. The board uses neither a split nor an in-line monitoring I/O approach. Each input module is based on two separate audio paths, which can be operated with a single signal split within the two, or used for monitoring applications or to double the input capacity. The audio pathway uses transformerless, hybrid circuitry combining transistors and IC amplifiers, and the master fader buffer is servoed Class-A, all-discrete.

Elite's features include: 4-band equalization with the HF band switchable to shelf or peak, highpass filter, master group muting, 28 40-segment high-resolution bar graph meters, patch bay and six aux sends (two as a stereo pair). The architecture of the input modules allows the multitrack buses to be used as additional effects buses in mixdown, for a total of 32 mono or 16 stereo effects buses. The mute logic system can be accessed externally for control via SMPTE or MIDI data.

A 32-input Elite is priced at \$56,650; a 56-input system is \$88,500; a 64-input console is \$97,400. Options include stereo input modules, phase meter, Penny & Giles faders and two producer's desks.

Neotek Corp., 1154 West Belmont Ave., Chicago, IL 60657; (312) 929-6699.

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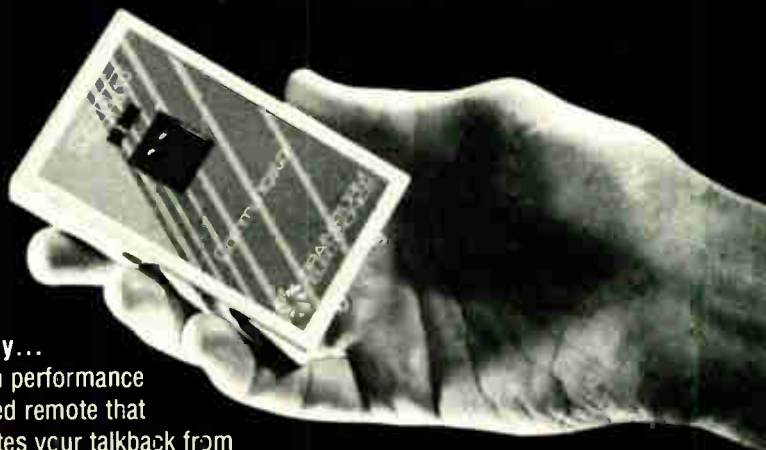
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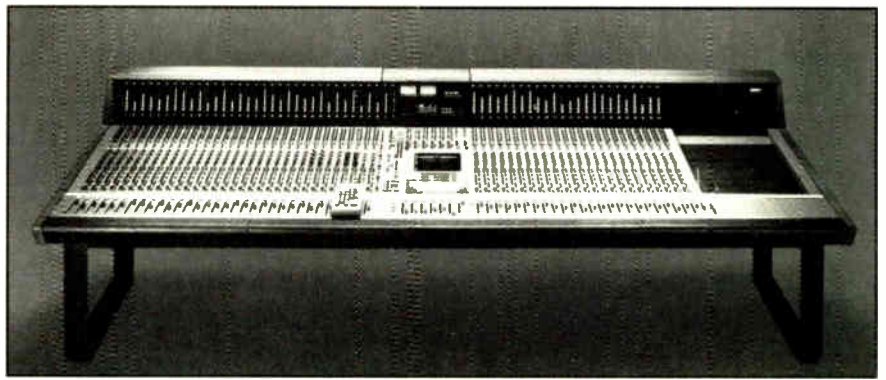
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TB-4 Communicator

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Products Group is a 24-bus console available in configurations of 24 to 60 dual-path input modules. Automation can be integrated into both pathways, so a 36-input board offers 72 channels of fader and mute automation. The 54's 4-band EQ can also act as two 2-band equalizers, and either or both sides of the EQ could be inserted into either the channel or aux input pathway. The equalizer low- and high-mid bands have a choice of three Q settings, and an independent lowcut filter is provided for each path.

Other features include ten aux sends, two mute group buses, three solo modes (PFL, stereo AFL and in-



Sony MXP-3000

place), Penny & Giles faders and high-resolution LED metering. Pricing for a

32x24 version (model 54-32/24-HRM) begins at \$67,900; the 54-46/40-HRM is \$98,200. Among the available options are 32 buses, 4-way divergent (LCRS) panning for film applications, and Diskmix 3 Moving Faders or VCA automation.

Otari Corp., 378 Vintage Park Drive, Foster City, CA 94404; (415) 341-5900.

Sony Professional Audio

Sony's MXP-3000 Series of 24-bus in-line consoles is available in 36- or 56-module mainframes. The I/O modules offer a choice of five interchangeable channel inputs (single- and dual-transformer or transformerless mic preamps and a line input module), as well as five equalizers (4-band fixed Q, 4-band switchable Q, 4-band variable Q, 10-band graphic and 4-band LC). In addition, aftermarket suppliers—such as The John Hardy Company and API—offer mic preamp and/or EQ modules to fit the 3000 Series.

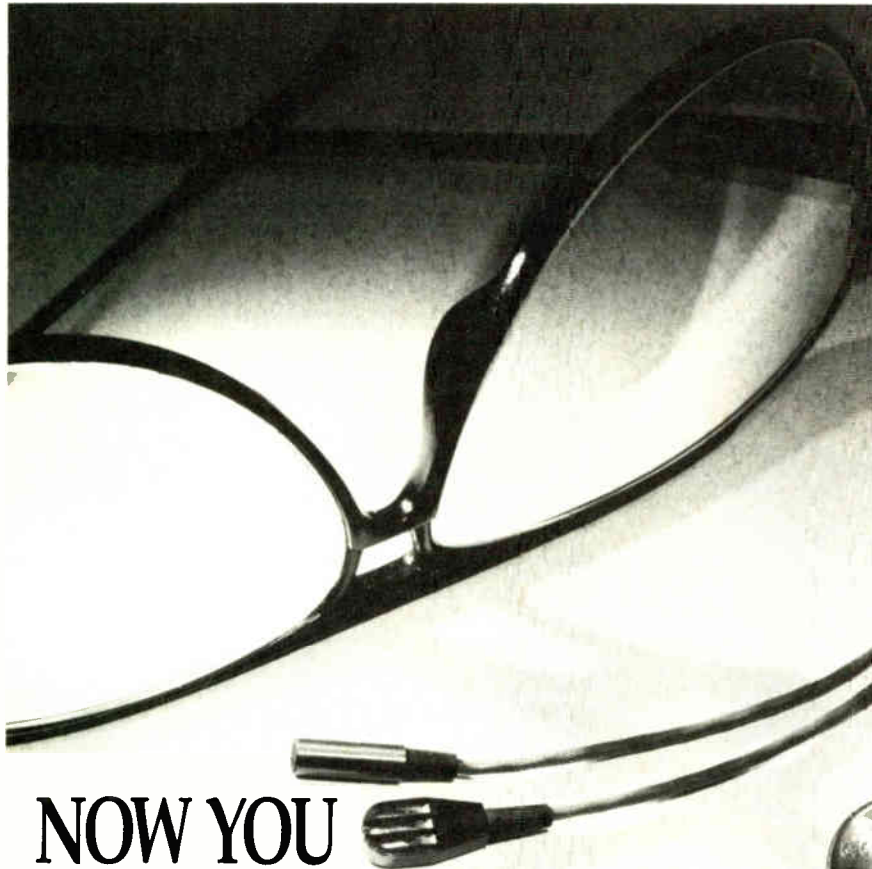
Mainframes can be ordered with mechanical VU, PPM or 101-segment vacuum fluorescent (VF) metering. A bantam TT patch bay is standard, as are six aux sends (two mono pairs and a stereo pair). The longer MXP-3056 frame includes an X-Y phase display, while the MXP-3000 uses a mechanical phase meter.

Pricing on a typical MXP-3036 with 36 I/O modules and VF metering is \$86,260. Numerous options are available, including time code-based automation, stereo input modules, a producer's desk and the above-mentioned EQ and preamp input modules.

Sony Professional Audio, 1600 Queen Anne Road, Teaneck, NJ 07666; (201) 833-5745.

Quad Eight Electronics

Now known as the Quad Eight Virtuoso, this console was known as the Westar when it was manufactured by Quad Eight/Westrex (Mitsubishi Pro



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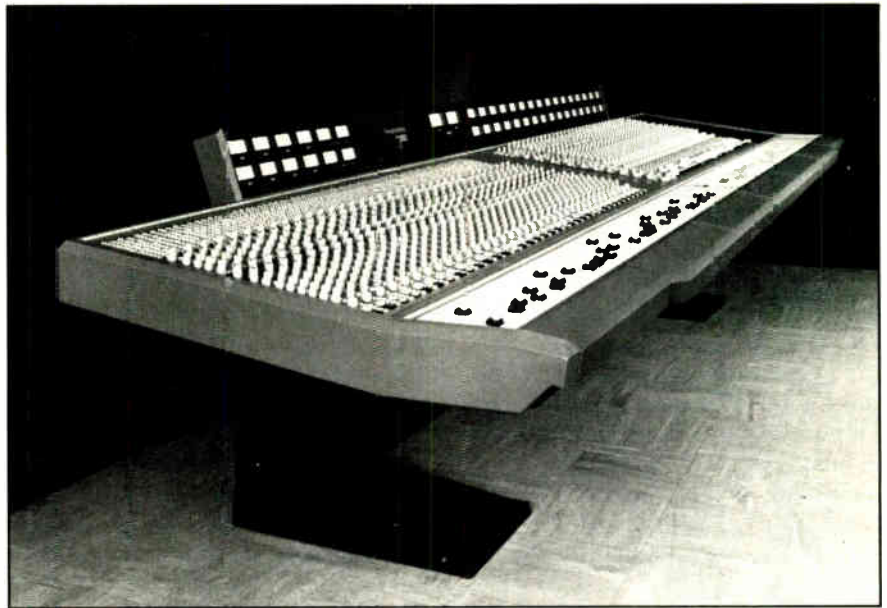
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Audio Group). The Virtuoso is a dual in-line design with 24 mixing buses, eight (two stereo and four mono) aux sends, and is available in frame sizes handling from 20 to 68 I/O channel modules. The mainframe uses a modular design, allowing field expandability/reconfiguring within a single day.

Virtuoso I/O modules can be fitted with a choice of five interchangeable equalizers: 10-band graphic, 4-band frequency-selectable (four frequency choices on each band), 3-band precision EQ (fixed Q, 11 frequency detents on each band), 4-band fully parametric (with continuously variable Q on each band) and automated 4-band parametric. Four fader types (standard audio, VCA with group masters, Compumix automation and micro-processor-based Intelligent Digital Faders) are available. Standard amenities include 60-segment LED bar graph meters, integral TT patch bay and interchangeable mic preamps.

The Quad Eight Virtuoso is priced at \$96,000 for a 36 I/O version. Besides various preamp and EQ selections, options include limiter/compressor/expander/gate modules,



Soundcraft 3200

several automation choices and a producer's desk.

Quad Eight Electronics, 27771 Avenue Hopkins, Valencia, CA 91355; (805) 295-1324.

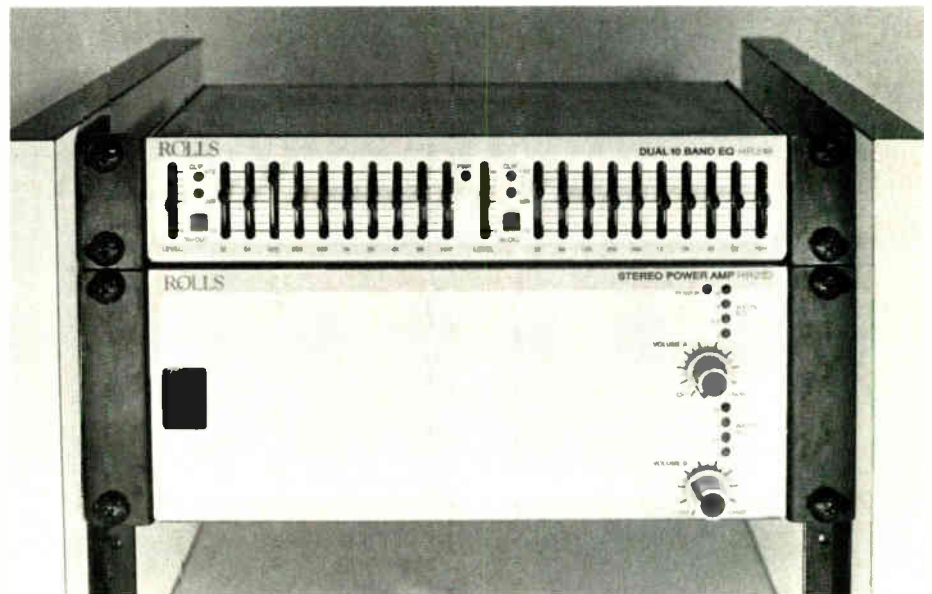
Soundcraft

Unveiled at last year's AES convention

in New York, the Soundcraft 3200 is a split console design offering 32-track busing with direct access to 64 tracks on tape. A maximum of 100 fader-controlled line inputs are available for mixdown, and up to 20 aux sends can be accessed by a RTG (routing) mode that enables buses 25 to 32 to be used as aux sends when they are not employed as multitrack buses.

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Telephone 801-562-5628, Fax 801-562-5655

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Some of the 3200's other features are a full-range, padless mic preamp, 12 independent aux sends (two stereo, eight mono), noise gates on each input module (with threshold, depth, attack and decay controls and external keying) and 4-band sweepable EQ with fully parametric (variable Q) mid bands. The board uses a patented active panpot system said to provide 90 dB of L/R separation and provide panning operation that closely follows theoretical sine/cosine characteristics. There are 46 VU meters to monitor the buses, auxes and stereo outs, while a phase display watches L/R correlation.

The Soundcraft Model 3200 is

priced from \$79,750 for a 32x32 console with 24 monitors; a 36x32 with 32-track monitoring is \$99,750. The 3200's separate fader panels allow the retrofit of a variety of automation systems.

Soundcraft, 8500 Balboa Blvd., Northridge, CA 91329; (818) 893-4351.

Soundtracs

As its name implies, the In Line series from Soundtracs offers in-line consoles with 36 or 48 inputs. An onboard Switchcraft TT patch bay and 40-segment LED metering of the 32-track buses are standard, as are mix masters, PFL and a phase indicator.

The In Line consoles also provide 4-

band EQ (plus 100Hz highpass filter) with shelving HF/LF bands and fully parametric (variable Q) mids. The EQ section can be assigned to or split between either the channel or monitor signal path. Each input module can handle two line inputs or one balanced microphone signal, and eight aux sends (one stereo, six mono) are provided, as are facilities for the pre-programming of two groups of channel mutes.

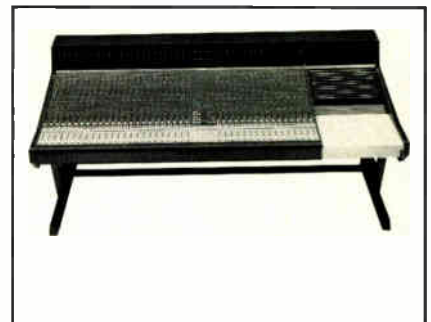
The Soundtracs In Line series is priced from \$63,800 in a 36-input configuration. You can purchase a 48-input version for \$80,800. Among the available options are eight effects returns on two modules and stereo input modules.

Soundtracs, distributed by Samson Technologies, 485-19 South Broadway, Hicksville, NY 11801; (516) 932-3810.

Tascam

Also using an in-line design is Tascam's top-of-the-line M-700. Currently available here in a 40 I/O module version (where each module has two signal paths), this 32-bus console has been shipping 56- and 64-channel models in Japan for some time now, so longer frame M-700s could be a reality in this country sometime soon.

Among the M-700's standard amenities are two stereo and eight aux sends, EQ assign to channel or monitor path, 4-band EQ with continuously variable Q on the two mid bands, ad-



Tascam M-700

justable 30 to 300Hz highpass filter, internal TT patch bay and three group mutes. The metering complement consists of 40 28-segment LED displays (one per module), with mechanical VU meters on the quad output buses.

The Tascam M-700 is priced at \$69,000 for a 40x32 console; the larger 56- and 64-frame versions would be priced accordingly when they become available.

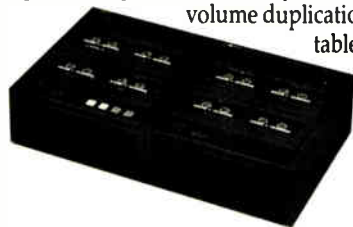
Tascam, 7733 Telegraph Road,

—CONTINUED ON PAGE 170

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mix•er

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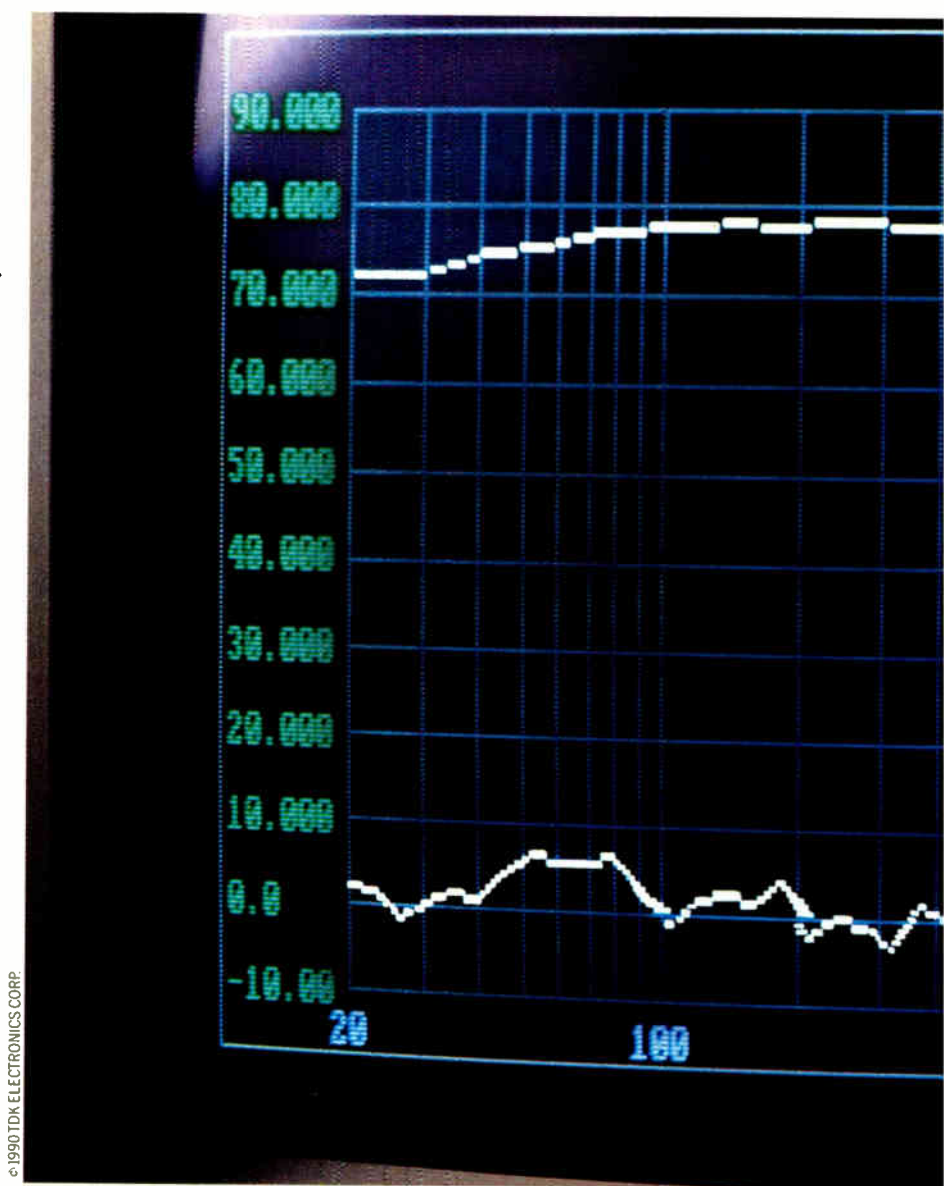
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The Audio Ana

If you ask five different audiophiles which is the best high bias audio cassette to record music on, you're likely to get five different opinions. But if you ask the Audio Precision Analyzer™ you'll get a definitive answer, right there in living color: TDK SA-X.

The Audio Precision Analyzer is one of the most sophisticated pieces of laboratory equipment of its kind. It's used by audio engineers to evaluate an audio cassette's performance in a variety of areas. Two of the most critical of these areas are MOL (Maximum Output Level) and bias noise, which together are used to measure what is known as *dynamic range*.

MOL is indicated by the curve at the top of

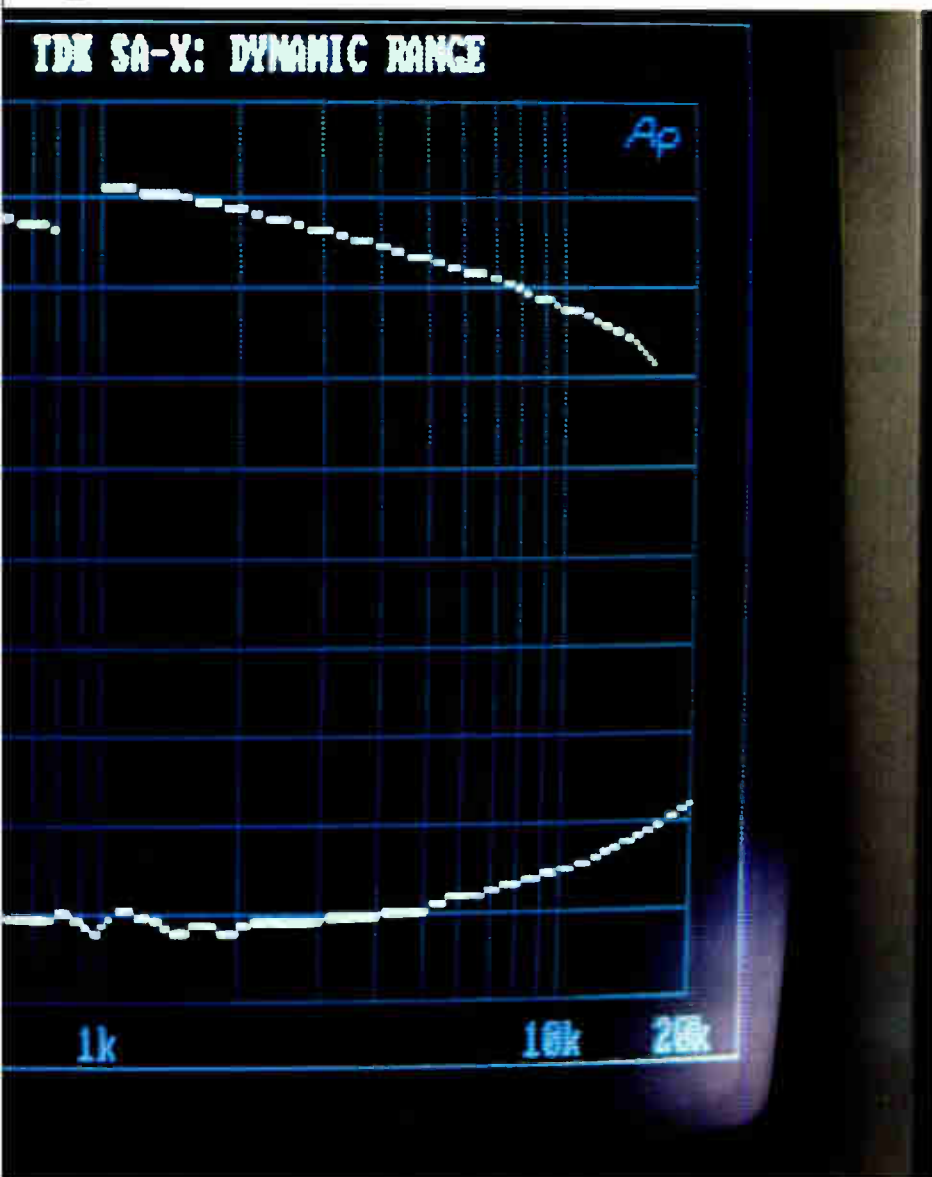


TDK SA-X's DYNAMIC RANGE, THE WIDEST OF ANY HIGH BIAS

the analyzer's monitor; bias noise is indicated by the curve at the bottom. The vertical distance between any two points on these curves is the

measure of an audio cassette's dynamic range at that particular frequency.* The greater the distance, the greater the dynamic range. And the greater

Analyzer Never Lies.



What the analyzer told *Audio*—in no uncertain terms—was TDK SA-X's dynamic range was the widest of all Type II audio cassettes tested. Which makes it the best tape you can use to capture the fortissimos, pianissimos, and transients of today's music sources.

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*Vertical Scale normalized to 0 dB for illustration purposes.



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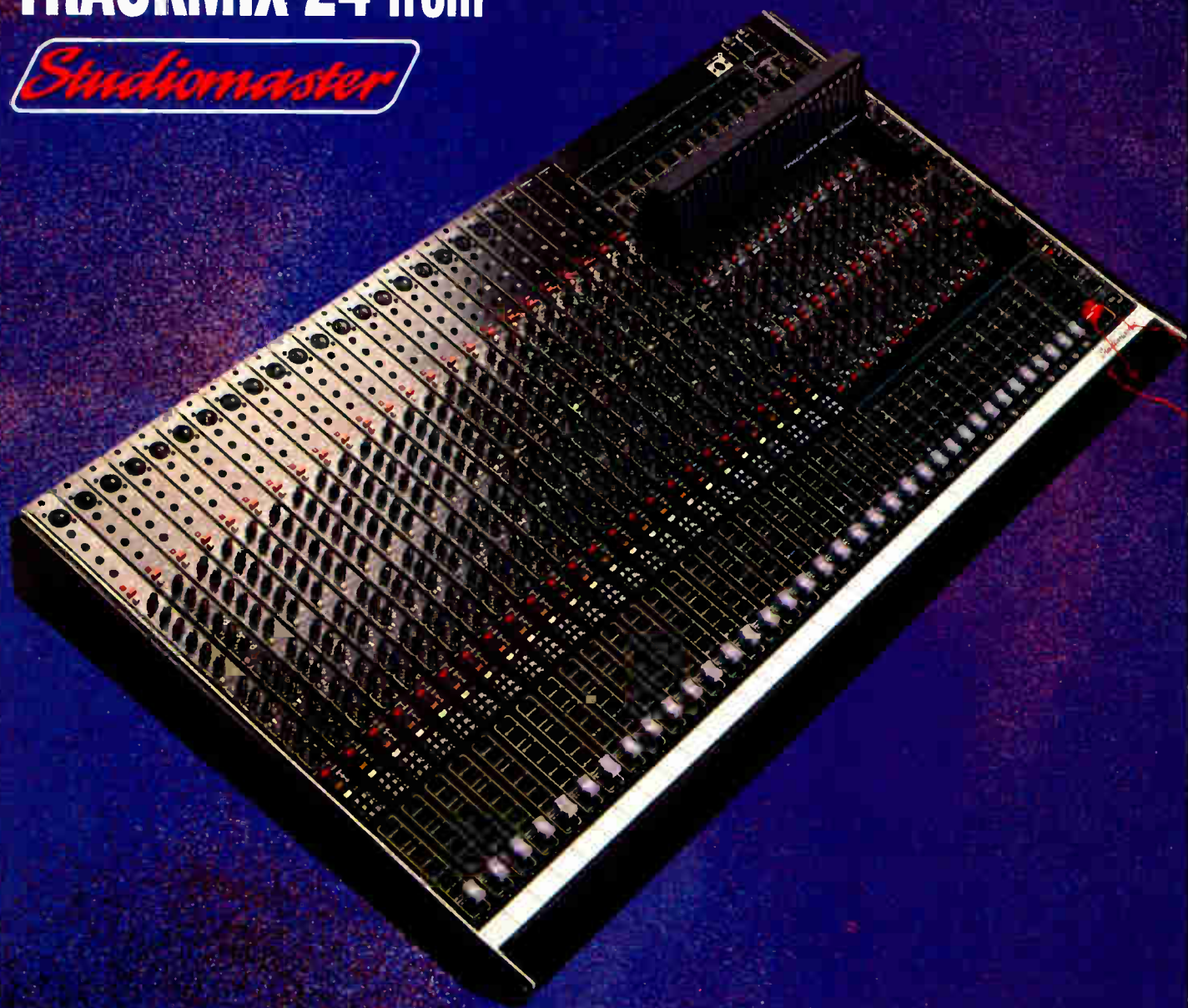
the dynamic range, the more sound the cassette can faithfully reproduce.

When *Audio* magazine conducted an exhaustive test of 88 blank audio

cassettes (the results of which were published in the March 1990 issue), it utilized an Audio Precision Analyzer to evaluate dynamic range.

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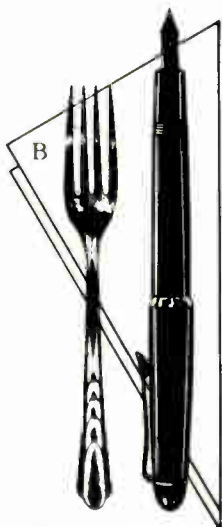
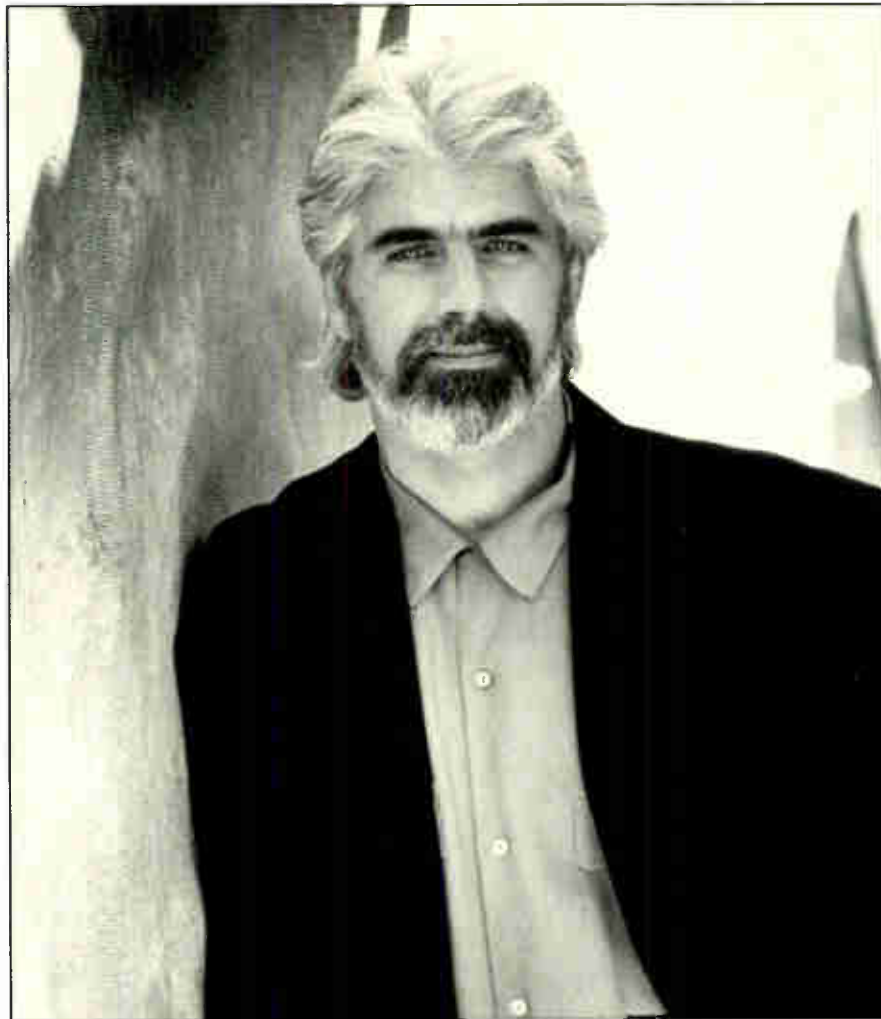
the sound experience

Circle #016 on Reader Service Card

by Mr. Bonzai

MICHAEL McDONALD

"HEART" & SOUL



Few singers put as much into a song as Michael McDonald. He's got the musculature, the pacing, the rhythm and the grace of a decathlon pro, pushing it to the wall on every performance.

McDonald has carved out a sizable chunk of music history over the last couple of decades with "boneroo" classics like "What a Fool Believes" and "Minute by Minute." A fistful of compositions are international symbols of Great American Music—can't you imagine Gorbachev boogiein' down to

"Takin' It to the Streets"? The famous family tree starts out with Steely Dan in early '74 and branches out later to the Doobie Brothers during that seminal summer of cross-pollination. Following were the years of Doobie domination, two solo albums and the Number One hit duet with Patti LaBelle, "On My Own." He carries the baton forward with *Take It to Heart*, his first solo album in five years.

We met during a day of hectic media coverage surrounding tour and

LUNCHING WITH BONZAI

album activity. On the Bonzai grapevine, I had spoken to folks who'd known McDonald for many years and learned that he was just a solid, down-to-earth, friendly guy. We found a quiet office overlooking the smoggy basin below Sunset Strip and split a can of soda.

Bonzai: How long did you work on the new album?

McDonald: Off and on for about three years, but it became a more concentrated effort beginning in July of '89,

when I went in with Ted Templeman and cut the first live tracks. I had cut some tracks before that, but for some reason, the performances weren't what I had hoped for. It wasn't the fault of any of the musicians but more a function of the arrangements. I felt that the tunes weren't quite there, so when I went in with Ted we thought we would record a little differently and do the basic tracks live with more ambient sound.

Bonzai: You've worked with Ted quite a bit in the past...

McDonald: Oh, yeah, and this gave me a chance to fix the tunes up a little

Can't you
imagine
Gorbachev
boogiein'
down to "Take
It to the
Streets"?

bit, work on the basic structure, rewrite bridges. It proved to be a very worthwhile effort to work on some of the tunes a second time.

We were ready to go in August '89, but we got a little too close to the Christmas releases and felt that we would get clobbered with too little time to get things in motion. So, anticipating radio play, we decided to hold it back and come out this year. In the meantime I had written some new tunes, and we decided to use them for the new record.

Bonzai: How did other producers come into the picture?

McDonald: The reason I went in with Don Was, David Gamson and Gardner Cole was because Teddy was scheduled for some other projects. I was amazed that Don was available, 'cause he was my first choice.

Bonzai: Had you known him before?

McDonald: No, I'd never met him, but I knew his work from Bonnie's album and Was (Not Was). The B-52's cut had just come out, and I felt comfortable because his range as a producer was pretty obvious. And his roots were R&B with a good understanding of that. I felt that the album needed to be pulled in more to the realm of pop R&B because it was an honest place for me to be as a recording artist.

Bonzai: Was the Coral sitar on the title track "Take It to Heart" Don's idea?

McDonald: Yes. [That instrument] was an odd affectation of the '60s. I don't know where it came from, but I guess it was a way to make the sound of the sitar available to anyone who could play guitar. I don't know who the hell came up with it, but it's the Edsel of guitars. Now it's a classic sound. It sounds like a sitar, but it's kind of an ugly sound. You may have heard it on a lot of the old Stylistics records, Tom Dowd records, like "You Are Everything and Everything Is You," with that little lead line up front that's like a

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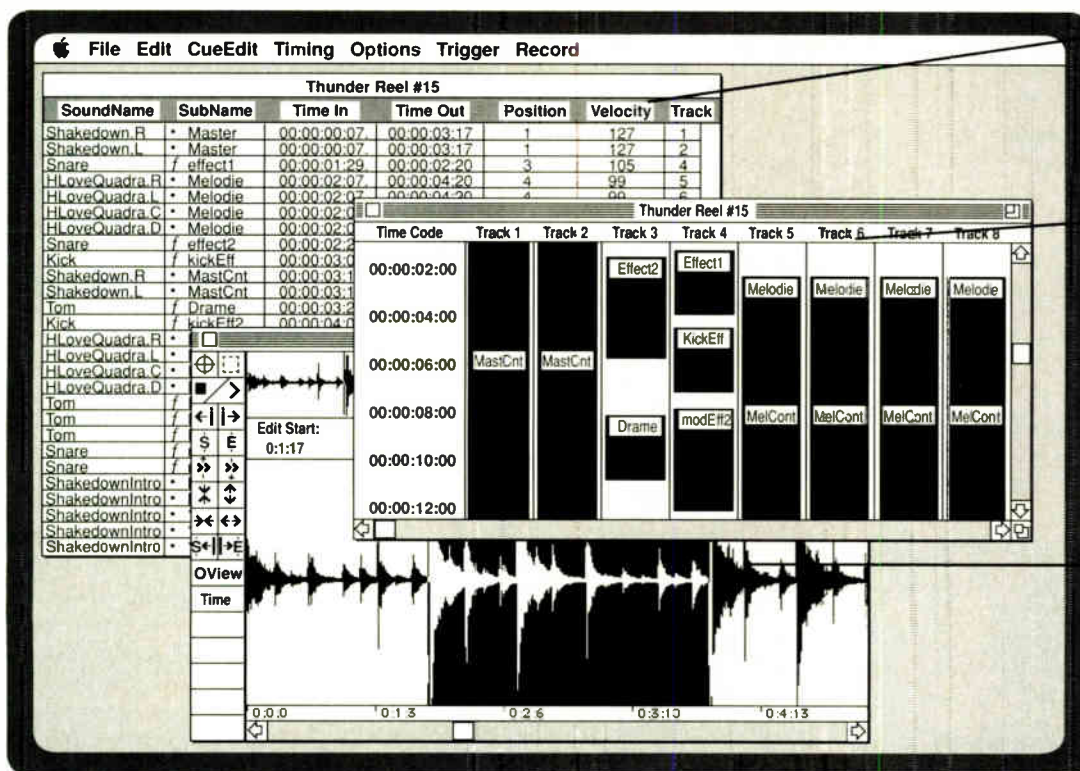


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LUNCHING WITH BONZAI

banjo with sustain. Another song that it was used on was "Cry Like a Baby" by The Boxtops. And the solo on "Do It Again" by Steely Dan used the Coral sitar.

Bonzai: The song also has a muted trumpet that isn't credited on the album.

McDonald: Mark Isham played that, and again, that was Don's idea. I think my input largely stopped with the demo. After meeting Don, I turned things over to him with those original ideas. In my estimation, they became

records when I got the chance to get together with Don.

For instance, "Get the Word Started"—the demo we did on that was a contemporary hip hop dance groove. One of the best things that happened to that song happened in the first meeting with Don. He came over with a cheap little drum machine and a few drum patterns he'd programmed that he thought might be better for the two songs he liked. Don wrote more of a '60s R&B rhythm *a la* Marvin Gaye. I felt it gave the song a certain foundation and traditional feeling that made it stronger as a tune. I hadn't cut the song

"Meeting Don [Was] helped me get a better perspective on myself as a recording artist."

before because I felt a little funny going after that groove that has been done by Bobby Brown and the New Edition. It seemed a little odd coming from me, and Don confirmed those feelings. His words were, "I don't think that audience is going to turn around and pay much attention to you. If they are looking for this groove, they're looking for the people they're familiar with. There is probably a dormant audience out there for you that has been the audience you've always had. If you want to reach those people who will appreciate you for who you are, you gotta be careful in your efforts."

Meeting Don helped me make those two songs, but on a larger scale, it also helped me get a better perspective on myself as a recording artist, one which I am comfortable with.

Bonzai: It's interesting to me that you have never had trouble as a collaborator. Throughout most of your career you've worked with many people in many different capacities—in Steely Dan, The Doobies and your solo work. This album has many producers and many co-writers.

McDonald: All the material was co-written. That's been a great avenue for me as a songwriter. It's not that I don't enjoy writing things myself, but I just haven't done it as much as I had planned on.

With co-writing you can develop ideas in ways you wouldn't on your own. On the other hand, when you write alone, you're able to set different standards. If I am working alone and I don't like an idea, I am free to throw it away and go on. When you're co-writing, the other writer may think it's a very good idea, but it's something you don't feel like finishing. You can get boxed in a little, because out of common courtesy you can't just blow somebody off in the middle of a song and say, "I don't feel like working on

—CONTINUED ON PAGE 171

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World Record #17 on Reader Service Card

by Paul Potyen

INTONE MIDI MAESTRO

This week I spent a lot of time poking at another one of those 19-inch rack-mount black boxes that seem to proliferate in recording studios. I saw a prototype of this particular unit, designed by a small company in Lawndale, Calif., called Intone, at the NAMM show last January. It was one of those products that because of its unusual nature and combination of features was more easily demonstrable than describable. So now I'm going to try to describe it.

What It Does

The MIDI Maestro is a 2U rack-mount box that does several things: It offers MIDI control of its own 16x16 audio patch bay and 7x8 MIDI patch bay; it provides SMPTE write, read and jam sync capability; and it is designed to accept as many as six MIDI controllers (footpedals, sliders, etc.) whose signals can be routed to any MIDI device connected to the MIDI patch bay. This allows real-time control of any of the

120 control change messages, such as pan, volume, chorus, etc. Unfortunately, I couldn't evaluate this last feature, since Intone hasn't finished development on the controller interface. More about this later.

What It Looks Like

Both the front and back panel are well-designed ergonomically (except for the power switch, which requires that you toggle to the *left* to turn it on). Ten-character, user-assignable names for inputs, outputs, song titles and patch names are displayed on a large, wide-angle, high-contrast front panel display window. Also on the front are ten buttons for setting up and controlling the unit. They're divided into two groups based on function. The "diamond group" is used for data entry and to control the display window cursor; the others are for navigating among the menus and submenus. All scrolling buttons wrap around; for example, if you push and hold the "fwd menu"



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The DD1000 is available for your personal inspection at all authorized Akai Digital dealers. So, what are you doing tonight?

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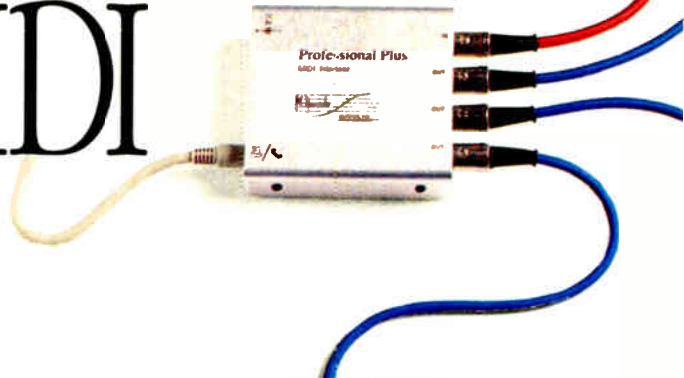
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button, the window will continuously scroll through the complete list of menus until you let go. Other front panel features are an auxiliary MIDI in and MIDI out, and two additional 1/4-inch audio ins and outs.

The main MIDI and audio inputs

and outputs are located on the back panel, as are the 1/4-inch SMPTE in and out jacks and a DB9 input for MIDI controllers. Each audio in and out is discrete and separate except for numbers 15 and 16. The front panel "Audio In 15" is summed with the back panel "Audio In 15," creating a single signal that can be patched to any combina-

Chip Shots

Opcode Systems, Inc. has released Version 3.0 of Cue—The Film Music System. The new version offers a host of new features to help automate paperwork tasks and calculation procedures in creating music for film. Cue Version 3.0 also has a special edition called Color Cue, which works with the Mac II Series of computers. Retail price is \$595. Current owners can upgrade for \$49.95, with a free upgrade to all users who purchased Cue after October 1, 1989.

The company has also released a major update to its Korg Editor/Librarian software package for the Macintosh. The software now supports Korg's entire line of M1-based synthesizers. List price is \$249, with a \$100 upgrade option for registered users. Opcode Systems, Menlo Park, CA, (415) 369-8131.

Performer 3.5 is the latest upgrade of Mark of the Unicorn's Macintosh sequencing program. Among the many features of the enhanced package: a comprehensive Tracks Overview window that allows simultaneous editing of multiple tracks; a Consolidated Controls panel providing quick access to all windows and functions; a Smart Transpose feature; online help; and full support for the company's new Video Time Piece VITC/SMPTE reader generator. The new version of Performer has a suggested retail price of \$495 and was scheduled to ship in September. Mark of the Unicorn, Cambridge, MA, (617) 576-2760.

New from Northstar Productions is Phase 2, a CD-ROM for the Emulator III that contains 72 banks of new digital instrumentation and effects. More than 1,900 samples are contained on the 336MB disc, making it the largest commercial digital sample CD-ROM to date. The

product retails for \$1,695. Northstar Productions, Portland, OR; (503) 760-7777.

Apple has announced the release of a Macintosh IIci Cache Card designed to further increase performance. It features a custom, high-speed cache controller and 32KB of 25-nanosecond SRAM. Priced at \$399, the card boosts performance by up to 50% across a broad range of applications.

For those of you who need a *really big* hard drive, Microtech now offers a 1.2 Gigabyte hard drive for the Mac. Available in external or internal configuration, this largest of the company's series of hard drives boasts a 14ms access time. Microtech International, East Haven, CT; (800) 626-4276.

Interactive Support Group Inc. has announced a new development tool for mastering compact discs using the Macintosh II and the Yamaha Programmable Disc System. MacPDS Tools is a CD mastering board and software package that allows in-house mastering of CD-Audio, CD-ROM and CD-I discs. The new MacPDS workstation consists of four elements: CD mastering board, CD disc generator, Mac II and the Yamaha PDS YPE-201 and YPR-201 for optical disc production. The board and software are available for \$9,500. Interactive Support Group Inc., Chatsworth, CA; (818) 709-7387.

Developers and users of Commodore's Amiga will have an opportunity to take part in AMIGACOMM at the Orange County Convention Center, Orlando, Fla., on February 15-16, 1991. The exhibition will be part of INFOCOMM International, an exposition of the video, A/V, presentation, interactive, desktop graphics and multimedia communications industry. For more information contact Mark Matarrella at ICIA. (703) 273-7200, fax: (703) 278-8082. ■



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aftertouch, program change, etc. There are a number of advantages to this feature. First, discretionary filtering of unnecessary data minimizes the possibility of dreaded MIDI "logjams." Second, filtering helps compensate for inconsistencies in the MIDI standard implementation among different synth manufacturers. A third advantage is particularly useful in live performance. Let's say two Roland MIDI controllers are assigned to the same channel of one MIDI device. Roland's implementation of MIDI calls for continuous "All Notes Off" messages to be sent when no notes are being played. This has serious implications when player of controller A is trying to sustain a chord and player of controller B is not playing. It's a problem easily solved through the use of filtering.

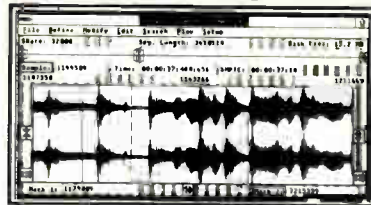
Earlier I mentioned that the unit is designed to accept as many as six real-time MIDI controllers, give them controller functions like volume or breath control, and assign them to any MIDI device in your setup that is programmed to recognize it. The reason I couldn't evaluate this feature is that Intone doesn't yet have a production version of the box that allows you to interface the MIDI Maestro to, say, a footpedal. This sounds like a valuable feature, and I'm tempted to make up an adapter cable myself just to try it out. Here's a simple, but good example: My main controller is an old Sequential T8, which recognizes MIDI volume but has no jack to accept a MIDI volume pedal. I'd be pleased as punch if I could hook up a footpedal, assign MIDI volume to it, and route it to the T8.

Even without all the bells and whistles in place, the MIDI Maestro is a valuable piece of equipment for anyone who has a need for an easy-to-use programmable MIDI and audio patch bay. Its uses are limited only by your imagination. You can use it to patch in that little-used preamp to a special fader, route your SMPTE, or even as a tape/monitor switcher. All information in the unit's internal memory can be saved to another MIDI device via System Exclusive Bulk Dump. It's clean (THD is rated at <0.003% at +10dB, and it has a S/N ratio of 114 dB) and well-designed, and it comes with a legible manual. List price is \$995. ■

Paul Potyén is associate editor of *Mix*. His "Byte Beat" column is copy-protected.

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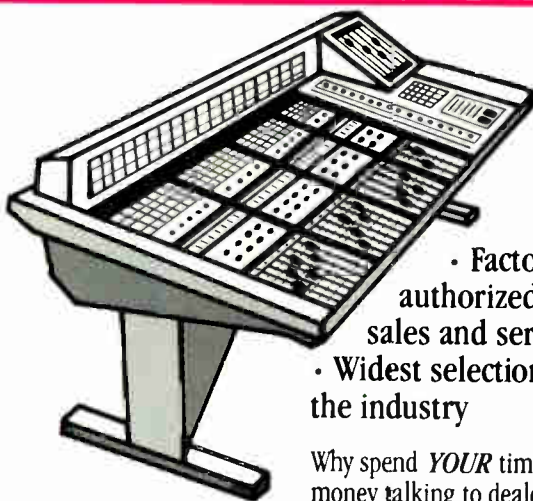


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by Robyn Flans

THE CALLOWAYS

IN THE GROOVE

When Reggie and Cino Calloway began to write "I Wanna Be Rich" in 1982, they probably didn't expect it to come true so soon.

At the time, they were part of Midnight Star (Reggie was a founding member), a group that broke onto the national scene only one year later with the double platinum *No Parking on the Dance Floor*, which contained the hits "Operator" and "Freak-a-zoid."

"We cut ['Freak-a-zoid'] really quickly," says older brother Reggie, who produced the album. "We did a real rough demo without finishing the song, so when we got into the studio to cut the song, we didn't have a form.

There was quite a bit of editing to create the final structure. It was a 12-minute song, and by the time we got the first edit it was ten minutes, and then we cut it down to about seven for the record. Then to try to make a three-minute 50-second version was crazy. It happened again on the song "Sir Lancelot." We had a concept, and the groove was better than the concept. We had already cut the track, but it was called something else, so we changed the name and the lyrics. Basically, we wrote a new song to the same music."

In 1984 the duo began writing and producing for other artists, including the Whispers (for their *So Good* LP) and

Klymaxx (the signature hit "Meeting in the Ladies' Room"). Three years later they wrote and produced three Number One hits on the black charts: Natalie Cole's "Jump Start My Heart," Levert's "Casanova," and "Love Overboard" by Gladys Knight & The Pips. In early '88 they topped the charts once more with "Joy" by Teddy Pendergrass. They received three Grammy nominations, winning with "Love Overboard" as best R&B female vocal performance.

When they submitted "Love Overboard" to The Pips, the lyrics weren't finished: they just had the background down. "Luckily, the group

Pictured: Cino-Vincent Calloway (left) and Reggie Calloway



PHOTO: BRET LOPEZ

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had a strong A&R staff that could hear a hit in the dark. We had to fly to Denver to cut the vocals because they were in the middle of a concert tour and we hadn't heard from Gladys. We like to establish a rapport, and without knowing her it was impossible to finish the song. We're a team who likes to specialize the song for the artist. Plus, we want to know the person wants us to be there. I said, 'I've never met this woman. I don't know if she's going to like me or not. If she doesn't call tonight, I'm not going.'" Reggie laughs. "With us it's a personal thing. But she called at 12 that night. I was in bed already, but it only took a few minutes to touch base and feel it out."

"The track was empty when they cut vocals," Cino adds. "When we got to Denver we had bass, a little keyboard part and drums [the Linn 9000, all cut at QCA Studios in their hometown of Cincinnati]. We went to the studio and sat around and talked for a while. Then we started cutting the backgrounds, putting a rough track down. I don't think she even sang then. We came back the next day and finished the background, and by that time Reggie was almost finished with the lyrics," he laughs. "Gladys got it in two takes, and then we flew to L.A. to sweeten and spice it."

Cino uses his 8-track home studio to do basic pre-production, sketching out instrument placement and layering to save time during the actual recording. Reggie prefers to work at QCA rather than at home, but works on the same model 8-track as his brother so they can work on several projects at once and bounce ideas back and forth.

The Calloways' production philosophy comes down to making the track *feel* right, based on the musicians involved. "Different artists dictate what you would layer on top, and you never try to do the same thing with every artist," Cino says. "There would be a certain sound that might complement Teddy Pendergrass, like live horns, and there would be certain types of sounds and effects."

"With Gladys, for instance, we started the basic track pretty much with where she came from, and we had a good feel of what it took for her to put herself into the track," Reggie adds. "A lot of times you hear songs from artists who have been around for a long time, where the song doesn't have that feel and they

weren't able to project their self into the track. We wanted it to feel like, 'It's still me, but it's fresh.'

"That's one of the keys: to separate yourself and not be the producer and the artist in the same breath."

"Once we get the direction of the artist, the next thing is concept," Reggie continues. "With 'Jump Start,' for instance, that was a concept that fit. We

still hear people saying, 'We've got to jump-start this and jump-start that.' After the concept, we try to write the song. The groove comes before the concept sometimes, but sometimes it's not the right concept for the groove, so the whole thing has to be restructured.

"Natalie Cole had had all these hits, and then she had been away for a while and did some songs that might have leaned too far into a different direction. She needed to get back to her R&B base, which appeals to the people she's already been dealing with, as well as stretches her audience."

The Calloways tried to finish their Number One hit "I Wanna Be Rich" for



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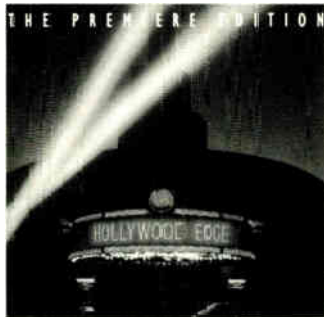
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many years, but they worried no one would understand it beyond its obvious meaning. "The song always haunted us because we knew the potential of it and the depth of what it was talking about," Reggie says. "In 1989 we finished writing it and understood what we were saying: It's not just the rich of financial, but the rich of love, peace and happiness that is the whole foundation of the song. That allowed us to finish the lyrics, get the groove together and turn it into a song."

Producing their self-titled debut, which "I Wanna Be Rich" appeared on, felt a little different from overseeing the outside projects in that they had to juggle between being producer, head A&R guy, writer, arranger and artist.

"Some days I would go into the studio and say, 'I'm not the producer today,'" Reggie says. "If I had to sing lead I wouldn't be the producer, I'd be the temperamental artist, which is great. I'd have my cup of tea right where I wanted it, my chair just like I wanted it, and I'd have my pencil so I could change the lyric while I was doing it. That's one of the keys: to separate yourself and not be the producer and the artist in the same breath. Know when something is good from a production standpoint and the difference between something you like artistically, but commercially is a piece of crap. That's the greatest thing about having a partner, because if he's singing, I can make sure he's comfortable."

"In the mix, Reggie is really good with getting the vocal sounds together, and I tend to concentrate on the instrumentation more," Cino explains. "Maybe I'll just leave the room when he's working on the vocals."

"And then I'll come in and change everything he's done and he'll change everything I've done," Reggie adds.

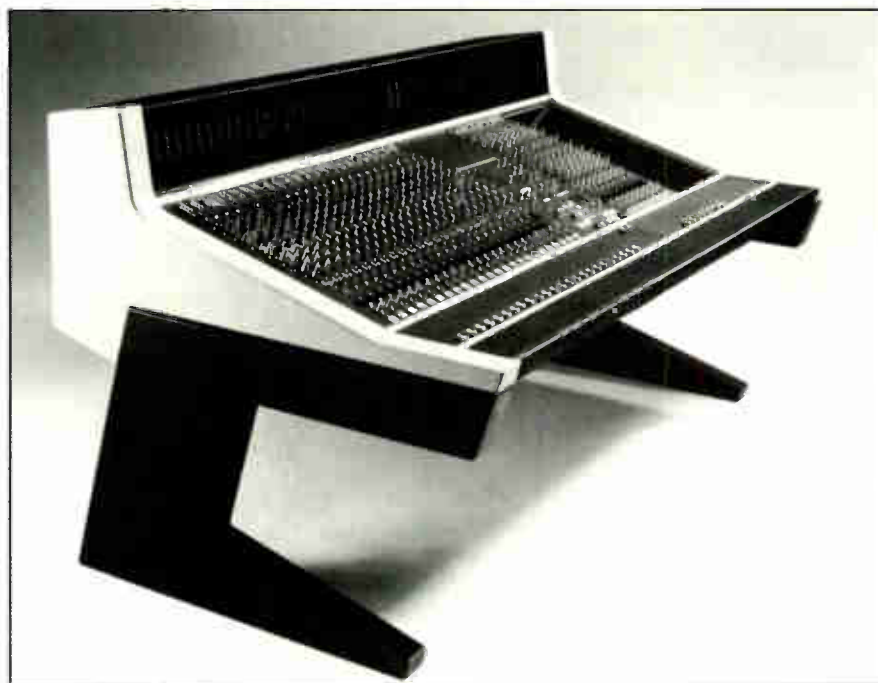
"And then the engineer pulls his hair out and changes everything we did," states Cino.

"Seriously, though, we don't get in each other's way," Reggie states. "We don't have the power struggles that some siblings may go through, or just partners in general. It's just, 'Let's make the best it can possibly be,' Nobody's right all the time, which is great, so you're always growing." ■

Robyn Flans is a Los Angeles-based freelance writer who contributes frequently to Mix.

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by George Petersen

PRODUCT CRITIQUES AND COMMENTS

Radian MM-8 Monitor Standard™ Whether for home listening rooms, auto sound systems, or even recording studios, the speaker business could probably best be summed up by this simple question: Who's hyping whom? In the very real, cone-eat-cone world of studio monitors, too often the name of the game is to make speakers that sound better than the other guy's. Not necessarily more accurate, but a little flashier—a little bass bump here and a little top-end sizzle there—just enough to elicit some quick "oohs" and "ahhs" from the customer during that intensive, three-minute A/B comparison in the showroom.

What the customer needs is an accurate reference speaker, something to reflect what's on the tape, rather than just an audio mirage. Unfortunately, those monitors offering faithful reproduction often lose out in the shootout at the quick-sale audio showroom corral.

The Monitor Standard Series of studio speakers from Radian Audio Engineering is one such system. Offering uncolored and reasonably flat reproduction throughout a wide bandwidth, the MM-8 offers impressive performance for such a compact (10x16x8-inch) and cost-effective system. But there's more here than meets the eye. Literally.

The MM-8 is a two-way system based on Radian's 5008-8 driver, an 8-inch coaxial loudspeaker employing a full-size

(1-inch throat) compression driver. The latter is mounted on the back of the woofer, whose centerpole and cone form the horn flare, providing a wide 110° dispersion. This eliminates the tightly focused "sweet spot," which in some speakers limits the effective listening area to a narrow, on-axis zone exactly between the two monitors. One well-known advantage of the coaxial approach—which is also used in speakers manufactured by Altec, E-V, Fostex, Gauss, JBL, PAS, Tannoy, UREI and others—is that sound emanating from the dual drivers is perceived as a point-source, therefore improving stereo imaging and reducing phase delays.

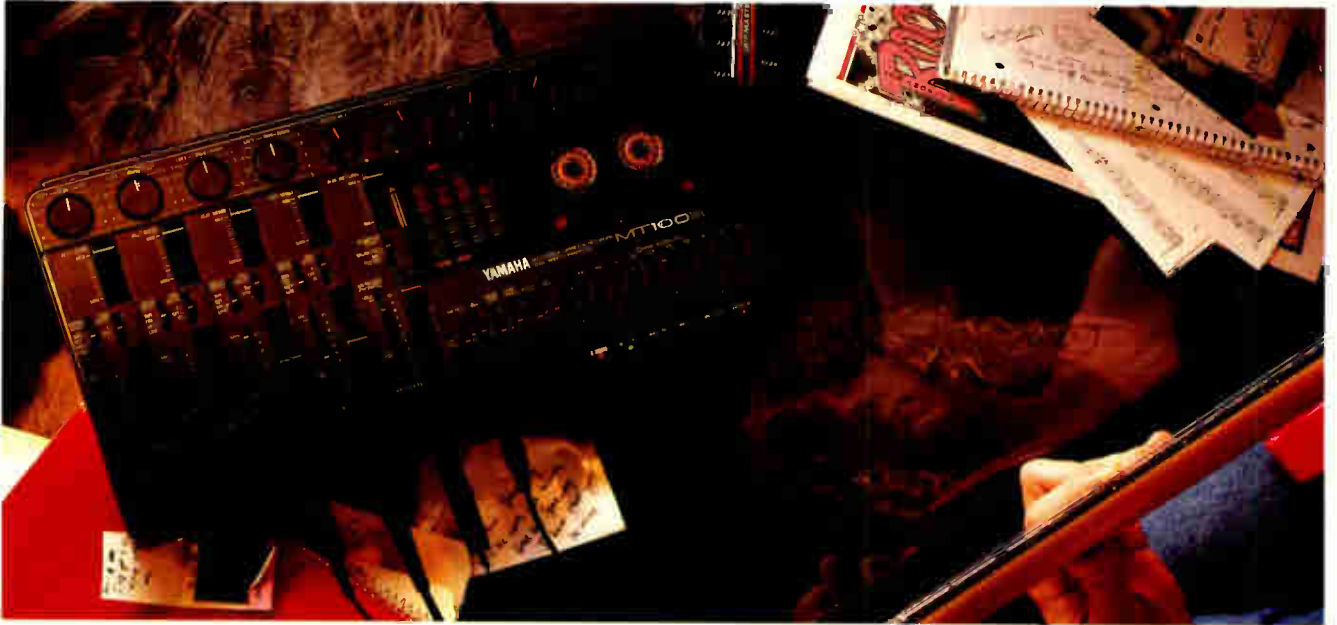
The MM-8's coaxial driver's cast aluminum frame and massive magnet structures give it a solid feel of quality. In fact, users of the Monitor Series speakers should be warned that magnetic materials—floppy disks, recording tape and even computer hard drives—should be kept well away from the speakers. The same would apply to video monitors, which demonstrated visible color distortion when placed within 18 inches of the MM-8s. However, an optional video shielded version of the monitors is available.

Having pulled the driver out of the enclosure, I also took a look at the crossover, an elaborate 12-element affair with hand-wound inductors. Radian



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James "J.Y." Young: guitars, vocals



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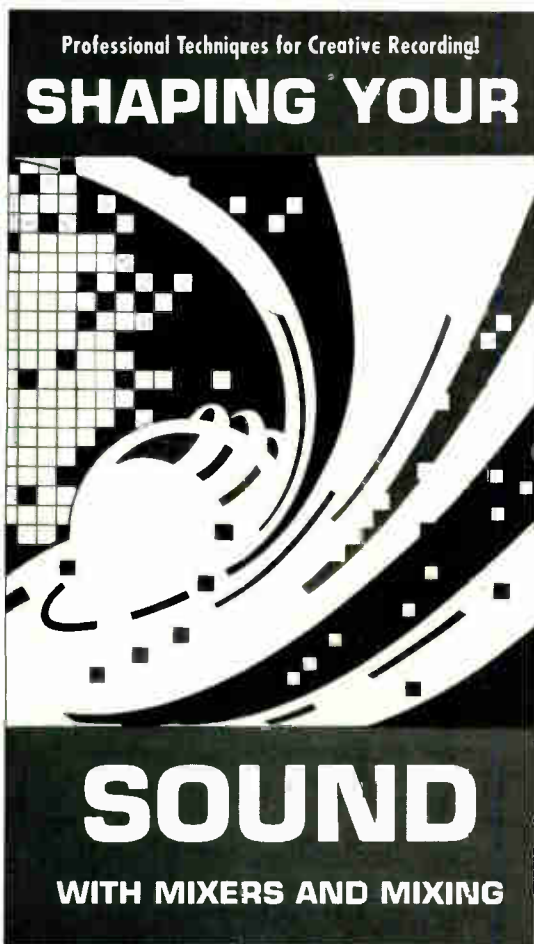
AUDITIONS

designed the unit as a crossover/equalizer, far more than just a simple dividing network with a crossover point of 1,800 Hz. The intent is to balance the outputs of the LF and HF drivers without pads and to compensate for the output of the compression drivers (which typically have plenty of midrange but are lacking in upper HF brilliance). Near the five-way binding posts on the back panel is a rotary brilliance control, providing +6/-10 dB of peak shaping at 15 kHz, and a three-position switch (flat, +3 or -3 dB) for HF shelving. These allow users to tailor the MM-8's HF response to fit the monitoring environment or personal tastes.

I began my listening tests by driving the MM-8s with a 75-watt/channel amp, which proved to be inadequate. Unlike most horn-loaded systems (which usually have sensitivity ratings in the 95+ dB at 1W/1m range), the MM-8's extensive crossover/equalization network brings the sensitivity down to the 90dB mark, similar to that of many cone-based close-field monitors. The HF driver uses a clever, field-replaceable diaphragm assembly that permits a diaphragm change in under a minute (although this would probably not be necessary since the 20dB sensitivity difference between the LF and HF units equates to a 100-time power handling differential). With the MM-8s, the problem of burned tweeters could become a thing of the past.

After switching to an amp with 250 watts per side, the MM-8s sounded much better; transients were cleaner and the bass tightened up nicely. Since my typical listening levels in the near-field are in the 80 to 95dB range, the 250-watt amp allowed sufficient headroom for transient reproduction. Now if you like to monitor at levels in the 110 to 125dB range, I suggest that you buy a couple of 10,000-watt Crown Macro-Tech amps and a book on learning sign language. The real lesson here is that the MM-8s require some serious amplification, with plenty of clean power for reserves.

Having used the MM-8s for tracking, recording and mixing a music project over a period of weeks, I was impressed with their performance. They are easy to become accustomed to, and their wide dispersion pattern is a plus. When reaching across the console to make an equalization change, it's nice to still hear the same tonal balance



Shaping Your Sound with Mixers and Mixing

First Light Video Publishing is at it again. The folks who brought us the acclaimed "Shaping Your Sound" instructional videos have now released *Shaping Your Sound with Mixers and Mixing*. Priced at \$59.95 (a professional schools edition is \$119), the program is an 80-minute course that explains basic functions, as well as the tricks and techniques of the creative and practical use of the mixing console.

Producer, educator, engineer and author Tom Lubin (whose writings have graced just about every magazine in the audio industry) takes the viewer on a visual odyssey, exploring console operation from basic functions—EQ, routing, patching, subgrouping, etc.—to the intricacies of honing the final mix. Lubin seems more relaxed in this than in the earlier releases

and does an excellent job of covering the topic in an easy-to-understand manner.

The video's excellent camera work, extensive use of computer graphics and extremely clean VHS Hi-fi sound help the viewer assimilate the material. As an example, basic console routing (a subject that seems to always confuse audio novices) is explained by its analogy to a map, with street traffic used to relate signal flow. Later, the graphics of structuring a mix, with all the instruments shown in onscreen diagrams, allows the viewer to see, hear and understand what's going on.

However, the best part of the video is the second half, which gets into the art of building a mix. Here Lubin takes a logical, systematic approach that would apply equally to sound reinforcement or studio mixing. A complete music mixing project illustrates the soundness (pun intended) of his theory. One topic that is emphasized is that less is sometimes more when it comes to mixing. Just because a track is on tape (or on a sequencer) doesn't necessarily mean that it should be in the final mix, and the video uses the example of a highly modulated synth

—CONTINUED ON PAGE 174

that you heard when sitting on-axis in the center of the board. I didn't encounter any situations where the -3dB HF shelving switch position was of much use, although the +3 setting could come in handy in a small, highly absorbent room.

Perhaps more impressive was the MM-8's low-frequency reproduction, and with a 3dB downpoint of about 60 Hz, these tiny speakers can really deliver. I also checked out low bass and was pleased to hear these speakers do a respectable job of playing back a 31.25Hz sine wave, especially since the volume of the enclosure is approximately two-thirds of a cubic foot. On a related note, these little boxes weigh in at over 40 pounds per pair, so use some judgment before hoisting these onto a fragile meter bridge.

Available in satin red oak and satin black lacquer, the Radian MM-8s are priced at \$429 each. The Radian MS-8s, a similar model that uses the same coaxial driver in a larger cabinet with greater bass response, are priced at \$498.

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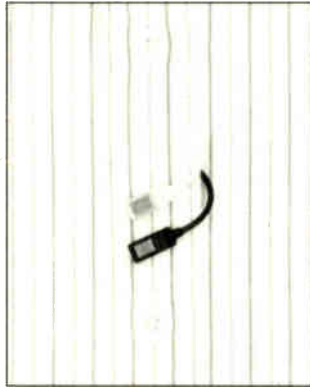
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NEW PRODUCTS

COUNTRYMAN ISOMAX EMW

The latest addition to the Isomax line of miniature microphones from Countryman Associates (Redwood City, Calif.) is the EMW, an electret condenser lavalier design. Featuring an omnidirectional capsule, the mic comes in three models with varied frequency responses and can be ordered with a variety of mounting clips. Both hardwired (requires 6 to 50 VDC phantom) and wireless (powered by 1.5 to 24 VDC from your belt/bodypack transmitter) versions are available in either a black or white finish.

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HILL DATUM CONSOLES

The Datum Series of modular consoles from Hill Audio (Tucker, Ga.) consists of four standard frame sizes (31-, 39-, 47- and 55-module spaces); a choice of 12 module types, including standard, deluxe and stereo inputs; FX return (two mono and one stereo return in a single-channel strip); and a variety of specialized output modules allowing the console to handle recording, sound reinforcement or stage monitoring duties. This series of 4- and 8-bus consoles can handle up to 48 inputs in most configurations, and Datum's compact size allows a 40x12x24 recording board or 48x12 monitor mixer top fit in a space of under two meters. Other features include 3- or 4-band sweep EQ, up to eight aux sends, three 2-track returns and an LED meter bridge, which is optional on sound reinforcement versions. List prices range from \$8,000 to \$25,000.

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MUSONIX CUE CUBE™

The Cue Cube (\$169) from Musonix of Burbank, Calif., is a pocket-sized accessory that can control a recorder's 1/4-inch remote punch in/output from a sequenced MIDI command. Compatible with any system employing MIDI tape sync, the simple device also provides a visual countdown to the punch point via a flashing LED display. A three-position control allows easy switching between rehearse, create and perform modes, and the unit adapts automatically to the type of MIDI sync being used.

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SONIC BOON CD EFFECTS

Dorsey Productions (Anaheim, Calif.) has released "Dynamic Range," the first CD volume in the Sonic Boon SFX library for the film and broadcast industries. Previously available only on DAT and Synclavier optical formats, the two-CD set offers 873 effects from over 30 guns, including interior and exterior shots, bullet hits, ricochets, silencers, gun-handling sounds and more.

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SHURE VP88 STEREO MIC

The VP88 from Shure (Evanston, Ill.) is a single-point stereo condenser mic designed for MS (mid-side) recording applications. The VP88 features an internal matrixing circuit that offers the user a choice of three stereo images, or the user can access the individual mid and figure-8 (side) elements to be recorded separately for later manipulation. Powering is via an onboard battery or any external 9 to 52 VDC phantom source. The mic is \$995 and includes a battery, stand clip, foam windscreen, 30-inch stereo cable and carry pouch.

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AUDIO ANIMATION PARAGON

New from Audio Animation (Knoxville, Tenn.) is the Paragon, a fully digital, audio dynamics processor for the broadcast market. Its four bands of compression and four bands of limiting include user-adjustable crossover frequencies, attack/release times, coupling and mix level, along with a unique "instant attack time" feature said to give total peak control without any clipping artifacts. This 5-rackspace unit also includes a 9-inch touch-sensitive video display. Price is \$8,990; options include 10-band graphic EQ software and an AES/EBU I/O package.

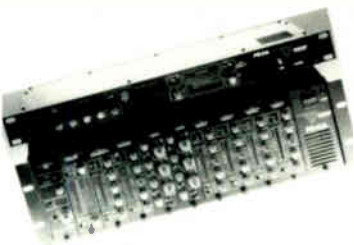
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R-TEC MC50 CONTROLLER

The MC50 from R-Tec Systems of West Hollywood, Calif., is dubbed the "Practically-Anywhere-Anything™" remote. The unit can operate tape transports, screen curtains, stage effects, coffee machines or any other device that can be controlled by a relay from up to a mile away via a single 2-conductor, twisted-pair cable. Features include a remote keypad that offers control of up to five functions at the press of a button. The hardwired keypad communicates over any link compatible with standard audio or DTMF signals, and can be interfaced to operate over telephone lines for even longer distance control.

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**CIPHER DIGITAL
RANDOM-ACCESS
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The CDI-328 from Cipher Digital (Frederick, Md.) is a digital recorder using hard disk and magneto-optical media, available in 2- or 4-track versions, with up to two track-hours of full-bandwidth storage. Three sampling rates (32, 44.1, 48 kHz) are selectable, and the 328 can be referenced to external time code or word clocks. A remote allows access to transport controls and offers basic editing capability for manipulating and assembling sound elements. The basic package is priced at under \$13,000, with built-in backup and networking capability.

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**VALLEY
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RACKS**

Designed to accommodate its 800 Series modular processors (such as the Leveller, Gain Brain II, Commander, Kepex II, Maxi-Q, etc.) are two new powered racks from Valley International of Franklin, Tenn. The PR-2A (single rackspace) holds one or two modules, while the 3-space PR-10A handles up to ten units. Both feature heavy-duty power supplies, XLR inputs/outputs, enhanced structural integrity, and improved RFI and electro-magnetic shielding.

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OMNICRAFT GTS

New from C-T Audio (Boynton Beach, Fla.) is the Omnicraft GTS, a stereo noise gate that uses optical switching technology to avoid the VCAs used in most other gating products. Two trigger modes—continuous and masking—are available. Other features include:

- gating at mic or line level;
- balanced XLR inputs/outputs;
- two 24dB/octave filters per channel;
- stereo link switching;
- sidechain listening;
- variable attack, hold and release controls;
- external key input;
- ducking mode;
- and a frequency response that is said to be from 11 to 50k Hz (-3 dB).

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**AGFA SR-XS STUDIO
CASSETTE**

Designed for professional recording studio reference applications is the SR-XS from Agfa (Ridgefield, N.J.). The top-of-the-line, Type II chrome formulation tape is available in 60- and 90-minute lengths and is distributed exclusively through pro audio dealers.

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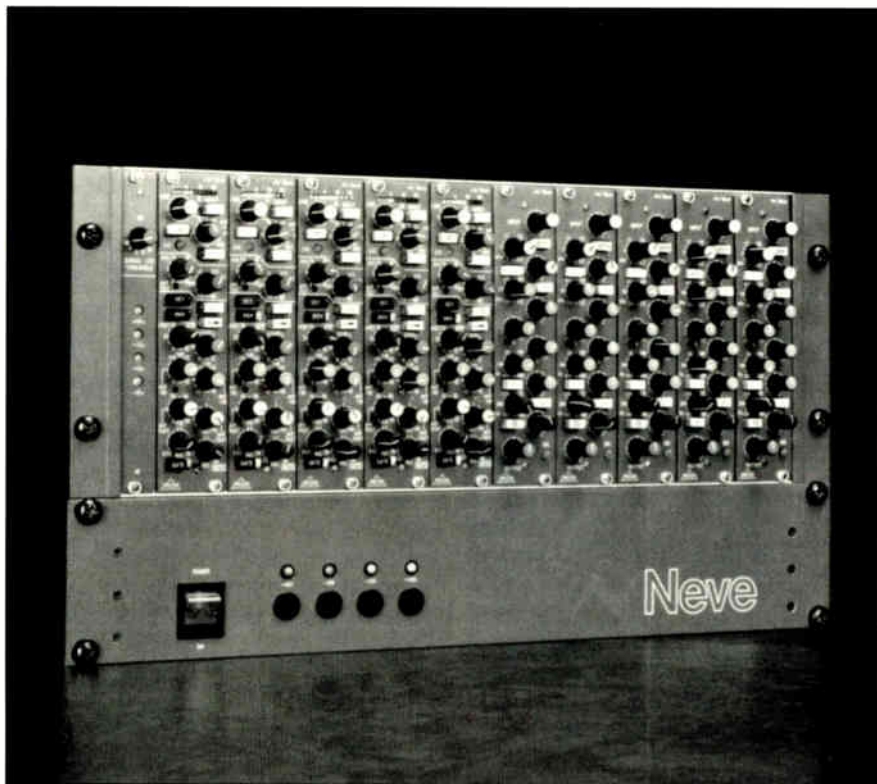
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by Larry Oppenheimer

NEVE PRISM RACK



The Prism rack is Neve's response to two trends in signal processing: modular signal processing racks (pioneered in the dbx 900 and Audio Design & Recording Scamp Series), and making high-quality "console slices" available outside a console mainframe, as in the Focusrite modules and SSL Logic FX. The Prism racks start at \$5,000 for a power supply unit (PSU) and mainframe. The individual mic preamp/dynamics and equalizer modules are, of course, extra.

The 4U rack-mount mainframe holds up to ten Prism Series modules. In addition, it contains a threshold module fitted with LEDs to indicate the presence of the four DC power supply voltages, and a five-position switch to set the threshold for the "signal present" LED indicators appearing on the signal processing modules. One rear panel grounding post, "Chassis," connects to

the circuit grounds of all modules (as well as the chassis, presumably), while the other, "Technical Earth," connects to the shields (or "screens" in British parlance) of the line and key inputs and line outputs. (Shields on mic inputs are carried through the audio connectors and grounded at the mic preamp input.) The Prism rack uses four 56-pin Varicon connectors for audio, one each for mic-in, line-in, key-in and line-out.

The power supply unit is a 2-space, rack-mount box with a lighted power switch and LEDs to indicate the presence of the DC supply voltages. Although the PSU can be located up to 15 feet from the mainframe, an extremely heavy 4.5-foot cable with brass connectors is enclosed. This rock-solid construction is found throughout the components of the Prism system, although this power supply cable is the most extreme example. The PSU is not

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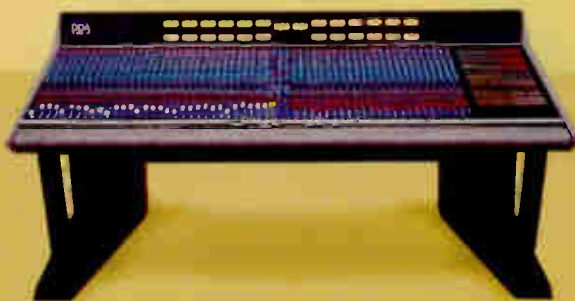
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necessary if the system is located near a suitable console power supply.

A mic pre/dynamics module and an EQ module are available for the Prism. Together they essentially comprise a V Series console input channel without the sends and routing options.

The mic pre/dynamics module offers a transformer-balanced microphone input as well as an electronically balanced line input, each with its own level trim. The module normally uses the line input; a pushbutton switch selects the mic input when depressed and lights an LED to indicate this status. In conjunction with a -3dB pad button (also with an associated LED, as is true with most of the pushbutton switches on the Prism modules), the mic input provides from -10 to +70 dB of gain. Pulling on the mic trimpot disables the phantom power (+48 VDC). The line trim yields from -10 to +10 dB of gain. A phase reverse button/LED affects whichever input is active. Completing the input section is a signal present LED that lights when the module sees signals in excess of the threshold set on the threshold module. Below this section are 12dB/octave, continuously variable highpass (31.5 to 315 Hz) and lowpass (7.5 to 18 kHz) filters.

The dynamics section contains a compressor/limiter and a gate/expander, each with its own in/out button/LED. A dynamics link button/LED allows stereo or quad linking of compressor/limiters if modules are laid out in the mainframe with no more than one EQ module between mic pre/dynamics modules. A makeup gain pot provides up to 30 dB of gain. The threshold pot also has 30 dB of range, but pulling up on it adds -20 dB to the panel markings (and lights an LED), giving a total range of 50 dB. The ratio pot varies from 1:1 to limiting.

The comp/limiter has a program-dependent attack time, being nominally 1 ms with a 7ms time constant. Pulling the ratio pot shortens the nominal attack time to 100 μ s. The release pot varies the time from 30 ms to three seconds; an Auto position (fully clockwise) gives a program-dependent release time. Gain reduction is indicated by a color-coded, ten-segment LED ladder across the top of the module. Sidechain EQ is possible in conjunction with an EQ module, as described below.

The gate/expander side starts with

a Key button/LED, which selects an external key input from the rear panel. Below that is an Invert button/LED that flips the trigger sense; with this selected, the gate will mute when signal exceeds the threshold and unmute when it falls below. This feature is intended for ducking or muting severe leakage. The Hysteresis pot sets the window of the Schmitt trigger circuit, i.e., the difference between the gate's mute and unmute threshold. Use this to minimize "chatter" with a source whose level fluctuates across the threshold, as well as to facilitate tight unmuting while allowing a decay tail

on the signal before the onset of muting. The window can be set for up to 25 dB of difference between the mute and unmute thresholds; setting the pot to the full counter-clockwise position turns the gate into a 2:1 expander.

The Threshold pot varies between +15 to -25 dB; pulling up on the pot adds -30 dB to these figures (and lights an LED), for a total range of 70 dB. The Range (mute depth) pot offers up to 50 dB of muting. The gate's attack time is fixed at 1ms but can be shortened to 100 μ s by pulling up on the Range pot. The Release pot varies the time from 30 ms to three seconds.

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The EQ module is a full-featured, 4-band parametric type following the classic Neve Formant Spectrum Equalizer design. Each of the four very wide range bands (33 to 370 Hz, 190 to 2k Hz, 800 to 8.7k Hz, 1.5 to 17 kHz) offers up to ± 18 dB of control. In addition to the frequency select and center-detented boost/cut pots, the highest and lowest bands can be switched to a shelving instead of peaking characteristic, while a Hi-Q button/LED changes the Q of that band from 0.71 to 2. The two midbands have pots providing continuously variable Q from 0.5 to 9,

with center detents at "Neve FSF traditional settings." The DYN button/LED inserts the equalizer into the sidechain of a dynamics module to its immediate left in the rack. The module also sports input and output trims, an EQ in/out button/LED and a signal present LED.

I used the Prism rack extensively producing the first album by my Celtic fusion band, Phoenix. I was able to evaluate the modules on "traditional" sources, such as vocals and electric guitar, as well as more unusual and demanding sources like electric violin, bagpipes, bodhran (an Irish side drum), a 2/3-sized acoustic guitar, mandolin and mandola (which is to mandolin as

viola is to violin).

We started with the mandolin. Jeff Kliment (our tracking engineer at San Francisco's Russian Hill Recorders) used the dynamics module to provide a touch of compression at a 4:1 ratio and added some sparkle and presence with the EQ module at around 10 kHz and 5 kHz, respectively. The result was one of the best mandolin sounds I have heard: always bright and present in the mix without being strident or overbearing. The compression was even and transparent; the EQ was extremely smooth.

I had the same results applying the Prism modules to the electric violins. Two members of Phoenix play identical Zeta electric violins, but with radically different playing styles. The Prism compression and EQ again produced the desired result, evening out dynamic "bumps" from particularly resonant notes and smoothing out the harsh edginess that is common to electric violins. The 100 μ s compressor attack was most useful on these instruments. With the mandolin, mandola and electric violins, I also used the filters in the mic pre/dynamics module and found them as smooth as the EQ module.

Prism's abundant button/LED combinations and gain trims (especially the input and output trims on the EQ module) were really helpful. The LEDs make it easy to determine the status of the module at a glance, and the gain stages are all clean and powerful; there's no problem getting plenty of gain in this rack. The signal present LED arrangement enables you to get some idea of how much signal is reaching the module.

The mic/line switching did have a couple of odd quirks. For starters, the button is marked "C/O" for "Changeover," probably a reference to changing the module status to be different from the console status (e.g., flipping from mic to line when the console is in Record mode). But these modules aren't in a console, and there is no status from which to change. I should not have had to look in the manual to figure out that this was a mic/line switch; a marking such as "M/L" would be more appropriate. Furthermore, I wonder why the mic input LED is located next to the line trim, which seems "counter-intuitive." I also dislike having phantom power that is active unless disabled by lifting up on the mic trim (SSL consoles also have this arrangement). Some micro-

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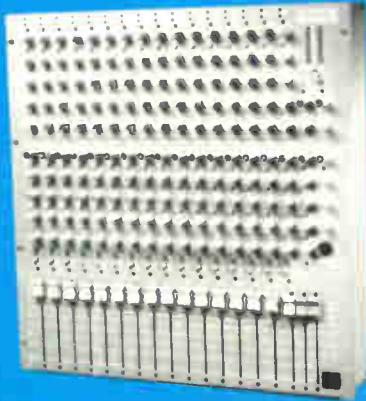
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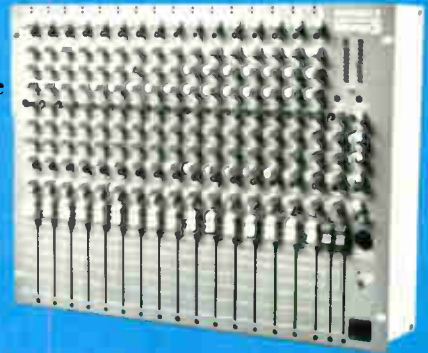


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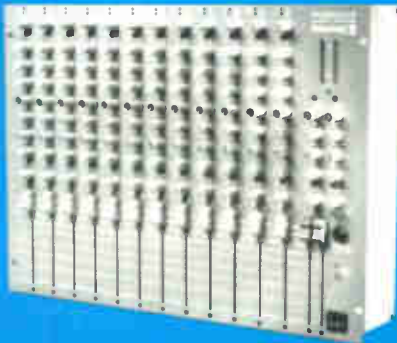
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phones (such as certain Schoeps and B&K models) have special supplies that don't appreciate +48 V; it was all too easy to switch on the phantom power accidentally. I suppose the idea is to make it more difficult to switch it off by accident, but after setting my mic trim, it usually requires few adjustments.

There are a number of different design approaches to compression, each working better on some sources than others. The Neve compressors, while superb on the string instruments, proved less than satisfactory for the bagpipes and vocals. Bagpipes are rather difficult to record, having two basic components that emanate from opposite sides of the player. The drone pipes aim over the piper's back, while the chanter (on which the melody is played) is held in front to allow it to be fingered. The chanter can be quite loud and piercing, and some resonant notes jump out, so I ran the pipes through the compressor. Unfortunately, even the 1ms attack was fast enough that the chanter got squashed into the drones and the melody became indis-

tinct. Try as I might, I could not find a setting that worked. In the end, I used no compression and got the proper balance by placing the mic behind the piper and having him physically rotate until it sounded right.

Similarly, the Neve compressors did not work well on the first vocals I recorded. Again, the speed of the attack seemed to give a squishy sort of sound. I tried the Prism compression on some smoother vocals and had better luck, although it would still not be my first choice for most vocals, with the possible exception of very smooth ballad singing. This is consistent with the conclusions I reached after using some very old tube Neve compressors. On the other hand, the EQ worked beautifully on everything. It was especially helpful at removing boomy low-end resonances, such as in the bodhran, and mid-frequency harshness, such as in the electric violins and guitar. This EQ is *sweet*. At this price it would be nice to have continuously variable Q on the top and bottom bands, but with EQ that sounded this good I never found it unworkable.

I had little opportunity to work with the expander/gate, but it seemed to be

quite effective—especially the Hysteresis function. I wish more gates had this parameter. There are some occasions where 50 dB of muting may actually be insufficient (such as gating drums in a kit), but it was not a problem with the signals I gated. The Trigger Sense Invert is an interesting feature but, alas, I had no call for it.

I used the transformer mic preamp for recording the vocals and the acoustic guitar. It was clean and natural-sounding with no saturation problems. At the most extreme gain settings I did notice an increase in noise and RF pickup that did not yield to experimentation with grounding. In fairness, though, this is not the first time I've experienced this with a piece of equipment carried into a studio (especially with a transformer front end and a whole lot of gain), and I am confident I could have eliminated the problem with a bit more time.

Regarding the connectors, it is worth pointing out that, although they are space-efficient and sturdy, the 56-pin Varicons will require construction of rather expensive custom harnesses (or a patch bay). Of course, if you're spending the thousands for a Prism

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rack, the \$400 to \$500 more for harnesses is probably available. Nonetheless, remember to budget for this and for a few spares, especially if the system is being used for location recording.

A few more nitpicks with terminology and layout: Having the EQ and comp/limiter, in/out switches at the bottom of the module was inconvenient, as was the fact that the gate/expander and comp/limiter, in/out switches were not adjacent. The EQ controls were also laid out oddly, especially the midband controls. These types of layout idiosyncracies often left me searching for controls that I should have been able to simply grab. Perhaps these layouts make more sense in a console environment, but this is a rack module. Finally, it was somewhat confusing that the ground post marked "Technical Earth" was not the point recommended to be connected to the studio's technical ground (earth). I believe that this could be more accurately named "Shield Ground" or, in British parlance, "Screen Earth" and the other point "Circuit/Chassis Ground."

The Neve Prism rack provides those flush enough to afford it with a feature-packed package of tools of uncompromised sonic quality and mechanical integrity. The sound is clean throughout, and the only EQ I have heard that even compares in smoothness and musicality is the Focusrite (I have yet to try the Massenburg). While not optimal for every application, the dynamics processing is outstanding on the right signals. There are a number of small changes that could be made—i.e., adapting the modules from a console format to the rack-module format—that would improve the ergonomics, but these won't stop me from buying and loving a Prism rack. Frankly, the company had to pry the thing away from me to get it back (thanks to Neve for its cooperation). Yes, the price of the ticket is high, but this is top-shelf stuff and its performance justifies its cost. ■

Larry "The O" is a San Francisco-based musician, audio engineer and consultant who has recently completed work on Amazonia, a feature-length documentary on the destruction of the rainforests.

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by Mark Herman

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Audio Analysts (Plattsburgh, N.Y.) continued to field stadium-sized systems with **Billy Joel** and **New Kids on the Block**. The Wilson women are still managing to draw large crowds as **Heart** continues their long tour with independent engineer **Richard Erwin** mixing house. Additional tour action showed short summer stints with **Bob Dylan** and new act **Tommy Page** (monitor system only). Other work included a new sound system installation in Detroit's Chene Park Amphitheatre, featuring 16AA HDS-4 main cabinets, QSC amplifiers and a Yamaha PM3000 house console. Back in the shop, Audio Analysts completed work on four of its six scheduled CADD house and stage consoles.

Tasco Sound (Camarillo, Calif., and London) expanded its substantial EAW loudspeaker inventory by adding additional KF850s, SB850 subwoofers and eight KF1000s. Tasco had a part in the design specs for the powerful new KF1000 cabinet. The KF1000 can deliver, theoretically, a maximum 126 dB at 600 feet and be flown six deep on a new flying grid. Tasco has all eight KF1000s out on the current **Kiss** tour (as well as 850s) and more scheduled to go out with **Poison**. Other equipment purchases this year include several Yamaha PM3000 consoles and complete electronics and support equipment to go with the new EAW loudspeaker systems. Tasco has had tours out with **Whitesnake** (28 Harwell

stacks, three boxes per stack) in Europe using the UK system. **Dio** (24 stacks of Harwell) and **Motley Crue** (38 stacks of Harwell).

British Columbia's **Jason Sound Industries** (North Vancouver) kept two touring systems and another system busy throughout the summer and fall and expanded its equipment inventory as well. One of the touring systems was out all summer on an extensive Canadian trek with **Kim Mitchell** that ended mid-September. Currently, the company is winding up a tour with Canadian act **Gowan** (see "On the Road").

Other summer work included the outdoor closing ceremony for Seattle's international Goodwill Games and an outdoor summer se-

ries with the Vancouver Symphony Orchestra, which demanded three shows a weekend at various venues around Vancouver. The company also did national one-offs, various festivals, fairs and the sound for the Molson Indy car race and supporting events in Vancouver. Scheduled upcoming tours are with **Colin James** and rocker **Bryan Adams**. Both tours begin in November; Adams' tour is scheduled to travel throughout Southeast Asia.

To keep up with the increased work load, JSI built 20 more of its proprietary J-60 Series main cabinets, bringing the J-60 inventory up to 104 boxes.

JSI also unveiled a new J-17 monitor wedge loaded with two 12-inch speakers and a 2-inch JBL 2445 compression driver. The enclosure has a low-profile exterior design

with rounded edges and flowing sightlines, similar to the Clair Bros. 12AM wedge.

RAT Sound (Sun Valley, Calif.) is a trio of small regional sound reinforcement companies joined in a loose coalition serving the Los Angeles market. The three companies share the same shop and phone number. **Dave Levine** explains, "We have three completely different proprietary rigs that are each owned and operated separately. The three companies trade gear as needed, and when work comes into the shop it goes to whomever can do it best." Adding to the confusion of having three separate entities under one roof is the fact that this sound company is also known as **Reliable Audio Technology**. "We operate under both names," Levine adds. "RAT Sound is for all the rock and

alternative shows, while Reliable Audio Technology is the handle for our corporate and governmental accounts."

Since RAT Sound started in 1980, it has specialized in doing punk acts and other alternative music shows that few of the other companies have wanted to do. Levine comments on a past example, "One of the things that got us going originally was working three- and four-month tours with the punk band **Black Flag**. We traveled across the country with people, lights and band gear for the headliner and support acts, and sound (16 cabinets), all packed into one 22-foot Ryder truck and two vans." Eventually, all this dedication resulted in RAT finding its niche in the L.A. region. Now the company picks up work with other clients, but still

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 (H) = house (M) = monitor (T) = tech (a) = assistant (C) = crew chief
Bad Co./Damn Yankees See Factor July-December North America	Midas Pro40 36x12x2 Midas Pro40 24x12x2 Midas Pro40 36x16 — Meyer	(48) Meyer MSL-3 (24) Meyer 650 Custom 1x15 Meyer MSL-3	Crest 4001 — Crest 4001 Crest 4001 Crest 4001	Bill Fertig (H) "Night" Bob (B, H) Russell Sladek (M) Randy Brown (aM)
Bloodgood United Sound Associates October-November U.S.	Gamble HC40 40x16x2 — Wheatstone M-16 32x16 — BSS FDS 360	(16) USA MS-1 — (8) USA MS-2 USA MS-W1 USA MS-W2	Crest8001, 7001 — Crest 8001 Hafler P-500 (modified) Hafler P-500 (modified)	Andy Evans (H) Artie Kelly (B, M)
Gowan Jason Sound Industries August-November Canada	Yamaha PM3000 40x8x2 Soundcraft 800B 328x2 Soundcraft 800 32x12 — BSS FDS 360	(12) JSI J-63 (6) JSI J-62, (6) JSI J-61 — JSI J-17	Carver PM1200 Carver PM1200 — Carver PM1200	Bob Shindle (B, H) Pierre-Paul Charbonneau (M) Martin Wareing (aH)
INXS Showco September-Fall '91 World Tour	Harrison HM-5 32x16x2 (with 20-channel extender) Ramsa WR-S840 40x18 — Showco Prism D.C.S.	(78) Prism — (18) Prism Subs Showco BFM 600 Showco Prism	Crown MA1200, PSA-2 — Crown MA1200 Crown MA1200 Crown MA1200, PSA-2	Colin Ellis (B, H) John Roden (B, M) Jeff McGinnis (aH) Bernie Bernil (aM) Eddie Harbin
Santana Sound On Stage May-July Europe July-November U.S.	Yamaha PM3000 40x8x2 — Ramsa WR-S 840 40x16 — Power Physics	(16) Power Physics 842 — (8) Power Physics Sub Power Physics KB-II Meyer UM-1	Crest 6001, 4801 — Crest 8001 Crest 4001, 2501 Crest 4001, 2501	Bruce Jones (B, H) Rick Pope (B, M) Dave Muzzini (aH, C) Bill Fuquay (aM)

concentrates on the alternative music market.

A sample of RAT shows and clients include the L.A. Music Center's annual anniversary party at Dorothy Chandler Pavilion, regular work with the **Godfathers** and the **Untouchables**, a four-month national tour with **Metal Church** last year, **Kool & the Gang** all across Asia for a PACF military-sponsored tour this past spring, and 16 Sunday concert shows for L.A. County this summer. Recently, RAT had a touring system out for five weeks with **Danzig** and **Soundgarden** co-headlining. RAT also does a considerable amount of subcontracting for larger companies and work with promoters in L.A.

Up in the Northwest, **Mark Strosahl**, owner of **United Sound Associates**, states, "It's been a fabulous summer for us with a great deal of fairs throughout the Northwest and California and lots of one-offs. The fair work has been steady since early June and is scheduled to last through late October with the longest layoff lasting one week. Our

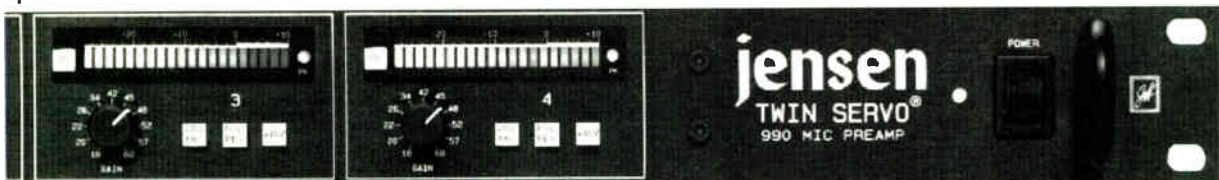
large main system has been working at its maximum capacity." Currently, United, located in Yakima, Wash., is on a national tour that started in October with Christian act **Bloodgood** (see "On the Road"). New equipment includes 32 United-built, proprietary, JBL-loaded, four-way main cabinets and Crest amplifiers.

Sound reinforcement companies always seem to be looking for and trying innovative approaches in order to upgrade their live audio production. **Jacobs Audio** (Colorado Springs) reports successfully using a deep bass-absorbing Tube Trap system—usually found in studios—for reducing the ever-present bass rumbling behind the main loudspeaker boxes. Owner **Chris Jacobs** states, "Recently, we used the Acoustic Science Tube Trap bass system for both indoor and outdoor use. We have noticed a 3dB increase in bass out the front, a 6dB decrease in total stage monitor volume levels and a noticeable decrease in the bass level onstage."

Apparently, the decreased bass presence onstage allows the performers to maintain lower monitor volume settings. The advantages of this alone should make any mixing engineer salivate. Jacobs adds, "We do a considerable amount of classical music shows, and we needed to offer something that would give us an advantage over our competition. After listening to the column-shaped Tube Traps in a large studio environment, I figured they would work outdoors as well. After using the Tube Traps several times in live applications, I must say they work very well for us. It's simple to use them. I place three of the bass Tube Traps behind the cabinets on both sides of the stage. They deaden the space behind the speaker enclosures and project the bass forward."

Off the Wall Sound and Lights (North Miami Beach, Fla.) traces its roots to 1978. The company works primarily in the southern Florida region with occasional forays into the nearby Caribbean islands and sporadic dates across the country. Most of Off the Wall's audio pro-

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World Radio History

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duction centers around industrial and corporate events, but the company also works national one-offs and local clubs in the Miami area. Owner **Blair Simmons** says, "We do a lot of hotel-type jobs as well as large and small industrials. We service a variety of acts and events ranging from philharmonic orchestras to full conventions and rock concerts." Unlike most sound companies, Off the Wall is slow during August and September but busy throughout the rest of the year. Being in Florida will do that to an audio company.

Recently, Off the Wall purchased new EAW KF850 and SB850 cabinets for its primary main concert system and developed a custom, proprietary I-beam construction flying system. "We really like the 850s," Simmons states. "They're amazing boxes. Ours are loaded with the TAD drivers." Carver 1.5 and Crown MA1200 and MA2400 amplifiers supply the power. The older main system comprises 32 flyable stacks of EAW BH800 and

MH102 boxes powered by Carver 1.5s on the highs and Crown MA1200s for the mids and lows. Additional P.A. speaker inventory includes a dozen Meyer UPA-1s and four R2650 subs for hotel work. Monitor speakers are Crown MA1200-powered EAW 600s and low-profile EAW 222 wedges. Mixing console stock includes a 40-channel TAC Scorpion and Soundcraft 500 in the house and a Ramsa WR-S840 and TAC Scorpion 30x12 for monitor applications. Klark-Teknik DN360 equalizers are used both in the house and onstage. The lighting department can field two separate systems and includes 15 Thomas trusses and 300 cans. Recent equipment purchases include several BSS 504 quad gates.

Spectrum Sound (Nashville) has made a name for itself around town doing country tours, national one-offs, occasional industrials, equipment sales and installation work. Spectrum has ongoing tours out with **Lee Greenwood** and **Ricky Skaggs**; both artists have been touring with Spectrum for the

past several years. Since they each do extensive work on the national fair circuit, only monitors and electronics are carried, usually. Spectrum provides each with a Turbo-sound-based main house system made up of 36 TMS-3s, eight TSW-124 subs and several long-throw boxes powered by QSC 3800 and 3500 amplifiers when needed. Monitor wedges are custom-designed, JBL-loaded, low-profile enclosures powered by QSC MX1500 and MX700 amps. Two pairs of Yamaha PM3000 and Ramsa WR-S840 consoles handle the mixing duties.

(Note: Some of the data in this column and in "On the Road" is based on information provided by the companies. Address all correspondence and photos to Mix Publications, Sound Reinforcement Editor, 6400 Hollis Street, Suite 12, Emeryville, CA 94608.) ■

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

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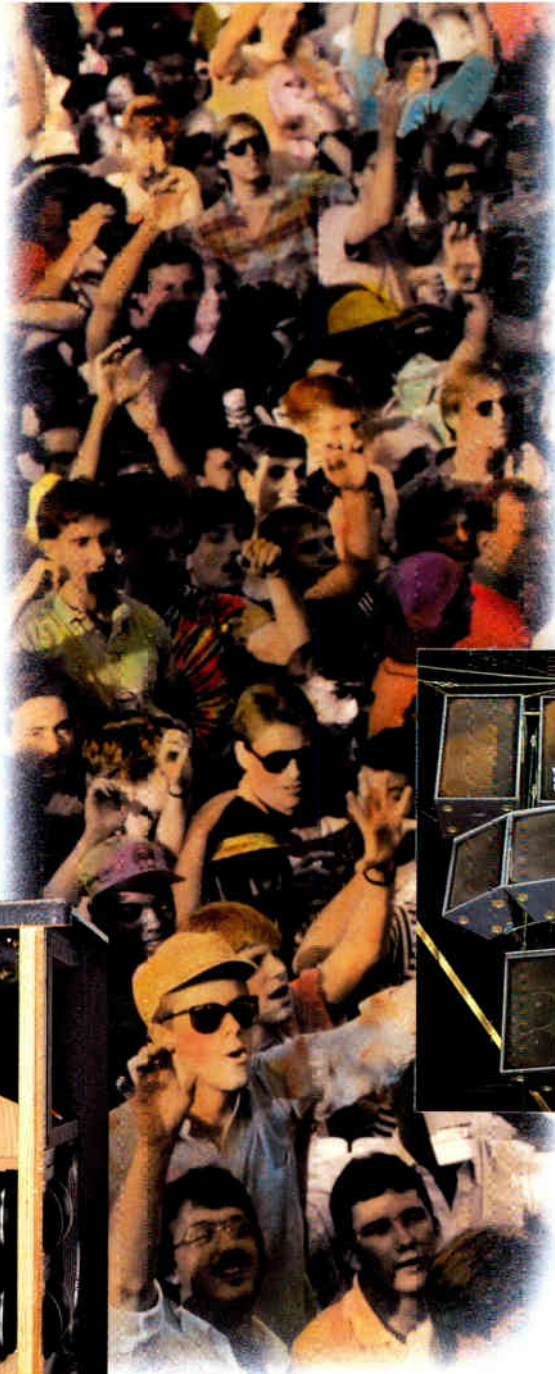
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SOUND COMPANY:
MHA Audio
HEADLINE ACT:
The B-52's

SUPPORT ACT:
Ziggy Marley
VENUE:
Shoreline Amphitheatre,
Mountain View, CA

DATE:
August 17, 1990—
evening/outdoors
SOUND SYSTEM SIZE:
Arena—20,000 people

PERSONNEL

House Mixer: Mike Scarfe
(MHA crew chief)
Monitor Mixer: Kevin Sims
Technicians: Paul Parker,
Keith Suffecool
Support Act House Mixer:
Errol Brown
Support Act Monitor Mixer:
Denis Thompson

CONSOLES

House: Hill Concept Series 6400
48x16x2
Monitor: Hill M Series 3 32x10
Support House: Yamaha PM3000
40x8x2
Support Monitor: Ramsa
WR-S840 40x18

AMPLIFIERS

Main FOH: Hill DX3000 Series 2
Monitors: Hill TX1000

MAIN LOUSPEAKER**CABINET**

Manufacturer: MHA proprietary
direct radiating
Model: M6
Total FOH Quantity: 60
Components/High: 2-inch
Renkus-Heinz 3301 compression
driver/Renkus-Heinz horn
Components/Mid: (2) Tannoy
10-inch coaxial drivers with dual
concentric 1-inch compression
driver
Components/Low: 6-volt
10-inch bass cone drivers

Configuration: 30 cabinets per
side; 6-wide x 3-deep flying;
6-wide x 2-deep on the floor
Flying System: Custom-built
with steel throughout; flown via
steel bars and pins
Truck Pack: Stacked two across
and three high

ONSTAGE MONITOR WEDGE

(headliner only)
Manufacturer: MHA proprietary
Model: W212
Total Onstage Quantity: 12
Components/High: JBL 2441
compression driver/Renkus-Heinz
flare horn
Components/Mid: Tannoy
10-inch midrange coaxial with

1-inch compression driver
Components/Low: (2) ATC
12-inch drivers

HOUSE RACK

(headliner only)

Equalizers: Klark-Teknik DN360

Crossover: Hill 3XMVF

Effects: Lexicon LXP-1,

(2) Yamaha SPX900, Roland

SDE-3000A, Yamaha REV7

Gates: (4) Drawmer 201

Compressors: (4) BSS DPR402

Misc: Klark-Teknik DN60

analyzer, Furman PL-Plus power

conditioner and light

Multipin & Cabling: BICC

multipin connectors on a unique

1/4-inch patch bay that is built

into the rear of the Hill Concept

6400 console case tray

MONITOR RACK

(headliner only)

Equalizers: White Series 4400

Crossovers: Hill 3XMVF

Misc: MHA active stage box for

sending all the inputs down to the

house at line level

The mixing position features a 48-input Hill Concept Series for house mixing, with a 40-channel Yamaha PM3000 for the support act.



REVIEW

MHA's audio production demonstrated good vocal intelligibility, smooth and even coverage throughout the venue, and an excellent mix from Mike Scarfe during the entire show. There is tremendous low-end punch available in this system; it was especially noticeable on the opening act's heavy bass and kick mix. This speaker cabinet's performance and design ought to open the eyes of those who think small-diameter, low-end speakers can't cut it in large FOH systems.

The only production aspect I could find fault with was that the

flying main cabinets should have been positioned for slightly more long-throw coverage due to the relatively weak in-house lawn system level. Since this was only MHA's second time in the venue it was understandable and only a minor point, anyway.

I walked away from the gig thinking that overall this was a well-engineered, pleasant-sounding concert with very reasonable dB levels, plenty of punch and good definition. MHA Audio's system sounded very good at this outdoor venue, and I look forward to hearing it again.

—Mark Herman

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MIXING METAL

Greg Price on Tour with Kiss

FIRST THEY TAKE OFF THEIR MASKS, DUMP THE excessive theatrics and focus on improved musicianship. Then they clean up their sound and go on the road with a brand new touring concert system,

by Mike Stande

present extended-range coverage evenly throughout the audience area. What's going on here?

The show is still "Kiss," but now it sports a new production package that has been impressing promoters and rock fans alike. During the spring and summer of 1990, the tour played to major venues nationwide, such as Nassau Veterans' Coliseum in New York, Tampa's Sun Dome and Atlanta's Lakewood Amphitheatre. The flash-pots, the lasers, the acrobatic guitar solos and the impressive stage set are still here, but the big news is that heavy metal sound specialist Tasco (Cama-

rillo, Calif.) has assembled a new, high-end touring sound system.

Live sound specialist Greg Price, who began his mixing career more than a dozen years ago working with pop and MOR acts like Pablo Cruise and Glen Campbell, is in charge. Metal Lite? Not exactly. Price's powerful but precise musical approach to live mixing has definitely complemented both this show and Tasco's new arena sound system, which features Midas consoles, Crest power amplifiers and speaker enclosures from Eastern Acoustic Works.

"I came from a pop background," notes Price, who has recently toured with acts like Night Ranger and Poison. "I try to manage a metal mix the same way I would a pop show. It's much more challenging when you add some finesse, instead of just turning everything up. Maybe that's why a lot of metal music sounds so boring to a lot of people...it's just a volume thing for some sound mixers.

"Basically, what we do is remove the harmonic distortion points that are inherent with a hard-edged guitar band," he continues, "and then focus on blending the whole mix, from vocal harmonies to percussion accents, so that you hear *music*, not just noise. The kids notice the difference. They know the tunes; they want to hear the words. They know how pleasing it can sound. So why not work to give it to them? That means a high-fidelity sound system, cleaned-up instrumental inputs and a focus on musical mixing."

Price found that hearing protection is an important aspect of doing his job. "When setting up during the day," he says, "a lot of guys will open the system

All Photos by Steve Jennings





Above: Frontal view of Tasco's loudspeaker system set up in The Spectrum, Philadelphia, Pa. Below right: House sound engineer Greg Price at the mix position with a 40-input split-frame Midas console, supplied by Tasco.

up wide, play their favorite compact discs at crush, or whatever. Or maybe put pink noise through the system for an hour just to annoy the lighting crew. That's not really where it's at. You can totally ruin yourself for the show if you abuse your hearing early on in the day. I already know what the system can do. I know what the band can do. So I don't need to prove anything. And soundcheck is not the time to beat against the walls of an empty arena with high SPLs. I wait until showtime, keep the sound of the show at a manageable level, and it works well for everyone."

The system Price has at his disposal was packaged by Tasco after a lengthy examination of available amplifiers and loudspeaker systems. Working with EAW designer Kenton Forsythe, Tasco engineers assembled a modular,

packaged sound system that also could include long-throw components. The result of this collaboration is the new KF1000, identical in size and shape to the popular KF850 but designed with far-throw applications in mind.

Featuring new components, including a twin 12-inch, long-throw, low-midrange horn chamber, the KF1000 gives Tasco's KF850 arena systems more punch. "The comments we are getting back from out on the road are very good on the KF1000," notes Tasco's vice president of operations, Steve "Griff" Griffiths.

Price's mixing strategy on the Kiss tour makes an interesting use of the long-throw speaker packages. "We put the KF1000's on the top row of the flying arrays," he says. "They are fed with separate left and right crossovers directly from the stereo vocal subgroup

and the stereo effects group. This gives me an 'overlay' of sweetened vocals on top of the full music mix. The vocal harmonies reach the farthest seats, even in the largest arenas. I can achieve good penetration of the crowd noise and reach way back, even in bad, boomy halls. It gives me a variable speaker system to work with on top of

the regular full-range mix."

Tasco supplied the Kiss tour with 48 EAW KF850 full-range enclosures, 24 SB850 subwoofers, and eight of the new long-throw KF1000s.

A dozen of the subs were stacked two high in front of each audience corner of the stage; portions of the scenic stage set, looking like a high-tech junkyard, were stacked atop these. Twenty-three KF850s were flown on each side with three chain motors, using compact



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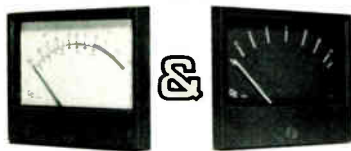
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aluminum hanging beams. "We've specified a beefier hanging hardware package, so that we can now fly our cabinets six deep when we need to," Griffiths explains. "This is a quick and easy system to get off the ground and in the air, and we get excellent full-frequency throw for large audiences."

The system drive package features EAW's MX800 CCEP™ (Closely Coupled Electronic Processor) with customized cards for Tasco. Thirty-two Crest Model 8001 power amplifiers, packaged four per compact rack, power the system. Three separate 30-ampere circuits are provided for each amp rack. A newly fabricated snake cabling system and beefy 10-gauge speaker wiring harnesses tie the system package together.

On this Kiss tour, Price relied on a few signal processing "tricks" to achieve a powerful, yet well-blended mix. A dbx 120X Subharmonic Synthesizer was fed an auxiliary mix—made up of instruments intended to have low-bass impact—to the subwoofer arrays. Vocal and stereo effects subgroups passed through Klark-Teknik DN+10 parametric equalizers before going to the separate long-throw components.

The usual channel-insertable compressors and noise gates were available for vocal and drum inputs (dbx 903 and 904, and Drawmer DS201s). The arsenal of special effects devices included two Eventide H910 Harmonizers, a Roland SDE-3000A digital delay, Lexicon 224XL, 200 and PCM70, Yamaha REV7, and the TC Electronics TC 2290 digital delay and effects control processor. The main left and right system drive package included three EAW stereo MX800s, Klark-Teknik DN27A graphic equalizers and dbx 165A Over-Easy compressor-limiters.

Price ran the show from a 40-channel split-frame Midas mixing console. A separate Midas desk was available for the opening act. "You have to have the right stuff to achieve a certain consistent level of results," Price says. "But I don't like to get stuck on the hardware itself. They're just tools of the trade. Where it really happens is out there in the room—the way the sound system interacts with the acoustics of a given venue. Getting a good mix is the first step; managing how the mix is presented to the audience through the sound reinforcement system is just as important."

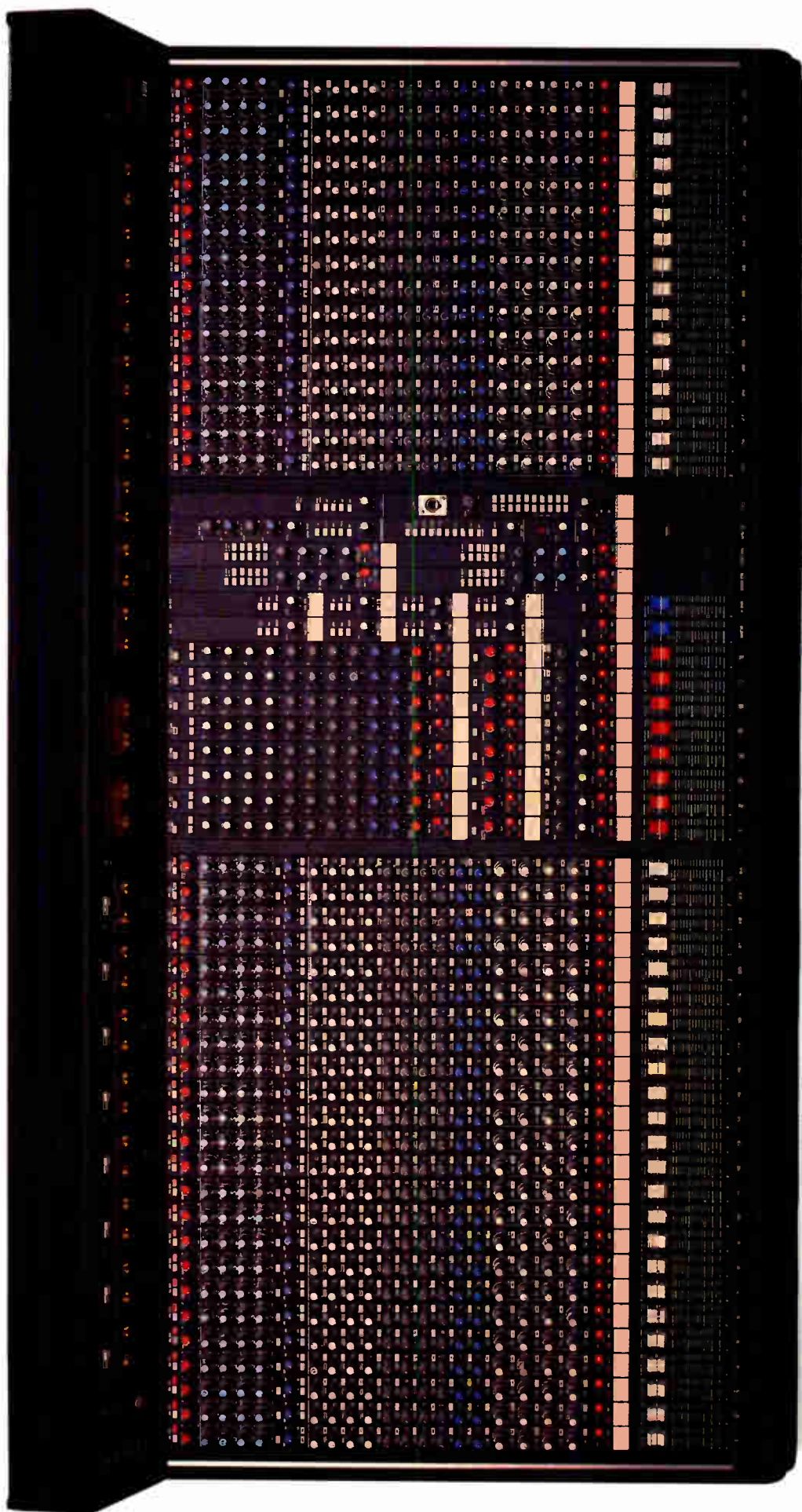
With years of experience working with varied acts like Huey Lewis & the

News, Jefferson Starship and others, Price found that high-SPL shows are particularly challenging. "Metal music is really no different from anything else, when it gets right down to it," he offers. "You have melody, rhythm and a harmony structure. You have to find a place for each voice and instrument that *works*, so it can be heard, and it blends without sticking out too far. In terms of managing high volume, I try to hold things back. I like to use the different sound textures like accents, maybe a guitar riff or a drum crescendo, punching them up a bit to make a point and then backing off. If you let everything just creep up and up, pretty soon you don't have a mix anymore. And that means noise instead of music."

With a mixing philosophy based on taste and dramatic effect, and a new arena sound system to work with that is intended to offer better audience-area coverage, Price was prepared to do what he does best. "When I first came into this situation," Price recalls, "everyone was telling me that all I had to do was turn it up and be on auto-pilot, because it was just guitars, guitars and more distorted guitars. But I thought to myself, 'Maybe no one has ever taken a fresh, new look at this band's sound and what all there might be to work with!' Rather than just have the whole show be the same, I'm focusing on the melody and harmony aspects of the different tunes. As a group starts to sound better for its audiences, they are inspired to play to their highest potential. When the players know they are getting across—even despite difficult acoustical situations—then they start to make every show a peak performance."

Kiss have been active on the concert stage for well over a decade, and as the band has matured, so has its audience's expectations. The 1990 tour demonstrated a commitment to a higher-level sound, lighting and staging production. As far as arena rock shows go, this concert delivered what the fans came for: a dynamic, highly visual, high-energy show. The addition of Tasco's new sound system and Greg Price's mixing strategies made the concert audio one of the event's highlights. ■

Mike Standle, a well-known consultant specializing in large-scale concert sound, is currently contesting the patented microphone support assembly that bears his name.



RAMSA WRS-840 Monitor Console. Ask these sound companies: A1-Audio (The Temptations, Donna Summer, Tony Bennett, K.T. Oslin, Gladys Knight). **Altel Sound** (Frank Sinatra, Liza Minnelli). **Burns Audio** (Academy Awards, Grammy Awards, Golden Globe Awards, Academy of Country Music Awards, Kennedy Center Honors, San Diego Civic Auditorium (Summer Season), San Diego Starlight Bowl (Summer Season), Las Vegas Spring Mountain Ranch (Summer Concert Series), Warner Brothers Rededication Ceremonies, Soul Train Music Awards). **dB Sound, Chicago** (Aerosmith, Stryper, New Order, P.M.D., Sugarcubes, Prince). **Eighth Day Sound** (Erasure, Bad English, Alice Cooper, Lisa Stansfield, Jethro Tull, The Escape Club, The Tom-Tom Club/Deborah Harry, Ramones/Jerry Harrison Tour, Tom Jones, Kool & The Gang). **Maryland Sound** (David Bowie, Neil Diamond, Debbie Gibson, Kenny G, Luther Vandross, Anita Baker, Hall & Oates, Miami Sound Machine, David Lee Roth, Belinda Carlisle, Melissa Manchester, Patti LaBelle, Paul Simon, George Benson, Steve Miller, Pink Floyd, Roberta Flack, Dolly Parton, Anne Murray, Joe Jackson, Boy George, Stevie Wonder, Earth, Wind and Fire, Neil Young, The Cure, Whitney Houston). **Naked Zoo** (Wayne Newton, The Commodores, Roger Whitaker). **Pro Media** (Luciano Pavarotti). **See Factor** (Lou Reed, David Byrne, Smokey Robinson). **Sound Image** (Barbara Mandrell, Jackson Browne, John Denver, Jimmy Buffett, The Robert Gray Band). **Sun Sound Audio** (Joe Cocker, Harry Belafonte, TheCult). For information, contact: Ramsa, 6550 Katella Ave., Cypress, CA 90632, 714-373-7278.

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Unveiled at the AES convention in Los Angeles is the CM121, the latest addition to the CM (Cluster Module) Series from Renkus-Heinz of Irvine, Calif. The CM121 is a two-way system with a 12-inch woofer and 1-inch HF driver mounted on a constant-beam-width horn. Like all other CM Series systems, the CM121 features a multi-angled cabinet design that facilitates installation in a variety of close cluster arrays. Enclosures are birch ply, and they're available in carpeted, black painted or unpainted finishes to match any decor. An accessory SUB121 subwoofer extends system performance down to 42 Hz.

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Featuring a 400W RMS power rating is the model 6234 extended, low-frequency loudspeaker from McCauley Sound of Puyallup, Wash. The 12-inch driver has a 4-inch edge-wound copper voice coil mounted on a Capton/Nomex former with a double-spider/double-roll suspension for high-power handling capability. Specs include a frequency response of 45 to 3,000 Hz and a sensitivity of 96 dB (1W/1m). Its retail price is \$225, and a five-year warranty is standard.

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**► TURBOSOUND TMS-5**

Designed specifically for club sound applications, where a high-SPL—yet compact and unobtrusive—flying system is needed, is the TMS-5 from Turbosound (distributed by AKG Acoustics, San Leandro, Calif.). The TMS-5 sells for \$2,250 each and incorporates a 12-inch LF driver with a patented TurboBass device, a 10-inch midrange driver with a TurboMid device and a 1-inch compression driver loaded on a custom flare horn. Other features include a user-reconfigurable high/mid section that allows operation in vertical or horizontal applications. A TSW-121 subwoofer is optional.

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by Craig Anderton



SAMPLE + SYNTHESIS

Slowly, without much fanfare, there has been a major revolution in synthesis. Sample + synthesis—a combination of sampling and synthesizer technology—has quietly become the “dominant life form” in the world of sound generation and will probably retain its position of pre-eminence for at least the near future.

To understand how this came about, let's look at some history. Synthesizers were originally billed as being able to re-create the sound of any instrument, which was a very appealing marketing angle but had little basis in fact. Although many musicians were very happy to use synthesizers for what they *could* do—a sort of audio impressionism—those with a more literal mindset were disappointed.

Samplers sounded more realistic, but sometimes they were *too* literal and could not provide the subtle nuances of FM or analog synthesis. Furthermore, samplers were hobbled

by high memory costs and a clientele that seemed to have even less interest in creating their own samples than synth owners had in creating their own programs.

Then a succession of instruments started to meld sampling and synthesis. Wavetable synthesizers, such as the Ensoniq ESQ-1 and Kawai K3, used sampled as well as synthesized waveforms to supplement the traditional triangle, sawtooth and square waveforms. With proper amplitude and filter shaping, these waveforms could provide more realistic instru-

ment simulations than standard waveforms.

But the instrument that really redefined the modern keyboard market was Roland's D-50. It capitalized on the fact that a sound's attack transient is the crucial element that lets the ear/brain combination identify a sound; it doesn't take more than 100 milliseconds or so to recognize, say, the sound of a pick hitting a

Be creative.
Layering a boring triangle wave with a classical guitar multisample can even out the differences between multisamples.
Go ahead, throw a vibraphone transient on the beginning of an electric piano.

guitar string. Therefore, in addition to including synthesized and sampled periodic waveforms, the D-50 added a repertoire of attack transients—mallet strikes, string scrapes and plucks, and so on. When grafted onto the static, looped waveforms, the transients helped give the “look and feel” of sampling but with one major advantage: The memory needed to store attack transients was minuscule compared to the amount of memory needed to store an entire sample, thus reducing the overall cost. The D-50 also included onboard signal processing, not just to give a more polished sound but to “smooth over” the transition between sampled transient and sustained loop. By giving a collection of realistic and impressionistic sounds without the expense of lots of RAM or the hassle of loading disks, the D-50 became the first unqualified hit of the post-FM era.

Then Korg took the spotlight with the M1, which increased the sample memory so as to include more than just the attack transient. (By this time, memory prices were starting to decline again.) The 16-bit resolution and multisampled sounds (the D-50 was 12-bit and stretched one sample over the entire keyboard) gave an even more realistic approximation of standard acoustic and electronic instruments. The M1 also added a sequencer to tap the burgeoning “workstation” market.

Now there are several keyboards that combine sample + synthesis (S+S) technology, a sequencer and signal processing, but this column will focus on three that use extremely divergent technology to accomplish somewhat similar musical results: the Yamaha SY77, the Ensoniq VFX^{SD} and the Peavey DPM-3.

The SY77 combines FM synthesis and sampling. The most basic SY77 sound unit is the *element*, which can be either a sampled waveform or FM synthesis-generated sound. Elements can be combined “in parallel” with an FM element to provide additional depth to a sampled sound; but more importantly, sampled waveforms can serve as oscillators for FM sounds—quite an extension to standard FM synthesis.

Each element has numerous processing options (panning, filtering, detuning, real-time control, etc.), although FM by itself is an extremely expressive synthesis engine. The SY77's version of FM offers more algorithms

than older versions and three feedback loops instead of one.

Ensoniq's VFX^{SD} also uses custom chips to generate S+S sounds. However, since the SY77's forte is sounds rather than signal processing or sequencing, the VFX^{SD}'s design seems to give equal priority to all three facets. The signal processing in particular stands out—effects parameters can be tied to various modulation sources—making for unusually expressive processing. The quality of the samples is generally excellent and includes what Ensoniq calls “transwaves”—waves that

have the same kind of dynamic motion traditionally associated with techniques such as pulse wave modulation or resonant filtering.

Where the SY77 relies on clever sound-generating technology to achieve its trademark sound, the VFX^{SD} relies on clever architecture. Layering is a way of life on the VFX^{SD}, resulting in huge sounds that have digital complexity as well as analog “fatness.” Finally, of the three synths described here, the VFX^{SD}'s sequencer—while still not as feature-laden as a personal computer-based program—is worth mentioning because of its fast and logical operation.



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novel ways can give a staggering number of impressionistic sounds in addition to the literal ones.

Choosing an S+S synth is not easy. The current models are uniformly sophisticated and more are arriving all the time: Roland's new D-70 sounds great, Kawai's K4 is definitely a best buy, and E-mu's Proteus/2 will probably do as fabulously as Proteus/1. Furthermore, the keyboards featured in this column have now generated various offspring: Yamaha's TG77 is a rack version of the SY77, Peavey has announced a rack version of the DPM-3, and Ensoniq has introduced the SQ-1 (basically a VFX with a few less features, resulting in a much lower price point) in both keyboard and rack versions. Never have so many quality sounds been available for so little to so many.

Probably the best shopping strategy is to decide if one synth has a particularly vital feature for your needs; for example, if you're planning on using the onboard sequencer a lot, the synth had better have one you like. If you're looking for a multitimbral tone module, then the number of voices becomes crucial. But remember, too, that all S+S units have their own distinct sonic personality. Audition a piano on five different S+S instruments, and you'll hear five different visions of what the ultimate piano sound should be. Eventually, you'll find a synth whose sonic signature matches what you think a synth should sound like. It's like the Les Paul-vs.-Strat controversy in that both are excellent guitars, yet some guitarists will swear by one and some the other. S+S synths are like that.

One last piece of advice: Be creative. Transposing a bass up can make a great keyboard sound, and transposing a keyboard sound down can make a great bass. Layering a boring triangle wave with a classical guitar multisample can even out the differences between multisamples. Go ahead, throw a vibraphone transient on the beginning of an electric piano. There's a whole new world of synthesis waiting to be explored and some no-compromise tools for doing the exploration. Have fun. ■

Craig Anderton is the author of MIDI for Musicians, Home Recording for Musicians, Power Sequencing with Master Tracks Pro/Pro 4 and eight other books. His latest recording is Forward Motion on the Sona Gaia label (distributed by MCA).

Peavey's DPM-3 uses totally different technology from either the VFX^{SD} or SY77. Instead of integrating custom chips dedicated to a particular type of synthesis, the DPM-3 uses three general-purpose Motorola DSP (digital signal processing) chips. As a result, although the DPM-3 is currently an S+S machine, it could be programmed for other sound generation methods, such as vector or FM synthesis. This is the main basis of Peavey's claim that the DPM-3 forestalls obsolescence.

Two of the DSP chips are "oscillators," and the two-oscillators-per-voice architecture gives maximum mileage to the 16 available voices. The third chip is dedicated to signal processing, which again takes a novel turn. You can make up 100 signal processing "patches" and associate any given program with any signal processing patch; this sort of falls in between the VFX^{SD}'s sophisticated implementation and the SY77's more traditional approach. In any event, as with other S+S instruments, the signal processing can be a vital part of the overall sound.

The sequencer has been considerably cleaned up over the past few software updates; it's easier to use and now includes nice extras such as controller thinning. As with the SY77, though, the sound is what grabs you about the instrument. The samples are very clean and punchy, especially once you know how to tweak them.

What's the down side of S+S? First, the final sound quality depends entirely on the care that went into taking the original samples, and your idea of a "sax sound" may not be the same as the sampling engineer's who worked on the products. The SY77 lets you load in new sounds through data cards, and the DPM-3 goes one step further, letting you load new samples in via MIDI. Still, I bet that most people will judge these synths by their onboard samples.

Second, there's the literal nature of S+S synths. It reminds me of organs with their "string," "brass" and "voice" tabs—only this time, the sounds are far more realistic. And that's the problem: With my venerable OB-8, I can get an impressionistic sax sound, but with an S+S machine I get a literal sax that even onboard signal processing can rarely disguise. Fortunately, learning how to program these machines so that you can apply the existing waveforms in

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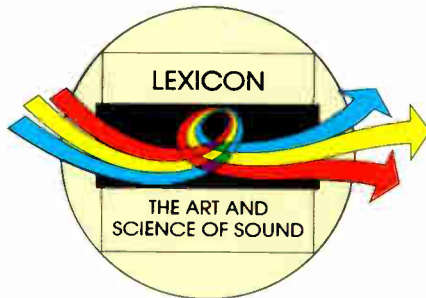
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The Art and Science of Sound

Circle #025 on Reader Service Card

by Doug McClement

ROCKIN' ON THE RAILS

THE CANADIAN MUSIC AWARDS

In April of this year I was having lunch in a Toronto pub when I bumped into John Martin, head of music programming for the MuchMusic network, Canada's 24-hour cable music station. When he said that he had a proposal for me, I braced myself. His last few proposals have included recording Bachman-Turner Overdrive in a maximum security prison in Prince Albert, Saskatchewan, and mixing an outdoor New Year's show at Toronto's City Hall in minus 10-degree weather.

ILLUSTRATION: DAVE MARRS

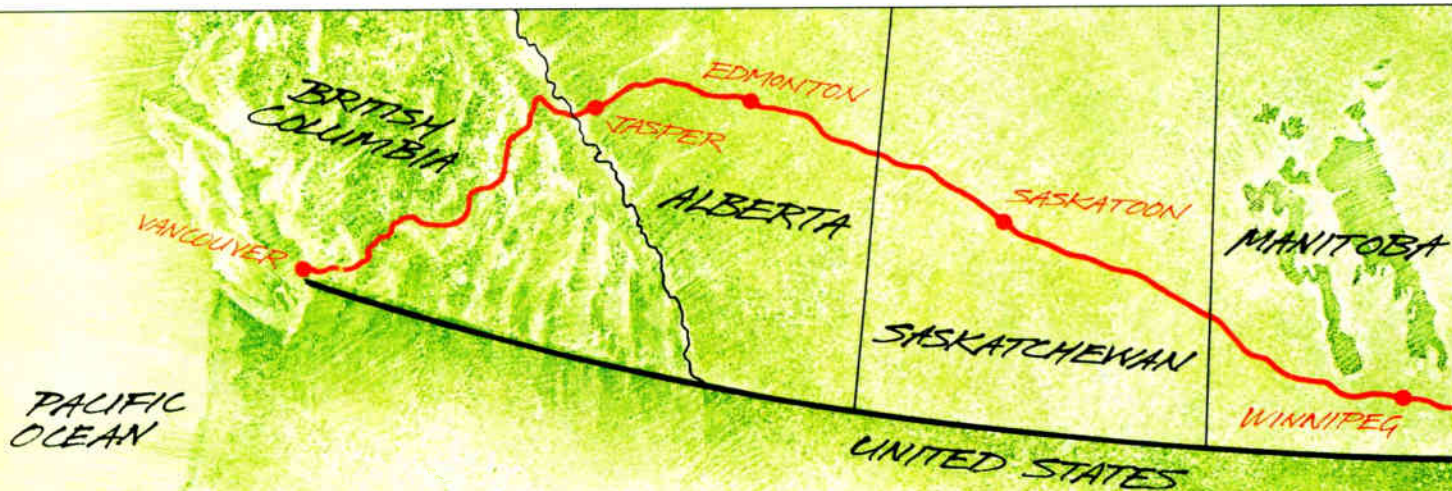


PHOTO: BILL BOBEK



**Northern Pikes in
Sakatoon, June 11**

PHOTO: DOUG MCCLEMENT



National Velvet, June 15, 1990, MuchMusic train

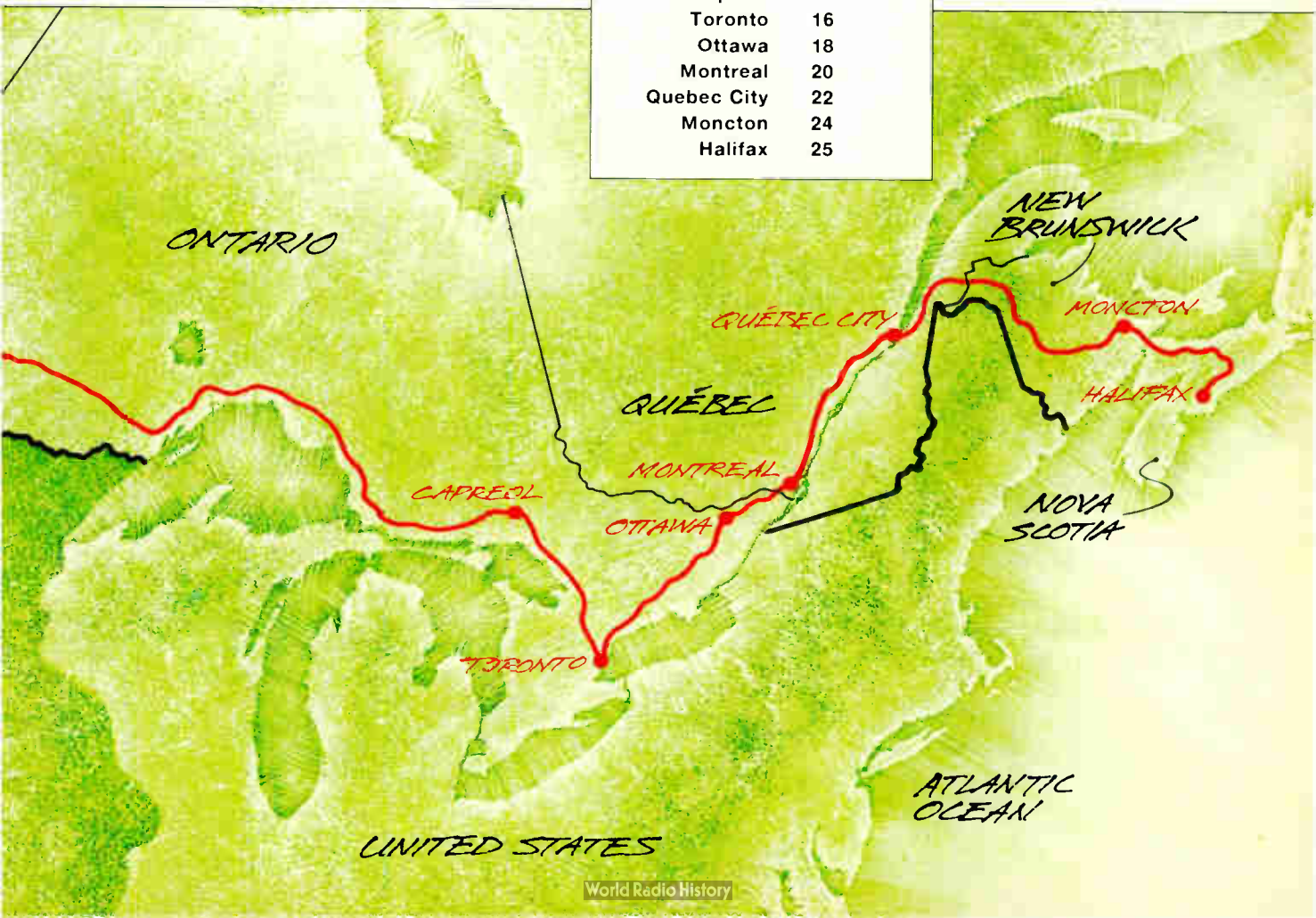
“Do you think it’s possible,” he asked, “to record bands on a moving train?” He then explained that Diet Pepsi had hired an eight-car passenger train to travel 4,000 miles across Canada as part of a taste-test promotion, and MuchMusic was going

along for the ride. There would be concerts in the train stations at nine major cities along the way. A video editing suite and an audio recording studio would be constructed in a baggage car to record jam sessions while the train was in motion. The show would be called “The Canadian Video Music Awards,” and unlike traditional awards shows, an award would be pre-

sented at each stop en route. The only problem was that the train was scheduled to leave in just

MUCHMUSIC/DIET PEPSI TRAIN

Vancouver	7 June
Jasper	9
Edmonton	10
Saskatoon	11
Winnipeg	12
Capreol	14
Toronto	16
Ottawa	18
Montreal	20
Quebec City	22
Moncton	24
Halifax	25



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World Radio History

Halifax on June 26, with prerecorded segments showing the concerts and the on-the-train jams that took place. Few performers had been confirmed at this point, but John Martin was optimistic that once record companies and managers heard of the scope of the project we'd have no problems recruiting talent.

To get a better idea of what we would be working with, we visited the west Toronto railyards and checked out a train set up with cars similar to those we'd be using. The baggage car where we planned to put the audio control room/performance area was nine feet wide and 96 feet long, with metal walls and ceiling and a wooden slat floor.

To deaden the walls, I suggested hanging padded blankets from a truss made from ten-foot 2x4s pressure-fitted to the walls with the vice-like spacers used on film shoots. The floor required carpeting, and we needed to build a wall to separate the performance area from the audio control room.

As my assistant I hired Dave Hillier, formerly a Comfort Sound staff engineer and now a top-ranked live sound mixer based in Halifax. While he as-

sembled and tested the audio system for shipping to Vancouver, I put together the band gear, soundproofing, audio tape and miscellaneous supplies on the tour bus that left Toronto on June 1.

Hillier and I arrived in Vancouver on June 4, and picked up the gear at the airport the following morning. When we arrived at the train station at noon, the MuchMusic video crew was busy assembling the video edit suite in the bar car. Since it was located at the opposite end of the train from our baggage car/studio, we had to run cables 500 feet along the roof. Four audio lines carried the stereo mix, SMPTE time code and intercom signals. Two video returns carried program video from the edit suite and video sync to drive the sync input on the time code generator. It provided time code to the Fostex 16-track and the master Sony Betacam-SP video recorder, as well as feeding to a cable in the performance area, so handheld roving cameras could be jam-synced before each shoot.

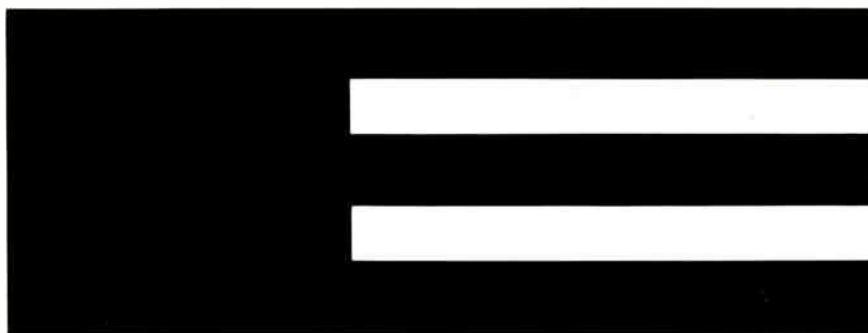
We laid the carpet, installed the truss, hung blankets and set up the gear. Anything loose (speakers, multi-

track, etc.) was fastened down by pan ties or stovepipe wire. We finished testing at 3 a.m., ready for the big send-off seven hours away. The baggage car was packed to the ceiling with video equipment, cases of Diet Pepsi, hundreds of promo T-shirts and 30 cases of film gear for the crew shooting a video for artist Paul Janz.

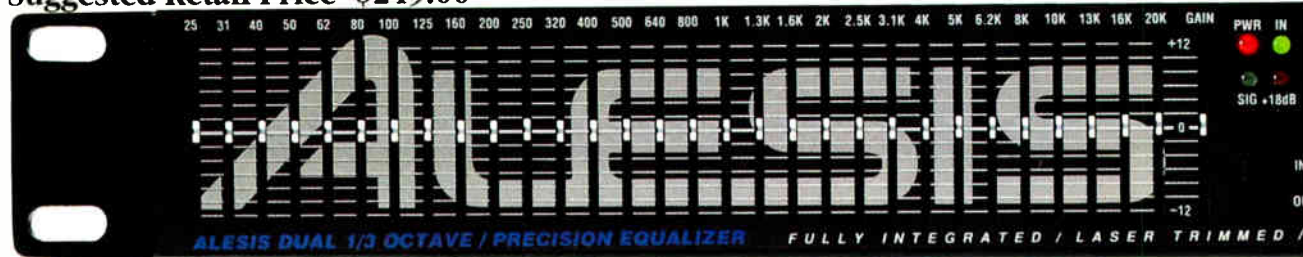
The next morning we strung four 200-foot snakes together to reach the stage, and set up to feed the concert mix to the satellite truck via the video mobile. The Jeff Healey Band, Blue Rodeo and other Canadian music stars played short sets, finishing off with a version of Neil Young's "Helpless" with all the bands onstage simultaneously. As the song ended, we had exactly 20 minutes to strike the mics, stands, and roll up the snake, while k.d. lang accepted an award. It was a mad scramble!

Dave Hillier was coiling the last snake that ran through the crowd of 2,000 when I noticed that the train began to move.

As I looked from the back of the train, I could see him running with the snake over one shoulder and an acoustic guitar in his hand. Our first



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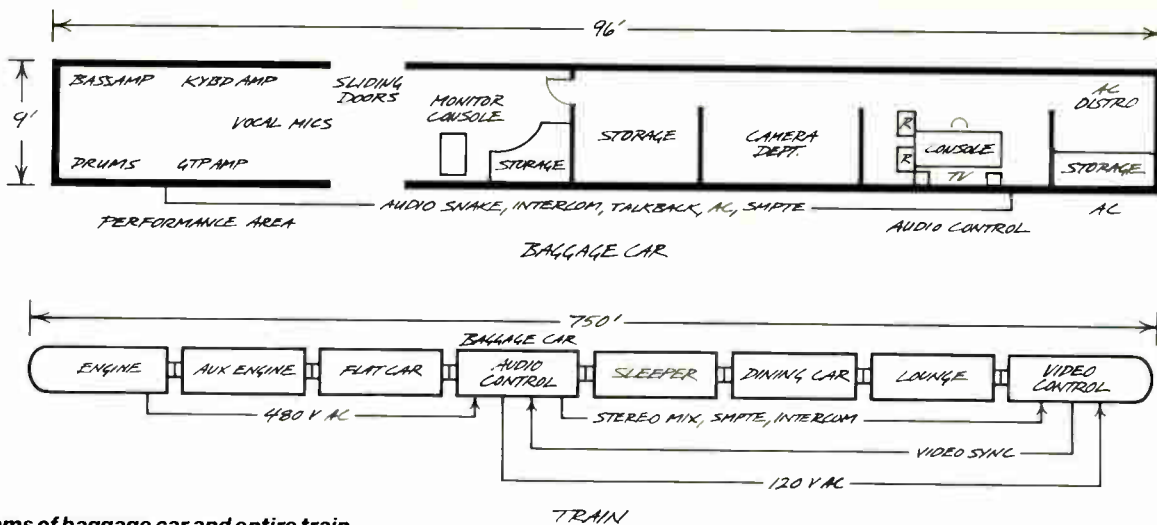
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Diagrams of baggage car and entire train

screw-up, five minutes into the trip: Never leave your assistant behind! Fortunately, 20 miles out of Vancouver, the train was scheduled for a five-minute stop to allow two of the cameras used to shoot the departure to be loaded back on to the train. Hillier joined us there and the director, Tom O'Neill, told us to be ready to record in the baggage car in an hour.

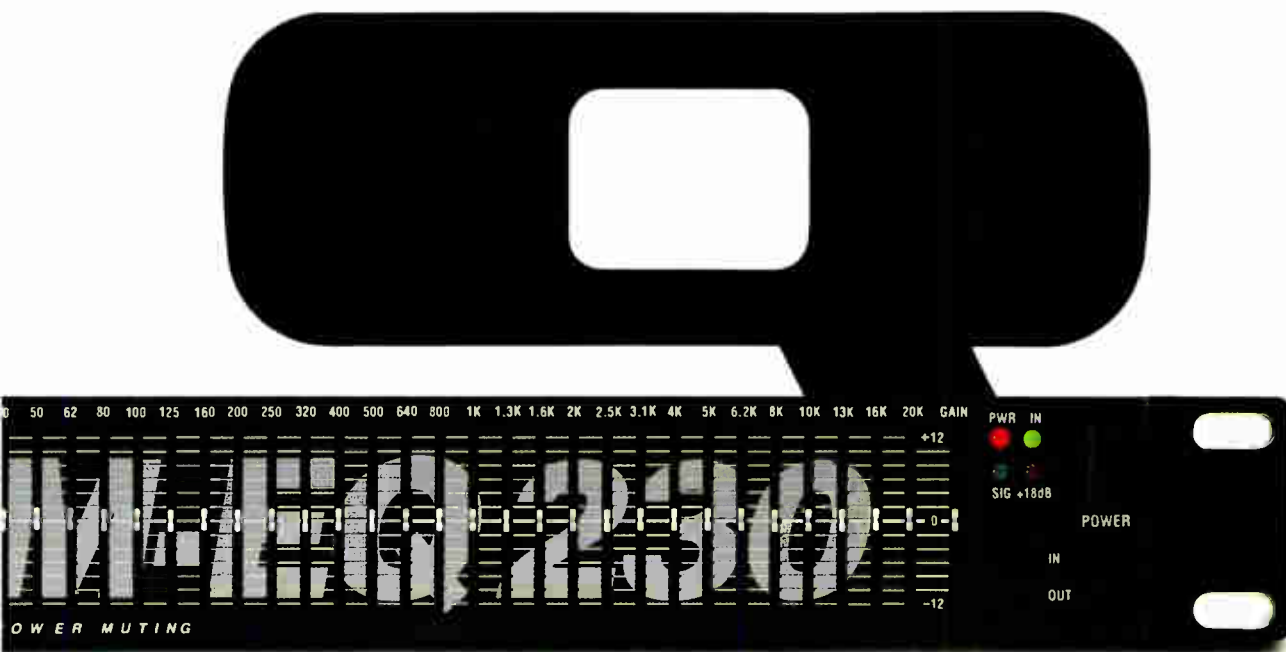
Two hours out of Vancouver, the first jam session (and, to my knowledge, the first multitrack recording

session on a moving train) took place with the Jeff Healey band, Barney Bentall and Paul Janz. After a brief period of adjustment to the gentle swaying of the mic and cymbal stands, a great time was had by all. We even had Janz overdub a keyboard track that was lost during the free-for-all finale at the Vancouver station.

Although it was against railroad regulations, we kept the doors of the baggage car open during the jams to prevent the TV lights from turning the

car into a sauna. Riding through the Rockies with the music playing into the night, we knew that this crazy idea had become a reality. As crew members, train personnel and some of the journalists onboard joined the jam we knew an odyssey had begun. We had already dubbed this the "Sleep Is for Wimps" tour.

Next morning we pulled into Jasper, Alberta, a resort town in the heart of the Rockies. There we recorded an acoustic song with Bruce Cockburn



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walking along the tracks as a freight train passed nearby. After beaming the previous day's highlights back to Toronto via satellite, we continued on. Director O'Neill decided to shoot a Barney Bentall song in the dome car, whose curved windows afforded a great view of the mountains. We hooked up an 8-track Tascam 688 MIDstudio for the first time and it performed beautifully, allowing us to record vocal, guitar, bass, reverb and SMPTE code on separate tracks without disturbing the baggage car setup over 400 feet away. We used the pocket-sized Zoom 9002 effects processor for reverb.

Four hours later we were in Edmonton, the heart of Canadian cowboy country. This was the only stop where we couldn't present a concert on the station platform due to its layout and the frequency of trains arriving on adjacent tracks. So the audio and video control rooms had to be dismantled, taken to a local bar and set up in the basement to record George Fox and Prairie Oyster, two of Canada's top country acts. Due to lack of space, both the audio and video control areas were in the same room. After blowing a few fuses, we realized that the house AC disconnect was incorrectly wired. The situation was corrected in time, and the rest of the concert went well. Then we tore everything down, trekked it back to the train and set it all up again. After a day like this, the crew was ready to blow off some steam, and we went to a downtown bar where Jeff Healey took the stage to jam with a local band.

Leaving Edmonton the next day, we made an overnight run across the prairies to Saskatoon, Saskatchewan. This province is as flat as a tabletop, with nothing to stop the wind, and we had to sandbag the mic and cymbal stands at the station. Saskatoon natives the Northern Pikes played the concert as did Vancouver's 54:40. The Jeff Healey Band made its final appearance, and a panic ensued as we realized that Saskatchewan is the one Canadian province that does not observe daylight savings time. This meant that the train was leaving an hour earlier than our schedules indicated and a couple of crew members barely made it to the train on time.

Shortly after midnight, the train pulled into Melville, Saskatchewan, (pop. 1,000) for a 20-minute stop to change engineers. As we approached the station we could see about 100 kids

waiting. The Northern Pikes grabbed their guitars, opened up the baggage car doors and played an impromptu set as we hung halogen lights and audience mics out the doors to pick up the crowd's reaction. The people couldn't believe what was happening; our final camera shot shows the Pikes' lead guitarist hanging out the door as we departed, playing a solo while the kids were running alongside the train.

Later that night, the onboard hijinks continued as the Jeff Healey Band's non-stop card game (Healey has a set of Braille cards) gave way to the Pikes' portable hockey game.

The next morning, June 12, we arrived in Winnipeg, Manitoba, for a concert with National Velvet and the Northern Pikes. The advance publicity that the train received in the newspapers and on television had caused the crowds to swell, becoming larger and larger as we headed eastward. The P.A. system was no longer adequate for the number of people showing up. The advance crew was now getting into town the night before, and offering a local band with a big sound and light system an opening spot on the bill and a four-camera videotape of their set in return for the use of their system. This worked out well for the rest of the tour, both for the MuchMusic crew and for the local bands involved, who received national exposure on MuchMusic's *Fax* show.

Leaving Winnipeg, the train spent 24 hours traveling through the province of Ontario on its way to Toronto. Northern Ontario is rugged forest and mining country with small towns every 100 miles or so. At the town of Sioux Lookout, National Velvet performed another of the whistle-stop mini-concerts for a crowd of about 250. In turn, the audience treated us to a spontaneous rendition of our national anthem, "O Canada," a very moving moment for the performers and crew. We were just beginning to realize how much the train meant to the smaller towns in the heartland of the country. Indeed, it was as if the circus was coming to town.

The next day we were scheduled for a three-hour maintenance stop at the mining village of Capreol, Ontario. A call on the cellular phone informed us that the mayor had closed the local school and 2,500 people would be out to greet us. This posed a problem, as no concert was scheduled, and the bus with the stage gear and crew was on its way to Toronto and now out of cellular

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range. We contacted a P.A. company in Sudbury and specified a system to be in place at the station as we pulled in. We even listed mic inputs and stage plots, knowing that we had very limited time to set up. After a 9 a.m. whistle-stop concert in Home Payne, Ontario, we arrived at Capreol and a great 90-minute show was put on by National Velvet, Paul Laine and Jane Siberry.

We arrived in Toronto at 6 a.m. on June 16. This portion of the awards would take place at MuchMusic's main studios downtown and featured rappers Maestro Fresh Wes and Devon with Quebecoise dance artist Mitsou. The technical chores were being handled by Much's house crew, giving us some time off.

We left Toronto at 10 p.m. the next evening after doing massive amounts of laundry and getting some much-needed sleep. Onboard for the eight-hour trip to Ottawa were Murray MacLaughlan and the Jitters. The jamming was intense, and the musicians were still playing as we pulled in at sunrise.

The next day, a member of Parliament rose in the House of Commons praising MuchMusic and encouraging the government to reconsider its recent cutbacks in passenger rail service across the country. Our tour had become somewhat of a lightning rod of nationalist feeling in Canada, particularly given the fact that the railroad was instrumental in bringing the various provinces into confederation over 100 years ago.

Fate had it that we were traveling across Canada in June, during the major constitutional battle regarding the status of the predominantly French-speaking province of Quebec. Heading into Montreal the evening of June 20, we removed all the English MuchMusic and Diet Pepsi posters and put up French ones. The train backed into the station, so that the side with the French signs would be facing outward toward the crowd. We then headed for MuchMusic's sister station, Musique Plus, for the video awards to Quebec artists and videomakers.

The Montreal-to-Quebec City segment of the trip featured performances by Jim Corcorane, Luc de Larochilliers, Sylvie Tremblay and Genevieve Paris. Our crew worked in its best high school French, and we taped some great songs in the dome car as the sun set on the St. Lawrence River Valley. On June 22 we taped a concert featur-

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Now only five days away from broadcast, we had a preliminary running list of the first half of the program, and director O'Neill and I decided which songs needed remixing. On June 23, while the rest of the crew enjoyed the sights of Quebec City, O'Neill and I mixed 15 songs to picture and laid the mixes back to a Betacam SP tape prestriped with time code. We handed the tapes to MuchMusic's executive producer, Moses Znaimer, who was flying back to Toronto that night. The editors at MuchMusic would lay the new mixes back into the edited show *if* they had time. They were scrambling just to wade through the 70 hours of videotape that had been shot up to this point.

We left Quebec City on June 23, the day Canada turned down Quebec's request for recognition as a "distinct society" in our constitution. It was sad to see this issue tearing the country apart as our trip was making us conscious of the similarities rather than the differences of the various regions.

The next day we pulled into Moncton, New Brunswick, and encountered major power problems at the station. Only 104 volts were available, which caused glitches in some of the audio gear, particularly the time code generator. There was no time to correct the AC problems, and most of the concert by the Barra MacNeils had too much RF noise to be usable. Fortunately, the band was on the train for the final leg to Halifax, so we went into overdub mode and replaced the instruments and vocals one by one. There was even a clog dancing segment of the song, which we overdubbed to picture while the train was in motion.

At 8 p.m. we arrived in Halifax, our final destination, a couple of blocks from the Atlantic Ocean. The next morning we moved the video control room to a garage in the basement of the train station and set up an auxiliary audio control room in the same area. To isolate the sound, we surrounded the mixing area with large baggage carts swathed in packing blankets. It looked like a scene from *Wagon Train*. The console on the train would still receive all the stage mics and feed a stereo mix to Dave Hillier's console in the new video control room. He would also receive direct lines from the host VJ's wireless handheld mics and pre-



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recorded VTR feeds. The satellite truck sent its output back to Toronto for national broadcast on the MuchMusic network.

We were also receiving the off-air broadcast feed from MuchMusic so that audio could be sent to the live Halifax audience via the P.A. system. This feed was sent via an auxiliary bus post-fader, so Hillier could ensure that his live mix and the return feed from Toronto would never be up on the P.A. at the same time. Anyone who saw the Moscow segment of this year's presentation of the Academy Awards knows that the two-second delay produced by the satellite time lag can be very annoying.

By now, the satellite truck was in rough shape after the 4,000-mile journey—traveling the Moncton-to-Halifax leg at 20 mph. Arriving only a couple of hours before showtime, we were able to test the lines and send the last edited segments to Toronto for playback, including some helicopter shots taken during the concert while commercials were running on the network.

At 4 p.m. we were live on the air with Blue Rodeo and Lee Aaron. The show went smoothly, and as with all awards shows, went about an hour overtime. With 26 hours of audio tape and 40 hours of video there is enough great footage to put together a couple of additional three-hour specials.

This was certainly different from any other awards show, in most respects, and was an amazing experience for the musicians as well as the crew. We had crossed four time zones, recorded some wonderful music, met some interesting people and had come to understand our vast country a little better.

Who knows, maybe next year we'll do it with canoes!

Doug McClement is the president of Comfort Sound, a 24-track studio and remote recording business in Toronto.

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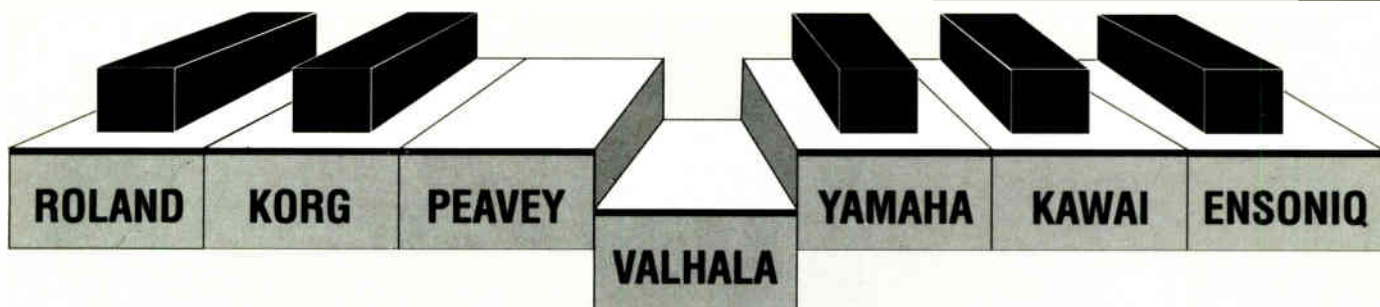
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WARNER'S ED OUTWATER

It's no secret that the power to shape the future of the prerecorded music industry is largely concentrated in the hands of a few multinational music companies. For the most part, it's these "majors" that determine the means by which music, both their own and that of independent labels, flows from creator to consumer. That's not to say that hardware interests, retailers and consumers don't play an important role. But without major label commitment to their success, old configurations (like the LP) wither away, while new ones (like R-DAT) face an uphill battle for acceptance. So the majors' attitudes are likely to provide a pretty good indication of where markets are headed for music formats.

Unfortunately, there's no unanimity of approach among the big companies. Some have parent corporations whose interests in hardware manufacturing provide them with an incentive to push new configurations on the software side. Others tend to be quite cautious. One clue to a company's thinking is how it allocates resources to ensure manufacturing capacity for its products. While not all majors own software capacity in all release formats, WEA (parent of Warner Bros.) does, and it doesn't have the direct ties to hardware manufacturing that influence some of its rivals. So it seems like a reasonable place to start when exploring major label views on developments in music distribution

media.

One indication of Warner's assessment of market trends is the news that the company's manufacturing arm has purchased DAAD master reproducers from Concept Designs. The tapeless "digital bins" for cassette duplication will be used

major investment that signals Warner's continued faith in the viability of analog cassettes. But what of other efforts to improve cassette quality? And where does the company stand on new configurations like DAT and DCC? To find out, I contacted Ed Outwater, the company's VP for quality assurance.

A former recording engineer with MCA, Outwater began quality assurance work for Warner Bros. Records in 1978 and currently serves as the Warner companies' representative on the engineering committee of the RIAA. Without leaving our respective offices, we took a tour of the world of prerecorded music formats, old and new.

Mix: What percentage of Warner's new titles are released on vinyl, and what's the current policy that governs those decisions?

Outwater: The people who make those decisions are in sales and marketing. Major, major artists like Prince or Madonna are still released in all configurations, with small numbers of vinyl

units compared to the other configurations. But overall, we're down to about 25 percent of our new releases that still include vinyl. There are some segments of the market, like black music, for instance, that continue to show interest in vinyl, so it's available for most of the music released in that category. But the



at the WEA plant in Olyphant, Pa. According to Warner Communications VP Sheldon Vogel, final decisions about tape type and other technical details of the duplication process (which will be called "Digilog") remain to be made. Mass production is expected early in 1991.

The new machines represent a

trend is toward less and less. Our total units sold on vinyl have diminished rapidly. Last I heard it was well below 5 percent, probably closer to 3 percent of units.

Mix: With the LP more or less out of the picture, there's reportedly been some fear that the CD will begin to eat away rapidly at cassette market share. On the other hand, CD player penetration in U.S. households remains relatively low. What's your view of the threat, if any, posed to cassettes by CDs?

Outwater: It's funny you should bring that up, because I just read something in a trade magazine about a store which used to carry only CDs that's now adding cassettes. I think that the two formats are different enough that they will continue to co-exist. To me, the things that a CD buyer wants have some basic differences in terms of cost, portability and durability from the things that interest a person who buys a cassette. So I don't think that they are mutually exclusive, or that the CD will obliterate the cassette.

Mix: Do you foresee any near-term

change in the cassette/CD pricing relationship?

Outwater: That's a real crystal ball question. The best way to increase CD sales would be to lower the price

“The best way to increase CD sales would be to lower the price on new releases.”

on new releases. People have been talking about it for a long time, though it seems to be slow to happen. But CDs will never be as cheap as analog cassettes, so that puts them in a different category as far as what a music buyer is after.

Mix: Even so, efforts are under way on a number of fronts to find ways to guard market share by improving cassette quality. One way that's ap-

parently already been approved is the use of digital master reproducers, or tapeless bins. What's your view of these systems?

Outwater: We're committed to pushing cassette quality to the maximum, because we think that the way to keep the format healthy is to give the consumer more and more quality for the money. As far as "tapeless bins" specifically, the only one I'm really familiar with from hearing samples is the one from AMI/Concept Designs. I've heard both the hard drive and RAM versions. It's fantastic. There has been some trouble with the hard drive as far as dependability of operation, but hopefully that will be answered with the solid-state model.

Mix: What about the use of higher-grade stock? Are we likely to see more and more product out on Type II tape?

Outwater: I think that there will have to be, because our duplicating systems are being pushed to the limits by the digital masters that we get in. And now we are going to be

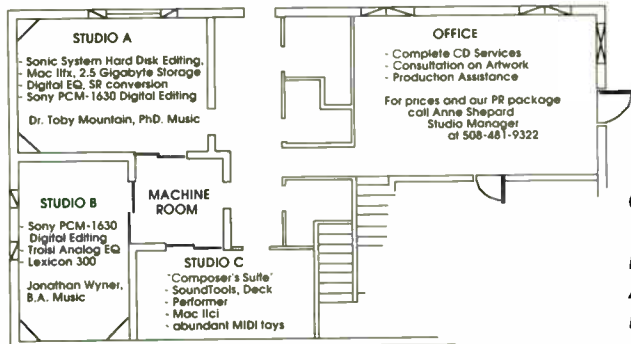
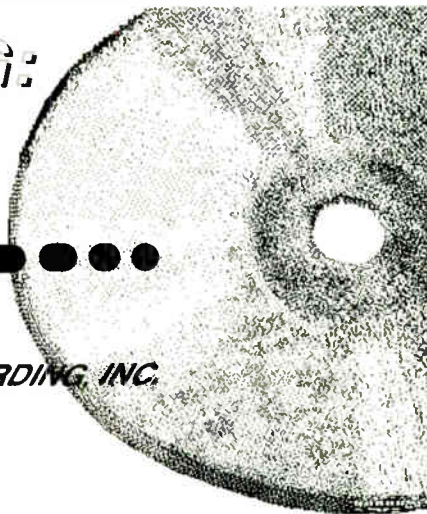
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TAPE & DISC

removing the kind of built-in limiting that was provided by the analog loop bin. With that out of the chain, you are going to have the converted signal from the digital masters being dumped right onto the analog pancakes. It's going to be tough to record those transients. Plus, we have more and more synthesized music with high-level, high-frequency content that doesn't occur with acoustic sources. So we've got to improve the duplicating tape, which is the weakest link. There is a definite interest in improving the quality of the tape we use on our slaves. It may or may not be chrome, but it will be a high-bias tape.

Mix: Another potential improvement in the works is Dolby's new S-type noise reduction. Warner has worked with Dolby on preparing prerecorded S-type demonstration product. What has been the company's experience with the system?

Outwater: Dolby called me, and I set them up with the factory [WEA Manufacturing in Olyphant, Pa.]. They made some samples, and the guys at the plant were very impressed. I think Dolby used those sample cassettes to help in their presentation to the hardware people at the Tokyo Audio Fair.

Mix: Under what conditions might Warner release S-type encoded product?

Outwater: The things that Dolby S-type offers do an awful lot to improve the quality of prerecorded cassettes. But this kind of thing is always difficult, because you can get into a kind of chicken and egg situation. The hardware people would love to have some prerecorded software out there, because if nobody is committed to releasing any, why should they build the machinery? But a software company hesitates to release in a new process like that, because there isn't any hardware to play it back. It can go 'round and 'round like that, but I think this time things will start with the hardware.

One thing that will make it easier is that Dolby Labs, having

seen what happened with Dolby C, has been very careful to make sure that S-type is compatible with Dolby B. If you play back a Dolby B tape with Dolby S, it's basically compatible. It's not bad. And if you play back a Dolby S-encoded tape with Dolby B, that works fairly well, too. Also, if you play back a Dolby S tape without any decoding at all, that's not too bad either. So Dolby has done its homework, and that is going to be the selling point for the music companies. They will be able to encode Dolby S for those who have the players, and they still won't get hurt by the people who only have Dolby B, or who don't have any noise reduction. So I would say that Dolby S has a pretty good shot.

There are some high-end cassette decks already announced that will have Dolby S. As the price of the S-type chips comes down and the system becomes affordable for mid-line cassette machines, I think you'll see major music companies start to seriously consider S-type software. I don't think it's very far off. But at this point, the real sticking point is the price. Right now, the chips are awfully expensive for the hardware manufacturers. That's the hump that they have to get over.

Mix: Is it safe to say that dual inventory (B-type and S-type releases) is not a possibility?

Outwater: Dual inventory would be death. What has to happen is that we as an industry can switch from Dolby B to Dolby S and not have to worry about the fact that not everybody has a Dolby S decoder, because the compatibility issue has been satisfactorily addressed.

Mix: Dolby has developed a preliminary set of minimum specifications with which manufacturers would have to comply in order to be licensed for making S-type machines. Even if the price of S-type circuitry comes down, these requirements, especially those related to azimuth, may be tough to meet in mid-line decks. What's the relationship between Dolby S and your ongoing efforts to promote adjustable azimuth

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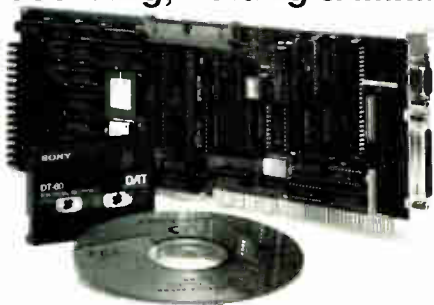
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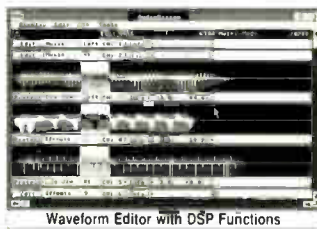
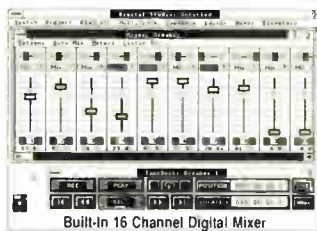
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on cassette machines?

Outwater: The challenge is to retrieve what's actually recorded on the cassette, which is really an unbelievable amount of information. The major obstacle at this point is azimuth error. I don't know if hardware manufacturers would admit this, but their machines seem to have trouble as far as holding azimuth or being set to the correct azimuth. My feeling has been that the way to really max out the cassette is to get the hardware and software people working together. If it's feasible technologically, the cassette should be a playback system, like the CD, in which the software and hardware have some sort of interaction that allows for the correction of errors, either manually or automatically. That would be the best way. So adjustable azimuth was interesting to me even without Dolby S. But the issues are closely connected, because Dolby Labs is in a position to do a lot to improve the quality of analog cassettes, not only directly with S-type, but with the tightening of specifications it entails.

Mix: Is there any consensus about how to make the implementation of adjustable azimuth on the decks most foolproof and least tedious for consumers?

Outwater: That would be to automate it, the way Nakamichi does. But unfortunately, that's the most expensive way. In order to reduce the cost, you have to do it manually. You would just do it by listening. There could be some kind of indicator, though that would once again add expense, which is what the hardware people are complaining about. The cheapest way would be to have a knob with a detent for the default setting and a lockout to prevent recording errors.

Mix: Has there been any positive response from hardware makers to the idea?

Outwater: No. There continue to be exchanges, but it's been kind of a stone wall so far.

Mix: Moving into the realm of potential future release configurations, the big buzz at the mo-



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ment seems to be Digital Compact Cassette (DCC), the stationary head format developed by Philips that would allow playback of both digital and conventional analog cassettes on the same deck. What do you know about this system?

Outwater: I haven't seen what I consider a demonstration of DCC, because I haven't actually seen the machine in operation. I attended a presentation in New York that was a kind of marketing and conceptual thing about why Philips developed it and what they think will happen with it. They said then that they hope to have hardware available within a year or year-and-a-half.

As far as hearing the system, what they played was a recordable CD made from the output of a DCC player, which they compared to the CD source material. I couldn't tell what to think, partly because the room was weird and partly because there were too many variables added by recording on the CD.

Mix: Was the system presented as being of comparable fidelity to R-DAT?

Outwater: I don't think so. I think that they disclaim immediately CD or R-DAT quality. I don't think the system is full 16-bit, but they use data compression.

Mix: So what would be the appeal of such a format?

Outwater: The interest would be as a bridge from analog to digital cassettes. The fact that if you buy the new hardware you can still play your existing analog cassettes makes it interesting for the consumer. And, if it works, it bypasses a lot of the objections raised to R-DAT, namely its cost and the feasibility of high-speed duplication. They claim that the software can be duplicated on modified versions of existing audio slaves, coming from a digital master reproducer. I think they mentioned 64-times real time. And the tape, which has always been a stumbling block with R-DAT, could be normal quality, high-density videotape. So the tape availability question and the high-speed duplicating questions have, in theory, been answered.

Mix: Is there a risk of diluting the high-end marketing appeal of the word "digital" by introducing a system of lesser fidelity than those already available?

“The way to max out the cassette's quality is to get the hardware and software people working together.”

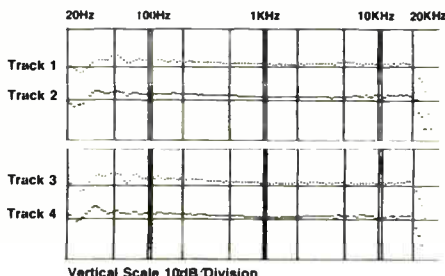
Outwater: It depends. The issue is: Where does DCC fall relative to R-DAT and the best analog cassette you can make? And we really don't know that yet.

Mix: Does Warner have an official position on the desirability of DCC?

Outwater: If the system works the way Philips says it does, and is available when they say at the cost they say, and the legal and copy-right issues surrounding digital recording are resolved, then I think it would definitely be an interesting possibility.

EXCEPTIONAL FREQUENCY RESPONSE

AT 1 7/8 IPS (REAL TIME)



TEST METHOD A 40KHz to 20Hz sweep at -20dB from a Sound Technology 1510-A was recorded at 1 7/8 ips in a KABA slave deck on TDK SA tape. The tape was played back at 1 7/8 ips in the KABA master control deck and the output displayed on the Sound Technology. The curves represent the SUM of the record and playback response of the KABA system at 1 7/8 ips.

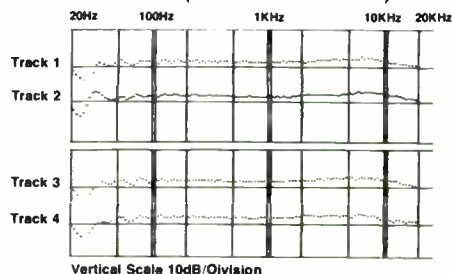
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AT 3 3/4 IPS (DOUBLE TIME)



TEST METHOD Same as above except the sweep was recorded at 3 3/4 ips on the KABA slave deck and played back at 1 7/8 ips on the master control deck. Highest frequency on playback was 20KHz so there is no response beyond 20KHz.



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Mix: More interesting than R-DAT?

Outwater: Yes.

Mix: Are there any conditions under which Warner might release prerecorded DAT product?

Outwater: There are so many things that make it an unappealing thing for a music company to do at this point. There is the chicken and egg question of how many players are out there. There is the copyright issue. There is the cost, because everything about R-DAT is expensive. And there is no way anybody is going to do one-to-one duplication, so high-speed has to be feasible in terms of economics. The equipment has to be available and the tape has to be available. With TMD [thermo-magnetic duplication] you could use chrome tape, but for some reason we haven't heard anything

out of Otari that might answer any of these questions about economics and availability.

Mix: There are several CD-based formats that can combine music with visuals and/or text (CD+Graphics, CD-Video, CD-D). How interested is Warner in these formats, and what potential is seen for their mass acceptance?

Outwater: Time/Warner is definitely interested because Warner New Media is part of our group. Their charter is to develop and introduce new formats and bring them to the Warner group of companies. They just released *The Magic Flute* with something called Audio Notes, which is like CD+Graphics but offers a lot more information. So part of our company is on the leading edge of this stuff. My guess is that if any of these new products are successful, they would be released by one of the companies in the group, and I suppose that the most logical choice would be the music companies, because they already have the manufacturing capability.

As far as direct development by record labels themselves, it seems

to be difficult to really interest music companies, not just ours but any of them, in these new technologies. I'm not quite sure why, but maybe it's because they feel that they already have a certain amount of success just concentrating on all these new formats in music. Everything seems to be happening so fast that we've already got our hands full meeting release schedules and dealing with issues like R-DAT and DCC. And there are already so many things changing that these new formats just add to all the questions in everybody's mind.

Mix: Hazard a guess as to what the music market will look like in 1995.

Outwater: I'd say the CD will be around. And some sort of digital cassette, though I don't know in what quantities. And I would say that the analog cassette will still be

around, because when you balance its expense with the quality it offers, it will still be seen as a good buy by the consumer. So analog and digital cassettes won't be mutually exclusive. They should be able to live in harmony, at least for some period of time.

1995 would be too soon for some sort of solid-state music carrier. And vinyl by then would be a kind of boutique item. But there will be pay-per-play cable and satellite delivery. It's a real serious challenge to record companies, mainly in terms of finding a way to identify your music and collect for it as it's used, but that's being worked on. That doesn't mean that all the manufacturing plants are going to close down, because I think that people are still going to buy prerecorded music on some sort of a format that they can hold in their hand and transport with them. So once again, it will be a matter of both types of delivery co-existing for some time. ■

Tape & Disc editor Philip De Lancie is a mastering engineer at Fantasy Studios in Berkeley, Calif.

"It seems to be difficult to really interest music companies in these new technologies."

by Philip De Lancie

TAPE & DISC NEWS

Gauss and Electro Sound, both divisions of Mark IV Audio, are expected next year to join the ranks of companies offering a digital master reproducer ("digital bin") for high-speed audio cassette duplication. Current entries in the field include Concept Designs, Tapematic and Duplitronics. No formal announcement has been made, but Gauss president Jim Williams confirms that development is under way. Efforts are being concentrated on proprietary technology that Williams hopes will distinguish the equipment from its competition. The units will support a duplication speed of at least 80 times real time, but additional information (bit resolution, storage medium, loading method and pricing) will probably not become available until early 1991.

♦ ♦ ♦

Sonic Solutions has set itself apart from the many competitors in the disk-based digital audio editing field by offering NoNoise, an add-on to the Sonic System that can reduce or eliminate objectionable noises. Now an English firm, CEDAR Audio of Cambridge, is mounting a challenge in this market niche with the CEDAR digital audio restoration system. The hardware/software package, designed for use on 386-based IBM compatibles equipped with a 387 math co-processor chip, stores 115 minutes of mono program when outfitted with a 600MB hard drive (multiple drives may be used to increase capacity). It operates at 44.1 and 48kHz sampling rates, and accepts signals in either AES/EBU or SPDIF

formats.

As described by the company, CEDAR offers six main processes. Thump removal treats loud low-frequency noises, while scratch removal repairs up to 2,500 clicks and scratches per second using interpolation, resynthesis or adaptive splicing. For continuous broadband noise, two methods of reduction are available: "adapted spectral" or "functional." Parametric EQ functions are also included, with an unlimited number of available center frequencies. The unit also includes a 512-band real-time spectral analyzer. The equalization and broadband noise reduction features are designed for real-time operation.

CEDAR, developed in association with the British Library National Sound Archive and the University of Cambridge, has been available for some time as a send-in service from Cambridge Sound Restoration. The process has been used on releases by labels including CBS, EMI and A&M. The first CEDAR Production

System units for sale in the U.S. are expected to be available late in the year through Gotham Audio in New York. The British price list indicates that a top-line system fully equipped for all processing functions would come to about \$190,000 (depending on currency exchange rates).

♦ ♦ ♦

Personics is bolstering its image as a friend of the prerecorded music industry by publicizing results of a study conducted by Audits & Surveys Inc. The survey found that 35% of Personics custom tape buyers had purchased prerecorded music (an average of 4.7 units for each of these customers) after using the Personics "listening post" to check out songs or artists with which they were previously unfamiliar. Another finding was that more than one-third of Personics customers, who on average make 13 home tapes per year, make fewer tapes at home since they began buying custom tapes at the 250 stores in which Personics is now available. The company concludes from the results that the system boosts prerecorded music sales and reduces home taping.

♦ ♦ ♦

Audio Week reports that CD-Video is about to return to market in Japan under the name Video Single Disc. The format flopped when first introduced in 1987 as a carrier combining five minutes of video, playable on laservision

Personics systems are fast becoming a standard fixture in record stores nationwide.



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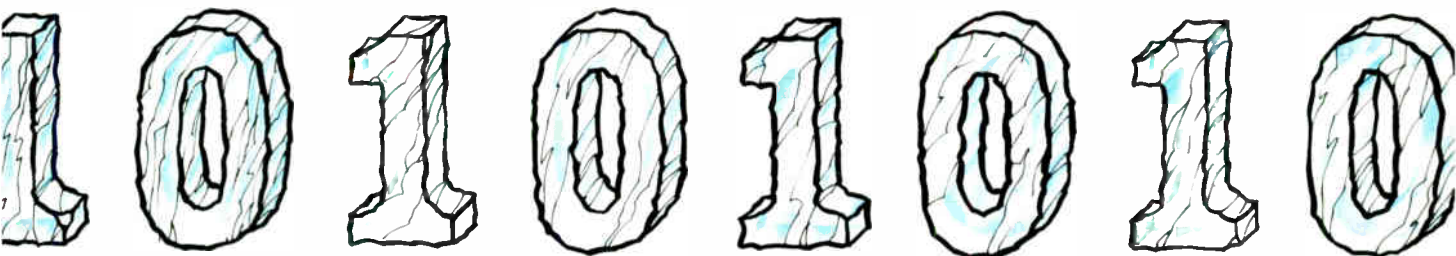
machines, with 20 minutes of audio that could be played back on conventional CD players. The new incarnation has only five minutes of combined audio and video, and will work only on CD/laserdisc combination players. According to the newsletter, Japanese labels feel that strong combo sales and a lower disc price (\$8, compared to \$16 for the earlier CD-Vs) will help the format take off this time out.

♦ ♦ ♦

SPLICES

Philips and DuPont Optical (PDO) has announced a \$25 million expansion of its CD manufacturing plant at Kings Mountain, N.C., which makes CD-Audio, CD-ROM, CD-I and magneto-optical discs. The new investment in mastering, replication, printing and packaging is expected to be complete by mid-1991, when CD capacity is projected to reach 75 million annually...**Digital House** VP Harry Hirsch has completed mastering on CD reissue collections of work by Duke Ellington and Jim Croce. The New York company has also been chosen for projects from The Embryo Group and RPM Music Productions...**Printing and Cassette Services** of Salt Lake City has expanded its high-speed audio cassette duplication capacity with the addition of a Versadyne 1500 master with six slaves, King 790 loaders and a Roldex printer...**KABA Audio Productions** (Novato, Calif.) has supplemented its duplication and packaging capabilities with an Otari MX55 master deck and signal processing from Klark-Teknik and Dolby...The 34th Annual Technical Conference of the **Society of Vacuum Coaters** will be held in Philadelphia March 17-22, 1991. Topics to be covered in conference sessions will include optical coating and CD and media technology. One- and two-day courses and workshops will also be presented, along with an equipment exhibition of over 85 exhibits. Contact Donald Mattox at (505) 298-7624 for further information. ■

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C O A S T

L.A. GRAPEVINE

by Amy Ziffer

Despite the supposedly faltering economy, the traditional summer studio slump (at least for my sources) barely reared its head before it was gone. Between media studios gearing up for the fall television season and a half-dozen award shows and conferences taking place in and around the city, September turned out to be a very busy month in L.A.

Over at Capitol, I was treated to a tour of the refurbished Studio A, in which (according to engineer Jay Ranellucci) Frank Sinatra, Peggy Lee, Nat King Cole, the Nelson Riddle and Stan Kenton orchestras, and many more recorded American classics. The place saw a lot of action, and is about to once again. When Joe Smith came to Capitol/EMI Music as president and CEO in 1987, he initiated a review of their studio activities, and decided it was time to invest some money modernizing. Three million dollars later (they had to find something to do with all that money Bonnie Raitt and Sinéad O'Connor are bringing in), Capitol is solidly in the studio business.

Jeff Cooper Architects, which designed the room, took some elaborate measures to ensure isolation between control room and studio and desirable acoustics in both rooms, including floated floors and canted ceilings. A combination of movable and stationary oak slats make the studio's liveness completely variable. Most interesting, though, is the thought that went into the

—CONTINUED ON PAGE 148

SESSIONS & STUDIO NEWS

NORTH CENTRAL

One popular perception of the Chicago recording scene, at least here on the West Coast, is phrased "Jingle all day, rock all night." Or consider the variation: "Jingle downtown, rock out of town." Like it or not, perceptions are tough to change.

"Let the world know there is music here," says **Al Ursini**, owner of **Chicago Trax Recording**. "There's been a lot of band work lately, because they need the room and the acoustics. We have new and different music, and bands that go over well in clubs; we're just not as respected as New York and L.A. Bigger record people are needed, with offices here in town."

The lack of a major label office has hurt the Chicago music scene, no question. House music made a splash in the mid-'80s, but it's turned into hip house and a lot of remix jobs. Bands that sign with a label usually leave town.

"When a band gets hot in Chicago it turns into a bidding war," says

Thomas Lipnick of **Mindscape Studios**. "Arista bids, RCA bids. Then they spend too much money, the band flops, and they're wary of signing Chicago bands. We want to work on *developing* bands, building them through the whole process."

According to Lipnick, Mindscape is scheduled to reopen (Lipnick bought out a former partner) November 1, with the installation of a DDA AMR-24 32-input console and a Synclavier programming suite. **Danny Leake** has come aboard as chief engineer and **Vaughn Halyard** will program the Synclavier. Both come from working with **Jimmy Jam** and **Terry Lewis** and are currently on the **Janet Jackson/Johnny Gill** tour.

Music is also the bread and butter at **Seagrape Recording Studios** in Chicago. English dance band **Electric 101** mixed "Talkin' to Myself" at

The all-new Miami Street Studios in South Bend, IN, was designed by Steven Durr and Associates and features a Soundcraft TS12 console and MCI JH-24 recorder.



C O A S T

Seagrape recently. The PolyGram artists reached Number 8 on the *Billboard* Hot Dance charts over the summer. Chicago remixer **Larry Heard** and Seagrape co-owner and engineer **Mike Konopka** manned the Neotek. **Sugar Minott** returned to Seagrape to record eight new sides for Apache Sound. **Babu** of Apache produced the cuts; **Tommy "Rastaman" White** engineered.

Back at Chicago Trax, **Die Warzau** was in working on demos for Fiction Records, **Paul Manno** engineering. Local favorite **Ministry** is scheduled to start November 1 on its next album for Warner Bros. **Jeff Newell** will engineer. And **Marshall Jefferson** was in producing **Bigger Than Life's** "All for Love" and **Reggie Hall's** "My Music" for Other Side Records.

Meanwhile, outside of Chicago... **Cheap Trick** was in **A.D. Productions** of Milwaukee to track and mix the bonus cut "Big Bang" for the Japanese release of its new Epic album, *Busted*. The cut was self-produced, engineered by **Dave Henszey** and assisted by **A.L. Williams**... **Queensryche's** *Empire* was mixed recently at **Royal Recorders** of Lake Geneva, WI. **Peter Collins** produced, **James Barton** engineered and **Dan Harjung** assisted. **The Saints** also mixed their latest project for Mushroom Records at Royal. **Jim Gains** produced and **Greg Archilla** engineered, with assistance from **Dave "Fuzzy" Dvirnak**... **Audio Art Recording Studios** of Des Moines, IA, installed a Sony MXP-3036 hard disk automated mixing console, then used the board to deliver the finished master for 1-inch layback for a Call Interactive AT&T/American Express video presentation. **Keith Brown** produced and engineered the project... **Darryl Buchanan**, lead guitarist for Junior Walker and the All-Stars, recorded an album project at **Miami Street Studios** in South Bend, IN. **John Nuner**

and **Jack Burke** engineered... The band **StoneRoad** has just finished recording its second album, *Take the High Road*, at **Aesthetic Productions**, Bloomington, IN. The project was produced by **Scott T. Simon** and **Tim Tryon**, and engineered by **Doug Black** and **Scott Cripe**...

SOUTHWEST

Wholistic Sound of Houston provided 2-track recording for the **Ronnie Renfrow Big Band** when they played Birraporretti's nightclub. They also recorded the **Cajun Cowboys** and the **Knights of Dixie** at the Doubletree Hotel... At **Planet Dallas** of Dallas, Waco band **The Spin** dropped in to do its debut album for Dragon Street Records, and **Bone Circus** was in doing an eight-song demo. **Patrick Keel** produced and **Rick Rooney** engineered... **Reelsound Recording Co.** of Manchaca, TX, sent their remote to **Willie Nelson's** Fourth of July picnic. Seventeen artists were recorded at the shindig, including Nelson, **The Highwaymen** and **Asleep at the Wheel**. **Eric Paul**, **Gordon Garrison**, **Greg Klingensmith** and **Malcolm Harper** handled the engineering... In Oklahoma City, executive producers **Gordon Wade** and **Danny Stone**, of **Cambridge Sound Inc.**, were working with engineer/producer **Rod McClure** (**Club M.E.D.**, guitarist and vocalist) as they tracked the debut album from **One Arm Bandit**...

SOUTHERN CALIFORNIA

At **Master Control** (Burbank) **Stan Ridgeway** was in mixing his record for IRS with engineer **Joe Chiccarrelli** and assistant **Andrew Ballard**; and **Jane's Addiction** was in mixing a 12-inch for Warner Bros. with producer **Perry Farrell**, engineer **Ron Champagne** and assistant engineer **Joe Pirrera**... At **One On One** in North Hollywood, **David Bianco** was mixing a 7-inch and a 12-inch of an **M.C.**

N.Y. METRO REPORT

by **Randy Savicky**

The New York chapter of SPARS kicked off its new season of meetings with a luncheon sponsored by Studer Revox. Tore Nordahl, president of Studer, reported that the company has begun delivering the 48-track D820-48, Studer's first multi-channel DASH (digital audio stationary head) recorder. After Nordahl's discussion of the D820-48, Joe Crocco, regional sales for Studer, demonstrated the Dyaxis hard disk production system.

The New York area continues its role as a major motion picture production and post-production center with the score of the new HBO Showcase drama *Criminal Justice*, recently recorded and mixed at Eastside Sound. Obie Award-winner Elliot Goldenthal, who wrote the scores of the films *Drugstore Cowboy* and *Pet Sematary*, scored and produced the *Criminal Justice* sessions at Eastside. Joel Iwataki and Nick Prout engineered on the studio's Harrison Series Ten. Richard Martinez and Matthias Gohl were the electronic musicians and programmers on these sessions.

In addition to major motion pictures, television work continues to drive the New York studio market. For example, Howard M. Schwartz Recording has been busy with a number of major television spots over the past few months, including *Spy* magazine's first foray into network television, "Spy Magazine Presents: How To Be Famous," broadcast on NBC. Audio post-

—CONTINUED ON PAGE 148

Hammer single for Capitol...In the placid Topanga Canyon mountains, the **Divinyls** were busy with producer **David Tickle** mixing their new release for Virgin at **Topanga Skyline Recording**...At **Dodge City Sound** (Glendale), Virgin Recording artist **James Reyne** was recording his new album with producer/engineer **Jim Scott** and **Randy Pekich** assisting...**Irene Cara** was in at **Skip Saylor Recording** (L.A.) mixing for her production on the upcoming release by **Melody McCully** (Stevie Wonder's wife) with engineer **Paul Arnold** and **Chris Puram** assisting...

NORTHWEST

Cris Loiter has been doing overdubs on an album for Ossum Opossum Records at **The Plant** in Sausalito, CA. **Devon Bernardoni** was producing

—FROM PAGE 147, N.Y. METRO REPORT

production was handled by Schwartz' John Alberts, who used a Sony PCM-3348 digital tape recorder, Solid State Logic SL 6000 console and ScreenSound. Broadway Video handled all the post-production and created the graphics package. Alberts also handled the digital recording and mix of *Whoopi Goldberg Presents Billy Connolly* (a one-hour HBO comedy special) on the Sony PCM-3348, Sony D-2 video decks and SSL SL 6048G console. The Sony 48-track digital machine and DVR-10 were also used on the *Roy Orbison Tribute Concert*, which aired on Showtime, as well as Marianne Faithfull's home video debut "Blazing Away."

NBC has recently brought online Edit 7, an audio post and support space for *Saturday Night Live*. Designed by Russ Berger of the Russ Berger Design Group, Edit 7 includes an audio control room, voice-over booth, machine room and support area. Berger is also providing consulting for additional edit suites and acoustical direction for television set design at NBC in New York and for its studio renovation in Brooklyn.

Please send press releases with the latest news of your facility directly to me at my office: RPS Communications, 520 Arthur St., Centerport, NY 11721. You can reach me by phone at (516) 423-4038 or by fax at (516) 423-6155. ■

and engineering with *Electronic Musician* author **David "Rudy" Trubitt** assisting...Producer/songwriter **Jamie Jones** recently completed a demo with his band **Tinderbox** at **No Script Studio** in Seattle. **Don King** of Junior Cadillac engineered...Producer/engineer **Bob Rock** was working on

—FROM PAGE 146, L.A. GRAPEVINE

wiring. Denny Thomas and Jeff Minnich, both of Capitol, conceived a room that is truly conducive to multimedia and MIDI production. Wall boxes throughout the control room, studio and isolation booths sport MIDI, video, and RS422 connectors. Ultra-low capacitance cabling is used throughout, and a novel cue system allows musicians to control their own mix via personal 8-channel mixers.

Studios A and B are interconnected by sliding doors. When opened for sessions that require both studios, the glass between rooms still gives 30 dB of isolation. A closed-circuit camera lets engineers see the whole space.

Studio A features a 60-input Neve VR with Flying Faders, recall ability, and EQs and channel send I/Os that can be automated. Machine-wise, it can be outfitted with a Studer A827 or Mitsubishi X880, and a X86 HS 2-track. TAD bi-amped monitors and a host of other equipment complete the picture. Studio B has a Neve 8086, and C will soon have an SSL 4064. Each room is tailored for a different type of client, so the three-room facility is now equipped to handle a broad cross-section of artists. CSNY, Blue Rodeo and Dwight Yoakum are just three of the artists that have been in over the last few months.

With all this state-of-the-art equipment, it's somehow comforting to know that the same live chambers we've all been hearing on records for the last 34 years are still untouched, although graced with some new amplification. I went down the rabbit hole (literally through a trap door right out of a Steven Spielberg movie) for a visit to the famous underground rooms, which branch off a tunnel that also serves as the Capitol equipment morgue. Unlike chambers at other studios that eventually succumbed to DSP fever, Capitol's chambers

David Lee Roth's new album at **Little Mountain Studios**, Vancouver, B.C...In Redmond, WA, **Triad Studios** reports **David Lanz** completed work on his upcoming *Narada* release *Skyline*. Recorded both at Triad and in Munich, West Germany, the project features the **Munich Symphony**

have remained steadily popular and are occasionally "rented out" to other studios via telephone lines.

Formal strategic planning will be used to bring the studio operations up to par with the new look and sound. They are also installing Sonic Solutions systems with CD cutting capability in the mastering suites upstairs. "We'll be a major player when we're done," added Minnich. When I left they were muttering something about "much greater plans." Today L.A., tomorrow the world, hmmm?

In other Capitol news, director of recording studios Charles Comelli has left the company to retire to the Pacific Northwest. Comelli had been with the company for 20 years. In addition, studio manager Sharon Schwab has moved to Hollywood Records and holds the same title there.

The CyberArts International conference, September 6-9, brought a host of multimedia mavens into town and into Pershing Square's Biltmore Hotel, just down 5th Street from another fine but lesser-known establishment, the Baltimore Hotel. Billed as "Tools, Techniques and Technology for Interactive & Multimedia Artists," it featured a keynote address by the man who coined the word "hypermedia," computer "revolutionary" Ted Nelson. The focus was on interactive multimedia as it applies to the arts and entertainment. According to one show consultant, the greatest amount of interest was shown in the area of virtual realities, the most space-agey of all the areas covered. Those of you who haven't cut your teeth on hyperlanguage yet, tune in to *Star Trek: The Next Generation* sometime. Virtual reality, in the form of the Xanadu-like holodeck, is the main form of entertainment on the USS Enterprise.

Well, I'm only half done and out of space already, and AES is still to come! See ya next month! ■

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“AMEK has achieved a goal which has always eluded me: cost-effective production of mixing consoles of the highest quality.

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A new microphone amplifier has been designed which combines the integrity and sonic quality of the highest grade transformer designs with new circuitry which overcomes the fundamental problem of low frequency distortion encountered in even the best of the classic designs.

Similarly, a very high grade line input stage has been developed which, again, combines the proven qualities of the best transformer with the state-of-the-art performance now achievable. The input device, in fact, behaves much like a transformer and I have called it the T.L.A. (Transformer-Like Amplifier).

Equalization has often been a compromise in the past because it has been expensive in terms of space and component cost to provide the audio quality and completeness of control which might be found in the best outboard equalizers. But this is exactly what I have done in my version of MOZART... achieved the best possible audio performance and within a realistically-priced console input channel.

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was ever possible before.

My work with AMEK thus opens up a new era of collaboration in the industry which I hope will help set new standards in console design and introduce a new concept of value.”



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Orchestra and is the Northwest's first 32-track digital recording. **Larz Nefzger** engineered and **Paul Speer** produced...**Russian Hill Recording** (San Francisco) recently had **John Lee Hooker** jamming the blues for Leo Burnett's "Cheer" commercial. **Steve Ford Music** of Chicago produced the session and Chicago-based independent **Sam Fishkin** engineered with the assistance of RHR's **Sheila McFarland**...

SOUTHEAST

"Shaft"ed in Atlanta: **Isaac Hayes** was in at **Master Sound** (Atlanta) doing

vocals for an upcoming release by **Kim Waters**. The project was engineered by **Bret Richardson** and produced by Waters for Warlock Records... "Klinger" in Charlotte, NC: **Jamie Farr** voiced his radio program *Life's Little Bloopers* at **Jay Howard Production Audio**... At **Sound Stage Studio** in Nashville, TN, **Buck Owens** was at work with producer **Jimmy Bowen** and engineer **Mark Coddington** on his latest release for Capitol Records... Down Miami-way, **Julio Iglesias** completed the final mixes for his upcoming English release. Engineer **Carlos Alvarez** worked with

L.A.-based producer **Albert Hammond** on the 56-track digital lockup for the project... Also in the Miami area, **Femi Jiya** engineered the new **Bee Gees** album at **Middle Ear Studios** of Biscayne Bay... At **New River Studios** of Fort Lauderdale, FL, jazz guitarist **Randy Bernson** was producing his next record. **Dave Barton** and **Jim Thomas** engineered the sessions for Bernson's Mangrove Music release...

NORTHEAST

At New York City's **Westrax Recording Studios**, saxophonist **Roscoe Mitchell** (Art Ensemble of Chicago) recorded material for a new film soundtrack... At **Wolfman's Recording** in Arlington, MA, **Leo Quintero** finished recording and mixing his latest CD, *Huellas*. **Rob Lehman** engineered... **The Magic Shop** (NYC) recently hosted jazz sax man **Lee Konitz**, who was produced by **Giovanni Bonandrini** and engineered by **Michael MacDonald** and **Oliver Straus**... At **Sigma Sound Studios** of Philadelphia, **Patti Labelle**, **Grover Washington Jr.** and **Joey DeFrancesco** were all working on their respective Christmas albums... **Normandy Sound** of Warren, RI, reports **The Pontiffs** have finished up the final mixes for their upcoming album. The record is being co-produced by **Cardinal Sin** and **Monsignor Harold Knight**. Tracks were recorded and mixed by engineers **Joe Pires** and **Ralph Petrarca** with assistance from **Michael Miller** and **Derrick Carden**...

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The stars of the audio industry come out for the TEC Awards celebration (standing, l to r): Bob Ludwig, Bruce Swedien, Roger Nichols, Bob Clearmountain, Stephen Paul, David Schwartz, Pete Caldwell, Howard Schwartz, M.L. Procise, Hal Blaine, Don Was, George Massenburg; (kneeling) Karen Dunn, Hillel Resner, Phil Proctor, Mr. Bonzai, Stephen St. Croix. Photo: Alex Berliner

THE 1990 TEC AWARDS WINNERS



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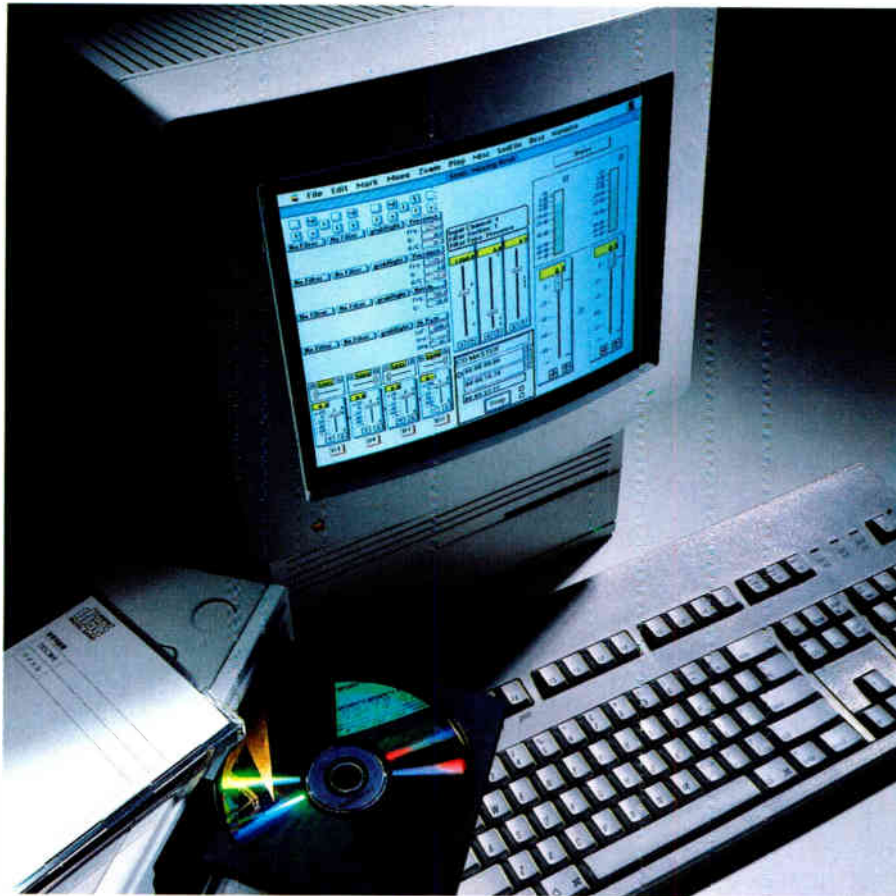
Recording Product of the Year
Nere VR Series Console

HALL OF FAME

- Deane Jensen
- Quincy Jones
- George Massenburg

IT WAS STANDING ROOM ONLY as 900 of the audio industry's biggest names filled the Biltmore Bowl in Los Angeles to acknowledge the winners of the 1990 TEC Awards held on September 23. Among those honored were Hall of Fame inductees Deane Jensen, Quincy Jones and George Massenburg.

Emcees Phil Proctor and Mr. Bonzai kept the crowd under control as the presenters, including Hal Blaine, Michelle Phillips, Roger Nichols, Walter Becker, Ray Manzarek, Chad Smith, Don Was, Bob Clearmountain, Bruce Swedien, Peter Asher, Stephen Paul, Joel Moss, Howard Schwartz, M.L. Procise, Mike Greene, Pete Caldwell and Stephen St. Croix handed out the 21 TEC Awards and Hall of Fame plaques. For a complete wrap-up of the evening's events, see the December *Mix*.



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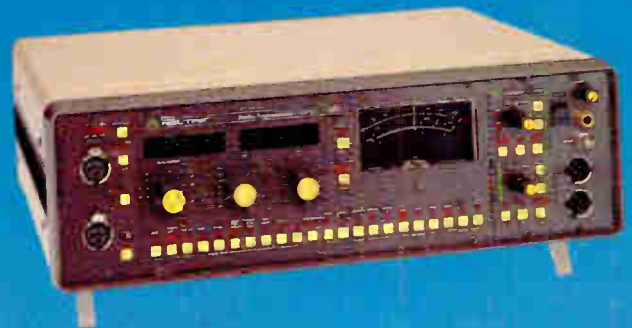
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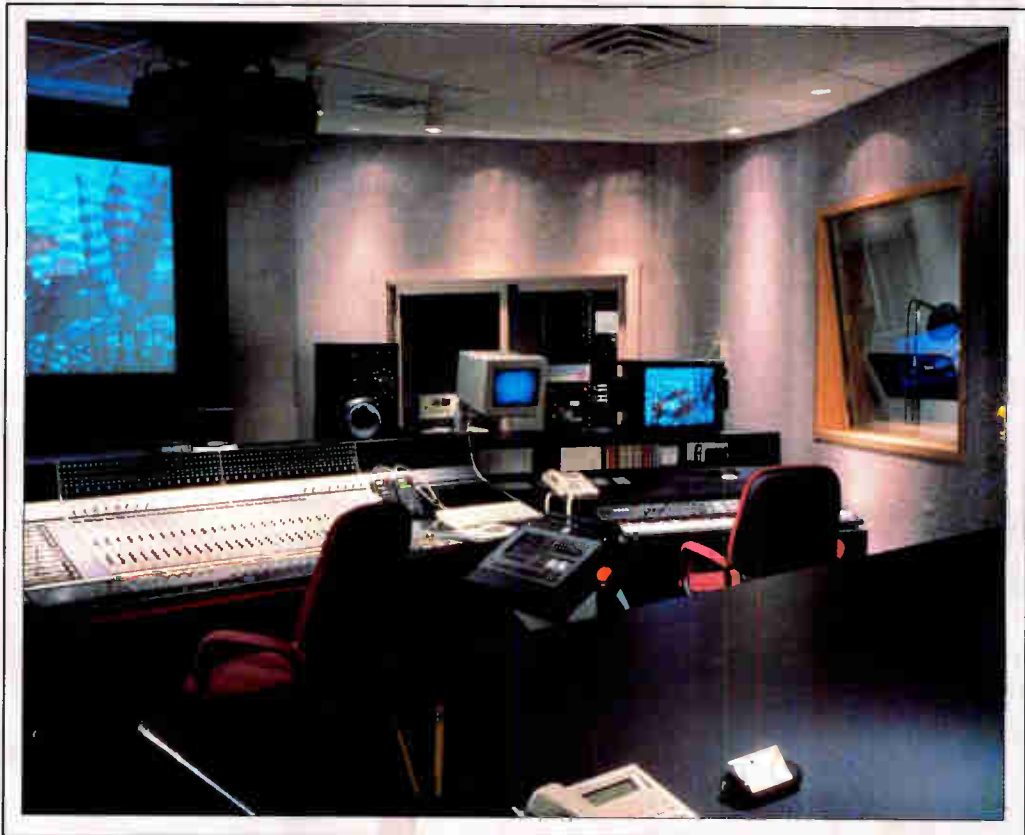
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NORTH CENTRAL STUDIOS

Information in the following directory section is based on questionnaires mailed earlier this year and was supplied by those facilities listed. Mix claims no responsibility for the accuracy of this information. Personnel, equipment, locations and rates may change, so please verify critical information with the companies directly.



The audio studio at Chicago's Skyview Film & Video, an affiliate of Szabo Tohtz Editing, is used for recording, sound design and mixing, and is part of a complete audio and video post-production facility. In operation since last October, the room features a 48-input automated Harrison Series Ten console. Designed by chief sound engineer Brian Reed, the 30 ft. x 20 ft. room also features an 8-channel AMS AudioFile system. The Mac IIx handles sound effects, sequencing, digital editing, and functions as the front end for the console automation. Photo: Jamie Padgett.

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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!

Upcoming Directory Deadlines:

Independent Engineers & Producers: **November 16, 1990**

Remote Recording & Sound Reinforcement Facilities: **December 14, 1990**

Video Production/Post-Production Facilities: **January 15, 1991**

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24+ TRACK

STUDIOS



A.D. PRODUCTIONS, INC.
Milwaukee, WI

[24+] **A.D. PRODUCTIONS, INC.**; also *REMOTE RECORDING*; 411 E. Wisconsin Ave., Ste. 1001; Milwaukee, WI 53202; (414) 278-7999; FAX: (414) 278-1159. Owner: Corporation. Manager: Michael M. Hen-zey. Engineers: David G. Hen-zey, Jay Mark, Larry Hinds. Dimensions: Room 1: studio 720 sq.ft., control room 30 x 30. Room 2: control room 12 x 12. **Mixing Consoles:** Neve V Series 48 w/Necam 96 automatic, (2) Yamaha DMP7 8 x 2 digital mixer/FX. **Audio Recorders:** Mitsubishi X-850 multitrack; Mitsubishi X-862-track, Tascam ATR-60 center track. **Cassette Recorders/Duplicators:** TEAC W990. **Synchronization Systems:** Adams-Smith System 2600, Adams-Smith compact controller, Sigma C.B.5. **Echo, Reverb & Delay Systems:** (2) Lexicon 480L w/LARC, Lexicon 224X w/LARC, Eventide HD3000B, Publison Infernal 90, (3) Lexicon PCM42 d+lay, AMS S-DMX delay, Roland Dimension D, Roland 501 chorus echo, T.C. 2290 delay. **Other Outboard Equipment:** BBE 822 Soric Max., (2) Focusrite ISA 110 EQ, Massenburg-stereo parametric EQ, (2) Klark-Teknik 1/3-octave EQ, Aphex 250 Exciter, (2) Focusrite ISA 130, Drawmer M500, Drawmer DL-231, Korg A3, Korg DT-1 digital tuner. **Microphones:** Caltrac Sound Field MkIV, (2) Neumann U87, (2) Neumann KM84, (2) AKG 414, (6) Sennheiser MDM-421, (3) Shure SM58, Crown PZM, Shure SM97, AKG D-12E. **Monitor Amplifiers:** (2) QSC MC-1400, (2) Ramsa WP-340, Ramsa WP-9055, Belles 450. **Monitor Speakers:** Tannoy FSM, Tannoy NFM-B, Tannoy PBM-B, Yamaha NS-10M. **Musical Instruments:** E-mu Emulator III w/300MB HD, E-mu Emulator Proteus, E-mu Emax HD/SE, E-mu Emax, Kurzweil PX-1000, Oberheim Matrix-6, Roland D-50, Roland D-110 (ESQ VFX), Kurzweil MIDIboard, Macintosh II w/19" screen, Macintosh II SX w/full base screen, Ensoniq VFX. **Other MIDI Equipment:** (2) J.L. Cooper MSB+MUP, Mark of the Unicorn Performer 3.0 software, Roland D-50 and other editor/librarians, Professional Composer software, Alchemy E111, Digidesign Emax. **Video Equipment:** Sony PVM-2530, Sony PVM-1371Q, Sony SP-9600 3/4" U-matic, VITC time piece, Q-Sheet AV software, Sony PCM 2503 R-DAT prof. recorder w/DF. **Other:** Dyaxis Direct-to-Disk 2-track editor. **Rates:** \$150 per hour, \$2,000 per day. **Specialization & Credits:** A.D. Productions, Inc. is a full-service digital recording facility located in downtown Milwaukee. A.D. features a Neve V Series 48-channel console with Necam 96 automation and Mitsubishi digital tape machines, and is designed by renowned studio architect Steven Durr. Enjoy writing music in a spacious 30 x 30 control room with scenic view of Lake Michigan. Utilize a powerful MIDI suite for pre-production and music composition with all the hottest toys. "A.D. is a godsend, I like that it is small and personal. There is so much to like about the place. I highly recommend A.D."—Robin Zander of Cheap Trick, *Milwaukee Journal*. The facility also has a health spa with indoor running track, restaurant, bar, banking 24-hour security on-site. Adjacent to the landmark Pfister Hotel and walking distance to the lakefront. Credits include Cheap Trick: *Busted*; Epic; Jerry Harrison: *Walk on Water*, Warner. Spanic Boys Rounder; Roberta Flack: #1 dance hit *Uh-Och-Ooh Look Out (Here It Comes)*, Atlantic; David Arkenstone: #1 new age LP *Citizen of Time*, Narada Mystique. For more info, please contact Michael Hen-zey at (414) 278-7999. That's (414) 278-7999, call now! Operators are standing by.

[24+] **AIRE BORN, INC.**; 4700 Northwest Plaza, W. Dr.; Zionsville, IN 46077; (317) 876-1556. Owner: John Bolt, Mike Wilson. Manager: Mike Wilson.

[24+] **ALLIANCE RECORDING CO. INC.**; also *REMOTE RECORDING*; 8449 Parshallville Rd.; Fenton, MI 48430; (313) 632-5653. Owner: Al Hurschman, Dee Hurschman. Manager: Al Hurschman. Engineers: Al Hurschman, Dee Hurschman, Don Pushies, Jacques Mersereau. Dimensions: Room 1: studio 36 x 40, control room 20 x 24. Room 2: control room 18 x 20. **Mixing Consoles:** Neotek III C 56 x 24 with Twister Automation. **Audio Recorders:** (2) MCI 110 2-track, Scully 280B 2-track, Sony JH-24 24-track, Tascam DA-30. **Noise Reduction Equipment:** (30) dbx Pro all tracks. **Synchronization Systems:** AMRsync controller. **Echo, Reverb & Delay Systems:** Lexicon 224XL, EMT 140 TS, Sound Workshop 262, Eventide Harmonizer, Lexicon LXP-1, Lexicon LXP-5, TC Electronic 2290 DDL, UltraVerb, Yamaha SPX90II, DeltaLab DL-2, Dynacord tape delay, Marshall time modulator. **Other Outboard Equipment:** (2) UREI 1176, (2) dbx 165, (2) Scamp rack w/limiter, (8) Scamp rack w/gate, Scamp rack w/EQ, Orban 418A, Teletronix LA-2A, Valley People dual Dyna-Mite, Omni Craft noise gate, Aphex III Exciter. **Microphones:** (2) Neumann U89, (4) Neumann U87, (2) Neumann KM84, (2) Neumann KM56 tube, (2) Neumann U47 tube, (2) AKG 414, (2) AKG 452, (2) AKG C-28 tube, AKG 190, (4) E-V RE20, (2) E-V CS15, (4) E-V RE15, E-V RE666, (6) Sennheiser 421, (2) Sennheiser 441, (2) Beyer 500, (2) Beyer 260, (2) Beyer 101, (2) Shure SM81, (6) Shure SM57, (2) Altec M-30 tube, Crown PZM, (2) Peavey PVM-45. **Monitor Amplifiers:** AB Systems, (3) SAE, (2) Crown, McIntosh. **Monitor Speakers:** (2) UREI 813B, (2) JBL 4311, (2) JBL 4301, (2) Yamaha NS-10M, (2) Auratone. **Musical Instruments:** Ensoniq Mirage, Yamaha DX7, Yamaha RX5, Ludwig drums, Oberheim Matrix-6, (7) instrument amp, Roland D-50. **Other MIDI Equipment:** (2) Macintosh Plus, (2) Southworth Jam Box/4+. **Video Equipment:** 3/4" video setup.

[24+] **AUDIO RECORDING UNLIMITED, INC.**; 400 N. Michigan Ave.; Chicago, IL 60611; (312) 527-7000; FAX: (312) 527-3360. Owner: Mike King. Manager: Betty J. Rake.

[24+] **AUDIO RECORDING STUDIOS, INC.**; also *REMOTE RECORDING*; 601 Rockwell Ave.; Cleveland, OH 44114; (216) 771-5112. Manager: Heather Copper.

[24+] **AUDIOCRAFT**; also *REMOTE RECORDING*; 915 W. 8th St.; Cincinnati, OH 45203; (513) 241-4304; FAX: (513) 241-3477. Owner: E.T. Herzog, Jr. Manager: E.T. Herzog, Jr.

[24+] **BARN BURNER RECORDING STUDIO**; also *REMOTE RECORDING*; Rt. 1 Box 137; Annawan, IL 61234; (309) 935-6159. Owner: Heath Audio Associates, Inc. Manager: Harry H. Heath.

[24+] **BEACHWOOD STUDIOS**; also *REMOTE RECORDING*; 23330 Commerce Park Rd.; Beachwood, OH 44122; (216) 292-7300; FAX: (216) 292-0545. Owner: Pete Vrettas. Manager: Joel M. Solloway. Engineers: George A. Sipl—creative director, Joel M. Solloway, Steve Simmons, Martha Nacht, Matt Soboleski. Dimensions: Room A: live room 26 x 29, control room 27 x 27. Room B: studio 31 x 30, control room 24 x 20. Rhythm 35 x 29. **Mixing Consoles:** (2) Sony MXP-3036 w/hard disk automation, Tascam M-512. **Audio Recorders:** MCI JH-24 24-track, (3) Sony SPR-5002 2-track, (2) Tascam 440B 4-track, (6) MCI 110B 2-track, (3) Otari MX-5050 2-track, (2) New England Digital Pro and PostPro SD Direct-to-Disk tapeless studio. **Cassette Recorders/Duplicators:** (2) Tascam 133B 3-track, KABA duplication system w/(14) slave. **Noise Reduction Equipment:** Dolby Type A 36 channels, Dynaflex open-ended 2 channels. **Synchronization Systems:** Adams-Smith 2600. **Echo, Reverb & Delay Systems:** Lexicon 224XL w/LARC, Lexicon 224, Yamaha SPX90, Klark-Teknik DN780, (2) Ecoplate, Lexicon PCM41, Lexicon PCM42. **Other Outboard Equipment:** (2) Teletronix tube limiter, (2) UREI LA-2 limiter, (5) UREI 1176 limiter, AMS pitch shifter, Eventide H969 Harmonizer, (2) Aphex Aural Exciter, (2) Klark-Teknik 36-band graphic EQ, (2) Valley People Gain Brain II, Valley People Kepex II, (16) Scamp 100 noise gate/compressor, Sony PCM-501, Symetrix telephone TI-101, Technics SL-1200 CD player, Technics SP-25 turntable, Panasonic SLA-300 CD player, Technics SL-1300 CD player. **Microphones:** Sennheiser MKH-416, (8) Neumann U87, Shure, Beyer, AKG. —LISTING CONTINUED ON NEXT PAGE

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24+ TRACK STUDIOS

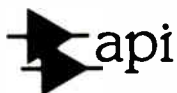
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(4) Samson "TD Concert" Series wireless w/dbx chip. Monitor Amplifiers: (2) Hafler P-500, BGW 750, Crown D-75, Crown DC-300, McIntosh 2300, Hafler 125, Hafler 225. Monitor Speakers: UREI 813 Time Aligned. Musical Instruments: Yamaha 9' concert grand piano, Yamaha 7' grand piano, Hammond organ w/Leslie, E-mu Emulator II+ keyboard, Yamaha DX7 keyboard, LinnDrum, Korg DSM-1 sampling module. Other MIDI Equipment: Macintosh Plus computer. Video Equipment: (2) JVC 850CR 3/4", Sony VO5850 3/4", (4) Sony 25" monitor. Rates: Call for all video and audio rates.

[24+] **BROWN & BROWN RECORDING AND MUSIC PRODUCTIONS**; also REMOTE RECORDING; PO Box 224; Portage, MI 49081; (616) 327-8352. Owner: Kevin and Deborah Brown. Manager: Tim Brown. Specialization & Credits: Brown & Brown is located precisely between Detroit and Chicago, specializing in original music for broadcast production, multitrack recording, voice-over and AV soundtracking. In addition to 2-track digital remote recording, we offer a well-appointed control room using the MCI JH-24 (2" 24/16-track) and Ampex 440-C (1" 8-track). Clients appreciate our large recording room, digital mixdown, well-stocked processing racks and experienced engineers (all are NARAS members with national release credits). Original award-winning Mu-sicimage packages are airing in the Midwest and across the U.S. We are always producing demos and album projects for several clients and can help with project presentation and packaging for cassette, vinyl and CD release.

[24+] **CATAMOUNT RECORDING**; also REMOTE RECORDING; 1005 W. 23rd; Cedar Falls, IA 50613; (319) 235-6517. Owner: Tom Tatman, Rick Bisbey. Manager: Tom Tatman. Engineers: Tom Tatman, John Thomson, Rick Bisbey. Dimensions: Studio: 40 x 30, control room 22 x 20. Mixing Consoles: Neotek Series III C 32 x 24. Audio Recorders: Otari MX-80 24-track, Panasonic SV-3500 DAT, Otari 5050B II 2-track with SAKI heads, Tascam 35-2 2-track with dbx. Cassette Recorders/Duplicators: (6) TEAC V-670, BIC T-1. Noise Reduction Equipment: Dolby SR 363, dbx 150X. Echo, Reverb & Delay Systems: Lexicon PCM70 digital effects, Yamaha SPX900 digital effects, (2) Yamaha SPX90 digital effects, (2) Alesis MiDiverb II digital effects, Alesis Microverb digital effects, Roland SDE-1000 delay, DeltaLab DL-1 stereo delay, ART pitch transposer, T.C. Electronic 2290 (32 sec). Other Outboard Equipment: Aphex Aural Exciter, (4) API 3124 mic pre, dbx 166 stereo limiter, dbx 160 limiter, (2) dbx 163 limiter, Biamp quad limiter, USAudio GateX, Orban 622B stereo EQ, Biz Sibilance Controller, (6) Biz noise gate, (2) UREI LA-4A. Microphones: (2) Neumann U87, (2) AKG 414, (2) Sennheiser 441, (2) Sennheiser 421, (2) Sennheiser 402U, AKG D-112, (2) AKG C-501E, (2) Toa K-1, (10) Shure SM57, (2) Neumann KM84. Monitor Amplifiers: (2) Crest 300, Phase Linear 400 II, SAE 3100. Monitor Speakers: Tannoy SRM 15X, Yamaha NS-10, JBL 4311 WX, Auratone Super Cubes. Musical Instruments: Fender Strat, Scholz Rockman X-100, 1901 Kimball 6'4" grand piano, Yamaha Pro Tour acoustic drums w/ Rims system, Pearl free-floating snare, Fender Champ amplifier. Rates: \$35 per hour.

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CHICAGO RECORDING CO.
Chicago, IL

[24+] **CHICAGO RECORDING CO.**; 232 E. Ohio St.; Chicago, IL 60611; (312) 822-9333. Owner: Alan Kubicka. Manager: Hank Neuberger, Jo Sturm. Engineers: Phil Bannano, Chris Sabold, Gus Mossler, Iain Burgess, Tim Butler, Bill Kovach, John Titak, Jeff Van Steen, Stanley Oda, Mike Coyle, Tom Hanson, Mark Ruff. Dimensions: Room 1: studio 75 x 32, control room 28 x 28. Room 2: studio 75 x 32, control room 28 x 27. Room 3: studio 67 x 37, control room 26 x 26. Room 4:

studio 20 x 12, control room 26 x 26 and ten other studios. **Mixing Consoles:** Neve VR 72-input w/Flying Faders, SSL 6000E 48 x 48 w/Total Recall, (2) MCI 556 56 x 48 w/DiskMix, Harrison, (2) Sony 3000, Sphere, Trident, Neotek. **Audio Recorders:** Mitsubishi X-850 32-track digital, Studer A800 24-track, (2) Studer A827 24-track, (4) AMS AudioFile digital workstation, Mitsubishi X-86 2-track digital, (6) MCI JH-24 24-track, (5) Sony 2500 R-DAT, Studer A-80 24-track, Cassette Recorders/Duplicators: (12) Yamaha, (4) Nakamichi. **Noise Reduction Equipment:** Dolby A 48 tracks. **Synchronization Systems:** (8) BTX Softouch, (3) TimeLine Lynx. **Echo, Reverb & Delay Systems:** Lexicon 480L, (3) AMS 15-80S, AMS RMX 16, (8) Lexicon PCM70, EMT 251, (5) EMT plate, (12) Lexicon PCM42, Lexicon 200, Drawmer 5000, Eventide Ultra-Harmonizer, (6) Yamaha REV7, (9) Yamaha SPX900, Yamaha SPX90. **Other Outboard Equipment:** Wendel jr. drum sampler, (60) Focusrite EQ and dynamics, (12) Drawmer gate, (8) API graphic EQ, Fairchild limiter (tube), (2) Tube-Tech EQ/limiter, (2) Aphex, (3) BBE Sonic Maximizer, (10) dbx 160X limiter. **Microphones:** (10) Neumann tube, (8) AKG tube, (12) Sennheiser, (12) Shure, etc. **Monitor Amplifiers:** (2) Times One, (4) Tannoy, (30) Crown. **Monitor Speakers:** Lakeside TAD, (2) Tannoy Dreadnought, (15) Yamaha NS-10, (15) Auratone. **Musical Instruments:** Bosendorfer grand piano, Bechstein grand piano, (2) Steinway grand w/MIDI interface, (4) Hammond organ, (4) Fender Rhodes electric piano, (4) tympani, Sonor drums, Rogers drums, Roland D-550, Roland D-110 multitimbral. **Other MIDI Equipment:** (2) Akai sampler, (2) E-mu Emulator III, (2) Yamaha TX802, Ensoniq Mirage. **Video Equipment:** (12) JVC recorders 3/4", (2) Sony 1" Type C master recorder. **Rates:** Call Hank for information. **Specialization & Credits:** Since we opened our doors in 1975, we have grown from one studio to 14 and remain Chicago's world-class facility. We continue to lead the way with one of the world's only 72-input Neve VR consoles. We are in the final stages of a \$4 million expansion that has resulted in seven new studios so far, with more under construction. Recent clients include Cheap Trick, Nikki, Cabaret Voltaire, Styx, Ten City, Elton John, Ramsey Lewis, Rod Stewart, Paul Shaffer & the World's Most Dangerous Band. After working Grammy, platinum and Clio-winning clients, we know how to provide the best.

[24+] **CHICAGO TRAX RECORDING;** also REMOTE RECORDING; 3347 N. Halsted; Chicago, IL 60657; (312) 525-6565. **Owner:** Chicago Trax, Inc. **Manager:** Reid Hyams, Debbie Connors. **Engineers:** Al Ursini, Julian Herzfeld, Dave Sears, Chuck Kawal, Keith Auerbach, Keith Mestl, Steve Spapperi, Gary Saunders, Jessica Villines, Martin Stebbing,

Steve Levy, Tim Titsworth, Jim Newell, Paul Manno. **Dimensions:** Room 1: studio 35 x 24, control room 24 x 18. Room 2: studio 16 x 11, control room 14 x 13. Room 3: control room 8 x 7. Room 4: control room 11 x 9. **Mixing Consoles:** SSL 4040E Series w/SSL studio computer G Series, EQ and mic pre, Harrison MP4 32 x 24 w/Audio Kinetic MasterMix automation. **Audio Recorders:** (2) Otari MX-80 24-track, (2) Studer A810 2-track, Studer B67 2-track, Tascam 4-track. **Cassette Recorders/Duplicators:** (12) Tascam 122 MkII, Panasonic 3500 DAT. **Noise Reduction Equipment:** dbx 155, others available. **Synchronization Systems:** (2) TimeLine Lynx, Sony BVM monitor, various 3/4" playback units available. **Echo, Reverb & Delay Systems:** AMS DMX 15-80S dual delay/stereo sampler/pitch shifter, AMS RMX 16 digital reverb, Lexicon Prime Time I, Lexicon Prime Time II, (2) Lexicon 200 digital reverb, (4) Lexicon PCM42, Lexicon PCM60 digital reverb, Klark-Teknik 780 digital reverb, Ecoplate reverb, (4) Yamaha SPX90, Yamaha REV7, Eventide Ultra-Harmonizer. **Other Outboard Equipment:** Akai S900 digital sampler, Aphex II Aural Exciter, (3) Aphex 612 expander/gate, (4) Drawmer DS201 dual gate, (3) Omni Craft GT-4A gate, (2) Valley International Dyna-Mite, (4) dbx 165 comp/limiter, (2) dbx 160X comp/limiter, (4) dbx 166 comp/gate, (4) dbx 263 de-esser, (2) Teletronix LA-2A comp/limiter, (2) UREI LA-4A comp/limiter, (2) Tube-Tech EQ, (2) Pultec EQ, (2) UREI parametric EQ, (2) UREI graphic EQ. **Microphones:** Neumann M49, (2) Neumann U87, (2) Neumann KM84, (2) AKG C-12A, (2) AKG 414, (2) AKG 451, (5) Sennheiser 421, (2) Sennheiser 441, (2) E-V RE20, (2) Beyer M260, (2) Crown PZM, (2) Shure SM57. **Monitor Amplifiers:** (4) Crown Micro-Tech 1200, (2) Hafler P-500, UREI 6250, (2) UREI 813, (2) UREI 811, (2) UREI 809, (8) Yamaha NS-10M, (4) Auratone, (2) Genelec 1019A. **Musical Instruments:** Synclavier 3200 w/optical disk storage w/5.5 minutes sampling time and time compression, Yamaha C5 grand piano, Sonor drum kit w/(4) snare drum, E-mu Emulator III+HD, Yamaha DX7, Roland D-50, Fairlight CMI. **Rates:** Upon Request. **Specialization & Credits:** Specializing in the production of records and commercials; 32-track digital capabilities; in-house music production company "Music Chicago, Inc." w/Synclavier system. Chicago Trax has done record work for every major label. Recent clients: Records: Duran Duran, Capitol; Ministry, Shire; Hiroshima, Epic; Ramsey Lewis, Columbia; Ten City, Atlantic; Blondie, Chrysalis; Jonathon Brandmeier, BPI-WLUP; Angela Boffill, Capitol; Skinny Puppy, Capitol; Gavin Christopher, Mangattan; Cabaret Voltaire, Atlantic; Ivan Neville, Warner Bros.; Insiders, Epic; Erasure, Mute; Nicholas Tremulis, Island; Bang Orchestra, Geffen; Sammin Watusis, Epic; Patrick Moraz, Moody Blues,

Yes; Die Warsaw Symphony, Fiction-PolyGram; Destiny, Fiction-PolyGram. **Music houses:** Mitran Mitran Music; Music Chicago, Inc., Lil Louis, Epic; Vicky Ryan, EMI; Marshall Jefferson. **Film work:** Robo Cop, Girls Just Want to Have Fun, Hunchback of UCLA. **Commercials:** McDonald's; WMAQ/NBC; Coca-Cola, USA; Huffly Bikes; Jewel Foods; Alberto Culver; Il Bell; Channel 9, WGN; Chicago Cubs; Bozo the Clown.

[24+] **CONSORTIUM, LTD.;** Studiomedica Recording Co.; 1030 Davis St.; Evanston, IL 60201; (708) 864-4460; **FAX:** (708) 864-4836. **Owner:** Consortium, Ltd. **Manager:** Benjamin Kanters, Scott Steinman.

[24+] **CREATIVE COMMUNICATIONS COMPANIES;** also REMOTE RECORDING; 3700 S. Hawthorne; Sioux Falls, SD 57105; (605) 334-6832. **Owner:** William and Vesta Prines. **Manager:** William and Vesta Prines.

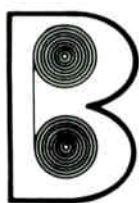
[24+] **DIGITAL AUDIO RECORDING/DANIEL GOMEZ-IBANEZ;** only REMOTE RECORDING; W9643 Rucks Rd.; Cambridge, WI 53523; (608) 764-8082. **Owner:** Daniel Gomez-Ibanez. **Manager:** Daniel Gomez-Ibanez.

[24+] **THE DISC LTD.;** 14611 E. Nine Mile Rd.; East Detroit, MI 48021; (313) 779-1380. **Owner:** Greg Reilly. **Manager:** Greg Reilly, Bob Dennis, Tom Gelardi. **Engineers:** Greg Reilly, Jim Michewicz, Bob Dennis, Scott Sumner. **Dimensions:** Room 1: studio 20 x 40, control room 20 x 18. Room 2: studio 18 x 16. Room 3: studio 12 x 14, control room 12 x 15. **Mixing Consoles:** SSL G Series 32 x 32, API 32 x 24 custom, DDA 20 x 36. **Audio Recorders:** Otari MTR-90 II, Ampex MM-1000 24-track, Mitsubishi 2-track digital, Ampex ATR-102 2-track, MCI JH-110B 2-track, Tascam 24-track, (2) Panasonic 3500 DAT, Sound Tools digital hard disk recorder and editor. **Cassette Recorders/Duplicators:** Aiwa, Technics. **Noise Reduction Equipment:** dbx for 24- and 2-track, Dolby for 24- and 2-track. **Synchronization Systems:** BTX 4600. **Echo, Reverb & Delay Systems:** Lexicon 200, (2) EMT plate, Lexicon PCM70, Lexicon PCM42, Lexicon PCM41, Yamaha REV5, Yamaha REV7, (2) Yamaha SPX90, DeltaLab DDL-1, Lexicon 480, Lexicon 224X. **Other Outboard Equipment:** Aphex Aural Exciter, TC Electronic 2290 (sampler delay), Valley Music Dyna-Mite (compressor/gate), dbx 166, Loft delay/flanger, (2) Teletronix compressor, Pultec EQ, Orban parametric EQ, Harmonizer. **Microphones:** AKG 414 transformerless, Neumann U47 tube, Neumann U67 tube, Neumann U87, Neumann U85, —LISTING CONTINUED ON NEXT PAGE

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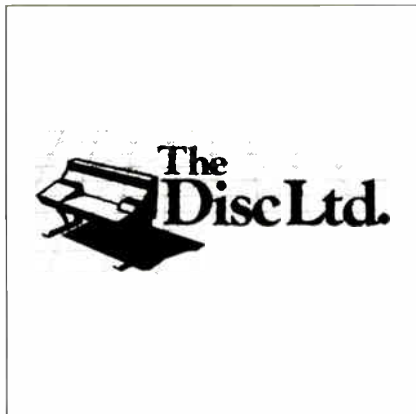
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NORTH CENTRAL

24+ TRACK STUDIOS

—LISTING CONTINUED FROM PREVIOUS PAGE



THE DISC LTD.
East Detroit, MI

E-V RE20, E-V RE15, E-V RE10, E-V RE55, AKG 635 A, Sennheiser MD-421, Beyer. **Monitor Amplifiers:** McIntosh, Crown. **Monitor Speakers:** DDC Design AGU w/UREI horn, Acoustic Research modified, Yamaha NS-10, Auratone, TOC studio monitor. **Musical Instruments:** Akai MPC drum computer, E-mu Emax, Roland D-50, E-mu Emulator III, Roland Super Jupiter, Yamaha grand piano, Yamaha TX7 sound w/ sounds stored on Mac 3, Ensoniq Mirage, Sequential Circuits Prophet-5, Premier drum set, timpanis, vibes, marimbas, chimes, glockenspiel, E-mu Proteus, Roland JX-10. **Other MIDI Equipment:** Macintosh SE w/Opcode Vision software, Opcode sound libraries, Yamaha MIDI patch bay, Yamaha X76 controller. **Video Equipment:** Sony BVU-800 3/4", BTX synchronizers and tape controller, BTX time code generator, Panasonic color monitor. **Specialization & Credits:** Our recently installed Solid State Logic 4000 G Series console reflects our continuing commitment to provide our clients with the best possible creative environment. We are now able to do 48-track recording. We have a separate edit/MIDI room for MIDI productions and editing or duplications. Credits include, "One Way" produced by Deodato (MCI), "Atomic Dog" by George Clinton (Capitol), "Michele Goulet" (Island), "Ready for the World" by Ready for the World (MCA), "Bert Robinson" (Capitol), "Heard It Through the Grapevine" Roger Troutman (Warner Bros.) and most recently "One Way" for Capitol. We are also licensed by the state of Michigan to teach recording engineering classes under the name The Recording Institute of Detroit. We are currently installing our third 24-track studio. We've also have improved our monitors in the main studio and added a Lexicon 480 and 224X, plus Sound Tools for digital computer-based 2-track editing and mixing. This allows us to do DAT premastering.

[24+] **DRESS REHEARSALS LTD.;** 1840 W. Hubbard; Chicago, IL 60622; (312) 829-2213. Owner: Don Grayless. Manager: Don Grayless.

[24+] **FAST TRAX RECORDING STUDIO;** also REMOTE RECORDING; 2737 Baldwin St.; Jenison, MI 49428; (616) 669-3400. Owner: Robert B. Reister. Manager: Colleen M. Horgan.

[24+] **HARTWOOD RECORDING;** also REMOTE RECORDING; 4607 Jeffers Rd.; Eau Claire, WI 54703; (715) 834-5122. Owner: John E. Hartzell. Manager: Ruth E. Hartzell.

[24+] **HARVEST PRODUCTIONS;** 5501 S. Cedar, Ste. C; Lansing, MI 48911; (517) 887-6555; FAX: (517) 887-0440. Owner: Mark Miller/Steve Curran. Manager: Jim Diamond.

[24+] **HG STUDIO;** also REMOTE RECORDING; 213327 Mile Rd.; Franksville, WI 53126; (414) 425-3885; FAX: (414) 425-3885. Owner: Don Hunjadi. Manager: Don Hunjadi.

[24+] **ICON STUDIO;** 5089 Waterman Blvd.; St. Louis, MO 63108; (314) 367-3121. Owner: Perry Emge. Manager: Judy Leise. Engineers: Perry Emge, Hunter Sprenger. **Dimensions:** Studio 20 x 24 x 19H, control room 22 x 29. **Mixing Consoles:** Soundcraft 6000 44 x 24 w/automation. **Audio Recorders:** Tascam TRS24 24-track 1", Tascam 58 8-track 1/2", Tascam 42 2-track 1/4", Tascam 34 4-track 1/4". **Cassette Recorders/Duplicators:** (2) Nakamichi, TEAC. **Noise Reduction Equipment:** dbx 18 channels. **Synchronization Systems:** PPS-1, PPS-100. **Echo, Reverb & Delay Systems:** (2) Lexicon LXP-1, (2) Yamaha SPX90II, Lexicon PCM42, ADA STD I, Yamaha R1000, dbx 160, dbx 166, dbx de-esser, Yamaha

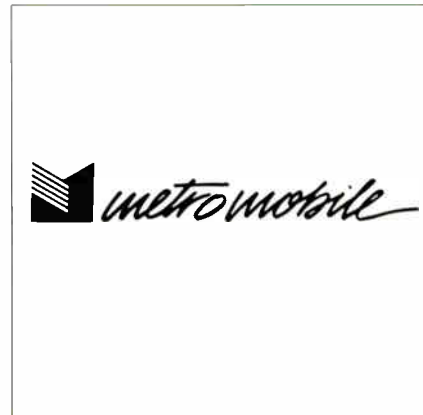
D1500 DDL, ART Multiverb, more available. **Other Outboard Equipment:** Rane EQ, Microphones: AKG 414, (8) Shure SM57, CAD Equitec, (2) Neumann KM84. **Monitor Amplifiers:** Crest. **Monitor Speakers:** JBL 4408, UREI 813. **Musical Instruments:** EPS-M, Poly-6 MIDI, Roland Juno-106, (2) TX7, (2) Yamaha TX81Z, VFX, Proteus, SX-77 and others available. **Other MIDI Equipment:** MX8 MIDI patch bay, Atari 1040, Atari MEGA 4, Steinberg PRO24 III sequencer, PPS 100. **Other:** ADAP digital sampler/editor. Rates: \$60 per hour. Control room design by John Storyk.

[24+] **MIKE JONES FILM CORP.;** also REMOTE RECORDING; 5250 W. 74th St.; Minneapolis, MN 55439; (612) 835-4490; FAX: (612) 835-3413. Owner: Mike Jones. Manager: Paul Martinson.

[24+] **JOR-DAN RECORDING, INC.;** also REMOTE RECORDING; 1100 Wheaton Oaks Ct.; Wheaton (Chicago), IL 60187; (708) 653-1919; FAX: (708) 665-4966. Manager: Kelly Lovett.

[24+] **JOSEPH PRODUCTIONS, INC.;** also REMOTE RECORDING; 21759 Melrose Ave.; Southfield, MI 48075; (313) 353-7300; FAX: (313) 353-8273. Owner: Sheldon J. Nueman. Manager: Eve Avadenka. Engineers: Sheldon Nueman chief engineer, Ben Thomas, Gary Phelps, Harlan Singal, Dan Thoms. **Dimensions:** Room 1: studio 17 x 12, control room 25 x 12. Room 2: studio 17 x 12, control room 10 x 11. **Mixing Consoles:** Harrison TV-3, Neotek 16 x 2, (2) Yamaha DMP7. **Audio Kinetics Master Mix automation, Audio Recorders:** Otari MTR-90 24-track, Otari MRT-12 2- and 4-track, (2) Otari MTR-12 2-track, Panasonic SV-3500 R-DAT, Dyaxis digital editor, Otari MX-7800 8-track, Otari MX-5050 4-track. **Cassette Recorders/Duplicators:** (2) Tascam 122, Tascam 124, Otari 4050 duplicator. **Noise Reduction Equipment:** Dolby 363 SR/P, dbx 24 mainframe, dbx 150 Type I, dbx 900/911. **Synchronization Systems:** Alpha Audio BOSS-2, (3) TimeLine Lynx, (3) BTX Shadow. **Echo, Reverb & Delay Systems:** (2) Yamaha SPX90, (2) Lexicon PCM42, Aphex Aural Exciter, Ursa Major 8 x 32. **Other Outboard Equipment:** Orban Sibilance controller, Orban parametric, (2) Aphex compeller, Neumann U473 compressor, UREI 1178 peak limiter, Gen Phone interface, Technics SLP-1200 CD player, Magna-Tech MR100 36-3 35mm/16mm 24/25/30, Technics SLG-720 CD player, Otari EC-401 resolver. **Microphones:** AKG The Tube, AKG 414, Neumann U89. **Monitor Amplifiers:** Halfer 500, Halfer 200, Crown D-75, Crown PS-400. **Monitor Speakers:** (2) UREI 813C, Auratone, (4) JBL 44 II. **Musical Instruments:** E-mu Emulator III, Synclavier. **Video Equipment:** Hitachi HR 230 1" videotape recorder, Hitachi 9-bit 230 time base corrector, Sony VO-5850 3/4" video C-55 recorder, Mitsubishi 35" monitor, Sony 19" monitor, Mitsubishi stereo Hi-Fi 1/2" videotape recorder. **Other:** (2) New England Digital PostPro SD.

[24+] **LANDMARK RECORDING STUDIOS;** also REMOTE RECORDING; 206 2nd Ave.; Chesapeake, OH 45619; (614) 867-5544. Owner: Operation Evangelize Ministries. Manager: Stephen Hoffman.



METRO MOBILE RECORDING
Glenview, IL

[24+] **METRO MOBILE RECORDING;** also REMOTE RECORDING; 2097 John's Ct.; Glenview, IL 60025; (708) 998-6420. Owner: Timothy R. Powell. Engineers: Timothy R. Powell, Kevin Easton, John Nevin, Chad Skinner, Kathy Yore. **Dimensions:** Remote truck 8 x 15. **Mixing Consoles:** Neotek Elite 50 x 26, Hill Multimix 16 x 4, Hardy M1 mixing preamp. **Audio Recorders:** (2) Sony/MCI JH-24 24-track, Fostex E-16 16-track, Panasonic SV-3500 DAT, Tascam 40-4 4-track, (2) Technics 1500 2-track 1/4", Sony 601 PCM digital processor, Scully 280B 2-track (30/15 ips). **Cassette Recorders/Duplicators:** Nakamichi MR-2, (2) Tascam 112R, (12) Aiwa F-350. **Noise Reduction Equipment:** dbx 8 channels, Dolby C 16 channels. **Synchronization Systems:** Adams-Smith Zeta-3. **Echo, Reverb & Delay Systems:** Lexicon PCM60, Lexicon Prime Time, (2) Yamaha SPX90, Yamaha REV7, (3) Yamaha D1500 digital delay, Eventide H3000 Ultra-Harmonizer, Alesis Microverb II, DeltaLab ADM-256, Sound Workshop 262 spring reverb, Orban 111B spring reverb, AKG BX-20 spring reverb.

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Other Outboard Equipment: Studio Technologies AN-2 stereo synthesizer, Aphex Compellor, Aphex Aural Exciter Type C, (5) dbx 160X limiter, (5) dbx 166 limiter, (2) dbx 163X gate, (2) dbx 563X silencer, (2) dbx 263X de-esser, dbx 163X limiter, Omni Craft GT-4 gate, USAudio Gatex gate, Burwen DNF-1201A dynamic noise filter, NAD 4300 AM/FM tuner, Eventide Omnipressor, Orban 622 parametric EQ. **Microphones:** AKG, Beyer, Bruel & Kjaer, Fostex, Electro-Voice and more. **Monitor Amplifiers:** Carver 1.05, Yamaha 2075, Crown D 150, Sony TAN 5550, Crown D-75, Rane HC-6 headphone amp. **Monitor Speakers:** UREI 809, JBL 4313, Yamaha NS-10, Fostex RM-780, Auratone 5C, Tannoy PBM 6.5, MDM-4. **Video Equipment:** Sony CVM-1270 color monitor, Panasonic WV-F2 CCD color camera, Toshiba IK-2000 color camera, Otari SMPTE time code reader. **Other:** 100-amp single phase power distributor w/500' cable, 48 channel snake and splitter system, Clear-Com intercom system, Sescorm, Stewart Pro-Co, Missing Link direct boxes, Pro Mix 32 channels VCA MIDI mixdown automation, cables, sub-snakes, mic stands, headphones and more. **Rates:** Call for rates and quote. **Specialization & Credits:** Metro Mobile offers 48-track remote recording and on location studio tracking. Recent credits: Bodeans *Home LP*, Replacements *Inconceivable CD*, Wire, *Frehley's Comet Live+1*, Descendents *Live Age*, Don Dixon *Chi-Town Budget Show*, Basia *Live* limited edition on CD, Siegal-Schwazl *The Reunion Concert*, Lonnie Brooks *Live from Chicago*, *Tattoo Blood Red*, Jerry Goodman *It's Alive*, The Godfathers *Live EP*. Clients: Westwood One Broadcasting, HBO, The Disney Channel, WXRT, WLUP, Alligator Records, King Biscuit Flower Hour, A&M Records, Epic Records, PolyGram Records, MCA Records.

[24+] **METRO STUDIOS;** 216 3rd Ave. N.; Minneapolis, MN 55401; (612) 338-3833; FAX: (612) 338-4235. Owner: Good Music Agency, Doug Brown. Manager: James Walsh.

[24+] **MIAMI STREET STUDIOS;** 1619 Miami St.; South Bend, IN 46613; (219) 288-TAPE. Owner: John Nuner, Jack Burke. Manager: Earl Scott. Engineers: John Nuner, Jack Burke, Howard Lindeman. Dimensions: Room 1: studio 30 x 20, control 21 x 18. Room 2: studio 8 x 8. Room 3: studio 70 x 22. **Mixing Consoles:** Soundcraft TS 12 24 x 24. **Audio Recorders:** MCI JH-24 24-track, Fostex E-16 16-track, MCI JH-110 2-track 1/2", Fostex E-22 2-track w/center-track 1/4", Sony DAT. **Cassette Recorders/Duplicators:** Akai 912, JVC TD-W330. **Synchronization Systems:** Fostex 4030/4035, Fostex 8700 SMPTE time code generator. **Echo, Reverb & Delay Systems:** Lexicon 224X digital reverb, Lexicon 200 digital reverb, Lexicon Prime Time II digital delay, ART DR2A digital reverb, Klark-Teknik DN780 digital reverb processor, ART 01 digital reverb, VESTA DIG-411 digital reverb, DeltaLab ADM 1030 digital delay, Ecoplate I plate reverb. **Other Outboard Equipment:** Eventide H910 Harmonizer, (4) Teletronix LA-2A compressor, Omni Craft GT-4A 4-channel noise gate, (3) dbx 166 2 channel compressor/noise gate, Valley People Dyna-Mite 2-channel dynamics processor, MXR pitch doubler. **Microphones:** AKG C-12, Neumann U67, Beyer MC740, (2) Neumann KM84, AKG C-451 EB, (2) AKG C-452 EB, RCA 77DX, (4) Sennheiser MD421, (2) Audio-Technica ATM31, (2) Shure SM57, (2) E-V ND308, (2) E-V ND408, Beyer M69, E-V 666, E-V PL20. **Monitor Amplifiers:** QSC MX1500, Yamaha P2250, (2) BGW 6500 cue amp. **Monitor Speakers:** (2) Tannoy FSM U, (2) Tannoy NFM-8, (4) Yamaha NS-10. **Musical Instruments:** Martin 0018 (1947) acoustic guitar, E-mu SP12 drum machine, E-mu 7000 drum machine, Korg M1, Roland D50, Yamaha SY77, Yamaha DX7, Yamaha TX7, Sequential Circuits Prophet-600, Fender jazz bass, Fender Stratocaster, Fender Telecaster, instrumental rental available. **Other MIDI Equipment:** MIDI rental available. **Video Equipment:** JVC HRS 8000U VCR, Fostex video/audio SMPTE lockup. **Other:** Mogami cable throughout. **Rates:** Rates available on request.

[24+] **MUSICOL, INC.;** also REMOTE RECORDING; 780 Oakland Park Ave.; Columbus, OH 43224; (614) 267-3133. Owner: J.W. Hull, B.P. Niederlander. Manager: Doug Edwards.

[24+] **NUMARK, INC.;** 51308 Peach Tree Ln.; Shelby Twp., MI 48316; (313) 739-6940. Owner: John Antos, Mark Antos. Manager: Mark Antos.

[24+] **PAISLEY PARK STUDIOS;** 7801 Audubon Rd.; Eden Prairie, MN 55346; (612) 474-8555; FAX: (612) 474-6328. Manager: Jon Dressel. Engineers: Tom Tucker—chief recording engineer, Sal Greco—chief technical engineer, Dave Friedlander, Tom Gameau, Mike Koppelman, Mitch Mortensen. Dimensions: Room A: studio 35 x 50. Room B: studio 35 x 35. Room C: studio 32 x 46, control room 14 x 16. **Mixing Consoles:** SSL 6064 64-channel w/G Series automation, Custom API/DeMedio 48 x 24 x 24 w/Massenburg Moving Fader automation, Soundcraft TS 24 32 x 32 x 24. **Audio Recorders:** (4) Studer A800 24-track, Sony JH-24 24-track, (7) Studer A820 2-track w/center channel time code, Ampex ATR-104 4-track, Studer 820 2-track digital, (2) Sony 2500 R-DAT, Sony F1, Nagra 2-track, digital multitracks available on request. **Cassette Recorders/Duplicators:** (4) Tascam 122 MkII, (10) Tascam 122B, (4) Yamaha C300. **Noise Reduction Equipment:** Dolby A, Dolby SR. **Synchronization Systems:** (4) TimeLine Lynx, Adams-Smith 2600, Studer TL-S. **Echo, Reverb & Delay Systems:** Lexicon PCM480L, (2) Lexicon 224XL, (4) AMS RMX 16 reverb, (4) AMS DMX 15-80S digital delay/harmonizer, (3) Quantec QRS, (2) Eventide SP-2016, (2) —LISTING CONTINUED ON NEXT PAGE



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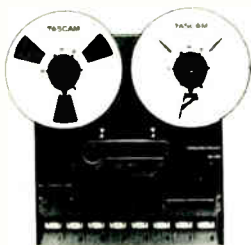
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NORTH CENTRAL

24+ TRACK STUDIOS

—LISTING CONTINUED FROM PREVIOUS PAGE

Eventide H969, (2) Eventide H3000, Eventide H949, (2) Publison Infernal 90, (2) Yamaha REV5, (2) Yamaha REV7, (4) Yamaha SPX90II, (3) Lexicon PCM70, (3) Lexicon Prime Time II, (2) Lexicon PCM60, (8) Lexicon PCM42. **Other Outboard Equipment:** (2) Neve 33609, (8) Focusrite 110, (5) Pultec EQ, (3) GML 4-channel mic pre, Summit tube limiter, (40) Kepex II gate, (8) Drawmer dual gate, (8) Teletronix LA-2A limiter, (5) GML 8200 EQ stereo, Akai 5901, (2) Klark-Teknik dual graphic, (10) dbx 160X limiter, (4) dbx 165A limiter, (2) UREI 1178, (4) UREI 1176, (2) UREI LA-4A, dbx 902 de-esser, dbx 904 gate, dbx 903 compressor/limiter. **Microphones:** Lots! **Monitor Amplifiers:** Crown, Boulder, BGW. **Monitor Speakers:** Westlake SM-1 3-channel w/Dolby surrounds (Studio A and B), Tannoy FSM (Studio C), Yamaha NS-10M, Westlake BBSM-4, Tannoy PBM-6.5, Auratone. **Musical Instruments:** (2) Yamaha C-7, Yamaha 7' grand piano. **Video Equipment:** House sync, (2) BVU-800 3/4" recorder. **Specialization & Credits:** Paisley Park Studios is located 20 minutes from downtown Minneapolis and the Minneapolis-Saint Paul International Airport. We offer full residential packages, including lodging, meals and transportation, at competitive rates. In addition to our SSL-equipped Studio A, our Massenburg-automated Studio B and our budget-wise Studio C, we also have a 120'L x 102'W x 45'H soundstage and a P.A. package available. All production spaces have 72 audio and four video crosspatchable tie-lines. Complementing our facility are a full kitchen, a large skylit courtyard, individual studio lounges with stereo, VCR and television, underground heated parking, production offices, conference rooms, billiards, ping-pong, basketball, a video arcade and catered meals upon request. Paisley Park's #1 commitment is to unparalleled service and support for all our clients.

[24+] **PARAGON RECORDING STUDIOS, INC.;** also REMOTE RECORDING; 9E. Huron St.; Chicago, IL 60611; (312) 266-0075. **Owner:** Marty Feldman, **Manager:** Nancy Gardner-Feldman. **Engineers:** Marty Feldman, George Warner, Jon Herrman, Jim Franke, Tom Roidt, Scott Barnes, Mark Richardson. **Dimensions:** Room 1: studio 20 x 40, control room 16 x 24. Room 2: studio 20 x 25, control room 20 x 20. **Mixing Consoles:** Flickenger/Paragon custom 44 x 24 w/3-band parametric EQ, noise gates, (2) stereo foldback, muting; Flickenger/Paragon custom 16 x 16. **Audio Recorders:** 3M 79 24-track, 3M 56 16-track, (3) Studer B67 1- and 2-track, 3M 79 2-track, Panasonic SV-3500 R-DAT, (5) Scully 1/2/4-track, multitrack magnetics. **Cassette Recorders/Duplicators:** (3) Aiwa, (4) Nakamichi. **Noise Reduction Equipment:** Dolby A 40-channel, Dolby SR 2-channel, dbx 4-channel. **Synchronization Systems:** SBX time code generator/reader. **Echo, Reverb & Delay Systems:** (4) EMT 140 reverb plate, (2) Yamaha REV7, Yamaha SPX90, (2) Eventide Harmonizer, Yamaha R100, Lexicon 102 delay, Lexicon 200, Effectron delay, Yamaha D1500 delay, Roland DEP-5, UREI/Cooper Time Cube, Paragon's marble hallway. **Other Outboard Equipment:** Akai S900 sampler, (7) Pultec EQ, (12) API 550 EQ, Barcus-Berry exciter, (24) Flickenger noise gate, (2) ADR Compex comp/limiter, ADR Vocal Stresser, (10) UREI LA-3A limiter, (6) UREI 1176 compressor, UREI 1176 tube compressor, (8) Langevin tube pre. **Microphones:** AKG, Altec, Beyer, E-V, Neumann, PML, Sennheiser, Sony, Shure, Telefunken, many rare tube mics. **Monitor Amplifiers:** Crown. **Monitor Speakers:** (12) JBL, (2) Yamaha NS-10, (6) Auratone. **Musical Instruments:** Baldwin grand piano, Hammond B-3 organ w/ Leslie, (2) Camco drum set, conga drum, Fender Rhodes w/ Boss chorus, Celeste, Yamaha RS 11 drum machine, ARP 2600, Yamaha DX7, Baldwin harpsichord, Simmons drum set, all percussion instruments. **Video Equipment:** Sony 5600 3/4", Sony 1/2", Sony Beta Hi-fi. **Rates:** Please call, rates to suit all budgets. **Specialization & Credits:** Paragon Recording Studios offers its clients over 23 years experience as specialists in the international audio recording community and over 40 gold and platinum records. Thanks to our many recent clients who include Gladys Knight, Natalie Cole, Dr. John, Commodores, David Lasley, Jesse Jackson, Melba Moore, Gene Barge, Grave Danger, Vanessa Davis Band and Johnny Griffin.

[24+] **PEARL SOUND STUDIOS;** 47360 Ford Rd.; Canton, MI 48187; (313) 455-7606; FAX: (313) 455-4910. **Owner:** Ben Grosse.

[24+] **PENGUIN PRODUCTIONS;** 1026 Carole; St. Louis, MO 63021; (314) 394-0267; FAX: (314) 394-0860. **Owner:** Richard Byron. **Manager:** Frank Gagliano.

[24+] **PTERANODON STUDIOS, INC.;** 10230 Quince St. NW; Coon Rapids, MN 55433; (612) 757-8963. **Owner:** Sam and Sheree Andersen. **Manager:** Sheree Andersen.

[24+] **QUALITY MEDIA PRODUCTIONS;** 1425 W. Whittaker; Salem, IL 62881; (618) 548-2031. **Owner:** C. Keith Bailey. **Manager:** C. Keith Bailey.

[24+] **THE RECORDING WORKSHOP;** also REMOTE RECORDING; 455 Massieville Rd.; Chillicothe, OH 45601; (800)

THE RECORDING WORKSHOP

THE RECORDING WORKSHOP
Chillicothe, OH

848-9900. Manager: Jim Rosebrook, director: Brian Stritenberger. Engineers: Jeff Ling, Brian Stritenberger, Dan Smart, Lisa Michael, Jim Wilson, Eric Brown, Tony Cottrill, Rob Gough, Larry Pester, Chris Breck. Dimensions: Room 1: studio 30 x 35, control room 30 x 27. Room 2: control room 25 x 24, control room 15 x 16. Room 3: studio 30 x 40, control room 30 x 20. Room 4: studio 15 x 20, control room 15 x 17. **Mixing Consoles:** (2) Sony/MCI 600 Series, (2) Amek/TAC Scorpion 16 x 16, Sound Workshop Logex 20 x 8. **Audio Recorders:** (2) Sony/MCI JH-24 24-track, Sony/MCI JH-110 2-track, (2) Otari MX-70 16-track, (12) Otari 5050 2-track, Fostex E8 8-track, (2) Digidesign/Mac IIci 4-track hard disk. **Cassette Recorders/Duplicators:** (6) Panasonic 3500 DAT, (2) Nakamichi MR-1, (2) Nakamichi MR-2, (2) Tascam 122, (3) Yamaha C300. **Noise Reduction Equipment:** Drawmer DF-320. **Synchronization Systems:** Fostex 4030/4035. **Echo, Reverb & Delay Systems:** Lexicon 224XL, (6) Lexicon PCM70, (2) Lexicon PCM60, Lexicon PCM41, Klark-Teknik DN780, (6) Yamaha SPX90, Eventide H910 Harmonizer, Eventide FL210 instant flanger, MCMIX Super C, Ecoplate II. **Other Outboard Equipment:** Pultec EQH-2, Teletronix LA-2A, (4) dbx 903, (4) dbx 904, (2) UREI 1176, Orban EQ-62 1B, Scholz Rock Module, (3) Galax, (2) Rane GE-14, BBE 822 Sonic Maximizer, (2) Aphex Aural Exciter, Drawmer DL-231, (4) dbx 160X, (4) dbx 166, dbx 165A, (2) dbx 263X, Dyno-My-Piano tri-chorus, (2) Gains Audio MP-2 mic preamp. **Microphones:** (100+) virtually all major manufacturers and models. **Monitor Amplifiers:** (6) Crown, (2) McIntosh, (6) QSC. **Monitor Speakers:** (2) UREI 813, (2) UREI 815, (2) Durr custom, (4) JBL 4312, (4) Yamaha NS-10, (6) Fostex RM-780, (4) JBL Control 10, (2) Tannoy PBM-8, (2) Eastern Acoustic Works. **Musical Instruments:** Yamaha conservatory grand piano, Roland RD-1000 digital piano, Yamaha KX88 controller, Yamaha TX416, Roland S-550 sampler, Roland MKS-20, Ensoniq ESQ-1, Yamaha DX7. **Other MIDI Equipment:** (2) Atari 1040ST, (2) Hybrid Arts MIDI track ST/SMPTE, Opcode Studio 3. **Rates:** Available upon request. **Specialization & Credits:** The Recording Workshop offers an intensive, 300-hour training program in audio recording. We are the original "hands-on" school for students seeking education in the creative operation of professional recording equipment. Over 200 hours are spent in-studio. This experience includes session setup, miking technique, recording, mixing, studio etiquette, song production, commercial and audio-for-video production, editing and equipment maintenance. In lecture, students receive a broader study of audio engineering and music business practices. Our six-studio recording complex features two automated 24-track studios, two 16-track studios, an 8-track commercial/MIDI production studio, a hard disk digital editing/DAT mastering studio and a conventional editing lab. In-studio class size is three to six students, lecture class size is 48. We have internship and job placement services. We offer low-cost, on-campus housing. Financial aid is available. The Workshop is a TEC Award nominee and is approved by the State Board of Proprietary School Registration. Please call for a free brochure.

[24+] **REFRAZE STUDIOS, INC.;** also REMOTE RECORDING; 2727 Gaylord Ave., Dayton, OH 45419; (513) 298-2727. Owner: Mark A. Frazee, Jane Frazee. Manager: Gary D. King.

[24+] **ROYAL RECORDERS;** c/o Americana Resort; Lake Geneva, WI 53147; (414) 248-9100. Owner: Ron Fajerstein. Manager: Jeff Schroeder. Engineers: Rick Denhart, Dan Harjung, Dave Duinak. Dimensions: Studio 35 x 24, control room 21 x 20. **Mixing Consoles:** Solid State Logic 4072E w/ G Series computer, 64 mono, 8 stereo, 80-input. **Audio Recorders:** (2) Studer A800 MkIII 24-track, Studer A80 1/2" 2-track, Studer A80 1/4" 2-track, (2) Mitsubishi X850 32-track digital, Mitsubishi X86 2-track digital. **Synchronization Systems:** Adams-Smith 2600SP. **Echo, Reverb & Delay Systems:** Publison Internal 90 (20.9 sec. stereo sampling and SMPTE), (2) AMS DMX 15-80S (dual lock-in 6.515 secs.), (2) AMS RMX 16 digital reverb, Ecoplate I reverb, EMT 140 T plate reverb (tube), Lexicon 224XL w/LARC, Lexicon PCM70 digital reverb, Lexicon Super Prime Time DDL, Lexicon 200 digital reverb, (2) Yamaha REV7 reverb, (4) Roland SDE-3000 DDL, Lexicon 480L. **Other Outboard Equipment:** (8) Focusrite ISA



ROYAL RECORDERS
Lake Geneva, WI

110 EQ, (2) GML parametric EQ, (2) Pultec EQP-1A EQ, (6) Pultec EQH 2 EQ, (9) API 550A EQ, (4) Orban 622B parametric EQ, (5) Teletronix LA-2A tube limiter, (4) dbx 160X limiter, (2) UREI LA-4 limiter, (8) Drawmer DS-201 dual noise gate. **Microphones:** (2) AKG C-24 tube, (7) AKG C-12 tube, Telefunken M251 tube, (2) Schoeps 221B tube, (3) Neumann M250 tube, (2) Neumann M269 tube, (2) Neumann KM254 tube, (5) AKG 45 1E, (4) AKG C-12A, (6) Sennheiser MD-421, (7) Shure SM57. **Monitor Amplifiers:** (3) Times One, (2) Yamaha PCM2002, (2) Crown DC-300A. **Monitor Speakers:** Lakeside custom, (2) Yamaha NS-10M Studio, Yamaha NS-10M, Fostex RP80, Visonik David 9000, Auratone, (2) Tannoy NFM8. **Musical Instruments:** Roland D-50 w/PG-1000 programmer, Roland Super JX-10 w/PG-800 programmer, E-mu Emulator II+, Yamaha DX7, Sonor 5-pc. drum kit, E-mu SP-12, Fender Precision bass, Yamaha C7 grand piano. Other: Marshall 100-watt stack, Hammond B-3 organ w/Leslie, Roland Jazz Chorus 120, Traco Elliot bass rig. **Rates:** Negotiable. **Specialization & Credits:** Royal Recorders offers one of the finest recording environments in the world, combined with the beauty and amenities of the Americana Resort in Lake Geneva, Wisconsin. In addition to the studio's 80-input SSL 4072E console with G Series computer and Mitsubishi 64-track digital/Studer 48-track analog capabilities, Royal offers a full complement of outboard gear and one of the largest vintage tube microphone collections in the world. Roy's is dedicated to recording music and soundtrack albums. Having just completed its third year in business, Royal has had the privilege of working with the following artists: The Bears, Adrian Belew, The Bodeans, Bon Jovi, Skid Row, Cheap Trick, Red Hot Chili Peppers, Enuff Z'nuff, Jerry Harrison, Robert Plant, Survivor and T'Pau. Soundtrack albums: *Rocky II* and *Top Gun*.

[24+] **RTG MUSIC;** 130 E. 6th St., Cincinnati, OH 45202; (513) 381-0506; FAX: (513) 381-0909. Owner: Ed O'Donnell. Manager: Robin Janney.

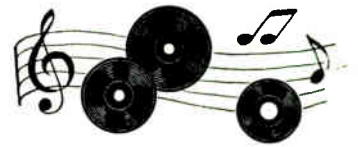
[24+] **SCHARREN RECORDING;** also REMOTE RECORDING; 123 Tenth St., Toledo, OH 43624; (419) 241-5432. Owner: Steve Scharren. Manager: Jim Kenzie/S. Scharren.

[24+] **SEAGRAPE RECORDING STUDIOS;** also REMOTE RECORDING; 5740 N. Western Ave., Chicago, IL 60659; (312) 784-0773. Owner: Corporate. Engineers: Tom Haban, Mike Konopka, Herb Fields, Loudon Fastt Specks, David Trumfio. Dimensions: Studio 50 x 25, control room 20 x 20. **Mixing Consoles:** Neotek Series III 50 x 24. **Audio Recorders:** MCI JH-24 24-track, MCI JH-16 16-track, Otari MTR-10 1/2" and 1/4" and Sony PCM F1 digital. **Cassette Recorders/Duplicators:** Otari DP-4050, Nakamichi BX-100. **Synchronization Systems:** MCI JH-4B Autolock for 40-track recording. **Echo, Reverb & Delay Systems:** Lexicon 200, Lexicon Super Prime Time, Lexicon PCM60, TC Electronic 2290, Eventide 949, MCMIX 515, Ecoplate II, MXR digital delay, MCMIX 305, MCMIX 121. **Other Outboard Equipment:** (2) UREI 1176, Commodore 64 w/MIDI software, (2) Tapco 27-band graphic, (2) Symetrix gate, (2) Symetrix limiter, dbx 166 limiter, Aphex Type B, Mini-Doc, Orni Craft gate 4-channel. **Microphones:** (3) Neumann U87, Neumann U67, (2) Neumann U47 FET, Neumann KM86, Neumann KM84, (4) AKG 45 1EB, (4) Sennheiser MD-421U5, R12A 44, (3) E-V RE20, (2) Crown PZM-30-GP-3, (10) Shure various, (7) E-V various, Beyer M120N. **Monitor Amplifiers:** (2) McIntosh MC2205. **Monitor Speakers:** JBL 4430, JBL 4411, Yamaha NS-10, Auratone Sound Cube. **Musical Instruments:** Chickering grand piano, Hammond B-3, Ensoniq Mirage, Casio CZ-101, Oberheim DMX, Roland GR-300 guitars synth, Roland Alpha Juno-III, Slingerland drum set, Taurus: bass pedal, St. Blues guitar, Fender guitar Harmony guitar, Gibson guitar. Other: Yamaha SPX90, 6710 Vocoder, TEAC A2300 1/2-track, Heath real-time analyzer. **Rates:** 40-track \$110 per hour; 24-track \$80 per hour; 16-track: \$65 per hour; 2-track \$50 per hour.

[24+] **SEPTEMBER RECORDING;** also REMOTE RECORDING; 5210 E. 65th St.; Indianapolis, IN 46220; (317) 842-4955; FAX: (317) 579-7774. Owner: ASA Productions. —LISTING CONTINUED ON NEXT PAGE

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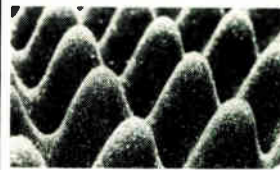
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NORTH CENTRAL

24+ TRACK STUDIOS

—LISTING CONTINUED FROM PREVIOUS PAGE

Manager: Dean Lozow. **Engineers:** Mark Hood, Chris Lieber, Chip Birge, Paul Mahern, Geoff Bustor, Kirk Butler. **Dimensions:** Room 1: studio 24 x 30, control 12 x 16. Room 2: studio 6 x 8, control 14 x 18. Room 3: 10 x 12, control 10 x 12. Room 4: studio 6 x 12, control 6 x 12. **Mixing Consoles:** Neotek Elite 40 x 24, TAC Scorpion 24 x 16, Allen and Heath System 8 12 x 8. **Audio Recorders:** Studer A 80 24-track, Otari MX-70 16-track, Otari MX-5050B 8-track, Macintosh/Digidesign hard disk 4/2-track digital recorder/editor, Panasonic SV-3500 2-track digital, Sony CD-10 2-track digital, (3) Otari MTR-12 2-track with center track SMPTE time code, (3) Otari MX-5050B 2-track. **Synchronization Systems:** (2) Adams-Smith 2600 SMPTE. **Echo, Reverb & Delay Systems:** Lexicon 224XL digital reverb, Lexicon 200 reverb, (4) Lexicon LXP-1 digital reverb, Lexicon PCM70 digital reverb, Roland SRV-200 digital reverb, (3) Yamaha SPX90 digital effects processor, Lexicon Prime Time digital delay, Ecoplate II reverb, Scamp rack, Fairchild 670 tube stereo compressor, (2) UREI 1176 peak limiter, dbx 160 limiter, (6) Symetrix 501 limiter, (2) Symetrix 522 limiter, Eventide H910 Harmonizer, (2) Sontec mic preamp, (8) Fairchild and Altec tube mic preamp. **Microphones:** (4) Neumann U87, Neumann U47, (4) Neumann KM84, (5) AKG 414, (5) AKG 452, AKG D-12, (2) Milab DC96B, (5) Sennheiser 421, Electro-Voice (lots), Shure dynamics (lots), (2) PZM, (3) Sony C-37A tube, Neumann UN-57 tube, Sony EOM-MS5 stereo condenser mic. **Musical Instruments:** E-mu SP-1200 sampling drum machine/sequencer, (2) E-mu SP-12 sampling drum machine/sequencer, E-mu Emulator II-sampler, (2) Oberheim DPX-1 sample player, Yamaha DX-7, Korg SG-1 sampling grand, (2) Proteus I, (3) Roland D-550, Roland MKS-70, Roland JX-8P, Roland MKS-20, Yamaha TX-12, Yamaha TX-7, Yamaha C7D grand piano, Hammond B-3 organ, Ludwig Timpani, (50) miscellaneous percussion. **Other MIDI Equipment:** Linn/Akai MPC-60 sequencer/sampler/drum machine, Macintosh SE-30 running Performer sequencing. **Video Equipment:** JVC CR-850 V 3/4" U-matic editing video recording, JVC CR-6650 V 3/4" U-matic video recorder. **Other:** Leslie speaker cabinet 145, (2) Symetrix TL-101 telephone interface. **Rates:** Rates quoted individually for jingles, film scoring, film and video posting, label and independent record production.

[24+] **SIDESTICK RECORDING STUDIO;** 14611 E. Nine Mile; East Detroit, MI 48021; (313) 779-1388. **Owner:** Robert Dennis. **Manager:** Peg Waggon.

[24+] **SISAPA STUDIOS;** 394 Mt. Vernon; Columbus, OH 43215; (614) 228-2228; FAX: (614) 228-2422. **Owner:** Sisapa Record Co., Inc. **Manager:** Jimmy Dutt. **Specialization & Credits:** Primary production facility for Sisapa Record Co. Neve V60 with GML, Neve 8232, two Studer A820 24-tracks with Dolby SR, a Sony 3324 with Apogee filters, and racks upon racks of outboard stuff for that perfect "illusion of giddown." Plenty of MIDI whammers; plus guitars, drums, amps and even a bunch of microphones for any human participants. And besides, what else is there to do in Columbus? Call for rates and availability.

[24+] **SOLID SOUND RECORDING STUDIO, INC.;** also REMOTE RECORDING; 2400 W. Hassell Rd., Ste. 430; Hoffman Estates, IL 60195; (708) 882-7446. **Owner:** Judd Sager. **Manager:** John Towner, Phil Bonnet, Brad Corson.

[24+] **SOUND IMAGES, INC.;** 602 Main St.; Cincinnati, OH 45202; (513) 241-7475; FAX: (513) 241-4791. **Owner:** Jack Streilmarter. **Manager:** Terri Leedy.

[24+] **SOUND RECORDERS, INC.;** also REMOTE RECORDING; 206 S. 44th St.; Omaha, NE 68131; (402) 553-1164; FAX: (402) 556-1358. **Owner:** John M. Boyd. **Manager:** Marty Boyd.

[24+] **SOUND RECORDERS, INC.;** also REMOTE RECORDING; 3947 Stateline Rd.; Kansas City, MO 64111; (816) 931-8642; FAX: (816) 561-3671. **Owner:** Ron Dabbs, John Boyd. **Manager:** Stacey Mings.

[24+] **SOUNDSPACE INC.;** also REMOTE RECORDING; 845 Dayton St.; Yellow Springs, OH 45387; (513) 767-7353. **Owner:** Chris Hertzler. **Manager:** Chris Hertzler.

[24+] **SOUNDSTAGE I PRODUCTIONS;** also REMOTE RECORDING; 1800 35th St.; Galesburg, MI 49053; (616) 665-7025; FAX: (616) 665-7025. **Owner:** J.R. Cummings. **Manager:** Kim Parker.

[24+] **STAR TRAX RECORDING, INC.;** also REMOTE RECORDING; 15602 S. 70th Ct.; Orland Park, IL 60462; (708) 429-2760. **Owner:** Star Trax Inc. **Manager:** George Lui.

[24+] **STREETERVILLE STUDIOS;** 161 E. Grand Ave.; Chicago, IL 60611; (312) 644-1666. **Owner:** James C. Dolan. **Manager:** Bob Dolan. **Engineers:** Steve Kusiciel, Justin



STREETERVILLE STUDIOS
Chicago, IL

Niebank, Fred Breitberg, Garry Elghammer, David Axelbaum, Steve Frisk, Bob Kruger, Todd Von Ohlen, Bob Miller. **Dimensions:** Studios: (1) 47 x 27 x 14, (2) 37 x 27 x 12, (The Suite) 14 x 15 x 12, (5) 14 x 13 x 8.75, (6) 14 x 10 x 8.75, (7) 10 x 10.5 x 8.75. **Control rooms:** (1) 25 x 16.5 x 11.5, (2) 24 x 18 x 10, (Suite) 21 x 22 x 10, (5) 20 x 16 x 8.75, (6) 17 x 14 x 8.75, (7) 18 x 13.5 x 8.22. **Mixing Consoles:** Neve VR 48 x 48 w/Flying Faders, Neve VR 48 x 48 w/Flying Faders SSL 6048E 48 x 48 w/Total Recall and programming EQ, SSL 4004E 40 x 32 w/Total Recall, Neve 8128 48 x 32 x 48 w/Necam II, (2) Harrison 4032 32 x 32 x 40 w/AutoSet I, Neve 21 186 x 4 x 2 w/custom discrete circuitry. **Audio Recorders:** (3) Otari MTR-90 24-track, (5) MCI JH-24 24-track, (2) Studer A80 4-track, (2) Otari MTR-10 4-track, Otari MTR-12 4-track, (4) Otari MTR-10 2-track cttc, (17) Studer B67 2-track, (2) Studer B77 2-track. **Echo, Reverb & Delay Systems:** (3) Lexicon 480L w/LARC, (3) Lexicon 224X w/LARC, (5) Lexicon PCM60, (2) Lexicon Prime Time, Lexicon 92, (3) EMT 140, (2) EMT 240 Gold Foil, (2) MXR digital delay, Eventide 1745, (2) Korg SDD-2000, (3) Yamaha REV7, (3) Yamaha SPX90, TC Electronic 22, (4) AMS SDMX delay/sampler, (2) Yamaha 1500, AMS RMX 16. **Other Outboard Equipment:** UREI 962 digital metronome, (4) UREI LA-4, UREI LA-2A, (6) UREI 1176LN, Allison Gain Brain, Kepex, Orban/Parasound 516C dynamic sibilance controller, Orban 622B parametric EQ, Pultec EQP-15 EQ, Lang PEO-1 program EQ, White 1/3-octave EQ, EXR Exciter Aphex Aural Exciter, MXR Pitch Transposer, Eventide Harmonizer, Dolby SR 52-ch. noise reduction, (8) Focusrite EQ/mic pre, Hardy M-1 mic pre, (2) Wendel jr., (3) Drawmer gate, (4) Aphex Studio Dominator, (12) dbx 463X gate, (9) dbx 263X de-esser. **Microphones:** Over 100 new and vintage. **Monitor Amplifiers:** UREI, Hafler, BGW, Crown. **Monitor Speakers:** All rooms UREI Time Align 813, 811, 809, Yamaha NS-10, Auratone, Rogers, JBL, Tannoy, MDM-4, E-V 100, others. **Musical Instruments:** Synclavier digital music system, Steinway 6'4" grand, Yamaha 7'4" grand, Hammond B-3 organ w/Leslie, Musser "One-Niter" vibes, Ludwig 25"/27"/28"/29" timpani, (2) Sonor Signature drum set, E-mu Emulator II, large complement of MIDI instruments. **Video Equipment:** Complete audio-for-video services available, (7) TimeLine Lynx, Synclavier, Adams-Smith 2600 5-machine, Adams-Smith 2600 3-machine synchronizer, Audio Kinetics O.Lock 3.10, BTX 4600 synchronizer, BTX 4500 controller, Sony/MCI Type C 1" layback machine, Sony BVU-800 3/4" VCR, JVC CR850 3/4" VCR, (6) Sony 5800 VCR. **Rates:** Negotiable. **Specialization & Credits:** Streterville offers AMS AudioFile II systems in all studios for pre-production, in-session manipulation and processing, as well as for mixdown and mastering. Synclavier digital music system with 100K sampling and optical hard disk create a digital "Foley Stage" for SFX creation. Stereo digital satellite recording services for domestic and international sessions. Custom audio duplication with guaranteed overnight, nationwide distribution. **Records—Robert Cray/Albert Collins/Johnny Copeland (Grammy), Steve Goodman (Grammy), Dave Mason, Dennis De Young, Robert Plant, Ramsey Lewis, Lonnie Mack, Richie Havens, KoKo Taylor, Johnny Winter, Roy Buchanan, Lonnie Brooks, Michael Martin Murphy, Butch Stewart, Jonathon Brandmeier, Commercial (national)—Michelob, Old Style, Bud Light, Budweiser, McDonald's, 7-Up, United Airlines, Cherry 7-Up, Michelob Light, Molson, Twix. Streterville continues to grow with the addition of five new studios for music and post-production. These new facilities, added to the already effective blend of people and technical processes, place Streterville in the forefront for entertainment and media needs of the '90s.**

[24+] **STUDIO A RECORDING, INC.;** 5619 N. Beech Dale; Dearborn Heights, MI 48127; (313) 561-7489; FAX: (313) 561-6736. **Owner:** Eric and Marilyn Morgeson. **Manager:** Marilyn Morgeson/Fred Morgeson. **Engineers:** John Jaszc, Randy Poole, Eric Morgeson. **Dimensions:** Room 1: studio 40 x 30, control room 25 x 22 (a John Stork design). Room 2: MIDI room. **Mixing Consoles:** SSL 6000E 40 x 24, G-Series preamps, SSL automation, Soundcraft 200B 32 x 4. **Audio Recorders:** (2) MCI JH-114 24-track, Studer B67 2-track 1/4", Sony APR-5003 2-track 1/2" and 1/4", Mitsubishi X-86C 2-track 1/4". **Cassette Recorders/Duplicators:** Sony 2500 R-DAT, (5) Sony TC-K555. **Noise Reduction Equipment:** (24)

dbx. Synchronization Systems: Audio Kinetics Pacer, Roland SBX-80. Echo, Reverb & Delay Systems: Klark-Teknik DN70, AMS RMX 16, Lexicon 200, Ursa Major 8 x 32, Yamaha REV7, DeltaLab CompuEffectron, Lexicon PCM42. (5) Yamaha SPX90. Other Outboard Equipment: (4) dbx 160X, (2) Valley People Dyna-Mite, (7) Valley People Kepex gate, (2) Focusrite 110 module, Aphex Compellor, Eventide Harmonizer, (3) dbx 263X, (2) Valley People Maxi-Q, (2) dbx 160, Aphex Exciter. Microphones: AKG tube, (2) Neumann U87, AKG 414EB, Neumann U47, (4) Sennheiser 421, Crown PZM, (5) Shure SM57, Shure SM58, Neumann KM84, AKG 451F. Monitor Amplifiers: Hafler P-225, Crown SPSA-2, Crown D-150A. Monitor Speakers: (2) UREI 813, (4) Tannoy NFM-8, (2) Yamaha NS-10M, Auratone. Musical Instruments: New England Digital Synclavier with 32 poly voices, 16 FM voices, 160MB Winchester sample-to-disk option, 8 multichannel outs, SMPTE and MIDI options, Steinway 1898 7' grand piano, Roland D-50, Roland R-8 drum machine, Yamaha DX7IIFD, Sequential Circuits Prophet-2002, Korg EX-8000, Yamaha TX802, Oberheim Matrix-6, Roland Octapad, Roland JX-8P w/ programmer, Ludwig drums, Fender amps, Yamaha amps, Korg M1, Roland P330. Other MIDI Equipment: Roland GM-70 guitar interface, Macintosh SE librarian and sequencer packages. Video Equipment: JVC CR8250U 3/4" deck w/ remote, Mitsubishi 19" monitor, Sony 9" monitor. Other: Sound ideas sound effects library on CD (Vol. 1 and 2), Sound Ideas sampler sound on CD. Rates: Call.

[24+] **STUDIO DELUX**; 5346 Sunnycrest Dr.; West Bloomfield, MI 48033; (313) 855-2942. Owner: Rick Stawinski. Manager: Rick Stawinski.



STUDIO M/WORLD THEATER
Saint Paul, MN

[24+] **STUDIO M/WORLD THEATER**; 45 E. 7th St., 10 E. Exchange; Saint Paul, MN 55101; (612) 290-1500; (612) 290-1453. Owner: Minnesota Public Radio. Manager: Craig Thorson. Engineers: Tom Mudge, John Scherf, Preston Smith, Craig Thorson. Dimensions: Room 1: studio 45 x 35 x 30, control room 23 x 17. Room 2: studio 15 x 18, control room 12 x 14. World stage 36 x 35, World control room 14 x 10. Mixing Consoles: Neve V Series 36 x 36 x 36, MCI JH-636 36 x 24 x 36 w/ automation, Neve 51 Series 36 x 12 x 2. Audio Recorders: 3M 32-track digital mastering system, Otari MTR-90II, Otari MTR-12 w/SMPTE center stripe, MCI 110B 4-track 1/4"; (4) Otari MTR-10, (3) Studer A810, (2) Sony 3402 digital 2-track, Tascam D-50 R-DAT, Sony PCM-601. Cassette Recorders/Duplicators: (4) Nakamichi MR-1, (2) Revox B215. Noise Reduction Equipment: Dolby A 34-ch., Dolby SR 2- and 4-channel. Synchronization Systems: BTX Cipher Digital Softouch Shadow interlock w/JVC CR8250 3/4" video recorder. Echo, Reverb & Delay Systems: Lexicon 480L w/LARC, Lexicon 224X w/LARC, Lexicon 200, Lexicon PCM70, EMT 140, Ecoplate I, Ecoplate II, (2) Lexicon PCM42 digital delay, (2) Eventide 969 Harmonizer. Other Outboard Equipment: (4) Trident

parametric EQ, (4) UREI LA-4 limiter, (2) Marshall Time Modulator, (2) Aphex Expressor. Microphones: (6) Neumann U87, (6) Neumann KM84, (4) Neumann KM88, Neumann SM69, (4) Bruel & Kjaer 4006, (2) Bruel & Kjaer 4011, (6) AKG C-452EB, (4) AKG 414, (4) Sennheiser 421, Shure SM57, Shure SM58, Shure SM81. Monitor Amplifiers: S80/SR200 programmable, JBL 6290, PSE SL-5. Monitor Speakers: Genelec 1022A tri-amped, Sponder SP-1, Yamaha NS-10, Auratone. Musical Instruments: Steinway 9' grand w/Alpha Acoustic, Fender Rhodes 88 elec. piano, Pearl drums w/Paiste cymbals, Fender Twin Reverb guitar amp, SR bass amp. Video Equipment: BTX Cipher Digital Softouch interlock, JVC 8250 3/4" video recorder, audio sweetening w/sync-to-video recording, audio recording w/sync-to-video, audio mixing and editing. Rates: Analog \$125/hr., digital \$140/hr., video/audio interlock and World Theater rates upon request. Specialization & Credits: As host location for the Disney Channel's "Prairie Home Companion" cable series, Studio M/World Theater has earned a reputation as a state-of-the-art facility for live performance video, simultaneous multitrack recording, synchronized audio post-production and live national satellite distribution of radio and television in a uniquely inspiring facility. The World Theater, opened in 1910 as a "two-balcony dramatic house," was completely renovated in 1986 to its original elegance. The interior offers a sense of intimacy with no seat further than 87 feet from the stage. The fully staffed theater is complemented by an exceptional sound reinforcement system and a dedicated audio recording/broadcast control room having direct hardware multitrack interconnect to Studio M. In addition to six dressing rooms, a green room and rehearsal room, the theater includes a sufficient lighting system to accomplish demanding video lighting designs.

[24+] **TAPE TRACKS RECORDING**; 2275 Yargerville Rd.; La Salle, MI 48145; (313) 241-6695. Owner: Bill Cuson. Manager: Bill Cuson.

[24+] **TECHNIMEDIA STUDIOS**; only REMOTE RECORDING; 124-126 S. Fifth St.; Steubenville, OH 43952; (800) 282-5315; FAX: (614) 282-TECH. Owner: Frank DeFede, Mike Pernatozzi. Manager: Frank DeFede.

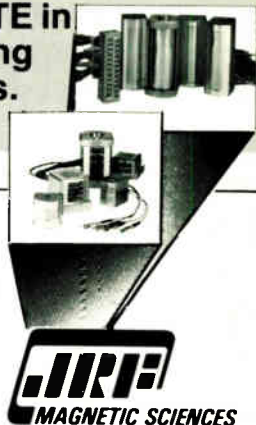
[24+] **THE TEMPERMILL**; 2040 Hilton; Ferndale, MI 48220; (313) 399-0550. Owner: David Feeny. Manager: David Feeny. Engineers: Geoff Michael, Mike Clark, David Feeny. Dimensions: Room 1: studio 22 x 30, control room 20 x 21. Room 2: studio 10 x 15, control 10 x 14. Mixing Consoles: Harrison 3232 modified with Polaroid Automation, Ramsa T820 20 x 8 x 2. Audio Recorders: MCI JH-24 24-track, Fostex E-16 16-track, Panasonic SV-3500 R-DAT, Otari MX-5050B 2-track, Revox B-77 2-track. Cassette Recorders/Duplicators: (4) Nakamichi and Awa Echo, Reverb & Delay Systems: Yamaha SPX900, (2) SPX 90, (3) Lexicon LXP-1 with MRC, (2) Alesis MIDverb II, Yamaha REV7, (5) Roland and other delays. Other Outboard Equipment: (8) Valley People gate, (3) dbx 166 stereo compressor, Loft S10 stereo compressor, (2) BBE Sonic Maximizer 802, UREI 1176, (2) Audio Logic graphic EQ stereo. Microphones: (2) Neumann U87, AKG 414, (5) AKG 460, 452, 451, (4) AKG D1000E, (3) Sennheiser MD421, (8) Shure SM57/58, (2) AKG D-112/D-12E, Beyer 411, (5) Audio-Technica 10/11/4031, (2) PZM. Monitor Amplifiers: Crown, Ashly Audio, Ramsa. Monitor Speakers: UREI 813C, JBL 4312A, Yamaha NS-10, Audio Pro Mod. Musical Instruments: Fender Strat, P-Bass, G&L F100, Music Man bass, Martin guitar, Guild guitar, Gibson guitar, Marshall amp, Roland JC-120 amp, Fender deluxe reverb, Peavey amp, Pearl/Zildjian 5-piece drums, E-max, Proteus, D-110, JX-3P, 5900, AX70, M3R, VX90, K1, 51000. Other MIDI Equipment: IBM with Cakewalk, Atari ST Creator with SMPTE, Roland MIDI patch bay, R-8, TR-707, Akai MPC-60, GM-70. Video Equipment: Panasonic 19" monitor. Other: Various other equipment. Rates: Start at \$30 with engineer.

[24+] **TRC STUDIOS, THE RECORDING COMPANY**; also REMOTE RECORDING; 5761 Park Plaza Ct.; Indianapolis, IN 46220; (317) 845-1980; FAX: (317) 576-1648. Owner: TRC Corp. Manager: Alan Johnson. Engineers: Alan Johnson, Steve McQueary, John Howcott. Dimensions: Room 1: studio 34 x 43, control room 19 x 22. Room 2: studio 30 x 33, control room 17 x 17. Mixing Consoles: Trident 80B 30 x 24 w/Digital Creations Moving Faders, Sound Workshop 34B 32 x 24 w/Digital Creations DiskMix. Audio Recorders: (2) Sony JH-24, (2) MCI JH-110B w/1/2" and 1/4" heads, MCI JH-110B w/center-track time code, MCI JH-110B 1" video layback machine, (2) Otari MX-5050B, (3) Akai GX-9 w/matchboxes, Pro-Disk 464 8-track digital workstation, Panasonic SV-255 DAT. Cassette Recorders/Duplicators: Telex 300 5 slave open-reel duplicator. Noise Reduction Equipment: (6) Dolby 361 w/ Dolby SR, (2) Dolby A cards, (2) Dolby XPSR 24. Synchronization Systems: Audio Kinetics Pacer, Adams-Smith 2600 w/ remote. Echo, Reverb & Delay Systems: (2) Klark-Teknik DN780, (2) Yamaha REV7, EMT 140 TS plate, (4) Yamaha SPX90, Lexicon PCM60, Alesis MIDverb II, Alesis Microverb, Lexicon Super Prime Time, TC Electronic 2290 sampler/delay, Audio Digital TC-2, (2) Yamaha REV7. Other Outboard Equipment: (4) UREI 1176, (2) UREI LA-4, Barcus-Berry 202 exciter, (2) Eventide 910 Harmonizer, (6) Valley Arts Gain Brain II, Valley Arts PR-10, TC Electronic 2240 stereo parametric EQ, (2) Valley Arts DSP, (8) Valley Arts Kepex II. Microphones: (6) Neumann U87, (3) Neumann U47, (4) Neumann KM84, (2) Neumann KM85, Neumann KM86, Neumann KM88, Neumann TLM-170, (6) Sennheiser 421, (2) Sennheiser 441, (2) AKG 414EB, (2) AKG 451, (2) E-V RE20, (4) Shure SM57, (4) Crown PCM, Schoeps CMT 55. Monitor Amplifiers: Crown PSA-2.

—LISTING CONTINUED ON NEXT PAGE

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NORTH CENTRAL 24+ TRACK STUDIOS

—LISTING CONTINUED FROM PREVIOUS PAGE
Crown DC-300A, (4) Crown D-150, Acoustat Twin 200 MOSFET, (2) Crown D-60, Crown D-40, **Monitor Speakers:** (4) JBL 4435, (4) Yamaha NS-10 Studio, (4) Yamaha NS-10M, (4) JBL 4311, (6) Auratone 5C. **Musical Instruments:** Baldwin 9' concert grand, large assortment of keyboards available. **Other MIDI Equipment:** Roland SBX-80. Other: Digital Kazoo.

[24+] TRIAD STUDIOS; also REMOTE RECORDING; 1910 Ingersoll Ave.; Des Moines, IA 50309; (515) 243-2125; FAX: (515) 243-2055. Owner: Richard Trump, Bill Synhorst, Joe Borg. **Manager:** Richard Trump. **Engineers:** Rick Condon, Tony Schmitt, Greg Tracy. **Dimensions:** Room 1: studio 38 x 24, control room 22 x 21. Room 2: studio 18 x 21, control room 18 x 13. Room 3: studio 5 x 10, control room 10 x 10. **Mixing Consoles:** MCI JH-528B 24 x 24 w/automation, Tascam 520 20 x 8, Tascam 512 12 x 8. **Audio Recorders:** Otari MTR-90 MkII 24-track, Tascam ART-60/8 8-track, Tascam 44-OB 4-track, (2) Panasonic SV-3500 R-DAT, (2) Panasonic SV-250 R-DAT, Tascam ATR-60-2T 2-track w/center track TC, Otari MX-55T-M2-track w/center track TC, Otari MX-55N 2-track, MCI JH-110B 2-track, (2) Revox PR99 2-track, Tascam 52 2-track, Technics 1500 2-track, Nakamichi DMP-100 (F1 processor). **AMS AudioFile. Cassette Recorders/Duplicators:** Eumig FL1000, Tascam 122 MkII, Tascam 122B, Tascam T-2640. **Synchronization Systems:** Adams-Smith Zeta-3. **Echo, Reverb & Delay Systems:** Lexicon 224XL, EMT 240, UREI 927 delay, Yamaha SPX90, Lexicon PCM60, Alesis QuadraVerb, Eventide H949 Harmonizer, TC Electronics TC2290. **Other Outboard Equipment:** (2) UREI 1176, (4) UREI LA-3A, (2) UREI LA-4, Aphex ECF 2 parametric EQ, Aphex CX-1 processor, UREI 546 parametric EQ, (2) Symtrix SX201 parametric EQ, (2) Symtrix telephone interface. **Microphones:** Neumann U47 FET, Neumann U48, (2) Neumann U67, (4) Neumann U87, (4) Neumann KM84, (2) AKG D-12E, (2) AKG C-414, AKG C-452, (4) Shure SM57, (2) Shure SM81, Shure SM58, Beyer M500, Shure L4 wireless. **Monitor Amplifiers:** UREI 6500, UREI 6250, QSC 1200. **Monitor Speakers:** UREI 813, MDM-TA3, MDM-4, JBL 4412, JBL 4612, Fostex RM 765, (4) Auratone 5C. **Musical Instruments:** Yamaha 7 ft. grand piano, Fender Rhodes, Rogers drums. **Video Equipment:** Proton 19" monitor, Sony VO-9850 U-matic SP, Sony SLO-1800 Beta, JVC BR-7000U VHS. Rates: Available upon request.

[24+] UNDERGROUND PRODUCTIONS; also REMOTE RECORDING; 28407 Gilbert; Warren, MI 48093; (313) 775-4670. Owner: Kevin Holevar. **Manager:** Kevin Holevar.

[24+] UNITED SOUND SYSTEMS; also REMOTE RECORDING; 5840 Second Blvd.; Detroit, MI 48202; (313) 832-3313; FAX: (313) 832-5666. Owner: Don Davis. **Manager:** Mattie Winters.



UNIVERSAL RECORDING CORPORATION

UNIVERSAL RECORDING CORPORATION
Chicago, IL

[24+] UNIVERSAL RECORDING CORPORATION; 32 W. Randolph; Chicago, IL 60601; (312) 201-3150. Owner: Murray R. Allen. **Manager:** Foote Kirkpatrick. **Engineers:** Bob Bennett, Mike Mason, Tom Miller, Bill Reis, Ed Golya, Dave Lewis, Steve Wilke, Rich Chojnowski, Dave Gerbosi. **Dimensions:** Music 1: studio 39 x 23, control 22 x 23. Prod. 1: studio 24 x 11, control 17 x 23. Prod. 2: 22 x 9, control 15 x 37. Prod. 3: 16 x 11, control 14 x 20. Prod. 4: studio 12 x 7, control 12 x 22. Prod. 5: 16 x 8, control room 13 x 27. Theater A and B: 5 x 9, control room 18 x 35. **Scoring Stage A:** 60 x 39 x 30. **Scoring stage B:** 39 x 39 x 30. **Mixing Consoles:** Neve 8078 32 x 32, SSL 6000 32 x 32, MCI 628 28 x 24, (2) ADM film 16 x 8, Harrison Raven 32 x 24. **Audio Recorders:** (2) Mitsubishi X-850 32-track, Otari DTR-900, (2) Mitsubishi X-80 2-track digital, (2) Mitsubishi X-86 2-track, (4) MCI 24-track analog, (8) Ampex

ATR 2/4-track analog, (16) Ampex 440 1/2/4-track analog, (4) Scully 1/24-track analog, Ampex 1200 16/24-track analog, Otari MTR-90 24-track, (3) Synclavier, (3) disk-based, (7) DAT recorder. **AMS AudioFile. Echo, Reverb & Delay Systems:** Quantec, Lexicon 200, (6) EMT plate (four rooms), (3) Lexicon 224X, Eventide 2016, (3) 949 Harmonizer, Lexicon, Eventide, Lexicon 480X, AMS RMX-16, (3) AMS DMX 15-80S, Lexicon 480. **Other Outboard Equipment:** dbx, Dolby, UREI 1/3-oc-tave, Orban parametrics, UREI LA-2A, LA-3A, 1176, AMS, Roland, Yamaha. **Microphones:** Neumann U47, Neumann U67, Neumann U87, Neumann KM83, Neumann KM84, AKG 414, AKG 451, AKG 421, AKG 441, AKG C-12, AKG C-24, over 200 mics to choose from. **Musical Instruments:** Bosendorfer 9'5" Imperial grand piano, (3) Steinway grand, (3) Fender Rhodes, celeste, timpani, (2) Sonor drum kit, Ludwig, Sling-erland, tack piano, synthesizers, Hammond B-3, Synclavier 32-out. **Video Equipment:** (2) C Format, BTX Softouch, BTX multitrack sync, controllers, Shadow T, Jam sync generators, house sync 1", 3/4", 2" audio, BVH-2000 digital C format. **Rates:** A: \$250/hr.; B: \$235/hr.; backroom: \$150/hr.; Softouch and digital: \$50/hr. **Specialization & Credits:** Universal, located in the heart of the hotel, restaurant, nightclub area of Chicago, has an "in-house" Cantonese restaurant delivering to all studios. We arrange hotels and limousine service. Universal is one of the largest, full-service audio facilities in the world. With two film mixing theaters, a video-sweetening facility, a cassette duplicating factory and a location film crew, Universal offers the most complete audio service in the country. Among our most recent recording projects albums by Man-owar, Mannheim Steamroller, Chris Sutton, Placido Domingo and Bryan Stingly.

[24+] WHEELER AUDIO ASSOCIATES; also REMOTE RECORDING; 4024 State Line; Kansas City, KS 66103; (913) 362-2500; FAX: (913) 362-2575. Owner: Jim Wheeler, Rose Gilts, Mark Weddle. **Manager:** Jim Wheeler. **Engineers:** Jim Wheeler, Mark Weddle, Barry Spillman, Jim Schrader, Tom Nicholas, Mike Elwood. **Dimensions:** Room 1: studio 40 x 30, control 30 x 25. Room 2: studio 10 x 6, control 20 x 15. **Mixing Consoles:** Sony MXP-3000 36 x 24 with ADS-3000 hard disk automation, Ramsa WRT-820 20 x 16. **Audio Recorders:** Sony TH-24 24-track, Fostex E-16 16-track, (2) Fostex E-2 2-track TC, (2) Scully 280B full track, (2) Tascam 42B 2-track. **Cassette Recorders/Duplicators:** (2) Yamaha C-300. **Noise Reduction Equipment:** (2) dbx 911 Type I. **Synchronization Systems:** Soundmaster audio editing system, Fostex 4030. **Echo, Reverb & Delay Systems:** Roland SRV-2000 reverb, Alesis Quadraverb, (2) Yamaha SPX90. **Other Outboard Equipment:** (2) UREI 1176 limiter, (2) UREI 1178 dual limiter, Aphex Compeller (stereo), Eventide H949 Harmonizer, DeltaLab CompuElectron, dbx 900 Series rack. **Microphones:** Neumann U87, (2) Neumann U64 (tube), (2) AKG 414, (3) AKG 451, (2) Sony C-48, (2) Sennheiser 421, (2) RCA 770X, (3) Shure SM-57, (2) Stewart ADB-1 direct box. **Monitor Amplifiers:** (2) Hafler P-500, Hafler P-250, (5) Hafler P-125, (2) SCS 2150A. **Monitor Speakers:** (2) Tannoy FSM, (2) Yamaha NS-10M studio, (4) Auratone. **Musical Instruments:** E-mu Emulator III, Akai/Linn MPC60 drum machine, E-mu Proteus 1, Fender '58 Pro Tweed amp, (4) Peavey Vintage amp (all tube, 6-10s), Fender '58 Bassman Tweed amp (4-10s). **Other MIDI Equipment:** Macintosh 2X twin screen w/300-meg hard disk, Sumo 600-meg read/write optical drive, Digidesign Sound Tools, Digidesign AD In, Digidesign DAT I/O, Alchemy, O-Sheet, PRO 4 sequencer, Studio 3 MIDI interface. **Video Equipment:** Studer A80 1" video layback, (3) JVC 8250 3/4" VCR, NEC 25" color monitor, (3) JVC RM-130 color monitor. **Other:** (2) Technics SL-P1200 CD player with sound fx and music libraries, Nagra 4.2L, Shure FP-32 mixer, Sennheiser MKG-416 shotgun with zeppelin and fishpole, Telex ENG-4 wireless mic system, (2) TRAM TR-50 lav mic. **Rates:** Our rates range from \$60 per hour for mono voice production to \$165 per hour for computerized interlock editing and mixing. Day rate for film or video remote is \$225 plus equipment. Digital sound design suite is \$150. per hour. Call for a quote on your next project.

[24+] ZEM RECORDING STUDIO; also REMOTE RECORDING; 3709 S. 60th Ct.; Cicero, IL 60650; (708) 656-1544. Owner: Ed Zem. **Manager:** Sue Zajda. **Engineers:** Ed Zem. **Dimensions:** Studio 20 x 22, control room 14 x 11. **Mixing Consoles:** Harrison MR-4 28 x 24. **Audio Recorders:** Otari MTR-90 MkII 24-track, Ampex ATR-102 2-track, Otari MX-5050 2-track. **Cassette Recorders/Duplicators:** (2) Akai GX-F91. **Noise Reduction Equipment:** Dolby SR/A 2 channels, dbx Type 1 2 channels. **Echo, Reverb & Delay Systems:** Lexicon 480L digital effects system, Lexicon 200 digital reverb, Eventide MOD3000 Ultra-Harmonizer, Yamaha SPX90 digital effects, Lexicon Super Prime Time, Eventide 949 Harmonizer. **Other Outboard Equipment:** Aphex Compeller compressor/limiter, (2) dbx 165A compressor/limiter, dbx 900 gate/compressor/de-esser, (2) Drawmer gates, Dynaflex DX2, Aphex Aural Exciter Type III, EXR Exciter. **Microphones:** (8) Neumann, (8) AKG, (8) Shure, (4) Sennheiser, (2) RCA, (8) Electro-Voice, Beyer. **Monitor Amplifiers:** (2) Bryston 4B, Crown D-75. **Monitor Speakers:** B&W 801, B&W DM-12, Yamaha NS-10. **Specialization & Credits:** ZEM Recording Studio is a full-service 24-track recording facility. We have over 15 years of experience in all aspects of audio recording. We try to offer maximum service at reasonable rates remembering that customer satisfaction comes first.

[24+] ZENITH/DB STUDIOS; also REMOTE RECORDING; 676 N. La Salle St.; Chicago, IL 60610; (312) 944-3600; FAX: (312) 944-2843. Owner: Coken & Coken, Inc. **Manager:** Ric Coken.

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16 TRACK

STUDIOS

[16] **ACE MOBILE RECORDING**; also *REMOTE RECORDING*: 21 Gage Ave., Elkhart, IN 46516; (219) 293-3913. Owner: George E. Compton, Jr. Manager: George E. Compton, Jr. Engineers: George E. Compton, Jr. Dimensions: Studio 20 x 30, control room 10 x 30. Mixing Consoles: Tapco Panjo 74 16 16 x 16, Tapco 8201 B 8 x 8, Tapco 8201 REB 8 x 8. **Audio Recorders**: Iliam 1610 16 track w/dbx, Otari MX-5050B 2-track w/dbx, Crown CX 822 2 track w/dbx, Technics SV-100 F-1 PCM processor. **Cassette Recorders/Duplicators**: (2) Nakamichi LX-3, (4) Sanyo RD 520, (2) NAD 6050 C, (2) Sony WM D6C (Professional "Walkman"), (2) Yamaha KX1200UF, Nakamichi MR-2. **Noise Reduction Equipment**: (10) dbx 150. **Echo, Reverb & Delay Systems**: ART MultiVerb II processor, Brick plate reverb, Tapco 4400 reverb, Lexicon Super Prime Time digital delay, Alesis Quadraverb, dbx, Alesis compressors. **Other Outboard Equipment**: Aphex Type B Aural Exciter, (3) Countryman DI. **Microphones**: (2) Neumann U87, (2) Neumann KM84, (2) Sennheiser 441, (2) Sennheiser 421, (2) PML F92, (2) Shure SM57, (2) Crown PZM 30GSPS, (2) Crown PZM 31, (2) Sony ECM-22, (2) E-V 1751, (2) AKG 451, (2) Sony C-37A tube, AKG C-24 stereo tube. **Monitor Amplifiers**: Crown PSA-2, Carver M-1.5, Carver M-400. **Monitor Speakers**: (2) UREI 813, (2) Dahlquist PQM9, (2) Dahlquist PQM5. **Musical Instruments**: Kawai "Tone Customized" upright piano. **Other**: dbx computerized 20/20 analyzer/equalizer. **Rates**: Available upon request.

[16] **ACME RECORDING**; also *REMOTE RECORDING*: 1708 W. Belmont, Chicago, IL 60657; (312) 477-7333. Owner: Jim Rasfeld. Manager: Jim Rasfeld. Engineers: Paul Smith, Blaise Barton, John Zdon, Al Wittek. Dimensions: Studio: 40 x 21 x 12, control room 21 x 18 x 11, isolation booth 8 x 10 x 9. **Mixing Consoles**: Neotek 16 x 8 x 4 x 2, Fostex 10 x 2 line mixers, Hill Multimax 16 x 4 x 2 x 1 for remotes, Roland M-160 16-channel line return mixers, Tascam MM-1 line mixer. **Audio Recorders**: Ampex ATR-102 2-track, Tascam 85-16B 16-track w/dbx, Technics 1520 2-track, Technics 1506, Technics 1500 2 track, Sony PCM 2500 R-DAT, Panasonic SV-3500 (44.1), (3) Sony PCM-501ES 2-track digital processor, Sony PCM 1630, Technics portable R-DAT, Sony DMR 400 3/4" U-matic recorder, Tascam 238 8-track. **Cassette Recorders/Duplicators**: (35) Nakamichi BX-300, Yamaha K-1020. **Noise Reduction Equipment**: Dolby SR/A, (2) dbx 150x. **Synchronization Systems**: J.L. Cooper PPS100 MIDI-SMPTE box. **Echo, Reverb & Delay Systems**: (2) Lexicon PCM70, Lexicon PCM60, Yamaha REV7, Studio Technologies Ecoplate III, AKG BX-20E, Korg delays, MXR, Alesis Microverb. **Other Outboard Equipment**: Yamaha SPX901, dbx stereo compressor, Brooke Siren DRP 402 dynamics processor, Teletronix LA-2A compressor, Biamp limiter, Omni Craft gate, Melchor program EQ, Symetrix stereo compressor, Orban parametric EQ, Technics parametric EQ, MXR stereo chorus. **Microphones**: Over 60 of the best new and old microphones from Sennheiser, E-V, PZM, Sony, Shure, Audio-Technica, Beyer to vintage RCA, Neumann, AKG. **Monitor Amplifiers**: Adcom GFA-555, Carver M-400, NAD 3020/3140. **Monitor Speakers**: Tannoy FSM-U, E-V Sentry 100A, E-V Sentry 500, E-V MS-802, Wharfedale Diamonds, Celestion DL-8. **Musical Instruments**: Roland W-30 sampler/workstation, Yamaha TX81Z, Kawai K1, Alesis sequencer, Alesis drum machine, Kimball/Bosendorfer 6'7" grand piano, Ampex B-15 bass amp, (3) Fender vintage guitar amps, Ludwig drums kits, Gibson 1951 J-45 acoustic guitar, Casio SK 1 & CZ-101. **Other MIDI Equipment**: Macintosh Plus. **Video Equipment**: JVC HRD-756 VHS Hi-8, JVC HRD-725 VHS Hi-Fi deck, (2) JVC HRD-470, (2) Sony Super Beta.

[16] **AIRWAVE RECORDING**; also *REMOTE RECORDING*: 2108 W. Roscoe; Chicago, IL 60618; (312) 989-7111. Owner: John McCortney, Paul Grigonis. Engineers: John McCortney, Paul Grigonis. Dimensions: Room 1: studio 55 x 25, control room 24 x 22. Room 2: studio 18 x 16, control room 20 x 16. Remote van: control 9 x 6. **Mixing Consoles**: Biamp Systems 2016 20 x 16 x 2, Tascam M-50 12 x 8 x 2, Revox C-279 6 x 2, Audio Development AD-145 6 x 2. **Audio Recorders**: Otari MX-70 16-track, Otari 5050-8 8-track, Studer A-810 2-track with time code center track, Otari 5050 2-track, Revox A-77 2-track, Revox A 77 1/4-track stereo recorder, Panasonic SV-255 DAT, Sony DTC-100 ES DAT, Sony PCM-501 digital processor, Technics SV-100 digital processor. **Cassette Recorders/Duplicators**: (2) Sony TCD-5, (4) Yamaha C-300, (26) Denon DRM-10, (3) Denon DRM-12, (4) Yamaha K 340, (3) Yamaha K 220. **Noise Reduction Equipment**: (6) dbx 150X 2-channel. **Synchronization Systems**:

Audio Kinetics Pacer. **Echo, Reverb & Delay Systems**: Korg DRV-3000 digital reverb, Korg DRV-1000 digital reverb, (3) Yamaha SPX90, Lexicon PCM42 digital delay, DeltaLab ADM 1024 digital delay, (3) dbx 160X compressor, dbx 166 compressor, dbx 263X de-esser, MICMIX XL-210 spring reverb, Sound Workshop 242A spring reverb. **Other Outboard Equipment**: Megamix console automation, (2) Tascam Model 13 x 2 line mixer, TEAC GR-20 graphic equalizer. **Microphones**: (2) Bruel & Kjaer 4006, (2) Schoeps MK-21, Telefunken U47, (2) Neumann KM84, (2) Neumann KM83, (2) AKG C-414, (3) Sennheiser 441, Sennheiser 421, (6) Shure SM81, Electro-Voice RE20, (4) Electro Voice RE16, (4) Beyer M260, Crown PZM. **Monitor Amplifiers**: Carver 1.0T, Hafler 500, Ramsa 500, Ramsa WP9055. **Monitor Speakers**: (4) Norberg BCS-16, (2) Electro-Voice S-100A, (2) Fostex RM-756. **Other MIDI Equipment**: Macintosh SE20, Southworth Jam Box, Opcode Studio Plus. **Video Equipment**: Sony VO-5600, (2) Sony VO-2860. Sony VP 2260. Sony RM-430 remote edit controller, TMK 755C monitor. **Rates**: Rates on request. **Specialization & Credits**: AirWave Recording offers a complete range of services from direct-to-2-track up to 16-track with SMPTE and MIDI sync and automated mixing. All recording services are available on location or in our studios. We also offer post-production audio for video, cassette duplication and label design. In spring '90 we will be adding Digidesign Sound Tools hard disk recording system. Recent clients: Illinois Philharmonic Orchestra, James Chorale, Chicago Chamber Musicians, Digression Mode, Gailloro Band, Voices of Melody, Bill Monroe & the Bluegrass Boys and Poetry magazine.

[16] **A.L.B.O. FOUNDATION ENTERPRISES**; 5246 Plainfield NE; Grand Rapids, MI 49505; (616) 364-9273. Owner: Keith David Gill, Kathleen Gill. Manager: Kathleen Gill.

[16] **AVATAR PRODUCTIONS**; 515 28th St., Ste. 106; Des Moines, IA 50312; (515) 282-9746; FAX: (515) 243-3960. Owner: Michael Meacham. Manager: Michael Meacham.

[16] **BARKER RECORDING STUDIO, INC.**; also *REMOTE RECORDING*: 117 S. Rockford Ave.; Rockford, IL 61104; (815) 399-2929. Owner: Dwayne and Pam Barker. Manager: Dwayne and Pam Barker.

[16] **CREATIVE ARTWORKS INC./B&W PRODUCTIONS INTERNATIONAL RECORDING**; 705 Taywood Rd.; Englewood, OH 45322; (513) 832-1785. Owner: Mark Herres. Manager: Mark Herres, Don Herres. Engineers: Mark Herres. Dimensions: Control room 30 x 20, and 2 studio live rooms: 20 x 20 each. **Mixing Consoles**: Ramsa WRT-820, Fostex 450 20 x 8 x 2, Roland M-160 rack mount. **Audio Recorders**: Tascam MS-16 w/autolocator AQ 65, RC-65 linked to Roland MC-500 digital MIDI recorder, 16 analog tracks and 16 digital tracks, Fostex M-80 2-track, Fostex M-20 2-track, Mitsubishi Hi-fi VCR w/digital processor. **Cassette Recorders/Duplicators**: Nakamichi, JVC, Technics. **Echo, Reverb & Delay Systems**: Yamaha REV7, Yamaha SPX90, Ibanez SDR-1000, Aphex Type C, DeltaLab ADM-256, DeltaLab ADM-1024, Roland DEP-5, Roland MKS-100 sampler w/full sound library, dbx 166 noise gate compressor, Yamaha REV5, BBE Sonic Maximizer, Alesis Quadraverb. **Microphones**: E-V PL20, E-V PL10, E-V PL6, AKG D-1000E, Shure SM58. **Monitor Amplifiers**: Crown DC-300A, Microtech 1200, Yamaha. **Monitor Speakers**: JBL Time Align, Yamaha NS-10M, Tannoy SGM-15. **Musical Instruments**: Keyboards: Samick grand piano, Roland Jungo-106, Yamaha DX7, Oberheim Matrix-6, Korg Poly-6, Korg organ, Kustom 88 elec. piano. Guitars: Roland GR-707 MIDI synth, Aria, Vox, Gibson, Chapman Stick. Drums: Roland R-8 drum machine, E-mu Drumulator, Roland TR-707. Amps: Fender Dual Showman (100W), Marshall stack, Scholz Rockman rack-mount, Roland D-550, Roland S-50. **Video Equipment**: RCA camcorder, MGA Hi-fi VCR. **Specialization & Credits**: Creative Artworks Inc. is a rapidly growing independent record company, with many talented international recording artists. Our facilities are currently working with James (Basim) Blunt of Fudge Factory Records, N.Y. Fudge Factory has a hit-making history for writing and producing dance club acts around N.Y. City. Such artists consist of Tarvonty & Jomanda who are currently achieving success on the *Billboard* charts. Creative Artworks is producing such talented writers such as Daryl Thomas and female vocal group Cliche. Johnny Quest, lead vocalist, producer and writer, is currently working on a new solo album, *Heading West with Johnny Quest*, release date fall. For correspondence: Currently looking for new acts to sign and produce if interested. Please

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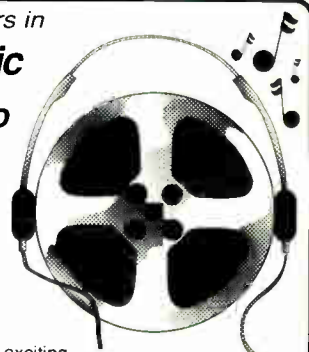
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16 TRACK STUDIOS

—LISTING CONTINUED FROM PREVIOUS PAGE

send tapes or letters to: A&R Dept., Creative Artworks Records, 705 Taywood Rd., Englewood, OH 45322, (513) 832-1785.

[16] **DIAMOND MINE RECORDING STUDIO**; 3115 Bremen Dr.; Columbus, OH 43224; (614) 268-4792. Owner: Bright Moon Productions. Manager: Chris Nye.

[16] **THE DOMAIN GROUP**; also REMOTE RECORDING; 289 Main Pl.; Carol Stream, IL 60188; (708) 668-5300; FAX: (708) 668-0158. Owner: Edward Elliott. Manager: Timothy R. Hollinger.

[16] **THE HAIR BEAR RECORDING STUDIO**; 4817 W. 129th St.; Alsip, IL 60658; (708) 389-3373. Owner: Jeffrey A. Islinger. Manager: Jeffrey A. Islinger. Engineers: Jeffrey A. Islinger, Tody Roc, Andrew Giglione. Dimensions: Room 1: studio 34 x 14, control room 20 x 20. Room 2: control room 14 x 14. **Mixing Consoles**: Tascam 600 32 x 16, Tascam 320 20 x 4. **Audio Recorders**: Tascam MS-16 16-track 1" 30ips, Otari MX-55NM 2-track 1/4" 30-15 ips, Ampex 440B 2-track 1/4" 15-7.5 ips. **Cassette Recorders/Duplicators**: (2) Scott 645-D, (6) TEAC V-285. **Noise Reduction Equipment**: (2) dbx DX-8DS Type I 16 channels, Dolby SR 2 channels stereo. **Synchronization Systems**: J.L. Cooper MIDI Sync box. **Echo, Reverb & Delay Systems**: (3) Yamaha SPX90, (2) Yamaha SPX90II, MIDifex, Alesis MIDverb, (3) Alesis MIDverb II, Korg DRV-1000 reverb, DigiTech RDS-1900 delay, Lexicon PCM70, Lexicon LXP-5, (2) Alesis Quadverb. **Other Outboard Equipment**: Aphex Type C Aural Exciter, (2) BBE 402 enhancer, (3) Boss RCL-10 compression/gate, (6) dbx 463X noise gate, dbx 166 stereo compression/gate, Aphex Compeller stereo compressor/leveler, DOD Electronics R-825 compressor/limiter/de-esser, TEAC 10-band graphic EQ w/display, (3) Alesis Micro-EQ 3-band parametric. **Microphones**: Neumann U87 condenser, Beyers M500 ribbon, Beyers M200, Sennheiser 918, (4) Sennheiser 409, (2) AKG D-112, E-V RE20, (4) Shure 57, (2) Shure 58, (2) AKG 414 condenser. **Monitor**

Amplifiers: Biamp 1200, McIntosh MC240 tube, Tascam PA20B, Rane HC-6 headphone amp, Crown Powerbase 1. **Monitor Speakers**: (2) JBL Control-5 2-way, (2) Toa near-field, (2) JBL with 18" subwoofers. **Musical Instruments**: Slingerland 5-piece drum set, Roland TR-707 drum machine, Casio FZ-1 16-bit sampling keyboard, BIT-99 digital synth, Roland 303 acid bass line, Fender Strat electric guitar, Lotus electric bass, Legend guitar amp, Scholz Rockman A-100 guitar module, Roland 727 drum machine. **Other MIDI Equipment**: Yamaha QX5 sequencer. **Other**: Pop machine and strongest coffee around, Load-in garage. Rates: Rates upon request.

[16] **HUBBARD STREET STUDIOS, INC.**; 11 E. Hubbard St., 3rd floor; Chicago, IL 60611; (312) 670-0110. Manager: Sheila Burns.

[16] **KEYNOTE RECORDING STUDIOS**; also REMOTE RECORDING; 4322 Mahoning Ave.; Youngstown, OH 44515; (216) 793-7295. Owner: Richard M. Hahn. Manager: Cheryl Lanza.

[16] **LAUGHING CAT STUDIO**; also REMOTE RECORDING; Rte. 4, 256 Walnut; Fort Atkinson, WI 53538; (414) 563-9935; FAX: (414) 563-8342. Owner: Al Jewer. Manager: Al Jewer.

[16] **NEW LIFE SOUND**; also REMOTE RECORDING; 506 Colorado St.; Goshen, IL 46526; (219) 533-8793. Owner: Marvin Beachy. Manager: Marvin Beachy.

[16] **NEW MOON STUDIO**; PO Box 7074; Minneapolis, MN 55407; (612) 825-8563. Owner: Brad Moe. Manager: Brad Moe.

[16] **RENWOOD RECORDING STUDIO**; 3510 60th St.; Kenosha, WI 53142; (414) 654-3376. Owner: George Renner. Manager: George Renner.

[16] **SINGLE SOUND ENTERTAINMENT AND RECORDING SERVICES**; also REMOTE RECORDING; 7555 Ore Lake; Brighton, MI 48116; (313) 231-9345. Owner: Gene Fiero. Manager: Gene Fiero.

[16] **SONG SKETCHES PRODUCTIONS**; also REMOTE RECORDING; PO Box 36483; Detroit, MI 48236; (313) 886-3757. Manager: Robert Payne.

[16] **SPARROW SOUND DESIGN**; also REMOTE RECORDING; 3501 N. Southport; Chicago, IL 60657; (312) 281-8510. Owner: B. Parker-Sparrow, J. Pallatio. Manager: Liz Drew.

[16] **TOBY'S TUNES, INC.**; 2325 Girard Ave. S.; Minneapolis, MN 55405; (612) 377-0690; FAX: (612) 377-2744. Owner: Harley Toberman. **Specialization & Credits**: Toby's Tunes is your largest source for production music in the upper Midwest with over 38 different music libraries on CD and stereo tapes as well as eight sound effects libraries. We can take a silent videotape and turn out a stunning stereo sound using our 16-track Otari and Eclipse Q-Lock equipment. At only \$120 per hour, it's the best audio-for-video sweetening deal in town. Just send a 3/4" time-coded tape and any voice or sync work on 1/4" center track time code, and you will receive a track in return. Music cut to picture and Foley work included. Also, real-time duplicating in the 1/2-track, AV format. Call or write for price list.

[16] **VIDEO ARTS STUDIOS**; also REMOTE RECORDING; 1440 4th Ave. N.; Fargo, ND 58102; (701) 232-3393; FAX: (701) 232-9439. Owner: Art Phillips. Manager: Steve Germaine.

[16] **WESTBANK SOUND**; also REMOTE RECORDING; 1413 Washington Ave. S.; Minneapolis, MN 55454; (612) 370-0098. Owner: Lawrence Fried. Manager: Paul Baron.

[16] **WOODEN NICKEL SOUND STUDIO**; 6844 Dickson Cemetery Rd.; Dunlap, IL 61525; (309) 243-7658. Owner: Donald Rosser. Manager: Donald Rosser.

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2-8 TRACK

STUDIOS

[4] **ANVID RECORDING COMPANY**; also *REMOTE RECORDING*; PO Box 8130; Bartlett, IL 60103; (708) 837-9840; FAX: (708) 897-6998. Owner: David Schuler. Manager: David Schuler.

[8] **ASYNCHRONOUS SOUND CORP. MOBILE**; *REMOTE RECORDING only*; 80 Nottoway Ct.; Akron, OH 44313-6835; (216) 864-8382. Owner: Asynchronous Sound Corp. Manager: Michael Friess.

[8] **AUDIO-RABIUS, INC.**; also *REMOTE RECORDING*; 5408 N. Main St.; Dayton, OH 45415; (513) 277-6868; FAX: (513) 275-1296. Owner: John Rabiuss. Manager: Mike Pummell.

[4] **AUGUST MOON RECORDING**; also *REMOTE RECORDING*; 6547 Buckingham Ave.; Allen Park, MI 48101; (313) 381-2288; FAX: (313) 342-1465. Owner: Rick Bonin Jr. Manager: August Moon Professional Services.

[8] **CLOUD 10 RECORDING**; also *REMOTE RECORDING*; 1450 Coler; Ann Arbor, MI 48104; (313) 663-0222. Owner: Mike Gould. Manager: Mike Gould.



CORNERSTONE STUDIOS
Wichita, KS

[8] **CORNERSTONE STUDIOS**; also *REMOTE RECORDING*; 2475 Coolidge; Wichita, KS 67204; (316) 838-2940. Owner: Steven Falke. Manager: Steven Falke. Engineers: Steven Falke, John Salem, Greg Avery, Jay Wedel. Dimensions: Studio A: 25 x 15. Studio B: 15 x 10, control room 25 x 15. Mixing Consoles: Tascam M224, Yamaha DMP7. Audio Recorders: Tascam 38 8-track, Tascam 3340 2-track, Sony PMC-2500 R-DAT. **Cassette Recorders/Duplicators:** Nakamichi MR-1, Teac V-285CHX. **Noise Reduction Equipment:** (4) dbx 150, dbx 224. **Synchronization Systems:** Tascam MTS-30, Adams-Smith Zeta-3. **Echo, Reverb & Delay Systems:** Yamaha REV7, Yamaha SPX90, Roland SRV-2000, Ibanez SDR-1000, Microplate. **Other Outboard Equipment:** Eventide Omnipressor, Rocktron 311 compressor, Omnicraft GT-4 noise gate. **Microphones:** (2) AKG 414, (2) Sennheiser 421, (2) Shure SM81, (6) SM57, (2) E-V 308, (2) E-V 408, E-V 757A, Beyer M88, Shure SM5, E-V RE20. **Monitor Amplifiers:** Biamp TC120, Soundcraftsmen. **Monitor Speakers:** Altec 604-8G in custom cabinets, Yamaha NS-10M studio. **Musical Instruments:** Roland JX-10, Roland D-50, Roland MKS-20, Roland Pad 30 drum kit with PM-16 MIDI interface, Yamaha RX5 drum machine, (2) Oberheim Matrix 6, Akai X-7000 sampler with memory expansion, Ibanez electric guitar, Fender Twin Reverb, Fender Showman, Randal RG-300, Scholz Rockman rack-mount sustainer and chorus/delay, Tama 5-piece acoustic drum kit with Paiste cymbals. **Other MIDI Equipment:** Roland Super MRC500. **Other:** Sony CDP-300 CD player, Realistic Lab 430 turntable, (2) Yamaha QE1031 graphic EQ, AKG K-140 and K-240 DF headphones. Rates: 8-track, \$30 per hour; remote, \$250/minimum plus mileage. **Specialization & Credits:** Cornerstone Studios is a full-service audio production facility designed to give our clientele excellent sonic quality at a great price. Centered around its staff of musician/engineers with a total of over 45 years of experience in the music and recording industry, Cornerstone Studios provides all levels of production including custom music com-

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[8] **DIRT FLOOR STUDIOS**; *only REMOTE RECORDING*; 1922 Fargo; Des Plaines, IL 60018; (708) 699-8937. Owner: Pro-Tech Services, Inc. Manager: David Jack.

[4] **EMC PRODUCTIONS**; also *REMOTE RECORDING*; 300 York Ave.; Saint Paul, MN 55101; (612) 771-1555; FAX: (612) 771-5629. Owner: EMC Corporation. Manager: Bruce Kennedy.

[8] **FIDDLE STRING PRODUCTIONS**; HCR 89, Box 46; Hermosa, SD 57744; (605) 255-4235. Owner: Stringbean Svenson. Manager: Stringbean Svenson.

[8] **GROUP II AUDIO**; also *REMOTE RECORDING*; 1480 Dublin Rd.; Columbus, OH 43215; (614) 777-1101; FAX: (614) 488-0775. Owner: Bill Biegler/Dan Mowbray. Manager: Martin Van.

[4] **INNER SOUND PRODUCTIONS**; 5205 44th Ave. S.; Minneapolis, MN 55417; (612) 729-5191. Owner: Benton Allen Purcell. Manager: Benton Allen Purcell.

[8] **JUNGLE STUDIOS**; also *REMOTE RECORDING*; 1719 S. 25th St.; Lincoln, NE 68502; (402) 477-8623. Owner: George Roberds. Manager: George Roberds.

[8] **PRIME TIME STUDIOS**; PO Box 11449; Saint Paul, MN 55111; (612) 454-7673; FAX: (612) 683-0399. Owner: Jim Barker. Manager: Jim Barker.

[8] **RAVENWOOD PRODUCTIONS**; also *REMOTE RECORDING*; Rt. 2 Box 27; Osage, IA 50461; (515) 983-4445. Owner: John Steiert. Manager: John Steiert.

[4] **SCHU-MAN STUDIO**; also *REMOTE RECORDING*; 1922 W. Hood #1-C; Chicago, IL 60660; (312) 761-1407. Owner: David G. Bragman.

[8] **SOUND SHOP RECORDING STUDIO**; 9250 N. Sleepy Hollow Ln.; Bayside, WI 53217; (414) 352-7766. Owner: Roger A. Roth. Manager: Roger A. Roth.

[8] **TWO-FER'S RECORDING AND AUDIO TAPE DUPLICATION INC.**; also *REMOTE RECORDING*; 813 W. A St.; Lincoln, NE 68522; (402) 475-4088. Owner: George H. Amen. Manager: Maxine B. Amen.

[8] **VIBES RECORDING STUDIO**; also *REMOTE RECORDING*; 16851 Greenfield #14; Detroit, MI 48235; (313) 836-1825. Owner: Mark A. Jones. Manager: Mark A. Jones.

[8] **WILLY THE FERRET STUDIOS**; 2331 Flora; Cincinnati, OH 45219; (513) 241-7685. Owner: David Arps. Manager: Christopher Fee.

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Trident's 80C is a 24-bus console in a split configuration available in 32, 40, 48 and 56 inputs. However, since the 80C's monitor section incorporates two line inputs, the board has the ability to monitor 48 tracks simultaneously, without tying up input channels. By using the monitors with the inputs and four effects returns, 60 inputs can be derived from a 32-input frame.

Among the standard features on the 80C are 4-band equalization (with

variable Q on the two center bands), highpass filter, five aux sends (three mono, one stereo pair), auto mute bus, stereo in-place solo, 26 VU meters and internal patch bay designed for dual 24-track patching.

An 80C in a 32x24x48 configuration is \$74,500; a 48x24x48 is \$109,500; all prices include stand. A wide assortment of options are available, such as Penny & Giles faders, PPM meters, 17- or 50-segment bar graphs, and RTW or NTP bar graphs—to name a few—and Trident will alter module parameters to meet specific needs. Versions of the 80 Series console can also be ordered for film (80FD), video post (80VP) and

remote/mobile recording (80RT) applications.

Trident Audio USA, 2720 Monterey Street, Suite 403, Torrance, CA 90503; (213) 533-8900.

Yamaha

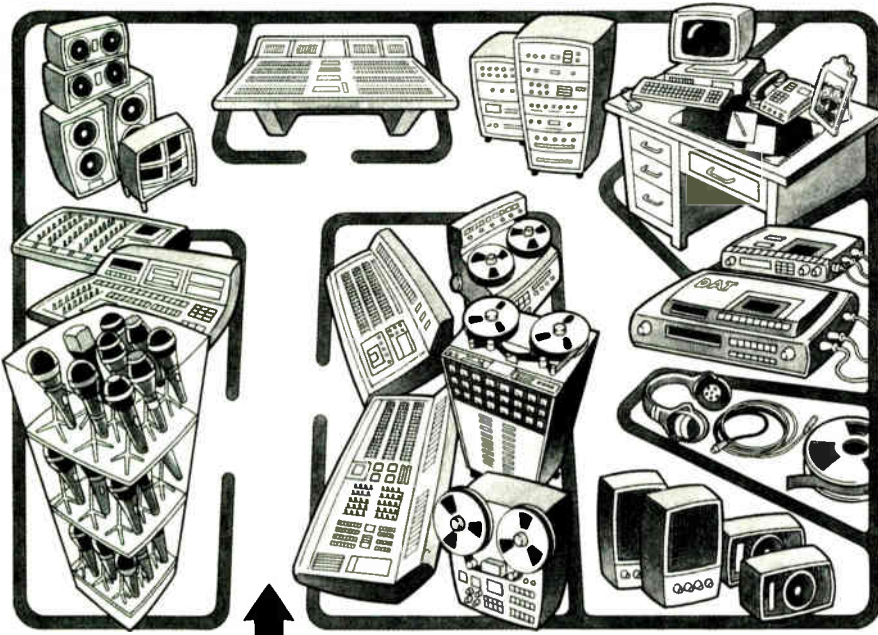
Unveiled at last month's AES convention in Los Angeles was the DMC1000 from Yamaha. The DMC1000 is an all-digital console, offering a total of 22 inputs (eight mono channels, three stereo inputs and eight monitor channels usable as tape returns), with four aux sends, eight buses and a stereo bus. While the DMC is designed with the Yamaha DRU8 8-track digital recorder, the console also has digital I/O for connection to professional digital multitracks and 2-track machines. Bus outputs appear in SPDIF-2, ProDigi and Yamaha digital formats; channel inputs and program outputs also appear in the AES/EBU format. In addition, multiple DMC1000s can be cascaded to provide more inputs: Three units would provide 24 mono inputs plus 18 stereo inputs (nine pairs) and 24 tracks of tape monitoring.

The DMC1000's 14 input channels employ 100mm motorized, touch-sensitive faders, with a feel designed to emulate those on a high-end analog console. The automation system includes not only the faders and mutes, but all channel parameters, with real-time control of EQ, pan, aux sends and bus assignments. The time code-referenced mix data can be stored on 3.5-inch floppies, and static "scenes" can be stored on a RAM card for quick recall. Data can be edited by moving faders and controls during a mix, or modified through an alpha wheel and keypad.

Other features include program-mable, fully parametric 4-band EQ (with HP/LP filters), analog and digital aux sends/returns, onboard digital effects processing (with the equivalent of two SPX1000 units), and up to 370 ms of delay on each channel.

Tentative pricing for the Yamaha DMC1000 is around \$30,000. By cascading three units, a fully digital 42x24 console could be assembled for \$90,000. Options include an 8-channel, 19-bit analog-to-digital converter; 8-channel 20-bit digital-to-analog converter (required to change the eight output buses to analog) and two digital patch bay systems.

Yamaha Professional Audio, Box 6600, Buena Park, CA 90622; (714) 522-6600. ■



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this any more." The other person brings a totally different picture.

Writing by myself is something I will get back to at some point. I like some of my solo writing efforts, and this is the first album that has nothing written solely by me. It just hasn't been a priority, and I really value the people I've written with. In many cases, it's largely been through their eyes that I've seen myself as a solo artist at all.

Bonzai: You're off on quite a lot of tour activity. How important is that in progressing your career?

McDonald: It's always been one of the most important things for me, because it's been one of my biggest fears in beginning a solo career. I took it as my biggest challenge and after a while it became my biggest obsession. One of the main reasons it's been five years since the last album has been my drive to get onstage, and having and keeping a band that I could develop a rapport with over time on a personal and a musical level. I've really believed that that would be my strength in a live show situation. It wasn't going to be any tremendous theatrics. It would ultimately lie with the music. As a result, I've sacrificed some time that I could have devoted to recording another album. During this period there came "On My Own," "Sweet Freedom" and "I Will Be There." Each one of those records afforded me the chance to go out and perform and keep the band together.

Bonzai: How do you feel about performing older songs from the Doobie days?

McDonald: They are some of the mainstays of the shows. We do "Minute by Minute," "What a Fool Believes," "Takin' It to the Streets" and "Real Love."

Bonzai: So you're not trying to shake that at all?

McDonald: No, I wrote those songs and I feel like that's as much a part of what I have to offer an audience.

Bonzai: Thinking back to your youth growing up in St. Louis on the banks of the mighty Mississippi, did you ever have any Huck Finn fantasies when you were a kid?

McDonald: Oh, sure. We lived in a wooded area out in the new frontier of suburbia during the '50s. It was a time that is probably lost forever, because now it's all mini-malls. I grew up in a

small town that was being invaded by city dwellers.

Bonzai: Did you have a raft?

McDonald: Yeah, we did all of it. We waded up to our waists in toxic chemicals all throughout the '50s and caught crawdads. We'll probably die of something before we're 50, but it was a lot of fun.

Bonzai: You started performing with Jerry Jay & the Sheratons while pretty young. Were you playing keyboards?

McDonald: No, I was just the stand-up singer with two other vocalists. Jerry Jay was our bass player in this six-piece horn group with a rhythm section. It was a great band.

Bonzai: Do you stay in touch with

"There is nothing else I find my identity in as much as being a musician playing live for an audience, and being in the recording studio."

those guys?

McDonald: Oh, yeah. We were probably one of the better-known groups around the St. Louis area. I was about 14 at the time. The guy who plays keyboards for me now, Chuck Sabatino, was in the band with me.

At this point in our conversation a television crew arrived to do a segment for Entertainment Tonight. We made arrangements for Michael to phone me from the road.

Bonzai: How's the tour going?

McDonald: Last night was really our first show, in Chattanooga [Tenn.], but it felt really good. I wrote a sequence of songs on the plane home from Europe before the show. Not having been able to play it through, I didn't know how it was going to turn out, but it did well and the audience was great. It's nice to have the new songs from the record.

Bonzai: Before you go onstage with the band, do you go through any special warmup ritual?

McDonald: Well, we do a very lengthy soundcheck, which we depend on as a rehearsal. It gives us a chance to rework parts of the show and work up numbers we haven't done in a while, change songs however we feel the need to. Our soundchecks tend to be two or three hours long. If we get in a day ahead of the show, we start setting up around noon and rehearse for a few hours. The longer soundchecks help us prepare for the dates when there isn't as much time.

Bonzai: When we last spoke, we talked about your early days in St. Louis. How did you make the cross-country leap to the West Coast? I heard you were friends with Irving Azoff...

McDonald: Irving and I go way, way back. He ran a successful booking agency in the Midwest with a guy named Bob Nutt. They booked groups like the One-Eyed Jacks, REO Speedwagon, and groups that I was in: The Guild and a group called Blue. We traveled all over the Midwest playing clubs and small festivals. Irving was a confidante and a good friend.

However, when I left for California it was to sign up with a producer named Rick Jarrard for his production company, which had a deal with RCA. I worked with Rick for about five years as a songwriter, recording artist and piano player for a lot of his other artists. I did some arranging and sang back-grounds, which pretty much plugged me into the studio scene. It was a good experience for me, but it went the way of a lot of record deals, through no one's fault, except maybe my own.

I had gone out to do an album and then expected to come home after a couple of months and wait for it to be released and become a star, you know? I ended up living in Los Angeles for ten years and playing clubs all over Southern California. It was a great time, and Los Angeles taught me a lot. It was definitely an odyssey and an evolution for me into a whole new world.

Bonzai: I ran into Jeff Porcaro the other day, who plays on your new album and goes way back with you. Was he instrumental in the progress you made from the club scene into the big leagues?

McDonald: Well, Jeff was in a group called Murietta, and I was in the Blue Rose Band when we met. We played out at the Brass Rail in the Valley. The

first time I saw him play I realized he was a tremendous drummer, and only about 16 at the time. Later on, I met him while we were playing a casual at a Christmas party. At the time, he was recording Steely Dan's *Pretzel Logic*. The group was one of my favorites, and I thought, "How lucky—these guys are working on the next Steely Dan album."

He called me about a year later and said they were looking for people to go out on the road to tour with Steely Dan. They needed some keyboards, so I threw my piano in the car and went down to audition. I don't think they were crazy about my piano playing, but I could sing all the high parts, so I got the job. We toured the States and Europe, and I had a ball. It was a great-sounding band. I couldn't believe I was actually working as a sideman with them.

Bonzai: How did that lead to the Doobie Brothers?

McDonald: Well, after that tour Jeff Baxter left Steely Dan and went on to join the Doobie Brothers. This was around 1974. Then he called me and

told me that Tom Johnston had gotten ill and had to drop out of the group in the middle of a tour. I rehearsed for a few days in New Orleans and finished the tour with them.

When we got back, the next album was really overdue, and it was a situation where whoever had original material or ideas for songs was encouraged to come forward. I didn't really think about it in terms of me, but Tiran Porter had played a song of mine for Teddy [Templeman] and he thought it would be good for the Doobies. That started the spark for me to write more material. Then came "Takin' It to the Streets," "Keeps You Running," and I co-wrote some other songs.

Bonzai: Sounds like there has been an element of good luck in your life.

McDonald: Very much. Amazingly good luck in a lot of ways. I used to sit around and visualize that very thing happening. With all the people I knew who were working around L.A., I thought somebody would quit, or drop out of a band, and they would think of me. But other than fantasizing, I didn't seriously think it would happen.

Bonzai: Maybe it's a matter of just being around and working a lot.

McDonald: Yes, I got to know people in certain circles and was referred by them.

Bonzai: Weren't the Steely Dan albums pretty notorious for taking a long time to make?

McDonald: I think it all depends on whether you hold to the belief that you should do a record every year. A lot of people believe that. The attitude is: If you're not doing a record every year, what the hell could you possibly be doing? I think a lot of artists don't look at making records that way. It takes what it takes to do a good one.

With many artists, the best record is the first one, because they have five to ten years of material they've collected. For the next album you go to the B catalog, or you have to write it all in that year. So they are trying to hit that same standard again, and a lot of them feel they can't do that record again with the choice of material available. You may need the extended time to write 20 or 30 songs and pick from them to bring up the quality level of the album. It is easy to get seduced into spending a lot of time, and your manager will tell you you're taking too long. But it's something you have to decide for yourself.

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Bonzai: And nobody stays on top forever.

McDonald: No, and I don't even feel that's something you should concern yourself with. That's an awfully tall order and a negative distraction. The hardest thing to do is remember why you are making albums—for your own enjoyment, and to pass that along to a listening audience. Beyond that, of course, you want to get on the charts, and everybody's dream is to hear their music on the radio. But to shoot to be a Top 10 artist, and go up and down emotionally, has got to be a mind-altering experience that is not good for the creative process.

Bonzai: How would you compare the music industry of the '70s with today?

McDonald: I don't know if it's all that different. It is different technologically, and that's spawned a different style of music. But there was always some new style of music coming along. I think the '70s was a Renaissance in a way for pop music, in the sense that it's the closest pop has ever been to jazz and more sophisticated forms of music. But a lot of what is going on today is sophisticated in its own way. Certain elements of rap music and what I'm hearing lately is creative to me, and is different in its approach. Much of it is inane, but that's true of every form of music. There are very few people on the cutting-edge in any form of music.

Bonzai: Can you imagine yourself in any other field besides music?

McDonald: No, I really can't. I like to do other things as a sideline, but there is nothing else I find my identity in as much as being a musician playing live for an audience, and being in the recording studio. Those are almost two separate identities, but they relate to each other very directly. Being a musician gives me a sense of myself.

Bonzai: Do you still get together with friends and jam?

McDonald: Sure, and I work in L.A. a lot. But I think it's better at this point in my life to get away as a writer and work elsewhere. It might give me a boost of creative adrenalin—New York, Memphis, London. I don't mean to take credit from the people I write with in L.A., but I might do well to go off some place long enough to plug into another environment.

Bonzai: Is your life unfolding as you wish it to?

McDonald: Yeah, more than enough. Most of the great things that have happened to me are things I wouldn't

have had the sense to ask or wish for.
Bonzai: Can you imagine yourself 20, 30 years down the road?

McDonald: Yes and no. I assume I will be a musician, but I've had this thing in my head since I was in high school that maybe someday I would actually have to get a real job and go into another line of work. I don't take it for granted that I will be doing this, but I can't imagine what the hell else I would be doing.

Bonzai: That's funny—that fear among artists that they may have to get a day job.

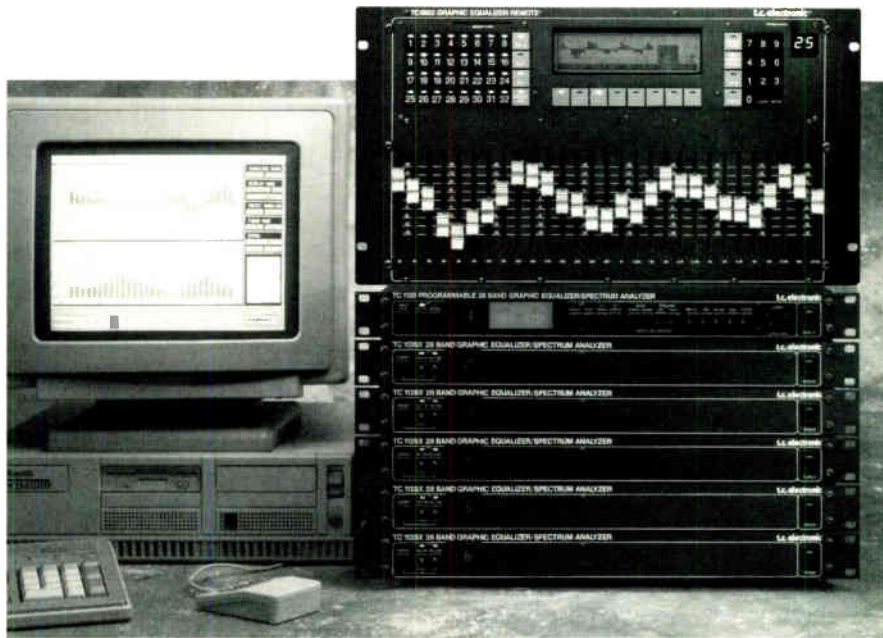
McDonald: You have to be realistic, and then you get far enough along that

you realize you don't have any control of where you'll be in ten years. Even with your health and your best laid plans, it's hard to say where life is going to take you. For me, it comes down to some pretty simple things. I hope that I'm friends with my son. I hope that we're able to be together, in a real sense, not dependent on each other. I hope my family will be well, and beyond that I don't say that I would want anything else. ■

Roving editor Mr. Bonzai taught Roseanne Barr everything she knows about singing. Really.

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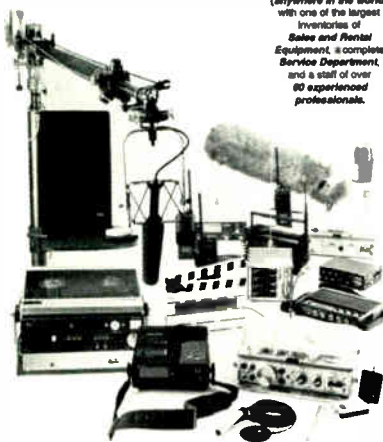
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string part to illustrate this point.

Actually, there are many things about *Shaping Your Sound with Mixers and Mixing* that reminded me of the mid-1970s JBL *Sessions* LP, which explained the basics of mixing with a step-by-step examination of the mix on Hoyt Axton's "Captain America." A number of engineers I've talked to over the years first learned about the mixing process with *Sessions*; perhaps the "Shaping Your Sound" series could do the same for the next generation.

First Light Video Publishing, 374 North Ridgewood Place, Los Angeles, CA 90004; (213) 467-1700. Also available through Mix Bookshelf, (800) 233-9604.

How to Get a Record Deal

Presented by the National Academy of Songwriters, a non-profit educational organization based in Hollywood, *How to Get a Record Deal* is a 67-minute video program that examines methods for reaching every musician's goal.

Hosted by producer/former A&R man Ritch Esra (the only person in the video wearing a suit), the program offers solid advice for anyone seeking to take the big leap. While much of the video centers on mini-interviews with many of today's top performers—Mark Knopfler, Phil Collins, Kenny Loggins, Chick Corea, Barry White and a dozen more—their comments generally have more impact as inspiration for the average Joe/Jill musician who needs some encouragement.

The tape's value comes from conversations with A&R representatives from large and small labels, record producers and personal managers. All offer solid, hard-hitting advice on what gets their attention, which is more than half the battle in terms of being noticed in a crowded sea of available talent.

Priced at \$29.95 (plus \$5 shipping), *How to Get a Record Deal* is available from Record Deal, 7095 Hollywood Blvd. #736, Los Angeles, CA 90028; (800) 544-3300. Also available through Mix Bookshelf, (800) 233-9604.

The Platinum Rainbow Video

First released in book form about ten years ago, *The Platinum Rainbow* by Bob Monaco and James Riordan became an overwhelming success with its tough look at making it in the music industry. Now the authors' approach has been updated and adapted to the

video form, in a 120-minute program.

Produced by Mike Craven, Charlie Stewart and Bob Monaco, *The Platinum Rainbow Video* covers aspects of the record business in seven segments (The Song; The Band; The Demo; The Team; Music Law; Record Labels & Producers; and Promotion, Marketing & Video), all supported by interviews with industry leaders. Among those featured on the tape are record company presidents Ed Rosenblatt (Geffen), Harold Childs (Qwest) and Miles Copeland (IRS), along with top music attorneys, publishers, producers, engineers, promoters and managers. Covering this huge amount of material requires the viewer to watch the program several times, as it certainly takes more than two hours to absorb this much information.

The tape could have dispensed with the section "The Band," which covers topics such as "how to pick your band's leader" and "how to organize rehearsals," but perhaps these just seemed trivial to me. Of course, a few quick touches on the fast forward button on your VCR could take care of this. I was also unimpressed with the use of comedian Vic Dunlop, who appears as comedy relief, portraying various oddball music characters between different sections on the tape. He comes off more pathetic than humorous.

I was far more impressed with the hard facts and down-to-earth sections on music *business*: publisher and songwriter agreements, contracts, copyright law, shopping the deal, and the inner workings of record companies. This is where you'll get your money's worth. In fact, the information contained in the interviews with the three music attorneys alone may make this tape a worthwhile investment. Perhaps the producers should consider doing a tape series going into depth about a variety of music business topics. Having had a taste of *The Platinum Rainbow Video*, I'm ready for more.

Available for \$29.95 (plus \$3 shipping) from The Platinum Rainbow Video, 11684 Ventura Blvd., Suite 679M, Studio City, CA 91604. Also available through Mix Bookshelf, (800) 233-9604. ■

When not writing for Mix, George Petersen is somewhere in California, either stacking bass bins or producing records for somebody.

FEEDBACK

Defending the Equitek II

As co-designer of the Equitek II microphone, I read Mr. Paul's review with extreme interest. When I was asked to develop the Equitek for CAD, I took on the task with the understanding that I would be allowed to put the same care into the microphone that I have traditionally applied to all of my design efforts. To aid me in this endeavor, CAD gave me the excellent assistance of designer Bob Eaton. Without his help the Equitek would not exist.

Despite Mr. Paul's innuendos to the contrary, every part of the Equitek II was selected or designed with good reason and much thought.

The capsules used in the Equitek were chosen for their performance and reliability. These "off the shelf" parts are among the best electret capsules available. I was fortunate enough to discover them over ten years ago, and my original capsules are still performing to specification. At CAD, they are individually tested, sorted and selected as closely matched pairs to insure maximum system performance.

As for the myth that larger capsules sound better, the performances of small capsules can compete favorably, especially in the area of transient response owing to their lower diaphragm mass and smaller physical size. Furthermore, the internal 4,000-volt polarization level allows this capsule to have more output than its larger, 48- to 150-volt, polarized brothers found in older, side address microphones. This means better transient response and a better signal-to-noise ratio. The smaller geometry also translates into more headroom and lower distortion for the capsule.

To achieve good low-frequency response, we have increased the head amplifier input impedance from a traditional value of 500 megohms or less to 2,000 megohms.

Since our typical capsule capacitance is 60 pf, this translates to a first low-frequency pole (-3dB point) of 1.3 Hertz. The use of a DC servo circuit eliminates output offset drift in the head amplifier and thus maximizes headroom under all conditions of temperature, humidity and aging.

The Texas Instruments TL072 op amp was chosen because it sounds good in this application. This is technically supported by its THD (<0.01%), slew rate (13V/microsec) and noise spec (16nV/rt Hz). With Texas Instruments TL072s, self-noise of the Equitek II is a respectable 16 dB (the 6dB number mentioned in the article was a misprint). This specification conforms to DIN standards. Note that other brands of ICs (even those with the same part number) may have problems including crossover distortion.

Some time ago, I offered to go over the Equitek's design philosophy and topology with Mr. Paul to allow more accuracy in his article, but unfortunately, he had neither the time nor the inclination to get together with me.

It is interesting to note that performance curves measured on CAD's TEF and B&K equipment agree with each other while Mr. Paul's curves do not agree with either. This suggests that Mr. Paul should check the calibration of his equipment and/or his measurement techniques.

The bottom line, of course, is the sonic performance of the product, which your readers are invited to judge for themselves.

David Baskind
VCA Associates
Canoga Park, CA

Another Voice

As a regular reader of *Mix*, I have always found your product reviews to be helpful and informative. However, I do believe that Stephen Paul's review on the Equitek mic was un-

justifiably negative. Having been a user of the Equitek, I have gotten very favorable results in recording and sampling, sometimes choosing it over a much more expensive condenser. I think it stands alone in the marketplace as a unique and versatile mic at a very reasonable price.

It would make me nervous to put a U47 or U67 10-inch in front of my 130-watt guitar amp, but it doesn't scare me with the Equitek, and 140 dB doesn't scare it.

A second opinion is deserved for this excellent quality microphone.

Ray Kennedy
Engineer, Producer, Artist—Atlantic Records
Nashville, TN

Stephen Paul Booster

I have been reading *Mix* for about seven years now and am generally impressed by the quality of technical information available in the magazine. In the August 1990 issue you carried a microphone review by Stephen Paul that was among the best product reviews I have ever read in your magazine. I know of Mr. Paul's background as a microphone specialist, and it is always extremely informative to read his insightful observations.

I hope you will be able to carry many more articles by him in the future. I also enjoy Ken Pohlmann's and Stephen St. Croix's columns very much.

Keep up the good work.
Tom Rettig
Broderbund Software
San Rafael, CA

Don't Forget Milab

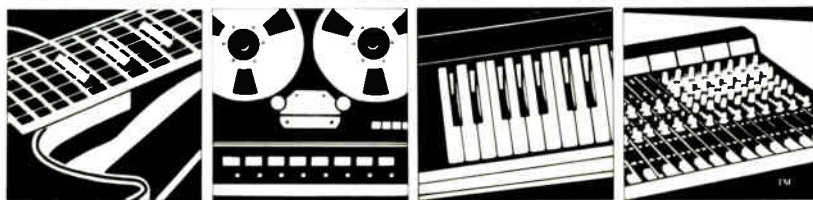
I would like to make one correction to a comment made by Stephen Paul in his review of the Equitek microphone. In the paragraph where Stephen is describing the way in which the pad function is accomplished on the CAD Equitek II microphone, he

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IN THE

January Mix

Northwest Recording Studios

Computers in Audio Production

Sound Reinforcement News

Mix heads to the Northwestern states this month for a look at the news and innovations in Northwest recording studios. Also, the role of computers in audio production will be explored in January; we'll look at what's being used and who's making the most of the latest technology.

Also this month, Sound Reinforcement features include Sound for the Crystal Cruise and CSN at Champs de Brionne Theater.

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says, "Ultimately, the best way to pad a condenser microphone would be to lower the polarizing voltage on the capsule. The only mics that currently use this approach are the Neumann 100 Series."

I agree with Stephen that this may be the best way to pad a condenser microphone. However, it is incorrect to say that the Neumann 100 Series are the only mics currently using this approach. The Milab VIP-50 achieves its pad in exactly this manner (lowering the polarization voltage to the capsule to increase the pad). The VIP-50 has been in production since 1986, with first prototypes having been introduced in 1983-1984.

Sam C. Spennachio
National Sales Manager
Milab Microphones
Farmingdale, NY

The Enforcers

Stephen St. Croix's "Mongrel Dogs" article [September '90] really hit the problem on the head. It is funny how much his plan [to have a Dolby Police checking theater sound systems] actually parallels with a real "premium theater" program that we have been considering for the past few years. The problem is that we are a relatively small company and there are over 15,000 Dolby-equipped theaters out there. In addition, there are real legal considerations as to how far we can go to enforce quality standards. What we are left trying to do is use market pressure and direct feedback to the exhibitors to get them to maintain and improve their presentations. In essence, this requires educating the public as to how good Dolby Stereo can be when done right and encouraging them to complain when things don't seem right. Also, you are right about Baltimore and the Senator theater. Regarding theaters that advertise Dolby and show mono, we do try to stop these wherever possible by writing letters, etc., but again, that seems to be a never-ending job.

What's ironic about this all is

the current hype on digital release prints. As you probably know by now, Dolby is also developing an advanced digital release format, which will have some real advantages over the CDS approach. However, I believe we understand the reality that in most cases, the actual limitations heard by the film viewers has nothing to do with the release print but problems with the loudspeakers, power amps, air conditioning, etc. Very few theaters can actually deliver the full potential of existing Dolby Stereo prints (especially an SR-encoded print), and an optical reader is simple to maintain compared to a digital replay system.

William Mead
 Director of Marketing
 Dolby Laboratories
 San Francisco

A Question of Aesthetics

I would like to respond to what I feel is an inaccurate and disparaging remark made by Mr. Vincent Van Haaff regarding RPG Diffusor Systems. In the August issue, Mr. Van Haaff expressed some negative feelings about the appearance of the RPG Diffusor. I wish Mr. Van Haaff success in this industry, and I welcome the opportunity to personally discuss this with him. However, lest your readership misunderstand the extent of Mr. Van Haaff's beliefs, I would like to make the case that Mr. Van Haaff's opinion is the view of a very small minority of one. Usually remarks of this nature are not malicious, and we truly believe this to be the case, but derive from unfamiliarity with the entire scope of a situation. I doubt that Mr. Vincent Van Haaff is aware of our complete product line, which is widely regarded in the industry as the first effective acoustical material that is actually an aesthetic asset to a design. If this were not true, RPG would not have been chosen in hundreds of forefront facilities around the world, and the industry's leading designers and architects would not continue to vigorously specify RPG.

Dr. Peter D'Antonio
 President/CEO
 RPG Diffusor Systems
 Largo, MD

The Yuk Stops Here

My wife, a Foley artist, was fascinated to hear "several mics sealed in condoms" were used to create sounds for *The Hunt for Red October* [Sept. '90].

She asked, "Would this be an example of SAFE SFX?"

Jay Rose
 Brookline, MA

Deja Vu

A couple of us "old timers" were moaning over the lack of touch in our jobs. You know how it works—we cut and paste a few MIDI files together, we ask a computer to send a roomful of machines to a synchronous GOTO, we mouse a few files into place on our workstation, and when we're done we offload the whole thing to an archival medium, shut out the lights and go home. How long has it been since some of us touched—no, fondled—a satiny piece of tape into position?

THIS HAS HAPPENED BEFORE! Last time it happened to the accountant, but it's all the same thing. Long ago, the accountants had to count money by hand. But then someone decided that money was inconvenient. It was heavy, and it carried germs. So, entry-level clerks were hired to count the money as it was "sampled" into the vault, the monetary value was stored in account files, and voila!—virtual money was invented.

The accountants (not to mention a few bosses and kings) soon found advantages to using virtual money. An overvalued asset here—an optimistic future value there—and a touch of leveraged borrowing, and it wasn't long before it was possible to spend more than the treasury held. Deficit spending had been invented.

Which brings us to today. We all know where deficit spending of virtual money has taken us here in the real world. Now that our industries are converting to virtual environments, it seems like the next extremely logical step will be *deficit music*. It will sound like music; we may even tap our toes as it plays, but it will only be...audible inflation. Palmer S. Pattison
 STS Productions
 Salt Lake City, UT

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- **Equipment Spotlight:** *Mix* surveys the field of 2-Track Mastering Recorders
- **Special Feature:** Consoles for Mastering by Linda Jacobson
- **Juxtapositions:** Storage Technologies by Mel Lambert; sidebar on Tape Storage Methods by George Petersen
- **Feature:** Mining Metal—hard rock producers reveal some tricks of the trade
- **Sound Reinforcement:** Audio at the Goodwill Games; sidebar on Fiber Optic Snakes. Also, The Wall: A Benefit Concert at Berlin's Potsdam Platz. Engineer spotlight on Robert Scoville
- **Equipment Field Test:** Peavey Production Console

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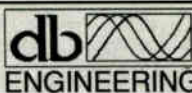
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MIX THE RECORDING INDUSTRY MAGAZINE

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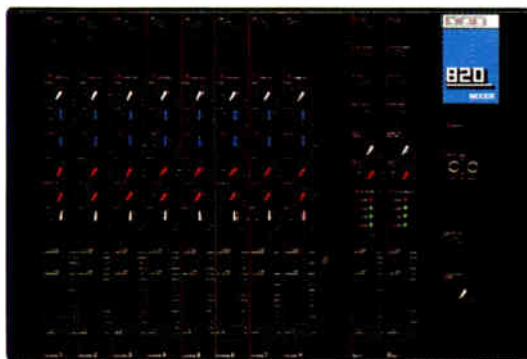
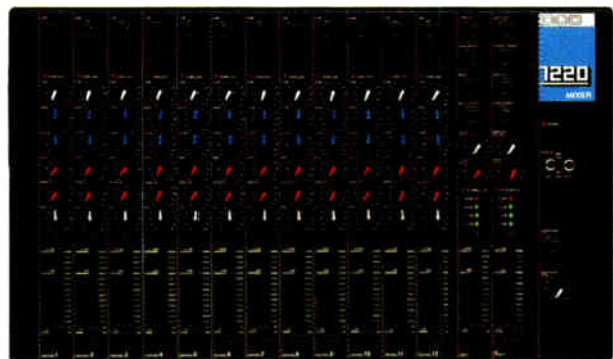
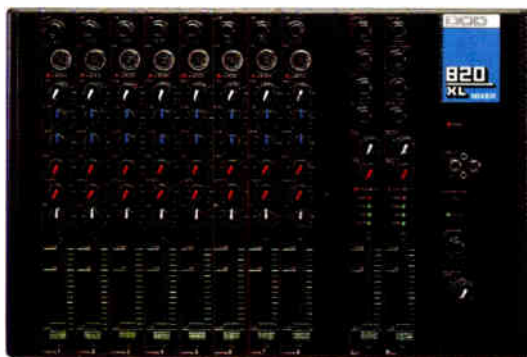
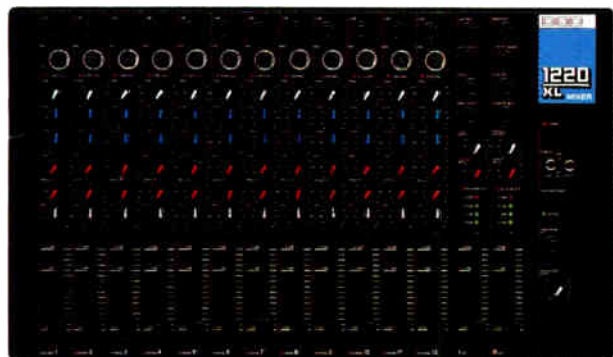
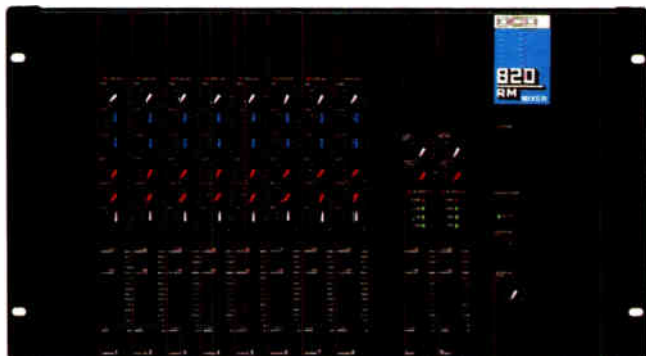
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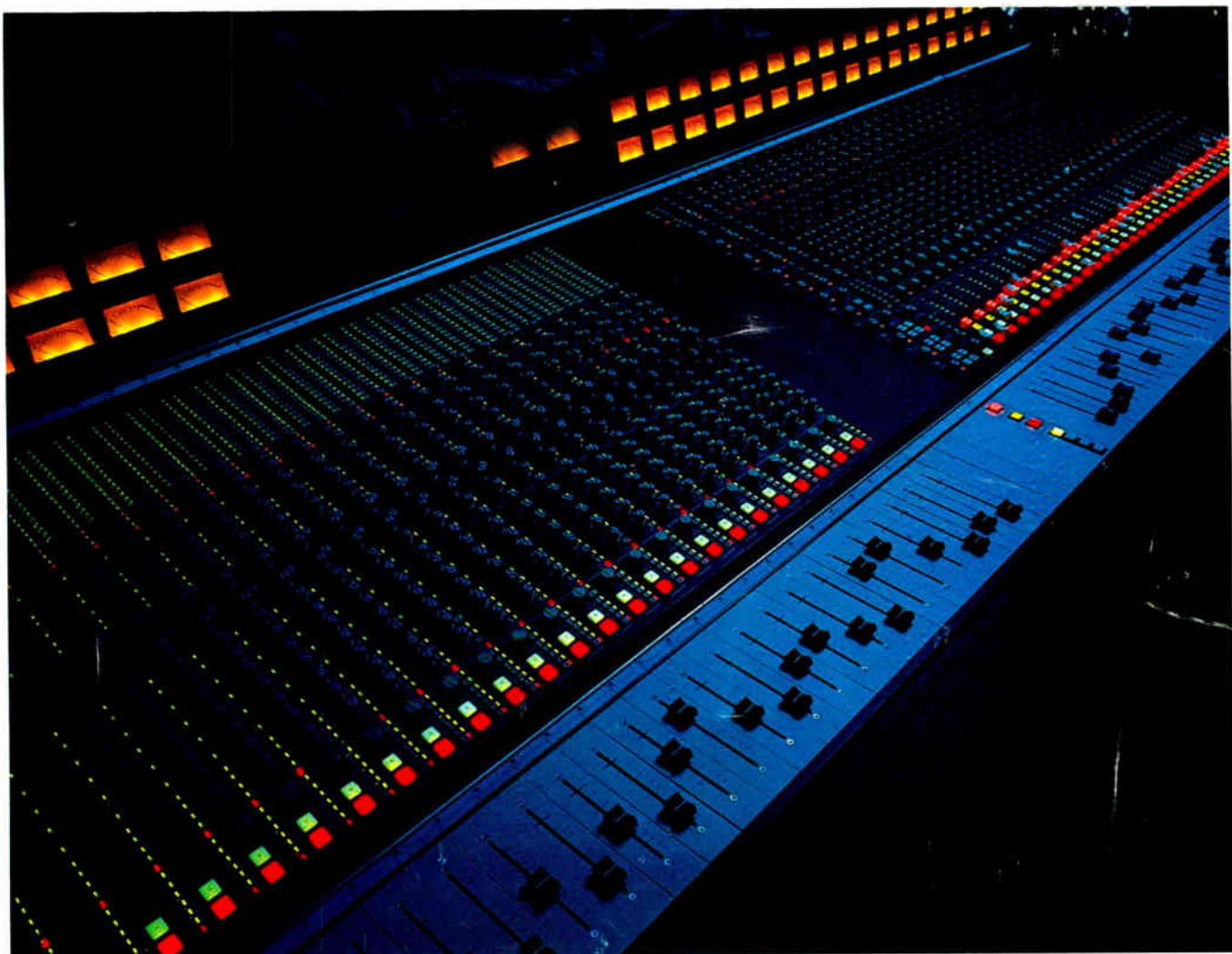
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3200

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