

TEC Award Winners! · Digital Film Sound Formats · Console Obsolence

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MIX

**The Changing Face
of Commercial
Music Production**

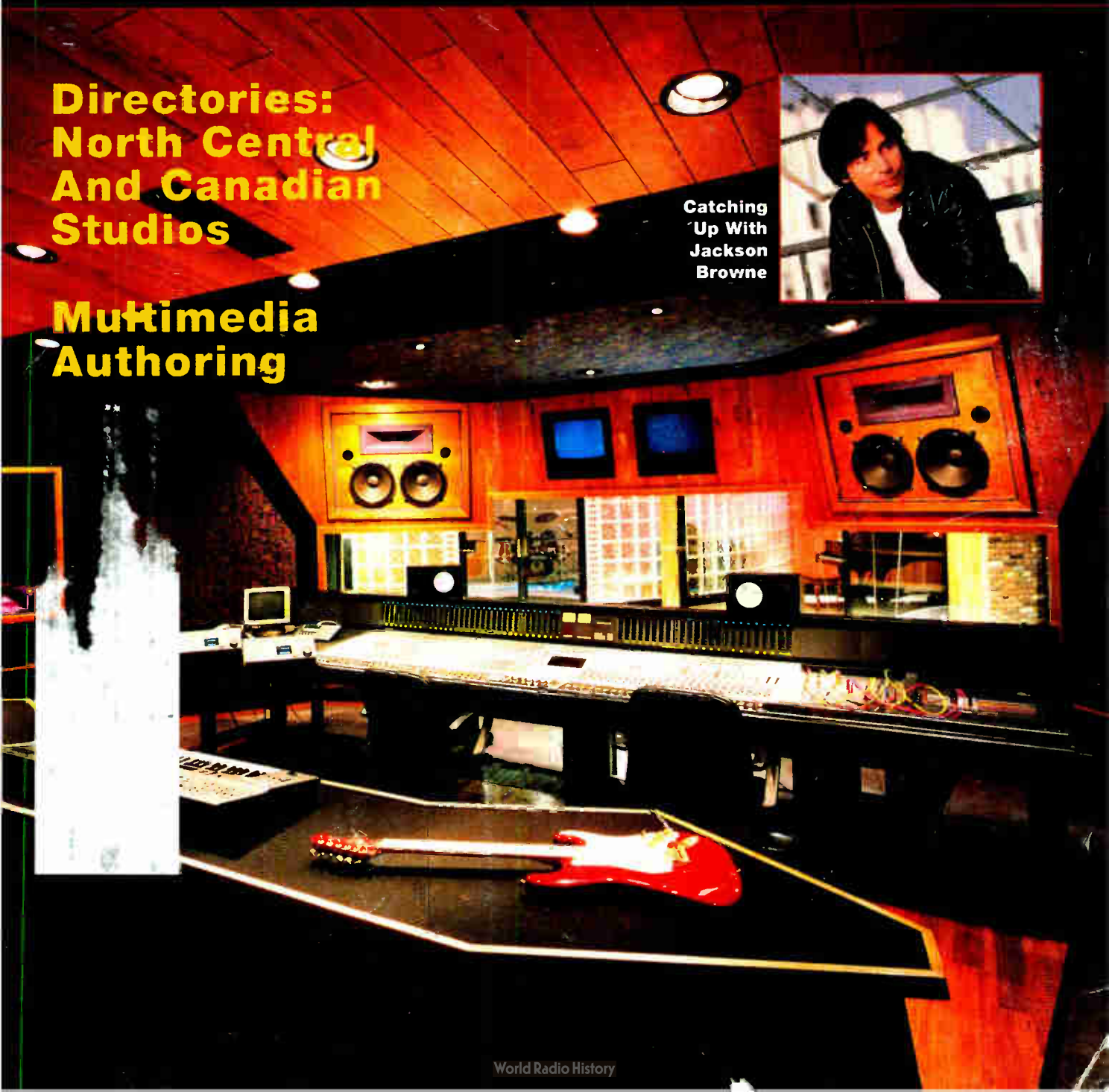
**Consoles for
Project Studios**

PROFESSIONAL RECORDING · SOUND AND MUSIC PRODUCTION

**Directories:
North Central
And Canadian
Studios**

**Multimedia
Authoring**

**Catching
Up With
Jackson
Browne**



The ADAT Group™

digidesign

ALESIS

FOSTEX TIME LINE

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Technology is changing the music industry day by day. But, change without focus and compatibility delivers only chaos. Where should you turn?

The ADAT Group. Composed of a diverse group of manufacturers who have delivered extraordinarily focused products to the music industry, their products are successful because they shape technology into an extension of your creative personality.

Now, as members of the ADAT Developer's Program, they all agree on one thing: the technology of ADAT.

As a digital multitrack format. As a way of harnessing the incredible power of digital audio to make all the products of the ADAT Group work together as a compatible system.

In this day of leapfrog technology, the last place you want to be is on the bottom. Over 15,000 ADAT customers worldwide have chosen to stay on top. More than all other digital multitrack owners combined. To keep them there, The ADAT Group keeps pulling out all the stops. Making it safe for you to leap.

The ADAT Group - Focus on Compatibility™

For more information on The ADAT Group and the ADAT Developer's Program call 1-800-525-3747
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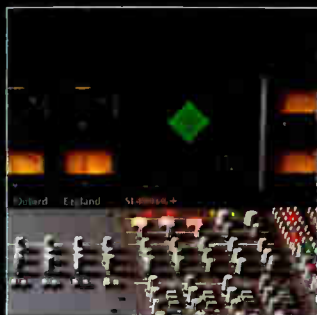
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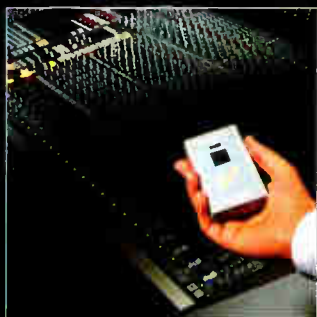
G PLUS CONSOLE SYSTEMS



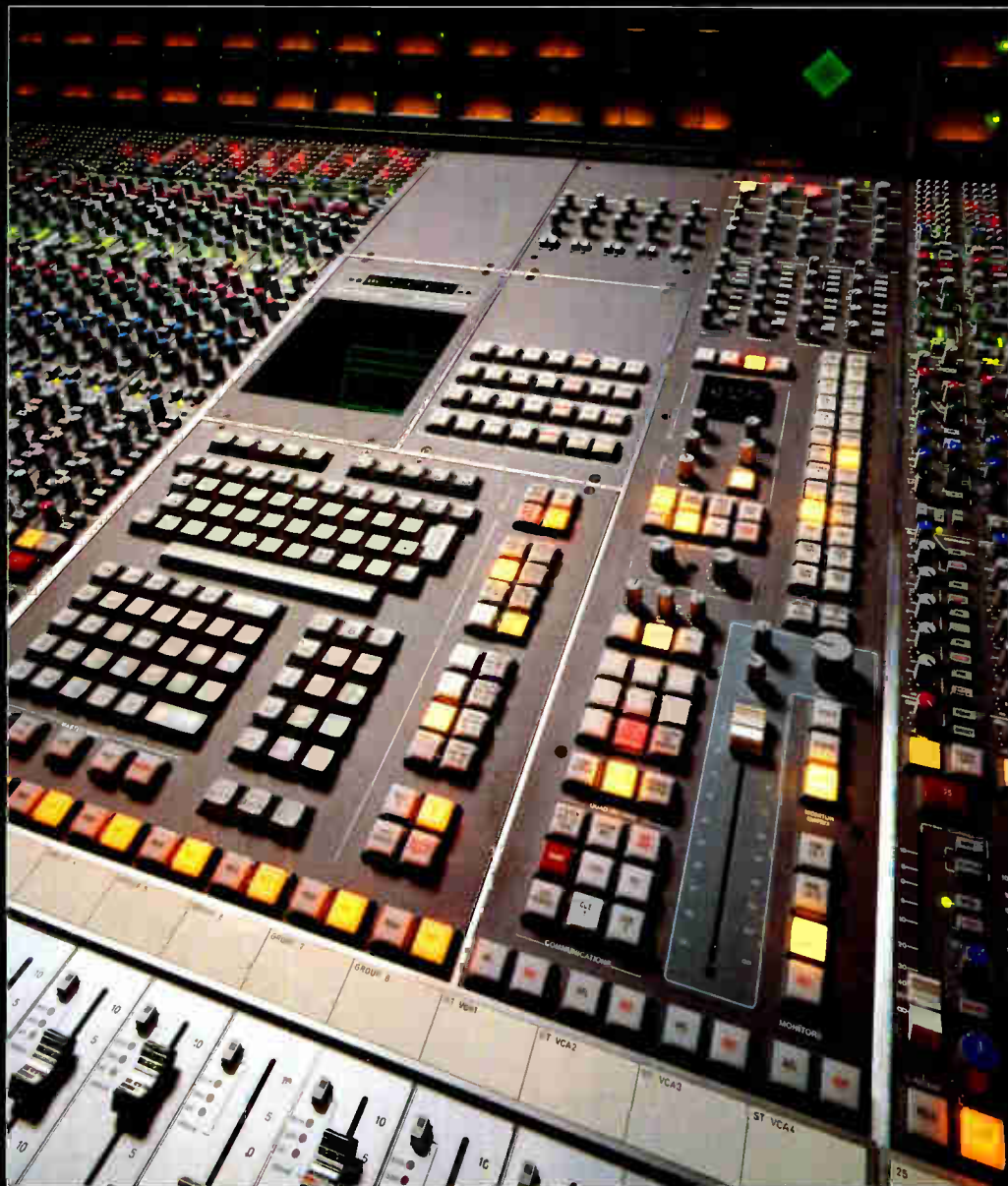
3.5" disk drives allow the use of low cost, high capacity disks for mix data storage



Audio phase scope provides permanent display of amplitude and phase relationship of left and right stereo signals



Wireless talkback system uses a PCM encoded infra-red handset



G Plus consoles additionally provide:

- 3.5IN DISK DRIVES
- SSL'S OWN LINEAR CRYSTAL, OXYGEN-FREE CABLE
- AUDIO PHASE SCOPE
- WIRELESS TALKBACK SYSTEM
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- GROUP CROSS-NORMALLING
- BLACK TRIM STRIPS

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NEW! THE DIGIDESIGN TDM BUS™
 The Digidesign Trans-system Digital Matrix Bus™ is the best thing to happen to digital recording since digital. • So what is it? For starters, the TDM Bus is an open, 256-channel, 24-bit data highway for your studio — giving you the ability to route, automate, and process everything you do with full digital control. • How “open” is it?

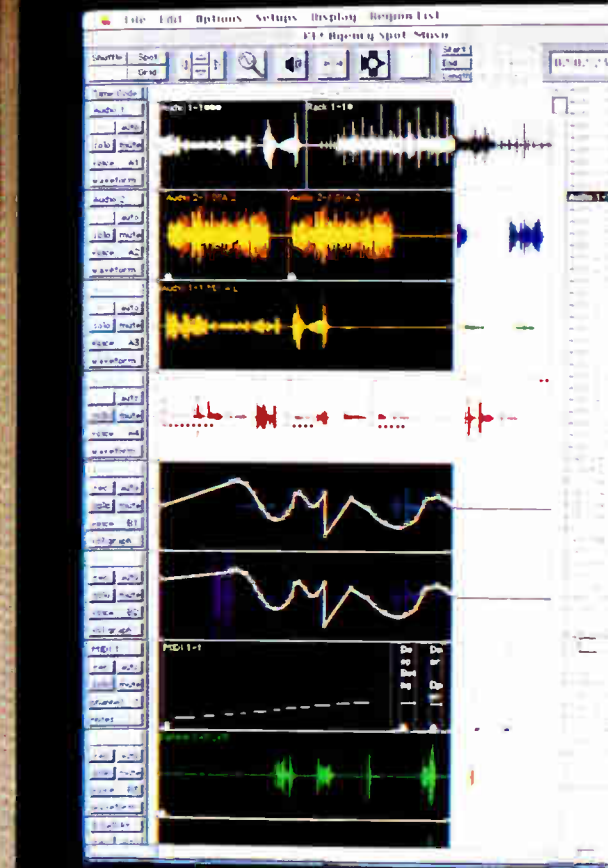
At Digidesign, we believe a workstation should increase your creative options, not restrict them. So a variety of Development Partners — from established leaders like Lexicon, and savvy upstarts like Waves — are building hardware and software for the TDM Bus. • And if that's not open enough, try this: You can even route and automate your beloved analog tube compressor within this digital environment. • For the complete story, call us at one of our numbers below.

BOB CLEARMOUNTAIN



"I mix records — lots of them. Some are too long for a medium called 'radio' to play (and still have time for all those wonderful commercials). Others are simply too long. So when it comes to the ultimate editing medium, I turn to Pro Tools. And with 2.0's multitude of truly remarkable uses and features, the end product is creatively enhanced — better and faster than any other means I know of, or can even imagine."

Bob Clearmountain, Mixer/Producer. Recent projects: Bryan Adams, Bruce Springsteen, Bon Jovi, INXS, Crowded House, The Pretenders, Squeeze, Morrissey.



WHY THOUSANDS OF AUDIO PROFESSIONALS WHO

In an industry overflowing with creative individuals, it takes exceptional talent to rise to the top. And in an industry loaded with workstations, it takes an exceptional product to rise above the competition.

Perhaps then, it's no surprise that again and again, the industry's top professionals select one digital workstation above all others as their system of choice. The system is Pro Tools, and the reasons are simple: Pro Tools delivers uncompromising power and performance for audio post, broadcast, or music production — with an uncompro-

..... mising commitment to the future. But there's more to this story.

More Than Just Power. We can't even begin to scratch the surface of everything Pro Tools can do for you within the confines of this ad. But frankly, what good is power if it's cumbersome to use?

At Digidesign, we believe that the most advanced tools are often the ones that make a giant leap towards greater simplicity. Our advanced user interface proves this point rather elegantly. For speed and sheer productivity, nothing else even comes

If you own Pro Tools version 1.x, and haven't ordered your exceptionally cool 2.0 Upgrade Kit, it's not too late! The cost is just US\$49, for residents of the US and Canada, including shipping. Internationally, the cost is just US\$69, including express shipping. Pro Tools owners must be registered directly with Digidesign to be eligible to receive the Upgrade Kit. PostView requires some additional third-party hardware and software, for capture and playback of digital video. Spotting to PostView Modules requires a 486 or Pentium Macintosh, Quadra or Centris 650; contact Digidesign for complete requirements. All trademarks and registrations are the property of their respective holders. © 1993 Digidesign. All rights reserved.

PostView™: More Than A Pretty Picture

Welcome to the future of audio post-production. • Digidesign's new PostView option for Pro Tools delivers full-frame, fully-synchronized, random-access video, to serve as a fast and easy reference for spotting sound to picture. You can even scrub your audio in frame-accurate sync with the PostView Movie on the same monitor screen as your Pro Tools session, or, if you like, on two separate screens. • PostView also includes VTR Control, an easy and effective transport control system for external video and audio transports which allows Pro Tools to serve as the control master. • PostView: Think of it as picture-perfect-audio-for-picture.



HARRY SNODGRASS

"Audio post-production for feature films is no picnic. With non-stop deadlines, I need a workstation that works as hard as I do — and that's Pro Tools. Sure, I've used other systems, but they don't offer the features and speed of Pro Tools, and they don't offer me the future I see with the TDM Bus and PostView. As for Pro Tools' quality, my clients couldn't be happier, and that's really what counts in this business."

Harry Snodgrass, Sound Designer. Recent projects: Aliens 3; Beverly Hillsbillies; Robin Hood; Men in Fights; Hot Shots, Part Deux.

NEED THE RIGHT TOOLS TURN TO PRO TOOLS™

close. The result? More projects in less time, and an outstanding return on your investment.

More Than Just Today. You'll be glad to know that by investing in Pro Tools you are investing in a very bright future, as well. By developing key technologies, such as our new Digidesign TDM Bus, we're opening the door to a plethora of options, and a long life for your investment.

More Than Just Talk. Of course, you don't have to take our word for all of this. But maybe you *will* take the word of the

gentlemen pictured above — just two of the many acclaimed professionals who swear by their Pro Tools systems. And if you're still unsure, do the smart thing. Check out any other competing system, at any price. Check the user interface for speed, ease, and flexibility. Check the sound for pure sonic performance. Check how open the system is for expansion today and tomorrow.

Then check out Pro Tools. We're confident that you'll find, just as Bob and Harry did, that when it comes to professional digital audio production tools, there's no substitute for Pro Tools.



For more information about Pro Tools, the Digidesign TDM Bus, PostView, or any other Digidesign product, call us at (800) 333-2137, ext. 344 (USA & Canada), or internationally at +1-415-688-0600. We'll get you the information you need right away. If you like, we'll also be happy to schedule you for a free, no-obligations Digidesign Professional Audio Seminar, or provide you with the name of your Digidesign Professional products Dealer.

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MIX

PROFESSIONAL RECORDING • SOUND AND MUSIC PRODUCTION

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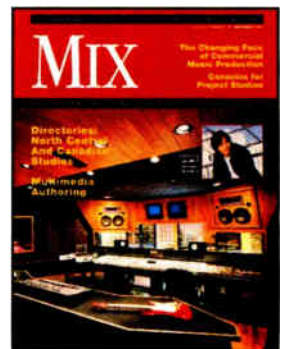
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Cover: Privately owned by songwriter/producer Dan Johnson, Minneapolis' 45 RPM Studios was designed by Carl Yanchar of Lakeside Associates. The main studio features a Sony MXP 3056 console, GML automation, eight modular API EQs, custom TAD monitors featuring Lakeside components, Sony APR-24s, Times One amplifiers, tube gear galore and a host of keyboards and other instruments. Photo: Bob Perzell

DIRECTORIES

- 167 **North Central U.S. Studios**
- 178 **Canadian Recording Studios**



With over 20,000 ADATs already in use all over the world, Alesis has made more digital multitrack tape recorders

TEC AWARD WINNER
Voted Recording Product of the Year and Best Recording Device/Storage Technology

And with good reason. Alesis was founded on digital technology, so we know what it

takes to make the best-selling digital multitrack. The Alesis ADAT[®] Digital Audio Recorder's sound quality, sample accurate synchronization capability (ADAT Synchronization Interface), fiber-optic digital interface (ADAT MultiChannel Optical Digital Interface), and wide range of peripherals available now, give ADAT owners the creative flexibility they need.



The Alesis AI-2[™] ADAT to AES/EBU and S-VIDIO Digital Interface with sample rate converter lets you transfer audio digitally to or from the ADAT system and external units such as DATs, CDs, and other digital recording formats.



The Alesis AI-2[™] Multi-Purpose Audio/Video Synchronization Interface by TimeLine (the leader in synchronization products) connects ADAT to the world of video, film and multi-media production using SMPTE, 9 pin and TimeLine Lynx control protocols.

Focus on Compatibility[™]

Its revolutionary impact on the recording industry has made ADAT the de facto standard in digital multitrack. The enormous number of ADAT users worldwide, the fact that Fostex has licensed the ADAT format for their own digital recorder, and the growing list of leading companies focusing on industry compatibility by becoming members of The ADAT Group[™], all mean that when you choose ADAT, you're compatible with a vast array of music and audio equipment, now and in the future. And, you're supported by a network of professionally trained Authorized ADAT Service Centers worldwide.



The ADAT Format – made for multitrack

ADAT records eight tracks of 16-bit linear, 48 kHz sample rate audio, with no data compression "tricks" or channel sharing. We chose Super VHS[®] (S-VHS[®]) tape as a foundation, then designed ADAT's data structure and heads specifically for the rough-and-tumble, back-and-forth, punch-in-and-out environment of multitrack recording. To make sure that recording one track wouldn't disturb any other track, we divided each helical scan into



An 8 track, 8mm recorder's helical scan. There are only four audio data blocks, forcing each track to share a block with another.



An ADAT's helical scan: ADAT tracks are safely separated into 8 discrete data blocks. (Both vertical and horizontal dimensions enlarged for clarity.)

eight separate data blocks. Some digital recorders combine data from two different channels into the same data block on tape, which means that each time you record a track, another track must be read into a buffer and actually re-recorded even though it is in "safe" mode.



The ADAT format records each track discretely, as all professional multitrack recorders should.

Bigger is Safer

Microscopic contaminants in the studio aren't just probable, they're statistically inevitable. If the format can't overcome them, they'll cause mistracking, noise, distortion, even total muting of the audio. Formats smaller than S-VHS are more vulnerable to contaminants, dropout, and misalignment, especially when exchanging tapes between machines. One 8mm digital format attempts to squeeze the same amount of sound into one-tenth the tape area that ADAT does. ADAT's S-VHS tape offers more total surface area to meet the demands of digital recording, and its wider 100 micron tracks are five times less vulnerable to being derailed by dust. Because even though technology makes it possible to make formats smaller and smaller, dust stays the same size.

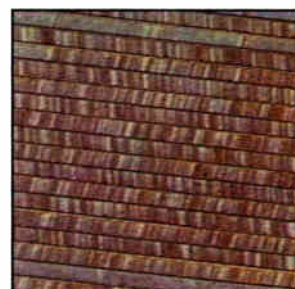


Comparison of tape areas for 1 second of audio: ADAT (1,211 mm²) and the 8 track, 8mm helical scan format (133 mm²).

Actual microscopic comparison of the ADAT tape format and the 8 track, 8mm helical scan format (enlarged approximately 100 times).



ADAT's wide 100-micron tracks offer an extra margin of safety for digital audio.



The 8mm's 20-micron tracks squeeze more data into the same area, with little room for error.

than any other company. More than Sony. More than Mitsubishi. More than Yamaha, Akai, and Tascam combined.

More than just a tape recorder— The ADAT System

ADAT, when combined with the BRC™ Master Remote Control, is a complete digital recording and digital editing system with features that no other recorder, analog or digital, can match. The BRC is a full-function autolocator and MIDI/SMPTE time code chase-lock synchronizer. Plus, it controls digital copying between ADATs, like a disk-based recorder, but much simpler to use.

The ADAT MultiChannel Optical Digital Interface digitally transmits up to eight ADAT channels at once over a single fiber optic cable to any track on any ADAT in the system without repatching, all in the digital domain. Now you can "fly in" that perfect vocal part to multiple locations in seconds, with absolutely no generation loss. And our new QuadraSynth™ keyboard has an ADAT digital interface so you can record it without ever leaving the digital domain.

A fiber optic cable for digital connection is included with every ADAT.



The BRC Master Remote Control, shown with optional RMB™ Remote Meter Bridge, supercharges your ADAT System by adding SMPTE and MIDI synchronization, storable autolocation points, copy and paste digital editing and more.

ADAT/BRC digitally stores important session notes

Instead of scribbling notes on cumbersome studio track sheets, the BRC lets you store 400 autolocation points, 20 Song start points, punch in and out points, MIDI tempo maps, SMPTE offsets, and more in the two-minute data header of the ADAT tape. The BRC's alphanumeric display lets you name each cue point and song. It even has a handy built-in list of 16 standard cue point names you can edit.

L14 "CHORUS 1"
00:25:38:15

Unlike analog autolocators, the BRC can recall 460 points, storable on each ADAT tape for later recall, so you can keep your mind on the project instead of having to remember minutes, seconds and frames.

The ADAT Worldwide Network

Thousands of ADAT Worldwide Network™ multitrack recording group members are reaping the benefits of choosing The ADAT System. As WWN members, they are able to collaborate and exchange ADAT tapes with other talented musicians, producers, composers and engineers throughout the world. Alesis is proud that so many creative people worldwide are using this American-made product, making ADAT the most popular digital multitrack tape recorder in history. The recording professionals below don't endorse ADAT, they use it every day. Their credentials speak for themselves. Visit your Authorized ADAT dealer and see what the new standard in digital multitrack recording can do for you.



Dave Rouze
Technical engineer for Larry Carlton, currently using ADAT to record all Larry's live concerts. 2 ADATs and a BRC.



Jay Graydon
Two time Grammy's Award winning (twelve nominations) producer, engineer, writer, and guitarist. 4 ADATs and a BRC.



Owen Bradley
Country Music Hall of Famer. Producer of many legendary country music artists. 9 ADATs and a BRC.



Francis Buckley
One of the top dance and pop engineers in Hollywood. 4 ADATs and a BRC.



Web Staunton
Grammy-nominated chief engineer and studio owner. 3 ADATs and a BRC.



Mick Guzauski
L.A.'s leading platinum platinum engineer. 4 ADATs and a BRC.



Andy Hilton
Owner and Chairman of the largest pro-audio equipment-for-hire company in the UK and Europe. Plenty of ADATs.



Ray Benson
One of country music's hottest producer/arranger/writers. 3 ADATs and a BRC.



Tom Size
Has engineered and mixed a wide range of music from rock to legendary jazz. 3 ADATs and a BRC.



Russell Brower
Two Emmys (eight nominations). Sound designer and producer for film, television and major theme parks. 2 ADATs and a BRC.



Tim Wilson
Consultant and system designer for leading recording artists and songwriters. Has installed more ADATs than he remembers.

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adat

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SPEECH ELECTRONICS

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World Radio History

FROM THE EDITOR

For those who travel the pro audio convention trail, this month's Society of Motion Picture and Television Engineers' conference has a certain allure.

Several years ago, the SMPTE show started to become attractive to many of those attending AES, mainly because of the quickly growing business and technical opportunities in the sound-for-picture market. As traditional music projects began to bring less income into studios, audio post-production for film and television seemed to be a wise investment: To attend a trade show like SMPTE made dollars and sense.

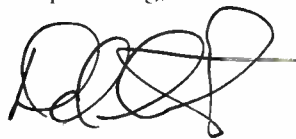
Now the sound-for-picture market is bigger than ever, but SMPTE isn't the only game in town. The computer industry, over the past couple of years, has brought television production to the desktops of more and more people. And we are about to see our viewing choices grow exponentially.

Democratization of television production seems to be a necessary development, in light of the "500 channels" that so many are buzzing about. How can those hungry pipelines be filled without the massive output made possible from desktop television? As David Letterman said (I think), "Someday everybody will have their own talk shows."

Aside from attending the SMPTE show, audio pros also should consider participating in computer and multimedia events. Expanded audio capabilities are among the highest growth segments of the computer industry at the moment. And as the personal computer evolves into a multimedia machine, the new outlets for audio and music recording will be immense.

As the shock of recessionary times brought about business re-engineering for the trimmed-down '90s, the smart audio professionals are increasing business by "industry surfing." They're finding out where they can apply their audio expertise to new markets and disciplines, bridging the gaps required to produce media on today's terms. Times have changed, and so must we.

Keep reading,



David Schwartz
Editor-in-Chief

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Founded in 1977 by
David Schwartz and Penny Riker Jacob

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*More records go gold on Ampex than on
all other tapes combined.*

AMPEX

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World Radio History

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The Serious

THE TASCAM DA-88 THE DIGITAL MULTITRACK DECK FOR SERIOUS PRODUCTION

It's true. The first machine designed specifically for low cost digital multitrack production is now available. And it comes to you from the world multitrack leader, TASCAM. It's simply the most advanced, well thought out and heavy duty digital 8-track deck you can buy. The best part is, it's incredibly affordable.

The DA-88 is built for production. The integrity of TASCAM's design is evident in every facet of the deck. From its look and feel — to its exceptional sound, unsurpassed features and expansion capability.

GOES FASTER, LASTS LONGER AND TAKES A BEATING

While we admit that it's an elegant looking machine, it's tough to see its finest asset. The tape transport. Designed and manufactured by TASCAM specifically for the DA-88, it's fast, accurate and solid. And that's what counts in production — in personal studios, project studios or in those demanding high-end facilities.

You'll notice it uses superior Hi 8mm tape, giving you a full 108 minutes of record time. What's more,

the transport is lightning fast and yet so quiet you'll barely hear it blaze through a tape.

We didn't stop there. Because production environments are notorious for constant, if not abusive, shuttling, punching, 24-hour operation — you get the idea — the transport was designed and built to take a beating.

Even more impressive is the transport's responsiveness. Take a look at the front panel. Notice the shuttle wheel? Turn it just a bit and the tape moves at one fourth the normal play speed. Turn it all the way and it flies at 8 times faster. Do it all night if you want. It's quick, smooth and it's precise. Need to get to a location quickly? Accurately? Shuttle a bit and you're there. The location is easily viewed on the DA-88's 8-digit absolute time display — in hours, minutes, seconds and frames. With the optional SY-88 sync card it displays timecode and offset, too.

YOU ALREADY KNOW HOW TO OPERATE IT

Unlike other digital multitrack decks, the DA-88 works logically and is simple to operate. Like your analog deck. All functions are familiar and easily operated from the front of the deck.



Adding the optional SY-88 synchronizer card is as easy as changing a Nintendo® cartridge. With it you're SMPTE and MIDI compatible. And no matter how many DA-88s you have locked up, you need only one sync card. Other optional accessories include AES/EBU and SDIF2 digital interfaces allowing the digital audio signal to be converted for direct-digital interfacing with digital consoles, signal processors and recording equipment.

s Machine



Take punching-in and out, for example. You have three easy ways to do it. You can punch-in and out of single tracks on the fly. Just hit the track button at the punch-in point. Hit it again to punch-out. You can use the optional foot switch, if you like.

Or, for multiple tracks, simply select the track numbers you want to punch, push play, and when you're ready, hit record to punch-in, play to punch-out.

Finally, for those frame accurate punch-ins, you've got auto punch-in and out. In this mode you can rehearse your part prior to committing it to tape.

No matter which way you choose, your punch-in and out is seamless and glitch free due to TASCAM's sophisticated variable digital crossfade technology.

That's not all, you also can set your pitch ($\pm 6\%$), sample rates (44.1 or 48K), as well as crossfade and track delay times. All from the front of the DA-88.

COMPLETE SYNCHRONICITY

There's more. Add the optional SY-88 synchronizer card to just one of your DA-88s and you've got full SMPTE/EBU chase synchronization. The best part is, you can record time-code without sacrificing one of your audio tracks. You also get video sync input, an RS-422 port to allow control of the DA-88 from a video editor, and MIDI ports for MIDI machine control.

A DIGITAL RECORDING SYSTEM THAT GROWS WITH YOU

The DA-88 is truly part of a digital recording system. Start with 8 tracks today — add more tomorrow.



Adding tracks is as simple as adding machines — up to 16 for a total of 128 tracks. They interconnect with one simple cable, and no matter how many DA-88s you have, they'll all lock up in less than 2 seconds.

Controlling multiple machines is made simple with the optional RC-848 remote. With it you can auto locate and catch 99 cue points on the fly. It comes complete with shuttle wheel, jog dial, RS-422 and parallel ports, and it controls other digital and analog machines, too.

LISTEN TO THE REST

Of course, the sound quality is stunning. With a flat frequency response from 20Hz to 20kHz and dynamic range greater than 92dB, it delivers the performance you expect in digital recording.

So get to your authorized TASCAM dealer now. Check it out. Touch it. And listen to it. Once you do you'll know why the TASCAM DA-88 is the serious machine for digital production. The TASCAM DA-88 is the choice of studios worldwide. And at only \$4,499, it should be your choice.



TASCAM

Take advantage of our experience.

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(213) 726-0303

CURRENT

AES 1993: NEW VENUE, NEW HORIZONS

From October 7-10, thousands of audio professionals and 350 equipment manufacturers convened at New York City's Jacob K. Javits Center for the 95th Convention of the Audio Engineering Society. Among attendees, the general consensus about Javits was positive, and the spacious new site was a welcome change from the Hilton's cramped hallways and the dingy, low-ceiling exhibit space. Despite a few snags, such as the limited shuttle bus service and lack of nearby eateries, Javits got a resounding "thumbs up" from attendees and exhibitors alike.

The theme of this year's convention was "Audio in the Age of Multimedia." A lively seminar on the topic included speakers from Aware, Mediavision, Microsoft, SGI, 3DO, Avid and Philips, yet ironically only the latter two exhibited product. On the floor, Avid's main thrust was showing its upgraded Audio-Vision digital post-production workstation, while Philips emphasized its DCC technology. For a convention theme, the "multimedia" slant seemed more of a trendy buzzword than a new direction for the audio industry.

Speaking of new directions, Peavey MediaVision™ allows a sound contractor to design and create a complete sound system—less amplifiers and transducers—on a PC. In Windows, the designer drags various audio elements—preamps, EQs, gates, delays, meters, crossovers, mixers, etc.—onto the screen and connects them by drawing lines with a mouse to create any desired pathways.

Referred to by CEO Hartley Peavey as a software-based "Audio Erector Set," MediaVision has a rack-mount hardware interconnection box containing all the analog and digital electronics, and DSP cards, each containing five Motorola 56000 processors with 24-bit resolution. Peavey added that this was only the "tip of the iceberg," as future developments could include functions such as long-distance troubleshooting re-

configurable system can be expanded with up to five electronics racks (240 inputs). The controller is \$10,000; each 48-track expander rack is \$20,000.

Other console offerings were also impressive. Two under-\$25,000, 24-track consoles with moving fader automation were unveiled: Soundcraft DC-2000 and Soundtracs Solitaire Production Console, and both are also available in larger frames.

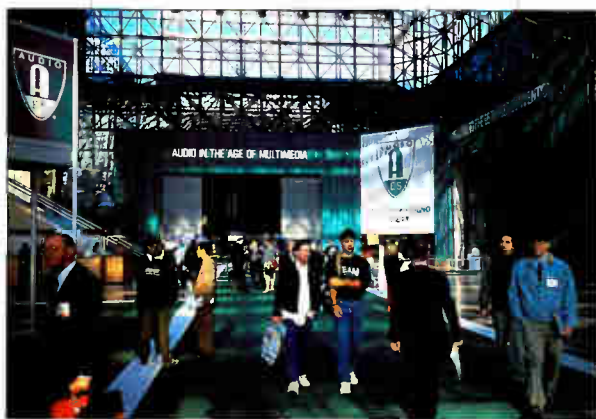
Distributed in the U.S. by George Massenburg Labs, Japan's Over Quality Consoles are shipping, with the first two going into Japanese facilities. An 80-channel version retails for \$780,000; who'll be first to install one in North America? If you need a more cost-effective approach, Otari's new family of digitally controlled analog boards offers a 12-bus, \$30,000 model with 48 inputs, dynamic SMPTE-based automation and eight aux sends.

In mic news, AKG's Vintage TL (C414B/TLII) re-creates the classic sound of the AKG C12 microphone. Speaking of classics, nothing beats the U47, which Neumann is reissuing in limited quantities, priced at about \$5,000.

Workstations were everywhere. Fostex launched the Foundation 2000 (previewed in this issue), but the overall trend was integrating random-access video with disk-based audio. Such systems were on display at Avid, Digidesign and Solid State Logic, Sonic Solutions and Spectral Synthesis, and they spell the demise of videotape shuttling in the post suite.

But don't rule out tape: Studer's

—CONTINUED ON PAGE 16



configuration via modem, internal digital effects processing and incorporating hardware controllers, such as mixers and remote gain controls. Initial deliveries will begin in January, with pricing to be announced.

As always, new products were the topic of conversation. Newcomer Tactile Technologies of Orange, Calif., launched its M4000 digitally controlled analog console. The M4000 has a 48-channel controller with an assignable central control section; outboard racks contain the analog electronics, connectors and signal processing. All console parameters are automated with VCA faders and rotary encoders with LED positional indicators; moving fader automation is optional. The instantly

What's more fascinating than
a man who can sing
two notes at the same time?



Imagine if you will the sound of a bullfrog swallowing a whistle. That's the startling result achieved by the throat-singers of a South Siberian Shangri-la called Tuva.

A mixing system that and digital at the



That's the AT&T DISQ™ Digital Mixer Core.

Up until now, it's been the same old song. Your studio either stays analog or goes digital.

But all that's changing thanks to the AT&T DISQ Digital Mixer Core.

Invented by the company that's been involved with audio since its inception, this remarkable system offers you the unheard of. Namely, the capability to go back and forth between analog and digital. At the mere press of a button.

Analog is still music to many artists' ears.

After all, many rock musicians still prefer analog. To their way of thinking, digital lacks a certain wallop.

The great thing about the DISQ System is that it supports analog lovers while giving them the option of evolving to digital.



Others are really digging digital.

On the flipside, there are artists and producers—be they in Contemporary Pop, Country, Jazz or R&B—who are already sold on digital. They feel it lets them hear nuances they never heard before. And that digital is important in editing and mastering.

The bottom line? The DISQ System lets you cater to the exact tastes of any client.

Adding digital by adding to your analog system.

The DISQ System works in tandem with your existing analog boards.

Meaning you avoid the big learning curve a new digital console requires. So when clients ask for a certain sound,



can be analog same time.

an engineer still knows which of 3,000 faders and knobs to move a mere fraction of an inch to give 'em what they want.

Spend half as much to do twice as much.

Besides the incredible flexibility the DISQ System's capabilities afford you, there's also the cost savings.

Because you simply add the DISQ System rack to your existing hardware, there's not a ton of pricey equipment to buy. Or install. Meaning your downtime is kept to a bare minimum.

Add other stuff anytime down the line.

You won't get hit up for lots of gadgets when you want to upgrade, either.

Typically, all it takes is new software.

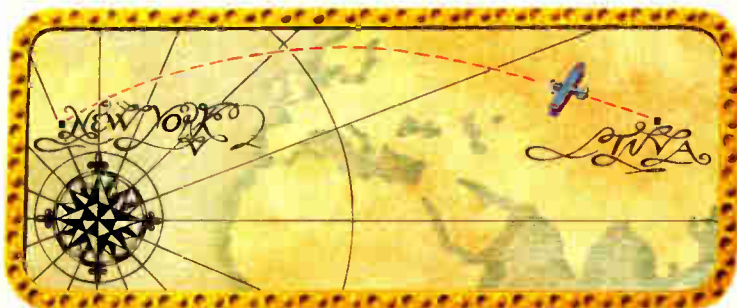
In fact, the DISQ System is so flexible that mixing board functions can be changed with a mere tweak.



AT&T Bell Labs: A name that's pure platinum.

Not surprisingly, the technology for the DISQ System came from the best R&D (not to be confused with R&B) facility in the world—AT&T Bell Labs.

A mixing system that's both analog and digital. It's not impossible. It's the AT&T DISQ Digital Mixer Core. For details, call 1 800 553-8805. Outside the U.S. and Canada, dial 919 668-2934.



If the Tuvans wanted to use the DISQ System to make an album, they might have to travel to a city many Americans find foreign.



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USE READER SERVICE CARD FOR MORE INFO

INDUSTRY NOTES

Neutrik AG, manufacturer of audio test equipment and connectors, recently acquired Canadian company Amber, manufacturer of complementary instruments for audio test equipment. The new company, Neutrik Instrumentation Inc., is headquartered in Montreal, Quebec: phone (514) 344-5220; fax (514) 344-5221. Appointments include Vincent DeSouza to sales manager and David Hudson to technical manager. NIS will focus on test equipment, while Neutrik USA (Lakewood, NJ) will focus on the company's connector products...E-mu Systems Inc. (Scotts Valley, CA) recently formed a strategic alliance with AT&T Microelectronics. E-mu will port elements of its 16-bit, digitally sampled sound library of musical instruments to AT&T's VCOS multitasking operating system, running on the company's DSP32XX family of general-purpose DSP integrated circuits. Optimized for the development and playback of games, educational software and multimedia presentations, the sound set will be stored as software on the user's hard drive...Drawmer (Wakefield, West Yorks, UK) purchased the SoundField and ST250 microphone business from AMS Neve. Product development, manufacturing, marketing and service will be handled by newly formed Drawmer subsidiary SoundField Research Ltd...Akira Saito was promoted to president and Hideo Kushida to vice president of sales administration and product planning at Denon America (Parsippany, NJ)...Turtle Beach Systems has moved. The new address is 52 Grumbacher Rd., York, PA 17402. Phone (717) 767-0200; fax (717) 767-6033...Alesis Corp. (Los Angeles) promoted Jeremy Clarke to the position of ADAT Worldwide Network coordinator...Anthony Bladon was appointed director of product development at Voice Processing Corporation (Cambridge, MA). Last May, VPC licensed its VProCommand technology to sound board manufacturer Creative Labs Inc. The

technology is now shipping with all of Creative's new Sound Blaster 16 audio boards for PCs...Bond Electro-Acoustics and Gane Fluid Cooled Loudspeakers have moved. The new address is 104 Neville Park Blvd. Toronto, ON M4E 3P8, Canada. Phone (416) 690-3231; fax (416) 690-6105...Galaxy Audio (Wichita, KS) appointed Mike Thorpe as its representative in Utah, Colorado, Wyoming, New Mexico and El Paso, Texas. The company also selected A.C. Simmonds & Sons Ltd. as its sole Canadian distributor...New sales reps for Whitenton Industries (Houston, TX): Highway Marketing will cover Texas, Oklahoma, Arkansas and Louisiana; ARK Productions will handle New York; Plus Four Marketing will cover Northern California; M.E. Specialties will handle Canada; and BVC International is the company's sole rep in Mexico...Toronto-based Cyphertech Systems opened its first U.S. office, in Los Angeles. The company develops technology to "fingerprint" works in the digital domain by inserting unique, identifiable digital coding...Lighting Dimensions International, the entertainment technology conference for lighting and sound, will take place November 12-15 in Orlando, FL. This year's show features a substantial series of workshops covering topics from the genesis of film sound to designing sound for theme park attractions. For more information, call (212) 229-2981...The CMJ Music Marathon will take place November 3-6 at the Waldorf-Astoria Hotel in New York City. Call (516) 466-6000 for more information...AMS Neve's North American distributor, Siemens Audio Inc., is regionalizing its sales and service network. SAI will be increasing staffing levels and office space in New York and Los Angeles, which together with the Toronto office will form the main sales and service centers. Satellite offices in Chicago and Nashville will offer enhanced service facilities to customers in the central region. ■

—FROM PAGE 12, CURRENT

new D827-48, DASH-format 48-track uses Noise Shaping Technology™ (NST) to impart 18-bit performance into the 16-bit medium. Prices begin at \$125,000 (\$88,000 for a 24-track version).

On the Modular Digital Multitrack front, Tascam is shipping SY-88 sync cards for the DA-88 and showed its AES/EBU, S/PDIF and SDIF-2 digital interfaces. On the ADAT side, Fostex is now delivering its \$4,795 RD-8 recorder with on-board SMPTE synchronization, and Digidesign showed its interface for transferring 8-tracks of ADAT material to/from its Session-8 and Pro Tools workstations. The inside scoop: A major pro audio manufacturer will enter the MDM milieu with a high-performance recorder in the next couple of months. I won't say who or which format at this time, but we'll let you know.

Mergers? Acquisitions? By now, everybody knows about the Harman/AKG deal, which was finalized just before the show. But did you know about TimeLine acquiring the Wave-Frame product line, or that Studer is now handling Nagra products (sales and service) in the U.S.?

AES is always a time of meeting old friends and making new ones. Speaking of old friends, the following companies should be congratulated for their milestone anniversaries this year: ART, 10 years; Cadac, 25 years; Community, 25 years; and QSC, 25 years. Here's to many more.

What's next? The 96th AES Convention will be held from February 26-March 1 at the RAI Exhibition Center in Amsterdam, The Netherlands. And AES returns to San Francisco next fall from November 10-13, 1994, at the Moscone Convention Center. See you there. In the meantime, look for our complete, expanded coverage of AES in the December issue.

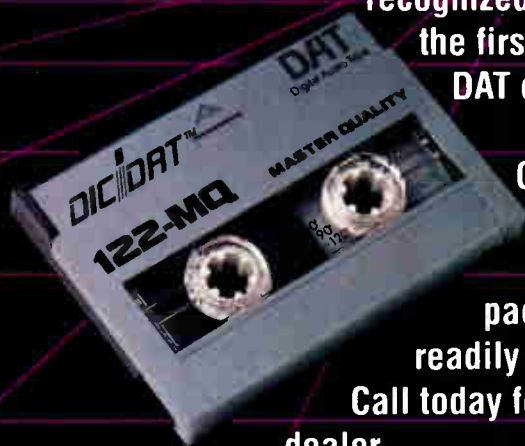
—George Petersen

DIGITAL EVOLUTION

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AT \$399*, THIS 12x2 MIXER SHOULD BE IN EVERY PRO AUDIO TOOL KIT.

MS 1202

8-TRACK MONITOR MIXER

Just "Y" out of the recorder inputs right into the MS1202.

INDEPENDENT MONITOR MIXER

"Y" mics and keyboards into the MS1202 for on-stage monitor mixing.

COMPACT DRUM OR KEYBOARD SUBMIXER

16 or more extra inputs in less than one square foot of space!

HIGH QUALITY MIC PREAMPLIFIER

A favorite MS1202 pro application. No wonder. See explanation below.

IMPEDANCE OR LEVEL CONVERTER

Convert virtually anything to anything: lo-Z inputs to bal. line level (& vice versa), potentially noisy -10dBV signals up to +4dBu "professional" levels (and vice versa), etc.

Before the MicroSeries 1202 mixers, the affordable were rightly considered toys. With steel chassis, built-in power supply and the same preamps, headroom and sound quality as our CR 1604, the MS1202 has been taken seriously. By in-the-trenches pros as well as home hobbyists.

Warranty card responses tell us that 1202s are used daily in radio and TV stations, video production houses,

Fortune 500 corporation audio/video departments, permanent sound installations and large recording studios. We even know of several top L.A. engineers who carry their trusty 1202 with them to every

session — and in case they need extra inputs or channels while using big studio consoles.

If you need a compact mixer for a small home studio, our MicroSeries 1202 is unbeatable. But even if your audio applications are far more complex, there's always room for a 1202 in your bag of tricks. Its uses are limited only by your imagination and ingenuity.

2-band EQ with manually adjustable 100Hz & 10kHz (instead of 100Hz & 10kHz) rotary controls

8-band EQ with manually adjustable 100Hz & 10kHz (instead of 100Hz & 10kHz) rotary controls

2-band EQ with manually adjustable 100Hz & 10kHz (instead of 100Hz & 10kHz) rotary controls

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2-band EQ with manually adjustable 100Hz & 10kHz (instead of 100Hz & 10kHz) rotary controls



HEADPHONE

2-band EQ

8-band EQ

2-band EQ

2-band EQ

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2-band EQ

Judging from MicroSeries 1202 owners' comments, you rarely find preamps this good on mega-expensive consoles.

If you're not familiar with Mackie Designs, you may find it hard to believe that the real preamplifiers in our \$399 mixer have specs (and performance) that meet or beat 750,000 consoles. But strap a MicroSeries 1202 into the test bench and you'll see we're not exaggerating: 70Hz to 30kHz bandwidth, 0.04% Total Harmonic Distortion, and Extraneous Input Noise (E.I.N.) at -129.6 dBm at 150 ohms, 20,704Hz.

This last, critically important spec bears some explaining. The possible, theoretic

ally lowest possible limit of E.I.N. is -130.85 dBm/150 ohms. That's the "noise" output of a 150-ohm resistor at 70 Hz. No mixer in existence can achieve it. Many ultra-expensive studio consoles such as Neve and SSL do spec out at -129 dBm. But the MicroSeries 1202 is the only mixer in its class that has a real and verifiable E.I.N. specification this low — within 1.2 dB of the theoretical noise floor! The MS1202's

preamps also have extremely high headroom and a natural, uncolored, musical sound. In fact, the 1202 is becoming the overwhelming choice of audiophiles for live-to-DAT recordings. Our secret? Instead of cheap, off-the-shelf integrated circuits, Mackie preamps stage use discrete circuitry with 4 conjugate-pair, large-surface-geometry transistors — the lowest noise/highest quality available. This means virtually undetectable E.I.N. even when you're running a channel at extremely low gain levels.



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World Radio History

AFFORDABLE MULTI-TRACK DIGITAL RECORDING HAS JUST ARRIVED. THE MIXER THAT CAN HANDLE IT ALREADY HAS A PROVEN TRACK RECORD.

CR-1604

THE CR-1604 IS THE ONLY under-\$1100* mixer that lets you record and monitor eight channels at once. Along with phenomenal headroom and ultra low noise, it offers true Split Console convenience (which is actually more intuitive than consoles with channel strip monitor sections): Record vocals, instruments and sequences using mixer Channels 1-8 while simultaneously monitoring multi-track output (complete with custom headphone mixes including effects & EQ) using mixer Channels 9-16. Monitor levels on any individual channel at the touch of the SOLO button. And then mix it all down to a 2-track master without re-patching.

Right now, professionals are using the CR-1604 to track and mix network TV show soundtracks, feature movies, major label compact discs, 6-channel digital OmniMax films and TV commercials for Fortune 500 companies. They all use multi-track digital recorders. And they all swear by the sonic quality of the CR-1604.

NEED MORE info? Call toll-free for our new 12-page color Applications Guide and 20-page In Your Face product journal. It covers the Mackie CR-1604 mixing system... including OTTO-1604 MIDI automation that brings ultimate control, creativity and consistency to mixdowns. Need audible proof of the CR-1604's sonic quality and versatility in multi-track recording applications? Mail us a money order* for \$7⁹⁹ (our cost including shipping) and we'll send you a compact disc with the winners of our Mixed on a Mackie Contest. Eighteen of the songs were mixed with multi-track decks and CR-1604s. You'll hear why the CR-1604 is truly a complete mixer for demanding, professional multi-channel recording work.

LOE-LOBOS



CR-1604 AS SHOWN
SUGGESTED RETAIL \$1099

AUX SENDS
SOLO
STEEL CHASSIS

B-TRACK

Tape Outs

RECORD

AUTOMATE

OTTO-1604

OTTO-1604

Mackie CR-1604, a 16-channel digital mixer with 16 stereo channels and 16 stereo outputs. It's just for this one.

For stereo and mono **AUX RETURNS** with high-pass filters, low-pass filters, and more. It's just for this one.

NOT ALL compact mixers have the same. Some of them don't have the same. Only the CR-1604 has extra circuitry in each channel that lets you switch channel outputs without patching. Compare that to the Mackie CR-1604.



SOLO/MONITOR feature lets you accurately monitor levels anywhere.

CR-1604 MAIN BUS INSERTS allow for processing of your master output.

RETURN to monitor and mix recorded tracks 1-8 back into the CR-1604's Mix Input Channel.

BECAUSE you can't have it all. But you can have it all. The CR-1604's 16 channels, 16 stereo outputs, 16 stereo inputs, 16 stereo outputs, and more.

ALT 3/4 BUS can be used as a 2-track master output. For multi-track recording, you can use the CR-1604's 16 channels, 16 stereo outputs, 16 stereo inputs, 16 stereo outputs, and more.

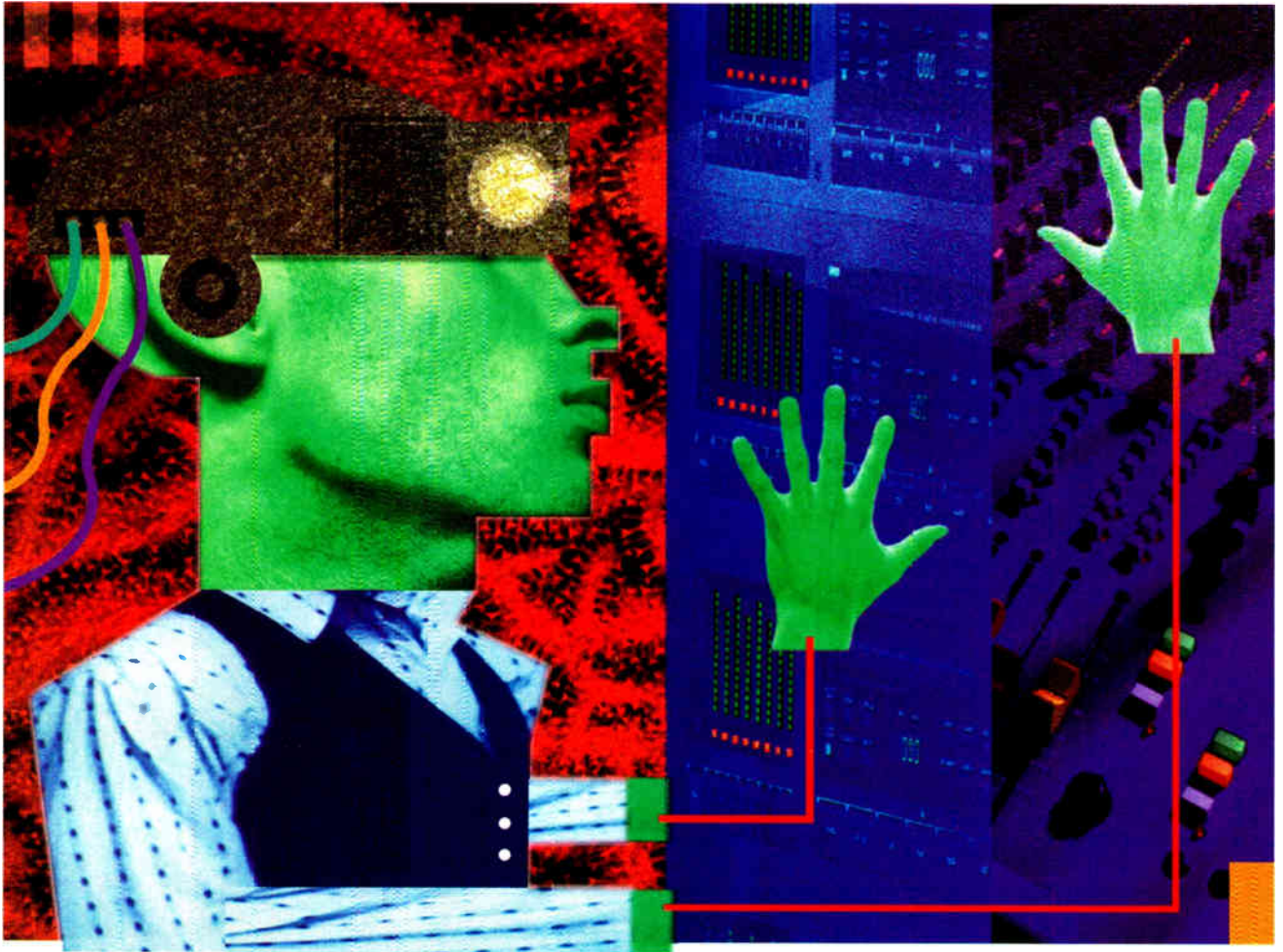
OUR FREE Applications Guide includes a more detailed look at the CR-1604's features and applications. Call today for your free guide.

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*MSRP not included. †When ordering your Mackie CR-1604, please specify which optional features you want or don't want. Allow 2 weeks for delivery. ©1991 Mackie. All rights reserved. All prices in U.S. dollars.

by Ken C. Pohlmann



THE NEW DESK

Many aspects of music production are firmly fixed in their function. For example, if you were to time-travel 30 years to visit a recording studio of the future, you would almost certainly recognize microphones, loudspeakers and storage media. However, one studio element might not be familiar at all. The mixing console might be vastly different from today's models. That is because, though other studio devices are discreet components in a recording system, mixing consoles are merely controllers—interfaces between man and machine, through which the human operator controls the system. There will always be real microphones and real storage

media, because those functions must really exist as devices. But with a mixing console, it is the function that concerns us, not the physical device. So the conceptual design of a mixing console is inherently flexible; and for that reason, you might not recognize the mixing console of the future because you wouldn't see it, except when you put on your helmet.

An analog mixing console is a control surface in which the processing circuits are hard-wired to the controls themselves; both engineering and economics dictate this arrangement. In a digital console, in spite of the analog-like controls, it is economical to separate the control sur-

ILLUSTRATION: GORDON STUDER

A NEW ERA OF PRODUCTIVITY

DAWN - VERSION 4.0

DAWN II Editor

The DAWN has earned a reputation as one of the most productive disk-based editors on the market. Its intuitive, film-style user-interface ensures that new operators are productive within days, reducing training time and costs by as much as 50% compared with other systems. Version 4.0 is the most significant software upgrade to date and one which will change your perception of workstation productivity. With new features not found on any other workstation, there are now even more reasons to invest in a DAWN.

'Off-line' Productivity

4.0 can be used without the DAWN Processor, so tasks such as dubbing chart preparation, ADR and scene spotting can be done 'off-line', rather than tying up an editorial bay



or dubbing theatre. Cue waveforms can still be viewed off-line so that basic editing and track laying can be performed. With a Macintosh PowerBook editorial tasks can now be done on the move.

Removable Storage Media

Utilising the latest developments in magneto-optical technology, the DAWN can store audio directly onto removable optical disks, completely eliminating the archive process and allowing a facility to switch between productions within a few minutes.



Global Editing

The concept of 'global' or 'scene' editing has been perfected in 4.0. The tracklay can be defined as a series of scenes which can be easily removed, re-arranged or replaced. So no matter how many times the director re-cuts the picture, re-editing the audio is a only matter of a few simple edits.

User-Definable Interface

4.0 let's you arrange the user interface to suit the way you prefer to work. The Mixview, DAWN's scrolling tracksheet, can be displayed both horizontally, for editing, or vertically, for dubbing - the DAWN is the only editing system which offers this choice of modes. And in 4.0 the Mixview is DAWN's only window - all editing and track-laying tasks, however complex, can be performed in this one window.

OMF Compatibility

4.0 incorporates OMF compatibility, allowing audio and edit data created in other systems to be imported into the DAWN.

Other Key Features in Verison 4.0

- unlimited cue capability
- sample-accurate editing
- bit-accurate timecode synchronisation to linear (LTC) and vertical interval (VITC) timecode
- unlimited scrubbing of all tracks, simultaneously
- reverse play of all tracks locked to timecode
- new DSP functions include time compression and expansion, sample rate conversion ...
- control of up to 4 serial machines via 9 pin protocol, with remote track arming
- VT emulation mode
- multiple levels of UNDO
- "Scene Spotter" lists to define scenes for track-laying and global editing
- "Action Comment" lists to provide timing cues for dubbing mixer
- comprehensive auto-conforming, with reading of multitrack CMX EDLs
- dubbing chart preparation with output to colour printer
- expandable to 48 channels with full digital I/O
- virtual track capability for unlimited width tracklays
- variable crossfade types with unlimited duration
- "Strip Silence" facility for automatic editing of non-continuous audio
- dedicated hardware controller with jog/shuttle wheel
- interface to Gefen CD Management systems
- based on the Apple Macintosh, compatible with any model

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INTRODUCING THE PEAVEY CS[®]-X SERIES

For many years, the Peavey CS[®] Series has led the field in high performance power amplification. The CS Series has become legendary for ruggedness, dependability and superb performance with completely unmatched patching/plug-in capabilities. Now, Peavey is proud to announce the new CS-X Series with dramatically improved performance specifications at no increase in price! This startling achievement is made possible by Peavey's high volume production, state-of-the-art manufacturing, and advanced audio technology.



CS[®] 1200 X

X-TRA POWER.

The new CS-X Series power amplifiers reliably drive two ohm loads to extremely high power levels while maintaining current four and eight ohm ratings. For example, the industry leading CS-800 now delivers 600 watts RMS per channel into 2 ohms!

CS 400 X

- 210 W RMS into 4 ohms
- 300 W RMS into 2 ohms (per channel)
- 420 W RMS into 8 ohms
- 600 W RMS into 4 ohms (bridged)

CS 1000 X

- 525 W RMS into 4 ohms
- 750 W RMS into 2 ohms (per channel)
- 1050 W RMS into 8 ohms
- 1500 W RMS into 4 ohms (bridged)

CS 800 X

- 420 W RMS into 4 ohms
- 600 W RMS into 2 ohms (per channel)
- 840 W RMS into 8 ohms
- 1200 W RMS into 4 ohms (bridged)

CS 1200 X

- 630 W RMS into 4 ohms
- 900 W RMS into 2 ohms (per channel)
- 1260 W RMS into 8 ohms
- 1800 W RMS into 4 ohms (bridged)

X-TRA PERFORMANCE.

Along with increased power, the new CS-X Series maintain awesome industry standards for bandwidth, slew rate, distortion specifications and overall performance excellence and versatility.

- DDT[®] compression with LED indicators and defeat switch
- Slew Rate: 40 V/microsecond, stereo mode, each channel
- Power Bandwidth: 10 Hz to 50 kHz @ 4 ohms, rated power
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- Hum and Noise: 100 dB below rated power, unweighted
- Auto 2-speed fan cooling
- Independent channel thermal / fault protection
- Transient free turn on / off
- Recessed crossover socket for plug-in modules

- 2 recessed balanced input transformer sockets for PL-2's
- Single XLR & dual phone plug inputs each channel
- Phone plug inputs are quasi-electronic balanced
- XLR input can be transformer balanced
- Dual phone plug and 5-way binding post outputs each channel
- DDT activation LED & power LED each channel (1000X and 1200X feature a power LED array and thermal indicator each channel)
- Rear panel DDT defeat & bridge mode select slide switches

Peavey's CS[®] Series plug-in modules offer you utmost patching flexibility allowing biamp and triamp configurations with various crossover points available



CS[®] 1000 X



CS[®] 800 X
World's Best Selling Power Amplifier



CS[®] 400 X



CS[®] 200 X

NO X-TRA COST!

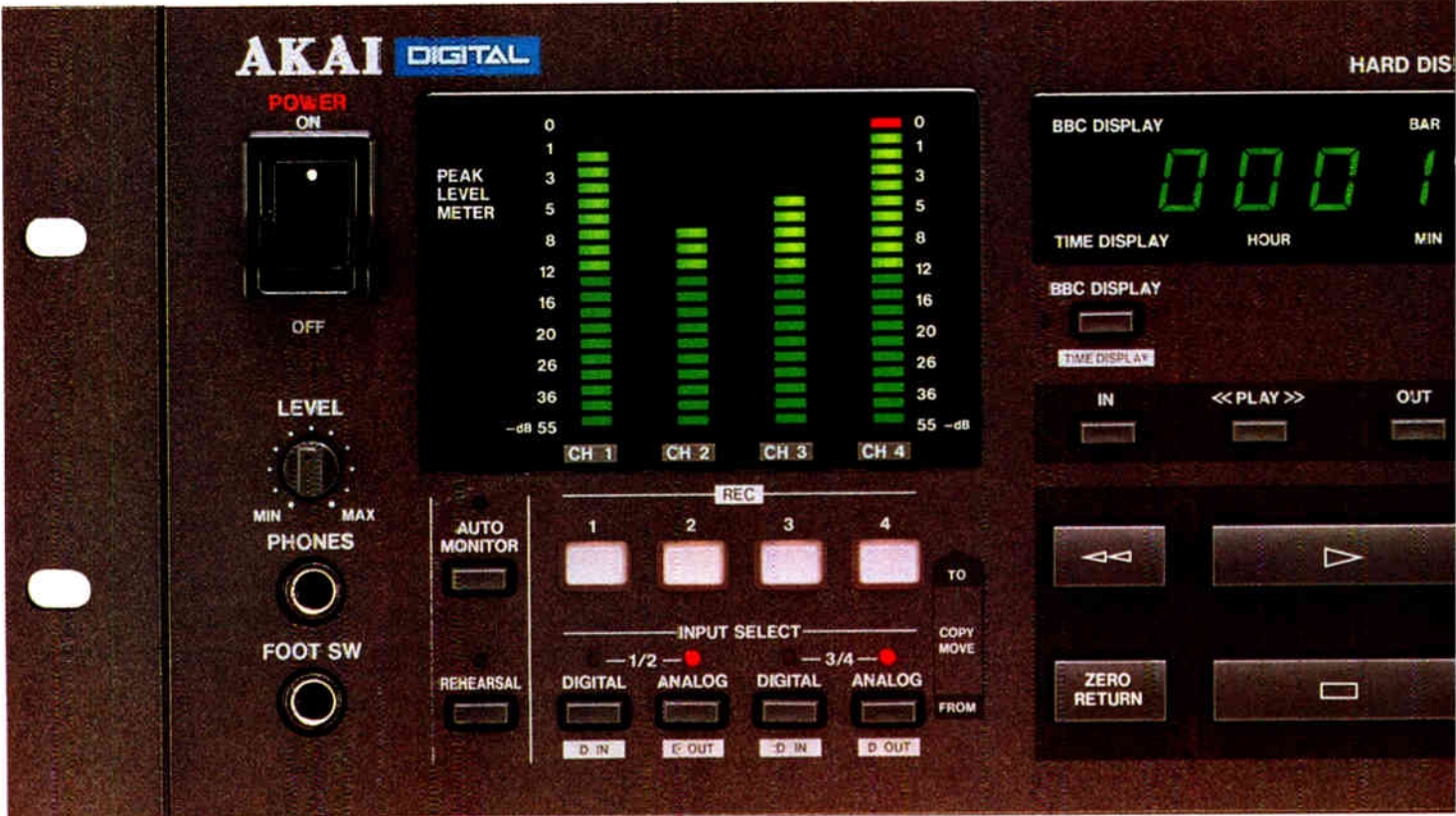
Incredibly, all the extras have not increased the cost of these world-standard amplifiers (the CS 800 X is still only one dollar per watt)! Only from a company with nearly thirty years of power amp experience could you expect this. A company with the power of high volume production and advanced manufacturing technology...

The X-tra Power of Peavey.



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Ten Reasons Why You Should Cho

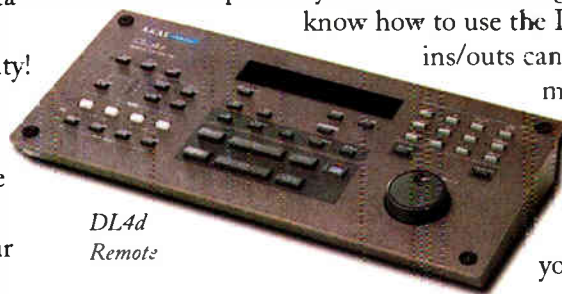
1. TAPELESS EDITING The DR4d can simultaneously record 4 tracks directly to standard SCSI-compatible hard disks, not tape. Tape recorders which use a cassette format (VHS, 8mm, etc.) have a huge problem: without at least two machines, you can't edit. But even a single DR4d allows random access editing that tape recorders just can't offer. Move, Copy, Insert, Copy + Insert, Move + Insert, Erase, and Delete with ease. Edit with complete confidence, because if you try an edit but change your mind, the Undo function will instantly restore the previous arrangement. It's a breeze to copy any part of a track and paste it anywhere on any track, even with a specified number of repeats. Or perhaps use the Insert commands to instantly slide track data in time against other tracks. This editing power encourages experimentation, and thus, your creativity! Imagine it. Do it.

2. NO WAITING Another problem with tape is the time required to physically move from one point on the tape to another. Concentrating on your music is what's important, not waiting for tape to shuttle back and forth. Never again waste such precious time: the DR4d allows you to instantly move to 108 different locations. Set up repeat sections, jam along with your tracks, then drop into record to capture it all while it's still immediate, fresh.

3. JOG/SHUTTLE Another cool DR4d advantage is the ability to offer scrubbing of audio, like "reel-rocking" on analog decks - only with much better quality. Our Jog/Shuttle wheel lets you scrub through the audio at various speeds, forwards or backwards. So finding precise editing points is only as complicated as using your ears.

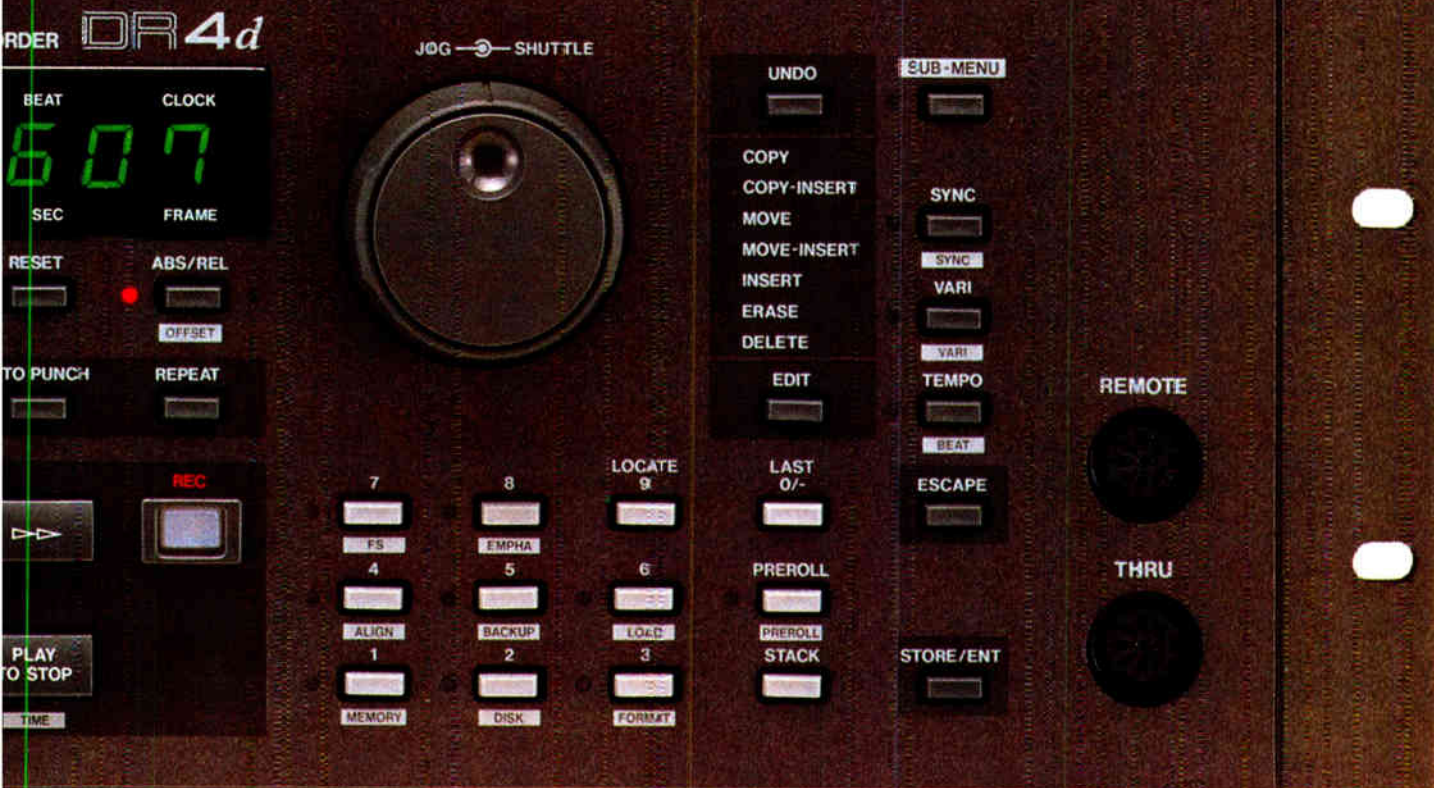
4. FAMILIAR OPERATION One concept we *did* want to carry over from tape recorders is the user interface. Friendly, tape machine-style controls make the DR4d by far the easiest hard disk recorder to use. With dedicated buttons for Play, Stop, Rewind, Fast Forward, and so on, what could be simpler? If you've used an analog deck, then you

know how to use the DR4d. Punch-ins/outs can be performed manually or automatically from the front panel, or via footswitch. Like you'd expect.



DL4d Remote

5. EXPANDABILITY Up to four DR4ds can be chained together to create a 16-track system, simply by plugging an optional cable between units! And the optional DL4d Remote makes it a snap to



Use the DR4d Hard Disk Recorder

control all of them. An optional, factory-installed 200 MB internal hard disk offers 32 track minutes of recording right out of the box. The DR4d can handle up to seven hard disks and supports seamless overflow recording across multiple disks. With enough disk storage space, you can actually record on all four tracks for an incredible 24 hours!

6. EXCELLENT CONNECTIONS Four balanced TRS 1/4" Input and Output jacks, easily switchable between -10 and +4 dBu levels, simplify interfacing with any type of console. The DR4d's pair of digital I/O ports allow communication with other digital devices in the form of both XLR and RCA connectors (AES/EBU or Type II selectable), as well as provide DAT backup. And then there's the supplied SCSI port for access to external hard disk drives. Just plug and play!

7. YOU'VE GOT OPTIONS And affordable ones, at that. For digital access to all four channels simultaneously, the IB110D provides the two additional AES/EBU ports. For SMPTE timecode applications (slave or master), the IB112T is installed in seconds. The IB113M interface gives you: MIDI In, Out, and Thru, and the IB111S is a second SCSI port which will allow connection to computers for visual waveform editing and magneto optical drives for data backup.

8. DEDICATED DESIGN The DR4d is a dedicated digital audio product, rather than an add-in board for a computer. It's a tool designed for a single purpose: to record and edit audio precisely, effortlessly, and affordably. We think you'll agree that it succeeds on all counts beautifully.

9. SOUND QUALITY The DR4d contains Akai's own advanced digital technology, including super-clean 18-bit 64x oversampling A/Ds and advanced single-bit 8x oversampling D/A converters with 18-bit resolution. Industry standard sample rates include 48, 44.1, and 32kHz. In short, the quality is superb and with a full 96dB dynamic range, you can rest assured of always sounding your best.

10. \$1995.00 Simply put, the DR4d is the best value in digital recording today. For the first time, the nucleus of a professional quality 4-track hard disk recording system can be yours for only \$1995.00! Just add internal or external hard disks, and you're ready to use our latest masterpiece for creating your next masterpiece.

DR4d

AKAI
DIGITAL

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Consult your Akai dealer for information on compatible hard drives

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by Stephen St.Croix

WHEN YOU HEAR THE TONE, THE TIME WILL BE...UP



The floor is concrete, I think. Hard to tell, because it's covered with an inch of cold water. I am pretty sure that I am hanging by my wrists, but they have been numb since I regained consciousness, so I can't be sure. If I tense up, my toes are in the water, and if I relax, I can just touch the rough concrete slab that I assume is the floor. I am blindfolded, I think. I am sure they have removed all of my clothes, because I can feel a chill over the part of my skin that can still feel.

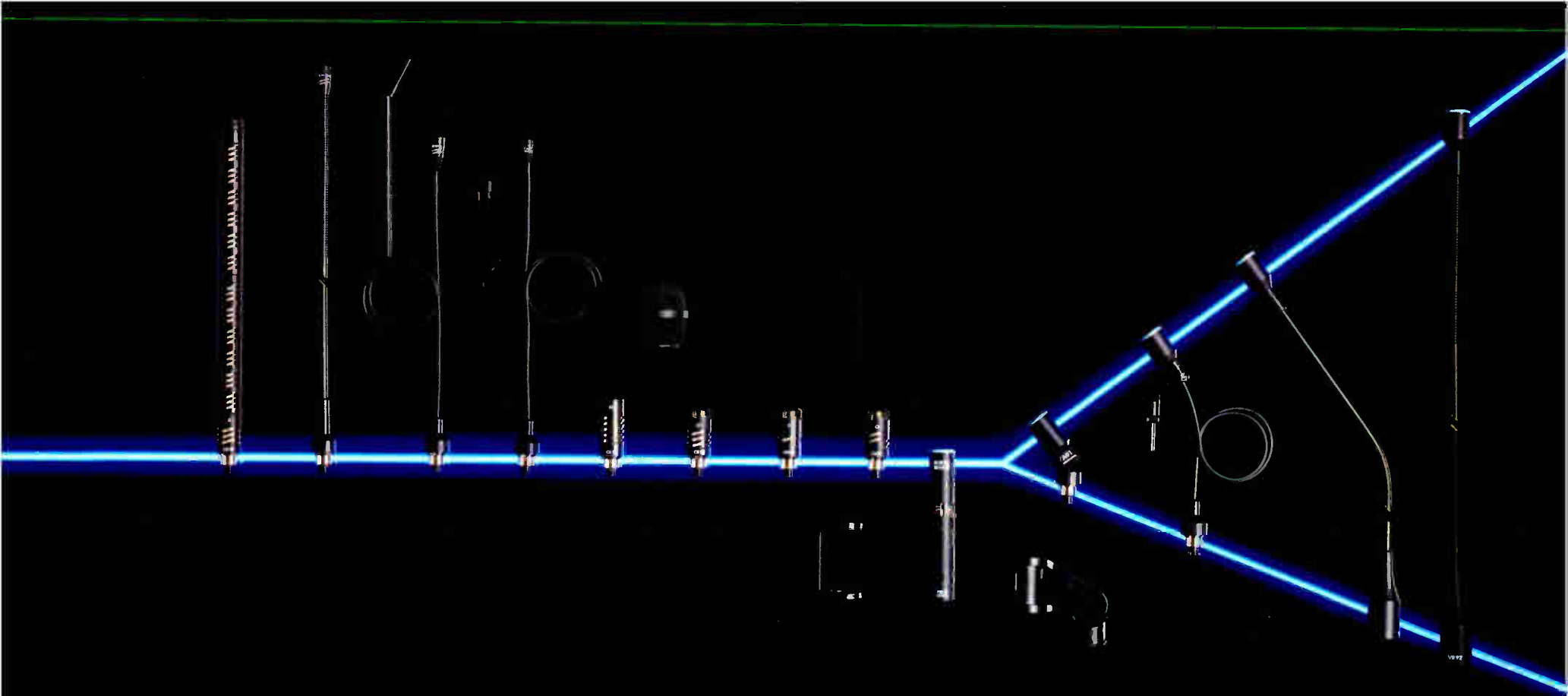
Wait...Someone is touching me—pushing me—I am swinging. I hear muffled sounds, like a loud argument in an apartment down the hall. I feel hot breath on my face. I can smell the hatred. What am I doing here? What do they *want*?

Now lots of noise. It sounds just like that dreamy, ghostly sound you hear when you are in the bathroom of a huge dance hall in England after ten or 15 beers, and the band starts playing while you are still...uh, occupied. You can tell it's music by the way the floor jumps in 4/4, and you can almost make out the song, but nothing over 400 Hz is getting to you.

Aaagh! Blinding light! So it *was* a blindfold. Seven people in the room. A pile of car batteries, a huge spark coil, cables. That must be what I thought I heard. These guys are mad. What the hell have I done?

One of them is in my face again, screaming. He is attaching the clamps. If only I knew what he was saying...If only I could *hear* him better. If only I could hear above 300

ILLUSTRATION: DAVE EMBER



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USE READER SERVICE CARD FOR MORE INFO

World Radio History

Hz. If only I hadn't played lead guitar in that acid band in the '60s, or maybe if I had used a smaller Marshall stack, or maybe even ear protection...

Oh, no! He is walking back to the spark coil. He's reaching for the switch. He is saying something—I can't understand what, but it *looks* like something about "my last chance, he only wants his 20 bucks"...What? Is *that* all? Is that what this is about? Is that really what he said? Well, no problem. I'll just pay...ZZZZZZT!!

Hi, boys and girls. I'm not an actual doctor, I'm just an actor playing Stephen St.Croix on TV. Say, has this ever happened to you? You know, one of those really bad days when you are strung up and tortured, all because of a misunderstanding that could have been avoided if you could only *bear* a little better?

Now, for some of us who have been through this, it might be a bit too late, but for some of you younger ones who are just beginning to walk the path toward auditory suicide, pay attention!

Let me give you a bit of personal

background. I will simply list a few of my favorite (or at least my most repetitive) activities: live rock as victim; live rock as perpetrator; scuba diving (deep, 200 feet plus); high-powered handguns (.44 mag to 44-40 Marlin, indoors); Harleys, weeks at a time nonstop, no mufflers, no helmet; skydiving, no helmet; racing—bike, car and drag—alcohol or nitro only, no wussy gasoline; high diving (there is this dive platform in Morocco that is supposed to be the highest in the world).

Does any of this sound like it might be bad for your ears? Okay, think of it this way: Does any of this seem like it's *good* for your ears?

Here's the point. The ear is a membrane, mechanical gain adjuster and a curled-up tapered tube full of little hairs of different lengths that resonate sympathetically when excited. These little tuning fork hairs are hooked to electrical generator cells, so when they are resonating, a voltage is developed and sent on for processing.

When a 1kHz sine wave is presented to your outer ear, all of the mechanical collection, adjusting and routing stuff takes place, and finally

the ear hair tuned to 1 kHz goes into sympathetic oscillation, and its generator outputs a voltage that has an amplitude relating to how hard the hair is dancing. This particular cell has a data address tagged by the CPU as "1 kHz."

So your brain gets a signal, sees that it is coming from the 1k address, sees that it is X amplitude, and your mouth says "Okay, I hear the stupid 1k test signal! Now turn it down, or I'll never let you near the alignment oscillator again!" Hopefully, all this happens before the poor little hair breaks like a harmonica reed or the generator cell fries.

Has your ear ever begun to ring? You know, you are sitting around, and all of a sudden there is a 100dB, 6.8k tone in your left ear for 40 seconds. This is usually one of those assemblies dying. My ear doctor says you only get three sets of tuned assemblies for each of the frequencies that you can actually hear. My old ear doctor said you only get one per frequency. Neither one ever told me how we hear frequencies that fall *between* the frequencies that these hairs are tuned to.

HEY! THIS EQ'S SMART.



I thought our eighteen hours of work had gone right down the drain. What sounded OK at 2AM just wasn't making it the next morning, and now my client was on a plane. To Japan. For three weeks.

So I hooked up my new Dolby Spectral Processor. It didn't take long to get the vocals popping back out of the mix, the horns punching, the bass cutting through. It even added the final sparkle to the master that made the recording.

It saved the session.

YOU'VE GOT TO HEAR IT.

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Have you ever played live for three hours or sat tenth-row center and then noticed that you felt like you had cotton in your ears afterward, but you *didn't* have cotton in your ears? Oh. *Come on!* Don't waste your time trying to lie to me. Presidents don't inhale, either.

Can you hear a kitten purr from 20 feet away in a quiet room? Guess what. You could when you were ten.

Here's a nice one. Why are Americans all partially deaf in their left ears? Give up? Come on, now. Stop

and think. Here is another clue. Why are all British people partially deaf in their *right* ears?

One day, I drove for about three hours with my window open, and I realized when I stopped that my left ear was down a few dBs. A few weeks later, I held a little Ivie portable SPL/spectrum analyzer near my left ear in that car at 60 mph. Twenty Hertz at 111 dB! Think about this! Further research showed 9 Hz to 13 Hz at 118 dB! Nice. Sun roofs are even worse; your car becomes a giant 81Hz to 10Hz police whistle, and you are the little ball that gets

thrashed inside.

The answer? Get a horse. If you can't, at least open the passenger window a few inches to lower the Q and detune the car's cabin resonance.

For you kids: Don't do the stuff we did. Wear invisible ear monitors when you play live, don't scuba dive under the sport limit of 60 feet, don't try to shoot 9mm or smaller (and use a nice Kevlar silencer if you can find one), and don't dive off of anything taller than you are.

For you guys who have *done* this stuff already (come on, we all know who you are; a lot of you were with me when you did it)...There is hope.

If you sit down once a month and practice, that is. Listen to material you know well, on gear that is freshly calibrated for absolute symmetry and response in a room that you trust. When you feel an image shift in an environment that you absolutely know to be correct, the shift must be you. Learn whether it is frequency- or transient-dependent. If it is (and it usually is), learn *how and where*. Learn how much to compensate by listening and watching meters, by working with 2-channel mono feeds. Just several hours a month can keep you on top of it so that even your closest friends can't tell that you are deaf as a rock (or is it deaf from too much rock?).

All joking aside, I know a guy who would kill me if he knew I was writing this about him, but he has a severely perforated eardrum from a high dive off that Moroccan diving platform more than 20 years ago. This has left him with a general attenuation and an impressively uneven response curve in his left ear, which he has learned to compensate for with the technique that I just revealed.

It works. His mixes are balanced, have a delicate, full image spread, and high-frequency nuances are one of his favorite specialty areas. He has produced and engineered more than enough Gold and Platinum to prove his accuracy behind a console; but you had better speak into his right ear if you want him to answer you.

You hear his work every year. If he can do it, so can you. ■

Stephen St.Croix is designing a new 1,30dB servo-subwoofer system using specially modified 103 c.i. Harley Davidson Evo engines. It was during a break from this that he wrote this column.

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Get Every Bit Into Your Audio

New Apex Dominator™ II Precision Multiband Peak Limiter

When audio is converted to digital, it had better be hot or you're going to lose resolution (1 bit for every 6dB). Too hot and you will crash! Which is why you need the new Apex Dominator II Precision Multiband Peak Limiter *before* your A-to-D conversion.

The Dominator has become the standard peak limiter because of its superb audio quality and *absolute brick wall limiting*. It lets you run hotter with absolutely no overshoot. And now, it offers a dynamic range of 104dB, five times better than digital!

The Dominator limits the audio in three bands and recombines it in a

patented intelligent circuit. This means that signals in one band won't affect another band, eliminating spectral gain intermodulation, dulling and hole punching. The result is hotter audio with transient feel and absolutely no overshoot!

There's a Dominator designed to maximize your recording or transfer medium ... analog or digital ... tape, vinyl, disc, sampler, hard disk or film ... broadcast, land line, microwave or satellite link. Contact your Apex dealer for a demonstration of the world's finest peak limiter, the Apex Dominator II, today.



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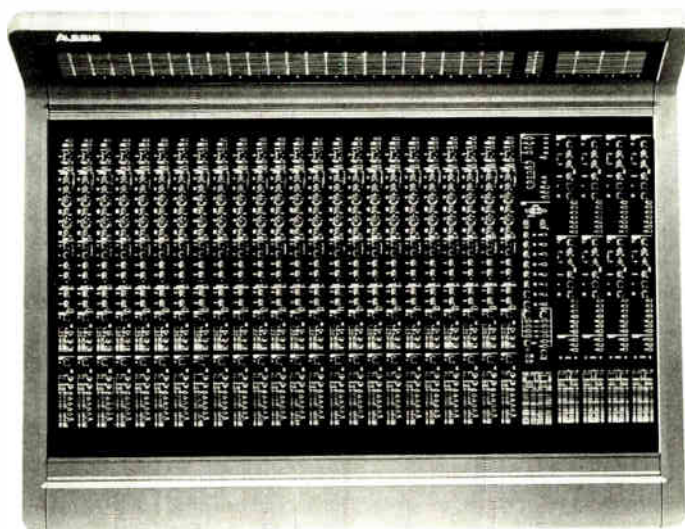
8-BUS

CONSOLES

FOR THE PROJECT STUDIO

BY
GEORGE
PETERSEN

Over the past several years, the project studio—a private, yet professional-quality facility devoted to the owner's personal projects—has evolved from a luxury available only to big-time, major-label artists to an affordable working tool for the recording proletariat. While audio specs and the number of features packed into today's consoles continue to climb, prices seem to have leveled off, making this a



Alesis X-2



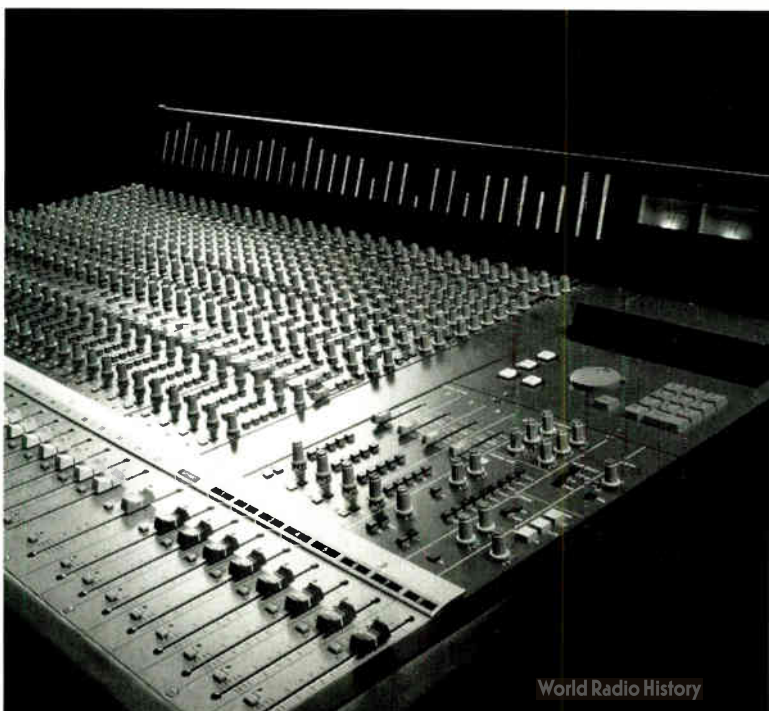
number of reasons. First, such consoles will fit into the budgets of *most* project studios, and *Mix* has previously covered consoles in the mid-(\$100,000) and high-end (\$250,000 and up) ranges. Second, there is a decent selection of quality, pro-level boards in this price range.

We also limited the scope of this article to 8-bus consoles, because they are well-suited to typical 8-, 16- and 24-track production. For some reason, many peo-

good time to look into upgrades and new equipment purchases.

Unfortunately, this situation does not make the difficult decision of which console to buy any easier. There are dozens of models available from a variety of manufacturers, and with the sheer size and bulk of most consoles, the possibility of performing even the simplest of A/B tests between models may be difficult, if not impossible.

The first step in the process is to determine your needs. For the purposes of this article, we will focus on 8-bus models priced under \$25,000. This arbitrary price point was selected for a



ple have the mistaken notion that there is some correlation between the number of buses and the number of recording tracks.

Although access to additional buses can simplify certain tracking and mixing operations, there are few real-world limitations with a well-designed 8-bus board, especially when combined with direct channel outputs and a flexible patch bay.

I can't recall how many times I've sat in on tracking sessions where a lazy (or unknowing) recording engineer ran every channel going to tape through the buses—including mono feeds

Photos from top: Mackie 24-8, Soundcraft DC 2000, Tascam M-3700

EIGHT-BUS RECORDING CONSOLES UNDER \$25,000

MFG/MODEL	TELEPHONE	CONFIG.	STYLE	EQ BANDS, TYPE	SNDS/RTNS	METERS	SIZE	PRICE	NOTES*
Alesis X-2	310/558-4530	IL—24x8x24	Fixed	4-band/parametric mids	6M/8S	34 LED	48x36	5,995	M
Allen & Heath GS3	801-566-8800	IL—16x8x16	Fixed	3-band/sweep LF, MF	6M/4S	10 LED	31x29	4,995	O M 8 L
Allen & Heath GS3	801-566-8800	IL—24x8x24	Fixed	3-band/sweep LF, MF	6M/4S	10 LED	42x29	6,495	O M 8 L
Allen & Heath GS3V	801-566-8800	IL—24x8x24	Fixed	3-band/sweep LF, MF	6M/4S	10 LED	42x29	8,495	O M 8 L FS
Amek/TAC Scorpion	818-508-9788	Sp—32x8x16	Mod.	4-band/sweepable mids	8M/4M	27 LEO	55x33	18,277	O St O L
Amek/TAC Scorpion	818-508-9788	Sp—40x8x16	Mod.	4-band/sweepable mids	8M/4M	27 LED	88x33	22,120	D St O
Carvin MX-2488	619-747-1710	Sp—24x8x8	Fixed	3-band sweepable	4M/2M	8 VU	46x29	2,999	
D&R Orion 30	409-588-3411	IL—24x8x24	Mod.	4-band sweepable	8M/12S	32 LED	51x37	17,631	S O FA L
D&R Orion 38	409-588-3411	IL—32x8x32	Mod.	4-band sweepable	8M/12S	40 LED	62x37	21,135	P S O FA
DDA Forum Composer	616-695-6831	Sp—24x8x24	Mod.	4-band/sweepable mids	6M/—	26 LED	48x32	15,615	S St O FA L 8
DDA Forum Composer	616-695-6831	Sp—32x8x24	Mod.	4-band/sweepable mids	6M/—	26 LED	58x32	18,095	S St O FA L 8
DDA Forum Composer	616-695-6831	Sp—40x8x24	Mod.	4-band/sweepable mids	6M/—	26 LED	68x32	20,519	S St O FA L 8
DDA Forum Composer	616-695-6831	Sp—48x8x24	Mod.	4-band/sweepable mids	6M/—	26 LED	78x32	23,950	S St O FA 8
Fostex 812	310-921-1112	IL—12x8x12	Fixed	3-band/sweep LF, MF	2M+1S/3S	10 LED	26x21	1,995	MO L
Fostex 820	310-921-1112	IL—20x8x20	Fixed	3-band/sweep LF, MF	2M+1S/3S	10 LED	37x21	2,995	MO
Mackie 24+8	206-487-4333	IL—24x8x24	Fixed	4-bd./para HM/sweepLM	6M/6S	10 LED	37x29	3,995	MB S FA L 8
Mackie 32+8	206-487-4333	IL—32x8x32	Fixed	4-bd./para HM/sweepLM	6M/6S	10 LED	46x29	4,995	MB S FA 8
Peavey Prodn. Series 800	601-483-5365	Sp—24x8x16	Mod.	4-band sweepable	8M/8M	34 LED	56x41	10,500	L O MO FA
Peavey Prodn. Series 800	601-483-5365	Sp—32x8x16	Mod.	4-band sweepable	8M/8M	42 LED	78x41	12,500	O MO FA
Soundcraft Spirit Studio	818-893-8411	IL—16x8x16	Fixed	4-band/sweepable mids	6M/4M	10 LED	35x30	3,995	O MO L 8
Soundcraft Spirit Studio	818-893-8411	IL—24x8x24	Fixed	4-band/sweepable mids	6M/4M	10 LED	46x30	5,950	O MO L 8
Soundcraft Spirit Studio	818-893-8411	IL—32x8x32	Fixed	4-band/sweepable mids	6M/4M	10 LED	57x30	7,750	O MO
Soundcraft Delta-8	818-893-8411	Sp—20x8x16	Mod.	4-band/sweepable mids	6M/—	10 LED	41x29	10,870	D St O FA
Soundcraft Delta-8	818-893-8411	Sp—28x8x16	Mod.	4-band/sweepable mids	6M/—	10 LED	51x29	14,020	D St O FA
Soundcraft Delta-8	818-893-8411	Sp—36x8x16	Mod.	4-band/sweepable mids	6M/—	10 LED	63x29	17,090	O St O FA
Soundcraft DC 2000	818-893-8411	IL—24x8x24	Mod.	4-band/sweepable mids	6M/4S	34 LED	n/a	24,950	L O MF TS
Soundtracs Solo MIDI	516-932-3810	IL—16x8x16	Fixed	4-band/sweepable mids	6M/4S	10 LED	30x28	4,799	L O M
Soundtracs Solo MIDI	516-932-3810	IL—24x8x24	Fixed	4-band/sweepable mids	6M/4S	10 LED	40x28	5,999	L O M
Soundtracs Solo MIDI	516-932-3810	IL—32x8x32	Fixed	4-band/sweepable mids	6M/4S	10 LED	49x28	8,699	O M
Soundtracs Solo Logic	516-932-3810	IL—24x8x24	Fixed	4-band/sweepable mids	6M/4S	28 LED	40x28	12,499	L O M FS
Soundtracs Solo Logic	516-932-3810	IL—32x8x32	Fixed	4-band/sweepable mids	6M/4S	34 LED	49x28	14,999	O M FS
Sound Tech Panoramic-S	708-913-5511	IL—24x8x24	Fixed	3-band/sweepable mids	5M/5M	10 LEO	38x18	4,499	L
Sound Tech Panoramic-S	708-913-5511	IL—32x8x32	Fixed	3-band/sweepable mids	5M/5M	10 LED	44x18	4,699	L
Sound Tech Panoramic-T	708-913-5511	IL—16x8x16	Fixed	3-band/sweepable mids	5M/5M	10 LED	32x22	3,999	L
Sound Tech Panoramic-T	708-913-5511	IL—24x8x24	Fixed	3-band/sweepable mids	5M/5M	10 LED	38x22	5,499	L
Sound Tech Panoramic-T	708-913-5511	IL—32x8x32	Fixed	3-band/sweepable mids	5M/5M	10 LED	44x22	7,499	L
Studiomaster P7	714-524-2227	IL—16x8x16	Fixed	4-band/sweepable mids	6M/4S	11 LEO	32x30	4,195	L O M 8
Studiomaster P7	714-524-2227	IL—24x8x24	Fixed	4-band/sweepable mids	6M/4S	11 LEO	43x30	5,820	L O M 8
Studiomaster P7	714-524-2227	IL—32x8x32	Fixed	4-band/sweepable mids	6M/4S	11 LED	53x30	7,445	L O M 8
Studiomaster P7	714-524-2227	IL—40x8x40	Fixed	4-band/sweepable mids	6M/4S	11 LED	64x30	9,070	O M 8
Tascam M-3500	213-726-0303	IL—24x8x24	Mod.	4-band/sweepable mids	6M/4M	8 LED/2 VU	44x38	8,499	L S St O MB
Tascam M-3500	213-726-0303	IL—32x8x32	Mod.	4-band/sweepable mids	6M/4M	8 LED/2 VU	54x38	9,499	S St O MB
Tascam M-3700	213-726-0303	IL—24x8x24	Mod.	4-band/sweepable mids	6M/4M	8 LEO/2 VU	44x38	13,999	L S O MB FS M
Tascam M-3700	213-726-0303	IL—32x8x32	Mod.	4-band/sweepable mids	6M/4M	8 LED/2 VU	54x38	15,999	S O MB FS M

The "Configuration" section indicates whether a console has in-line (IL) or split (Sp) tape monitor sections, followed by the number of channel inputs x subgroups x tape returns; the "Style" column indicates whether the console has a fixed top-plate or modular channel sections; "Size" refers to the board's width and depth, to the nearest inch; and "Price" is retail in U.S. dollars.

* Key to "Notes" section above:

L = Larger version available; S = Stand optional; P = Patch bay optional; O = Deluxe modules available; St = Stereo modules available; O = Oscillator standard; M = MIDI muting standard; MO = MIDI muting optional; FA = Fader automation optional; FS = Fader Automation standard; MF = Moving Fader automation standard; TS = Touch Screen controller; MB = Meter Bridge optional; 8 = 8-Channel expander optional.

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The new Logic 3.



It's always nice to pick up awards. It's even more rewarding to pick up a digital mixer from the same stable as the Logic 1 and 2 for around the price of an AudioFile.

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Ultimately, by putting more power, speed and versatility at your disposal, the Logic 3 gives you more time to do what you'd rather be doing – being creative.



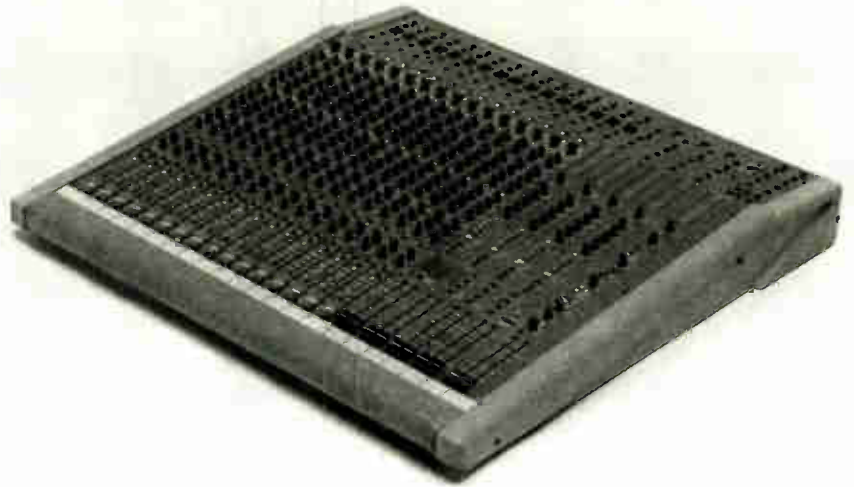
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There are few
real-world
limitations with a
well-designed
8-bus board.



Studiomaster P7

such as bass guitar, kick drum and lead vocal—thus subjecting the signal to a longer signal path, more amps and more noise. I like the “less circuitry equals less noise” approach; it’s always worked for me.

By the way, there’s nothing wrong with a 4-bus board, either. I’ve cut some really fine albums on 2-bus and 4-bus boards, but this ar-

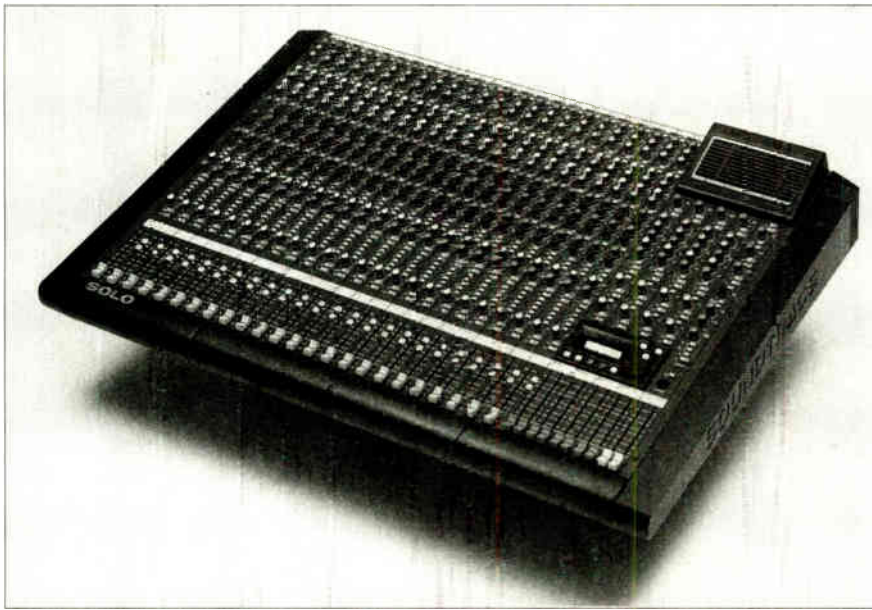
ticle is about 8-bus boards. And most of the manufacturers listed here also make less-expensive, 4-bus versions of their 8-bus boards; these are worth checking out if you’re on a tight budget.

One of the first decisions you’ll face is whether to buy a modular or one-piece mixer, which is dictated solely by price. The additional flexi-

bility of a modular design—with its interchangeable input, output, channel and effects return modules—is accompanied by an equally significant increase in price, as compared to a similarly equipped, nonmodular board. However, modularity allows buyers to custom-configure mixers to fit particular needs. For example, if your application requires a lot of

HOW TO GET FROM HERE...





Soundtracs Solo Logic

Effects return modules pack a lot of line-level inputs in a small amount of space, which is just the ticket for most project studios.

stereo sources, then stereo modules may fit the bill, in less space and at a lower cost than two mono modules. And many console manufacturers have recently begun offering "standard" and "deluxe" modules, the latter usually providing amenities such as improved EQ, phase reverse

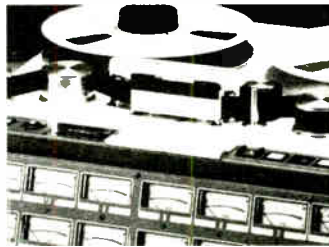
switching or more sends than the standard version.

Typically available with two, four or eight inputs and limited in terms of equalization, sends and solo/mute capabilities, effects return modules pack a lot of line-level inputs in a small amount of space, which is just

the ticket for most project studios.

You might want to order a frame that's larger than your present needs dictate (referred to as shortloading), which is another advantage of modular consoles. Shortloading not only allows for future expansion but also reduces a console's original pur-

...TO HERE



QMR is a new, competitively-priced and highly professional mixing console from DDA. Its flexibility and outstandingly clean signal path ensures that, no matter what your signal source or your recording format, you can be sure of an accurate recording.

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VISUALIZE: A professional console that can grow with your needs. Compromise in quality or features is never considered.

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- ▶ Up to 88 equalised inputs and 40 track capability in its fully expanded 40 channel format.
- ▶ Full MIDI mute automation for channels, tape monitors and 4 of its 6 auxiliaries with 99 onboard recallable mute scenes, 4 independent mute busses and solo in place w/solo safe.
- ▶ A console where affordability is a direct result of an impressive 18 year reputation of quality engineering, innovation and design expertise along with a manufacturing know-how that is second to none in the world.



▶ Channel Features Include:

- 4 Band EQ with dual mid sweeps-high and low EQ assignable to the monitor path
- EQ defeat
- Input swap switching
- Direct/group output switching
- Inserts
- Individual 48v phantom power
- 20db pad switch
- 6 aux sends
- PFL on channels
- AFL on monitors, 100 mm faders and more
- Each channel provides 2 equalised inputs
- The P7's operating levels are switchable from -10dBV to +4dBm



▶ Sub-group and MIDI command center includes the solo in place/solo safe switching controls along with the 4 mute buss assignments and security system.

▶ Each of the P7's 8 sub-groups are normalised to the direct tape outputs allowing for the permanent connection of tape lines. Changing the direct tape out status to a group out is as simple as flipping a switch. 4 fully assignable stereo aux returns with high and low equalisation provide for effects returns and/or additional instrument inputs. Group Inserts allow for the connection of additional effects processors.

▶ Is it any wonder that STU DiOMASTER mixing consoles have been the choice of major artists such as Phil Collins, Mike Rutherford, Chick Corea and many others... as the centerpiece of their home studios for many years?

▶ Comprehensive Master Section Features:

- Built in talk back microphone
- 3 separate 2 track tape feeds with a 'tape to tape' copying facility
- Dual 2 track returns to the console
- Main and near-field switching at the console

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chase price. And some nonmodular mixers have optional expander sections (usually in 8-channel increments) for increasing console capacity. However, keep an eye on the future availability of modules or expander sections, especially if you hear any rumors about the manufacturer discontinuing the model you bought.

Something as simple as the width of the channel sections can play a major role in determining console ergonomics. The knobs, switches and faders in a board with wide channel strips may be easier to find and access during a hurried session; at the same time, such wider channels can increase the overall size of the board by as much as 50% over more compact designs. Either way you look at it, this is a trade-off in size vs. ergonomics, and your own work habits may dictate which is the more appropriate. As a means of saving space, some consoles also employ concentric controls—usually in EQ sections and/or aux sends; again, these represent another trade-off to be considered in the size vs. function debate.

Along with the need for Inputs! Inputs! Inputs!, consoles now also require Sends! Sends! Sends!, and the once-standard complement of two or three effects sends is considered passé by modern production standards. Today, six, eight or more aux sends are pretty much the norm. Here are a few things to watch—or watch out—for:

- ◆ The presence (or absence) of concentric controls, especially when you need access to the lower control in a concentric knob pair.
- ◆ Switches for changing the auxiliaries from pre- to post-fader operation. This feature adds flexibility when you mix, when pre-fader sends are of little value.
- ◆ Pre/post-EQ switching on aux sends. Some input modules include internal switches or jumpers that allow the user to configure the sends to be routed before or after the EQ section.
- ◆ Switched pairs of aux sends. Some consoles cut costs (and/or space requirements) by installing a switch that routes a pair of aux controls to a specific numbered pair of aux buses. For example, a console with six aux buses might have only four aux-send knobs, with a switch that converts the 3-4 aux sends to become a 5-6



The Allen & Heath GS3 is available in mute- and fader-automation versions.



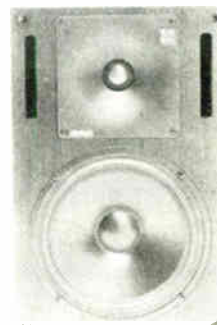
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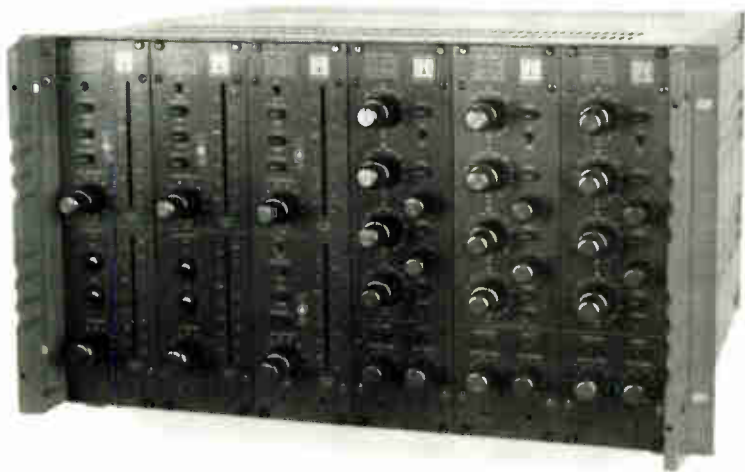
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aux pair. The board may truly have six aux sends as claimed; however, only four may be active on any channel input at one time.

In terms of design philosophies, recording consoles fall into two basic categories: those having "split" or "in-line" monitoring sections. The split approach incorporates a separate tape monitor section, usually lo-

In terms of
 design
 philosophies,
 recording consoles
 fall into two basic
 categories: those
 having "split"
 or "in-line"
 monitoring
 sections.

cated on the opposite side of the master section from the inputs. Developed in the early 1970s by MCI, the in-line console places all input, tape monitor and output controls for one audio channel within a single console module. By their nature, in-line consoles have dual inputs within a single module, thus doubling the number of available inputs during the mix phase, and many in-line designs also provide switching that allows part or all of the main EQ to be assigned to either of the module's



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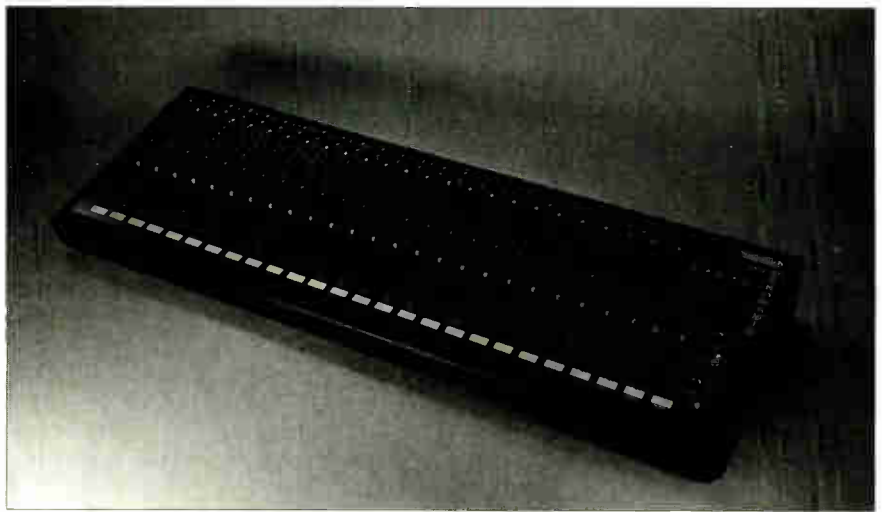
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The SoundTech Panoramic has rotary faders for bus levels.

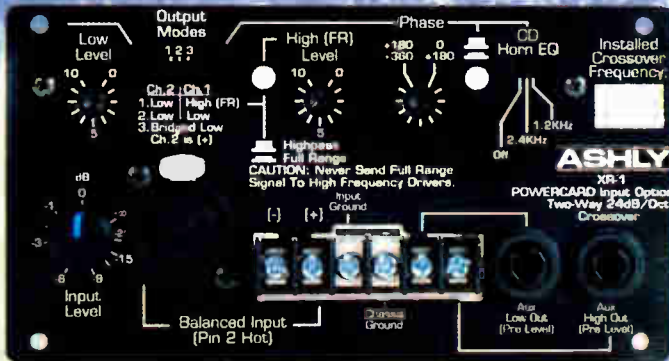
signal paths. The signal paths in most split consoles are easier to follow, and the tape monitor section can also double as extra inputs during mixdown.

Regarding inputs, the in-line board usually gets the edge: For example, a typical 32-input by 24-monitor split console provides 56 (32 + 24) inputs on remix; a 32-channel in-line board would provide 64 (32 + 32) inputs on remix. Both styles of consoles have their fans and detractors in the recording community: what works



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best for you is largely a personal preference.

Few topics in audio—other than the perennial tube vs. transistor and analog vs. digital wars—create as much flap as the sound and design of equalizers. But a few things are clear: Switches that take the EQ out of the signal path are essential, and true parametric equalizers (those having continuous control of gain, frequency and bandwidth) are virtually unknown in consoles in the under-\$25,000 price range. More commonly encountered are equalizers with low- and high-frequency shelving characteristics, combined with sweepable (continuously variable control of frequency) midrange sections. Such equalizers are fine for most purposes: The shelving LF/HF sections are generally quite smooth and impart less phase distortion than sweepable types, and I rarely use much console equalization anyway, usually deferring such processing to a couple of outboard filter sets for surgical correction and to some tube gear for that warm, fuzzy sound.

If you're really hung up about EQ, then go out and get some nice external units to supplement the console. If your mixes require having all 24 or 32 console EQs active, then you're probably doing something wrong somewhere along the way. Equalization is to engineering what spices are to cooking: A little goes a long way.

Patch bays offer more food for thought in the console decision-making process. These can be either right- or left-side mounted and integrated into the console or located elsewhere. Once the norm, console patch bays with 1/4-inch TRS jacks now compete with units fitted with



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Unhappy with compromise, we set out to create a new-breed automation package for Logic. Incorporating 12-bit VCA automation (4,096 increments on each fader) along with superior Mute processing speed (1/120th of a second), it matches the responsiveness of top studio automation systems.

Logic Automation follows anything you do in real time. You can make smooth, accurate fades without the "zipper step-noise" found in lesser systems. And, because of the system's phenomenal muting speed, you can actually use the mutes to get gating effects.

Requiring no external computer or sequencer, this on-board system provides Record, Play, Trim and Isolate modes, each controlled from the individual channel.



Audio Quality That Exceeds Digital Specifications

Reflecting the same dedication to excellence as Logic's Automation, the audio section features our superb-sounding EQ (4-Band with swept mids), splittable between Inputs and Monitors.

Features That Meet Your Needs In Any Application

All Logics come equipped with a full meter bridge featuring a high-resolution LED meter for each channel. MIDI Machine Control which interfaces with, and controls, today's most popular analog and digital formats.

Not to mention switchable Direct Outs; 2 MIDI ports plus serial interface and nulling indicators on each channel.

For greater flexibility, Logic is available in either 24 or 32 channel versions, creating up to 80 inputs on mixdown with Mute automation. It also comes with an outboard 19-inch rackmount power supply.

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THE NINTH ANNUAL TEC AWARDS

Digidesign and Bernie Grundman were double winners at the Ninth Annual Technical Excellence & Creativity Awards, held October 8 at the Marriott Marquis in New York City. But the highlight of the evening proved to be a rare duet by recording legend Les Paul and Lovin' Spoonful artist John Sebastian.

Nearly 700 audio professionals attended the TEC Awards ceremony. Money raised from the event is donated to the House Ear Institute in Los Angeles, Hearing Education Awareness for Rockers in

San Francisco and scholarship funds for students in the study of recording and communications arts and sciences. Also benefiting are other nonprofit organizations involved in audio education, including the Audio Engineering Society Educational Foundation and the Society of Professional Audio Recording Services.

Mix editor-at-large Mr. Bonzai served as emcee for the awards ceremony; presenters included Tony Bongiovi, Brian Masterson, Hank Neuberger, Les Paul, George Petersen, Bernard Purdie, Al Schmitt, Howard Schwartz, John Sebastian, Creed Taylor and Max Weinberg.

For a complete wrap-up of the evening's events, see next month's issue of *Mix*.

Winners

O U T S T A N D I N G

INSTITUTIONAL ACHIEVEMENT

Acoustics/Facility Design Company
Walters-Storyk Design Group (Highland, N.Y.)

Sound Reinforcement Company
Showco Inc. (Dallas, Texas)

Mastering Facility
Bernie Grundman Mastering (Hollywood, Calif.)

Audio Post-Production Facility
Skywalker Sound North (San Rafael, Calif.)

Remote Recording Facility
Westwood One Mobile Recording Division
(Culver City, Calif.)

Recording Studio
Ocean Way Recording (Hollywood, Calif.)

HALL OF FAME AWARD

Rudy Van Gelder

CREATIVE ACHIEVEMENT

Audio Post-Production Engineer
Bruce Botnick

Remote/Broadcast Recording Engineer
David Hewitt

Sound Reinforcement Engineer
Robert Scovill

Mastering Engineer
Bernie Grundman

Record Producer
Don Was

Recording Engineer
Hugh Padgham

LES PAUL AWARD

Peter Gabriel

TECHNICAL ACHIEVEMENT

Ancillary Equipment Technology
Lexicon 20/20 AD Analog-to-Digital Converter

Computer Software/Peripherals
Digidesign DINR Intelligent
Noise Reduction Software

Microphone Technology
Sony C-800/C-800G Tube Microphones

Sound Reinforcement Loudspeaker Technology
JBL Array Series Model 4894

Studio Monitor Technology
Genelec 1038A

Musical Instrument Technology
Kurzweil K2000RS Sampler

Signal Processing Technology
t.c. electronic M5000 Audio Mainframe

Recording Devices/Storage Technology
Digidesign Session-8 XL Workstation

Sound Reinforcement Console Technology
Yamaha PM4000

Recording Console Technology
Neve Capricorn

Serious Automation

CS2000

Digital Control Studio System

The new CS2000 digital control studio system from Euphonix leads the industry in computer aided mix management. With the powerful Version 2.0 software the CS2000 incorporates features that take it beyond any other system on the market.

Screen based interactive graphics supplement the controls and indication on the console surface. Intuitive displays provide the engineer with instant feedback on session and mix status.

The system includes SnapShot Recall™, for instantly resetting everything on the console, and an updated Total Automation™ mixing package.

Total Automation has many new and innovative features. Play back a mix and all console settings are instantly recalled together with the dynamic automation. Over 99 levels of undo are instantly available to the engineer in the form of mix passes.

The new template software allows the engineer to pre-set the level of automation for every control on the console. Those familiar with conventional systems can simply start by automating lower faders and mutes, moving on to upper fader, pan, aux send, and input gain automation when the session demands it.

For total control and creative flexibility, no other system competes with the CS2000.

The Euphonix logo features a stylized blue graphic of three horizontal bars on the left, followed by the word "Euphonix" in a bold, white, sans-serif font.

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World Radio History

by Mr. Bonzai

JACKSON BROWNE

THE SONGS COME ALIVE



It's been too long since we heard from Jackson Browne. Brace yourself—from the very start, his new album kicks with a snare that cracks the whip, guitars that soar in precision formation and a confident voice that is simply the artist telling his story. These are songs that grab us by the thought and touch us with the emotions of being alive in troubled times. And it's a trip for young and old to see how a person ages gracefully in these graceless times.

Raised in Southern California, Browne moved to New York briefly in 1967 and was quickly recognized for his distinctive songwriting. Some of the folks who recorded his early work were Nico (of Velvet Underground fame), Johnny Rivers, the Nitty Gritty Dirt Band and Tom Rush. His own first album came out in 1971 and was an immediate popular and critical success, propelled by the song "Doctor My Eyes." He contributed his talents to a new band,

The Eagles, co-writing their first hit (with Glenn Frey), the country-rock anthem "Take It Easy." Browne's own version of the song appeared on his 1973 album *For Everyman*. The 1974 LP *Late for the Sky* further enhanced his reputation for writing articulate and passionate lyrics, and by 1976's *The Pretender*, Browne had cracked the Top Five in *Billboard*. *Running on Empty*, his brilliant concept album about life on the road (recorded in various situations on the road—on-stage, in tour buses, hotel rooms, etc.) hit Number Three in 1978, and the follow-up, 1980's *Hold Out*, made it all the way to Number One. If his albums since then have not quite reached such heights in terms of sales, they have been no less provocative: *Lawyers in Love* (1983), *Lives in the Balance* (1986) and *World in Motion* each displayed a deft mixture of songs dealing with love and politics. Few artists have been as vocal on issues ranging from nuclear power to U.S. military involvement in Central America; Browne has performed at countless benefits for numerous big and small causes.

Our first glimpse of Browne in the '90s is his latest milestone, *I'm Alive*. Tracked by Paul Dieter and mixed by Ed Cherney, the album is a typically honest, heart-felt portrait of the artist today. This time around, politics takes a back seat as Browne explores uncharted realms of his heart and soul once again. Join us now for some spicy chat and excellent burritos at Gallego's, a little cantina just around the corner from his Groove Masters recording studio near L.A. Browne is just returning from the kitchen, where he snagged some of the private-reserve salsa with roasted peppers and lots of garlic.

Bonzai: So, you're ecstatic; you're pleased with the new album?

Browne: Yeah, it's kind of...well,



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"How?"

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The problem: *Jitter*. What goes in one end can be very different from what comes out the other. As your music moves digitally through an AES/EBU cable, powerful forces are at work pulling apart your hard-won, clean, accurately-spaced digital bits. Inaccurate impedance matching, cable capacitance and insufficient bandwidth can all induce timing jitter.

Most digital audio monitoring equipment is much more sensitive to this blurred timing than you realize. Jitter can compromise the stereo image and degrade tonality.

The solution: Apogee **WYDE EYE** cable. Designed from the ground up specifically for digital audio. With tightly-controlled parameters optimized for digital – and better analog, too. Carefully-controlled impedance. Low capacitance.

Wyde Eye cable was designed by Apogee and is produced exclusively by one of America's foremost cable manufacturers: it's not available elsewhere. And

WYDE EYE

Wyde Eye is made from the highest quality raw materials, to the highest possible specification. There's a special braid with unique gauge and weave, enclosing an exclusive golden shield foil. The distinctive outer insulating jacket remains supple over a wide range of temperatures. In the A-110 (AES/EBU) version, conductors are color-coded and striped to indicate pins 2 and 3, so there's no risk of incorrect wiring.

If you were told that mic or computer cables were fine for digital audio, you were told wrong. You could be audibly degrading the quality you're working so hard to create.

Open your eyes to **Wyde Eye**, from Apogee. Your ears will appreciate the difference.



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used to spending a little more time exploring the possibilities of a song. For me, the demo is a tool to use, to finish the lyrics, to decide whether or not it really needs a last verse or a breakdown, or a bridge instead of a verse. These are the most important questions to me always—the most simple and fundamental things.

Bonzai: Which songs did you work on with Don?

Browne: “Too Many Angels” and “My Problem Is You.” There was a third track we cut, which I didn’t feel we got. I ended up cutting it two more times. I would have been happy to do the whole record with Don, because he’s a great presence in the studio. He’s got great instincts, and the standard that he brings is something that he puts on the record immediately. I can’t say that we agreed about everything we heard or wanted to try, but the process I am familiar with is a long one—it’s more writing than anything. You continue to write when you overdub or when you work with someone who’s going to solo on your record.

But what I realized in the middle of working with Don is that I really have an opinion [Laughs]. I thought it would be really great to work with someone who just about everything he does is something I like. Truth is, I really haven’t heard everything he’s done, but he’s done some of my favorite things. What I found out was that I really have a very strong opinion about what I want to hear on my songs. What he brings to the process is something that I probably wouldn’t even think of, like calling certain players. He made some very cool calls. He thought of calling David Lindley [Browne’s main musical cohort in the ‘70s] on “Too Many Angels,” and I don’t know if I would have thought of Lindley. It’s funny because I think of David for very specific things. He also called these great harmony singers that we used on “My Problem Is You”: Arnold McCuller, Sweet Pea Atkinson, Sir Harry Owens and Willie Green Jr. Amazing singers. I loved what they did, and I never would have thought of them. So I think he really brought a lot to those songs.

Bonzai: Had it been a long time since you worked with Lindley?

Browne: I kind of work with him on every album. There may be one or

two that have gone by that he’s not on, but he’s more or less on every album. I mean, I love David’s playing.

Bonzai: Do you think that Lindley had something to do with establishing your “sound” in the early days?

Browne: Absolutely.

Bonzai: I hear those records, and it’s you and him.

Browne: It’s a collaboration. Yeah, that’s undeniable. That’s completely evident when you listen to those records.

Bonzai: Anyone else you want to shine the spotlight on?

Browne: Well, Scott Thurston is a collaborator in terms of the music and even the lyrics sometimes, but he also performs. He sings and plays guitar and keyboards all over this record. So the music is really a collaboration between the two of us. He’s a true collaborator. I have written a lot of songs with other people but never really worked on things over a period of time and taken each other’s ideas the way I do with Scott.

Bonzai: In your early days, were there any outstanding mentors or anyone who strongly influenced you or helped you develop?

Browne: There have been people all along the way that have encouraged me and have been insightful. The most important thing is to hear what you need to know next, not to hear it all. At one point, a friend of mine named Michael Vosse at A&M listened to a demo and told me that I had written the same songs over and over again. He said there were some good songs but a lot of redundancy. It stuck with me, and I can’t say that I succeeded in never writing the same song or on the same subject again; as a matter of fact, the opposite is true. You can look at it as sort of an update on a particular theme in your life. And I think people only have a few themes in their lives. If someone said that my songs sound alike, I would say the same thing is true of Ray Charles or Robert Johnson or... I’m trying to think of somebody I could mention who would be less preposterous for me to stand next to, but you know, the people who really blew my mind, who changed radically and constantly were Bob Dylan, the Beatles, the Stones, Van Morrison, Joni Mitchell—all writers who not only kept plumbing the depths of their experience and their lives, and revealed things

about all of our lives, but who simply changed all the time.

Bonzai: When we were walking over here, you mentioned that you had played the new work for Bob Krasnow, head of the label [Elektra], and he made some rather bold suggestions for sequencing the album.

Browne: Yeah, I like that. I actually really like an apt criticism, and especially with Bob because he is one of the great record men of all time. I thought I’d start sending him songs before they were done, because I wanted him to be engaged and involved in my record in all phases. And it was partly curiosity to find out what he could bring to the project. I’m secure enough that, if someone doesn’t like a song, I don’t need approval. What I want is information.

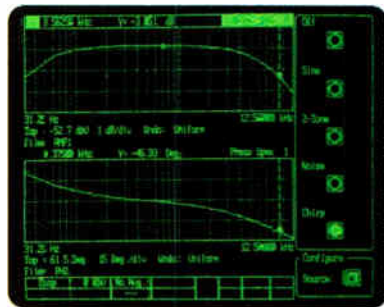
Bonzai: The people you’ve known for a long time—Don Henley, Glenn Frey, Bonnie Raitt—do you feel that you all kind grew up together?

Browne: Oh yeah. There was a great feeling, sort of a sibling vibe. We were all good friends before anybody got to record. Linda Ronstadt had recorded, and Don and Glenn were working with her, and we somehow always ended up in the same restaurants and bars through a certain period of time. We spent time at each other’s houses, playing each other’s songs. Glenn and J.D. Souther and I lived in the same apartment complex in Silverlake.

But you know, you asked me about people who have helped me, and there have been people I have met all along the way. Meeting [Elektra producer] Paul Rothchild was great. He was recording Steve Noonan, who was a friend of mine from Fullerton, where I went to high school, and who started me writing songs. There was a kind of fellowship then, and the word “hippie” was an affectionate term for a young, smart person with a sort of radical viewpoint. People were friendly to me. Paul might tell me, “This Doors song, ‘Moon of Alabama’ [a.k.a. “Whiskey Bar”] is a Bertoldt Brecht song, and you should listen to the whole musical [it’s from], *Mahogany*.” Or my manager, Billy James, would say, “Have you really listened to Otis Redding? Check this.” [Elektra founder] Jac Holzman was an incredible figure for me because, not only did he have The Doors and put out lots of records of interesting songwriters and eclectic artists, he had Nonesuch

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Solid State Logic

Largest Music Console to Ocean Way

100-Channel SL 8000 G Plus
for LA Studio

ALSO INSIDE

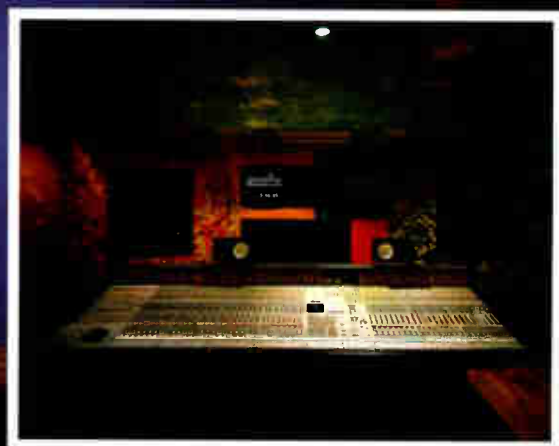
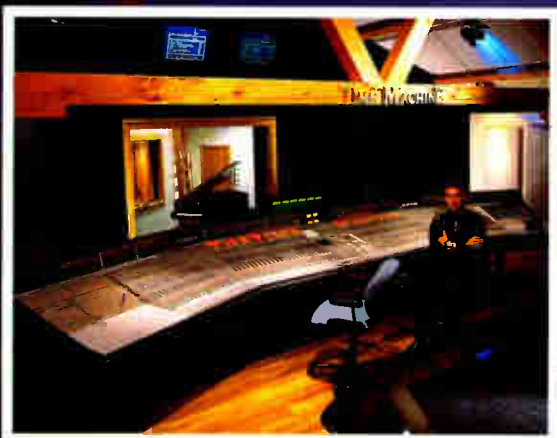
First G Plus in Japan

US Networks Install SL 8000 GB

European Mobile Goes SSL

'Winged' SL 4000 G Plus
for The Time Machine

Strongroom Installs
First G Plus in UK



Solid State Logic

OmniMix – Digital Surround Sound Technology

OmniMix is the world's first fully digital, surround sound capable audio/video production system.

It adds major advances in surround sound technology to the proven advantages of combined digital audio and video production first seen in SSL's Scenaria.

OmniMix additionally provides:

- Mixing to all major surround sound formats.
- Programmable mix matrix.
- Hierarchical submixes.
- Configurable mix busses.
- Simultaneous stem mixes.
- 96 channels of internal mixdown capability.
- Dynamic pan automation of up to 38 sources or submixes.
- 24 channels of digital effects processing.

The objective of the OmniMix system is to take the presentation of digital audio into the multi-format era of creative possibility.



OmniMix adds advances in surround sound technology to Scenaria's proven digital audio/video production capabilities

SSL's patented MotionTracking™ and Spatial Processing™ add audio effects with new dramatic possibilities and impact. MotionTracking is a major advance in surround sound technology. It uses the OmniMix pen and tablet, and colour graphics, to quickly and accurately trace audio within the surround sound field. Unlike any other surround panning system, Motion

Tracking can also be edited and updated. Up to 38 channels of MotionTracking are available simultaneously.

OmniMix features a substantially larger control surface than Scenaria, with additional hardware controls, dedicated metering, and an additional graphics screen. It is also available as a hardware upgrade to existing Scenaria users.

Hollywood's First Entirely Digital Post Facility

Hollywood Digital, a new multi-million dollar, all-digital post-production facility has installed two Scenaria digital audio/video systems and two ScreenSound digital audio editors.

Hollywood Digital provides a variety of client services, including film and tape-based television post-production for commercials, promos, music videos, feature films and corporate productions. The facility offers the latest technologies in video editing, graphics, telecine transfer and duplication, and features two Scenaria digital audio production suites as well as two ScreenSound digital audio editing suites.

All four of the SSL rooms are connected via SoundNet, enabling instant retrieval of recorded information and shared access to all audio work.

Bill Burnsed, President and Chief Executive Officer says: "Opening Hollywood's first entirely digital post-production facility was a long-standing



One of two Scenaria production suites at Hollywood Digital (Inset) Bill Burnsed, CEO

dream for my partners and I. When we saw Scenaria, with its combination of digital audio and video, we loved the concept. It represented exactly what we are trying to do here. It's also proving to be one of the most profitable decisions we made."

Head of Audio Services at Hollywood Digital, Andre Perreault, comments: "Scenaria cuts my mix time down by 40%. The fact that it is a completely integrated system makes file and project management

much easier to handle. Everything is right at my fingertips whenever I need it, and the audio quality is superb - most definitely exceeding that of the CD."

One of the latest projects to come to Hollywood Digital is Fox Broadcasting's popular X-Men cartoon series. This number one rated Saturday morning programme in the United States demonstrates the highest level of quality in animation and effects, and as a result Fox was looking for the state-of-the-art technology and expertise which Hollywood Digital could provide.

At the heart of Hollywood Digital is the machine room, containing the processing power for the ScreenSound and Scenaria suites, and the SoundNet digital audio networking facilities



World's Largest Music Console to Ocean Way

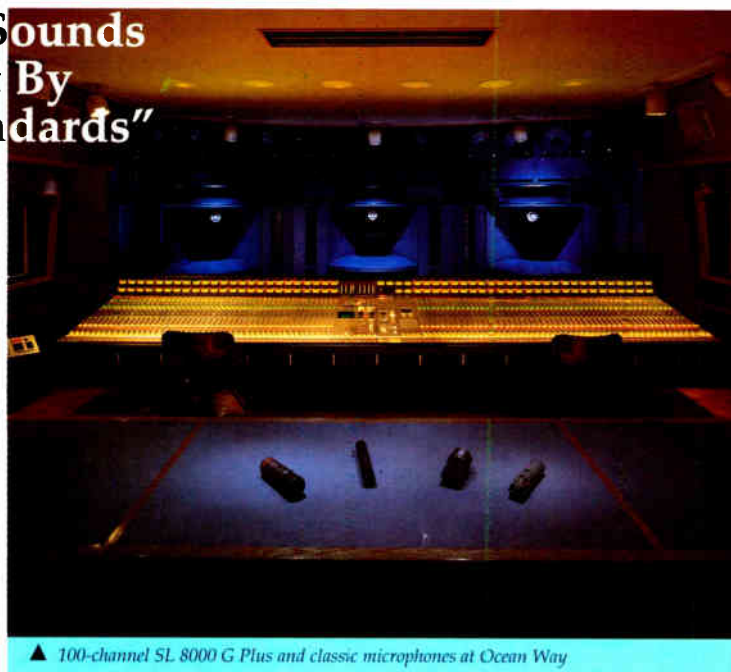
"G Plus Sounds Excellent By Any Standards"

Ocean Way, the renowned Los Angeles music recording facility, has added its first SSL console. The 100-channel SL 8000 G Plus is housed in the company's Sherman Oaks facility, Record One.

"Record One and Ocean Way share a common ethic - to provide the best possible equipment, classic

and modern, to meet the needs of both artist and producer," says Allen Sides, owner of Ocean Way and a respected engineer in his own right. "As we have clients who enjoy using SSL consoles, we decided that this should be part of the service that we provide." He adds: "I have always respected the ergonomics and automation of SSL desks. The addition of Ultimatum™, bypassing the fader VCAs, and the latest audio enhancements mean that G Plus sounds excellent by any standards."

"The control rooms at Ocean Way and



▲ 100-channel SL 8000 G Plus and classic microphones at Ocean Way

Record One are equipped with the best sounding consoles, tape machines and processors ever built - mostly modified to our own exacting standards," says Sides. "The recording spaces themselves are also unique. Ocean Way, in Hollywood, was the site of many classic recordings by Frank Sinatra, and the Duke Ellington and Count Basie Bands, amongst others.

"The rooms have a sound all of their own, and have been left largely unchanged to preserve their acoustic qualities."

G Plus Consoles Set New Standard in Audio Quality

SSL's new G Plus consoles are attracting attention from even more studios and producers because of their enhanced sound quality (see Ocean Way story) and advanced features.

G Plus consoles add to the basic specification of SL 4000, SL 6000 and SL 8000 consoles, without adding to the price.

G Plus features include:

- └ Optimised audio performance.
- └ Linear crystal oxygen-free cable.
- └ 3.5" disk drives - (1.44MB) disks, providing low cost mix data storage.
- └ Audio phase scope - permanent display of amplitude and phase relationship of left and right stereo signals.
- └ Remote controlled talkback system - via PCM encoded infra-red handset.
- └ Automated Solo - channel Solo buttons can now be automated.
- └ Video switcher.
- └ PPM metering.

VisionTrack with ScreenSound

Digital Video Option For ScreenSound

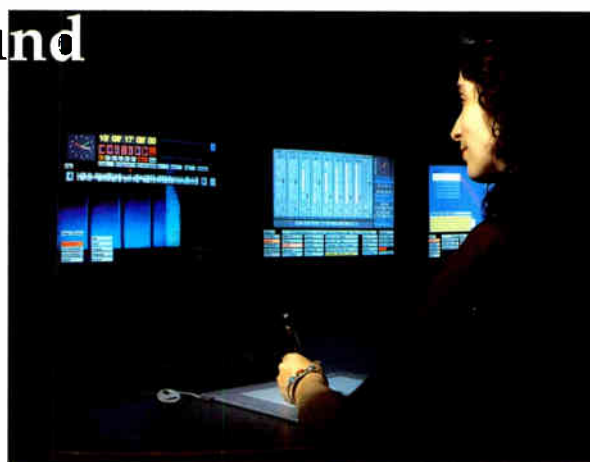
SSL has further expanded its family of digital post-production products by making its VisionTrack non-linear video system available to ScreenSound users. This new option gives ScreenSound a re-usable random access picture source, for use on both standalone projects, and in preparing material for completion on Scenaria or OmniMix.

VisionTrack complements the speed of SSL's random access audio systems by providing instant location of picture to cue or mark points. With no spooling time, and no machine lock-up problems, the totally digital system saves on production time, and

can dramatically speed up editing, ADR and voice-over sessions.

"VisionTrack brings the speed and convenience of non-linear video to standalone ScreenSound units," says SSL's Engineering Director, Phil Hill. "It also adds to the range of configuration possibilities for large networked systems."

Two versions of VisionTrack are available to ScreenSound users. One provides around one hour of digital video, while the second additionally records two audio tracks. The audio/video version enables VisionTrack to function as a capture station on the SoundNet network, recording picture and sync tracks



without a ScreenSound. The audio material can then be accessed by other users on the same network for editing, sweetening and mixing. The picture may also be switched between rooms.

SSL DIGITAL

Solid State Logic

European Broadcasters and Facilities Go Digital

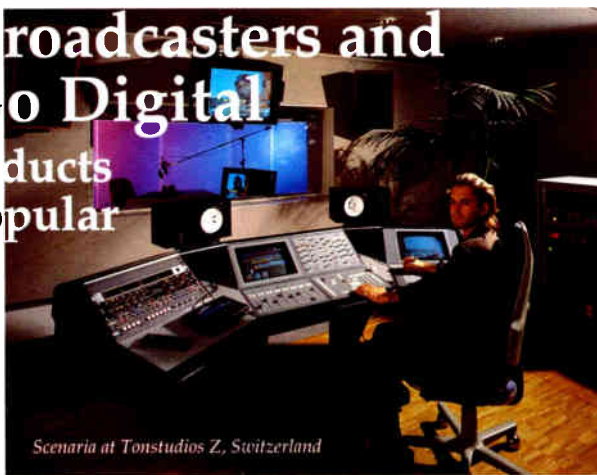
SSL Digital Products Increasingly Popular in Europe

Throughout Europe, broadcast and post-production facilities are specifying SSL Digital products. Amongst the latest is NOB, which has chosen a Scenaria as the centrepiece of its new audio post-production department designed for use on television documentaries.

ORF, the state broadcasting company of Austria, has added a Scenaria to the post-production facilities at its headquarters in Vienna. It is used on all kinds of television post-production work.

VTM, the biggest commercial TV station in Belgium, has set up a new audio post-production suite featuring ScreenSound and SoundNet.

A ScreenSound and SoundNet network is also the centrepiece of a new production complex designed for audio to picture edit-



Scenaria at Tonstudios Z, Switzerland

ing for a variety of productions at **Le Studio Ellipse**, one of France's foremost cartoon producers. Also in France, **Canal Plus** has selected a ScreenSound for use on short-form programmes.

Swiss studio **Tonstudios Z** has expanded its digital network of two ScreenSounds and a SoundNet with the addition of a Scenaria. **Proton Video** in Zurich has also added a Scenaria for use on commercials.

Two Spanish broadcasters, **Tele 5** and **Antena 3**, have both added ScreenSound systems to their post-production suites, as have **Trafalgar Studios**, **Forum Studios**, and **Guicar Television** in Italy.

Spanish Broadcasters Choose SSL

Spanish broadcasters are increasingly demanding SSL consoles and digital post-production systems.

Antena 3, Spain's first private television station, features ScreenSound in its new post-production room. Cosme Rubio, Operations Manager at Antena 3 explains: "We chose the ScreenSound for its operational flexibility and comprehensive machine control."

A ScreenSound has been added by the private television station **Tele 5**, for use on promotional spots for the network's own programming. "The operators have acclaimed the ease of editing and general speed of response of the ScreenSound," says Steve Northam of Tele 5.

Catalonia's television network, **TV3**, has added an SL 4040 G Series console with **Ultimation™** to its post-production room. "Reliability was a key factor in its selection for the network's audio production work," says Laura Baladas of TV3.

TVE, Spain's national television network, already uses eight SSL consoles for post-production work on music programmes, and is now adding SL 4000 desks in another five studios. "We appreciate their versatility, particularly for multitrack recording, and the facility to simultaneously mix in mono or stereo," says Constantino Montaner, TVE's Director of Technological Planning.

The Post Group Adds Scenaria

The Post Group, based in Hollywood, is the latest in a growing number of West Coast facilities to realise the advanced production capabilities of Scenaria, SSL's digital audio/video production system.

"The ergonomics of Scenaria are what initially attracted us to the system," says Rick Wilson, Audio Engineering Supervisor. "Our problem was that we needed an automated system, but were limited in the amount of space available for its installation. Scenaria solves both problems now that recording, editing and mixing can be carried out in a compact control surface and in the digital domain." Wilson continues: "I also have a much less cluttered work area than I would have had if I had gone with the individual components required to obtain the same result."

The Post Group, which already has a ScreenSound, recently completed work on the audio editing and mixing for the 100th episode of *Adventures in Wonderland*, a daily Disney Channel children's show, and were recently responsible for the post-production of two one-hour Prince music specials.



▲ Scenaria at The Post Group, Hollywood



Time Machine

The Time Machine, an exclusive recording retreat in Vermont, has selected an 80-input "winged" SL 4000 G Plus console for the centrepiece of its Studio A. Spanning 20 feet, with 22-degree wings, the console features both **Ultimation™** and **Total Recall™**.

Mike Cordell (pictured), owner of Time Machine, says: "A lot of the clients and engineers that take advantage of a facility such as The Time Machine seem to be SSL devotees so it was an obvious choice for our Studio A." Chief Engineer Bruce Marshall, a 20-year recording veteran, adds: "I was particularly impressed with the configurability and flexibility of the console. It allows me to do things I never thought were possible."

The 11-building, 150-acre Time Machine complex houses two independent yet interconnected recording environments. The two studios were designed with an emphasis on privacy and luxury. Mike Cordell explains: "The Time Machine was built to give artists the freedom and focus to do the best work of their careers by placing them in an environment completely supportive of the creative process."

Top US Television Networks Choose SL 8000 GB

CBS and NBC Select On-Air Production Console for Two New Shows

CBS has purchased a 56-input SL 8000 GB console, plus an 80-input SL 4000 G Plus console, for its New York broadcast facility.

The two consoles were purchased by CBS for use on the new Letterman show, to be located in the legendary Ed Sullivan Theatre. The SL 8000 GB, which includes 48 mono and 8 stereo modules, a remote patchbay and full multitrack capabilities, will be used as a production console on the show, taking feeds from various sources and sending them to air. The 80-input SL 4000 G Plus console, which features Ultimatum™ and Total Recall™, will be used in the music room by the show's audio consultant, Michael Delugg.

NBC has also purchased an SL 8000 GB console and a 96-channel SL 4000 G Plus with Ultimatum™ to add to its already extensive SSL audio production facilities at Rockefeller Centre.

NBC is installing the consoles as part of an extensive upgrade of its audio, video,

sound effects and music rooms.

New SL 8000 GB for On-Air Production

Designed for on-air and production versatility in the broadcast environment.

- ❑ Unique, switchable operation modes for Broadcast, Recording and Remix.
- ❑ Master Status switching for rapid reconfiguration.
- ❑ 24 mono or 12 stereo clean feeds in Broadcast mode.
- ❑ Up to 8 VCA control groups.
- ❑ Four stereo subgroups and two stereo output busses, accessible from either signal path, plus full 24-track routing.
- ❑ Wide range of custom options, including the ability to incorporate any SL 5000 M Series cassette.

River North Flows To SSL Again

River North, a major recording facility in Chicago, recently installed its second SSL. The 80-input SL 4000 G Plus console features custom 12 degree wings, Ultimatum™ and Total Recall™. Joe Thomas, President of Platinum Entertainment Worldwide which owns River North says: "It is undoubtedly the most flexible and easy-to-use console I have ever worked with. It helps us to achieve a great mix at an incredible speed."



Joe Thomas at the G Plus console in River North

SSL Speeds Post-Production In U.S. Mid-West

Audio Post Companies Rush to Install Scenaria

Recent sales of Scenaria in Michigan reflect its growing acceptance as the digital audio post-production standard.

Avenue Edit, a major television creative editorial and post-production facility in Chicago has now installed its second system.

Director of Development, Bill Webber says: "We particularly like all Scenaria's functions being integrated into one system, as well as the capacity to network two Scenarias together."

Producers Color Service, the full-service production and post-production company in Detroit, has also added a Scenaria as part of a major expansion of its facilities. VP of Engineering, Vince Capizzo says: "Scenaria is an essential addition to our facility. It is the breakthrough in digital console technology that we have been waiting for."



▲ Avenue Edit has taken delivery of its second Scenaria system

Producers Color Service has installed both ScreenSound and Scenaria systems, as well as the SoundNet digital audio network ▼



Recording School Opens With SL 4000

Alchemia, a school for recording engineers and producers which has recently opened in London, uses a 40-input SL 4000 G Series console for its Advanced Audio Production course.

Its philosophy is to train students to the highest levels of efficiency and knowledge, using state-of-the-art technology. Claude Camilleri explains the decision to install an SSL console: "We had to make the same commitment to our students that we were asking them to make to their future."



SSL DIGITAL

SSL Digital For UK Film Post

SnapTrax Equips with ScreenSound

Snaptrax is a new audio post-production company based at Denham film studios outside London, which is becoming an important centre for film and video post-production. Snaptrax Director, Chris Ackland (pictured), used ScreenSound on the audio production for the latest series of the popular comedy drama *Jeeves and Wooster*, and as a result Snaptrax has recently installed two ScreenSounds and a SoundNet. He says: "ScreenSound's strength is in the amount of time that can be saved in preparing the final soundtrack."



First G Plus Console in Continental Europe

Masters Studios adds SL 4048 G Plus

Masters Studios, based in St. Gallen, Switzerland, has recently purchased an SL 4048 G Plus console. This is the first G Plus console to be installed in continental Europe. Victor Waldburger, Studio Manager at Masters Studios, explains: "We believe that the SSL G Plus is a significant advance on the G Series, both in terms of its enhanced sound quality and its operational capabilities. Also, SSL have an international reputation with artists, so having this console will help to attract these clients to Masters Studios." The control room which houses the SL 4048 was re-designed by the international studio designer Andy Munro.

Since Masters Studios opened in 1981, it has hosted such international clients as Yello, Billy Cobham, Alex Korner, American star Chi Coltrane and producer/engineer Haydn Bendall, as well as the Swiss band Sens Unik whose album *Les Portes du Temps* has been in the Swiss charts for four months, outselling international bands such as Dire Straits. The



band are returning to Masters Studios after their current world tour to mix the live album and start production on the next studio album.

The studio has many unique features, including a live area of 60 square metres, a 15 square metre stone room and 15 square metre isolation area. It also offers an in-house restaurant, accommodation for ten people in a traditional Swiss chalet, and close by are international standard ski slopes up to 2500 m high.

The location of Masters Studios is breathtaking. The control room overlooks St. Gallen, and the live room has spectacular views of Lake Konstanz - a natural lake that can be used for swimming in summer and ice-skating in winter.

Dutch Mobile Goes With SSL Europe's First Independent SSL-Equipped Mobile

Netherlands-based NOB Audio became the owner of the first independent SSL-equipped mobile in continental Europe when its Audio 1 mobile studio entered service recently.

NOB Audio chose the SSL system for its mobile because of its reputation with potential customers, its price, and also SSL's maintenance and service reputation.

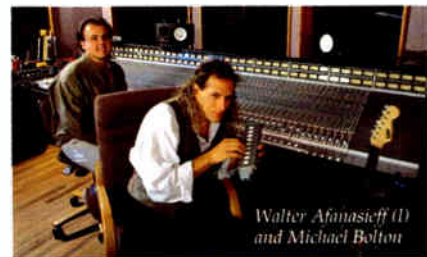
Hans Gielen, Sales Manager of Music Productions at NOB Audio comments: "We wanted to offer our clients, who include rock bands and orchestras, the most reliable equipment available, so we purchased the SL 4048 G Series console. We believe that quality comes before everything else, and we have been proved right; the console has performed outstandingly. We are very pleased with the response to our new truck, with a large number of both current and future bookings."



▲ Audio 1, NOB Audio's new mobile, equipped with an SL 4000 G Series console ▼



SSL Consoles for Artists and Producers



Walter Afanasieff (l) and Michael Bolton

A number of major artists and producers have selected SSL consoles for their personal studios, including C & C Music Factory, whose new state-of-the-art facility features an SL 4072 G Series with Total Recall™ and Ultimatum™. R & B artist Keith Sweat also has an SL 4048 G Series with Total Recall™ as the centrepiece of his new personal studio, while an SL 4064 G Series with Total Recall™ is now a feature of Michael Bolton's Passion Studios. Renowned producer Walter Afanasieff has selected a 96-channel SL 8000 G Plus console with Total Recall™ and Ultimatum™ for his personal studio in California.

More Hollywood Success for SSL

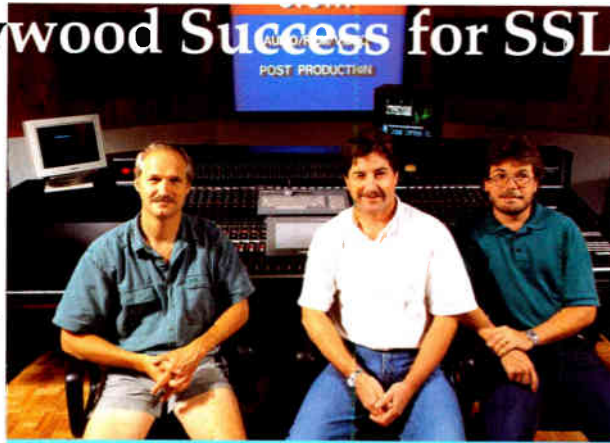
ScreenSound Used on Film Trailers and Commercials

Sound Services Inc., (SSI), the Hollywood facility responsible for numerous high-profile film trailers and broadcast commercials, has purchased a trio of SSL ScreenSounds for use on future projects.

Wouter van Herwerden, Director of Operations at SSI, said: "We are a highly efficient organisation. We need a system that can keep up and expand with us while we grow. The SSL ScreenSound is that system."

In addition to working on a variety of commercials for Kentucky Fried Chicken and Apple Computer, van Herwerden edited audio for some of Hollywood's biggest film trailers on one of SSI's ScreenSounds. *Hoffa*, *Chaplin* and *Used People* are just some of the recent crop of film trailers edited and produced on their newest digital audio production tool.

"Working with ScreenSound is such an efficient process," adds van Herwerden, "mainly because you have immediate access



▲ Left to right: Dan McIntire, Dick Rogers and Wouter Van Herwerden, at Sound Services Inc., Hollywood

to all the elements involved in the post-production process."

SSI's Sound Engineer, John Warren, adds: "ScreenSound gives us upward compatibility, which is imperative to being successful in today's sound market. With SSL, we've got the ability to maintain longevity, and play in the audio-for-video big leagues."

Other Hollywood facilities to install SSL systems include The Post Group, which recently added a Scenaria to its existing ScreenSound. Fox TV has also expanded its digital network with a third ScreenSound and two Scenarias. The new all-digital facility, Hollywood Digital, features two ScreenSounds and two Scenarias.

Cherokee's First SSL Desk

Cherokee Recording, the legendary Hollywood studio that began in a barn in 1971, has purchased its first SSL console, an SL 4064 G Series with Total Recall™. "We chose the SSL console because there are just so many people who have a preference for it," explains Dee Robb, who owns Cherokee Recording with his brothers Bruce and Joe, "Plus the components are excellent and the board is very well constructed." He adds: "SSL has really made a commitment to better sound, and that's what appealed to us." Cherokee's client list includes Anthrax (seen below at Cherokee), Dave Jerden – the producer for the Red Hot Chili Peppers – and the Lemonheads.



G Series at Bad Animals

Ann and Nancy Wilson of the rock band Heart, and veteran studio owner Steve Lawson, are partners in the state-of-the-art recording studio Bad Animals in Seattle, where the SL 4000 G Series console is the centerpiece of its Studio X.

This is the latest addition to the six room facility that has been the site of recording sessions by The Neville Brothers (pictured), Elton John, The Beach Boys, The Spinners, Steve Miller, Heart and Stevie Wonder.



First G Plus In Britain

Strongroom invests in latest technology

The Strongroom studio complex, based in Shoreditch, London, has recently purchased an SL 4056 G Plus console with Ultimatum™.

The new console, the first G Plus to be installed in Britain, will be the centerpiece of the extensively upgraded Studio II.

Director Richard Boote says: "Strongroom has always believed that investment in the latest technology is the key to success. The G Plus console and Ultimatum™ offer many new and exciting facilities - it just felt right. After talking with everyone here at the Strongroom, as well as all our outside clients, SSL became the obvious next choice for us. The G Plus has every development possible, including improved sound quality, and Ultimatum™ is excellent."

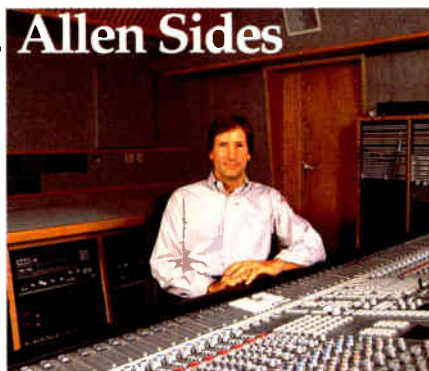


The Strongroom currently houses two multitrack studios and eight pre-production rooms. Since its launch in 1985, Strongroom clients have varied from dance/pop through to indie and rock bands, mainly using Strongroom for mixing, but also taking advantage of the excellent live rooms. Recent clients include M-People, Tina Turner, Soft Ballet, Orbital and The Levellers. Jamiroquai and East 17 have also produced number one albums at Strongroom.

Strongroom also has an excellent history of live recordings for film and television soundtracks.

SSL DIGITAL

From the Desk of... Allen Sides



"At Ocean Way, I am somewhat fanatical about sound quality. My priorities lie in having large, live rooms that have great sound and atmosphere; rooms that will cater to any given situation. One day we'll be working with an 85-piece orchestra, and the next we'll have an Ice-T and Slayer duet!

"The rooms here were designed in the late-1950's by Bill Putnam and have been left largely unchanged to preserve their acoustic qualities. Because I look at things from the perspective of the musician as well as that of the engineer, I put equipment together in packages that will work for me. I personally tend to go for items that are a little out of the ordinary, particularly when it comes to auxiliary equipment. I'm always on the look-out for that remarkable device that is no longer in production, be it a Fairchild limiter or an EMT 250. Take, for example, the Ampex ATR 124 multitrack. There were only ever 50 of these machines produced. We have managed to locate 12 of those original 50 systems, and they are all in use here at Ocean Way.

"My recent installation of a 100-channel SSL G Plus console has been a long time in coming. In all honesty, I wasn't a fan of

the early E Series consoles, but over the years, the company have made some very significant improvements. From an ergonomic and functional aspect, the SSL has always been an outstanding console, and the company's level of maintenance support is unparalleled in the industry. SSL also had the first VCA-based automation system that really worked.

"The advent of G Plus has made the console sonically acceptable to me and to my mainstream clients. The addition of Ultimatum™, bypassing the fader VCAs, and the latest audio enhancements mean that G Plus sounds excellent by any standards. As my goal is to provide the best, I decided that the SSL should be part of the service that we at Ocean Way can offer our clients."

of their consoles and digital systems.

For information about forthcoming operational or maintenance training courses, contact Training Manager, Dave Grinstead at SSL's Oxford headquarters, or your nearest SSL office or agent.

Training for SSL Users

The availability of well trained operators is an important consideration for anyone adding new equipment to their facility. In recognition of this, SSL offers detailed practical training on all

SSL G Plus Chosen by Japanese Studio

First G Plus In Japan Installed In Landmark Studio

Landmark Studio in Yokohama, a new facility owned by the Bay City Group, has recently installed two SL 4072 G Plus consoles. These are the first G Plus consoles to be installed in Japan.

Mr Hiromi Kuroiwa, Studio Manager, says: "Landmark Studio chose the SSL consoles because they are very popular, both in Japan and throughout the world, so they are suitable for many clients, including those who come from overseas." He continues: "The G Plus consoles also have excellent operational features, including the 3.5" floppy disks, which



make the storage of material very easy. The sonic enhancements of G Plus are also appreciated."

Landmark Studio is a spacious facility, with a large lounge and bar where clients can relax comfortably between recordings. The control rooms are also spacious. Situated in Landmark Tower, the tallest building in Japan (296 m high), the studios are linked by tie-lines to Landmark Hall, which makes recording live performances very straightforward.

SSL Wins Third Queen's Award

SSL has been awarded a 1993 Queen's Award for Technological Achievement. The award was made for SSL's digital audio editing systems, which are widely used in the production of television, video and film soundtracks around the world.

This latest success complements SSL's two previous Queen's Awards for Export, and proves once again that SSL's technology leads the world.

"The Queen's Award for Technological Achievement is the most prestigious award to be conferred on SSL for its success with digital technology," says Solid State Logic's Managing Director, John D. Jeffery. "We are honoured and delighted to receive this award, and welcome it as recognition of the imagination and technical excellence of our design and engineering team."



▲ Sir Ashley Ponsonby, Lord Lieutenant of Oxfordshire (left), presents the Certificate of the Queen's Award to John Jeffery, Managing Director of SSL

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Records and put out the *Music of Bulgaria* album, which was a cornerstone of The Byrds' sound. David Crosby was a freak for the *Music of Bulgaria* record.

At one point, I was signed to Elektra's publishing company and wanted to make a record and was trying to get my performances together. I was part of an experiment, and he put me together with other writers. I think the first "super group" albums were his idea. There might be three songwriters on an album, or three urban blues singers. He called them "projects." My first album project was with some other writers, but I really wanted to make my own album.

Bonzai: This was before your first solo album was released?

Browne: Oh yeah, this was in '68. We went out to the country with a remote setup and made a record that wasn't fully realized. We called it Baby Browning after an infant's tombstone in the local cemetery, because the album was kind of stillborn. It never came out. [Laughs] It just wasn't very good.

Bonzai: I recently interviewed Al Schmitt, who co-produced *Late for the Sky*.

Browne: He also mixed the album before that. I love Al—this is a guy who embodies so many decades of great music. He worked with Sam Cooke, the Jefferson Airplane; he's an amazing guy. Turned me on to wine, too. He's tremendously funny, creative, a very cultured guy. I really like him, and I just heard something he just finished with Anita Baker. There is a mastery there that is hard to miss.

Bonzai: It's been awhile since you've had a record—four years?

Browne: Yes, this is the longest it's ever been. Four years, yeah.

Bonzai: So, where you been?

Browne: Writing, living a life. I actually thought I was going to be quicker, but for me, it's a process of figuring out what to talk about, and there is a certain amount of personal excavation into your own psyche, and what matters, especially when the world is changing so much, you know? I'm also not very good at integrating my creative life with other pursuits—for instance, parenthood.

And, by the way, parenting is very creative, too. But there is only so much of you to go around. The simple answer is that I am lazy, and I work slow, and I have high standards that I sort of meander toward.

Bonzai: At this point in your career, you're not under any pressure to put out an album a year, are you?

Browne: I've never been under pressure to put out an album a year. I've never been ambitious in that way, following up on success. Right after "Running on Empty," my son started going to school, and I didn't tour for a couple of years. You always do benefits because the need is there. As far as standing and delivering, and accounting for yourself and your world view, I wish it was more continuous for me, but it's a cycle, and part of it is just writing and living a life. At a certain point, you gather it all together and see what you have.

I don't think I could have written these songs at the piano, as I started to do. I had the idea that I wanted to be able to sit down and play them in a room, with a guitar or a piano, and I wanted to write them that way. But in the end, I couldn't. I had to get to

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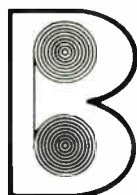
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work and hear them played to finish them. And some of the words were written last week, just before the first mastering. It was just a matter of a line or two, but those lines always turn out to be the most important lines in life, at that moment. And for me, you can't put just anything on there. If it doesn't ring true, there is no way that I could put it out. It's not as if every line is a gem, but it has to be true.

Bonzai: In your work, there is so much emphasis on the lyrics. Did you have some sort of poet guardian angel when you were young?

Browne: My parents read a lot and enjoyed literature. My dad was passing me *Cyrano de Bergerac* when I was 11. Both of my parents were English teachers, and my dad was also a printer, a jazz musician, a journalist, a technical writer. The things that really got me, when I began to look around, were in the lyrics, and particularly Bob Dylan. And I liked folk music a lot—ideas, words and truths filtering from generation to generation and turned this way and that way. Folk music was a strong influence, although my dad played Dixieland and was always having jam sessions.

Bonzai: Before this interview, I checked in with Ed Cherney every couple of days to find out when we could meet. He would tell me, "It's coming along," "It's hard," "Sounding good—it's strong."

Browne: It's hard, yes. He's very funny. I actually can't imagine having done it with anyone else. Ed's very creative, and he has standards that he can't be pulled away from. I need that because I want to hear it every other way than what's right. I need someone who is like a rock in terms of his standards and how he wants the bottom to be shaped, or whether or not there is enough vocal. Ed is very conscientious about that.

Bonzai: He mentioned to me that he brought his dog, Tina, along, and she contributed by wagging her tail when the mix was right.

Browne: You got to watch that dog, or she'll change the settings on the LA-2A. That tail wagging has changed many a bass sound.

Bonzai: Now that you're done, are you ready to go out on the road and perform?

Browne: I'll put together a band, but ready? [Laughs] No. Never.

Bonzai: Does it feel good to be able to get back to a normal schedule?

Browne: Well, we thought we were done a week ago, but we took one last chance to edit between mixes, so it went on a bit longer. Now it's really done, and last night was great—I went home with a huge smile across my face, because we found a mix that we had overlooked. It was far better than the one we were trying to improve in mastering.

Bonzai: Does the album have a title?

Browne: Yeah, it's called *I'm Alive*. That's the title song. I don't know what to call it—for the first time, I started thinking about titles that weren't song titles. We thought of calling it "The Agony and the Agony" at one point. Then I was going to call it "Woe." [Laughs and pronounces it "Whoa."]

Bonzai: Can you tell me about how you got into the studio business?

Browne: Well, I read a story about how the Heartbreakers' first album was made in a storefront with a rented desk. I thought, you can do that? Put the stuff in a room and work like that? I had grown up with this mystique about studios, how you have to build the wall monitors, things like that. I always knew that I didn't really understand the technology, but it intrigued me to think that I could record in some other place. So, I had collected some equipment, and I got a loft and was rehearsing. Then I got a cheap console and a couple of Studer machines and made an album that way. *Lawyers in Love*. I had made *Running on Empty* without a studio or a truck—[engineer Greg] Ladanyi simply had a guy in a room looking at meters while he was at the live console and used a walkie-talkie. He just did it by meters. We recorded everything we did, and I knew you didn't have to be in a studio to make a good record. And that's how I ended up with a studio.

Just in the pursuit of excellence, you learn a lot, and I got an old 8078 Neve and a full-time maintenance guy that has built my room. To call him a maintenance guy is wrong—he's really a designer, and he books it and keeps it running. You have to have someone good to keep these old consoles running, but it's worth it. Even I can tell the difference between the newer equipment and some of this older stuff. People I work with are geared toward analog, Class A circuitry ideas. I think it

sounds better, but I'm worried now because I've finished eight months of analog recording, and it's got to come out on a CD. Even mastering at Doug Sax's place, with his adherence to the tube philosophy, and with Manley tube amps for our monitors, the Fairchilds, the old Neve modules, Pultecs and stuff—it ends up on a CD.

I wouldn't mind trying to make an all-digital album to see if I would like it. One of the aspects of this job is that you get to hear it better than anyone else ever will. I feel like asking them to put it out on vinyl because there must be a few thousand people who still want to play an analog record. You walk into Mastering Lab, and Doug still has the lathe—there's his excalibur sitting in the back with a little spotlight on it. But I don't think there is much call for it.

Bonzai: Is your studio for other artists as well?

Browne: Yes, other people can record there. As a matter of fact, I need to rent it out because it costs a lot to operate. I don't mean that I am in the real studio business; I just try to make overhead. You rent a building, you have staff, you know?

Bonzai: So many people have grown exhausted running a studio. Has your studio experience been fairly good?

Browne: It's a gigantic drain on my waning personal fortune. [Laughs] A gigantic hole in my financial hull, but for the moment, it's been worth it. And the stuff I've collected won't lose value, at least until they figure out some way to make digital sound like analog.

Bonzai: I think a lot of people have grown up with you, and they use your songs to define their own lives. How are we doing?

Browne: [Laughs] You mean as a generation? Well, I have a lot of friends that are older than me, and a lot that are younger, and I have strong relationships with a number of children of varying ages. I don't think much in terms of generations. I think about who is here now and...Ahh, things are pretty screwed up.

Bonzai: How are you doing?

Browne: I'm alive [Laughs]. ■

Roving editor Mr. Bonzai also made a concept road album in the '70s, but his lawyers are still negotiating with Mel from the truck stop out on I-295.

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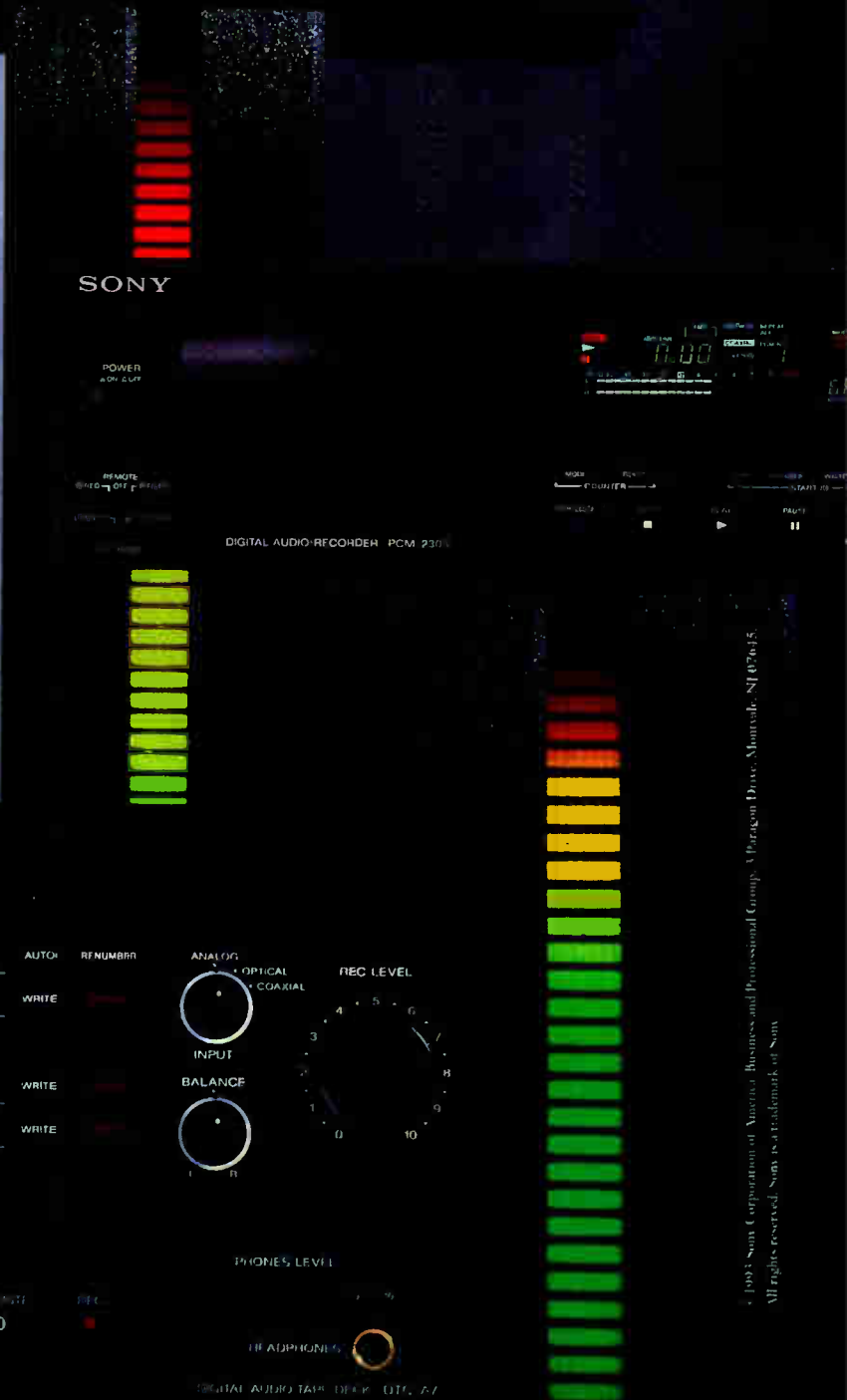


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AN INTERVIEW WITH MICHAEL BOYD



The heart of Mergatroid Recorders from left to right: Gabrielle Doré, Michael Boyd and Charles Judge



BY BLAIR JACKSON
It really is an impressive reel. The commercials fly by in 30-second bursts, every one a top-drawer name: Levi's, Acura, Infiniti, Avia, Chevrolet, Coca-Cola, Mazda, Coors, Sunkist, Gallo. That's just a partial list of some of the big commercial clients for which Michael Boyd Music has provided music during the last few years.

A veteran of 15 years in the commercial music business (he also does music for film and television, including current programs like *Unsolved Mysteries* and *Prime Suspect*), the affable 33-year-old writer/producer/musician—with a passing resemblance to Jerry Seinfeld's



MAIN PHOTOGRAPHS BY RANDI BAIRD

**NEW FACES,
NEW SOUNDS
AND NEW
TECHNOLOGIES
ARE TAKING
OVER A ONCE
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**Interior
view of
Michael
Boyd's
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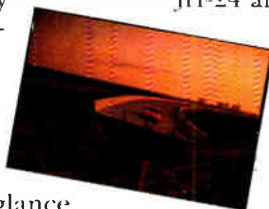
benignly psychotic neighbor, Kramer—does the bulk of his work in his neatly equipped, *tres moderne* project studio in a yuppified part of Emeryville, California, across the bay from San Francisco. At first glance,

the room looks more like an art gallery than a recording studio (in fact, the space used to be Boyd's painting studio), but the requisite gear is all there, of course: a Peavey Production Series 2400 console with up to 60-input capability, Yamaha NS-

10 monitors, a pair of Alesis ADATs, Panasonic 3700 DATs, a JH-24 analog recorder, a Micro

Lynx synchronizer and racks of out-board gear, including a pair of Lang PEQ-2s, a couple of Quadraverbs, an Ensoniq DP4 multi-effects processor, two old SRV2000 reverbs, dbx 160s, Drawmer gates and Dyna-Mites.

A one-time session player and a veteran of numerous bands neither you nor I have ever heard of, Boyd is a prime example of a musician who has



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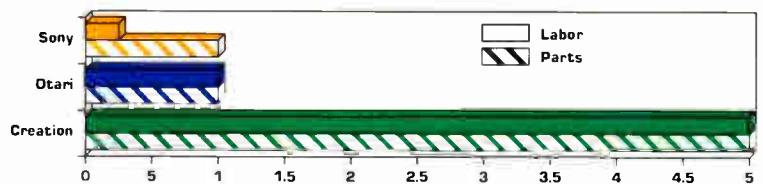


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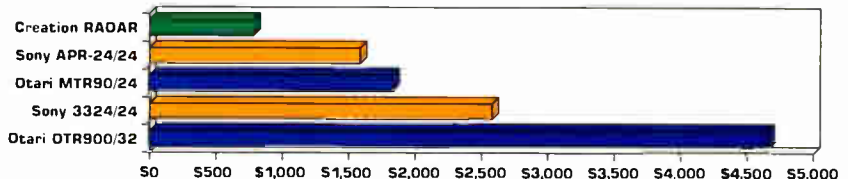


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successfully built a business from the ground up. Though his apprenticeship, as it were, came through years of working with Gary Remal, his career has taken off since going solo and putting together his studio. It's not just a one-person operation, though. He has a strong musical partnership with programmer/engineer/musician Charles Judge; Charles' brother Todd acts as the studio's tech, and Boyd's wife Gabrielle Doré is the company's de facto executive producer, handling everything from billing to hiring musicians to booking time in other studios when needed.

Boyd has interesting insights into the world of commercial music, the project studio phenomenon, and how and why projects studios interface with larger facilities.

How do you go about getting work?
We don't have a representative, which a lot of studios have, so for us it's all word-of-mouth and former projects. It's so weird, because we're always sitting around saying, "What's going on next week?" "Nothing at all." And then 48 hours later, we're completely booked and working like crazy. A lot of it is repeat clients. But it's completely haphazard. We keep saying we're going to update our [promo] reel and send it around, but then we're always too busy to do it.

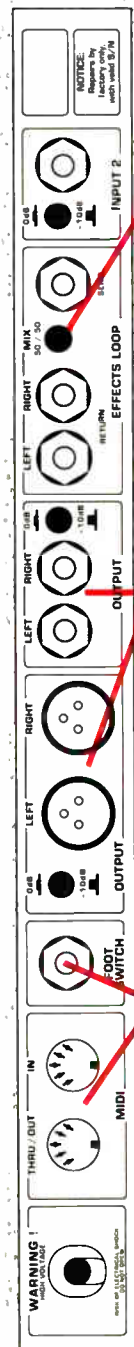
Some calls come from directors who have reps who take around their video reels, and the clients ask, "Who did the music for this?" And some come from ad people who have seen commercials we've done on television—a specific spot—and gone to the trouble to find out we did the music. By this point, we have a certain reputation, I think. There are people who want us for the modern, edgier sound. But we do a lot of variety. Some people have me pigeon-holed as "the orchestral guy." Okay, right. We've done country music, too. We did the Country Music Awards, and now that's led to us doing Coors Country in Nashville.

We've been very fortunate in getting to work with people like Levi's, Coca-Cola, Chevrolet and getting to create interesting music for them, music that we actually like. A couple of years ago, it used to be a drag to be working on some ambient, groovy piece with drum loops in our free time and then having to do an

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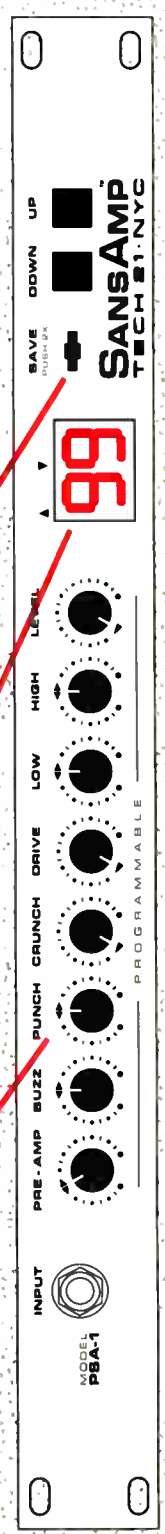
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The bigger companies don't even consider analog, and I'm always happy to find that they're working with producers and production houses that know what the latest formats are all about.

Oscar Mayer Lunchables commercial. [Laughs] Now we don't have those kinds of clients. People don't come to us for comedy jingles. We don't do any full-sing "Ninety percent fat free!" things. They don't call, and we'd probably turn them down if they did.

Actually, the only style we'll *never* do, for no matter how much money, is a Broadway show feel, with exaggerated vocals and arrangers' tricks and modulations. Forget it. But blues, speed metal, rap, orchestral, ragtime, piano solos...

How much input do you get from clients about the music?

It depends. It happens all different ways. Some people just say, "Do what you do. I'm not going to say anything." Those are our favorite clients. [Laughs] But sometimes it's patterned after another spot we've done. Charles' and my pet peeve is the "jingle version" of some style. There's like "session player jazz," and then there's the real shit, like the Coca-Cola spot that sounds like Django [Reinhardt] and Stephane Grapelli. Or there's orchestral jingle

music, and then there's the real stuff. We try to go back to the source. Some interviewer once asked me, "Who are your influences in commercial music?" And I said, "You've got to be kidding—I don't listen to *any* commercial music!" "Oooh, I really like that Stouffer's music!" [Laughs]



Do you find you have to keep on the pulse of what's out there in music?

Oh yes, at times to an unpleasant degree. We buy a lot of CDs. Let's see, what have I bought recently? Movie soundtracks, The Sundays, Meatbeat Manifesto, Arrested Development, a bunch of stuff that's on the charts.

Do clients ask in very specific terms for things?

Yes, all the time. I won't blatantly imitate anybody, though. I don't like it, and I don't want to become legally liable for that. A lot of times, they'll edit the spot, say, to a Bob Seger song, and then they actually try to negotiate for that. But if it falls through at the last minute, they come to us and say, "Can you copy this?" "Umm, *no!*"

People have gotten into trouble over that—imitating Tom Waits, Bette Midler...

Right. I feel sorry for poor Randy Newman. So much of the music that comes out of Chicago with that sound is plagiarizing his style.

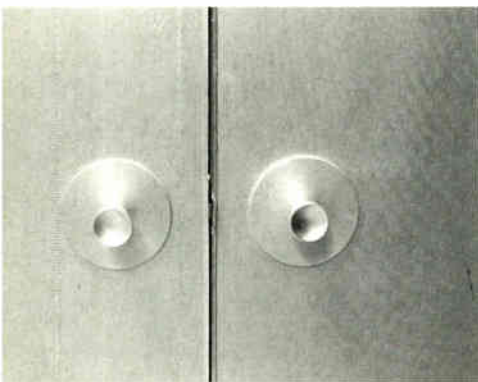


How do you deal with your clients on a technical level? Do different clients require different tape formats, for instance? How does that work?

Generally, I'll have a conversation before the job begins with a producer and just make sure we're in sync about format—whether it's digital or analog, and of course, I'm always trying to make it digital. It can be anything from 4-track ½-inch—put code on 4, stereo music on 1 and 2 and some wild stuff on 3—to time code DAT. I've rented the Fostex time code DAT a couple of times, for when they want to keep it digital, but they also need code—like for longer film cues. A 30-second commercial generally isn't going to get too wildly out of sync, and they often drop it down to other video that they can use as a locking device as well, so that's not usually a problem. It could also be ½-inch 2-track with center code. But most things these days are DAT.

Is there any correlation between the size of the client and technical requirements or expectations?

Yes. Most of the bigger companies don't even consider analog, and I'm





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always happy to find that they're working with producers and production houses that know what the latest formats are all about. They're usually better informed about what's really needed.

Generally, it's only smaller clients who'll ask things like, "Can I get a 1/2-inch 2-track as a safety?" And then I find out they've edited the piece to the cassette, literally.

I'm afraid there are a lot of people out there who don't really know what they're talking about, but they can pass on the words. They know "SMPTE" and "digital" and "stereo." TV stations are the worst, because

they're all unionized, and they have this seriously antiquated equipment. We'll do some fabulous digital master of something that's super-punchy, and they'll compress the shit out of it and drop it down three times before it hits the air.

Can you describe a typical week? How many jobs are there, usually?

There can be zero, or there can be six, but it's usually two or three. A typical week is a lot of pre-production and talking to clients about what they need, giving them the specs on the materials we'll need to do the job we need to do. Usually,

there will be some jobs we've known about for a while that we have to get working on, and then there are also ones that drop in there unexpectedly. One of them might be a job that we've already written out on paper and completely orchestrated and fully developed. And another one might be jamming in the studio to the videotape—improvising.

Do you get a chance to stockpile ideas that aren't necessarily targeted at a specific commercial?

Somebody will ask us for music, and we'll write maybe four or five pieces and submit all of them. Then the client might choose one, and the others become part of our library. We have thousands of hours of music on DAT.

We've been really fortunate in that, for the first time, our own personal interests and those of our clients are *simpatico*. For the first time in years, I really love a lot of music that's out there. I'm so glad that the independent labels and alternative stuff are completely taking over, and Winger can't get their video on MTV. [Laughs] I felt like my tastes were sort of underground for most of the '80s. But now I love elements of Pearl Jam, and The Sundays and all this other stuff that's actually popular. We're really interested in psychedelic music from the '60s—Hendrix.

We did music for a lot of fashion videos in the '80s for Calvin Klein, and Ralph Lauren and Norma Kamali, and we were able to basically do whatever we wanted, and it would be ten minutes instead of 30 seconds. Most of it was very rhythmic stuff, with ethereal and psychedelic stuff on top. The fashion world has always been a step ahead of the commercial world when it comes to music. And now we're seeing more mainstream clients wanting edgy music.

So when Levi's or somebody says, "Hey, we want that kind of [modern] sound," we have a lot to draw on. We almost never [take] a piece that we already have and use it intact, but frequently it will be a good departure point for something. We might like the bass line in one, or some other aspect of some music we already have.

A fact of life in commercials is that the commercial culture always tries

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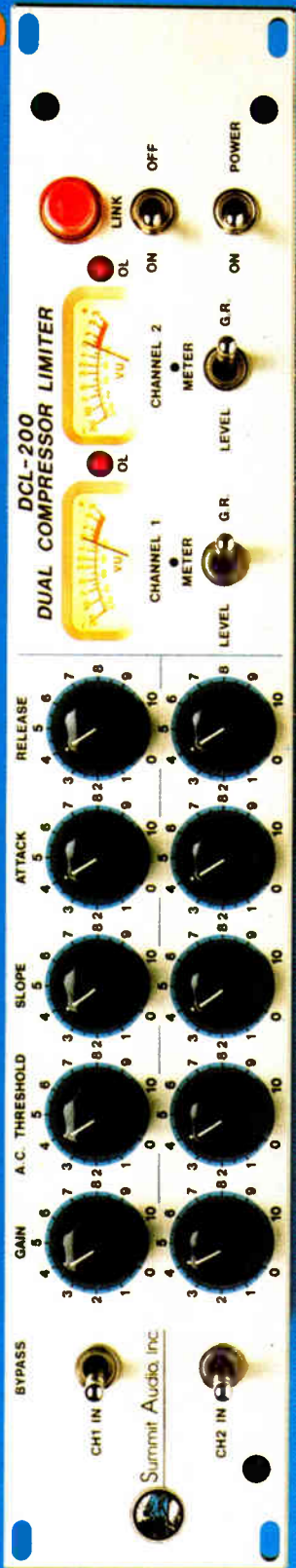
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to co-opt anything that is even remotely cutting-edge and then bland it down for mass tastes. But I'm amazed that grunge and the whole Lollapalooza aesthetic have actually entered the true mainstream.

Well, rock 'n' roll in general is so much more in the mainstream, and you're finding that the creative directors at a lot of agencies are young guys now, so it's not like it was in the '60s when you had these conservative guys trying to imitate "the groovy young sound." [Laughs] Now, there are people in positions of power who really do know what's happening in music and aren't afraid to try using it.

But you still run into so many people who *don't* know, who come in and say, "Who is this Sting fella? This song 'Every Breath You Take' Give me one of those." Or, "I want this to be like Ray Charles." Well, hire Ray Charles. Or they try a rap and it screams "WHITE! WHITE! WHITE!" Uh-oh, white jingle singer rapping! Look out! [Laughs]

When we do rap stuff, we deal with rappers from Oakland and South Central [L.A.]—it always sounds better. When we do country, we'll go to Nashville usually. We move our session around.

But that's because you're working with so many clients who can absorb the cost of that sort of "luxury."

Generally. But I wouldn't want to do it any other way. A lot of musicians think, "Wow, it's all at my fingertips in this one synthesizer." I get three tapes a week from people with MIDI studios wanting to get into commercials and films and television. They send us their tapes, and the music has zero personality. We sit there and say, "All right, that's Mount St. Helens on a DX-7." "That's the JD-800, the airy shit patch," and it's this completely soulless music. I hate that sound of MIDI gear trying to do something it can't do.

Can you generalize about what a 30-second spot for a major advertiser would bring in?

It depends. It changes. It can be anything from \$5,000 to \$20,000. Sometimes, people will know exactly what they want, we'll give it to them, and it ends up being relatively easy and cheap for them. But there was a client not too long ago

where we redid it like six times, almost from scratch, and then when the spot aired, you could barely hear the music. But we made a lot of money from it. [Laughs]

What did they say when they sent it back six times?

Oh, they wanted things like a comedy woodwind, but I did a jazz trio instead. Things like that. They didn't have a good idea of what they wanted.

Levi's is far and away the grooviest client we've ever had. They have excellent taste, good writers and directors. KNBC [in Los Angeles] was a great one. They've always said, "Do what you want to do." We did some IDs for them, and they told us they were getting 30 calls a day to find out where they could get the CD.

Do you find that, with the evolution of stereo TV, the demand for better sound has increased on your side?

Oh yeah. When I was doing commercial session work, I'd go in the studio for a session, and I couldn't understand why the music wasn't important. Nobody cared about drum sounds or guitar tones or even a great high-string line. And engineers and producers would settle for such low-fidelity shit, it really made me mad. It was mono, bounced down three generations, sloppy and out of tune. In 1980 I was considered a radical for actually suggesting, "What if we actually made this sound good?" "Hmm. I don't know. I guess we could *try* it!" [Laughs]

In the last two years, or really just the last year, there's [been] a big switchover from people who do music for commercials to going out and getting *music people* to do music for your commercial. In other words, there's an old school of people who do jingles and music for commercials, but increasingly, we're finding ourselves competing for jobs with people like Anne Dudley from Art of Noise, or Mark Mothersbaugh from Devo, or Sparks. The old-style jingle writers who sit and pound something out at the piano are being squeezed out.

And the technology covers such a broad range now. You can put together a good studio for \$100,000 or \$50,000, or just get three ADATs and you can still do pretty well. You can lock to picture more affordably than

—CONTINUED ON PAGE 166



The More Sophisticated Woofer & Tweeter

Differential Material Technology (DMT™) is the study of Different materials and their relative behavior when in intimate contact. The starting point of any high grade professional monitoring system is properly engineered drivers that naturally work well together. With this established, the crossover can be designed purely for the function of filtering between high and low frequency drivers rather than the complex function of addressing limitations of the drivers themselves. Through the use of computer circuit analysis software, this would seem a simple task... But in the real world, not only do components not behave as their mathematical models predict, but components inter-react with the powerful magnetic and acoustic fields present within a loudspeaker system. Understanding and measuring these effects is extremely difficult, and rather than ignoring these previously unexplored aspects of crossover design, Tannoy's DMT research team has spent a great deal of time investigating the interactions of each element within the speaker system's design... Particularly through extensive listening tests.

Tannoy considered the new Dual Concentric driver as a complete system to both generate the signal and control the wavefront. The low frequency cone is designed and injection molded to work with the new Tulip HF waveguide so that the driver system shows no discontinuities of the response or wavefront at the critical crossover area. Research into component behavior and empirical tests showed that when a capacitor is encapsulated in vibration absorbing material, its noise performance noticeably changes, dramatically improving both the sonic texture and dynamics of the loudspeaker system; and so the DMT capacitor was born. Every aspect of Tannoy custom capacitor's, from the type of film employed to the high purity copper used for termination leads, has been optimized for sonic performance. Tests have also shown that reducing the effect on inductor coils of the immense internal

vibrations experienced within a loudspeaker cabinet, can improve overall system bass and midrange resolution. Consequently, within the DMT II crossover, Tannoy used coils vacuum impregnated with a resin selected to reduce vibration.

With the mechanical aspects of the DMT crossover design largely resolved, Tannoy engineers addressed the problems of interaction with magnetic fields within the system. Air cored inductors radiate a significant measurable magnetic field which can affect nearby components and the inductors are themselves affected by the driver's magnetic radiation. It was found that creating a split crossover, with the inductor mounted on the cabinet's cross-brace away from the other crossover components and driver magnets, produced sound quality improvements that more than justify the additional manufacturing costs.

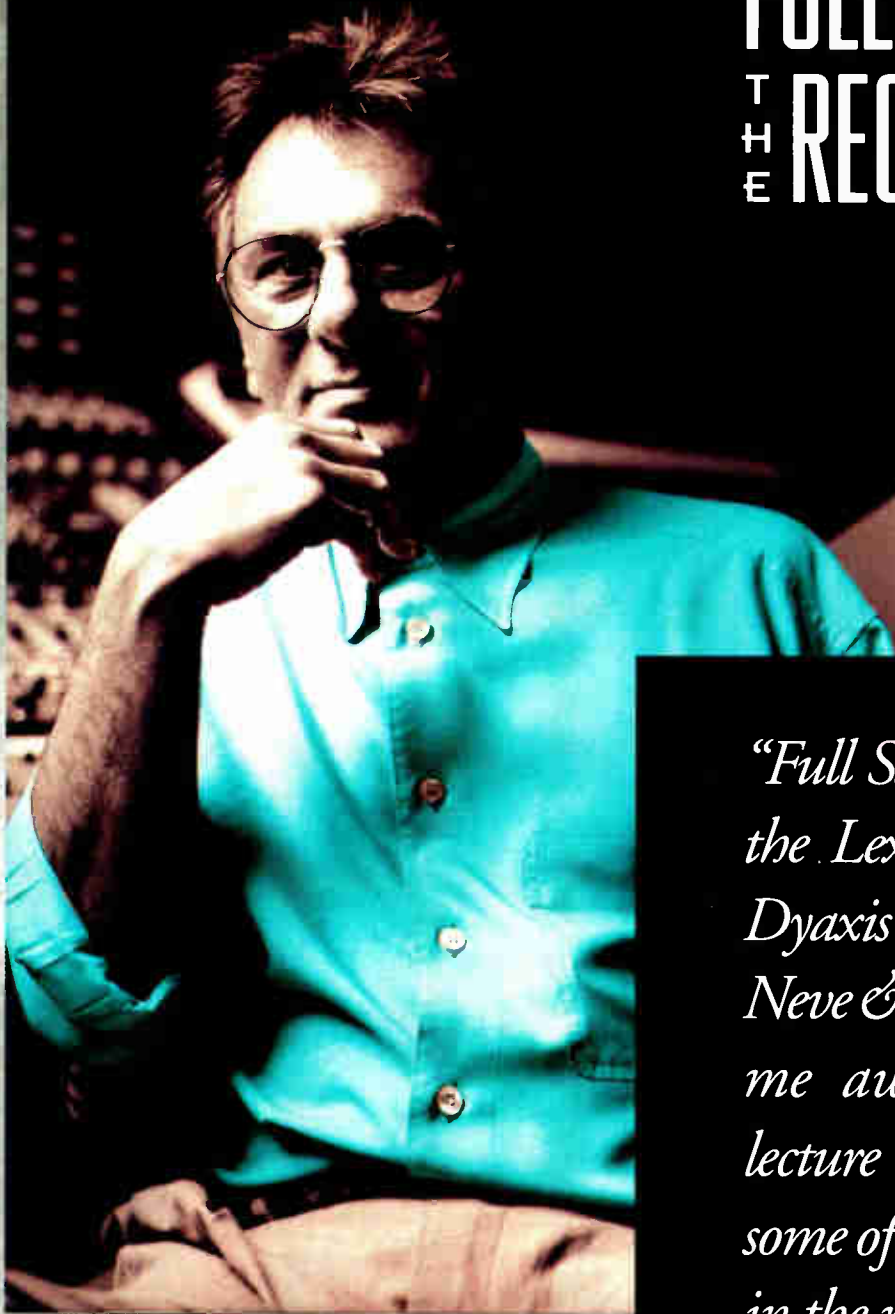
The final components to come under scrutiny in the DMT system were internal connection cables. By using custom manufactured braided Teflon Kimber Kable, unwanted signals ordinarily induced into the internal wiring from within static and magnetic fields can be virtually eliminated, yielding substantial audible improvements.

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Building a Foundation

A little over a year ago, the audio community was shocked to hear about a bank foreclosure on New England Digital. This action spelled the demise of a company that, for over a decade, led the industry in the development of innovative, computer-based audio products such as the PostPro series of disk-based recorders and the Synclavier digital music systems.

To its credit, the staff was loyal and—after weathering months of late and reduced paychecks—even stayed for a week without pay after the foreclosure in an effort to encourage a sale. A number of companies—including Harman (JBL's parent company) and Fostex—were interested in acquiring NED, but the troubled company's debts far exceeded its



ALL PHOTOS GEORGE PETERSEN

FXR team leaders (left to right): Rich Rosenzweig, Jeff Postupack, Eric Richardson and Michael Geilich. Top photo: prototype Foundation 2000 with center touch screen; dark rectangle on right contains SMPTE locator displays.

by George Petersen

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ital ports. The multichannel analog board has eight inputs and eight outputs, all +4dB on two 25-pin D-sub connectors, while the multichannel digital card offers four pairs of AES/EBU input and output pairs, along with 8-channel ADAT I/O on two fiber-optic ports. One recent development is an option for routing the stereo digital inputs through an Analog Devices AD-1890 asynchronous sample rate converter chip (featured in the October 1993 *Mix*), which became available just two months ago. Also on the back panel are SCSI/SCSI-2 ports, 8-channel bidirectional GPIs on a D-25 sub, 1/2-inch footswitch connector, MIDI in/out (for MMC and MTC data), BNC word clock and video sync ports with 75-ohm termination switches, cascade I/O for connecting additional Foundation 2000 units, XLR SMPTE time code jacks and a proprietary CPU interface for a Macintosh computer.

Foundation 2000 can be used as a stand-alone system, without a computer; however, adding a Macintosh brings high-resolution color graphics to the system. This is accomplished via a Shared Memory Interface that combines a parallel hardware implementation with memory mapping process. Richardson likens the technique to a sort of "Vulcan mind meld" between Foundation 2000 and the computer, where updates—such as true waveform displays and onscreen metering—could appear instantaneously, limited only by the Mac's redraw speed.

Designed for recording studio, broadcast or post-production applications, Foundation 2000 offers on-board LTC and VITC time code readers, LTC generator, and can act as a master or slave, emulating a D-3 machine in a post suite. Besides SMPTE, other sync protocols include ESAM, RS-422 for Sony serial or communicating with the Fostex RD-8 ADAT format digital 8-track.

What's next? Beta testing begins this month, with the first customer deliveries slated for January. Pricing is expected to be in the \$25,000 range, and like Fostex RD-8, Foundation 2000 will be made in the U.S. To recoup this major R&D effort, Fostex plans to incorporate the technology into other products to come over the next few years, but so far it appears that Fostex has begun with a strong foundation. It will be interesting to see what tomorrow brings. ■

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Somebody has to put sound on all the 15-, 30- and 60-second regional and national spots coming out of Detroit, and since opening its audio doors in July 1991, General Television Network, Oak Park, Mich., has handled a lot of the audio post, as well as video post.

Two audio rooms were

—CONTINUED ON PAGE 79



ILLUSTRATION: TIM GLEASON

FOREIGN DUBS

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by Nicholas Pasquariello

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—CONTINUED ON PAGE 80



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—FROM PAGE 76, GENERAL TELEVISION

part of GTN's July 1991 multimillion-dollar expansion. Audio Post 1 and 2 were designed by Russ Berger with help from GTN's sound design supervisor Jay Scott and systems integrator 21st Century Limited. Although the equipment lists differ, the two rooms are acoustically identical.

Audio Post 1 houses a custom Solid State Logic SL-6040 console with Total Recall automation and two 16-channel ScreenSound systems (GTN was the first facility in the world to purchase SoundNet, SSL's networking scheme). KRK monitors fill both rooms, and GTN, along with SSL, designed a surround module that bounces from mono to stereo to Shure HTS Stereosound with the touch of a button.

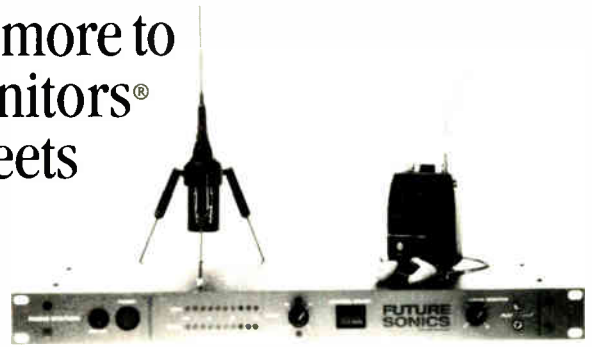
A Lexicon Opus workstation resides in Audio Post 2. The Opus is fully up-to-date, and it includes a large complement of inputs and outputs, both digital and analog, as well as more than six hours of storage. A secondary digital audio system, consisting of Mac Hfx's and various recording software, is linked via Ethernet cables.

"The Opus has some things it does very well," Scott says. "It's a wonderful device with time code because it performs very well as a master or slave, and it was ahead of most workstations in having eight ins and outs. I also like its time compression, and the jog wheel for edit location is great."

Scott is enamored of the elegance of the ScreenSound software, which he says combines the best of simplicity and complexity. "In terms of its approach to editorial tasks, locating tasks and being able to control the video and going into 'record' on the VTRs, it's really a very complete device, typical of any SSL product. And the audio quality is excellent."

Some of the ScreenSound automation functions also impress Scott. For example, he says it is common for voice-over talent to drop off on the ends of words, like the "ing" on driving. "On ScreenSound, you can make two little marks, back-stop to one, pull the automation fader up, say, ten more dB, back-stop to the next one and pull it back down to where it was," he says. "It's a ten-frame level boost that's faster than you can perform manually and certainly more accurate. Just a snap automation thing—clients love it."

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Ray Gillon, who has worked on more than 400 films. Gillon outlines some of the factors that effect the making of foreigners: the role of distributors, music and effects, time and translations/adaptations.

Although the M+Es received from the major studios are generally okay, Gillon has seen some remarkable exceptions, such as the 60 FXs and chunks of music absent from *Wild at Heart* and all of the music from Dolly Parton's *Rhinestone*. In some cases, such omissions can be intentional (such as the result of non-clearance of music rights), but usually it's just a case of poor communication between the studio and the foreign mixer. On *Rhinestone*, the multitasking Gillon took the direct approach to fixing the hole: "The studio got me a guitar, and I played the music; we re-recorded it there and then."

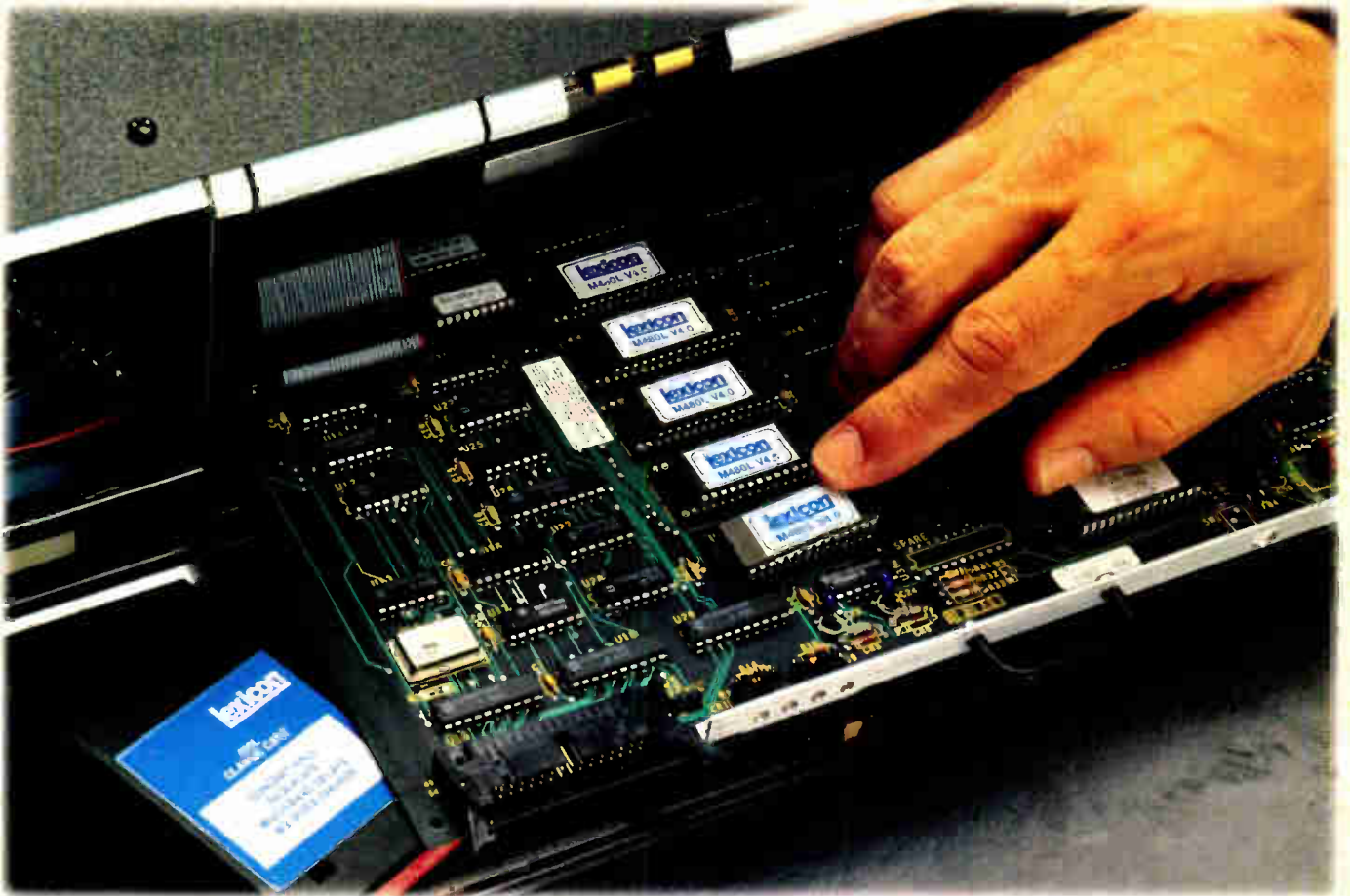
At Joinville, one of France's major studios, founding designer and technical director John Rutledge and re-recording mixer Bernard Leroux (*The Lover*) comment that about 70% of the M+Es they receive are imperfect.

"The main complaint concerns incomplete M+E tracks," remarks Rutledge. "In many films, much of the location sound has been conserved, which is fine, provided that atmospheres and footsteps during dialog sequences are re-recorded afterward for the M+E track. If this is not done, then those sounds will not be available for the foreign mix, and the engineer will have to find something in a sound library."

Though some Hollywood features gross more abroad than domestically, studios are fairly consistent in allotting fixed budgets of two to four days, with flexibility only in the number of hours worked per day; in Germany a difficult picture like *JFK* took 80 hours to do, while *Home Alone* was whipped out in seven hours. This disparity was a direct function of both the complexity of the mix for each and the budget available to do each job.

Under these restricted working conditions, time spent fixing an incomplete M+E takes away from precious dialog recording time. The Europeans try to make up for such limitations by passing along reports of problems to mixers in other countries next in line to do the foreign.

Another source of possible headaches is the all-important translations, which in Gillon's view,



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should always be done by a native speaker. The drawback is that they may not be *au fait* with modern slang, which changes rapidly. Translations should be read back into English and compared to the original; this will likely bring problems to light quickly and help avoid costly retakes.

One of Beggs' more memorable headaches occurred on the *Bugsy* German foreign mix, at the nostalgic scene when Meyer Lansky (Ben Kingsley) says to a fellow hoodlum, "Remember when we used to hold up kids playing craps in the street?"

It comes out in German, "Remember when we used to knock

over the kids playing with shit in the street?" When Beggs asked about this unusual translation, the German mixer said it sounded strange to him, but he thought it might have been vernacular for the period.

As is often the case, the American word has three syllables whereas its German equivalent has eight. The only choice, says Beggs, is to change the conversation to adapt rather than translate literally. However, if that word contains a crucial plot point, you're out of luck.

Since most non-English-language features shot in Europe never get shown outside their country of ori-

gin, Continental producers have lately shown increasing interest in shooting in English for the most lucrative single-language global market. Last year's U.S. box office success of the French production *The Lover* proved the viability of such an approach. Director, J.J. Annaud (*The Bear*) shot a guide track in English in Vietnam, where moped background sounds were all but overpowering. This combination of language and location allowed him to take advantage of the ambience and local color so central to the Marguerite Duras novel and still record in the language that would prove the biggest market for the film. Although English-language track looping was recorded in London, re-recording mixers at Joinville found themselves in the unusual position of creating a foreign in French for domestic release.

The commercialism of the production was also reflected in the variety of other foreigners created: Spanish, German, Italian, Thai and Japanese, as well as TV versions in a number of Eastern European languages. *The Lover* went on to win the highly regarded Golden Reel Award for the quality of its soundtrack.

Other recent pictures mixed this way at Joinville include *Vincent and Theo* (Robert Altman), *The Mahabharata* (Peter Brook), *Bitter Moon* (Roman Polanski) and *Salaam Bombay!* (Meera Nair).

Although the most successful German export dub, *The Boat*, was shot in German and later dubbed into English, Toni Ketterle, head of Bavaria FilmSound, reports that it is his facility's practice to record features set for international release in English, later making a German domestic dub, such as on *Homo Faber* (Volker Schlöndorff), *Cement Garden* (Andrew Birkin) and *In the Name of the Rose* (J.J. Annaud).

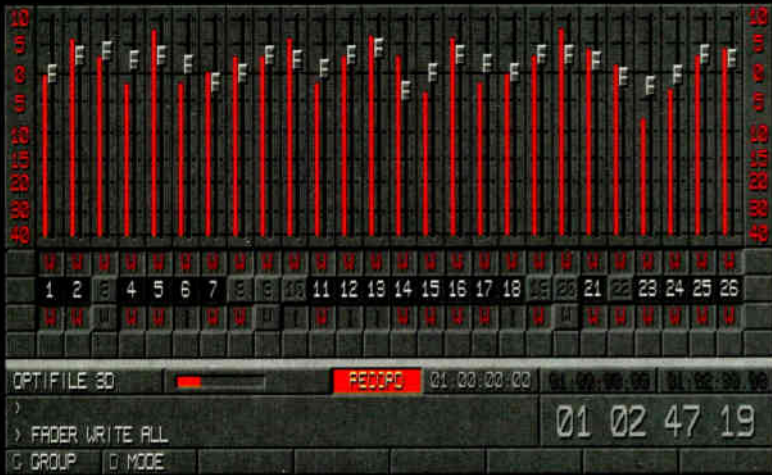
European and American mixers agree that education and better communication between mixers (Continental and Stateside) and distributors will go a long way toward alleviating the obstacles that get in the way of achieving their common goal: a track that serves the film audience and faithfully represents the director's original artistic intent. ■

Nicholas Pasquariello is a freelance writer based in the San Francisco Bay Area.

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DIGITAL SOUND IN THE CINEMA

THE BATTLE TO BRING DIGITAL SOUND TO MOTION PICTURE THEATERS officially began on June 15, 1990, with the presentation of *Dick Tracy* in 70mm Cinema Digital Sound in eight theaters. While CDS, which was developed by Optical Radiation Corporation, received much publicity at the time and was used on five other films, two factors would conspire to give the format a lifespan of a little more than a year.

First, in February 1991, Dolby Laboratories issued a pre-emptive strike against CDS by announcing *its* digital format, Dolby Stereo Digital, a full 16 months before it would be introduced formally to the public in *Batman Returns* on June 19, 1992. This undoubtedly caused theater chains to think twice about spending \$20,000 on a cinema processor that might (and indeed would) be obsolete once the biggest name in film sound was a player in the digital marketplace.

The second item to take the wind out of CDS's sails was that the Dolby SR•D print format retained the use of the standard stereo optical track (known in the industry as SVA: Stereo Variable Area), while the CDS 35mm digital track replaced it. Not only was there

no backup in case the CDS digital processor went down, but film distribution exchanges would also need to stock two types of incompatible prints (digital and analog), thus opening a Pandora's box of things that, according to cynics, would go wrong should reels be switched. CDS lost its initial head of steam, and in November 1991, ORC laid off the staff involved in the CDS project, finally selling off all assets in April 1993.

By August 1993, Dolby had equipped 120 theaters in North America with DA10 digital theater processors (plus 130 others worldwide), and more than 30 films had been released in SR•D, with Buena Vista (Disney, Touchstone, etc.) and Warner Bros. each accounting for about one-third of that total. (For those who are keeping score, the semantical difference between SR•D and Dolby Stereo Digital is that SR•D is the name of the print format with both Dolby Stereo Digital and analog Dolby SR tracks, while Dolby Stereo Digital refers to the format itself. Okay?)

Despite Dolby's head start and formidable position in the world of film sound, development of competing digital theater formats did not cease, and within a one-week period in June 1993, two new companies entered the marketplace: Digital Theater Systems and Sony Dynamic Digital Sound. On top of all this, French company LC Concept premiered its system back in 1991. In brief, here are basic descriptions of each system:

DOLBY STEREO DIGITAL

The Dolby Stereo Digital

soundtrack is recorded optically between the perforations on the same side of the film as the analog soundtrack, with a

OPENING SALVOS IN THE FORMAT WARS

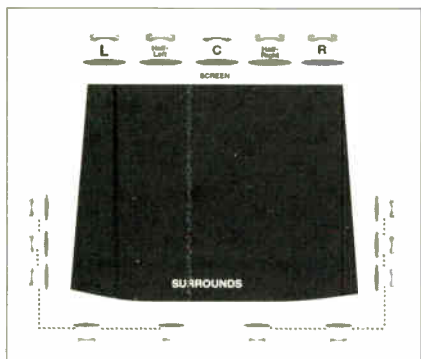
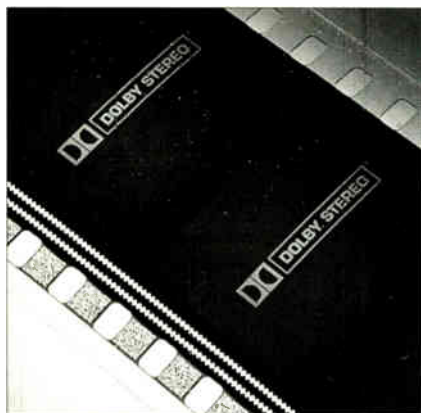
BY LARRY BLAKE

76x76-pixel array matrix making up each of the data blocks. The audio is recorded using Dolby AC-3 perceptual coding into a composite datastream at a rate of 320 kbits/second. (AC-3 was developed for the Dolby digital film program, which required a minimum of six tracks, while its predecessor, AC-2, was intended for 2-channel usage such as satellite distribution of stereo programs.)

The SR•D mastering process begins at the re-recording stage, with a 6-track digital printmaster recorded from the master dialog, music and effects stems. The Dolby DS10 mastering unit locks to 240Hz biphasic film sync and records on a magneto-optical drive via

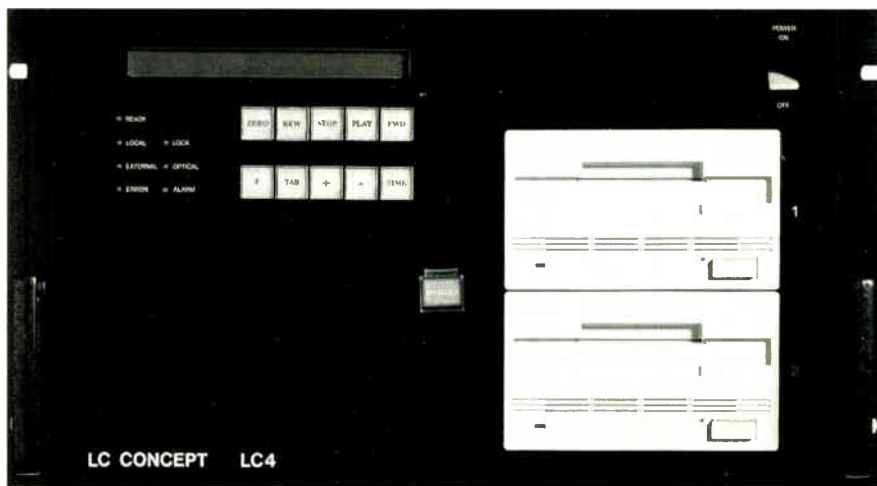
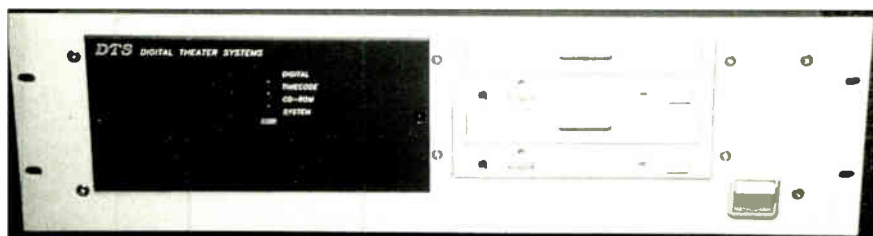
a dedicated AC-3 encoder.

The MO drive is then run in sync with the 2-track 35mm SR printmaster to create a sound negative with both analog and digital tracks. The MO drive can also contain an SR "analog"



Dolby Stereo SR-D prints (as shown above top) carry both analog and digital soundtracks, the latter providing six channels. Dolby AC-3 coding is used to fit the 6-channel digital track between the sprocket holes. The SR-D theater arrangement above shows front left, center and right speakers with the left and right surrounds in the rear. The dedicated subwoofer is generally front center.

A DTS (Digital Theater System) CD-ROM delivery at right. Below: the DTS 6-channel digital time code CD-ROM player with dual drives.

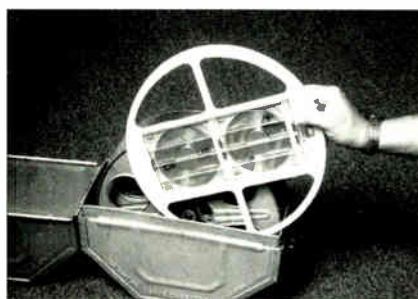


Lt/Rt printmaster, allowing for a more streamlined optical transfer.

Work has been underway at Dolby, in conjunction with Zoran Corporation of Santa Clara, Calif., to implement the AC-3 algorithm on a high-powered DSP chip [Ed note: The chip, the programmable ZR38000, was shown at a press con-

The LC Digital system unit uses magneto-optical drives. Their large capacity allows the format to include 4-track mixes in two languages, plus data for subtitles. Time code is recorded on the outside edge of the film on the soundtrack side.

The Sony Dynamic Digital Sound format, which features eight channels, five of them behind-the-screen channels. The SDDS units function as stand-alone digital cinema processors and contain digital 1/3-octave equalization set up via serial control only.



ference on Sept. 23, 1993, one year after the announcement of the joint partnership.) that could be used in a 5.1 channel "consumer delivery media" context. It was reported in *Electronic Engineering Times* that General Instrument ("the largest cable converter-box provider in the U.S.") recently announced that it will use AC-3 in "all 2 million units of cable set-top boxes for which [they] have received orders."

Although Dolby Pro-Logic decoding would not become obsolete considering the thousands of 2-track, 4-channel Dolby Stereo films in video release, Dolby Surround Digital would be used on newer releases, bringing non-matrixed stereo soundtracks to the home for the first time.

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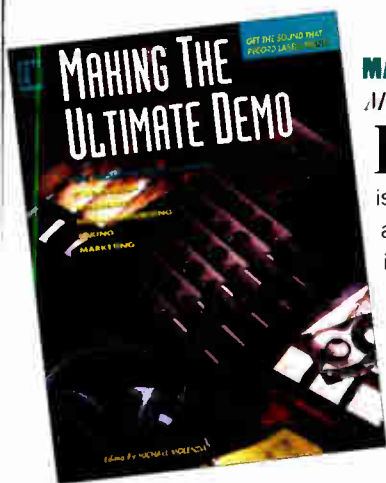


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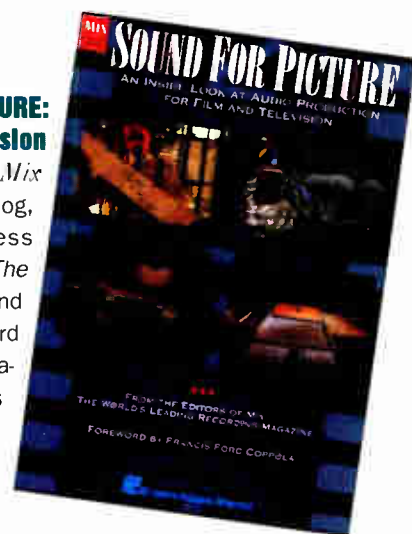
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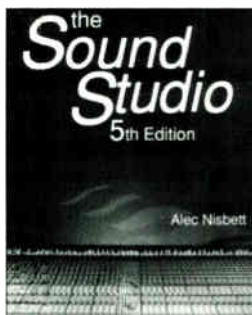
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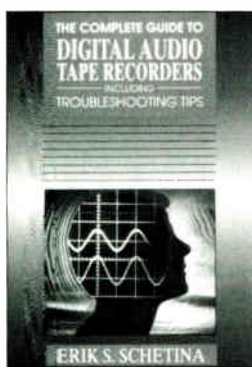
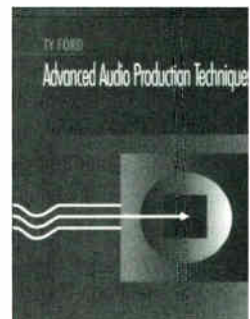
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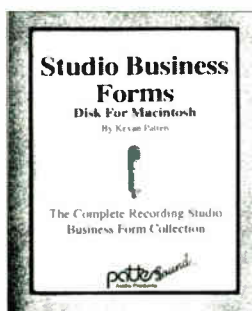
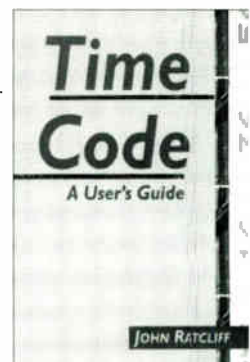
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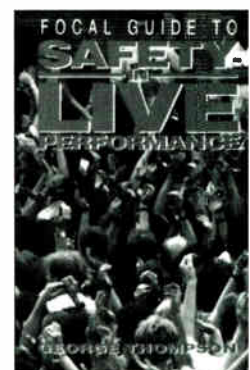
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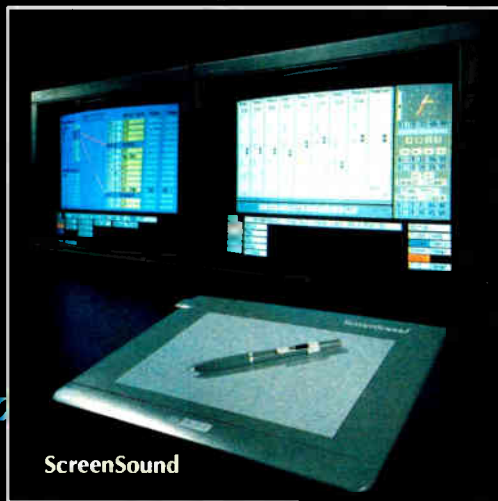
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In addition, the chip would be capable of Pro-Logic decoding. (Ed Schummer, Dolby VP of Licensing, says that more than 4,000,000 Pro-Logic and Dolby Surround units have been sold in the U.S. alone, and 9,000,000 worldwide.)

There are currently four Dolby CA10 camera (optical film recorder) systems in existence: one at Dolby's Hollywood office, one at its UK office, one at Buena Vista Sound in Burbank and one at Warner Hollywood Studios; four more will be delivered within the next few months. As of this writing, Dolby reports that the major release printing laboratories in the world—CFI, Deluxe, The Film House and Technicolor in North America—are all able to make SR•D prints using special heads on their high-speed printers. Upcoming films include *Demolition Man*, *The Remains of the Day* and *Tim Burton's Nightmare Before Christmas*.

DTS

When Steven Spielberg's *Jurassic Park* opened on June 10, 1993, 764 theaters had installed Digital Theater Systems decoders, more than 300 of them in the 6-track format. This figure was astonishing, considering that system shipments began in mid-April. In some major cities, DTS was able to install units for *Jurassic Park* in over 50% of stereo-equipped theaters playing the film.

DTS was first introduced to the film sound community on January 30, 1991, at the Cary Grant Theater (in the Culver City studio lot now occupied by Sony Pictures Studios), using an R-DAT running in interlock, relying on large amounts of buffer memory. But with the introduction of double-speed CD-ROM drives in 1991, DTS president Terry Beard shifted the design of the format to accommodate the more reliable fast-access technology. Beard has worked on the design of the system with Jim Ketcham, who has been responsible for the design of the time code reader and synchronization system.

DTS employs a 30 fps time code track between the standard analog track and the picture. Although the track location is as specified by SMPTE RP 115-1983, the bit rate (24 as opposed to the standard 80) was selected for its robustness. The DTS time code is recorded while shooting the analog stereo optical sound

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SOME BASICS CONCERNING ALL SYSTEMS

1. All of the systems feature the "5.1 channel" format (with the exception of SDDS, which offers 5.1 as an option): that is, full-range left, center and right screen channels; full-range left and right surround channels; and a separate subwoofer channel. The ".1" designation comes from the fact that the subwoofer track only requires approximately one-tenth the data required to create a full-range channel. Nevertheless, the subwoofer tracks on LC Digital and SDDS are capable of full-range information; they are "mixer-limited" within standard subwoofer bandwidth considerations. The low-frequency information from 20-60 Hz of the surround channel for DTS 6-track prints is recorded together with the subwoofer information; the signal fed to surround *speakers* is limited to 80 Hz.

2. Single-inventory 35mm prints with a standard optical soundtrack are used by all. In the case of Dolby Stereo Digital, the optical track is Dolby Stereo SR; the optical track on the initial DTS releases, *Jurassic Park*, *Heart and Souls* and *Hard Target*, have been standard licensed Dolby Stereo A-type encoded tracks in the U.S. Terry Beard of DTS says that in the future, they will offer one-stop licensing: In addition to the 6-track digital DTS CD-ROM masters, they will be matrix-encoding Dolby A-type, 2-track printmasters designed for the analog optical tracks.

3. These digital systems effectively replace the analog 70mm, 6-track process that was, until the beginning of this decade, the only way to get top-quality sound into theaters, despite the cost and trouble (up

to \$12,000 per print, which had to be separately striped with magnetic oxide, recorded in real time, and then checked in a theater). The costs for the new systems, even with separate sound carriers (CD-ROM or MOD) or additional per-foot printing charges (as might be the case in some labs with SDDS or Dolby SR•D), couldn't amount to more than \$150 per 35mm print. Cheap!

As a result, the new digital formats should do for 6-track mixing what Dolby Stereo optical did for 4-track mixing: democratize it and make it available in far larger numbers than ever thought possible. (Before *Jurassic Park*, the largest 6-track release was probably Spielberg's *Indiana Jones and the Last Crusade*, with about 300 70mm prints.)

4. Although all of these systems have the potential to give theaters a bulletproof A-Chain (the soundtrack, its reader and preamplifier, plus noise reduction and matrix decoding, if applicable), they provide 20 dB of headroom on each channel, far exceeding the power-handling abilities of the B-chains (system equalization, crossover network, power amps, loudspeakers and auditorium acoustics) of a large percentage of theaters. Furthermore, none of the systems can be protected against bad mixes with inaudible, thin dialog and obnoxiously loud music and effects.

5. All of the systems use a perceptual coding scheme, virtually exhausting the small list of competing professional systems. However, while some might argue over their relative sonic merits, this writer has heard all the systems on at least two films and discovered that they all sound fine. Any further comments will have to wait until some independent organization conducts a same-source "bake off" of all competing systems.

—Larry Blake

negative (DTS will be using standard A-type SVA tracks only). The only action required of the transfer person is to key in the reel number and a five-digit serial number of the film. Sync is obtained when the sync pop three feet before the first frame of picture is read.

A 6-track printing master for DTS is made in the standard fashion, either to mag film or digital multitrack. It is then transferred to a hard drive as MS-DOS files, with apt-x100 perceptual coding coming into place during the creation of the two CD-ROM "answer" discs. These can then be used to check for sound quality and sync with a 35mm answer print (containing SVA soundtrack and DTS time code) prior to mass duplication. System software is contained on the duplicated CD-ROM discs themselves, allowing for simple updates in the future. The cost for both mass-

duplicated and answer discs is \$50 each, plus \$2,000 for the glass master used for duplication, the cost of which is borne by DTS. The discs are then placed in a high-impact plastic shipper that fits in the standard "Goldberg" cases used to ship 2,000-foot projection reels to theaters.

For *Jurassic Park*, Universal shipped a backup set of CD-ROM discs to individual theaters in advance of the prints containing the main set of discs. This was prompted by understandable wariness about the newness of the interlock procedure (it's doubtful that any of the projectionists were around when the *Vitaphone* sound-on-disc system was used in the 1920s). However, Universal and DTS report that the film distribution exchanges did their job of shipping the discs with the prints, and they do not plan to repeat the two-set shipping procedure.

There is some concern in film sound circles concerning the reliability of CD-ROM drives. Beard says that the Toshiba XM3401B drives have a MTBF (Mean Time Between Failures) rating of 50,000 hours, and although two units failed in "hot tests" prior to shipment, there have been no failures in the field. Drives are plug-in replaceable in the event that one goes down.

DTS's initial CD-ROM design covered two formats: a 6-channel unit with two CD-ROM drives, and a 2-channel matrix-encoded version with one drive. The latter (called DTS-S for "stereo") connected the A-Type, NR-encoded signal into the photocell inputs of cinema processors. Although this 2-track mix would not be limited by the constraints of optical recordings, it was decided to give it only 12 dB of headroom to conform not only with

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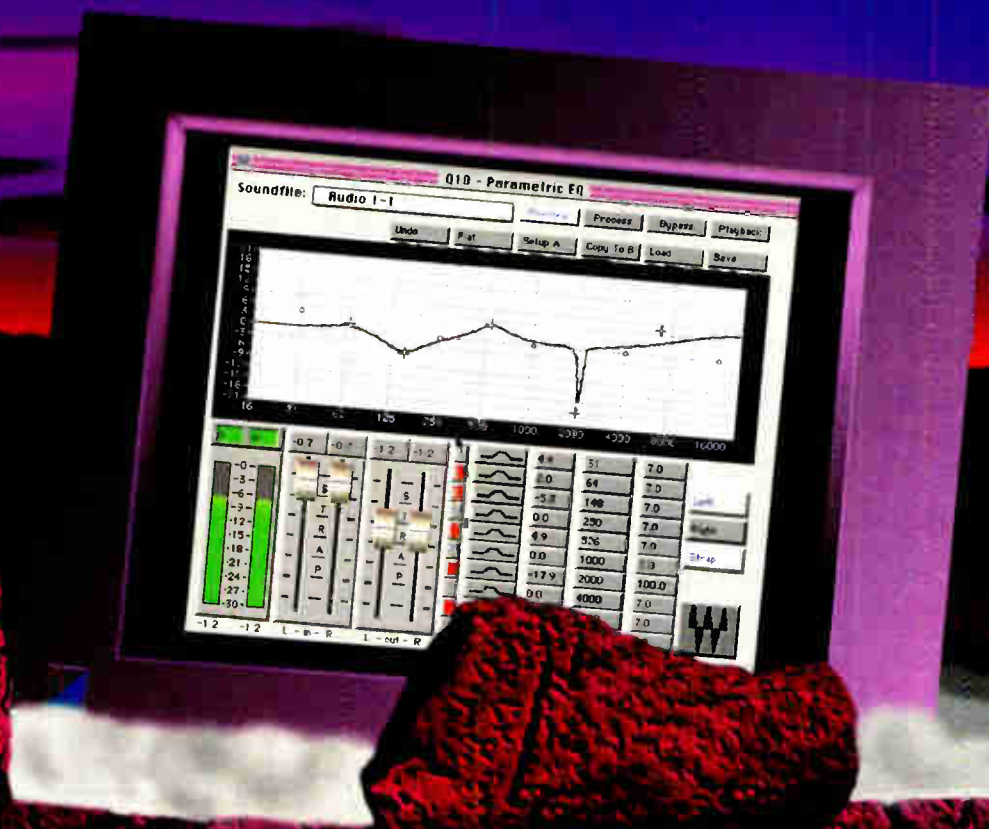
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headroom of 2:4 matrix decoders, but also that of the reproduction systems that could be expected in what were mostly optical-only theaters.

In the future, Beard says, DTS will sell only 6-track units because this is clearly the format that mixers, theater owners and the public want. In the meantime, DTS films will continue to be released with the 2-track, matrix-encoded digital format (in addition to 6-track) until all theaters have been upgraded.

The *Jurassic*-age introductory price for 6-track units was \$3,500. Although the current list price is \$6,000, substantial dealer discounts will be in effect until the end of the year. Stereo-to-6-track upgrade kits (primarily the second CD-ROM drive) are available for \$1,000. (Stereo units originally sold for \$2,500.) By end of 1994, Beard expects to be in 8,000 to 10,000 theaters worldwide; the current figure for the U.S. is 960 with 250 more in the rest of the world.

SDDS

The most recent entry in the digital wars is the Sony Dynamic Digital Sound format, which premiered to the industry and the public in four theaters in Los Angeles and New York for Columbia Pictures' *Last Action Hero* on June 17, 1993. SDDS uses the last unexplored frontier of release-print real estate, the area outside the perforations, with two 0.060-inch stripes, one on each side of the film. The system uses the ATRAC (Adaptive TRansform Acoustic Coding) perceptual coding scheme, originally developed by Sony for its MiniDisc system. SDDS is spearheaded by Michael J. Kohut (managing director), James N. Fiedler (president) and Howard J. Flemming (head of engineering and one of the masterminds behind CDS) in Culver City, in collaboration with another group at the Sony Atsugi Technology Center south of Tokyo.

One of the prime selling points of SDDS is its 8-channel configuration, featuring five behind-the-screen channels—the way it used to be on 70mm prints from 1955-1975 B.D. (Before Dolby). (An oft-repeated, apocryphal myth is that most of the films released in 70mm 6-track during its heyday were recorded and mixed 4-track, "spreading" to 6-track only at the last moment. This is simply not true; dozens of films such as

The Sound of Music, *My Fair Lady* and *Patton* were 6-track from music recording to premixes to final mix.)

The initial impetus to develop SDDS came from Kohut, who was a re-recording mixer for over 15 years at MGM (whose former facility is now the home of Sony Pictures). He says that the 5-channel format was "dynamic" based on his experience with the format as a mixer. In 1992 he proposed the system as a way for Sony to bring to the industry a next-generation digital system.

SDDS is the first digital (or analog, for that matter) format that has used the "best of all worlds" approach, with the five screen channels, stereo surround channels and dedicated subwoofer channel. DTS and LC Digital have the ability to support eight channels, with DTS actually doing that on a 70mm short film for Expo '93 in Taejeon, South Korea.

Last Action Hero was a true 8-track mix from the beginning, with *In the Line of Fire*, the second SDDS release, being primarily a 6-track, three-behind-the-screen mix. SDDS claims to be upwardly and downwardly compatible in the theater; that is, a full 8-track mix with five screen channels can play in a theater equipped with a standard three-speaker setup. The exact formula of the five-to-three reduction (essentially how to incorporate the left-center and right-center speakers into left/center/right) would be determined on a per-film basis by the mixers and would indeed be encoded into the digital datastream.

The SDDS format, along with the design of its cinema processor, is still undergoing modification based on early field results. According to Flemming, in the spring of 1994 the system will be unveiled in its final "full-blown" form, with a goal of 1,000 units installed by the end of the year. Until that point, prototype units will be used throughout the fall and winter on additional SDDS-encoded films, including Martin Scorsese's *The Age of Innocence* and James Brooks' *I'll Do Anything*. The cost of the processors will be comparable to the Dolby digital units, which as of this writing are approximately \$13,000 including reader. Also like Dolby, Sony will offer an add-on unit to Westrex optical recorders to allow the SDDS negative to be shot concurrently with the

DOUBLE-SYSTEM

DTS and LC Digital are double-system; that is, the soundtrack is not contained on the print, instead running separately, interlocked with the film projector. To be more accurate, the *digital* soundtrack is not on the print; both systems leave the stereo optical track untouched, using it as backup in the event of failure of the digital interlock system, and also for replay in unconverted, analog-only theaters.

Until now, double-system theatrical projection meant that sound was carried on a linear medium, usually sprocketed mag film. Any loss of synchronization during a screening was disastrous, requiring sync to be found manu-

ally by edge codes or by going back to start marks.

DTS and LC Digital neatly address the classic nausea-inducing problems of double-system: By reading the time code in advance of the picture, any edits in the film (whether they are unintentional, as in missing footage, or intentional, as in reel changes) are read and relayed to the disk drive (MO or CD-ROM) with instructions as to where they have to be when the splice reaches the projection aperture.

Another potential problem is the possibility of disc mixup. Again, both systems get around this by refusing to play from CD-ROM/MO drives (switching to stereo optical) unless the serial numbers for both discs match that of the print being read.

—Larry Blake

SVA track.

Where the DTS system requires a pre-existing cinema processor for matters such as system equalization and fader control, the SDDS production units will function as stand-alone digital cinema processors and will contain digital 1/3-octave equalization set up via serial control only. This will have the glorious benefit of virtually removing the chance that the assistant manager will turn up the subwoofers and surrounds ("because that's what the public wants") once the service technician has left the building.

LC DIGITAL

While LC Digital might not be well-known in the States, it premiered in Paris on June 26, 1991, for the French film *Cyrano de Bergerac*. Since then, it's been used on 20 films, primarily in Europe. The name of the company, by the way, comes from the last names of its two principals, Elisabeth Löchen and Pascal Chédeville.

Chédeville had been thinking of a method to bring digital sound to films after hearing complaints from friends who worked in film sound that, no matter how much digital technology they used in post-production, the end result was almost always a stereo optical analog track.

His investigations into the problem began in the late '80s, and the company had working prototypes by February 1991.

LC eventually settled on using magneto-optical drives because of their proven reliability in professional uses. The large capacity allows the format to include 4-track mixes in two languages (one on each side of the cartridge), plus data for subtitles, which can be projected underneath the screen. Thus, a non-subtitled, English-language print could be shown in France either dubbed or subtitled from the same set of discs!

Time code is recorded on the outside edge of the film on the soundtrack side, using garden-variety, 24-frame time code for compatibility with 24 fps theatrical or 25 fps European television frame rates. The perceptual coding algorithm is the WB48SBC, which Chédeville describes as the "father of Musicam," the better-known format developed by the European technical commission CCITT. He says that the main difference is that WB48SBC's coding is in packets of eight milliseconds, as opposed to 24 msec for Musicam.

The units have been sold throughout Europe, in addition to France, and the films have included the release in France of both v.o. (*version originale*, i.e., original

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track) and dubbed (v.f., for *version française*) versions of many U.S. films like *Basic Instinct*, *Cliffhanger* and *Matinee*.

EPILOG

Although Universal has a minority interest in DTS, and SDDS is owned by New York-based Sony Software Corporation, which also encompasses Sony Pictures-owned Columbia Pictures and TriStar Pictures, both companies will make the technology available to other distributors with a license fee comparable to Dolby's \$7,500 figure (the exact amount depends on the number of films licensed and how much additional consulting time is required). Universal has stated that all of its future releases will have DTS mixes; the first non-Universal films to be released in DTS will probably be Paramount's negative pickup *Flesh and Bone* and New Line Cinema's *Gettysburg*.

The current battle is the first time since the beginning of sound films that the industry has had to choose between competing systems. (The format wars in the 1950s were more over the wide screens than their associated sound systems.) In the end, the winner (if indeed there is only one) will be decided by some formula involving the number of equipped theaters, multiplied by the number of films released, divided by the cost of the processor. Improvements in theater sound systems have always mimicked the classic chicken-or-the-egg dilemma: theater owners don't want to install new equipment without the product/software, and filmmakers are less inclined to mix in a new format unless it has a hope of being shown that way.

In this respect, Universal and DTS broke all the rules on *Jurassic Park* with the purchase by the distributor of 1,000 units, which it resold to theaters at an attractive introductory price. As a result, DTS has "lowered the ante"—being less than half the price of competing systems—for digital sound in theaters. For all of the vaunted improvements that are considered synonymous with digital sound, the sound that really matters might turn out to be the sound of theater owners writing checks. ■

Larry Blake is a sound editor and re-recording mixer. His last movie was King of the Hill.



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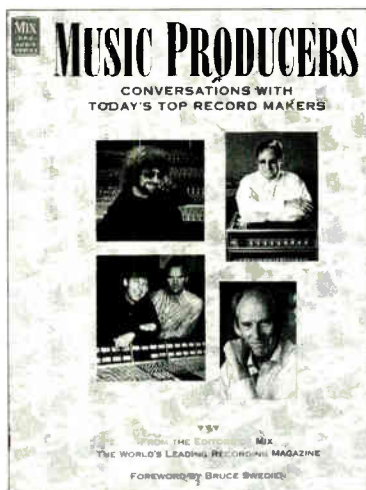
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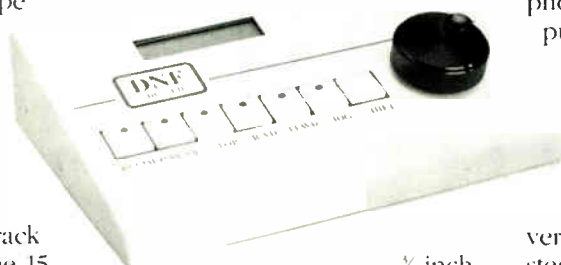
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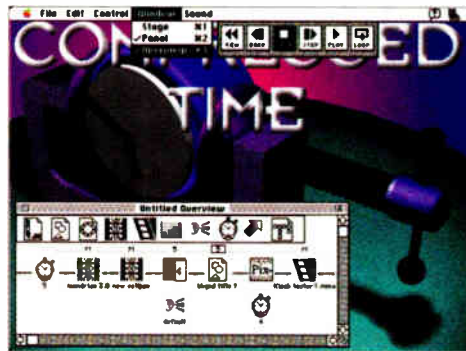
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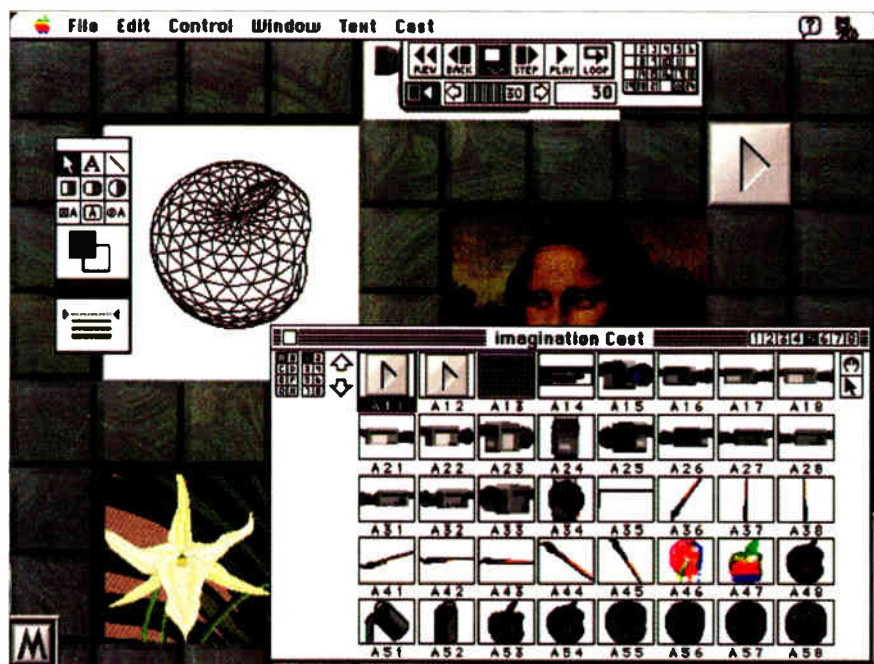
you use a computer to produce audio, you are undoubtedly aware that it's possible to integrate your audio elements with other media types (graphics, animation, video and text) into a computer-based production. Aside from the creative skills required to complete such an undertaking, what do you need to design your own interactive application? Well, as you may have guessed, the answer is not all that simple, and that's why we'll use this month's column to look at some currently available multimedia authoring tools.

But first, let's wrestle for a minute with that trendy term "multimedia." In order to keep this article from taking over the magazine (not to mention the next several weeks of my life), let's narrow our focus to desktop *interactive* multimedia. So

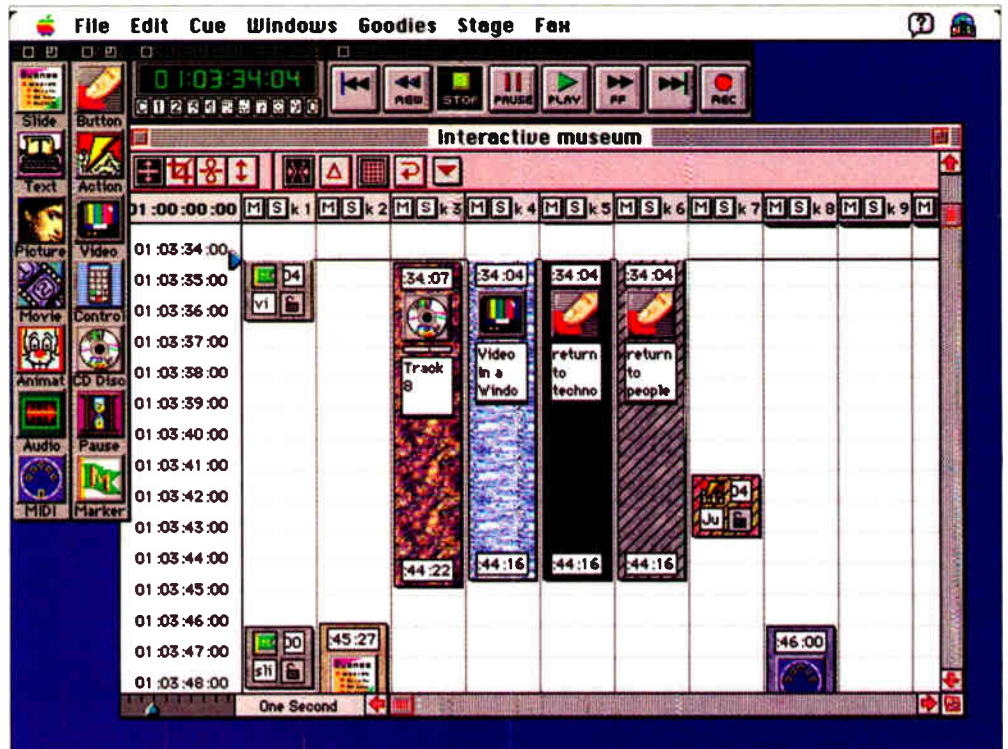
what does *that* mean? Because we all presumably have an audio background, I'd like to suggest that for our purposes we can define desktop interactive multimedia as the integration of audio with graphics, text, animation and/or video on a computer, in a way that lets the user experience the information in an interactive way. Here are a few examples: interactive kiosks in museums and



Macromedia Director's Overview window (left) lets you assemble your productions, and the Cast window (below left) is used for accessing and organizing graphics, audio and text.



Passport Producer Pro
uses a time line metaphor
for integrating digital media.



shopping centers, computer-based training in a networked corporate environment, and interactive educational or entertainment CD-ROM titles. (For more on music-oriented entertainment CD-ROM titles, see Phil De Lancie's upcoming article in the December issue of *Mix*.)

Historically, people have made a distinction between multimedia authoring systems and multimedia presentation software. Today's increasingly powerful object-oriented authoring tools are blurring the line between the two, but, nevertheless, it's still helpful to make that distinction. Authoring systems tend to use scripting language and offer more powerful features than their counterparts. The trade-off, of course, is ease of use. What follows is a description of the most common interactive multimedia authoring systems.

CROSS-PLATFORM SYSTEMS

Authoring software is available for everything from proprietary delivery systems—such as CD-I—to Amiga and Silicon Graphics workstations. But more than 90% of the interactive action takes place either on the Mac-

intosh or on the Intel-based platforms—either Windows or DOS-based. A few offer cross-platform translation of presentations.

Macromedia (formerly Macromind, Paracomp and Authorware) has been at the forefront of multimedia software authoring system development for the Macintosh since 1987. The company has expanded its product line to the Windows platform, and today it offers several production packages, from quick-and-easy presentation tools to the most sophisticated of authoring systems.

At the high end of that spectrum is **Authorware Professional V2.0**, available for Mac and/or Windows. It uses a flow chart metaphor to provide a full range of tools for designing interactive productions. Authorware offers a big advantage over its competitors in that files created on the Macintosh can be opened and edited under Windows, with nearly 100% fidelity in structure and content conversion. Of special note is software support for QuickTime for Mac and Windows, Microsoft Video for Windows and Intel Indeo movies. Audio features include sup-

port for AIFF, PCM and SND, .WAV, CD-Audio and MIDI formats. This icon-based system also includes separate delivery software, utilities, clip media and file importers.

Authorware Professional V2.0 excels at training and education applications, but at a \$4,995 price tag (Mac or Windows) for commercial purchases, it's among the most expensive of the available systems. You can have the Mac and Windows versions for \$7,995. Suggested pricing for educational purchases is \$995.

Macromedia Director 3.1 is a popular tool for interactive productions and other projects that require color, movement and zip. It uses its own scripting language, called Lingo, to perform all but the most simple design and programming tasks. A run-time player is available for Mac and Windows. Director can import AIFF, SND, SoundEdit and MIDI files. It also can control CD-Audio via XObjects, additional pieces of code similar to HyperCard XCMDs that are designed to hook into Director. Suggested retail price for Director is \$1,195 (\$1,795 bun-

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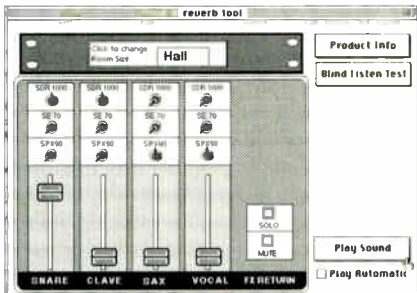
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World Radio History

dled with the Player for Windows).

MacroMedia Action! is available for the Macintosh and Windows platforms. Though not as full-featured as an authoring system, Action! lets users integrate motion, sound, text graphics, animation and video into onscreen presentations. It uses a slide show metaphor and is targeted to business presentations. Presentations created on one platform cannot be read by the other. Action! is priced at \$495 for both platforms. Macromedia Inc., San Francisco, CA; (415) 442-0200.

HyperCard was introduced by Apple Computer in 1987, and its acceptance as an authoring tool helped propel the multimedia industry forward and create the wide acceptance of the technology. The



A typical HyperCard screen

current version allows integration of text, graphics and 8-bit audio. MIDI, QuickTime movies and external control of devices such as CD-ROM drives and laserdisc players also can be integrated via HyperCard XCMDs. HyperCard uses HyperTalk scripting commands to create a wide variety of interactive presentations or "stacks." One of its main drawbacks is lack of color support, which has been addressed, if a bit awkwardly, by various colorizing XCMDs such as ColorizeHC. A HyperCard Player ships with every Macintosh sold, making distribution of stacks essentially royalty-free. The HyperCard Development Kit includes complete authoring software and many XCMDs, along with over 1,400 pages of documentation, and can be purchased separately from Claris for \$199. Claris Corp., Santa Clara, CA; (408) 987-7000.

Although Claris does not offer a way of converting HyperCard stacks to the Windows environment, Heizer Software does. **ConvertIt!** (I just

love all these exclamation marks!) can translate whole HyperCard stacks so they run in Asymetrix ToolBook under Windows 3.0 on an IBM PC or compatible. It handles around 70% of the conversion work. Some stacks require cleanup after conversion. ConvertIt! sells for \$199. Heizer Software Pleasant Hill, CA; (800) 888-7667.

Spinnaker Plus 2.1 from Spinnaker Software is an authoring system for Mac and Windows Plus computers that provides authoring in the Macintosh environment and uses the same metaphor as HyperCard. It can actually convert older versions

of HyperCard stacks, but unlike HyperCard, color is built directly into Plus, and you can convert your Plus stack to a Windows version for playback. Among its drawbacks is its modest animation capability. Sound is handled the same way it is in HyperCard. Spinnaker Software Corp., Cambridge, MA; (617) 494-1200.

Apple recently unveiled its **Apple Media Kit**, a package that combines a multimedia authoring program and an object-oriented programming environment. The Media Kit includes the **Apple Media Tool**, an application that lets Mac users create self-running, interactive presentations

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CHIPSHOTS

DIGIDESIGN PRO TOOLS POSTVIEW

Pro Tools PostView is an upgrade to Digidesign's (Menlo Park, CA) Pro Tools digital audio recording and editing system. PostView allows the user to spot effects, dialog and music in sync with full-motion, frame-accurate digitized video. It takes advantage of the Macintosh's QuickTime technology, incorporating video elements created using third-party video capture cards. Video is viewed either on the Macintosh screen along with the Pro Tools window or directly from the video card on a separate monitor.

Pro Tools PostView also includes machine control for performing chase lock of video decks to Pro Tools audio. The upgrade was expected to be available by mid-October.

Circle #201 on Reader Service Card

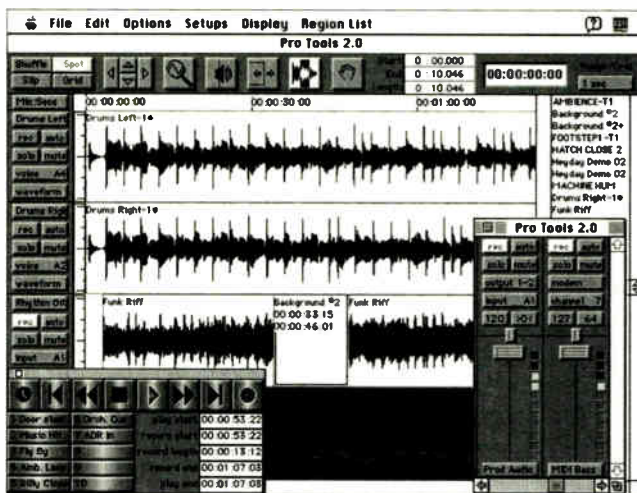
IICS INTERACTIVE/MULTIMEDIA BUSINESS RESOURCE GUIDE

The 1993 Interactive/Multimedia Business Resource Guide for Los Angeles & Orange Counties lists over 250 local suppliers of products and services for this rapidly growing industry. The 20-page booklet is published by Robert Steel & Associates, and is distributed by the Los Angeles chapter of the International Interactive Communications Society.

Circle #202 on Reader Service Card

WENGER COMPUTER SYNTHESIS WORKSTATION

The Computer Synthesis Workstation from Wenger Corporation (Owatonna, MN) was designed for musicians using computers and keyboards at the same time. The computer keyboard sits on a shelf that can slide from left to right along the workspace, above the music keyboard. The open lower level can hold external hard drives and other peripherals. Two



built-in compartments directly under the upper level can hold 19-inch rack components. Other features include a 15-outlet powerstrip and a convenient cord management system.

Circle #203 on Reader Service Card

AWARE SPEED-OF-SOUND EFFECTS CD-ROM

Volume I of the Aware Speed-of-Sound library from Aware Inc. (Cambridge, MA) contains over seven hours of stereo, 44.1kHz digitally recorded sounds on a CD-ROM that can be read by both Macintosh computers and Silicon Graphics workstations. The disc also contains search-and-retrieval software, as well as Aware's own decompression software, which allows the compressed audio to be played back without any additional hardware. An "export" window lets the user generate 8- or

16-bit AIFF, .WAV or OMF audio files from the encoded audio data.

Aware has been developing its wavelet compression technology, which is the basis for this CD-ROM, the company's first end-user product. This same technology is also being used in InMix's VideoCube random-access digital video editor and

the AT&T Picturephone.

Circle #204 on Reader Service Card

OPTIMA DESKTAPE SOFTWARE

Optima Technology (Irvine, CA) is shipping its DeskTape software, which is designed to work with DAT tape backup devices and Macintoshes. With DeskTape, DDS DAT tapes and their contents appear as icons on the Mac desktop, allowing users direct access to 2 GB of data. The tape has the look and feel of a hard disk. Files can be opened, copied or discarded without the need of a restore program to retrieve information from the tape. File location is said to occur within .001 to 30 seconds with a 60- or 90-meter tape depending on data set size, data availability in DAT cache, and Hardware Data Compression.

Circle #205 on Reader Service Card

DIGIDESIGN TURBOSYNTH SC

Turbosynth SC is a major upgrade to Turbosynth, Digidesign's (Menlo Park, CA) synthesis and sound design software for the Macintosh. It allows users to create unique sounds from scratch, or to modify existing samples using a variety of software tools. Turbosynth SC now supports stereo and is integrated with Digidesign's digital recording systems as well as SampleCell.

Circle #206 on Reader Service Card



GUILTY.

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Exhibit A: To find evidence of our remorseless commitment to sonic integrity, look no further than the new D&R Triton. Its transparency, flexibility, and unparalleled support put it in the same league as our flagship, the D&R Avallon.

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Exhibit B: When Digidesign was judging new consoles to use with their own 20- and 16-bit digital recording & editing systems, they knew the board would have to be good. Very good. And quiet. Very quiet. Their verdict? The D&R Orion.

D&R handcrafts consoles for recording, live sound, theatre, post-production and broadcast. Whether you own a world-class facility or a serious project studio, there's a D&R for your needs and budget.

without scripting. Also included is an object-oriented multimedia programming environment for lower-level development, as well as a tool that lets users convert titles to the Windows environment. Media Kit is bundled with VideoFusion 1.5, a QuickTime editing application from VideoFusion (Maumee, Ohio), and retails for \$3,495. The Apple Media Tool is also available separately for \$1,495. Apple Computer, Cupertino, CA; (800) 776-2333.

MACINTOSH AUTHORIZING SYSTEMS

Aldus Corporation's **SuperCard** uses a language that is a superset of HyperCard's HyperTalk and can import HyperCard stacks. Its big advantages over HyperCard are multiple windows, color support and PICS animation support. However, it runs more slowly than its Claris counterpart. SuperCard projects can be delivered royalty-free as stand-alone applications. SRP is \$299. Aldus Corp., Seattle, WA; (206) 622-5500.

Producer Pro is the latest iteration of Passport's Producer media integration software. The big news here is that Producer Pro allows you to create interactive presentations. It uses the same intuitive time line interface and incorporates MIDI Machine Control, path-based animation of objects, laser disc control and expanded SMPTE support. Reflecting the company's roots, the program is long on incorporation of audio. Extensive support of AIFF, Sound Designer, SoundEdit and MIDI are included in this \$1,495 package. The company is reported to be working on a Windows version also. Passport Designs, Half Moon Bay, CA; (415) 726-0280.

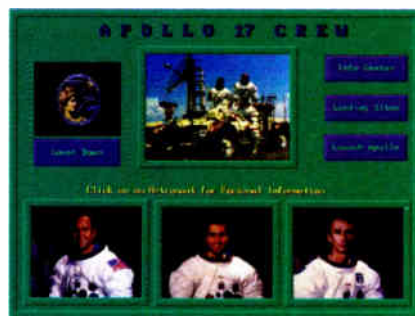
AUTHORIZING SYSTEMS FOR WINDOWS

At \$395, Asymetrix's **ToolBook 1.53** is one of the most popular authoring tools for Windows and uses programming language with an approach similar to HyperCard but with more features. It also supports access to dBase III and IV database files. ToolBook can also take advantage of DLLs (similar to Hypercard XCMDs) to extend its capabilities. Multimedia Toolbook (\$695) is an enhanced version that adds high-level support for Multimedia Extensions for Windows. On the audio side, Multimedia ToolBook supports all the MPC sound cards and is, in fact, bundled with selected Turtle Beach (York, Penn.) Multimedia Upgrade Kits for developers who want to take advantage of high-quality digital audio and MIDI. Asymetrix Corp., Bellevue, WA; (206) 462-0501.

Developed by American Training



Edit screen (above) and Sample screen for Vision Imaging's Media Master



International, version 1.3 of **TourGuide** uses a "guided tour" metaphor that makes it appropriate for creation of interactive software tutorials and educational materials for the Windows environment. Features include foreground and background layering, animation, graphics, text and transitional effects. Microsoft's Multimedia Extensions—including Full-motion DVI video and audio—are supported with this package. TourGuide is priced at \$3,370, which includes one year of technical support and internal run-time licensing. The cost for unlimited external delivery licensing is \$1,000. American Training International, Los Angeles, CA; (800) 955-5284.

IconAuthor, from AimTech, is multiplatform (UNIX-XWindows/MS-Windows) and is geared toward high-end professional authoring, especially for CBT applications and sophisticated information kiosks. It features an intuitive icon-based metaphor for creating applications. It

supports Multimedia Extensions for Windows, which permits the use of CD-Audio, MIDI and digitized audio, as well as most video boards. It also supports access to dBase III and IV database files. IconAuthor carries a hefty price tag of \$4,995 and includes six Presentation Systems (for distributing your presentation), extensive training and one year of toll-free tech support. Additional Presentation Systems are \$50. AimTech Corporation, Nashua, NH; (603) 883-0220.

HSC is a subset of IconAuthor with fewer programming features at a \$495 price. Developed by Harvard Systems Corp., a strategic partner with AimTech. HSC is designed specifically for interactive multimedia presentation and product demo development. It supports .WAV and MIDI files, and MCI for control of sound adapters, CD-ROM drives, VCRs and other peripherals. HSC presentations can be distributed royalty-free. Harvard Systems Corp, Santa Monica, CA; (310) 392-8441.

Vision Imaging's **Media Master** is designed for creating interactive multimedia corporate training, medical and industrial imaging and other A/V presentation applications. It uses object-oriented tools rather than a scripting language to assemble presentations and can handle high-resolution images in a variety of standard formats, as well as support for the common 8- and 16-bit audio boards and a variety of video capture/overlay boards. Media Master also provides control over external video devices and includes a dBase III database management system. The program lists for \$995 and includes unlimited royalty-free distribution of run-time versions of your presentation. Vision Imaging, Fountain Valley, CA; (714) 965-7122.

From OWL International comes **Guide 3.1**, which uses its own Logix scripting language to control all aspects of Guide presentations. It can take advantage of Windows DLLs for multimedia features, although it was designed primarily for hypertext intensive applications. Guide documents can be distributed using Guide Reader, which is included as part of the system. However, a separate program, available at \$95 each, can be used to distribute Guide documents that use the program's full range of capabilities. SRP is \$795. OWL International, Bellevue, WA; (206) 747-3203.

Version 2.3 of **Ask'Me 2000** (Innovative Communications Systems Inc.) uses a scripting language called Stratos to integrate digital media in the DOS environment. It includes drivers for half a dozen of the most popular audio cards for playback of digital audio at resolution rates supported by the particular card. It retails for \$495.

ICS makes two other media integration products. **Ask'Me Pro** uses the same scripting language and tools as Ask'Me 2000 but incorporates live-motion video and database management features into your media palette. The price (\$1,795) includes a run-time license. And **SuperShow&Tell** is an inexpensive (\$149) Windows-based media integration product that uses point-and-click, drag-and-drop features, all on a single screen. Innovative Communications Systems Inc., Minneapolis, MN; (612) 531-0603.

WAIT, THERE'S MORE

The complete list of interactive multimedia software is indeed large and growing, and wanders off in several directions, from computer-based

training, to rough prototype mock-up tools, to systems designed to create finely polished consumer products. And there are some developers who insist that the ultimate tool for creating the right interactive media product is a programming language such as C. In any event, in the interest of keeping this column a manageable length, I offer some additional names and phone numbers:

HyperCase (Interactive Image Technologies, Toronto, Ontario, CN; [416] 361-0333), authoring system for DOS.

MediaScript (Network Technology Corp., Springfield, VA; [703] 866-9000), authoring system for DOS, optimized for DVI.

LinkWay Live! (EduQuest, Atlanta, GA; [800] 426-9402), authoring system for DOS.

HyperWriter (Ntergaid Inc., Fairfield, CN; [203] 380-1280), authoring system for DOS, optimized for training.

Quest Multimedia Authoring System (Allen Communication Inc. Salt Lake City, UT; [801] 537-7800), authoring system for DOS.

Animation Works Interactive 1.1 (Gold Disk Inc., Torrance, CA; [301]

320-5080), presentation software for Windows.

GRasp 4.0 (Paul Mace Software, Ashland, OR; [800] 523-0258), animation/presentation software for DOS.

Audio Visual Connection (IBM Corp., Atlanta, GA; [800] 426-9402), authoring system for Windows, designed around the DVI standard.

TenCore Producer (Computer Teaching Corp., Champaign, IL; [217] 352-6363), authoring system for DOS, optimized for use in education.

TIE (Global Information Systems Technology, Champaign, IL; [217] 352-1165) training icon environment—authoring system for Windows, designed for the education and training markets.

Summit (Conceptual Systems, Silver Springs, MD; [301] 589-1800), authoring system for DOS, intended for CBT courseware.

The interested reader may find additional information by contacting the Ziff Institute ([617] 252-5270) and asking for the *CBT Buyer's Guide*. ■

Paul Potyten is a Mix associate editor and a producer of audio and interactive media.

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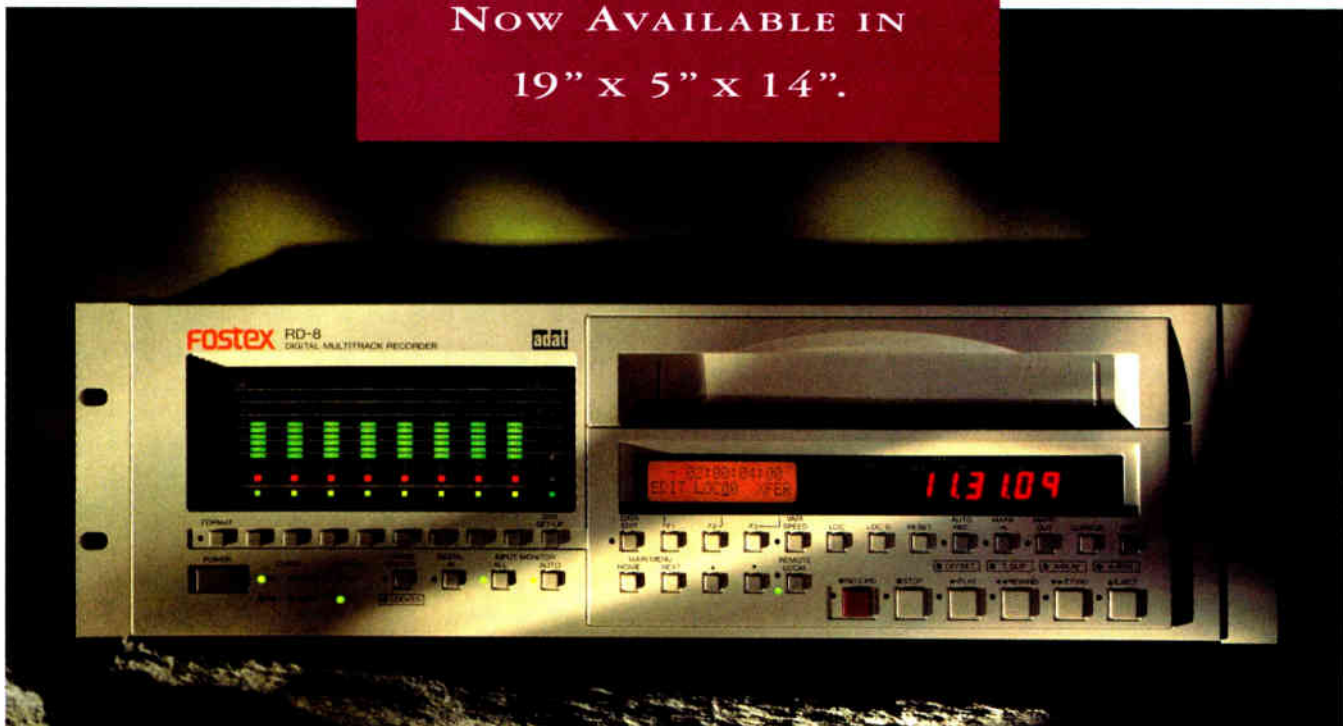
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by Dan Daley

JINGLES

A PROJECT POWER BASE

Project studios have moved into every conceivable aspect of audio production, from records to post-production to scoring and sound effects. But one area of audio has evolved as a fast track for this type of facility, probably because it was served by project studios before the term was even invented.

Jingles were cash cows for commercial studios for years, with advertising agencies willing to pay card rate, often double or triple what record acts were billed. But jingles began moving out of commercial studios even before the lousy economy of the late 1980s began eating away at commercial budgets. Written for years in small cubicles filled with pianos, in a sort of advertising Tin Pan Alley connected to Madison Avenue, these short-form songs and their composers moved easily into the new world of inexpensive recording systems. As the equipment got better and the users got more sophisticated, it wasn't long before the finals that used to be reserved for full-fledged studios were executed in the jingle houses where they were created.

"Ninety percent of jingle houses are self-contained studios," estimates Cliff Colnot, who has been writing and recording jingles in his personal studio in Chicago for 13 years. His equipment list—a 24-track analog deck, a small mixer, a Fairlight/Kurzweil 250 sound generation combination and an Akai MPC 60II sequencer—hasn't changed that much in that time, an indication of how good jingles can sound with relatively few pieces of sophisticated equipment.

Colnot acknowledges that he's an occasional exception to his own rule; he often brings partially completed jingles to nearby Chicago Recording Company for overdubs and mixing. But that's more from a personal requirement for live sounds than any demands from a budget-conscious advertising industry. "You can get away

with more, sonically speaking, with jingles than with film scores or records," Colnot says. "Because of what happens to it when it leaves your hands and goes on the air and is subjected to compression and dubbing inconsistencies, there's a lot of weasel room in jingles. But in terms of composition and creativity, jingles need to be at the same high levels as films and records."

Interfacing with larger commercial

Finals that used to be reserved for full-fledged studios are now executed in the jingle houses where they were created.

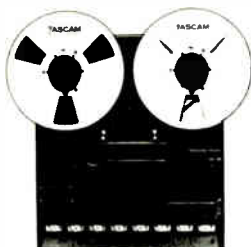
studios has another component unique to jingles: the need to reassure agency people. While budgets have gone down, agencies haven't lost their insecurities about how their money is being spent, and a large facility with the requisite grey carpeting on the walls and floor (and the ever-present tray of bagels) is often a necessity, at least in the final stages of production.

CHICAGO

Two cities serve most of the country's national advertising agencies: New York and Chicago. Both have experienced the same growth of project studios in the jingle field. One difference between these two cities, however, lies in what the future holds for project studios in each city. As individual project studios become more successful, some have found themselves evolving into commercial studios. It's a natural result of

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growing client rosters and the increased time and services that those clients require. That's something that probably won't happen to the jingle-focused project studios of Chicago, says Colnot. "It's more likely to happen in New York, where there's a more diverse base of opportunities to solicit work for different types of music," he says. "In Chicago, there's a narrower musical community. Of course, that's a double-edged sword; it keeps Chicago people focused on jingles rather than expanding into full-service studios. A balance is maintained by external forces."

That's good news for the remaining large commercial recording facilities in Chicago. They have seen a decline in business in the last five years due to the presence of project studios and their technology, according to Gary Fry. Fry's Reference Standard project studio in a Chicago suburb has supplied jingles and scores for McDonald's, General Mills and Sears. Although his studio is equipped with a Synclavier 9600, an Otari 4-track and a DDA AMR-24 console, he says that 75% or more of his finals are completed at CRC for several reasons. "First, a large studio provides services—like dubbing and copies—that I can't," he explains. "Then I often need a big room to do groups in. And clients can't run back and forth between suburban Chicago and downtown to their other sites for video post and color correction and things like that, so having a downtown location near all the agencies and other facilities makes sense."

Aside from their effect on large facilities, project studios are also nipping at each other's heels. Fry, whose jingles and advertising scores are pitched through music house Com/Track, says competition has increased dramatically in Chicago, and it's directly related to the number of people who are composing and pitching from home. "Everyone seems to agree that the same size or smaller [jingle] pie in town is being cut into smaller pieces," he says.

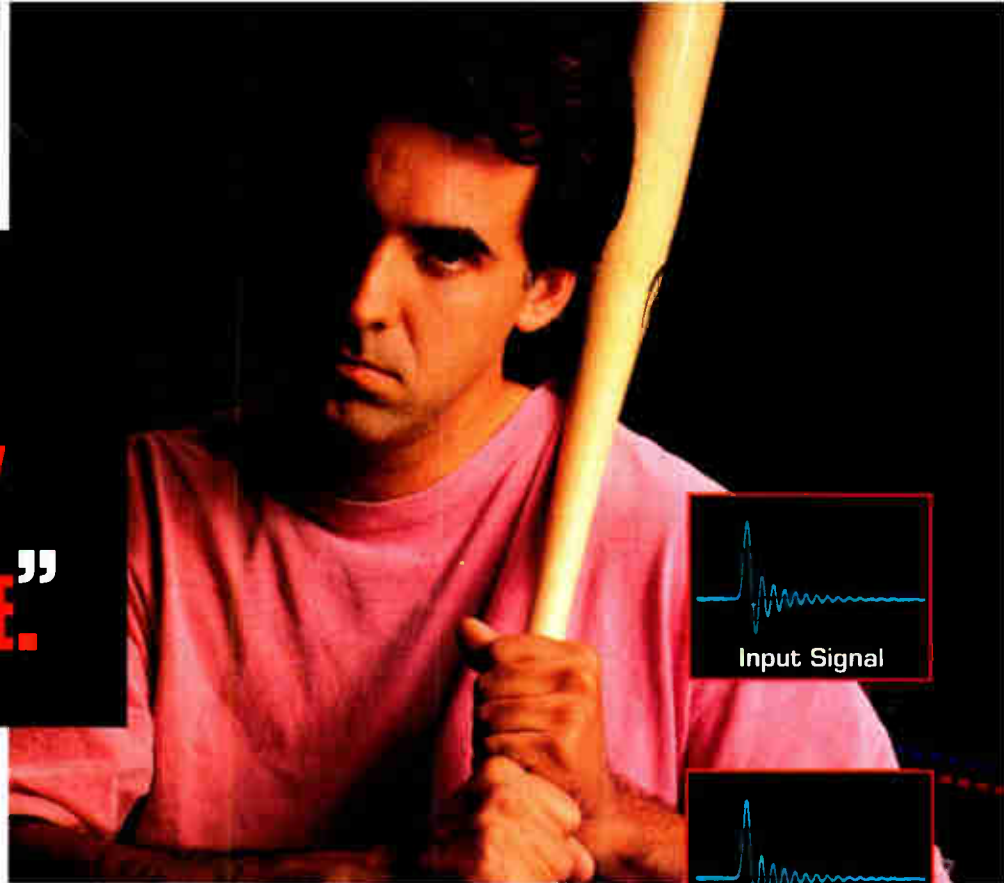
NEW YORK

The observations of Chicago jingle/project people are manifested in Mark Mandelbaum and his Brooklyn-based Anatomically Correct Music. He's used his ADAT 8-track for two Coke spots

—CONTINUED ON PAGE 157

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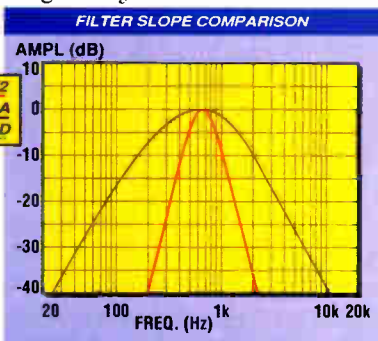
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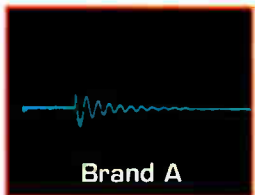
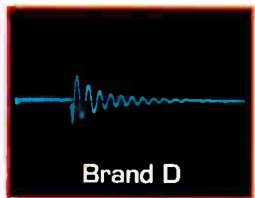
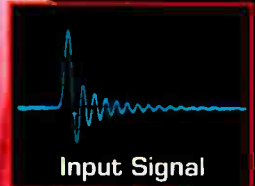
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by Tim Moshansky

POSTING IN VANCOUVER

The motion picture industry in British Columbia has grown tremendously since the early 1980s, when filmmakers discovered a virtual paradise for shooting movies.

Vancouver, British Columbia, in particular, has earned its reputation as "Hollywood North," with a unique combination of physical beauty (from mountains, beaches and ocean to sprawling skyscrapers), skilled local film crews, a favorable exchange rate and proximity (more or less) to Los Angeles. In 1992, 50 feature films and television movies and 11 television series were shot in BC, accounting for more than \$200 million in business. Television mogul Aaron Spelling recently opened a large studio in Vancouver, and Cannell's North Shore Studios has been in operation for more than five years.

Clearly, the production business is booming in Vancouver (it is the third largest movie-producing center in North America), but how much of that work is being posted in town? Are producers and directors simply following their work home after shooting is complete? Sometimes, yes. Much of the work being done in Vancouver is funded by American money, which means that, once a project is shot, it often ends up going

back to L.A. to be posted. This is understandable, seeing as most producers and directors live there, deals are made there, and major facilities are located there—it's where all of the magic happens. Nearly every major feature film shot in Vancouver (from *Stakeout I and II* to *Look Who's Talking*) returns to L.A. for post.

However, though Vancouver's post industry hasn't quite broken into big-budget features, audio post-production has grown significantly over the years. This is due mostly to the number of television series and Movies of the Week being produced there, as well as commercials and documentaries.

One company that has done extremely well posting TV series is Post Modern Sound. Owned and operated by David Hoole and Mark Scott, Post Modern is part of a 21-year-old company and currently has 16 full-time employees. The facility has provided full audio posting for series



**Sharpe Sound
Studio A**



**Sharpe Sound
machine room**

in Vancouver is funded by American money, which means that, once a project is shot, it often ends up going



The studio and control room at Metalworks' Studio One

such as *Neon Rider*, *Black Stallion*, *Highlander* (which earned a Golden Reel nomination), a new Cannell series called *Cobra* and other projects.

"Film and television production have grown tremendously in the last five years," Scott says, "so a lot of the post-production that never used to get done here is now being done here—audio and video. We do some radio and television [commercial] work, but that has dwindled. Now we're doing audio post almost exclusively for episodic television and MOW's [Movies of the Week]. That's probably the biggest audio industry here, and it's growing daily. Years

Metalworks

Triumph drummer/vocalist Gil Moore's Metalworks Recording Studios (Mississauga, Ontario) has been the choice of Canadian artists such as Tom Cochrane and The Waltons, as well as Triumph and U.S. acts ranging from Guns N' Roses to the Goo Goo Dolls. Studio One provides tracking and mixing and features an SSL 4056 G Series console with Total Recall and time code-based computer automation.

Studio Two's control room is outfitted with a classic Neve console, which was recently renovated by engineer/designer Stuart Taylor, who added eight more inputs, a stereo mix bus, 32-input custom monitor section and full 64-channel mute solo/PFL-AFL capability; the meter bridge was expanded to accommodate 24 SiFam multitrack meters and stereo mix/phase metering. Studio Two also boasts a 250-square-foot overdub room and a 35,000-square-foot soundstage.

Recent expansion at Metalworks included the addition of a third 24-track studio geared toward budget-conscious overdubbing. The new room, designed by Pilchner Schoustal Associates of Toronto, is equipped with a 32-fitted SSL 4040E, Studer A80 multitrack, 10x6-foot isolation booth and an array of outboard gear; there are plans to add a 24x16x24 Neve Spitfire with 1073 EQ.

Each of the studios at Metalworks has a separate kitchen and lounge facility, including billiard tables, video games and pinball. Metalworks also makes its office space and support staff available to clients, providing help that ranges from facilitating equipment rentals to making reservations at nearby tennis courts or hotels. ■



Control room C at Post Modern Sound, Vancouver, BC: online/offline

ago, everything was shot here and then shipped out and posted somewhere else, but now a lot of people are posting here because there are facilities like this that can do it."

Post Modern is a largely digital facility that uses an NED PostPro system for effects and dialog editing and

SMON/REC'D

looping. Neve consoles, JBL speakers and Sony video monitors run throughout the six editing and two mixing rooms. Scott explains how a typical TV show is posted: "We get our time coded 3/4-inch video transferred from the film, and we get all of the daily audio transfers on DAT. We then auto-conform the show from scratch, from DAT. We auto-conform all of the dialog digitally into the Post Pros, mix-down digitally, and then transfer back to DAT and it goes back to D1 or DCT, and they make the delivery copies from there. The whole thing stays digital. There's absolutely no signal loss whatsoever."

Another Vancouver post facility that handles a lot of series work is **Pinewood Studios**. In operation since 1976, Pinewood was once a haven for recording artists such as Chaka Khan and Kiss' Gene Simmons. Audio work on radio and TV commercials, documentaries and post-production for the film industry followed. By the mid-'80s, Pinewood had knocked down a recording studio and replaced it with

a dubbing theater/mixing room. Today, the company has expanded to include **Pinewood North Shore**, a Dolby surround sound screening theater and temp dub facility.

Owner Geoff Turner recalls the evolution of Pinewood and of Vancouver's post-production community in general: "We were the very first company in Canada, I think, to do a major American TV network series up here, which was *21 Jump Street*, and that was very successful," he says. "There were some very heart-wrenching times because they were in doubt about our abilities, but after about 30 episodes, we proved that you can do quality work in this part of the world. It ended up being a hit series for Fox."

"One of the problems is that, unless you're working in the mainstream all of the time, you've got no idea what some of their requirements are," Turner continues. "In reality, when you start working on some of the bigger projects, with the amount of services required, there's nobody in the city geared to doing them all,

nor do they have the experience. So one of the problems we're going to have is that there will be a shortfall of people with the right technological information to support the onslaught, if it does come."

Stemming from the need to accommodate productions from other countries, Pinewood has facilities to deal with almost any format people throw at them, including PAL/SECAM, and they have an international reputation. "I think we are the only place



At Pinewood Downtown, the clients' lounge with four digital edit suites behind glass

in town where you can get everything done. No matter what medium you bring through the door, we can work in it and give it back to you like that."

Pinewood also has an extensive sound effects library that has been built up over the years. "We've gone to great lengths to corral custom sound effects," Turner says. "Our library is unique. It actually goes back to sounds from the 1800s, all the way through to the very latest. It's all stored digitally on the [Digidesign] Pro Tools system for ease of manipulation and computer cross-referencing." In all, they have about 30,000 original sound effects.

The main studio is divided into two sections: One is a craft section where all of the spotting is done, together with the library, edit facilities and production offices. The other side contains the transfer suite, studios, Foley stage and mixdown rooms. There is a big, open-beam lounge area where people can relax between sessions.

If there is any hope for the post-

ing of feature films in the province, **Sharpe Sound Studios** is blazing the trail. Located close to North Shore Studios, the heart of Sharpe Sound is Studio A, a 35mm Dolby stereo mixing theater with adjacent rooms for offices and digital editing suites. Studio A is 65 feet long by 40 feet wide, capable of 35mm or video projection onto its 20-foot by 40-foot screen. Sunken in front of the mixing control area—which includes an Amek M 4000 console and a host of outboard gear—are Foley pits and the obligatory ping pong table.

The theater is basically the same size as your average six-plex movie theater. The facility also contains seven digital sound-editing rooms and an additional mixing studio. The monitoring system is a JBL THX-approved system, with three large theater horns behind the screen, a JBL subwoofer and split surrounds with large Altec 85 cabinets.

"If you're going to mix feature films, you have to be in the environment that it's going to be played back in," warns Paul Sharpe, owner and chief mixer, who has

more than 17 years of experience in audio post, six of those as a re-recording mixer at L.A.'s famed Todd/AO Glen Glenn studios.

"You can mix a film in a large room and play it back in a small room, and it will sound good," he continues, "but if you try mixing in a small room, quite often you'll get surprises when you take it into a larger room. The usual surprise you get is that the dialog becomes less intelligible. With near-field monitoring, everything sounds clear and close, but when you put it in a larger room, you stand a very good chance of losing the edge of the dialog."

"Most people don't like to be surprised when they spend a lot of time and money on a feature and then take it out to a theater. They expect it to sound the same way they've been listening to it all along."

Sharpe Sound has posted nine features in the first six months of this year and five *Movies of the Week*. All but one of the *MOWs* were American-funded and shot in Vancouver. The features are primarily local fea-

tures that previously might have been shipped to Toronto or L.A. for finishing. Sharpe is also attracting feature film work from overseas, including *The Bride With White Hair*, a recent big-budget Hong Kong release.

Other studios in town are having a great deal of success posting features. Vancouver Studios, known for its album production (Queensryche, k.d. lang, etc.), has adapted to meet the posting needs of feature films such as *Cyborg II* and *Chain Dance*. The facility consists of Studio 1, a large tracking room suitable for orchestral music scoring; and Studio 2, a mixing room, an overdub/demo room and two digital edit suites complete with SSL ScreenSound workstations. Vancouver Studios is also keeping busy doing English overdubs of Japanese television series for the NHK network.

A large part of B.C.'s audio post-production revenue comes from companies that specialize in animation, corporate videos and/or television commercials. Commercials, especially, account for a large part of the industry. Dick Abbott and Roger Monk, industry veterans with more than 40 years of experience between them, opened Dick and Roger's production studio three years ago and post literally thousands of commercials every year. They also do some work sweetening and mixing for TV shows. Abbott agrees that this sector of the industry has been steadily increasing in size and will continue to do so for a long time to come. The recent addition of a new studio to their premises is a good indication of this.

Although it's not the biggest post-production center in North America (Vancouver ranks ninth behind obvious heavyweights such as New York, L.A. and Toronto), the local industry is getting stronger every year. And the day is not far off when studios will be able to broadcast digital images and sound via fiber optics directly to producers in L.A. or elsewhere, decentralizing the way the Hollywood system works today.

"L.A. seems to be changing in that a lot of people are moving out and trying to get a better quality of life somewhere else, and Vancouver's a perfect place to pick for that," offers Paul Sharpe. "I keep finding out about more and more producers living on nearby islands. It seems many of the smaller pictures that come up here and shoot and take advantage

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Tim Moshansky is a freelance writer and musician based in Vancouver.

CANADIAN BITS AND PIECES

FOUR ONE OPENS RUSSIAN DOORS

The Four One Company (London, ON) provides international management and trade consulting services to North American pro audio companies and others pursuing markets in the former Soviet Union. With a broad network of contacts in Russia, Belarus, Poland, the Ukraine and the Baltic states, Four One has developed what

it calls "culturally focused market-entry strategies." According to Randal Eastman, Four One's VP of Business Development, "Demand for greater selection and supply of both audio tape and compact discs is strong—so much so, in fact, that recent indicators show CD player sales outstripping those of discs themselves."

Eastman says that Russia's local market has been slow to react to this demand and that most of what is available to Russian music buyers is provided by "entrepreneurs operating out of street kiosks and private shops. These young people predominantly sell mediocre cassettes of re-recorded, pirated music." But interest in these poor recordings, primarily of Russian artists, is tremendous, according to Eastman. "There has been a dramatic increase in the number of nationally famous Russian pop stars," he says. "These are pursued even more avidly than their Western counterparts, because their music echoes the frustrations and heartache of their struggling listeners much better than that of the West. Fans flock to their concerts, are glued to their videos and gobble up their music when they

can chance upon it in the streets."

Eastman has discussed the CD market extensively with Valeri Serkutiev, the president of CIS-BOR, a Belarusian company currently looking into manufacturing CDs locally. Serkutiev told Eastman that another reason the pirated tapes are so popular is that the state-run firm, Melodiya, is "notorious for low-quality [and] bad taste in choosing CDs for licensed production. [They choose] based on low copyright fees rather than popularity or market value."

Eastman is also glowing about opportunities for North American companies interested in manufacturing or retail. He says that chances abound to make deals and obtain raw materials and that "all across the former Soviet Union there are thousands of retail outlets that will bend over backward to dedicate a portion of their store facilities for the sale of hard-currency goods."

STUDIO NEWS

The Canadian Broadcasting Company's new Broadcast Center in Toronto purchased seven Graham-Patten Systems D/ESAM digital mixers, which

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will be installed in identical post-production/video edit suites. The mixers will be used in conjunction with Grass Valley Model 241 edit controllers and Model 1000 serial digital switchers. The suites will operate with four Sony D75 Betacam VTRs and handle video editing for variety shows and documentaries...**Soundhouse** (Toronto) is completing a third season of audio editing and mixing for 25 half-hour episodes of the syndicated *Tarzan* TV series. WaveFrame workstations are being used for the dialog and sound effects editing... Sessions during the first four months of operation at Lanny Williamson's new Calgary, Alberta, facility, **The Beach Advanced Audio Productions**, included The Platters' recording of International Coffee commercials and a Midnight Oil live, "unplugged" broadcast to a national radio audience...**Turtle Mobile Recording** expanded this spring with full studio facilities and a record label. The first Turtle Records project was The Stoaters' debut album, *Keep the Head*...**Beta Sound Recording** (Edmonton, Alberta) recently added an Akai DD1000 with DL1000 remote controller to its digital arsenal. Recent projects at Beta include ADR for the Alliance Entertainment production of *Ordeal in the Arctic*, starring Richard Chamberlain...**Reaction Studios** (Toronto) added a Studer A827 24-track, Studer D780 DAT recorder and a Steinway 7-foot grand piano. Projects at Reaction this year have included album projects for Jane Siberry and the Holly Cole Trio, and recording and mixing of the Barenaked Ladies' "Gordon"...**Sound Art Productions** (Winnipeg, Manitoba) supplied the sound system for this summer's Sunfest. An Electro-Voice DeltaMax System with 52 DeltaMax 1152s and 24 MT-2 subs were used. Acts at Sunfest included Pearl Jam, Blue Rodeo and the Pursuit of Happiness...Upcoming projects at Studio Place Royale (Montreal) include the soundtrack for a one-hour documentary on the making of the opera *Carmen*...**Studio Morin Heights** (Morin Heights, Quebec) recently hosted sessions with Danger Danger (Paul Northfield, producer/engineer), Rush (Peter Collins, producer; Kevin Shirley, engineer) and Celine Dion (Chris Neil, producer; Keith Cohen, engineer)...**Soundfield Studios and Winfield Sound** (Toronto) formed TUNES, a company specializing in music composition

and production for commercials, film and video. TUNES recently completed sessions for a Kraft salad dressing ad...**McClellan Pathe Recording and Post-Production Studios** (Toronto) set up a 24-track studio in Loreena McKennitt's farm house to record the artist's second album for Warner Bros. Senior music engineer Jeff Wolpert received a Juno Award as Engineer of the Year for McKennitt's first album...The soundtrack for *Search for the Great Sharks* was mixed at **Master's Workshop** (Toronto); the facility also provided digital sound effects editing and Foley recording...

CORPORATE MOVES

Zaxcom Audio (Midland Park, NJ) appointed Richmond Hill, Ontario's **Acura Technology** as its exclusive Canadian distributor...**Softimage** of Montreal named Peter S. Crombie its new president and CEO, a newly created position...**The Sascom Marketing Group** (Pickering, ON) was appointed as Demeter Amplification's exclusive Canadian distributor. ■

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by Todd Souvignier

AL JOURGENSEN & PAUL BARKER

BLOWING STUFF UP WITH THE COMMANDO HILLBILLIES

“W e’re the Beavis and Butthead of the waveform set,” claim Al Jourgensen and Paul Barker, the production team at the helm of alternative rock juggernaut Ministry. After abusing an expensive piece of technology, they’ll just point at the screen and say, “Look at this graph, huh-huh. Cool, it blew up, huh-huh.”

Their recorded work has spanned a stylistic spectrum from new wave disco to sheer noise. Frequently pigeon-holed as industrial artists, the pair prefer to use the term “aggro” to describe their music. Better still, they suggest, forget all the categories and labels; dive into the music and think for yourself.

Their latest release, by Ministry spin-off group the Revolting Cocks (or RevCo for short), is *Linger Ficken’ Good and Other Barnyard Oddities* (on Sire Records). The album’s first single, a ’90s update on Rod Stewart’s “Do Ya Think I’m Sexy,” contains most of the classic elements associated with their music: looped percussion, distorted vocals, roaring guitars, hypnotic repetition and a corrosive sense of humor.

Jourgensen and Barker have dragged sequencing, sampling and drum machines into a heavier musical context and injected a healthy dose of noise, creating toxic synergies between dance music and rock. They’ve developed their sound over the course of six Ministry albums, four RevCo LPs, plus numerous side projects including Pailhead (with Ian Mackaye of Fugazi), Lard (featuring free speech activist Jello Biafra), Acid Horse (with members of Cabaret Voltaire), Lead Into Gold, PTP and 1,000 Homo DJs.

Self-described “lab rats,” Barker and Jourgensen frequently have indicated their preference for studio recording over touring and are in high demand for their producing and remixing talents. Outside projects (often credited to their pseudonyms, Hypo Luxa and Hermes Pan) have included work with Anthrax, Nine Inch Nails, Mind Bomb, the Jesus & Mary Chain and the Red Hot Chili Peppers. They’re swamped with offers for high-profile production jobs, but they have no trouble picking and choosing.

“It’s easy to be selective, especial-



Paul Barker (left) and Al Jourgensen

PHOTO: GENE AMBO



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PRODUCER'S DESK

ly with our criteria," Barker states. "Do we like these people? Can we communicate with them? Whether we think the song is good is maybe a little secondary to the idea that we wanna work with these people. We're not open to the public, and we don't want to be."

"I may like somebody's music, but if I think he's a prick, there's no way—you can't pay me enough money. I turned down a *lot* of money last year," Jourgensen says with a laugh. "Silverfish is a band from Scotland that I did for nothing. I lost money doing their mix 'cause I believed in it. I did the Gwar songs, and the contract was for a case of Budweiser, a half gram of bad coke and a pizza. That was my royalties...and I never got the coke! It's too late now; I quit."

"Maybe a band appreciates the way we sound," adds Barker, "but why should we impart our sound on another band? Do it yourself! We did it ourselves—we spent years and years doing this."

"Exactly," interjects Jourgensen, "and it muddles up the airwaves. You get one producer who's hot, everyone wants to use him, all of a sudden everybody starts sounding like that on the radio."

WHY DIGITAL SUCKS

"What's really weird for me right now," Barker says, "is the idea that we don't have a studio; we're in limbo. We've worked out of Chicago Trax for years and years, and we're just tired of it."

"We're building a studio in Austin," Jourgensen explains. "It's gonna look like a psychedelic hunting lodge. A lot of day-glo cattle skulls, and we're gonna paint an SSL day-glo—every knob is gonna be like some fluorescent pink thing—and just record under black lights. We're buying two old used E-Series 40 frames, link 'em together, probably get a Neotek sidecar, Amek or something, we'll probably wind up with a 96 frame."

Jourgensen swears by Studer 24-tracks and plans to link two A800 Mark IIIs in the new studio. "They're intense. Drop 'em in the swimming pool from the second floor, dry 'em out, they work the next day. I can't deal with anything else. Those Germans—I don't know how they do it.

Jesus, that stuff's good.

"On [the 1992 Ministry LP] *Psalm 69*, we went up to a digital studio, 96 frame SSL, recorded on Mitsubishi 32s, pumping like +10 on 50 cycles, and we still couldn't hear a thing. Digital just *sucks*. It's funny, though, because it's *there*—you can't hear it, but it's there. As usual, Ministry does everything backward—we go up to a 96-channel place, record 65 to 70 channels on every song, then bounce it down to 23, go back to Chicago Trax and a little analog setup, and all the bass came back!"

Barker continues, "We're up there,

We're the world's most expensive and anal-retentive garage band. We have garage mentality, mobile-home mentality, yet the dichotomy of the situation is that we primp and preen a lot too.

—Al Jourgensen

trying to figure out what's going on; our music sounds really limp. Once we bounced down to analog and took it out of that room, it suddenly all came back. It was just really nice and warm and aggressive."

"We like the warm tube sound, the old analog sound," Jourgensen adds. "I mean, we still record at 15 ips. I think 30 [ips] is a tape conspiracy!"

They do rely on certain types of digital gear, however. Jourgensen says they're "still AMS hounds after all these years; Eventide 3000 is pretty much staple diet," and a turbo-charged, painted Fairlight has seen a lot of mileage.

"I'll never forget when the guy from Fairlight came down to meet us. At that point, Fairlight Series 2-X had just come out; there's only 180 in the world, and he wanted to meet these fine, upstanding young men who bought a Fairlight, right? We've got the thing graffitied, I've got tape saying what sample's on what key, Jah Wobble from Public Image had already thrown up on the Fairlight, there were drinks and ashtrays set up on it. The guy came in and start-

ed *crying*. He cried 'Oh my beautiful piece of machinery!' And we're like, 'Yeah, pretty good, ain't it?' We're hillbillies—commando hillbillies."

"We really wanted to drag it behind a car and let a dog chase it," says Barker, with only a hint of sarcasm.

Jourgensen asserts, "We *will* run a Fairlight over in a video one of these days. Or a Mac! I hate little Ataris and Macs—pesky little mosquitoes."

BLOWING STUFF UP, PART I

Asked to elaborate on their mode of production, Jourgensen says, "We are knob turners, we are button pushers. We don't know what it's gonna do half the time, but damn it, we're gonna do it. We'll take a day off to slave five compressors together, all overloaded, just to see what will happen. And half the time, the board blows up...but so what?"

"Yeah, we don't know any better," Barker adds, "but it takes us places that no one else would go."

When their working methods catch the attention of formally trained studio users, Jourgensen says, "We have to lie. It's like, 'What are you two doing in there?' 'Oh, it must

be a mistake! I'll fix it.' But as soon as they leave, it's back to five slaved compressors overloading."

"Unfortunately, as a result, we've had to send our equipment in for repairs many times," Barker admits. "Al mentioned earlier that we do everything backward. One thing we always do is overproduce everything; we overexperiment, and then we pare it back. We realized that the coolest thing about our music is that it's unrelenting and repetitious. And that is harshness, right there."

"Well, that's reality, man," Jourgensen states. "You wake up, you go to work, you come back, you go to work. That's life. That's our music. We're the world's most expensive and anal-retentive garage band. We have garage mentality, mobile-home mentality, yet the dichotomy of the situation is that we primp and preen a lot too."

Partners since 1985, Jourgensen and Barker have developed ways of playing off each other's strengths. "We have total confidence in each other," Jourgensen says, "and we don't have to be in the same room all the time. We have our own styles,

yet there's an underlying theme."

Barker illustrates: "One person can be composing in the composition room, the other person can be mixing or working on a piece that's up."

"And the stuff that comes out of him," Jourgensen says admiringly, "I'd be like, 'Wow, I would have written that.'"

"See, but *I* never feel that way," Barker counters.

"It's really wonderful now," continues Jourgensen, "because it allows us to do more. Now we have two rooms going instead of one. We walk in with a completely clean slate, usually. We might have a riff or two in our head. Everyone says, 'You guys are crazy. You should have a game plan before you go in.' That's why we're building our own place. We like to diddle. That's how you learn—by making mistakes. And believe me, no one's made more mistakes than us. And diddling is costly, and you're paying *rent*. So we're gonna rent-to-own now—until the repo man comes!"

Elaborating on this scenario, Barker adds "Damn it, I know we can afford that trailer."

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SAMPLING THE WORLD

Luxa/Pan productions frequently display *musique concrete* aspects. A seminal RevCo single, "Stainless Steel Providers," featured motorcycles and hydraulic lifts. They used power drills as compositional elements on "I Prefer" from Ministry's 1988 LP, *The Land of Rape and Honey*, and again on "Thieves," a highlight of the 1989 Ministry release *The Mind is a Terrible Thing to Taste*.

"I Prefer" was a Makita drill," Jourgensen recalls. "Also, my uncle is a dentist, and we've got some of my uncle's stuff on there. We've got a great snare sample that we blend in with our snares that's just me hitting a metal chair with a wine bottle. We use anything; we're not proud."

Ministry's 1988 signature piece, "Stigmata," is powered by an ingenious pitch-bend riff. Jourgensen explains: "That's played guitar, with a sax sample and a digeridoo sample slowed down really low and bent—portamento. The guitars are real. We've never used sampled guitars; otherwise I'm useless."

"I think the world should be at your fingertips to sample," Jourgensen proclaims. "I think everything should be sampled. I hate these lawsuits and the anal-retentiveness and paranoia at the big labels now because of all the lawyers. It's all lawyers and politics and red tape. You can't sample anything without having a quarter stuck between your ass cheeks. Fuck it—sue us."

"A lot of the rap artists and house and all that, as much as I may not like the music, I respect their attitude. 'To hell with it, let's do it. This is cool. Led Zeppelin's cool, let's loop this.' That's *great*, it *should* be used for that. And it should be flattering to the artists."

"For instance, Olivia Newton-John hated our version of '(Let's Get) Physical,'" Jourgensen snarls derisively. "I'm sure she did, in her Malibu place. We peed on her mailbox. And Rod Stewart is bummed out with this version, I guess. We don't care—it should be there to have fun with. It's out there, you're putting it out for public consumption. It's good enough to buy, it's good enough to sample."

ROCK 'N' ROLL SWINDLE

Jourgensen's plan for the upcoming Revolting Cocks tour in support of *Linger Ficken' Good* reflects his attitude toward the expectations of the

"We should do that," Jourgensen enthuses. "We should actually put the SSL in a mobile home park, man. Now *that* would be white trash."

"It's also a matter of whether we're comfortable working in a place," explains Barker. "We don't want to go into a studio that might be perfect; it's just too sanitary."

"It's overwhelming," Jourgensen says. "You start second guessing yourself."

"Not only that," Barker continues, "you don't want to have a second there who's like a wannabe engineer telling you you can't do this."

Jourgensen drives the point home: "We like blowing things up. Seriously. We are white trash producers."

"It's so terrible," chuckles Barker, "we have returned so many pieces of equipment."

"Whenever we do a technical interview like this," Jourgensen laughs, "it's so funny to watch the look of horror in the poor faces of the reporters: 'God, I thought you guys were *good*.'"

BLOWING STUFF UP, PART II

Distorted vocal tracks are an obvious hallmark of the Luxa/Pan sound. Jourgensen says, "Sometimes we use an old Ibanez distortion pedal. Other times we use our TC Electronic parametric EQs and overloads. A lot of times we use a compression chain slaved and then run through an EQ, either GML or TC to really hone in."

"People think there's either distortion or not distortion. There are various textures of distortion that nobody seems to realize. We analyze this stuff on a waveform graph. It's like we're lab rats sometimes. We'll blow up a channel, we don't care—it's not ours!"

A distinctive fuzz bass drives RevCo's irreverent rendering of "Do Ya Think I'm Sexy." "That's our secret weapon," Barker says. "Maestro, the manufacturer from Lincolnwood, Illinois or whatever, they have this foot pedal called a Brass Master. It's a bass distortion unit specifically, but we use it on vocals, we use it on guitar, it's totally an awesome thing. I found one at a classic guitar show; it was new-old stock, brand-new, made in '74."

"Remember," Jourgensen adds, "we also get a great distorted bass out of that blown-up Peavey Deuce amp in the bathroom."

music industry and his fan base. "We have a 15-piece horn section coming with us, all wearing togas and olive wreaths. We have five Grecian sirens dressed in robes dropping grapes into our mouths. We're hiring a band to play. And we're just cartoon characters; we're action figures. We'll play one song. Other than that, the band will play, and we'll sound good live, finally. Picture me and Paul as Dorsey and Miller—the big band era. The rest of the time, we're just gonna be served this buffet dinner on stage. We'll get pelted. The fans will hate us."

Barker's enthusiasm for the concept is evident. "It'll be so great when we play Vegas."

"The Revolting Cocks are a scam band, it's a sell-out" Jourgensen adds. "It's the great rock 'n' roll swindle. We don't take it seriously. Ministry's a different thing. Ministry is Monday-through-Friday; the Cocks are weekends. You gotta have a release valve."

"But on the other hand," Barker says, "it's not as if we completely forget any of the lessons we learned working with Ministry. I don't want to say we're less meticulous, but we're less introspective in that sense."

Jourgensen agrees: "Ministry will sit there and analyze the waveforms on a snare drum for half a day. That would never happen on a Cocks record. It's like whatever's down is down; let's go on. It's all gut. Whereas Ministry is a lot more preening and refined in a sense."

Barker says, "The main difference, having worked so hard on the Ministry record *Psalm 69*, and then basically just turning out this Cocks record, the main difference was the idea of making decisions, snap decisions, whether you like it or not, then just keep on trucking."

MUSIC PRODUCERS WHO DON'T SUCK

What producers do they admire? "Phil Spector, for starters," replies Jourgensen. "Although obviously we sound nothing like his productions. Only in the sense that more is more. Why have a 15-piece horn section when you can have a 150-piece? I think he's absolutely amazing. Adrian Sherwood is who basically tutored me, schooled me, held my hand when I was still peeing my pants. He's a really big influence."

"I have to mention Rolly Mosserman," Jourgensen adds. "I don't know him personally, but I think that he's the best producer in the world today.

I'm really impressed with all the stuff he does with The The, Foetus and Swans; it's awesome. He's probably the best. We're just mere pretenders to the throne. Then, of course, there's all the big producers...who *suck!*"

Barker and Jourgensen's work as players and producers has helped erase the false genre distinctions between dance music and rock. When asked to comment, Jourgensen simply states, "It came naturally to us."

Barker tries to elaborate: "It's strange. I guess we ended up in the rock arena through the back door, working with heavy beat dance stuff, and

then deciding...I mean, we grew up with guitars."

Yet when pressed about their artistic goals, they deny having any formal agenda. "We don't know, we just do it," Jourgensen states. "I don't think we've ever actually sat down and discussed anything in our lives."

Barker wryly adds, "We don't discuss it, but we talk to journalists and then we form a theory." ■

Todd Souvignier is marketing director for the Mix Bookshelf catalog. His latest single with the group Warren America is "Media Glut/Miracle Mile."



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by David (Rudy) Trubitt

SOUND CHECK



Sound for the Pope's recent visit to Colorado was provided by Audio Analysts.

POPE-STOCK

by Karen Mitchell

Reporters dubbed it "Rome-on-the-Range" or "Pope-Stock." Production manager Michael Murphy called it a "Pop show with an E on the end," by far the biggest gig he's ever worked. The early morning "show" was actually a public Mass, held southeast of Denver on August 15, for nearly 400,000 souls, many of whom had camped out the night before. Celebrating the mass was none other than Pope John Paul II, in his first visit to the United States since 1987.

The papal visit was held in conjunction with World Youth Day, a five-day retreat that drew some 168,000 young Catholics to Colorado from around the globe. Murphy (of Murphy Management, Studio City) was hired by WYD officials after a referral and a visit to Denver.

He had to spec sound for 20 to 25 venues during the event, including McNichols Arena, Mile

High Stadium and Civic Center Park in downtown Denver, where Wynonna Judd gave a wildly popular outdoor concert, complete with video, as a kickoff to the Pope's arrival.

But Sunday Mass at the Cherry Creek State Park, with its 880-acre man-made reservoir, was the absolute high point of the papal visit. Against the backdrop of the Rockies, a treeless mass site of 120 acres was literally transformed into an *al fresco* cathedral with a three-section stage—covered by three tarps—the size of a football field.

Center stage accommodated the Pope, his 1,000-pound altar and his locally wrought, cushioned papal chair, both custom-built in oak and walnut; stage right was for the clergy and stage left for musicians and singers. (In addition to the Mass itself, there were performances by a 750-voice choir and by the Colorado Symphony Orchestra under Gilbert Levine.)

"From a practical standpoint, it was pretty difficult to work because the ground was pretty much clay, and at the first hint of moisture, it turned slick," says Murphy, who had little time to visit the event's other sites.

Audio Analysts provided sound for the event, including a total of 168 HDS-4 cabinets, 250,000+ watts of Crown power. "We had five delay stacks, a pair of towers about 500 feet from the lip of the stage and another set at about 900 feet," Murphy adds.

Audio Analyst's custom CA1DD house and monitor consoles were used, with 120 inputs at the front-of-house. Operating the system were engineers David Schierman of Concert Sound Consultants and Audio Analysts' John Kerns. Michael Mule handled monitor duties.

An assortment of mics—including Shure, AKG and Sennheiser—were used, while live video was provided by two 30x20-foot

—CONTINUED ON PAGE 127

PHOTO: DAVID P. GUYEY

JELLYFISH



Left: Jellyfish onstage; below: drummer/singer/songwriter Andy Sturmer

by David (Rudy) Trubitt

Semi-retro pop craftsmen/thrashers Jellyfish have been touring theaters and clubs in support of their second recording, *Spilt Milk*. Traveling with the band is engineer Shalom Aberle, who says, "I've been working with these guys for three years—since the very first show." Aberle came to the attention of the band's songwriting duo from a combination of studio and live work around the group's native San Francisco Bay Area. As it happens, Aberle was in the midst of a move to Atlanta (where he now resides) when approached with the gig. "I said I really couldn't do it," recalls Aberle, "but they sent me a copy of *Bellybutton* [the band's shimmering, tuneful debut] before it was released, and I knew I would be going. The music was totally up my alley."

The current record is a remarkable sonic collage of musical styles and thick vocal arrangements, as well as being a

great listen (at least in my opinion). However, the material is demanding, especially without the aid of tape tracks, sequencers or vocal samples.

"It's very dense," says Aberle. "We try to reproduce it as much as possible. [Drummer] Andy Sturmer and [keyboardist] Roger Manning both spent incredible amounts of time reworking the arrangements [to make them workable live]. There are no vocal samples, and I'm really proud of that. That's the most common question I'm asked at every show. [All four band members] are really great singers, and they stick really tightly onto the microphone. I compress the heck out of the vocals, and I throw a little thickener on the backups and a little bit of delay and reverb, and they do the rest.



"I've studied voice myself," adds Aberle, "and it's worked to my advantage—I'm able to really pick apart the vocals and hear who's doing what." Aberle's vocal skills lead him into territory not often treaded by engineers. "Occasionally I'll have a discussion with them on who's singing an 'ooh' or an 'ahh,' or who's taking a breath where. Maybe an intonation problem is happening because someone is

PHOTOS STEVE JENNINGS

there was no way to get to it.

"But the high point was that everything from my vantage point went the way it was supposed to," he says. "I went out in a golf cart a few times, and, for the most part, it was clear across the house for three-quarters of a mile back.

"I feel real good about it: we were within budget, and I was especially pleased with the Mass when I got to look at it on a TV backstage," Murphy concludes. "I met a lot of good people, and it's been a real learning experience. I don't normally do big shows. I just finished working with 10,000 Maniacs and Harry Connick Jr. Now with the Pope, people say that's not a bad client list."

YET MORE RIGGING SEMINARS

Last month we told you about two upcoming rigging seminars to be held by Harry Donovan and Jay O. Glerum. The schedule for these well-attended, three-day-long events has now been firmed up for a full year. Here are the dates and locations: Nov. 1-3, Secaucus, N.J.; Jan. 17-19, '94, Anaheim, Calif.; Feb. 14-16, Orlando, Fla.; April 4-6, Las Vegas; June 6-8, Chicago; Oct. 10-12, Secaucus, N.J.; and Nov. 6-8, San Francisco.

The seminars are intended to serve the needs of riggers, venue personnel, IATSE locals, lighting and stage companies, loud-speaker manufacturers, consultants, contractors and installers. A sample of the material covered over the three days includes engineering principles of rigging, arena and concert rigging techniques, and permanent rigging for theaters, concert halls and arenas. For information, contact Rigging Seminars at (812) 995-8212 or fax (812) 995-2110.

MSI/JBL COMBO ON PARTON GIG

JBL's System Group and Maryland Sound Industries joined forces for 12 Dolly Parton shows at the main showroom of Las Vegas' Mirage Hotel. The sound system featured 26 JBL 4892 Array Series cabinets and eight 4893 sub-lows for FOH, vocal fill

and sidefills. Four 4892s were placed onstage to enhance imaging and clarity of vocals for the nearest audience area. ES52000 digital controllers were used for time alignment and crossover functions while digital delays were used to time align the separate clusters. Power was provided by JBL 600 and 1100 MPA Series amps.

"The system arrays assembled surprisingly quickly," explains Phil Somers, house engineer for Parton. "System tuning proved to be very easy, and the interaction with Dolly's sub-cardioid RF handheld mic was very comfortable, especially in view of the fact that even the main left-right arrays were behind her primary working area. The combination of [controllers, amps and speakers] allowed system tonality to be quite independent of level, unlike most 'processor-based systems' I have heard."

PROGRAMMABLE BSS EQS IN THE FIELD

As you're probably aware, more and more live sound gear is being equipped with programmable and/or remote control capabilities. One example is the BSS Varicurve equalizer, which was recently installed in two Southern California theaters. At the Mark Taper Forum, a 750-seat theater in L.A., head sound engineer Bill Ballard installed four 926 Varicurve EQs and three BSS 804 digital delays. The EQs are to be used in stereo pairs, and their 50 preset programmable memories will be used to reset the units instantly to the cues demanded by various productions.

Sound design for the theater was done by Jonathan Deans, who is also responsible for the system at the Long Beach Terrace Theater, a 3,156-seat venue that is part of the Long Beach Convention Center. Jack Kelly of the Spectacore Management Group handles audio for the theater. In addition to the six Varicurves and eight BSS delays installed at the Terrace Theater, plans are underway to add the Level Control System to the venue, a computer-controlled

automation system for automating scene changes. The LCS system is offered by Real Time Audio, a company Deans is associated with. (One of the highest-profile LCS systems to date is touring Japan with a live-action production based on the films of George Lucas—see fall *Live Mix* for more.)

RECENT WORK

Custom Audio provided sound for Hawaii's local-music equivalent of the Grammys, the Na Hoku Hano Awards show held in the 2,000-seat Sheraton Waikiki Ballroom. Custom Audio's John Schneck was in charge of the audio, which centered around a new 52-input Crest Century GT console. "With two full entertainment stages, podiums, video feeds and last-minute additions," Schneck notes, "having a lot of inputs is a must." The same console sees regular action with Custom Audio's main client, the Honolulu Symphony. Omnitech (Albany, NY) performed the complete design, specification and installation of the new house system at the Saratoga Performing Arts Center, a 30,000-seat amphitheater in Saratoga Springs, just outside of Albany. The venue serves as the summer home for the New York City Opera, the New York City Ballet and the Philadelphia Orchestra. A wide variety of popular music tours regularly visit as well. The center includes a covered, two-level pavilion that seats 6,000, with a lawn that boosts capacity to 30,000. Over the pavilion stage, Omnitech installed a central cluster made up of three EV MTH-2A systems for mid/highs and two MTL-2As for lows. Two HP940 horns with DH1A drivers are mounted below the cluster for downfill coverage. A single MTH-2 is flown on either side of the stage, and six EV DeltaMax DML-1152As serve as balcony-fill. Omnitech also specified EV N/DYM mics: A combination of N/D857B and N/D757B mics are used for vocals, and N/D408Bs for instrument applications. . .MP

—CONTINUED ON PAGE 182

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View of park stage

ute during the ten-day, mouth-watering Taste of Chicago.

In the past, the Park District owned, operated and maintained a sound system adequate for symphonic and speech reinforcement purposes. However, this forced the City to rent larger systems from local sound companies for mainstage concert events. As the number of annual festivals grew, so did the City's yearly rental budget. By the time the Park District and affiliated concerns were ready to replace their old system, city officials could readily justify an allocation of matching funds for the design and installation of a system suited to all needs. "The new system," explains Grant Park Music Festival sponsorship coordinator Rosemary Fliesch, "was going to



Designer David Robb (right) and installer Ian Hunt, manager of Chicago Sound

Downtown Chicago is the hot spot for summer music festivals in the central United States. Both the City of Chicago and the Grant Park District independently coordinate a multitude of musical festivities and other special events at Grant Park's Petrillo Music Shell throughout the summer. The Park District hosts a

series of operatic and dance productions here, in addition to the Grant Park Symphony and Chorus. The City uses this facility for open-air rallies, as well as City-sponsored music festivals. These festivals have grown to include blues, jazz, gospel, country and Hispanic musical tributes. Pop culture has its trib-

have to be able to withstand a really rigorous workout."

In February 1992, David W. Robb, director of electro-acoustic design for Jaffe, Holden, Scar-

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LIVE SOUND

brough Acoustics Inc. of Norwalk, Conn., was contracted to design the system. A year later, his design was approved for specification. The season opener for the system was to be the Memorial Day weekend BluesFest, making time the critical factor. "This was a really fast-track job," Robb acknowledges. "I called most of the manufacturers ahead of time to let them know that these orders were coming."

On April 12, the Petrillo sound installation contract was awarded to Chicago Sound & Music of Morton Grove, Ill. Beyond the initial install, Chicago Sound owner Lori Cole committed her company to train separate sound crews for Park District and City events and to store and perform general maintenance on the system dur-



Before next season begins, a permanent delay system will be installed as shown above.

ing the off-season for the next three years.

The system itself is relatively straightforward. At mix position, a Ramsa WR-S852-40 console with the HMG-840K mute group modification presides over a full complement of out-board gear, including two Klark Teknik DN360 31-band graphics, two KT 4-channel limiters and 4-channel noise gates, a Lexicon PCM70 and two Yamaha SPX900 effects processors.

In the basement, drive racks are seated upon a cinderblock pad to prevent possible water damage, as there is a significant risk of flooding. The L/R house returns feed the main racks via two Oxmoor MDA-26 distribution amplifiers, configured with one L/R stereo pair and four L+R mono-summed output channels

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per unit. Most sends are then routed through separate channels of Yamaha DEQ5 digital equalization. Given the unforgiving nature of digital gear, the analog house returns are routed through a 2-channel Aphex Dominator 720 before going to the distribution amplifiers. Robb insists that the Dominator is "really about the only stonewall limiter in the business. You set it to a certain level, and absolutely nothing will go past that."

From the distribution amplifiers, one stereo pair is left untouched for broadcast purposes. The other stereo pair feeds both upper and lower house side clusters. The upper clusters have four EAW KF850TRD3 cabinets per side; the lower side clusters have four EAW KF600IR cabinets per side. They are driven by pairs of Crest 6001, 4801, and 3301 power amplifiers per cluster, through EAW MX800i-8T and EAW MX800i-6 signal processors.

To fill out the stereo image, Robb included a cluster "put right in the center, angled down at the people in the front, middle part of the audience." This central cluster consists of one EAW SB330P subwoofer flanked by two EAW KF300iP cabinets. The cluster is driven off of a mono tap by Crest 6001 and 4601 power amplifiers from an EAW MX300i-3 signal processor. "The design intent," Robb says, "is for the clusters to be flown from a structure that is yet to be built. This year, the configuration is a little out of whack. The clusters are stuffed up there on scaffold." A new wing-to-wing downstage proscenium truss will be in place for the 1994 season.

The subwoofers are also run off of a mono-summed tap. Robb prefers to locate his subs off the ground, in vertical stacks. He explains that "other people try to put them all on the ground to couple better. But after doing a lot of experimenting on the road, I found that a vertical stack of subs has a much better coverage pattern and fewer sonic problems than subs lying on the ground do."

The stacks are composed of four EAW SB528RD2 cabinets per side, fed by a Ramsa WS-SP2A subwoofer processor. "EAW does not currently manufacture a discrete subwoofer processor—it's tied in with their other systems," Robb continues. "So I use this very simple, inexpensive, but fairly elegant little package made by Ramsa." The subs are driven by two Crest 7001 power amplifiers per stack.

"Some people think that being real close to the stage is the best seat in the house. In reality," Robb notes, "when you're right there in front of the stage, you really don't have any sense of what's going on other than the acoustic volume coming off the stage." To compensate, nine Tannoy CPA5 coaxial speakers modified for 70-Volt operation are hung on 8-foot centers along flowerboxes mounted on the stage lip, with special brackets designed by Chicago Sound. These are divided between inner and outer frontfill groups. They are driven by a Crest FCV440 power amplifier off of two mono signals. Flanking the main audience, several rows of reserved VIP seating line the offstage walkways. "So now," he says, "they have a speaker on either side of the stage that shoots down that way and picks up those seats." These offstage walkways are covered with one Crest-powered EAW KF300IR per side, off of a mono tap.

"Right now," continues Robb, "there are five permanent delay tower positions and six temporary ones. [By next season,] all of these will go away and be replaced with 16 permanent positions that don't really correspond to the positions that are out there now." The new towers will be laid out in three consecutive arcs set at 180, 320 and 460 feet from center stage. All towers feature EAW JF200iP cabinets with passive crossover systems and extra rigging points. They are driven on three separate mono line feeds through Crest 4801 power amplifiers.

"When treating speakers for use outdoors," he says, "most

people will do a waterproofing treatment to the cones. EAW has come up with something that's better than that. Behind the typical perforated metal grille, there's a thin layer of acoustically transparent foam. And behind that is a piece of very porous mesh, made of stainless steel filament. There are actually 10,000 holes per square inch. It works similarly to the popular camping fabric, Goretex™. There's no measurable effect on sound, yet you can stand there with a hose on it, and water won't go through."

Finally, when left with no alternative other than RF transmission for Petrillo's hearing-assistance system, Robb thought of a portable unit he'd had good results with in similar heavily RF-polluted environments: a Sennheiser SK 1010-RM with A8P antenna, converted to run on 110V AC.

The chief tenants of the park are the Grant Park Symphony and Chorus, who typically don't require much in the way of monitors. However, a full stage rig is part of the new system and will definitely see heavy use during music festivals. For these events, a Ramsa WR-S840F-40 monitor console, with eighteen possible submixes, presides over its own small kingdom of outboard gear. Twelve of these sends feed the onstage monitor racks, where Crest 6001 and 4601 power amplifiers drive a variety of EAW stage and sidefill monitor cabinets.

After weeks of unrelenting time pressures, the system was ready for the BluesFest with a minimum of loose ends. Chicago Sound manager Ian Hunt worked the install with staffers James Ostrom and John Lisiecki. "Actually," Hunt admits, "I think that the deadline had a good effect in making everyone work together." The clients themselves are well pleased. "It sounds better than any system that's been here before," confides Parks Coordinator Fliesch, "We've received nothing but compliments." ■

W.J. Duch is a Michigan-based freelance writer.



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SOUNDCRAFT SPIRIT FOLIO 4

Based on the design of the Spirit Folio portable mixer, the Folio 4 from Soundcraft (Northridge, CA) is a true 4-bus console with full subgrouping capabilities for professional FOH usage. The console has 20 balanced inputs (12 mono and four stereo), with a highpass filter and EQ in/out switches; mono inputs also feature 3-band, mid-sweep EQ and 48V switchable phantom power. Other features include eight aux sends (two pairs are stereo), four sets of stereo returns, two sets of dual bar graph meters for monitoring, PFL soloing on all channels and AFL soloing on aux masters, genuine log/antilog panpots,



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The ADF-1200 (single-channel) and ADF-2400 (dual-channel) workstations from Sabine (Gainesville, FL) are adaptive digital filters for live sound use. The units offer 12- or 24-band parametric EQ, digital shelving filters, digital delay, noise gating, 31-band RTA, password lockout protection and user memories of setups. Filter center-point resolution is 1 Hz; gain ranges from +12dB to deep -80dB notching; and filter bandwidth is variable from 0.01 to 1 octave. Another standard feature is feedback elimination, automatically assigning a narrow notch filter to remove ringing in less than half a second. Transformer balancing is optional.

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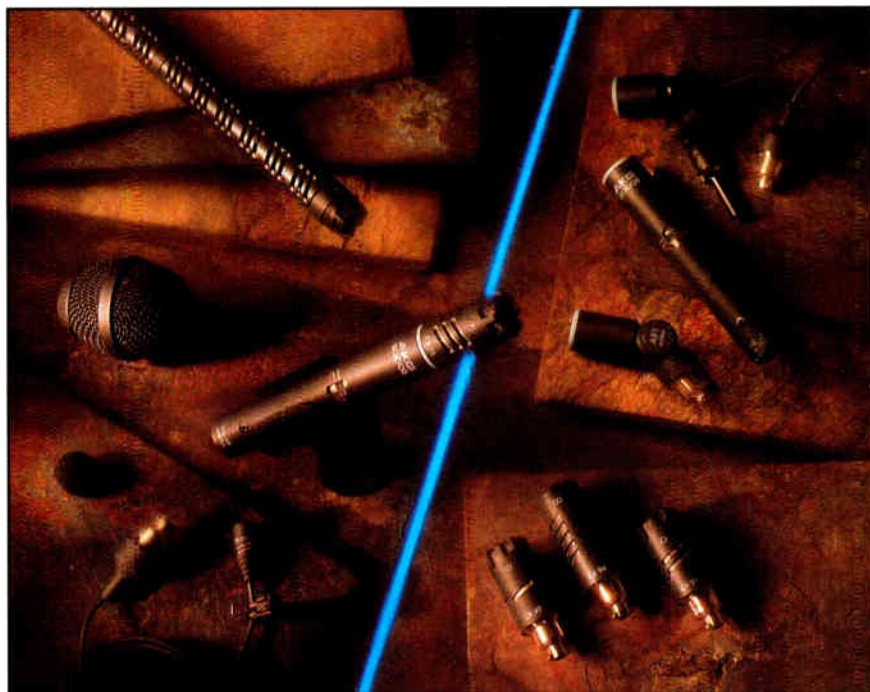
SHURE EC SERIES WIRELESS SYSTEMS

New from Shure (Evanston, IL) is the EC Series of wireless systems, available in six lavalier and handheld configurations and designed to meet tough European RF standards. EC transmitters and receivers feature a new digitally controlled, frequency-synthesized design said to provide significant improvement in signal reliability, multiple system performance and freedom from dropouts and RF interference. The PowerGain™ antenna provides up to 10 dB more radiated power than many systems, while up to 15 EC systems can operate simultaneously in most geographic areas. The EC4 Diversity Receiver uses MARCAD™ technology to combine signals from both receiver sections rather than switching between the two. Prices range from \$885 to \$1,050.

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by Larry the "O"



AKG BLUE LINE MICROPHONES

AKG's Blue Line condenser microphones are the successors to the venerable 451 family, longtime favorites in studio and live applications because of their interchangeable capsule design, moderate price and crisp sound. The new series incorporates a rugged bayonet mount for attaching capsules or accessories to the basic mic body—the SE300B powering/output (preamplifier module)—which is priced at \$259.

A host of capsules are available: the CK91 cardioid (\$179), CK92 omnidirectional (\$179), CK93 hypercardioid (\$179), CK94 bidirectional (\$359), CK97-O omni lavalier (\$199), CK97-C cardioid lavalier (\$199) and CK98 10-inch shotgun (\$279). The CK97-CVR, a version of the CK97-C with a 15-inch gooseneck, is also offered. Available accessories include swivel and

extension mounts, foam and metal-mesh windscreens and two types of lavalier clips, as well as a standard mic saddle. For remote and hanging applications, an optional cable can separate any capsule from the mic body by three meters.

Each capsule has a unique pattern of slots cut into its housing, allowing the user to identify the capsules by feel. In a darkened venue or nighttime field recording session, this could prove very useful; combined with the roadworthy construction, this feature makes the Blue Lines strong candidates for any kind of field work.

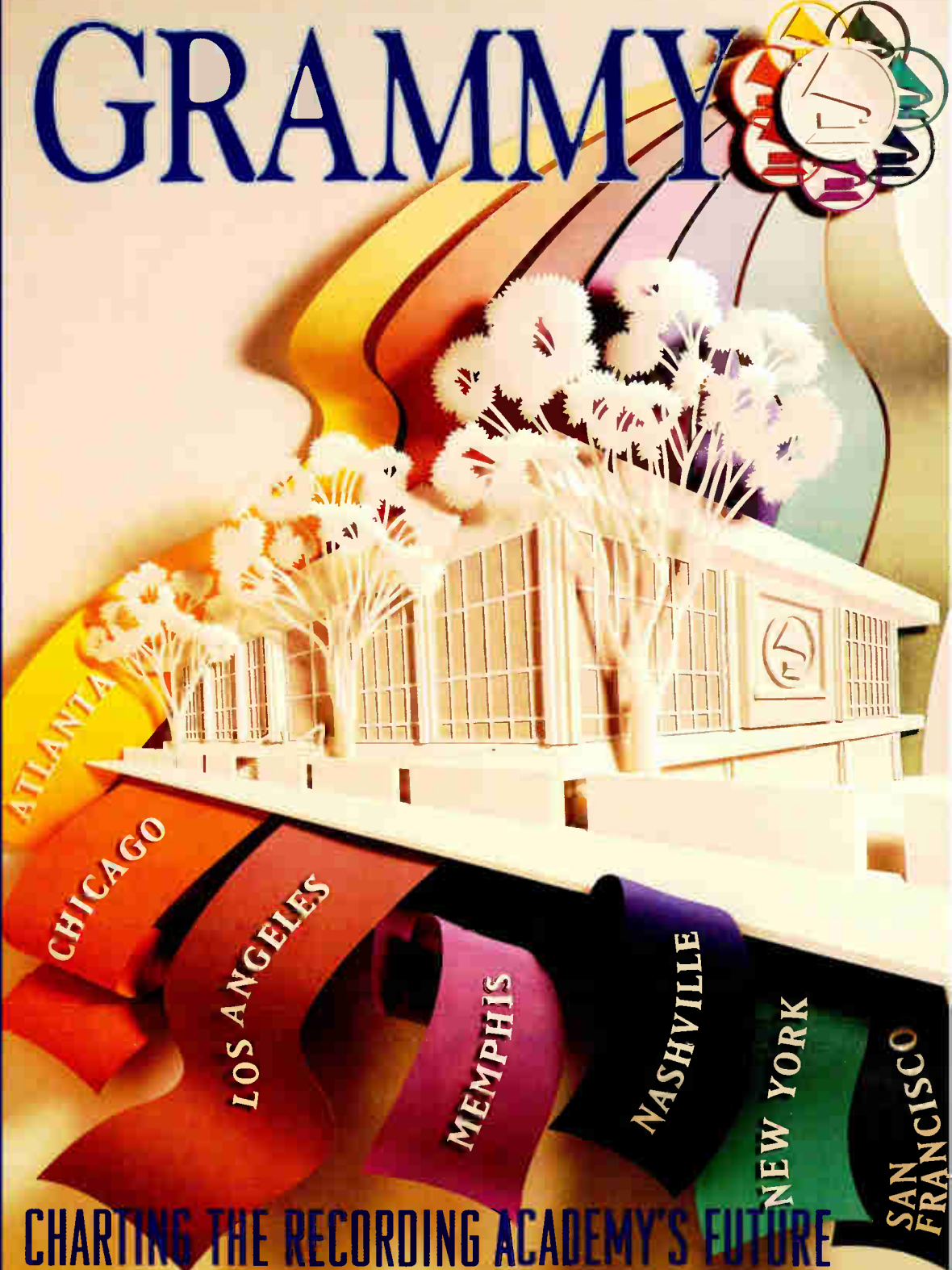
The capsules connect to the SE300B (or mic mount) with a simple bayonet connection that seats easily and then twists into place with a click that lets you know the connec-

PHOTO: BILL SCHWOB

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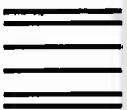
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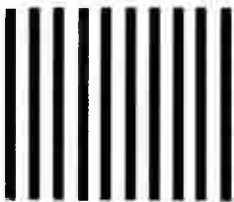
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tion is complete. This system is faster than screw-mount capsule designs and eliminates the possibility of cross-threading delicate capsule threads. Ever-vigilant *Mix* products editor George Petersen found the Blue Line's bayonet mounts were prone to occasional accidental disconnection when using the swivel mounts and rotating the mic by gripping the capsule while placing it. On one occasion early in the review period, I disconnected the capsule in the same way, but if you grip the preamp module when positioning the microphone, this is not a problem. (This is also a good practice for avoiding inadvertent deposits on the capsule from dirty hands or skin oils.)

The SE300B can be powered from any 12- to 48-volt phantom power source, and a three-position switch offers a choice of flat response, -12dB/octave highpass filter at 75 Hz or a -10dB pad. With this arrangement, the pad is unavailable when the highpass is in use, possibly a disadvantage when miking brass instruments or close-miking high-SPL sources outdoors. However, in my evaluation of the Blue Lines, I had no occasion to need the pad, even when using them for drum overheads.

All of the capsules have a rated frequency response of 20 to 20,000 Hz, except for the CK97-O (20 to 18,000 Hz) and the CK97-C/CVR (150 to 18,000 Hz) lavalier models. Using the -10dB pad, any of the Blue Line capsules can withstand 130dB SPL (for 1% THD), and the CK91, 92, 93, and 94 can go as high as 142dB SPL for that same level of distortion. Self-noise levels range from 17 dB (A-weighted) for the CK91, 92 and 93, up to 26 dBA for the CK97-C/CVR.

I put the Blue Lines through their paces on many sources, including drum overheads, hi-hat, male and female vocals, mandolin, Celtic harp, vibes, cone drum and live-to-DAT recording of bands.

There is absolutely no question that the Blue Lines sound far superior to the old standby 451. Condenser microphones tend to have a rising high-frequency response, but the subjective quality of the high end can differ greatly between microphones. On acoustic instruments in particular, I noticed a smoothness and clarity, even a warmth (a term I

rarely use for condensers), in the Blue Lines' high end, where the 451 could get somewhat strident. The frequency response seemed very even across the spectrum, even providing a fuller low end than I am used to hearing from small-diaphragm condensers. The Blue Lines are also quite sensitive, revealing a great deal of detail.

I used a coincident pair of Blue Lines with the CK91 (cardioid) capsules on vibes (supplemented with a large-diaphragm dynamic tucked in the resonators for extra low end). The result was a soft-edged yet very present sound, as opposed to the thin, tinkly sound I always hear on vibes recordings, along with very distinct—though contained—stereo imaging. (Spaced pairs on vibes often end up with holes in the center of the image, right where the majority of playing occurs.)

A cone drum was close-miked with a Blue Line on top and bottom (both with the CK91 capsule), which, when mixed, yielded a tone with roundness on the low end but enough presence and detail to hear the skin-on-skin sound of the player's hands on the drum head.

I miked a mandolinist in a small (7x8.5-foot) wood room and placed a single Blue Line with the CK92 capsule about a foot in front of her, hoping that this omnidirectional capsule would catch some of the ambience of the room. I brought the mic up on the board, and it was perfect: superb direct-to-reverberant ratio and a well-balanced tone. It needed no EQ, reverb or processing other than some very light compression, and that only because it was destined for a thick mix that might bury some of the softer parts. I was mightily pleased.

For the Celtic harp, I used two large-diaphragm mics in close on either side of the harp, and the Blue Lines with the CK93s (hypercardioid) pointed over the player's shoulders to fill out the stereo image without picking up too many room reflections. Celtic harps are not like concert harps; they are lap-held and have no pedals. They are also rather soft, requiring high mic sensitivity and preamp gain. The Blue Lines again performed beautifully, blending with the other condensers, contributing no discernible noise of their own and displaying a balanced soundfield.

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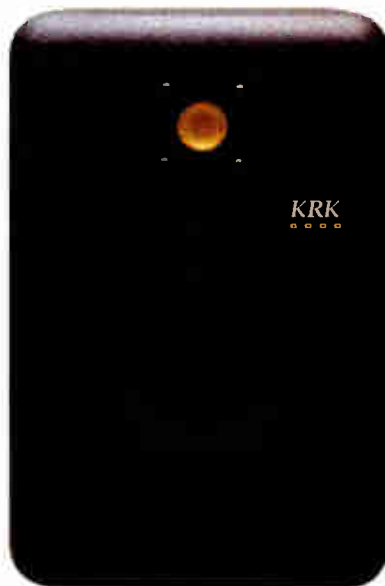
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On vocals, the Blue Lines (with the CK91) fared well with female vocals, less so with male vocals. A small-diaphragm condenser is not generally my first choice for a vocal, but the Blue Lines were serviceable in this application. There was somewhat of a tendency toward accentuating sibilance, and a little bit of edginess was brought out sometimes. The foam windscreen made little difference, so, on a whim, I tried the metal-mesh windscreen (which I would not usually do in a studio session), hoping it would deflect some of the high mids. It did help some, but, given a choice of any microphone in the world, I would not choose the Blue Lines for vocals.

When a pair of Blue Lines were used fairly close on drum overheads, the cymbals had a bit of a bite, which might have been a perfectly accurate reproduction but did not sound agreeable. On the other hand, moving them a foot or so farther up sounded excellent, with a good balance between cymbals and toms. If

you don't have the luxury of miking every drum individually, the Blue Lines do a fine job of capturing the whole set; just don't put them too close. Similarly, I was not enamored with the sound of a Blue Line placed tight on the hi-hat, but by moving it back a few inches, I found it was sufficient to mellow and even out the sound.

I did not test the lavaliers during the review period, but I used the shotguns to record a live club date with two different bands. As any Deadhead taper knows, the difficulty in recording live with two microphones from the audience is the amount of ambient sound, both reverb and audience noise, that gets picked up. The same problem applies whether recording from the back of an arena or a small club. The shotguns were placed at the sound board in a spread configuration. I was very impressed with the results: very low coloration (an inherent problem of shotguns), pleasingly tight pickup, great overall clarity. The forest of Nakamichis at Grateful Dead shows may soon yield to a new growth of Blue Lines.

In summary, the Blue Line microphones are first-rate performers with a modular design that translates into the versatility to meet many needs. They exhibit excellent construction and sonic performance, far beyond their quite reasonable price. You may get better performance than the Blue Lines if you want to spend a good deal more money, but for the project studio owner who can afford only one or two condenser microphones, the Blue Lines are the ticket. For the high-end facility that needs to fill out the mic collection without breaking the bank, the Blue Lines would be the first place to look. The Blue Lines would serve superbly for field recording applications like ENG, gathering film sound effects or capturing sounds for sampling.

If I sound enthusiastic about the Blue Lines, it's because I am. AKG Acoustics Inc., 1525 Alvarado Street, San Leandro, CA 94577; (510) 351-3500. ■

Larry the O stays very busy performing with several bands, engineering, producing, consulting and, oh yes, writing.

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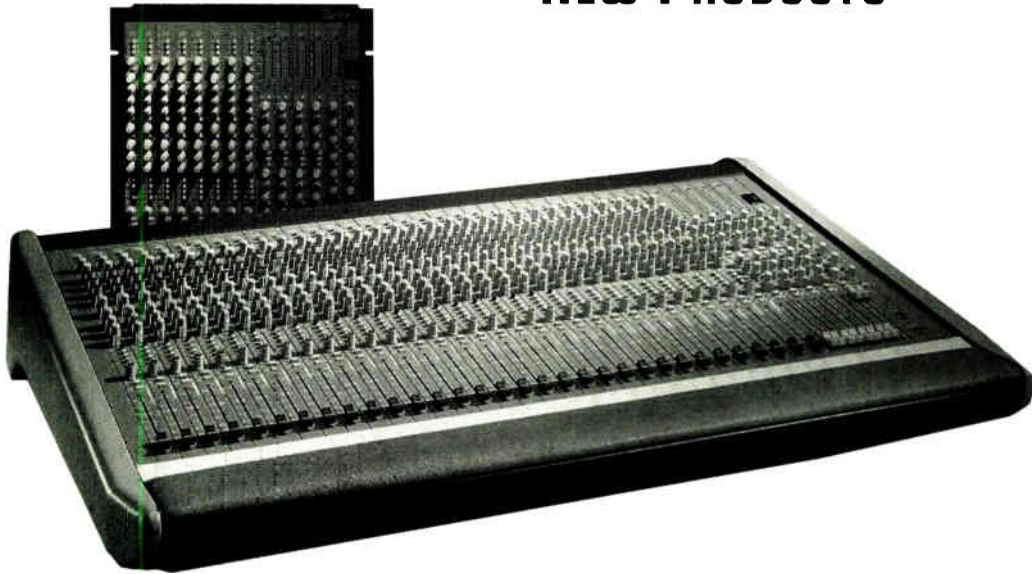
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NEW PRODUCTS



D&R VISION CONSOLE ▲

Available in frames ranging from 12-channel rack-mount to 56-input full size is Vision, a new modular console from D&R USA (Montgomery, TX). Priced from under \$4,000, Vision offers a choice of standard or deluxe modules (the latter having the same preamps and 4-band sweepable EQs as D&R's \$35,000 Triton con-

DIGITAL DOMAIN VSP

The VSP™ Digital Audio Control Centers from Digital Domain (New York City) feature a sample-rate converter (turning any 32kHz-to-56kHz source to 44.1 kHz), digital patch bay, distribution amplifier and crystal-locked jitter eliminator in a one-rack chassis. Compatible with 16- or 20-bit material, the standard \$1,495 VSP/S accepts AES or S/PDIF signals from six digital

sole), mono and stereo modules, and a selection of group, master and matrix modules allowing users to customize the console to their exact needs, whether for recording, post, live sound or MIDI studios. A "soft switching" muting system can be controlled manually or via an optional MIDI module, and the console carries a two-year warranty.

Circle #226 on Reader Service Card

sources via four transformer-isolated and two optical ports; it can route any input to six digital outputs. Priced at \$1,995, the VSP/P (pro version) adds a monitor selector/comparator, external processor loop and AES-S/PDIF (and vice versa) format converter, like the company's FCN-1. A factory mod allows the ganging of units for 12-input/output operation.

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VALLEY AUDIO SIGNAL PROCESSORS

Valley Audio (Merriam, KS) debuted three new analog signal processors at the AES show in New York. The Model 460 provides dual-channel, keyable, frequency-selective gating, expansion and single-ended noise reduction, while the Model 433 Dynamite is a dual-channel compressor, limiter and expander with enhanced stereo tracking. A single-channel, all-in-one microphone preamp, compressor, expander, gate and 3-band equalizer, Model 401, adds feature and performance improvements to Valley's Model 400 mic processor. Features include phantom power, insert looping and extensive metering.

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SSL G PLUS CONSOLES

The SSL (U.S. offices are in New York City) G Plus Series of consoles offer a wide range of capabilities previously available only as options. New operational features include high-capacity 3.5-inch disk drives, an audio phase scope, automated solo, PPM metering for digital recordings, remote-controlled talkback and a video switcher. On the audio side, G Plus consoles provide redesigned group and main mix amps for lower noise and extended LF response, plus SSL's linear crystal oxygen-free cable. On consoles of 72 channels or more, a remote patch bay is included at no cost.

CREST 7301 AMPLIFIER

Crest Audio (Paramus, NJ) introduces its 7301 Professional Series amplifier for use with bi-amplified systems, including stage monitor, studio monitor and FOH applications. Channel A, for low frequencies, provides 940 watts at 4 ohms and uses Class H operation, while Channel B uses a Class AB, dual-rail output section and provides 200 watts at 4 ohms. Frequency response is 20-20k Hz, +0/-3 dB.

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SHEP LIONHEART CONSOLE

Shep Associates Ltd. (Royston, Herts, England) introduces the Lionheart, a discrete, hand-built console featuring 64 inputs with 4-band EQ and 48-track bus assign. Also standard are in-line monitoring with 10 aux sends, balanced inputs and outputs, logic switching and gold connectors, eight 32264a compressor/limiters and a Bantam/XLR patch bay.

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SYTEK MPX-4A/MPX-4D

The newest version of the MPX-4 quad preamp from Sytek (Chicago) is the \$980 MPX-4A, featuring THD of less than 0.002% and a noise spec below -96 dB. It has a clipping LED, plus mute, phase invert and +48-volt phantom power. The unit can be upgraded to the MPX-4D, which is



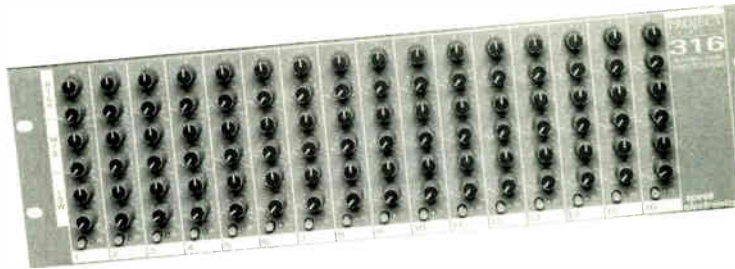
remotely accessible by computer via Windows software, allowing up to 256 preamps to be operated simultaneously with true instant session recall. A non-Windows version is also planned.

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AUSTRALIAN MONITOR OPAL 2802 POWER AMP

New from Australian Monitor (U.S. offices in Malvern, PA) is the Opal 2802, a stereo power amplifier delivering 280 watts per channel into a 4/8-ohm load. Features include a THD (at 1 kHz) rating of under 0.005%; flat 20-20k Hz frequency response (± 0.5 dB), buffered 21-position stepped front panel attenuators, LED clipping/status indicators, Speakon and binding-post outputs, XLR and barrier-strip inputs, silent convection cooling with thermally switched fan, mono bridge mode, and optional limiters and HP/LP filter cards. Retail is \$1,600.

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SPECK ELECTRONICS 16-CHANNEL EQ

Speck Electronics (Fallbrook, CA) is now shipping the Model 316, offering 16 channels of fully swept 3-band equalization in

three rackspaces. Retailing at \$698, the unit features 15dB boost/cut on each band, EQ bypass on each channel and 16 1/2-inch jacks for both input and output. Frequency response is an ultrawide 10-110k Hz, with residual noise of -89 dBu.

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TROISI DIGITAL COMPANION UPGRADE

Troisi Inc. (Westford, MA) is offering the first in a

series of plug-in modules for its Digital Companion A/D and D/A converters, providing full 18-bit A/D conversion with 5th-order sigma-delta modulation and 64x oversampling. The signal to noise and distortion ratio is said to be over 100 dB, with an A-weighted dynamic range of -107 dB.

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AKG VINTAGE TL MICROPHONE

The Vintage TL from AKG Acoustics (San Leandro, CA) combines the design of the transformerless C414B/TL mic with a re-created capsule from AKG's classic C12 tube mic. The Vintage TL is a 1-inch, dual-diaphragm pressure gradient mic with four switchable patterns. A 12dB/octave low-frequency roll-off at 75 Hz or 150 Hz and switchable -10dB or -20dB pads are also standard. Suggested retail is \$1,499.

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M&K S-90 SPEAKER SYSTEM

New from Miller & Kreisel Sound (Culver City, CA) is the S-90, which incorporates a 6.5-inch woofer and 1-inch dome tweeter, for a frequency response of 72-20k Hz ± 2 dB at a maximum power of 200 watts. The 12x11.5x9.75-inch speakers weigh 17 pounds each and are available in oak or black oak finishes; retail is \$750, and a mag-shielded version is also available.

Circle #231 on Reader Service Card

DIGITAL DESIGNS STUDIO MONITORS

Digital Designs (Oklahoma City, OK) offers two new series of studio monitors. The M6 and M26 near-field speakers feature a 20mm tweeter with one and two 6.5-inch woofers, respectively, offering dual bass alignment; acoustic suspension, for faster transient response and tighter bass; and bass reflex, for deeper bass extension with

faster roll-off and more kick. The DD161b and DD261b provide a 25mm tweeter with the 6.5-inch woofers and offer three-level woofer and tweeter adjustment to emulate studio and audiophile playback response curves. Retail prices are \$199 and \$299 for the M Series (slightly more for a lacquer finish) and \$602 and \$830 for the B series.

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PRISM SOUND DSA-1 AES/EBU ANALYZER

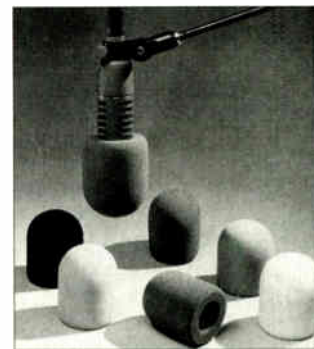
The DSA-1 is a handheld AES/EBU analyzer that operates specifically for digital audio, providing comprehensive measurement of signal quality to avoid transmission and interface problems. Functions include jitter measurement and removal, carrier amplitude, phase and HF attenuation, plus the ability to monitor audio or the incoming line and decode user-bits and channel status. Available in the U.S. through Sprocket Digital (Burbank, CA), the unit can run several fixed or user-defined test sequences; external reference sources include AES/EBU and S/PDIF formats and word clock or video sync.

Circle #238 on Reader Service Card

WINDTECH WINDSCREENS

WindTech (Scottsdale, AZ) has expanded its product line to include 11 series of screens in 19 colors. Made from hypoallergenic, open-cell foam, these -30dB LF attenuating windscreens are available to cover virtually any pro microphone currently available, as well as many older models.

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HOT OFF THE SHELF

Australian Monitor (U.S. offices in Malvern, PA) now offers a full five-year parts and labor warranty on all new AM and K Series amplifiers; call (215) 380-1394 for info...Optical Laser (Huntington Beach, CA) has a new series of optical storage subsystems for networking applications, with up to 54GB capacity. The systems start at \$32,000 and feature the new OptiDriver universal SCSI driver. Call (714) 536-7990 or (800) 776-9215 for info...Line-conditioning, filtering and uninterrupted power with backup times of five to 90 minutes are available with the new PowerPro Series,

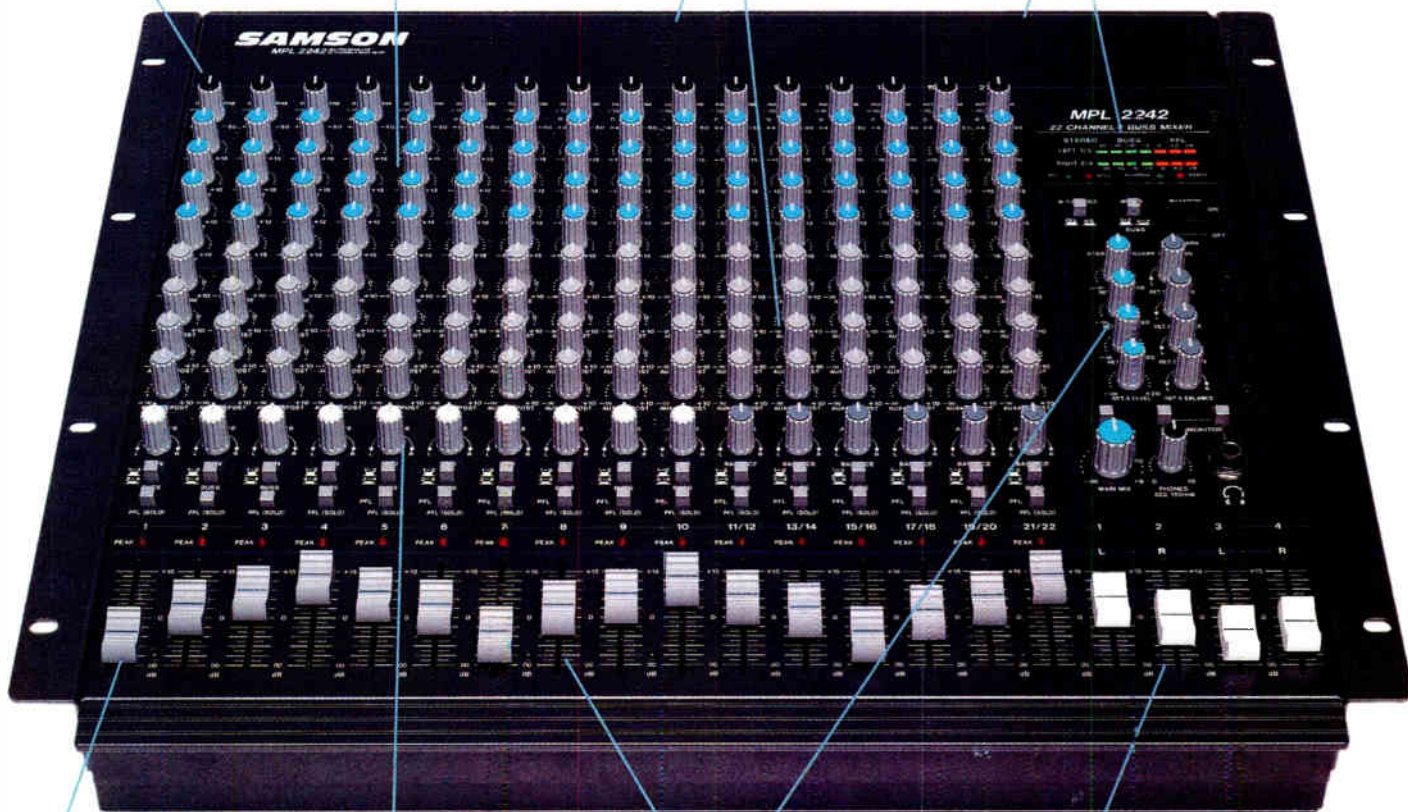
ranging from 400VA to 18KVA, with prices starting at \$449; call KW Control Systems at (914) 355-5455...Crystal Semiconductor offers the audio industry's "highest-performing digital volume control" as a single chip needing no external components. The volume control has a 110dB dynamic range and costs \$6.60 per chip in 1,000-unit lots; call (512) 445-7222...A new directory of domestic and international trade shows in the electronics industry is available from the Electronics Representatives Association. Call (312) 649-1333...Dana B. Goods' Axe Cradle is a 5.5x3.75x1.5-inch polyethylene unit that can be

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For more information about the MPL 2242, please contact Samson Audio, a division of Samson Technologies Corp., P.O. Box 9068, Hicksville, NY 11802-9068 (516) 932-3810 FAX (516) 932-3815

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World Radio History

by George Petersen

PRODUCT

CRITIQUES AND COMMENTS

NEUMANN TLM 193

Earlier this year, Neumann turned a few heads with the introduction of the TLM 193, a large-diaphragm studio condenser mic priced at a rock-bottom (at least by Neumann standards) \$1,295. Of course, Neumann doesn't take a bargain-basement approach to anything, so the TLM 193 package includes a machined-brass swivel mic mount and a foam-lined, wooden jeweler's case.

The TLM 193 is priced about \$1,100 less than the current U89i, and the old proverb that you don't get something for nothing applies here as well. In order to get the mic to market with an under-\$1,300 tag, Neumann had to make a few concessions. First, the new model is a single-pattern, cardioid design. If your applications require more polar pickup flexibility, such as the omni/wide cardioid/cardioid/hypercardioid/figure-eight versatility of the U89i or TLM 170, you'll have to look elsewhere.

Other cost-cutting measures on the TLM 193 include the elimination of highpass filters and attenuation pads. However, it should be noted that the new mic handles sound pressure levels of up to 140 dB, which is more than most other mics can take, even with a pad. And the single-pattern approach is not a major drawback, as 90% of all studio/broadcast applications require cardioid mics.

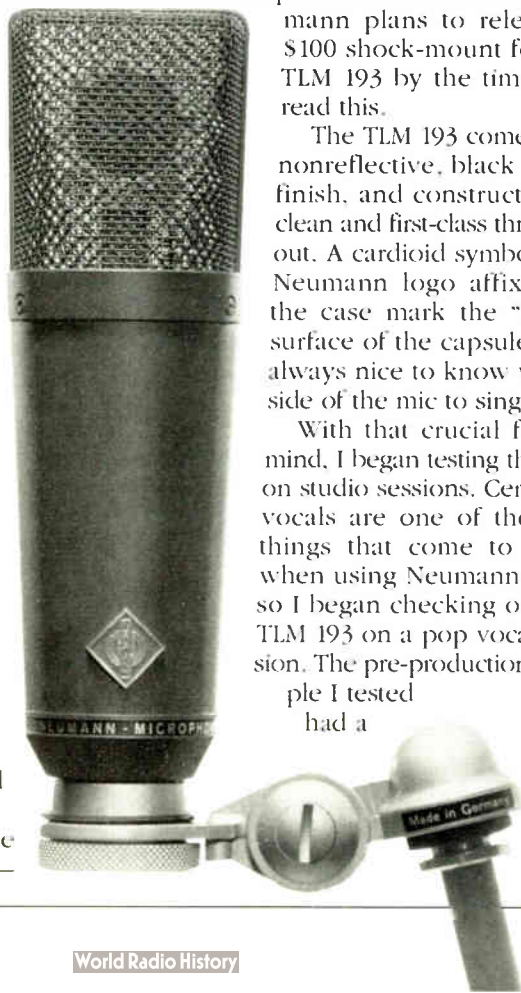
Like its cousins—the TLM 170, U89i and U87i—

the TLM 193 is a pressure-gradient mic that uses a large-diaphragm condenser capsule. In fact, the TLM 193 shares the same capsule as the U89i and TLM 170. The electronics are identical to the transformerless FET 100 design of the KM 100, for a self-noise of 10 dBA. Combining the 10 dBA with the 140dB maximum SPL yields a usable dynamic range of 130 dB—just right for your 20-bit digital system.

Physically, the TLM 193 body is just under seven inches long—about a half-inch shorter than a U89—yet at 1.08 pounds, it's about three ounces heavier than the U89. One not-so-obvious difference between the two is the fact that the TLM 193 does not fit into the U89i's EA89a elastic suspension shock-mount; Neumann plans to release a \$100 shock-mount for the TLM 193 by the time you read this.

The TLM 193 comes in a nonreflective, black matte finish, and construction is clean and first-class throughout. A cardioid symbol and Neumann logo affixed to the case mark the "front" surface of the capsule—it's always nice to know which side of the mic to sing into.

With that crucial fact in mind, I began testing the mic on studio sessions. Certainly, vocals are one of the first things that come to mind when using Neumann mics, so I began checking out the TLM 193 on a pop vocal session. The pre-production sample I tested had a



single-layer windscreen that was susceptible to breath pops, and a Neumann representative said the final version will have a three-layer, wire mesh grill that should reduce the problem. So I used a Popper Stopper stocking filter—which I use on most lead vocal sessions anyway—and experienced no breath/pop noise whatsoever.

Over a period of weeks, the results for both male and female vocalists were excellent, providing a balanced, natural sound that was free of sibilance. The TLM 193 has a fairly flat frequency response and a fairly mild presence peak of about +2.5 dB at 10 kHz. The rise of this gentle slope is far more delicate than most handheld vocal mics: just enough to provide a slight increase in "snap" and intelligibility, without acting like a sledgehammer or being obvious. This effect was wonderful, especially for capturing breathy background vocals.

I was also pleased with the TLM 193's sound on male and female narrators. There's a noticeable, although not overwhelming, proximity effect, which can be an advantage for performers who actually know how to "work" a mic. However, most voice/on-air talent is close-miked, so in these cases, you'll really need the optional, pull-on foam windscreen.

Next up was a new age project combining acoustic stringed instruments with MIDI tracks and live percussion. The MIDI parts didn't really need miking, but the TLM 193 was superb at capturing acoustic guitar. Miked from three feet away, the guitar sounded rich and full, with a nice blend of lower and upper harmonics. Some bouzouki (Greek mandolin) tracks—miked from the same distance—were punchy without being strident.

Checking out the TLM 193's performance on percussion overdubs—on master percussionist Pete Escovedo—proved interesting. Combining a wide frequency range with push-it-to-the-wall transients, percussion instruments are not easy to reproduce, especially when you're dealing with the energy of a virtuoso like Escovedo. In this particular session, we used two small-diaphragm condensers on congas, with the TLM 193 for everything else that Pete could shake, rattle or pound. And I liked what I heard, with the TLM 193 han-

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Allen & Heath GL3

Neumann TLM 193 may be just what you're looking for. It would be a welcome addition to any studio, whether a small project room or large facility.

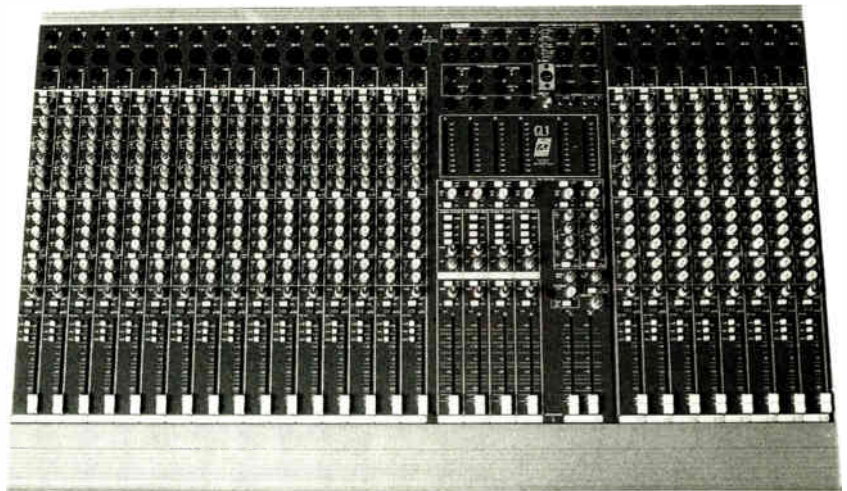
Neumann USA, 6 Vista Drive, Old Lyme, CT 06371; (203) 434-5220.

**ALLEN & HEATH GL3
LIVE SOUND CONSOLE**

Whenever the subject of mid-level sound reinforcement consoles comes up, Allen & Heath is probably not the first, second or even third name that comes to mind. However, this situation is sure to change with the company's introduction of the GL3, which combines a unique and quite versatile console topology in a road-worthy package. It sounds great, and it's priced right.

First, some basics: Available in 16- or 24-channel versions (expandable up to 40 inputs in blocks of eight channels), the GL3 is a 4-bus console featuring 4-band EQ (with two sweepable mid-bands) and six aux sends. By the way, the auxes are on six dedicated controls (don't expect to find the usual "push to select aux 3/4 or 5/6" switches). This feature is especially important in a sound reinforcement board, where you don't have the studio luxury of taking a couple of minutes to leisurely find the send you need. For more flexibility, internal jumpers allow users to operate in pre/post-EQ or pre/post-mute modes.

Standard amenities common to all GL3 models include long-throw 100mm channel faders, +48-volt phantom powering (with individual switches on each input), pre/post-fader aux



switching, EQ in/out switching, solo, muting, BNC lighting connector, four stereo effects returns (routable to mains and/or subgroups) and six 10-segment LED meters for monitoring the balanced XLR outputs on the L/R mains and group outs. Each channel's XLR inputs can be switched to handle either mic- or line-level signals; 1/4-inch TRS-balanced line inputs are also provided.

A rotary control that feeds a mono output on a balanced XLR is also provided for driving lobby speakers or a subwoofer system. Insert points (1/4-inch TRS, tip = send, ring = return) are provided on each of the input channels, aux groups and master outputs. The master section also has 2-track outputs and inputs (switch-

able to the L/R mains for intermission music playback), talkback facilities (the XLR mic input is routable to any aux mix), and headphone level control for monitoring either the L/R or 2-track outputs. The headphone jack is located under the armrest—fortunately, a screened legend on the master section points to the hidden location.

One of the GL3's most interesting features is its ability to convert from a house console to a full-function monitor desk with six outputs. The GL3 can also operate in multimode, with stereo and mono FOH feeds, and two effects sends and four stage monitor mixes. Getting into and out of Stage Monitor mode is accomplished by setting various Stage Monitor mode switches to configure the console as desired. Like the GL3's phantom-power switches, these Stage Monitor mode selectors are recessed and are set using a pen point or similar tool. This approach may be inconvenient at times, but it prevents the possibility of accidentally changing settings during a show.

As with other consoles in its class, the GL3 includes an external power supply: a brick-sized unit. The supply is built into a perforated steel enclosure, which does a good job of keeping the components cool. However, it makes the unit highly susceptible to the occasional spills (beer, soda, coffee, milk shakes, etc.) that are an inevitable fact of life on the road. Until Allen & Heath redesigns the power supply enclosure to protect against such mishaps, anyone using the GL3 should pay particular attention to power supply placement. There is no AC switch on either the console or power supply—a slight inconvenience.

Sonically, the GL3 was quite clean. THD + Noise (line in to mix out at 1 kHz) measured at a respectable 0.029%, and frequency response tested out to be 20 to 25k Hz (+0, -0.5 dB), 0.5 dB better than its published spec. The equalization is smooth and musical, with intelligently selected fixed points (70 Hz and 12 kHz) for the shelving LF and HF sections. All of the EQ bands have ± 14 dB controls, and the two mid-bands overlap in the 600Hz to 1,400Hz range for handling any problems in this critical area.

Over a period of months, I had the opportunity to put the GL3 through the paces on a variety of gigs, using the FOH, monitor and multimodes.

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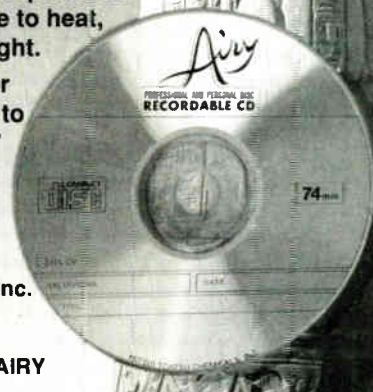
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AUDITIONS

The console is straightforward in design—all of the controls seem to be exactly where you would expect them to be, and the lack of concentric controls (which I hate) and the six real aux sends make the GL3 a pleasure to drive.

Physically, the console is sturdy. The aluminum outer frame is both strong and relatively lightweight. The 16x4x2x1 version I tested weighed in at 43 pounds, which is excellent for a full-sized, full-featured board.

As an added bonus, the aluminum armrest can double as a handle. There is ample room for a tape strip for labeling inputs/outputs, and the GL3's wide channel modules offer plenty of space to find the right knobs without disturbing adjacent controls. This layout increases the console's size and would be a detriment in a 40- or 56-input frame, but in the case of the GL3, it's a worthwhile trade-off.

The Allen & Heath GL3 is a solid performer that offers a lot in a mid-priced live sound console. Priced at \$3,495 in a 16x4 chassis or \$4,495 for a 24x4 version (the 8-channel expander is \$1,495), the GL3 would be a sensible choice in many live sound applications, especially for those users who may need a mains mixer one night and a monitor board the next. In such applications, the GL3 will certainly appeal to a wide audience.

Allen & Heath, 8760 S. Sandy Parkway, Salt Lake City, UT 84107; (801) 566-8800.

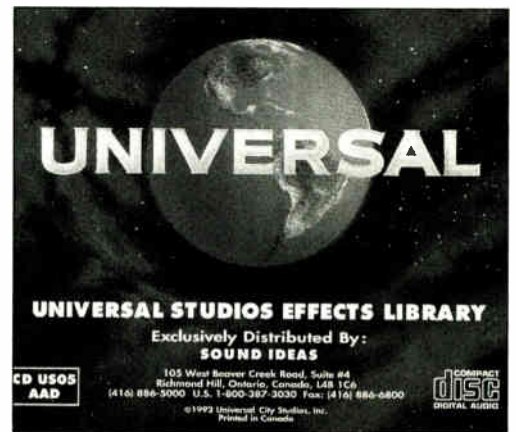
SOUND IDEAS UNIVERSAL STUDIOS AND WARNER BROS. SOUND LIBRARIES

After nearly a decade of delivering top-notch sound effects on CD, the folks at Sound Ideas are at it again, this time adding to their 20,000-effect library (more than 150 compact discs), with two new five-CD collections. As their names suggest, the "Warner Bros. Sound Effects Library" and the "Universal Studios Sound Effects Library" offer a selection of memorable sounds, unearthed and painstakingly restored from the collections of some of Hollywood's most treasured effects archives. The sets retail at \$495 each.

Before going any further, it's im-

portant to note that these two collections were designed to supplement—rather than supplant—an all-purpose effects collection. As such, these products offer plenty in terms of expanding the variety of sounds that the production professional has to choose from. For example, neither has the oft-used "beer can open and pour" or "doorbell chime" that are de rigueur elements in any general-purpose collection. If you need bread-and-butter effects, you may want to check out Sound Ideas' "The General" collection, which has 11 doorbells, three beer can opening spurts, two variations on beer pours and 7,500 other sounds on 40 CDs.

The Universal Studios set contains effects from Universal productions



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ranging from feature films such as *Earthquake*, *Jaws* and the recent *Airwolf* TV series to obviously older material. The vintage tracks were cleaned up using a Sonic Solutions NoNoise system; overall, they are quite clean, although on some tracks, a bit of barely audible background noise remains. However, if you need long ambiances of a dirigible in flight (interior or exterior, along with an overhead fly-by), you can live with a tiny hint of tape noise. Of course, in most cases, any bit of noise could be effectively masked by adding dialog, background music or wind.

Disc One of the Universal library has 89 tracks of propeller aircraft sounds—single-engine models, biplanes and triplanes (Fokkers and Sopwiths), P-38s, DC-3s, four-engine B-17s and B-24s, and, of course, the classic eight-engine B-52 bombers.

Disc Two is crammed with 99 tracks—more than 300 sub-indexed effects—including fighter squadrons, the *Airwolf* jet-copter, animal sounds, Foley body falls, archery and boxing, comedy effects, and crashes of every

description, ranging from aircraft and building collapses to dishes, piggy-banks and furniture. Disc Three has the famous *Earthquake* and *Jaws* effects, along with human punches and hits, sirens, whistles, horns, spaceships, tools, radio tuning, guillotines, whips and volcanos. Disc Four has military effects (cannons, submarines, explosions, rockets, bombs and swordfights) and guns—pistols, bazookas, machine guns, etc.—with shooting, loading, ricochets and Foley effects. If you're planning a re-make of *Stagecoach*, you'll need Disc Five, with steam trains, wagons (and stagecoaches), cattle stampedes, Western battles, 100 horse effects and saloon brawls.

If you haven't guessed it by now, the Warner Bros. Sound Effects Library provides sounds from this most beloved of cartoon archives. And it has everything you would expect, particularly lots of odd sounds: crashes, boings, plops, gulps, farts, zips, zaps, gushy exaggerated kisses, squishes and spoozes. In all, there are more than 1,500 effects on five CDs, which include short musical bits, glissandos (accordion, xylophone, piano, marimba), slide whistles, drums and Foley sounds.

Just listening to either the Universal or Warner Bros. discs can get the creative juices flowing. For example, the "large, wet eerie cave: wind and bats" (WB Disc 4, track 26) or "sulfur pit boiling and hissing" (US Disc 2, track 56) could provide the perfect background walla for a national beer spot or local car dealer promo. And the fun doesn't stop there, as the libraries offer ample possibilities for the sound designer, where sounds are sampled, pitch-shifted a couple octaves up or down, or reversed.

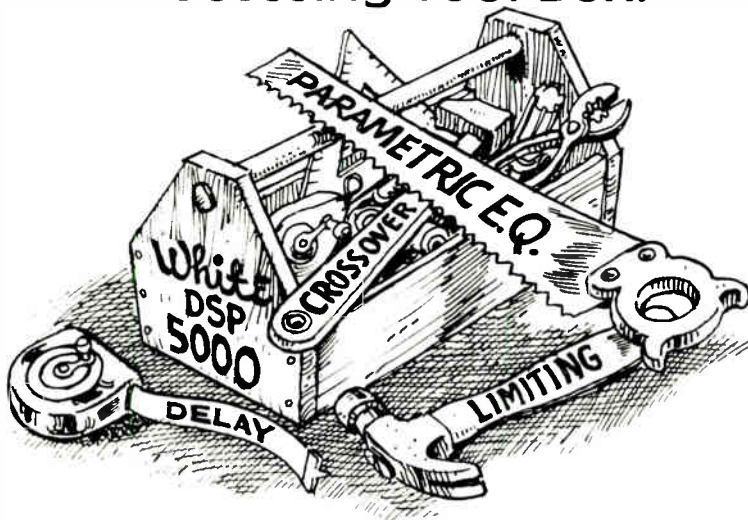
No matter what kind of production work you do, the Universal Studios and Warner Bros. libraries are sure to put a bang (sometimes, even in the most literal sense) to your creations. So if your current sound effects collection is getting dull and boring, one of these may just do the trick.

Sound Ideas, 105 West Beaver Creek Road, #4; Richmond Hill, Ontario, Canada L4B 1C6; (905) 886-5000. ■

George Petersen lives with his wife and two musical dogs in a century-old Victorian house on an island in San Francisco Bay.

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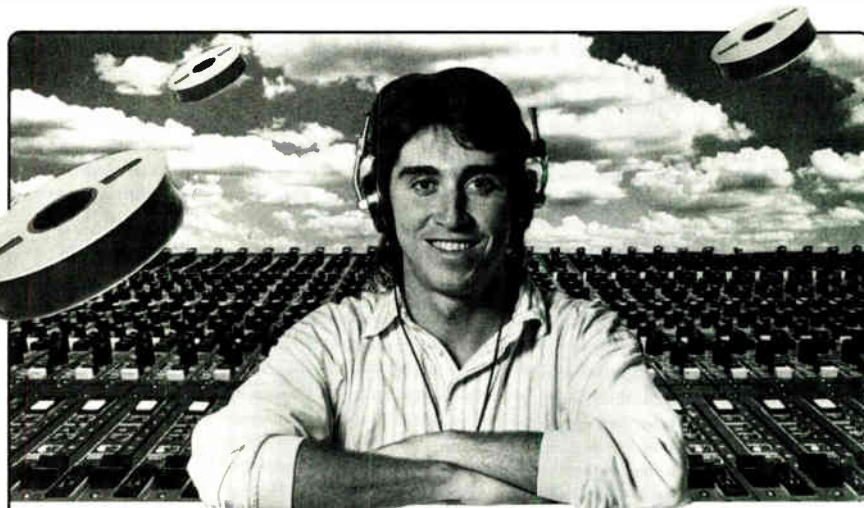


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by Chris Stone

CONSOLE OBSOLESCENCE

WHAT DO I DO NOW?

The phone has been ringing a lot lately with questions from studio owners of all sizes and types about how to attack the problem of replacing an obsolete console. "What are my options? Is there some way I can still use it, like moving it to the 'B' room? How do I sell it or trade it in? What should I buy now? (There are so many choices.) Should I buy new or used? How much should I spend? How do I finance the purchase?" All good questions, because replacing your console is like a heart transplant: If you get a bad one or make the wrong decision, your studio life is in jeopardy.

Let's try to break down the problem and solutions into general rules and specific examples. For some suggestions, I spoke to Jim Pace of Audio Intervisual Design in Los Angeles, one of the more successful pro audio dealers, and to Octavio Brito, president of Audio Video Research in Watertown, Mass., one of the leading used equipment sales companies in his area.

Some simple rules: If you are going to buy a used console, be certain that the factory still supports the model you are considering (seven to ten years old usually means questionable factory parts support, which is understandable). If you are planning to spend \$75,000 or more, then there are bargains galore in these recessionary times for older, top-line consoles and automation systems, and leasing companies will finance them.

If, on the other hand, your console budget is \$25,000 to \$50,000, stick with a new console that has the aux sends, routing and alternatives necessary for your current music. Pace tells me that the key requirement today is a "high-quality tape path" (which means mic to mic preamp to

compressor to EQ to fader to tape machine), and that many of his project studio customers use a console primarily for monitoring, looking for the lowest price possible to achieve that goal. They spend their money on higher-quality outboard equipment to achieve a custom sound.

OPERATOR TIP OF THE MONTH

Emerging technology has provided less-expensive new consoles with more features, which has increased the value you can expect in the entire new and used console market.

Brito says that 60% of his business consists of repeat customers, so he makes sure that he keeps them out of trouble and does not sell them what they don't need, because bad news about a supplier travels fast.

PROJECT REPLACEMENT

So you have decided to get rid of the old 32x24x32 that's been in your project studio since you bought it used. You have your eye on a new low-end console that will give you 56 inputs, and you can get it with automation and moving faders for around \$60,000 to \$65,000. What next?

First, think of the old desk as a used car. Ask your dealer for a trade-in. Then, as an alternative, call the used equipment dealers around the country and find out what they think it is worth. You will find them in the classified section of the music trade magazines, and you can tell by what kind of consoles they are offering for sale if they would be interested in

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yours. They will either make you an offer to buy it outright or suggest that you list it with them on consignment. How much time you have to sell will determine how long you can hold out for a higher price.

If you have some time, try advertising it yourself in the regional trades or recycler in your area, just to see if you get any response from other studios before you give in and take some lower offer.

When you get an offer that you think you can accept, talk with your financial adviser to determine how you are going to pay for the new console—lease, bank payments, outright purchase. Obvious questions are how much business you will get with the new console, how much downtime you will experience and what that time is worth, and the cost of installation.

CHANGE OF MARKETS

Another case. You overbought in the good times. Your lease payments on that glistening super console and other expensive equipment are jeopardizing your business health, and,

besides, you have moved your marketing thrust from high-end music recording and mixing to audio post (audio-for-video). What you really need is a great workstation. What to do?

Be honest. Financial people will often share your problem if you are straight with them. Talk to your bank or leasing company and check your options based upon the kind of financial agreement you originally made. Talk to the manufacturer/dealer of the console and other equipment. They have developed a used market and may be able to get someone to take over the payments and get you a little cash—particularly if that same manufacturer/dealer is the one to sell the workstation you need. You will be surprised at how cooperative these people will be if they believe in your potential. Almost everyone in our industry has had times sometimes.

FIX & KEEP VS. SELL & BUY— THE RETRO MOVEMENT

Both Neve and SSL, as well as other manufacturers, offer trade-in programs and reconditioning programs. GML offers automation packages for some older consoles. Check out this

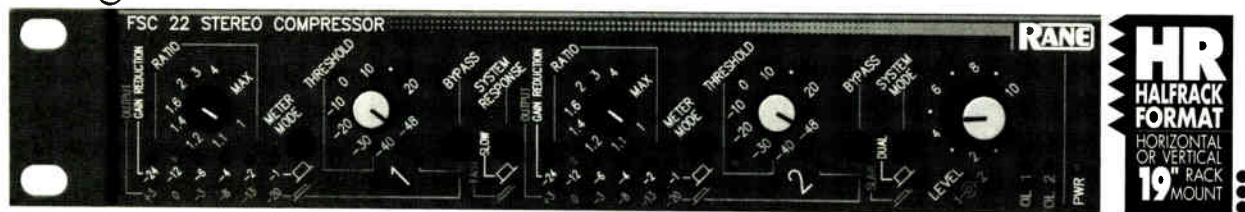
possibility as a way to solve your upgrade problem and save money if you already own one of these leaders. It also will mean a lot less downtime to accomplish your console transplant—another major savings.

Classic Neves (8068 and 8078), as well as original Focusrite EQ racks, tube mics and EMT plates, have actually increased in value lately because of their retro popularity. Rehabilitating some of your old gear, or finding some to purchase at bargain prices, could give you that unique sound you have been looking for. Because this older equipment has recognized market value, you usually can get financing to help ease the purchase burden.

The bottom line: Do your homework before you buy. Talk with manufacturers and dealers so that you are sure of all your options before you upgrade. If you have specific questions, write to me c/o *Mix*, and I will try to help. ■

Chris Stone is a former studio owner, a business consultant to the professional audio industry, and president of The World Studio Group.

COMPRESSED COMPRESSOR



Meet the little cousin to the widely acclaimed DC 24... but don't let the size fool you. The FSC 22 is very big on performance and features. Like switchable attack/ release response, dual-mode metering to display either gain reduction or output level, and an Input Trim switch to match -10dBV or +4dBu systems for minimum noise and maximum headroom. It's even got those clever new Neutrik connectors that accept three-pin or 1/4" connectors!

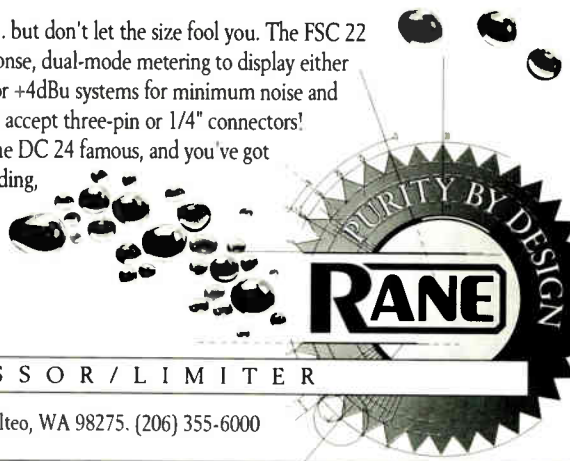
Back these features with the superlative VCA performance that made the DC 24 famous, and you've got yourself a top-notch compressor/limiter that's ideal for studio or home recording, live sound, broadcast or post-production. Mount two horizontally for 4 channels in a 19" 1U space. Or rack-'em up vertically for 20 channels across for patching into console inserts.

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by Philip De Lancie

TAPE & DISC NEWS

P **HILIPS "RELAUNCH" OF DCC**

Two years ago, when Philips announced its plans to launch DCC with a high-end hi-fi unit (the DCC-900), there were many (this space included) who pointed out that a portable model would likely be much better received by the cassette-oriented consumers that Philips was targeting. There was little the company could do, however, because miniaturization for the portable was not ready—and Sony's MiniDisc was gaining ground rapidly in the race to be first to launch.

In the face of what might charitably be called "disappointing" consumer response to DCC, however, Philips has conceded the error of its ways. With a portable player finally ready nearly a year after last fall's debut of the home deck, the company is pinning its hopes on what amounts to a relaunch of the format, supported by a substantial media campaign and a prerecorded software giveaway program.

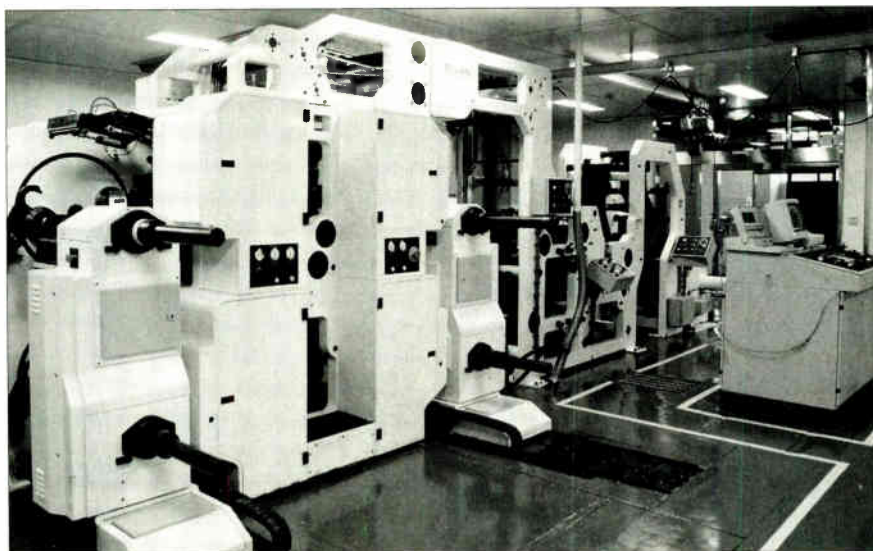
Purchasers of either the Philips portable, which lists for \$549, or the

DCC-900 will receive a book of 12 coupons. Each coupon will be preprinted with a selection of three albums. Each month, the consumer can choose one album from one coupon and send it in for a free DCC. Though 12 free albums is a nice way to start building a collection in a new format, it remains to be seen whether the deferred gratification imposed by the one-per-month limitation will undermine the offer's appeal.

In related news, *Billboard* reports that JVC has decided to market hardware for both DCC and MiniDisc. The move to MD is significant because JVC is majority-owned by Matsushita, Philips' partner in developing DCC. Matsushita is marketing DCC hardware, including new portable and automotive units, under its Panasonic brand name.

PLOT THICKENS IN MOVIES-ON-CD STORY

Attentive readers will recall recent items about an apparent agreement on a standardized format for putting films on CDs (up to 74 minutes per



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disc). Nimbus Technologies got the ball rolling earlier in the year by announcing Video CD, a plan to encode digital video (compressed using the MPEG-1 algorithm) onto the 12cm discs. Under the Nimbus plan, these CDs could be played on any audio CD player that has a digital output simply by attaching a separately purchased decoder (about \$200) between the player and the TV. Nimbus, hoping to interest major hardware manufacturers in marketing the device, estimated that some 35% of the installed base of CD players have digital outs.

Last month it was reported here that four leading consumer electronics giants (Matsushita, Sony, Philips and JVC) had agreed to a movies-on-CD approach based on the White Book standard for karaoke CDs. Like the Nimbus plan, it uses MPEG-1 compression. The four companies called their proposed format (surprise!) Video CD.

It was initially suggested in *Billboard* and elsewhere that the new format would be compatible with the Nimbus plan. But subsequent clarifications reveal a major difference between the two approaches. The problem, according to *Billboard*, is that the Nimbus discs are a variant of CD-Audio, while the White Book discs are a variant of CD-ROM, and thus contain a "muting flag," which—to protect speakers from overload—prevents output when the discs are put in a CD-Audio player.

So far, the two camps are in a standoff. Nimbus argues that its upgrade path for the vast installed base of CD players with digital outs provides a ready market for movies-on-CD, one which could take years to build if consumers have to buy new machines. But removal of the muting flag, *Billboard* says, would make the White Book discs unplayable on Philips CD-Interactive machines, a sacrifice Philips is unwilling to make. Philips hopes CD-I owners will add a \$300 FMV cartridge allowing them to play video CDs. Ironically, the worldwide installed base of CD-I, two years after its introduction, is reportedly less than 200,000.

Nimbus is moving ahead with the licensing of its adapter to electronics manufacturers in the Far East. But, unless the company can win over Sony, Matsushita and/or some major

movie studios to its point of view, its chances of prevailing are slim.

SUNKYONG OPENS R&D CENTER

Sunkyong Magnetic opened a \$15 million research and development center at its manufacturing facility near Seoul, Korea (see photo, page 153). The company says the facility will "concentrate on new product planning and development, extending well beyond audio and even magnetic media, as well as completing products already in development, such as DCC and MD." Metal tapes for digital audio, video and data are among the first priorities at the facility, as are optical products for those applications. "While our initial concentration will be on audio," notes Sunkyong's Joe Kempler, "the development of any new media, such as metal or optical, has universal application to video and data storage."

ASTRAL PROJECTS FLORIDA FACILITY

Canada's Astral Communications announced plans to open a 100,000-square-foot CD replication and video duplication plant in Boca Raton, Fla. Initial capacity of the \$10.5 million project is expected to be 12 million CDs, primarily for the record industry. But Astral chairman Harold Greenberg said he expects the CD-ROM market to grow rapidly, as well as the Latin American market for CDs.

TRIBUNE ACQUIRES COMPTON'S

Leading CD-ROM publisher Compton's Multimedia Publishing Group has been purchased from parent Encyclopedia Britannica by the Tribune Company, which publishes the *Chicago Tribune*. Compton's revenues have grown at an annual rate of more than 50% over the last three years, and the company was sold for \$57 million. Its top management and location will remain the same.

SPLICES

AMI (Burlington, NC) installed a Series 500 mastering module from ODC (Santa Fe Springs, CA) for its new CD-manufacturing operations. ODC also announced a similar sale to Koch Digitaldisc of Austria...CEDAR Audio launched the new CR-1 deacker, a stand-alone, real-time audio restoration device that complements the company's existing DC-1 declicker. The first unit has already been installed at Porky's Mastering in Lon-

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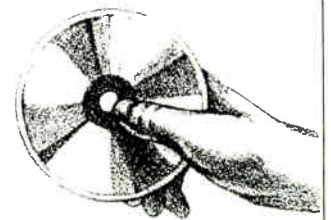
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don...BASF (Bedford, MA) announced a reorganization of its technical services groups, consolidating audio/video services with computer products applications engineering. The change makes three BASF field support people in Chicago, Dallas and Los Angeles available for audio/video clients... Otari (Foster City, CA) installed the first five of ten AL-632 automated dual-pancake audio cassette loaders recently purchased by IAN Communications Group. The expansion of Ian's Burlington, MA, duplicating facility also includes two DP-80 high-speed bin masters, 24 duplication slaves and an MTR-121 mastering recorder...Emerald Technology (Lincoln, NE) reports new installations of the JC7000 high-speed automated cassette packaging system at six facilities in the U.S. and abroad. The JC7700 automated infeed has recently been added to the system, allowing Norelco box supply at a rate of 100 per minute...Bonneville Communications (Salt Lake City, UT) took delivery of a DAAD R2 digital bin from Concept Design (Graham, NC).

**American
Multimedia's
Richard Clark
looks over new
CD-cutting
gear with
ODC's Richard
Wilkinson.**

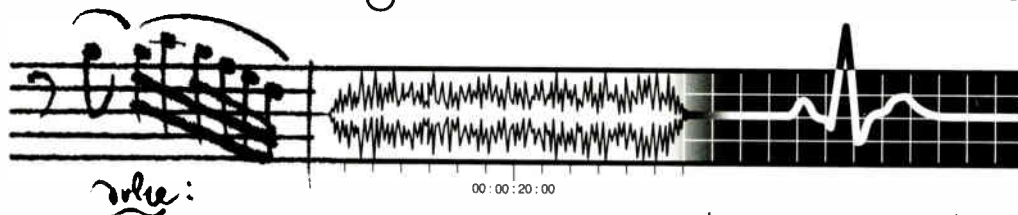


Bonneville will be moving to a new facility later this year...Electro Sound (Sun Valley, CA) reports strong sales of its duplicating gear, particularly the Series 9000 system, in the Asian market, with installations at seven plants in Thailand, China, Indonesia, Taiwan and Hong Kong...Saki Magnetics (Calabasas, CA) is forming a division for relapping heads. The program includes heads made by Saki or any other manufacturer and covers configurations from cassette through 2-inch...CoarcVideo (Melville, NY), a nonprofit organiza-

tion employing disabled workers to clean and reload broadcast/industrial videocassette shells, provided 400 cassettes for use in the Advertising Council's Salute to Volunteers luncheon in New York City...The latest solo CD releases from two members of the Rolling Stones—Charlie Watts and Ron Wood—were mastered by Ray Janos at Trutone in Hackensack, NJ...Airshow (Springfield, VA) reports mastering for Del McCourty on Rounder Records, as well as projects for Sugar Hill Records and National Public Radio. ■

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—FROM PAGE 110. JINGLES

and an OxyResidue commercial. Mandelbaum is an engineer by vocation and admits that jingles provide short-term and lucrative subsidies to his main goal of producing records. "The problem you wind up facing is, Where do you want your focus to be?" he asks. "Do you continue to build your project studio to support jingles, or do you set some sort of cutoff point at which you say, No—records come first?"

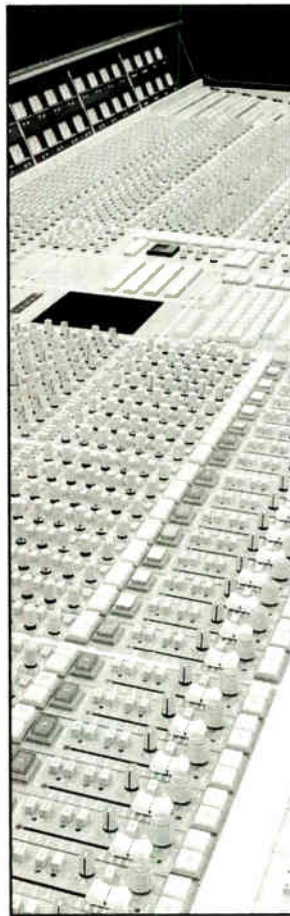
Mandelbaum adds that commercial and project studios have in common the fact that they use jingles to subsidize music recording. "That's what the large studios have always done," he says. "They've used jingles to subsidize rock, because rock has lower budgets to work with. I charge jingle clients more so that I can charge [music] clients less. Everyone prioritizes."

Mandelbaum takes his finals that can't be completed at home over to Soundtrac in Manhattan, where he

**The building of bridges
between project studios and
commercial studios could
portend a healthier industry
overall in the future.**

landed after four other commercial studios wouldn't budge on what he refers to as triple-rate prices to complete jingle finals. "Soundtrac worked well with us because, despite the fact that I charge jingle clients more than music clients, I charge based on what I think is reasonable, not just what I think I can get. And I'm happy to find a commercial studio to work with that thinks the same way. They understood our situation."

Now that they're no longer the only game in town, Mandelbaum attributes the higher rates that commercial studios charge jingle clients to the fact that they have the synchronization and lock-up gear that most project studios don't have and can't afford. "But that inflates the reality of what synchronization entails," he says. "Sync doesn't involve the al-



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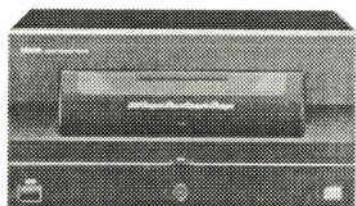
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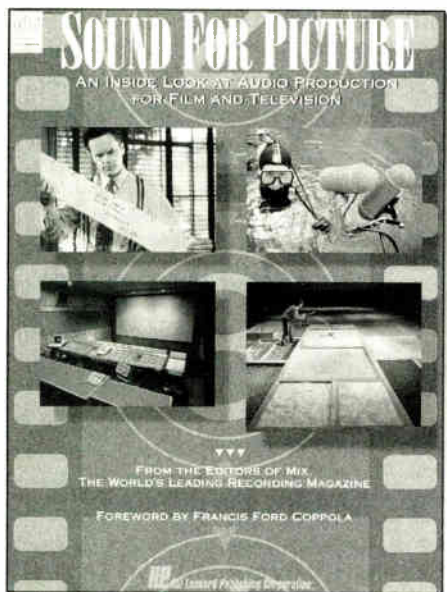
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chemistry that it used to. We could lock to picture if we needed to. Everything's available on a rental basis, and I know how to use it. But we've chosen not to commit to that kind of investment."

Joey Levine, of Crushing Music, was one of the first jingle house owners in New York to build his own studio. He now has three rooms—two MIDI suites and an ADAT/Mackie room—where jingle demos and finals are often done. The amount of work, rather than the technology, is what prompted Levine to build studios several years ago, although now the inexpensive and powerful project-type technology is also what keeps them expanding, he says.

Levine does work with traditional commercial rooms in Manhattan, including Edison, Skyline and Power Station, when the sessions call for it. "There's no perception of any problem on their part that I do my recording in my own studios," he says. "At this stage in New York, everyone in jingles has some kind of room of their own. It may not be state-of-the-art, but the technology lets you get a lot further with less."

Levine also says that, though advertising budgets have diminished somewhat over the last few years, there are still plenty of agencies and clients willing to say, Go all the way and spend the big bucks.

Although jingles and project studios seem made for each other, it's apparent that it's not a perfect relationship. Their proliferation at a time of diminishing advertising budgets cuts the potential returns down to individuals. Some sort of Darwinian effect should shake this situation out sometime in the next year or two, as certain project studios and their owners emerge as dominant. This shake-out will take place as much because of relationships project studio owners build with agencies as for their talent, just because that's how advertising works. On the other hand, the building of bridges between project studios and commercial studios that accept the fact that things have changed—in terms of budgets, technology and trends—could portend a healthier industry overall in the future. ■

Dan Daley is Mix's East Coast editor. He generally zaps through the commercials anyway.

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C O A S T

L.A. GRAPEVINE

by Fred Jones

I am astounded by what I have discovered. A government program that actually benefits us in the recording industry! It's called the Music and Multimedia Technology Training program from the

—CONTINUED ON PAGE 162

Producer/engineer Eddie Kramer was in Brooklyn Recording (Hollywood) mixing tracks for the upcoming Jimi Hendrix tribute on Warner Bros. Behind Kramer are (L to R) Brooklyn chief engineer Bill Dooley and assistant engineers Tom Banhart, Rich Staker and Ronnie Rivera.



PHOTO: DAVID GOGGIN

SESSIONS & STUDIO NEWS

by Jeff Forlenza

NORTH CENTRAL

Radioactive/MCA artists Live were tracking and overdubbing their new release at Pachyderm Recording in Cannon Falls, MN, with producer Jerry Harrison. Lou Giordano engineered the alternative sessions with Hans Buff assisting. Also, at Pachyderm, Lee Renaldo of Sonic Youth produced Australian act You Am I for roo-Art Records. Wayne Connolly engineered the Aussies with Brent Sigmeth assisting...Electro-Sound Recording Studio (Kent, OH) had Indian Rope Burn in tracking, mixing and digital editing/premastering their upcoming release for GGE Records. Mike Crooker produced, and Greg D. Freezel engineered...Brown & Brown Recording (Portage, MI) had

producer Larry Yancy tracking Harmony Street Records artist Jeanette Dorel; and Lansing, MI, funk band Heckyl & Jive recorded and mixed their debut CD for the indie label HPS...Guitarist Harvey Mandel recently recorded his debut album for Chicago-based Western Front Entertainment. Mandel's first solo album in 15 years, entitled *Twist City*, was recorded and mixed at Dr. Caw Recording in Northbrook, IL, under the direction of Mandel and producer Al Krockey...At Vancouver's Little Mountain Sound Studios, Colin James recorded and mixed his latest album. Chris Kimsey produced, Joel Van Dyke engineered, and Jason Mauza assisted...

SOUTHERN CALIFORNIA

At North Hollywood's NRG Recording Services: Thomas Dolby was working on his latest album, as well as a song, featuring the vocals of Tom Jones, for an upcoming Steven Spielberg project. Jay Baumgardner engineered the Dolby sessions with Thomas Schelly assisting. Also at NRG, producer/engineer John Agnello brought the Chainsaw Kittens in to track new material for an Atlantic Records release...Elton John was at Skip Saylor Recording (Los Angeles) mixing the singles "Teardrops" and "The Power" (duets with k.d. lang and Little Richard, respectively) with producer Greg Penny and engineer Jon Ingoldsby...Also in L.A., producer Dr. Jam was at Studio Masters doing a remix of Johnny Gill's single "Cute Sweet Love Addiction" for Motown Records. Elliott Peters engineered with assistance from Tom Mahn and Jeff Moses...

C O A S T

L.A. rockers Acetone recorded and mixed their debut for Vernon Yard/Virgin Records at Hammer-sound and Cornerstone studios (both in Chatsworth) with engineer Chris Apthorp and second Scott Campbell. The band self-produced the album, which is titled *Cindy*...

NORTHEAST

Brazilian vocalist Milton Nascimento was at Manhattan's Sear Sound doing overdubs for his new album on Warner Bros. with engineers James Farber, Boomer Mathiew and Rob Eaton...Ready Or Not Studio in Harlem has been busy: Prince Ikey C tracked his song "Butter" with producer R.O.N. & Sweets, remixed by D.J. Ron G. Other artists coming out on Ready Or Not Records include Shakim (cousin of Rakim of Eric B. & Rakim), Icon, Bobby Daniel and Ant-Live...The Corporation recorded, mixed and mastered their debut for Ma*Tune Records at Baltimore's Momma Eve Sound...Andy Powell and Ted Turner of Wishbone Ash were working together at North Shore Studios in Ridgefield, CT, with engineer Roger Filage for their upcoming 25th anniversary album...Cotton Hill Studios (Albany, NY) had jazz saxophonist Nick Brignola working on a demo with his new group Endangered Species...

SOUTHEAST

The Gipsy Kings were at South Beach Studios (Miami Beach, FL) mixing their latest release with producer Gerrard Prevost, engineer F. De la Briere and assistant Ricardo Perez. Also at South Beach, Grace Jones has been burning the midnight

oil working with producers Mark Pistel and Philip Stier. Mixing was by engineers Paul "Groucho" Smykle and Ceaser Sogbe...Peabo Bryson recorded tracks for his latest Sony/Columbia at Atlanta's Musiplex. Production on the Bryson project was handled by Dwight Watkins, Keith Rawls and Marc Freeman. The sessions were engineered by David Norman...At Nashville's Sound Stage Studio: The Pirates of the Mississippi were in with producer Mark Wright and engineer Lynn Peterzell doing a project for Liberty Records; and Tracy Byrd was working with producer Jerry Crutchfield and engineer Tim Kish on an MCA Records release. Craig White assisted on both sessions...Also in Nashville, Trisha Yearwood was working on an album for MCA-Nashville at Sound Emporium with producer Garth Fundis and engineers Gary Laney

NY METRO REPORT

by Dan Daley

You would think that opening on Broadway means you get to debug the show in an out-of-town preview run, but David Letterman's first week of shows opened nationally,

—CONTINUED ON PAGE 164

At Cove City Sound Studios (Glen Cove, NY), Celine Dion makes tracks for Epic Records. Standing behind Dion are (L to R) David Barratt, CCSS manager Rene Angellil, Anne-Marie Angellil, engineer Bob Cadway, producer Ric Wake and Vito Luprano of Sony Music Canada A&R.



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—FROM PAGE 160. L.A. GRAPEVINE

Foundation for Educational Achievement, and it provides free training to qualified employers and employees in the state of California.

The foundation is offering two different classes in Los Angeles, Irvine and San Diego next year. The first is on the Technological Impact of Music Technology, offered in L.A. only. The second is on Multimedia Technology. Each course is 20 weeks long, totaling 200 hours of training.

To qualify for the programs, employers must be California businesses that contribute to the Unemployment Insurance Fund and to the Employment Training Tax, have a valid California Tax ID number, and need training in music and/or multimedia technology to prevent employee job displacement. Employees must work at least 35 hours per week, earn at least \$8.68 per hour and have on-the-job access to equipment similar to that used at the training facility.

The programs are funded by the State of California Employment Training panel and use State Employment Training tax money. If you do not qualify for the free course, they also offer a Saturday course that you can attend for a small fee. The program manager is Bob Caliguri, and he can be reached at the Foundation for Educational Achievement, 8912 Clairemont Mesa Blvd., San Diego, CA

92123-1104; (619) 571-1003.

Now on to the stuff that is happening around town. The folks at Continental Studio Builders (who have been very busy this year with new rooms for Capitol and the Sony Music Campus) are just finishing up a new project for Herb Alpert at Rondor Music, the publishing company that Alpert and Jerry Moss now co-own.

CSB is building a "no-front-wall" studio, meaning there is no physical separation between engineer and artist in this "creative space." Partners Lawrence Buckley and Paul Reynolds promised me a tour as soon as it is finished.

The Post Group added an SSL Sceneria to its already formidable array of audio gear. The new system will be housed in Studio C of the five-room audio department. This is in addition to the facility's SSL ScreenSound digital audio editor.

Not to be outdone, Sound Services Inc., West Hollywood, purchased three SSL ScreenSound systems. Director of operations Wouter Van Herwerden was impressed with their "ease and efficiency," and SSI engineer John Warren says that now they can enter the "big leagues" of audio-for-video.

If you have information appropriate for this column, write to 859 Hollywood Way #128, Burbank, CA 91505, or fax (818) 506-1071. Have a happy turkey day!

—FROM PAGE 161. SESSIONS & STUDIO NEWS and Dave Sinko...

NORTHWEST

Guitarist Joe Satriani was at Berkeley's Fantasy Studios doing overdubs with producer John Cuniberti and

engineer Michael Semanick...At Vine Hill Studios (Santa Cruz, CA) new age composer Gary Lamb recently finished recording and mixing tracks for his upcoming Golden Gate Records release. The album was engineered by Stephen Teller and fea-

CORRECTION:

Oops! Last month we ran this caption without the photo! This is Soundstage 1 Recording Services' (Galesburg, MI) new Studio B. Custom designed by Chuck Burge, SS1's new studio features a Sonic Solutions digital audio workstation.



tures Shadowfax member Charlie Bisharat...At San Francisco's Poolside Studios, Stephen Kent, a master of the Australian dijeridoo, recorded his first solo album with engineer and co-producer Dave Nelson...

SOUTHWEST

Accomplished mandolinist Paul Glasse recently released *The Road to Home* on Dos Records. Glasse co-produced the album with Mitch Watkins, who also plays guitar on the album. James Tuttle engineered



At Planet Dallas Studios, Living Colour guitarist Vernon Reid made a guest appearance on industrial rapper MC 900-Ft. Jesus' new album. Rick Rooney engineered the project for American Records. Front row: Reid and MC 900-Ft. Jesus. Back row: Rooney, bassist Drew Phelps and assistant engineer Gary Hicks.

and mixed the "mandojazz"—a cross between Charlie Parker and Bill Monroe—sessions at Cedar Creek Recording (Austin, TX) and Bee Creek Studio (Spicewood, TX), with assistance from engineers Spencer Starnes (who also plays acoustic bass on the CD) and Fred Remmert...

STUDIO NEWS

Ajax Recording Team has moved to a new 1,000-square-foot facility at 1141 W. Wildwood Ave., Fort Wayne, IN. The studio features three Alesis ADATs, a Tascam 3700 automated mixer, J.L. Cooper 3700 pro software, Sonic Solutions digital editing system and KRK monitors... Triad Studios (Redmond, WA) promoted Lary "Larz" Nefzger to general manager. Nefzger has been chief engineer at Triad since 1979 and has recorded Kenny G., Steve Miller David Lanz and scores more... Sound On Sound Recording (midtown Manhattan) added a 64-input SL 4000 G Plus console to Studio B. A tribute to Otis Blackwell was one of the first projects to be mixed on the new

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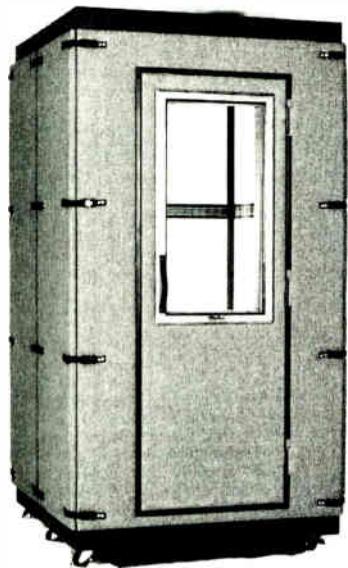
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Baritone saxophonist Gerry Mulligan and vocalist Jane Duboc were tracking a Brazilian-tinged jazz release for Telarc Jazz at Manhattan's Clinton Recording Studios. In Clinton's Studio A are (back row) Emanuel Moreira (guitar arrangements) and Duboc; (front row) Jack Renner (Telarc president/engineer) Mulligan and John Snyder (producer).

—FROM 163, *SESSIONS & STUDIO NEWS*
console...Transmedia Recording Studios (San Francisco) has expanded to two studios. The new room features an 8-track Digidesign Pro Tools system, all video formats (including D2) and loads of digital "toys."

Send nationwide sessions and studio news to Jeff Forlenza, c/o *Mix*, 6400 Hollis St. #12, Emeryville, CA 94608. ■

—FROM PAGE 161, *N.Y. METRO*
and the broadcast sound from the refurbished Ed Sullivan Theater left a bit to be desired. The dialog and music were characterized by a midrange honk that reflects the transition from the intimate confines of NBC's Studio 6A to the more spacious hall. The amount of audible distortion, particularly from the audience mics, was readily explainable. Stacey Foster, an audio specialist who consulted to the show through its first broadcast (he also does NBC's *SNL* and *Late Night with Conan O'Brien*, which replaced Letterman on NBC), attributed the early problems to inexperienced personnel. "The show has the potential to sound incredible," he said. "The

equipment in there is certainly world-class."

Music mixer Mike DeLugg says that the intimacy that had been achieved at the NBC Rockefeller studios is being tuned in at the Sullivan theater, and additional acoustical treatment for the room is being considered. The distortion, he acknowledged, is attributable to new personnel getting a feel for the show's pace. "It's a matter of fine-tuning," DeLugg explained. "There's nothing fundamentally wrong with the plan." The second week sounded a lot better.

Manhattan Beach Recording has opened on the site of the former Marathon Recording. The new facility has four rooms and is a joint venture between five partners, all experienced in advertising audio: Jamie and Daniel Lawrence, Bob Christianson, Greg Arnold and Robert Whitmore. They combined their individual setups into a studio complex at the end of the summer.

Studio A has an Otari 96-input Concept I console with moving faders and two Otari MTR-90 24-tracks. Studio B has a 32-input Harrison Raven desk and a Studer A827 with SR. Studio C is a MIDI suite with a Mackie 32-input console. Stu-

dio D has a Trident Series 75 and a Studer A80 deck. Floating equipment includes a Roland DM-80 and Digidesign Pro Tools systems. Design was by Fran Manzella and architects McBride & Associates. "At this point, it's mostly our own in-house work," said Jamie Lawrence. "But that's a pretty good mix of advertising, television and film audio. And we expect that the engineers who liked the old Marathon rooms will also want to bring their projects back in here."

Dreamland Recording, upstate in Bearsville, is renovating its control room, according to owner Joel Bluestein. The square footage will increase by about 50%, in anticipation of a new console to be added later in the year. Bluestein is negotiating with jingle house Messina Music in Manhattan for its 48-input API board to replace Dreamland's 36-input 3232 API, which will go up for sale.

The upgrade will give Dreamland more mixing capability, something Bluestein said is necessary to stay competitive, even in the sticks. "I've seen the handwriting on the wall with the modular 8-track systems," he said. "We need to be able to handle large mixes without compromising our tracking ability." Dreamland, which is housed in a 100-year-old church, is also looking to acquire

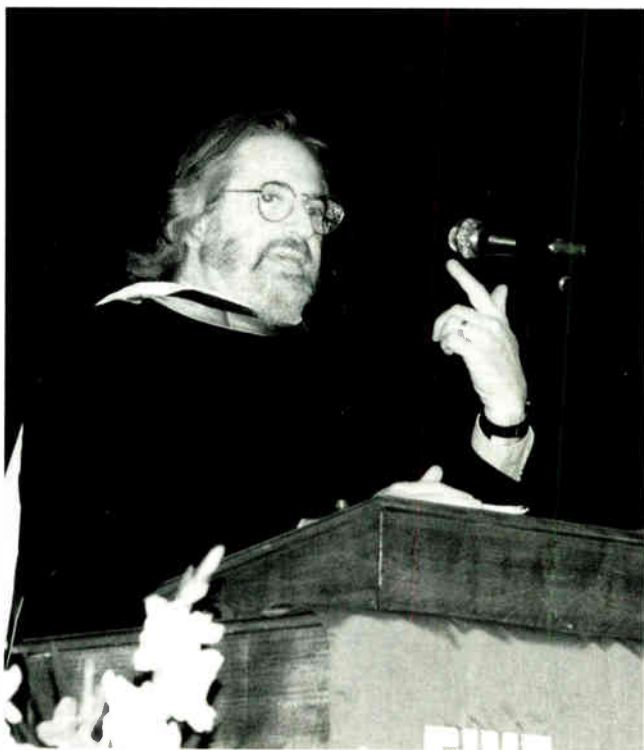
Messina's JBL monitoring system, which was originally installed in London's AIR Studios and customized by George Martin.

Bluestein is designing the renovation himself. "The industry is just not supplying the kinds of margins anymore that warrant me paying \$25,000 to a designer," he said.

Baby Monster now has three ADAT systems running as additional tracks for its single-room facility. "People can have either 24 tracks of either analog or digital, or 48 tracks of both," said owner Steve Burgh. The ADATs are also set up in road cases for use as a remote system with a Mackie board.

New product out of New York: Audio Morph is the sonic equivalent of video morphing. Using a Windows 3.1 interface, the system can select two portions of two sound files, deconstruct them into their digital harmonic components, then interpolate those, bridging one sound into the other. The first use was a Red Devil Paint commercial spot in which the sound of blowing bubbles from a milk carton was morphed into a metallic screech sound. Developer Lance Massey is looking to develop third-party support. He can be contacted at (212) 818-0487.

If you have the right stuff for the New York Metro Report, fax it to Dan at (212) 695-4783. ■



Legendary producer Phil Ramone recently received an honorary Doctorate of Music degree from Five Towns College (Dix Hills, NY) during the 1993 commencement exercises.

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—FROM PAGE 68, MICHAEL BOYD

ever before, so you're getting people from all walks getting involved in this.

Do the people you deal with care about what kind of studio you have or what gear you use?

No. They don't keep up with it. Musicians will know.

Can you talk about how you work with other studios?

We go to bigger studios for several things. We do a lot of work at the Record Plant in L.A., and one reason is they have all their client services together. It sounds ridiculous, but a lot of these types of clients really do care about a fax machine, a telephone they can speak on privately, watching MTV, having magazines and fruit bowls. Automation is another thing some clients want. Outboard gear. If we have a complex mix where we're crossfading two styles of music—like we did this Levi's spot that's sort of country-heavy metal-rap—all in 30 seconds; sometimes we'll do that on Pro Tools or Sonic Solutions or something like that, but sometimes we need a big board with automation.

We try to do everything so that it plays into our strengths and not our weaknesses. Where are we well below somewhere like the Record Plant? Mic selection, a big room for drums, outboard gear. Physical space limitations. What's amazing is how much stuff we can do in our studio. We've done orchestral stuff where we can't tell our client but we have an oboe sample that was better than the player, so we used the sample we had and just didn't tell him.

Is there anything that big studios do in relation to your business that bugs you?

For one thing, they're upset that we exist. We were just in one studio locally, and they were saying, "Gee, it's great to have you in here, Michael, we haven't seen you in a long time." And I said, "Yeah, I've got a studio right down the street!" And it's like [brusquely], "Oh, well, nice to see you," and the guy literally walked out of the room. [Laughs]

I like the places that give us free reign and that trust us. Basically, I want to be able to go in there and say, "Thanks for the engineer, but can you move over so I can work the SSL? Can you get us a second DAT?"

Literally, ADAT, Pro Tools and a great sample library and video lock-up in our studio are all we need to get through pre-production to take it to the Record Plant or Electric Lady in New York or wherever.

Is the quality you get off ADAT or Pro Tools not up to finished snuff?

A lot of times it is. Only if you have to add orchestral stuff. Clients don't want to hear that Charles programmed the drums and bass and I played the guitar. They want to say, "Where's the guy with the nose ring and the really long hair and the Spandex pants?" Or, even though a MIDI orchestra might be fine for something, they want to see a lot of players sitting in a room. Also, so much post-production video and voice-over stuff is in Los Angeles: They're there already, so they'll say, "Look, we're finishing up a job in L.A.; meet us down there."

Do you typically book a full day, a half-day?

Usually a full day. It can be a half-day. Sometimes we'll combine work on a couple of projects at once.

And does that get billed to the client or to you?

It gets billed to us. We pay for everything: meals, studio, musicians.

Are there any weird tax trips you've gone through, owning your own project studio?

Not really. It's not a commercial studio for hire. If we did that, we could be in some tax trouble. But we'll never do that.

Do you try to keep semi-normal hours?

Yes, we try to keep semi-normal hours. And of course, we fail a lot of the time. [Laughs] We'll get calls at 6 in the morning from people on the East Coast. You asked earlier how we get jobs: I've literally been called at 4:30 in the morning: "Hello? I'm in my helicopter, and I've been thinking, we want you to do the job," and I'm like, "Whaa? Hulllo-o? Do I know you? What job?" "Didn't my producer call you? Well, you got the job." "Huh?" I hang up the phone, and we've got another job! [Laughs]

We have a lot of 12- and 14-hour days. We're always trying to control it, but it's hard to do. One of these days...

North Central AND Canadian RECORDING STUDIOS



Formerly West 11th Audio, The Beach is Calgary's newest music recording and post-production facility. The Western Canadian studio resides in a new three-story building and features a 1,000-sq.-ft. main room with a 16-foot ceiling, a 116-input AMR/Peavey 2400 console, a Studer A80 multitrack and 64 Alesis ADAT digital tracks. Monitoring is provided by an assortment of Tannoy, Peavey, Yamaha and TOA speakers. Lanny Williamson, owner and president of The Beach, designed the facility to accommodate all facets of audio and video production.



NORTH CENTRAL			
168	Illinois	177	South Dakota
172	Indiana	177	Wisconsin
173	Iowa	CANADA	
173	Kansas	178	Alberta
173	Michigan	178	British Columbia
175	Minnesota	179	Nova Scotia
176	Missouri	179	Ontario
176	North Dakota	180	Quebec
176	Ohio	181	Saskatchewan

**Upcoming Directory
Deadline:** Recording
Schools and Programs:
November 8, 1993.

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 nominal 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!

North Central RECORDING STUDIOS

Between the curved street of the El and the nearest Clark Street hockshop, between the basement ginmill and the biggest juke in Bronzeville, the prairie is caught for keeps at last. Yet on nights when the blood-red neon of the tavern legends tether the arc-lamps to all the puddles left from last night's rain, somewhere between the bright carnival of the boulevards and the dark girders of the El, ever so far and ever so faintly between the still grasses and the moving waters, clear as a cat's cry on a midnight wind, the Pottawattamies maurn in the river reeds once mare.

— Nelson Algren

LEGEND

- 48 Maximum analog tracks
- 48 Maximum digital tracks
- Remote recording
- MIDI production
- Tape duplication
- Audio-for-video/film
- Digital editing/CD prep
- In-house music services

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.

ILLINOIS



ACME RECORDING CORPORATION
Chicago, IL

ACME RECORDING CORPORATION



1708 W. Belmont; Chicago, IL 60657; (312) 477-7333; FAX: (312) 472-7806. Owner: Jim Rastfeld. Engineers: Paul Smith, Blaise Barton, Dan White. Dimensions: Studio, 40 x21 x12. control 21 x18 x11. mastering room: 15 x11 x12. Mixing Consoles: Vintage Amek M3000 36-input w/automation. Neotek 16x8x4x2. Hill Multmix 16x4x2x1. Roland M-160 16-channel line return mixer. Tascam MM-1 line mixer. Audio Recorders: Studer A80VU II 24-

track 2". Ampex ATR 102 2-track, Tascam 85-16B 16-track w/dbx, Technics 152 2-track, Tascam DA-30 DAT, Sony PCM 2500 R-DAT, Panasonic SV-3500 (44.1), (2) Panasonic SV-3700, Sony PCM-1630/DMR-4000, Technics portable R-DAT, (50) Nakamichi MR-1 cassette decks. Digital Audio Workstations: Digidesign Sound Tools on Mac Hci. Monitors: Tannoy FSM-U, Tannoy PBM8, JBL 4410, Radian MM-8, EV Sentry 100, EV Sentry 500 MS 802, Wharfedale Diamond II. Other Major Equipment: (2) Lexicon PCM70, Lexicon PCM60, Yamaha REV7, Studio Technologies Ecople II, AKG BX-20E, Korg delays, MXR delay, Alesis Microverb, (2) Yamaha SPX90, Klark-Teknik quad compressor, Brooke-Siren quad compressor, Alesis 3630 compressor, Brooke-Siren dual compressor, Teletronics LA-2A, (2) Neumann U-47, (2) AKG C-12A, (2) Dolby SR/A, Tascam MTS 1000, Alesis Quadraverb. Specialization & Credits: Acme provides complete production services from recording to finished product. We're the only 1630 mastering house in Chicago, with a new dedicated CD mastering room with Sound Tools on the Macintosh. We also provide the largest real-time duplication service in Chicago, with commercial clients like Tullio & Rans, Cliff Coltrai, Charles Brown Music, Intuition Music, Steve Sperry and Ken Nordine. We handle custom cassette and CD manufacturing for many musicians and bands and offer full packaging services. Our studio clients include Bob Dylan, David Bromberg, Earwig Music, Wolf Records, Delmark Records, Maggie Brown, John Primer, Willie Kent, The Coctails, and Bobby Norfolk. Our studio is over 800 square feet with natural light and floating walls and floors, and we have a comfortable lounge. Other services include blank cassettes in any length in small quantities. Acme was established in 1973.

AIRWAVE RECORDING STUDIOS INC.



2108 W. Roscoe St.; Chicago, IL 60618; (312) 404-0453. Owner: John McCortney, Paul Grigonis. Manager: Lynette McCortney. En-

gineers: John McCortney, Paul Grigonis, Joe Mirus. **Dimensions:** Room 1: studio 55'x25', control 24'x22'. Room 2: studio 18'x16', control 20'x16'. Remote van: control 9'x6'. **Mixing Consoles:** TAC Matchless 36x24x8x2 w/Megamix VCA automation, Biamp 2016 20x16x2, Revox C-279 6x2. **Audio Recorders:** Studer A-80 24-track, Otari MX-70 16-track, Studer A-810 2-track w/center time code track, Otari 5050 2-track, Revox A-77 2-track, Revox A-77 1/4-track stereo, Panasonic SV-3700 DAT, Panasonic SV-255 DAT, Sony DTC-1000 DAT, Sony PCM 501 "F1", Technics SV-100 "F1" Panasonic SV 3200 DAT. **Monitors:** (2) Tannoy 215, (4) Norberg BCS-16, (2) Electro-Voice S-100SA, (2) Fostex RM-756, (2) Auratone, (7) AKG D-240 headphones, numerous others. **Other Major Equipment:** (2) custom 14'x12' reverb chambers, (4) Yamaha SPX90, Korg DRV-3000, Korg DRV-1000, ART SGE II, Lexicon PCM42 delay, DeltaLab ADM-1024 delay, (8) Hardy M1 preamp, Symetrix SX-202 2-channel mic preamp, (3) dbx 160X compressor, dbx 166 2 channel compressor, Symetrix 522 2-channel compressor, dbx 263X de-esser, TEAC GR-20 2-channel graphic equalizer, Focusrite 2-channel mic pre EQ, (2) dbx 150X 2-channel noise reduction, Telefunken U-47, (2) Bruel & Kjaer 4006, (2) Schoeps Mk-21, (2) AKG 414, (2) Neumann KM-84, (2) Neumann KM-83, (3) Sennheiser 441, (2) Sennheiser 421, (6) Shure SM81, Electro-Voice RE-20, numerous others, Carver 1.0t amp, Haller 500 amp.

ARS RECORDING STUDIO

ARS RECORDING STUDIO
11626 S. Pulaski Rd., Alsip, IL 60658; (708) 371-8424; FAX: (708) 371-3958. **Owner:** ARS Enterprises Inc. **Manager:** Mike Szromba.

AUDIO RECORDING UNLIMITED INC.

AUDIO RECORDING UNLIMITED INC.
400 N. Michigan Ave., Ste. 1900, Chicago, IL 60611; (312) 527-7000; FAX: (312) 472-0136. **Owner:** Mike King. **Manager:** Betty Rake.

BARKER RECORDING STUDIO INC.

BARKER RECORDING STUDIO INC.
117 S. Rockford Ave., Rockford, IL 61104; (815) 399-2929; FAX: (815) 226-0811. **Owner:** Dwayne and Pam Barker. **Manager:** Dwayne Barker.

BARN BURNER RECORDING STUDIO

BARN BURNER RECORDING STUDIO
26380 N. 1500 Ave., Annawan, IL 61234-9697; (309) 935-6181. **Owner:** Heath Audio Associates Inc. **Manager:** Harry Heath.



CHICAGO RECORDING CO.
Chicago, IL

CHICAGO RECORDING CO.

CHICAGO RECORDING CO.
232 E. Ohio St., Chicago, IL 60611; (312) 822-9333; FAX: (312) 822-9189. **Owner:** Alan Kubicka. **Manager:** Hank Neuberger. **Engineers:** Phil Bonanno, Chris Sabold, Gus Mossler, Chris Shepard, Hank Neuberger. **Dimensions:** Room 1: studio 70'x38', control 24'x24'. Room 2: studio 60'x30', control 24'x24'. Room 3: studio 60'x30', control 24'x24'. Room 4: studio 20'x20' control 24'x20'. **Mixing Consoles:** Neve VR72 w/Flying Faders, SSL 600 E/G, Harrison 10, MCI 556 w/Diskmix. **Audio Recorders:** Mitsubishi X850, Studer A827, Studer A800, (4) Sony 7030 Time Code DAT, (6) Panasonic 3700 DAT, Sony center track Time Code, Mitsubishi X-86. **Digital Audio Workstations:** (7) AMS Audiofiles, (3) NED Synclavier, (2) E-mu Emulator 3, (2) Digidesign Sound Tools. **Other Major Equipment:** (3) Eventide H3000, (3) AMS 1580-S, AMS RMX-16, Lexicon 480L, Lexicon 300, (50) Focusrite 115 EQ/premix, (20) Focusrite 130 Dynamics, (3) EMT plates, EMT 251, API EQ, Fairchild limiter, Tube-Tech limiter, (8) Lexicon PCM70, (8) Yamaha REV7, Lexicon 200, (3) Klark-Teknik DN780, Alesis D4, Sony 1" master video recorder, (15) Sony & JVC 3/4" video recorder, (6) TimeLine Lynx, (6) BTX Shadow, (2) Steinway grand piano, Bosendorfer grand piano, (10) Lexicon PCM42. **Specialization & Credits:** 16 studios. Recent clients include: Sting, Izzy Stradlin, Cheap Trick, Helmet, Babes In Toyland, Jesus Lizard, Flaming Lips, R. Kelly, Ten City, Ramsey Lewis, Lyle Mays, Buddy Guy, James Cotton, Junior Wells, Smithereens, Winans, Sonia Da Da, John Martyn, Billy Ocean, KMFDM, Kinsey Report, Shadowy Men on a Shadowy Planet, La Tour, Adam Schmidt, Butch Vig, Steve Albini. Post production clients include: McDonalds, United Airlines, Sears, Budweiser, Coca-Cola, All-State. 7-Up, Sony, Coors, Kelloggs, etc.

CHICAGO TRAX RECORDING

CHICAGO TRAX RECORDING
3347 N. Halsted, Chicago, IL 60657; (312) 525-6565; FAX: (312) 525-6942. **Owner:** Chicago Trax Inc. **Manager:** Reid Hyams. **Engineers:** Keith "Fluffy" Auerbach, Critter, Chuck Kawal, Dave Sears, Steve Spapperi, Julian Herzfeld. **Dimensions:** Room 1: 35'x24', control 24'x18". Room 2: 16'x11', control 14'x13". Room 3: editing and duplication 8'x7". Room 4: MIDI and digital editing 11'x9". **Mixing Consoles:** SSL 4000G Series w/SSL G Series Studio Computer and Total Recall (Studio A), Harrison MRA 32x34 w/Audio Kinetics Mastermix automation (Studio B), Neve 16-channel sidecart, Tascam & Fostex for MIDI production. **Audio Recorders:** (2) Otari MTR-90 II/III 24-track, Otari MX-80 24-track, (2) Alesis A-DAT 8-track digital, (2) Studer A80 2-track, Studer B67 2-track, Panasonic 3500 & 3700 DAT, JVC DT-900 DAT, Tascam 3340 4-track, (12) Tascam 122 MkII cassette, Sony 3/4" 5800 U-matic. (32-track and other digital formats available upon request). **Digital Audio Workstations:** Digidesign SoundTools w/Macintosh computer. **Monitors:** UREI 813, UREI 811, KRK-9, JBL 4313, Tannoy Super Gold LGM, Genelec 1019A, Yamaha NS-10, Yamaha NS-10M, Auratone. **Other Major Equipment:** AMS DMX 15-80S, AMS RMX 16, Lexicon 300, Lexicon 200 digital reverb, Lexicon PCM42, Lexicon PCM60, Lexicon Prime Time I & II, Yamaha SPX90, Yamaha REV7, Ecoplate II, Klark-Teknik 780, Eventide H3000, Eventide 910 harmonizer, Aphex II Studio Exciter, dbx 165, dbx 165A, dbx 160X, UREI LA-4, Teletonix LA-2A, GML EQ, Tube-Tech EQ, Pultech EQ, Drawmer gates, Valley People Oyna-Mite, Aphex 612 gates, TimeLine Lynx time code synchronizer modules, Sony PVM 1910Q monitor, assorted synthesizers, samplers and musical instruments. **Specialization & Credits:** Specializing in the production of records: in-house production companies include Grace Productions, Music Chicago, Cutting Edge Music, Bunky Productions, Voodoo Productions and Danny Shaffer Music. Recent clients: Ministry/Sire, Revolting Cocks/Sire, Anthrax/Elektra, Grace Jones/Island, Mindbomb/Mercury, Material Issue/Mercury, Red Hot Chili Peppers/Warner's, Michelle Shocked/Mercury, Skrew/Metalblade, Chemlab/Metalblade, Sheep on Drugs/Smash, Latour/Smash, Bang Tango/MCA, Definition FX/RCA, Jesus & Mary Chain/Del American, Silverfish/Columbia, Prince Akeem w/Ice Cube, Chuck D & Professor Griff/Giant, Ulrich w/Gerry Goodman/Redlight, Sister Machine-gun/Wax Trax, Psychosonic/Wax Trax. R. Kelly/Jive.

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CLASSIC DIGITAL INC.
Evanston, IL

CLASSIC DIGITAL INC.

CLASSIC DIGITAL INC.
1306 Sherman Ave., Evanston, IL 60201; (708) 475-EDIT; FAX: (708) 475-3559. **Owner:** Victor Muenzer. **Manager:** Kathrin Long. **Specialization & Credits:** With a Sonic System™ in each of two post-production suites, Classic Digital has been the most active CD remastering facility in the Midwest since our founding in 1985, offering remastering to 1630-format or compact disc as part of a full range of production, editing and location recording services. Our renowned and knowledgeable staff has over 75 years combined experience working with the most discriminating classical, jazz, spoken word, choral, rock, pop and jingle clients. Other services include NoNOISE® sonic restoration, CD replication and radio production. We're equipped with Genelec, B&W and Westlake monitors, Lexicon 480L, dCS A/D converter and a full complement of location recording equipment including a large selection of high-quality microphones. Clients include Chicago Symphony Orchestra, Itzhak Perlman, Erato, Geflen, Lyle Mays Trio, Raymond Leppard, Narada, BMG, Milwaukee Symphony Orchestra, Centaur, Touch & Go, New World, Windham Hill and Harmonia Mundi.

DOMAIN AUDIO SERVICES

DOMAIN AUDIO SERVICES
289 Main Pl., Carol Stream, IL 60188; (708) 668-5300; FAX: (708) 668-0158. **Owner:** Edward Elliott. **Manager:** Tim Hollinger.

EMPTY STREET MULTIMEDIA/WINGLET

EMPTY STREET MULTIMEDIA/WINGLET
1405 Greenbriar Dr., Champaign, IL 61820; (217) 398-1775; FAX: (217) 398-1775. **Owner:** Pat Ortman. **Manager:** Sandy Jones.

THE HAIR BEAR RECORDING STUDIO

THE HAIR BEAR RECORDING STUDIO
4817 W. 129th St., Alsip, IL 60658; (708) 389-3373. **Owner:** Jeffrey A. Islinger. **Manager:** Jeffrey A. Islinger.

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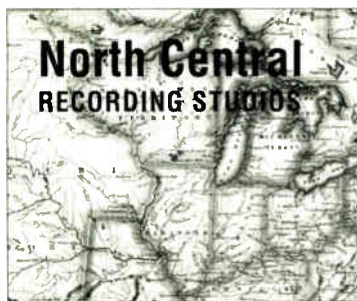
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HINGE

320 W. Ohio St., 7th Fl.; Chicago, IL 60611; (312) 337-0008; FAX: (312) 337-3008. **Manager:** Patricia Rothman. **Dimensions:** Room 1: studio 30'x26', control 22'x17'; iso 1: 12'x8'; iso 2: 12'x8'; iso 3: 8'x10'. **Mixing Consoles:** Euphonix CS II 9656. **Audio Recorders:** Ditar MTR 90 II 24-track, Panasonic SV-3500 DAT, Panasonic SV-3700 DAT, Nakamichi MR-1 cassette. **Digital Audio Workstations:** Roland DM-80 8-track, Emulator EIII. **Monitors:** Genelec 1031A, Tannoy System 215 DMT, Tannoy System 10 DMT, Yamaha NS-10M, UREI 809. **Other Major Equipment:** Sony R7, (2) Lexicon PCM70, Lexicon LXP-15, Eventide H3000S, Yamaha SPX900, (2) Roland DEP 5, Focusrite ISA 115, (2) Focusrite IAS 131, Drawmer 1960, (2) Drawmer DS 404, Drawmer DL 441, Tube-Tech PE1B, (2) dbx 166, BBE 822, (2) Neumann U87, Neumann TLM 170, (2) B&K 4011, (2) AKG 414, AKG 451, (4) Sennheiser MD 421, (2) Sennheiser MKH 40, (2) Sony C 48, Electro-Voice RE20, (2) Shure SM57, (2) Shure SM58, Yamaha C7 Disklavier grand piano, (2) Yamaha KX 88 controller, Yamaha TG 77, Yamaha TX 802, F-mu Vintage Keys, Korg M1REX, Korg M3R, Roland R8, (2) Roland D550, Roland MKS-20, Alesis HR-16, (3) MOTU MIDI Time Piece, Macintosh IIcx.

HUBBARD STREET STUDIOS INC.

11 E. Hubbard St.; Chicago, IL 60611; (312) 670-0110.

THE HURON STUDIOS

676 LaSalle; Chicago, IL 60610; (312) 642-8520; FAX: (312) 642-8823. **Owner:** Manny Mendelson. **Manager:** Manny Mendelson. **Engineers:** Mark Rubenstein, Roger Schmitz. **Dimensions:** Room 1: studio 10'x13', control 24'x18'; Room 2: studio 5'x6'. **Mixing Consoles:** CAD/CTI Maxcon Series 2. **Audio Recorders:** Ditar MTR 90 Series II, Panasonic 3700, Panasonic 3500. **Digital Audio Workstations:** Digidesign Sound Tools. **Monitors:** Tannoy 15-DMT, Yamaha NS-10M. **Other Major Equipment:** (2) Neumann U89, (2) AKG C414, (2) Lynx TimeLine, Sony 9850, Sony 5850, Lexicon 480-L, Mega Mix Automation Series 1, Back Burst generator, Nakamichi F1 converter, 150 volumes of SFX. **Specialization & Credits:** Personal facility of award-winning composer Manny Mendelson. Business is 90% scoring for radio and TV commercials, 10% industrials, including sound design and music composition.

JOR-DAN INC.

1100 Wheaton Oaks Ct.; Wheaton, IL 60187; (708) 653-1919; FAX: (708) 665-4966. **Owner:** Corporation. **Manager:** Kelly Lovett.



METRO MOBILE RECORDING
Glenview, IL

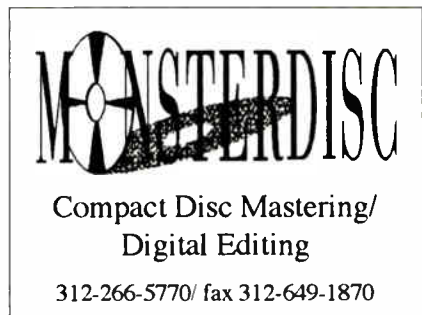
METRO MOBILE RECORDING

2097 John's Ct.; Glenview, IL 60025; (708) 998-6420; FAX: (708) 998-6421. **Owner:** Timothy R. Powell. **Engineers:** Timothy R. Powell, Lawrence Whipple, Dan Glomski. **Dimensions:** Remote truck 14'x8'. **Mixing Consoles:** Neotek Elite 50x26, (2) Hill Multi-Mix 16x4 rack mount mixers, Hardy M-1 4x4 microphone preamp. **Audio Recorders:** (2) Sony/MCI JH-24 24-track, Ampex ATR-104 4-track 1/2", Panasonic SV-3500 DAT, Sony TCD-10 Pro portable DAT, Sony

300ES DAT, Fostex E-16 1/2" 16-track 15 ips, Tascam 40-4 1/4" 4-track, Scully 2808 1/4" 2-track, (2) Technics 1500 1/4" 2-track, Sony 601 PCM w/Sony SLHF-900 & SLHF-450 Beta, (2) Tascam 112R cassette, (10) Yamaha KX630 cassette. **Monitors:** UREI 809, Yamaha NS-10, AR Red Box II, Tannoy 6.5 PBM, JBL 4313, Calibration Standards MDM-4, Auratone 5-C. **Other Major Equipment:** Adams-Smith Zeta-3 transport synchronizer, Eventide H3000SE Ultra Harmonizer w/sampling card, Lexicon PCM60, Lexicon Prime Time digital delay, Yamaha REV7, (2) Yamaha SPX90, (4) Yamaha D1500, Roland SRV-2000, Roland Dimension "D", (2) Studio Technologies AN-2, Aphex compeller limiter, Aphex Type C Aural Exciter, (3) Aphex 612 noise gate, (6) dbx 160X limiter, (5) dbx 166 limiter/gate, dbx 165A limiter, (2) dbx 463X noise gate, (2) dbx 263X de-esser, (2) dbx 563X silencers, UREI 117 6N limiter, (2) UREI LA-4 limiter, (2) UREI LA-3A limiter, Burwen DNF-120A dynamic noise filter, Drawmer DS-201 gate, Omni Craft GT-4 gate, Drban 622 EQ, NAD 4300 AM/FM tuner; (160) microphones by Bruel&Kjaer, Schoeps, Sennheiser, Neumann, Sony, AKG, Electro-Voice, Shure, Beyer, Fostex, Milab, RCA, Audio-Technica; Bryston 4NB, Bryston 3B, (2) Crown D-75 power amps; Rane HC-6 headphone amp, (2) Sony CVM-1270 color monitor/receivers, Panasonic WV-F2 CCD color video camera, Toshiba IK-2000 color video camera, Ditar EC-201 SMPTE time code reader, 120 amp singlephase power distribution w/350' of cable, 48-channel, three-way transformer splitter, 36-channel two-way Extended Equipment Description: transformer splitter, 52-channel multipair snake system w/275' of cable, Clearcom intercom system w/5 backpack/headsets, (8) Missing Link active direct boxes, (2) Stewart active boxes, (8) Pro-Co direct boxes, drum baffle set, Plexiglass drum baffle set. **Specialization & Credits:** Featuring Chicago's first and only 48-track audio truck, Metro Mobile offers the finest in location audio services for live radio & TV broadcasts, audio-for-video & film production, on-location commercial recording and live album and CD production. Recent clients include David Bowie, The BoDeans, Indigo Girls, John Cougar Mellencamp, The Replacements, Living Colour, Chicago Blues, Jazz and Gospel festivals, Eleventh Dream Day, Poi Dog Pondering, Jesus Jones, Don Dixon, Circus of Power, The Descendants, Ministry, Revolving Cocks, Material Issue, Dream Syndicate, Adrian Belew, Soul Asylum, John Hiatt, KISS, Winger, Robert Cray, Lonnie Brooks, Lonnie Mack, Shriekback, The Nylons, House of Love, The Pixies, The Neville Bros., RED Speedwagon, The Church, The Winans, Edwin Hawkins, Santana, WXRT's Sunday Night Concerts, WLUP, WFMT, WBBM-TV, WTTW-TV, WBEZ, HBD, MTV, Showtime, Westwood One, The A&E Network, PBS, National Public Radio, The Disney Channel, A&M, MCA, Alligator, Polygram, CBS, Atlantic, Island, Elektra, Warner Bros., Epic and Geffen Records.

METROPOLIS LTD.

739 N. Harvard; Villa Park, IL 60181; (708) 941-3571; FAX: (708) 941-8763. **Owner:** Metropolis Ent. Ltd. **Manager:** Bob Pucci.



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MONSTERDISC
Chicago, IL

MONSTERDISC

1333 N. Kingsbury Suite 203; Chicago, IL 60622; (312) 266-5770; FAX: (312) 649-1870. **Owner:** Jay D'Rourke. **Manager:** Ginny D'Rourke. **Engineers:** Jay D'Rourke, Joe DeLeonardis. **Dimensions:** Room 1: 22'x26'. **Audio Recorders:** Sony DAT PCM 7030, Panasonic 3500 DAT. **Digital Audio Workstations:** Sonic Solutions software. **Monitors:** Meyer HD-1, (5) Yamaha assorted, Auratone Sound Cubes. **Other Major Equipment:** Apogee A/D & D/A converter, Lexicon reverb, Sony Start Lab CD-R recorder, Drawmer 1960 stereo tube compressor. **Specialization & Credits:** Monsterdisc specializes in mastering and CD prep work. We feature Sonic Solutions in our 22'x26' studio. Our studio is dedicated and designed specifically for mastering. We specialize in independent labels, giving them access to a real mastering studio while keeping the prices affordable. Our engineers are packed with experience, having worked with a variety of acts including Ministry, Juliana Hatfield, Rev. Co. and Ray Charles. They have also recorded projects for Epic, Sony, Noise International, WaxTrax! and Atlantic to name a few. Recent mastering sessions have included Pigface, Big Hat, Paul Wertico, Sugarsmack, the Insiders, Invisible Records and March Records. We also offer CD manufacturing and one-off CDs.

MULT-IMMEDIATE STUDIO

2511 W. Schaumburg Rd., Ste. 306; Schaumburg, IL 60194; (708) 519-9115; FAX: (708) 519-0152. **Owner:** Chuck Siu. **Manager:**

Chuck Siu/Roger Wolski. **Engineers:** Roger Wolski, Chuck Siu. **Mixing Consoles:** Mackie 32-8 bus console, Mackie CR-1604. **Audio Recorders:** (4) Alesis ADAT 8-track digital, Panasonic SV-3700 DAT, Harmon-Kardon TS1200 cassette. **Digital Audio Workstations:** Standard 486-33 PC w/Cakewalk Pro/The Card, NextStrim-33. **Monitors:** Fostex M800. **Other Major Equipment:** Zoom 3200 effects processor, Ensoniq DP14 parallel effects processor, ART MD 2001 dynamics processor, (2) Kurzweil K2000RS sampler/synthesizer, Akai CD3000 sampler, Korg TB 2 EX keyboard, Roland MKS-80 Super Jupiter, VOCE Micro B organ module, Furman 160 point patchbay, J.L. Cooper MSB + Rev 2 MIDI patchbay, Dynatek 688 CSR CD-RDM/88MB removable; CAD E200, CAD E100, AKG 414 BULS condenser microphones; AKG C535EB, Roland TD 7 compact drum kit (extended), Ibanez '78 George Benson archtop (TB-10'), Gibson '88 ES-335 Showcase, Fender '69 Thinline Reissue Telecaster, Fender '88 Stratocaster Plus.

PARAGON RECORDING STUDIOS INC.

9 E. Huron St.; Chicago, IL 60611; (312) 266-0075; FAX: (312) 642-6688. **Owner:** Marty Feldman. **Manager:** Nancy Feldman.

PEGASUS

PO Box 578903; Chicago, IL 60657; (312) 880-5000. **Owner:** G.A. Khan. **Manager:** Mary Mazurek.

PRIVATE STUDIOS

705 W. Western Ave.; Urbana, IL 61801; (217) 367-3530. **Owner:** The Private Group. **Manager:** Jonathan Pines.

RIVER NORTH STUDIOS

610 N. Fairbanks; Chicago, IL 60611; (312) 944-1107; FAX: (312) 944-7258. **Owner:** Joe Thomas & Steve Devick. **Manager:** Diane Zandstra.

R/J RECORDING & SOUND

PO Box 302; 530 Lark St. Unit A; Geneva, IL 60134-0302; (708) 232-1932; FAX: (708) 232-1938. **Owner:** Richard J. Peck. **Manager:** Richard J. Peck. **Specialization & Credits:** We at R/J Recording & Sound are always expanding our services. We now provide recording studio services at our studio in Geneva, IL. We also provide rehearsal or full tech rehearsal facilities for local and touring acts when in the midwest. We also do location digital recording work for many symphonies and jazz groups. Motra Transmissions, Solar-Crete, Ruffled Feathers, Fox Valley Symphony, Elmhurst College Jazz Festival, Fox Valley Music Festival, St. Benedict Church Choir/Chicago, St. Michael Choir/Orland Park, Dave Major & Chicago Express, barebones, Abstract.

RPB RECORDING

2566 North Douglas; Arlington Heights, IL 60004; (708) 394-5306. **Owner:** Raymond Betz. **Manager:** Raymond Betz.

RPM STUDIO 8

318 S. Second St.; St. Charles, IL 60174; (708) 377-3993. **Owner:** RPM Productions. **Manager:** Tom Jancauskas.

RHYTHM PRODUCTIONS

8627 Keystone Ave.; Skokie, IL 60076; (800) 801-7664 (SONG); (708) 673-7664; FAX: (708) 673-7671. **Owner:** John Lucin. **Manager:** John Lucin.

SHORT ORDER RECORDER

2269 Sheridan Rd.; Zion, IL 60099; (708) 746-3767; FAX: (708) 746-3779. **Owner:** Gary Klebe, John Murphy, Jeff Murphy. **Manager:** Jeff Murphy.

SKYVIEW FILM & VIDEO

541 N. Fairbanks; Chicago, IL 60611; (312) 670-2020; FAX: (312) 670-4520. **Owner:** Jack Tohtz. **Manager:** Dan Wals.

SOLID SOUND RECORDING STUDIO INC.

2400 W. Hassell Rd., Ste. 430; Hoffman Estates, IL 60195; (708) 882-7446. **Owner:** Judd Cagaw. **Manager:** John Towner, Phil Bonnet.

SOUND/VIDEO IMPRESSIONS

110 River Rd.; Des Plaines, IL 60016; (708) 297-4360; FAX: (708) 297-6870. **Owner:** Bill Holtane, president. **Manager:** Bob Hartman.

SOUNDWORKS



3017 N. Lincoln Ave., Chicago, IL 60657; (312) 296-4820; FAX: (312) 472-1101. Owner: Soundworks Inc. Manager: Chris Seaver.

SPARROW SOUND DESIGN



3501 N. Southport; Chicago, IL 60657; (312) 281-8510; FAX: (312) 472-4330. Owner: Bradley Parker-Sparrow, Joanie Pallatto. Manager: Angel Almeida, Pat Halliwell. Specialization & Credits: Sparrow Sound design is now in its 16th year as a leader in sound recording and music-voice production. With one of the largest active collections of rare tube microphones in the world, Pultec EC, the EMT plate and the Baldwin SD 9' concert grand. Sound Design specializes in jazz, classical, blues, modern, alternative rock and all forms of acoustic and electric music. The entire staff of Sparrow Sound Design are active composers-engineers-musicians. SSD was designed by Bill Bradley. All tube equipment is maintained-restored and modified by Bill Bradley- The "Tube King." Southport records is a division of SSD with jazz, latin and new music CD releases for the world market. Clients: Bob Dorough, Don Shelton, Richie Cole, Von Freeman, The Leaders, Columbia Pictures, Concord Records, DIW Records, SteepleChase Records, Silkheart Records, Universal Pictures, Yusal Latef, Eldee Young, George Flynn, Erwin Helfer, Hal Russel, Eden Atwood, Don Bennet, Bobby Lewis, Dave Onderdonk, Mark Walker and Art Porter.

STAGEFRIGHT INC.



13808 Lincoln; Dalton, IL 60419; (708) 849-3735; FAX: (708) 849-3874. Owner: Phill Brown. Manager: Phill Brown. Engineers: Curtis Kincaid, Phillip Brown. Dimensions: Studio: 14'x16', control 14'x25'. Mixing Consoles: DDA DMR12. Audio Recorders: Otari 80 24-track. Monitors: (2) Century 500, (2) Tannoy B. Other Major Equipment: (8) Omni Craft, (3) dbx compressor, REV7, Lexicon PCM70, ART, Lexicon 42, Roland GP-8, K250, K1000, DX71FD, Prophet VS, K3, JD 800, Emax II, Matrix 6, Roland D50, Alesis D4, Roland R-8, Akai 5900, Yamaha TX812.

STAR TRAX RECORDING INC.



4750 W. 137th St.; Crestwood, IL 60445; (708) 489-5242; FAX: (708) 489-6742. Owner: Star Trax Inc. Manager: George Lui.



STREETERVILLE STUDIOS
Chicago, IL

STREETERVILLE STUDIOS



161 E. Grand Ave., Chicago, IL 60611; (312) 644-1666; FAX: (312) 644-8668. Owner: James C. Dolan. Manager: Bob Dolan. Engineers: Fred Breitberg, Bob Kruger, Bob Miller, Mark Zeboski, Tom Miller, David Axelbaum. Dimensions: Room 1: 47'x27', control 25'x17'. Room 2: 37'x27', control 24'x18'. The Suite: 14'x15', control 21'x21. Room 4: 14'x13', control 21'x20'. Mixing Consoles: Neve VR 48x48x48 w/Flying Faders, Neve VR 48x48x60 w/Flying Faders, SSL 6048, (2) Harrison 4032 32x32x40 w/Autoseq I, Neve 2118 6x4x2 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, (12) Studer B67 2-track, (2) Studer B77 2-track. Digital Audio Workstations: (6) AMS AudioFile II, Synclavier digital music system. Monitors: (2) UREI 809, (2) UREI 813, (8) Yamaha NS-10, (8) Auratone, (3) Eventide 100, MDM 40, (2) JBL. Other Major Equipment: (3) Lexicon 480L w/LARC, (3) Lexicon 224X w/LARC, (5) Lexicon PCM60, (2) Lexicon Prime Time, (2) Lexicon 92, (3) EMT 140, (2) EMT 240 Gold Foil, (2) MXR digital delay, (2) Eventide 1745, (2) Korg SOD-2000, (3) Yamaha REV7, (3) Yamaha SPX90, (3) TC Electronic 22, (4) AMS SDMM delay/sampler, (2) Yamaha 1500, (2) AMS RMX16, all new & vintage microphones, (4) Sony PCM-2500 R-DAT, (2) Panasonic SV-3500 R-DAT, complete collection of UREI limiters, (12) Kepex/Gain Brains, 48 tracks of Dolby SR, (3) Aphex Expander gate, (12) dbx 463 gates, (5) Drawmer 6207, (9) dbx 263 de-esser, (3) Focusrite EQ, (3) Pultec EQ, (2) Lang EQ, (2) Industrial Research graphic EQ, (9) Dolby A 24 channel, (8) LXP-1 controller, (4) SPX 90, (9) Lynx synchronizer modules, (4) Aphex Studio Dominators, (2) Aphex Aural Exciter. Specialization & Credits: Streeterville offers AMS AudioFile II systems in all studios for pre-production, in-session manipulation and processing, as well as for mixdown and mastering. Streeterville also offers an optical disc library of 200,000 musical sounds. These sounds can be accessed to originate, replace or enhance sounds for your record, film or commercial project. Extensive MIDI interfacing with our Synclavier. Streeterville also offers a writing/programming MIDI room w/Mac Performer Proteus as well as tying into our larger optical library. Streeterville also offers stereo digital satellite recording as well as land patch digital recording. Credits include: Robert Cray/Albert Collins/Johnny Copeland (Grammy), Steve Goodman (Grammy), Dave Mason, Ministry, Neil Diamond, Steve Miller Band, Buddy Guy, Johnny Winter (Grammy nominee), Roy Buchanan, Lou Rawls, Lonnie Brooks, Koko Taylor, Katie Webster, James Cotton, Kinsey Report, Kenny Neal, Lil' Charlie & the Nightcats, Delbert McClinton, Madonna League of Their Own.

STUDIO "B" DIGITAL RECORDING



2215 Wilmette Dr.; Rockford, IL 61108; (815) 398-4477. Owner: Michael and Deborah Castronovo. Manager: Michael Castronovo.

STUDIO 300



233 E. Erie, Ste. 300; Chicago, IL 60611; (312) 664-6075; FAX: (312) 664-6361. Owner: Bill Archer/Sheldon Elias. Manager: Tina Bean.

TAKE ONE RECORDING STUDIO



1431 W. Whittaker; Salem, IL 62881; (618) 548-3566; FAX: (618) 548-3585. Owner: C. Keith Bailey. Manager: Don Gessner.



WAVE DIGITAL
Gurnee, IL

WAVE DIGITAL



4262 Grand Ave., Gurnee, IL 60031; (708) 336-7702; FAX: (708) 336-8477. Owner: Alan Pangelinan, Eric Greif-Solubjerg, Michael Witte. Manager: Brian Griffin. Specialization & Credits: Specializing in total digital recording from corporate voice-over to 24-track album production. Other services include digital editing, audio classes and small P.A. rentals. Our staff engineers are also accomplished producers with their work being distributed worldwide. Located between Milwaukee and Chicago, we service a wide range of companies and artists. Project references available upon request. Featuring large studio facilities, Akai digital audio multitrack, automated Harrison Raven and mega outboard gear.

WOODEN NICKEL SOUND STUDIO



RR 1, Box 370A; Melamora, IL 61548; (309) 367-2990. Owner: Donald J. Rosser. Manager: same.

WOODSIDE AVE. MUSIC PRODUCTIONS

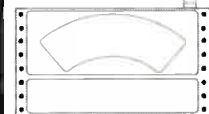


1618 Orrington Ave., Ste. 203; Evanston, IL 60201; (708) 864-6655; FAX: (708) 864-6655. Owner: Steve Rashid. Manager: Ryan Beveridge.

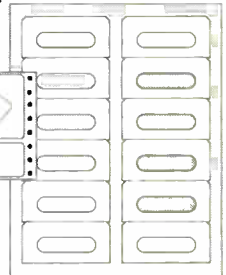
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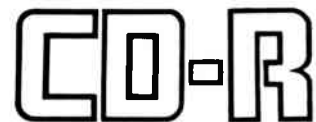
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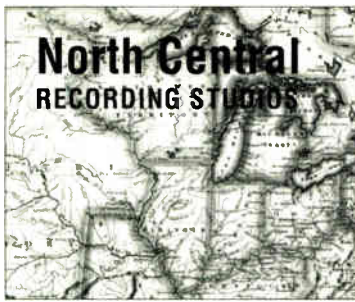


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ZEM RECORDING STUDIO



3709 S. 60th Ct., Cicero, IL 60650; (708) 656-1544. Owner: Ed Zem. Manager: Sue Zajda. Engineers: Ed Zem. Dimensions: Studio 20 x22', control 14'x11'. **Mixing Consoles:** Harrison MR-4 28x24. **Audio Recorders:** Otari MTR-90 MkII 24-track, Ampex ATR-102 2-track, Otari MX-5050 2-track, (2) Akai GX-F91. **Monitors:** B&W 801, B&W DM-12, Yamaha NS-10. **Other Major Equipment:** Dolby SR/A 2 channels, dbx Type 1 2-channel, Lexicon 480L digital effects systems, Lexicon 200 digital reverb, Eventide MDD 3000 Ultra-Harmonizer, Yamaha SPX90, Lexicon Super Prime Time, Eventide 949 Harmonizer, Aphex Compellor 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, (8) Neumann, (8) AKG, (8) Shure, (4) Sennheiser, (2) RCA, (8) Electro-Voice, Beyer, (2) Bryston 4B, Crown D-75. **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.

ZENITH AUDIO SERVICES INC.



32 W. Randolph St., 15th Fl., Chicago, IL 60601; (312) 444-1101; FAX: (312) 444-1198. Manager: Ric Coken.

ZOMBIE WOLF RECORDING



8130 Cherokee Trail, Tinley Park, IL 60477; (708) 429-4269. Owner: Jeff Steiger. Manager: Jeff Steiger.

INDIANA

AIRE BORN INC.



4700 Northwest Plaza, W. Dr., Zionsville, IN 46077; (317) 876-1556; FAX: (317) 876-1556. Owner: John Bolt, Mike Wilson. Manager: Mike Wilson.

AJAX RECORDING TEAM



1141 W. Wildwood Ave., Fort Wayne, IN 46807; (219) 426-0591. Owner: A.R.T. Inc. Manager: Mike Rogers. Engineers: Craig Harding, Mike Rogers, Michael Patterson, Mark Zimmerman, Dan Hogan, independents. Dimensions: Room 1: 17'x30', control 17'x30'. Room 2: 12'x14', control 17'x30'. **Mixing Consoles:** Tascam 3700 32x8x32/modified to 32+4 input, J.L. Cooper Pro 3700 automation, Mackie 1604 16x2 EFX mixer. **Audio Recorders:** (3) Alesis ADAT, Otari MX-70/16 16-track, Otari 5050B 2-track, Panasonic 3900 DAT, JVC DT-900 SMPTE DAT, (2) Tascam 202 MkII cassette, Nakamichi MR-1 cassette. **Digital Audio Workstations:** Sonic Solutions Sonic System 4-track, Picture System w/Mac ci with Daystar 50MHz accelerator card 1 2 GB drive, CMX EDL import/export. **Monitors:** (2) KRK 1302 mid-field, (2) KRK 703 near-field, (2) Auratone 5C near-field, (10) AKG 240M headphones. **Other Major Equipment:** Neumann U87, (2) Sennheiser 441, (6) Sennheiser 421, (2) AKG 460, (2) UREI LA-4 comp/limiter, Drawmer 1960 stereo tube compressor, Eventide 3000SE, Roland Dimension D 802, BBE Exciter, Drban 622B dual parametric, Jeanius Tech. Rushin/Druggin, GateX 4-channel gate, (2) dbx de-esser, Symetrix 501 dynamic filter, Mark of the Unicorn Video Time Piece, Panasonic AG-7750 S-VHS, Panasonic CT-2010Y video monitor, Proteus III "World" system, Alesis D-4 drum module, Kurzweil K2000R sampler 16MB RAM 120 MB HD.

DCR STUDIOS



5353 N. Tacoma, Indianapolis, IN 46220; (317) 251-5357; FAX: (317) 251-5343. Owner: Jim Albrecht, Gary Walters. Manager: Jim Albrecht.

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GALT STUDIOS/PRO-VIDEO



139 W. Shore Dr., Culver, IN 46511; (219) 842-4422; FAX: (219) 842-4905. Owner: Brian McCormack. Engineers: Paul Mahern, Mark Hoffman. Dimensions: Room 1: studio 14'x44', control 13'x25'. **Mixing Consoles:** Neotek Elite 40 Frame, Mackie 1202. **Audio Recorders:** Otari MTR-90II 24-track, Akai MG140 12-track, Panasonic 3700 DAT, Sony PGM 2300 DAT, Fostex Model 20 1/4". **Digital Audio Workstations:** Roland DM 80 8-track. **Monitors:** JBL Control 10, Yamaha NS-10M Studio, Yamaha NS-10M. **Other Major Equipment:** Lexicon 300, Eventide H3000S Ultra Harmonizer, Neve 1079 mic preamp and EQ, Neve 2254 limiter/compressor, (10) UREI mic preamp, (4) Sontec MPA-1 mic preamp, (2) TEAC 31 tube mic preamp, Hafler T2 tube mic preamp, Drawmer DL-241 dual auto compressor, Drawmer DS-404 quad gate, Symetrix 501 compressor, Lexicon LXP-1, Lexicon LXP-5, Alesis Quadraverb, Yamaha SPX900, (2) Neumann U57, (2) Neumann KM-84, (2) AKG 414, Sennheiser 421, Shure SM57, Fender Twin Reverb amp, Marshall Artist 3203 amp, Mesa/Boogie MkIII amp, various vintage Fender and Gibson amps available, Guild vintage acoustic, Fender Stratocaster, Gibson, Steinberger, various other guitars, Macintosh MIDI system w/Performer sequencer, Korg, Yamaha, Kurzweil and Roland keyboards and drum machines, JVC KY20 3 chip cameras, JVC BR-S611U S-VHS VTR, JVC KR-M800U M-II editing VTR, Amalink editing controller, NewTek Video Toaster 4000, Amiga 4000, Sony monitors, Hafler 500 monitor amp, Crown Power Base 1 amp. **Specialization & Credits:** Galt Studios with its parent company Pro-Video offers Indiana's most reasonable production center complemented by some of the best equipment available. Galt is both a fully loaded audio facility, as well as a completely synchronized video center. Located next to Indiana's second biggest lake, our wooded setting allows for the privacy needed for great recordings. We also offer a special monthly live-in lockdown that provides unlimited hours of recording and accommodations all under one roof, at an extremely discounted rate.

MIAMI STREET STUDIOS



1619 Miami St., South Bend, IN 46613; (219) 288-TAPE. Owner: John and Jackie Nuner. Manager: Earl Scott.



PINEBROOK RECORDING STUDIOS INC.
Alexandria, IN

PINEBROOK RECORDING STUDIOS INC.



PO Box 146, State Rd. 9 S., Alexandria, IN 46001; (317) 724-7721; FAX: (317) 724-7779. Dimensions: Studio A: 1,500 sq. ft., control: 14'x20'. Studio B: 18'x15', control: 15'x12'. Studio C: 2,600 sq. ft., control: 30'x30'. **Mixing Consoles:** Quad/Eight Colorado (modified) 40x24 tape-based automation, API 56x56x48 all discrete w/Touch Reset & GML automation. **Audio Recorders:** Studer D 820 digital 48-track, Studer D 740 compact disc recorder (CDS Series), Studer A 721 professional cassette, Studer D 780 R-DAT, (3) Studer A 827 24-track, (4) Ampex ATR-100 (102, 104, & 1/2" 2-track), MCI JH100 2-track, (2) Panasonic SV-3700 (3) Revox cassette deck, Fostex E-16 16-track. **Monitors:** KRK Model 15A-5 mains, KRK SX3-A Class A discrete three-way crossovers, KRK Model 7000 near-field, UREI 813A, Yamaha NS-10, Tannoy NFM8, Genelec S30NF. **Other Major Equipment:** Yamaha C7 Midi-Grand piano, DX7, Hammond/Leslie, Prophet V, Prophet 10, Linn drum, (4) Bryston Model 4BNBP, Hafler, Crown-amps, Neumann 87, 84, 86, 47, FET, 67, Microtech-Gefell MIH UM70S2, AKG, Sony, Sennheiser, B&K, Wahrenbrock, Shure, Lexicon 224XL reverb, Lexicon 200 reverb, EMT 245 digital echo, USAudio GateX, AMS DMX-15-80S, Aphex compellor, (2) Eventide H-3000SE, AMS RMX16 (loaded), Neve 1073 preamp/EQ, (2) Lexicon PCM70, (2) Pultec EQP-1A3, (2) Dolby Cat 280 SR card, Roland Dimension D, Lexicon Prime Time II DDL, Lexicon 480-LXV 1.0 program, AMS RMX16, Valley Rack (Kepex/Gain Brain/Mxi), EMT 140 plate reverb, UREI 1176 compressor, Drban 536 de-esser, ITI stereo parametric EQ, Zeta-3 synchronizer, dbx RM160, dbx FS900/2-902 modules, Neve 1272 line amp (Class A). **Extended Equipment Description:** TC Electronic 2290/22D24, (4) Valley People Kepex II, Drawmer DL241 lim/comp, Drawmer DRR DS301 dual gates, Teletronix LA-2A level amplifier, Drawmer DDR DS201B dual gate, Teletronix LA-2A leveling amplifier. **Specialization & Credits:** Pine Brook Recording Studios Inc. is located in the PineBrook Complex, a large three-studio, full-service, state-of-the-art facility located approximately 45 minutes north of Indianapolis. Serving the music

and recording industries since 1973, PineBrook continues to be a one-stop facility for a wide variety of clients, from beginning demo tapes and custom recording projects, to large publishing company and major label projects. All three rooms feature discrete consoles, with PineBrook Studio C serving as the showcase facility for the new generation of API all discrete Series consoles. Private apartments and an 18-hole golf course are adjacent to the complex. Convenient commercial and private plane access. Experience the comfort of working in one of the most extraordinary facilities in America. Quality service in a private environment, giving you the freedom to create at your own pace and with no compromise!

SEPTEMBER PRODUCTIONS



5210 E. 65th St., Indianapolis, IN 46220; (317) 842-4955; FAX: (317) 579-7774. Owner: Mallers/Lieber. Manager: Bill Mallers.



SWEETWATER SOUND INC.
Fl. Wayne, IN

SWEETWATER SOUND INC.



5335 Bass Rd., Ft. Wayne, IN 46808; (219) 432-8176; FAX: (219) 432-1758. Owner: Charles J. Surack. Manager: Chet Chambers. Engineers: Chuck Surack, Jerrold Lehman, Chet Chambers, Kent Williams, Dave Stewart, Bruce Hendrix. Dimensions: Room 1: studio 26'x26', control 17'x28'. Room 2: 6 1/2'x10 1/2'. Room 3: control 12'x12'. **Mixing Consoles:** TAC Magnum 72x24 console w/in-board MegaMix automation. **Audio Recorders:** (6) Alesis ADAT digital recorders w/BRC controller, 24-track 2" analog recorder, Fostex E-2 1/4" w/center SMPTE track, (2) Panasonic 3700 DAT, Fostex E-16 for remotes, Carver CD recorder w/HHB CDR indexer. **Digital Audio Workstations:** (2) Pro Tools system, (2) Sound Tools. **Monitors:** (2) UREI 813C, (2) KRK 9000, (2) Auratone Cubes, (2) EV Sentry 500. **Other Major Equipment:** KABA cassette duplication system, Kurzweil K2000RS, (2) Sample Cell II cards, Kurzweil 1200 Pro III, (2) Korg EX-8000, Roland D-50, Roland D-550, E-mu Proteus 1XR, Lexicon 300 reverb, Zoom 9200 effects processor, AMS RMX16 digital reverb, Dpcode Studio Vision sequencer software, MDTU Digital Performer software, Neumann U87, (4) MDTU MIDI Time Piece II, Young Chang 9ft. concert grand piano, (3) Macintosh Quadra computers, Kurzweil MIDIboard controller, AT 4033 mics, AKG C414 mics. **Specialization & Credits:** In just under 15 years, Sweetwater Sound Inc. has grown from a small 4-track home studio into a state-of-the-art multitrack digital production facility. Our clients include both local musicians and large national corporations such as McDonalds, Central Soya and Lincoln National Life, with custom jingles and music scores, audio-for-video and album production. Our sister retail division offers the latest in music software, digital and analog recording equipment and keyboards and has become an industry leader with knowledgeable tech support, an expert service department and very competitive pricing. A free newsletter is available.

TRC STUDIOS



5761 Park Plaza Ct., Indianapolis, IN 46220; (317) 845-1980; FAX: (317) 576-1648. Owner: TRC Corp. Manager: Gary Schatelein, Alan Johnson. Engineers: Alan Johnson, Steve McQuerry, Robb Clayton. Dimensions: Room 1: studio 34'x43', control 19'x22'. Room 2: studio 30'x33', control 17'x17'. **Mixing Consoles:** Trident 80B 30x24 w/Dtari Moving faders, Soundworkshop 34B w/Dtari Disk Mix II. **Audio Recorders:** Sony JH-24 w/Dolby SR, (2) Tascam DA-30, Panasonic SV-255, (3) MCI JH-1108 1/2" & 1/4" center-track SMPTE w/Dolby SR, MCI JH-1108 1" video layback, (2) Dtari 5050B, (2) Tascam 122Mk II, Alesis ADAT, Telex 300 open reel duplicator. **Digital Audio Workstations:** Dtari PD 464 8-track. **Monitors:** (4) JBL 4435, (10) Yamaha NS-10M studio, (4) Auratone 5C, (2) Tannoy NFM-8. **Other Major Equipment:** Tube Tech LA-2A, Eventide H3000 SE, Lexicon PCM70, Klark-Teknik DN780, Demeter VTP2 tube pre-amp, API 3124 4-channel preamp, (4) Drawmer DL241 compressor, Summit Audio TPA 200 tube EQ, BBE 800 A, TC Electronic 2290 sampler/delay, Adams-Smith 2600, Audio Kinetics Pacer, (4) UREI 1176, (2) Valley Arts PR-10, (2) UREI LA-4, EMT, (2) Aphex Expressors, Studio Technologies mic pre-amp, Alesis Quadraverb, (2) Yamaha REV7, Alesis D-4 drum module.

TRS PRODUCTION



2915 Kentucky Ave., Ft. Wayne, IN 46805; (219) 482-3190. Owner: Thomas Tempel. Manager: Thomas Tempel.

IOWA

AUDIO ART RECORDING STUDIOS



403 S.W. 8th St.; Des Moines, IA 50309; (515) 282-3223; FAX: (515) 282-3839. Owner: Patrick McManus. Manager: Keith Brown.

AVATAR PRODUCTIONS



515 28th St., Ste. 106; Des Moines, IA 50312; (515) 282-9746; FAX: (515) 243-3960. Owner: Michael Meacham/Jeffrey Martin. Manager: Michael Meacham.

CATAMOUNT RECORDING



1005 W. 23rd; Cedar Falls, IA 50613; (319) 235-6517. Owner: Catamount Recording Inc. Manager: Tom Tatman.

KEONI'S DOWNSTAIRS STUDIO



1326 Brady St.; Davenport, IA 52803; (319) 324-0624; FAX: (309) 786-6330. Owner: Kil-lir Productions/Keoni's. Manager: John Curry.

RAVENWOOD PRODUCTIONS



Rt. 2 Box 27; Osage, IA 50461; (515) 983-4445. Owner: John Steiert.

SR AUDIO & CINEMEDIA PRODUCTIONS



2771 104th St. Suite C; Des Moines, IA 50322; (515) 961-3925; FAX: (515) 961-0324. Owner: Michael Lawyer. Manager: Michael Lawyer. Engineers: Michael Lawyer, David Albert, Rick Maly, James Poulsen. Dimensions: Room 1: studio 30'x30', control 28'x28'. Room 2: MIDI studio 16'x18'. Mixing Consoles: Soundcraft Series 32x24 w/automation, (3) Yamaha DMP7 fully automated 24-channel digital console, Carvin 1608. Audio Recorders: Sony JH-24 24-track, (3) Alesis ADAT 8-16-, 24-track; Sony 2500 DAT, Tascam BR-20T, Studer PR-99, Nakamichi MR-2 cassette, Philips CD-R recorder, Technics DA-10 R-DAT. Digital Audio Workstations: Digidesign 8-channel Pro Tools, Digidesign Sound Designer w/DINR. Monitors: UREI 809, JBL 4313, Yamaha NS-10, Tannoy PBM 6.5, Auratone 5C. Other Major Equipment: Focusrite 15A 215 mic pre/EQ, Summit DCL-20 compressor, Adams-Smith Zeta-3B, ADAT BRC, Sony BWV-35 Beta SP, Sony 5850 3/4" U-matic, Macintosh Centris 650, Macintosh IIfx, Macintosh SE, (2) Neve 2257 gates, Neumann U67 tube, U87, KM84, AKG 414, 451, D112, Sennheiser 421, 441, Lexicon PCM70, PCM42, LXP-1, Yamaha REV7, SPX90, Alesis MIDVerb II, QuadraVerb, Eventide Harmonizer, Valley People, Orban, MIDI Performer, Pro 5, Roland, E-mu, Kurzweil, Yamaha, Korg.

TRIAD STUDIOS



1910 Ingersoll; 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'x24', control 22'x21'. Room 2: studio 18'x21', control 18'x13'. Room 3: studio 5'x10', control 10'x10'. Mixing Consoles: Amek Angela 28x24 w/Optfile 3D auto, Tascam 520 20x8, Tascam 512 12x8. Audio Recorders: Otari MTR-90 MkII 24-track, Tascam ATR-60/8 8-track, Tascam 44-OB 4-track, (2) Panasonic SV-3500 R-DAT, (2) Panasonic SV255 R-DAT, Tascam DA-30 R-DAT, Tascam ATR-60-2T 2-track w/CITC, Otari MX-551-M 2-track w/CITC, Tascam BR-20T 2-track w/CITC, Otari MXC-55N 2-track. Digital Audio Workstations: AMS Audiofile. Monitors: UREI 813, CSI MDM TA3, JBL Control 5, Yamaha NS-10MS. Other Major Equipment: UREI 6500 and UREI 6250 amplifiers. Mics: Neumann U48 tube, U47 FET, U87, KM84, AKG, Shure, Beyer; Sony V09850 3/4", Adams-Smith Zeta-3, Lex-

icon 224XL, TC Electronic TC 2290, EMT 240, UREI 927 delay, Yamaha SPX90, 2) Lexicon PCM60, (2) Lexicon LXP-1, Eumig FL100, Magnatex 7801 1/2" bin loop duplicator, Yamaha 7" grand piano, Rogers drum set, central equipment room w/studio interconnect.

KANSAS



CORNERSTONE STUDIOS
Wichita, KS

CORNERSTONE STUDIOS



PO Box 4736; Wichita, KS 67204-0736; (800) 392-5539. Owner: Steven D. Falke, Julia D. Prater. Manager: Steven D. Falke. Engineers: Steven Falke, Greg Cox. Dimensions: Room 1: studio 14'x20', control 25'x14'. Room 2: studio 12'x10'. Room 3: studio 12'x8'. Mixing Consoles: Tascam M-3532, Yamaha DMP7, Tascam M-224. Audio Recorders: (3) Alesis ADAT w/BRC remote, Fostex G-16, Tascam DA-30, Tascam 38, Tascam 1128, TEAC 3320, TEAC V285CHX. Monitors: (2) Altec 604-8G, (4) Yamaha NS-10M. Other Major Equipment: Yamaha REV7, Yamaha SPX90, Roland SRV-2000, (2) Ibanez SDR-1000, Symetrix 525A, Fostex 8330, (2) RCA 44, (2) AKG 414P48, Young Chang 6' grand piano, Fender Twin reverb (vintage), Roland JX-10, Roland MRC-500, (2) Roland D-50, Yamaha TG77, Roland S-50, (2) Oberheim Matrix 6R, Roland MkS-20, Haller P-500, Tama Imperial Star 5-piece trap set, Yamaha RX5. Specialization & Credits: In the control room, an array of carefully selected music production tools, including Alesis ADAT professional audio recorders, are nestled within an acoustic monitoring environment custom-crafted to deliver pinpoint accuracy in stereo imaging, broad-band frequency response and dynamic range. The facilities also include three isolated studios containing a wide range of musical instruments as well as an outstanding grand piano pampered in a humidity-controlled environment. Audio-for-video post scoring is also available as well as a comprehensive MIDI production system allowing musicians and producers the utmost in creativity and flexibility. Music publishing and other artist development services are offered through Golden Plains Publishing. Located in the Midwest, Cornerstone Studios and Golden Plains Publishing offer luxuries anyone can afford in a relaxed atmosphere, including special hotel and rental car rates. Cornerstone Studios makes even the most challenging productions a reality.

MASTERPIECE PRODUCTIONS & STUDIOS



7002 O'Neil; Wichita, KS 67212-3353; (316) 943-1190; FAX: (316) 943-1190. Owner: Tim Raymond. Manager: Tim Raymond.

WHEELER AUDIO ASSOCIATES



4024 State Line Rd.; Kansas City, KS 66103; (913) 362-2500; FAX: (913) 362-2575. Owner: Jim Wheeler, Rose Eilts, Mark Weddle. Manager: Stacey Mings.

MICHIGAN

A&F MUSIC SERVICES



2834 Olsego; Waterford, MI 48328; (313) 682-9025; (313) 669-3100. Owner: Frank Merwin.

THE BROOKWOOD STUDIO INC.



1155 Rosewood, Ste. A; Ann Arbor, MI 48104; (313) 994-4992; FAX: (313) 662-1241. Owner: David J. Lau. Manager: Matthew Hanson.

BROWN & BROWN RECORDING/MUSIC PROD.



PO Box 224; Portage, MI 49081; (616) 327-8352; FAX: (616) 327-8352. Owner: Kevin and Deborah Brown. Manager: Tim Brown. Specialization & Credits: Brown & Brown, located precisely be-

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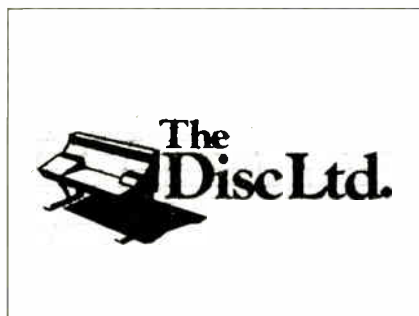
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tween De* oit and Chicago, specializes in original music for broadcast production, world-class multitrack recording, voice-over and A/V soundtracking. In addition to 2- and 4-track digital remote recording, we offer a well-appointed control using the MCI JH-24 (2" 24/16-track) and Soundcraft 2400B 32x24x24 classic split console. 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 Musicimage™ packages are airing in the Midwest and across the U.S. We are always producing demos and album projects for our clients and can help with project presentation and packaging for CD, cassette and vinyl release. Clients include Motown legend Jr. Walker; "TAWC" artist Tim Cunningham's new CD "A Change in Altitude"; gospel artists Zion, The Walkers; Tex-Mex artists Los Bandits; comedy/piano great Steve Allen; ACE Records' Dave Caley; Fox Network's *Bertice Berry Show*; corporate clients: Post Cereals, Kraft and General Foods.

CLOUD 10 RECORDING



1450 Coler, Ann Arbor, MI 48104; (313) 663-0222. Owner: Mike Gould. Manager: Mike Gould.



THE DISC LTD.
Eastpointe, MI

THE DISC LTD.



14611 E. Nine Mile Rd.; Eastpointe, MI 48021; (313) 779-1380; FAX: (313) 772-4320. Owner: Greg Reilly, Robert Dennis. Manager: Greg Reilly. Engineers: Greg Reilly, Scott Sumner, Greg Kutcher, Jim Michewicz. Dimensions: Room 1: studio 20'x40', control 20'x18'. Room 2: studio 12'x12', control 12'x12'. Room 3: studio 12'x14', control 12'x15'. Mixing Consoles: SSL G Series 40x32 w/G Series computer, DDA DMR-12 52 input, API custom 32-input. Audio Recorders: Otari MTR 90 II 24-track analog, (2) Tascam ATR 80 2" 24-track, Ampex ATR 102 2-track, Marantz CD player, (2) MCI VH-110B 2-track, Mitsubishi 2-track digital, Panasonic 3700 DAT, Tascam DA30 DAT. Digital Audio Workstations: Digidesign Pro Tools, Digidesign Sound Tools, (2) Akai S3200 samplers. Monitors: TOC Studio 1 w/Mastering Lab crossovers, UREI 809 w/Sub woofers, Yamaha NS-10. Other Major Equipment: Marantz CD recorder, AKG tube mic, U47 tube mic, U67 tube mic, 480 and 224K Lexicon digital reverb, Roland electronic drum kit, Premier custom acoustic drum kit, Yamaha C-5 concert grand piano, (2) MPC 60 drum computers, (2) Akai S3200 samplers, Roland VD 800 synth, Korg O1W synth, Roland Super Jupiter JX 10, Roland Super Jupiter, Vintage Keys, Roland D50, Yamaha TX 7, (3) Macintosh Computer for sequencing and digital editing, much more too numerous to list. Specialization & Credits: We have one 48-track room and 2 24-track rooms that can handle the smallest or the largest budget. We specialize in providing a friendly, comfortable atmosphere in a professional setting. We have experienced engineers who pride themselves in working with the producer and artist in a helpful, creative manner. Our client list includes George Clinton (Parliament and Funkadelic), Digital Underground, Roger Troutman, Kiara and many others. We can cue master tapes for CDs and cassettes using our Pro Tools and Sound Tools systems. Our CD recording system will record individual CDs for promotional and personal use. We are licensed by the state of Michigan to teach recording music theory and MIDI production under the name Recording Institute of Detroit.

FAST TRAX RECORDING STUDIO



2737 Baldwin St.; Jenison, MI 49428; (616) 669-3400. Owner: Robert B. Reister. Manager: Colleen M. Horgan.

HARVEST PRODUCTIONS INC.



5501 S. Cedar St. Suite C; Lansing, MI 48910; (517) 887-6555; FAX: (517) 887-0440. Owner: Steve Curran, Mark Miller. Manager: Jim Diamond.

HIDDEN CITY RECORDERS



26769 W. Hills Dr.; Inkster, MI 48141; (313) 563-9350. Owner: Jim Pashok. Manager: Rae Pashok.

LOVELOFT STUDIOS/CARLOCK PROD.



1013 Lions Park Dr.; St. Joseph, MI 49085-1020; (616) 982-1000; FAX: (616) 982-1001. Owner: Dave Carlock. Manager: Dave Carlock. Engineers: Dave Carlock. Mixing Consoles: Tascam M-2524, Mackie Designs CR-1604 w/XLR-10. Audio Recorders: Fostex G16S w/8330 card, Panasonic SV 3700 DAT, Nakamichi MR-1. Digital Audio Workstations: Digidesign Sound Tools II, APS 1.2 Gig hard drive, Apple Macintosh II w/Daystar, Sampo 2-page B/W monitor, Mark of the Unicorn Digital Performer, Mark of the Unicorn MIDI Time Piece. Monitors: TOA 280-MAV, Auratone 5C Super Sound Cubes, QSC 1200. Stewart HDA-4 headphone amp. Other Major Equipment: Lexicon LXP-1, Lexicon LXP-5, J.L. Cooper Fader Master, Yamaha SPX-900, Alesis Quadverb, Valley People Dynamite, dbx 166, Ashly Audio SG 35 E gates, Alesis M-EQ 230, Biamp EQ 230, Yamaha DX-7 II D w/GreyMatter E1, E-mu Systems EMAX II (8 meg.), Elitekon SyQuest removable 88 meg storage system, Roland MKS-20 digital piano, Roland D-110, Korg EX-8000, Alesis D1, Kat Drum Kat and Kick Kat, Yamaha 7-pc. Recording Custom Kit, Vox Continental Baroque Organ, AKG C-414 B-ULS, (2) AKG C-460, (2) AKG D-112, (2) Sennheiser MD 421-U, (4) Shure SM57, (3) Electro-Voice ND 408, Shure SM81, (3) AKG C-408, (2) AKG C-409, Fender U.S. Contemporary Strat, Roland GP-8, Hughes & Kettner Cabinetulator G (Red Box), Marshall 2x12 sealed back cabinet, Ovation 1612 Acoustic/Electric, Aria Pro II bass guitar.

NUMARK INC.



51308 Peachtree Ln.; Shelby Township, MI 48316; (313) 739-6940. Owner: John and Mark Antos. Manager: Mark Antos.

PEARL SOUND



47360 Ford Rd.; Canton, MI 48187; (313) 455-7606; FAX: (313) 455-4910. Owner: Ben Grosse.

RATTLEHEAD RECORDING INC.



3408 Hollywood Rd.; St. Joseph, MI 49085; (616) 428-7195; FAX: (616) 429-6658. Owner: Brian Bavido. Manager: Brian Bavido. Engineers: Brian Bavido, Marcelo Anez, Chip DeLong, Scooter DeLong. Dimensions: Room 1: studio 20'x13', control 13'x15'. Mixing Consoles: Yamaha DMR8, Yamaha DMP70. Both consoles are all digital with Total Recall, moving faders automation and internal effects and gates. Audio Recorders: Yamaha internal 8-track 20-bit, (2) Alesis ADAT with B.R.C., Yamaha DTR2 DAT, Marantz PMD 500, Yamaha YPRD CD recorder. Digital Audio Workstations: Digidesign Sound Designer II w/DINR, Pro Master 20 and Dynatek 1.2 Gig. HD. Monitors: (2) Yamaha 4208. Other Major Equipment: (2) Yamaha HA8 mic and pre's, dbx 263X de-esser, Drawmer DS201 dual gate, Drawmer DL441 quad compressor, (2) Alesis 3630 dual compressor/gates, BBE 422A Sonic Maximizer, (6) Yamaha SPX 1000, (8) Yamaha SPX90, Rocktron Intellifax, Alesis Quadverb, Macintosh IIsi w/11MB Simms, Opcode Studio 4 w/Vision, Pro Tools SMPTE Slave Driver, J.L. Cooper PPS-100, Alesis D4, Alesis SR-16, Jeanius Russian Dragon, E-mu piano module, Kurzweil K2000 R w/sampling option, Yamaha DX7, Zoom 9000, Demeter tube direct box, Mesa/Boogie Dual Rectifier, Ernie Ball Eddie Van Halen model, Taylor 6 string acoustic, Marshall 1968 4x12, (2) Audio Technica 4033, (2) Crown PZM, (7) Shure SM57, Shure SM58, (2) Electro-Voice 757, (3) Electro-Voice 408B, Electro-Voice 308, Electro-Voice BK1, (4) Yamaha tmc 1, (4) Yamaha D/A 702, (2) Yamaha A/D 8X, (2) Tascam PB-32B, Yamaha P2075 power amp. Specialization & Credits: Rattlehead Recording is conveniently located just one block off of I 94, one and a half hours from downtown Chicago. Engineers are graduates of Full Sail Center for the Recording Arts, and have worked with many national and local acts. We are located in a crime-free area with a beautiful beach, great food and excellent hotels within minutes of the studio. We offer all-digital recording (including the console), with digital mastering and a recordable CD system. We pride ourselves in a relaxing non-corporate atmosphere. No hidden charges. Call us today for more information.

RECORDING INSTITUTE OF DETROIT



(also Golden Section Recording); 14611 E. 9 Mile Rd.; Eastpointe, MI 48021; (313) 779-1380; (800) 683-1743. Owner: Robert Dennis, Greg Reilly. Manager: Steve Szajna. Specialization & Credit-

its: Established in 1976, The Recording Institute of Detroit offers an extensive 351-436 clock-hour program in recording, MIDI and music technologies (38-45 weeks). The school offers three 24-track studios and classroom facilities. Equipment includes Solid State Logic 4000 G Series, API and DDA consoles; Lexicon 480L, 224X plus 22 other delay/reverb units, including actual EMT plates; 12 tape machines including 24-track digital multitrack and DAT units, 24 synthesizer/sound modules/sampler units; sequencing on Amiga and Macintosh computers and Akai MPC 60; loads of additional out-board gear. Tascam 688 workstations for home recording training and MIDI programming. Students attend a minimum of 9-10 hours per week with an additional 25 hours per week provided for additional help or exposure at no charge. The school publishes its own text and recording/music industry magazine. The end of the program features individual student engineering with instructor feedback on results. Our self-paced music theory classes feature computer-assisted songwriting. Our study-skills training uses Hubbard Study Technology which helps students self-learn equipment from manuals and use new equipment more fully. Internships are included in the program and job placement assistance is available (90% placement rate in 1992-93). Tuition is \$3,349 for entire program or \$799 for first class.

RON ROSE PRODUCTIONS LTD.



29277 Southfield Rd.; Southfield, MI 48076; (800) 662-6638; FAX: (313) 424-8622. Owner: Ron Rose. Manager: Mark Gavluis.

SINGLE SOUND RECORDING SERVICES



7555 Ore Lake; Brighton, MI 48116; (313) 231-9345. Owner: Gene Fiero.

SOLID SOUND INC.



1289 N. Dixboro Rd.; Ann Arbor, MI 48105; (313) 662-0667; FAX: (313) 662-0997. Owner: R. G. Martens.

SONG SKETCHES PRODUCTIONS



15112 Totten Pl.; Shelby Township, MI 48315; (313) 786-1767. Owner: Robert Payne. Manager: Robert Payne.

SOUNDSTAGE ONE RECORDING



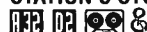
1800 S. 35th St.; Galesburg, MI 49053; (616) 665-7025; FAX: (616) 665-7046. Owner: James Cummings. Manager: Kimberly Rasey.

STAGES RECORDING SERVICES



PO Box 203; Novi, MI 48375; (313) 348-1596. Owner: Chris Andrews.

STATION C STUDIOS INC.



941 Wealthy SE; Grand Rapids, MI 49506; (616) 235-3813; FAX: (616) 459-0383. Owner: Thomas Jansen. Manager: same.

STUDIO A RECORDING INC.



5619 N. Beech Daly; Dearborn Heights, MI 48127; (313) 561-7489; FAX: (313) 561-8619. Owner: Eric and Marilyn Morgeson. Manager: Marilyn Morgeson. Engineers: Randy Poole, Eric Morgeson, Todd Fairall. Dimensions: Room 1: studio 40'x30', control 25'x22' (a John Storky design). Room 2: MIDI room. Mixing Consoles: SSL 6000E 40x24 w/G Series preamp, SSL automation, Soundcraft 200B 32x4. Audio Recorders: (2) MCI/Sony JH-24 track, Mitsubishi X-86C 2-track, Sony APR-5003 2-track 1/2" and 1/4", Studer B67 2-track, (2) Tascam 122 MkII cassette, (3) Sony 730ES cassette, (2) Sony 2500 R-DAT. Digital Audio Workstations: Synclavier Digital Music System, Roland DM-80. Monitors: (2) UREI 813, (4) Tannoy NFM-8, (2) Yamaha NS-10M, (2) Auratone. Other Major Equipment: Klark-Teknik DN70, AMS RMX16, Lexicon 200, Ursal Major 8x32, (5) Yamaha SPX90, (2) Lexicon PCM42, Yamaha REV5, Yamaha REV7, Yamaha SPX900, (4) dbx 160X, (7) Valley People Kepex II, (2) Valley People Maxi-Q, (2) Valley People Dynamite, BBE Sonic Maximizer 822, EXR Exciter, DeltaLab CompuEffectron CE1700, Eventide H910 Harmonizer, Tascam ES50 synchronizer, (2) Focusrite 110 modules, JVC 8250 3/4" video.

STUDIO DE LUX



5346 Sunnycrest Dr.; West Bloomfield, MI 48323; (313) 855-2942; FAX: (313) 855-3221. Owner: Rick Stawinski. Manager: Rob Stawinski.

THE STUDIO/GTK SYSTEMS



26007 West Warren; Dearborn Heights, MI 48127; (313) 277-2312; FAX: (313) 562-0868. Owner: Gary Kula. Manager: Greg Emerald.

TAPE TRACKS RECORDING

AP24

2275 Yargerville Rd.; LaSalle, MI 48145; (313) 241-6695. Owner: Bill Cuson. Manager: Bill Cuson.

THE TEMPERMILL

AP24 DB

2040 Hilton Rd.; Ferndale, MI 48220; (313) 399-0550; FAX: (313) 547-5477. Owner: David Feeny. Manager: Jameson Macbeth. Engineers: David Feeny, Geoff Michael, Mike Harrell. Dimensions: Room 1: studio 32'x28', control 22'x25'; Room 2: studio 12'x16', control 12'x15'. Mixing Consoles: Custom automated Harrison 3232C (54 inputs), Ramsa WRT820, Mr. Coffee w/analogue timer. Audio Recorders: MCI JH-24, Fostex E-16, Alesis ADAT, (2) Panasonic 3700 DAT, Nakamichi MR-2, (2) Yamaha cassette, Ditar MX 5050 B. Digital Audio Workstations: Digidesign Sound Tools. Monitors: UREI 813 C, (2) Yamaha NS-10, (2) Auratone 5C. Other Major Equipment: (2) Neve 1073 mic pre EQ, (2) Neve 2254/E compressor, SSL G384 stereo compressor, Eventide H3500, (2) API 550 A EQ, (6) Valley People Gain Brain II, (4) Valley People Kepex II, Yamaha SPX900, Yamaha RE7, (3) Yamaha SPX90, Lexicon PCM70, Lexicon LXP-1 w/MRC, (2) dbx 166, Roland SDE-1000, Telefunken U47, (2) Neumann U87, (2) AKG C414, Macintosh IIsi w/Vision Seq. software, also too numerous to list—extensive mics, MIDI gear, GTRs, amps, drums, and much more outboard gear!

WHITE ROOM STUDIO

AP24

1145 Griswold, 3rd Fl.; Detroit, MI 48226; (313) 963-7305; FAX: (313) 963-7305. Manager: Michael Nehra. Engineers: Alan Sutton, Michael Nehra, Andrew Nehra, Dave Peturia, Matt King, John Vitale. Dimensions: Room 1: studio 34'x36', control 16'x16'. Room 2: studio 25'x25'. Mixing Consoles: API 32x16 550A, 550B EQs; Neve 14x6 Sidecar (1073 EQs). Audio Recorders: Ampex ATR-124 24-track, 3M M-79 24-track, Ampex ATR-102 2-track, (2) Panasonic 3700 DAT. Digital Audio Workstations: Sound Tools. Monitors: Yamaha NS-10M, Altec Big Reds. Other Major Equipment: (2) Neve 32264a comp/lim., (2) Neve 2254a comp/lim., Teletronix LA-2A comp/lim, (2) UREI LA-3A, (2) API 525, RCA BA-6A comp/lim, (2) dbx 160, dbx 162, Valley People 610, Klark Teknik 514 gate, (2) dbx 902 de-esser, (3) Pultec EQP1-A, (2) Pultec MFO-5, Lange PEQ-2, (2) Neve 1073, (4) Neve 1081 mic pre's, (10) Langevin mic pre's, Telefunken U47 tube, Neumann U47 FET, (2) Neumann U87, AKG C-12, AKG C-12A, (2) Sony C-37 tube, (2) Sony C-37 FET, various Shure, Sennheiser, Beyer, AKG, Eventide H3000 SE fully loaded, Lexicon PCM70, Dynacord DRP-20, EMT 140 tube stereo plate reverb, Roland SDD-1000 delay, (2) Roland 555 chorus echo, MXR vertical flanger, Eventide Instant Phaser, Lexicon Prime Time.

MINNESOTA

CREATION STATION

AP2 D24

4522 James Ave. N.; Minneapolis, MN 55412; (612) 521-1481; FAX: (612) 521-1481. Owner: Rev Hillstrom. Manager: Christina Hillstrom. Engineers: Rev. Dimensions: Room 1: studio 11'x11', control 12'x12'. Mixing Consoles: Tascam 3500 32x8x32, Alesis 1622 16x2x2. Audio Recorders: (3) Tascam DA-88, Tascam DA-30, Tascam 102. Digital Audio Workstations: Peavey DPM 3 SE w/SB and SX sampling editions. Monitors: (2) Yamaha SM8, (2) JBL 2500. Other Major Equipment: Eventide H3000 S, Lexicon LXP-15, Audio-Technica 4083, Shure SM81, Shure SM57, Alesis ATM-41A, Alesis MIDlverb II, Roland 3630-composer drum machine, R-5, Applause Acoustic bass, Peavey Fretless Foundation bass, Peavey Dyna 5-string bass, Fender 1964 Mustang, Marshall 50w Lead, ME-5 bass, AB International 900A, congas.

EMC PRODUCTIONS

AB DB

300 York Ave.; St. Paul, MN 55101; (612) 771-1555; FAX: (612) 771-5629. Owner: EMC Corporation. Manager: Bruce Kennedy.

PACHYDERM RECORDING STUDIO

A48 D2

7840 County Rd. 17 Blvd.; Cannon Falls, MN 55009-4048; (507) 263-5276; FAX: (507) 263-2002. Owner: Pachyderm Discs Inc. Manager: Jon Dressel. Engineers: Jeff Bork, Timothy Penn, Brent Sigmetth, Hans Buff. Mixing Consoles: Neve 8068 32-input. Audio Recorders: Studer A 820, Studer A 827, Studer A 80 w/ Dolby SR, Panasonic SV 3500 DAT, Nakamichi MR-1 cassette. Monitors: Tannoy FSM, Tannoy NFM-8, Westlake BBSM-4, Yamaha NS-10. Other Major Equipment: Quantec XLC Room Simulator, Roland R-880, AMS RMX-16, (2) Klark-Teknik DN-780, (2) TC Electronic 2290, Eventide H3000, Bosendorfer 7' grand piano, Hammond B3 organ, AKG C-12, C-12A, C-24, (2) B&K 4004, (2) Neumann CMV 563 omni, Neumann U47 FET, Neumann M249, Neumann SM 2 stereo, (2) Neumann KM54, (2) Neumann U64, (2) AKG 451, AKG 414, Focusrite 110 EQ/130 comp, GML parametric EQ, misc. dynamic microphones, (2) dbx 160, (2) UREI LA-4, (2) dbx 160X, (4) Hardy M-1 mic pre, (2) Tube-Tech mic pre, S1000 sampler. Specialization & Credits: Located on a 40-acre heavily wooded private

park just outside Minneapolis, the tranquility Pachyderm offers, with its winding paths and spring-fed trout stream, is unsurpassed. The spacious Pachyderm mansion includes four bedroom suites and extensive living area, kitchen, laundry, maid service, indoor pool and sauna, and elevated gazebo. Catering services are available upon request. The Pachyderm studio, a short walk from the mansion, is 3,000 sq. ft. with five isolated recording areas including a granite drum room and a large, live room with green forest views. The control room features a classic Neve 8068 console. Credits include: Nirvana, Soul Asylum, PJ Harvey, The Jayhawks, American Music Club, Run Westy Run, Swinging Steaks, Unrest, Sugar Tooth, Rosie Gaines, Babes In Toyland, Trip Shakespeare, the Wedding Present, You Am I, Live.

PAISLEY PARK STUDIOS

AP24

7801 Audubon Rd.; Chanhassen, MN 55317; (612) 474-8555; FAX: (612) 474-6328. Owner: Prince. Manager: Heidi Hanschu. Engineers: Sal Greco—chief technical engineer, Tom Tucker, Tom Carneau, Dave Friedlander, Ray Hahnfeldt, Brian Poer. Dimensions: Room 1: studio 35'x50', control 32'x25'. Room 2: studio 35'x35', control 32'x25'. Room 3: studio 32'x46', control 14'x16. Mixing Consoles: SSL 6064 E/G 64-channel w/G Series automation, Custom API/Demedio 48x24x24 w/Massenburg moving fader automation, Soundcraft TS 24 32x32x24. Audio Recorders: (4) Studer A800 24-track, Sony JH-24 24-track, (7) Studer A820 2-track w/center channel time code, (2) Sony PCM-2500 DAT w/Apogee filters, (2) Panasonic SV-3700 DAT, (2) Ditar DTR-90 DAT w/time code, Studer D740 compact disc recorder, digital multitracks available on request. Digital Audio Workstations: Akai DD1000 digital editor w/Mac interface. Monitors: Westlake custom five-way. Other Major Equipment: TimeLine Lynx synchronization, Akai Samplers, Lexicon, Eventide, AMS, Publison, EMT, Drawmer, Summit, Focusrite, Neve, GML, Avalon, Pultec, Teletronix, dbx, TC Electronic, AKG C-24, tube mics and more.

PRIME TIME STUDIOS

AP24 DB

PD Box 11449; St. Paul, MN 55111; (612) 884-0778; FAX: (612) 884-1078. Owner: Jim Barker. Manager: Russ Chesney.

SOUND RESOURCES

AP24 DB

1400 Energy Park Dr., Ste. 21; St. Paul, MN 55108; (612) 644-3660. Owner: Joey Johnson. Manager: Ron Runeberg.



STUDIO M
Saint Paul, MN

STUDIO M

AP24 D32

45 E. 7th St.; Saint Paul, MN 55101; (612) 290-1453; FAX: (612) 290-1180. Owner: Minnesota Public Radio. Manager: Craig Thorson. Engineers: Tom Mudge, Preston Smith, John Scherf, Paul Baron, Craig Thorson. Dimensions: Room 1: studio 45'x36'; control 23'x17'. Room 2: studio 15'x15', control 22'x15'. Mixing Consoles: Neve V Series 36x36x36 w/Flying Faders automation, Neve 5106 38x8x2. Audio Recorders: 3M DMS 32-track digital mastering system, Ditar MTR-90II 24-track, Ditar MTR-12 w/SMPTE center stripe, (5) Ditar MTR-10 2-track, (3) Studer A810 2-track, MCI JH-110B 4/2-track 1/2", Tascam DA-30, (2) Panasonic SV-3700, Sony DTC-700, (2) Sony PCM-3402 DASH 2-track digital rec/editor. Monitors: (2) Genelec 1022A tri-amped near-field, (2) Tannoy PB 6.5, Yamaha NS-10, (2) Auratone. Other Major Equipment: BTX Cipher/Shadow SMPTE interlock synchronizing, Lexicon 480L, Lexicon 224XL, EMT 140 plate, Echoplex II, Echoplex II, Lexicon PCM70, (2) Lexicon PCM42, (1) Eventide 969 Harmonizer, Eventide H3000 Harmonizer, Dolby A M-24 24-channel, (4) Dolby 363 A/SR stereo, (8) Dolby A 361, (4) UREI LA-4A compressor/limiter, (4) Aphex 651 expressor compressor/limiter, (6) Neumann U87, (6) Neumann KM84, (4) Neumann KM140, (4) Neumann KM88, Neumann SM69 stereo, AKG C-24 stereo tube, (4) AKG C-414, (6) AKG 452EB, (7) AKG C567 Lavs, (6) Sennheiser MK-2E Lavs, (4) Sennheiser 421, Electro-Voice RE-20, Shure SM57, Shure SM58, (2) Shure SM81, (2) Shure SM87 (4) Bruel & Kjaer 4006, (2) Bruel & Kjaer 4011, Steinway Concert D 9' grand piano, Fender Twin reverb guitar amp, Pearl drums w/Paiste cymbals & toms equipped w/"Rims," other signal processing available. Specialization & Credits: We specialize in superb acoustic recording. Spacious studios, a superlative signal chain and staff with knowledge and experience all add up. We know how to listen. Studio M offers a wide range of facilities and services, including digital and analog multitrack recording, synchronized audio post-production for video

—LISTING CONTINUED ON NEXT PAGE

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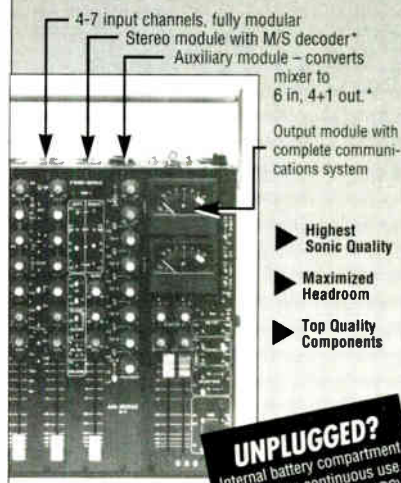
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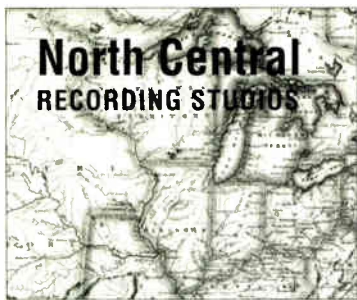
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TURN TO PAGE 173 FOR AN EXPLANATION OF RECORDING SERVICE SYMBOLS.



North Central RECORDING STUDIOS

—LISTING CONTINUED FROM PREVIOUS PAGE

and DDD capabilities (recording, editing, Xfer and premastering all in digital domain). Studio M is actually three separate facilities which can be reconfigured as needed to fit your project. Our largest acoustic space will comfortably accommodate a 40-piece orchestra. We also have proprietary audio lines to/from the World Theatre (a lovely reconstructed 800+ seat auditorium) for the highest quality live concert recording. Credits include: host location/facility for the Disney Channel's *A Prairie Home Companion* cable series. Ongoing live music broadcasts for Minnesota Public Radio (including the American classical b'cast *Saint Paul Sunday Morning*). Classical releases for Virgin Classics (including 1990 Grammy winner recorded by staff engineer Preston Smith). Releases for MCA, Capitol, A&M, EMI London, Columbia and Independent labels.

MISSOURI

AUDIO EXPRESS LOCATION RECORDING



9312 Lenard Ct.; St. Louis, MO 63123; (314) 631-8243. Owner: Chris Rathert. Manager: Chris Rathert.

ICON RECORDING STUDIO



5089 Waterman Blvd.; St. Louis, MO 63108; (314) 367-3121; FAX: (314) 533-2177. Owner: Perry Emge. Manager: Perry Emge. Engi-

neers: Mark Beihl, Perry Emge. Dimensions: Room 1: 24'x20'x22'H, control 27'x25'; Room 2: studio 10'x11'x12'; Room 3: studio 9'x7'x11'H. **Mixing Consoles:** Soundcraft 6000 24x44 w/automation, (2) Mackie CR 1604. **Audio Recorders:** JH-24-24, (2) Alesis ADAT, (2) Tascam DA 30. **Digital Audio Workstations:** Pro Tools 4-track digital, Studio Vision 2-track digital/MIDI. **Monitors:** UREI 815, JBL 4408, JBL Control 1. **Other Major Equipment:** Eventide H3000, Eventide 949, Lexicon PCM70, (3) Lexicon LXP1, Lexicon LXP5, Lexicon PCM42, Drawmer 1960, Drawmer DS201, Drawmer LX20, dbx 165A, dbx 160, dbx 166, dbx 436, mics: Neumann, AKG, AT, EV, Shure, huge MIDI selection, much more available (call).

MUSIC MASTERS INC.



2322 Marconi Ave.; St. Louis, MO 63110; (314) 773-1480; FAX: (314) 773-0073. Owner: Greg Trampe. Manager: Cindy Trampe.

PENGUIN PRODUCTIONS



1026 Carole; St. Louis, MO 63021; (314) 394-0267; FAX: (314) 394-0860. Owner: Richard Byron. Manager: Frank Gagliano.

NORTH DAKOTA

AVI GOBBLER PRODUCTIONS



1825 N. Grandview Ln.; Bismarck, ND 58501; (701) 222-3851; FAX: (701) 222-0429. Owner: Bob Newell. Manager: Bob Newell.

MEYER SOUND STUDIOS



208 N. 4th St.; Bismarck, ND 58501; (701) 223-7316; FAX: (701) 255-8287. Owner: Meyer Broadcasting Company. Manager: David Swenson.

VIDEO ARTS STUDIOS



1440 4th Ave. N.; Fargo, ND 58102; (701) 232-3393; FAX: (701) 232-9439. Owner: Art Phillips, Mary Ann Phillips. Manager: Steve Germaine.

OHIO

ACTION CITY RECORDS



PO Box 302; Napoleon, OH 43545; (419) 533-4782. Owner: John L. Kuser/John E. Church. Manager: John L. Kuser.

AUDIO CONCEPTS



1653 Merriman Rd.; Akron, OH 44313; (216) 867-4448; FAX: (216) 867-5947. Owner: Chris Jensen. Manager: Jeri Glueck.

AUDIO RECORDING STUDIOS



35895 Solon Rd.; Chagrin Falls, OH 44022; (216) 498-0911; FAX: (216) 498-0951. Owner: Bruce Gigax. Manager: Heather Copper. **Specialization & Credits:** Since 1951, Audio has been serving NE Ohio's music and advertising communities and since 1965 has been the exclusive recording service for The Cleveland Orchestra Radio Network. Our new facility on seven acres combines a comfortable atmosphere with today's technology.

AUDIOCRAFT



915 W. 8th St.; Cincinnati, OH 45203; (513) 241-4304; FAX: (513) 241-3477. Owner: E.T. Herzog. Manager: E.T. Herzog.

BEAT BOX MUSIC STUDIOS



2154 Central Parkway; Cincinnati, OH 45214; (513) 241-7685. Owner: David Arps/Christopher Fee. Manager: Michael Wright.

DIAMOND MINE RECORDING STUDIO



3115 Bremen Dr.; Columbus, OH 43224; (614) 268-4792. Owner: Bright Moon Productions. Manager: Chris Nye.

FJM AUDIO PRODUCTIONS INC.



3571 Dryden Rd.; Dayton, OH 45439; (513) 293-8288; FAX: (513) 293-9232. Owner: Joe Miller. Manager: Frances Miller. Engineers: Joe Miller, Tim Berger, Dave Baker. Dimensions: Room 1: studio 19'x16', control 14'.5'x14'. **Mixing Consoles:** Biamp Legend 2016sf modified, Biamp Legend 3224lf modified, (3) Alesis 1622.

J.L. Cooper Macintosh 64-channel Magi 2 automation. **Audio Recorders:** Fostex E-16 w/remote, (4) Alesis ADAT w/BRC, Tascam 32 w/remote, Tascam DA-30 w/remote, Panasonic SV-3500 w/remote, Nakamichi MR-1 w/remote, Tascam 103. **Digital Audio Workstations:** Atari Falcon 030. **Monitors:** JBL 4406, Tannoy NFM-8, (2) Electro-Voice Sentry 100, Tannoy Orphans. **Other Major Equipment:** dbx Type 1 (2 ch.), Fostex 4030/4035/4050, Lexicon PCM70, Lexicon LXP-1 w/MRC, Lexicon LXP-5, Zoom 9010, (3) Ensoniq DP-4, Behringer De-Noiser, (2) Ashly Audio CL-52, dbx 166, dbx 1531P, dbx 163X, dbx 263X, Valley International Galax, Furman Quadgate, (2) Rane MEQ-28, (2) Rane PE-15, (2) Barcus-Berry 822, Roland Space Echo 201, Crown DC300A, Crown DC75, (2) Symetrix SX-202, Neumann U87a, Equitech N-200, (2) AKG C-414, (2) AKG D-112, (2) AKG C-460/CK61, (3) Sennheiser MD-421, Sennheiser MD-441, (2) Electro-Voice PL20, (2) Shure SM57, Shure SM58, Shure 520-D, Beyer M-500, (2) Audio-Technica AT-813. **Specialization & Credits:** Our new facility (opens 9/93) can provide 48 tracks of analog/digital recording with full automation. Our remote recording is 24-track digital, and we will provide the sound system and engineers for any size job. Our MIDI suite is provided by Back Stage Pass Studios and features the Kurzweil K-2000, Roland D-70, Ensoniq EPS 16+, Roland PM-16 drums, Alesis D-4, (2) Atari 1040ST, Atari 520ST and the Atari Falcon 030. Back Stage features Notator Logic, 4T/FX, Qubase Audio and Vision. We feature KABA cassette duplication, a huge low-cost in-house rental closet with Gibson, Fender, Pearl, Martin, Marshall, Peavy, Kat, and Zildjian gear plus many more. We feature a comfortable lounge, flexible hours, fast service, sequencing for effects and MIDI, 2 booths, 8 separate headphone mixes and much more.

HEARTLIGHT STUDIOS



PO Box 294; Westerville, OH 43081; (614) 882-5919. Owner: Randy Kettering. Manager: Matthew Hexter.

LANDMARK RECORDING STUDIOS



PO Box 179; Chesapeake, OH 45619; (614) 867-5594. Owner: Stephen and Linda Hoffman. Manager: Stephen Hoffman.

LUNAR PRODUCTIONS



5750 Wena Way; Westerville, OH 43081; (614) 794-1451. Owner: Jeff Kratzman.

D.L. MAJHER INC.



3158 Morley Rd.; Shaker Hts., OH 44122; (216) 721-4444; FAX: (216) 721-6878. Owner: Pat Walker. Manager: Pat Walker.

MUSICAL RECORDING STUDIOS



780 Oakland Park Ave.; Columbus, OH 43224; (614) 267-3133; FAX: (614) 267-3135. Owner: J.W. Hull, B.P. Niederlander. Manager: Warren Hull.

OUTLAND MUSIC SERVICES



6896 Ginger Ave.; Enon, OH 45323; (513) 864-7963. Owner: Chris Lining. Manager: same. Engineers: Chris Lining. **Mixing Consoles:** Mackie 1604. **Audio Recorders:** (2) Alesis ADAT, Tascam 238. **Monitors:** Tannoy PBM 6.5. **Other Major Equipment:** Lexicon LXP-1 reverb, Roland SDE-1000 digital delay, Art MDC-2001 dynamics processor, Korg DRV-2000 reverb, Roland R-8 drum machine, Korg T1, Korg M1, Korg Wavestation A/D, Oberheim Drummer, CAO Equitek II mic, AKG C-1000 S, Commodore Amiga 2000, Music-X software, J.L. Cooper OataSync, Pioneer CT-W650 R cassette, Technics SVDA 10 DAT.

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Stritenberger. Engineers: Jeff Ling, Dan Smart, Rob Brumfiel, Rob Gough, Steve Albanese, Greg Jennings. **Dimensions:** Room 1: studio 30'x35', control 30'x27'. Room 2: control 25'x24', control 15'x16'. Room 3: studio 30'x40', control 30'x20'. Room 4: studio 15'x20', control 15'x17'. **Mixing Consoles:** (2) Sony/MCI 600 Series, (2) Amek/TAC Scorpion, Sound Workshop Logex. **Audio Recorders:** (3) Alesis ADAT, (2) Sony MCI JH-24, (2) Ditar MX-70, Fostex E-8, Fostex D-20 DAT, (7) Panasonic 3500 DAT, MCI JH-110, (12) Ditar 5050, (2) Nakamichi MR-1, (3) Yamaha C300. **Digital Audio Workstations:** Digidesign/Macintosh Pro Tools, Digidesign/Macintosh Sound Tools. **Monitors:** (2) Custom Steve Durr, (2) UREI 815, (2) UREI 813, (6) Yamaha NS-10, (4) Fostex RM780, (4) JBL 4311, (2) Tannoy NFM-8, (2) Eastern Acoustics. **Other Major Equipment:** Lexicon 224XL, (5) Lexicon PCM70, (2) Lexicon PCM60, Pultec EQH-2, Teltronix LA-2A, (4) Yamaha SPX90, (4) dbx 166, dbx 902, (4) dbx 903, (4) dbx 904, (2) dbx 165A, Alesis Quadraverb, Alesis 3630, Drawmer DL-231, Klark-Teknik DN780, Mark of the Unicorn MIDI Time Piece, Mark of the Unicorn Video Time Piece, Dpcode Studio 3, JL Cooper CS-10, Fostex 4030/4035. **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 lectures, students receive a broader study of audio engineering and music business practices. Our 6-studio recording complex features two automated 24-track studios, two 16-track studios, and 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 State Board of Proprietary School Registration. Please call for a free brochure.


REFRAZE RECORDING STUDIOS

R24 D2 
 2727 Gaylord Ave., Dayton, OH 45419; (513) 298-2727. **Dwner:** Mark A. Frazee, Jane Frazee. **Manager:** Gary King.

RIT CHILD RECORDING STUDIO

R16 
 22980 Rd. #148, Dakwood, OH 45873; (419) 594-3027. **Dwner:** Marvin Mays. **Manager:** same.

ROME RECORDING CO.

R24 
 3970 S. High St., Columbus, OH 43207; (614) 497-3970; FAX: (614) 683-3970. **Dwner:** Jack Casey. **Manager:** Jack Casey.

SCHARREN RECORDING STUDIOS

D48 
 123 10th St., Toledo, OH 43624; (419) 241-5432; FAX: (419) 242-8400. **Dwner:** Steve Scharren. **Manager:** Dan Schroeder.

SOUND IMAGES

R24 D8 
 602 Main St., Cincinnati, OH 45202; (513) 241-7475; FAX: (513) 241-4791. **Dwner:** Jack Streitmarter. **Manager:** Charlaime Martin.

SOUNDSPACE INC.

R24 D2 
 845 Dayton St., Yellow Springs, OH 45387; (513) 767-7353; FAX: (513) 767-7348. **Dwner:** Chris Hertzler.

STORMWATCH PRODUCTIONS


R16 D4 
 509 Schuyler Dr., Kettering, OH 45429; (513) 293-5280. **Dwner:** Allan Clarke. **Manager:** Allan Clarke.

SOUTH DAKOTA

CREATIVE COMMUNICATIONS COMPANIES

R24 
 3700 S. Hawthorne, Sioux Falls, SD 57105; (605) 334-6832; FAX: (605) 339-8820. **Dwner:** William Prines III.

FIDDLESTRING PRODUCTIONS

D16 
 HCR 89, Box 46, Hermosa, SD 57744; (605) 255-4235. **Dwner:** Stringbean Svenson. **Manager:** Stringbean Svenson.

 **TURN TO PAGE 173 FOR AN EXPLANATION OF RECORDING SERVICE SYMBOLS.**

WISCONSIN

BLUE WING AUDIO

R16 D2 
 3847 W. Helena, Milwaukee, WI 53209; (414) 351-2272. **Dwner:** Dale Rawson.

FAST FORWARD PRODUCTIONS

R32 D16 
 6909 Raywood Rd., Madison, WI 53713; (608) 222-5267; FAX: (608) 221-9307. **Dwner:** Mark A. Loeffelholz. **Manager:** Phil Fumo.


LAUGHING CAT STUDIO

R8 D16 
 11537 Walnut Ln., Fort Atkinson, WI 53538; (414) 563-9935; FAX: (414) 563-8342. **Dwner:** Al Jewer. **Manager:** Al Jewer.

MUSICHEAD RECORDERS

R48 D48 
 Hwy 50 East, PD Box 1089; Lake Geneva, WI 53147; (414) 248-9100; FAX: (414) 248-9641. **Dwner:** Dan Harjung, Rich Denhart. **Manager:** Dan Harjung. **Engineers:** Rich Denhart, Dan Harjung, Trevor Sadler, Patrick Murphy. **Dimensions:** Room 1: studio 35'x24', control 21'x20'. **Mixing Consoles:** SSL SL 4072 E Series console w/ G Series computer, 64 mono and 8 stereo. **Audio Recorders:** (2) Mitsubishi X-850 32-track, (2) Studer A800 MKIII 24-track, Mitsubishi X-86 2-track, (2) Studer A80 VU 1/2" 2-track or 1/4", Panasonic SV 3500 DAT, (3) Revox B 215 cassette. **Digital Audio Workstations:** Digidesign Sound Tools. **Monitors:** Lakeside two-way custom main monitors w/TAD components, (2) KRK 9000, (4) Yamaha NS-10M, (2) Tannoy NFM-8, (2) Auratone 5CV. **Other Major Equipment:** Adams-Smith 2600 SY sync system w/three syncro modules, EMT 140T plate reverb, Ecoplate 1 reverb, Publison LM 90, (2) AMS DMX 15-80, (2) AMS RMX 16, (4) Roland SDE-3000A DDL, Roland SRV-2000, Roland 555 chorus echo, Lexicon PCM 41 DDL, Lexicon PCM 42 DDL, Lexicon PCM70, Lexicon 480L, Lexicon 224XL, Lexicon Prime Time II, Lexicon Super Prime Time, (2) Yamaha REV7, Ursula Major Space Station, Eventide 910 Harmonizer, Eventide H3000 SE, MXR Flanger/Doubler, (2) Wendel Jr., Audio Technologies DMA-1, (2) Neve 1066 3-band, (2) Neve 1081 4-band, (8) Focusrite ISA 110, (2) GML 8200 parametric, (6) Pultec EQH-2, (2) Pultec EQP-1, (5) API 550A, (2) API 550, (5) Teltronix LA-2A, (2) dbx 160, (4) dbx 160X, (2) UREI LA-4, (4) UREI 1176, Tube-Tech CL-1A, (6) Drawmer DS201, (4) AKG C12 tube, (4) AKG C12A tube, (2) AKG C24 tube, AKG C60 tube. **Extended Equipment Description:** AKG 250 tube, Altec 639A, (2) Neumann KM253 tube, (2) Neumann KM254 tube, (2) Neumann M49 tube, (3) Neumann M50 tube, (2) Neumann 269 tube, (2) Neumann U47 tube, Neumann U67 tube, RCA 77Dx, (2) Schoeps 221B tube, (2) Sony C37A tube, Telefunken M251 tube, (2) B&K 4004, Altec Lansing 29B tube. **Specialization & Credits:** Formerly Royal Recorders, MusicHead Recording is considered to be the Midwest's premier recording and mixing facility. Located in Southern Wisconsin's Americana Lake Geneva Resort, MusicHead Recording offers a creative environment marked by natural beauty and solitude, yet it is only 90 minutes from the heart of Chicago. All there is to enjoy at the Americana Resorts is at the complete disposal of our clients. Some of the amenities include tennis and racquetball, swimming indoors or out, horseback riding, a Nautilus-equipped fitness center, two 18-hole championship golf courses, and skiing in the winter. MusicHead Recording can arrange transportation to and from Chicago's O'Hare and Milwaukee's General Mitchell Field airports. Special rates are available at many of the fine hotels and bed & breakfasts in the area. Some of our clients include: Queensryche, Red Hot Chili Peppers, Robert Plant, Adrian Belew, Skid Row, Gun's N' Roses, Ministry, Nine Inch Nails, Crash Test Dummies.


RENWOOD RECORDING STUDIO

R16 D2 
 3510 60th St., Kenosha, WI 53144; (414) 654-3376. **Dwner:** George Renner. **Manager:** George Renner.


SMART STUDIOS

R16 D24 
 1254 E. Washington Ave., Madison, WI 53704; (608) 257-9400; FAX: (608) 257-9600. **Dwner:** Smart Studios Inc. **Manager:** Brian Anderson. **Specialization & Credits:** Some recent clients include: Depeche Mode, Smashing Pumpkins, Gary Glitter, Charlie Crystle and Parrish Blue, U2, Stick, Black Market Flowers, The Rousers, My Sisters Machine, Spooner, EMF, The Cult, Marques Bovre and the Evil Twins, L7, Walt Mink, Paw. Majesty Crush, House of Pain, Robert Plant, Sunscreen, Nine Inch Nails, Young Fresh Fellows, Flowerhead, Tad, Gumball, Nirvana, Vanilla Trainwreck, Sprinkler, Overwhelming Colorfast, Crash Vegas, Chainsaw Kittens, Cherubs, East of Gideon, The Weeds, Die Kreuzen, Michael Penn, The Fluid.

SOUND SHOP RECORDING STUDIO

R16 D2 
 9250 N. Sleepy Hollow Ln., Bayside, WI 53217; (414) 352-2397. **Dwner:** Roger A. Roth. **Manager:** Roger A. Roth.

TORTURED YOUTH STUDIO

R8 
 PD Box 11543; Shorewood, WI 53211; (414) 372-1993. **Dwner:** Richard Hake. **Manager:** Richard Hake.

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ALBERTA

THE BEACH INC.



619 11th Ave. SE, Calgary, AB T2G 0Y8; (403) 237-6267; FAX: (403) 237-6128. Owner: L.J. Williamson. Manager: Darryl Allen. Engineers: Chris McIntosh, Enre Unal, Darryl Allen. Dimensions: Room 1: studio 21'x42', control 25'x25'. Room 2: studio 18'x12', control 25'x18'. Mixing Consoles: AMR 2400 116 input. Audio Recorders: Studer A80 MkII. (6) Alesis ADAT w/BR4 48-track. Foxtex D20B R-DAT, Foxtex E2 1/4" time code, Panasonic 3700 R-DAT, Studer B67 2-track 1/4". Digital Audio Workstations: Pro Tools 2.0, Studer Dyaxis. Monitors: Tannoy SM15 MkII, Peavey 308, TOA Cubes, Yamaha NS-10MB. Other Major Equipment: Eventide H3500 Ultra Harmonizer, Lexicon LXP-15, SPL Vitalizer SX2, (2) Lexicon LXP1, Peavey SDR 20/20, Alesis Quadverb GT, DigTech DSP 256 XL, Roland DEP5, (2) Peavey CDS2 comp/limit, Drawmer DL221, Symetrix 501, UREI 1176LN, Macintosh IIVx, Macintosh IICI; microphones: Neumann, Audio-Technica, EV, AKG, Sennheiser, Shure, Beyer, Yamaha.

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10534 109th St. (R), Edmonton, AB T5H 3B2; (403) 424-3063; FAX: (403) 425-2789. Owner: Gary Koliger. Manager: Gary Koliger.

WEST 11TH AUDIO



822 11th Ave. SW, Calgary, AB T2R 0E5; (403) 265-0258; FAX: (403) 266-0890. Owner: Lanny Williamson. Manager: Shannon Holmes. Engineers: John Iaquianta, Bruce Leiff, Enre Unal, Darryl Allen. Dimensions: Room 1: studio 12'x12', control 10'x16'. Room 2: studio 12'x12', control 12'x10'. Room 3: studio 20'x18' control 16'x12'. Mixing Consoles: AMR 1600 96-input 32x16x32, Remix Hill 40-input, Tascam 24x4x2, Mackie 1604, (2) Mackie 1202. Audio Recorders: (6) Alesis ADAT, Studer A80 MkII 16-track, (2) Panasonic SV-3700 R-OAT, (2) Panasonic 3500 R-OAT, Foxtex Model D20B time code DAT, Foxtex E2 time code 1/4", Studer B67 1/4", Ampex AG 440, Scully 280-4, Scully 280-8. Digital Audio Workstations: Dyaxis 1, Pro Tools 2.0. Monitors: Altec 604E custom, Tannoy SM12 MkII, (2) Yamaha NS-10M, (3) Peavey 308, Auratone, JBL 4311. Other Major Equipment: Adams-Smith Zeta-3B, (4) Sony 7020 3/4" video, (2) Sony SLV-676 1/2" video, Samsung Hi Fi video; Drawmer, UREI. Alesis compression; Mac, Atari, IBM computers; Crown, AB, Crest power amps; Lexicon, Yamaha, DigTech, Eventide,

Roland processors, Niche automation; Neumann, AKG, Beyer, EV, Audio-Technica, Shure microphones, full MIDI package w/interlock and Cubase, 450' soundstage.

BRITISH COLUMBIA

BASTION CITY MOBILE RECORDING LTD.



3760 Departure Bay Rd., Nanaimo, BC V9T 1C4; (604) 758-3424. Owner: B.C. Recording Ltd. Manager: Scott Littlejohn.

BULLFROG RECORDING STUDIOS



2475 Dunbar St., Vancouver, BC V6R 3N2; (604) 734-4617; FAX: (604) 733-0840. Owner: Bullfrog Recording Company Ltd. Manager: Maggie Scherf.

8TH AVENUE SOUND STUDIOS



66 W. 8th Ave., Vancouver, BC V5Y 1M7; (604) 673-8765; FAX: (604) 673-6787. Owner: Wayne Kozak. Manager: Cathy Kumpera.

LITTLE MOUNTAIN SOUND STUDIOS



201 W. 7th Ave., Vancouver, BC V5Y 1L9; (604) 873-4711; FAX: (604) 873-4718. Engineers: Darren Grahn, Delwyn Brooks, Mike Plotnikoff, Brian Dobbs. Dimensions: Room 1: 34'x50', 20'x21'; Room 2: 12'x15', 12'x15'; Room 3: 31'x33', 20'x21'. Room 4: 10'x20', 15'x20'. Mixing Consoles: SSL 4048E G Total Recall bar graphs, SSL 4056 8 stereo G Total Recall bar graphs. Audio Recorders: (3) Studer A-800 MkIII 2", Studer A-80 2", Studer A-80 1/2", Studer A-80 1/4", (3) Sony 3402 digital 2-track, (2) Sony cassette, (2) Nakamichi cassette, (2) Panasonic DAT. Monitors: UREI 813C LCRS, UREI 813A, (4) Yamaha NS-10, Auratone 18, Auratone 5C Sound Cube powered by Studer A68, Yamaha NS-10 sub system. Other Major Equipment: Baldwin 9' grand piano, Howard 6' piano, RX 17 drum machine, Hammond C3 organ, Leslie, Mesa/Boogie amp, Fender amp, (6) Lexicon effects PCM, Prime-time, (2) Yamaha reverb, (2) Yamaha effects processors, Eventide H3000, Eventide H910, Eventide Clockworks, Korg SDD 1000, Korg DRV 3000, Loft 440, Loft 450, dbx 160X, dbx 160XT, dbx 166, UREI 1176, UREI LA3A, Valley Dynomite, Valley Gain Brain, Drawmer DS201, Tube-Tech, Trident 33609, TC2240, 60 mics: Neumann, Sennheiser, AKG, Shure, Calrec.

MUSHROOM STUDIOS



1234 W. 6th Ave., Vancouver, BC V6H 1A5; (604) 734-1217. Owner: Charles Richmond. Manager: Valerie Biggin.

PERRY'S RECORDING STUDIO



711 Seymour St., Kamloops, BC V2C 2H4; (604) 828-8729 (TRAX). Owner: Douglas Perry. Manager: Douglas Perry.

POST MODERN SOUND INC.



1720 W. 2nd Ave., Vancouver, BC V6J 1H6; (604) 736-7474; FAX: (604) 738-7768. Owner: David Hoolg/Mark Scott. Manager: Mark Scott.

TURTLE MOBILE RECORDING INC.



#202-1505 W. 2nd Ave., Vancouver, BC V6H 3Y4; (604) 731-2446; FAX: (604) 732-0922. Owner: Larry Anshell. Manager: Larry Anshell.

VANCOUVER STUDIOS INC.



3955 Graveley Street, Burnaby, BC V5C 3T4; (604) 291-0978; FAX: (604) 291-6909. Engineers: Rod Michaels, Darren Grahn, Jason Mauza. Dimensions: Room 1: studio 27'x40', control 22'x24'. Room 2: studio 18'x26', control 18'x20'. Room 3: studio 12'x24', control 17'x20'. Room 4: studio 38'x40'. Mixing Consoles: SSL 4056 G Series w/Total Recall and Bar Graphs, Neve 8058, MCI JH-5000 w/automation. Audio Recorders: Studer A80 24-track analog, (3) Otari MTR-100 24-track analog, Otari MX-80 24-track analog, Otari MTR-12 2-track 1/2" w/center-track time code, Otari MTR-12 2-track 1/4" analog w/center-track time, Otari MX55 2-track 1/4" analog w/center-track time code, (3) Panasonic SV-3700 DAT, (2) Nakamichi MR-2 cassette, (4) Aiwa AD810 cassette. Sony PCM3402 2-track digital (DASH). Digital Audio Workstations: (2) Solid State Logic Screensound Units w/4.0/4.1 software, CD library. Monitors: (2) UREI 813C, Tannoy FSM, (2) JBL 4406, (5) Yamaha NS-10, (3) Auratone. Other Major Equipment: Yamaha grand piano, (7) TimeLine Lynx synchronizers, (2) TimeLine Lynx KCU controllers, Lexicon 480L, (8) external 1084 Neve strips, (2) AMS RMX16 reverb, (2) Tube-Tech PEQ1 EQ, Korg SDD-1000, (2) TC Electronic 2290/2240 EQ, (2) Eventide H3000 Harmonizer, UREI 1176 compressor, (6) Valley People gates/expanders, (2)

Drawmer gates, (2) John Hardy preamps, Aural Exciter, Korg DRV3000, (2) GML 8200 EQ, (2) Lexicon PCM70 effects processor, Yamaha SPX90 effects processor, Dolby SP24 SR 24-channel noise reduction, (2) Dolby 363 SR/A 2-channel, (4) BVU800 3/4" videotape recorder, (2) BVU950 3/4" videotape recorder, BVH2000 1" videotape recorder, JBL projection system, 70 mics: Neumann, Sennheiser, AKG, Calrec.

WHITE LINE LOCATION RECORDING LTD.



Box 594; Gibsons, BC V0N 1V0; (604) 885-0355; FAX: (604) 885-0355. Owner: David Kellin. Manager: David Kellin. Specialization & Credits: Tonemeister David Kellin is pleased to offer you the premier remote audio recording service in the Pacific Northwest and Western Canada. Whether you need 48 tracks for your next live CD release, a crystal-clear direct to stereo mix for a jazz or classical performance, or a live-to-air mix of your festival for a national television broadcast, our 35-ft. mobile and special remote packages offer the quality and reliability you demand, with the flexibility to configure to your unique needs and budget. Credits partial: the Tragically Hip, Colin James, The Pursuit of Happiness, David Foster, Leonard Cohen, the Vancouver Symphony, the Vancouver Bach Choir, Sheena Easton, Kenny Rogers, Coyote Moon, Crissy Steele, Michelle Petruccianni, Francois Houle, Anthony Braxton, Randy Bachman, Crash Test Dummies, Sven Gali, Anthony Davis, Dave Holland, Kashlin, and even Spinal Tap (live-to-air TV). Based in Vancouver, one of the largest film and television production centers in N.A., we also offer complete production coordination services for clients wishing television or film services.

NOVA SCOTIA

REEL TIME RECORDERS LTD.



1649 Hollis St., Ste. 501; Halifax, NS B3J 1V8; (902) 422-8567; FAX: (902) 425-7866. Owner: Chuck and Mary O'Hara. Manager: Chuck O'Hara.

ONTARIO

AIRWAVES AUDIO INC. RCRDNG. STUDIOS



15 Toronto St., lower level; Toronto, ON M5C 2E3; (416) 863-6881; FAX: (416) 867-9107. Owner: Al Staruch. Manager: C. Onyskiw.

EDDY BALTIMORE PRODUCTIONS



465 King St. #6; Toronto, ON M5A 1L6; (416) 364-9813. Owner: Edward Hutchison. Manager: Eddy Baltimore.

CHALET STUDIO



RR #4 Claremont; Toronto, ON L1Y 1A1; (905) 649-1360; FAX: (905) 649-2951. Owner: David Chester. Manager: Everett Ravestien.

CHERRY BEACH SOUND



16 Munition St.; Toronto, ON M5A 3M2; (416) 461-4224; FAX: (416) 461-4607. Owner: Carman Guerrieri. Manager: Carman Guerrieri. Specialization & Credits: For the past 10 years, Cherry Beach Sound has been located at the heart of Toronto's developing Lakeshore District. This complex features 10 rehearsal studios which are all HT, AC and alarmed; 24-track studio; digital editing suite; office space; hotel and transportation services; 10,000-sq.-ft. warehouse for use in film, video, recording, showcasing, and pre-tour rehearsal. Companies presently residing at Cherry Beach include a record company and a graphic arts studio. Cherry Beach Sound has provided its unique service for such celebrities as Kim Mitchell, Marc Jordan, Toronto Maple Leafs, Gowan, Alannah Myles, Killer Dwarfs, National Velvet, Manteca and Honeymoon Suite. Even

master filmmaker David Cronenberg used Cherry Beach Sound as a pivotal location for his critically acclaimed film *Naked Lunch*. Cherry Beach Sound is on the edge of today's multimedia facilities and is a mecca for all creative purposes.

COMFORT SOUND AUDIO MOBILE



26 Soho St., Ste. 390; Toronto, ON M5T 1Z7; (416) 593-7992. Owner: Doug McClement. Manager: Doug McClement. Engineers: Gabe Lee, Andrew St. George. Dimensions: Control room 8'x22'. **Mixing Consoles:** Neotek Elite 50 input. **Audio Recorders:** (2) Ampex MM1200 24-track, Tascam DA-30 DAT, Technics RS-1500US 2-track, Tascam C-3 cassette. **Monitors:** Tannoy NFM-8, Auratone. **Other Major Equipment:** (14) dbx 160 compressor, (2) dbx 165 compressor, (4) Drawmer DS-201 noise gate, Lexicon PCM60, Yamaha REV7 digital reverb, Yamaha 1500 digital delay, QSC power amp, Panasonic video monitor, Panasonic color camera, Clear-Com MS-210 Master Station, RCA VHS Hi-fi recorders, (2) BGW 100 power amp, Amcron D60 power amp, 500' 54-pair transformer isolated mic snake, SDLA 5kVA isolation transformer, Rane graphic EQ, (24) microphone, DI and etc.; (6) AKG K240 headphones, SMPTE time code reader. **Specialization & Credits:** Comfort Sound Mobile has over 1000 remote recordings to its credit over the past 15 years. We specialize in music television specials, awards shows, telethons and live albums. Clients include MTV, Sony Music (New York), CBC-TV, Showtime, Nickelodeon, PBS, Muchmusic, Disney and MCA. We've recorded Bryan Adams, Ozzy Osbourne, Glen Campbell, B.B. King, Celine Dion, Super Dave, The Police, K.d. lang, Living Colour, Elvis Costello, Tony Bennett, Spinal Tap, Randy Travis, Martin Short, Motorhead, Raffi, Steve Earle and Oscar Peterson. We can supply digital multitracks if required and our Neotek console is easily configured for 48 track recording and monitoring. We also have a 24-track airpact system which can be flown anywhere in the world. Chief remote engineer Doug McClement has done remotes in Spain, Nigeria, Kuwait, Germany, Israel, the U.S.A. and in every province in Canada. Our motto: "Quality, whether you want it or not!"



dB RECORDING STUDIOS
London, ON

dB RECORDING STUDIOS



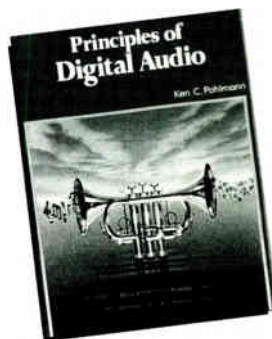
46 Charterhouse Crescent; London, ON N5W 5V5; (519) 659-9529; FAX: (519) 659-5030. Owner: Dan Brodbeck, Rick Brodbeck. Manager: Dan Brodbeck. Engineers: Dan Brodbeck, Geoff Warder, Brian Burnes, Wayne Burnes (maintenance). Dimensions: Studio 35'x23', control 20'x19'. Room 2: control 10'x15' (editing suite). **Mixing Consoles:** MCI JH-556-D 56-input w/ automation. **Audio Recorders:** Sony/MCI JH-24 24-track, (2) Alesis ADAT digital 8-track, Fostex E-2 2-track w/time code, Otari MX-5050B 2-track, (2) Tascam DA-30 DAT, (2) Nikko cassette decks. **Digital Audio Workstations:** Digidesign Sound Tools w/Mac IIx 1.2 gig hard drive. **Monitors:** Tannoy System 2.15 DMT, Tannoy PBM-6.5, Yamaha NS-10M, Peavey/AMR 3085. **Other Major Equipment:** Adams-Smith Zeta-3, (2) Yamaha REV7, (2) Roland SRV-2000, Roland SDE-2500, Alesis Quadraverb, Roland DEP-5, Roland R-880 w/GC-8 remote, Roland E-660 digital EQ, (2) Rane RE-27, Rane RE-14, Akai PE06 EQ, Tascam PE40 parametric EQ, (2) Symmetrix CU-150 comp, (2) Symmetrix 522 Exp. gate/comp., Furman LC-3A comp, Drawmer DS-404 4 Quad Gate, Drawmer M-500 dynamic processor, Aphex Type C w/ Big Bottom, (2) Macintosh w/Performer, Cubase, Alchemy, etc. Peavey DPM-V3, Roland S-550 sampler, Roland Super JX, Roland D330, E-mu Proteus I, E-mu Performance (mod), Korg Wavestation, Yamaha TG77, (2) Roland D-50, Kurzweil K-2000, Roland RD-1000, Moog Mini Moog, Yamaha C-P70 piano, Hammond M3 w/147 Leslie, Vox AC30 (1963) amp, Fender Deluxe (1953), (20) mics including AKG, Sennheiser, CAD, Shure, etc. (2) Atari 1040ST w/Cubase, Alesis D-4. **Specialization & Credits:** We specialize in music recording (album work). We cater to the musician with a collection of vintage guitar amps, guitar FX, and three drum kits. One of the biggest attractions is the live room—a big ambient room for the creation of natural acoustic sounds. With the recent addition of an MCI 56-input automated console, the studio has become one of the area's finest recording facilities. Please call for rates.

E.M.A.C. RECORDING STUDIOS



432 Rectory St.; London, ON N5W 3W4; (519) 667-3622; FAX: (519) 642-7453. Owner: Electronic Media Arts Corp. Manager: John Farrelly.

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EXPERIMENT IV RECORDING STUDIOS



133 Lawson Road; Scarborough, ON M1C 2J3; (416) 284-3794. Manager: Edward Agabeg.

GLENN GOULD STUDIO/CBC



250 Front St. W.; Toronto, ON M5W 1E6; (416) 205-5550; FAX: (416) 205-5551. Owner: Canadian Broadcasting Corp. Manager: Tom Shipton. Engineers: CBC recording engineers. Dimensions: Studio 90'x60', control 25'x28'W. Mixing Consoles: Neve Capricorn digital (provision for portable analog console connection). Audio Recorders: Sony 3348 48-track, (2) Studer A80 2-track analog, (2) Sony 7030 DAT. Monitors: Sota 2000, (2) near-fields.



INCEPTION SOUND STUDIO
Toronto, ON

INCEPTION SOUND STUDIO



3876 Chesswood Dr.; Toronto, ON M3J 2W6; (416) 630-7150; FAX: (416) 630-7157. Owner: Chad Irschick, Michael Roper, Jacques Poirier, Harold Kilianski. Manager: Harold Kilianski. Engineers: Chad Irschick, Harold Kilianski, Jacques Poirier, Michael Roper. Dimensions: Room 1: studio 20'x30', control 19'x22'. Room 2: studio 18'x26', control 19'x17'. Mixing Consoles: (2) MCI JH-536 w/Diskmix automation and Hardy preamp. Audio Recorders: (2) MCI JH-24 24-track w/Dolby SR, MCI JH-110, Ampex ATR-102, Otari MTR-12, Sony 5003, Fostex D20B DAT, Panasonic SV-3700 OAT, Sony OTC 1000 w/Apogee filters, (2) Aiwa HD-X1 OAT. Digital Audio Workstations: Sonic Solutions Sonic Station. Monitors: (2) State of the Art Electronic CF750, (2) Meyer Sound HD-1, (2) Dynaudio Acoustics M1, (4) Yamaha NS-10M, (4) Paradigm 3SE-Mini. Other Major Equipment: Adams-Smith 2600 w/controller, Lexicon 480L, (2) AMS RMX16, (2) Klark-Teknik ON780, (2) GML transformerless mic preamp, GML Moog 8200 parametric EQ, GML Dynamic Gain Control Series II, Tube-Tech CL 1A compressor, Tube-Tech PE18 program EQ, Publison IM90, Aphex Systems Compeller, Valley People 610, (2) dbx 160, UREI 1176LN, Drawmer DS-201 dual gate, Publison CL20C, Neumann/Stephen Paul U47 tube, Sanken CU41, AKG The Tube.

MASTER'S WORKSHOP



306 Rexdale Blvd., Ste. 7; Rexdale, ON M9W 1R6; (416) 741-1312; FAX: (416) 741-1894. Owner: Maclean Hunter Ltd. Manager: Jim Frank.

MCCLEAR PATHE RECORDING/POST STUDIOS



225 Mutual St.; Toronto, ON M5B 2B4; (416) 977-9740; FAX: (416) 977-7147. Owner: Robert Richards. Manager: Jane Rowan.

Pro Audio dictionaries and technical reference guides are available through the Mix Bookshelf catalog. Call toll-free (800) 233-9604 for your free copy.

METALWORKS RECORDING STUDIOS



3611 Mavis Rd., #3; Mississauga, ON L5C 1T7; (416) 279-4008; FAX: (416) 279-4006. Owner: Gil Moore. Manager: Alex Anronache.

MUSIC GALLERY



179 Richmond St. W.; Toronto, ON M5V 1V3; (416) 204-1080; FAX: (416) 204-1084. Manager: Paul Hodge.

NUMBER 9 SOUND



314 Jarvis St., Ste. 101; Toronto, ON M5B 2C5; (416) 348-8718; (800) 56-SOUND; FAX: (416) 348-9668. Owner: George Rondina. Jim Zolis. Manager: George Rondina.

ONE DESTINY ENTERTAINMENT GROUP



PO Box 52; Smiths Falls, ON K7A 4S9; (613) 284-8371; FAX: (613) 283-9850. Owner: One Destiny Entertainment. Manager: Peter Roney.

1:2:1 RECORDING



121 Logan Ave.; Toronto, ON M4M 2M9; (416) 406-4121; FAX: (416) 406-0319. Owner: Andrew S. Hermant. Manager: Melinda Skinner. Engineers: Andrew S. Hermant. Dimensions: Room 1: studio 15'x22', control 22'x20'. Mixing Consoles: Neotek Elan w/Optifile Automation. Audio Recorders: Studer A80 MkII w/Dolby SR, (2) Alesis 8-track ADAT. Digital Audio Workstations: Sound Tools. Monitors: Tannoy DMT 12, KRK 702, Yamaha NS-10. Other Major Equipment: Drawmer 1960 mic pre., (2) UREI LA-4A, BSS comp/limiter, Massenburg EQ, dbx comp/limiter, (4) Focusrite mic pre/EQ, Aphex Compeller/Exciter, Lexicon 300, Lexicon LXP-15, Tube EMT 140 ST, Yamaha C-7 grand piano, Fender Rhodes, Zeta III 2 machine lock, (2) Panasonic 3700 DAT, Mogami wire throughout.

PIZAZZUDIO RECORDING STUDIO



3615 Weston Rd., Unit 10; Weston, ON M9L 1V8; (416) 748-7440; FAX: (416) 748-6146. Owner: Barry Lubotta. Manager: Barry Lubotta. Engineers: Michael Jack, Karen Kane, Rob White, Joey Simoes, Kevin Taylor. Dimensions: Studio 22'x14', control room 22'x16'. Mixing Consoles: O&R Avalon 48x32 w/Optifile 3D automation, CAD Maxxon 2 56x8, TOA D4 + D4E 10x2 MIDI mixer. Audio Recorders: Studer A827 24-track analog w/Dolby Sr, (2) Akai A-dam 12-track digital recorder, Sony PCM 2700 DAT, Panasonic SV-3500 DAT, Denon D2000 DAT, Sony DTX-10 DAT, Fostex E22 1/2" analog recorder, Fostex M20 1/4" analog recorder, Apogee AD-500 converter, Madrigal Proceed digital-to-analog processor, (3) cassette decks. Digital Audio Workstations: Promaster 20 Digidesign, Apple Macintosh Quadra 800 w/24 meg. RAM, Apple IICI computer. Monitors: Quested Q108 near-fields, Genelec 1031A, Tannoy DMT15 MkII, Tannoy Little Gold, Hartman 8's. Other Major Equipment: Demeter VTMP 2A tube mic preamp, (2) API 512 mic preamps (512b), (2) API 550B EQ, (2) API 5256 compressor, UREI LA-22 compressor, Summit Audio TL 100 compressor, Klark Teknik DN500 compressor, Drawmer M-500 compressor, Demeter stereo tube direct box, Lexicon 300 reverb (3.0 software), Klark Teknik DN 780 reverb, Lexicon PCM-70 reverb, Ensoniq D4 effects processor, Yamaha SPX900, Drawmer DS-1104 quad noise gate, Harry Quan mic preamp, (2) B&K 4006 microphone, Neumann U67 mic, Bryston 4B, SPL Vitalizer, extensive MIDI gear w/Opco Studio 5 and Studio Vision software.

REACTION STUDIOS



48 McGee St.; Toronto, ON M4M 2K9; (416) 461-7869; FAX: (416) 461-7071. Manager: Ormond Jobin. Engineers: James Stewart, Ormond Jobin, Tom Heron. Dimensions: Room 1: studio 36'x22', control 24'x19'. Room 2: control 17'x14'. Mixing Consoles: SSL SL4040G, Soundcraft 1600. Audio Recorders: Studer 827, Studer A807, Studer O780 DAT, Panasonic SV-3700, (2) Nakamichi MR-1. Digital Audio Workstations: Studer Dyaxis. Monitors: State Of The Art CF2000, Yamaha NS-10M, Auratone, Tannoy 6.5. Other Major Equipment: Dolby SR XP24 24 channels, Dolby SR 363, Lexicon 480L, Lexicon PCM70, Lexicon PCM60, Lexicon PCM42, AMS DMX 1580, Eventide H3000, Yamaha REV7, Roland GP8, (2) Pultec EQ H-2, (2) ADL 1000 tube limiter, Neve Prism 2-EQ & 2-dynamic, (2) dbx 160X, Aphex Aural Exciter III, Aphex 612 gates, (2) API 550 EQ, (2) UREI 1176, dbx 263 de-esser, Valley People Gatebox, Alesis D4, Neumann U47 tube, AKG C-12 tube, Sony various, Sennheiser various, Shure various, RCA BK5, (4) Bryston 4B, (4) Bryston 3B, Steinway 7" grand piano, Hammond RT3 organ & Leslie, Roland S770 sampler w/16 meg. int.

ROUND SOUND STUDIOS INC.



60 Pippin Rd., #44-45; Concord, ON L4K 4M8; (905) 660-5815; FAX: (416) 463-8233. Owner: Gina Troiano. Manager: Danny Sustar.

SHAG SOUND STUDIO



PO Box 518 Stn. W.; 16 Nashville Ave.; Toronto, ON M6M 5C2; (416) 652-5485. Owner: Dennis Brunet. Manager: Dennis Brunet.

QUEBEC



A.R.P. TRACK PRODUCTIONS (AMBIANCE)
St. Anne-des-Lecs, QC

A.R.P. TRACK PRODUCTIONS (AMBIANCE)



34 Chemin des Olmes; St. Anne-des-Lecs, QC JOR 1B0; (514) 224-8363; FAX: (514) 224-8363. Owner: Nick Keca. Dimensions: Room 1: studio 20'x35', control room 20'x20'. Studio 2: 20'x18', control 10'x15'. Mixing Consoles: Neve custom 36x4x24 w/Optifile 3D automation. Audio Recorders: Studer A-80 Mark IV 24-track, (3) Alesis A-DAT, Sony/MCI JH-110 C 2-track, Panasonic 3700 DAT. Digital Audio Workstations: Sound Tools Editor w/Mac IIx 1/2 glg HD, Studio Vision. Monitors: (2) UREI 813C, Yamaha NS-10 M5, Auratone. Other Major Equipment: Lexicon 480L, Lexicon PCM70, (2) Lexicon LXP1 & LXP-5, (2) Drawmer 201 stereo gate, Drawmer 231 stereo comp., Alesis 3630 stereo comp., dbx 162 stereo comp., SPL Vitalizer Psycho EQ, (4) API 560 EQ 10-band, (2) UREI LA-4 comp., (2) Neve 2262 comp., Summit Audio stereo tube EQ, Tube-Tech PE16 tube EQ, dbx 900 rack, Neumann U87, KM140; AKG 414, D12, 451; Shure SM57, SM58, Sennheiser 421, 441; various musical and MIDI instruments. Specialization & Credits: Located in the beautiful Laurentin Mountains, 40 minutes north of Montreal. Classic Neve console with Optifile automation. Swiss chalet styled house and studio situated in a charming ski village, provides artists with an inspiring, creative environment. Some of our clients include April Wine, Ray Lyell, Honeymoon Suite, Jean Leloup, Haze and Shuffle. Full service and hospitality available. Great natural environment with wide range of recreational and culinary treats.

AUDIOBEC RECORDING



600 Port Royal W.; Montreal, QC H3L 2C5; (514) 384-6667; FAX: (514) 388-1488.

THE CINAR STUDIO CENTER



1207 Rue St. Andre; Montreal, QC H2L 3S8; (514) 843-7070; FAX: (514) 843-7080. Owner: Micheline Charest, Ronald A. Weinberg. Manager: Rene Laroche. Engineers: Alain Roy, Pierre L'Abbe, John Nestorowich, Benoit Coallier. Dimensions: Room 1: studio 25'x15', control room 18'x18'. Room 2: studio 25'x15'. Room 3: control room 15'x15'. Mixing Consoles: Solid State Logic 6056G w/Total Recall, Solid State Logic 4040G, Neotek Essence. 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. Digital Audio Workstations: (2) Studer Editech Dyaxis II. Monitors: TH/Kinoshita Model 5 driven by FM Acoustic, B&W 808, B&W 801. Other Major Equipment: Dolby SR 127 cards, Studer TLS synchronization system, Soundmaster, Audio Kinetics ES Eclipse (ES bus), (2) Lexicon 480L, Lexicon 300, (6) TC Electronic TC-2290, (2) Aphex compeller, Aphex Aural Exciter, (3) Drawmer M500, Publison IM90, (4) Lexicon PCM70, Yamaha SPX150, (2) Yamaha REV5, (2) Yamaha SPX90 II, (6) Alesis MIOlver II, (8) various processors, (2) Sony BVH-2000 1" video Type C, Sony BVH-2830 1" video Type C w/PCM, Callaway CE150.

IMUSON RECORDING STUDIOS



451 St. Jean St.; Montreal, QC H2Y 2R5; (514) 845-4142; FAX: (514) 845-2581. Owner: David P. Leonard. Manager: Mike Matlin.

LE STUDIO MOBILE



PO Box 367, Outremont Station; Montreal, QC H2V 4N3; (514) 273-6861; FAX: (514) 273-4605. Owner: Guillaume Bengle.

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1500 Papineau Ave.; Montreal, QC H2K 4L9; (514) 527-8671; FAX: (514) 526-1871. Manager: Paul Gagnon. Specialization & Credits: Sonolab is one of Canada's leading one-stop facilities. From laboratory to sound post-production services, we can fulfill your needs for any kind of projects—feature films, television series, commercials, corporate videos, music videos, etc. Services:

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STARBASE



2121 Hingston Avenue; Montreal, QC H4A 2H9; (514) 466-0876; FAX: (514) 335-6891. Owner: Frank Marino. Manager: Denyse Marino.



STUDIO MORIN HEIGHTS
Morin Heights, QC

STUDIO MORIN HEIGHTS



201 Perry St.; Morin Heights, QC J0R 1H0; (514) 226-2419; FAX: (514) 226-5409. Owner: L'Equipe Spectra. Manager: Judy Smith/Peter Holmes. Engineers: Simon Pressey, Peter Hay. Dimensions: Room 1: studio 44'x30', control 18'x15'. Mixing Consoles: Solid State Logic 4056 G Series w/Total Recall and Events Controller and 8 extra stereo patchable VCAs assignable to stereo bus, Neve 12-4 w/1073 EQ. Audio Recorders: Studer A800/II, Otari MTR-90/II, Studer A80 1/2", (2) Studer B67 1/4", (2) Studer A710 cassette, (2) Panasonic SV-3500/3700 DAT, Revox B225 CD player, (2) TimeLine Lynx Synchronizer. Monitors: Acoustic Research AR18S, Auratone 5PSC, Quested 412 MkII, Yamaha NS-10M, Macintosh Mc2300 near-field, Quested DX3000E main monitors, (2) Quested A900E main monitors, (3) Studer A68 headphone, (2) BBS FDS360 (modified) crossover (main monitors). Other Major Equipment: (8) Focusrite ISA110, (12) assorted equalizers, AMS RMX-16, (3) EMT 140 plate, Eventide H3500BV, Lexicon 224XL, Lexicon 480L, (7) assorted digital reverb/FX, (7) assorted DDL, M3529B tube limiter gate, (2) Neve 2254E, (3) RCA BAGA tube limiter, (2) UREI LA-3A, (2) UREI 1176N, assorted comp/limiters, (3) AKG C-414, (3) AKG C451E/CK1, Bruel & Kjaer 4007, (2) Bruel & Kjaer 4011, Microtech/Geffel UM92S, Neumann KM83i, (2) Neumann U47 Fet, (4) Neumann U67, (2) Neumann U87, (1) Schoeps/Studer SKM5V, (35) assorted dynamic mics, (6) assorted active DI, (18) assorted passive DI, Hammond B-3, (2) Leslie 122, Yamaha 9' concert grand piano. Specialization & Credits: The studio, our six-bedroom guest house and cottage are situated in the heart of the Laurentian resort area, with panoramic views of our private lake and forest. However, we are only 10 minutes from St. Sauveur, the major center of the region and less than an hour from Montreal. We have a cappuccino bar, satellite dish, games room, band office, boats on the lake and can arrange participation in a multitude of seasonal sports including skiing, golf and horseback riding. A wide range of in-house catering can be arranged or alternatively there are over 80 restaurants within a few minutes drive. Our 'tech shop' is well stocked and equipped, including an Audio Precision System One, and our maintenance coverage is full time. Apart from our spacious studio area, we can offer as an option the use of our large 'live room' for recording or as a real reverb chamber.

STUDIO PLACE ROYALE INC.



640 St. Paul W., Ste. 600; Montreal, QC H3C 1L9; (514) 866-6074; FAX: (514) 866-6147. Owner: S. Brown, N. Rodrigue. Manager: S. Brown. Engineers: N. Rodrigue, John Smith, J.P. Bissonette, G. Fernandes, S. Brown. Dimensions: Room 1: studio 25'x16', control room 20'x15'. Room 2: studio 25'x16', control room 15'x16'. Room 3: control room 16'x20'. Mixing Consoles: Amek Angela, Soundcraft TS-12, Allen and Heath Syncon, Allen and Heath 12/2. Audio Recorders: Otari MTR-90, Otari MX-70, (3) Otari MTR-12 CTTC, Sony/MCI JH-10 1" layback, Scully 280B F/T 1/4". Digital Audio Workstations: Studer Oaxis. Monitors: (2) Genelec, (2) Tannoy LGM 12", (2) Studer, (2) Tannoy NFM8, (2) Tannoy PBM-6.5. Other Major Equipment: (2) Soundmaster synchronizer, (26) Oolby SR, (2) Lexicon PCM70, (2) Neve comp/lim, (2) dbx 166 comp, (2) Harmonizer, Aphex Compellor, (2) Hardy MH1 mic preamp, UREI filter set, (2) Kepex gate, Orban de-esser, Ursa Major Space Station, SPL Vitalizer SX2, JBL video projection 10 ft., Roland S-50, Roland W-

30, (4) JVC VCR 1/2" sync, JVC 3/4" sync, Fostex R-DAT T/C, Sony R-DAT, Foley stage, SFX and stock music on CD.

STUDIO SEQUENCE INC.



43 cole de la Canoterie; Quebec, QC G1K 3X5; (418) 694-0111; FAX: (418) 694-1594. Owner: Simon Carpentier. Manager: Marie-Pierre Lapointe.

STUDIO ST.-CHARLES



85 Grant St.; Longueuil, QC J4H 3H4; (514) 674-4927; FAX: (514) 674-6929. Owner: Tele Metropole Inc. Manager: Lucie Theriault. Engineers: Paul Page (chief engineer), Clement Croteau, Martin Lizee. Dimensions: Room A: Studio 55'x27', control room 15'x27'. Room B: studio 11'x8.5', control room 10'x12. Mixing Consoles: Trident TSM 32x24 modified PSM modules, Soundtracs PC 16x16. Audio Recorders: Studer A827 24-track w/remote, Studer A820 2-track w/center-track time code, Studer A80-8 MkIII 8-track transformerless, Studer A80RC 2-track 1/2" super analog, Studer A80-2 2-track, Studer A810 2-track w/center-track time code, Panasonic digital SV-3700, (3) Alesis ADAT w/BRC remote. Monitors: (2) Quested 108, (2) Genelec S-30. Other Major Equipment: (2) Tri-concept Scimitar CMX S-600 (Cass 4) audio editor, (6) TimeLine Lynx w/updated chips, (26) Dolby SR and A, Lexicon 480L w/LARC, Lexicon PCM70 version 3.01, (2) Lexicon 224, Tube Tech LCA-2A compressor, Tube Tech MP 1A preamp, (3) Lexicon LXP-5, Lexicon LXP-1, AKG ADR-68K reverb & effects, TC Electronic TC-2290 32-sec sampling, Alesis MIDverb II, Ensoniq DP-4, Yamaha SPX90 II, Yamaha SPX1000, Eventide H3000SE, (2) Focusrite EQ ISA 115HD preamp, Vitalizer SX-2, UREI LA-4, Baldwin SD-10.9' concert grand piano.

STUDIO TEMPO



0707 Charlevoix St.; Montreal, QC H9W 6B3; (514) 937-9571; FAX: (514) 937-8201. Owner: Yves Lapiere. Manager: Carol Alexander. Engineers: Ian Terry, Denis Barsalo, Francois Arbour, Denis Cadieux. Dimensions: Room 1: studio 40'x22', control room 25'x22'. Room 2: studio 32'x20', control room 27'x20'. Mixing Consoles: Amek G2520 28x24x28x2, DDA AMR-24 44x24x24x2. Audio Recorders: Studer A-827 24-track, Studer A-800 MkIII 24-track, Otari MTR 12 II 4-track, (2) Studer A812-TC-UUK 3-track, Otari MTR-12 II 2TC 3-track, Otari MTR-12 II 2 2-track 1/2", (2) Studer B67 mic II 2/2 2-track, Otari MTR-10 II 2-track and mono, (2) Panasonic SV-3700 DAT. Monitors: Quested 412, house monitor 2x15" & ribbon tweeter, (2) Studer 2216, Yamaha NS-10M, (2) Auratone. Other Major Equipment: EMT 140 stereo reverb plate, Lexicon 480L reverb, Lexicon 224 reverb, (2) Lexicon PCM70 reverb, (3) Lexicon PCM42 ODL, (4) dbx 166 compressor, (4) dbx 160 compressor, (2) UREI 1176LN compressor, Drawmer tube compressor, (2) Yamaha REV7, (2) Yamaha SPX90 reverb, Yamaha REV5, (11) dbx 161 compressor, Dolby SR/A 24x42x2, (16) Dolby A, (2) CMX C280-1 audio editor, (6) Adams-Smith 2600 synchronizer, (2) JVC CR-8250U video 3/4", (60) microphones: Shure, AKG, Neumann, EV, etc.

STUDIO 270



270 Outremont Ave.; Montreal, QC H2V 3M1; (514) 270-4918; FAX: (514) 733-4760. Owner: 270 Corporation. Manager: Robert Langlois. Engineers: Robert Langlois, Luciano Arcarese. Dimensions: Room 1: studio 20'x12', control room 12'x12'. Mixing Consoles: Soundcraft 6000 Optifile 3D automated 52 inputs. Audio Recorders: Otari MX-80 24-track, Otari MTR-12 II CT 2-track SMPTE, Alesis 8-track ADAT, Panasonic SV-3500 DAT, Panasonic SV-3700 DAT, (2) Nakamichi MR-1, Sony PCM-601. Monitors: (2) UREI 809, (2) KRK 703, (2) Tannoy PBM-6.5, (2) Yamaha NS-10, Bryston 4B, Bryston 3B, Bryston 2B. Other Major Equipment: Dolby XP-24 NR 24-track SR, Dolby 363 NR 2-track A/SR, TC Electronic 2290, Lexicon PCM70, Lexicon PCM60, Klark-Teknik DN-780, Eventide H3000, Lexicon Prime Time, Lexicon LXP-1, Lexicon LXP-5, Lexicon MRC, Yamaha SPX90, (2) Yamaha REV7, Alesis MIDverb II, Drawmer DL-241B, (3) Drawmer DS-201, (4) dbx 160X, dbx Supergate 172, (2) UREI 1176LN, Symetrix 522, Roland DEP-5, (2) Drawmer 1960 tube, Orban 536A, Aphex Type B Aural Exciter, Barcus-Berry 802, (2) Tube-Tech PE-1C, Tube-Tech MP-1B, (2) Orban 642B, (2) Rane HC-6, AKG tube, (3) AKG 414EB, (2) AKG 451, (3) Neumann U87, Neumann TLM-170, Neumann U67 tube, Geffel UM-70S, Neumann U89, (40) other microphones, (7) keyboards, Fostex 4035/4030 sync system.

STUDIO VICTOR INC.



1050 Lacasse, Ste. C-214; Montreal, QC H4C 2Z3; (514) 932-9340; FAX: (514) 939-2893. Owner: Gaetan Pilon. Manager: Louis Pilon.

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MIX

TURN TO PAGE 179 FOR AN EXPLANATION OF RECORDING SERVICE SYMBOLS.

—FROM PAGE 128, SOUNDCHECK

Productions (Little Rock, AR) installed a new house system in the 784-seat John Davidson Theater in Branson, MO. A 40-channel Allen & Heath GL-3 mixer is used for front-of-house mix duties for Davidson's personal multimedia music show. A JBL loudspeaker system is another component of the recent sonic overhaul...JT Audio Systems (Evanston, IL) in conjunction with dB Sound (Des Plaines, IL) recently installed a new main and monitor system at the Avalon Club, a live music venue on Chicago's north side. The new system completes a major redesign of the club, bought early this year by owner Roger Jansen. A four-box EV MT-4 system (one mid-high and one low) is stacked on either side of the stage. Two Crown MA-1200 and two MA-600 amps are used for the mains, along with KT DN 360 EQs and an Allen & Heath SC console. Monitoring consists

of four EV FS-212 wedges powered by one Crown MA1200 and an MA2400. A Yamaha 2408M monitor console is also used.

VENUE SPOTLIGHT:

CASTLE FARMS

Ask facility manager Scott Hanson how things are going up at the Castle these days and he will tell you proudly that business has never been better. Originally built in 1918 for Sears & Roebuck owners Anna and Albert Loeb, Castle Farms Music Theater of Charlevoix, Mich., has been providing high-energy outdoor entertainment since 1976. Past summertime attractions such as Ozzy Osbourne, Alice Cooper and Def Leppard have earned this facility a well-deserved reputation as northern Michigan's only hard rock/heavy metal outdoor concert venue.

This summer, Castle Farms hosted a greater number and wider selection of musical and cultural events than ever, including the Moody Blues, Reba

McEntire, Kansas, the Sixth Annual Reggae Fun Splash, a weekend-long community arts festival and two days with the Royal Hanneford Circus, which has developed a show designed specifically for outdoor proscenium stages. "What we're trying to do," explains Hanson, "is diversify a bit and attract families—*attract everybody!*"

"We are a facility that is open to any promoter," Hanson continues. "We're wide open to try anything." And trying anything includes a new approach to ticket sales. With over a dozen events mapped out for the summer, The Castle was able to offer multiple-concert promotional ticket packages to concertgoers. Hanson credits the creative impetus behind this plan to Tom Trosz, VP of booking operations for Detroit's Pine Knob and Palace Music Theaters. The Castle opened its '93 season in June with Howie Mandel and had shows booked through September. ■ —*W. J. Duch*

MIX

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FEEDBACK

BITS AND PIECES

As a reader of *Mix* for many years, I enjoy the articles by the diversity of authors and engineers, particularly when there are distinct contradictions in the same issue. The July 1993 issue is a masterpiece, wherein Stephen St.Croix (with whom I enthusiastically agree) points out that there are no 20-bit A/D or D/A converters, only more accurate 16- to 17-bit devices.

In the same issue, Preston Smith enthuses over the 20-bit satellite transmission of a radio show from England to the U.S., using Sony PCM-601 encoders and decoders for the digital-to-video signal conversions. Unless the 601s are extremely modified for 20-bit operation (doubtful, if even possible), these devices are 16-bit encoders, regardless of how the data gets into the box, i.e., analog or digital bitstream. A zillion-bit converter will still get only 16 bits of audio data *maximum* into the 601 into the video stream! Likewise, the decoded output signal from the 601 will give the converter only 16 bits to work with.

While the Wadia is a good-sounding device, the transmission itself is limited to the digital-to-video encoder's capability. You can't put a 20-foot-tall truck through a 16-foot-tall tunnel without losing something. Other questions arise about the lack of external video sync reference capabilities and possible L/R channel timing errors in the 601, as in its brother device, the PCM-F1. More questions regarding the accuracy of the rounding of the "20-bit" data to 16-bit without redithering or algorithm conversions (like the Lexicon 20/20 performs) further muddies the picture, if not the sound. I think what we have here is a good

16-bit broadcast.

We have used Sony PCM-1610 and 1620 processors to do satellite broadcasts of the JVC Jazz Festival for WQCD in New York from our remote truck in Houston, so I have personal experience in this area. The ability to take video sync in and out of the 1610/1630 systems gives a higher level of reliability on the video carrier vs. the 601-type processors, and this might alleviate some of the error correction and noise problems Mr. Smith has experienced.

While I'm certain the show sounded great, let's not look for "20-bit mermaids" where there are none. St.Croix should continue to burst techie bubbles when he finds them.

John Moran
Digital Services
Houston, TX

MORE DAW FALLOUT

I am writing in rebuttal to Stephen St.Croix's ruthless trashing of affordable digital workstations.

I am a freelance writer, producer and engineer of radio commercials, with many large-agency clients. I am also the owner of what current lingo would describe as a "project studio." I do all my radio work on a Pro Tools system, which Mr. St.Croix seems to reserve his greatest disrespect.

After many years of cutting tape, laying elements to analog 8-track and mixing by hand, I consider this system the best investment I have ever made in my business. It's difficult to calculate how much time I've saved, but what most amazes me is the amount of precision I now have in editing, effects and music placement, and automated mixing. I'm not in an audiophile segment of the industry (I

doubt many working engineers are), but I do know that the sound quality of the system easily equals the 1-inch, 8-track with Dolby A that I was using.

Though Mr. St.Croix claims his viewpoint is not elitist, it most decidedly is. It also serves as an excellent example of why big-budget studios are losing work to smaller shops. I've worked in most of the large studios in my area (San Francisco), and I know for a fact that I can do radio work as well, as fast, and for considerably less money than anyone with a "high-end" workstation. Mr. St.Croix claims that my system is abominably slow. I find that it works every bit as fast as I can think. I suppose to those who think less when working, the speed may be more of an issue.

There are thousands of people doing excellent radio, music and soundtrack work who have neither bank financing nor wealthy relatives available to them. To paraphrase the old blues song, "If it wasn't for affordable workstations, we wouldn't have no workstations at all." I am able to offer my clients a top-quality product at a reasonable price and make a decent profit. Even if I had bank financing, I would consider buying a \$100,000 to \$200,000 workstation and charging my clients over \$200 an hour to mix a radio spot a serious overkill and ripoff for us both.

If you insist on keeping Mr. St.Croix on staff just to bad-mouth products that we can afford and he didn't invent, perhaps you should offer a balancing column in which an equally poor writer trashes all audio gear that costs more than a house.

Ian Hadley
Hadley Sounds
San Francisco

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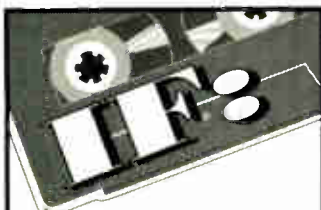
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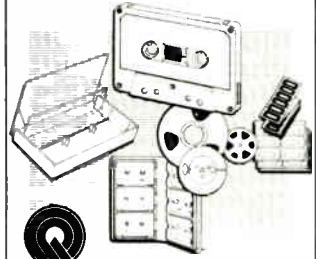
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 Rebuilt 3/4" VTRs for sale w/warranty (some w/address-track time code). JVC: CP5500U, CP5550U, CR6650, CR8200U, CR8250U & CR850U. Some remote-control units avail. Sony: VP-5000, VO-5600, VO-5800, VO-5850, BVU-800; BVU-820, 850, 870, 900, 920, 950. Beta CAM & one-inch. (212) 580-9551/(212) 206-1475. Fax: (212) 929-9082. Michael Temmer.

Miscellaneous

DIGIFON
 ISDN Audio Worldwide
STUDIO

DAVE IMMER 212-242-2534
 Suite 12-S.W. 12 E. 12th St., New York, NY 10003
 AMERICAN EXPRESS CARDS WELCOME

- CCS CD2000ED 20-18kHz ± .3dB
- Real Time TALENT Export & Import
- Interactive Production/Approval
- Sync Audio to Remote SMPTE
- SW56 Compatible
- MUSIC Production
- Competitive Rates



EQ Section

A warm, pristine, musical British sounding EQ because it is British. The four band EQ (with in/out switch), features fixed point shelving high and low frequencies with center points of 12 kHz and 70 Hz respectively. The peak/dip upper mid band sweep is continuously variable from 500 Hz to 15 kHz, lower mid band from 35 Hz to 1.5 kHz. All bands feature 14 dB boost and cut at 18 dB per octave.

Input Section

All inputs feature professional standard connectors: TRS balanced line inputs, and individual 48 V phantom power switch. Avoid embarrassing pops and fully power your hottest, power hungry microphones. Our talkback switch works as a 20 dB pad on the XLR connector allowing you to plug into balanced XLR line level inputs when you need to.



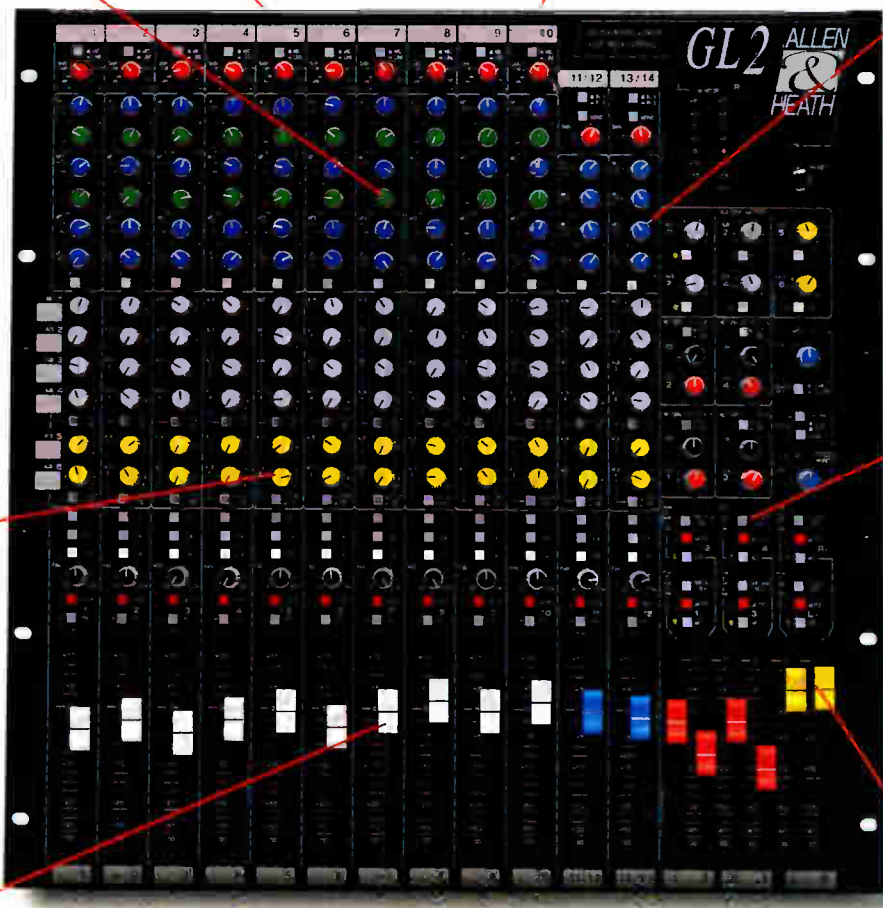
Output Section

All four discrete subgroup outputs, Left Right and Main outputs feature balanced XLR connectors and TRS insert points for simple interfacing of your finest signal processors.



Stereo Inputs

Stereo inputs featuring more I/O than most consoles have on their main inputs. With two sets of inputs per channel and an A/B switch, you have the flexibility to select between 4 stereo sources (keyboards, CD etc.). For multitrack recording, used in conjunction with the 4 AUX/tape returns, you can bring in 8 tracks of tape while still tracking all of the other 10 inputs and getting a full function studio monitor feed as well.



Auxiliary Section

6 discrete auxiliary sends (selectable pre-fader/EQ (for monitor or studio headphone sends) or post fader (for effects sends) Routing and flexibility not found on mixers costing hundreds, even thousands more!

AUX Reverse Routing

Full function stage monitor console, it's that simple! Routing switch via our unique feature reverse switch allows the console to be converted from a recording Front of House sound reinforcement board to an expandable 18.6 stage monitor console with a fully selectable 18.6 stage monitor.



Faders

As is the standard on all professional mixers of its class, the GL2 boasts full throw 100 mm Alps™ faders for thousands of hours of smooth seamless operation.



Master Section

Four discrete outputs (left and right outputs, and the AUX reverse section) allow the GL2 to adapt to any impulsive or even impact mixes.

Tools, not toys.

Under the Hood

Careful attention to detail, as in individual circuit boards for each channel, fastidious component selection, and the best of British engineering all combine to establish the highest standard of performance... performance that is daily tested and confirmed anew.

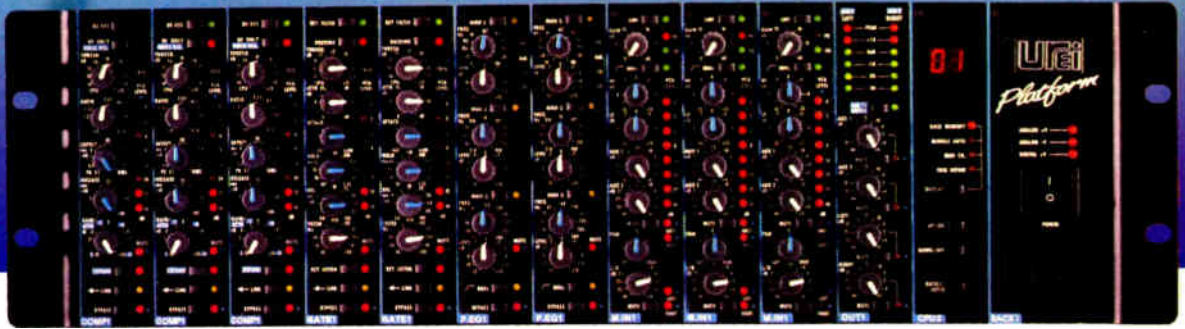
The GL2 is the world's first multi-function mixer perfectly suited for Front-of-House Monitor, and Multitrack recording. The ultimate in flexibility, this compact rackmount unit reveals a world of new opportunity -- the ability to adapt. In basic format, the GL2 is a 16 by 4 by 2 by 1 system for quality Front-of-House

mixing, but at the touch of a button it's instantly configured as a 16 by 6 plus 1 Stage Monitor mixer. Another button and you're set up for digital Multitrack recording. No fuss -- no compromise -- no limitations for the future. Our unique SYS-LINK™ system gives the GL2 the means to grow as you do. Designed and built by engineers that have been bringing you audio tools with the superb specifications and quality you expect from Allen & Heath. Audition the latest tool for the working professional at your nearest Allen & Heath dealer or call us for more information.

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Platform™



FAR MORE PERFORMANCE IN A LOT LESS SPACE.

Products with greater capability, flexibility and function are the very foundation of Platform. This extraordinary collection of modular components gives you the ability to create, without compromise, your own custom tailored signal processing system, to precise, even unusual, specifications. With its unique modular architecture, Platform gives you the building blocks necessary to construct a virtually perfect system in less space than ever before.

To achieve the same signal processing capability with currently available products, you'd need individual comp/limiters, expanders, gates, de-essers, mic/line inputs and outputs, noise reduction plus a fair amount of EQ. And at least 8 to 10 RU of precious space, maybe more. Only Platform lets you pack a fully integrated system, with optional remote control via RS-232, MIDI and switch closures, into a rugged 3RU rack mount chassis complete with a universal switching power supply (100-240 V range).

Perhaps the best news of all, Platform handles tight budgets with the same ease it fits the tightest space constraints. Platform is also sufficiently open-ended enough to adapt to future needs without functional or economic limitations. So, before you specify another signal processing system, give our FlashFax™ number a call at (818) 895-8190, reference #837, and get your copy of our Platform technical summary via fax.

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